CITY COUNCIL
LESLIE MCPHERSON, MAYOR
ANNA MCCOY, MAYOR PRO TEM
SHIRLEY MARCHMAN
MATTHEW MOMTAHAN
STEPHANIE WARMOTH
DANNY CARTER

City of Villa Rica

INT CITY MGR:JENNIFER HALLMAN
CITY CLERK: THERESA CAMPBELL
CITY ATTORNEY: NICOLE SMITH

571 W BANKHEAD HWY
VILLA RICA, GA. 30180
770.459.7000 | VILLARICA.ORG

MAYOR & COUNCIL WORK SESSION AGENDA

Holt-Bishop Justice Center, Municipal Courtroom, 101 Main Street
November 4, 2025 | 10:00 AM

Review of the Agenda (Mayor Leslie McPherson)

A. Governing Body (Mayor Leslie McPherson)

1. 10 Year Employee Anniversary Recognition — Louise Clark, Purchasing Director
2. 2026 City Council Meeting Calendar (Theresa Campbell, City Clerk)

B. Building Development (Tracy Jarvis, Director)

1. Appeal of Utility Capacity Decision—11 Gordon Street-Multifamily Development (Nic Griffin, Deputy Director of Building Development)
2. Development Services Update (Nic Griffin, Deputy Director of Building Development)

C. Human Resources (Tiffany Lanford, Director)

1. Proposed 2026 City-wide Holiday Schedule (Tiffany Lanford, Director)

D. Information Technology (Jim Chambers, CIO)

1. Support Agreement with Intradyne for Archiving (Jim Chambers, Director)

E. Community Development (Consultant Brecca Carter, Interim Director)

1. **VA-05-25**. Variance request by Milan Patel, for a reduction in the minimum masonry required on building facades and a reduction to the minimum lot size, in accordance with *Sec. 4-401 License issuance - Retail dealer building and inventory requirements, and Sec. 8.27 Liquor Stores, Package Stores, and Liquor Outlets*. For the property located at 113 Commons Way, Land Lot 131, District 6, also known as Parcel Number: V07 0100183. The property lot size is 0.98 +/- acres. The subject property is zoned Commercial Medium Density (C2) located within Carroll County, GA, Ward 2. **This is a Public Hearing.** (Shaun Myers, Planning and Zoning Administrator)

Individuals with disabilities who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of the meeting or the facilities are required to contact the City Clerk at 678-840-1229 10 business days before the scheduled meeting to allow the City to make reasonable accommodations for those persons.

CITY OF VILLA RICA

City Council Meeting
Agenda Item Cover Sheet

SUBJECT: Proposed 2026 Meeting Calendar
AGENDA DATE: November 11, 2025

DATE PREPARED: October 30, 2025
PREPARED BY: Theresa Campbell

AMOUNT: n/a
GL ACCOUNT #: n/a
FUNDING SOURCE: n/a
BUDGETED ITEM? n/a

PURPOSE: To approve the City Council's 2026 Meeting Calendar.

BACKGROUND: During calendar year 2025, the City Council Work Session meetings were held at 10:00 am and the Regular Meetings were held at 6:00 pm on the second Tuesday of the month. After input from the Mayor and Council we have put together 2 options for the 2026 Work Session and Meeting calendar. The first option is using the same schedule as 2025 and the second option changes back to a single day Work Session and Meeting schedule.

STAFF RECOMMENDATION: Approval of one of the 2 presented options.

MOTION OPTION:

I move to approve option _____ as the 2026 Meeting Calendar, as presented.

City of Villa Rica

Leslie McPherson ● Anna McCoy ● Shirley Marchman ● Matthew Momtahan ● Stephanie Warmoth ● Danny Carter

2026 City Council Meeting Schedule (Option 1)

DESCRIPTION	*WORK SESSION*	*MEETING*	*AGENDA DEADLINE*
January Monthly Meeting	1/6/26 at 10:00 am	1/13/26 at 6:00pm	1/2/26 at 12:00 pm
February Monthly Meeting	2/3/26 at 10:00 am	2/10/26 at 6:00 pm	1/29/26 at 12:00 pm
March Monthly Meeting	3/3/26 at 10:00 am	3/10/26 at 6:00 pm	2/26/26 at 12:00 pm
April Monthly Meeting	4/7/25 at 10:00 am	4/14/26 at 6:00 pm	4/2/26 at 12:00 pm
May Monthly Meeting	5/5/26 at 10:00 am	5/12/26 at 6:00 pm	4/30/26 at 12pm
June Monthly Meeting	6/2/2610:00 am	6/9/26 at 6:00 pm	5/28/26 at 12:00 pm
July Monthly Meeting	7/6/26 at 10:00 am	7/13/26 at 6:00 pm	6/2/26 at 12:00 pm
August Monthly Meeting	8/4/26at 10:00 am	8/11/26 at 6:00 pm	7/30/26 at 12:00 pm
Public Hearing #1 for Millage *Budget Workshop &* *Public Hearing # 2 for Millage*		8//26 at 10:00 am 8//26 at 10:30 am 8//26 at 6:00 pm	
Public Hearing #3 for Millage *Budget Workshop* *Public Hearing for 2026 Budget*		8//26 at 6:00 pm 8//26 at 6:00 pm 8//26 at 6:00 pm	
September Monthly Meeting	9/1/26 at 10:00 am	9/8/26 at 6:00 pm	8/27/26 at 12:00 pm
October Monthly Meeting	10/6/26 at 10:00 am	10/13/26 at 6:00 pm	10/1/26 at 12:00 pm
November Monthly Meeting	11/3/26 at 10:00 am	11/10/26 at 6:00 pm	10/29/26 at 12:00 pm
December Monthly Meeting	12/1/26 at 10:00 am	12/8/26 at 6:00 pm	11/26/26 at 12:00 pm

This option maintains the same schedule as 2025

City of Villa Rica

Leslie McPherson ● Anna McCoy ● Shirley Marchman ● Matthew Momtahan ● Stephanie Warmoth ● Danny Carter

2026 City Council Meeting Schedule (Option 3)

DESCRIPTION	***Work Session at 10:00 am MEETING 6:00 PM***	***AGENDA DEADLINE***
January Monthly Meeting	1/13/26	1/1/26 at 12:00 pm
February Monthly Meeting	2/10/26	1/29/26 at 12:00 pm
March Monthly Meeting	3/10/26	2/26/26 at 12:00 pm
April Monthly Meeting	4/14/26	4/2/26 at 12:00 pm
May Monthly Meeting	5/12/26	4/30/26 at 12pm
June Monthly Meeting	6/9/26	5/28/26 at 12:00 pm
July Monthly Meeting	7/13/26	6/2/26 at 12:00 pm
August Monthly Meeting	8/11/26	7/30/26 at 12:00 pm
Public Hearing #1 for Millage *Budget Workshop &* *Public Hearing # 2 for Millage*	8//26 at 10:00 am 8//26 at 10:30 am 8//26 at 6:00 pm	
Public Hearing #3 for Millage *Budget Workshop* *Public Hearing for 2026 Budget*	8//26 at 6:00 pm 8//26 at 6:00 pm 8//26 at 6:00 pm	
September Monthly Meeting	9/8/26	8/27/26 at 12:00 pm
October Monthly Meeting	10/13/26	10/1/26 at 12:00 pm
November Monthly Meeting	11/10/26	10/29/26 at 12:00 pm
December Monthly Meeting	12/8/26	11/26/26 at 12:00 pm

This option changes back to the work session and meeting happening on the same day

2026 CITY COUNCIL MEETING CALENDAR

Alternate Calendar options including past meeting calendars and 2026 holidays



2026 HOLIDAY COMPARISON

Holiday	City of Villa Rica	State of Georgia	Federal Government
New Year's Day	Jan 01, 2026	Jan 01, 2026	Jan 01, 2026
Martin Luther King, Jr. Day	Jan 19, 2026	Jan 19, 2026	Jan 19, 2026
Presidents' Day	Feb 16, 2026	Feb 16, 2026	Feb 16, 2026
Good Friday	Apr 03, 2026	Apr 03, 2026	
Memorial Day	May 25, 2026	May 25, 2026	May 25, 2026
Juneteenth National Independence Day		Jun 19, 2026	Jun 19, 2026
Independence Day	Jul 04, 2026	Jul 04, 2026	Jul 04, 2026
Labor Day	Sep 07, 2026	Sep 07, 2026	Sep 07, 2026
Columbus Day	Oct 12, 2026	Oct 12, 2026	Oct 12, 2026
Veterans Day	Nov 11, 2026	Nov 11, 2026	Nov 11, 2026
Thanksgiving Day	Nov 26, 2026	Nov 26, 2026	Nov 26, 2026
Day after Thanksgiving (State observed)	Nov 27, 2026	Nov 27, 2026	
Christmas Eve	Dec 24, 2026		
Christmas Day	Dec 25, 2026	Dec 25, 2026	Dec 25, 2026

MEETING SCHEDULES PAST 5 YEARS



2021 CITY COUNCIL MEETING SCHEDULE

DATE	MEETING
January 12, 2021	3:00 PM Work Session 6:00 PM Meeting
February 09, 2021	3:00 PM Work Session 6:00 PM Meeting
March 09, 2021	3:00 PM Work Session 6:00 PM Meeting
April 13, 2021	3:00 PM Work Session 6:00 PM Meeting
May 11, 2021	3:00 PM Work Session 6:00 PM Meeting
June 08, 2021	**No Meeting**
July 13, 2021	3:00 PM Work Session 6:00 PM Meeting
August 10, 2021	3:00 PM Work Session 6:00 PM Meeting
September 14, 2021	3:00 PM Work Session 6:00 PM Meeting
October 7, 2021	3:00 PM Work Session 6:00 PM Meeting
November 09, 2021	3:00 PM Work Session 6:00 PM Meeting
December 14, 2021	3:00 PM Work Session 6:00 PM Meeting



City of Villa Rica

2022 City Council Meeting Schedule



City of Villa Rica

2023 City Council Meeting Schedule



City of Villa Rica

2024 City Council Meeting Schedule



City of Villa Rica

2025 City Council Meeting Schedule

Year	Work Session / Meeting Time	Notes
2021	Work Sessions at 3:00 PM, Council Meetings at 6:00 PM.	No meeting in June.
2022	Work Sessions at 10:00 AM, Council Meetings at 6:00 PM.	No meeting in June.
2023	Work Sessions at 1:00 PM, Council Meetings at 6:00 PM.	No meeting in June.
2024	Work Sessions at 3:00 PM, Council Meetings at 6:00 PM.	No meeting in June.
2025	Work Sessions on the 1st Tuesday at 10:00 AM, Council Meetings on the 2nd Tuesday at 6:00 PM.	August included additional Budget and Millage Meetings added to regular schedule.

CITY COUNCIL MEETING COMPARISON BY YEAR FOR LAST 5 YEARS

2025–2026 SCHOOL BREAKS (CARROLL & DOUGLAS COUNTY, GA)

SCHOOL SYSTEM	FALL BREAK	CHRISTMAS / WINTER BREAK	SPRING BREAK
Carroll County Schools	Oct 13–17, 2025	Dec 22, 2025 – Jan 2, 2026	Apr 2–7, 2026
Douglas County Schools	Oct 13–17, 2025	Dec 22, 2025 – Jan 2, 2026	Apr 6–10, 2026

OPTION 1 – MAINTAIN 2025 SCHEDULE

- Work Session: 1st Tuesday @ 10 AM
- Council Meeting: 2nd Tuesday @ 6 PM
- Agenda Deadline: Thursday before Work Session
- Notes: Keeps the same pattern as 2025

OPTION 2 – THURSDAY BEFORE 2ND TUESDAY

- Work Session: Thursday before 2nd Tuesday @ 10 AM
- Council Meeting: 2nd Tuesday @ 6 PM
- Agenda Deadline: Friday before Work Session
- Notes: Moves Work Session closer to meeting for efficiency

OPTION 3 – SAME-DAY SESSIONS

- Work Session & Meeting: Same Day (2nd Tuesday)
- Work Session @ 10 AM, Meeting @ 6 PM
- Agenda Deadline: Friday before meeting
- Notes: Condenses both sessions to a single day for simplicity

CITY OF VILLA RICA

City Council Packet

SUBJECT: Gordon Street Apartments – Appeal of Water and Sewer Capacity Denial – Discussion Only

CITY COUNCIL AGENDA DATE: November 11, 2025

DATE: October 30, 2025

PREPARED BY: John Bain

FUNDING SOURCE: N / A

PURPOSE: Applicant Appeal of denial of water and sewer capacity for the Gordon Street Apartment Project.

BACKGROUND: Applicant previously submitted, and was approved for a multifamily development project at 11 Gordon Street, Villa Rica, Georgia. With no activity at the site or on the project, the previous capacity availability letter expired, requiring the applicant to resubmit for capacity.

City ordinances and development regulations require a review of available capacity and conveyance prior to providing capacity for any project. By ordinance, if current demands and the addition of future approved projects result in a demand greater than 60% of capacity, the project is deemed unable to be served, unless the project can assist in some way the resolution of the capacity and/or conveyance. System modeling also concluded that the existing water and wastewater conveyance system was undersized for the proposed project and would need to be upgraded to provide sufficient water flow and pressure and wastewater conveyance.

Through modeling, the current and future capacity demand on wastewater treatment is at 91%, and the conveyance system is undersized and cannot convey the proposed demand of the project.

STAFF RECOMMENDATION:

MOTION:

I move to deny the appeal of the capacity request.

I move to approve the appeal of the capacity request, conditioned upon city approval of a development agreement that addresses the developer requirement to upgrade the existing water and sewer infrastructure conveyance to and from the site necessary to serve the project**.**

Utilities Department.
571 W Bankhead Hwy,
Villa Rica, GA 30180.
jbain@villarica.gov.
678-840-1401.

Utilities Department

Appeal of Utility Capacity Decision

Application Submittal Checklist

This form is provided for applicants seeking to appeal a determination by the City of Villa Rica Utilities Director that adequate water or sewer capacity is not available to serve a proposed development. Pursuant to *Appendix A, Section 200(E)* of the City's Development Regulations, an applicant may appeal such a determination to the City Council. The Council will consider the appeal based on evidence presented by the applicant and the testimony or report of the Utilities Director or their designee.

☑ **1. Completed Application Form.**
Submit the completed and signed application form included in this packet.

☑ **2. Original Submittals.**
Copies of all materials upon which the decision being appealed was based.

☑ **3. Written Decisions.**
Copies of any written decisions that are the subject of the appeal.

☑ **4. Appeal Basis.**
A letter describing the reasons for the appeal noting specific sections of this Ordinance and other standards applicable in the City of Villa Rica upon which the appeal is based.

☑ **5. Additional Exhibits**
Any other information or exhibits that are substantial to the request, or if required by the Utilities Director.

Utilities Department.
571 W Bankhead Hwy,
Villa Rica, GA 30180.
jbain@villarica.gov.
678-840-1401.

Appeal of Utility Capacity Decision

Application Form

Applicant Information

Name Caleb Harrison - PEC	**Phone** 678.684.6224
Mailing Address 350 Research Ct, St 200, Peachtree Corners, GA 30092	**Email** charrison@pec.plus

Property Information

Address 11 Gordon St, Villa Rica, GA 30180	**Parcel ID** V050150030
Acreage 18.28ac	**Lot Number** 161
Zoning CMU	**Property's Use** Multifamily development
Permit Number / Request Denied Water and sewer service capacity denial	
Appeal Request Water and sewer service capacity approval	

Notary Attestation

I, Mary Erin Fantom, hereby state that the above statements and statements contained in the documents submitted with this application are true and correct to the best of my knowledge. I hereby request processing of this application.

Executed in Peachtree Corners (City), GA (State).

Signature of Applicant	Printed Name	Date
[signature]	Caleb Harrison	10/30/25

Subscribed and sworn before me this 30th day of October. 2025

Signature of Notary Public	Name of Notary Public	My Commission Expires
[signature]	Mary Erin Fantom	11/20/2025

MARY ERIN FANTOM
NOTARY
EXPIRES
GEORGIA
November 20, 2025
PUBLIC
GWINNETT COUNTY

For Official Use Only

Case #	
Application Accepted by	Acceptance Date
City Council's Determination	Council Hearing Date

ORIGINAL SUBMITTAL:
8/22/25 SEWER CAPACITY REQUEST

CITY COUNCIL
LESLIE MCPHERSON, MAYOR
DANNY CARTER
SHIRLEY MARCHMAN
MATTHEW MOMTAHAN
STEPHANIE WARMOTH
ANNA MCCOY

City of Villa Rica

INTERIM CITY MANAGER: JENNIFER HALLMAN
CITY CLERK: THERESA CAMPBELL
CITY ATTORNEY: KEVIN DRUMMOND

571 W BANKHEAD HWY
VILLA RICA, GA 30180
770.459.7000 | VILLARICA.ORG

Complete the application below, sign, and return. Note that review may take up to 30 days.

The City of Villa Rica Code of Ordinances, Appendix A – Developmental Regulations, Section 200 includes the following utility availability statement:

The City shall not approve any applications for rezoning, annexation, special use permits, building permits, land disturbance permits or approve any new residential construction or any commercial development without a statement that adequate utility is available from the Utilities Director. Utility availability statements shall be valid for a period of one year from the date of its issuance and shall not be transferable.

COMMERCIAL WATER AND SEWER CAPACITY REQUEST APPLICATION

Date of Application: 08.22.2025

Name of Applicant: PEC+

Is the location of this development inside Villa Rica City Limits? Yes

Parcel Number(s): V05 0150030

Street Address: 11 East Gordon Street, Villa Rica, GA 30180

Project Information

Project Name: Gordon Street

Project Location: 11 East Gordon Street, Villa Rica, GA 30180

Project Type (Residential, Commercial, Industrial): Commercial

Project Description: Multifamily development with 318 units and a civic public area

If Residential, Number of Residential Units Proposed: 318

Will This Project be developed in Phases?: No

If yes, How Many Phases are Projected?: _____

If capacity is granted for one phase of a project, it in no way guarantees or assures capacity will be available for future phases. Any additional capacity not provided in this request will require additional application submissions and reviews prior to approval.

Is the development intended to be a public or a private development (interior roadways, utilities, infrastructure): Public

If application is for non-domestic wastewater, applicant must attach additional detailed information as to the characteristics of the wastewater, including but not limited to BOD5, TSS, COD, pH, fats, oils, and grease, as well as any federally or state identified priority pollutants, including but not limited to nitrogen and phosphorus. A separate individual approval shall be required for non-domestic use.

Flow Information

= 127 1BR * 110 + 159 2BR * 155 + 32 3BR * 205 + 1 4825sf clubhouse / 1000 * 50
= 13970 + 24645 + 6560 + 242 = 45417 gpd

Project Average Daily Flow, gpd: _____

Project Peak Daily Flow, gpd: = 45417 gpd * 3 = 136251 gpd (including amenity clubhouse)

Please attach worksheet including calculations on how this data was derived.

The proposed flow rate(s) of the development in gallons per day (gpd) of the new development will be calculated and peaked with a factor of 3.

Estimated Month Flow to Utility System Begins (mm/yyyy): 07/2026

Are any additional amenities and/or structures requiring water/sewer connectivity: Yes

Description of additional amenity/structure: Amenity clubhouse

Estimated average and peak daily flows of amenity/structure: = 1 4825sf clubhouse / 1000 * 50 = 242 gpd * 3 = 726 gpd

Will the construction / modification of a lift station be required: No

---

Engineer Information

Company Name: PEC+

Address: 350 Research Court, Suite 200

Contact Name: Matt Kaczenski & Caleb Harrison

City, State, Zip Code: Peachtree Corners, GA 30092

Phone Number: 678.684.6205 | 678.684.6224

Email Address: MKaczenski@pec.plus
CHarrison@pec.plus

The Utility may require additional information depending upon the type of development and/or system requirements.

All applicants must comply with all terms and provisions of the City of Villa Rica Development Regulations and Code of Ordinances. All proposed projects must be coordinated through the city's Community Development department prior to start of any activities on the property.

This application is not transferable or assignable to any party.

Applicant Agreement:

The filing of this form by the applicant in the capacity of legal representative of the owner of the parcel or property, places no obligation on The City of Villa Rica, its officers, employees, or agents to issue a building permit, conditional or otherwise. Any misrepresentation in this application, failure to provide new, revised, or updated information regarding the estimated water and sewage demand, or subsequent violation of the conditions of the capacity certification process, will result in revocation of the building permit and other remedies available in equity and law for the improper filing of legal documents. I (the applicant) further acknowledge and agree to comply with all the terms and provisions of the City of Villa Rica Code of Ordinances and Development Regulations (as amended from time to time).

Applicant Signature: _____

Address: 350 Research Court, Suite 200, Peachtree Corners, GA 30092

Phone #: 678.684.6205 Email: charrison@pec.plus

For Department Use Only

This application for capacity certification is hereby:

[ ] APPROVED IN THE AMOUNT OF _____ FOR IMMEDIATE USE

[ ] DISAPPROVED

[ ] CONDITIONALLY APPROVED IN THE AMOUNT OF _____ - PENDING:

_____

_____

ADDITIONAL COMMENTS:

_____

_____

Utility Representative: _____

Title: _____

Date: _____

Land Use Category and Facility Type		Annual Average Daily Unit Flow (gpd)	Per Unit	Additional categories that may be required
(Column A)		(Column B)	(Column C)	(Column D)
Residential Development and Related				
Residential Development Type	*Apartment/Condo Studio or 1-bedroom*	110	per unit	Pool, fitness center, clubhouse facilities
	Apartment/Condo 2-bedroom	155	per unit	
	Apartment/Condo 3-bedroom	205	per unit	
	Apartment/Condo more than 3 bedroom	250	per unit	
	Single Family Home	250	per unit	
	Townhome	250	per unit	
	Mobile Home	250	per unit	
	Senior Living / Assisted Living - 1 bedroom Apartment	110	per unit	
	Group Home	110	per resident, max capacity	
Clubhouse/Neighborhood Amenity Center		50	per 1000 sq ft	Food service, office, pool, fitness
Country Club		175	per 1000 sq ft	Food service, office, gymnasium, pool
Pool/Aquatic Center		5 25	per swimmer, max capacity per employee	Food service, office, retail
Fitness Center		500	per 1000 sq ft	Food service, pool
Gymnasium		500	per 1000 sq ft	Food service, pool
Tennis, Soccer, Basketball Facility		10	per person, max capacity	Food service, pool

WRITTEN DECISIONS:
9/16/25 CAPACITY REQUEST DENIAL
FROM JOHN BAIN

From: John Bain <jbain@villarica.gov>
Sent: Tuesday, September 16, 2025 2:18 PM
To: Caleb Harrison <CHarrison@pec.plus>
Cc: Nic Griffin <dgriffin@villarica.gov>; Brecca Carter <bcarter@villarica.gov>; Tracy Jarvis <tjarvis@villarica.gov>; Shaun Myers <smyers@villarica.gov>
Subject: Gordon Street Development

Good afternoon,

Per the requirements set forth in the City's Code of Ordinances, Section 200 of Appendix A, Application and Plan Review General Requirements, the capacity application for water and sewer service on parcel# V05-0150030, located at 11 East Gordon Street, is denied.

The application denial is based on the following requirements:

1. The existing water system infrastructure lacks the sufficient provision of available fire flow as stated in item (B)(i).
2. The existing water system lacks the capacity to provide the requested average and peak daily flow as requested in the application.
3. The existing wastewater conveyance system lacks the capacity to serve the site, (B)ii, ii(c), ii(d).
4. The existing wastewater treatment facilities lack the capacity to serve the site (B)ii.

Please feel free to reach out with any additional questions or comments. A 'next steps' discussion may be warranted.

Thanks,
John

JOHN BAIN
Interim Deputy City Manager/
Utilities Director
678-840-1401(office)
470-249-6723 (cell)
jbain@villarica.gov
571W Bankhead Hwy.
www.villarica.gov

CITY COUNCIL
LESLIE MCPHERSON, MAYOR
DANNY CARTER
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STEPHANIE WARMOTH
ANNA MCCOY

City of Villa Rica

INTERIM CITY MANAGER: JENNIFER HALLMAN
CITY CLERK: THERESA CAMPBELL
CITY ATTORNEY: KEVIN DRUMMOND

571 W BANKHEAD HWY
VILLA RICA, GA 30180
770.459.7000 | VILLARICA.ORG

Complete the application below, sign, and return. Note that review may take up to 30 days.

The City of Villa Rica Code of Ordinances, Appendix A – Developmental Regulations, Section 200 includes the following utility availability statement:

The City shall not approve any applications for rezoning, annexation, special use permits, building permits, land disturbance permits or approve any new residential construction or any commercial development without a statement that adequate utility is available from the Utilities Director. Utility availability statements shall be valid for a period of one year from the date of its issuance and shall not be transferable.

COMMERCIAL WATER AND SEWER CAPACITY REQUEST APPLICATION

Date of Application: 08.22.2025

Name of Applicant: PEC+

Is the location of this development inside Villa Rica City Limits? Yes

Parcel Number(s): V05 0150030

Street Address: 11 East Gordon Street, Villa Rica, GA 30180

Project Information

Project Name: Gordon Street

Project Location: 11 East Gordon Street, Villa Rica, GA 30180

Project Type (Residential, Commercial, Industrial): Commercial

Project Description: Multifamily development with 318 units and a civic public area

If Residential, Number of Residential Units Proposed: 318

Will This Project be developed in Phases?: No

If yes, How Many Phases are Projected?: _____

If capacity is granted for one phase of a project, it in no way guarantees or assures capacity will be available for future phases. Any additional capacity not provided in this request will require additional application submissions and reviews prior to approval.

Is the development intended to be a public or a private development (interior roadways, utilities, infrastructure): Public

If application is for non-domestic wastewater, applicant must attach additional detailed information as to the characteristics of the wastewater, including but not limited to BOD5, TSS, COD, pH, fats, oils, and grease, as well as any federally or state identified priority pollutants, including but not limited to nitrogen and phosphorus. A separate individual approval shall be required for non-domestic use.

Flow Information

= 127 1BR * 110 + 159 2BR * 155 + 32 3BR * 205 + 1 4825sf clubhouse / 1000 * 50
= 13970 + 24645 + 6560 + 242 = 45417 gpd

Project Average Daily Flow, gpd: _____

Project Peak Daily Flow, gpd: = 45417 gpd * 3 = 136251 gpd (including amenity clubhouse)

Please attach worksheet including calculations on how this data was derived.

The proposed flow rate(s) of the development in gallons per day (gpd) of the new development will be calculated and peaked with a factor of 3.

Estimated Month Flow to Utility System Begins (mm/yyyy): 07/2026

Are any additional amenities and/or structures requiring water/sewer connectivity: Yes

Description of additional amenity/structure: Amenity clubhouse

Estimated average and peak daily flows of amenity/structure: = 1 4825sf clubhouse / 1000 * 50 = 242 gpd * 3 = 726 gpd

Will the construction / modification of a lift station be required: No

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Engineer Information

Company Name: PEC+

Address: 350 Research Court, Suite 200

Contact Name: Matt Kaczenski & Caleb Harrison

City, State, Zip Code: Peachtree Corners, GA 30092

Phone Number: 678.684.6205 | 678.684.6224

Email Address: MKaczenski@pec.plus
CHarrison@pec.plus

The Utility may require additional information depending upon the type of development and/or system requirements.

All applicants must comply with all terms and provisions of the City of Villa Rica Development Regulations and Code of Ordinances. All proposed projects must be coordinated through the city's Community Development department prior to start of any activities on the property.

This application is not transferable or assignable to any party.

Applicant Agreement:

The filing of this form by the applicant in the capacity of legal representative of the owner of the parcel or property, places no obligation on The City of Villa Rica, its officers, employees, or agents to issue a building permit, conditional or otherwise. Any misrepresentation in this application, failure to provide new, revised, or updated information regarding the estimated water and sewage demand, or subsequent violation of the conditions of the capacity certification process, will result in revocation of the building permit and other remedies available in equity and law for the improper filing of legal documents. I (the applicant) further acknowledge and agree to comply with all the terms and provisions of the City of Villa Rica Code of Ordinances and Development Regulations (as amended from time to time).

Applicant Signature: CAH

Address: 350 Research Court, Suite 200, Peachtree Corners, GA 30092

Phone #: 678.684.6205 Email: charrison@pec.plus

For Department Use Only

This application for capacity certification is hereby:

[ ] APPROVED IN THE AMOUNT OF _____ FOR IMMEDIATE USE

[X] DISAPPROVED

[ ] CONDITIONALLY APPROVED IN THE AMOUNT OF _____ - PENDING:

ADDITIONAL COMMENTS:

Disapproval is based on requirements found in Section 1A.200 Application and Plan Review General Requirements, Items B, B(i), B(i)(c), B(ii), B(ii)(c,d,e).

Utility Representative: John Bain

Title: Interim Deputy City Manager / Utilities Director

Date: September 16, 2025

Land Use Category and Facility Type		Annual Average Daily Unit Flow (gpd)	Per Unit	Additional categories that may be required
(Column A)		(Column B)	(Column C)	(Column D)
Residential Development and Related				
Residential Development Type	*Apartment/Condo Studio or 1-bedroom*	110	per unit	Pool, fitness center, clubhouse facilities
	Apartment/Condo 2-bedroom	155	per unit	
	Apartment/Condo 3-bedroom	205	per unit	
	Apartment/Condo more than 3 bedroom	250	per unit	
	Single Family Home	250	per unit	
	Townhome	250	per unit	
	Mobile Home	250	per unit	
	Senior Living / Assisted Living - 1 bedroom Apartment	110	per unit	
	Group Home	110	per resident, max capacity	
Clubhouse/Neighborhood Amenity Center		50	per 1000 sq ft	Food service, office, pool, fitness
Country Club		175	per 1000 sq ft	Food service, office, gymnasium, pool
Pool/Aquatic Center		5 25	per swimmer, max capacity per employee	Food service, office, retail
Fitness Center		500	per 1000 sq ft	Food service, pool
Gymnasium		500	per 1000 sq ft	Food service, pool
Tennis, Soccer, Basketball Facility		10	per person, max capacity	Food service, pool

APPEAL BASIS:
LETTER OF INTENT

Planners & Engineers Collaborative+

350 RESEARCH COURT
SUITE 200
PEACHTREE CORNERS, GA 30092

P: 770.451.2741
F: 770.451.3915

10/29/2025

City of Villa Rica
206 North Avenue
Villa Rica, GA 30180

Re: **Water and Sewer Capacity Denial**
Planners and Engineers Collaborative, Inc. Project No. 21217.00 (Gordon St)

To Whom it may Concern,

This letter is intended to serve as an appeal basis for a water and sewer capacity denial received from Villa Rica on 9/16/25.
PEC worked as the civil engineer on the aforementioned project on behalf of Bryan Flint and Arrowhead Development. The planned multifamily development has had significant time, effort and funding invested as a result of the original water and sewer capacity **approval** that was granted on 6/5/24.
Outlined in the 'Additional Exhibits' section of this document, extensive approvals were prepared, permitted and approved resulting in substantial vested interest into this property. These approvals include but are not limited to the city of Villa Rica, the Army Corps of Engineers, Georgia Soil and Water Conservation Commission, and the Federal Emergency Management Agency.
In addition to this, immense coordination between the developer and the city has occurred in regards to the planned Villa Rica Parkway that bisects the property.
Given the numerous prior approvals, established vested interest and extended coordination between all parties, we respectfully request that the city approve the water and sewer capacity request dated 8/22/25.

Should you have any questions and/or comments, please let us know.
Thank you for your time, assistance, and reconsideration.

Sincerely,
Caleb Harrison
Project Manager
E: charrison@pec.plus
O: 770.451.2741 | **D:** 678.684.6224

ADDITIONAL EXHIBITS:
-ORIGINAL CAPACITY REQUEST APPROVAL DATED 6/5/24 SIGNED BY BOBBY ELLIOTT
-STAMPED LAND DISTURBANCE PLANS
PLANS DATED 9/6/24, STAMPED 9/16/24
-ALTA SURVEY
-ARMY CORPS OF ENGINEERS APPROVAL LETTER
-FEMA CLOMR APPROVAL LETTER
-GEORGIA SOIL AND WATER CONSERVATION COMMISSION APPROVAL
-STREAM BUFFER VARIANCE APPROVAL

-ORIGINAL CAPACITY REQUEST APPROVAL DATED 6/5/24 SIGNED BY BOBBY ELLIOTT

LESLIE MCPHERSON, MAYOR
CITY COUNCIL:
MAYOR PRO TEM
DANNY CARTER
SHIRLEY MARCHMAN
MATTHEW MOMTAHAN
STEPHANIE WARMOTH
ANNA MCCOY

City of Villa Rica

CITY MANAGER: TOM BARBER
CITY CLERK: THERESA CAMPBELL
CITY ATTORNEY: C. DAVID MECKLIN

571 W BANKHEAD HWY
VILLA RICA, GA. 30180
770.459.7000 | VILLARICA.ORG

June 5, 2024

Arrowhead
350 Research Court
Norcross, Georgia 30092
Attn: Mr. Bryan Flint

Re: Water/Sewer Availability
Project: 11 Gordon Street, LL 161, 2nd District, City of Villa Rica, Georgia 30180

Dear Mr. Flint,

At the present time, the City of Villa Rica has sufficient water and sewer capacity to serve your proposed residential development.

Any improvement upgrades or costs associated with the water and sewer connections to the proposed project will be the responsibility of the developer.

I hope this letter will suffice for your needs at this time. Should you need additional information, please feel free to call me.

Sincerely,

Bobby C. Elliott

On Behalf of the City of Villa Rica,
Bobby C. Elliott, P.E.
City Engineer

BCE

-STAMPED LAND DISTURBANCE PLANS
PLANS DATED 9/6/24, STAMPED 9/16/24

CITY OF VILLA RICA, GA
DEVELOPMENT REVIEW

- [x] APPROVED
- [ ] APPROVED AS NOTED
- [ ] DENIED

CITY ENGINEER: _____

ZONING: _____

Nic Griffin

APPROVING OFFICIAL DATE

GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURTSTE.100
NORCROSS, GA 30092
PHONE: 404.867.3572

VA-09-23 Variance Request from Stream Buffer Standards for 11 Gordon Street and Public Hearing.

Applicants Chad Lambeth and Haley Todd presented in support of variance.

Alita Farmer wanted to know how this development would impact her home at 316 Anderson Road.

Ken Davis wanted to know what would happen to the creek running through his property at 105 W. Gordon Street.

Councilman Danny Carter moved to approve the requested variance to request by Kenneth Wood for property located at 11 Gordon Street to encroach in the City's 75' stream buffer by 14400 SF and the 50' stream buffer by 9200 SF.

RESULT:	APPROVED (UNANIMOUS)
MOVER:	Danny Carter, Councilman
SECONDER:	Matthew Silverstein, Councilman
AYES:	Martinson, Silverstein, Wemouth, McCoy, Carter

PREPARED BY:

Planners & Engineers Collaborative+
LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200 PEACHTREE CORNERS, GA 30092 P: (770) 451-2741

GENERAL NOTES:

1. PRIOR TO LAND DISTURBING AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE ENGINEER FROM THE LOCAL ISSUING GOVERNMENT AGENCY.
2. IF THE CONTRACTOR, DURING THE COURSE OF THE WORK, FINDS ANY DISCREPANCIES BETWEEN THE PLANS AND THE PHYSICAL CONDITIONS OF THE LOCALITY, OR ANY ERRORS OR OMISSIONS IN THE PLANS OR IN THE LAYOUT AS GIVEN BY THE ENGINEER, IT SHALL BE HIS DUTY TO IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, AND THE ENGINEER WILL PROMPTLY VERIFY THE SAME. ANY WORK DONE AFTER SUCH A DISCOVERY, UNTIL AUTHORIZED, WILL BE AT THE CONTRACTOR'S RISK.
3. THE EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN PLOTTED FROM THE INFORMATION AVAILABLE TO THE ENGINEER AND MAY NOT BE ACCURATE OR COMPLETE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY WORK. IN ADDITION, THE CONTRACTOR SHALL NOTIFY UTILITIES AND THEIR LOCATORS BEFORE THEIR FACILITIES ARE DISTURBED.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING VEGETATION WHICH DOES NOT UNREASONABLY INTERFERE WITH CONSTRUCTION.
5. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, REFERENCE POINTS AND STAKES.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES FOR EXECUTION OF ALL PHASES OF THE CONSTRUCTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE STATE AND LOCAL CODES, RULES, AND REGULATIONS.
7. TESTING SHALL BE DONE BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
8. BARRIERS SHALL BE USED AS NECESSARY FOR THE PROTECTION OF THE PUBLIC AND FOR THE SAFETY OF PERSONNEL. BARRIERS SHALL BE IN ACCORDANCE WITH SECTION 6.7 OF THE MANUAL OF ACCEPTABLE PRACTICES IN CONSTRUCTION AS PUBLISHED BY THE GEORGIA MUNICIPAL ASSOCIATION AND THE LOCAL ORDINANCES.
9. ANY AND ALL SHALL KNOWN WITHIN ARE FOR LAYOUT PURPOSES ONLY. ALL STRUCTURAL DESIGN, DETAILS, CALCULATIONS, APPROVALS, PERMITS, POST, INSPECTIONS AND CERTIFICATIONS REQUIRED BY THE GOVERNING AUTHORITY SHALL BE PROVIDED BY OTHERS. CONTRACTOR SHALL INSTALL FALL PROTECTION AS DETERMINED FOR ALL SHALL 20 INCHES IN HEIGHT OR GREATER UNLESS OTHERWISE SPECIFIED BY STATE AND/OR LOCAL CODES, RULES OR REGULATIONS. FALL PROTECTION SHALL BE IN ACCORDANCE WITH OSHA STANDARD 1926.500(B)(10) - FALL PROTECTION.
10. ALL STAIRWAYS HAVING MORE THAN THREE (3) RISERS ABOVE A FLOOR OR GROUND SHALL BE EQUIPPED WITH HANDRAILS LOCATED NOT LESS THAN 34 INCHES (34") NOR MORE THAN 38 INCHES (38") ABOVE THE LEADING EDGE OF A TREAD (EXCEPTION HANDRAILS THAT FORM PART OF A GUARDRAIL MAY BE 42 INCHES (42") HIGH).
11. ALL WALL TOPS TO BE SPECIFIED BY GRADE SPACE UNLESS OTHERWISE NOTED.
12. MAXIMUM CUT OR FILL SLOPE IS 2H:1V UNLESS OTHERWISE SPECIFIED. SLOPES EQUAL TO OR EXCEEDING 3:1 (3 HORIZONTAL TO 1 VERTICAL) OR A HEIGHT OF 10 FEET OR GREATER SHALL BE STABILIZED WITH APPROPRIATE MATTING OR BLANKETS.

SITE INFORMATION

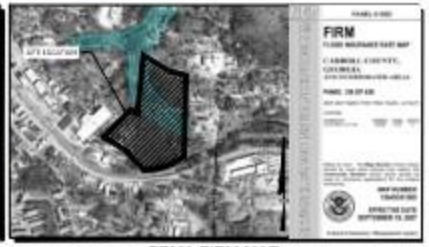
1. TOTAL ON-SITE AREA: 10.2 ACRES / TOTAL AREA DISTURBED: 10.0 ACRES
2. BOUNDARY & TOPOGRAPHIC INFORMATION PROVIDED BY PLANNERS AND ENGINEERS COLLABORATIVE, DATED 05/15/2023.
3. THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CARROLL COUNTY, GEORGIA AND INCORPORATED AREAS, COMMUNITY PANEL NUMBERS 13045C0081F, EFFECTIVE DATE SEPTEMBER 18TH, 2009 INDICATES THAT PORTIONS OF THE PROPERTY SHOWN HEREON ARE LOCATED WITHIN A DESIGNATED FLOOD ZONE "A" (AREAS OF 100-YEAR FLOOD) ON SPECIAL FLOOD HAZARD ZONE (AREAS OF 100-YEAR FLOOD).
4. THERE ARE NO KNOWN STATE WATERS LOCATED ON OR WITHIN 200 FEET OF THE SITE.
5. THERE ARE NO KNOWN WETLANDS ON THE SITE.
6. THE CITY-DATUM HEIGHTS (ELEVATIONS) ARE CONTOURS SHOWN HEREON WERE DETERMINED BY FIELD RUN SURVEY BY PLANNERS AND ENGINEERS COLLABORATIVE ON 05/08/2023.

SITE DATA

ADDRESS: 11 GORDON STREET
VILLA RICA, GA 30180
SITE AREA: 10.20 AC
ZONING: CMU
DISTRICT: 2ND
LAND LOT: 191



SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
NOT TO SCALE

24 HOUR CONTACT:
BRYAN FLINT @ 404.867.3572

CONTACT INFORMATION:

ENGINEER:	MATTHEW S. HAGEBUSCH, P.E. PLANNERS AND ENGINEERS COLLABORATIVE	OWNER:	BRYAN FLINT ARROWHEAD
		EMAIL:	BRYAN@ARROWHEADPROPS.COM
ADDRESS:	350 RESEARCH COURT PEACHTREE CORNERS GEORGIA 30092	ADDRESS:	350 RESEARCH COURT STE 100 NORCROSS, GA 30092
PHONE:	770.451.2741	PHONE:	404.867.3572
EMAIL:	MHAGEBUSCH@PECATL.COM		

DEVELOPMENT SERVICES PERMITTING DISCLAIMER:

THE APPROVAL OF THESE PLANS AND THE ISSUANCE OF THE LAND DISTURBANCE PERMIT DOES NOT IN ANY WAY SUGGEST THAT ALL OTHER REQUIREMENTS FOR THE LEGAL TO APPROPRIATE OPERATIONS FOR THIS ACTIVITY, WHICH MAY INCLUDE NEGOTIATE, PERMITTING, HAVE BEEN MET. THE OWNER IS OR HIS REPRESENTATIVE IS RESPONSIBLE TO OBTAINING WHAT ADDITIONAL PERMITTING OR APPROVALS MAY BE NECESSARY TO OPERATE FROM THE FORT PLANS OR ANY AGREEMENTS AND LEGAL MANNER. PLAN APPROVAL OR PERMIT ISSUANCE DOES NOT ABSOLVE THE APPLICANT FROM COMPLYING WITH ALL APPLICABLE LAWS, POLICIES, STANDARDS OR DEVELOPMENT PROCESS REGULATIONS TO THE PROJECT.

SHEET INDEX

SHEET NO.	SHEET NAME
C0.00	COVER SHEET
C0.01 - C0.03	STANDARD SPECIFICATIONS
SURV	BOUNDARY AND TOPOGRAPHIC SURVEY
C0.60	DEMOLITION PLAN
C0.60	MASTER SITE PLAN
C0.61 - C0.63	SITE PLAN
C0.64	PER ACCESS PLAN
C4.00	MASTER GRADING PLAN
C4.01 - C4.03	GRADING PLAN
C4.10	MASTER ADA ACCESSIBILITY PLAN
C4.11 - C4.15	ADA ACCESSIBILITY PLAN
C4.16 - C4.40	STORMWATER MANAGEMENT PLANS & DETAILS
C5.00	MASTER SEWER PLAN
C5.01 - C5.03	SEWER PLAN
C6.10	MASTER WATER PLAN
C6.11 - C6.13	WATER PLAN
C0.00 - C0.03	EROSION CONTROL NOTES
C6.10	BURIAL EROSION CONTROL PLAN
C6.20	INTERMEDIATE EROSION CONTROL PLAN
C6.30	FINAL EROSION CONTROL PLAN
C0.40 - C0.45	EROSION CONTROL DETAILS
C7.00 - C7.03	SANITARY SEWER PROFILES
C7.50 - C7.52	STORM SEWER PROFILES
C7.53	PIPE CHARTS
C8.00	SIGHT DISTANCE PROFILES
C0.00 - C0.00	CONSTRUCTION DETAILS
TREE 1 - TREE 4	TREE LOCATION & PROTECTION PLANS
L0.00 - L0.00	LIGHTING PLANS

CITY OF VILLA RICA GEORGIA
Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
WWW.PEC.PLUS
Planners & Engineers Collaborative+
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT
GORDON STREET
A MASTER PLANNED RESIDENTIAL DEVELOPMENT
@
11 GORDON STREET
VILLA RICA, GA 30180

FOR
ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO	DATE	BY	DESCRIPTION
-1	09/27/2024	CH	1ST LDP SUBMITTAL
-2	06/24/2024	CH	2ND LDP SUBMITTAL
-3	08/16/2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF EQUATION SIGNED AND DATED WITH INK ORIGINAL SIGNATURE

GEORGIA REGISTERED PROFESSIONAL ENGINEER

CERTIFICATE # 033209 EXP. 08/31/2025

COVER SHEET

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

C0.00
SHEET

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GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURTSTE.100
NORCROSS, GA 30092
PHONE: 404.867.3572

VA-09-23 Variance Request from Stream Bufffer Standards for 11 Gordon Street and Public Hearing.

Applicants Chad Lambeth and Haley Todd presented in support of variance.

Alita Farmer wanted to know how this development would impact her home at 216 Anderson Road.

Ken Davis wanted to know what would happen to the creek running through his property at 105 W. Gordon Street.

Councilman Danny Carter moved to approve the requested variance in request by Kenneth Wood for property located at 11 Gordon Street to encroach in the City's 75' stream buffer by 34000 SF and the 50' stream buffer by 9200 SF.

RESULT:	**APPROVED (UNANIMOUS)**
MOVER:	Danny Carter, Councilman
SECONDER:	Matthew Momtahan, Councilman
AYES:	Marchman, Momtahan, Warmoth, McCoy, Carter

GENERAL NOTES:

1. PRIOR TO LAND DISTURBING AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA EROSION CONTROL / SITE DEVELOPMENT INSPECTOR.
2. IF THE CONTRACTOR, DURING THE COURSE OF THE WORK, FINDS ANY DISCREPANCIES BETWEEN THE PLANS AND THE PHYSICAL CONDITIONS OF THE LOCALITY, OR ANY ERRORS OR OMISSIONS IN THE PLANS OR IN THE LAYOUT AS GIVEN BY THE ENGINEER, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER, IN WRITING, AND THE ENGINEER WILL PROMPTLY VERIFY THE SAME. ANY WORK DONE AFTER SUCH A DISCOVERY, UNTIL AUTHORIZED, WILL BE AT THE CONTRACTOR'S RISK.
3. THE EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN PREPARED FROM THE INFORMATION AVAILABLE TO THE ENGINEER AND MAY NOT BE ACCURATE TO EXTENT OR LOCATIONS. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL NOTIFY UTILITIES AND THEN MARK OR REMARK THEIR FACILITIES.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING VEGETATION WHICH DOES NOT UNREASONABLY INTERFERE WITH CONSTRUCTION.
5. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, REFERENCE POINTS AND STAKES.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES FOR EXECUTION OF ALL MATERIALS. THE EXECUTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE STATE AND LOCAL CODES, RULES, AND REGULATIONS.
7. TESTING SHALL BE DONE BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
8. SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. SHORING SHALL BE IN ACCORDANCE WITH SECTION 7 OF THE MANUAL OF ACCIDENT PROTECTION IN CONSTRUCTION AS PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, OSHA, AND THE LOCAL REGULATIONS.
9. ANY AND ALL WALLS SHOWN HEREIN ARE FOR LAYOUT PURPOSES ONLY. WALL STRUCTURAL DESIGN, DETAILS, CALCULATIONS, APPROVALS, PERMITS, FEES, INSPECTIONS AND CERTIFICATIONS REQUIRED BY THE GOVERNING AUTHORITY SHALL BE PROVIDED BY OTHERS. CONTRACTOR SHALL INSTALL FALL PROTECTION RAIL SYSTEM(s) FOR ALL WALLS 30 INCHES IN HEIGHT OR GREATER UNLESS OTHERWISE SPECIFIED BY STATE AND/OR LOCAL CODES, RULES, OR REGULATIONS. FALL PROTECTION RAIL SYSTEM(s) SHALL BE IN ACCORDANCE WITH OSHA STANDARD 1926, SUBPART M - FALL PROTECTION.
10. ALL STAIRWAYS HAVING MORE THAN THREE (3) RISERS ABOVE A FLOOR OR GRADE SHALL BE EQUIPPED WITH HANDRAILS LOCATED NOT LESS THAN 34 INCHES (34") NOR MORE THAN 38 INCHES (38") ABOVE THE LEADING EDGE OF A TREAD. EXCEPTION: HANDRAILS THAT FORM PART OF A GUARDRAIL MAY BE 42 INCHES (42") HIGH.
11. ALL WALL TOPS TO BE SIX INCHES (6") ABOVE GRADE UNLESS OTHERWISE NOTED.
12. MAXIMUM CUT OR FILL SLOPE IS 2H:1V UNLESS OTHERWISE SPECIFIED. SLOPES EQUAL TO OR STEEPER THAN 2.5H:1V AND WITH A HEIGHT OF 10' OR GREATER SHALL BE STABILIZED WITH APPROPRIATE MATTING OR BLANKETS.

SITE INFORMATION

1. TOTAL ONSITE AREA: 18.28 ACRES / TOTAL AREA DISTURBED 18.30 ACRES.
2. BOUNDARY & TOPOGRAPHIC INFORMATION PROVIDED BY PLANNERS AND ENGINEERS COLLABORATIVE, DATED 05/16/2023.
3. THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CARROLL COUNTY, GEORGIA AND INCORPORATED AREAS, COMMUNITY PANEL NUMBER(S) 13045C0156D, EFFECTIVE DATE 09/19/2007 WAS EXAMINED AND PORTION OF THE PROPERTY SHOWN HEREIN WAS FOUND TO FALL WITHIN A DESIGNATED FLOOD ZONE "A" (AREAS OF 100-YEAR FLOOD) OR SPECIAL FLOOD HAZARD ZONE (AREAS OF 500-YEAR FLOOD).
4. THERE ARE KNOWN STATE WATERS LOCATED ON OR WITHIN 200 FEET OF THE SITE.
5. THERE ARE KNOWN WETLANDS ON THIS SITE
6. THE ORTHOMETRIC HEIGHTS (ELEVATIONS AND CONTOURS) SHOWN HEREON WERE DETERMINED BY FIELD RUN SURVEY BY PLANNERS AND ENGINEERS COLLABORATIVE, DATED 05/16/2023.

SITE DATA

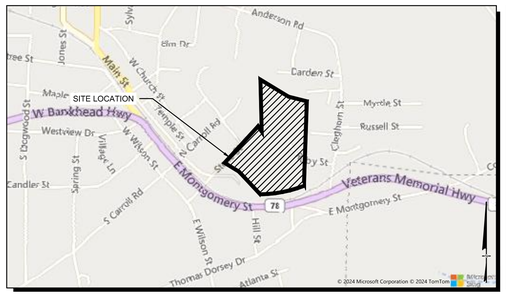
ADDRESS: 11 GORDON STREET
VILLA RICA, GA 30180
SITE AREA: 18.28 AC
ZONING: CMU
DISTRICT: 2ND
LAND LOT: 161

PREPARED BY:

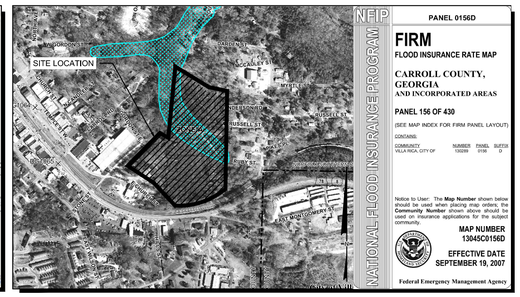
Planners & Engineers Collaborative+

LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES

350 RESEARCH COURT STE 200 PEACHTREE CORNERS, GA 30092 **P: (770) 451-2741**



SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
FEMA FIRM PANEL NO.: 13045C0156D
NOT TO SCALE

24 HOUR CONTACT:
BRYAN FLINT @ 404.867.3572

CONTACT INFORMATION:

ENGINEER:	MATTHEW E. KACZENSKI, P.E. PLANNERS AND ENGINEERS COLLABORATIVE	OWNER:	BRYAN FLINT ARROWHEAD
ADDRESS:	350 RESEARCH COURT PEACHTREE CORNERS, GEORGIA 30092	EMAIL: ADDRESS:	BRYAN@ARROWHEADRE.COM 350 RESEARCH COURT STE.100 NORCROSS, GA 30092
PHONE:	770.451.2741	PHONE:	404.867.3572
EMAIL:	MKACZENSKI@PECATL.COM		

DEVELOPMENT SERVICES PERMITTING DISCLAIMER:

THE APPROVAL OF THESE PLANS AND THE ISSUANCE OF THIS LAND DISTURBANCE PERMIT DOES NOT IN ANY WAY SUGGEST THAT ALL OTHER REQUIREMENTS FOR THE LEGAL OR APPROPRIATE OPERATIONS FOR THIS ACTIVITY, WHICH MAY REQUIRE ADDITIONAL PERMITTING, HAVE BEEN MET. THE ONUS IS ON THE OWNER/DEVELOPER/BUILDER TO DISCOVER WHAT ADDITIONAL PERMITTING OR APPROVALS MAY BE NECESSARY TO OPERATE FROM THIS POINT IN AN APPROPRIATE AND LEGAL MANNER. PLAN APPROVAL OR PERMIT ISSUANCE DOES NOT ABSOLVE THE APPLICANT FROM COMPLYING WITH ALL APPLICABLE LAWS, POLICIES, STANDARDS OR OTHER PERMITS WHICH MAY BE REQUIRED FOR THIS PROJECT.

SHEET INDEX

SHEET NO.	SHEET NAME
C0.00	COVER SHEET
C0.01 - C0.03	STANDARD SPECIFICATIONS
SURV	BOUNDARY AND TOPOGRAPHIC SURVEY
C2.00	DEMOLITION PLAN
C3.00	MASTER SITE PLAN
C3.01 - C3.03	SITE PLAN
C3.50	FIRE ACCESS PLAN
C4.00	MASTER GRADING PLAN
C4.01 - C4.03	GRADING PLAN
C4.10	MASTER ADA ACCESSIBILITY PLAN
C4.11 - C4.18	ADA ACCESSIBILITY PLAN
C4.40 - C4.42	STORMWATER MANAGEMENT PLAN & DETAILS
C5.00	MASTER SEWER PLAN
C5.01 - C5.03	SEWER PLAN
C5.10	MASTER WATER PLAN
C5.11 - C5.13	WATER PLAN
C6.00 - C6.03	EROSION CONTROL NOTES
C6.10	INITIAL EROSION CONTROL PLAN
C6.20	INTERMEDIATE EROSION CONTROL PLAN
C6.30	FINAL EROSION CONTROL PLAN
C6.40 - C6.45	EROSION CONTROL DETAILS
C7.00 - C7.03	SANITARY SEWER PROFILES
C7.50 - C7.52	STORM SEWER PROFILES
C7.53	PIPE CHARTS
C8.00	SIGHT DISTANCE PROFILES
C9.00 - C9.05	CONSTRUCTION DETAILS
TPR.1 - TPR.4	TREE LOCATION & PROTECTION PLANS
L5.00 - L5.01	LIGHTING PLANS

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
WWW.PEC.PLUS
Planners & Engineers Collaborative+
LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37098 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

COVER SHEET

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C0.00
SHEET

J:\2021\21217.00\Dgn_Plansheets\C0.00 - COVER SHEET - 21217.00.dwg - JASchmit - 9/10/2024 1:43 PM

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PLANNERS AND ENGINEERS COLLABORATIVE STANDARDS AND SPECIFICATIONS

CLEARING AND GRADING

INITIAL EROSION CONTROL MEASURES SHALL BE INSTALLED BEFORE ANY LAND DISTURBING ACTIVITY IS TO BE CONDUCTED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INSTALLED EROSION AND SEDIMENT CONTROL MEASURES WITH THE APPROVED PLAN AND THE EROSION CONTROL DEVICES ARE FUNCTIONING PROPERLY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FILING A NOTICE OF INTENT, ALL REPORTING AND TESTING ASSOCIATED TO EROSION CONTROL, NOTICE OF TERMINATION, COORDINATION OF ALL SUBCONTRACTORS AND ALL SECONDARY PERMITEES, AND TERTIARY PERMITEES. CONTRACTOR SHALL PAY THE FEES ASSOCIATED WITH EROSION CONTROL MEASURES TO THE STATE OF GEORGIA. CONTRACTOR SHALL ARRANGE AND PAY FOR AN INSPECTION OF THE SITE 7 DAYS AFTER THE INSTALLATION OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED FOR COMPLIANCE WITH NPDES PERMITS.

RELATED DOCUMENTS:
- A. MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION.
- B. INITIAL AND INTERMEDIATE EROSION AND SEDIMENTATION CONTROL PLAN AS APPROVED BY ISSUING AGENCY.
- C. NPDES GENERAL PERMIT GAR 100001 OR 100003 (SEE EROSION CONTROL NOTES SHEET C6.00 FOR FURTHER DETAILS).

PART 1 - GENERAL

1.1 DEFINITIONS

SURFACE SOILS: TOPSOIL WAS ENCOUNTERED AT THE SURFACE IN MOST OF THE BORING LOCATIONS. TOPSOIL IS A DARK-COLORED SURFACE MATERIAL WITH A HIGH ORGANIC CONTENT AND IS GENERALLY UNSUITABLE FOR STRUCTURAL SUPPORT

FILL MATERIALS: FILL MAY BE ANY MATERIAL THAT HAS BEEN TRANSPORTED AND DEPOSITED BY MAN. ALLUVIAL SOILS ARE STREAM-DEPOSITED MATERIALS. ALLUVIAL SOILS CONSISTED OF SILTY SANDS (SM) AND SANDY SILTS (ML).

RESIDUAL SOIL: RESIDUAL SOIL, FORMED BY IN-PLACE WEATHERING OF THE PARENT ROCK, WAS ENCOUNTERED BELOW THE SURFACE SOILS. FILL MATERIALS OR ALLUVIAL SOILS. THE RESIDUUM IS DESCRIBED AS SILTY SANDS (BM), SANDY SILTS (ML), SILTY CLAYS (CL), AND CLAYEY SANDS (BC). THE RESIDUAL SOILS ARE TYPICALLY STIFF TO VERY STIFF AND MEDIUM DENSE TO DENSE.

PARTIALLY WEATHERED ROCK: PARTIALLY WEATHERED ROCK IS A TRANSITIONAL MATERIAL BETWEEN SOIL AND ROCK, WHICH RETAINS THE STRUCTURE OF THE ROCK AND HAS VERY HARD OR VERY DENSE CONSISTENCIES. THE PARTIALLY WEATHERED ROCK IS GENERALLY DESCRIBED AS VERY DENSE SILTY SANDS (BM).

REFUSAL MATERIAL: REFUSAL IS A DESIGNATION APPLIED TO ANY MATERIAL THAT CANNOT BE FURTHER PENETRATED BY THE POWER AUGER AND IS NORMALLY INDICATIVE OF A VERY HARD OR VERY DENSE MATERIAL, SUCH AS BOULDERS OR LENSES OR THE UPPER SURFACE OF BEDROCK.

PLANT-PROTECTION ZONE: AREA SURROUNDING INDIVIDUAL TREES, GROUPS OF TREES, SHRUBS, OR OTHER VEGETATION TO BE PROTECTED DURING CONSTRUCTION, AND INDICATED ON DRAWINGS,

TREE-PROTECTION ZONE: AREA SURROUNDING INDIVIDUAL TREES OR GROUPS OF TREES TO BE PROTECTED DURING CONSTRUCTION, AND INDICATED ON DRAWINGS DEFINED BY A CIRCLE CONCENTRIC WITH EACH TREE WITH A RADIUS 1.5 TIMES THE DIAMETER OF THE DRIP LINE UNLESS OTHERWISE INDICATED BY THE LOCAL JURISDICTION.

1.2 MATERIAL OWNERSHIP
- A. EXCEPT FOR STRIPPED TOPSOIL AND STRUCTURAL FILL THAT IS INDICATED TO BE STOCKPILED OR OTHERWISE REMAIN OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.

1.3 PROJECT CONDITIONS
- A. A. TRAFFIC: MINIMIZE INTERFERENCE WITH ADJOINING ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING SITE-CLEARING OPERATIONS.
  1. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION.
  2. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY OWNER OR AUTHORITIES HAVING JURISDICTION.
- B. IMPROVEMENTS ON ADJOINING PROPERTY: AUTHORITY FOR PERFORMING EARTH MOVING INDICATED ON PROPERTY ADJOINING OWNER'S PROPERTY WILL BE OBTAINED BY OWNER AND PROVIDE DOCUMENTATION OF CLEARING EASEMENT TO CONTRACTOR UPON REQUEST.
- C. UTILITY LOCATOR SERVICE: NOTIFY ONE CALL FOR AREA WHERE PROJECT IS LOCATED BEFORE SITE CLEARING.
- D. DO NOT COMMENCE SITE-CLEARING OPERATIONS UNTIL TEMPORARY EROSION- AND SEDIMENTATION-CONTROLS, SEDIMENT PONDS, AND TREE PROTECTION FENCE IN PLACE.
- E. THE FOLLOWING PRACTICES ARE PROHIBITED WITHIN PROTECTION ZONES:
  1. STORAGE OF CONSTRUCTION MATERIALS, DEBRIS, OR EXCAVATED MATERIAL.
  2. PARKING VEHICLES OR EQUIPMENT.
  3. FOOT TRAFFIC.
  4. ERECTION OF SHEDS OR STRUCTURES.
  5. IMPOUNDMENT OF WATER.
  6. EXCAVATION OR OTHER DIGS UNLESS OTHERWISE INDICATED.
  7. ATTACHMENT OF SIGNS OR WRAPPING MATERIALS AROUND TREES OR PLANTS UNLESS OTHERWISE INDICATED.
- F. DO NOT DIRECT VEHICLE OR EQUIPMENT EXHAUST TOWARDS PROTECTION ZONES.
- G. PROHIBIT HEAT SOURCES, FLAMES, IGNITION SOURCES, AND SMOKING WITHIN OR NEAR PROTECTION ZONES.
- H. SOIL STRIPPING, HANDLING, AND STOCKPILING: PERFORM ONLY WHEN THE TOPSOIL IS DRY OR SLIGHTLY MOIST.

PART 2 - PRODUCTS

2.1 MATERIALS
- A. SATISFACTORY SOIL MATERIAL: REQUIREMENTS FOR SATISFACTORY SOIL MATERIAL ARE SPECIFIED IN DIVISION 2 SECTION "EARTHWORK."
  1. OBTAIN APPROVED BORROW SOIL MATERIAL OFF-SITE WHEN SATISFACTORY SOIL MATERIAL IS NOT AVAILABLE ON-SITE.

PART 3 - EXECUTION

3.1 PREPARATION
- A. PROTECT AND MAINTAIN BENCHMARKS AND SURVEY CONTROL POINTS FROM DISTURBANCE DURING CONSTRUCTION.
- B. PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION,
  1. RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO OWNER.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL
- A. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS, ACCORDING TO EROSION AND SEDIMENTATION CONTROL DRAWINGS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- B. VERIFY THAT FLOWS OF WATER REDIRECTED FROM CONSTRUCTION AREAS OR GENERATED BY CONSTRUCTION ACTIVITY DO NOT ENTER OR CROSS PROTECTION ZONES.
- C. INSPECT, MAINTAIN, AND REPAIR EROSION AND SEDIMENTATION CONTROL MEASURES DAILY DURING CONSTRUCTION UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- D. REMOVE EROSION AND SEDIMENTATION CONTROLS AND RESTORE AND STABILIZE AREAS DISTURBED DURING REMOVAL.

3.3 TREE AND PLANT PROTECTION
GENERAL: PROTECT TREES AND PLANTS REMAINING ON-SITE PER PLANS.

3.4 EXISTING UTILITIES
- A. LOCATE, IDENTIFY, AND PROTECT ALL EXISTING UTILITIES.
  1. ARRANGE WITH UTILITY COMPANIES TO SHUT OFF INDICATED UTILITIES.
- B. LOCATE, IDENTIFY, AND DISCONNECT UTILITIES INDICATED TO BE ABANDONED IN PLACE.
- C. INTERRUPTING EXISTING UTILITIES: DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES ACCORDING TO REQUIREMENTS INDICATED:
  1. NOTIFY ARCHITECT NOT LESS THAN TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
- D. EXCAVATE FOR AND REMOVE UNDERGROUND UTILITIES INDICATED TO BE REMOVED.

3.5 CLEARING AND GRUBBING
- A. REMOVE OBSTRUCTIONS, TREES, SHRUBS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION.
  1. DO NOT REMOVE TREES, SHRUBS, AND OTHER VEGETATION INDICATED TO REMAIN OR TO BE RELOCATED.
  2. MECHANICAL REMOVE ALL STUMPS AND REMOVE ROOTS, OBSTRUCTIONS, AND DEBRIS.
  3. USE ONLY HAND METHODS FOR GRUBBING WITHIN PROTECTION ZONES.
- B. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SATISFACTORY SOIL MATERIAL UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED.
  1. 1. PLACE FILL MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING THOSE RECOMMENDED IN THE ATC GEOTECHNICAL REPORT.

3.6 TOPSOIL STRIPPING
- A. STOCKPILE TOPSOIL AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO RAIN SURFACE WATER, SEED AND STRAW STOCKPILE AREA AND PROTECT FROM EROSION.
  1. DO NOT STOCKPILE TOPSOIL WITHIN PROTECTION ZONES.
  2. DISPOSE OF SURPLUS TOPSOIL. SURPLUS TOPSOIL IS THAT WHICH EXCEEDS QUANTITY NEED TO BACKFILL LANDSCAPE AREAS,
  3. STOCKPILE SURPLUS TOPSOIL TO ALLOW FOR RE-SPREADING AND REUSE IN LANDSCAPED AREAS.
- B. STRUCTURAL FILL STOCKPILE: STOCKPILE STRUCTURAL FILL AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH TOPSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. SEED AND STRAW STOCKPILE AREA AND PROTECT FROM EROSION
  1. DO NOT STOCKPILE STRUCTURAL FILL WITHIN PROTECTION ZONES. STOCKPILE AS SHOWN ON PLANS
  2. DO NOT DISPOSE OF ANY ADDITIONAL SURPLUS STRUCTURAL FILL. INCREASE STOCKPILE IF REQUIRED.
  3. STOCKPILE SURPLUS TOPSOIL TO ALLOW FOR RE-SPREADING AND REUSE IN LANDSCAPED AREAS.

3.7 SITE IMPROVEMENTS
- A. REMOVE EXISTING ABOVE- AND BELOW-GRADE IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS
- A. REMOVE SURPLUS SOIL MATERIAL, UNSUITABLE TOPSOIL, OBSTRUCTIONS, DEMOLISHED MATERIALS, AND WASTE MATERIALS INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.

EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY
- A. SECTION INCLUDES:
  1. PREPARING SUBGRADES FOR SLABS-ON-GRADE WALKS PAVEMENTS.
  2. EXCAVATING AND BACKFILLING FOR BUILDINGS AND STRUCTURES.
  3. DRAINAGE COURSE FOR CONCRETE SLABS-ON-GRADE.
  4. SUBBASE COURSE FOR CONCRETE [WALKS][PAVEMENTS].
  5. SUBBASE COURSE [AND BASE COURSE] FOR ASPHALT PAVING.
  6. SUBSURFACE DRAINAGE BACKFILL FOR WALLS AND TRENCHES.
  7. EXCAVATING AND BACKFILLING TRENCHES FOR UTILITIES AND PITS FOR BURIED UTILITY STRUCTURES.
- B. RELATED SECTIONS:
  1. DIVISION 1 SECTION "FOR RECORDING PRE EXCAVATION AND EARTH MOVING PROGRESS."
  2. DIVISION 1 SECTION "TEMPORARY FACILITIES AND CONTROLS" FOR TEMPORARY CONTROLS, UTILITIES, AND SUPPORT FACILITIES; ALSO FOR TEMPORARY SITE FENCING IF NOT IN ANOTHER SECTION.
  3. DIVISION 2 SECTION "SITE CLEARING" FOR SITE STRIPPING, GRUBBING, STRIPPING [AND STOCKPILING] TOPSOIL, AND REMOVAL OF ABOVE- AND BELOW-GRADE IMPROVEMENTS AND UTILITIES.
  4. DIVISION 2 SECTION "SUBDRAINAGE" FOR DRAINAGE OF [FOUNDATIONS] [SLABS-ONGRADE][WALLS] [AND][LANDSCAPED AREAS].
  5. DIVISIONS 2, 15, AND 16 SECTIONS FOR INSTALLING UNDERGROUND MECHANICAL AND ELECTRICAL UTILITIES AND BURIED MECHANICAL AND ELECTRICAL STRUCTURES.

1.3 DEFINITIONS
- A. BACKFILL: SOIL MATERIAL OR CONTROLLED LOW-STRENGTH MATERIAL USED TO FILL AN EXCAVATION.
  1. INITIAL BACKFILL: BACKFILL PLACED BESIDE AND OVER PIPE IN A TRENCH, INCLUDING HAUNCHES TO SUPPORT SIDES OF PIPE.
  2. FINAL BACKFILL: BACKFILL PLACED OVER INITIAL BACKFILL TO FILL A TRENCH.
- B. BASE COURSE: AGGREGATE LAYER PLACED BETWEEN THE SUBBASE COURSE AND HOT-MIX ASPHALT PAVING.
- C. BEDDING COURSE: AGGREGATE LAYER PLACED OVER THE EXCAVATED SUBGRADE IN A TRENCH BEFORE LAYING PIPE.
- D. BORROW SOIL: SATISFACTORY SOIL IMPORTED FROM OFF-SITE FOR USE AS FILL OR BACKFILL.
- E. DRAINAGE COURSE: AGGREGATE LAYER UNDER THE SLAB-ON-GRADE TO MINIMIZE UPWARD CAPILLARY FLOW OF PORE WATER.
- F. EXCAVATION: REMOVAL OF MATERIAL ENCOUNTERED ABOVE SUBGRADE ELEVATIONS AND TO LINES AND DIMENSIONS INDICATED.
- G. FILL: SOIL MATERIALS USED TO RAISE EXISTING GRADES.
- H. ROCK: ROCK MATERIAL IN BEDS, LEDGES, UNSTRATIFIED MASSES, CONGLOMERATE DEPOSITS, AND BOULDERS OF ROCK MATERIAL THAT EXCEED [1 CU. YD.] FOR BULK EXCAVATION OR [3/4 CU. YD.] FOR FOOTING, TRENCH, AND PIT EXCAVATION THAT CANNOT BE REMOVED BY ROCK EXCAVATING EQUIPMENT EQUIVALENT TO THE FOLLOWING IN SIZE AND PERFORMANCE RATINGS, WITHOUT SYSTEMATIC DRILLING, RAM HAMMERING, RIPPING, OR BLASTING, WHEN PERMITTED:
  1. EXCAVATION OF FOOTINGS, TRENCHES, AND PITS: LATE-MODEL, TRACK-MOUNTED HYDRAULIC EXCAVATOR, EQUIPPED WITH A 42-INCH WIDE, MAXIMUM, SHORT-TIP-RADIUS ROCK BUCKET; RATED AT NOT LESS THAN 138-HP FLYWHEEL POWER WITH BUCKET-CURLING FORCE OF NOT LESS THAN 28,700 IBF AND STICK-CROWD FORCE OF NOT LESS THAN 18,400 IBF WITH EXTRA-LONG REACH BOOM; MEASURED ACCORDING TO SAE J-1179.
  2. BULK EXCAVATION: LATE-MODEL, TRACK-MOUNTED LOADER; RATED NOT LESS THAN 230-HP FLYWHEEL POWER AND DEVELOPING A MINIMUM OF 47,992-LBF BREAKOUT FORCE WITH A GENERAL PURPOSE BARE BUCKET; MEASURED ACCORDING TO SAE J-732.
- I. ROCK: ROCK MATERIAL IN BEDS, LEDGES, UNSTRATIFIED MASSES, CONGLOMERATE DEPOSITS, AND BOULDERS OF ROCK MATERIAL [3/4 CU. YD.] OR MORE IN VOLUME THAT EXCEED A STANDARD PENETRATION RESISTANCE OF [100 BLOWS/2 INCHES] WHEN TESTED BY A GEOTECHNICAL TESTING AGENCY, ACCORDING TO ASTM D 1586.
- J. STRUCTURES: BUILDINGS, FOOTINGS, FOUNDATIONS, RETAINING WALLS, SLABS, TANKS, CURBS, MECHANICAL AND ELECTRICAL APPURTENANCES, OR OTHER MAN-MADE STATIONARY FEATURES CONSTRUCTED ABOVE OR BELOW THE GROUND SURFACE.
- K. SUBBASE COURSE: AGGREGATE LAYER PLACED BETWEEN THE SUBGRADE AND BASE COURSE FOR HOT-MIX ASPHALT PAVEMENT, OR AGGREGATE LAYER PLACED BETWEEN THE SUBGRADE AND A CEMENT CONCRETE PAVEMENT OR A CEMENT CONCRETE OR HOT-MIX ASPHALT WALK.
- L. SUBGRADE: UPPERMOST SURFACE OF AN EXCAVATION OR THE TOP SURFACE OF A FILL OR BACKFILL IMMEDIATELY BELOW SUBBASE, DRAINAGE FILL, DRAINAGE COURSE, OR TOPSOIL MATERIALS.
- M. UTILITIES: ON-SITE UNDERGROUND PIPES, CONDUITS, DUCTS, AND CABLES, AS WELL AS UNDERGROUND SERVICES WITHIN BUILDINGS.

1.4 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF THE FOLLOWING MANUFACTURED PRODUCTS REQUIRED:
  1. GEOTEXTILES.
- B. SAMPLES FOR VERIFICATION: FOR THE FOLLOWING PRODUCTS, IN SIZES INDICATED BELOW:
  1. GEOTEXTILE: 12 BY 12 INCHES.
- C. QUALIFICATION DATA: FOR QUALIFIED TESTING AGENCY.
- D. MATERIAL TEST REPORTS: FOR EACH [ON-SITE][AND][BORROW] SOIL MATERIAL PROPOSED FOR FILL AND BACKFILL AS FOLLOWS:
  1. CLASSIFICATION ACCORDING TO ASTM D 2487.

1.5 QUALITY ASSURANCE
- A. GEOTECHNICAL TESTING AGENCY QUALIFICATIONS: QUALIFIED ACCORDING TO ASTM E 329 AND ASTM D 3740 FOR TESTING INDICATED.

1.6 PROJECT CONDITIONS
- A. TRAFFIC: MINIMIZE INTERFERENCE WITH ADJOINING ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING EARTH MOVING OPERATIONS.
  1. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION.
  2. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY OWNER OR AUTHORITIES HAVING JURISDICTION.
- B. IMPROVEMENTS ON ADJOINING PROPERTY: AUTHORITY FOR PERFORMING EARTH MOVING INDICATED ON PROPERTY ADJOINING OWNER'S PROPERTY WILL BE OBTAINED BY OWNER BEFORE AWARD OF CONTRACT.
  1. DO NOT PROCEED WITH WORK ON ADJOINING PROPERTY UNTIL DIRECTED BY ARCHITECT.
- C. UTILITY LOCATOR SERVICE: NOTIFY [UTILITY LOCATOR SERVICE] FOR AREA WHERE PROJECT IS LOCATED BEFORE BEGINNING EARTH-MOVING OPERATIONS.
- D. DO NOT COMMENCE EARTH-MOVING OPERATIONS UNTIL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES, SPECIFIED IN [DIVISION 1 SECTION "TEMPORARY FACILITIES AND CONTROLS,"][DIVISION 2 SECTION "SITE CLEARING,"] ARE IN PLACE.
- E. DO NOT COMMENCE EARTH-MOVING OPERATIONS UNTIL PLANT-PROTECTION MEASURES SPECIFIED TO DIVISION 2 SECTION "TREE PROTECTION AND TRIMMING" ARE IN PLACE.
- F. THE FOLLOWING PRACTICES ARE PROHIBITED WITHIN PROTECTION ZONES:
  1. STORAGE OF CONSTRUCTION MATERIALS, DEBRIS, OR EXCAVATED MATERIAL.
  2. PARKING VEHICLES OR EQUIPMENT.
  3. FOOT TRAFFIC.
  4. ERECTION OF SHEDS OR STRUCTURES.
  5. IMPOUNDMENT OF WATER.
  6. EXCAVATION OR OTHER DIGGING UNLESS OTHERWISE INDICATED.
  7. ATTACHMENT OF SIGNS TO OR WRAPPING MATERIALS AROUND TREES OR PLANTS UNLESS OTHERWISE INDICATED.
- G. DO NOT DIRECT VEHICLE OR EQUIPMENT EXHAUST TOWARDS PROTECTION ZONES.
- H. PROHIBIT HEAT SOURCES, FLAMES, IGNITION SOURCES, AND SMOKING WITHIN OR NEAR PROTECTION ZONES.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS
- A. GENERAL: PROVIDE BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS
- B. SATISFACTORY SOIL: SOIL CLASSIFICATION [GROUPS GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D 2487][GROUPS A-1, A-2-4, A-2-5, AND A-3 ACCORDING TO AASHTO M 145], OR A COMBINATION OF THESE GROUPS FREE OF ROCK OR GRAVEL LARGER THAN [3 INCHES] IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.
- C. UNSATISFACTORY SOILS: SOIL CLASSIFICATION [GROUPS GC, SC, CL, ML, OL, CH, MH, OH, AND PT ACCORDING TO ASTM D 2487][GROUPS A-2-6, A-2-7, A-4, A-5, A-6, AND A-7 ACCORDING TO AASHTO M 145], OR A COMBINATION OF THESE GROUPS.
  1. UNSATISFACTORY SOILS ALSO INCLUDE SATISFACTORY SOILS NOT MAINTAINED WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT AT TIME OF COMPACTION.
- D. SUBBASE MATERIAL: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; WITH AT LEAST 90 PERCENT PASSING A 1-1/2-INCH SIEVE AND NOT MORE THAN 12 PERCENT PASSING A NO. 200 SIEVE.
- E. BASE COURSE: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; WITH AT LEAST 95 PERCENT PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 8 PERCENT PASSING A NO. 200 SIEVE.
- F. BEDDING COURSE: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; EXCEPT WITH 100 PERCENT PASSING A 1 INCH SIEVE AND NOT MORE THAN 8 PERCENT PASSING A NO. 200 SIEVE.
- G. DRAINAGE COURSE: NARROWLY GRADED MIXTURE OF [WASHED] CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 57; WITH 100 PERCENT PASSING A 1-1/2 INCH SIEVE AND 0 TO 5 PERCENT PASSING A NO.8 SIEVE.
- H. FILTER MATERIAL: NARROWLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, OR CRUSHED STONE AND NATURAL SAND; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 67; WITH 100 PERCENT PASSING A 1 INCH SIEVE AND 0 TO 5 PERCENT PASSING A NO.4 SIEVE.
- I. SAND: ASTM C 33; FINE AGGREGATE.
- J. IMPERVIOUS FILL: CLAYEY GRAVEL AND SAND MIXTURE CAPABLE OF COMPACTING TO A DENSE STATE.

2.2 GEOTEXTILES
- A. SEPARATION GEOTEXTILE: WOVEN GEOTEXTILE FABRIC, MANUFACTURED FOR SEPARATION APPLICATIONS, MADE FROM POLYOLEFINS OR POLYESTERS; WITH ELONGATION LESS THAN 50 PERCENT; COMPLYING WITH AASHTO M 288 AND THE FOLLOWING, MEASURED PER TEST METHODS REFERENCED:
  1. SURVIVABILITY: CLASS 2; AASHTO M 288.
  2. GRAB TENSILE STRENGTH: 247 IBF; ASTM D 4632.
  3. SEWN SEAM STRENGTH: 222 IBF; ASTM D 4632.
  4. TEAR STRENGTH: 90 LBF; ASTM D 4533.
  5. PUNCTURE STRENGTH: 90 LBF; ASTM D 4833.
  6. APPARENT OPENING SIZE: NO. 60 SIEVE; MAXIMUM; ASTM D 4751.
  7. PERMEABILITY: 0.02 PER SECOND, MINIMUM; ASTM D 4491.
  8. UV STABILITY: 50 PERCENT AFTER 500 HOURS' EXPOSURE; ASTM D 4355.

EARTHWORK (CONT'D)

PART 3 - EXECUTION

3.1 PREPARATION
- A. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTH MOVING OPERATIONS.
- B. PROTECT AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS DURING EARTH MOVING OPERATIONS.
- C. PROTECT SUBGRADES AND FOUNDATION SOILS FROM FREEZING TEMPERATURES AND FROST. REMOVE TEMPORARY PROTECTION BEFORE PLACING SUBSEQUENT MATERIALS.

3.2 DEWATERING
- A. PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA.
- B. PROTECT SUBGRADES FROM SOFTENING, UNDERMINING, WASHOUT, AND DAMAGE BY RAM OR WATER ACCUMULATION.
  1. REROUTE SURFACE WATER RUNOFF AWAY FROM EXCAVATED AREAS. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. DO NOT USE EXCAVATED TRENCHES AS TEMPORARY DRAINAGE DITCHES.

3.3 EXCAVATION, GENERAL
- A. UNCLASSIFIED EXCAVATION: EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED. UNCLASSIFIED EXCAVATED MATERIALS MAY INCLUDE ROCK, SOIL MATERIALS, AND OBSTRUCTIONS. NO CHANGES IN THE CONTRACT SUM OR THE CONTRACT TIME WILL BE AUTHORIZED FOR ROCK EXCAVATION OR REMOVAL OF OBSTRUCTIONS.
  1. IF EXCAVATED MATERIALS INTENDED FOR FILL AND BACKFILL INCLUDE UNSATISFACTORY SOIL MATERIALS AND ROCK, REPLACE WITH SATISFACTORY SOIL MATERIALS.
  2. REMOVE ROCK TO LINES AND GRADES INDICATED TO PERMIT INSTALLATION OF PERMANENT CONSTRUCTION WITHOUT EXCEEDING THE FOLLOWING DIMENSIONS:
- A. [24 INCHES] OUTSIDE OF CONCRETE FORMS OTHER THAN AT FOOTINGS.
- B. [12 INCHES] OUTSIDE OF CONCRETE FORMS AT FOOTINGS.
- C. [6 INCHES] OUTSIDE OF MINIMUM REQUIRED DIMENSIONS OF CONCRETE CAST AGAINST GRADE.
- D. OUTSIDE DIMENSIONS OF CONCRETE WALLS INDICATED TO BE CAST AGAINST ROCK WITHOUT FORMS OR EXTERIOR WATERPROOFING TREATMENTS.
- E. [6 INCHES] BENEATH BOTTOM OF CONCRETE SLABS-ON-GRADE.
- F. [6 INCHES] BENEATH PIPE IN TRENCHES, AND THE GREATER OF [24 INCHES] WIDER THAN PIPE OR [42 INCHES] WIDE.

3.4 EXCAVATION FOR STRUCTURES
- A. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS WITHIN A TOLERANCE OF PLUS OR MINUS 1 INCH. IF APPLICABLE, EXTEND EXCAVATIONS A SUFFICIENT DISTANCE FROM STRUCTURES FOR PLACING AND REMOVING CONCRETE FORMWORK, FOR INSTALLING SERVICES AND OTHER CONSTRUCTION, AND FOR INSPECTIONS.
  1. EXCAVATIONS FOR FOOTINGS AND FOUNDATIONS: DO NOT DISTURB BOTTOM OF EXCAVATION. EXCAVATE BY HAND TO FINAL GRADE JUST BEFORE PLACING CONCRETE REINFORCEMENT. TRIM BOTTOMS TO REQUIRED LINES AND GRADES TO LEAVE SOLID BASE TO RECEIVE OTHER WORK.
  2. EXCAVATION FOR UNDERGROUND TANKS, BASINS, AND MECHANICAL OR ELECTRICAL UTILITY STRUCTURES: EXCAVATE TO ELEVATIONS AND DIMENSIONS INDICATED WITHIN A TOLERANCE OF PLUS OR MINUS 1 INCH. DO NOT DISTURB BOTTOM OF EXCAVATIONS INTENDED AS BEARING SURFACES.
- B. EXCAVATIONS AT EDGES OF TREE- AND PLANT-PROTECTION ZONES.
  1. EXCAVATE BY HAND TO INDICATED LINES, CROSS SECTIONS, ELEVATIONS, AND SUBGRADES. USE NARROW-TINE SPADING FORKS TO COMB SOIL AND EXPOSE ROOTS. DO NOT BREAK, TEAR, OR CHOP EXPOSED ROOTS. DO NOT USE MECHANICAL EQUIPMENT THAT RIPS, TEARS, OR PULLS ROOTS.
  2. CUT AND PROTECT ROOTS ACCORDING TO REQUIREMENTS IN DIVISION 2 SECTION "TREE PROTECTION AND TRIMMING."

3.5 EXCAVATION FOR WALKS AND PAVEMENTS
- A. EXCAVATE SURFACES UNDER WALKS AND PAVEMENTS TO INDICATED LINES, CROSS SECTIONS, ELEVATIONS, AND SUBGRADES.

3.6 EXCAVATION FOR UTILITY TRENCHES
- A. EXCAVATE TRENCHES TO INDICATED GRADIENTS, LINES, DEPTHS, AND ELEVATIONS.
- B. EXCAVATE TRENCHES TO UNIFORM WIDTHS TO PROVIDE THE FOLLOWING CLEARANCE ON EACH SIDE OF PIPE OR CONDUIT. EXCAVATE TRENCH WALLS VERTICALLY FROM TRENCH BOTTOM TO 12 INCHES HIGHER THAN TOP OF PIPE OR CONDUIT UNLESS OTHERWISE INDICATED.
  1. CLEARANCE: [12 INCHES EACH SIDE OF PIPE OR CONDUIT] [AS INDICATED].
- C. TRENCH BOTTOMS: EXCAVATE AND SHAPE TRENCH BOTTOMS TO PROVIDE UNIFORM BEARING AND SUPPORT OF PIPES AND CONDUIT. SHAPE SUBGRADE TO PROVIDE CONTINUOUS SUPPORT FOR BELLS, JOINTS, AND BARRELS OF PIPES AND FOR JOINTS, FITTINGS, AND BODIES OF CONDUITS. REMOVE PROJECTING STONES AND SHARP OBJECTS ALONG TRENCH SUBGRADE.
  1. FOR PIPES AND CONDUIT LESS THAN 6 INCHES IN NOMINAL DIAMETER, HAND-EXCAVATE TRENCH BOTTOMS AND SUPPORT PIPE AND CONDUIT ON UNDISTURBED SUBGRADE.
  2. FOR PIPES AND CONDUIT 6 INCHES OR LARGER IN NOMINAL DIAMETER, SHAPE BOTTOM OF TRENCH TO SUPPORT BOTTOM 90 DEGREES OF PIPE OR CONDUIT CIRCUMFERENCE. FILL DEPRESSIONS WITH TAMPED SAND BACKFILL.
  3. FOR FLAT-BOTTOMED, MULTIPLE-DUCT CONDUIT UNITS, HAND-EXCAVATE TRENCH BOTTOMS AND SUPPORT CONDUIT ON AN UNDISTURBED SUBGRADE.
  4. EXCAVATE TRENCHES 6 INCHES D

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PLANNERS AND ENGINEERS COLLABORATIVE STANDARDS AND SPECIFICATIONS

STORM DRAINAGE (CONT'D)

1.4 DELIVERY, STORAGE, AND HANDLING
A. PROTECT PIPE, PIPE FITTINGS, AND SEALS FROM DIRT AND DAMAGE.
B. HANDLE MANHOLES ACCORDING TO MANUFACTURER'S WRITTEN RIGGING INSTRUCTIONS.
C. HANDLE CATCH BASINS AND STORMWATER INLETS ACCORDING TO MANUFACTURER'S WRITTEN RIGGING INSTRUCTIONS.

1.5 PROJECT CONDITIONS
A. INTERRUPTION OF EXISTING STORM DRAINAGE SERVICE: DO NOT INTERRUPT SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY SERVICE ACCORDING TO REQUIREMENTS INDICATED:
1. NOTIFY [ARCHITECT] [CONSTRUCTION MANAGER] [OWNER] NO FEWER THAN [TWO] DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF SERVICE.
2. DO NOT PROCEED WITH INTERRUPTION OF SERVICE WITHOUT [ARCHITECT'S] [CONSTRUCTION MANAGER'S] [OWNER'S] WRITTEN PERMISSION.

PART 2 - PRODUCTS

2.1 STEEL PIPE AND FITTINGS
A. ALUMINIZED TYPE II CORRUGATED - STEEL PIPE AND FITTINGS: ASTM A 760/A 760M, TYPE L OR AASHTO M36 WITH FITTINGS OF SIMILAR FORM AND CONSTRUCTION AS PIPE,
1. SPECIAL-JOINT BANDS: CORRUGATED STEEL, H-12 HUGGER BANDS WITH BAR, BOLT AND STRAP CONNECTOR.

2.2 ALUMINUM PIPE AND FITTINGS
A. CORRUGATED ALUMINUM PIPE AND FITTINGS: ASTM B 745/B 745M, TYPE I WITH FITTINGS OF SIMILAR FORM AND CONSTRUCTION AS PIPE,
1. SPECIAL-JOINT BANDS: CORRUGATED STEEL WITH O-RING SEALS.

2.3 CONCRETE PIPE AND FITTINGS
A. REINFORCED-CONCRETE SEWER PIPE AND FITTINGS: ASTM C 76.
1. BELL-AND-SPIGOT ENDS AND [GASKETED JOINTS WITH ASTM C 443, RUBBER GASKETS] [SEALANT JOINTS WITH ASTM C 990, BITUMEN OR BUTYL-RUBBER SEALANT],
2. CLASS I, [WALL A] [WALL B],
3. CLASS IV, [WALL A] [WALL B][WALL C].

2.4 HDPE PIPE AND FITTINGS
A. SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS AND FITTINGS:AASHTO M252 (4"-10" DIAMETER) AASHTO M294 (12"-48")
B. JOINT PERFORMANCE: PIPES SHALL BE JOINTED BY BELL AND SPIGOT ACCORDING AASHTO M252, M294, OR ASTM F2306. THE JOINT SHALL BE SOIL TIGHT AND GASKETS, WHEN APPLICABLE, SHALL MEET THE REQUIREMENTS OF ASTM F477,
C. FITTINGS: FITTINGS SHALL CONFORM TO AASHTO M252, M294, OR ASTM F2306. BELL AND SPIGOT CONNECTIONS SHALL UTILIZE A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET MEETING THE SOIL TIGHT JOINT PERFORMANCE REQUIREMENTS OF AASHTO M252, M294, OR ASTM F2306.

2.5 NONPRESSURE TRANSITION COUPLINGS
A. SLEEVE MATERIALS:
1. FOR CONCRETE PIPES: ASTM C 443, RUBBER,

2.6 DRAINS
A. CAST-IRON AREA DRAINS:
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, [PROVIDE PRODUCTS BY ONE OF THE FOLLOWING][AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING]:

2.7 MANHOLES
A. STANDARD PRECAST CONCRETE MANHOLES:
1. DESCRIPTION: ASTM C 478, PRECAST, REINFORCED CONCRETE, OF DEPTH INDICATED, WITH PROVISION FOR SEALANT JOINTS.
2. DIAMETER: 48 INCHES MINIMUM UNLESS OTHERWISE INDICATED.
3. RISER SECTIONS: 4-INCH MINIMUM THICKNESS, AND LENGTHS TO PROVIDE DEPTH INDICATED,
4. TOP SECTION: ECCENTRIC-CONE TYPE UNLESS CONCENTRIC-CONE OR FLAT-SLAB-TOP TYPE IS INDICATED, TOP OF CONE OF SIZE THAT MATCHES GRADE RINGS,
5. JOINT SEALANT: ASTM C 990, BITUMEN OR BUTYL RUBBER.
6. STEPS: [INDIVIDUAL FRP STEPS OR FRP LADDER][INDIVIDUAL FRP STEPS; FRP LADDER; OR ASTM A 615/A 615M, DEFORMED, 1/2-INCH STEEL REINFORCING RODS ENCASED IN ASTM D 4101, PP][ASTM A 615/A 615M, DEFORMED, 1/2-INCH-STEEL REINFORCING RODS ENCASED IN ASTM D 4101, PP] WIDE ENOUGH TO ALLOW WORKER TO PLACE BOTH FEET ON ONE STEP AND DESIGNED TO PREVENT LATERAL SLIPPAGE OFF STEP. CAST OR ANCHOR STEPS INTO SIDEWALLS AT 12- TO 16-INCH INTERVALS, OMIT STEPS IF TOTAL DEPTH FROM FLOOR OF MANHOLE TO FINISHED GRADE IS LESS THAN [60 INCHES].
7. GRADE RINGS: REINFORCED-CONCRETE RINGS, 6- TO 9-INCH TOTAL THICKNESS, TO MATCH DIAMETER OF MANHOLE FRAME AND COVER, AND HEIGHT AS REQUIRED TO ADJUST MANHOLE FRAME AND COVER TO INDICATED ELEVATION AND SLOPE.
B. MANHOLE FRAMES AND COVERS:
1. DESCRIPTION: FERROUS 24-INCH ILL BY 7- TO 9-INCH RISER WITH 4-INCH MINIMUM WIDTH FLANGE AND 26-INCH DIAMETER COVER. INCLUDE INDENTED TOP DESIGN WITH LETTERING CAST INTO COVER, USING WORDING EQUIVALENT TO "STORM SEWER."
2. MATERIAL: [ASTM A 536, GRADE 60-40-18 DUCTILE][ASTM A 48/A 48M, CLASS 35 GRAY] IRON UNLESS OTHERWISE INDICATED.

2.8 POLYMER-CONCRETE, CHANNEL DRAINAGE SYSTEMS
A. DRAINAGE SPECIALTIES: PRECAST, POLYMER-CONCRETE UNITS.

2.9 CATCH BASINS
A. STANDARD PRECAST CONCRETE CATCH BASINS:
1. DESCRIPTION: ASTM C 478, PRECAST, REINFORCED CONCRETE, OF DEPTH INDICATED, WITH PROVISION FOR SEALANT JOINTS.
2. BASE SECTION: 6-INCH MINIMUM THICKNESS FOR FLOOR SLAB AND 4-INCH MINIMUM THICKNESS FOR WALLS AND BASE RISER SECTION, AND SEPARATE BASE SLAB OR BASE SECTION WITH INTEGRAL FLOOR.
3. RISER SECTIONS: 4-INCH MINIMUM THICKNESS, 48-INCH DIAMETER, AND LENGTHS TO PROVIDE DEPTH INDICATED,
4. TOP SECTION: ECCENTRIC-CONE TYPE UNLESS CONCENTRIC-CONE OR FLAT-SLAB-TOP TYPE IS INDICATED, TOP OF CONE OF SIZE THAT MATCHES GRADE RINGS,
5. JOINT SEALANT: ASTM C 990, BITUMEN OR BUTYL RUBBER.
6. ADJUSTING RINGS: INTERLOCKING RINGS WITH LEVEL OR SLOPED EDGE IN THICKNESS AND SHAPE MATCHING CATCH BASIN FRAME AND GRATE. INCLUDE SEALANT RECOMMENDED BY RING MANUFACTURER.
7. GRADE RINGS: INCLUDE TWO OR THREE REINFORCED-CONCRETE RINGS, OF 6- TO 9-INCH TOTAL THICKNESS, THAT MATCH 24-INCH DIAMETER FRAME AND GRATE,
8. STEPS: [INDIVIDUAL FRP STEPS OR FRP LADDER][INDIVIDUAL FRP STEPS; FRP LADDER; OR ASTM A 615/A 615M, DEFORMED, 1/2-INCH STEEL REINFORCING RODS ENCASED IN ASTM D 4101, PP][ASTM A 615/A 615M, DEFORMED, 1/2-INCH-STEEL REINFORCING RODS ENCASED IN ASTM D 4101, PP] WIDE ENOUGH TO ALLOW WORKER TO PLACE BOTH FEET ON ONE STEP AND DESIGNED TO PREVENT LATERAL SLIPPAGE OFF STEP. CAST OR ANCHOR STEPS INTO SIDEWALLS AT 12- TO 16-INCH INTERVALS. OMIT STEPS IF TOTAL DEPTH FROM FLOOR OF CATCH BASIN TO FINISHED GRADE IS LESS THAN [60 INCHES].
9. PIPE CONNECTORS: ASTM C 923, RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO BASE SECTION,
B. FRAMES AND GRATES: ASTM A 536, GRADE 60-40-18, DUCTILE IRON DESIGNED FOR A-16, STRUCTURAL LOADING. INCLUDE FLAT GRATE WITH SMALL SQUARE OR SHORT-SLOTTED DRAINAGE OPENINGS,
1. SIZE: 24 BY 24 INCHES MINIMUM UNLESS OTHERWISE INDICATED,

2.10 STORMWATER INLETS
A. CURB INLETS: MADE WITH VERTICAL CURB OPENING [OF MATERIALS AND DIMENSIONS ACCORDING TO UTILITY STANDARDS],
B. COMBINATION INLETS: MADE WITH VERTICAL CURB AND HORIZONTAL GUTTER OPENINGS [OF MATERIALS AND DIMENSIONS ACCORDING TO UTILITY STANDARDS]. INCLUDE HEAVY-DUTY FRAMES AND GRATES.

2.11 STORMWATER DETENTION OUTLET CONTROL STRUCTURES
A. CAST-IN-PLACE CONCRETE, STORMWATER DETENTION OUTLET CONTROL STRUCTURES: CONSTRUCTED OF REINFORCED-CONCRETE BOTTOM, WALLS, AND TOP: DESIGNED ACCORDING TO ASTM C 890 FOR A-16 (AASHTO HS20-44), HEAVY-TRAFFIC, STRUCTURAL LOADING; OF DEPTH, SHAPE, DIMENSIONS, AND APPURTENANCES INDICATED.
1. BALLAST: INCREASE THICKNESS OF CONCRETE AS REQUIRED TO PREVENT FLOTATION.

2.12 PIPE OUTLETS
A. HEAD WALLS: CAST-IN-PLACE REINFORCED CONCRETE, WITH APRON AND TAPERED SIDES.
B. RIPRAP BASINS: BROKEN, IRREGULARLY SIZED AND SHAPED, GRADED STONE ACCORDING TO NSSGA'S "QUARRIED STONE FOR EROSION AND SEDIMENT CONTROL."
C. FILTER STONE: ACCORDING TO NSSGA'S "QUARRIED STONE FOR EROSION AND SEDIMENT CONTROL," NO. FS-2, NO.4 SCREEN OPENING, AVERAGE-SIZE GRADED STONE.
D. ENERGY DISSIPATERS: ACCORDING TO NSSGA'S "QUARRIED STONE FOR EROSION AND SEDIMENT CONTROL," NO. A-4, 3-TON AVERAGE WEIGHT ARMOR STONE, UNLESS OTHERWISE INDICATED.

PART 3 - EXECUTION

3.1 EARTHWORK
A. EXCAVATION, TRENCHING, AND BACKFILLING ARE SPECIFIED IN DIVISION 2 SECTION "EARTHWORK."

3.2 PIPING INSTALLATION
A. GENERAL LOCATIONS AND ARRANGEMENTS: DRAWING PLANS AND DETAILS INDICATE GENERAL LOCATION AND ARRANGEMENT OF UNDERGROUND STORM DRAINAGE PIPING. LOCATION AND ARRANGEMENT OF PIPING LAYOUT TAKE INTO ACCOUNT DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED, TO EXTENT PRACTICAL, WHERE SPECIFIC INSTALLATION IS NOT INDICATED, FOLLOW PIPING MANUFACTURER'S WRITTEN INSTRUCTIONS.
B. INSTALL PIPING BEGINNING AT LOW POINT, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL GASKETS, SEALS, SLEEVES, AND COUPLINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER INSTALLATION REQUIREMENTS.
C. INSTALL MANHOLES FOR CHANGES IN DIRECTION UNLESS FITTINGS ARE INDICATED. USE FITTINGS FOR BRANCH CONNECTIONS UNLESS DIRECT TAP INTO EXISTING SEWER IS INDICATED.
D. INSTALL PROPER SIZE INCREASERS, REDUCERS, AND COUPLINGS WHERE DIFFERENT SIZES OR MATERIALS OF PIPES AND FITTINGS ARE CONNECTED. REDUCING SIZE OF PIPING IN DIRECTION OF FLOW IS PROHIBITED.
E. WHEN INSTALLING PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED, USE PIPEJACKING PROCESS OF MICRO-TUNNELING.

STORM DRAINAGE (CONT'D)

F. INSTALL GRAVITY-FLOW, NON-PRESSURE DRAINAGE PIPING ACCORDING TO THE FOLLOWING:
1. INSTALL PIPING PITCHED DOWN IN DIRECTION OF FLOW.
2. INSTALL PIPING WITH 36-INCH MINIMUM COVER,
3. INSTALL CORRUGATED STEEL PIPING ACCORDING TO ASTM A 798/A 798M.
4. INSTALL CORRUGATED ALUMINUM PIPING ACCORDING TO ASTM B 788/B 788M.
5. INSTALL REINFORCED-CONCRETE SEWER PIPING ACCORDING TO ASTM C 1479 AND ACPA'S "CONCRETE PIPE INSTALLATION MANUAL."
6. INSTALL HDPE PIPE ACCORDING TO SECTION 550 OF THE GDOT STANDARD SPECIFICATIONS

3.3 PIPE JOINT CONSTRUCTION
A. JOIN GRAVITY-FLOW, NON-PRESSURE DRAINAGE PIPING ACCORDING TO THE FOLLOWING:
1. JOIN CORRUGATED STEEL SEWER PIPING ACCORDING TO ASTM A 798/A 798M.
2. JOIN CORRUGATED ALUMINUM SEWER PIPING ACCORDING TO ASTM B 788/B 788M.
3. JOIN REINFORCED-CONCRETE SEWER PIPING ACCORDING TO ACPA'S "CONCRETE PIPE INSTALLATION MANUAL" FOR RUBBER-GASKETED JOINTS.
4. JOIN HDPE PIPING ACCORDING TO AASHTO M252, M294, OR ASTM F2306.

3.4 DRAIN INSTALLATION
A. INSTALL TYPE OF DRAINS IN LOCATIONS INDICATED.
1. USE HEAVY-DUTY, TOP-LOADING CLASSIFICATION DRAINS IN [VEHICLE-TRAFFIC SERVICE] AREAS.

3.5 MANHOLE INSTALLATION
A. GENERAL: INSTALL MANHOLES, COMPLETE WITH APPURTENANCES AND ACCESSORIES INDICATED.
B. INSTALL PRECAST CONCRETE MANHOLE SECTIONS WITH SEALANTS ACCORDING TO ASTM C 891.
C. SET TOPS OF FRAMES AND COVERS FLUSH WITH FINISHED SURFACE OF MANHOLES THAT OCCUR IN PAVEMENTS. SET TOPS [3 INCHES] ABOVE FINISHED SURFACE ELSEWHERE UNLESS OTHERWISE INDICATED.

3.6 CATCH BASIN INSTALLATION
A. CONSTRUCT CATCH BASINS TO SIZES AND SHAPES INDICATED.
B. SET FRAMES AND GRATES TO ELEVATIONS INDICATED,

3.7 STORMWATER INLET INSTALLATION
A. CONSTRUCT INLET HEADWALLS, APRONS, AND SIDES OF REINFORCED CONCRETE, AS INDICATED.
B. CONSTRUCT RIPRAP OF BROKEN STONE, AS INDICATED.
C. INSTALL OUTLETS THAT SPILL ONTO GRADE, WITH FLARED END SECTIONS THAT MATCH PIPE, WHERE INDICATED.
D. CONSTRUCT ENERGY DISSIPATERS AT OUTLETS, AS INDICATED.

3.8 CONCRETE PLACEMENT
A. PLACE CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318, 3.9

3.10 CHANNEL DRAINAGE SYSTEM INSTALLATION
A. INSTALL WITH TOP SURFACES OF COMPONENTS, EXCEPT PIPING, FLUSH WITH FINISHED SURFACE.
B. ASSEMBLE CHANNEL SECTIONS TO FORM SLOPE DOWN TOWARD DRAIN OUTLETS. USE SEALANTS, ADHESIVES, FASTENERS, AND OTHER MATERIALS RECOMMENDED BY SYSTEM MANUFACTURER.
C. EMBED CHANNEL SECTIONS AND DRAINAGE SPECIALTIES IN [4-INCH] MINIMUM CONCRETE AROUND BOTTOM AND SIDES.
D. FASTEN GRATES TO CHANNEL SECTIONS IF INDICATED.
E. ASSEMBLE CHANNEL SECTIONS WITH FLANGED OR INTERLOCKING JOINTS.
F. EMBED CHANNEL SECTIONS IN [4-INCH] MINIMUM CONCRETE AROUND BOTTOM AND SIDES.

3.10 CONNECTIONS
A. CONNECT NON-PRESSURE, GRAVITY-FLOW DRAINAGE PIPING IN BUILDING'S STORM BUILDING DRAINS SPECIFIED IN DIVISION 15 SECTION "STORM DRAINAGE PIPING."
B. CONNECT FORCE-MAIN PIPING TO BUILDING'S STORM DRAINAGE FORCE MAINS SPECIFIED IN DIVISION 15 SECTION "STORM DRAINAGE PIPING." TERMINATE PIPING WHERE INDICATED.
C. MAKE CONNECTIONS TO EXISTING PIPING AND UNDERGROUND MANHOLES.
1. USE COMMERCIALLY MANUFACTURED WYE FITTINGS FOR PIPING BRANCH CONNECTIONS. REMOVE SECTION OF EXISTING PIPE; INSTALL WYE FITTING INTO EXISTING PIPING, AND ENCASE ENTIRE WYE FITTING, PLUS 6-INCH OVERLAP, WITH NOT LESS THAN 6 INCHES OF CONCRETE WITH 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
2. MAKE BRANCH CONNECTIONS FROM SIDE INTO EXISTING PIPING, NPS 4 TO NPS 20. REMOVE SECTION OF EXISTING PIPE, INSTALL WYE FITTING INTO EXISTING PIPING, AND ENCASE ENTIRE WYE WITH NOT LESS THAN 6 INCHES OF CONCRETE WITH 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
3. MAKE BRANCH CONNECTIONS FROM SIDE INTO EXISTING PIPING, NPS 21 OR LARGER, OR TO UNDERGROUND MANHOLES AND STRUCTURES BY CUTTING INTO EXISTING UNIT AND CREATING AN OPENING LARGE ENOUGH TO ALLOW 3 INCHES OF CONCRETE TO BE PACKED AROUND ENTERING CONNECTION. CUT END OF CONNECTION PIPE PASSING THROUGH PIPE OR STRUCTURE WALL TO CONFORM TO SHAPE OF AND BE FLUSH WITH INSIDE WALL UNLESS OTHERWISE INDICATED. ON OUTSIDE OF PIPE, MANHOLE, OR STRUCTURE WALL, ENCASE ENTERING CONNECTION IN 6 INCHES OF CONCRETE FOR MINIMUM LENGTH OF 12 INCHES TO PROVIDE ADDITIONAL SUPPORT OF COLLAR FROM CONNECTION TO UNDISTURBED GROUND.
a. USE CONCRETE THAT WILL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE INDICATED.
b. USE EPOXY-BONDING COMPOUND AS INTERFACE BETWEEN NEW AND EXISTING CONCRETE AND PIPING MATERIALS.
4. PROTECT EXISTING PIPING, MANHOLES, AND STRUCTURES TO PREVENT CONCRETE OR DEBRIS FROM ENTERING WHILE MAKING TAP CONNECTIONS. REMOVE DEBRIS OR OTHER EXTRANEOUS MATERIAL THAT MAY ACCUMULATE.
D. CONNECT TO SEDIMENT INTERCEPTORS SPECIFIED IN DIVISION 2 SECTION "INTERCEPTORS."
E. PIPE COUPLINGS, EXPANSION JOINTS, AND DEFLECTION FITTINGS WITH PRESSURE RATINGS AT LEAST EQUAL TO PIPING RATING MAY BE USED IN APPLICATIONS BELOW UNLESS OTHERWISE INDICATED.
1. USE NON-PRESSURE-TYPE, FLEXIBLE COUPLINGS WHERE REQUIRED TO JOIN GRAVITY-FLOW, NON-PRESSURE SEWER PIPING UNLESS OTHERWISE INDICATED,
a. [UNSHIELDED][SHIELDED] FLEXIBLE COUPLINGS FOR SAME OR MINOR DIFFERENCE OD PIPES.
b. UNSHIELDED, INCREASER/REDUCER-PATTERN, FLEXIBLE COUPLINGS FOR PIPES WITH DIFFERENT OD.
c. RING-TYPE FLEXIBLE COUPLINGS FOR PIPING OF DIFFERENT SIZES WHERE ANNULAR SPACE BETWEEN SMALLER PIPING'S OD AND LARGER PIPING'S ID PERMITS INSTALLATION.
2. USE PRESSURE-TYPE PIPE COUPLINGS FOR FORCE-MAIN JOINTS.

3.11 CLOSING ABANDONED STORM DRAINAGE SYSTEMS
A. ABANDONED PIPING: CLOSE OPEN ENDS OF ABANDONED UNDERGROUND PIPING INDICATED TO REMAIN IN PLACE. INCLUDE CLOSURES STRONG ENOUGH TO WITHSTAND HYDROSTATIC AND EARTH PRESSURES THAT MAY RESULT AFTER ENDS OF ABANDONED PIPING HAVE BEEN CLOSED. USE EITHER PROCEDURE BELOW:
1. CLOSE OPEN ENDS OF PIPING WITH AT LEAST [8-INCH] THICK, BRICK MASONRY BULKHEADS.
2. CLOSE OPEN ENDS OF PIPING WITH THREADED METAL CAPS, PLASTIC PLUGS, OR OTHER ACCEPTABLE METHODS SUITABLE FOR SIZE AND TYPE OF MATERIAL BEING CLOSED. DO NOT USE WOOD PLUGS.
B. ABANDONED MANHOLES AND STRUCTURES: EXCAVATE AROUND MANHOLES AND STRUCTURES AS REQUIRED AND USE ONE PROCEDURE BELOW:
1. REMOVE MANHOLE OR STRUCTURE AND CLOSE OPEN ENDS OF REMAINING PIPING.
2. REMOVE TOP OF MANHOLE OR STRUCTURE DOWN TO AT LEAST [36 INCHES] BELOW FINAL GRADE. FILL TO WITHIN [12 INCHES] OF TOP WITH STONE, RUBBLE, GRAVEL, OR COMPACTED DIRT, FILL TO TOP WITH CONCRETE.
C. BACKFILL TO GRADE ACCORDING TO DIVISION 2 SECTION "EARTHWORK."

3.12 IDENTIFICATION
A. MATERIALS AND THEIR INSTALLATION ARE SPECIFIED IN DIVISION 2 SECTION "EARTHWORK." ARRANGE FOR INSTALLATION OF GREEN WARNING TAPE DIRECTLY OVER PIPING AND AT OUTSIDE EDGE OF UNDERGROUND STRUCTURES.
1. USE [WARNING TAPE OR] DETECTABLE WARNING TAPE OVER NONFERROUS PIPING AND OVER EDGES OF UNDERGROUND STRUCTURES.

3.13 FIELD QUALITY CONTROL
A. INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. INSPECT AFTER APPROXIMATELY 24 INCHES OF BACKFILL IS IN PLACE, AND AGAIN AT COMPLETION OF PROJECT.
1. SUBMIT SEPARATE REPORTS FOR EACH SYSTEM INSPECTION.
2. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
a. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
b. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
c. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
d. INFILTRATION: WATER LEAKAGE INTO PIPING.
e. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING.
3. REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTIONS UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
4. RE-INSPECT AND REPEAT PROCEDURE UNTIL RESULTS ARE SATISFACTORY.
B. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED, FOR LEAKS AND DEFECTS.
1. DO NOT ENCLOSE, COVER, OR PUT INTO SERVICE BEFORE INSPECTION AND APPROVAL.
2. TEST COMPLETED PIPING SYSTEMS ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
3. SCHEDULE TESTS AND INSPECTIONS BY AUTHORITIES HAVING JURISDICTION WITH AT LEAST 24 HOURS ADVANCE NOTICE.
4. SUBMIT SEPARATE REPORT FOR EACH TEST.
5. GRAVITY-FLOW STORM DRAINAGE PIPING: TEST ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, UNI-B-6, AND THE FOLLOWING:
a. EXCEPTION: PIPING WITH SOIL TIGHT JOINTS UNLESS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
b. OPTION: TEST CONCRETE PIPING ACCORDING TO ASTM C 924.
C. REPLACE LEAKING PIPING USING NEW MATERIALS, AND REPEAT TESTING UNTIL LEAKAGE IS WITHIN ALLOWANCES SPECIFIED.

SANITARY SEWER

PART 1 GENERAL

1.1 SCOPE OF WORK
A. SUPPLY ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO INSTALL AND TEST ALL PIPING AND APPURTENANCES AS SPECIFIED.
B. WORK SHALL INCLUDE BUT NOT BE LIMITED TO ALL EXCAVATION, BACKFILLING, SHEETING, SLOPE PROTECTION, DRAINAGE, CONCRETE WORK, RIP-RAP, GRADING, AND ALL OTHER WORK NECESSARY TO COMPLETE THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE PIPE.

1.2 QUALIFICATIONS
A. THE PIPE AND FITTINGS SHALL BE DESIGNED, CONSTRUCTED, AND INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS AS APPLICABLE.

SANITARY (CONT'D)

1.3 SUBMITTALS AND TESTING
A. IF REQUIRED, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A LIST OF MATERIALS TO BE FURNISHED PRIOR TO THE START OF CONSTRUCTION.
B. SUBMIT SHOP DRAWINGS TO THE OWNER, IF REQUIRED.

1.4 INSPECTION
A. ALL PIPE AND FITTINGS TO BE INSTALLED UNDER THIS CONTRACT MAY BE INSPECTED BY THE OWNER AT THE SITE OF MANUFACTURE FOR COMPLIANCE WITH THESE SPECIFICATIONS.

1.5 CONNECTION TO WORK BY OTHERS OR EXISTING LINES
A. FOR EXISTING LINES OR LINES INSTALLED UNDER OTHER CONTRACTS, TO WHICH PIPING OF THIS CONTRACT MUST CONNECT, THE CONTRACTOR SHALL EXPOSE BURIED LINES TO CONFIRM OR DETERMINE END CONNECTION DETAILS, PIPE MATERIAL AND DIAMETER, FURNISH AND INSTALL APPROPRIATE PIPING, AND MAKE PROPER CONNECTIONS.

PART 1 - PRODUCTS

2.1 DUCTILE IRON PIPE AND FITTINGS
A. DUCTILE IRON PIPE SHALL MEET THE FOLLOWING REQUIREMENTS AND BE AS SPECIFIED HEREINAFTER:
B. ALL DUCTILE IRON PIPE USED FOR BELOW-GRADE SERVICE IN THE PROJECT SHALL HAVE PUSH-ON JOINTS AND SHALL MEET THE REQUIREMENTS OF ANSI A21.11 OR AWWA C111, LATEST REVISIONS. DUCTILE IRON PIPE USED IN THE PROJECT FOR ABOVE-GROUND SERVICE OR IN BELOW-GROUND VAULTS SHALL HAVE FLANGED JOINTS CONFORMING TO THE REQUIREMENTS OF ANSI A21.15, LATEST REVISION.
C. ALL DUCTILE IRON JOINTS USED IN THE PROJECT, UNLESS OTHERWISE NOTED, SHALL BE PUSH-ON OR AS SPECIFIED AND SHALL MEET THE REQUIREMENTS OF ANSI SPECIFICATIONS A 21,11 OR AWWA C111, LATEST REVISIONS.

FITTINGS:
MECHANICAL JOINT FITTINGS:
FITTINGS SHALL BE DUCTILE IRON COMPACT FITTINGS CONFORMING TO ANSI A21.53. THE RUBBER GASKET JOINTS SHALL CONFORM TO ANSI A21.11. BOLTS SHALL BE LOW ALLOY, HIGH STRENGTH EQUAL TO "ACIPOLLY", "USALLOY", OR "CORTEN" BOLTS.

FLANGED FITTINGS:
SHALL CONFORM TO ANSI A21.10 OR A21,11 AND SHALL HAVE FLANGES FACED AND DRILLED IN CONFORMANCE WITH ANSI STANDARD A21,15. JOINTS SHALL BE INSTALLED WITH FULL RING RUBBER GASKET. BOLTS SHALL BE LOW ALLOY, HIGH STRENGTH EQUAL TO "ACIPOLLY", "USALLOY", OR "CORTEN" BOLTS.

2.2 OTHER PIPE MATERIAL
A. OTHER PIPE MATERIALS FOR 16" INTERCEPTORS AND LARGER MAY ONLY BE CONSIDERED AND APPROVED AFTER EVALUATION FOR COMPLIANCE WITH SPECIFICATIONS USED BY LOCAL JURISDICTION FOR PIPE INSTALLATION.

PART 3 - EXECUTION

3.1 GENERAL
A. CARE SHALL BE TAKEN IN LOADING, TRANSPORTING, AND UNLOADING TO PREVENT INJURY TO THE PIPE OR COATINGS. PIPE OR FITTINGS SHALL NOT BE DROPPED. ALL PIPE OR FITTINGS SHALL BE EXAMINED BEFORE LAYING, AND NO PIECE SHALL BE INSTALLED WHICH IS FOUND TO BE DEFECTIVE. ANY DAMAGE TO THE PIPE COATINGS SHALL BE REPAIRED AS DIRECTED BY THE OWNER.
B. PIPE AND FITTINGS SHALL BE SUBJECTED TO A CAREFUL INSPECTION JUST PRIOR TO BEING LAID OR INSTALLED. IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER IT HAS BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE IN A SATISFACTORY MANNER AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE LAYING, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE WORK, AND WHEN INSTALLED OR LAID SHALL CONFORM TO THE LINES AND GRADES REQUIRED.
C. UNLESS SPECIFICALLY INDICATED OTHERWISE, UNDERGROUND PIPING SHALL SLOPE UNIFORMLY BETWEEN JOINTS.
D. CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN CONSTRUCTING PIPING TO PROTECT ALL EXISTING UNDERGROUND UTILITIES AND ALL EXISTING STRUCTURES FROM DAMAGE.

3.2 INSTALLATION
A. PIPE AND FITTINGS SHALL BE INSTALLED USING BEDDING, AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH REQUIREMENTS OF AWWA STANDARD SPECIFICATIONS, EXCEPT AS OTHERWISE PROVIDED HEREIN. A FIRM EVEN BEARING THROUGHOUT THE LENGTH OF THE PIPE SHALL BE CONSTRUCTED BY PLACING AND TAMPING GRANULAR BEDDING MATERIAL AT THE SIDES OF THE PIPE UP TO THE SPRINGLINE, BLOCKING WILL NOT BE PERMITTED. BELL HOLES SHALL BE HAND EXCAVATED TO INSURE UNIFORM BEARING ALONG THE PIPE BARREL.
B. ALL PIPES SHALL BE SOUND AND CLEAN BEFORE INSTALLING. WHEN INSTALLING IS NOT IN PROGRESS, INCLUDING LUNCHTIME, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY WATERTIGHT PLUG OR OTHER APPROVED MEANS. GOOD ALIGNMENT SHALL BE PRESERVED IN LAYING. THE DEFLECTION AT JOINTS SHALL NOT EXCEED THAT RECOMMENDED BY MANUFACTURER.
C. WHEN CUTTING PIPE IS REQUIRED, THE CUTTING SHALL BE DONE BY MACHINE, LEAVING A SMOOTH CUT AT RIGHT ANGLES TO THE AXIS OF THE PIPE. CUT ENDS OF PIPE TO BE USED WITH A BELL SHALL BE BEVELED TO CONFORM TO THE MANUFACTURED SPIGOT END. LINING SHALL BE UNDAMAGED.
D. PUSH-ON JOINTS SHALL BE MADE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PIPE SHALL BE LAID WITH BELL ENDS LOOKING AHEAD. A RUBBER GASKET SHALL BE INSERTED IN THE GROOVE OF THE BELL END OF THE PIPE, AND THE JOINT SURFACES CLEANED AND LUBRICATED. THE PLAIN END OF THE PIPE IS TO BE ALIGNED WITH THE BELL OF THE PIPE TO WHICH IT IS TO BE JOINED, AND PUSHED HOME WITH A JACK OR BY OTHER MEANS. AFTER JOINING THE PIPE, A METAL FEELER SHALL BE USED TO MAKE CERTAIN THAT THE RUBBER GASKET IS CORRECTLY LOCATED.
E. JOINTS AT FITTINGS, AND WHERE DESIGNATED ON THE DRAWINGS AND/OR AS SPECIFIED, SHALL BE IN ACCORDANCE WITH THE "NOTES ON METHOD OF INSTALLATION" UNDER ANSI SPECIFICATION A21.11 AND THE INSTRUCTIONS OF THE MANUFACTURER. TO ASSEMBLE THE JOINTS IN THE FIELD, THOROUGHLY CLEAN THE JOINT SURFACES AND RUBBER GASKET WITH SOAPY WATER BEFORE ASSEMBLY,
F. UNLESS OTHERWISE NOTED, UNDERGROUND PIPING SHALL BE PUSH-ON.
G. ALL FITTINGS AND OTHER APPURTENANCES NEEDED UPON THE PIPELINES SHALL BE SET AND JOINTED AS

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PLANNERS AND ENGINEERS COLLABORATIVE STANDARDS AND SPECIFICATIONS

WATER (CONT'D)

J. ALL PIPING SHALL BE PROPERLY AND ADEQUATELY SUPPORTED. SUPPORTS SHALL BE PROVIDED AS INDICATED ON THE DRAWINGS. IF THE METHOD OF SUPPORT IS NOT INDICATED ON THE DRAWINGS, PIPING SHALL BE SUPPORTED AS DIRECTED BY THE OWNER.
K. THE PROPER NUMBER OF GASKETS AND ALL NECESSARY JOINT MATERIALS, PLUS ONE EXTRA GASKET FOR EVERY 50 JOINTS OR FRACTION THEREOF, SHALL BE FURNISHED WITH THE PIPE AND FITTINGS.
L. PIPE EMBEDMENT SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS. BEDDING AND BACKFILL FOR PIPE SHALL BE AS SHOWN ON THE DRAWINGS.

3.3 PIPE SUPPORTS AND THRUST BLOCKS
A. ALL PIPING SHALL BE PROPERLY AND ADEQUATELY SUPPORTED. CONCRETE PIERS AND PADS SHALL BE PROVIDED AS INDICATED ON THE DRAWINGS. IF THE METHOD OF SUPPORT IS NOT INDICATED ON THE DRAWINGS, EXPOSED PIPING SHALL BE SUPPORTED AS DIRECTED BY THE OWNER.
B. LONGITUDINAL THRUST ALONG PRESSURIZED PIPELINES AT BENDS, TEES, REDUCERS, AND CAPS/PLUGS SHALL BE COUNTERACTED BY ENOUGH WEIGHT OF CONCRETE TO COUNTERBALANCE THE VERTICAL AND HORIZONTAL THRUST FORCES.
C. JOINTS SHALL BE PROTECTED BY FELT ROOFING PAPER PRIOR TO PLACING CONCRETE THRUST BLOCK.
D. BEARING AREA OF THRUST BLOCKS SHALL BE ADEQUATE TO PREVENT ANY MOVEMENT OF THE FITTING AND SHALL BE OF THE SIZE AND DIMENSIONS AS SHOWN ON THE DRAWINGS.
E. CONCRETE FOR THRUST BLOCKING SHALL BE 3,000-PSI MINIMUM. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED MATERIAL, AND SHALL NOT COVER JOINTS, BOLTS, OR NUTS, OR INTERFERE WITH THE REMOVAL OF ANY JOINT. WOODEN SIDE FORMS SHALL BE PROVIDED FOR THRUST BLOCKS.
F. RESTRAINED JOINTS, ANCHOR COUPLINGS, RODDING, WEDGE ACTION RETAINER GLANDS, ETC. SHALL BE USED IN ACCORDANCE WITH STANDARD DETAILS AND/OR WHERE SPECIFICALLY INDICATED.

3.4 CLEANING MAINS
A. AT THE CONCLUSION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE NEW PIPE LINE BY FLUSHING WITH WATER OR OTHER MEANS TO REMOVE ALL DIRT, STONES, PIECES OF WOOD, OR OTHER MATERIALS, WHICH MAY HAVE ENTERED DURING THE CONSTRUCTION PERIOD, IF OBSTRUCTIONS REMAIN AFTER THIS CLEANING, THEY SHALL BE REMOVED.

ACCESSIBILITY

CONTRACTOR TO DEVELOP SITE TO ENSURE COMPLIANCE WITH THE FOLLOWING:

- AMERICANS WITH DISABILITIES ACT, TITLE III (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES, 2010 EDITION)
- SECTION 3604 OF THE FAIR HOUSING AMENDMENTS ACT OF 1988 (FAIR HOUSING ACCESSIBILITY GUIDELINES) SAFE HARBOR ANSI A117.1 2003
- ANSI A117.1 2009 AS THE ACCESSIBILITY CODE REFERRED IN IBC 2018

SOME COMMON ISSUES THAT NEED TO BE CONSIDERED ARE AS FOLLOWS:

ADA (2010) 502.4 FLOOR OR GROUND SURFACES:
PARKING SPACES AND ACCESS AISLES SERVING THEM SHALL COMPLY WITH 302. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.
EXCEPTION: SLOPES NOT STEEPER THAN 1:48 SHALL BE PERMITTED.

ADA (2010) 502.6 IDENTIFICATION:
PARKING SPACE IDENTIFICATION SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY COMPLYING WITH 703.7.2.1. SIGNS IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION "VAN ACCESSIBLE". SIGNS SHALL BE 60 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED TO THE BOTTOM OF THE SIGN.

FAIR HOUSING DESIGN MANUAL, PAGE 1.8 - ACCESSIBLE SITE FACILITIES ON ACCESSIBLE ROUTES. THE GUIDELINES REQUIRE ACCESSIBLE AND USABLE PUBLIC AND COMMON USE AREAS. ALL FACILITIES, ELEMENTS, AND SPACES THAT ARE PART OF PUBLIC AND COMMON USE AREAS MUST MEET ANSI 4.1 THROUGH 4.30 AND MUST BE ON AN ACCESSIBLE ROUTE FROM COVERED DWELLING UNITS. SUCH FACILITIES MIGHT INCLUDE OUTSIDE MAILBOXES, SITE FURNISHINGS, OUTSIDE STORAGE AREAS, REFUSE DISPOSAL AREAS, PLAYING FIELDS, AMPHITHEATERS, PICNIC SITES, SWIMMING POOLS AND SUN DECKS, TENNIS COURTS, CLUBHOUSE, PLAYGROUNDS, GAZEBOS, PARKING AREAS, AND ALL OR PART OF NATURE TRAILS AND JOGGING PATHS.

ANSI A117.1 (2017) 302.1 GENERAL:
FLOOR SURFACES SHALL BE STABLE, FIRM, AND SLIP RESISTANT, AND SHALL COMPLY WITH SECTION 302. CHANGES IN LEVEL IN FLOOR SURFACES SHALL COMPLY WITH SECTION 303.

ANSI A117.1 (2017) 303.3 BEVELED:
CHANGES IN LEVEL GREATER THAN ¼ INCH (6.4 MM) IN HEIGHT AND NOT MORE THAN ½ INCH (13 MM) MAXIMUM HEIGHT SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.

ANSI A117.1 (2017) 303.4 RAMPS:
CHANGES IN LEVEL GREATER THAN ½ INCH (13 MM) IN HEIGHT SHALL BE BY A RAMP COMPLYING WITH SECTION 405 OR BY A CURB RAMP COMPLYING WITH SECTION 406.

ANSI A117.1 (2003) 307.2 PROTRUSION LIMITS:
OBJECTS WITH LEADING EDGES MORE THAN 27 INCHES (685 MM) AND NOT MORE THAN 80 INCHES (2030 MM) ABOVE THE FLOOR SHALL PROTRUDE 4 INCHES (100 MM) MAXIMUM HORIZONTALLY INTO A CIRCULATION PATH. EXCEPTION: HANDRAILS SHALL BE PERMITTED TO PROTRUDE 4½ INCHES (115 MM) MAXIMUM.

ANSI A117.1 (2017) 307.3 POST-MOUNTED OBJECTS:
OBJECTS ON POSTS OR PYLONS SHALL BE PERMITTED TO OVERHANG 4 INCHES (100 MM) MAXIMUM WHERE MORE THAN 27 INCHES (685 MM) AND NOT MORE THAN 80 INCHES (2030 MM) ABOVE THE FLOOR. OBJECTS ON MULTIPLE POSTS OR PYLONS WHERE THE CLEAR DISTANCE BETWEEN POSTS OR PYLONS IS GREATER THAN 12 INCHES (305 MM) SHALL HAVE THE LOWEST EDGE OF SUCH OBJECT EITHER 27 INCHES (685 MM) MAXIMUM OR 80 INCHES (2030 MM) MINIMUM ABOVE THE FLOOR, EXCEPTION: SLOPING PORTIONS OF HANDRAILS BETWEEN THE TOP AND BOTTOM RISER OF STAIRS AND ABOVE THE RAMP RUN SHALL NOT BE REQUIRED TO COMPLY WITH THIS SECTION.

ANSI A117.1 (2017) 307.4 VERTICAL CLEARANCE:
VERTICAL CLEARANCE SHALL BE 80 INCHES (2030 MM) MINIMUM. RAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE THE VERTICAL CLEARANCE IS LESS THAN 80 INCHES (2030 MM). THE LEADING EDGE OF SUCH RAILS OR BARRIER SHALL BE LOCATED 27 INCHES (685 MM) MAXIMUM ABOVE THE FLOOR.

ANSI A117.1 (2017) 308.3.1 UNOBSTRUCTED:
WHERE A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE EDGE OF THE CLEAR FLOOR SPACE IS 10 INCHES (255 MM) MAXIMUM FROM THE ELEMENT, THE HIGH SIDE REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM AND THE LOW SIDE REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FLOOR.

ANSI A117.1 (2017) 309.3 HEIGHT:
OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE OF THE REACH RANGES SPECIFIED IN SECTION 308.

ANSI A117.1 (2017) 402.2 COMPONENTS:
ACCESSIBLE ROUTES SHALL CONSIST OF ONE OR MORE OF THE FOLLOWING COMPONENTS: WALKING SURFACES WITH A RUNNING SLOPE NOT STEEPER THAN 1:20, DOORS AND DOORWAYS, GATES, RAMPS, CURB RAMPS EXCLUDING THE FLARED SIDES, BLENDED TRANSITIONS, ELEVATORS AND PLATFORM LIFTS. ALL COMPONENTS OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE APPLICABLE PORTIONS OF THIS STANDARD

ANSI A117.1 (2017) 403.2 FLOOR SURFACE:
FLOOR SURFACES SHALL COMPLY WITH SECTION 302.

ANSI A117.1 (2017) 403.3 SLOPE:
THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20. THE CROSS SLOPE OF A WALKING SURFACE SHALL NOT BE STEEPER THAN 1:48.

ANSI A117.1 (2017) 404.2.3.1 FLOOR SURFACE:
FLOOR SURFACE WITHIN THE MANEUVERING CLEARANCES SHALL HAVE A SLOPE NOT STEEPER THAN 1:48 AND SHALL COMPLY WITH SECTION 302.

ANSI A117.1 (2017) 404.2.3.2 SWINGING DOORS AND GATES:
SWINGING DOORS AND GATES SHALL HAVE MANEUVERING CLEARANCES COMPLYING WITH TABLE 404.2.3.2.

TABLE 404.2.3.2-MANUVERING CLEARANCES AT MANUAL SWINGING DOORS

TYPE OF USE		MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS	
APPROACH DIRECTION	DOOR SIDE	PERPENDICULAR TO DOORWAY	PARALLEL TO DOORWAY (BEYOND LATCH UNLESS NOTED)
FROM FRONT	PULL	60 INCHES	18 INCHES
FROM FRONT	PUSH	52 INCHES[4]	0 INCHES[3]
FROM HINGE SIDE	PULL	60 INCHES	36 INCHES
FROM HINGE SIDE	PULL	54 INCHES	42 INCHES
FROM HINGE SIDE	PUSH	42 INCHES[1]	22 INCHES[3&4]
FROM LATCH SIDE	PULL	48 INCHES[2]	24 INCHES
FROM LATCH SIDE	PUSH	42 INCHES[2]	24 INCHES

[1] ADD 6 INCHES (150 MM) IF CLOSER AND LATCH PROVIDED.
[2] ADD 6 INCHES (150 MM) IF CLOSER PROVIDED.
[3] BEYOND HINGE SIDE.
[4] IN EXISTING BUILDINGS AND FACILITIES, THE DIMENSION PERPENDICULAR TO THE DOOR OR GATE FOR THE FRONT DIRECTION ON THE PUSH SIDE SHALL BE 48 INCHES (1220 MM).

ANSI A117.1 (2017) 405.2 SLOPE:
RAMP RUNS SHALL HAVE A RUNNING SLOPE GREATER THAN 1:20 AND NOT STEEPER THAN 1:12.

ANSI A117.1 (2017) 405.8 HANDRAILS:
RAMP RUNS WITH A RISE GREATER THAN 6 INCHES (150 MM) SHALL HAVE HANDRAILS COMPLYING WITH SECTION 505.

ANSI A117.1 (2017) 406.1 GENERAL:
CURB RAMPS AND BLENDED TRANSITIONS ON ACCESSIBLE ROUTES SHALL COMPLY WITH SECTION 406.

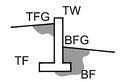
ANSI A117.1 (2017) 502.5 FLOOR SURFACES:
PARKING SPACES AND ACCESS AISLES SHALL COMPLY WITH SECTION 302 AND HAVE SURFACE SLOPES NOT STEEPER THAN 1:48. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE.

ANSI A117.1 (2017) 502.7 IDENTIFICATION:
WHERE PARKING SPACES ARE REQUIRED TO BE IDENTIFIED BY SIGNS, THE SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY COMPLYING WITH SECTION 703.6.3.1. SIGNS IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION 'VAN ACCESSIBLE.' SIGNS SHALL BE 60 INCHES (1525 MM) MINIMUM ABOVE THE FLOOR OF THE PARKING SPACE, MEASURED TO THE BOTTOM OF THE SIGN.

DRAWING LEGEND

FFE XX.XX	FINISHED FLOOR ELEVATION
BFE XX.XX	BASEMENT FLOOR ELEVATION
10.72	SPOT ELEVATION
10 / 8	EXISTING CONTOURS
10 / 8	PROPOSED CONTOURS
W	PROPOSED WATER LINE
	PROPOSED WATER METER
	PROPOSED VALVE & END CAP
	PROPOSED FIRE HYDRANT & FDC
	PROPOSED TEE, BEND & INTERSECTION
	PROPOSED SANITARY SEWER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY CLEANOUT
	PROPOSED GREASE TRAP
	PROPOSED STORM LINE
	PROPOSED JUNCTION BOX
	PROPOSED DROP INLET
	PROPOSED YARD INLET
	PROPOSED CURB INLET
	PROPOSED WEIR INLET
	PROPOSED CATCH BASIN
	PROPOSED HEADWALL
	PROPOSED OUTLET CONTROL STRUCTURE

TYPICAL WALL LABELS
TW = TOP OF WALL
TFG = TOP FINISHED GRADE
BFG = BOTTOM FINISHED GRADE
TF = TOP OF FOOTING
BF = BOTTOM OF FOOTING



SHEET NUMBERING STANDARDS

C0.00	COVER SHEET
C0.01 - C0.99	STANDARD SPECIFICATIONS & GENERAL NOTES
C1.00 - C1.49	ZONING CONDITIONS
C1.50 - C1.99	PRELIMINARY PLAT & ZONING SITE PLANS
C2.00 - C2.99	DEMOLITION PLAN
C3.00 - C3.09	SITE PLAN
C3.10 - C3.19	DIMENSION PLAN
C3.20 - C3.29	SIGNAGE & STRIPING PLAN
C3.30 - C3.39	LOT LAYOUT
C3.40 - C3.49	FIRE ACCESS
C3.50 - C3.59	ADA ACCESSIBILITY PLAN
C3.60 - C3.99	MISCELLANEOUS SITE PLANS
C4.00 - C4.19	GRADING PLAN
C4.20 - C4.39	DRAINAGE PLAN
C4.40 - C4.99	STORMWATER MANAGEMENT
C5.00 - C5.49	UTILITY PLAN
C5.50 - C5.69	WATER PLAN
C5.70 - C5.99	MISCELLANEOUS UTILITY PLANS
C6.00 - C6.09	EROSION CONTROL NOTES
C6.10 - C6.19	INITIAL EROSION CONTROL
C6.20 - C6.29	INTERMEDIATE EROSION CONTROL
C6.30 - C6.39	FINAL EROSION CONTROL
C6.40 - C6.99	EROSION CONTROL DETAILS
C7.00 - C7.49	SANITARY SEWER PROFILES
C7.50 - C7.99	STORM SEWER PROFILES
C8.00 - C8.49	SIGHT DISTANCE PROFILES
C8.50 - C8.99	ROAD PROFILES
C9.00 - C9.99	CONSTRUCTION DETAILS

NOTE: THE ABOVE TABLE SHOWS THE TYPICAL NUMBERING SCHEME FOR CONSTRUCTION PLANS AND IS NOT REPRESENTATIVE OF THE DRAWINGS INCLUDED IN THIS SET OF PLANS. REFER TO THE SHEET INDEX SHOWN ON THE COVER SHEET (C0.00) FOR THE SHEET INDEX REPRESENTATIVE OF THIS SET OF PLANS.

- DETAIL
- TYPICAL DRAWING SET

CITY OF VILLA RICA "CITY OF GOLD" 18 GEORGIA 26
Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
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350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

STANDARD SPECIFICATIONS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C0.03
SHEET

J:\2021\21217.00\Dsk_Plan\sheets\C0.00 - COVER SHEET - 21217.00.dwg - dAscorbi - 9/10/2024 1:44 PM

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GEORGIA WEST ZONE

MATCH LINE — SHEET 2 / SHEET 1



SHEET LEGEND

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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

SHEET 1 OF 6

DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 21217.00
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23

0 25 50 100

GEORGIA REGISTERED No. 3008 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY

FOR

IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY

CARROLL COUNTY GEORGIA

CITY OF VILLA RICA

LAND LOT(S) 161
DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
5			
4			
3			
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
1	3/26/24	ALTA UPDATE	NAV

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C.O.A.-LSF000004

J:\2021\21217\00\Su\Drawings\21217.00 - ALTA2.dwg - Jonathan - 7/31/2024 1:03 PM

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MATCH LINE - SEE SHEET 3

GEORGIA WEST ZONE

GORDON STREET (30' RIGHT OF WAY)

E GORDON STREET (30' RIGHT OF WAY)

P.O.B.
IPS
N: 1,357,933.0
E: 2,068,542.3

N44°16'02"E 148.64'

N57°41'02"W 61.87'

N51°00'32"W 173.80'

N47°12'32"W 321.00'

N44°47'32"W 138.90'

N45°47'7"E 267.65'

N58°31'44"E 937.80'

N49°53'27"E 381.00'

S34°35'45"W 249.42'

S46°57'05"E 114.72'

S47°55'01"E 127.80'

S42°02'18"E 107.24'

N42°12'23"W 153.86'

S56°48'03"W 98.19'

S01°07'33"E 240.06'

S01°16'09"W 195.33'

S00°15'18"W 324.71'

N00°15'18"E 7.45'

ARC=733.63'
R=1596.62'
S75°52'47"W
CH=727.19'

ZONE "A"

ZONE AE FLOODPLAIN TO BE REMOVED

FLOOD LIMITS, SEE NOTE 2

RUSSELL STREET (40' PUBLIC RIGHT OF WAY)

RUBY STREET (50' PUBLIC RIGHT OF WAY)

RIGHT OF WAY PER PB 7 PG 5

SOUTHERN RAILROAD (VARIABLE RIGHT OF WAY)

N/F
CITY OF VILLA RICA
TAX PARCEL ID: V01 0040001
DB 3594 PG 304
PB 69 PG 147

N/F
CAROLINE W. CLARK
TAX PARCEL ID: V05 0150026
DB 4227 PG 271
PB 2 PG 5

N/F
HOUSING AUTHORITY OF THE
CITY OF VILLA RICA
TAX PARCEL ID: V05 0150035
DB 279 PG 390
PB 62 PG 109

N/F
JAMES EARL HEMBREE
TAX PARCEL ID: V05 0150034
DB 304 PG 201

N/F
S. DOUG HEMBREE
TAX PARCEL ID:
V05 0150084
DB 1852 PG 290

N/F
STONE STREET STATION
LIMITED LIABILITY COMPANY
TAX PARCEL ID: V05 0150031
DB 4160 PG 1

N/F
JACQUELINE S. WALDROP
TAX PARCEL ID: V05 0150030
DB 5555 PG 832
PB 19 PG 47
PB 24 PG 137

AREA
25.838± ACRES
1,125,496± SQ. FT.
"NO BUILDINGS"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

BOUNDARY LINE AGREEMENT (EXCEPTION 14–19)

APPROXIMATE NON– EXCLUSIVE EASEMENT FOR SEWER MAINTENANCE (EXCEPTION 20)

20' SANITARY SEWER EASEMENT (EXCEPTION 23)

CREEK CENTERLINE

EDGE OF WRESTED VEGETATION

TOP OF BANK

DITCH

GRAVEL DRIVEWAY

CONCRETE APRON

BUILDING OUTLINE

ASPHALT DRIVE

IPF 1/2" REBAR DISTURBED

IPF 1/2" REBAR (DISTURBED) 0.54' SE OF PROPERTY CORNER

LINETYPES

PROPERTY
- Adjacent Property
- Property Line
- Center of Creek

FENCE LINES
- Barb Wire Fence
- Chain link fence
- Wood Fence
- Woven Wire Fence

SITE / TOPOGRAPHIC FEATURES
- Guardrail

EXISTING OVERHEAD
- Overhead Wires

EXISTING UNDERGROUND
- Cable
- Electric
- Fiber Optic
- Gas
- Telecommunications
- Water
- Television
- Storm Drainage Line
- Sanitary Sewer

ABBREVIATIONS

APPROX.	Approximate	I.E.	Invert Elevation
#4	1/2" Rebar	IPF	Iron Pin Found
C&G	Curb and Gutter	IPS	Iron Pin Set
CLF	Chain Link Fence	LP	Light Pole
CMP	Corrugated Metal Pipe	MW	Monitoring Well
CO	Clean Out	N/F	Now or Formerly
CPP	Corrugated Plastic Pipe	OTP	Open Top Pipe
DB	Deed Book	PB	Plat Book
DI	Drop Inlet	PG	Page
DE	Drainage Easement	PKF	PK Nail Found
EOP	Edge of Pavement	PKS	PK Nail Set
EPP	Electric Power Pole	POB	Point of Beginning
EPAN	Electric Panel	POC	Point of Commencement
ESMT	Easement	PVC	Polyvinyl Chloride Pipe
FES	Flared End Section	RBC	Rebar Capped
FFE	Finish Floor Elevation	RCP	Reinforced Concrete Pipe
FH	Fire Hydrant	RWM	Right of Way Monument
FLGP	Flag Pole	SSE	Sanitary Sewer Easement
GA	Georgia	SSMH	Sanitary Sewer Manhole
GM	Gas Meter	TRAN	Transformer
GW	Guy Wire	VCP	Vitrified Clay Pipe
HDR	Hand Rail	W.D.F.	Wood Fence
H.W.	Hard Wood	WM	Water Meter
HW	Headwall	WV	Water Valve
ICV	Irrigation Control Valve		

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

SHEET 2 OF 6
DRAWN BY: MS
CHECKED BY: JNH
DATE OF FIELD WORK: 5/13/23
DATE: 05/16/2023
SCALE: 1" = 50'
0 25 50 100

GEORGIA REGISTERED No. 3008 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY
CITY OF VILLA RICA CARROLL COUNTY GEORGIA
LAND LOT(S) 161 DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	3/26/24	ALTA UPDATE	NAV
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
3			
4			
5			

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
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(770) 455-7214 WWW.PEC.US
C.O.A.-LSF000004

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CABLE / TV
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- Cable / TV Pedestal
- Cable / TV Manhole
- Cable / TV Handhole
- Cable / TV Cable Box

ELECTRIC/POWER
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- Guy Wire
- Electric Meter
- Power Pole/Utility Pole
- Street Light/Light Pole
- Electric Panel
- Electric Box
- Electric Manhole
- Electric Handhole
- Electric / Power Marker
- Spot Light

FIBER OPTIC
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- Gas Valve
- Gas Fill Cap
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- Street Sign
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- MB Mailbox
- Satellite Dish
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- Monitoring Well
- Antenna
- Column
- Camera Pole / Camera
- Bore Hole Location
- Mile Post
- Rail Road Mile Post

STORM / DRAINAGE
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- Head Wall
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- Curb Inlet
- Flared-in Section
- DS Down Spout

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- TS Telephone Handhole Box
- Traffic Signal Pole
- SLC Traffic Signal Loop Control Box

WATER
- Fire Hydrant
- Irrigation Control Valve
- W Water Meter
- Water Valve
- Fire Department Connection
- W Water Vault
- PIV Pressure Irrigation Valve
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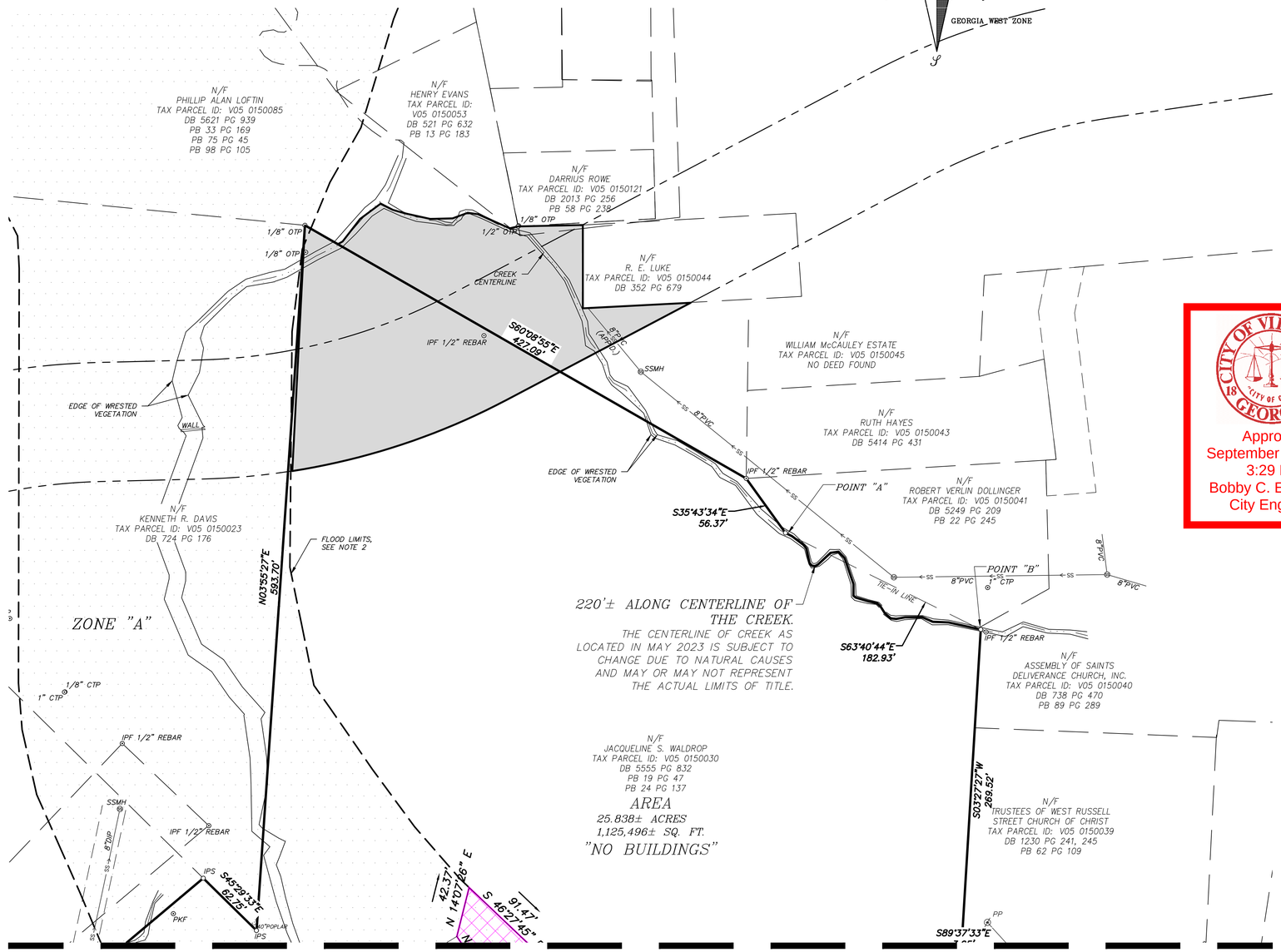
H.W.	Hard Wood	WM	Water Meter
HW	Headwall	WV	Water Valve
ICV	Irrigation Control Valve		



MATCH LINE - SEE SHEET 2

CITY OF VILLA RICA GEORGIA "CITY OF GOLD" 18 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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

SHEET 3 OF 6
DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 21217.00
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23
0 25 50 100

GEORGIA REGISTERED No. 3006 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY
CARROLL COUNTY GEORGIA
CITY OF VILLA RICA
LAND LOT(S) 161 DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	3/26/24	ALTA UPDATE	NAV
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
3			
4			
5			

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(770)-421-1224 WWW.PECLLC.US
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MATCH LINE - SEE SHEET 5

GEORGIA WEST ZONE

GORDON STREET (30' RIGHT OF WAY)

E GORDON STREET (30' RIGHT OF WAY)

RUSSELL STREET (40' PUBLIC RIGHT OF WAY)

RUBY STREET (50' PUBLIC RIGHT OF WAY)

SOUTHERN RAILROAD (VARIABLE RIGHT OF WAY)

ZONE "A"

ZONE AE FLOODPLAIN TO BE REMOVED

FLOOD LIMITS, SEE NOTE 2

CREEK CENTERLINE

EDGE OF WRESTED VEGETATION

TOP OF BANK

DITCH

GRAVEL DRIVEWAY

CONCRETE APRON

BUILDING OUTLINE

EDGE OF PAVEMENT

ASPHALT DRIVE

SSMH TOP=1134.20 I.E.(O)=1128.70 I.E.(O)=1128.60

SSMH TOP=1118.79 I.E.(I)=1111.79 I.E.(O)=1111.69

SSMH TOP=1118.37 I.E.(I)=1110.97 I.E.(O)=1110.92 (8"PVC)

SSMH TOP=1111.65 I.E.(I)=1103.7 I.E.(O)=1103.65

SSMH TOP=1104.92 I.E.(I)=1099.27 (SW) I.E.(I)=1098.52 (S) I.E.(I)=1098.17 (SE) I.E.(O)=1098.62 (6") I.E.(O)=1097.12

SSMH TOP=1101.83 I.E.(I)=1098.98 I.E.(O)=1098.93

SSMH TOP=1117.60 I.E.(I)=1110.25 I.E.(O)=1108.45

SSMH TOP=1127.54 I.E.(I)=1119.94 I.E.(O)=1118.04

SSMH TOP=1132.95 I.E.(I)=1125.65 I.E.(O)=1123.60

SSMH TOP=1118.55 I.E.(I)=1111.90 I.E.(O)=1111.80

SSMH TOP=1106.76 I.E.(I)=1101.11 I.E.(O)=1101.06 (NO FLOW) I.E.(O)=1101.01

TOP=1114.02 15"CMP

TOP=1113.19

24"CMP

6"PVC (APP.D.)

I.E.=1103.74

I.E.=1105.44

8"PVC

I.E.=1104.15

18"CMP

TOP=1114.48 WEIR EL=1114.35 I.E.(O)=1109.68

24"CMP (APP.D.)

I.E.=1109.01 I.E.=1107.64 I.E.=1108.66

EXPOSED 8"DIP I.E.=1099.79

24"CMP

I.E.=1097.86

I.E.=1098.43

I.E.=1098.47

EXPOSED 8"DIP

I.E.=1097.78

8"DIP (APP.D.)

I.E.=1098.01

6"CLAY (APP.D.)

EXPOSED 8"DIP

8"CLAY

8"PVC

I.E.=1130.22

I.E.=1134.46

27"CMP (APP.D.)

24"CMP

24"CMP

25' RETURN

WI TOP=1139.44 I.E.(O)=1134.19

T.B.M. TRAVERSE POINT ELEVATION 1138.43

T.B.M. TRAVERSE POINT ELEVATION 1142.42

T.B.M. TRAVERSE POINT ELEVATION 1130.37

Know what's below. Call before you dig.

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

SHEET 4 OF 6

DRAWN BY: MS
CHECKED BY: JNH
FIELD WORK: 5/13/23
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23

0 25 50 100

GEORGIA REGISTERED No. 3008 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY

CARROLL COUNTY GEORGIA
CITY OF VILLA RICA

LAND LOT(S) 161 DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	3/26/24	ALTA UPDATE	NAV
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
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4			
5			

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811
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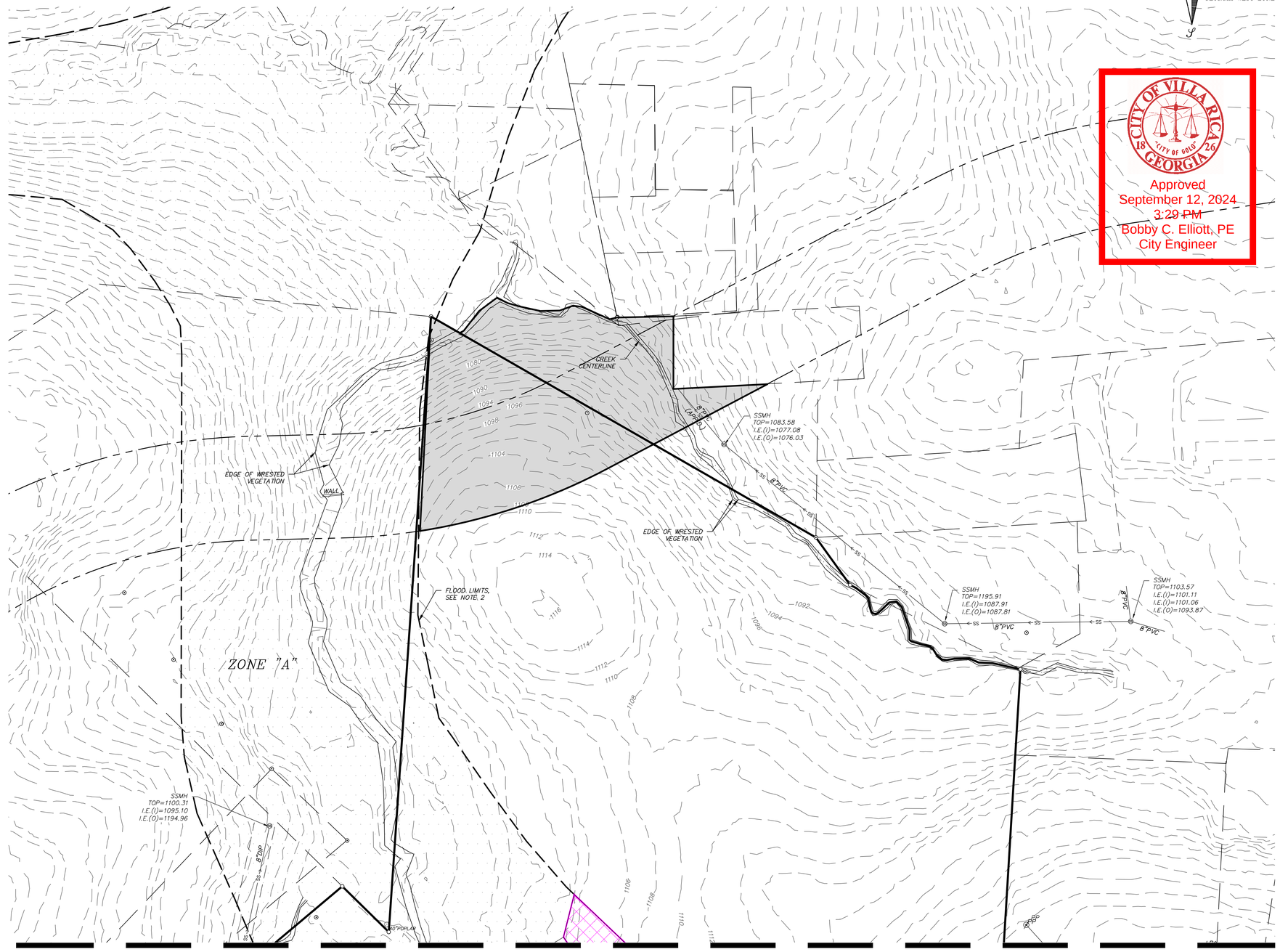

GEORGIA WEST ZONE

CITY OF VILLA RICA GEORGIA "CITY OF GOLF" 18 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

SHEET 5 OF 6
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LAND LOT(S) 161
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NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION SUPPLIED AND TO THE SURVEYOR'S BEST KNOWLEDGE ARE APPROXIMATELY AS SHOWN. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ALL UTILITIES SERVING THE PROPERTY ENTER THROUGH ADJOINING PUBLIC STREETS AND/OR EASEMENTS OF RECORD.

2. I HAVE EXAMINED THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CARROLL COUNTY, GEORGIA AND INCORPORATED AREAS, COMMUNITY PANEL NUMBER 13045C0156D, PANEL 156 OF 430, EFFECTIVE DATE SEPTEMBER 19, 2007 AND FOUND A PORTION OF THE PROPERTY SHOWN HEREON TO FALL WITHIN A DESIGNATED FLOOD ZONE "A" (AREAS OF 100 YEAR FLOOD). THE PROPERTY SHOWN HEREON TO FALL WITHIN A DESIGNATED FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

3. THE ORTHOMETRIC HEIGHTS (ELEVATIONS AND CONTOURS) SHOWN HEREON WERE DETERMINED BY GPS OBSERVATIONS AND WERE ADJUSTED BY PLANNERS AND ENGINEERS COLLABORATIVE IN APRIL / MAY 2023. NORTH AMERICAN DATUM OF 1983 (NAD83), NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEORGIA WEST ZONE STATE PLANE COORDINATES.

4. THE TERM "CERTIFICATION" RELATING TO PROFESSIONAL ENGINEERING AND LAND SURVEYING SERVICES SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.

5. THE PROPERTY DESCRIBED HERE ON (THE "PROPERTY") IS THE SAME AS THE PROPERTY DESCRIBED IN COMMITMENT NO. NCS–1183933–ATL WITH AN EFFECTIVE DATE OF MARCH 08, 2024 AND THAT ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE PROPERTY OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE PROPERTY.

6. NO ZONING INFORMATION PROVIDED FOR BUILDING SETBACKS.

7. THIS SURVEY WAS MADE IN ACCORDANCE WITH LAWS AND/OR MINIMUM STANDARDS OF THE STATE OF GEORGIA.

8. THE PROPERTY HAS DIRECT ACCESS TO EAST GORDON STREET, RUBY STREET, & W RUSSELL STREET, DEDICATED PUBLIC STREETS. THERE ARE NO GAP OR GORES BETWEEN THE BOUNDARY LINE OF THE PROPERTY AND RIGHT OF WAY.

9. THERE IS NO OBSERVED EVIDENCE OF USE OF THE PROPERTY AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

10. THE SURVEYED LEGAL DESCRIPTION IS WHOLLY CONTAINED WITHIN THE BOUNDARIES OF THE PROPERTY DESCRIBED IN THAT CERTAIN FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. NCS–118–3933–ATL, WITH AN EFFECTIVE DATE OF MARCH 08, 2024.

TITLE EXCEPTIONS

First American Title Insurance Company Commitment number NCS–1183933–ATL with an effective date of March 8, 2024 at 7:30 AM was used in the preparation of this survey and the listed exceptions are as follows:

12. Matters shown on plat recorded in Plat Book 19, Page 47, Carroll County, Georgia records. Comment: Matters as shown.

13. Matters shown on plat recorded in Plat Book 24, Page 137, aforsaid records. Comment: Matters as shown.

14. Boundary Line Agreement by and between James J. Waldrop and Gladys McCullough Scott, dated January 20, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 138, aforesaid records. Comment: Affects subject property as shown hereon.

15. Boundary Line Agreement by and between James J. Waldrop and Villa Rica Housing Authority, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 140, aforesaid records. Comment: Affects subject property as shown hereon.

16. Boundary Line Agreement by and between James J. Waldrop and Thomas Early Hembree, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 142, aforesaid records. Comment: Affects subject property as shown hereon.

17. Boundary Line Agreement by and between James J. Waldrop and Leroy McKinney, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 144, aforesaid records. Comment: Affects subject property as shown hereon.

18. Boundary Line Agreement by and between James J. Waldrop and H.G. Brown, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 146, aforesaid records. Comment: Affects subject property as shown hereon.

19. Boundary Line Agreement by and between James J. Waldrop and T.C. Daniell, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 148, aforesaid records. Comment: Affects subject property as shown hereon.

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

ALTA/NSPS LAND TITLE SURVEY – TABLE "A" ITEMS

1. MONUMENTS PLACED OR FOUND AT ALL MAJOR CORNERS OF THE BOUNDARY OF THE SURVEYED PROPERTY, AND SHOWN HEREON.

2. ADDRESS OF THE SURVEYED PROPERTY: 11 GORDON STREET, VILLA RICA, GEORGIA 30180

3. FLOOD ZONE INFORMATION IS INCLUDED IN GENERAL NOTES, NOTE 2.

4. GROSS LAND AREA OF SUBJECT PROPERTY IS 25.838± ACRES.

6(A). IF THE CURRENT ZONING CLASSIFICATION, SETBACK REQUIREMENTS, THE HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, AND PARKING REQUIREMENTS SPECIFIC TO THE SURVEYED PROPERTY ARE SET FORTH IN A ZONING REPORT OR LETTER PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE, LIST THE ABOVE ITEMS ON THE PLAT OR MAP AND IDENTIFY THE DATE AND SOURCE OF THE REPORT OR LETTER.

6(B). IF THE ZONING SETBACK REQUIREMENTS SPECIFIC TO THE SURVEYED PROPERTY ARE SET FORTH IN A ZONING REPORT OR LETTER PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE, AND IF THOSE REQUIREMENTS DO NOT REQUIRE AN INTERPRETATION BY THE SURVEYOR, GRAPHICALLY DEPICT THOSE REQUIREMENTS ON THE PLAT OR MAP AND IDENTIFY THE DATE AND SOURCE OF THE REPORT OR LETTER.

8. SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK ARE SOWN HEREON.

10. THERE ARE NO ENCROACHMENTS ONTO ADJOINING PREMISES, STREETS OR ALLEYS BY ANY BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS LOCATED ON THE PROPERTY. NO ENCROACHMENTS ONTO THE PROPERTY BY BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS SITUATED ON ADJOINING PREMISES, EXCEPT THE FOLLOWING:

a) 24"CURB AND GUTTER ALONG SOUTHWESTERLY PROPERTY LINE
b) POWER POLES AND POWER LINES ALONG WESTERLY PROPERTY LINE
c) DITCH ALONG WESTERLY PROPERTY LINE
d) SOUTHERLY EDGE OF PAVEMENT OF EAST GORDON STREET
e) GRAVEL DRIVEWAY ENTERING FROM EAST GORDON STREET
f) NUMEROUS STORM PIPES ALONG WESTERLY PROPERTY LINE
g) DRIVE WAY FROM STONE STREET STATION PROPERTY ALONG SOUTHWESTERN PROPERTY LINE

11. OBSERVED EVIDENCE OF UNDERGROUND UTILITIES EXISTING ON OR SERVING THE SURVEYED PROPERTY LOCATED AND SHOWN HEREON. NO ADDITIONAL LOCATE OR INVESTIGATION OF UTILITIES REQUESTED BY THE CLIENT.

13. ADJACENT OWNER INFORMATION IS SHOWN HEREON AS REQUIRED BY GEORGIA STANDARDS.

16. NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

17. NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES IF SUCH INFORMATION IS MADE AVAILABLE TO THE SURVEYOR BY THE CONTROLLING JURISDICTION. NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

18. THERE ARE NO OFFSITE PLOTTABLE EASEMENTS. (NONE)

19. THE SUBJECT PROPERTY FORMS A MATHEMATICALLY CLOSED FIGURE, IS CONTIGUOUS WITHOUT GAPS, GORES, OR OVERLAPS.

TITLE EXCEPTIONS

First American Title Insurance Company Commitment number NCS–1183933–ATL with an effective date of March 8, 2024 at 7:30 AM was used in the preparation of this survey and the listed exceptions are as follows:

20. Non–Exclusive Easement from H. Grady Brown to The City of Villa Rica, dated November 15, 1990, filed for record April 10, 1991, and recorded in Deed Book 695, Page 726, aforesaid records. Comment: May affect subject property, approximate location of easement shown.

21. Non–Exclusive Easement from H. Grady Brown to The City of Villa Rica, dated October 26, 1990, filed for record April 10, 1991, and recorded in Deed Book 695, Page 727, aforesaid records. Comment: Does not affect subject property.

22. Easements acquired pursuant to Notice of Order and Judgment Affecting Interest in Real Estate [Final Order and Judgment of the Court on Certifying A Class and Approving Settlement], entered in Civil Action No. IP00–1232–CB/S, entered in the District Court for the Southern District of Indiana, styled Frederick A. Uhl, et al v. Thoroughbred Technology and Telecommunications, Inc., a Virginia limited liability company, dated September 5, 2001, filed for record May 9, 2005, and recorded in Deed Book 3107, Page 87, aforesaid records; as assigned by Deed of Assignment of Cable Side Settlement Corridor Easements by and between Class Corridor, LLC, a Delaware limited liability company and Thoroughbred Technology and Telecommunications, Inc., a Virginia limited liability company, dated September 27, 2005 filed for record October 10, 2005, and recorded in Deed Book 3298, Page 53, aforesaid records. Comment: May affect subject property, deed to vague to plot.

23. Sewer Line and Water Line Agreement from James J. Waldrop to The City of Villa Rica, Georgia, dated November 7, 2013, filed for record November 21, 2013, and recorded in Deed Book 5297, Page 616, aforesaid records. Comment: Affects subject property as shown hereon.

24. Right of way for railroad, switch tracks, railroad facilities and other related easements, if any, located on, across or along a portion of the southeast lot line of subject property.

25. Matters as would be disclosed by a current and accurate survey and inspection of the Land.

LEGAL DESCRIPTION – AS SURVEYED

ALL THAT TRACT OR PARCEL OF LAND lying and being in Land Lot 161, 6th District, City of Villa Rica, Carroll County, Georgia and being more particularly described as follows:

BEGIN at a set 1/2 inch rebar with cap, said rebar having coordinates of North: 1,357,933.0 and East: 2,068,542.3, coordinates based on NAD83 State Plane Coordinate system, Georgia West zone, said rebar located on the southeasterly right of way of East Gordon Street (30 foot public right of way), said rebar being the TRUE POINT OF BEGINNING;

THENCE along said southeasterly right of way of East Gordon Street the following courses and distances: North 44 degrees 16 minutes 02 seconds East a distance of 148.64 feet to a found 1/2 inch rbear; North 45 degrees 47 minutes 17 seconds East a distance of 267.65 feet to a point; thence leaving said southeasterly right of way and proceed North 49 degrees 53 minutes 27 seconds East a distance of 381.00 feet to a set 1/2 inch rebar with cap; thence South 45 degrees 29 minutes 33 seconds East a distance of 62.75 feet to a set 1/2 inch rebar with cap at the base of the found 40 inch poplar tree; thence North 03 degrees 55 minutes 27 seconds East a distance of 593.70 feet to a found 1/8 inch open top pipe; thence South 60 degrees 08 minutes 55 seconds East a distance of 427.09 feet to a found 1/2 inch rebar; thence South 35 degrees 43 minutes 34 seconds East a distance of 56.37 feet more or less to a point at the centerline of a branch, said point being referred to as Point "A" (the commencement point of a tie–in line "A"–"B"); thence following the centerline of said branch and the meanderings thereof, 220 feet more or less to a point, said point being referred to as point "B", (the terminus of said tie–in line "A"–"B"), said tie–in line from point "A" and to point "B" having the course of South 63 degrees 40 minutes 44 seconds East a distance of 182.93 feet more or less to a point; thence leaving said centerline of a branch and proceed South 03 degrees 27 minutes 27 seconds West a distance of 269.52 feet to a set 1/2 inch rebar with cap; thence South 89 degrees 37 minutes 33 seconds East a distance of 3.65 feet to a set 1/2 inch rebar with cap; thence South 01 degrees 07 minutes 33 seconds East a distance of 240.06 feet to a set 1/2 inch rebar with cap; thence South 01 degrees 16 minutes 09 seconds West a distance of 195.33 feet to a found 1/2 inch rebar disturbed; thence South 00 degrees 15 minutes 18 seconds West a distance of 324.71 feet to a set 1/2 inch rebar with cap on the northerly right of way line of Southern Railroad (variable right of way); thence along said northerly right of way along a curve turning to the right with an arc length of 733.63 feet, having a radius of 1596.62 feet, being subtended by a chord bearing of South 75 degrees 52 minutes 47 seconds West, and a chord length of 727.19 feet to a set 1/2 inch rebar with cap; thence leaving said northerly right of way North 44 degrees 47 minutes 32 seconds West a distance of 138.90 feet to a set 1/2 inch rebar with cap; thence North 47 degrees 12 minutes 32 seconds West a distance of 321.00 feet to a set 1/2 inch rebar with cap; thence North 51 degrees 00 minutes 32 seconds West a distance of 173.80 feet to a set 1/2 inch rebar with cap; thence North 57 degrees 41 minutes 02 seconds West a distance of 61.87 feet to a set 1/2 inch rebar with cap, said rebar being the TRUE POINT OF BEGINNING.

Tract or parcel contains 1,125,496 square feet or 25.838 acres, more or less.

LEGAL DESCRIPTION – RECORD

PARCEL A

ALL OF THAT TRACT OR PARCEL OF LADING SITUATE, LYING AND BEING IN THE COUNTY OF CARROLL SAID STATE OF GEORGIA IN LAND LOT 161 OF THE 6TH DISTRICT OF CARROLL COUNTY, GEORGIA, IN THE CITY OF VILLA RICA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN ON THE NORTHERLY SIDE OF SWEETWATER STREET 75 FEET SOUTHEASTERLY OF THE POINT WHERE SAID STREET INTERSECTS STONE ROAD AND RUNNING THENCE SOUTH 52 DEGREES 29 MINUTES EAST 173.80 FEET TO AN IRON PIN; THENCE NORTH 40 DEGREES 35 MINUTES EAST 447.90 FEET TO AN IRON PIN; THENCE SOUTH 48 DEGREES 30 MINUTES EAST 150 FEET TO AN IRON PIN; THENCE SOUTH 19 DEGREES 50 MINUTES WEST 481 FEET TO AN IRON PIN; THENCE SOUTH 46 DEGREES 16 MINUTES EAST 138.90 FEET TO AN IRON PIN ON THE NORTHERN RIGHT OF WAY OF SOUTHERN RAILWAY COMPANY; AND RUNNING THENCE ALONG A CHORD NORTH 81 DEGREES 02 MINUTES EAST 420.94 FEET; THENCE ALONG A CHORD NORTH 67 DEGREES 55 MINUTES EAST 303.08 FEET TO AN IRON PIN; THENCE NORTH 01 DEGREE 04 MINUTES EAST 326.26 FEET TO AN IRON PIN; THENCE NORTH 00 DEGREES 58 MINUTES EAST 195.68 FEET TO AN IRON PIN; THENCE NORTH 01 DEGREES 25 MINUTES WEST 240.06 FEET TO AN IRON PIN AT THE POINT WHERE CLEGHORN STREET DEAD–ENDS; THENCE 40 FEET NORTH ALONG THE END OF CLEGHORN STREET TO AN IRON PIN; THENCE NORTH 89 DEGREES 55 MINUTES WEST 3.65 FEET TO AN IRON PIN; THENCE NORTH 03 DEGREES 10 MINUTES BAST 260.56 FEET TO AN IRON PIN; THENCE NORTH 80 DEGREES 06 MINUTES WEST 115.12 FEET TO AN IRON PIN; THENCE NORTH 35 DEGREES 25 MINUTES WEST 142.42 FEET TO AN IRON PIN; THENCE NORTH 60 DEGREES 38 MINUTES WEST 427.52 FEET TO AN IRON PIN; THENCE SOUTH 03 DEGREES 38 MINUTES WEST 593.70 FEET TO AN IRON PIN; THENCE NORTH 45 DEGREES 47 MINUTES WEST 62.75 FEET TO AN IRON PIN; THENCE SOUTH 49 DEGREES 36 MINUTES WEST 381 FEET TO AN IRON PIN; THENCE ALONG STONE ROAD SOUTH 44 DEGREES 14 MINUTES WEST 279.85 FEET TO IRON AN PIN; THENCE SOUTH 84 DEGREES 32 MINUTES EAST 140 FEET TO AN IRON PIN; THENCE SOUTH 16 DEGREES 06 MINUTES WEST 150.18 FEET TO AN IRON PIN; THENCE NORTH 82 DEGREES 17 MINUTES WEST 150 FEET TO AN IRON PIN AT THE POINT OF BEGINNING, BEING 22.881 ACRES ACCORDING TO A PLAT OF SURVEY OF THE VILA WILSON ESTATE PREPARED BY WYMAN C. HUDSON, NOVEMBER 4, 1978. SAID SURVEY IS, BY REFERENCE, INCORPORATED HEREIN AND IT SHOULD BE REFERRED TO FOR A MORE COMPLETE, ACCURATE DESCRIPTION OF SAID PROPERTY.

PARCEL B

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOT 161, 6TH DISTRICT, CARROLL COUNTY, GEORGIA, BEING SHOWN AND DELINEATED AS "PARCEL NO. 5," BEING 0.583 ACRES, MORE OR LESS, AS SHOWN ON THAT CERTAIN PLAT ENTITLED "SURVEY FOR GOLDEN CITY HOSIERY MILL, INC." DATED JUNE 18, 1983, REVISED JULY 12, 1983, PREPARED AND CERTIFIED BY ROBERT T. ARMSTRONG, GA RLS #1901, FILED FOR RECORD AT PLAT BOOK 24, PAGE 137, PUBLIC LAND RECORDS CARROLL COUNTY, GEORGIA.

SAID PROPERTY BEING THE SAME PROPERTY AS PREVIOUSLY CONVEYED BY HERMAN S. SMITH TO MRS. ELMA T. BROWN BY WARRANTY DEED FILED FOR RECORD AT DEED BOOK 100, PAGE 68, FROM MRS. ELMA T. BROWN TO H.G. BROWN BY WARRANTY DEED FILED FOR RECORD AT DEED BOOK 154, PAGE 214, AND FROM PHYLLIS B. WOODALL AS LAST SURVIVING CORPORATE OFFICER OF GOLDIN CITY HOSIERY MILLS, INC. BY QUITCLAIM DEED (CONFIRMING TITLE) FILED FOR RECORD AT DEED BOOK 3837, PAGE 34, PUBLIC LAND RECORDS OF CARROLL COUNTY, GEORGIA.

PARCEL C

ALL THAT TRACT OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE CITY OF VILLA RICA, COUNTY OF CARROLL, STATE OF GEORGIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN ON THE NORTH SIDE OF SWEETWATER STREET AT THE POINT WHERE THE WEST BANK OF A BRANCH INTERSECTS THE NORTH SIDE OF SWEETWATER STREET; RUNNING THENCE IN A NORTHWESTERLY DIRECTION 321 FEET ALONG THE NORTH SIDE OF SWEETWATER STREET TO AN IRON PIN; THENCE NORTH 31 DEGREES 37 MINUTES EAST 200 FEET TO AN IRON PIN; THENCE NORTH 44 DEGREES 26 MINUTES EAST 250 FEET TO AN IRON PIN; THENCE SOUTH 50 DEGREES 30 MINUTES EAST 150 FEET TO THE WEST BANK OF A BRANCH; THENCE IN A SOUTHWESTERLY DIRECTION ALONG THE WEST BANK OF A BRANCH 487 FEET TO THE POINT OF BEGINNING.

THE ABOVE PROPERTY BEING THE SAME PROPERTY AS THAT CONVEYED BY A CERTAIN DEED RECORDED IN DEED BOOK 128, PAGE 198, CARROLL COUNTY, GEORGIA PUBLIC RECORDS.



SITE MAP (NTS)

CITY OF VILLA RICA 18 GEORGIA 26 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

The field data upon which this map or plat is based has a closure precision of one foot in 21,618 feet and an angular error of 00° 00' 02" per angle point and was adjusted using the compass adjustment rule.

This map or plat has been calculated for closure and is found to be accurate to within one foot in 1,248,011 feet.

EQUIPMENT USED:

ANGULAR: TOPCON TOTAL STATION

LINEAR: TOPCON TOTAL STATION

To Imperium Development Partners, LLC, & First American Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1–4, 8, 13, 14, and 16 of Table A thereof. The field work was completed on: 5/13/2023

Date of Map or Plat: 03/25/2024

_____
Surveyor's Signature

*JONATHAN N. HOWARD*_____
Printed name

SHEET 6 OF 6
DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 161.0
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23
0 25 50 100

GEORGIA REGISTERED No. 3006 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY
CARROLL COUNTY GEORGIA
CITY OF VILLA RICA
LAND LOT(S) 161
DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	3/26/24	ALTA UPDATE	NAV
2	4/11/24	UPDATE TITLE & ADDRESS, LENDER COMMENTS	NAV
3			
4			
5			

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
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(770)447-1201 WWW.PECTUS.US
C.O.A.: LSF000004

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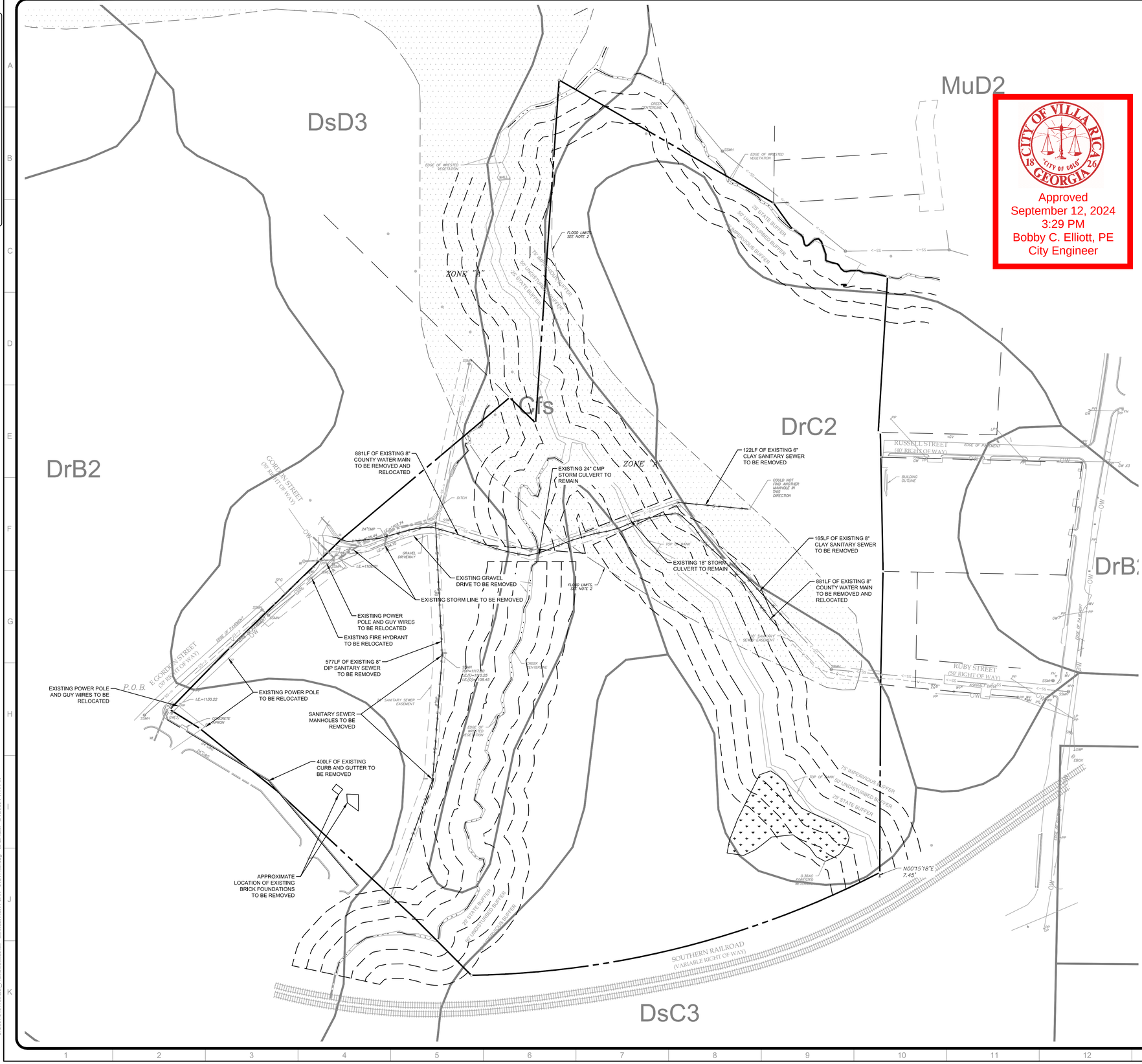

SOIL INFORMATION:

THE EXISTING SITE CONSISTS OF:

MuD2 - Musella gravelly clay loam, 6 to 15% slopes, eroded

DrC2 - Davidson gravelly loam, 6 to 10% slopes, eroded

Cfs - Chewacla silt loam, 0 to 2% slopes, frequently flooded

DsC3 - Davidson gravelly clay loam, 6 to 10% slopes, severely eroded

DsD3 - Davidson gravelly clay loam, 10 to 15% slopes, severely eroded

DrB2 - Davidson gravelly loam, 2 to 6% slopes, eroded

CITY OF VILLA RICA
"CITY OF GOLD"
18 26
GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

GEORGIA 811
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24-HOUR CONTACT:
BRYAN FLINT
404.867.3572

DEMO LEGEND:

- EXISTING PAVING, CURB & GUTTER, AND SIDEWALKS TO BE REMOVED
- EXISTING STRUCTURES TO BE REMOVED
- EXISTING UTILITY FIXTURES TO BE REMOVED
- EXISTING WALLS TO BE REMOVED
- EXISTING UTILITY LINES TO BE REMOVED
- 8" HW EXISTING TREES TO BE REMOVED
- LIMITS OF DISTURBANCE
- SILT FENCE
- TPF TREE PROTECTION FENCE

DEMOLITION NOTES:

1. POLLUTION CONTROLS: USE WATER SPRINKLERS AND TEMPORARY ENCLOSURES TO LIMIT THE AMOUNT OF DUST AND DIRT RISING IN THE AIR TO THE LOWEST PRACTICAL LEVEL. DO NOT USE WATER WHEN IT MAY CREATE HAZARDOUS CONDITIONS, ICE, FLOODING, OR POLLUTION.
2. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING PRIOR TO THE START OF THE WORK.
3. COORDINATE WITH THE CORRESPONDING UTILITY COMPANY BEFORE REMOVING ANY UNDERGROUND OR OVERHEAD UTILITY LINES AND TRANSFORMERS.

JOB CONDITIONS

1. CONDITION OF STRUCTURES: PRIOR TO DEMOLITION, THE SITE IS TO BE VISITED BY THE CONTRACTOR TO DETERMINE EXISTING CONDITIONS OF STRUCTURE(S) TO BE REMOVED.
2. PARTIAL REMOVAL: ITEMS OF SALVAGEABLE VALUE TO THE CONTRACTOR MAY BE REMOVED FROM THE STRUCTURE AS THE WORK PROGRESSES. SALVAGED ITEMS MUST BE TRANSPORTED FROM THE SITE AS THEY ARE REMOVED. STORAGE OR SALE OF REMOVED ITEMS ON THE SITE WILL NOT BE PERMITTED.
3. TRAFFIC: CONDUCT DEMOLITION OPERATIONS AND THE REMOVAL OF DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND ADJACENT OCCUPIED OR USED FACILITIES. OBTAIN ANY PERMITS FOR LANE CLOSURE IF NECESSARY.
4. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS AROUND THE AREA OF DEMOLITION. CONDUCT OPERATIONS TO PREVENT INJURY TO ADJACENT BUILDINGS, STRUCTURES, FACILITIES, AND PERSONS.
5. DAMAGES: PROMPTLY REPAIR DAMAGES CAUSED TO ADJACENT FACILITIES BY DEMOLITION OPERATIONS AT NO COST TO OWNER.

DESCRIPTION OF WORK

1. REMOVE FROM THE SITE DEBRIS, RUBBISH AND MATERIALS RESULTING FROM DEMOLITION OPERATIONS.
2. DEMOLITION INCLUDES THE REMOVAL AND DISPOSAL OF DEMOLISHED MATERIALS, AS SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED. MATERIAL SHALL BE REMOVED FROM THE SITE.
3. CONTRACTOR SHALL NOTIFY ALL GOVERNMENTAL AGENCIES, HAVING JURISDICTION, PRIOR TO THE START OF ANY DEMOLITION WORK. ANY FINES AND/OR PENALTIES INCURRED DUE TO THE CONTRACTOR NOT CONTACTING ALL REQUIRED GOVERNMENTAL AGENCIES PRIOR TO DEMOLITION SHALL BE PAID BY THE CONTRACTOR.

DISPOSAL

1. GENERAL: REMOVE FROM THE SITE DEBRIS, RUBBISH AND MATERIALS RESULTING FROM DEMOLITION OPERATIONS.
2. ALL REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN A LEGAL, ENVIRONMENTALLY SAFE MANNER; RECYCLING OR SALVAGE OF MATERIALS IS STRONGLY RECOMMENDED AND ENCOURAGED.
3. REMOVAL: TRANSPORT MATERIALS REMOVED FROM DEMOLISHED STRUCTURES AND DISPOSE OF OFF THE SITE.

MISCELLANEOUS

1. ALL LAND DISTURBANCE TO BE STABILIZED WITH VEGETATION UPON COMPLETION OF DEMOLITION.
2. ALL TREES TO REMAIN AND HAVE PROPER PROTECTION UNLESS APPROVED PLANS INDICATE OTHERWISE.
3. ALL DEMOLITION DEBRIS TO BE HAULED OFF SITE.
4. DUMPSTERS AND/OR TEMPORARY SANITARY FACILITIES SHALL NOT BE LOCATED IN STREET OR TREE PROTECTION AREA.
5. ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED AS DEEMED NECESSARY BY THE ON-SITE INSPECTOR.
6. EACH BUILDING/STRUCTURE WILL REQUIRE A SEPARATE DEMOLITION PERMIT.
7. CONTRACTOR SHALL ADJUST AND/OR REPLACE ALL DAMAGED EXISTING CURBS OR CURB AND GUTTER ALONG PROPERTY FRONTAGE TO THE PROPER HEIGHT OF 6" ABOVE THE EXISTING PAVEMENT ELEVATION. ANY MISSING CURBS AND/OR GAPS DUE TO DRIVEWAY RELOCATIONS, WILL REQUIRE NEW CURBS TO BE INSTALLED TO MATCH EXISTING.
8. ALL TRAFFIC SIGNS SHALL BE REMOVED WITHIN LIMIT OF DISTURBANCE.
9. ALL FENCES AND WALLS SHALL BE REMOVED WITHIN LIMIT OF DISTURBANCE.
10. DEMOLITION CONTRACTOR TO CONFIRM THAT THE LOCATION OF EXISTING UTILITIES AND STRUCTURES MATCHES SURVEY PRIOR TO ANY DEMOLITION. CONTRACTOR TO CONFIRM ALL ITEMS TO BE DEMOLISHED WITH CLIENT OR ENGINEER PRIOR TO DEMOLITION.

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KRCZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

DEMOLITION PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C2.00
SHEET

J:\2021\21217.00\Dp_Plans\sheets\C2.00 - DEMOLITION PLAN - 21217.00.dwg - CHarrison - 9/10/2024 1:43 PM

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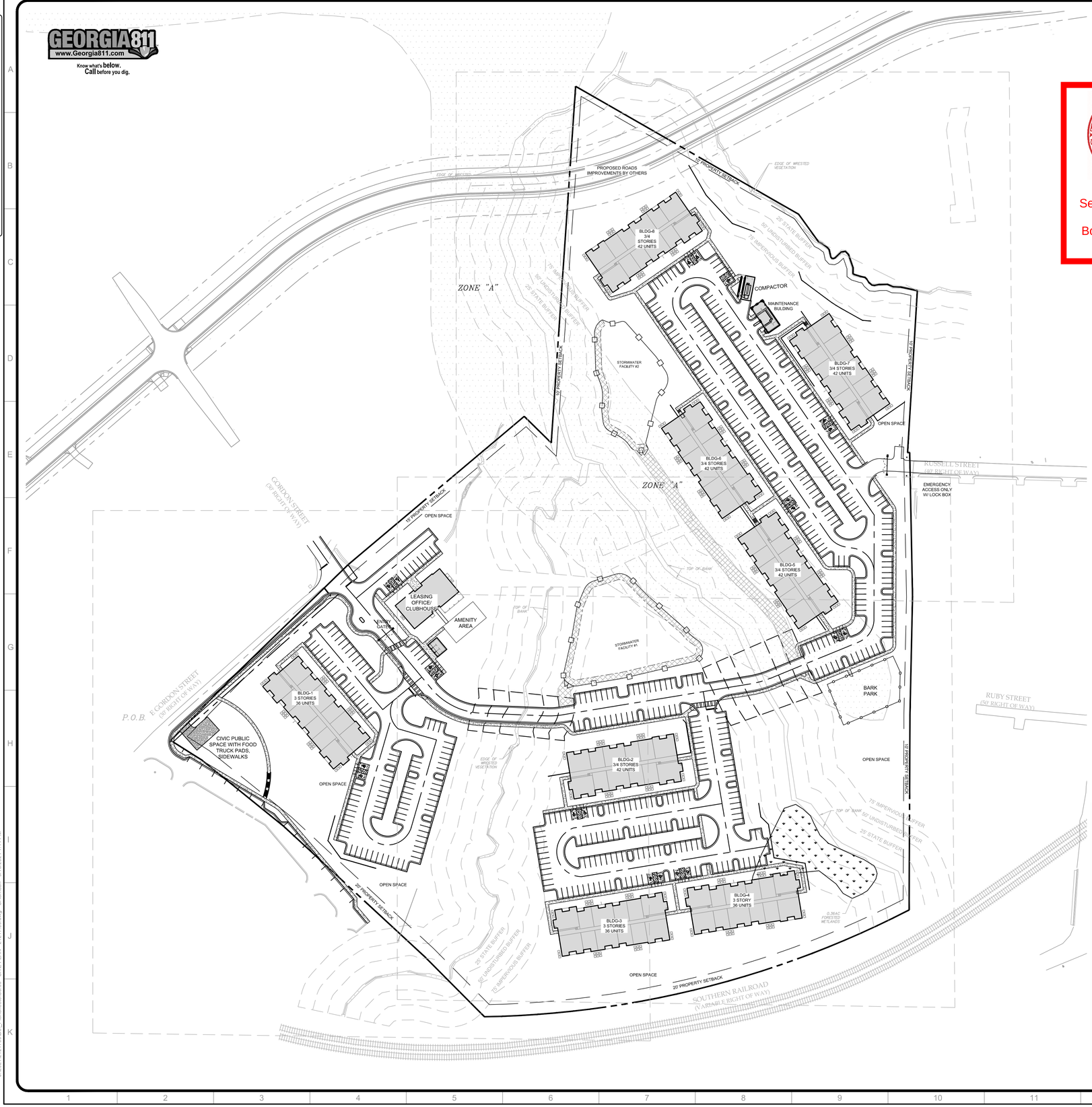
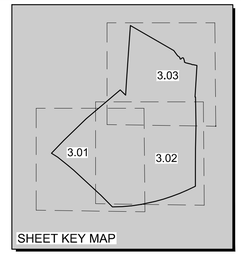


CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer



SHEET KEY MAP

SITE DATA:	
SITE AREA	18.28 ACRES
USE CALCULATIONS	
MAXIMUM ALLOWABLE DENSITY	N/A
PROPOSED APARTMENT UNITS	318 UNITS
TOTAL PROPOSED DENSITY	12.31 UNITS / ACRE
ZONING:	
ZONING	CMU - COMMERCIAL MIXED USE
ZONING JURISDICTION	CITY OF VILLA RICA, GEORGIA
SETBACK REQUIRMENT	
FRONT PROPERTY SETBACK	15 FEET
SIDE PROPERTY SETBACK	10 FEET
REAR PROPERTY SETBACK	20 FEET
SETBACK FROM ALL RIGHT OF WAYS	15 FEET FRONTAGE
OPEN SPACE CALCULATIONS	
OPEN SPACE REQUIREMENT	NOT REQUIRED
OPEN SPACE PROPOSED	6.2 ACRES
PARKING REQUIREMENTS	
STUDIO/ONE-BEDROOM APARTMENTS	1 SPACE PER UNIT
TWO-BEDROOM APARTMENTS	1.6 SPACES PER UNIT
GUEST PARKING REQUIRED	1 ADDITIONAL SPACE PER 3 UNITS
ADA PARKING	13 SPACES
TOTAL VEHICULAR PARKING REQUIRED	492 SPACES
PROPOSED PARKING	
PROPOSED RESIDENT PARKING (INCLUDES ADA)	455 SPACES
PROPOSED GUEST PARKING	82 SPACES
ADA PARKING	21 SPACES
PROPOSED PARALLEL PARKING	13 SPACES
TOTAL VEHICULAR PARKING PROVIDED	550 SPACES

SITE NOTES:

1. ALL STRIPING AND ARROWS TO MEET GEORGIA DOT STANDARDS.
2. AT ALL POINTS ALONG THE PUBLIC RIGHT OF WAY WHERE THE EXISTING CURB HEIGHT IS LESS THAN 5 INCHES HIGH, THE EXISTING CURB SHALL BE REMOVED AND REPLACED OR RESET TO MINIMUM CITY OF VILLA RICA, GEORGIA REQUIREMENTS AND THE SIDEWALK REPLACED.
3. PRIOR TO THE DEDICATION AND ACCEPTANCE OF SANITARY SEWER, STORM SEWER OR STREET INFRASTRUCTURE TO THE CITY OF VILLA RICA, GEORGIA, "AS-BUILT" DRAWINGS AND 3-YEAR MAINTENANCE BONDS ARE REQUIRED. THE STREET CONSTRUCTION SHALL DEMONSTRATE ADEQUATE COMPACTION WITH PROFESSIONAL TESTING AND REPORTS PREPARED BY A GEORGIA REGISTERED PROFESSIONAL CIVIL ENGINEER, THE SANITARY SEWER INSTALLATION SHALL INCLUDE AN INTERNAL TELEVISION INSPECTION, A SUCCESSFUL MANDRELL PULL AND SUCCESSFUL LEAK-DOWN PRESSURE TEST.
4. INSTALLATION OF SIDEWALK ALONG PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF CITY OF VILLA RICA, GEORGIA CODE. SIDEWALKS AND CONCRETE CURB AND GUTTER SHALL CONFORM TO THE CITY OF VILLA RICA, GEORGIA STANDARD DETAILS. LOCATION OF SIDEWALKS AND SETBACKS ZONES AS SHOWN AS DETERMINED BY PLANNING DEPARTMENT.
5. ALL WORK AND MATERIALS SHALL COMPLY WITH THE CITY OF VILLA RICA, GEORGIA, REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
6. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED REMOVED, OR RELOCATED AS NECESSARY.
7. CONTRACTOR SHALL OBTAIN ALL PERMITS BEFORE CONSTRUCTION BEGINS.
8. BUILDING DIMENSIONS SHOWN ON THIS PLAN ARE SCHEMATIC IN NATURE. SEE ARCHITECTURAL PLANS FOR ACTUAL DIMENSIONS.
9. SITE CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS INDICATING ALL CHANGES AND DEVIATIONS.
10. SITE WORK CONTRACTOR IS RESPONSIBLE FOR WORK TO WITHIN 5' OF THE BUILDINGS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS AND POLES, ETC., GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
12. TYPICAL RADIUS FOR THE SITE IS 28', DIMENSIONS ARE FACE TO FACE UNLESS OTHERWISE NOTED.
13. ALL TEMPORARY AND PERMANENT SIGNS SHALL BE PERMITTED SEPARATELY.
14. OPEN BURNING OR BURY PITS ARE NOT ALLOWED.
15. THERE ARE KNOWN WETLANDS ON SITE PER THE NATIONAL WETLANDS INVENTORY MAP.
16. ALL REQUIRED TRAFFIC SIGNAGE MUST MEET MUTCD STANDARDS.

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW F KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

MASTER SITE PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C3.00
SHEET

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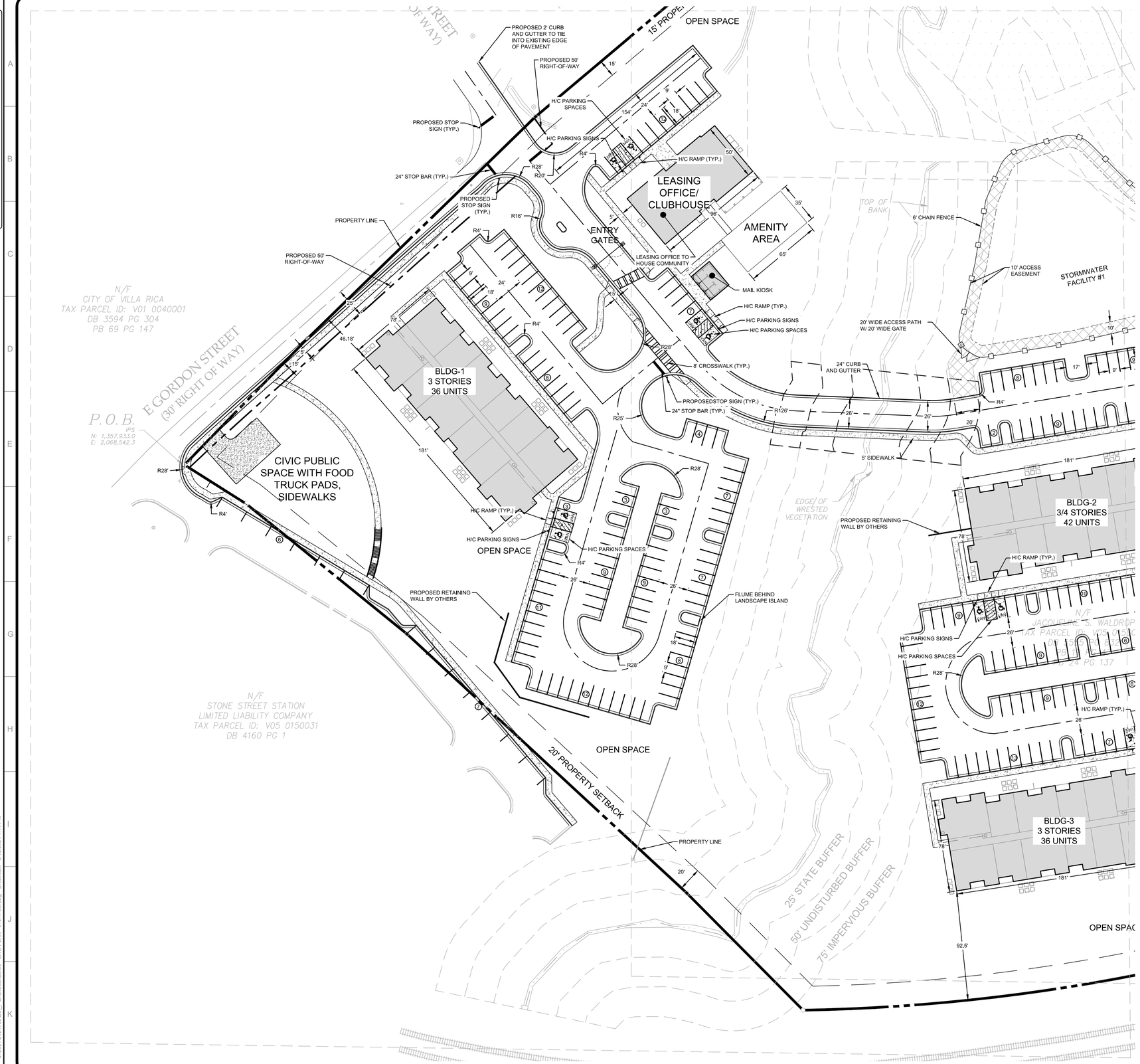

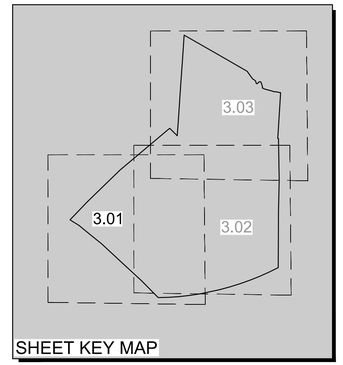

CITY OF VILLA RICA
18 CITY OF GOLD 26
GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKY

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

SITE PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C3.01
SHEET

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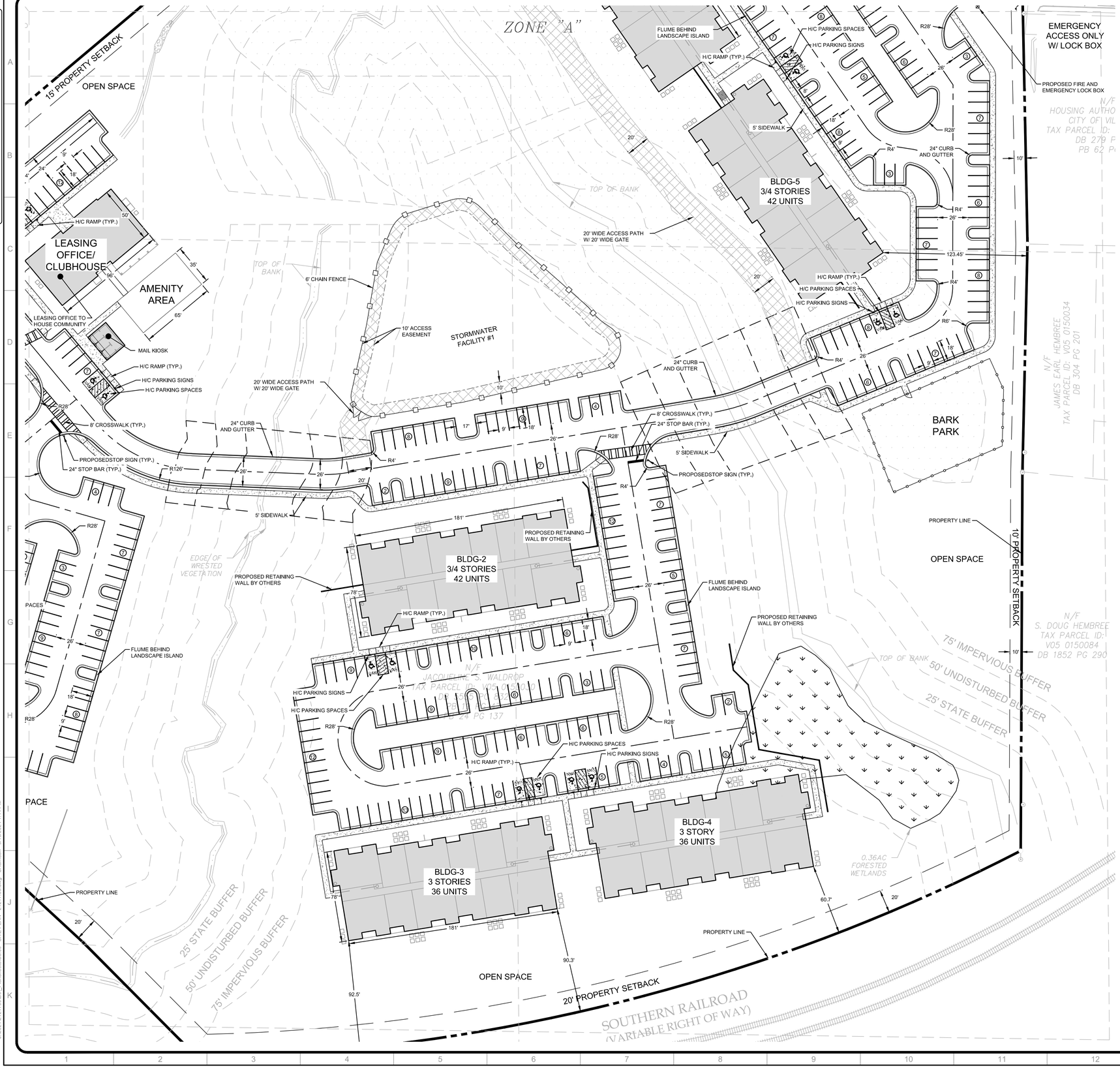

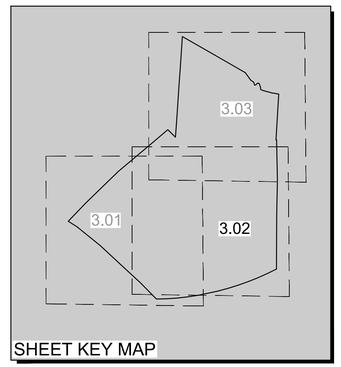

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

Approved
September 12, 2024
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City Engineer

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PROJECT

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

SITE PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C3.02
SHEET

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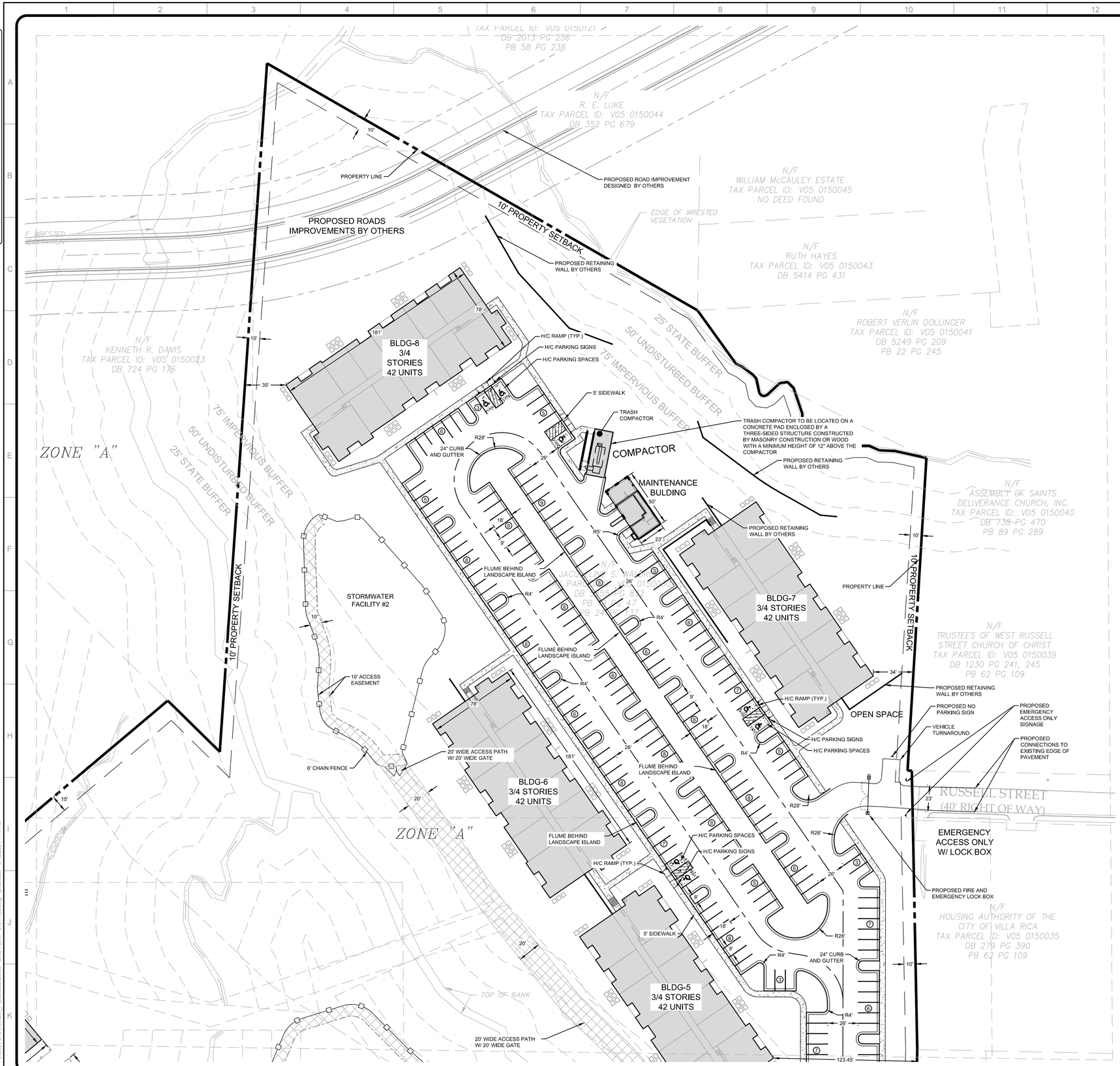

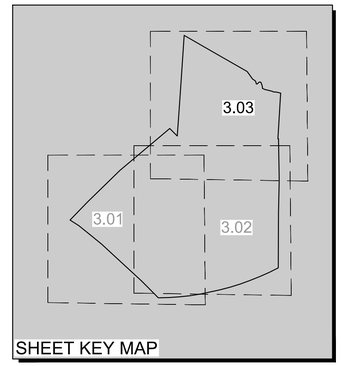

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

SITE PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C3.03
SHEET

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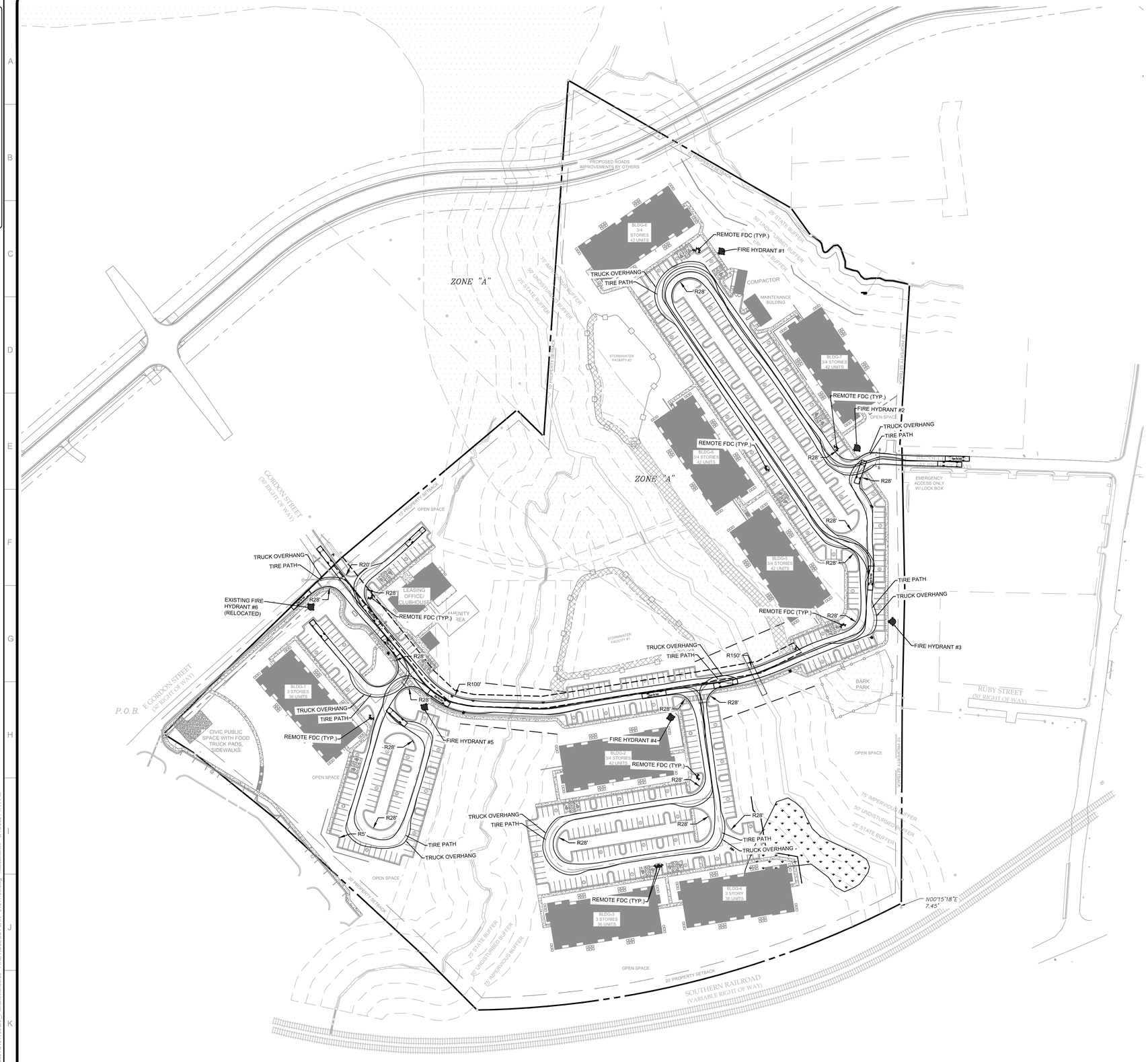
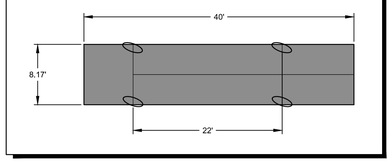


FIRE TRUCK DETAILS:

OVERALL LENGTH	40.00ft
OVERALL WIDTH	8.167ft
OVERALL BODY HEIGHT	7.745ft
MIN. BODY GROUND CLEARANCE	0.656ft
TRACK WIDTH	8.167ft
LOCK-TO-LOCK TIME	5.00s
MAX. WHEEL ANGLE	45.00°

FIRE TRUCK DIAGRAM (NTS):



CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

FIRE ACCESS PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C3.50
SHEET

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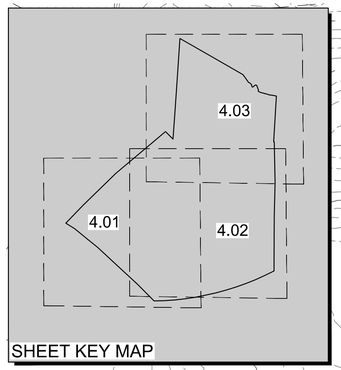

SHEET KEY MAP

GRADING NOTES:

1. DISTURBED AREAS LEFT IDLE FOR FOURTEEN DAYS, AND NOT TO FINAL GRADE, SHALL BE ESTABLISHED TO TEMPORARY VEGETATION (Ds2). DISTURBED AREAS LEFT IDLE FOUR WEEKS OR MORE WILL BE ESTABLISHED TO PERMANENT VEGETATION (Ds3). ALL AREAS TO FINAL GRADE SHALL BE ESTABLISHED TO PERMANENT VEGETATION WITHIN TWO WEEKS.
2. WHEN HAND PLANTING, MULCH (HAY OR STRAW) SHALL BE UNIFORMLY SPREAD OVER SEEDED AREA WITHIN 24 HOURS OF SEEDING.
3. DURING UNSUITABLE GROWING SEASONS, MULCH SHALL BE USED AS A TEMPORARY COVER (Ds1). ON SLOPES THAT ARE 4:1 OR STEEPER, MULCH SHALL BE ANCHORED.
4. CITY OF VILLA RICA, GEORGIA LAND DISTURBANCE PERMIT MUST BE DISPLAYED ON THE SITE AT ALL TIMES DURING CONSTRUCTION AND IN PLAIN VIEW FROM A COUNTY ROAD OR STREET.
5. SEDIMENT/EROSION CONTROL DEVICES MUST BE CHECKED AFTER EACH STORM EVENT. EACH DEVICE SHALL BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ON HALF THE CAPACITY OF THE DEVICE.
6. THE STREET CONSTRUCTION SHALL DEMONSTRATE ADEQUATE COMPACTION WITH PROFESSIONAL TESTING AND REPORTS PREPARED BY A GEORGIA REGISTERED PROFESSIONAL CIVIL ENGINEER, THE SANITARY SEWER INSTALLATION SHALL INCLUDE AN INTERNAL TELEVISION INSPECTION, A SUCCESSFUL MANDRELL PULL AND SUCCESSFUL LEAK-DOWN PRESSURE TEST.
7. ALL WORK AND MATERIALS SHALL COMPLY WITH THE CITY OF VILLA RICA, GEORGIA GEORGIA REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
8. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED REMOVED, OR RELOCATED AS NECESSARY.
9. SITE CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS INDICATING ALL CHANGES AND DEVIATIONS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS AND POLES, ETC., GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
11. OPEN BURNING OR BURY PITS ARE NOT ALLOWED.
12. THERE ARE NO KNOWN WETLANDS ON SITE PER THE NATIONAL WETLANDS INVENTORY MAP.

STORM NOTES:

1. ALL PIPES SHALL BE 18" DIAMETER HDPE WITH A MINIMUM SLOPE OF 2.0% UNLESS OTHERWISE SPECIFIED ON PLANS.
2. MINIMUM 2' COVER OVER ALL PIPES IN NON-TRAFFIC AREAS. 3' MINIMUM COVER UNDER PAVEMENT AND TRAFFIC AREAS.
3. BEDDING, FITTINGS AND CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.
4. LOCATION OF ROOF LEADERS NOT KNOWN AT THE TIME OF THIS PERMIT SET. CONTRACTOR TO CONNECT ROOF LEADERS WITH 9" DIA. HDPE WHERE FEASIBLE. CONTRACTOR TO CONTACT ENGINEER IF CONFLICT OCCURS.
5. GRATE AND YARD INLETS SHALL BE NYLOPLAST 12" OR EQUIVALENT, GRATE INLET IN DRIVE AREA SHALL BE TRAFFIC RATED, INSTALLATION PER MANUFACTURE'S SPECIFICATIONS.
6. UNDERGROUND CHAMBER SYSTEM SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS. CONTRACTOR TO KEEP CHAMBER SYSTEM DISCONNECTED UNTIL FINAL STABILIZATION TO KEEP CONSTRUCTION SEDIMENT AND DEBRIS OUT OF SYSTEM.

EARTHWORK CALCULATIONS

06.24.2024

Design Volumes:

Grading Area = 800,285 SF

Cut = 90,950 CY
Fill = 88,992 CY

Adjustments:

Compaction	1.15	Fill Factor		
	88,992 CY	x	1.15 =	102,341 CY
Regular Pavement	9"	Pavement Depth		
	214,971 SF	Pavement Area		
	214,971 SF	x	0.75 =	5,971 CY
Sidewalks	4"	Sidewalk Thickness		
	32,234 SF	Sidewalk Area		
	32,234 SF	x	0.3333 =	398 CY Cut
Pipes	1,809 CY	Volume of GAB Bedding		
	660 CY	Volume of Pipes		
	Total Volume of Bedding and Pipes =			2,470 CY
Slab Foundation	8"	Slab + GAB Thickness		
	112,210 SF	Total Area of Slabs		
	112,210 SF	x	0.6667 =	2,771 CY

Adjusted Volumes:

Total Adjusted Cut =	102,559 CY
Total Adjusted Fill =	102,341 CY
Net Volume =	**219 CY**
Site Adjustment =	0.1 Inches

CONTRACTOR SHALL PERFORM AND CONCLUDE EARTHWORK CALCULATIONS INDEPENDENTLY AND SHALL NOT RELY ON THESE OPINION OF VOLUMES. VOLUMES STATED ARE USED TO SECURE A HAUL ROUTE PERMIT ONLY.

THE TOTAL ADJUSTED CUT VALUE ABOVE INCLUDES 3655 CY OF ROCK CUT

CITY OF VILLA RICA GEORGIA 18 26 CITY OF GOLD

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

MASTER GRADING PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.00
SHEET

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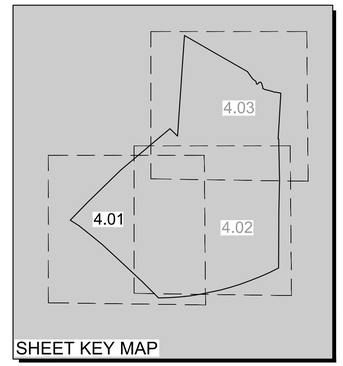

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

GRADING PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.01
SHEET

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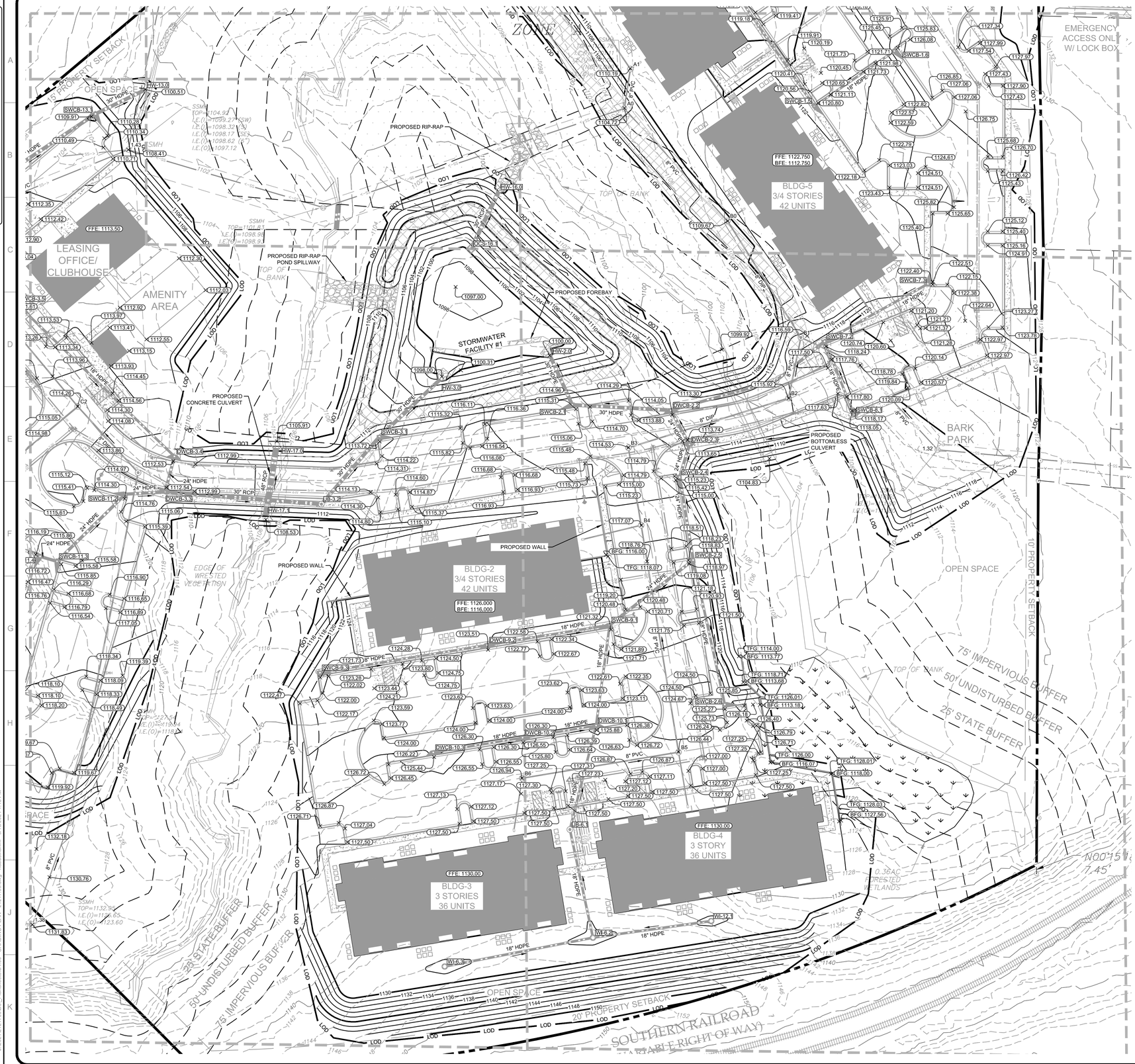

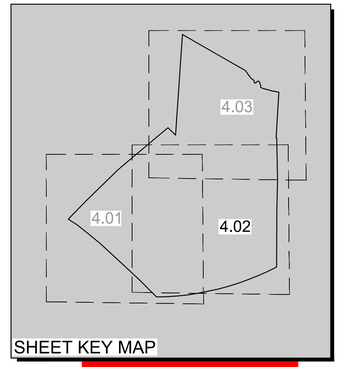

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

GRADING PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.02
SHEET

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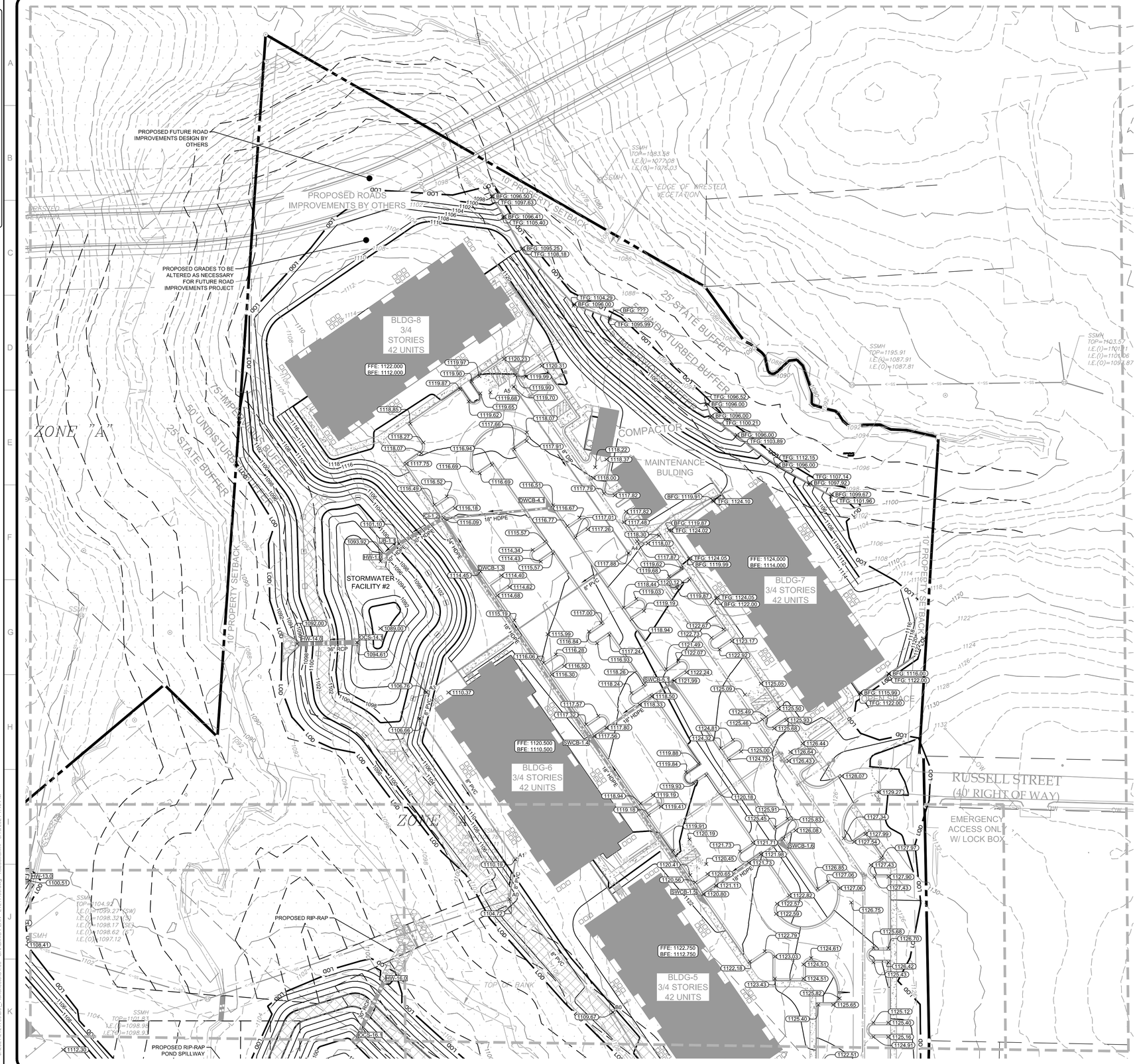

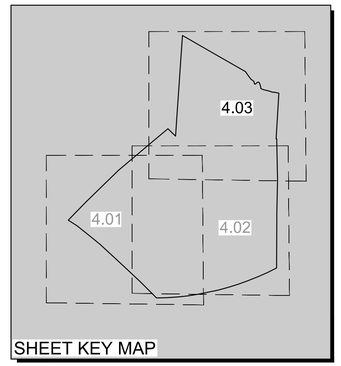

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

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City Engineer

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PROJECT

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A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

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VILLA RICA, GA 30180

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

GRADING PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.03
SHEET

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ADA ACCESSIBLITY NOTES:

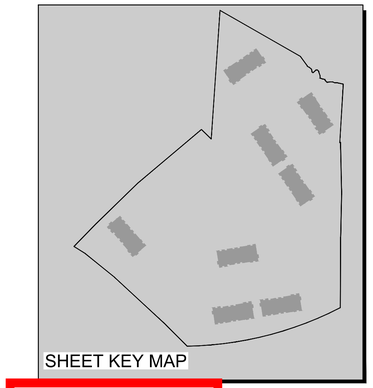
1. ALL ACCESSIBLE SPACES AND AISLES SHALL HAVE NO SLOPE GREATER THAN 1:50.
2. NO CURB RAMPS SHALL PROJECT INTO ACCESS AISLES.
3. CROSS SLOPES OF ACCESSIBLE ROUTES SHALL NOT EXCEED 1:50.
4. MANAGEMENT SHALL MAINTAIN THE TREES LOCATED ADJACENT TO THE INTERIOR WALKWAYS SUCH THAT THESE TREES DO NOT BECOME PROTRUDING OBJECTS FOR VISUAL IMPAIRED INDIVIDUALS.
5. AT LEAST 80 INCHES OF CLEAR HEAD ROOM IS REQUIRED ALONG ALL PATHWAYS.
6. WHEN ANY WALKWAY LEVEL CHANGES, THE VERTICAL DISTANCE BETWEEN LEVELS SHALL BE LESS THAN 1/4 INCH.
7. IF THERE IS A CHANGE IN LEVEL OF BETWEEN 1/4 AND 1/2 INCH ALONG THE ACCESSIBLE ROUTE, THE EDGE SHALL BE BEVELED WITH A SLOPE OF 1:2.
8. ALL CHANGES IN LEVEL GREATER THAN 1/2 INCH SHALL BE RAMPED.
9. THE TRANSITION FROM ANY CURB RAMP TO THE WALKWAY, ROAD, OR GUTTER SHALL BE FLUSH AND FREE FROM ANY ABRUPT CHANGES.
10. THE SLOPES OF THE ROAD, GUTTER, AND ACCESSIBLE ROUTES AT THE TOP AND BOTTOM OF RAMPS SHALL BE NO GREATER THAN 1:20.
11. FLARED SIDES OF CURB RAMPS SHALL BE SLOPED NO GREATER THAN 1:10.
12. ALL ACCESSIBLE ROUTES AND RAMPS SHALL BE STABLE, FIRM, AND HAVE NON-SLIP FINISHES.
13. HANDRAILS SHALL BE FIXED SO THAT THEY DO NOT ROTATE WITHIN THEIR FITTINGS.
14. TOPS OF HANDRAILS SHALL BE PLACED BETWEEN 34 AND 38 INCHES ABOVE THE RAMP SURFACE AND RAIL GRIPPING SURFACE SHALL BE CONTINUOUS ALONG RAMP.
15. ON WALL MOUNTED HANDRAILS, THERE SHALL BE EXACTLY 1.5 INCHES BETWEEN THE HANDRAIL AND THE WALL.
16. AT ENDS OF HANDRAILS, THERE SHALL BE AT LEAST 12 INCHES OF LEVEL HANDRAIL BEYOND THE TOP AND BOTTOM OF THE RAMP SEGMENT. THE ENDS OF HANDRAILS SHALL BE ROUNDED OR RETURNED SMOOTHLY TO THE FLOOR, WALL, OR POST.
17. THE DIAMETER OF THE HANDRAILS SHALL BE BETWEEN 1.25 AND 1.5 INCHES, AND THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE.
18. RAMPS SHALL BE DESIGNED TO ACCESSIBILITY STANDARDS AND SHALL BE CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE ON WALKING SURFACES.

ADDITIONAL ADA ACCESSIBLITY NOTES:

1. CROSSWALKS MUST HAVE A RUNNING SLOPE OF 5% MAX IN THE RUNNING DIRECTION (EXCEPT AT CURB RAMPS, WHICH CAN BE UP TO 8.33%) AND 2% MAX IN THE CROSS OR TRANSVERSE DIRECTION.
2. THE MANEUVERING CLEARANCE AT THE EXTERIOR SIDE OF ALL ENTRY DOORS MUST HAVE A SLOPE OF 2% MAX IN ANY DIRECTION AND ALLOW A ½" MAX OVERALL CHANGE IN LEVEL AT THE THRESHOLDS.
3. A 30" X 48" CLEAR FLOOR SPACE MUST BE PROVIDED ADJACENT TO THE EXTERIOR SITE ELEMENTS SUCH AS BENCHES, TRASH CANS AND BIKE RACKS AND HAVE A SLOPE OF 2% MAX IN ANY DIRECTION.
4. SIDEWALK GRADING ALONG THE PUBLIC ROW (WHERE PROVIDED) SHOULD BE CONFIRMED TO FOLLOW THE REQUIREMENTS ABOVE - WHERE LOCATED WITHIN THE PROJECT SCOPE. WHERE THE PUBLIC SIDEWALK ADJOINS THE ROUTE TO A BUILDING ENTRANCE OR WHERE SIDEWALKS INTERSECT (TRANSITION AREAS - ALLOWING A USER TO STOP AND CHANGE DIRECTIONS), THE RUNNING AND CROSS SLOPE IN THAT AREA MUST BE 2% MAX. ADDITIONALLY, AT THE INTERSECTION OF WALKS WITHIN THE PROJECT BOUNDARIES (WHERE USERS STOP AND/OR CHANGE DIRECTIONS), THE SLOPE MUST BE KEPT TO A 2% MAX IN ALL DIRECTIONS AT THESE TRANSITIONS (A 48" X 48" LEVEL "LANDING" AREA SHOULD BE AVAILABLE AT THESE POINTS).
5. VERTICALLY MOUNTED SIGNAGE AT THE FRONT OF EACH SPACE DESIGNATING THE ACCESSIBLE PARKING MUST BE 60" MIN ABOVE THE PARKING SURFACE. THE 60" MIN SHOULD BE TO THE BOTTOM OF THE LOWEST SIGNAGE PROVIDED.

ACCESSIBLITY LEGEND:

- ACCESSIBLE PATH
- ACCESSIBLE PARKING



SHEET KEY MAP

CITY OF VILLA RICA
GEORGIA
18 26
"CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW F KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

MASTER ADA ACCESSIBILITY PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.10
SHEET

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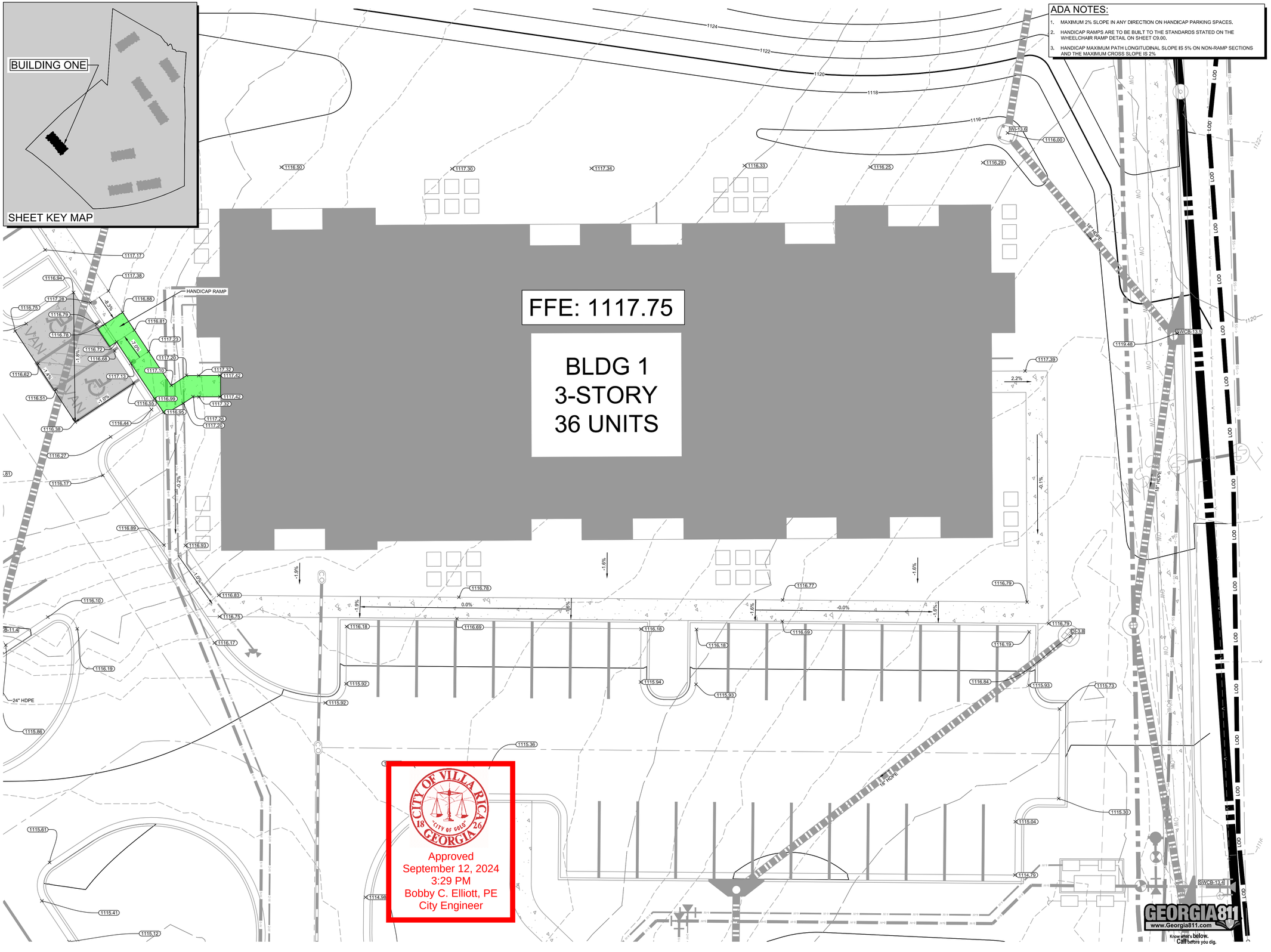

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September 12, 2024
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Bobby C. Elliott, PE
City Engineer

ADA NOTES:

1. MAXIMUM 2% SLOPE IN ANY DIRECTION ON HANDICAP PARKING SPACES.
2. HANDICAP RAMPS ARE TO BE BUILT TO THE STANDARDS STATED ON THE WHEELCHAIR RAMP DETAIL ON SHEET C9.00.
3. HANDICAP MAXIMUM PATH LONGITUDINAL SLOPE IS 5% ON NON-RAMP SECTIONS AND THE MAXIMUM CROSS SLOPE IS 2%

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 1 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.11
SHEET

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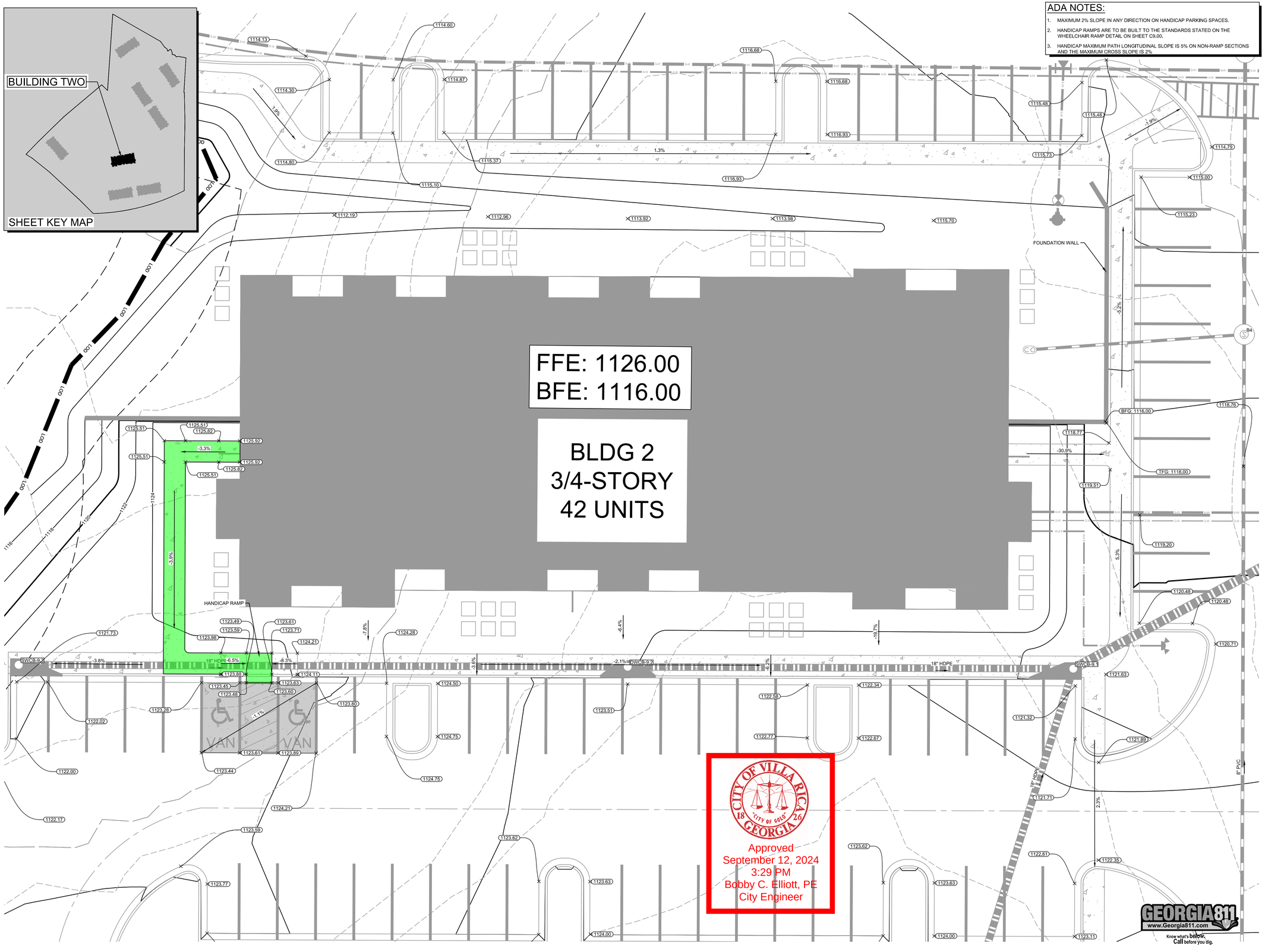

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 2 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

C4.12
SHEET

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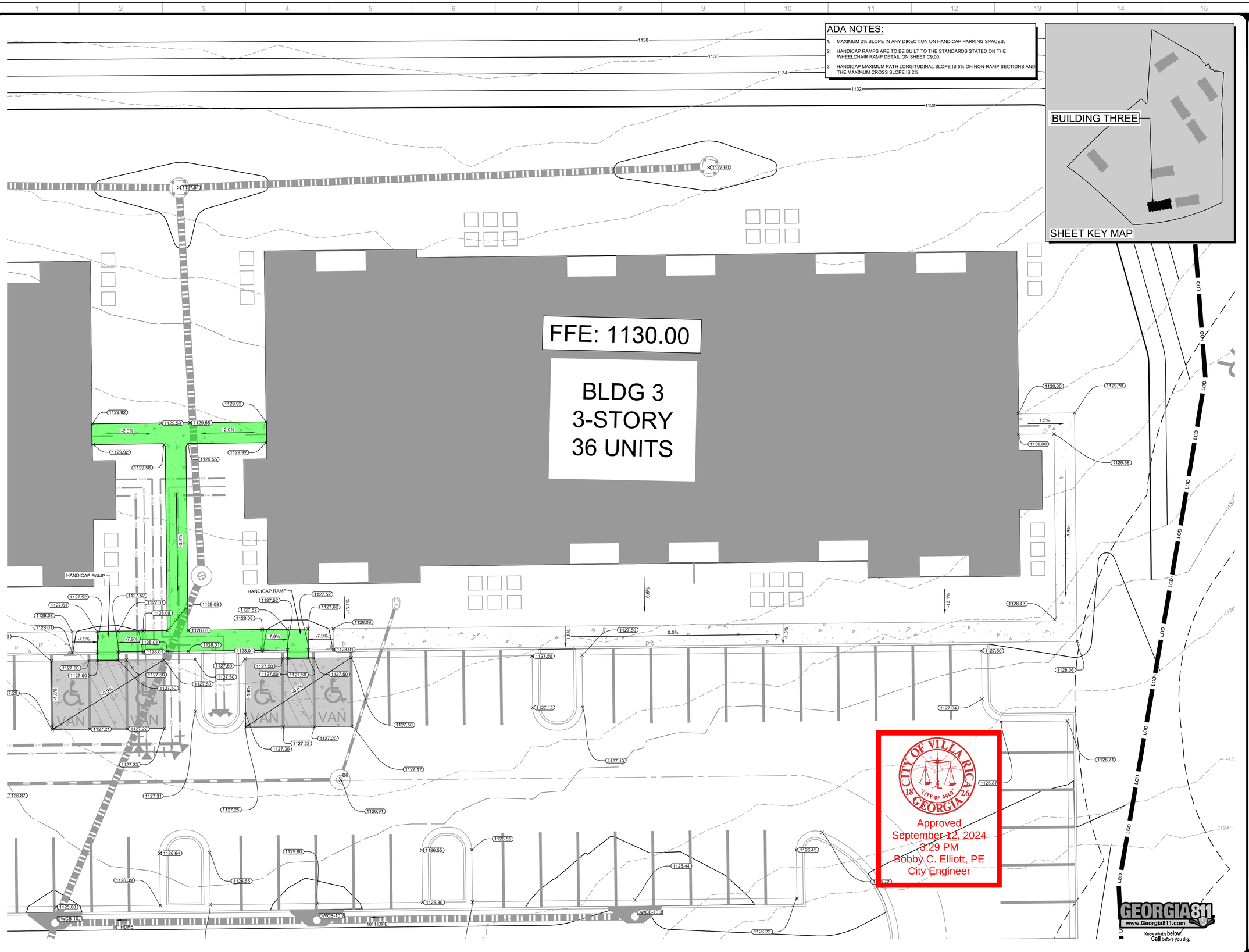

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CITY OF VILLA RICA
18 "CITY OF GOLD" 26
GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

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BUILDING 3 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.13
SHEET

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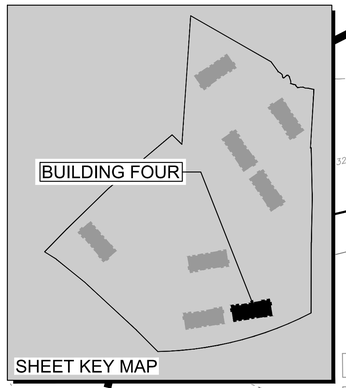

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FFE: 1130.00

BLDG 4
3-STORY
36 UNITS

FOUNDATION WALL

HANDICAP RAMP

HANDICAP RAMP

16" HDPE

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PROJECT

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AT

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 4 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.14
SHEET

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FFE: 1123.75
BFE: 1113.75

BLDG 5
3/4-STORY
42 UNITS

ADA NOTES:

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HANDICAP RAMP

HANDICAP RAMP

BUILDING FIVE

SHEET KEY MAP

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GSWCC LEVEL II DESIGN PROFESSIONAL
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BUILDING 5 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.15
SHEET

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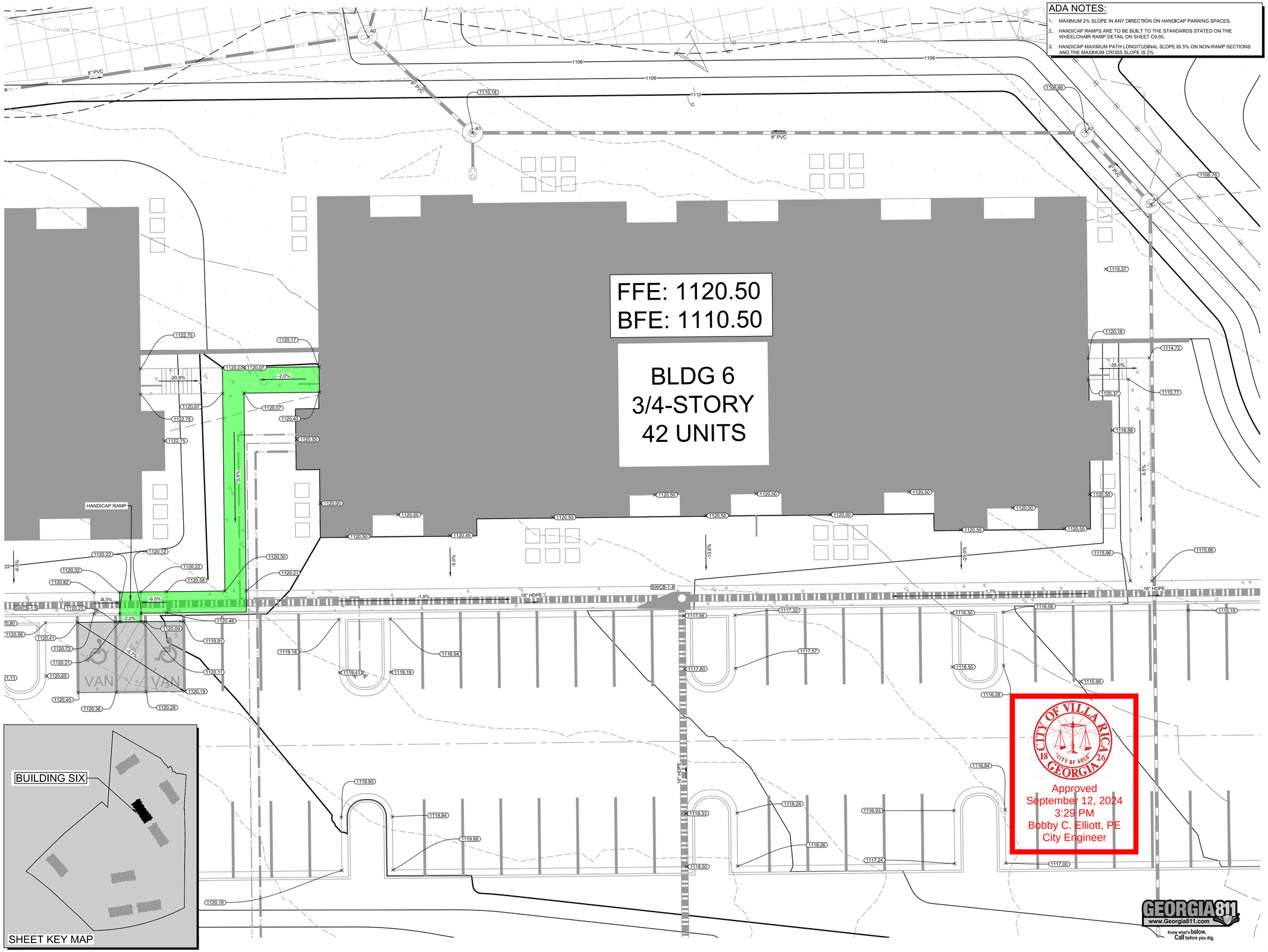

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1. MAXIMUM 2% SLOPE IN ANY DIRECTION ON HANDICAP PARKING SPACES.
2. HANDICAP RAMPS ARE TO BE BUILT TO THE STANDARDS STATED ON THE WHEELCHAIR RAMP DETAIL ON SHEET C9.00.
3. HANDICAP MAXIMUM PATH LONGITUDINAL SLOPE IS 5% ON NON-RAMP SECTIONS AND THE MAXIMUM CROSS SLOPE IS 2%

CITY OF VILLA RICA
"CITY OF GOLD"
GEORGIA
18 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 6 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.16
SHEET

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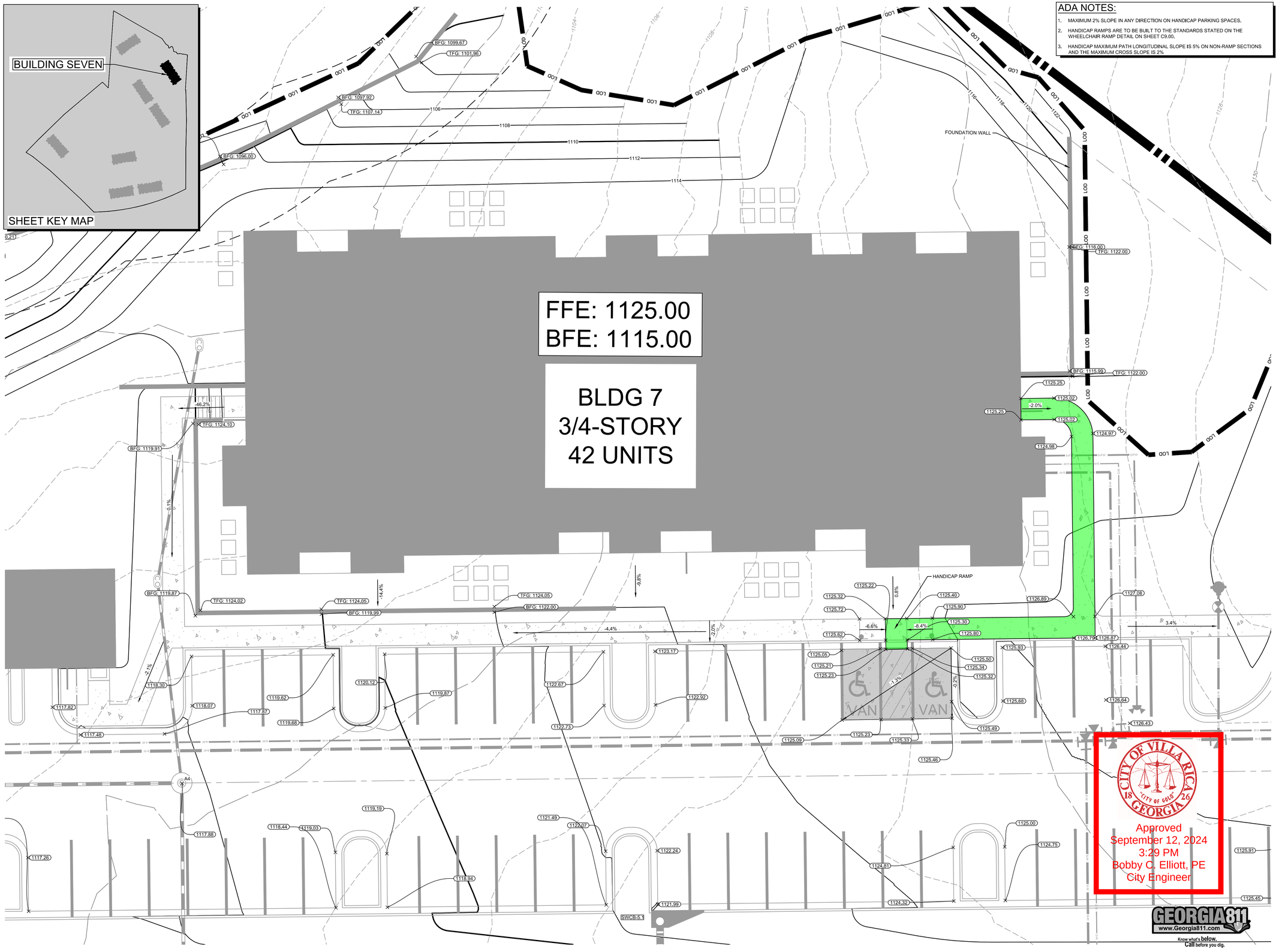

ADA NOTES:

1. MAXIMUM 2% SLOPE IN ANY DIRECTION ON HANDICAP PARKING SPACES.
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CITY OF VILLA RICA
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18 26
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PROJECT

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FOR

ARROWHEAD
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NORCROSS, GA 30092
P: 404.867.3572

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 7 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.17
SHEET

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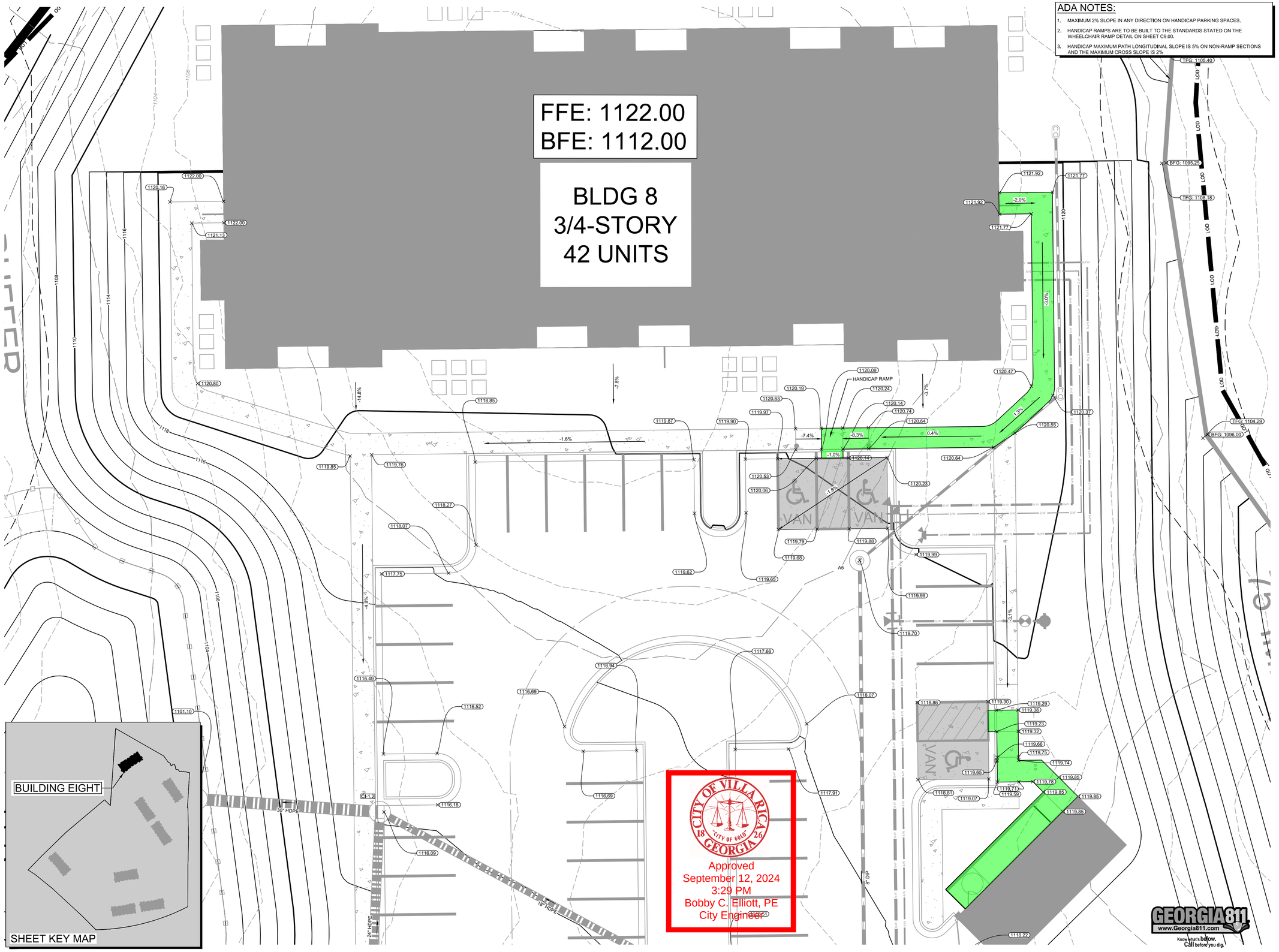

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PROJECT

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A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

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VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

BUILDING 8 ADA ACCESSIBILITY PLAN

0 5 10 20 30

SCALE: 1" = 10'
DATE: 09/06/2024
PROJECT: 21217.00

C4.18
SHEET

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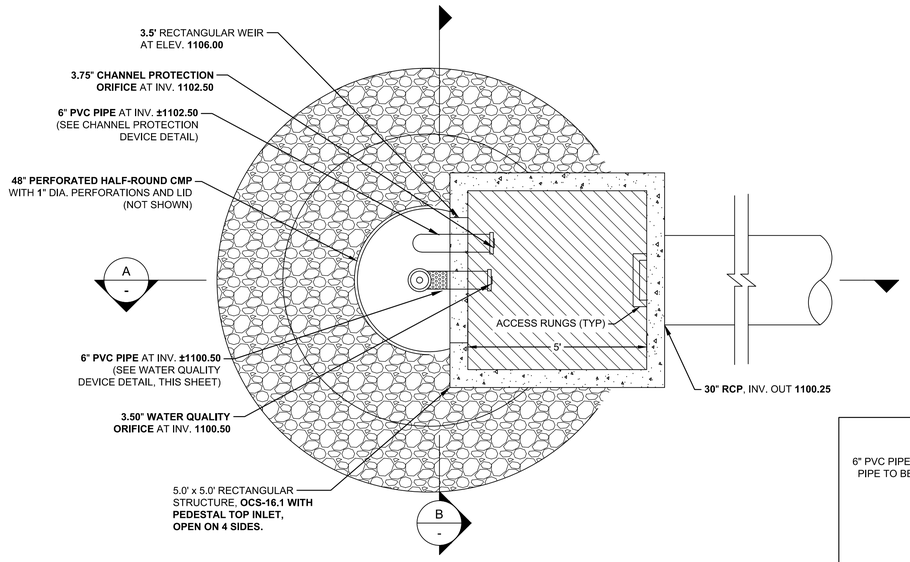
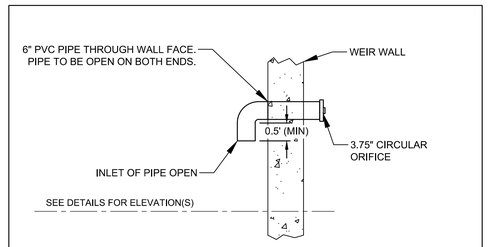


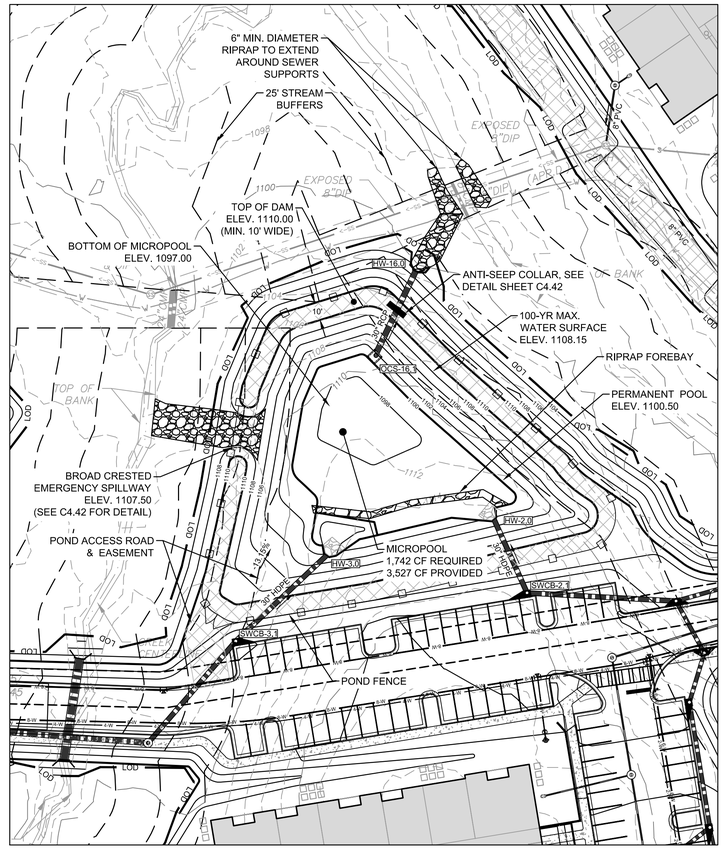
OUTLET CONTROL STRUCTURE DETAIL VIEW

SCALE: N.T.S.



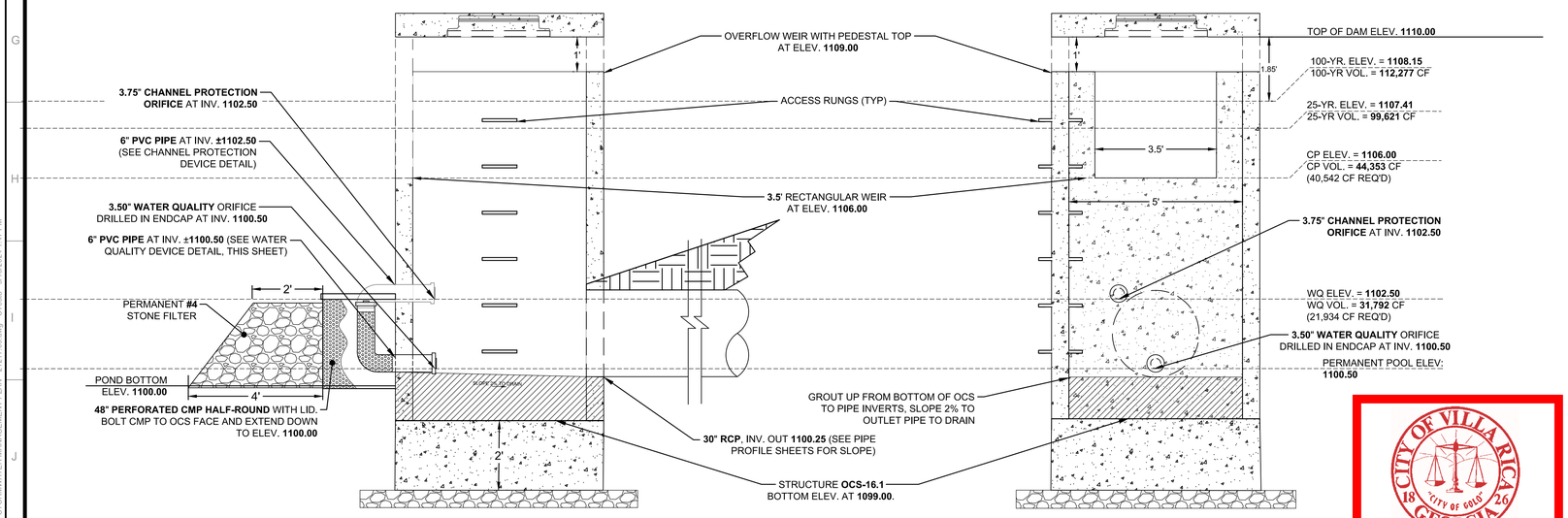
POND 1 CHANNEL PROTECTION DEVICE ORIFICE DETAIL

N.T.S.



MICROPOOL POND 1 PLAN VIEW

SCALE: 1" = 40'

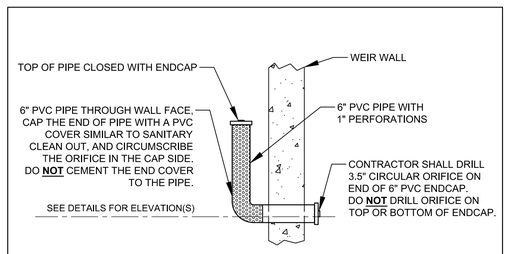


OUTLET CONTROL STRUCTURE SECTION VIEW (A-A)

SCALE: N.T.S.

OUTLET CONTROL STRUCTURE SECTION VIEW (B-B)

SCALE: N.T.S.



WATER QUALITY ORIFICE DETAIL

N.T.S.

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

24 HOUR CONTACT:
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A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACKENZIE

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

STORMWATER MANAGEMENT PLAN

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

C4.40
SHEET

J:\2021\21217000\Dwl_Planchets\C4.40 - STORMWATER MANAGEMENT PLAN - 21217.00.dwg - CTosta - 9/10/2024 1:47 PM

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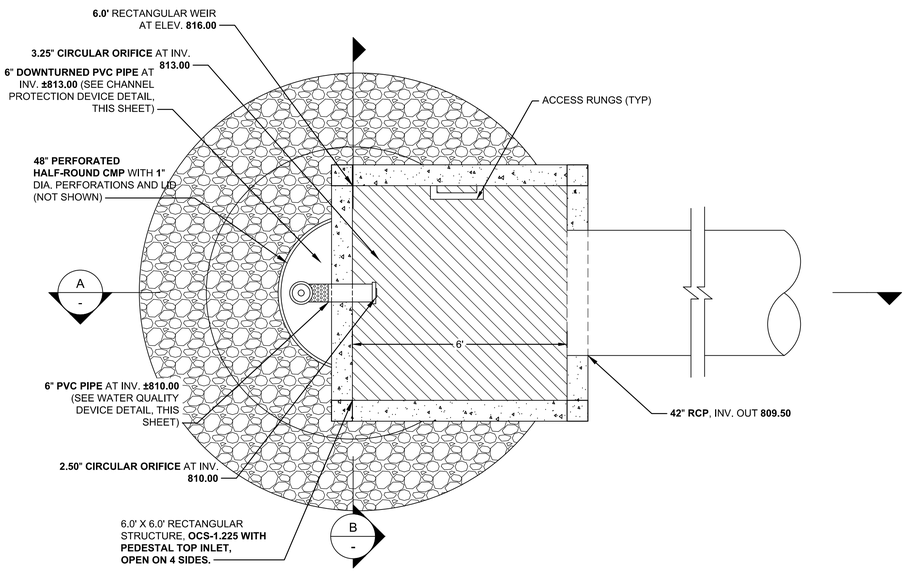
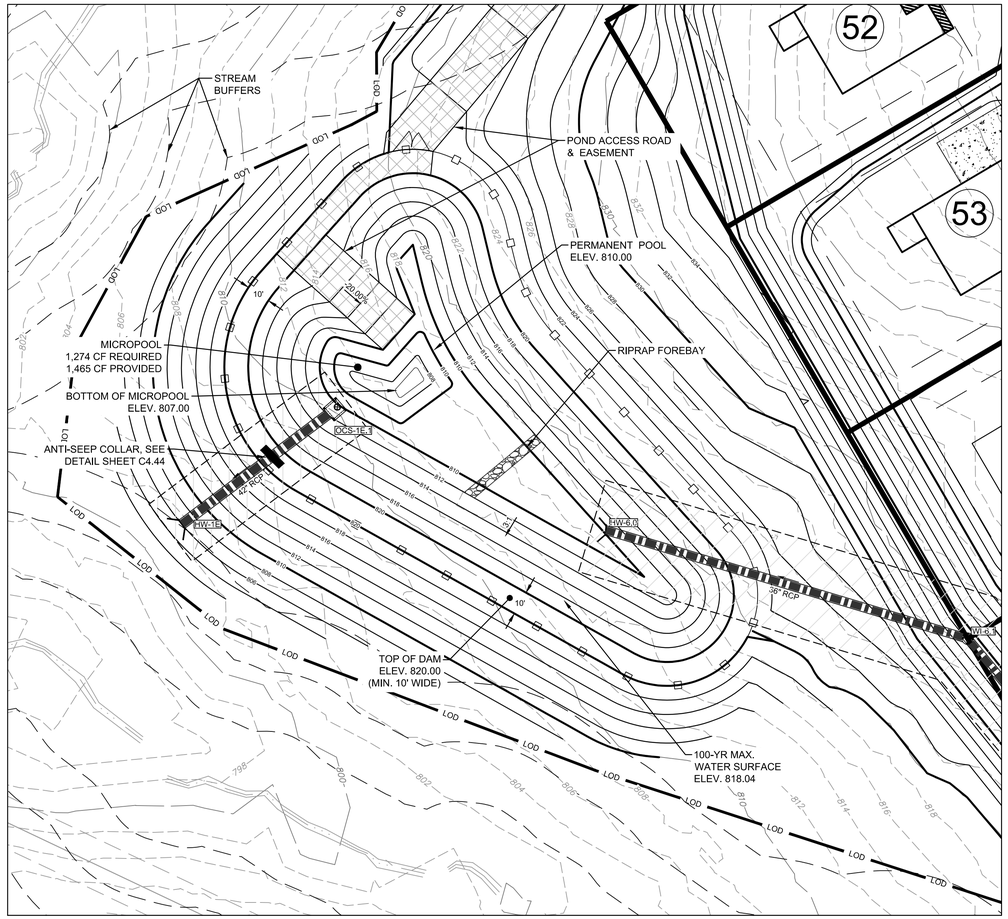


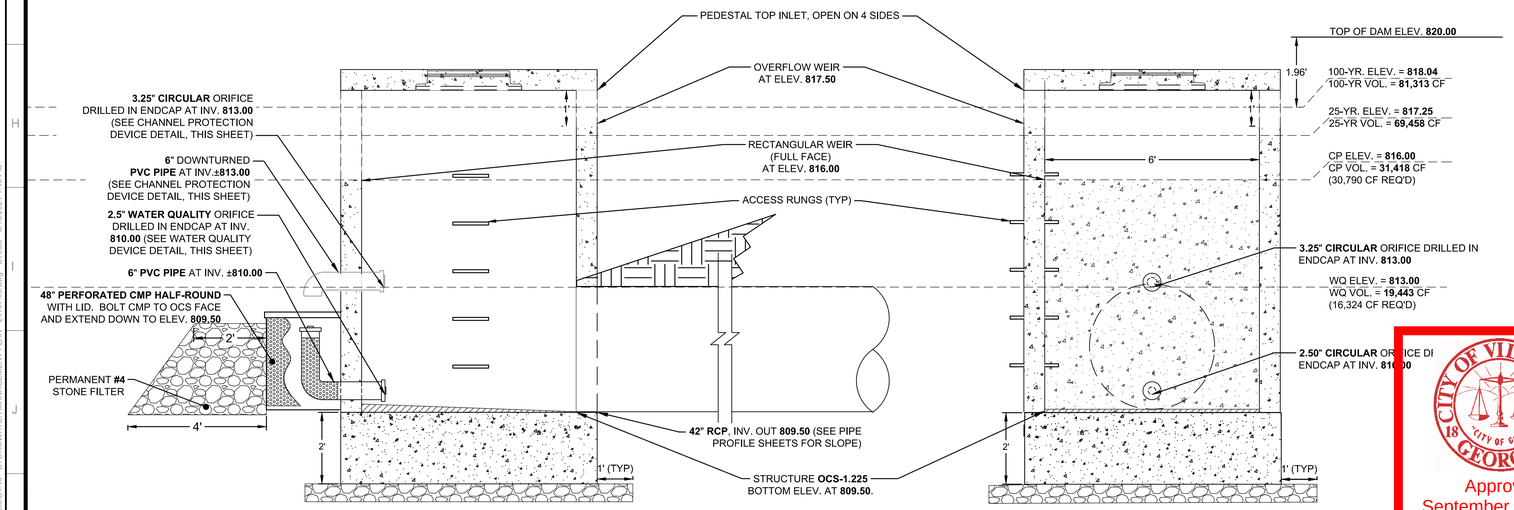
OUTLET CONTROL STRUCTURE DETAIL VIEW

SCALE: 1" = 2'



WATER QUALITY POND 1E PLAN VIEW

SCALE: 1" = 30'

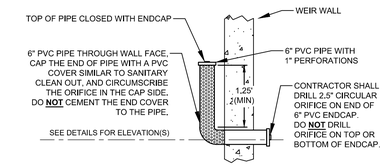


OUTLET CONTROL STRUCTURE SECTION VIEW (A-A)

SCALE: 1" = 2'

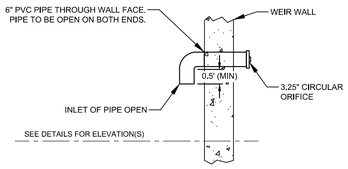
OUTLET CONTROL STRUCTURE SECTION VIEW (B-B)

SCALE: 1" = 2'



WATER QUALITY DEVICE ORIFICE DETAIL

N.T.S.



POND 1E CHANNEL PROTECTION DEVICE ORIFICE DETAIL

N.T.S.

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

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September 12, 2024
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City Engineer

24 HOUR CONTACT:
BRYAN FLINT @ 404.867.3572

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PEACHTREE CORNERS, GA 30092

PROJECT

MINK LIVSEY RD

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

4268 MINK LIVSEY RD,
OFF WYNTERSET DR, LAUREL BEND DR
SNELLVILLE, GA 30039

FOR

KATHERINE REEVES INVESTMENTS, LLC
14850 E BLUFF ROAD
MILTON, GA 30004
P: 404.428.8618

REVISIONS

NO.	DATE	BY	DESCRIPTION
1	09/06/2024	CAH	1ST LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW F. KAUCHAK

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2024

STORMWATER MANAGEMENT PLAN POND 1E

SCALE:
DATE: 09/06/2024
PROJECT: 24107.00

GRID NORTH
GEORGIA WEST ZONE

C4.41
SHEET

J:\2024\24107\00\Dwl_Plansheets\C4.40 - STORMWATER MANAGEMENT PLAN - 24107.00.dwg - CTosta - 9/10/2024 1:48 PM

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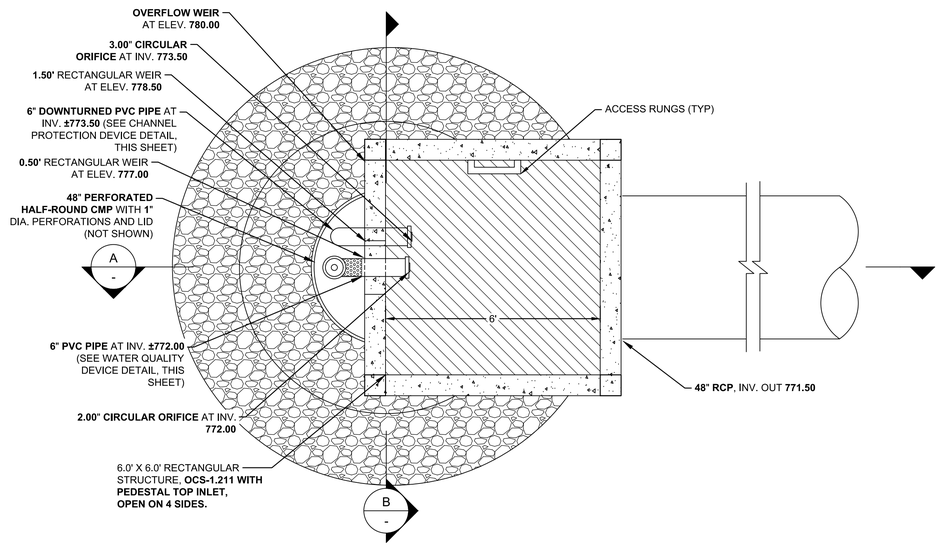
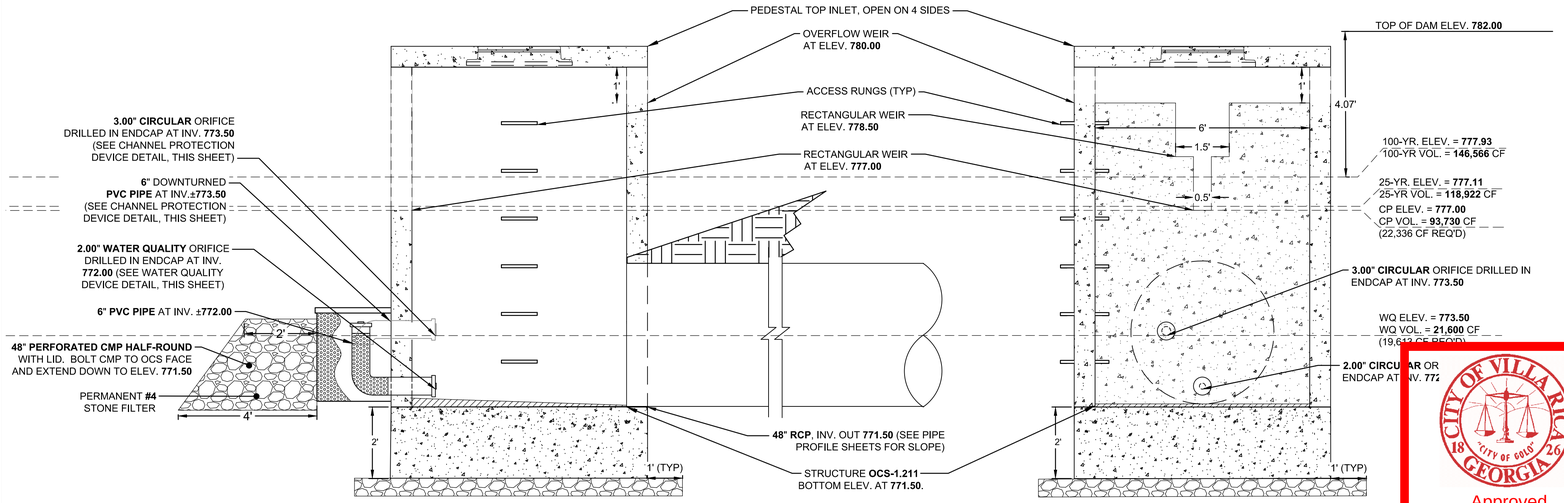


OUTLET CONTROL STRUCTURE
DETAIL VIEW
SCALE: 1" = 2'

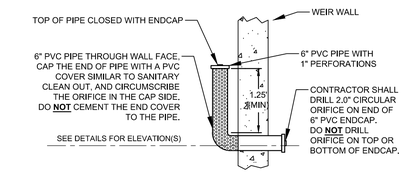


WATER QUALITY POND 1F
PLAN VIEW
SCALE: 1" = 40'

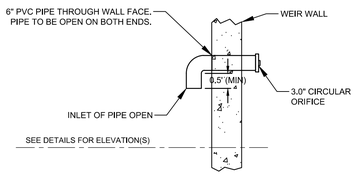


OUTLET CONTROL STRUCTURE
SECTION VIEW (A-A)
SCALE: 1" = 2'

OUTLET CONTROL STRUCTURE
SECTION VIEW (B-B)
SCALE: 1" = 2'



WATER QUALITY DEVICE
ORIFICE DETAIL
N.T.S.



POND 1F CHANNEL PROTECTION DEVICE
ORIFICE DETAIL
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CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

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City Engineer

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MILTON, GA 30004
P: 404.428.8618

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2024

STORMWATER MANAGEMENT PLAN POND 1F

SCALE:
DATE: 09/06/2024
PROJECT: 24107.00

GRID NORTH
GEORGIA WEST ZONE

C4.42
SHEET

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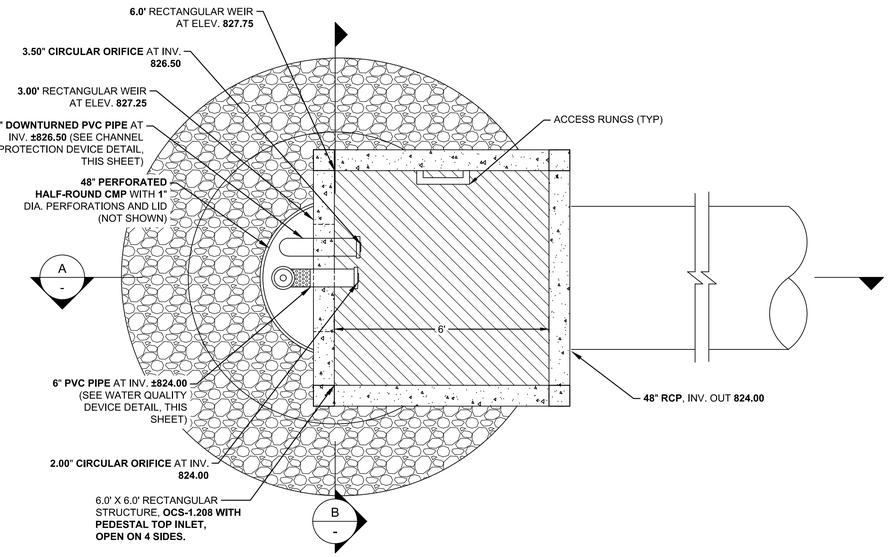
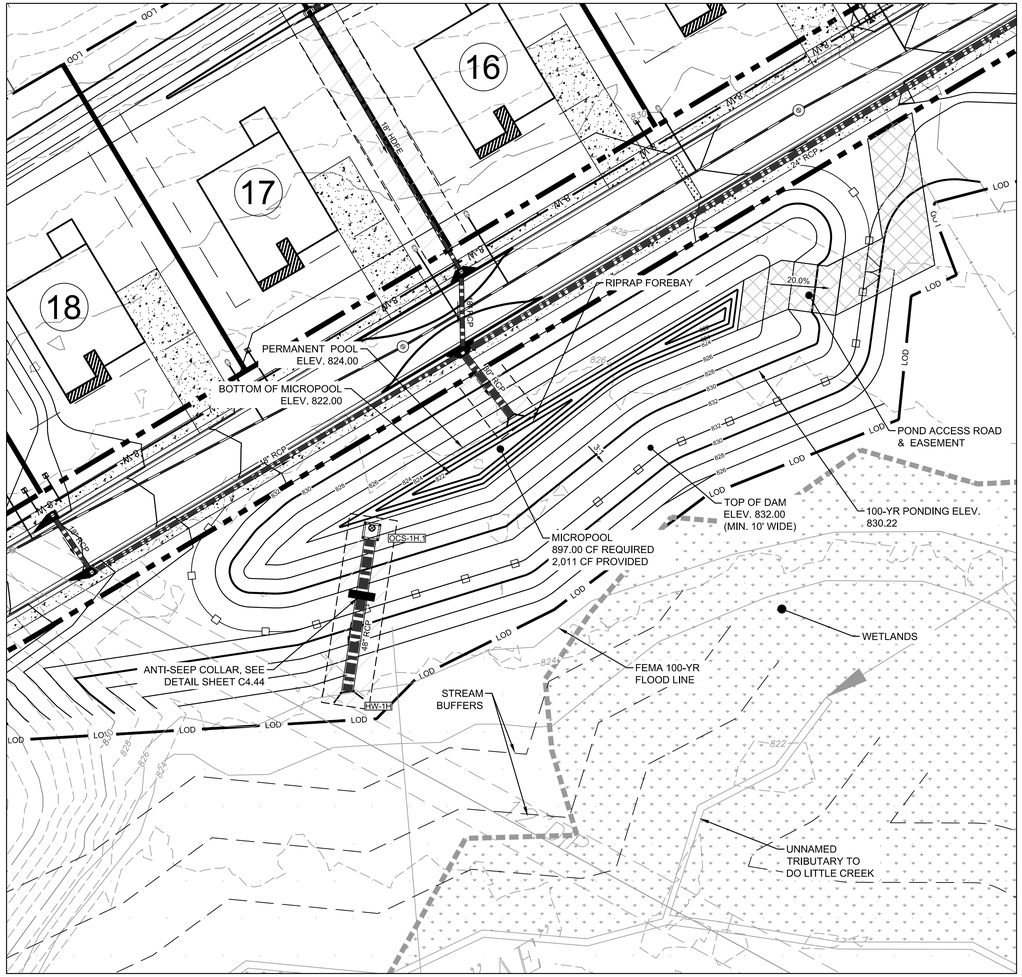


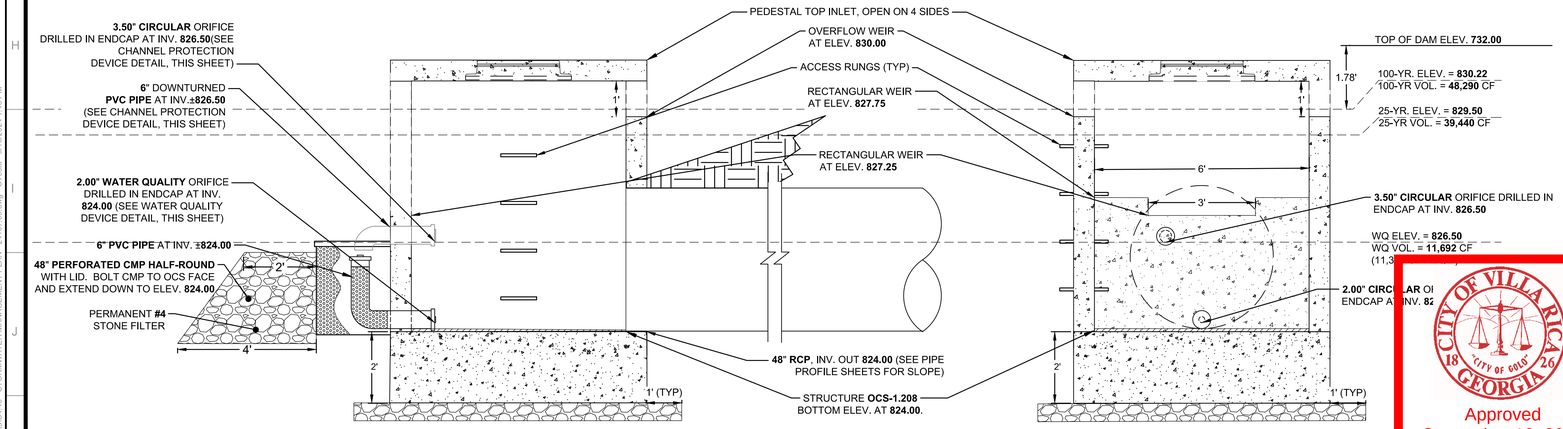
OUTLET CONTROL STRUCTURE DETAIL VIEW

SCALE: 1" = 2'



WATER QUALITY POND 1H PLAN VIEW

SCALE: 1" = 30'



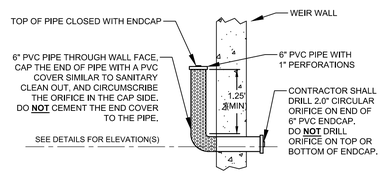
OUTLET CONTROL STRUCTURE SECTION VIEW (A-A)

SCALE: 1" = 2'

OUTLET CONTROL STRUCTURE SECTION VIEW (B-B)

SCALE: 1" = 2'

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer



WATER QUALITY DEVICE ORIFICE DETAIL

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BRYAN FLINT @ 404.867.3572

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2024

STORMWATER MANAGEMENT PLAN POND 1H

SCALE:
DATE: 09/06/2024
PROJECT: 24107.00

GRID NORTH
GEORGIA WEST ZONE

C4.43
SHEET

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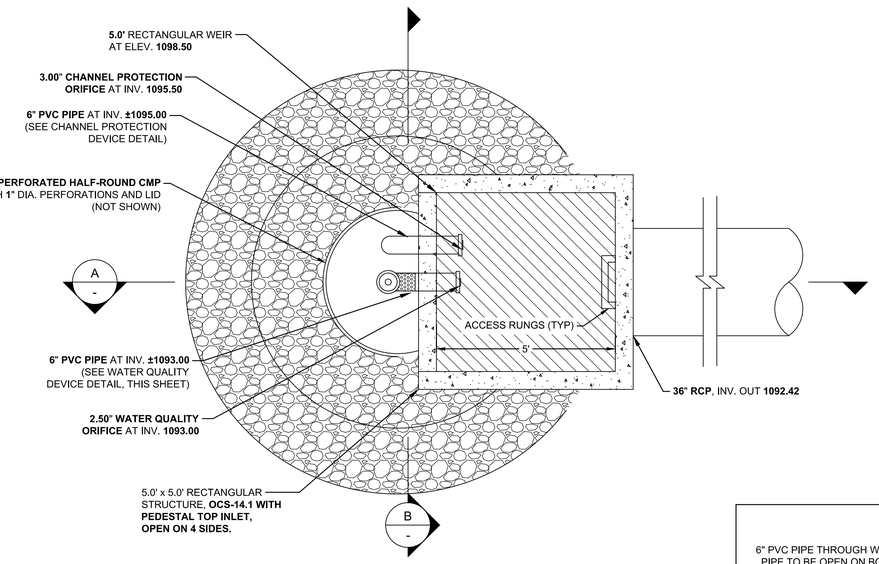
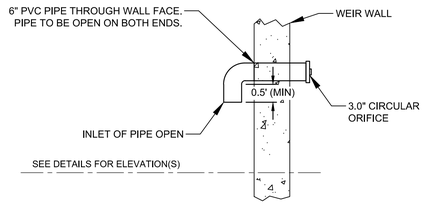


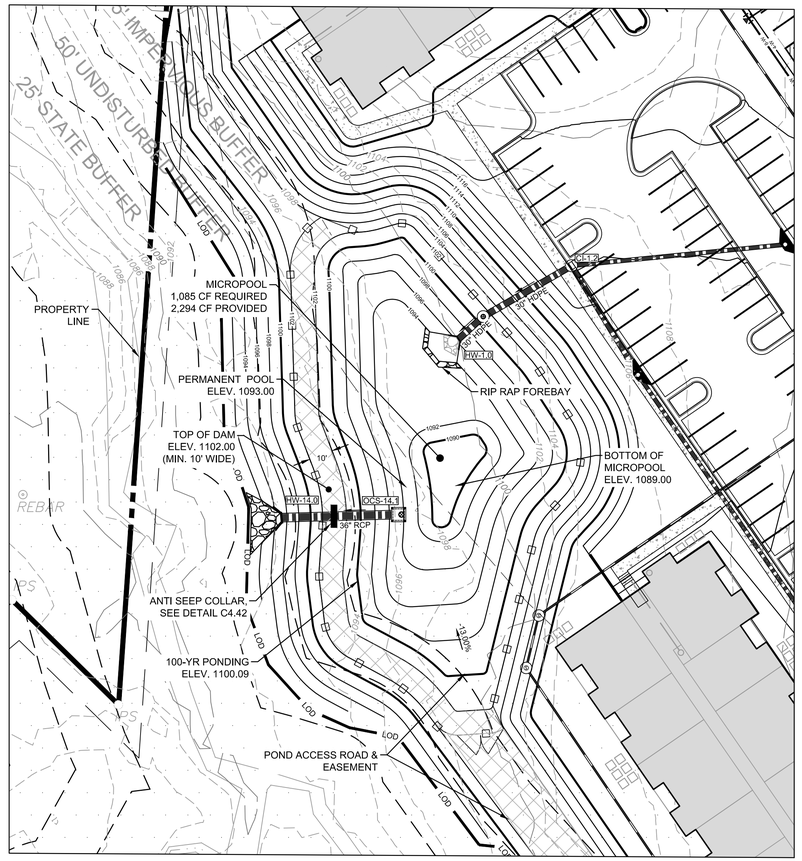
OUTLET CONTROL STRUCTURE DETAIL VIEW

SCALE: 1" = 2'



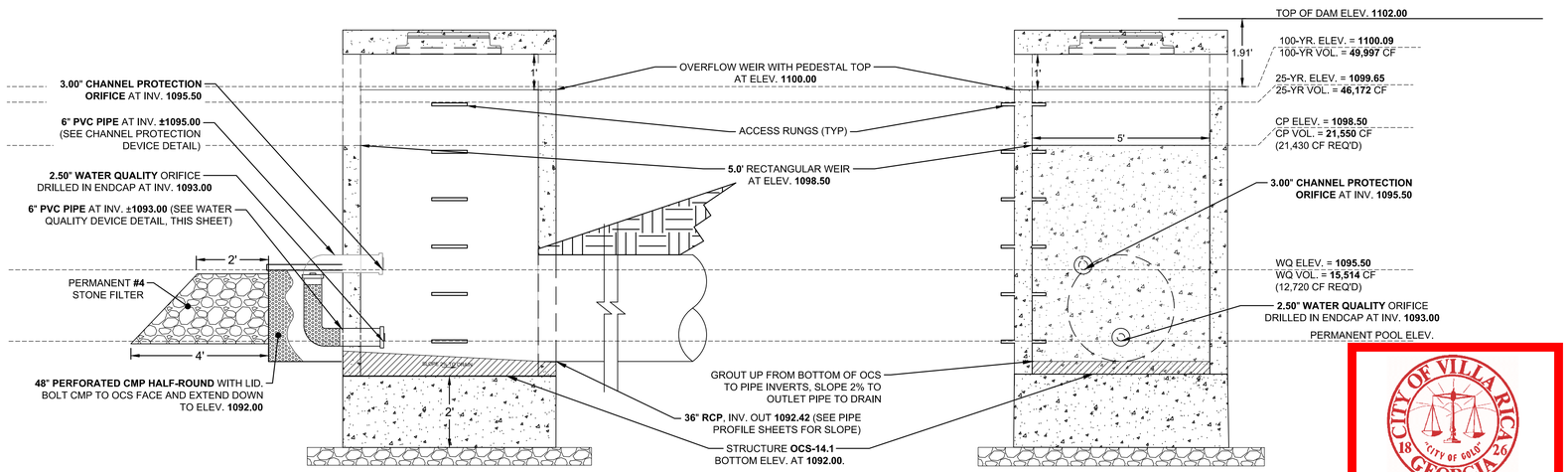
POND 2 CHANNEL PROTECTION DEVICE ORIFICE DETAIL

N.T.S.



MICROPOOL POND 2 PLAN VIEW

SCALE: 1" = 30'

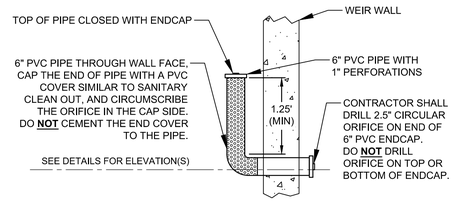


OUTLET CONTROL STRUCTURE SECTION VIEW (A-A)

SCALE: 1" = 2'

OUTLET CONTROL STRUCTURE SECTION VIEW (B-B)

SCALE: 1" = 2'



WATER QUALITY DEVICE ORIFICE DETAIL

N.T.S.

CITY OF VILLA RICA 18 GEORGIA 26 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

24 HOUR CONTACT:
BRYAN FLINT @ 404.867.3572

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
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-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACPHERSON

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

STORMWATER MANAGEMENT DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C4.44
SHEET

J:\2021\21217000\e_Plansheets\C4.40 - STORMWATER MANAGEMENT PLAN - 21217.00.dwg - CTosto - 9/10/2024 1:49 PM

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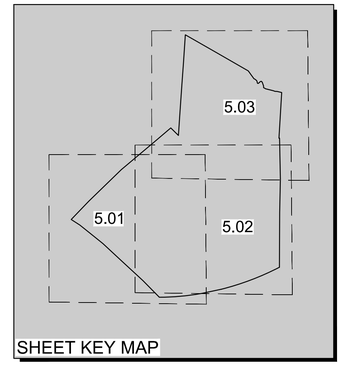
2. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED REMOVED, OR RELOCATED AS NECESSARY.
3. MINIMUM 2' COVER OVER ALL PIPES IN NON-TRAFFIC AREAS. 3' MINIMUM COVER UNDER PAVEMENT AND TRAFFIC AREAS.
4. BEDDING, FITTINGS, AND CONNECTIONS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
5. WATER SERVICE TO BE PROVIDED BY CITY OF VILLA RICA, GEORGIA.
6. SANITARY SEWER SERVICE TO BE PROVIDED BY CITY OF VILLA RICA, GEORGIA.
7. COMPACTION EQUIPMENT TO BE USED ON ALL PIPES AND SERVICES UNDER PAVEMENT.
8. TAPE AND WIRE ALL PLASTIC PIPES AND SERVICES.
9. DEVELOPER SHALL INSTALL "DRAINS TO WATERWAY" STICKER ON ALL CATCH BASINS.
10. ALL WATER VALVES TO BE THE SAME SIZE AS INDICATED WATER LINES.
11. CLEAN-OUTS WILL BE PROVIDED AT ALL TURNING POINTS ON LATERAL LINES.



SHEET KEY MAP

LESLIE MCPHERSON, MAYOR
CITY COUNCIL:
MAYOR PRO TEM
DAVID MCCOMBS
SHIRLEY MARCHMAN
MATTHEW MONTAHAN
STEPHANIE WARMOTH
ANNA MCCOY

City of Villa Rica

CITY MANAGER: TOM BARBER
CITY CLERK: THERESA CAMPBELL
CITY ATTORNEY: C. DAVID MECKLIN

571 W BANKHEAD HWY
VILLA RICA, GA. 30180
770-459-7500 | VILLARICA.ORG

June 3, 2024

Arrowhead
350 Research Court
Norcross, Georgia 30092.
Attn: Mr. Bryan Flint

RE: Water/Sewer Availability
Project: 11 Gordon Street, LL 161, 2nd District, City of Villa Rica, Georgia 30180

Dear Mr. Flint,

At the present time, the City of Villa Rica has sufficient water and sewer capacity to serve your proposed residential development.

Any improvement upgrades or costs associated with the water and sewer connection to the proposed project will be the responsibility of the developer.

I hope this letter will suffice for your needs at this time. Should you need additional information, please feel free to call me.

Sincerely,

On Behalf of the City of Villa Rica,
Bobby C. Elliott, P.E.
City Engineer

BCE:

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

MASTER SEWER PLAN

0 40 80 160 240

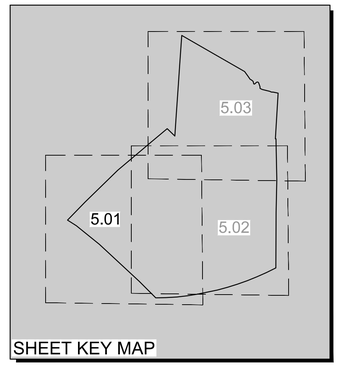
SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C5.00
SHEET

J:\2021\21217.00\Dsk_Plans\sheets\C5.00 - SEWER PLAN - 21217.00.dwg - CHarrison - 9/10/2024 1:49 PM





SHEET KEY MAP

Approved
September 12, 2024
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City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

SEWER PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

C5.01
SHEET

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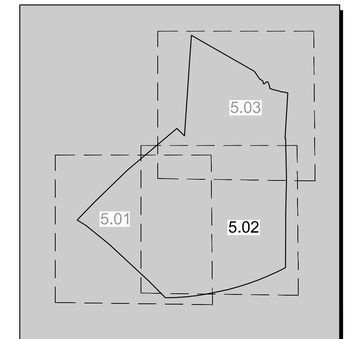

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

SEWER PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C5.02
SHEET

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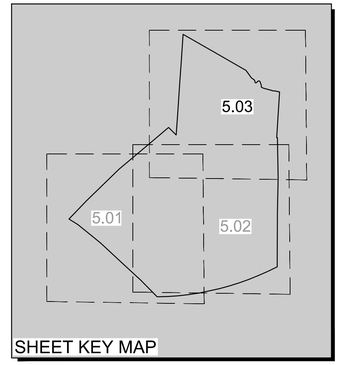

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

SEWER PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

C5.03
SHEET

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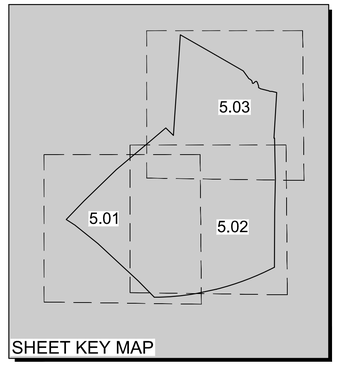
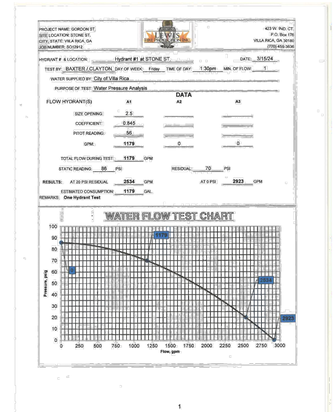
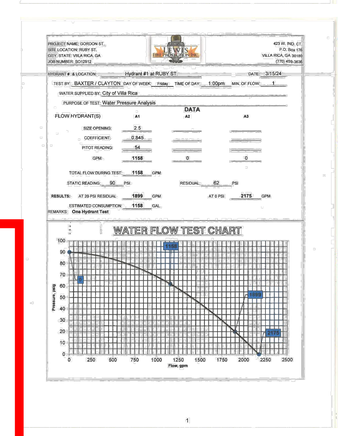


SHEET KEY MAP





CITY OF VILLA RICA 18 "CITY OF GOLD" 26 GEORGIA

Approved
September 12, 2024
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City Engineer

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

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350 RESEARCH COURT
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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

MASTER WATER PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C5.10
SHEET

J:\2021\21217.00\Dsk_Plans\sheets\C5.10 - WATER PLAN - 21217.00.dwg - CHarrison - 9/10/2024 1:50 PM

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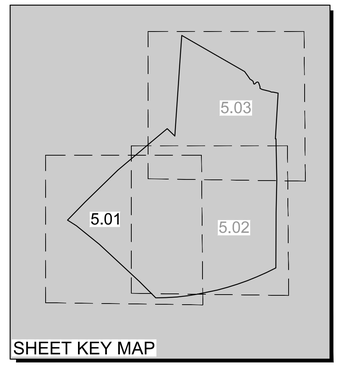

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACHENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

WATER PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C5.11
SHEET

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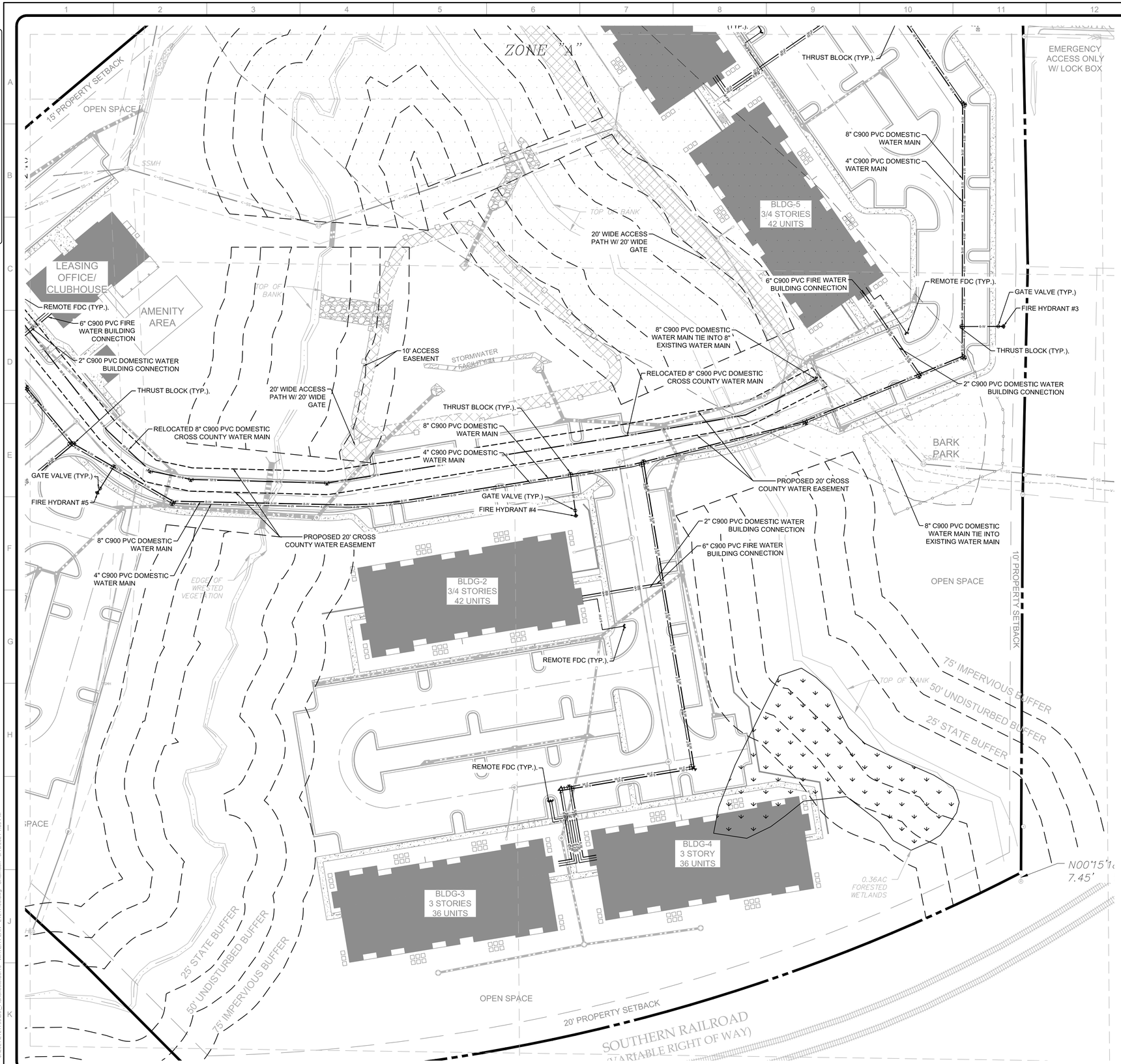

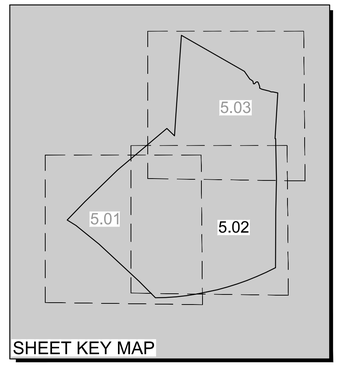

SHEET KEY MAP

CITY OF VILLA RICA GEORGIA 18 26 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
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City Engineer

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

WATER PLAN

0 20 40 80 120

SCALE: 1" = 40'
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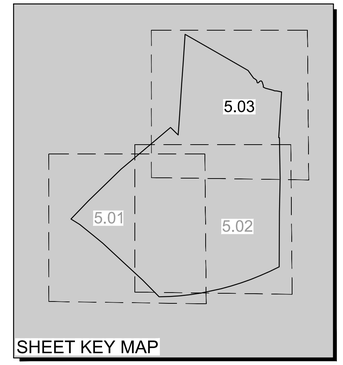

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PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

WATER PLAN

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C5.13
SHEET

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EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST

COMMON DEVELOPMENT CONSTRUCTION PROJECTS (Primary & Tertiary Permittees)

SWCD:_____

Project Name:	Gorden Street (11)@ E Montgomery St (Hwy 78)	**Address:**	11 Gordon Street
City/County:	Villa Rica /Carroll	**Date on Plans:**	6/19/2024
Name &email of person filling out checklist:	Caleb Harrison		CHarrison@pecatl.com

Plan Page #	Included Y/N			TO BE SHOWN ON ES&PC PLAN
6.00	Y		1	The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission
				as of January 1 of the year in which the land-disturbing activity was permitted.
				(The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
ALL SHEETS	Y		2	Level II certification number issued by the Commission, signature and seal of the certified design professional.
				(Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)
N/A	N		3	Limit of disturbance shall be no greater than 50 acres at any one time without prior written authorization from
				the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan
				must include at least 4 of the BMPs listed in Appendix 1 of this checklist and the GAEPD approval letter *
				(A copy of the written approval by GAEPD must be attached to the Plan for the Plan to be reviewed.)
6.01	Y		4	The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution
				controls.
6.01	Y		5	Provide the name, address, email address, and phone number of the primary permittee or tertiary permittee.
6.01	Y		6	Note total and disturbed acreage of the project or phase under construction.
6.01	Y		7	Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal
				degrees.
ALL SHEETS	Y		8	Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the
				revisions.
6.01	Y		9	Description of the nature of construction activity and existing site conditions.
6.01	Y		10	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if
				necessary.
6.01	Y		11	Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes,
				residential areas, wetlands, marshlands, etc. which may be affected.
6.01	Y		12	Design professional's certification statement and signature that the site was visited prior to development of the
				ES&PC Plan as stated on Part IV page 23 of the permit.
6.01	Y		13	Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an
				appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on
				Part IV page 22 of the permit.
6.01	Y		14	Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the
				installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after
				installation." in accordance with Part IV.A.5 page 27 of the permit. *
6.01	Y		15	Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot
				undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal
				marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary
				variances and permits."
6.01	Y		16	Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
6.01	Y		17	Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on
				BMPs with a hydraulic component must be certified by the design professional. *
6.01	Y		18	Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as
				authorized by a section 404 permit." *
6.01	Y		19	Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of
				erosion and sediment control measures and practices prior to land disturbing activities."
6.01	Y		20	Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the
				approved Plan does not provide for effective erosion control, additional erosion and sediment control
				measures shall be implemented to control or treat the sediment source."
6.01	Y		21	Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be
				stabilized with mulch or temporary seeding."
6.01,6.02	Y		22	Indication that the applicable portion of the primary permittees ES&PC Plan is to be provided to each
				secondary permittee prior to the secondary conducting any construction activity and that each secondary
				shall sign the Plan or portion of the Plan applicable to their site. List the names and addresses of all secondary
				permittees. *
N/A	N		23	Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear
				mile upstream of and within the same watershed as any portion of an Biota Impaired Stream Segment, must
				comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for
				those areas of the site which discharge to the Impaired Stream Segment. *
N/A	N		24	If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in
				item 23 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific
				conditions or requirements included in the TMDL Implementation Plan. *
6.01	Y		25	BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout
				of the drum at the construction site is prohibited.
6.01	Y		26	Provide BMPs for the remediation of all petroleum spills and leaks.
6.01	Y		27	Description of practices to provide cover for building materials and building products on site. *
6.01	Y		28	Description of the measures that will be installed during the construction process to control pollutants in storm
				water that will occur after construction operations have been completed.
6.01	Y		29	Description of the practices that will be used to reduce the pollutants in storm water discharges.
6.02	Y		30	Description and chart or timeline of the intended sequence of major activities which disturb soils for the major
				portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities,
				excavation activities, utility activities, temporary and final stabilization). *
6.01	Y		31	Provide complete requirements of Inspections and record keeping by the primary permittee or tertiary
				permittee.
6.01	Y		32	Provide complete requirements of Sampling Frequency and Reporting of sampling results. *
6.01	Y		33	Provide complete details for Retention of Records as per Part IV.F, of the permit.
6.01	Y		34	Description of analytical methods to be used to collect and analyze the samples from each location. *
6.01	Y		35	Appendix B rationale for NTU values at all outfall sampling points where applicable. *
6.02	Y		36	Delineate all sampling locations if applicable, perennial and intermittent streams and other water bodies into
				which storm water is discharged. *
6.01	Y		37	A description of appropriate controls and measures that will be implemented at the construction site including:
				(1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage
				BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial
				perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may
				combine all of the BMPs into a single phase.
6.10-6.30	Y		38	Plan addresses BMPs for all phases of common development including individual building lots and out-parcels,
				etc. regardless of who owns or operates the individual sites. Include a typical and any situational lots
				applicable.
ALL PLANS	Y		39	Graphic scale and North arrow.
ALL PLANS	Y		40	Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch = 100ft or	Flat 0 - 2%	0.5 or 1
larger scale	Rolling 2 - 8%	1 or 2
	Steep 8% +	2,5 or 10

N/A	N		41	Use of alternative BMPs whose performance has been documented to be equivalent to or superior to
				conventional BMPs as certified by a Design Professional (unless disapproved by GAEPD or the Georgia Soil
				and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at
				www.gaswcc.georgia.gov.
N/A	N		42	Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual
				for Erosion & Sediment Control in Georgia 2016 Edition.
6.10-6.30	Y		43	Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional
				buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
6.10-6.30	Y		44	Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site.
6.10-6.30	Y		45	Delineation and acreage of contributing drainage basins on the project site.
HYDRO	Y		46	Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions. *
6.01	Y		47	An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are
				completed. *
6.10-6.47	Y		48	Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without
				erosion. Identify/Delineate all storm water discharge points.
6.10	Y		49	Soil series for the project site and their delineation.
6.10-6.30	Y		50	The limits of disturbance for each phase of construction.
6.10-6.47	Y		51	Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin,
				retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment
				storage volume must be in place prior to and during all land disturbance activities until final stabilization of the
				site has been achieved. A written justification explaining the decision to use equivalent controls when a
				sediment basin is not attainable must be included in the plan for each common drainage location in which a
				sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must
				also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by
				the design professional to obtain the required sediment storage when using equivalent controls. When
				discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that
				withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are
				not feasible, a written justification explaining this decision must be included in the Plan.
6.03	Y		52	Location of Best Management Practices that are consistent with, and no less stringent than, the Manual for
				Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
6.40-6.42	Y		53	Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines
				set forth in the Manual for Erosion and Sediment Control in Georgia.
6.02, 6.40	Y		54	Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting
				dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time
				of year that seeding will take place and for the appropriate geographic region of Georgia.

*This requirement of the Common Development permit is not applicable to Tertiary Permittees with a Plan(s) for a typical individual lot(s), if the total land disturbance within the construction site is less than five (5) acres and the total land disturbance within each individual lot is less than one (1) acre. If applicable, the * checklist item would be N/A.

Effective January 1, 2024

P: (770) 451-2741 F: (770) 451-3915
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Planners & Engineers Collaborative+
LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

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THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KRCILEK

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

EROSION CONTROL NOTES

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C6.00

SHEET

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EROSION CONTROL NOTES

1. The applicable Erosion, Sedimentation and Pollution Control Plan Checklist is shown on the previous drawing.

2. Level II Design Professional: MATTHEW E. KACZENSKI
   Level II Certification No.: 0000066476
   Level II Expiration Date: 06/27/2027

3. The limits of disturbance are NOT greater than 50 acres at any one time.

4. 24-hour Contact Name BRYAN FLINT
   24-hour Contact Phone Number 404.867.3572

5. Primary **OR** Tertiary Permittee
   Name BRYAN FLINT
   Address 350 RESEARCH COURT
   NORCROSS, GA 30092
   Phone Number 404.867.3572
   Email Address BRYAN@ARROWHEADRE.COM

6. Disturbed Acreage

Initial:	Grading Area:	18.30 acres
Intermediate Phase 1:	Grading Area:	18.30 acres
Intermediate Phase 2:	Grading Area:	18.30 acres
Final:		18.30 acres

7. The GPS location for the Construction Exit(s):

	Latitude	Longitude
Construction Exit #1	N33.731546	W84.915844
Construction Exit #2	N33.732067	W84.912713

8. The initial date of the plans is shown on every sheet. For each resubmittal, the revision date and requesting entity is shown on the cover sheet and each sheet that has been revised.

9. The construction activity will consist of altering existing grades in a limited area to facilitate the construction of apartments development. The existing land is undeveloped.

10. Vicinity Map



11. The receiving waters for this project include the **Town Branch stream**. The discharge is NOT through a municipal sewer system. The receiving water(s) support warm water fisheries.

12. "I certify, under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my supervision."

13. "I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of Best Management Practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of Best Management Practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100003."

MATTHEW E. KACZENSKI
GSWCC No: 0000066476
Exp. Date: 06/27/2027

14. **The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation.** The primary permittee must retain the design professional who prepared the Plan, except when the Primary Permittee has requested in writing (and EPD has agreed to an alternate design professional) to inspect the installation of the initial sediment storage requirements and perimeter control BMPs which the design professional designed within seven (7) days after installation. The design professional shall determine if these BMPs have been installed and are being maintained as designed. The design professional shall report the results of the inspection to the primary permittee within seven (7) and the permittee must correct all deficiencies within two (2) business days of receipt of the inspection report from the design professional unless weather related site conditions are such that additional time is required.

15. **Non-exempt activities shall NOT be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffers as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits.**

16. **There are NO buffer encroachments. A buffer variance is NOT required.**

17. **Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.**

18. **Waste materials, including solid waste, shall not be discharged to waters of the State, except as authorized by a Section 404 permit.** Where attainable, locate waste collection areas, dumpsters, trash cans and portable toilets in the contractor's staging area(s) and least 50 feet away from streets, gutters, watercourses and storm drains as shown on the plans. Secondary containment shall be provided around liquid waste collection areas to minimize the likelihood of contaminated discharges. The Contractor shall com ply with applicable state and local waste storage and disposal regulations and obtain all necessary permits.

A. Concrete washout of tools, trucks (including drums), chutes, and any/all other equipment is **allowed** at the construction site unless otherwise noted under Checklist Item #25.

EROSION CONTROL NOTES

B. Containers for petroleum based products such as fuels, lubricants and tars will be inspected daily for leaks and spills. This includes on-site vehicle and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas will be located away from state water, natural drains and storm water drainage inlets. In additions, temporary fueling tanks shall have a secondary containment liner/minimize site contamination. Discharge of oils, fuels and lubricants is prohibited. Proper disposal methods will include collection in a suitable container and disposal as required by local and state regulations.

C. All paint/solvent/finishing products will be stored in tightly sealed original containers when not in use. Excess products will not be discharged to stormwater collection systems. Excess product materials used with these products and product containers will be disposed of according to manufacturer's specifications and recommendations.

D. All fertilizer/herbicide products will be applied at rates that do not exceed the manufacturer's specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.

E. No building materials or construction materials shall be disposed of at the construction site. All materials will be disposed of in a manner consistent with state and/or local regulations.

19. **The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.**

20. **Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.**

21. **Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.**

22. Prior to any construction activity, the Primary Permittee shall provide a copy of the ES&PC Plan (including all subsequent revisions) to each Secondary Permittee and each Secondary Permittee shall sign the ES&PC Plan or portion of the Plan applicable to their site. Names, addresses, and signed statements of receipt the ES&CP Plan and all subsequent revisions, are provided on the next page.

23. There is no Impaired Stream Segment within 1 linear mile upstream of and within the same watershed.

24. A TMDL Implementation Plan is not applicable to the receiving waters for the project.

25. Washdown of concrete tools, mixer chutes, hoppers, and vehicles rears is allowed at the construction site. Washout of the drum at the construction site is prohibited.

26. PETROLEUM STORAGE, SPILLS AND LEAKS. Practices such as good housekeeping, proper handling of hazardous products and proper spill control practices will be followed to reduce the risk of spills and prevent spills from discharging into stormwater runoff.

GOOD HOUSEKEEPING

(1). Quantities of products stored onsite will be limited to the amount needed for the job.

(2). Products and materials will be stored in a neat, orderly manner in appropriate containers protected from rainfall, where possible.

(3). Products will be kept in their original containers with manufacturer labels legible and visible.

(4). Product mixing, disposal and disposal of product containers will be according to the manufacturer's recommendations.

(5). The contractor will inspect such materials to ensure proper use, storage and disposal.

SPILL CLEANUP AND CONTROL PRACTICES

- Local, state and manufacturer's recommended methods for spill cleanup will be clearly posted and procedures will be made available to site personnel.
- Materials and equipment necessary for spill cleanup will be kept in the material storage areas. Typical materials and equipment include: goggles, cat litter, sand, sawdust and properly labeled plastic and metal waste containers
- Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills.
- All spills will be cleaned up immediately upon discovery. All spills will be reported as required by local, state and federal regulations
- For spills that impact surface water (leave a sheen on surface water), the National Resoonse Center (NRC) within 24 hours at 1-800-424-8802.
- For spills of an unknown amount, the National Center (NRC) will be contacted within 24 hours at 1-800-424-8802.
- For spills greater than 25 gallons and no surface water impacts, the Georgia EPD will be contacted within 24 hours.
- For spills less than 25 gallons and no surface water impacts, the spill will be cleaned up and local agencies will be contacted as required.
- The contractor shall notify the licensed professional who prepared this plan if more than 1320 gallons of petroleum is stored onsite, aboveground, and in containers 55 gallons or larger, A Spill Prevention, Control, and Countermeasure Plan (SPCC) prepared by a licensed professional will be required.

27. Measures used during construction to minimize the exposure of any and all building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials, to precipitation and/or stormwater include: plastic sheeting and/or temporary roofs.

28. [Measures installed during the construction process include: stormwater detention and/or retention structures, vegetated swales and natural depressions for flow attenuation, At locations where flows exceed pre-development levels, these measures were chosen to minimize post-development flows and flow velocities. Velocity dissipation devices must be placed at discharge locations and along the length of any outflow channel, as shown on the Erosion and Sedimentation Control Plan(s), in order to provide a non-erosive flow thereby protecting the water course's natural physical and biological characteristics.] Measures used to reduce pollutants in storm water discharges include: (Initial Phase) construction exits, silt fencing, and dust control BMPs to minimize the amount of sediment leaving the site; (Intermediate Phase) silt fencing, slope stabilization, temporary seeding; (Final Phase) and permanent seeding.

29. A timeline of the intended sequence of major soil-disturbing activities can be found on the next Erosion and Sediment Control Notes sheet.

30. INSPECTIONS AND RECORD KEEPING

A, Primary Permittee.

a. Each day when any type of construction activity has taken place at a primary permittee's site, certified personnel provided by the primary permittee shall inspect: (a) all areas used by the secondary permittee where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the primary permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted.

b. Measure and record rainfall within disturbed areas of the site that have not met final stabilization once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.

c. Certified personnel (provided by the primary permittee) shall inspect the following at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (1) Disturbed areas of the secondary permittee's construction site; (2) areas used by the secondary permittee for storage of materials that are exposed to precipitation; and (3) Structural control measures. Erosion and sediment control measures identified in the Plan applicable to the secondary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.b.(4) [31.B.d in these notes]. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.

d. Certified personnel (provided by the secondary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of their sites that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.b.(4) [31.B.d in these notes]. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

e. Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection. The primary permittee must amend the Plan in accordance with Part IV.D.4.c.(5). [31.B.e. in these notes] when a secondary permittee notifies the primary permittee of any Plan deficiencies.

f. A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5) [31.A.e. in these notes], of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction site that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify an incident, the inspection report shall contain a statement that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit.

B. Secondary Permittee.

a. Each day when any type of construction activity has taken place at a secondary permittee's site, certified personnel provided by the secondary permittee shall inspect: (a) all areas used by the secondary permittee where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the secondary permittee site where that permittee's vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.

b. Certified personnel (provided by the utility companies and utility contractors if they are secondary permittees) shall inspect the following each day any type of construction activity has taken place at the construction site: (1) areas of the construction site disturbed by the utility companies and utility contractors that have not undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region; (2) areas used by the utility companies and utility contractors for storage of materials that are exposed to precipitation that have not undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region or established a crop of annual vegetation, and a seeding of target perennials appropriate for the region; and (3) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the utility companies and utility contractors' construction activities shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors when they are secondary permittees performing service line installations or when conducting repairs on existing line installations.

c. Certified personnel (provided by the secondary permittee) shall inspect the following at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (1) Disturbed areas of the secondary permittee's construction site; (2) areas used by the secondary permittee for storage of materials that are exposed to precipitation; and (3) Structural control measures. Erosion and sediment control measures identified in the Plan applicable to the secondary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.b.(4) [31.B.d in these notes]. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.

d. Certified personnel (provided by the secondary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of their sites that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

e. Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following the inspection.

f. A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.c.(5) [31.C.e. in these notes]. of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by the end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit. This his paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

C. Tertiary Permittee.

a. Each day when any type of construction activity has taken place at a tertiary permittee's site, certified personnel provided by the tertiary permittee shall inspect: (a) all areas used by the tertiary permittee where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the tertiary permittee's site where that permittee's vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

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b. Measure and record rainfall within disturbed areas of the site that have not met final stabilization once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.

c. Certified personnel (provided by the tertiary permittee) shall inspect the following at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first); (1) disturbed areas of the tertiary permittee's construction site; (2) areas used by the tertiary permittee for storage of materials that are exposed to precipitation; and (3) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the tertiary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.b.(4) [31.B.d in these notes]. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

d. Certified personnel (provided by the secondary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of their sites that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

e. Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following the inspection.

f. A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.c.(5) [31.C.e. in these notes]. of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by the end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit. This his paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

32. SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS

A. SAMPLING REQUIREMENTS. This permit requires the monitoring of nephelometric turbidity in receiving water(s) or outfalls in accordance with this permit. This section is applicable to primary permittees with a total planned disturbance equal to or greater than one (1) acre and tertiary permittees with a total planned disturbance equal to or greater than five (5) acres. This section is not applicable to secondary permittees, The following procedures constitute EPD's guidelines for sampling turbidity.

a. Sampling Requirements shall include the following:

(1). A USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1:24000 map showing the location of the site or the stars alone construction; (a) the location of all perennial and intermittent stream s and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during mandatory field verification, into which the storm water is discharged and (b) the receiving water and/or outfall sampling locations where the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand--drawn on the USGS topographic map from where the storm water(s) enters the receiving water(s) to the point where the receiving water(s) combines with the first blue line stream shown on the USGS topographic map;

(2). The analytical method used to collect and analyze the samples including quality control/quality assurance procedures, This narrative must include precise sampling methodology for each sampling location;

(3). When the permittee has determined that some or all outfalls will be monitored, a rationale must be included for the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries); and

(4). Any additional information EPD determines necessary to be part of the Plan. EPD will provide written notice to the permittee of the information necessary and the time line for submittal.

b. Sample Type. All sampling shall be collected by "grab samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 (unless other test procedures have been approved); the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" and guidance documents that maybe prepared by the EPD.

(1). Sample containers should be labeled prior to collecting the samples.

(2). Samples should be well mixed before transferring to a secondary container.

(3). Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.

(4). Manual, automatic or rising stage sampling may be utilized. Samples required by this permit should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through automated analysis is utilized. If automatic sampling is utilized and the automatic sampler is not activated during the qualifying event, the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.

(5). Sampling and analysis of the receiving water(s) or outfalls beyond the minimum frequency stated in this permit must be reported to EPD as specified in Part IV.E.

c. Sampling Points.

(1). For construction activities the primary permittee with a total planned disturbance equal to or greater than one (1) acre and tertiary permittee with a total planned disturbance equal to or greater than five (5) acres must sample all receiving water(s), or all outfall(s), or a combination of receiving water(s) and outfall(s). Samples taken for the purpose of compliance with this permit shall be representative of the monitored activity and representative of the water quality of the receiving water(s) and/or the storm water outfalls using the following minimum guidelines:

(a). The upstream sample for each receiving water(s) must be taken immediately upstream of the confluence of the first storm water discharge from the permitted activity (i.e., the discharge farthest upstream at the site) but downstream of any other stormwater discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.

(b). The downstream sample for each receiving water(s) must be taken downstream of the confluence of the last storm water discharge from the permitted activity (i.e., the discharge farthest downstream at the site) but upstream of any other storm water discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.

(c). Ideally the samples should be taken from the horizontal and vertical center of the receiving water(s) or the stormwater outfall channel(s).

(d). Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall stormwater channel.

(e). The sampling container should be held so that the opening faces upstream,

(f). The samples should be kept free from floating debris.

(g). Permittees do not have to sample sheet flow that flows onto undisturbed natural areas or areas stabilized by the project. For purposes of this section, stabilized shall mean, for unpaved areas and areas not covered by permanent structure sand areas located outside the waste disposal limits of a landfill cell that has been certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region).

(h). All sampling pursuant to this perm it must be done in such a way (including generally accepted sampling methods, locations, timing, and frequency) as to accurately reflect whether storm water runoff from the construction site is in compliance with the standard set forth in Parts III.D.3. or III.D.4., whichever is applicable.

d. Sampling Frequency.

(1). The primary permittee with a total planned disturbance equal to or greater than one (1) acre and tertiary permittee with a total planned disturbance equal to or greater than five (5) acres must sample at the beginning of any stormwater discharge to a monitored receiving water and/or from a monitored outfall location within forty-five (45) minutes or as soon as possible.

(2). However, where manual and automatic sampling are impossible (as defined in this permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible, but in no case more than twelve (12) hours after the beginning of the stormwater discharge.

(3). Sampling by the permittee shall occur for the following qualifying events:

(a). For each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a storm water discharge that occurs during normal business hours as defined in this permit after all mass grading operations have been completed, but prior to completion of mass grading operations, in the drainage area of the location selected as the sampling location;

(b). In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a stormwater discharge that occurs during normal business hours as defined in this permit either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a NOT, in the drainage area of the location selected as the sampling location, whichever comes first;

(c). At the time of sampling performed pursuant to (a) and (b) above, if BMPs in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours* until the selected turbidity standard is attained, or until post-storm event inspections determine that BMPs are properly designed, installed and maintained;

(d). Where sampling pursuant to (a), (b), (c) above is required but not possible (or not required because there was no discharge), the primary permittee, in accordance with Part IV.D.4.a.(6). [31.A.f in these notes], or the tertiary permittee, in accordance with Part IV.D.4.c.(6). [31.C.f in these notes], must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (a), (b) or (c) above; and

(e). Existing construction activities, i.e., those that are occurring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b). Those existing construction activities that met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.

*Note that the permittee may choose to meet the requirements of (a) and (b) above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or week.

B. NON-STORM WATER DISCHARGES. Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2. of this permit that are combined with stormwater discharges associated with construction activity must be identified in the Plan, The Plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

REPORTING.

A. The applicable permittees are required to submit a summary of the monitoring results to the EPD at the address shown in Part II.C. by the fifteenth day of the month following the reporting period. Reporting periods are months during which samples are taken in accordance with this permit. Sampling results shall be in a clearly legible format. Upon written notification, EPD may require the applicable permittee to submit the sampling results on a more frequent basis. Sampling and analysis of any stormwater discharge(s) or the receiving water(s) beyond the minimum frequency stated in this permit must be reported in a similar manner to the EPD. The sampling reports must be signed in accordance with Part V.G.2. Sampling reports must be submitted to EPD using the electronic submittal service provided by EPD. Sampling report must be submitted to EPD until such time as a NOT is submitted in accordance with Part VI.

B. All sampling results shall include the following information:

a. The rainfall amount, date, exact place and time of sampling or measurements;

b. The name(s) of the certified personnel who performed the sampling and measurements;

c. The date(s) analyses were performed;

d. The time (s) analyses were initiated;

e. The name(s) of the certified personnel who performed the analyses;

f. References and written procedures, when available, for the analytical techniques or methods used;

g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results;

h. Results with exceed 1000 NTU shall be reported as "exceeds 1000 NTU;" and

i. Certification statement that sampling was conducted as per the Plan.

C. All written correspondence required by this permit shall be submitted by return receipt certified mail (or similar service) to the appropriate District Office of the EPD according to the schedule in Appendix A of this permit, The applicable permittees shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated location from commencement of construction until such time as a NOT is submitted in accordance with Part VI.

33. RETENTION OF RECORDS

A. The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:

a. A copy of all Notices of Intent submitted to EPD;

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b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit.

c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;

d. A copy of all sampling information, results, and reports required by this permit;

e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. [31.A. in these notes] of this permit;

f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and

g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2) [31.A.b in these notes] of this permit.

B. Each Secondary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:

a. A copy of all Notices of Intent submitted to EPD;

b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit or the applicable portion of the Erosion, Sedimentation and Pollution Control Plan for their activities at the construction site required by this permit.

c. A copy of all inspection reports generated in accordance with Part IV.D.4.b. [31.B. in these notes] of this permit; and

d. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit.

C. Each tertiary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:

a. A copy of all Notices of Intent submitted to EPD;

b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;

c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;

d. A copy of all sampling information, results, and reports required by this permit;

e. A copy of all inspection reports generated in accordance with Part IV.D.4.c. [31.C. in these notes] of this permit;

f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and

g. Daily rainfall information collected in accordance with Part IV.D.4.c.(2). [31.C.b in these notes] of this permit.

D. Copies of all Notices of Intent, Notices of Termination, inspection reports, sampling reports (including all calibration and maintenance records and all maintenance records and all original strip chart recordings for continuous monitoring instrumentation) or other reports requested by the EPD, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent to be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI of this permit. These records must be maintained at the permittee BMPs primary place of business once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

34. There will be 1 Storm Water Sampling Location(s). Per NPDES Permit GAR100003, for construction activities, the primary permittee must complete all sampling.

a. Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall storm water channel(s).

b. The sampling container should be held so that the opening faces upstream.

c. The samplings should be kept free from floating debris.

d. The primary permittee does not have to sample sheet flow onto undisturbed natural areas or area stabilized by the project.

e. All sampling pursuant to this permit must be done in such a way as to accurately reflect whether storm water runoff from the construction site is in compliance with the standard set forth in parts III.D.3. or III.D.4., whichever is applicable.

35. Table for Appendix B: Warm Water fisheries
Sampling Location #1: 75 NTU

Appendix B: Nephelometric Turbidity Unit Table (Supporting Warm Water Fisheries)

Site Size, acres \ Surface Water Drainage Area, square miles	0 - 4.99	5 - 9.99	10 - 24.99	25 - 49.99	50 - 99.99	100 - 249.99	250 - 499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

36. A USGS Topographic Map is shown on the next Erosion and Sediment Control Notes sheet.

37. A description of the controls and measures that will be implemented at the construction site is shown on the next Erosion and Sediment Control Notes sheet. Refer to Erosion and Sediment Control Plans for locations of these measures.

38. The typical and situational lists for individual sites are located in the Erosion & Sedimentation Control Detail Sheets.

39. See Erosion and Sedimentation Control Plans for Graphic Scale and North Arrow.

40. See Erosion and Sedimentation Control Plans for Existing and proposed contour lines.

41. No alternative BMPs will be used in this project.

42. No alternative BMPs for application to the Equivalent BMP List will be used in this project.

43. See Erosion and Sedimentation Control Plans for delineation of applicable 25-ft or 50-ft undisturbed buffers adjacent to State waters.

44. See Erosion and Sedimentation Control Plans for delineation of all State waters and wetlands located on and within 200 feet of the project site.

45. See Erosion and Sedimentation Control Plans for delineation and acreage of contributing dra ge basins on the project site.

46. A hydrology st y and dr drawings and form a part of the plan

47. Runoff Coefficie ts or Cu low:
Estimated p -constr
Estimated p st-constr

48. The storm-drai pipes/we own on the Erosion and Sediment Cont Details

49. Soil Series Del ation is Sediment Control Plan(s). The S Series ion and Sediment Control Notes sheet.

50. Limits of disturbance for initial, intermediate and final phases are shown on the accompanying rosion and Sedim ol Details.

51. Sediment basin, sediment trap, sediment dam and other BMPs with the applicable cross sections and details are included in the accompanying Erosion and Sediment Control Details sheets.

52. Best Management Practices consistent with the Manual for Erosion and Sediment Control in Georgia are shown on the Erosion and Sediment Control Details. Uniform Coding Symbols are shown in the accompanying Erosion and Sediment Control Details.

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EROSION CONTROL NOTES

INITIAL PHASE(S)

1. PRIOR TO LAND DISTURBING ACTIVITY, CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR.
2. THE CONTRACTOR SHALL OBSERVE THE PROJECT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL COVER IS EXPOSED ONLY IN SMALL QUANTITIES.
3. NO STAGING AREAS, MATERIAL STORAGE, CONCRETE WASH OUT AREAS, FUEL STORAGE, OR DEBRIS BURNING AND BURIAL HOLES SHALL BE LOCATED WITHIN 500 FEET OF DESIGNATED TREE PROTECTION AREAS OR STREAM BUFFERS.
4. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, LIMITS OF LAND DISTURBANCE SHALL CLEARLY AND ACCURATELY BE DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS, AND SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE LIMITS INDICATED ON THE APPROVED PLANS.
6. PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE ONTO ANY PUBLIC ROADWAY.
7. THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY:
   - I. THE CONSTRUCTION EXIT SHALL BE PLACED AS SHOWN ON THE PLANS
   - II. IMMEDIATELY AFTER THE ESTABLISHMENT OF THE CONSTRUCTION EXIT, ALL PERIMETER EROSION CONTROL AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE INITIAL PHASE EROSION AND SEDIMENTATION CONTROL PLAN(S).
   - III. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY.
8. WITHIN SEVEN (7) DAYS AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES, THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT DESIGN PROFESSIONAL. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT DESIGN PROFESSIONAL APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORSEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE PROJECT PROFESSIONAL DURING THE SITE INSPECTION.
9. AFTER APPROVAL OF INITIAL EROSION CONTROL MEASURES, THE CONTRACTOR MAY PROCEED WITH CLEARING AND GRUBBING ACTIVITIES. AS CLEARING PERMITS, THE CONTRACTOR SHALL CONSTRUCT SEDIMENT PONDS AS SHOWN ON PLANS (IF APPLICABLE).
10. NO BURN OR BURY PITS SHALL BE PERMITTED ON THE CONSTRUCTION SITE WITHOUT WRITTEN PERMISSION BY THE OWNER AND/OR THE ENGINEER OF RECORD.
11. MULCH OR TEMPORARY GRASSING (WHICHEVER IS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLANS) SHALL BE APPLIED WITHIN FOURTEEN (14) DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION. PERMANENT VEGETATION SHALL BE PLANTED IF THE AREA IS TO BE LEFT UNDISTURBED FOR GREATER THAN 6 MONTHS.
12. SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH QUALIFYING RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
13. THE CONSTRUCTION EXIT(S) SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ONE (1) INCH TO THREE (3) INCHES OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM A VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN(S) MUST BE REMOVED IMMEDIATELY.
14. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF QUALIFYING RAIN EVENT TO ENSURE THEY ARE PROPERLY FUNCTIONING.
15. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.

EROSION CONTROL NOTES

INTERMEDIATE PHASE(S)

1. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN CAREFUL SCHEDULING AND PERFORMANCE TO ENSURE THAT LAND STRIPPED OF ITS NATURAL GROUND COVER IS EXPOSED ONLY IN SMALL QUANTITIES, AND LIMITED DURATIONS, BEFORE PERMANENT EROSION PROTECTION IS ESTABLISHED.
2. EARTHWORK OPERATIONS IN THE VICINITY OF STREAM BUFFERS (IF APPLICABLE TO THIS PROJECT) SHALL BE CAREFULLY CONTROLLED TO AVOID DUMPING OR SLOUGHING INTO THE BUFFER AREAS.
3. EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION, AND ALTER THE LOCATION OF EROSION CONTROL DEVICES ACCORDINGLY. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DESIGN PROFESSIONAL IMMEDIATELY.
4. THE CONTRACTOR SHALL ESTABLISH BARRIERS AT THE TOES OF ALL SLOPES UNDER CONSTRUCTION (UNLESS OTHERWISE NOTED ON PLANS).

   CUT SLOPES ARE NOT TO EXCEED 2H:1V

   FILL SLOPES ARE NOT TO EXCEED 2H:1V
5. STORM DRAIN OUTLET PROTECTION (IF APPLICABLE TO THIS PROJECT) SHALL BE PLACED AT ALL OUTLET HEADWALLS IMMEDIATELY AFTER THE HEADWALL IS CONSTRUCTED.
6. ALL DRAINAGE SWALES AND GRADED AREAS SHALL BE APPLIED WITH VEGETATIVE COVER IMMEDIATELY AFTER FINAL GRADE IS ACHIEVED. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN FOURTEEN (14) DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED FOR MORE THAT 30 DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING.
7. THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT POND (IF APPLICABLE TO THIS PROJECT) UNTIL PERMANENT GROUNDCOVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE POND WHEN IT REACHES ONE-THIRD OF THE DESIGN DEPTH OF THE BASIN.
8. MULCH OR TEMPORARY GRASSING (WHICHEVER IS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLANS) SHALL BE APPLIED WITHIN FOURTEEN (14) DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED AFTER 30 DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION. PERMANENT VEGETATION SHALL BE PLANTED IF THE AREA IS TO BE LEFT UNDISTURBED FOR GREATER THAN 6 MONTHS.
9. SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
10. THE CONSTRUCTION EXIT(S) SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACK OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ONE (1) INCH TO THREE (3) INCHES OF STONE, AS CONDITIONS DEMAND. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM A VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN(S) MUST BE REMOVED IMMEDIATELY.
14. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF QUALIFYING RAIN EVENT TO ENSURE THEY ARE PROPERLY FUNCTIONING.
15. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.

EROSION CONTROL NOTES

FINAL PHASE

1. THE CONTRACTOR SHALL MAINTAIN THE SEDIMENT POND (IF APPLICABLE TO THIS PROJECT) UNTIL PERMANENT GROUNDCOVER IS ESTABLISHED. SEDIMENT SHALL BE CLEANED OUT OF THE POND WHEN IT REACHES ONE-THIRD OF THE DESIGN DEPTH OF THE BASIN.
2. ALL OPEN AREAS SHOULD BE GRASSED AS SOON AS FINAL GRADE IS ACHIEVED.
3. SEDIMENT AND EROSION CONTROL MEASURES MUST BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
4. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF QUALIFYING RAIN EVENT TO ENSURE THEY ARE PROPERLY FUNCTIONING.
5. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE SITE UNTIL MEASURES ARE CORRECTED BACK TO THE APPROVED PLANS.
6. UPON COMPLETION OF THE PROJECT AND RECEIPT OF THE CERTIFICATE OF COMPLETION, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND DISPOSE OF THEM UNLESS OTHERWISE NOTED ON THE PLANS.

CONSTRUCTION SCHEDULE

AUGUST 2024 - AUGUST 2025

	WEEK NO.											
	1	2	3	4	5	6	7	8	9	10	11	12
INSTALL CONSTRUCTION EXIT AND INITIAL EROSION CONTROL												
MAINTENANCE OF ES&PC BMPs												
INSTALL SEDIMENT STORAGE BMP(s)												
INSTALL STORMWATER SYSTEM (DIVERSIONS & PIPES)												
APPLICATION OF TEMPORARY VEGETATION												
GRADING - PHASE 1												
INTERMEDIATE EROSION CONTROL - PHASE 1												
PERMANENT VEGETATION OF AREA AT FINAL GRADE - PHASE 1												
GRADING - PHASE 2												
INTERMEDIATE EROSION CONTROL - PHASE 2												
PERMANENT VEGETATION OF AREA AT FINAL GRADE - PHASE 2												
REMOVE TEMPORARY EROSION CONTROL DEVICES												

SOIL SERIES CLASSIFICATION

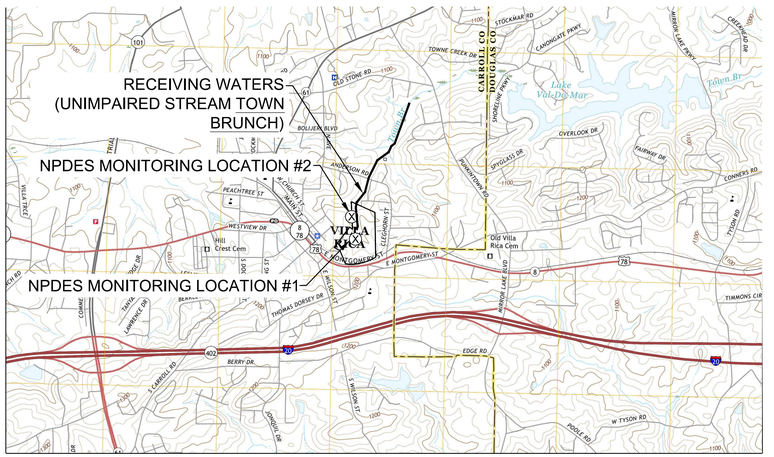
MuD2	Musella gravelly clay loam, 6 to 15% slopes, eroded
DrC2	Davidson gravelly loam, 6 to 10% slopes, eroded
Cfs	Chewacla silt loam, 0 to 2% slopes, frequently flooded
DsC3	Davidson gravelly clay loam, 6 to 10% slopes, severely eroded
DsD3	Davidson gravelly clay loam, 10 to 15% slopes, severely eroded
DrB2	Davidson gravelly loam, 2 to 6% slopes, eroded

SECONDARY PERMITTEES

NAME		COMPANY		ADDRESS	
CITY/STATE/ZIP		LEVEL 1A		SIGNATURE	
NAME		COMPANY		ADDRESS	
CITY/STATE/ZIP		LEVEL 1A		SIGNATURE	
NAME		COMPANY		ADDRESS	
CITY/STATE/ZIP		LEVEL 1A		SIGNATURE	

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer



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350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

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-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KRCHENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION CONTROL NOTES

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C6.02

SHEET

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GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
GEORGIA SOIL AND WATER CONSERVATION COMMISSION

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM			A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION			Improving, constructing or stabilizing an open channel, existing stream, or ditch.
Co	CONSTRUCTION EXIT			A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION			A traveleay constructed as part of a construction plan including access roads, subdivision roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL			A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, bellow, or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE			A flexible conduit of heavy-duty fabric or other material designed to safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNDRAIN STRUCTURE			A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE			Permanent structures installed to protect channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A storm flow outlet device constructed at zero grade across the slope whereby concentrated runoff may be discharged at a non-erosive velocity onto undisturbed areas stabilized by existing vegetation.
Rd	ROCK FILTER DAM			A temporary stone filter dam installed across drainageways or in conjunction with a temporary sediment trap.
Re	RETAINING WALL			A wall installed to stabilize cut and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETRO FITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sd2	INLET SEDIMENT TRAP			A temporary protective device formed at or around an inlet to a storm drain to trap sediment.
Sd3	TEMPORARY SEDIMENT BASIN			A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FLOATING SURFACE SKIMMER			A buoyant device that releases/drains water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.
SpB	SEEP BERM			A linear control device constructed as a diversion perpendicular to the direction of runoff to enhance dissipation and infiltration, while creating multiple sedimentation chambers with the employment of intermediate dikes.

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sr	TEMPORARY STREAM CROSSING			A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN OUTLET PROTECTION			A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING			A rough soil surface with horizontal depressions on a contour or slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN			A floating or staked barrier installed within the water (it may also be referred to as a floating boom, silt barrier, or silt curtain).
Tp	TOPSOILING			The practice of stripping off the more fertile soil, storing it, then spreading it over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL			Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

VEGETATIVE PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			Strip of undisturbed original vegetation, enhanced or restored existng vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)		Cs	Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP. SEEDING)		Ds2	Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)		Ds3	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SODDING)		Ds4	A permanent vegetative cover using sods on highly erodable or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS		Du	Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fl-Co	FLOCCULANTS AND COAGULANTS		Fl-Co	Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING PERM VEGETATION)		Sb	The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION		Ss	A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS		Tac	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

GSWCC 2016 Edition

CITY OF VILLA RICA
CITY OF GOLD
18 GEORGIA 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
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-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACPHERSON

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION CONTROL NOTES

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.03
SHEET

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CITY OF VILLA RICA GEORGIA 1826
"CITY OF GOLD"
Approved
September 12, 2024
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Bobby C. Elliott, PE
City Engineer

OVERALL TOTAL SITE AREA:	18.28 ACRES
TOTAL DISTURBED AREA:	18.30 ACRES

THERE ARE KNOWN STATE WATERS ON THE PROPERTY
THERE ARE NO IMPAIRED STREAMS NEAR THE SITE
THERE ARE WETLANDS WITHIN THE PROPERTY

SOILS INFORMATION

THE EXISTING SOILS ON SITE CONSIST OF:

MuD2 - Musella gravelly clay loam, 6 to 15% slopes, eroded
DrC2 - Davidson gravelly loam, 6 to 10% slopes, eroded
Cfs - Chewacla silt loam, 0 to 2% slopes, frequently flooded
DsC3 - Davidson gravelly clay loam, 6 to 10% slopes, severely eroded
DsD3 - Davidson gravelly clay loam, 10 to 15% slopes, severely eroded
DrB2 - Davidson gravelly loam, 2 to 6% slopes, eroded

24 HOUR CONTACT:
BRYAN FLINT
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INITIAL EROSION CONTROL PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.10
SHEET

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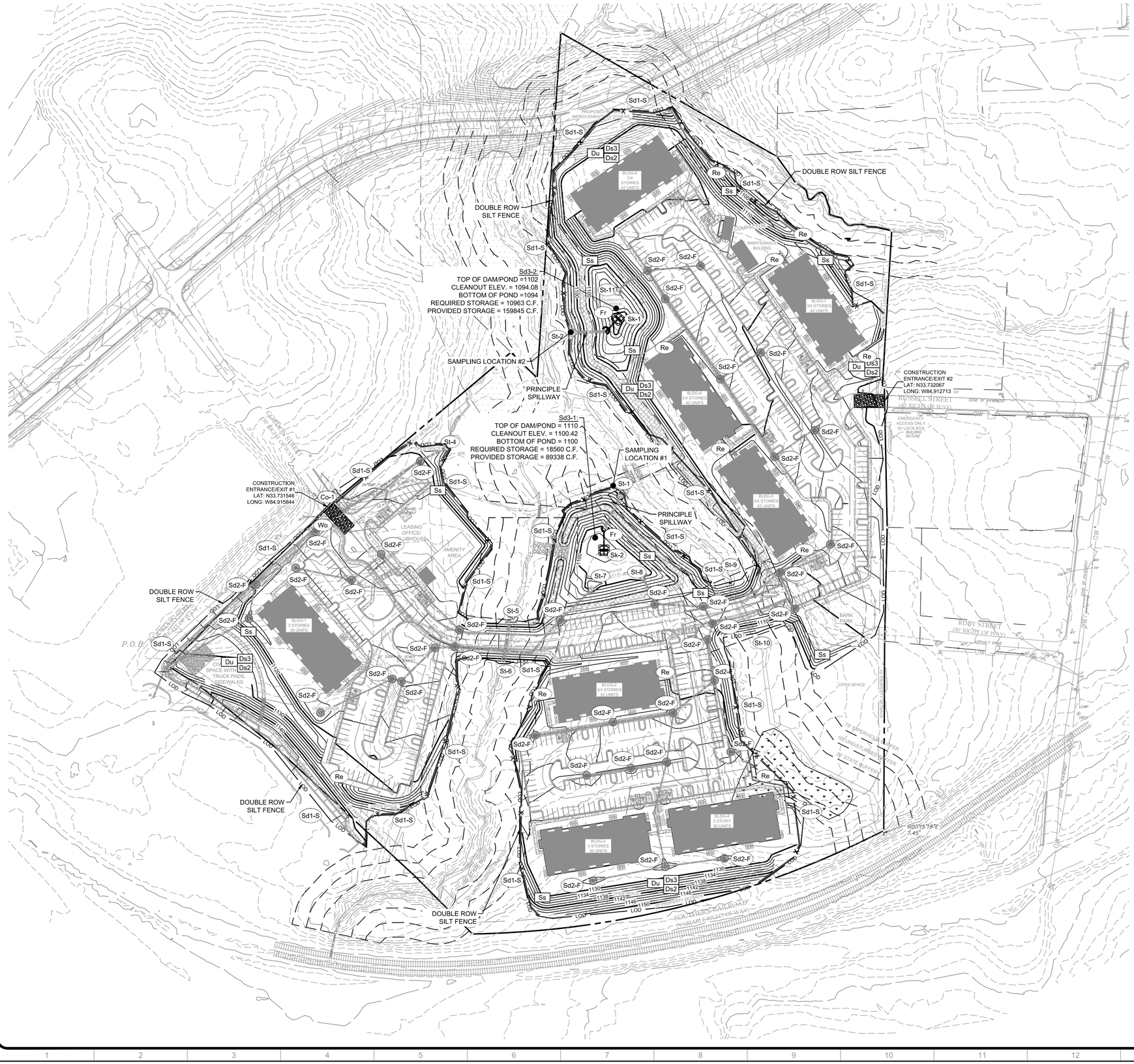

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

INTERMEDIATE EROSION CONTROL PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.20
SHEET

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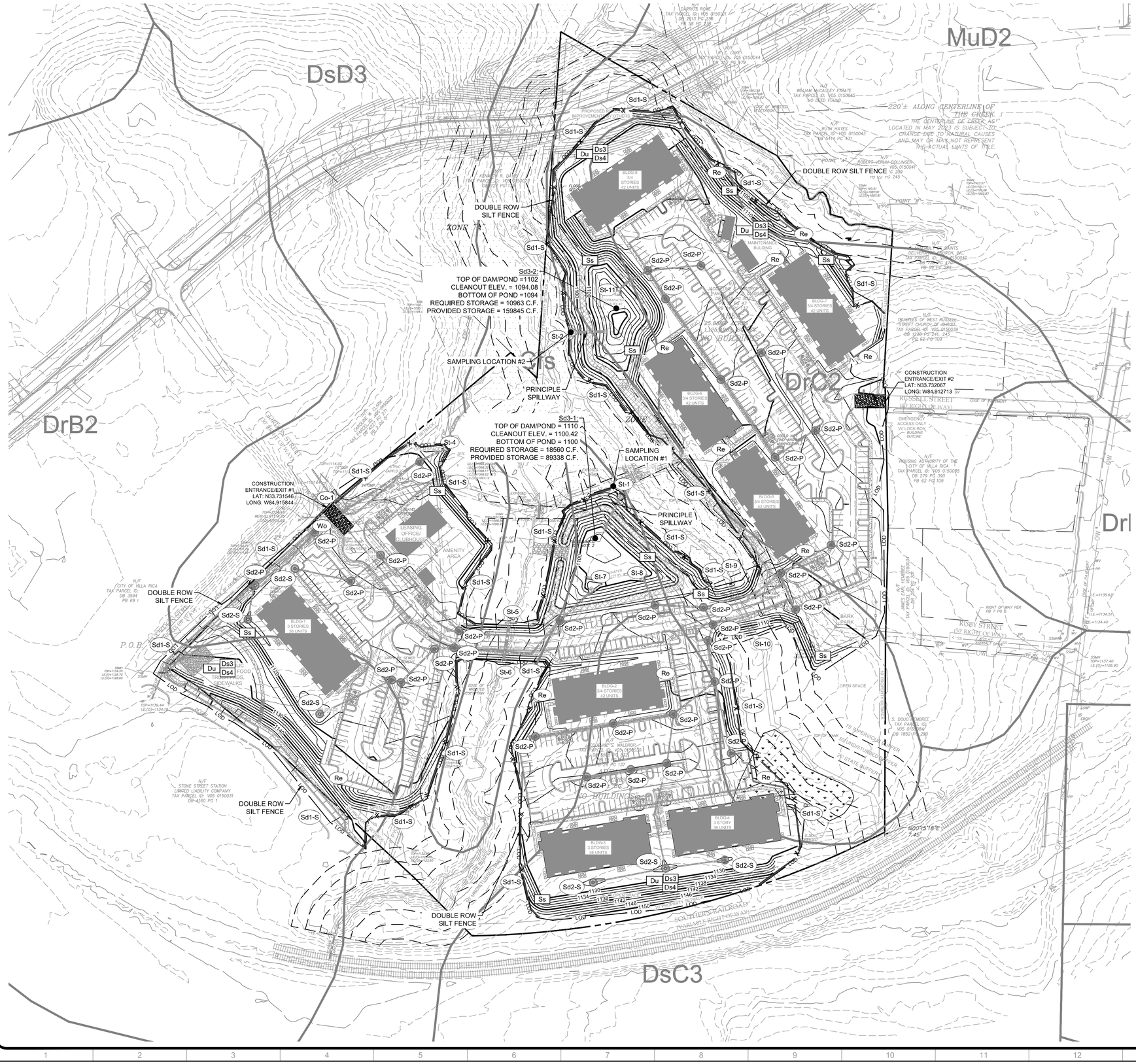

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GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

FINAL EROSION CONTROL PLAN

0 40 80 160 240

SCALE: 1" = 80'
DATE: 09/06/2024
PROJECT: 21217.00

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THERE ARE WETLANDS WITHIN THE PROPERTY

24 HOUR CONTACT:
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Du DUST CONTROL ON DISTURBED AREAS

DEFINITION

Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

CONDITIONS

This practice is applicable to areas subject to surface and air movement of dust where on and off-site property damage may occur without treatment.

METHOD AND MATERIALS

A. TEMPORARY METHODS

Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. Refer to standard Tb-Tackifiers and Binders. Resins such as Curasol or Terratack should be used according to manufacturer's recommendations.

Vegetative Cover. See standard Ds2 - Disturbed Area Stabilization (With Temporary Seeding).

Spray-on Adhesives. These are used on mineral soils (not effective on muck soils.) Keep traffic off these areas. Refer to standard Tb-Tackifiers and Binders.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure which should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

B. PERMANENT METHODS

Permanent Vegetation. See standard Ds3 - Disturbed Area Stabilization (With Permanent Vegetation). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See standard Tp - Topsoiling.

Stone. Cover surface with crushed stone or coarse gravel. See standard Cr - Construction Road Stabilization.

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

DEFINITION

Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

CONDITIONS

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored, and have a continuous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months. If an area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to Ds2, Ds3, and Ds4.

SPECIFICATIONS

MULCHING WITHOUT SEEDING
This standard applies to grades or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

SITE PREPARATION
1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

MULCHING MATERIALS
Select one of the following materials and apply at the depth indicated:
1. Dry straw or hay shall be applied t a depth of 2 to 4 inches providing complete soil coverage. One advantage of the material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and reused.

APPLYING MULCH
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.

1. Dry Straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Apply polyethylene film on exposed areas.

ANCHORING MULCH
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch, but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.
Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifiers, binders, and hydraulic mulch can be substituted for emulsified asphalt. Please refer to specification **Tac-Tackifiers**.
Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

CONDITIONS

Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established.

SEEDING RATES FOR TEMPORARY SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre*	PLANTING DATES**
Rye	3.9 pounds	3 bu.	9/15-11/30
Ryegrass	0.9 pounds	40 lbs.	9/1-12/15
Annual Lespedeza	0.9 pounds	40 lbs.	3/1-3/31
Weeping Lovegrass	0.1 pounds	4 lbs.	4/1-5/31
Sudangrass	1.4 pounds	60 lbs.	5/1-7/31
Browntop Millet	0.9 pounds	40 lbs.	4/15-6/30
Wheat	4.1 pounds	3bu.	10/1-12/15

* Unusual site conditions may require heavier seeding rates.
** Seeding dates may need to be altered to fit temperature variations and conditions.

SPECIFICATIONS

GRADING AND SHAPING

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

SEEDBED PREPARATION

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or handseeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

LIME AND FERTILIZER

Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Graded areas require lime application. Soils can be tested to determine if fertilizer is needed. On reasonably fertile soils or soil material, fertilizer is not required. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.) shall be applied. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel.

SEEDING

Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, cultipacker seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand.

MULCHING

Temporary vegetation can, in most places, be established without the use of mulch. Mulch without seeding should be considered for short term protection. Refer to Ds1 - Disturbed Area Stabilization (With Mulching Only).

IRRIGATION

During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will ensure germination of the seed. Subsequent applications should be made when needed.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

SPECIFICATIONS

GRADING AND SHAPING

Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

LIME APPLICATION RATES

Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

SEEDBED PREPARATION

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When conventional seeding is to be used, seedbed preparation will be done as follows:

I. Broadcast plantings

1. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the anchoring of soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4. On slopes too steep for the safe operations of tillage equipment, the soil surface shall be pitter or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

II. Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September

PLANTING

I. Hydraulic Seeding

Mix the seed (innoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

II. Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

III. No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

IV. Individual Plants

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

MULCHING

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall receive 75% soil cover. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornaments or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:

1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.

2. Synthetic tackifiers or binders approved by GDOT shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. Refer to Tb - Tackifiers and Binder.

3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.

4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

IRRIGATION

Irrigation shall be applied at a rate that will not cause runoff.

SEEDING RATES FOR PERMANENT SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre*	PLANTING DATES**
BAHIA	1.4 pounds	60 lbs.	4/1-5/31
BERMUDA (hulled) (unhulled)	0.2 pounds	10 lbs.	4/1-5/31 10/1-2/28
CENTIPEDE	BLOCK SOD ONLY	BLOCK SOD ONLY	11/1-5/31
LESPEDEZA (unscarified)	1.7 pounds	75 lbs.	9/1-2/28
WEEPING LOVE GRASS	0.1 pounds	4 lbs.	3/15-5/31
SWITCH GRASS (Bermuda Sprigs)	0.9 cu. ft.	40 cu. ft.	4/15-6/15

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperature variations and conditions.

Table 6-5.1. Fertilizer Requirements

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs.acre)	Nitrogen Top Dressing Rate (lbs./acre)
Cool Season Grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100[1,2] - 30
Cool Season Grasses & Legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50[1] - -
Ground Covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300[3] 1300[3] 400	- - -
Pine Seedlings	First	20-10-5	one 21g pellet per seedling placed in closing hole	-
Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 700[4]	-
Temporary cover crops seeded alone	First	10-10-10	500	30[5]
Warm Season Grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100[2,6] 50-100[2] 30
Warm Season Grasses & Legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 800 400	50[6]

[1] Apply in spring following seeding.
[2] Apply in split applications when high rates are used.
[3] Apply in 3 split applications.
[4] Apply when plants are pruned.
[5] Apply to grass species only.
[6] Apply when plants grow to a height of 2 to 4 inches.

LIME MAINTENANCE APPLICATION

Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests.

CITY OF VILLA RICA GEORGIA 18 CITY OF GOLD 26
Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.
GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW F KACZENSKI
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.40
SHEET

J:\2021\21217\00\Dgn_Planset\HC6.40 - EROSION CONTROL DETAILS - 21217.00.dwg - Chamson - 9/10/2024 1:51 PM

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Ds4 DISTURBED AREA STABILIZATION (WITH SODDING)

DEFINITION

A permanent vegetation using sods on highly erodible or critically eroded lands.

CONDITIONS

This application is appropriate for areas which require immediate vegetative covers, drop inlets, grass swales, and waterways with intermittent flow.

CONSTRUCTION SPECIFICATIONS INSTALLATION

Soil Preparation

- Bring soil surface to final grade. Clear surface of trash, woody debris, stones and clods larger than 1". Apply sod to soil surfaces only and not frozen surfaces, or gravel type soils.
- Topsoil properly applied will help guarantee stand. Don't use topsoil recently treated with herbicide or soil sterilants.
- Mix fertilizer into soil surface. Fertilize based on soil tests of Table 6-6.1. For fall planting of warm season species, half the fertilizer should be applied at planting and the other half in the spring.

Table 6-6.1. Fertilizer Requirements for Soil Surface Application

Fertilizer Type (lbs./acre)	Fertilizer Rate (lbs./acre)	Fertilizer Rate	Season
10/10/2010	1000	0.0250	Fall

- Agricultural lime should be applied based on soil tests or at a rate of 1 to 2 tons per acre.

Installation

- Lay sod with tight joints and in straight lines. Don't overlap joints. Stagger joints and do not stretch sod.
- On slopes steeper than 3:1, sod should be anchored with wooden or biodegradable pins or other approved methods.
- Installed sod should be rolled or tamped to provide good contact between sod and soil.
- Irrigate sod and soil to a depth of 4" immediately after installation.
- Sod should not be cut or spread in extremely wet or dry weather.
- Irrigation should be used to supplement rainfall for a minimum of 2-3 weeks.

MATERIALS

- Sod selected should be certified. Sod grown in the general area of the project is desirable.
- Sod should be machine cut and contain 3/4" ± 1/4" of soil, not including shoots or thatch.
- Sod should be cut to the desired size within ±5%. Torn or uneven pads should be rejected.
- Sod should be cut and installed within 36 hours of digging.
- Avoid planting when subject to frost heave or hot weather if irrigation is not available.
- The sod type should be shown on the plans or installed according to Table 6-6.2. See figure 6-4.1 for your Resource Area.

Table 6-6.2. Sod Planting Requirements

Grass	Varieties	Resource Area	Growing Season
Bermudagrass	Common Tifway Tiftgreen Tiflawn	M-L,P,C P,C P,C P,C	Warm Weather
Bahiagrass	Pensacola	P,C	Warm Weather
Centipede	-	P,C	Warm Weather
St. Augustine	Common Bitterblue Raleigh	C	Warm Weather
Zoysia	Emerald Myer	P,C	Warm Weather
Tall Rescue	Kentucky	M-L,P	Cool Weather

MAINTENANCE

- Re-sod areas where an adequate stand of sod is not obtained.
- New sod should be mowed sparingly. Grass height should not be cut less than 2"-3" or as specified.
- Apply one ton of agricultural lime as indicated by soil test every 4-6 years.
- Fertilize grasses in accordance with soil tests or Table 6-6.3.

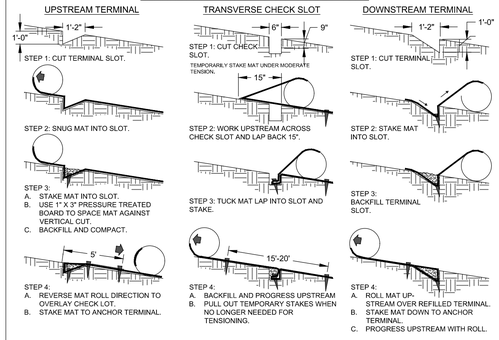
Table 6-6.3. Fertilizer Requirements for Sod

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs.acre)	Nitrogen Top Dressing Rate (lbs./acre)
Cool Season Grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 - 30
Warm Season Grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

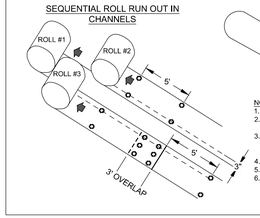
Ss SLOPE STABILIZATION

N.T.S.

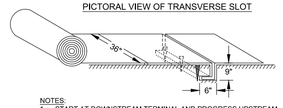
TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)
BLANKET AND MATTING CROSS-SECTIONS



SEQUENTIAL ROLL RUN OUT IN CHANNELS



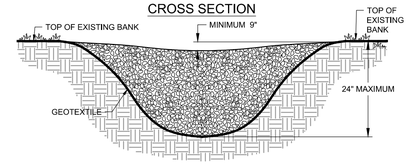
PICTORAL VIEW OF TRANSVERSE SLOT



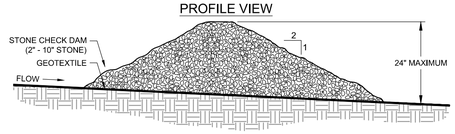
NOTES
1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3' OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.

Cd-S STONE CHECK DAM

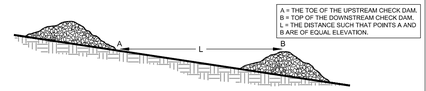
CROSS SECTION



PROFILE VIEW



SPACING BETWEEN CHECK DAMS

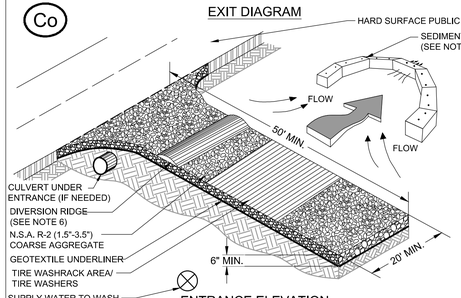


NOTES:
1. CHECK DAMS ARE TO BE USED ONLY IN SMALL OPEN CHANNELS (THEY ARE NOT TO BE USED IN LIVE STREAMS).
2. THE DRAINAGE AREA FOR STONE CHECK DAMS SHALL NOT EXCEED TWO ACRES.
3. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN THE OUTER EDGES.
4. THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2 FEET FROM CENTER TO RIM EDGE.
5. THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.
6. GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288-96, SECTION 7.3, TABLE 3).

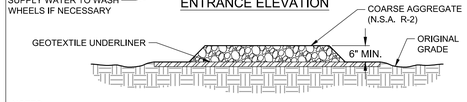
CRUSHED STONE CONSTRUCTION EXIT

Co

EXIT DIAGRAM



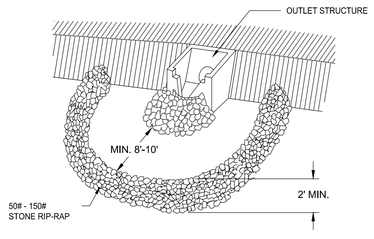
ENTRANCE ELEVATION



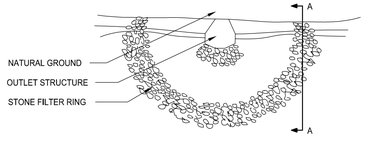
NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

Fr STONE FILTER RING

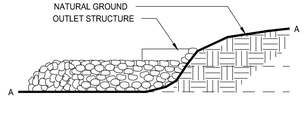
PERSPECTIVE VIEW



PLAN VIEW (NOT TO SCALE)

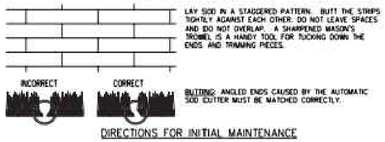


CROSS SECTION (NOT TO SCALE)



SOD MAINTENANCE AND INSTALLATION

SOD LAYOUT AND PREPARATION



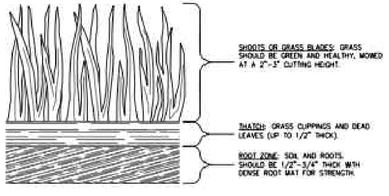
DIRECTIONS FOR INITIAL MAINTENANCE

Step 1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL

Step 2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

Step 3. MOW WHEN THE SOD IS ESTABLISHED -- IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").

APPEARANCE OF GOOD SOD



Source: Va. DSWC

Figure 6-8.2

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KROETSCH

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C6.41

SHEET

J:\2021\21217.00\Dp_Plansheets\C6.40 - EROSION CONTROL DETAILS - 21217.00.dwg - CrSection - 9/10/2024 1:51 PM

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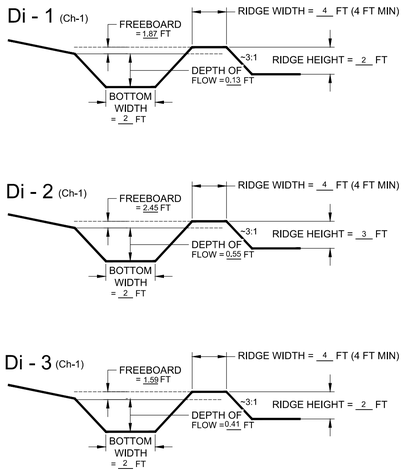
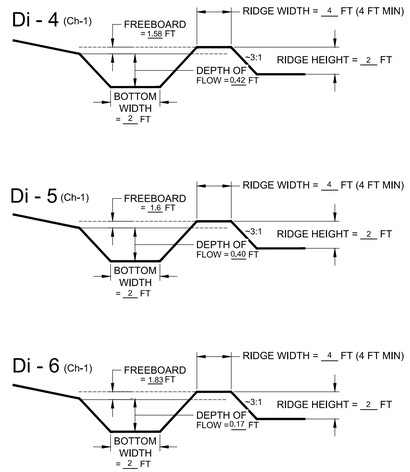
Di SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

COMPLETE THE APPROPRIATE DETAIL DRAWIING FOR THE CHANNEL CROSS-SECTION OF CHOICE:



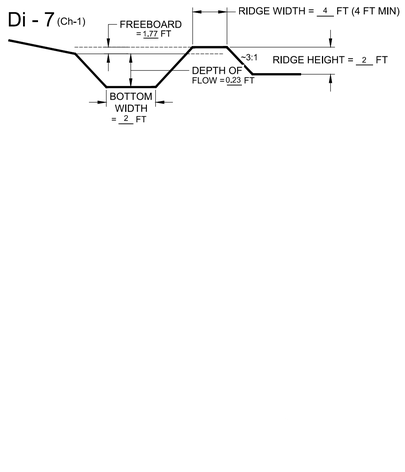
Di SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

COMPLETE THE APPROPRIATE DETAIL DRAWIING FOR THE CHANNEL CROSS-SECTION OF CHOICE:



Di SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

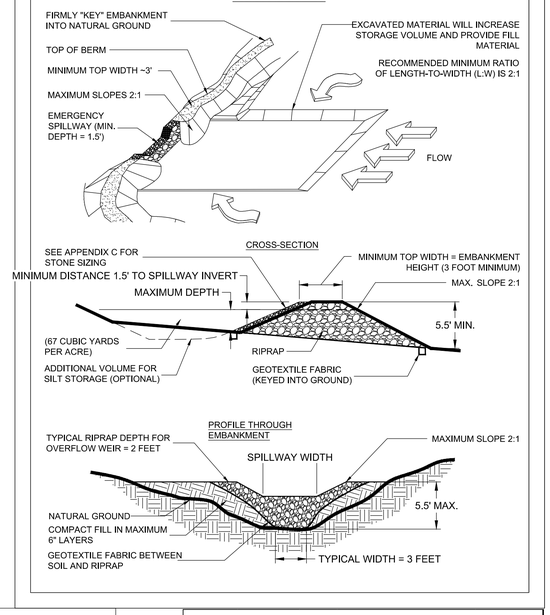
COMPLETE THE APPROPRIATE DETAIL DRAWIING FOR THE CHANNEL CROSS-SECTION OF CHOICE:



Sd4-C TEMPORARY SEDIMENT TRAP

COURTESY OF CITY OF KNOXVILLE BMP EROSION AND SEDIMENT

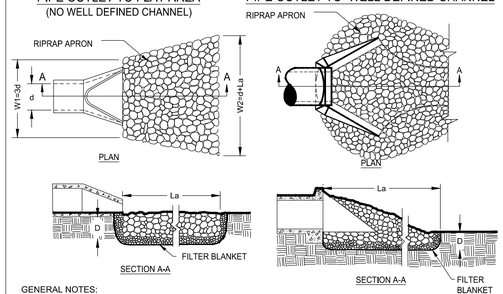
ROCK OUTLET



St RIPRAP OUTLET PROTECTION

PIPE OUTLET TO FLAT AREA (NO WELL DEFINED CHANNEL)

PIPE OUTLET TO WELL DEFINED CHANNEL



GENERAL NOTES:

1. La IS THE LENGTH OF THE RIPRAP APRON.
2. D IS THE THICKNESS OF THE APRON. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER (d_{max} = 1.5 x d_{50}) BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

ADDITIONAL NOTES:

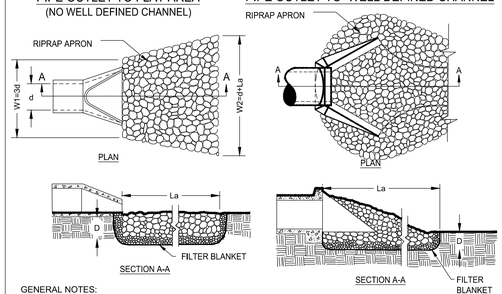
A. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
B. FILTER MATERIAL SHALL BE FILTER FABRIC OR 6" (150mm) THICK MINIMUM GRADED GRAVEL LAYER.
C. W1 AND W2 FOR PIPES OUTFALLING INTO A DEFINED DITCH SHOULD BE SUFFICIENTLY WIDE TO HAVE STONE ONE FOOT ABOVE THE CROWN OF THE PIPE OR THE TOP OF DITCH BANK, WHICH EVER IS LOWER.

Location	d (in)	Max Flow (cfs)	d_{50} (ft)	W1 (ft)	La (ft)	W2 (ft)	V (ft/s)	D (ft)
St-1	48	24.93	0.5	9.0	8.0	11.00	2.70	1.13
St-2	36	17.00	0.5	9.0	6.0	9.00	2.70	1.13
St-3	18	12.2	0.4	4.5	13	14.50	2.70	0.90
St-4	30	12	0.6	4	9	10	2.70	1.10
St-5	48	13	0.4	5	11	12	2.70	1.1
St-6	48	13.5	0.5	4.5	10	12	2.70	1.1

St RIPRAP OUTLET PROTECTION

PIPE OUTLET TO FLAT AREA (NO WELL DEFINED CHANNEL)

PIPE OUTLET TO WELL DEFINED CHANNEL



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C. W1 AND W2 FOR PIPES OUTFALLING INTO A DEFINED DITCH SHOULD BE SUFFICIENTLY WIDE TO HAVE STONE ONE FOOT ABOVE THE CROWN OF THE PIPE OR THE TOP OF DITCH BANK, WHICH EVER IS LOWER.

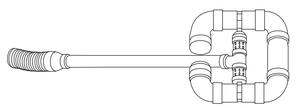
Location	d (in)	Max Flow (cfs)	d_{50} (ft)	W1 (ft)	La (ft)	W2 (ft)	V (ft/s)	D (ft)
St-7	30	17	0.6	8	10	13.5	2.7	1.3
St-8	30	16	0.5	10	13	10.5	2.7	1.2
St-9	42	21	0.6	9	13	11	2.7	1.13
St-10	42	21	0.6	9	12	11	2.7	1.13
St-11	30	15	0.4	8	10	12	2.7	0.9

Sk SKIMMER OUTLET DETAIL

TEMPORARY SEDIMENT POND SUPPLEMENT

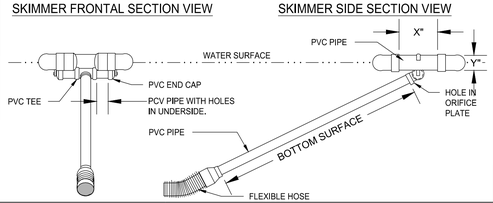
NOTE:
SKIMMER CONFIGURATION SHOWN IS TYPICAL. THE DESIGNER/ENGINEER MAY SUBMIT AN ALTERNATE SKIMMER DETAIL FOR REVIEW.

SKIMMER PERSPECTIVE



SKIMMER FRONTAL SECTION VIEW

SKIMMER SIDE SECTION VIEW



Calculate Skimmer Size SD3-1

Basin Volume in Cubic Feet	18,560	Cu.Ft	Skimmer Size	2.5 Inch
Days to Drain*	3	Days	Orifice Radius	1.2 Inch[es]
			Orifice Diameter	2.5 Inch[es]

*In GA assume 3 days to drain

Calculate Skimmer Size SD3-2

Basin Volume in Cubic Feet	10,963	Cu.Ft	Skimmer Size	2.5 Inch
Days to Drain*	3	Days	Orifice Radius	1.0 Inch[es]
			Orifice Diameter	1.9 Inch[es]

*In GA assume 3 days to drain

Calculate Skimmer Size SD3-3

Basin Volume in Cubic Feet	14,363	Cu.Ft	Skimmer Size	2.5 Inch
Days to Drain*	3	Days	Orifice Radius	1.1 Inch[es]
			Orifice Diameter	2.2 Inch[es]

*In GA assume 3 days to drain

Sd4-C #1

AREA DRAINING TO SEDIMENT TRAP	
SQUARE FEET	ACRES
81,426	1.87

Vr, REQUIRED STORAGE (134 CY/ACRE)

1.87 AC X 67 CY/AC

125.24 CY REQUIRED

SEDIMENT STORAGE PROVIDED

V = 0.4 x A x D

A = SURFACE AREA @ LEVEL OF EMERGENCY SPILLWAY =	1,100 SQFT
D = MAXIMUM DEPTH FROM EMERGENCY SPILLWAY INV =	9.00 FT
Vc = CLEANOUT VOLUME =	1,320 CU. FT @ ELEV 903.00

MAX STORAGE VOLUME	CUBIC FEET	CUBIC YARDS
Ves =	3960.00	146.67

CITY OF VILLA RICA GEORGIA 1826 CITY OF GOLD

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C6.42

SHEET

J:\2021\21217.00\Dv_Plans\sheets\C6.42 - EROSION CONTROL DETAILS - 21217.00.dwg - CHiertzler - 9/10/2024 1:51 PM

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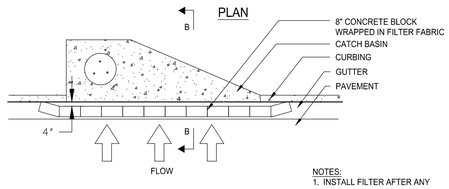
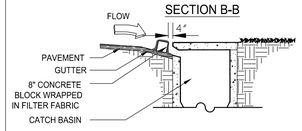
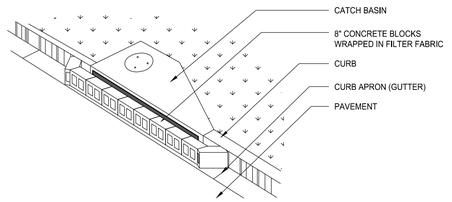
Sd2-P CURB INLET FILTER "PIGS IN BLANKET"



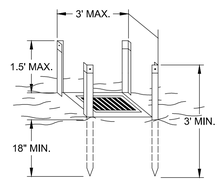


NOTES:
1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION.
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET.
3. FACE OPENINGS IN BLOCKS OUTWARD.
4. LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING.
5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.

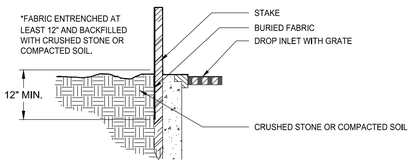


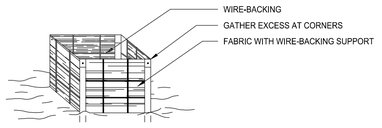
Sd2-F FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

STEEL FRAME AND SILT FENCE INSTALLATION



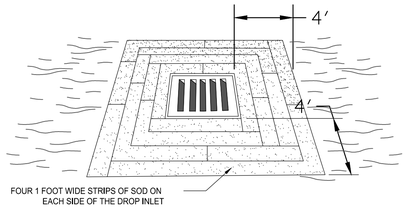
NOTES:
1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.

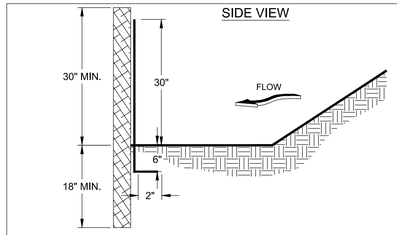


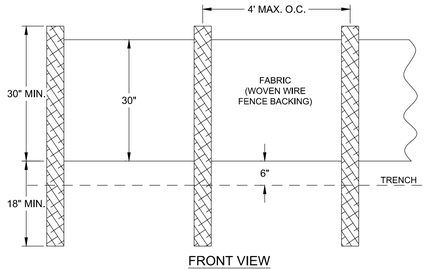


Sd2-S INLET SEDIMENT TRAP (SOD)

SOD STRIPS PROTECT INLET AREA FROM EROSION
(SOURCE: VA SWCC)







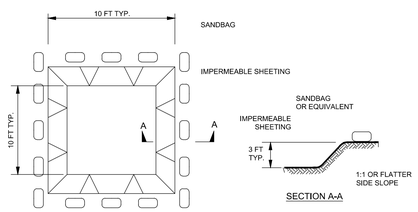
FRONT VIEW

NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT 30" IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

Sd1-S SILT FENCE - TYPE SENSITIVE

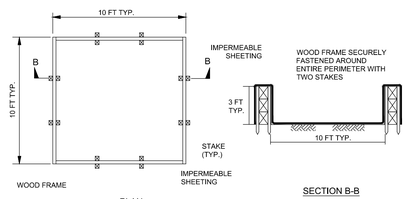
N.T.S.

ONSITE CONCRETE WASHOUT STRUCTURE



PLAN

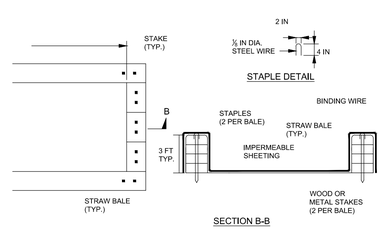
EXCAVATED WASHOUT STRUCTURE



PLAN

WASHOUT STRUCTURE WITH WOOD PLANKS

ONSITE CONCRETE WASHOUT STRUCTURE



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Wo WASHOUT

CITY OF VILLA RICA
"CITY OF GOLD"
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Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.43
SHEET

U:\2021\21217.00\Div_Plans\sheets\C6.43 - EROSION CONTROL DETAILS - 21217.00.dwg - CHarrison - 9/10/2024 1:51 PM

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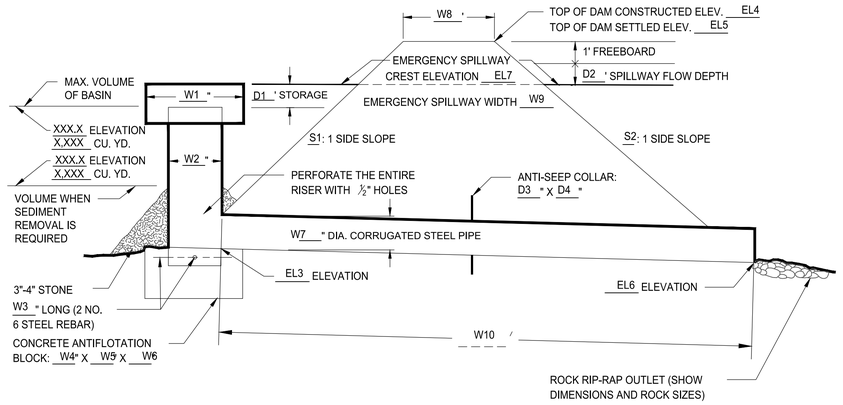
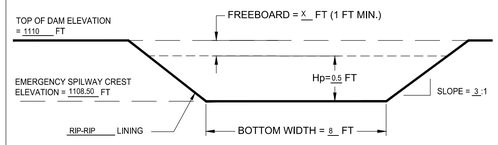
Sd3-1 TEMPORARY SEDIMENT BASIN (RIP-RAP)

CROSS-SECTIONAL DETAIL

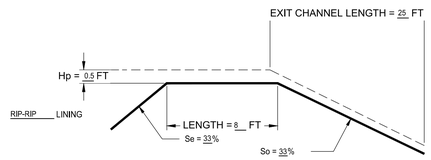


Sd3 CROSS-SECTIONAL DETAIL OF EMERGENCY SPILLWAY

(RIP-RAP)



CROSS-SECTION



PROFILE ALONG CENTERLINE

Sd3-1 CALCULATIONS

Computed by Caleb Harrison Date 3/1/2024
Checked by Date

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)

Basin No. 1
Total Area Draining to Basin Initial 5.13 acres
Disturbed Area Draining to Basin Initial 5.13 acres

4.125
6.0018836

Stage / Storage

Elev. (ft.)	Area (ft2)	Volume (ft3)
1100	6042	0
1102	8408	14450
1104	11113	33970
1106	14156	59240
1108	17527	90923
1110	21136	129585

Volume

1. Compute minimum required storage volume (V_s).
   V_s = 134 cy/ac * 5.13 acres = 687 cy **18,560** cf Provided Volume 89338.46848
2. Compute volume of basin at clean-out (V_c).
   V_c = 22 cy/ac * 5.13 acres = 112.86 cy **3,047** cf
3. Determine elevation corresponding to minimum required storage volume, V_s.
   Minimum riser crest elevation = **1107.90** feet (determined by stage/storage relationship)
4. Determine elevation corresponding to clean-out volume V_c.
   Clean-out elevation = **1100.42** feet (determined by stage/storage relationship)
   Note: Clean-out elevation shall be clearly marked on the riser or marked by a post near the riser.
5. Compute length of riser.
   Riser length = Minimum elevation of riser crest - Lowest elevation of pipe at riser
   Riser length = 1107.90 ft - 1100.00 ft.
   Riser length = **7.90** ft

Stormwater Runoff

	c	I	a
6. Compute peak discharge from a 2-year, 24-hour storm event.	0.39	5.44	5.13
Q_2 = 10.9 cfs (Attach runoff computation sheet)			
7. Compute peak discharge from a 25-year, 24-hour storm event.			
Q_{25} = 18.5 cfs (Attach runoff computation sheet)	0.39	9.26	5.13

Surface Area/Configuration Design

8. Compute minimum basin surface area (SA_{min}).
   SA_{min} - .01 ac/cfs * Q_2
   SA_{min} - .01 ac/cfs * 10.9 cfs
   SA_{min} = 0.11 ac = 43,560 sf/ac * 0.11 ac = 4740.987 sf
9. Check available area at elevation of riser crest.
   Available area = **17,358** sf (determined by stage/storage relationship)
   Available area >/= SA_{min}? Yes=1/No=2 yes
10. Compute required length to achieve 2:1 L:W ratio.
    Average width = 147 ft
    Required length = 2 * average width
    Required length = 2 * 147 ft
    Required length = 294 ft
    Available length = 159 ft
    2:1 L:W ratio satisfied? Yes=1/No=2 no
    If "no", refer to Figure 6-29.2 for baffle designs. Note any required baffles on E&SC plan and include calculations and details for baffle.

Principal Spillway (ps)

11. Determine maximum principal spillway capacity.
    Q_{max} = Q_2 = 10.9 cfs

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 2

12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).
    H = 7.90 ft
13. Compute the total pipe length of the principal spillway, L using Figure 6-29.3.
    L = [A-(B+C)/2][Zu + Zd] + T + E =
    L = 79.76 ft
14. Determine diameter of principal spillway (D_{ps}) and flow through the principal spillway (Q) from Table 6-29.1 using H and Q_{max}.
    D_{ps} = 18" in. Q = 14.50 cfs (Value directly from table)
15. Compute actual flow through the principal spillway, using Table 6-29.1 to determine the correction factor for pipe length, L.
    Qps = Q * correction factor = 14.5 cfs x 1.05
    Q_{ps} = 15.2 cfs
16. Compute riser diameter (D_r).
    D_r = 1.5 D_{ps}
    D_r = 1.5 * 18 in.
    D_r = 27 in.
    D_r = 30 in.
17. Compute trash rack diameter (D_t).
    D_t = 1.4 * D_r
    D_t = 1.4 * 30 in.
    D_t = 42 in.
    D_t = 48" in.
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, D_r, and Q_{ps}.
    h = 0.0" ft.

Concrete Riser Base Design

19. Determine the volume of concrete per vertical foot of riser height needed, from Table 6-29.3 to prevent flotation.
    Required volume of concrete per vertical foot = 4.29" cf/v.f.
20. Compute total volume of concrete required.
    Total required volume of concrete = Required volume per vertical foot * Riser length
    Total required volume of concrete = 4.29 cf/v.f. * 7.9 ft.
    Total volume of concrete required = 33.891 cf.
21. Assume base thickness (usually 18").
    B = 18" in. = 1.5 ft.
22. Compute the required surface area.
    Required surface area = Total volume required/B
    Required surface area = 33.891 cf / 1.5 ft
    Required surface area = 22.6 sf
23. Compute riser base length (l) and width (w) (assume square base).
    l = w = (required surface area)$^{1/2}$
    l = w = (22.6 sf)$^{1/2}$ Use
    l = w = 4.75 ft = 12in/ft* 4.8 ft = 57.0 in 60 in

Anti-Seep Collar Design

24. Determine if anti-seep collar is required. If yes, to any of the following conditions, a collar is required:
    Yes The settled height of the dam is greater than 15 feet
    Yes The principal spillway diameter (D_{ps}) is smooth pipe larger than 8".
    Yes The principal spillway diameter (D_{ps}) is corrugated metal pipe larger than 12".

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 3

25. Determine size of anti-seep collar required.
    Yes 18-inch projection (for heads (H) less than or equal to 10 feet).
    Yes 24-inch projection (for heads (H) greater than 10 feet).

Emergency Spillway (es)

26. Compute minimum capacity of emergency spillway.
    Q_{es} = Q_{25} - Q_{ps} = 18.5 cfs - 15.2 cfs
    * Q_{es} = 3.3 cfs SPILLWAY REQ'D ->

*Negative value means NO OVERFLOW OVER THE TOP OF DAM is expected DURING 25-YR STORM EVENTS. Any storm greater than 25-yr storm may overflow through the designed emergency spillway

27. Determine stage (H_s), bottom width (b), velocity (V) and minimum exit slope (S) using Table 6-29.4 and Q_{es}.
    Hp = 0.5" ft **b =** 8" ft **V =** 2.7" fps
    S = 3.3" %
28. Actual entrance channel slope, S_e = 33" %
29. Actual exit channel slope, S_o = 33" %
    Note: If S_o is steeper than S (from Table 6-29.4), then the velocity in the exit channel will increase.
    a.) Calculate new exit velocity V_o
    V_o = V(S_o/S)$^{0.3}$ = 2.7 fps * (33 / 3.9)$^{0.3}$
    V_o = 5.1 fps
    Note: Refer to Channel Stabilization (Ch) to determine the proper lining for the emergency spillway.
    Grass ____ **Rip-rap** X **Concrete** ____

Design Elevations

30. **Riser crest elevation =** 1107.90 ft.
31. Compute minimum emergency spillway crest elevation.
    Minimum emergency spillway crest elevation = Riser crest elevation + h
    Minimum emergency spillway crest elevation = 1107.90 ft + 0.6 ft
    Minimum emergency spillway crest elevation = 1108.50 ft
32. Determine design high water elevation
    Design high water elevation = Minimum emergency spillway crest elevation + Stage elevation (Hp)
    Design high water elevation = 1108.50 ft + 0.5 ft
    Design high water elevation = 1109.00 ft
33. Determine elevation of top of dam
    Elevation of top of dam = Design high water elevation + 1 ft freeboard
    Elevation of top of dam = 1109.00 ft + 1 ft
    Elevation of top of dam = 1110.00 ft

PLEASE NOTE THAT DESIGN VALUES DETERMINED BY THIS SHEET REPRESENT THE MINIMUM REQUIREMENTS FOR A TEMPORARY SEDIMENT BASIN.

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C6.44

SHEET

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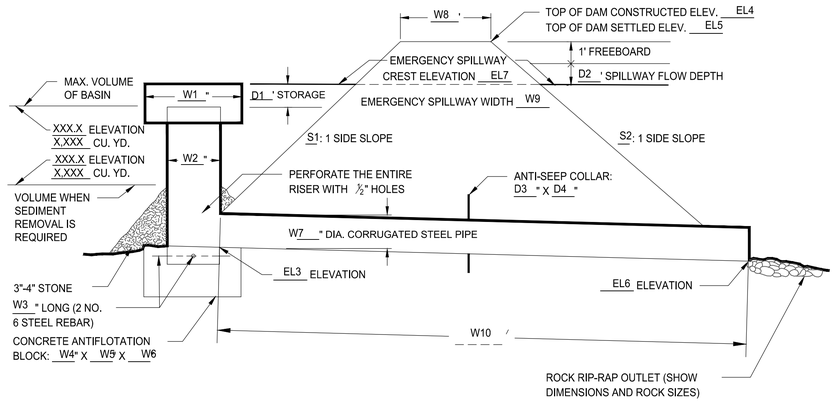
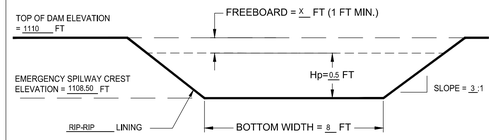
Sd3-2 TEMPORARY SEDIMENT BASIN (RIP-RAP)

CROSS-SECTIONAL DETAIL

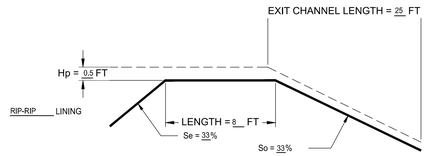


Sd3 CROSS-SECTIONAL DETAIL OF EMERGENCY SPILLWAY

(RIP-RAP)



CROSS-SECTION



PROFILE ALONG CENTERLINE

Sd3-2 CALCULATIONS

Computed by Caleb Harrison Date 3/1/2024
Checked by _____ Date _____

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)

Basin No. 2
Total Area Draining to Basin Initial 3.30 acres
Disturbed Area Draining to Basin Initial 3.30 acres

4.125
6.0018836

Stage / Storage

Elev. (ft.)	Area (ft2)	Volume (ft3)
1094	21171	0
1096	25030	46202
1098	29133	100365
1100	33479	162976
1102	38073	234527

Provided Volume

Volume

1. Compute minimum required storage volume (V_s).
   V_s = 134 cy/ac * 3.3 acres = 442 cy **11,939** cf 159845.235
2. Compute volume of basin at clean-out (V_c).
   V_c = 22 cy/ac * 3.3 acres = 72.6 cy **1,960** cf
3. Determine elevation corresponding to minimum required storage volume, V_s.
   Minimum riser crest elevation = **1099.90** feet (determined by stage/storage relationship)
4. Determine elevation corresponding to clean-out volume V_c.
   Clean-out elevation = **1094.08** feet (determined by stage/storage relationship)
   Note: Clean-out elevation shall be clearly marked on the riser or marked by a post near the riser.
5. Compute length of riser.
   Riser length = Minimum elevation of riser crest - Lowest elevation of pipe at riser
   Riser length = 1099.90 ft - 1094.00 ft.
   Riser length = 5.90 ft

Stormwater Runoff

	c	I	a
6. Compute peak discharge from a 2-year, 24-hour storm event.	0.39	5.44	3.3
Q_2 = 7.0 cfs (Attach runoff computation sheet)			
7. Compute peak discharge from a 25-year, 24-hour storm event.			
Q_{25} = 11.9 cfs (Attach runoff computation sheet)	0.39	9.26	3.3

Surface Area/Configuration Design

8. Compute minimum basin surface area (SA_{min}).
   SA_{min} - .01 ac/cfs * Q_2
   SA_{min} - .01 ac/cfs * 7.0 cfs
   SA_{min} = 0.07 ac = 43,560 sf/ac * 0.07 ac = 3049.758 sf
9. Check available area at elevation of riser crest.
   Available area = **33,267** sf (determined by stage/storage relationship)
   Available area >/= SA_{min}? Yes=1/No=2 yes
10. Compute required length to achieve 2:1 L:W ratio.
    Average width = 124 ft
    Required length = 2 * average width
    Required length = 2 * 124 ft
    Required length = 248 ft
    Available length = 180 ft
    2:1 L:W ratio satisfied? Yes=1/No=2 no
    If "no", refer to Figure 6-29.2 for baffle designs. Note any required baffles on E&SC plan and include calculations and details for baffle.

Principal Spillway (ps)

11. Determine maximum principal spillway capacity.
    Q_{max} = Q_2 = 7.0 cfs

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 2

12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).
    H = 5.90 ft
13. Compute the total pipe length of the principal spillway, L using Figure 6-29.3.
    L = [A-(B+C)/2][Zu + Zd] + T + E =
    L = 79.76 ft
14. Determine diameter of principal spillway (D_{ps}) and flow through the principal spillway (Q) from Table 6-29.1 using H and Q_{max}.
    D_{ps} = 18 in. Q = 12.20 cfs (Value directly from table)
15. Compute actual flow through the principal spillway, using Table 6-29.1 to determine the correction factor for pipe length, L.
    Qps = Q * correction factor = 12.2 cfs x 1.12
    Q_{ps} = 13.7 cfs
16. Compute riser diameter (D_r).
    D_r = 1.5 D_{ps}
    D_r = 1.5 * 18 in.
    D_r = 27 in.
    D_r = 30 in.
17. Compute trash rack diameter (D_t).
    D_t = 1.4 * D_r
    D_t = 1.4 * 30 in.
    D_t = 42 in.
    D_t = 48 in.
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, D_r, and Q_{ps}.
    h = 0.6 ft.

Concrete Riser Base Design

19. Determine the volume of concrete per vertical foot of riser height needed, from Table 6-29.3 to prevent flotation.
    Required volume of concrete per vertical foot = 4.29 cf/v.f.
20. Compute total volume of concrete required.
    Total required volume of concrete = Required volume per vertical foot * Riser length
    Total required volume of concrete = 4.29 cf/v.f. * 5.9 ft.
    Total volume of concrete required = 25.311 cf.
21. Assume base thickness (usually 18").
    B = 18 in. = 1.5 ft.
22. Compute the required surface area.
    Required surface area = Total volume required/B
    Required surface area = 25.311 cf / 1.5 ft
    Required surface area = 16.9 sf
23. Compute riser base length (l) and width (w) (assume square base).
    l = w = (required surface area)$^{1/2}$
    l = w = (16.9 sf)$^{1/2}$ Use
    l = w = 4.11 ft = 12in/ft* 4.1 ft = 49.3 in 50 in

Anti-Seep Collar Design

24. Determine if anti-seep collar is required. If yes, to any of the following conditions, a collar is required:
    Yes The settled height of the dam is greater than 15 feet
    Yes The principal spillway diameter (D_{ps}) is smooth pipe larger than 8".
    Yes The principal spillway diameter (D_{ps}) is corrugated metal pipe larger than 12".

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 3

25. Determine size of anti-seep collar required.
    Yes 18-inch projection (for heads (H) less than or equal to 10 feet).
    Yes 24-inch projection (for heads (H) greater than 10 feet).

Emergency Spillway (es)

26. Compute minimum capacity of emergency spillway.
    Q_{es} = Q_{25} - Q_{ps} = 11.9 cfs - 13.7 cfs
    * Q_{es} = -1.7 cfs NOT REQ'D ->

*Negative value means NO OVERFLOW OVER THE TOP OF DAM is expected DURING 25-YR STORM EVENTS. Any storm greater than 25-yr storm may overflow through the designed emergency spillway

27. Determine stage (H_p), bottom width (b), velocity (V) and minimum exit slope (S) using Table 6-29.4 and Q_{es}.
    Hp = 0.5 ft **b =** 8 ft **V =** 2.7 fps
    S = 3.9 %
28. Actual entrance channel slope, S_e = 33 %
29. Actual exit channel slope, S_o = 33 %
    Note: If S_o is steeper than S (from Table 6-29.4), then the velocity in the exit channel will increase.
    a.) Calculate new exit velocity V_o
    V_o = V(S_o/S)$^{0.3}$ = 2.7 fps * (33 / 3.9)$^{0.3}$
    V_o = 5.1 fps
    Note: Refer to Channel Stabilization (Ch) to determine the proper lining for the emergency spillway.
    Grass _____ **Rip-rap** X **Concrete** _____

Design Elevations

30. **Riser crest elevation =** 1099.90 ft.
31. Compute minimum emergency spillway crest elevation.
    Minimum emergency spillway crest elevation = Riser crest elevation + h
    Minimum emergency spillway crest elevation = 1099.90 ft + 0.6 ft
    Minimum emergency spillway crest elevation = 1100.50 ft
32. Determine design high water elevation
    Design high water elevation = Minimum emergency spillway crest elevation + Stage elevation (Hp)
    Design high water elevation = 1100.50 ft + 0.5 ft
    Design high water elevation = 1101.00 ft
33. Determine elevation of top of dam
    Elevation of top of dam = Design high water elevation + 1 ft freeboard
    Elevation of top of dam = 1101.00 ft + 1 ft
    Elevation of top of dam = 1102.00 ft

PLEASE NOTE THAT DESIGN VALUES DETERMINED BY THIS SHEET REPRESENT THE MINIMUM REQUIREMENTS FOR A TEMPORARY SEDIMENT BASIN.

CITY OF VILLA RICA GEORGIA 18 CITY OF GOLD 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACPHERSON

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

EROSION & SEDIMENT CONTROL DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C6.45
SHEET

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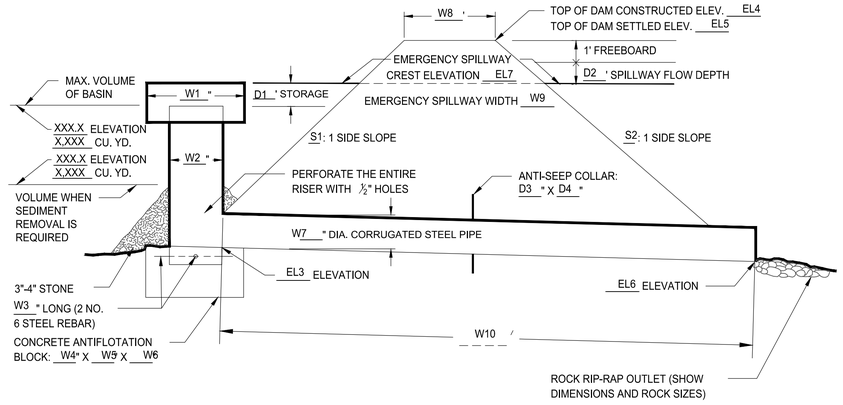
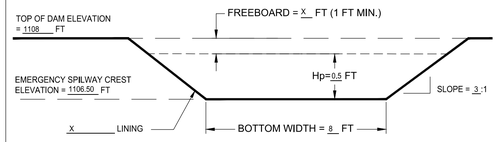
Sd3-3 TEMPORARY SEDIMENT BASIN (RIP-RAP)

CROSS-SECTIONAL DETAIL

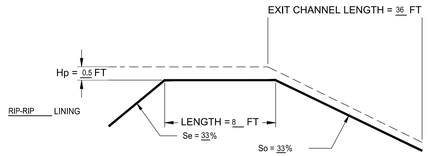


Sd3 CROSS-SECTIONAL DETAIL OF EMERGENCY SPILLWAY

(RIP-RAP)



CROSS-SECTION



PROFILE ALONG CENTERLINE

Sd3-3 CALCULATIONS

Computed by Caleb Harrison Date 3/1/2024
Checked by Date

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)

Basin No. 3
Total Area Draining to Basin Initial 3.97 acres
Disturbed Area Draining to Basin Initial 3.97 acres

4.125
6.0018836

Stage / Storage

Elev. (ft.)	Area (ft2)	Volume (ft3)
1102	2241	0
1104	3483	5724
1106	4958	14165
1108	33479	52602

Volume

1. Compute minimum required storage volume (V_s).
   V_s = 134 cy/ac * 3.97 acres = 532 cy **14,363** cf Provided Volume 13742.95
2. Compute volume of basin at clean-out (V_c).
   V_c = 22 cy/ac * 3.97 acres = 87.34 cy **2,358** cf
3. Determine elevation corresponding to minimum required storage volume, V_s.
   Minimum riser crest elevation = **1105.90** feet (determined by stage/storage relationship)
4. Determine elevation corresponding to clean-out volume V_c.
   Clean-out elevation = **1102.82** feet (determined by stage/storage relationship)
   Note: Clean-out elevation shall be clearly marked on the riser or marked by a post near the riser.
5. Compute length of riser.
   Riser length = Minimum elevation of riser crest - Lowest elevation of pipe at riser
   Riser length = 1105.90 ft - 1102.00 ft.
   Riser length = **3.90** ft

Stormwater Runoff

	c	I	a
6. Compute peak discharge from a 2-year, 24-hour storm event.	0.39	5.44	3.97
Q_2 = 8.4 cfs (Attach runoff computation sheet)			
7. Compute peak discharge from a 25-year, 24-hour storm event.			
Q_{25} = 14.3 cfs (Attach runoff computation sheet)	0.39	9.26	3.97

Surface Area/Configuration Design

8. Compute minimum basin surface area (SA_{min}).
   SA_{min} - .01 ac/cfs * Q_2
   SA_{min} - .01 ac/cfs * 8.4 cfs
   SA_{min} = 0.08 ac = 43,560 sf/ac * 0.08 ac = 3668.951 sf
9. Check available area at elevation of riser crest.
   Available area = **4,884** sf (determined by stage/storage relationship)
   Available area >/= SA_{min}? Yes=1/No=2 yes
10. Compute required length to achieve 2:1 L:W ratio.
    Average width = 73 ft
    Required length = 2 * average width
    Required length = 2 * 73 ft
    Required length = 146 ft
    Available length = 113 ft
    2:1 L:W ratio satisfied? Yes=1/No=2 no
    If "no", refer to Figure 6-29.2 for baffle designs. Note any required baffles on E&SC plan and include calculations and details for baffle.

Principal Spillway (ps)

11. Determine maximum principal spillway capacity.
    Q_{max} = Q_2 = 8.4 cfs

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 2

12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).
    H = 3.90 ft
13. Compute the total pipe length of the principal spillway, L using Figure 6-29.3.
    L = [A-(B+C)/2][Zu + Zd] + T + E =
    L = 79.76 ft
14. Determine diameter of principal spillway (D_{ps}) and flow through the principal spillway (Q) from Table 6-29.1 using H and Q_{max}.
    D_{ps} = 18 in. Q = 10.90 cfs (Value directly from table)
15. Compute actual flow through the principal spillway, using Table 6-29.1 to determine the correction factor for pipe length, L.
    Qps = Q * correction factor = 10.9 cfs x 1.12
    Q_{ps} = 12.2 cfs
16. Compute riser diameter (D_r).
    D_r = 1.5 D_{ps}
    D_r = 1.5 * 18 in.
    D_r = 27 in.
    D_r = 30 in.
17. Compute trash rack diameter (D_b).
    D_b = 1.4 * D_r
    D_b = 1.4 * 30 in.
    D_b = 42 in.
    D_b = 48 in.
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, D_r, and Q_{ps}.
    h = 0.6 ft.

Concrete Riser Base Design

19. Determine the volume of concrete per vertical foot of riser height needed, from Table 6-29.3 to prevent flotation.
    Required volume of concrete per vertical foot = 4.29 cf/v.f.
20. Compute total volume of concrete required.
    Total required volume of concrete = Required volume per vertical foot * Riser length
    Total required volume of concrete = 4.29 cf/v.f. * 3.9 ft.
    Total volume of concrete required = 16.731 cf.
21. Assume base thickness (usually 18").
    B = 18 in. = 1.5 ft.
22. Compute the required surface area.
    Required surface area = Total volume required/B
    Required surface area = 16.731 cf / 1.5 ft
    Required surface area = 11.2 sf
23. Compute riser base length (l) and width (w) (assume square base).
    l = w = (required surface area)$^{1/2}$
    l = w = (11.2 sf)$^{1/2}$
    l = w = 3.34 ft = 12in/ft* 3.3 ft = 40.1 in Use 50 in

Anti-Seep Collar Design

24. Determine if anti-seep collar is required. If yes, to any of the following conditions, a collar is required:
    Yes The settled height of the dam is greater than 15 feet
    Yes The principal spillway diameter (D_{ps}) is smooth pipe larger than 8".
    Yes The principal spillway diameter (D_{ps}) is corrugated metal pipe larger than 12".

Project Name Gordon Street (11) @ E Montgomery St (Hwy 78)
Page 3

25. Determine size of anti-seep collar required.
    Yes 18-inch projection (for heads (H) less than or equal to 10 feet).
    Yes 24-inch projection (for heads (H) greater than 10 feet).

Emergency Spillway (es)

26. Compute minimum capacity of emergency spillway.
    Q_{es} = Q_{25} - Q_{ps} = 14.3 cfs - 12.2 cfs
    * Q_{es} = 2.1 cfs SPILLWAY REQ'D ->

*Negative value means NO OVERFLOW OVER THE TOP OF DAM is expected DURING 25-YR STORM EVENTS. Any storm greater than 25-yr storm may overflow through the designed emergency spillway

27. Determine stage (H_p), bottom width (b), velocity (V) and minimum exit slope (S) using Table 6-29.4 and Q_{es}.
    Hp = 0.5 ft **b** = 8 ft **V** = 2.7 fps
    S = 3.3 %
28. Actual entrance channel slope, **S_e** = 33 %
29. Actual exit channel slope, **S_o** = 33 %
    Note: If S_o is steeper than S (from Table 6-29.4), then the velocity in the exit channel will increase.
    a.) Calculate new exit velocity V_o
    V_o = $V(S_o/S)^{0.3}$ = 2.7 fps * (33 / 3.9)$^{0.3}$
    V_o = 5.1 fps
    Note: Refer to Channel Stabilization (Ch) to determine the proper lining for the emergency spillway.
    Grass Rip-rap X Concrete

Design Elevations

30. **Riser crest elevation** = 1105.90 ft.
31. Compute minimum emergency spillway crest elevation.
    Minimum emergency spillway crest elevation = Riser crest elevation + h
    Minimum emergency spillway crest elevation = 1105.90 ft + 0.6 ft
    Minimum emergency spillway crest elevation = 1106.50 ft
32. Determine design high water elevation
    Design high water elevation = Minimum emergency spillway crest elevation + Stage elevation (Hp)
    Design high water elevation = 1106.50 ft + 0.5 ft
    Design high water elevation = 1107.00 ft
33. Determine elevation of top of dam
    Elevation of top of dam = Design high water elevation + 1 ft freeboard
    Elevation of top of dam = 1107.00 ft + 1 ft
    Elevation of top of dam = **1108.00** ft

PLEASE NOTE THAT DESIGN VALUES DETERMINED BY THIS SHEET REPRESENT THE MINIMUM REQUIREMENTS FOR A TEMPORARY SEDIMENT BASIN.

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Approved
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City Engineer

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EROSION & SEDIMENT CONTROL DETAILS

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GRID NORTH
GEORGIA WEST ZONE

C6.46
SHEET

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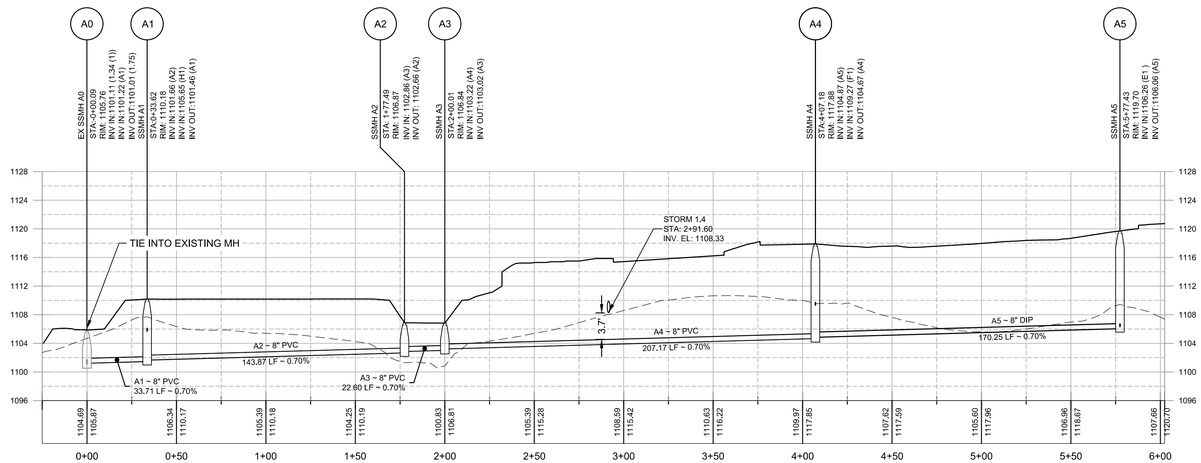

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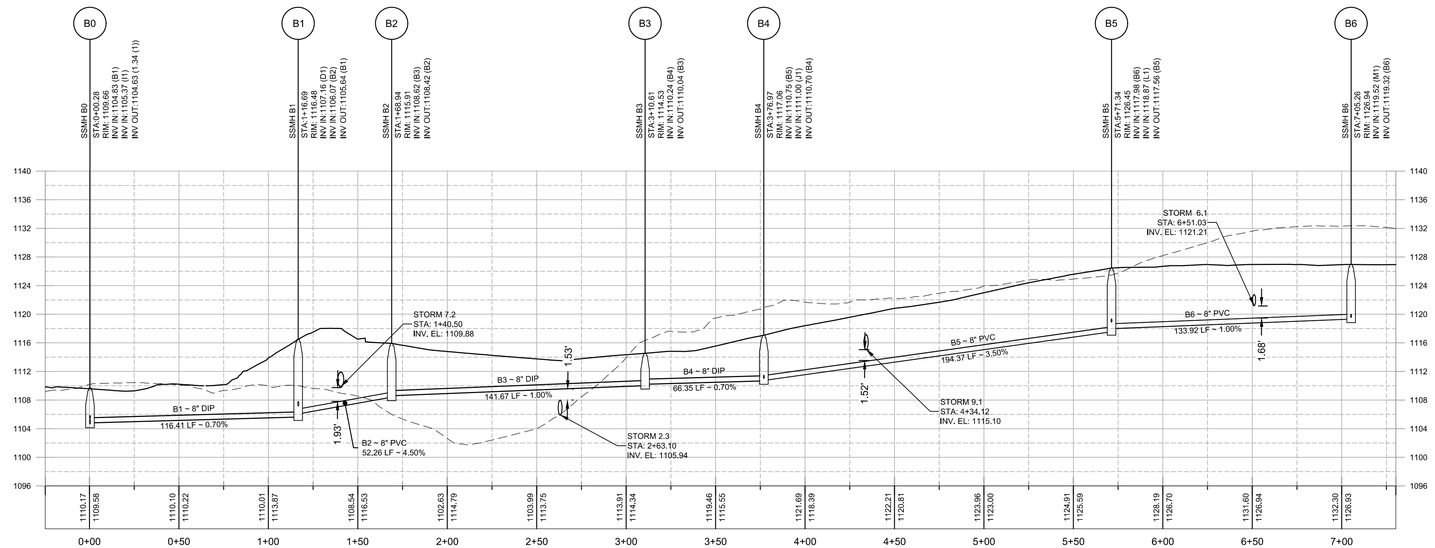

SANITARY SEWER LINE B
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PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C7.00
SHEET

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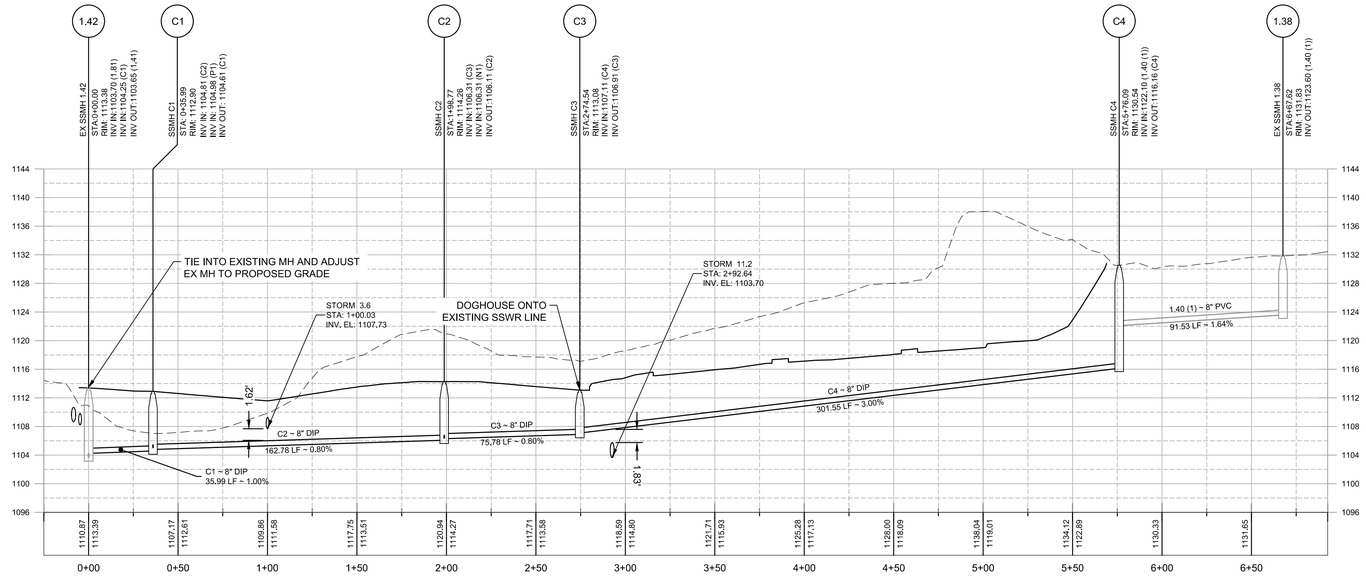

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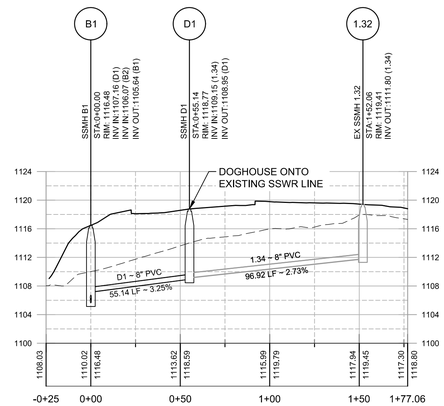

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SANITARY SEWER PROFILES

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GRID NORTH

GEORGIA WEST ZONE

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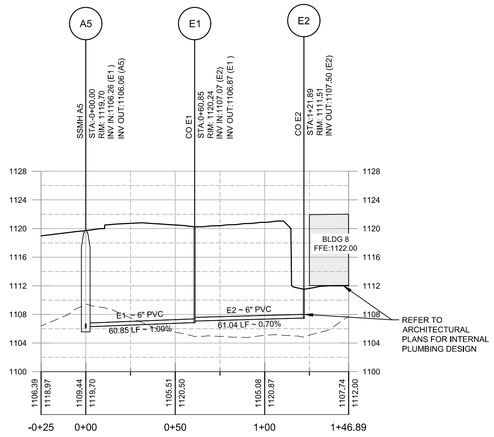

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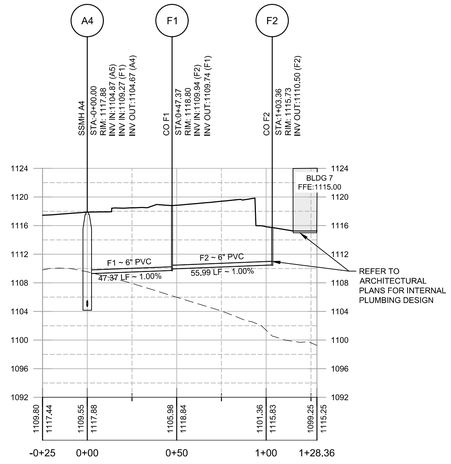

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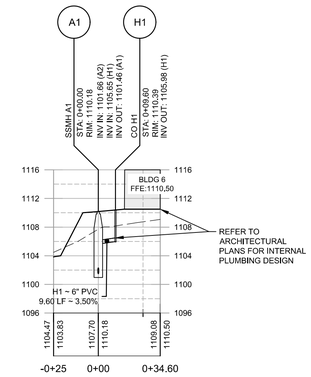

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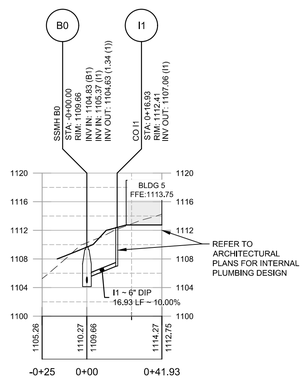

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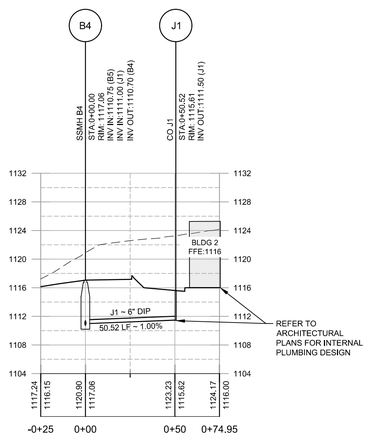

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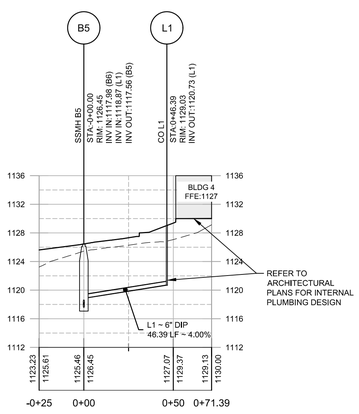

SANITARY SEWER LINE L
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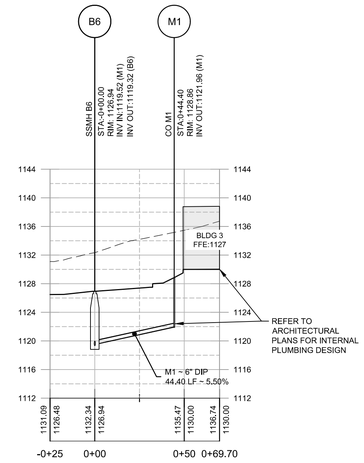

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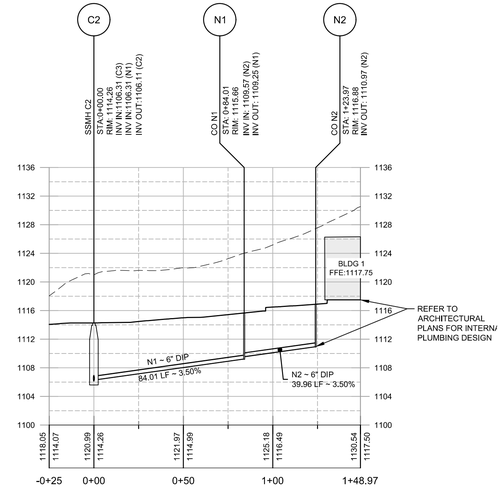

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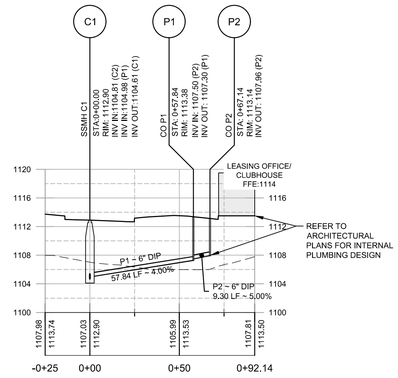

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GRID NORTH

GEORGIA WEST ZONE

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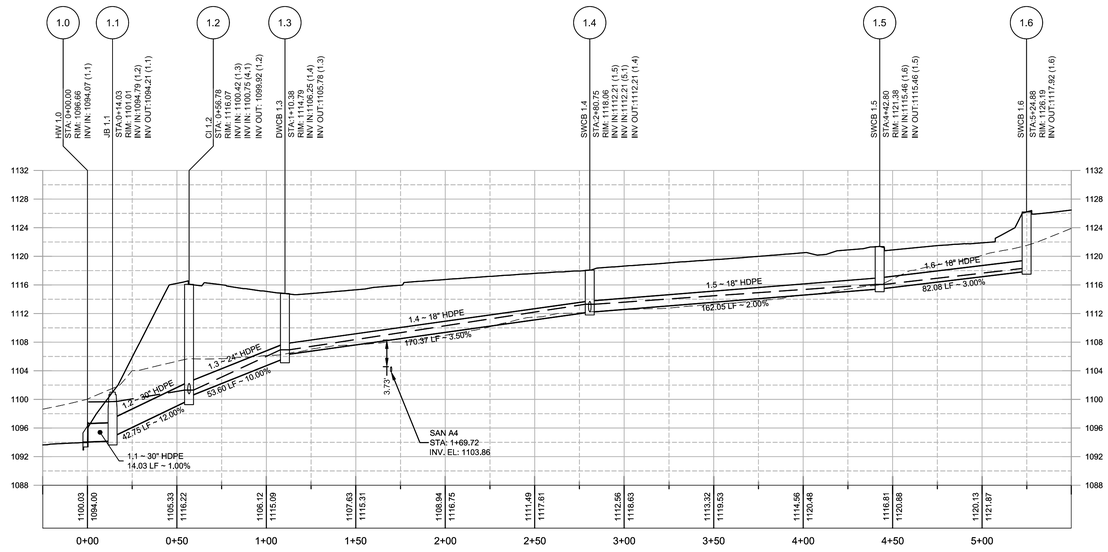

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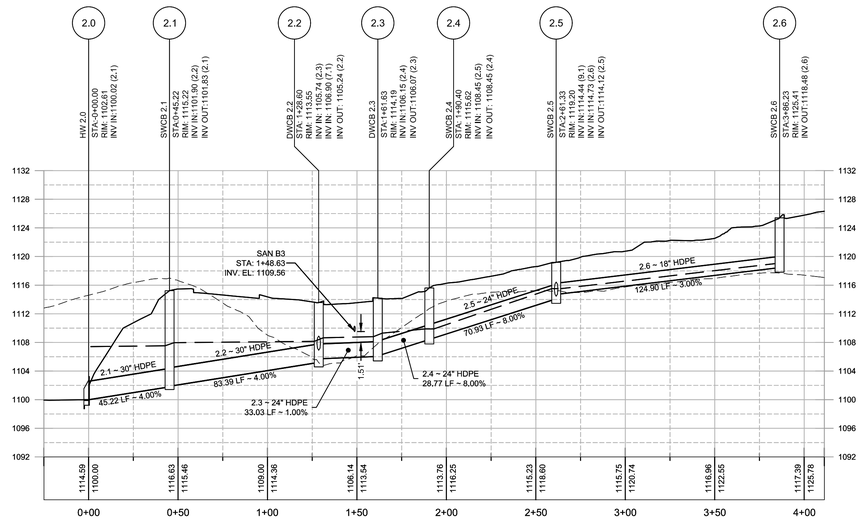

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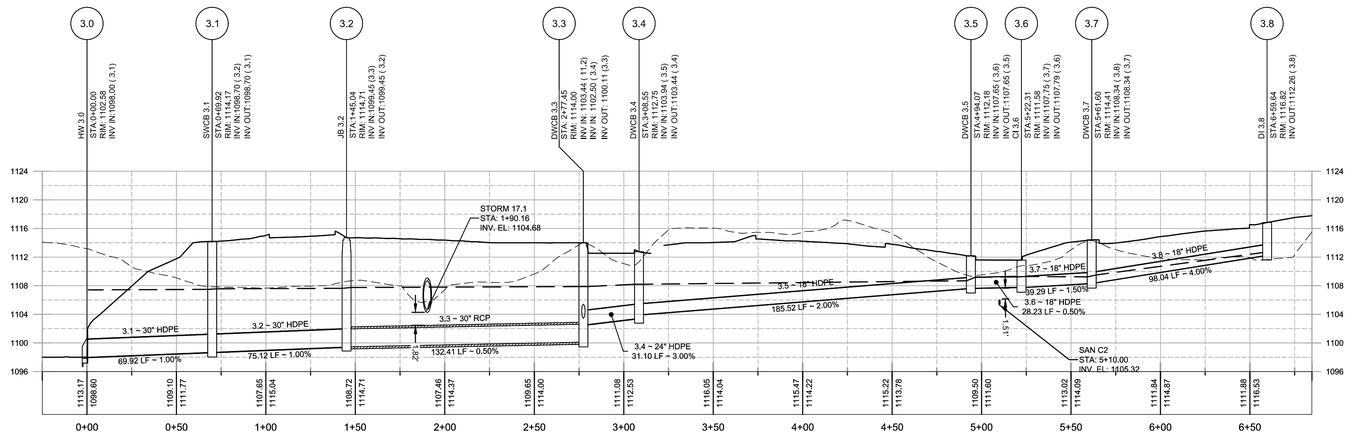

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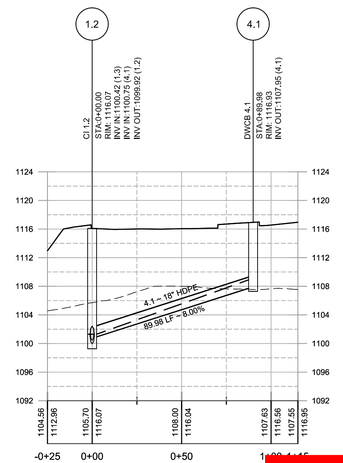
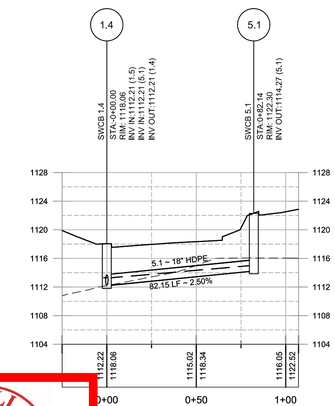


STORM LINE 4
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 5
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE
- 25 YEAR HGL

CITY OF VILLA RICA
GEORGIA
"CITY OF GOLD"
18 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENZIE

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

STORM SEWER PROFILES

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH

GEORGIA WEST ZONE

C7.50
SHEET

J:\2021\21217\00\Dsl_Plans\twist\C7.50 - STORM PROFILES - 21217.00.dwg - Chamson - 9/10/2024 1:53 PM

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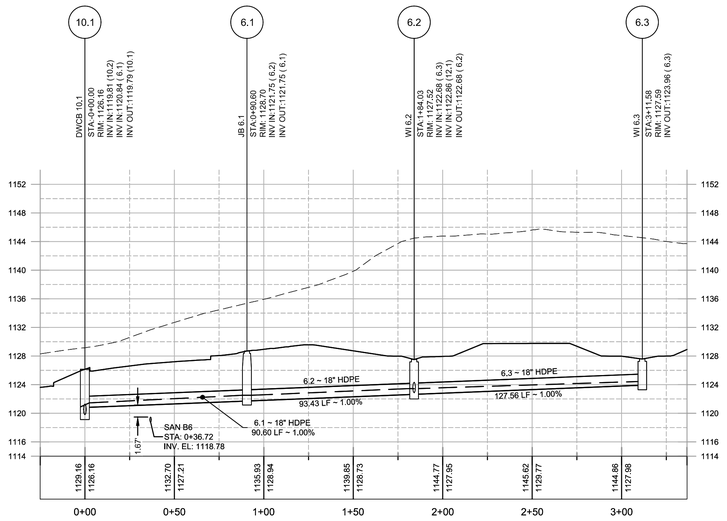
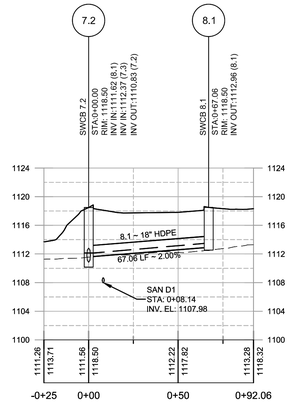
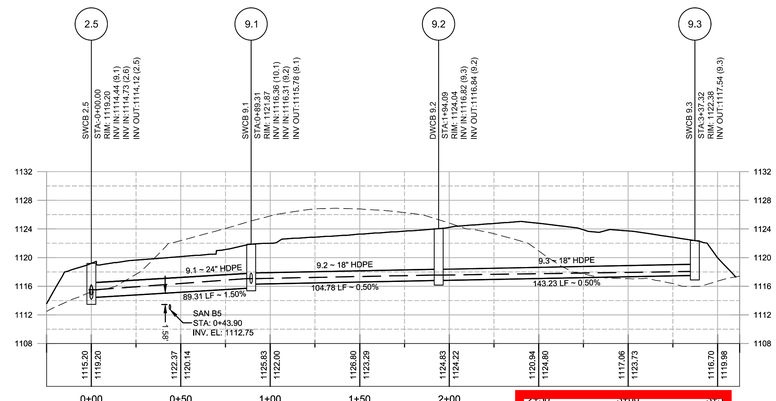


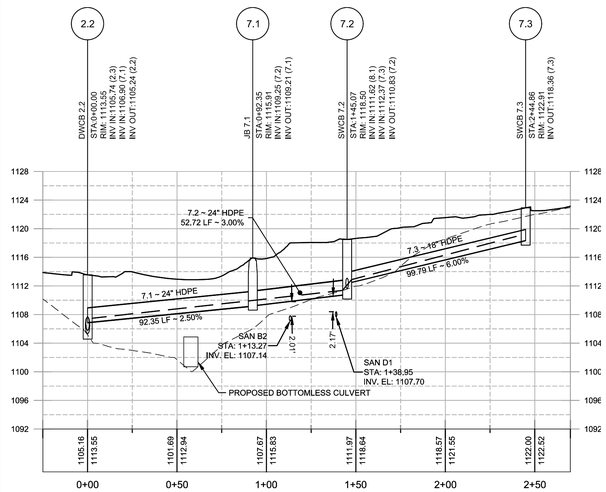
STORM LINE 6
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



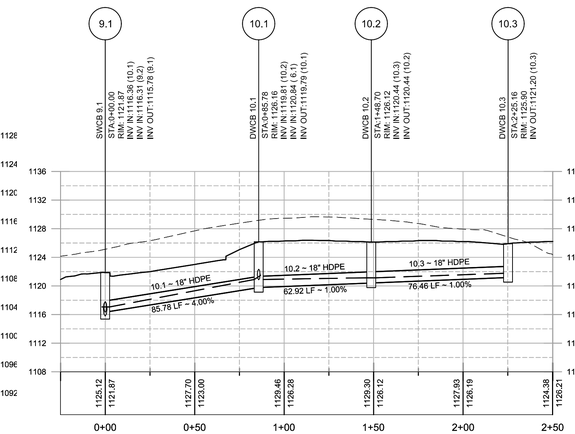
STORM LINE 8
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



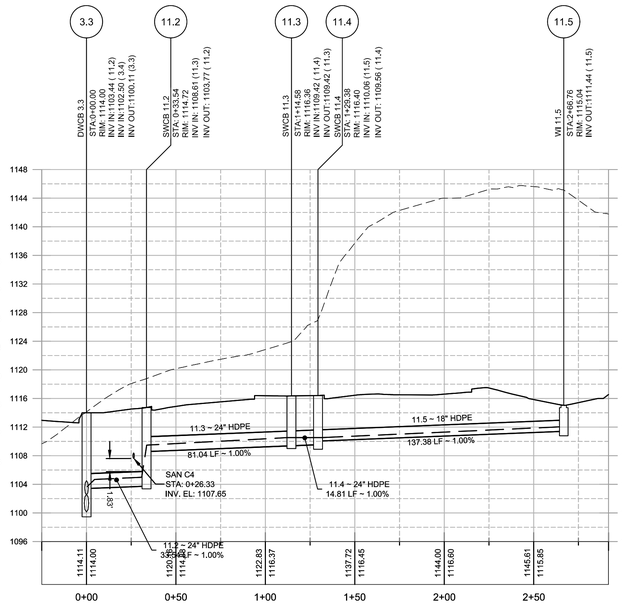
STORM LINE 9
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



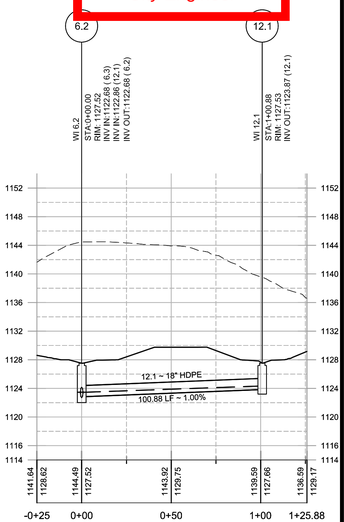
STORM LINE 7
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 10
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 11
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 12
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE
- 25 YEAR HGL

CITY OF VILLA RICA GEORGIA 18 CITY OF GOLD 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENZIE

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

STORM SEWER PROFILES

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C7.51
SHEET

J:\2021\21217\00\Dsl_Plans\sheet\C7.50 - STORM PROFILES - 21217.00.dwg - Chamson - 9/10/2024 1:53 PM

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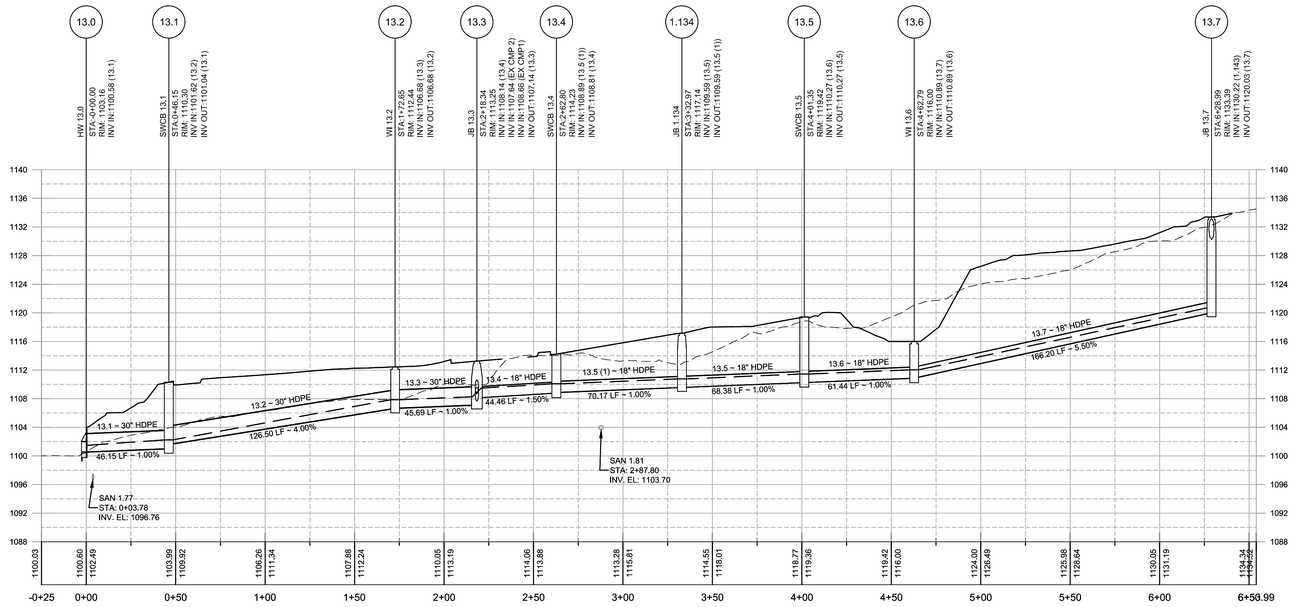
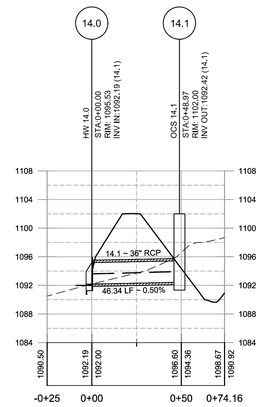
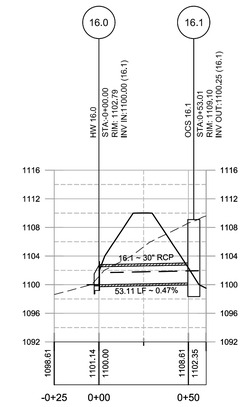


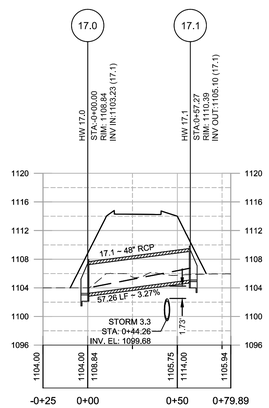
STORM LINE 13
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



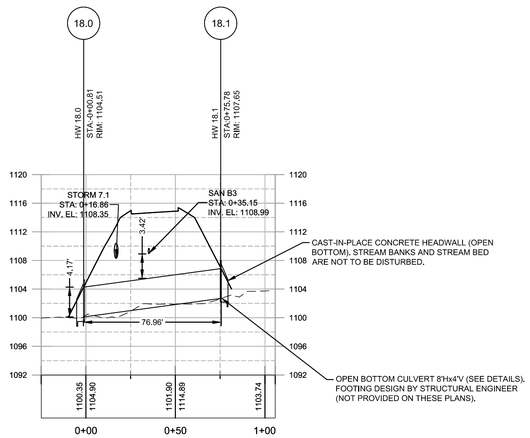
STORM LINE 14
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



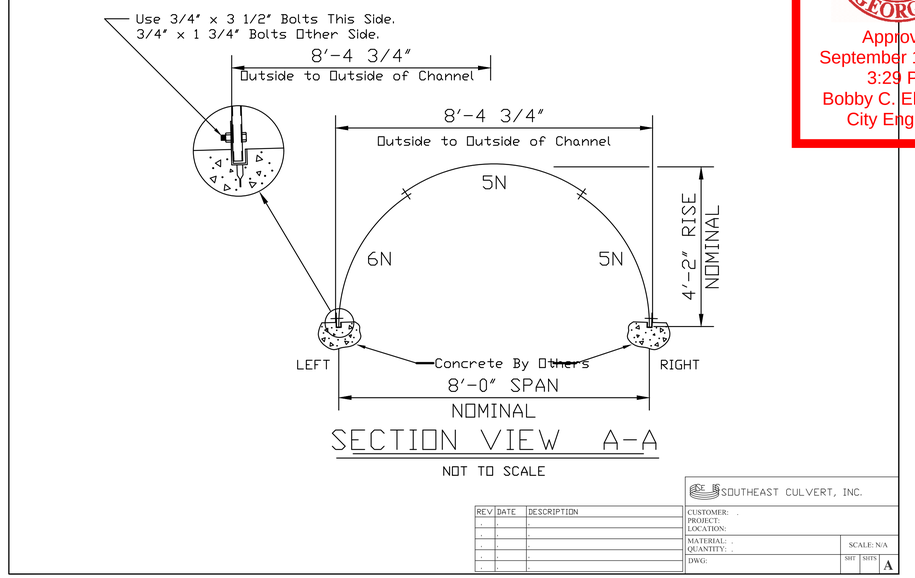
STORM LINE 16
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 17
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



STORM LINE 18
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



SECTION VIEW A-A
NOT TO SCALE

SOUTHEAST CULVERT, INC.

REV	DATE	DESCRIPTION
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.	.	.

CUSTOMER: .
PROJECT: .
LOCATION: .
MATERIAL: .
QUANTITY: .
DWG: .
SCALE: N/A
SHT: SHTS: A

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE
- 25 YEAR HGL

CITY OF VILLA RICA 18 "CITY OF GOLD" 26 GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

STORM SEWER PROFILES

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C7.52
SHEET

J:\2021\21217\00\Dp_Plansheets\C7.50 - STORM PROFILES - 21217.00.dwg - CHarrison - 9/10/2024 1:53 PM

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25 YEAR PIPE CHART

InletType	InletID	DrainageArea	FlowRate	RunoffCoeff	IncrQ	InvertDn	InvertUp	LineSlope	LineLength	LineSize	LineType	n-valuePipe	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	iSys	Tc	VelDn	VelUp	VelAve	QCarryover	QCaptured	QBypass	GutterSpread	InletDepth	CapacityFull
		(ac)	(cfs)	(C)	(cfs)	(ft)	(ft)	(%)	(ft)	(in)			(ft)	(ft)	(ft)	(ft)	(in/hr)	(min)	(ft/s)	(ft/s)	(ft/s)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(cfs)
JB	1.1	0	16.33	0	0	1094.07	1094.21	1	14.033	30	HDPE	0.012	1096.66	1101.01	1099.65	1099.67	6.96	10.1	3.33	3.33	3.33	....	....	....	....	....	44.38
CI	1.2	0.33	16.48	0.71	2.16	1094.79	1099.92	12	42.745	30	HDPE	0.012	1101.01	1116.07	1099.71	1101.29 j	7.02	9.9	3.36	5.98	4.67	0	1.41	0.74	7.02	0.4	153.92
DWCB	1.3	0.51	10.36	0.75	3.52	1100.42	1105.78	10	53.604	24	HDPE	0.012	1116.07	1114.79	1101.29	1106.93	7.1	9.7	7.89	5.53	6.71	0.92	4.44	0	12.36	0.5	77.48
SWCB	1.4	0.49	7.85	0.75	3.38	1106.25	1112.21	3.5	170.37	18	HDPE	0.012	1114.79	1118.06	1106.93	1113.29	7.29	9.1	10.05	5.74	7.89	0	3.2	0.18	8.5	0.43	21.28
SWCB	1.5	0.31	2.59	0.71	2.02	1112.21	1115.46	2.01	162.052	18	HDPE	0.012	1118.06	1121.38	1113.29	1116.07 j	7.92	7.5	1.89	3.84	2.87	0	2.02	0	6.53	0.39	16.11
SWCB	1.6	0.15	0.98	0.71	0.98	1115.46	1117.92	3	82.077	18	HDPE	0.012	1121.38	1126.19	1116.07	1118.29 j	9.2	5	1.45	2.9	2.18	0	0.98	0	4.51	0.35	19.7
SWCB	2.1	0.28	22.24	0.71	1.83	1100.02	1101.83	4	45.215	30	HDPE	0.012	1102.61	1115.22	1107.41	1107.52	7.03	9.9	4.53	4.53	4.53	0	1.83	0	6.84	0.39	88.89
DWCB	2.2	0.16	21.14	0.75	1.1	1101.9	1105.24	4.01	83.389	30	HDPE	0.012	1115.22	1113.55	1107.96	1108.15	7.13	9.6	4.31	4.31	4.31	0	1.1	0	4.88	0.35	88.92
DWCB	2.3	0.16	16.57	0.75	1.1	1105.74	1106.07	1	33.028	24	HDPE	0.012	1113.55	1114.19	1108.65	1108.8	7.16	9.5	5.27	5.27	5.27	0	1.1	0	4.88	0.35	24.49
SWCB	2.4	0.19	15.77	0.79	1.38	1106.15	1108.45	7.99	28.768	24	HDPE	0.012	1114.19	1115.62	1109.29	1109.88 j	7.19	9.4	5.02	6.56	5.79	0	1.38	0	4.9	0.35	69.28
SWCB	2.5	0.13	14.86	0.75	0.9	1108.45	1114.12	7.99	70.93	24	HDPE	0.012	1115.62	1119.2	1109.88	1115.51 j	7.27	9.1	6.18	6.39	6.28	0	0.9	0	3.27	0.32	69.28
SWCB	2.6	0.29	2	0.75	2	1114.73	1118.48	3	124.901	18	HDPE	0.012	1119.2	1125.41	1115.51	1119.01 j	9.2	5	2.16	3.56	2.86	0	2	0	6.7	0.39	19.71
SWCB	3.1	0.29	15.13	0.71	1.89	1100	1100.35	0.5	69.921	30	HDPE	0.012	1102.58	1114.17	1107.41	1107.49	6.87	10.4	3.08	3.08	3.08	0	1.89	0	7	0.4	31.43
JB	3.2	0	13.96	0	0	1100.34	1100.71	0.49	75.12	30	HDPE	0.012	1114.17	1114.71	1107.57	1107.64	6.99	10	2.85	2.84	2.84	....	....	....	....	....	31.18
DWCB	3.3	0.19	14.41	0.71	1.24	1100.7	1101.36	0.5	132.409	30	HDPE	0.012	1114.71	1114	1107.75	1107.88	7.21	9.3	2.94	2.94	2.94	0	1.24	0	5.28	0.36	31.37
DWCB	3.4	0.16	6.6	0.71	1.05	1102.5	1103.44	3.02	31.099	24	HDPE	0.012	1114	1112.75	1108.09	1108.11	7.29	9.1	2.1	2.1	2.1	0	1.05	0	4.71	0.35	42.6
DWCB	3.5	0.24	6.01	0.67	1.48	1103.94	1107.65	2	185.524	18	HDPE	0.012	1112.75	1112.18	1108.2	1108.69	7.58	8.3	3.4	4.6	4	0	1.48	0	5.94	0.38	16.09
CI	3.6	0.13	4.83	0.75	0.9	1107.65	1107.79	0.5	28.233	18	HDPE	0.012	1112.18	1111.58	1109.18	1109.23	7.64	8.1	2.73	2.77	2.75	0	0.9	0	2.33	0.3	8.01
DWCB	3.7	0.6	4.13	0.71	3.92	1107.75	1108.34	1.5	39.29	18	HDPE	0.012	1111.58	1114.41	1109.29	1109.24	7.74	7.9	2.34	3.75	3.04	0	3.92	0	11.37	0.48	13.94
DI	3.8	0.23	0.99	0.47	0.99	1108.34	1112.26	4	98.039	18	HDPE	0.012	1114.41	1116.83	1109.51	1112.63 j	9.2	5	0.67	2.92	1.8	0	0.99	0	5.8	0.22	22.75
DWCB	4.1	0.92	6.01	0.71	6.01	1100.75	1107.95	8	89.981	18	HDPE	0.012	1116.07	1116.09	1101.29	1108.9	9.2	5	10.47	5.12	7.8	0.41	6.42	0	15.8	0.57	32.18
SWCB	5.1	0.54	3.53	0.71	3.53	1112.21	1114.27	2.51	82.145	18	HDPE	0.012	1118.06	1122.3	1113.29	1114.99 j	9.2	5	2.58	4.24	3.41	0	3.12	0.41	7.64	0.41	18.02
JB	6.1	0	4.03	0	0	1120.84	1121.75	1	90.596	18	HDPE	0.012	1126.16	1128.7	1121.46	1122.52	7.74	7.9	5.89	4.43	5.16	....	....	....	....	....	11.4
WI	6.2	0.45	4.16	0.41	1.7	1121.75	1122.68	1	93.43	18	HDPE	0.012	1128.7	1127.52	1122.52	1123.46	7.99	7.3	4.57	4.48	4.52	0	1.7	0	1.08	0.11	11.35
WI	6.3	0.43	1.62	0.41	1.62	1122.68	1123.96	1	127.558	18	HDPE	0.012	1127.52	1127.59	1123.46	1124.44 j	9.2	5	1.75	3.35	2.55	0	1.62	0	1.04	0.1	11.4
SWCB	7.1	0.22	4.43	0.71	1.44	1106.24	1109.8	2.5	142.271	24	HDPE	0.012	1113.55	1118.5	1108.65	1110.54 j	8.33	6.6	1.41	4.2	2.81	0	1.44	0	5.05	0.36	38.76
SWCB	7.2	0.34	2.22	0.71	2.22	1110.38	1118.36	8	99.788	18	HDPE	0.012	1118.5	1122.91	1110.65	1118.92	9.2	5	10.43	3.67	7.05	0	2.22	0	7.78	0.41	32.17
SWCB	8.1	0.19	1.24	0.71	1.24	1110.28	1112.96	4	67.064	18	HDPE	0.012	1118.5	1118.5	1110.54	1113.38	9.2	5	6.08	3.1	4.59	0	1.24	0	4.88	0.35	22.74
SWCB	9.1	0.26	12.78	0.71	1.7	1114.44	1115.78	1.5	89.315	24	HDPE	0.012	1119.2	1121.87	1115.51	1117.07	7.4	8.8	7.48	5.99	6.74	0	1.7	0	7.76	0.41	30.01
DWCB	9.2	0.33	3.53	0.71	2.16	1116.31	1116.84	0.51	104.781	18	HDPE	0.012	1121.87	1124.04	1117.07	1117.56 j	8.03	7.2	3.97	4.24	4.1	0	2.16	0	7.1	0.4	8.09
SWCB	9.3	0.29	1.89	0.71	1.89	1116.82	1117.54	0.5	143.229	18	HDPE	0.012	1124.04	1122.38	1117.56	1118.06 j	9.2	5	2.19	3.5	2.85	0	1.89	0	7	0.4	8.07
DWCB	10.1	0.28	8.27	0.71	1.83	1116.36	1119.79	4	85.775	18	HDPE	0.012	1121.87	1126.16	1117.07	1120.9	7.5	8.5	10.14	5.88	8.01	0	1.83	0	6.84	0.39	22.75
DWCB	10.2	0.2	3.3	0.71	1.31	1119.81	1120.44	1	62.924	18	HDPE	0.012	1126.16	1126.12	1120.9	1121.13 j	8.62	6	2.4	4.15	3.27	0	1.31	0	5.46	0.37	11.38
DWCB	10.3	0.34	2.22	0.71	2.22	1120.44	1121.2	0.99	76.459	18	HDPE	0.012	1126.12	1125.9	1121.13	1121.76 j	9.2	5	2.79	3.67	3.23	0	2.22	0	7.78	0.41	11.34
SWCB	11.2	0.33	7.54	0.71	2.16	1102.82	1106.17	9.99	33.536	24	HDPE	0.012	1114	1114.72	1108.09	1108.11	7.88	7.6	2.4	2.42	2.41	0	2.16	0	7.63	0.41	77.44
SWCB	11.3	0.3	5.91	0.75	2.07	1106.17	1109.42	4.01	81.041	24	HDPE	0.012	1114.72	1116.36	1108.21	1110.28 j	8.19	6.9	1.88	4.58	3.23	0	2.07	0	6.41	0.38	49.07
SWCB	11.4	0.32	4.11	0.75	2.21	1109.42	1109.56	0.95	14.807	24	HDPE	0.012	1116.36	1116.4	1110.28	1110.27 j	8.27	6.7	3.19	4.11	3.65	0	2.21	0	7.75	0.41	23.83
WI	11.5	0.66	2.37	0.39	2.37	1110.06	1111.44	1	137.379	18	HDPE	0.012	1116.4	1115.04	1110.52	1112.02	9.2	5	5.09	3.74	4.41	0	2.37	0	1.34	0.13	11.4
WI	12.1	0.34	1.47	0.47	1.47	1122.86	1123.87	1	100.878	18	HDPE	0.012	1127.52	1127.53	1123.46	1124.32 j	9.2	5	2.22	3.25	2.74	0	1.47	0	0.98	0.1	11.38
SWCB	13.1	0.2	12.47	0.39	0.72	1100.58	1101.04	1	46.151	30	HDPE	0.012	1103.66	1110.3	1101.49	1102.23	6.8	10.6	7.76	5.44	6.6	0	0.72	0	3.66	0.33	44.36
WI	13.2	0.33	12.2	0.39	1.18	1101.62	1106.68	4	126.502	30	HDPE	0.012	1110.3	1112.44	1102.25	1107.85	7.05	9.8	12.69	5.41	9.05	0	1.18	0	0.85	0.08	88.86
JB	13.3	0	11.38	0	0	1106.68	1107.14	1.01	45.688	30	HDPE	0.012	1112.44	1113.25	1107.85	1108.27 j	7.15	9.5	5.04	5.29	5.17	....	....	....	....	....	44.58
SWCB	13.4	0.14	9.42	0.35	0.45	1108.44	1108.89	1.01	44.463	18	HDPE	0.012	1113.25	1114.23	1109.48	1110.08	7.2	9.4	7.23	6.29	6.76	0	0.45	0	3.47	0.33	11.45
SWCB	13.5	0.26	9.19	0.35	0.84	1109.59	1110.27	0.99	68.381	18	HDPE	0.012	1117.14	1119.42	1110.76	1111.44	7.34	9	6.23	6.21	6.22	0	0.84	0	3.28	0.32	11.35
DI	13.6	1.93	8.58	0.39	6.92	1110.27	1110.89	1.01	61.443	18	HDPE	0.012	1119.42	1115.5	1111.44	1112.02 j	7.41	8.8	5.79	5.99	5.89	0	6.92	0	71.48	3.5	11.43
JB	13.7	0	3	0	0	1110.89	1120.03	5.5	166.196	18	HDPE	0.012	1115.5	1133.39	1112.02	1120.69 j	0	7.1	2.09	4.02	3.06	....	....	....	....	....	26.68
OCS	14.1	0	21.52	0	21.52	1092.19	1092.42	0.5	46.344	36	RCP	0.013	1095.53	1102	1093.62	1093.91	0	5	6.5	6.14	6.32	....	....	....	....	....	46.99
OCS	16.1	0	22.64	0	22.64	1100	1100.25	0.47	53.114	30	RCP	0.013	1102.79	1109.1	1101.7	1101.95	0	5	6.37	6.37	6.37	....	....	....	....	....	28.14
HW	17.1	0	30	0	30	1103.23	1105.1	3.27	57.264	48	RCP	0.013	1108.84	1110.39	1104.15	1106.72	0	5	13.77	6.27	10.02	0	30	0	....	....	259.58

10 YEAR GUTTER SPREAD

InletType	InletID	DrainageArea	InletTime	iInlet	RunoffCoeff	IncrQ	QCarryover	QCaptured	QBypass	CurbLength	CurbLength	GutterWidth	CrossSlope, Sx	LocalDepr	InletDepth	GutterDepth	GutterSpread
		(ac)	(min)	(in/hr)	(C)	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft/ft)	(in)	(ft)	(ft)	(ft)
CI	1.2	0.33	5	7.87	0.71	1.84	0	1.27	0.57	3	3	1.5	0.02	2	0.39	0.22	6.52
DWCB	1.3	0.51	5	7.87	0.75	3.01	0.63	3.64	0	13	13	1.5	0.02	2	0.47	0.31	10.82
SWCB	1.4	0.49	5	7.87	0.75	2.89	0	2.83	0.06	13	13	1.5	0.02	2	0.42	0.25	7.93
SWCB	1.5	0.31	5	7.87	0.71	1.73	0	1.73	0	13	13	1.5	0.02	2	0.38	0.21	6.05
SWCB	1.6	0.15	5	7.87	0.71	0.84	0	0.84	0	13	13	1.5	0.02	2	0.34	0.17	4.1
SWCB	2.1	0.28	5	7.87	0.71	1.56	0	1.56	0	13	13	1.5	0.02	2	0.38	0.21	6.16
DWCB	2.2	0.16	5	7.87	0.75	0.94	0	0.94	0	13	13	1.5	0.02	2	0.34	0.18	4.4
DWCB	2.3	0.16	5	7.87	0.75	0.94	0	0.94	0	13	13	1.5	0.02	2	0.34	0.18	4.4
SWCB	2.4	0.19	5	7.87	0.79	1.18	0	1.18	0	13	13	1.5	0.02	2	0.35	0.18	4.49
SWCB	2.5	0.13	5	7.87	0.75	0.77	0	0.77	0	13	13	1.5	0.02	2	0.31	0.15	2.89
SWCB	2.6	0.29	5	7.87	0.75	1.71	0	1.71	0	13	13	1.5	0.02	2	0.38	0.21	6.21
SWCB	3.1	0.29	5	7.87	0.71	1.62	0	1.62	0	13	13	1.5	0.02	2	0.38	0.22	6.31
DWCB	3.3	0.19	5	7.87	0.71	1.06	0	1.06	0	13	13	1.5	0.02	2	0.35	0.19	4.76
DWCB	3.4	0.16	5	7.87	0.71	0.89	0	0.89	0	13	13	1.5	0.02	2	0.34	0.17	4.24
DWCB	3.5	0.24	5	7.87	0.67	1.27	0	1.27	0	13	13	1.5	0.02	2	0.36	0.2	5.35
CI	3.6	0.13	5	7.87	0.75	0.77	0	0.77	0	3	3	1.5	0.02	2	0.29	0.12	1.68
DWCB	3.7	0.6	5	7.87	0.71	3.35	0	3.35	0	13	13	1.5	0.02	2	0.46	0.29	10.24
DWCB	4.1	0.92	5	7.87	0.71	5.14	0.22	5.36	0	13	13	1.5	0.02	2	0.54	0.37	14
SWCB	5.1	0.54	5	7.87	0.71	3.02	0	2.8	0.22	13	13	1.5	0.02	2	0.4	0.23	7.11
SWCB	7.1	0.22	5	7.87	0.71	1.23	0	1.23	0	13	13	1.5	0.02	2	0.35	0.18	4.63
SWCB	7.2	0.34	5	7.87	0.71	1.9	0	1.9	0	13	13	1.5	0.02	2	0.4	0.23	7.01
SWCB	8.1	0.19	5	7.87	0.71	1.06	0	1.06	0	13	13	1.5	0.02	2	0.35	0.18	4.46
SWCB	9.1	0.26	5	7.87	0.71	1.45	0	1.45	0	13	13	1.5	0.02	2	0.4	0.23	7.23
DWCB	9.2	0.33	5	7.87	0.71	1.84	0	1.84	0	13	13	1.5	0.02	2	0.39	0.22	6.6
SWCB	9.3	0.29	5	7.87	0.71	1.62	0	1.62	0	13	13	1.5	0.02	2	0.38	0.22	6.31
DWCB	10.1	0.28	5	7.87	0.71	1.56	0	1.56	0	13	13	1.5	0.02	2	0.38	0.21	6.16
DWCB	10.2	0.2	5	7.87	0.71	1.12	0	1.12	0	13	13	1.5	0.02	2	0.36	0.19	4.92
DWCB	10.3	0.34	5	7.87	0.71	1.9	0	1.9	0	13	13	1.5	0.02	2	0.4	0.23	7.01
SWCB	11.2	0.33	5	7.87	0.71	1.84	0	1.84	0	13	13	1.5	0.02	2	0.39	0.23	6.87
SWCB	11.3	0.3	5	7.87	0.75	1.77	0	1.77	0	13	13	1.5	0.02	2	0.38	0.21	5.94
SWCB	11.4	0.32	5	7.87	0.75	1.89	0	1.89	0	13	13	1.5	0.02	2	0.4	0.23	6.99
SWCB	13.1	0.2	5	7.87	0.39	0.61	0	0.61	0	13	13	1.5	0.02	2	0.32	0.16	3.3
SWCB	13.4	0.14	5	7.87	0.35	0.39	0	0.39	0	13	13	1.5	0.02	2	0.32	0.15	3.08
SWCB	13.5	0.26	5	7.87	0.35	0.72	0	0.72	0	13	13	1.5	0.02	2	0.31	0.15	2.9

100 YEAR PONDING ELEVATION

InletType	InletID	Grnd/RimElev Up	InletDepth	100 YEAR PONDING
		(ft)	(ft)	
CI	1.2	1116.07	0.41	1116.48
DWCB	1.3	1114.79	0.55	1114.84
DWCB	2.2	1113.55	0.37	1113.42
DWCB	2.3	1114.19	0.37	1114.06
DWCB	3.3	1114	0.38	1113.88
DWCB	3.4	1112.75	0.36	1112.61
DWCB	3.5	1112.18	0.39	1112.07
CI	3.6	1111.58	0.32	1111.9
DWCB	3.7	1114.41	0.52	1114.43
DI	3.8	1116.83	0.25	1117.08
DWCB	4.1	1116.09	0.63	1116.22
WI	6.2	1127.52	0.12	1127.64
WI	6.3	1127.59	0.12	1127.71
SWCB	9.1	1121.87	0.43	1122.3
DWCB	9.2	1124.04	0.41	1123.95
SWCB	9.3	1122.38	0.42	1122.8
DWCB	10.1	1126.16	0.41	1126.07
DWCB	10.2	1126.12	0.38	1126
DWCB	10.3	1125.9	0.43	1125.83
WI	11.5	1115.04	0.15	1115.19
WI	12.1	1127.53	0.11	1127.64
SWCB	13.1	1110.3	0.34	1110.64
WI	13.2	1112.44	0.1	1112.54
DI	13.6	1115.5	5.24	1120.74

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLD" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

PIPE CHARTS

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C7.53
SHEET

J:\2021\21217\00\Dsj_Plansheets\C7.50 - STORM PROFILES - 21217.00.dwg - CHamson - 9/10/2024 1:53 PM

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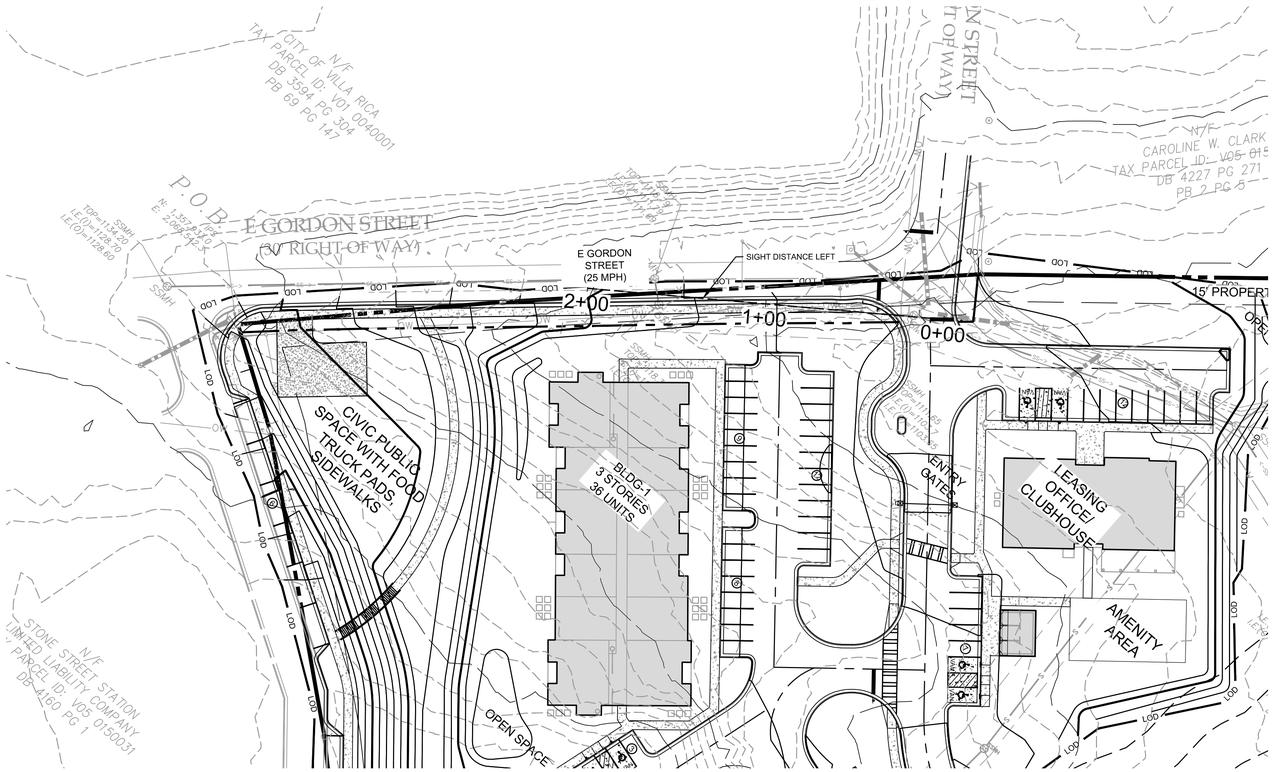

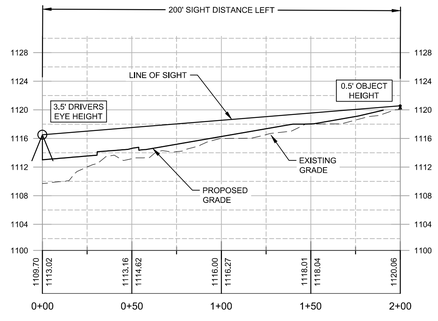

E GORDON STREET SIGHT DISTANCE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

SIGHT DISTANCE NOTES:

1. SPEED LIMIT ON E GORDON STREET IS 25 MPH
2. ALL SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", (LATEST EDITION) AND ANY APPLICABLE CITY OF VILLA RICA, GEORGIA STANDARDS.
3. ALL PAVEMENT MARKINGS WITHIN THE RIGHT OF WAY SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED.
4. ALL TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED BY THE CONTRACTOR SO AS NOT TO INTERFERE WITH SIGHT DISTANCE ALONG ANY ADJACENT SIDE ROAD OR DRIVEWAY.
5. THE CONTRACTOR SHALL MAINTAIN INGRESS AND EGRESS TO DRIVEWAYS AT ALL TIMES.
6. SIGHT DISTANCES WERE TAKEN FROM THE CITY OF VILLA RICA'S SIGHT DISTANCE CONSTRUCTION STANDARDS.

SIGHT DISTANCE CERTIFICATION:

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THE PROPOSED ENTRANCE/EXIT ONTO STONE STREET IS DESIGNED WITH ADEQUATE SIGHT DISTANCE. THE POSTED SPEED LIMIT OF E GORDON IS 25 MPH. THE SIGHT DISTANCE IS 200' SDL AS REQUIRED BY THE CITY OF VILLA RICA, SIGHT DISTANCE IS MEASURED ALONG THE PATH OF TRAVEL AT A HEIGHT OF 3.5' ABOVE THE SURFACE OF THE ROADWAY, TO AN OBJECT ON THE CENTERLINE OF THE ROAD 0.5' ABOVE THE SURFACE OF THE ROADWAY.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENZIE 9/6/24

CITY OF VILLA RICA "CITY OF GOLD" GEORGIA 18 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

GEORGIA811 www.Georgia811.com Know what's below. Call before you dig.

24-HOUR CONTACT:
BRYAN FLINT
404.867.3572

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PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENZIE 9/6/24

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

SIGHT DISTANCE PROFILES

0 20 40 80 120

SCALE: 1" = 40'
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C8.00
SHEET

J:\2021\21217.00\Dgn_Planset\sht\C8.00 - SIGHT DISTANCE PROFILES - 21217.00.dwg - babolakunmi - 9/10/2024 1:54 PM

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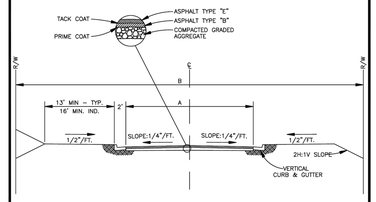


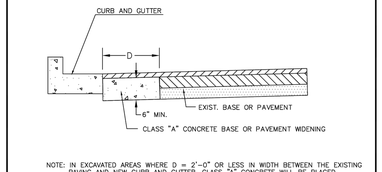
NOTE:
13' OF CLEARED R/W SHALL BE DEDICATED BEHIND ACCEL./DECEL. LANES ALSO EXCEPT INDUSTRIAL SHALL BE 16'

NOTE:
R/W SHALL BE CLEAR OF ALL LIMBS, GRADED SMOOTH AND ESTABLISHED IN GRASS.

STREET CLASSIFICATION	MIN. PAVING WIDTH "A"	MIN. R/W WIDTH "B"	GAB	TYPE B	TYPE E–F
ARTERIAL	AS REQ'D	100'	10"	4"	2"
INDUSTRIAL	24'	60'	8"	3"	1–1/2"
MAJOR COLLECTOR	22'	80'	8"	3"	1–1/2"
MINOR COLLECTOR	22'	60'	8"	3"	1–1/2"
LOCAL	20'	50'	6"	2"	1–1/2"
ALLEY	12'	20'	6"	–	2"

TYPICAL STREET CROSS SECTION

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	TYPICAL STREET CROSS SECTION CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.01



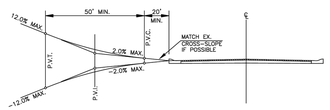
NOTE: IN EXCAVATED AREAS WHERE D = 2'-0" OR LESS IN WIDTH BETWEEN THE EXISTING PAVING AND NEW CURB AND GUTTER, CLASS "A" CONCRETE WILL BE PLACED IN LIEU OF THE BASE AND PAVING SPECIFIED BY THE TYPICAL SECTION.

IN EXCAVATED AREAS FROM WHERE D IS FROM 2'-0" TO 5'-0" IN WIDTH THE DEVELOPER MAY PLACE CLASS "A" CONCRETE IN LIEU OF THE BASE AND PAVING

IN EXCAVATED AREAS WHERE D IS GREATER THAN 5'-0" IN WIDTH THE DEVELOPER SHALL PLACE BASE AND PAVING AS SPECIFIED ON THE TYPICAL SECTION.

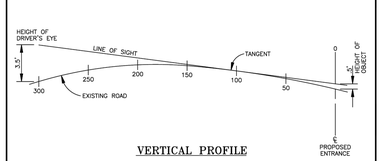
CLASS "A" CONCRETE IS AS DEFINED BY THE GEORGIA DOT.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	PAVEMENT WIDENING CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.04



LANDING REQUIREMENTS

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	LANDING REQUIREMENT (FOR STREET INTERSECTIONS) CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.05



VERTICAL PROFILE

VERTICAL ALIGNMENT:

THE SIGHT DISTANCE AT DEVELOPMENT ENTRANCES NEAR CREST VERTICAL CURVES IS DETERMINED BY THE LINE OF SIGHT AVAILABLE FROM THE DRIVER'S EYE 3.5 FEET ABOVE THE PAVEMENT TO AN OBJECT 6 INCHES HIGH AT THE CENTERLINE OF THE ENTRANCE. THE SIGHT DISTANCE IS MEASURED ALONG THE ROADWAY.

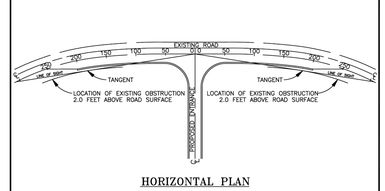
SPEED LIMIT (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT.)
25	200
30	200
35	250
40	300
45	400
50	475
55	550

< 40 M.P.H. $LVC = \frac{AS^2}{1329}$

LVC = LENGTH OF VERTICAL CURVE
S = SIGHT DISTANCE
A = ALGEBRAIC DIFFERENCE OF INTERSECTING GRADES

> 40 M.P.H. $LVC = \frac{2S - 1329}{A}$

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	SIGHT DISTANCE CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.06



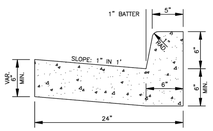
HORIZONTAL PLAN

HORIZONTAL SIGHT DISTANCE:

THE SIGHT DISTANCE AT DEVELOPMENT ENTRANCES IS DETERMINED BY THE LINE OF SIGHT AVAILABLE 2.0 FEET ABOVE THE ROAD SURFACE. THE SIGHT DISTANCE IS MEASURED ALONG THE EXISTING EDGE OF PAVEMENT BEGINNING AT THE CENTERLINE OF THE PROPOSED ENTRANCE AND ENDING WHERE THE PROJECTED LINE OF SIGHT INTERSECTS THE PAVEMENT. THE LINE OF SIGHT IS THE PROJECTED LINE OF VISIBILITY BEGINNING AT THE ENTRANCE CENTERLINE AND TANGENT TO AN OBSTRUCTION 2.0 FEET ABOVE THE ROAD SURFACE. EXAMPLES OF OBSTRUCTIONS ARE VEGETATION, GROUND COVER, SIGNS, EXISTING TOPOGRAPHY, ETC.

SPEED LIMIT (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT.)
25	160
30	200
35	250
40	325
45	400
50	475
55	550

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	DEVELOPMENT ENTRANCE–SIGHT DISTANCE CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.07

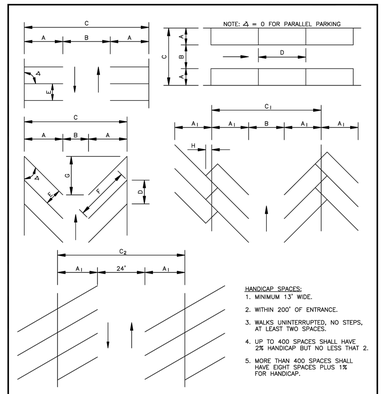


VERTICAL CURB

NOTE:

1. VERTICAL CURB SHALL COMPLY WITH GEORGIA STANDARD 9032B, 6" x 24", TYPE 2.
2. 1/2" PREFORMED EXPANSION JOINTS WILL BE REQUIRED AT TANGENT POINTS OF RADIUS RETURNS, AT DRIVEWAYS, AND STREET INTERSECTIONS AND AT 40' INTERVALS ALONG THE CURB.

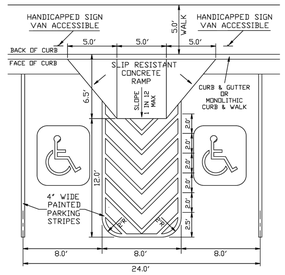
CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	CURB DETAIL CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.09



HANDICAP SPACES:
1. MINIMUM 13' WIDE.
2. WITHIN 200' OF ENTRANCE.
3. WALKS UNINTERRUPTED, NO STEPS, AT LEAST TWO SPACES.
4. UP TO 400 SPACES SHALL HAVE 2% HANDICAP BUT NO LESS THAT 2.
5. MORE THAN 400 SPACES SHALL HAVE EIGHT SPACES PLUS 1% FOR HANDICAP.

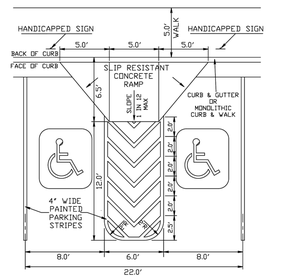
A ANGLE OF PARKING	A DEPTH OF STALL	B AISLE WIDTH	A+B WIDTH OF BAY	C CURB LENGTH	D WIDTH OF STALL	E LENGTH OF STRIPE	F WASTE SPACE	G DEPTH OF OVERHANG	H DEPTH OF STALL	A_1 WIDTH OF AREA	C_2 WIDTH OF AREA
0°	9.0	12.0	21.0	30.0	22.0	----	----	----	----	----	42.0
45°	19.1	13.0	32.1	51.2	12.7	9.0	27.0	19.1	3.2	15.9	44.8	55.8
60°	20.1	18.0	38.1	58.2	10.4	9.0	23.2	11.6	2.3	17.8	53.6	59.6
90°	18.0	24.0	42.0	60.0	9.0	9.0	----	----	----	----	----	60.0

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	OFFSTREET PARKING CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.10a



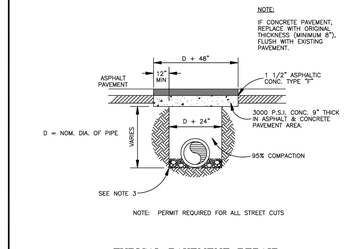
HANDICAPPED RAMP AND VAN ACCESSIBLE HANDICAPPED PARKING

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	OFFSTREET PARKING CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.10b



HANDICAPPED RAMP AND NON-VAN HANDICAPPED PARKING

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	OFFSTREET PARKING CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.10c



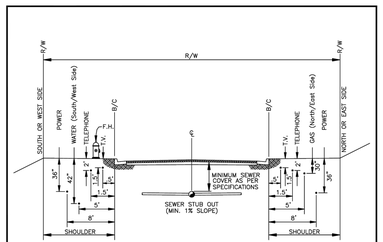
NOTE: PERMIT REQUIRED FOR ALL STREET CUTS

TYPICAL PAVEMENT REPAIR

NOTES:

1. PERMISSION MUST BE OBTAINED TO OPEN CUT EXISTING ROADS.
2. ROADWAYS WILL GENERALLY BE BORED OR TUNNELED FROM DITCH LINE TO DITCH LINE.
3. BED AS PER APPLICABLE UTILITY SPECIFICATION.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	TYPICAL STREET CUT REPAIR CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.11

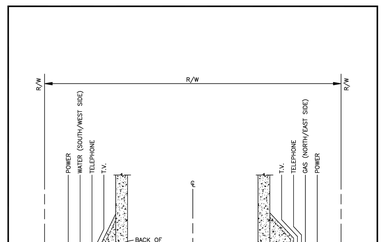


CROSS SECTION

NOTES:

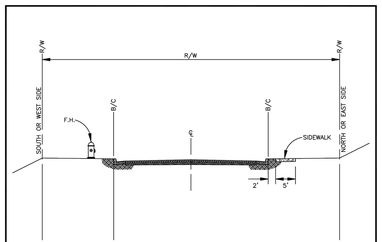
1. THE REQUIRED DISTANCES FROM THE CURBS WILL APPLY TO UNDERGROUND UTILITIES.
2. THE REQUIRED LOCATION OF UTILITIES SHALL BE MEASURED FROM THE BACK OF THE CURB. CURB & GUTTER MUST BE INSTALLED AFTER SEWER BUT BEFORE ANY OTHER UTILITIES ARE INSTALLED.
3. PEDESTALS FOR TELEPHONE AND CABLE INSTALLATIONS TO BE LOCATED 6.5 FT. FROM BACK OF CURB. IF JOINT TRENCHING WITH POWER, PEDESTALS ARE TO BE LOCATED IN DESIGNATED SPACE FOR POWER.
4. FIRE HYDRANTS ON ROAD THRUWAYS ARE TO BE LOCATED A MINIMUM OF 5 FT. FROM BACK OF CURB. FIRE HYDRANTS ON CUL-DE-SACS ARE TO BE LOCATED A MAXIMUM OF 8 FT. FROM BACK OF CURB.
5. ELECTRICAL TRANSFORMERS ARE TO BE LOCATED IN LINE WITH DESIGNATED SPACE FOR POWER. STREET LIGHTS ARE TO BE LOCATED 7.5' FROM BACK OF CURB.
6. REAR OF WATER METER TO BE AT PROPERTY LINE.
7. SEWER SERVICE STUB TO EXTEND 5 FT. ONTO PROPERTY.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	NOMINAL UTILITY LOCATIONS 50' R/W CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.12



PLAN

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	UTILITY LOCATIONS CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.13

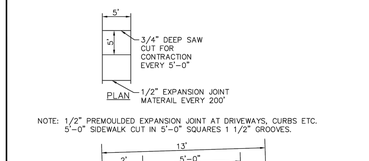


CROSS SECTION

NOTES:

1. SIDEWALKS NORMALY TO BE LOCATED ON THE NORTH OR EAST SIDE OF STREET.
2. IN CASES WHERE STREET CONFIGURATION REQUIRES SIDEWALK TO BE LOCATED ON THE SOUTH OR WEST SIDE OF STREET, FIRE HYDRANTS MUST BE LOCATED BEHIND SIDEWALK LOCATION.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	SIDEWALK LOCATION CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.14

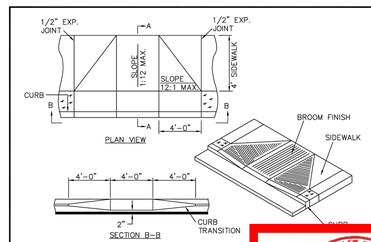


NOTE: 1/2" PREMOULDED EXPANSION JOINT AT DRIVEWAYS, CURBS ETC. 5'-0" SIDEWALK CUT IN 5'-0" SQUARES 1 1/2" GROOVES.

TYPICAL SECTION OF 5'-0" SIDEWALK

NOTE: SIDEWALK TO BE CONSTRUCTED OF CLASS "A" CONCRETE AS DEFINED BY THE GEORGIA DOT.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	SIDEWALK CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.15



NOTES:
1. THE LOCATION OF CROSSWALK LINES & STOP BARS, WHEN REQUIRED, WILL BE COORDINATED WITH THE LOCATION OF THE RAMPS.
2. RAMPS WILL BE CONSTRUCTED OF CLASS "A" CONCRETE AS DEFINED BY THE GEORGIA DOT AND SHALL INCLUDE FIBER REINFORCEMENT.

CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.16

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

P: (770) 451-2741 F: (770) 451-3915
WWW.PEC.PLUS
Planners & Engineers Collaborative+
LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

CONSTRUCTION DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.00
SHEET

J:\2021\21217.00\Dv_Plan\sheet\C9.00 - CONSTRUCTION DETAILS - 21217.00.dwg - Chairmon - 9/10/2024 1:54 PM

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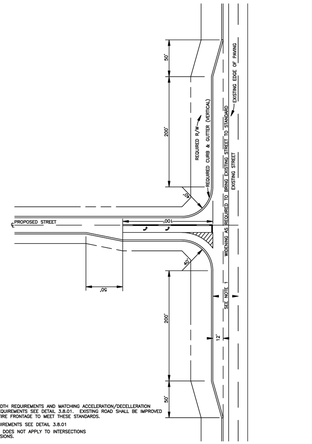
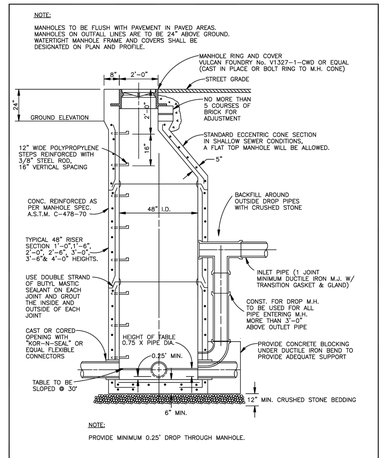


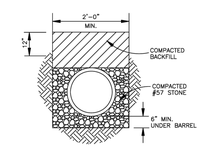
CITY OF VILLA RICA DEPARTMENT OF PUBLIC WORKS	ENTRANCE (RESIDENTIAL SUBDIVISION) (OVER 200 LOTS) CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 3.8.20

NOTE:
MANHOLES TO BE FLUSH WITH PAVEMENT IN PAVED AREAS. MANHOLES ON GUTFALL LINES ARE TO BE 24" ABOVE GROUND. WATERTIGHT MANHOLE FRAME AND COVERS SHALL BE DESIGNATED ON PLAN AND PROFILE.

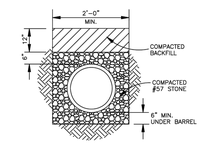


NOTE:
PROVIDE MINIMUM 0.25" DROP THROUGH MANHOLE.

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	PRECAST CONCRETE MANHOLE CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.01

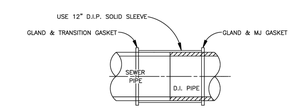


STANDARD D.I.P. PIPE BEDDING DETAIL
FULL RUNS (MH TO MH) ONLY



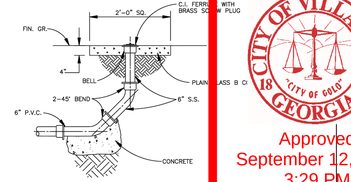
STANDARD P.V.C. PIPE BEDDING DETAIL

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	STANDARD PIPE BEDDING DETAIL CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.02



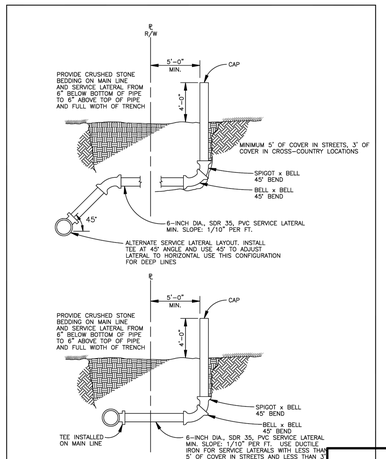
TYPICAL DETAIL
JOINING D.I. PIPE TO SEWER PIPE

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	TYPICAL PIPE ADAPTER CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.03

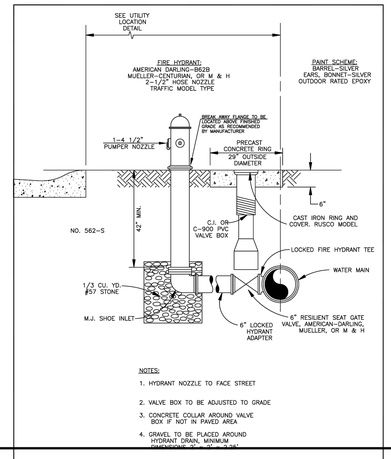


CLEANOUT DETAIL

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	CLEANOUT DETAIL (COMMERCIAL OR PAVED AREAS) CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.05

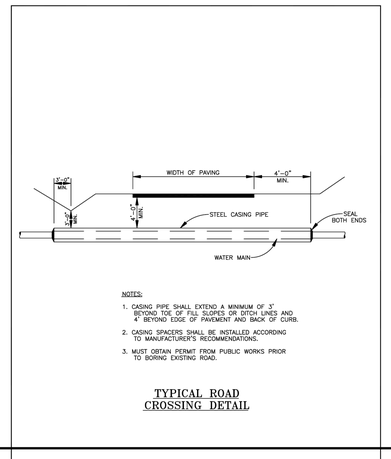


CITY OF VILLA RICA WATER & SEWER DEPARTMENT	SEWER SERVICE LATERAL STANDARD DETAIL	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.06



NOTES:
1. HYDRANT NOZZLE TO FACE STREET
2. VALVE BOX TO BE ADJUSTED TO GRADE
3. CONCRETE COLLAR AROUND VALVE BOX IF NOT IN PAVED AREA
4. GRAVEL TO BE PLACED AROUND HYDRANT DRAIN, MINIMUM DIMENSIONS 3'-0" X 3'-0"

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	TYPICAL FIRE HYDRANT INSTALLATION CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.01



NOTES:
1. CASING PIPE SHALL EXTEND A MINIMUM OF 3' BEYOND TOE OF FILL SLOPES OR DITCH LINES AND 4' BEYOND EDGE OF PAVEMENT AND BACK OF CURB.
2. CASING SPACERS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. MUST OBTAIN PERMIT FROM PUBLIC WORKS PRIOR TO BORING EXISTING ROAD.

TYPICAL ROAD CROSSING DETAIL

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	TYPICAL ROAD CROSSING CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.03

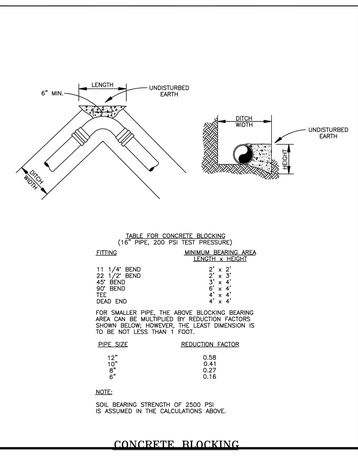


TABLE FOR CONCRETE BLOCKING
(16" PIPE, 200 PSI TEST PRESSURE)

FITTING	MINIMUM BEARING AREA LENGTH x HEIGHT
11 1/4° BEND	2' x 2'
22 1/2° BEND	2' x 3'
45° BEND	3' x 4'
90° BEND	6' x 4'
TEE	4' x 4'
DEAD END	4' x 4'

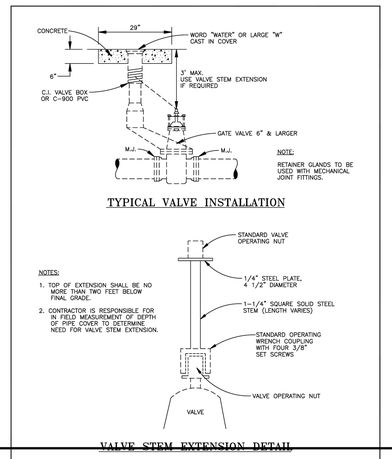
FOR SMALLER PIPE, THE ABOVE BLOCKING BEARING AREA CAN BE MULTIPLIED BY REDUCTION FACTORS SHOWN BELOW, HOWEVER, THE LEAST DIMENSION IS TO BE NOT LESS THAN 1 FOOT.

PIPE SIZE	REDUCTION FACTOR
12"	0.58
10"	0.41
8"	0.27
6"	0.16

NOTE:
SOIL BEARING STRENGTH OF 2500 PSI IS ASSUMED IN THE CALCULATIONS ABOVE.

CONCRETE BLOCKING

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	CONCRETE BLOCKING DETAIL CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.04

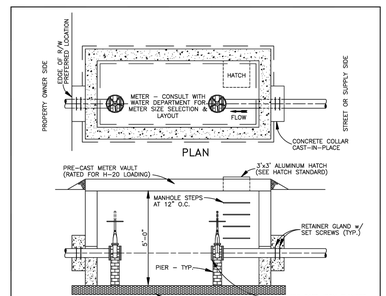


TYPICAL VALVE INSTALLATION

NOTES:
1. TOP OF EXTENSION SHALL BE NO MORE THAN TWO FEET BELOW FINAL GRADE.
2. CONTRACTOR IS RESPONSIBLE FOR IN FIELD MEASUREMENT OF DEPTH OF PIPE COVER TO DETERMINE NEED FOR VALVE STEM EXTENSION.

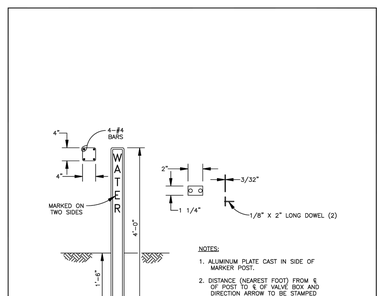
VALVE STEM EXTENSION DETAIL

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	TYPICAL VALVE INSTALLATION CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.05



NOTES:
1. BOXES EXCEEDING 5' IN DEPTH MUST BE APPROVED BY THE CITY.
2. WHEN METER BOX CANNOT BE LOCATED ENTIRELY ON R/W, A PERMANENT EASEMENT SHALL BE OBTAINED TO PREVENT FENCES OR OTHER OBSTRUCTIONS FROM BEING ERECTED AROUND THE METER BOX.
3. COVER OPENING & STEPS TO BE PLACED NEAREST THE METER REGISTER.
4. THE METER MUST BE INSTALLED WITH AT LEAST 8 DIAMETERS OF STRAIGHT PIPE SAME SIZE AS METER ON THE INLET SIDE TO PERMIT ON–SITE MAINTENANCE AND CALIBRATION.
5. THESE BOXES ARE NOT TO BE INSTALLED IN TRAFFIC AREAS WITHOUT PRIOR PERMISSION FROM THE CITY.
6. DOUBLE CHECK BACK FLOW PREVENTION REQUIRED ON PROPERTY OWNER'S SIDE OF METER. LOCATION SHALL BE APPROVED BY THE CITY.
7. ALL VALVES AND FITTINGS INSIDE THE VAULT SHALL BE FLANGED.
8. ALL FITTINGS OUTSIDE THE VAULT SHALL BE MECHANICAL JOINT WITH RETAINER GLANDS.

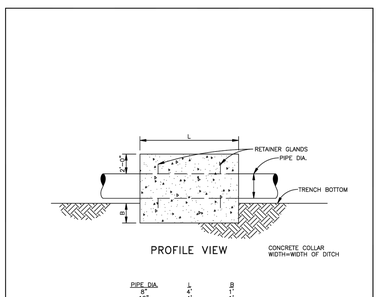
CITY OF VILLA RICA WATER & SEWER DEPARTMENT	TYPICAL LARGE METER & VAULT INSTALLATION CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.10



NOTES:
1. ALUMINUM PLATE CAST IN SIDE OF MARKER POST.
2. DISTANCE (NEAREST FOOT) FROM ℄ OF POST TO ℄ OF VALVE BOX AND DIRECTION ARROW TO BE STAMPED INTO PLATE WITH STEEL DIE AFTER MARKER IS SET.

DETAIL OF CONCRETE VALVE MARKER

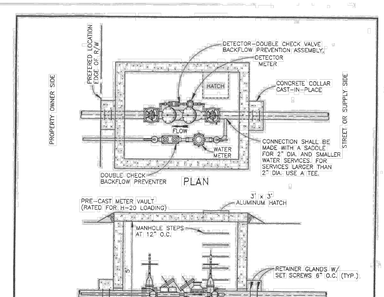
CITY OF VILLA RICA WATER & SEWER DEPARTMENT	CONCRETE VALVE MARKER CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.11



PIPE DIA.	L	B1
8"	1'	3'
10"	4'	1'
12"	5'	1'
16"	6'	2'

CONCRETE THRUST COLLAR

CITY OF VILLA RICA WATER & SEWER DEPARTMENT	CONCRETE THRUST COLLAR CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 5.8.12



NOTES:
1. BOXES EXCEEDING 5' IN DEPTH MUST BE APPROVED BY THE CITY.
2. WHEN METER BOX CANNOT BE LOCATED ENTIRELY ON R/W, A PERMANENT EASEMENT SHALL BE OBTAINED TO PREVENT FENCES OR OTHER OBSTRUCTION FROM BEING ERECTED AROUND THE METER BOX.
3. COVER OPENING & STEPS TO BE PLACED NEAREST THE METER REGISTER.
4. THESE BOXES ARE NOT TO BE INSTALLED IN TRAFFIC AREAS WITHOUT PRIOR PERMISSION FROM THE CITY.
5. ALL VALVES AND FITTINGS INSIDE THE VAULT SHALL BE FLANGED.
6. REDUCED PRESSURE PRINCIPLE (DOUBLE CHECK) (RPDA) REQUIRED WHEN THE DANGER FROM BACKFLOW PRESENTS A HEALTH HAZARD. ALL RPDAs SHALL BE INSTALLED IN VAULTS SET ABOVE THE GROUND WITH DRAINS.

CITY OF VILLA RICA, GEORGIA	DETECTOR/WATER METERS AND VAULT CONSTRUCTION STANDARD	DATE: APPROVED:	STANDARD NO. 5.8.14

P: (770) 451-2741 F: (770) 451-3915
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350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

CITY OF VILLA RICA GEORGIA 18 "CITY OF GOLF" 26

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

CONSTRUCTION DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.01
SHEET

J:\2021\21217.00\Dw_Plansheets\C9.00 - CONSTRUCTION DETAILS - 21217.00.dwg - Chairmon - 9/10/2024 1:54 PM

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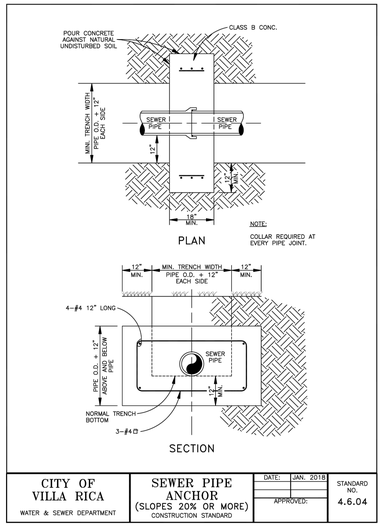
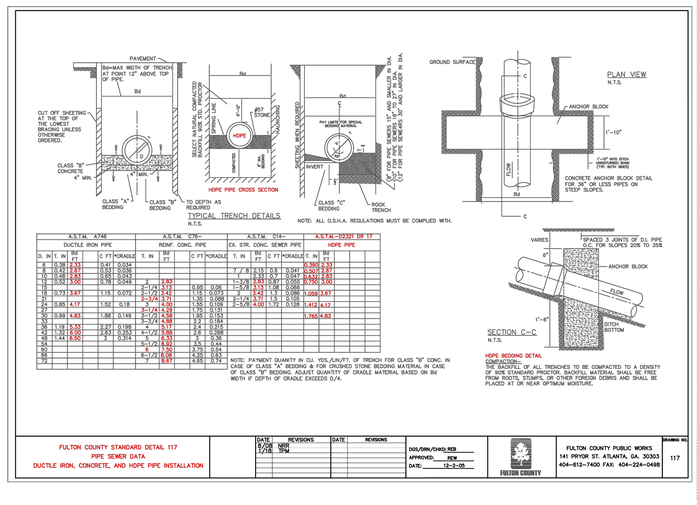


CITY OF VILLA RICA WATER & SEWER DEPARTMENT	SEWER PIPE ANCHOR (SLOPES 20% OR MORE) CONSTRUCTION STANDARD	DATE: JAN. 2018 APPROVED:	STANDARD NO. 4.6.04



A.S.T.M. A746 DUCTILE IRON PIPE					A.S.T.M. C76– RCP. CONC. PIPE					A.S.T.M. C14– EX. STR. CONC. SEWER PIPE					A.S.T.M. C443 OR 17 HDPE PIPE				
D. IN	T. IN	W FT	Q. FT	PORADE	T. IN	W FT	Q. FT	PORADE		T. IN	W FT	Q. FT	PORADE		T. IN	W FT	Q. FT	PORADE	
6	0.36	2.53	0.41	0.034											0.300	2.53			
8	0.42	2.67	0.53	0.056						7	7.8	2.13	0.6	0.041	0.350	2.67			
10	0.48	2.83	0.63	0.043						1	2.33	2.57	0.7	0.043	0.420	2.83			
12	0.53	3.00	0.78	0.049	9	2.83				1-3/8	2.33	2.83	0.7	0.050	0.700	3.00			
16	0.73	3.67	1.15	0.072	2-1/2	3.42			0.08	0.08	0.03	3	1.5	0.088	1.050	3.67			
20					2-1/4	3.71			0.09	0.09	0.03	3.33	1.5	0.095					
24	0.85	4.17	1.52	0.18	3	4.00			0.10	1.50	0.09	2-3/8	4.00	1.72	0.128	1.412	4.17		
27					3-1/4	4.25			0.11	1.75	0.13								
30	0.99	4.83	1.88	0.149	3-1/2	4.50			0.12	1.93	0.13					1.763	4.83		
32					3-3/4	4.88			0.13	2.00	0.13								
36	1.16	5.53	2.27	0.196	4	5.17			0.14	2.4	0.213								
42	1.32	6.00	2.63	0.253	4-1/2	5.88			0.15	2.8	0.288								
48	1.49	6.50	3	0.314	5	6.33			0.16	3	0.36								
54					5-1/2	6.83			0.17	3.5	0.44								
60					6	7.50			0.18	4.28	0.53								
72					7	8.67			0.19	4.65	0.74								

NOTE: PAYMENT QUANTITY IN CU. YDS./LIN/FT. OF TRENCH FOR CLASS "B" CONC. IN CASE OF CLASS "A" BEDDING & FOR CRUSHED STONE BEDDING MATERIAL IN CASE OF CLASS "B" BEDDING. ADJUST QUANTITY OF CRADLE MATERIAL BASED ON Bd WIDTH IF DEPTH OF CRADLE EXCEEDS D/4.

FULTON COUNTY STANDARD DETAIL 117
PIPE SEWER DATA
DUCTILE IRON, CONCRETE, AND HDPE PIPE INSTALLATION

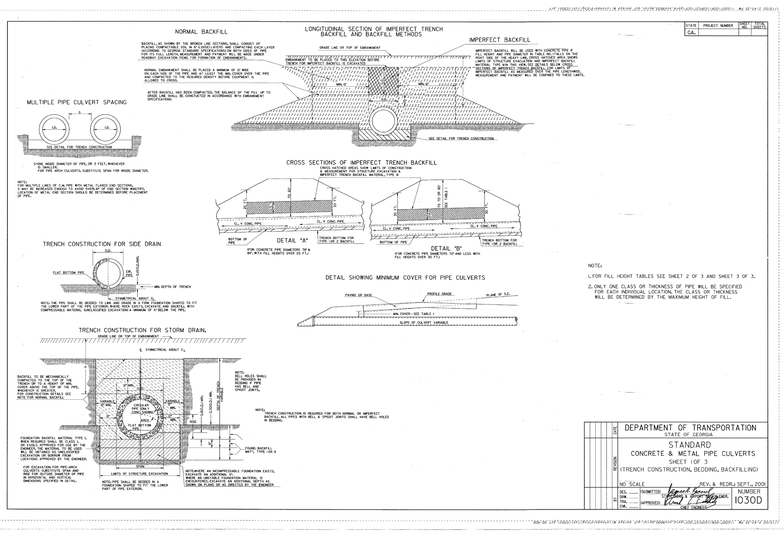
REVISIONS	DATE	REVISIONS
6/08 NSH 12/15 STM		

DGS/DRN/CHKD: RED
APPROVED: RCW
DATE: 12-2-08

FULTON COUNTY

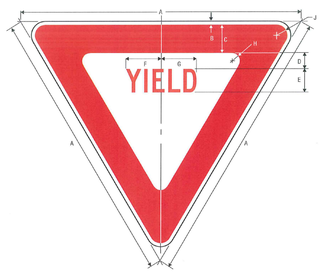
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-612-7400 FAX: 404-224-0408

DRAWING NO. 117



DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
STANDARD CONCRETE & METAL PIPE CULVERTS SHEET 1 OF 3 (TRENCH CONSTRUCTION, BEDDING, BACKFILLING)
NO SCALE — REV. & REDR.: SEPT., 2006
DES. — SUBMITTED — DATE — NUMBER 1030D
DRN. — APPROVED — DATE — STATE CHIEF ENGINEER
CK. — STATE DESIGN ENGINEER

W14-1
Revised 3/1/2012



R1-2
YIELD

A	B	C	D	E	F	G	H	J
18	.375	2	1	1.5 C	2.375	2.188	.625	1.5
24	.375	3	1.375	2 C	3.25	3	.875	1.5
30	.625	4	1.75	2.5 C	3.938	3.625	.875	1.5
36	.75	5	2	3 C	4.688	4.375	1.25	2
48	1	6	2.75	4 C	6.25	5.875	2	3
60	1.5	8	3.5	5 C	7.875	7.25	2.5	4

COLORS: LEGEND — RED (RETROREFLECTIVE)
BACKGROUND — WHITE (RETROREFLECTIVE)

1-2



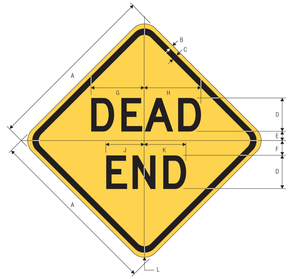
R8-3
NO PARKING

*Reduce spacing 50% for 24", 36" & 48" sizes.
**Recommend square shape for 30" and 48" sizes.

A	B	C	D	E	F	G	H	J	K	L
18	24	.375	.625	7	4 D	3	3 C	3.5	6.938	1.5
24	30	.375	.625	7.25	6 D	4.5	5 C	5.188	10.125	1.5
30	36	.625	.875	7.5	8 D	6	7 C	6.875	14.25	2.25
48	48	.75	1.25	10.5	10 D	8	9 C	8.625	18.3 D	3

COLORS: LEGEND — RED (RETROREFLECTIVE)
BACKGROUND — WHITE (RETROREFLECTIVE)

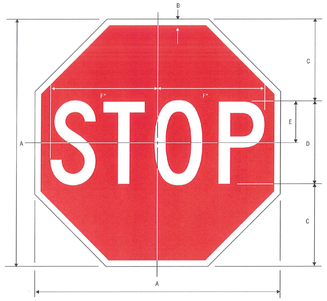
1-103



W14-1
DEAD END

A	B	C	D	E	F	G	H	J	K	L
24	.375	.625	5 D	1	2	8.25	8.563	5.625	6.25	1.5
30	.5	.75	6 D	1.5	2.5	9.75	10.25	6.75	7.5	1.875
36	.625	.875	7 D	2	3	11.375	11.938	7.875	8.75	2.25
48	.75	1.25	10 D	2	4	16.5	17.126	11.25	12.5	3

COLORS: LEGEND, BORDER — BLACK
BACKGROUND — YELLOW (RETROREFLECTIVE)



R1-1
STOP

*Reduce spacing 40%

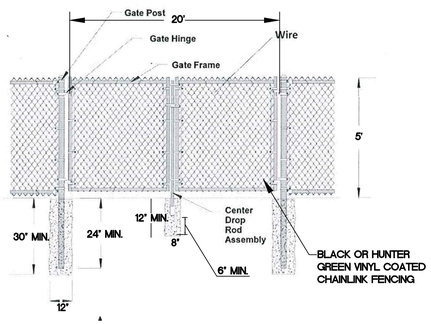
A	B	C	D	E	F
18	.375	6	6 C	3	2.75
24	.625	8	8 C	4	10
30	.75	10	10 C	5	12.5
36	.875	12	12 C	6	15
48	1.25	16	16 C	8	20

COLORS: LEGEND — WHITE (RETROREFLECTIVE)
BACKGROUND — RED (RETROREFLECTIVE)

1-1

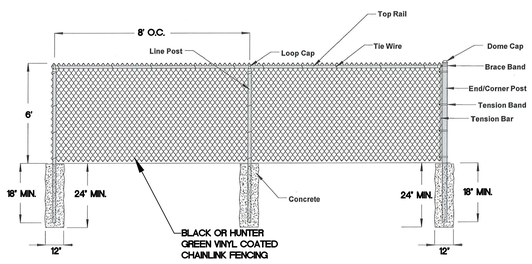


http://highwaytrafficsupply.com/images/regulatory_signs.html/r8-31.jpg 9/30/2011



6' PVC COATED CHAIN LINK FENCE GATE (TYPICAL)

NOT TO SCALE



6' PVC COATED CHAIN LINK FENCE (TYPICAL)

NOT TO SCALE

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACZENSKY

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

CONSTRUCTION DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.02
SHEET

J:\2021\21217.00\Dc_Plansheets\C9.02 - CONSTRUCTION DETAILS - 21217.00.dwg - Charleston - 9/10/2024 1:54 PM

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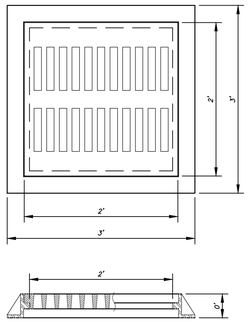
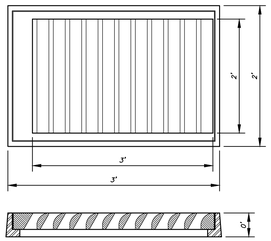


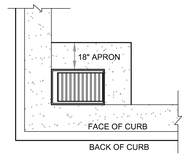
YARD INLET

TO BE USED IN LAWN AREAS
USE V-5624 GRATE FROM HIGGINS FOUNDRY & SUPPLY CO., INC. 404-436-7300 OR EQUAL



DROP INLET

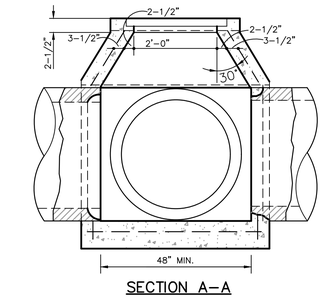
TO BE USED IN PAVED AREAS
USE V-4280-2 GRATE FROM HIGGINS FOUNDRY & SUPPLY CO., INC. 404-436-7300 OR EQUAL



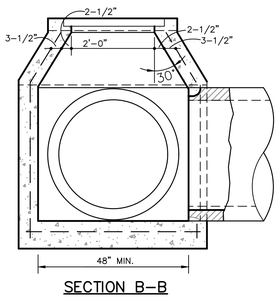
NOTE:
PROVIDE 18" CONCRETE APRON WHEN DROP INLET IS LOCATED IN CORNER OF PAVING.

DROP INLET @ CORNER

TO BE USED IN PAVED AREAS
USE V-4280-2 GRATE FROM HIGGINS FOUNDRY & SUPPLY CO., INC. 404-436-7300 OR EQUAL

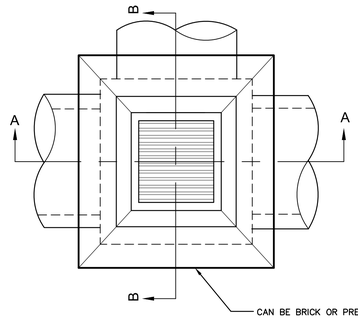


SECTION A-A



SECTION B-B

TYPE A

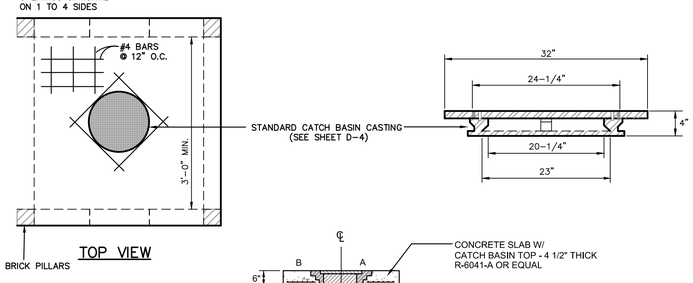


JUNCTION BOX & DROP INLET NOTES:
1. *SUBGRADE TO BE COMPACTED TO 95% MAX. DRY DENSITY PER STANDARD PROCTOR.*
2. *REINFORCEMENT STEEL SHALL BE PLACED TO ALLOW A MIN. OF 1 1/2" COVER, EXCEPT WHERE NOTED.*
3. *ALL CONCRETE SHALL BE CLASS A.*

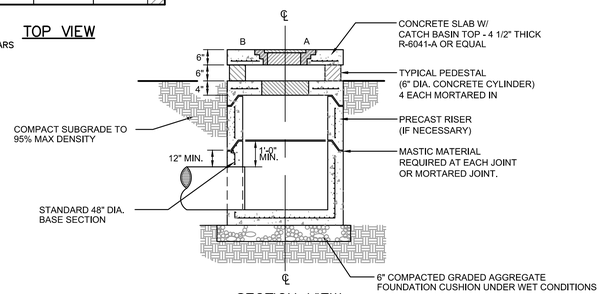
JUNCTION BOX

JUNCTION BOXES IN PAVED AREAS SHALL HAVE HEAVY DUTY RING & COVER ABLE TO WITHSTAND TRAFFIC LOADS

NOTE:
OPENINGS OPTIONAL
ON 1 TO 4 SIDES



TOP VIEW



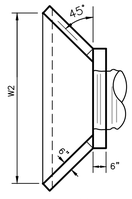
SECTION VIEW

WEIR INLET DETAIL

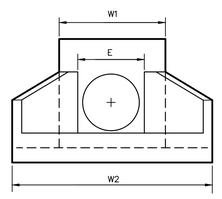
N.T.S

SLOPE & FILTER MATERIAL - RIP RAP		
VELOCITY	STONE SIZE	FILTER MATERIAL
< 6 FT./SEC.	10-50 lbs.	1.5"
6 to 8 FT./SEC.	20-100 lbs.	3"
6 to 8 FT./SEC.	20-100 lbs.	3"
8 to 10 FT./SEC.	25-250 lbs.	4.5"

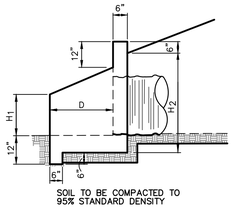
STONE OF DURABLE MATERIAL
WEIGHING 150 lbs./FT³



PLAN

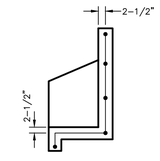


FRONT ELEVATION
INLET HEADWALL

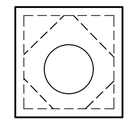


SOIL TO BE COMPACTED TO
95% STANDARD DENSITY

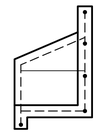
NOTE:
HEADWALLS OVER 30" TO HAVE STEEL
ON 6" CENTERS EACH WAY (12" CLEARANCE TYP.)



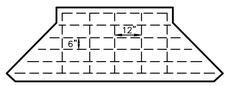
BASE & WALL SECTION



WALL SECTION



WING SECTION



BASE SECTION

TABLE I								
HEADWALL DIMENSIONS FOR METAL PIPE *								
INSIDE DIA. OF PIPE	W_1	W_2	H_1	H_2	D	E	WT.	SQ. FT. IN BASE AREA
18"	3'-2"	4'-3"	1'-3"	3'-2"	1'-3"	1'-9"	1,550	7.34
21", 24"	3'-8"	5'-3"	1'-9"	3'-8"	1'-6"	2'-3"	2,100	9.90
30"	4'-2"	6'-5"	2'-0"	4'-2"	1'-10"	2'-9"	2,850	13.50
36"	4'-8"	7'-7"	2'-4"	4'-8"	2'-2"	3'-3"	3,700	17.65
42",48"	5'-8"	10'-1"	3'-3"	5'-8"	2'-11"	4'-3"	5,600	28.60
54"	6'-8"	11'-11"	3'-8"	6'-8"	3'-4"	5'-3"	7,500	35.60
# USE NEXT LARGER SIZE FOR CONCRETE PIPE								

PRECAST CONCRETE HEADWALL SYSTEM

N.T.S

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MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION # 0000066476 EXP. 06/27/2027

CITY OF VILLA RICA 18 "CITY OF GOLD" 26 GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

CONSTRUCTION DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.03
SHEET

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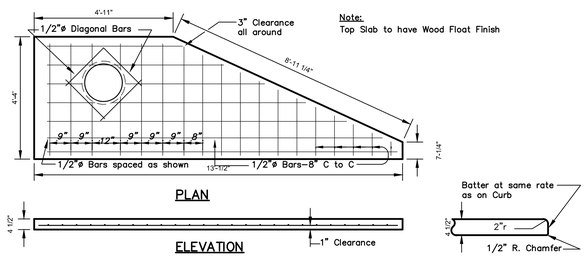
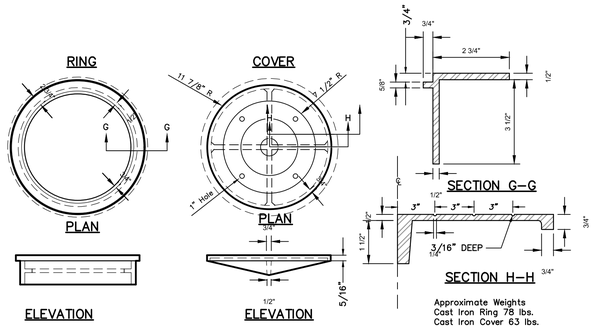
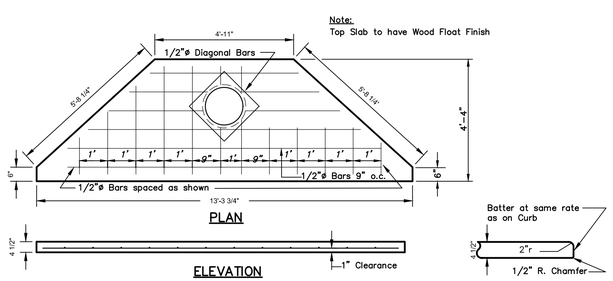


DETAIL OF TOP SLAB



CATCH BASIN TOPS

NOT TO SCALE



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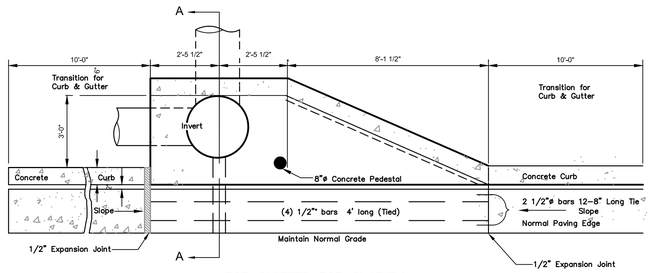

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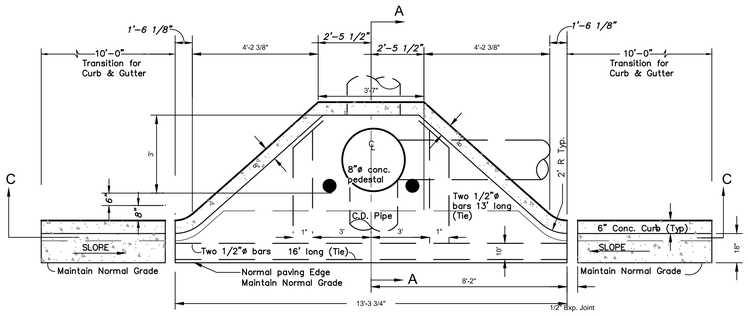

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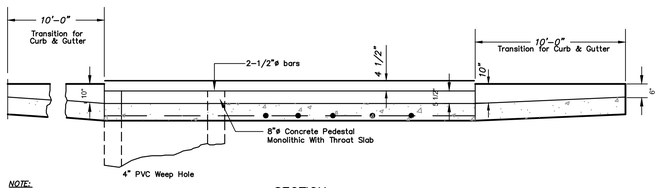
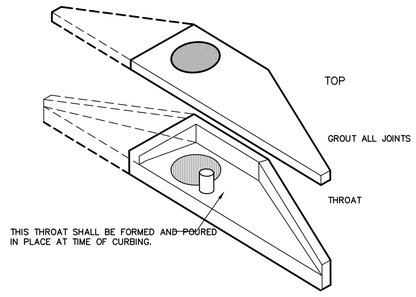
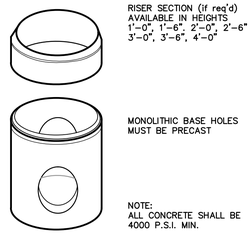
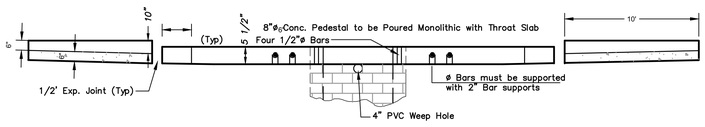


NOTE:
For all catch basins 1/2" expansion joint material shall be placed around the catch basin where sidewalk or median pavement is placed adjacent to the catch basin.

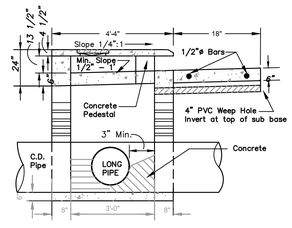
SECTION
Poured In Place



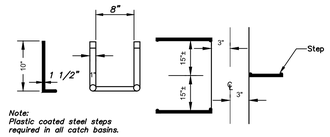




SECTION C – C
(Cast In Place)



SECTION A–A
Class "A" 3000 Concrete



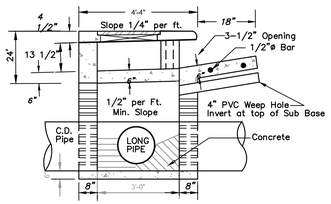
Note:
Plastic coated steel steps required in all catch basins.

ARRANGEMENT OF STEPS

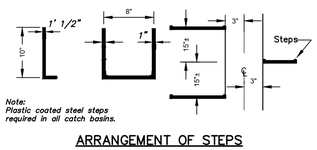
STANDARD CURB INLET DETAIL

NOT TO SCALE

Note: For all Catch Basins, 1/2" Expansion Joint Material Shall be placed around the Catch Basin where sidewalk or median pavement is placed adjacent to the Catch Basin.



SECTION A–A



Note:
Plastic coated steel steps required in all catch basins.

ARRANGEMENT OF STEPS

NOTE:
All Poured–In–Place Conc. to be Class "A" 3000 P.S.I.

STD. SINGLEWING CATCHBASIN

NOT TO SCALE

STD. DOUBLEWING CATCHBASIN

N.T.S

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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Planners & Engineers Collaborative+
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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

CONSTRUCTION DETAILS

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.04
SHEET

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Table 6H-2. Meaning of Symbols on Typical Application Diagrams

Arrow board	Shadow vehicle
Arrow board support or trailer (shown facing down)	Sign (shown facing left)
Changeable message sign or support trailer	Surveyor
Channelizing device	Temporary barrier
Crash cushion	Temporary barrier with warning light
Direction of temporary traffic detour	Traffic or pedestrian signal
Direction of traffic	Truck-mounted attenuator
Flagger	Type 3 barricade
High-level warning device (Flag tree)	Warning light
Longitudinal channelizing device	Work space
Luminaire	Work vehicle
Pavement markings that should be removed for a long-term project	

Table 6H-3. Meaning of Letter Codes on Typical Application Diagrams

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* Speed category to be determined by highway agency

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

Table 6H-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	L = WS

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Notes for Figure 6H-6--Typical Application 6
Shoulder Work with Minor Encroachment

Guidance:

1. *All lanes should be a minimum of 10 feet in width as measured to the near face of the channelizing devices.*
2. *The treatment shown should be used on a minor road having low speeds. For higher-speed traffic conditions, a lane closure should be used.*

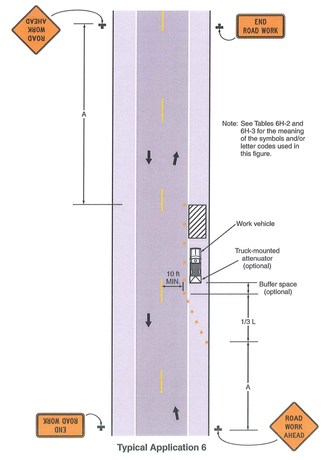
Option:

3. For short-term use on low-volume, low-speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 9 feet may be used.
4. Where the opposite shoulder is suitable for carrying vehicular traffic and of adequate width, lanes may be shifted by use of closely-spaced channelizing devices, provided that the minimum lane width of 10 feet is maintained.
5. Additional advance warning may be appropriate, such as a ROAD NARROWS sign.
6. Temporary traffic barriers may be used along the work space.
7. The shadow vehicle may be omitted if a taper and channelizing devices are used.
8. A truck-mounted attenuator may be used on the shadow vehicle.
9. For short-duration work, the taper and channelizing devices may be omitted if a shadow vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
10. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

11. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.
12. Shadow and work vehicles shall display high-intensity rotating, flashing, oscillating, or strobe lights.
13. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



Typical Application 6

Notes for Figure 6H-3--Typical Application 3
Work on the Shoulders

Guidance:

1. *A SHOULDER WORK sign should be placed on the left side of the roadway for a divided or one-way street only if the left shoulder is affected.*

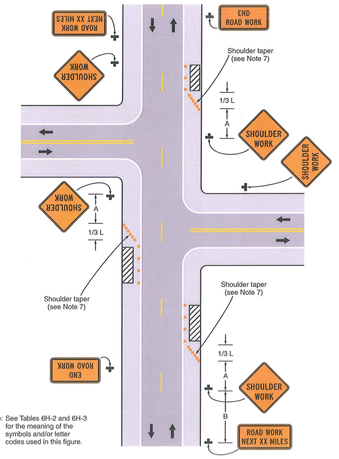
Option:

2. The Workers symbol signs may be used instead of SHOULDER WORK signs.
3. The SHOULDER WORK AHEAD sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
4. For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

Standard:

6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.
7. When paved shoulders having a width of 8 feet or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct vehicular traffic to remain within the traveled way.

Figure 6H-3. Work on the Shoulders (TA-3)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 3

Notes for Figure 6H-29--Typical Application 29
Crosswalk Closures and Pedestrian Detours

Standard:

1. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.
2. Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.

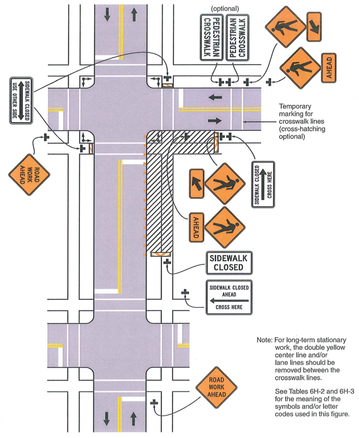
Guidance:

3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*

Option:

5. Street lighting may be considered.
6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.
8. Type C Steady-Burn or Type D 360-degree Steady-Burn warning lights may be used on channelizing devices separating the work space from vehicular traffic.
9. In order to maintain the systematic use of the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)



Note: For long-term stationary work, the double yellow center line and/or lane lines should be removed between the crosswalk lines.

See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 29

Notes for Figure 6H-31--Typical Application 31
Lane Closure on a Street with Uneven Directional Volumes

Standard:

1. The illustrated information shall be used only when the vehicular traffic volume indicates that two lanes of vehicular traffic shall be maintained in the direction of travel for which one lane is closed.

Option:

2. The procedure may be used during a peak period of vehicular traffic and then changed to provide two lanes in the other direction for the other peak.

Guidance:

3. *For high speeds, a LEFT LANE CLOSED XX FT sign should be added for vehicular traffic approaching the lane closure, as shown in Figure 6H-32.*
4. *Conflicting pavement markings should be removed for long-term projects. For short-term and intermediate-term projects where this is not practical, the channelizing devices in the area where the pavement markings conflict should be placed at a maximum spacing of 1/2 S feet where S is the speed in mph. Temporary markings should be installed where needed.*
5. *If the lane shift has curves with recommended speeds of 30 mph or less, Reverse Turn signs should be used.*
6. *Where the shifted section is long, a Reverse Curve sign should be used to show the initial shift and a second sign should be used to show the return to the normal alignment.*
7. *If the tangent distance along the temporary diversion is less than 600 feet, the Double Reverse Curve sign should be used at the location of the first Two Lane Reverse Curve sign. The second Two Lane Reverse Curve sign should be omitted.*

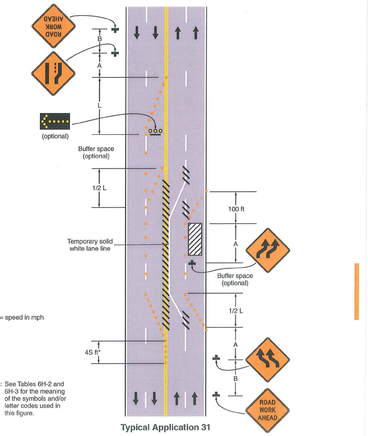
Standard:

8. The number of lanes illustrated on the Reverse Curve or Double Reverse Curve signs shall be the same as the number of through lanes available to road users, and the direction of the reverse curves shall be appropriately illustrated.

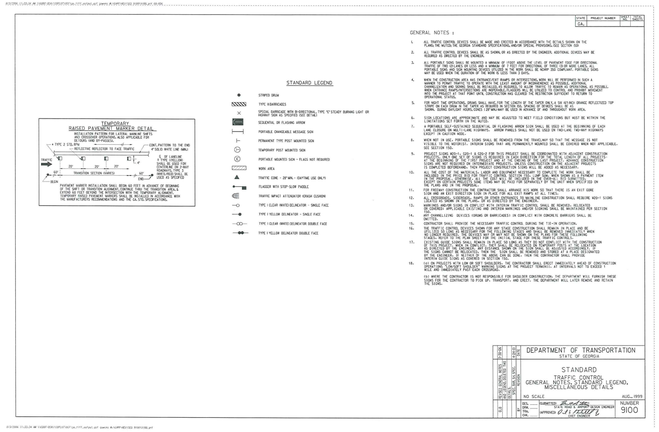
Option:

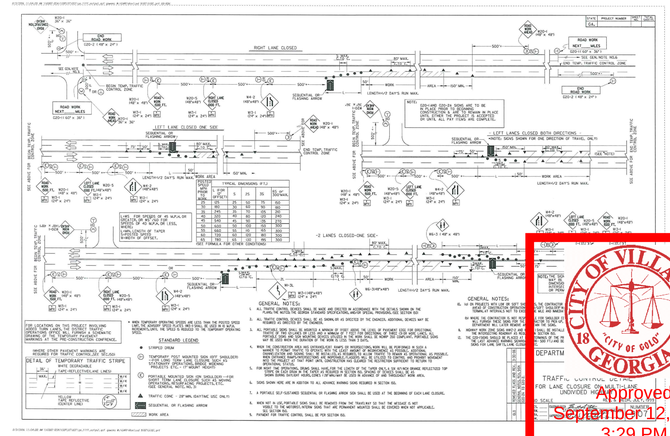
9. A longitudinal buffer space may be used in the activity area to separate opposing vehicular traffic.
10. Where two or more lanes are being shifted, a W1-4 (or W1-3) sign with an ALL LANES (W24-1cP) plaque (see Figure 6F-4) may be used instead of a sign that illustrates the number of lanes.
11. Where more than three lanes are being shifted, the Reverse Curve (or Turn) sign may be rectangular.
12. A work vehicle or a shadow vehicle may be equipped with a truck-mounted attenuator.

Figure 6H-31. Lane Closures on a Street with Uneven Directional Volumes (TA-31)



Typical Application 31





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Bobby C. Elliott, PE
City Engineer
CITY OF VILLA RICA GEORGIA 1826 CITY OF GOLD

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

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GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E. MACKENSEN

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

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SCALE: N/A
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PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C9.05
SHEET

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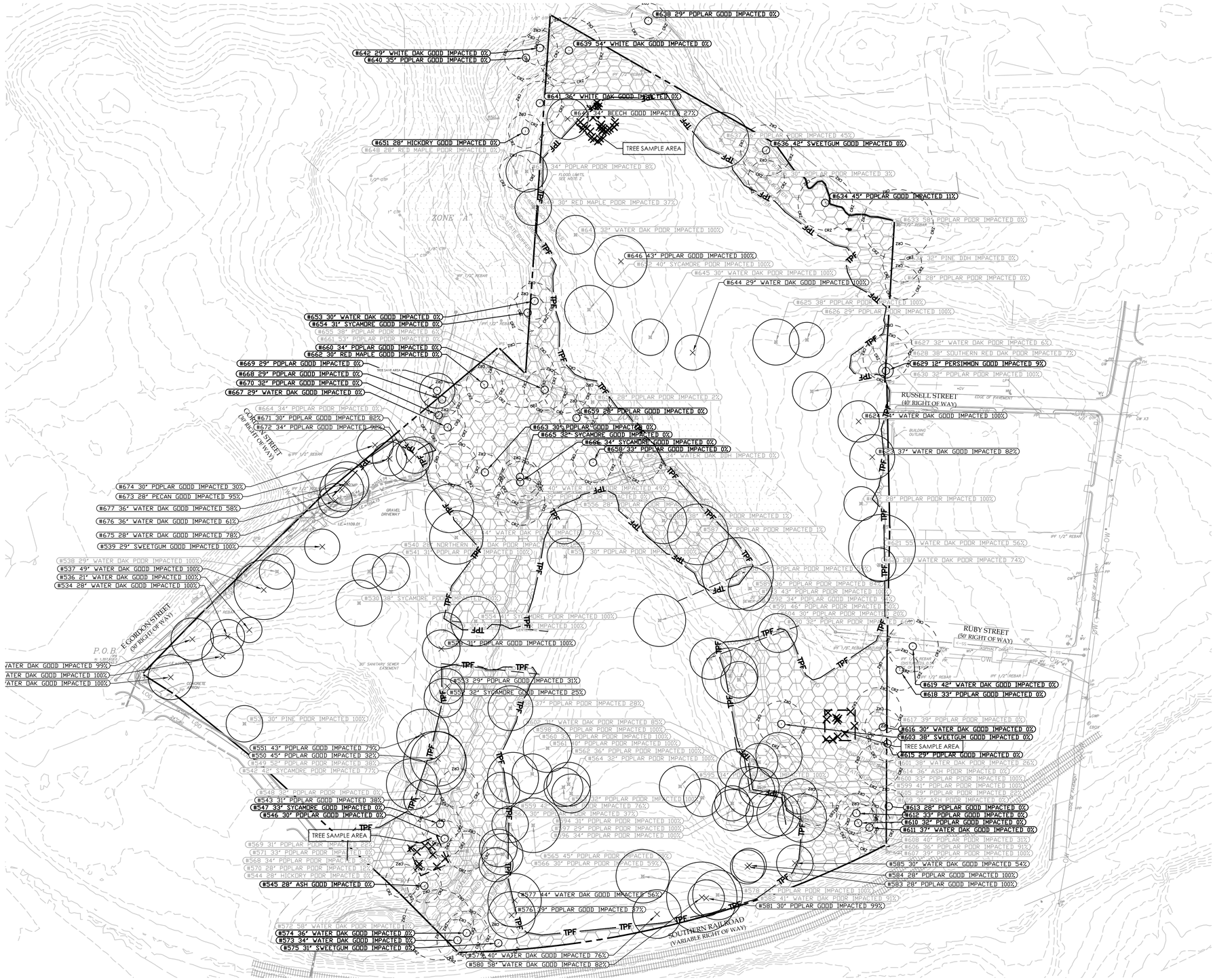
9/10/2024 10:58 AM


#638 29" POPLAR GOOD IMPACTED 0%
#639 54" WHITE OAK GOOD IMPACTED 0%
#642 29" WHITE OAK GOOD IMPACTED 0%
#640 35" POPLAR GOOD IMPACTED 0%
#641 36" WHITE OAK GOOD IMPACTED 0%
#649 34" BEECH GOOD IMPACTED 27%
#651 28" HICKORY GOOD IMPACTED 0%
#648 28" RED MAPLE POOR IMPACTED 0%
TREE SAMPLE AREA
#637 POPLAR POOR IMPACTED 45%
#636 42" SWEETGUM GOOD IMPACTED 0%
34" POPLAR POOR IMPACTED 8%
FLOOD LIMITS SEE NOTE 2
#635 30" POPLAR POOR IMPACTED 3%
#634 45" POPLAR GOOD IMPACTED 11%
30" RED MAPLE POOR IMPACTED 37%
ZONE A
#633 38" POPLAR POOR IMPACTED 0%
#647 32" WATER OAK POOR IMPACTED 100%
#646 43" POPLAR GOOD IMPACTED 100%
#632 32" PINE DDH IMPACTED 0%
#643 40" SYCAMORE POOR IMPACTED 100%
#645 30" WATER OAK POOR IMPACTED 100%
#631 28" POPLAR POOR IMPACTED 0%
#644 29" WATER OAK GOOD IMPACTED 100%
#625 38" POPLAR POOR IMPACTED 100%
#626 29" POPLAR POOR IMPACTED 100%
#652 30" WATER OAK GOOD IMPACTED 0%
#654 31" SYCAMORE GOOD IMPACTED 0%
#655 30" POPLAR POOR IMPACTED 0%
#661 53" POPLAR POOR IMPACTED 0%
#660 34" POPLAR GOOD IMPACTED 0%
#662 30" RED MAPLE GOOD IMPACTED 0%
#669 29" POPLAR GOOD IMPACTED 0%
#668 29" POPLAR GOOD IMPACTED 0%
#670 32" POPLAR GOOD IMPACTED 0%
#667 29" WATER OAK GOOD IMPACTED 0%
#627 32" WATER OAK POOR IMPACTED 6%
#628 28" SOUTHERN RED OAK POOR IMPACTED 7%
#629 12" PERSIMMON GOOD IMPACTED 9%
#630 32" POPLAR POOR IMPACTED 100%
RUSSELL STREET
(40' RIGHT OF WAY)
#624 25" WATER OAK GOOD IMPACTED 100%
#623 37" WATER OAK GOOD IMPACTED 82%
#622 28" POPLAR POOR IMPACTED 100%
#621 55" WATER OAK POOR IMPACTED 56%
#620 28" WATER OAK POOR IMPACTED 74%
#664 34" POPLAR POOR IMPACTED 0%
#671 30" POPLAR GOOD IMPACTED 82%
#672 34" POPLAR GOOD IMPACTED 92%
#659 28" POPLAR GOOD IMPACTED 0%
#663 30" POPLAR GOOD IMPACTED 0%
#665 32" SYCAMORE GOOD IMPACTED 0%
#666 34" SYCAMORE GOOD IMPACTED 0%
#658 33" POPLAR GOOD IMPACTED 0%
COMMERCE STREET
(30' RIGHT OF WAY)
#674 30" POPLAR GOOD IMPACTED 30%
#673 28" PECAN GOOD IMPACTED 95%
#677 36" WATER OAK GOOD IMPACTED 58%
#676 36" WATER OAK GOOD IMPACTED 61%
#675 28" WATER OAK GOOD IMPACTED 78%
#539 29" SWEETGUM GOOD IMPACTED 100%
#538 29" WATER OAK POOR IMPACTED 100%
#537 49" WATER OAK GOOD IMPACTED 100%
#536 21" WATER OAK GOOD IMPACTED 100%
#534 28" WATER OAK GOOD IMPACTED 100%
#540 28" NORTHERN RED OAK POOR IMPACTED 100%
#541 31" POPLAR POOR IMPACTED 100%
#530 38" SYCAMORE POOR IMPACTED 100%
#554 41" SYCAMORE POOR IMPACTED 100%
#529 31" POPLAR GOOD IMPACTED 100%
#533 29" POPLAR GOOD IMPACTED 31%
#532 32" SYCAMORE GOOD IMPACTED 25%
#531 30" PINE POOR IMPACTED 100%
#551 43" POPLAR GOOD IMPACTED 79%
#550 45" POPLAR GOOD IMPACTED 32%
#549 52" POPLAR POOR IMPACTED 38%
#542 42" SYCAMORE POOR IMPACTED 77%
#548 32" POPLAR POOR IMPACTED 0%
#543 31" POPLAR GOOD IMPACTED 38%
#547 33" SYCAMORE GOOD IMPACTED 0%
#546 30" POPLAR GOOD IMPACTED 0%
TREE SAMPLE AREA
#569 31" POPLAR POOR IMPACTED 22%
#571 33" POPLAR POOR IMPACTED 0%
#568 34" POPLAR POOR IMPACTED 36%
#570 28" POPLAR POOR IMPACTED 12%
#544 28" HICKORY POOR IMPACTED 0%
#545 28" ASH GOOD IMPACTED 0%
#572 58" WATER OAK POOR IMPACTED 100%
#574 36" WATER OAK GOOD IMPACTED 0%
#573 34" WATER OAK GOOD IMPACTED 0%
#575 31" SWEETGUM GOOD IMPACTED 0%
#579 40" WATER OAK GOOD IMPACTED 76%
#580 58" WATER OAK GOOD IMPACTED 82%
SOUTHERN RAILROAD
(VARIABLE RIGHT OF WAY)
#577 44" WATER OAK GOOD IMPACTED 56%
#576 29" POPLAR GOOD IMPACTED 67%
#581 30" POPLAR GOOD IMPACTED 99%
#578 POPLAR POOR IMPACTED 100%
#582 41" WATER OAK POOR IMPACTED 20%
#590 32" POPLAR POOR IMPACTED 20%
#588 36" POPLAR POOR IMPACTED 0%
#587 POPLAR POOR IMPACTED 1%
#589 43" POPLAR POOR IMPACTED 10%
#592 34" POPLAR GOOD IMPACTED 0%
#591 46" POPLAR POOR IMPACTED 20%
RUBY STREET
(50' RIGHT OF WAY)
#619 42" WATER OAK GOOD IMPACTED 0%
#618 33" POPLAR GOOD IMPACTED 0%
#617 39" POPLAR POOR IMPACTED 0%
#616 30" WATER OAK GOOD IMPACTED 0%
#603 38" SWEETGUM GOOD IMPACTED 0%
TREE SAMPLE AREA
#615 29" POPLAR GOOD IMPACTED 0%
#614 36" ASH POOR IMPACTED 0%
#611 38" WATER OAK POOR IMPACTED 26%
#600 33" POPLAR POOR IMPACTED 100%
#599 41" POPLAR POOR IMPACTED 100%
#608 29" POPLAR POOR IMPACTED 22%
#612 30" ASH POOR IMPACTED 0%
#613 28" POPLAR GOOD IMPACTED 0%
#612 33" POPLAR GOOD IMPACTED 0%
#610 32" POPLAR GOOD IMPACTED 0%
#611 37" WATER OAK GOOD IMPACTED 0%
#608 40" POPLAR POOR IMPACTED 31%
#606 36" POPLAR POOR IMPACTED 91%
#607 39" POPLAR POOR IMPACTED 100%
#585 30" WATER OAK GOOD IMPACTED 54%
#584 28" POPLAR GOOD IMPACTED 100%
#583 28" POPLAR GOOD IMPACTED 100%
P.O.B.
E GORDON STREET
(50' RIGHT OF WAY)
WATER OAK GOOD IMPACTED 99%
WATER OAK GOOD IMPACTED 100%
WATER OAK GOOD IMPACTED 100%
#551 43" POPLAR GOOD IMPACTED 79%
#550 45" POPLAR GOOD IMPACTED 32%
#542 42" SYCAMORE POOR IMPACTED 77%
#543 31" POPLAR GOOD IMPACTED 38%
#547 33" SYCAMORE GOOD IMPACTED 0%
#546 30" POPLAR GOOD IMPACTED 0%
TREE SAMPLE AREA
#544 28" HICKORY POOR IMPACTED 0%
#545 28" ASH GOOD IMPACTED 0%
#574 36" WATER OAK GOOD IMPACTED 0%
#573 34" WATER OAK GOOD IMPACTED 0%
#575 31" SWEETGUM GOOD IMPACTED 0%
#579 40" WATER OAK GOOD IMPACTED 76%
#580 58" WATER OAK GOOD IMPACTED 82%
SOUTHERN RAILROAD
(VARIABLE RIGHT OF WAY)
#581 30" POPLAR GOOD IMPACTED 99%
#619 42" WATER OAK GOOD IMPACTED 0%
#618 33" POPLAR GOOD IMPACTED 0%
#616 30" WATER OAK GOOD IMPACTED 0%
#603 38" SWEETGUM GOOD IMPACTED 0%
#615 29" POPLAR GOOD IMPACTED 0%
#613 28" POPLAR GOOD IMPACTED 0%
#612 33" POPLAR GOOD IMPACTED 0%
#610 32" POPLAR GOOD IMPACTED 0%
#611 37" WATER OAK GOOD IMPACTED 0%
#585 30" WATER OAK GOOD IMPACTED 54%
#584 28" POPLAR GOOD IMPACTED 100%
#583 28" POPLAR GOOD IMPACTED 100%
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TREE DATA

Tree #	DBH"	Common Name	Latin Name	Quality	Impact %	Criteria	Qualification	Unit Value	Status	Units Saved
526	40	WATER OAK	*Quercus nigra*	POOR	49%	HARDWOOD	Non Specimen Tree	15	Removed	0
527	44	WATER OAK	*Quercus nigra*	POOR	76%	HARDWOOD	Non Specimen Tree	19	Removed	0
528	31	POPLAR	*Liriodendron tulipifera*	GOOD	100%	HARDWOOD	Specimen	7.2	Removed	0
529	30	SYCAMORE	*Platanus occidentalis*	POOR	100%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
530	38	SYCAMORE	*Platanus occidentalis*	POOR	100%	HARDWOOD	Non Specimen Tree	13	Removed	0
531	30	PINE	*Pinus spp.*	POOR	100%	SOFTWOOD	Non Specimen Tree	6.6	Removed	0
532	37	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	12	Removed	0
533	34	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	9	Removed	0
534	28	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	6.2	Removed	0
535	35	WATER OAK	*Quercus nigra*	GOOD	99%	HARDWOOD	Specimen	9	Removed	0
536	21	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD		4.8	Removed	0
537	49	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	24	Removed	0
538	29	WATER OAK	*Quercus nigra*	POOR	100%	HARDWOOD	Non Specimen Tree	6.4	Removed	0
539	29	SWEETGUM	*Liquidambar styraciflua*	GOOD	100%	HARDWOOD	Specimen	6.4	Removed	0
540	28	ORTHERN RED OA	*Quercus rubra*	POOR	100%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
541	31	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	7.2	Removed	0
542	42	SYCAMORE	*Platanus occidentalis*	POOR	77%	HARDWOOD	Non Specimen Tree	17	Removed	0
543	31	POPLAR	*Liriodendron tulipifera*	GOOD	38%	HARDWOOD	Specimen	7.2	Removed	0
544	28	HICKORY	*Carya spp*	POOR	0%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
545	28	ASH	*Fraxinus spp.*	GOOD	0%	HARDWOOD	Specimen	6.2	Saved	6.2
546	30	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.6	Saved	6.6
547	33	SYCAMORE	*Platanus occidentalis*	GOOD	0%	HARDWOOD	Specimen	8.4	Saved	8.4
548	32	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
549	52	POPLAR	*Liriodendron tulipifera*	POOR	38%	HARDWOOD	Non Specimen Tree	27	Removed	0
550	45	POPLAR	*Liriodendron tulipifera*	GOOD	32%	HARDWOOD	Specimen	20	Removed	0
551	43	POPLAR	*Liriodendron tulipifera*	GOOD	79%	HARDWOOD	Specimen	18	Removed	0
552	32	SYCAMORE	*Platanus occidentalis*	GOOD	25%	HARDWOOD	Specimen	7.8	Removed	0
553	29	POPLAR	*Liriodendron tulipifera*	GOOD	2%	HARDWOOD	Specimen	6.4	Removed	0
554	41	SYCAMORE	*Platanus occidentalis*	POOR	100%	HARDWOOD	Non Specimen Tree	16	Removed	0
555	39	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	14	Removed	0
556	28	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
557	30	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
558	37	POPLAR	*Liriodendron tulipifera*	POOR	28%	HARDWOOD	Non Specimen Tree	12	Removed	0
559	42	POPLAR	*Liriodendron tulipifera*	POOR	76%	HARDWOOD	Non Specimen Tree	17	Removed	0
560	33	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	8.4	Removed	0
561	40	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	15	Removed	0
562	36	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	9	Removed	0
563	32	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
564	32	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
565	45	POPLAR	*Liriodendron tulipifera*	POOR	99%	HARDWOOD	Non Specimen Tree	20	Removed	0
566	30	POPLAR	*Liriodendron tulipifera*	POOR	59%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
567	30	POPLAR	*Liriodendron tulipifera*	POOR	37%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
568	34	POPLAR	*Liriodendron tulipifera*	POOR	36%	HARDWOOD	Non Specimen Tree	9	Removed	0
569	31	POPLAR	*Liriodendron tulipifera*	POOR	22%	HARDWOOD	Non Specimen Tree	7.2	Removed	0
570	28	POPLAR	*Liriodendron tulipifera*	POOR	12%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
571	33	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	8.4	Removed	0
572	58	WATER OAK	*Quercus nigra*	POOR	0%	HARDWOOD	Non Specimen Tree	33	Removed	0
573	34	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
574	36	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
575	31	SWEETGUM	*Liquidambar styraciflua*	GOOD	0%	HARDWOOD	Specimen	7.2	Saved	7.2
576	39	POPLAR	*Liriodendron tulipifera*	GOOD	37%	HARDWOOD	Specimen	14	Removed	0
577	44	WATER OAK	*Quercus nigra*	GOOD	56%	HARDWOOD	Specimen	19	Removed	0
578	44	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	19	Removed	0
579	40	WATER OAK	*Quercus nigra*	GOOD	76%	HARDWOOD	Specimen	15	Removed	0
580	58	WATER OAK	*Quercus nigra*	GOOD	82%	HARDWOOD	Specimen	33	Removed	0
581	30	POPLAR	*Liriodendron tulipifera*	GOOD	99%	HARDWOOD	Specimen	6.6	Removed	0
582	41	WATER OAK	*Quercus nigra*	POOR	91%	HARDWOOD	Non Specimen Tree	16	Removed	0
583	28	POPLAR	*Liriodendron tulipifera*	GOOD	100%	HARDWOOD	Specimen	6.2	Removed	0
584	28	POPLAR	*Liriodendron tulipifera*	GOOD	100%	HARDWOOD	Specimen	6.2	Removed	0
585	30	WATER OAK	*Quercus nigra*	GOOD	54%	HARDWOOD	Specimen	6.6	Removed	0
586	38	POPLAR	*Liriodendron tulipifera*	POOR	1%	HARDWOOD	Non Specimen Tree	13	Removed	0
587	50	POPLAR	*Liriodendron tulipifera*	POOR	1%	HARDWOOD	Non Specimen Tree	25	Removed	0
588	59	POPLAR	*Liriodendron tulipifera*	POOR	59%	HARDWOOD	Non Specimen Tree	34	Removed	0
589	36	POPLAR	*Liriodendron tulipifera*	POOR	84%	HARDWOOD	Non Specimen Tree	9	Removed	0
590	32	POPLAR	*Liriodendron tulipifera*	POOR	66%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
591	46	POPLAR	*Liriodendron tulipifera*	POOR	50%	HARDWOOD	Non Specimen Tree	21	Removed	0
592	34	POPLAR	*Liriodendron tulipifera*	GOOD	94%	HARDWOOD	Specimen	9	Removed	0
593	43	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	18	Removed	0
594	31	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	7.2	Removed	0
595	34	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	9	Removed	0
596	34	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	9	Removed	0
597	29	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	6.4	Removed	0
598	33	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	8.4	Removed	0
599	41	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	16	Removed	0

TREE DATA

Tree #	DBH"	Common Name	Latin Name	Quality	Impact %	Criteria	Qualification	Unit Value	Status	Units Saved
600	33	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	8.4	Removed	0
601	38	WATER OAK	*Quercus nigra*	POOR	26%	HARDWOOD	Non Specimen Tree	13	Removed	0
602	31	WATER OAK	*Quercus nigra*	POOR	85%	HARDWOOD	Non Specimen Tree	7.2	Removed	0
603	38	SWEETGUM	*Liquidambar styraciflua*	GOOD	0%	HARDWOOD	Specimen	13	Saved	13
604	30	POPLAR	*Liriodendron tulipifera*	POOR	20%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
605	29	POPLAR	*Liriodendron tulipifera*	POOR	22%	HARDWOOD	Non Specimen Tree	6.4	Removed	0
606	36	POPLAR	*Liriodendron tulipifera*	POOR	91%	HARDWOOD	Non Specimen Tree	9	Removed	0
607	39	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	14	Removed	0
608	40	POPLAR	*Liriodendron tulipifera*	POOR	31%	HARDWOOD	Non Specimen Tree	15	Removed	0
609	30	ASH	*Fraxinus spp.*	POOR	0%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
610	32	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	7.8	Saved	7.8
611	37	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	12	Saved	12
612	33	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	8.4	Saved	8.4
613	28	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.2	Saved	6.2
614	36	ASH	*Fraxinus spp.*	POOR	0%	HARDWOOD	Non Specimen Tree	9	Removed	0
615	29	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
616	30	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	6.6	Saved	6.6
617	39	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	14	Removed	0
618	33	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	8.4	Saved	8.4
619	42	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	17	Saved	17
620	28	WATER OAK	*Quercus nigra*	POOR	74%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
621	55	WATER OAK	*Quercus nigra*	POOR	56%	HARDWOOD	Non Specimen Tree	30	Removed	0
622	28	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
623	37	WATER OAK	*Quercus nigra*	GOOD	82%	HARDWOOD	Specimen	12	Removed	0
624	34	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	9	Removed	0
625	38	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	13	Removed	0
626	29	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	6.4	Removed	0
627	32	WATER OAK	*Quercus nigra*	POOR	6%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
628	38	OUTHERN RED OA	*Quercus falcata*	POOR	7%	HARDWOOD	Non Specimen Tree	13	Removed	0
629	12	PERSIMMON	*Diospyros virginiana*	GOOD	9%	UNDERSTORY	Specimen	2.1	Saved	2.1
630	32	POPLAR	*Liriodendron tulipifera*	POOR	100%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
631	28	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
632	32	PINE	*Pinus spp.*	DDH	0%	SOFTWOOD	Non Specimen Tree	7.8	Removed	0
633	58	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	33	Removed	0
634	45	POPLAR	*Liriodendron tulipifera*	GOOD	11%	HARDWOOD	Specimen	20	Saved	20
635	30	POPLAR	*Liriodendron tulipifera*	POOR	3%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
636	42	SWEETGUM	*Liquidambar styraciflua*	GOOD	0%	HARDWOOD	Specimen	17	Saved	17
637	46	POPLAR	*Liriodendron tulipifera*	POOR	45%	HARDWOOD	Non Specimen Tree	21	Removed	0
638	29	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
639	54	WHITE OAK	*Quercus Alba*	GOOD	0%	HARDWOOD	Specimen	29	Saved	29
640	35	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
641	36	WHITE OAK	*Quercus Alba*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
642	29	WHITE OAK	*Quercus Alba*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
643	34	BEECH	*Fagus spp*	GOOD	27%	HARDWOOD	Specimen	9	Removed	0
644	29	WATER OAK	*Quercus nigra*	GOOD	100%	HARDWOOD	Specimen	6.4	Removed	0
645	30	WATER OAK	*Quercus nigra*	POOR	100%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
646	43	POPLAR	*Liriodendron tulipifera*	GOOD	100%	HARDWOOD	Specimen	18	Removed	0
647	32	WATER OAK	*Quercus nigra*	POOR	100%	HARDWOOD	Non Specimen Tree	7.8	Removed	0
648	28	RED MAPLE	*Acer rubrum*	POOR	0%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
649	30	RED MAPLE	*Acer rubrum*	POOR	37%	HARDWOOD	Non Specimen Tree	6.6	Removed	0
650	34	POPLAR	*Liriodendron tulipifera*	POOR	8%	HARDWOOD	Non Specimen Tree	9	Removed	0
651	28	HICKORY	*Carya spp*	GOOD	0%	HARDWOOD	Specimen	6.2	Saved	6.2
652	40	SYCAMORE	*Platanus occidentalis*	POOR	100%	HARDWOOD	Non Specimen Tree	15	Removed	0
653	30	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	6.6	Saved	6.6
654	31	SYCAMORE	*Platanus occidentalis*	GOOD	0%	HARDWOOD	Specimen	7.2	Saved	7.2
655	38	POPLAR	*Liriodendron tulipifera*	POOR	6%	HARDWOOD	Non Specimen Tree	13	Removed	0
656	28	POPLAR	*Liriodendron tulipifera*	POOR	2%	HARDWOOD	Non Specimen Tree	6.2	Removed	0
657	34	WATER OAK	*Quercus nigra*	DDH	0%	HARDWOOD	Non Specimen Tree	9	Removed	0
658	33	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	8.4	Saved	8.4
659	28	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.2	Saved	6.2
660	34	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
661	53	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	28	Removed	0
662	30	RED MAPLE	*Acer rubrum*	GOOD	0%	HARDWOOD	Specimen	6.6	Saved	6.6
663	30	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.6	Saved	6.6
664	34	POPLAR	*Liriodendron tulipifera*	POOR	0%	HARDWOOD	Non Specimen Tree	9	Removed	0
665	32	SYCAMORE	*Platanus occidentalis*	GOOD	0%	HARDWOOD	Specimen	7.8	Saved	7.8
666	34	SYCAMORE	*Platanus occidentalis*	GOOD	0%	HARDWOOD	Specimen	9	Saved	9
667	29	WATER OAK	*Quercus nigra*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
668	29	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
669	29	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	6.4	Saved	6.4
670	32	POPLAR	*Liriodendron tulipifera*	GOOD	0%	HARDWOOD	Specimen	7.8	Saved	7.8
671	30	POPLAR	*Liriodendron tulipifera*	GOOD	82%	HARDWOOD	Specimen	6.6	Removed	0
672	34	POPLAR	*Liriodendron tulipifera*	GOOD	92%	HARDWOOD	Specimen	9	Removed	0
673	28	PECAN	*Carya illinoinensis*	GOOD	95%	HARDWOOD	Specimen	6.2	Removed	0
674	30	POPLAR	*Liriodendron tulipifera*	GOOD	30%	HARDWOOD	Specimen	6.6	Removed	0
675	28	WATER OAK	*Quercus nigra*	GOOD	78%	HARDWOOD	Specimen	6.2	Removed	0
676	36	WATER OAK	*Quercus nigra*	GOOD	61%	HARDWOOD	Specimen	9	Removed	0
677	36	WATER OAK	*Quercus nigra*	GOOD	58%	HARDWOOD	Specimen	9	Removed	0
									Total	331.7

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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SAMPLE TREE DATA SITE 1		Total inches: 192	
Sample Site	Common Name	Latin Name	DBH "
S1	POPLAR	*Liriodendron tulipifera*	6
S1	POPLAR	*Liriodendron tulipifera*	24
S1	POPLAR	*Liriodendron tulipifera*	6
S1	POPLAR	*Liriodendron tulipifera*	23
S1	POPLAR	*Liriodendron tulipifera*	18
S1	POPLAR	*Liriodendron tulipifera*	27
S1	WATER OAK	*Quercus nigra*	22
S1	RED MAPLE	*Acer rubrum*	18
S1	POPLAR	*Liriodendron tulipifera*	13
S1	SWEETGUM	*Liquidambar styraciflua*	9
S1	SYCAMORE	*Platanus occidentalis*	26
SAMPLE TREE DATA SITE 2		**Total inches: 210**	
Sample Site	Common Name	Latin Name	DBH "
S2	SWEETGUM	*Liquidambar styraciflua*	5
S2	POPLAR	*Liriodendron tulipifera*	7
S2	SWEETGUM	*Liquidambar styraciflua*	5
S2	PINE	*Pinus spp.*	9
S2	POPLAR	*Liriodendron tulipifera*	8
S2	SWEETGUM	*Liquidambar styraciflua*	4
S2	POPLAR	*Liriodendron tulipifera*	4
S2	POPLAR	*Liriodendron tulipifera*	11
S2	PINE	*Pinus spp.*	10
S2	SWEETGUM	*Liquidambar styraciflua*	8
S2	POPLAR	*Liriodendron tulipifera*	4
S2	WATER OAK	*Quercus nigra*	8
S2	SWEETGUM	*Liquidambar styraciflua*	4
S2	CHERRY	*Prunus spp*	4
S2	SWEETGUM	*Liquidambar styraciflua*	5
S2	WATER OAK	*Quercus nigra*	8
S2	WATER OAK	*Quercus nigra*	9
S2	PINE	*Pinus spp.*	12
S2	SWEETGUM	*Liquidambar styraciflua*	8
S2	SWEETGUM	*Liquidambar styraciflua*	7
S2	POPLAR	*Liriodendron tulipifera*	13
S2	PINE	*Pinus spp.*	15
S2	POPLAR	*Liriodendron tulipifera*	8
S2	PINE	*Pinus spp.*	10
S2	POPLAR	*Liriodendron tulipifera*	10
S2	POPLAR	*Liriodendron tulipifera*	4
S2	WATER OAK	*Quercus nigra*	6
S2	SYCAMORE	*Platanus occidentalis*	4
SAMPLE TREE DATA SITE 3		**Total inches: 138**	
Sample Site	Common Name	Latin Name	DBH "
S3	SYCAMORE	*Platanus occidentalis*	19
S3	BEECH	*Fagus spp*	26
S3	ASH	*Fraxinus spp.*	12
S3	ASH	*Fraxinus spp.*	13
S3	WHITE OAK	*Quercus Alba*	14
S3	WHITE OAK	*Quercus Alba*	15
S3	WHITE OAK	*Quercus Alba*	12
S3	POST OAK	*Quercus stellata*	13
S3	POST OAK	*Quercus stellata*	14

TREE SAMPLE AVERAGES				
Sample Tree Units Total	/	Total Sample Areas	=	Average Tree Units per 2500 SF
540.00	/	3	=	180.00

Tree Save Area Ratio				
Tree save area SF	/	2500	=	Tree Save Area Ratio
335482.00	/	2500	=	134.19

TREE SAMPLE UNITS SAVED				
Average Tree Units per 2500 SF	X	Tree Save Area Ratio	=	Tree Units Saved Per Samples
180.00	X	134.19	=	24154.70

Site Density Requirement				
Site Acreage	X	Required Units Per Acre	=	Site Density Required
25.84	X	16	=	413.44

Site Density				
Existing Tree density Units	+	Planted Density (After recompense)	=	Tree density Units
24154.70	+	0	=	24154.704
Tree density Units	-	Site Density Required	=	Site Density Surplus
24154.704	-	413.44	=	23741.264
Site Density has been met onsite				

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350 RESEARCH COURT
PEACHTREE CORNERS,
GEORGIA 30092
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PROJECT

GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

DOUGLAS MCARTHUR SCHLUER No. 1768 LANDSCAPE ARCHITECT GEORGIA
9/10/24

SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE

DATE
09/10/2024

TITLE

TREE LOCATION & PROTECTION PLAN

SHEET

TPR.1A

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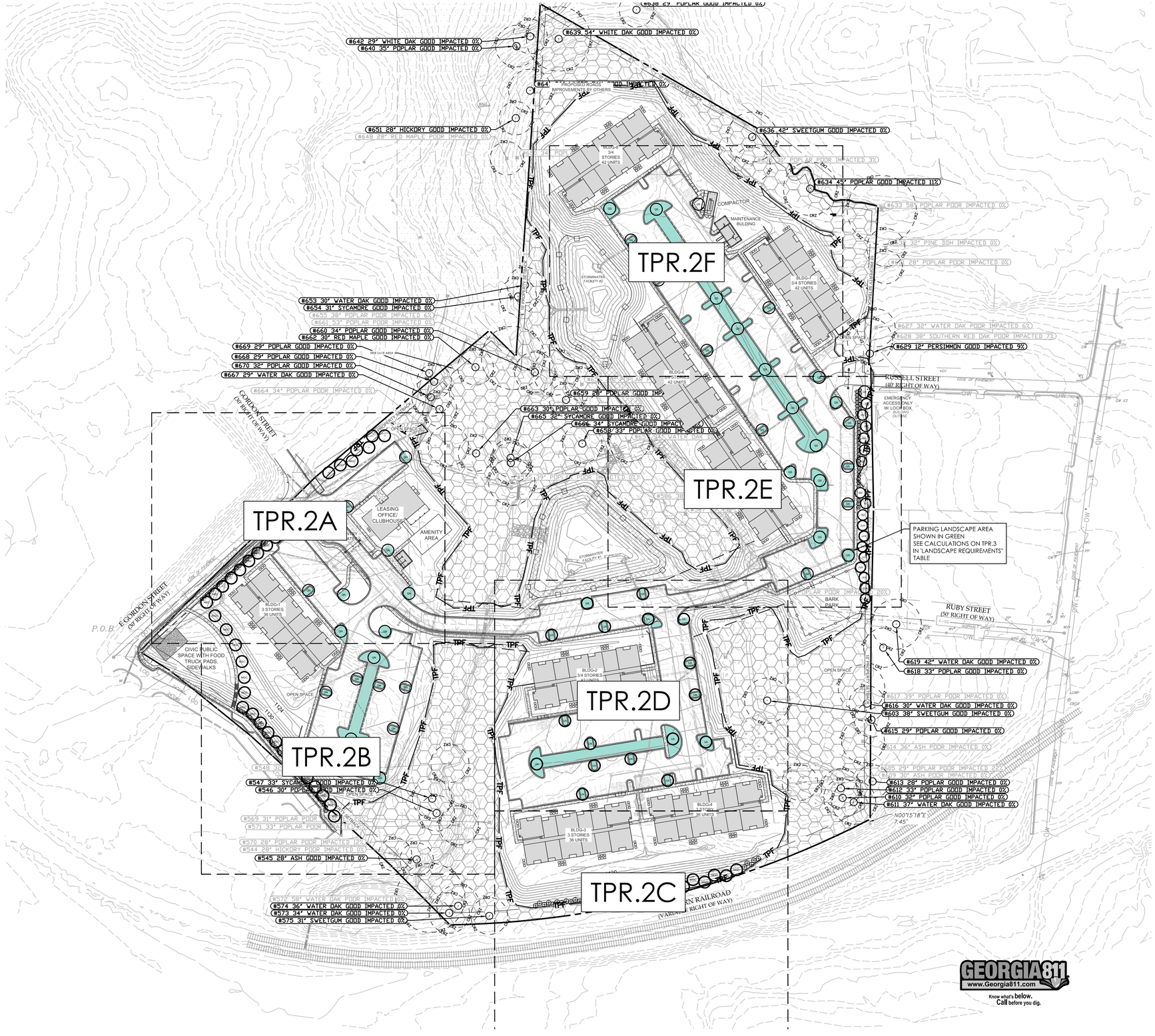
9/10/2024 10:58 AM



KEY:

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- SPECIMEN TREE TO BE REMOVED
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- NON SPECIMEN TREE (NST) TO BE SAVED
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- CRZ OF SPECIMEN TREE TO BE REMOVED
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- LIMITS OF DISTURBANCE
- CRZ IMPACTION AREA
- TREE SAVE AREA

LANDSCAPE NOTES

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CITY OF VILLA RICA 18 "CITY OF GOLD" 26 GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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0 80 160 240 FEET
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PROJECT

GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

DOUGLAS R. MCGURE No. 1768 LANDSCAPE ARCHITECT GEORGIA
9/10/24

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DATE

09/10/2024

TITLE

TREE PROTECTION & REPLACEMENT PLAN

SHEET

TPR.2

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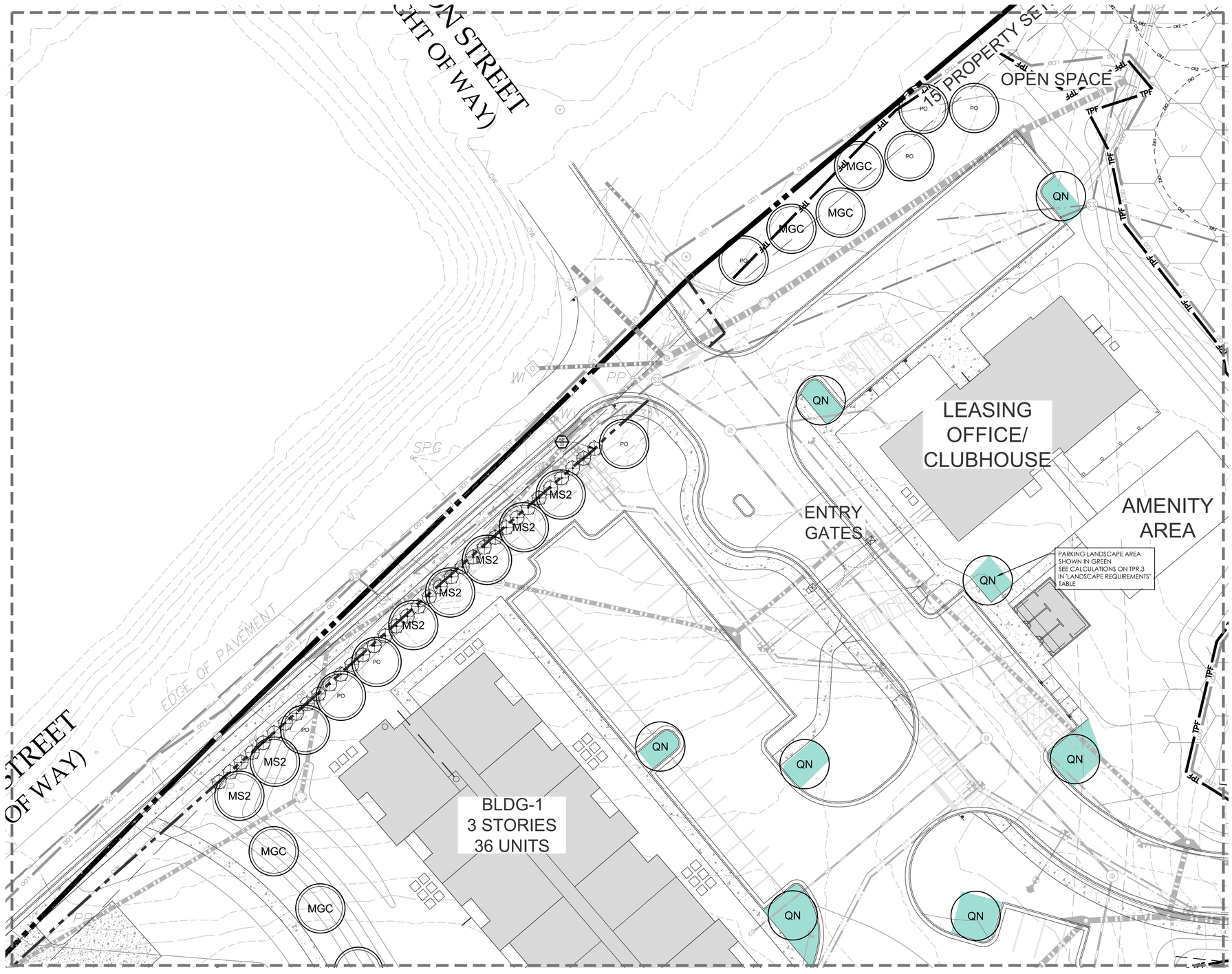
9/10/2024 10:59 AM



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PLANT KEY

SYMBOL	CODE	COMMON NAME
TREES		
UA	UA	AMERICAN ELM
PO	PO	AMERICAN SYCAMORE
JVX	JVX	EASTERN RED CEDAR
QN	QN	NUTTALL OAK
IS2	IS2	SAVANNAH HOLLY
QS	QS	SHUMARD OAK
MGC	MGC	SOUTHERN MAGNOLIA
MS2	MS2	SWEETBAY MAGNOLIA
SHRUBS		
AIF		
MC		

CITY OF VILLA RICA GEORGIA 18 CITY OF GOLD 26

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VILLA RICA, GA 30180

FOR
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350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
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LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL
GEORGIA No. 1768 LANDSCAPE ARCHITECT DOUG MURPHY
9/10/24
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DATE
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TITLE
TREE PROTECTION & REPLACEMENT PLAN ENLARGEMENT

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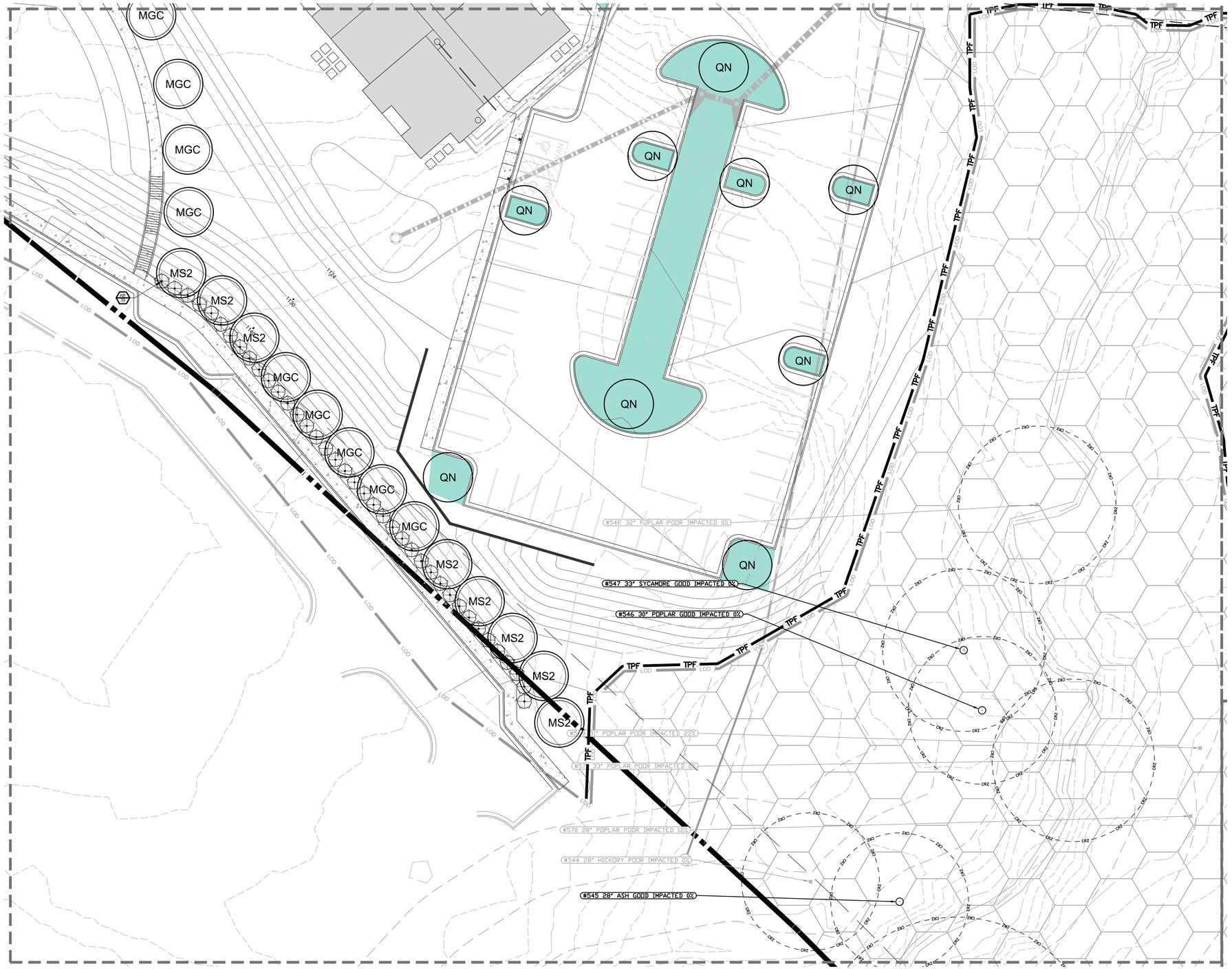

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PO	PO	AMERICAN SYCAMORE
JVX	JVX	EASTERN RED CEDAR
QN	QN	NUTTALL OAK
IS2	IS2	SAVANNAH HOLLY
QS	QS	SHUMARD OAK
MGC	MGC	SOUTHERN MAGNOLIA
MS2	MS2	SWEETBAY MAGNOLIA
SHRUBS		
	AIP	
	MC	W

CITY OF VILLA RICA
18 26
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City Engineer

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FOR

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APPROVED BY: DM

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GEORGIA
No. 1768
LANDSCAPE ARCHITECT
DOUG MCCLURE
9/10/24

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TREE PROTECTION & REPLACEMENT PLAN ENLARGEMENT

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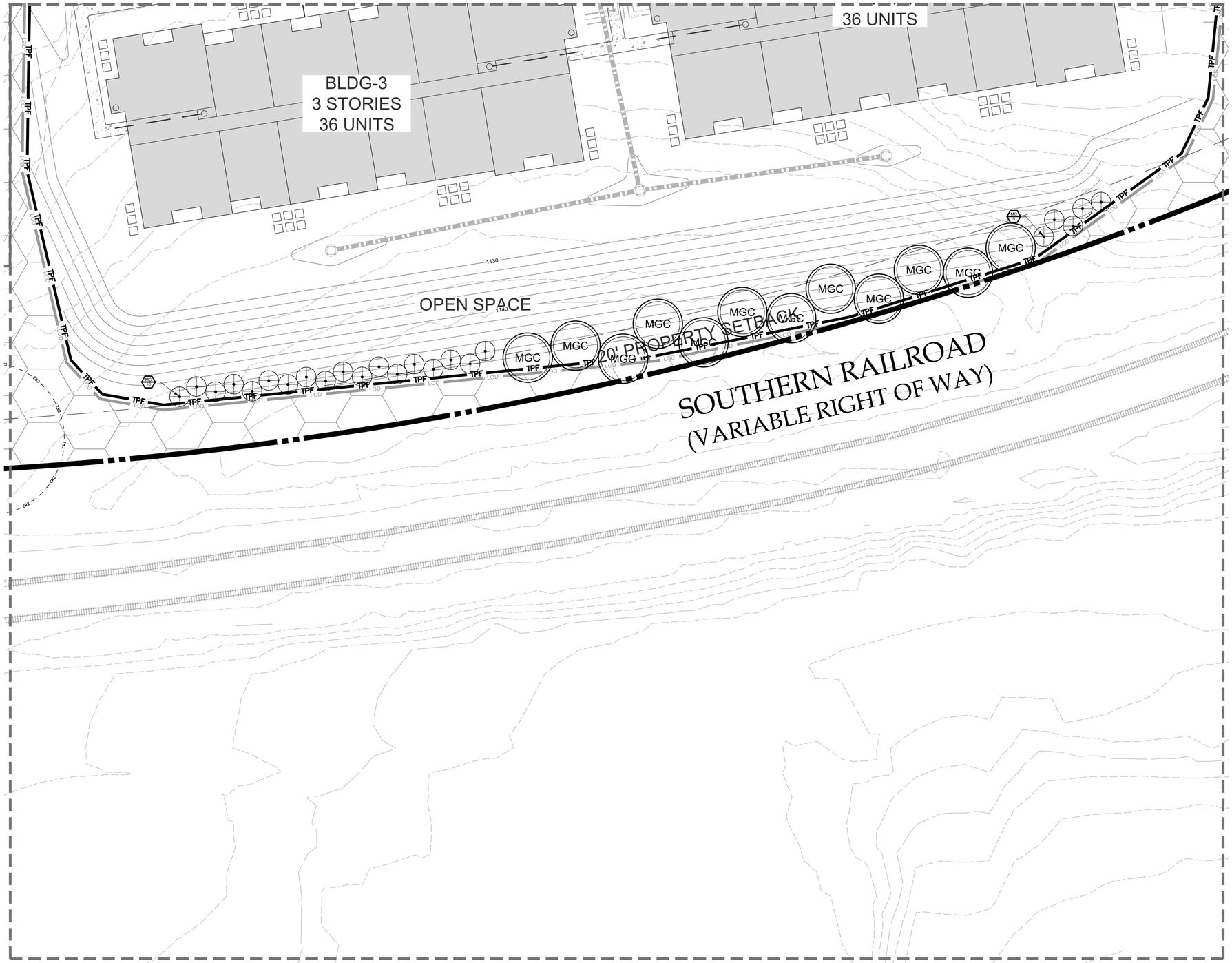

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MS2	MS2	SWEETBAY MAGNOLIA
SHRUBS		
	AIF	FORMOSA AZALEA
	[illegible]	[illegible]

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"
Approved
September 12, 2024
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City Engineer

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11 GORDON STREET
VILLA RICA, GA 30180

FOR
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350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
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MGC	MGC	SOUTHERN MAGNOLIA
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SHRUBS		
	AIF	FORMOSA AZALEA
	MC	

CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

GEORGIA No. 1768 LANDSCAPE ARCHITECT DOUG MCCLURE
9/10/24

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DATE
09/10/2024

TITLE
TREE PROTECTION & REPLACEMENT PLAN ENLARGEMENT

SHEET
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9/10/2024 10:59 AM

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- ALL TREE, SHRUB, AND GROUNDCOVER AREAS TO BE MULCHED WITH 3" OF DOUBLE SHREDDED HARDWOOD MULCH OR PINESTRAW.
- ALL PROPOSED PLANTING LOCATED OUTSIDE OF THE LIMITS OF DISTURBANCE TO BE FILED LOCATED AND PLANTED BY HAND.

PLANT KEY

SYMBOL	CODE	COMMON NAME
TREES		
UA	UA	AMERICAN ELM
PO	PO	AMERICAN SYCAMORE
JVX	JVX	EASTERN RED CEDAR
QN	QN	NUTTALL OAK
IS2	IS2	SAVANNAH HOLLY
QS	QS	SHUMARD OAK
MGC	MGC	SOUTHERN MAGNOLIA
MS2	MS2	SWEETBAY MAGNOLIA
SHRUBS		
	AIF	FORMOSA AZALEA
	MC	WAX MYRTLE

CITY OF VILLA RICA
18 26
"CITY OF GOLD"
GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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LANDSCAPE ARCHITECTURE
350 RESEARCH COURT
PEACHTREE CORNERS, GEORGIA 30092
O: 770.451.2741
PEC360STUDIO.COM

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PROJECT
GORDON STREET
11 GORDON STREET
VILLA RICA, GA 30180

FOR
ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL
GEORGIA
No. 1768
LANDSCAPE ARCHITECT
DOUG McCLURE
9/10/24
SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE

DATE
09/10/2024

TITLE
TREE PROTECTION & REPLACEMENT PLAN ENLARGEMENT

SHEET
TPR.2E

9/10/2024 10:59 AM
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KEY:

- SPECIMEN TREE TO BE PRESERVED
- SPECIMEN TREE TO BE REMOVED
- NON SPECIMEN TREE (NST) TO BE REMOVED
- NON SPECIMEN TREE (NST) TO BE SAVED
- CRZ OF SPECIMEN TREE TO BE PRESERVED
- CRZ OF SPECIMEN TREE TO BE REMOVED
- TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- CRZ IMPACTION AREA
- TREE SAVE AREA

LANDSCAPE NOTES

- ALL UNLABELED PERVIOUS AREAS WITHIN THE LIMIT OF DISTURBANCE SHALL BE PLANTED WITH SODDED OR SEEDED (BERMUDA OR EQUAL), CONTRACTOR IS RESPONSIBLE FOR DETERMINING QUANTITY.
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- ALL TREE, SHRUB, AND GROUNDCOVER AREAS TO BE MULCHED WITH 3" OF DOUBLE SHREDDED HARDWOOD MULCH OR PINESTRAW.
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IS2	IS2	SAVANNAH HOLLY
QS	QS	SHUMARD OAK
MGC	MGC	SOUTHERN MAGNOLIA
MS2	MS2	SWEETBAY MAGNOLIA
SHRUBS		
	AIF	FORMOSA AZALEA
	MC	WAX MYRTLE

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SEAL

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No. 1768
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TREE PROTECTION & REPLACEMENT PLAN ENLARGEMENT

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PLANT SCHEDULE PARKING

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT.	CAL.	MIN. HT.	SPACING
TREES							
UA	UA	19	AMERICAN ELM ULMUS AMERICANA	B & B	2" CAL.	12`-14`	AS SHOWN
QN	QN	17	NUTTALL OAK QUERCUS NUTTALLII	B & B	2" CAL.	12`-14`	AS SHOWN
QS	QS	24	SHUMARD OAK QUERCUS SHUMARDII	B & B	2" CAL.	12`-14`	AS SHOWN

PLANT SCHEDULE LANDSCAPE STRIP WEST

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT.	CAL.	MIN. HT.	SPACING	
TREES								
PO	PO	8	AMERICAN SYCAMORE PLATANUS OCCIDENTALIS	B & B	2" CAL.	12`-14`	AS SHOWN	
MGC	MGC	14	SOUTHERN MAGNOLIA MAGNOLIA GRANDIFLORA	B & B	2" CAL.	6`-8`	AS SHOWN	
MS2	MS2	15	SWEETBAY MAGNOLIA MAGNOLIA VIRGINIANA	B & B	2" CAL.	6`-8`	AS SHOWN	
SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT	MIN. HT.	SPACING		SPACING
SHRUBS								
	AIF	74	FORMOSA AZALEA AZALEA INDICA `FORMOSA`	3 GAL	18"-24"	AS SHOWN		72" o.c.

PLANT SCHEDULE LANDSCAPE STRIP SOUTH

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT.	CAL.	MIN. HT.	SPACING	
TREES								
MGC	MGC	12	SOUTHERN MAGNOLIA MAGNOLIA GRANDIFLORA	B & B	2" CAL.	6`-8`	AS SHOWN	
SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT	MIN. HT.	SPACING		SPACING
SHRUBS								
	MC	23	WAX MYRTLE MYRICA CERIFERA	3 GAL	24"-36"	AS SHOWN		96" o.c.

PLANT SCHEDULE LANDSCAPE STRIP EAST

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT.	CAL.	MIN. HT.	SPACING	
TREES								
JVX	JVX	8	EASTERN RED CEDAR JUNIPERUS VIRGINIANA	B & B	2" CAL.	6`-8`	AS SHOWN	
IS2	IS2	9	SAVANNAH HOLLY ILEX X ATTENUATA 'SAVANNAH'	B & B	2" CAL.	6`-8`	AS SHOWN	
QS	QS	1	SHUMARD OAK QUERCUS SHUMARDII	B & B	2" CAL.	12`-14`	AS SHOWN	
SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT	MIN. HT.	SPACING		SPACING
SHRUBS								
	AIF	36	FORMOSA AZALEA AZALEA INDICA `FORMOSA`	3 GAL	18"-24"	AS SHOWN		72" o.c.

MASTER PLANT SCHEDULE

CODE	QTY	COMMON / BOTANICAL NAME	CONT.	CAL.	MIN. HT.	SPACING	
TREES							
UA	19	AMERICAN ELM ULMUS AMERICANA	B & B	2" CAL.	12`-14`	AS SHOWN	
PO	8	AMERICAN SYCAMORE PLATANUS OCCIDENTALIS	B & B	2" CAL.	12`-14`	AS SHOWN	
JVX	8	EASTERN RED CEDAR JUNIPERUS VIRGINIANA	B & B	2" CAL.	6`-8`	AS SHOWN	
QN	17	NUTTALL OAK QUERCUS NUTTALLII	B & B	2" CAL.	12`-14`	AS SHOWN	
IS2	9	SAVANNAH HOLLY ILEX X ATTENUATA 'SAVANNAH'	B & B	2" CAL.	6`-8`	AS SHOWN	
QS	25	SHUMARD OAK QUERCUS SHUMARDII	B & B	2" CAL.	12`-14`	AS SHOWN	
MGC	26	SOUTHERN MAGNOLIA MAGNOLIA GRANDIFLORA	B & B	2" CAL.	6`-8`	AS SHOWN	
MS2	15	SWEETBAY MAGNOLIA MAGNOLIA VIRGINIANA	B & B	2" CAL.	6`-8`	AS SHOWN	
CODE	QTY	COMMON / BOTANICAL NAME	CONT	MIN. HT.	SPACING		SPACING
SHRUBS							
AIF	110	FORMOSA AZALEA AZALEA INDICA `FORMOSA`	3 GAL	18"-24"	AS SHOWN		72" o.c.
MC	23	WAX MYRTLE MYRICA CERIFERA	3 GAL	24"-36"	AS SHOWN		96" o.c.

LANDSCAPE REQUIREMENTS	
INTERIOR PARKING AREAS	
TOTAL PARKING AREA SQ.FT.	215,000
LANDSCAPE AREA SQ.FT.(5% OF PARKING AREA-SHOWN IN GREEN)	10,750
TREES REQUIRED (1 PER 180 SQ.FT. OF LANDSCAPE AREA)	60
TREES PROVIDED	60
LANDSCAPE REQUIREMENT IS MET	
20' LANDSCAPE STRIP WEST	
STRIP LENGTH L.F.	740
TREES REQUIRED (5 PER 100')	37
TREES PROVIDED	37
SHRUBS REQUIRED (10 PER 100')	74
SHRUBS PROVIDED	74
LANDSCAPE REQUIREMENT IS MET	
20' LANDSCAPE STRIP SOUTH	
STRIP LENGTH L.F.	230
TREES REQUIRED (5 PER 100')	12
TREES PROVIDED	12
SHRUBS REQUIRED (10 PER 100')	23
SHRUBS PROVIDED	23
LANDSCAPE REQUIREMENT IS MET	
20' LANDSCAPE STRIP EAST	
STRIP LENGTH L.F.	360
TREES REQUIRED (5 PER 100')	18
TREES PROVIDED	18
SHRUBS REQUIRED (10 PER 100')	36
SHRUBS PROVIDED	36
LANDSCAPE REQUIREMENT IS MET	

CITY OF VILLA RICA
18 CITY OF GOLD 26
GEORGIA

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

DOUGLAS M. PRESSURE
No. 1768
LANDSCAPE ARCHITECT
DOUG M PRESSURE
9/10/24

SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE

DATE

09/10/2024

TITLE

LANDSCAPE REQUIREMENTS

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GENERAL PLANTING NOTES:

1. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL, FREE OF PESTS AND DISEASES, EQUIVALENT IN QUALITY TO SPECIMEN GRADE OR BETTER, AS NOTED BY THE AMERICAN ASSOCIATION OF NURSERYMEN'S LATEST EDITION. PLANTS SHALL BE NURSERY GROWN, FRESHLY DUG, NORMALLY SHAPED, AND WELL-BRANCHED; FULL FOLIAGED WHEN IN LEAF AND WITH HEALTHY, WELL DEVELOPED ROOT SYSTEMS.
2. ALL PLANTS FURNISHED SHALL BE FREE OF ANY INSECT INFESTATIONS OR THEIR EGGS AND SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS WITH TEMPERATURE EXTREMES SIMILAR TO THOSE OF THE LOCALITY OF THE PROJECT FOR A MINIMUM OF TWO (2) YEARS PRIOR TO USE ON THIS PROJECT.
3. ALL PLANTS MUST BE CONTAINER-GROWN OR BALLED AND BURLAPPED AS INDICATED ON THE PLANT LIST. ALL NON-BIODEGRADABLE MATERIAL MUST BE REMOVED FROM THE ROOTBALL PRIOR TO INSTALLATION. REMOVE TOP 1/2 OF BIODEGRADABLE MATERIAL FROM ROOTBALL PRIOR TO INSTALLATION.
4. ALL PLANTS SHALL BE TRUE TO SPECIES AND VARIETY. PLANTS USED WHERE SYMMETRY IS REQUIRED SHALL MATCH AS NEARLY AS POSSIBLE. NO SUBSTITUTING WILL BE PERMITTED WITHOUT WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.
5. ALL TREES MUST BE SELF-SUPPORTING WITH STRAIGHT TRUNKS, WITH LEADERS INTACT, FULL-HEADED, AND MEET REQUIREMENTS SPECIFIED.
6. ALL TREES MUST BE GUYED OR STAKED AS SHOWN ON DETAILS. STAKING TO BE REMOVED AFTER ONE GROWING SEASON.
7. SCARIFY OR LOOSEN THE COMPACTED ROOTBALLS OF CONTAINER GROWN PLANTS, WITHOUT DAMAGING THE PLANTS, AND SCORE THE EDGES OF THE PLANTING HOLE FOR HEALTHY ROOT DEVELOPMENT PRIOR TO INSTALLATION. DO NOT BREAK UP ROOTBALLS OF B&B PLANTS.
8. ALL PLANTS AND PLANTING AREAS MUST BE COMPLETELY MULCHED WITH 3" PINESTRAW OR MULCH.
9. ALL PLANTS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AND THE OWNER BEFORE, DURING, AND AFTER INSTALLATION UNTIL THE DATE OF FINAL ACCEPTANCE.
10. ALL PLANTS SHALL MEET STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK". THESE STANDARDS REPRESENT GUIDELINE SPECIFICATIONS ONLY AND CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
11. SPECIFIC REQUIREMENTS CONCERNING THE VARIOUS SPECIES AND THE MANNER IN WHICH THEY ARE TO BE FURNISHED ARE SHOWN ON THE DRAWING AND PLANT LIST.
12. STOCK FURNISHED IN A SIZE RANGE SPECIFIED SHALL BE INTERPRETED TO MEAN THAT NOT LESS THAN 50% SHALL BE OF THE MAXIMUM SIZE SPECIFIED WITHIN EACH RANGE.
13. THE DETERMINING MEASUREMENTS FOR TREES SHALL BE THE CALIPER, HEIGHT AND SPREAD. CALIPER SHALL BE TAKEN 6" ABOVE THE GROUND FOR TREES UP TO 4" CALIPER AND 12" ABOVE THE GROUND FOR LARGER SIZES. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO THE MAIN BODY OF THE PLANT AND NOT FROM BRANCH TIP TO BRANCH TIP. TAKE MEASUREMENTS WITH BRANCHES IN NORMAL POSITION.
14. PRIOR TO CONSTRUCTION, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF WORK. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
15. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IF ANY DISCREPANCIES ARE FOUND.
16. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL PLANTING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) OF PLANTING AREAS AND LAWNS UNTIL THE WORK IS ACCEPTED IN TOTAL BY THE LANDSCAPE ARCHITECT OR OWNER. THE OWNER SHALL PROVIDE WATER.
17. THE LANDSCAPE CONTRACTOR SHALL PROVIDE ONE YEAR WARRANTY FOR ALL PLANT MATERIAL BEGINNING AT THE DATE OF SUBSTANTIAL COMPLETION. THE LANDSCAPE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD (PER THE DIRECTION OF THE OWNER).
18. THE OWNER AGREES TO PERFORM ALL LANDSCAPE MAINTENANCE (INCLUDING WATERING) THROUGHOUT THE ONE YEAR WARRANTY PERIOD UNLESS OTHERWISE DETERMINED.
19. AFTER DUG AT THE NURSERY SOURCE, ALL TREES IN LEAF SHALL BE ACCLIMATED FOR TWO WEEKS UNDER A MIST SYSTEM PRIOR TO INSTALLATION.
20. ANY PLANT MATERIAL WHICH DIES, TURNS BROWN OR DEFOLIATES PRIOR TO TOTAL ACCEPTANCE OF THE WORK SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, SIZE, AND MEETING ALL PLANT LIST SPECIFICATIONS.
21. LANDSCAPE CONTRACTOR TO LAYOUT ALL PLANT MATERIAL ACCORDING TO THE PLANS. APPROVAL AND/OR ADJUSTMENTS TO THE LAYOUT BY THE LANDSCAPE ARCHITECT MUST BE ACQUIRED WITHOUT ADDITIONAL COST TO THE OWNER PRIOR TO INSTALLATION.
22. LANDSCAPE CONTRACTOR TO PROVIDE INSTALLED UNIT PRICE FOR ALL PLANT MATERIALS.

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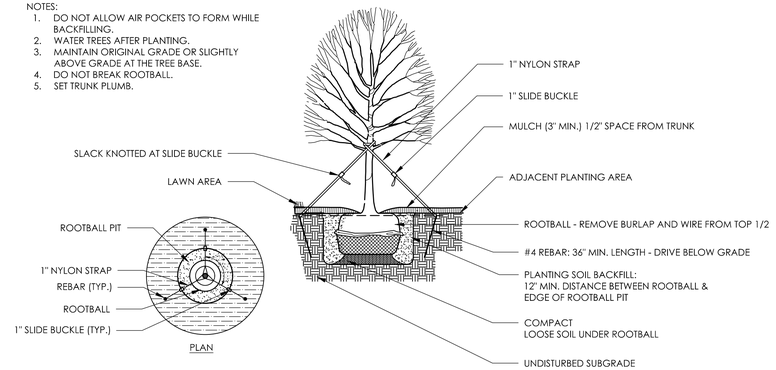
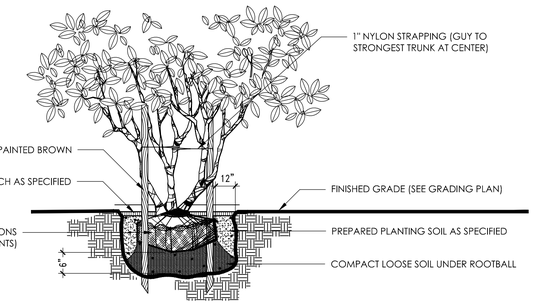
NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHILE BACKFILLING.
2. WATER TREES AFTER PLANTING.
3. MAINTAIN ORIGINAL GRADE OR SLIGHTLY ABOVE GRADE AT THE TREE BASE.
4. DO NOT BREAK ROOTBALL.
5. SET TRUNK PLUMB.



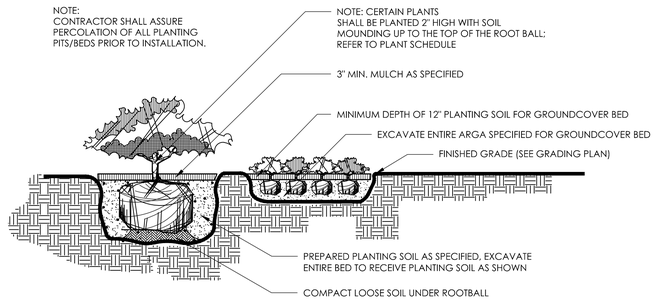
LARGE TREE PLANTING
N.T.S. TREES OVER 2 1/2" CALIPER

NOTE:
1. FINAL TREE STAKING DETAILS AND PLACEMENT TO BE APPROVED BY THE OWNER.
2. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.



MULTI-TRUNK PLANTING
N.T.S.

NOTE:
CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS/BEDS PRIOR TO INSTALLATION.



SHRUB AND GROUNDCOVER PLANTING
N.T.S.

CITY OF VILLA RICA
"CITY OF GOLD"
18 GEORGIA 26
Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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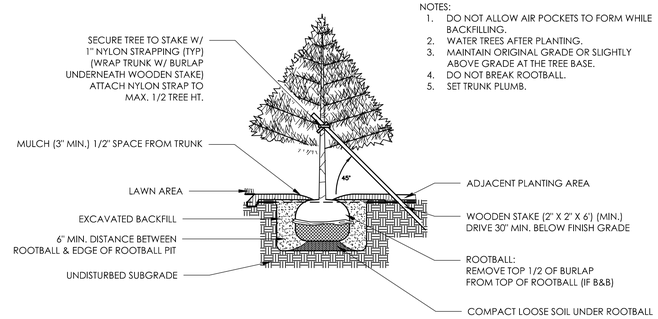
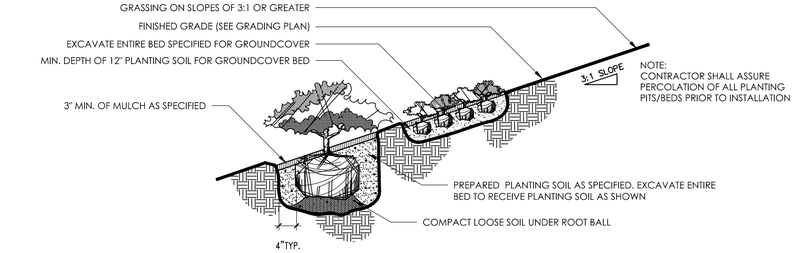
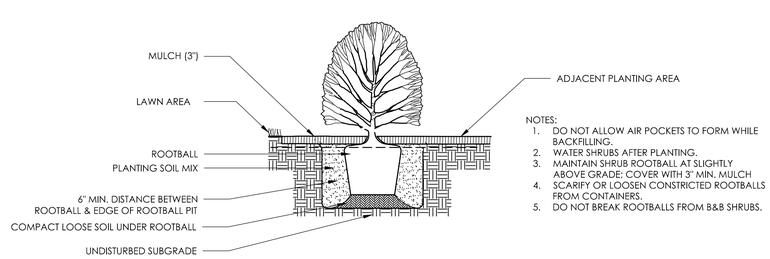
5. SET TRUNK PLUMB.



EVERGREEN TREE PLANTING
N.T.S.



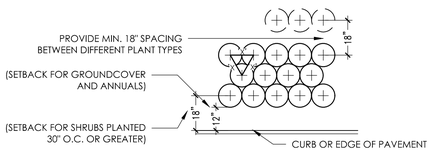
SHRUB AND GROUNDCOVER PLANTING ON SLOPE
N.T.S.



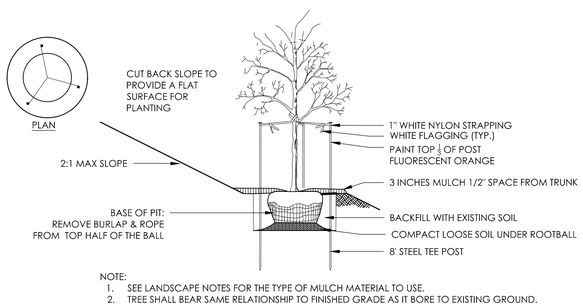
NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHILE BACKFILLING.
2. WATER SHRUBS AFTER PLANTING.
3. MAINTAIN SHRUB ROOTBALL AT SLIGHTLY ABOVE GRADE; COVER WITH 3" MIN. MULCH
4. SCARIFY OR LOOSEN CONSTRICTED ROOTBALLS FROM CONTAINERS.
5. DO NOT BREAK ROOTBALLS FROM B&B SHRUBS.

SPECIMEN SHRUB PLANTING
N.T.S.

NOTE:
ALL SHRUBS AND GROUNDCOVER MASSES TO USE TRIANGULAR SPACING EXCEPT WHERE NOTED. REFER TO PLANT LIST FOR INDIVIDUAL PLANT SPACING 'X'



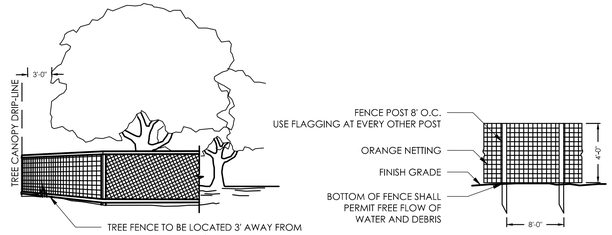
TYPICAL PLANT SPACING
N.T.S.



NOTE:
1. SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2. TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO EXISTING GROUND.

TREE PLANTING ON (2:1) SLOPE
N.T.S.

TREE PROTECTION AREA
KEEP OUT!
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECT OF A TREE PROTECTION ORDER (TOWN & COUNTRY ACT 1990)
CONTRAVENTION OF TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:
THE PROTECTIVE FENCING MUST NOT BE REMOVED
NO PERSON SHALL ENTER THE PROTECTION AREA
NO MACHINE OR PLANT SHALL ENTER THE PROTECTION AREA
NO MATERIALS SHALL BE STORED IN THE PROTECTION AREA
NO SPOIL SHALL BE DEPOSITED IN THE PROTECTION AREA
NO EXCAVATION SHALL OCCUR IN THE PROTECTION AREA
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY



GEORGIA811
www.Georgia811.com
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TREE PROTECTION FENCE
N.T.S.

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350 RESEARCH COURT
PEACHTREE CORNERS,
GEORGIA 30092
O: 770.451.2741
PEC360STUDIO.COM

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PROJECT

GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

GEORGIA
No. 1768
LANDSCAPE ARCHITECT
DOUG M. 9/10/24

SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE

DATE
09/10/2024

TITLE
PLANTING DETAILS

SHEET
TPR.4



CONCEPT STREET LIGHTING:

PARKING LIGHT SYMBOL
QUANTITY - 30
MOUNTING HEIGHT - 18
SPACING - SHOWN ON PLAN

**LIGHTING MODEL/ MANUFACTURER/ QUANTITY MAY CHANGE DEPENDING ON AVAILABILITY/ DESIGN UPDATES*

CITY OF VILLA RICA
GEORGIA
18 26
"CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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0 60 120 180 FEET
1" = 60'

NORTH

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STREET

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VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

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GEORGIA
No. 1768
LANDSCAPE ARCHITECT
DOUG MCCLURE
9/10/24

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DATE
09/10/2024

TITLE
LIGHTING PLAN

SHEET
L5.00

9/10/2024 11:00 AM

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9/10/2024 11:00 AM

EVOLVE
ERLC Cobra Head
LED Roadway Lighting

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER



The Evolve® LED Roadway ERLC Luminaire is optimized utilizing advanced LED reflective optical system for local, collector and major roadways. The modern design incorporates the heat sink directly into the unit for heat transfer to prolong LED life.

Construction

Housing:	Aluminum die cast enclosure casting integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant powder paint, ≥ 2.0 mil thickness (RAL & custom colors available) Standard = Black, Dark Bronze, Gray, White Optional = Coastal Finish
Weight:	8.5 lbs (5.6 kgs)

Optical System

Lumens:	2,000 - 7,000
Distribution:	Type II Narrow, II/III[1], III, V
Efficacy:	110-143 LPW
CCT:	2700K, 3000K, 4000K & 5000K
CRI:	≥ 70

Electrical

Input Voltage:	120-277V (no 347-480V)
Input Frequency:	50/60Hz
Power Factor:	≥ 90% at rated watts
Total Harmonic Distortion:	≤ 20% at rated watts

Surge Protection*

STANDARD	OPTIONAL
☐ 10kV/5kA	☐ Secondary 10kV/5kA (R Option) or Secondary 20kV/10kA (T Option)

*Per ANSI C136.2-2018

Lumen Maintenance

Projected Lxx per IES TM-21-11 at 25°C

LUMEN CODES	DISTRIBUTIONS	LXX(10K) @ HOURS 25,000 HR	50,000 HR	60,000 HR
02,03, 04, 05	A5, B5, C5	L97	L93	L92
06	A5, B5, C5	L96	L91	L89

LUMEN CODES	DISTRIBUTIONS	LXX(10K) @ HOURS 25,000 HR	50,000 HR	60,000 HR
02,03, 04, 05	V4	L96	L93	L93
06	V4	L94	L90	L88

Ratings

Operating Temperature:	-40°C to 50°C
Vibration:	3G per ANSI C136.31-2018
LM-79:	Testing in accordance with IES Standards
EMI:	Title 47 CFR Part 15 Class A
RoHS:	Complies with the material restrictions of RoHS

Controls

Dimming:	Standard - 0-10V ☐ Optional - DALI (Option U) ☐
Sensors:	Photo Electric Sensors (PE) available LightGrid Compatible

Warranty

☐ 5 Year (Standard) ☐ 10 Year (Optional)

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

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EVOLVE
ERLC Cobra Head
LED Roadway Lighting
CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

Ordering Information

ERLC _ _ _ _ – _ _ – _ _ – _ _ – _ ____ ___

PROD. ID	VOLTAGE[1]	LUMENS	DISTRIBUTION	CCT	CONTROLS PER ANSI C136.41	COLOR	OPTIONS
E = Evolve	0 = 120-277V	02=2000 lm[2]	A5 = II Narrow	27 = 2700K[4]	A = 7-Pin Receptacle	BLCK = Black	B = Tether
R = Roadway	8 = 120-240V	03=3000 lm	B5 = Type II/III[3]	30 = 3000K[4]	D = 7-Pin Receptacle with Shorting Cap	DKBZ = Dark Bronze	CT = Captive Door
L = Local		04=4000 lm	C5 = Type III	40 = 4000K	E = 7 Pin Receptacle with Long Life non-Dimming PE Control	GRAY = Gray	F = Fusing
C = Compact	1 = 120V	05=5000 lm	V4 = Type V	50 = 5000K		WHTE= White	G = Internal Bubble Level
	2 = 208V	06=6000 lm			Note: 0-10V control standard unless DALI Option "U" requested		L = Tool-Less Entry
	3 = 240V	07=7000 lm					MI = MagnaPak[6]
	4 = 277V						R = Secondary 10kV/5kA SPD
							T = Secondary 20kV/10kA SPD
							U = DALI Programmable[5]
							V1 = Field Adjustable Module[5,7]
							Y = Coastal Finish[8]
							XXX = Special Options

[1] Not Available with Fusing
[2] Lumen choice only offered for 120-240V
[3] See ISO plots of the B5 Distribution
[4] Select 2700K or 3000K CCT for IDA approved units
[5] Compatible with LightGrid
[6] Recommended for installations within 750 feet from coast. Lead time varies, check with factory.
[7] Not available with DALI "U" option
[8] Option MI provides for MagnaPak – 40 Fixtures per MagnaPak Container. Single Pack box is standard

Suggested HID Replacement

- Approximately 2,000 - 7,000 lumens to replace 50-100W HPS Cobra-head

Note: actual replacement lumens may vary based upon mounting height, pole spacing, design criteria, etc.

PREVIOUS	OPTICAL PATTERN	LATEST	NEW OPTICAL PATTERN
A3	Type II Narrow	A5	Type II Narrow
B3	Type II Wide	B5	Type II/III
C3	Type III	C5	Type III
N/A	Type V	V4	Type V

The information above is designed to provide a guideline to select the correct luminaire for a roadway application. The best and most accurate way to ensure the proper design is by doing a lighting layout.

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

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EVOLVE
ERLC Cobra Head
LED Roadway Lighting
CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

LUMEN OUTPUT	DIST.	LUMENS 4000K/5000K	3000K	2700K	WATTAGE 120-277V	BUG RATINGS 4000K/5000K	3000K	2700K
02	A5	2000	1940	1760	15	B1-U0-G1	B1-U0-G1	B1-U0-G1
	B5	2000	1940	1760	15	B1-U0-G1	B1-U0-G1	B1-U0-G1
	C5	2000	1940	1760	15	B1-U0-G1	B1-U0-G1	B1-U0-G1
	V4	1990	1950	1890	15	B1-U0-G0	B1-U0-G0	B1-U0-G0
03	A5	3000	2910	2640	22	B1-U0-G1	B1-U0-G1	B1-U0-G1
	B5	3000	2910	2640	22	B1-U0-G1	B1-U0-G1	B1-U0-G1
	C5	3000	2910	2640	22	B1-U0-G1	B1-U0-G1	B1-U0-G1
	V4	3100	3030	2950	23	B1-U0-G0	B1-U0-G0	B1-U0-G0
04	A5	4000	3880	3520	28	B1-U0-G1	B1-U0-G1	B1-U0-G1
	B5	4000	3880	3520	28	B1-U0-G1	B1-U0-G1	B1-U0-G1
	C5	4000	3880	3520	28	B1-U0-G1	B1-U0-G1	B1-U0-G1
	V4	4030	3940	3840	32	B2-U0-G0	B2-U0-G0	B2-U0-G0
05	A5	5000	4850	4400	36	B1-U0-G1	B1-U0-G1	B1-U0-G1
	B5	5000	4850	4400	36	B1-U0-G1	B1-U0-G1	B1-U0-G1
	C5	5000	4850	4400	36	B1-U0-G2	B1-U0-G2	B1-U0-G1
	V4	5200	5090	4960	43	B2-U0-G1	B2-U0-G1	B2-U0-G1
06	A5	6000	5820	5280	46	B2-U0-G2	B2-U0-G1	B1-U0-G1
	B5	6000	5820	5280	46	B1-U0-G2	B1-U0-G2	B1-U0-G2
	C5	6000	5820	5280	46	B1-U0-G2	B1-U0-G2	B2-U0-G2
	V4	6350	6220	6050	55	B2-U0-G1	B2-U0-G1	B2-U0-G1
07	A5	7000	6790	6160	56	B2-U0-G2	B2-U0-G2	B2-U0-G2
	B5	7000	6790	6160	56	B1-U0-G2	B1-U0-G2	B1-U0-G2
	C5	7000	6790	6160	56	B1-U0-G2	B1-U0-G2	B1-U0-G2

For additional information on ERLC IES files, please click one of the following links:

Non-Shielded Shielded

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CITY OF VILLA RICA GEORGIA 1826 "CITY OF GOLD"

Approved
September 12, 2024
3:29 PM
Bobby C. Elliott, PE
City Engineer

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11 GORDON STREET
VILLA RICA, GA 30180

FOR
ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092

BRYAN FLINT
404.867.3572

REVISION	DATE
LDP SUBMITTAL	03/01/2024
LDP SUBMITTAL	06/21/2024
LDP SUBMITTAL	09/10/2024

DRAWN BY: JP
APPROVED BY: DM

PROJECT NUMBER
21217.00

SEAL

GEORGIA No. 1768 LANDSCAPE ARCHITECT DOUG MCKENZIE
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DATE
09/10/2024

TITLE
LIGHTING SPECIFICATIONS

SHEET
L5.01

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-ALTA SURVEY

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GEORGIA WEST ZONE

MATCH LINE — SHEET 2 / SHEET 1



SHEET LEGEND

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

SHEET 1 OF 6

DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 21217.00
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23

0 25 50 100

GEORGIA REGISTERED No. 3008 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY

FOR

IMPERIUM DEVELOPMENT PARTNERS, LLC & FIRST AMERICAN TITLE INSURANCE COMPANY

CARROLL COUNTY GEORGIA

CITY OF VILLA RICA

LAND LOT(S) 161
DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
5			
4			
3			
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
1	3/26/24	ALTA UPDATE	NAV

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FIELD WORK: 4/16/2023
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23

0 25 50 100

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ALTA/NSPS LAND TITLE SURVEY

FOR

IMPERIUM DEVELOPMENT PARTNERS, LLC & FIRST AMERICAN TITLE INSURANCE COMPANY

CITY OF VILLA RICA — CARROLL COUNTY GEORGIA

LAND LOT(S) 161 — DISTRICT 6TH

GEORGIA WEST ZONE

MATCH LINE - SEE SHEET 3

GORDON STREET (30' RIGHT OF WAY)

E GORDON STREET (30' RIGHT OF WAY)

P.O.B.
IPS
N: 1,357,933.0
E: 2,068,542.3

N44°16'02"E 148.64'

N57°41'02"W 61.87'

N51°00'32"W 173.80'

N45°47'17"E 267.65'

N49°53'27"E 381.00'

937.80'
N 58°31'44" E

N47°12'32"W 321.00'

N44°47'32"W 138.90'

ARC=733.63'
R=1596.62'
S75°52'47"W
CH=727.19'

SOUTHERN RAILROAD
(VARIABLE RIGHT OF WAY)

N/F
CITY OF VILLA RICA
TAX PARCEL ID: V01 0040001
DB 3594 PG 304
PB 69 PG 147

N/F
CAROLINE W. CLARK
TAX PARCEL ID: V05 0150035
DB 4227 PG 271
PB 2 PG 5

N/F
STONE STREET STATION
LIMITED LIABILITY COMPANY
TAX PARCEL ID: V05 0150031
DB 4160 PG 1

N/F
JACQUELINE S. WALDROP
TAX PARCEL ID: V05 0150030
DB 5555 PG 832
PB 19 PG 47
PB 24 PG 137

AREA
25.838± ACRES
1,125,496± SQ. FT.

"NO BUILDINGS"

ZONE "A"

ZONE AE FLOODPLAIN TO BE REMOVED

249.42'
S 34°35'45" W

114.72'
S 46°57'05" E

127.80'
S 47°55'01" E

107.24'
S 42°02'18" E

153.86'
N 42°12'23" W

98.19'
S 56°48'03" W

FLOOD LIMITS, SEE NOTE 2

20' SANITARY SEWER EASEMENT (EXCEPTION 23)

BOUNDARY LINE AGREEMENT (EXCEPTION 14–19)

APPROXIMATE NON– EXCLUSIVE EASEMENT FOR SEWER MAINTENANCE (EXCEPTION 20)

CREEK CENTERLINE

EDGE OF WRESTED VEGETATION

TOP OF BANK

DITCH

GRAVEL DRIVEWAY

CONCRETE APRON

RUSSELL STREET
(40' PUBLIC RIGHT OF WAY)

RUBY STREET
(50' PUBLIC RIGHT OF WAY)

RIGHT OF WAY PER PB 7 PG 5

N/F
HOUSING AUTHORITY OF THE
CITY OF VILLA RICA
TAX PARCEL ID: V05 0150035
DB 279 PG 390
PB 62 PG 109

N/F
JAMES EARL HEMBREE
TAX PARCEL ID: V05 0150034
DB 304 PG 201

N/F
S. DOUG HEMBREE
TAX PARCEL ID:
V05 0150084
DB 1852 PG 290

S01°07'33"E 240.06'

S01°16'09"W 195.33'

S00°15'18"W 324.71'

N00°15'18"E 7.45'

19.4'

6.5'

6.69'

127.2'
(MEAS.)

LINETYPES

PROPERTY
- Adjacent Property
- Property Line
- Center of Creek

FENCE LINES
- Barb Wire Fence
- Chain link fence
- Wood Fence
- Woven Wire Fence

SITE / TOPOGRAPHIC FEATURES
- Guardrail

EXISTING OVERHEAD
- Overhead Wires

EXISTING UNDERGROUND
- Cable
- Electric
- Fiber Optic
- Gas
- Telecommunications
- Water
- Television
- Storm Drainage Line
- Sanitary Sewer

ABBREVIATIONS

APPROX.	Approximate	I.E.	Invert Elevation
#4	1/2" Rebar	IPF	Iron Pin Found
C&G	Curb and Gutter	IPS	Iron Pin Set
CLF	Chain Link Fence	LP	Light Pole
CMP	Corrugated Metal Pipe	MW	Monitoring Well
CO	Clean Out	N/F	Now or Formerly
CPP	Corrugated Plastic Pipe	OTP	Open Top Pipe
DB	Deed Book	PB	Plat Book
DI	Drop Inlet	PG	Page
DE	Drainage Easement	PKF	PK Nail Found
EOP	Edge of Pavement	PKS	PK Nail Set
EPP	Electric Power Pole	POB	Point of Beginning
EPAN	Electric Panel	POC	Point of Commencement
ESMT	Easement	PVC	Polyvinyl Chloride Pipe
FES	Flared End Section	RBC	Rebar Capped
FFE	Finish Floor Elevation	RCP	Reinforced Concrete Pipe
FH	Fire Hydrant	RWM	Right of Way Monument
FLGP	Flag Pole	SSE	Sanitary Sewer Easement
GA	Georgia	SSMH	Sanitary Sewer Manhole
GM	Gas Meter	TRAN	Transformer
GW	Guy Wire	VCP	Vitrified Clay Pipe
HDR	Hand Rail	W.D.F.	Wood Fence
H.W.	Hard Wood	WM	Water Meter
HW	Headwall	WV	Water Valve
ICV	Irrigation Control Valve		

Know what's below. Call before you dig.

REVISIONS

REV	DATE	DESCRIPTION	BY
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4			
3			
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1	3/26/24	ALTA UPDATE	NAV

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STRUCTURE LEGEND

CABLE / TV
- Cable / TV Marker
- Cable / TV Pedestal
- Cable / TV Manhole
- Cable / TV Handhole
- Cable / TV Cable Box

ELECTRIC/POWER
- Transformer
- Guy Wire
- Electric Meter
- Power Pole/Utility Pole
- Street Light/Light Pole
- Electric Panel
- Electric Box
- Electric Manhole
- Electric Handhole
- Electric / Power Marker
- Spot Light

FIBER OPTIC
- Fiber Optic Marker
- Fiber Optic Manhole
- Fiber Optic Pedestal

GAS
- Gas Meter
- Gas Valve
- Gas Fill Cap
- Gas Manhole
- Gas Marker
- Gas Pressure Relief Valve
- Gas Vault
- Gas Vent Pipe

PAVEMENT MARKING
- BUS Pavement Marking
- ONLY Pavement Marking
- SCHOOL Pavement Marking
- Turn Arrow Left/Right
- Turn Arrow Left
- Turn Arrow Right
- Traffic Arrow Straight
- Traffic Arrow Straight/Left
- Traffic Arrow Straight/Right
- Traffic Arrow U-Turn
- Handicap Pavement Marking
- Bike Lane Pavement Marking

PROPERTY MONUMENTS
- RMM Right-of-Way Monument Found
- CMF Concrete Monument Found
- IPS Iron Pin Set
- IPF Iron Pin Found (Rebar found)
- PKS PK Nail Set
- PKF PK Nail Found
- Point
- BM Benchmark

MISCELLANEOUS
- Land Lot Symbol

SEWER
- GT Grease Trap
- SS Sanitary Sewer Manhole
- CO Cleanout
- Sanitary Sewer Vent Pipe
- Sanitary Sewer Marker
- SFM Sanitary Sewer Force Main Valve
- SLS Sanitary Sewer Lift Station

SITE / TOPOGRAPHIC FEATURES
- Street Sign
- AC Air Condition Unit
- BOL Bollard
- MB Mailbox
- Satellite Dish
- Flag Pole
- Monitoring Well
- Antenna
- Column
- Camera Pole / Camera
- Bore Hole Location
- Mile Post
- Rail Road Mile Post

STORM / DRAINAGE
- Storm Structure Lid
- DI Drop Inlet
- CB Catch Basin
- Single Wing Catch Basin
- Double Wing Catch Basin
- Weir Inlet
- Head Wall
- JB Junction Box
- Curb Inlet
- Flared-in Section
- DS Down Spout

TELEPHONE
- T Telephone Terminal Box
- Telephone Marker
- THH Telephone Handhole Box
- TMH Telephone Manhole
- Telephone Cabinet

TRAFFIC
- Overhead Traffic Signal
- THB Traffic Handhole Box
- THB Telephone Handhole Box
- Traffic Signal Pole
- TLC Traffic Signal Loop Control Box

WATER
- Fire Hydrant
- I Irrigation Control Valve
- W Water Meter
- W Water Valve
- Fire Department Connection
- W Water Vault
- PIV Pressure Irrigation Valve
- Water Vent Pipe
- Water Valve Marker
- Water Marker
- W Water Manhole
- ARV Water Air Release Valve
- BFP Water Back Flow Preventer
- Sprinkler Head
- Sprinkler Valve

LINETYPES

PROPERTY
- Adjacent Property
- Property Line
- Center of Creek

FENCE LINES
- X Barb Wire Fence
- Chain link fence
- Wood Fence
- Woven Wire Fence

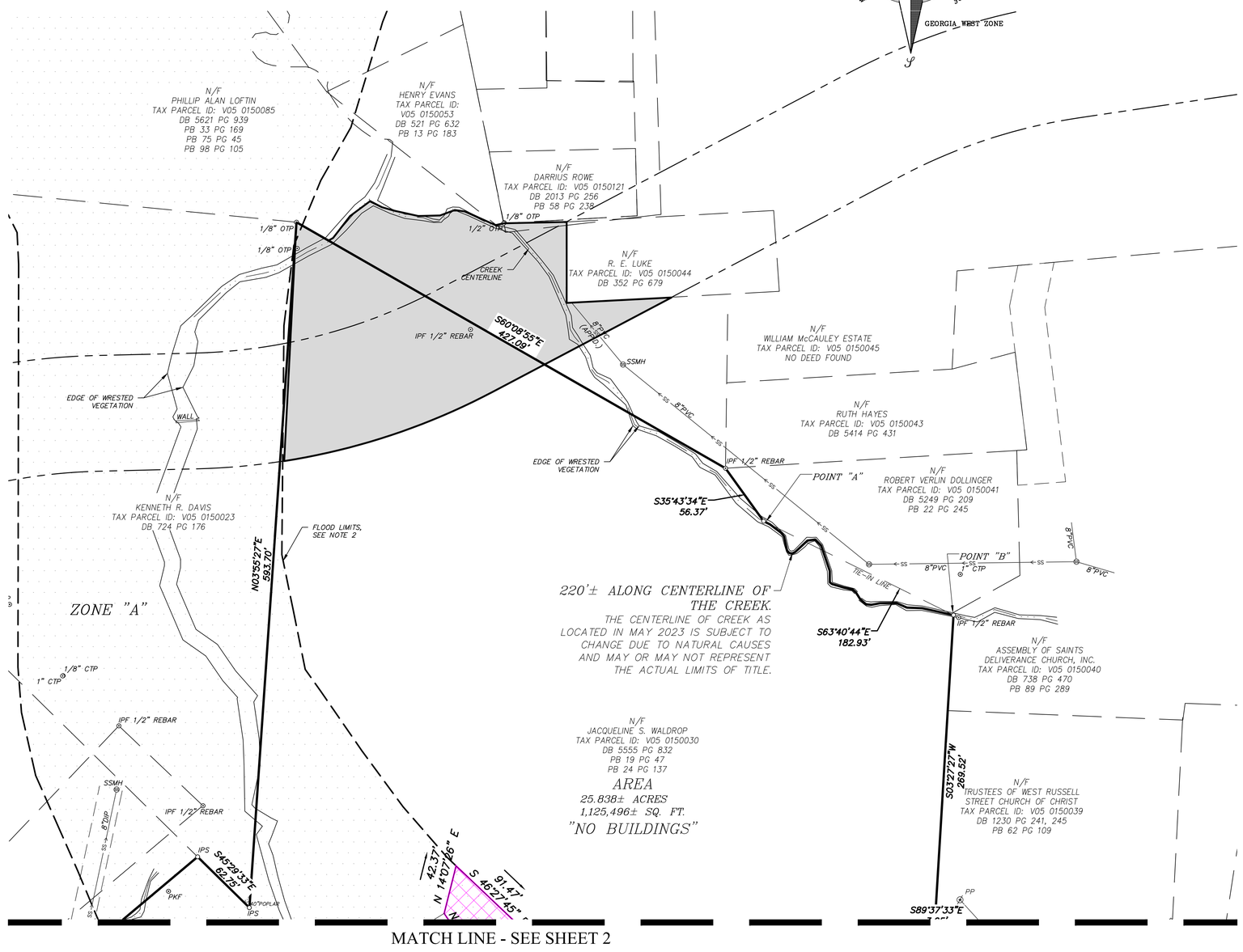
SITE / TOPOGRAPHIC FEATURES
- Guardrail

EXISTING OVERHEAD
- OW Overhead Wires

EXISTING UNDERGROUND
- C Cable
- E Electric
- FO Fiber Optic
- G Gas
- T Telecommunications
- W Water
- TV Television
- Storm Drainage Line
- SS Sanitary Sewer

ABBREVIATIONS

APPROX.	Approximate	I.E.	Invert Elevation
#4	1/2" Rebar	IPF	Iron Pin Found
C&G	Curb and Gutter	IPS	Iron Pin Set
CLF	Chain Link Fence	LP	Light Pole
CMP	Corrugated Metal Pipe	MW	Monitoring Well
CO	Clean Out	N/F	Now or Formerly
CPP	Corrugated Plastic Pipe	OTP	Open Top Pipe
DB	Deed Book	PB	Plat Book
DI	Drop Inlet	PG	Page
DE	Drainage Easement	PKF	PK Nail Found
EOP	Edge of Pavement	PKS	PK Nail Set
EPP	Electric Power Pole	POB	Point of Beginning
EPAN	Electric Panel	POC	Point of Commencement
ESMT	Easement	PVC	Polyvinyl Chloride Pipe
FES	Flared End Section	RBC	Rebar Capped
FFE	Finish Floor Elevation	RCP	Reinforced Concrete Pipe
FH	Fire Hydrant	RWM	Right of Way Monument
FLGP	Flag Pole	SSE	Sanitary Sewer Easement
GA	Georgia	SSMH	Sanitary Sewer Manhole
GM	Gas Meter	TRAN	Transformer
GW	Guy Wire	VCP	Vitrified Clay Pipe
HDR	Hand Rail	W.D.F.	Wood Fence
H.W.	Hard Wood	WM	Water Meter
HW	Headwall	WV	Water Valve
ICV	Irrigation Control Valve		







SHEET 3 OF 6
DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 21217.00
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23
0 25 50 100

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC & FIRST AMERICAN TITLE INSURANCE COMPANY

CARROLL COUNTY GEORGIA
CITY OF VILLA RICA
LAND LOT(S) 161 DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
5			
4			
3			
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
1	3/26/24	ALTA UPDATE	NAV

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MATCH LINE - SEE SHEET 5

GEORGIA WEST ZONE

GORDON STREET (30' RIGHT OF WAY)

E GORDON STREET (30' RIGHT OF WAY)

RUSSELL STREET (40' PUBLIC RIGHT OF WAY)

RUBY STREET (50' PUBLIC RIGHT OF WAY)

SOUTHERN RAILROAD (VARIABLE RIGHT OF WAY)

ZONE "A"

ZONE AE FLOODPLAIN TO BE REMOVED

FLOOD LIMITS, SEE NOTE 2

CREEK CENTERLINE

TOP OF BANK

DITCH

EDGE OF WRESTED VEGETATION

EDGE OF PAVEMENT

GRAVEL DRIVEWAY

CONCRETE APRON

BUILDING OUTLINE

T.B.M. TRAVERSE POINT ELEVATION 1138.43

T.B.M. TRAVERSE POINT ELEVATION 1142.42

T.B.M. TRAVERSE POINT ELEVATION 1130.37

SSMH TOP=1134.20 I.E.(O)=1128.70 I.E.(O)=1128.60

SSMH TOP=1118.79 I.E.(I)=1111.79 I.E.(O)=1111.69

SSMH TOP=1118.37 I.E.(I)=1110.97 I.E.(O)=1110.92 (8"PVC)

SSMH TOP=1111.65 I.E.(I)=1103.7 I.E.(O)=1103.65

SSMH TOP=1104.92 I.E.(I)=1099.27 (SW) I.E.(I)=1098.52 (S) I.E.(I)=1098.17 (SE) I.E.(I)=1098.62 (6") I.E.(O)=1097.12

SSMH TOP=1101.83 I.E.(I)=1098.98 I.E.(O)=1098.93

SSMH TOP=1117.60 I.E.(I)=1110.25 I.E.(O)=1108.45

SSMH TOP=1127.54 I.E.(I)=1119.94 I.E.(O)=1118.04

SSMH TOP=1132.95 I.E.(I)=1125.65 I.E.(O)=1123.60

SSMH TOP=1118.55 I.E.(I)=1111.90 I.E.(O)=1111.80

SSMH TOP=1103.76 I.E.(I)=1101.11 I.E.(I)=1101.06 (NO FLOW) I.E.(O)=1101.01

I.E.=1130.22

I.E.=1134.46

I.E.=1097.78

I.E.=1098.01

I.E.=1098.43

I.E.=1098.47

I.E.=1097.86

I.E.=1099.79

I.E.=1109.01 I.E.=1107.64 I.E.=1108.66

TOP=1114.02 15"CMP

TOP=1113.19

24"CMP

TOP=1103.74

I.E.=1105.44

8"DIP

I.E.=1104.15

18"CMP

TOP=1114.48 WEIR EL=1114.35 I.E.(O)=1109.68

24"CMP (APP.D)

15"CMP

8"PVC

6"PVC (APP.D.)

8"DIP (APP.D.)

6"CLAY (APP.D.)

EXPOSED 8"DIP

24"CMP

8"PVC

8"DIP

8"PVC

8"DIP

8"DIP

8"DIP

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STRUCTURE LEGEND

CABLE / TV
- Cable / TV Marker
- Cable / TV Pedestal
- Cable / TV Manhole
- Cable / TV Handhole
- Cable / TV Cable Box

ELECTRIC/POWER
- Transformer
- Guy Wire
- Electric Meter
- Power Pole/Utility Pole
- Street Light/Light Pole
- Electric Panel
- Electric Box
- Electric Manhole
- Electric Handhole
- Electric / Power Marker
- Spot Light

FIBER OPTIC
- Fiber Optic Marker
- Fiber Optic Manhole
- Fiber Optic Pedestal

GAS
- Gas Meter
- Gas Valve
- Gas Fill Cap
- Gas Manhole
- Gas Marker
- Gas Pressure Relief Valve
- Gas Vault
- Gas Vent Pipe

PAVEMENT MARKING
- BUS — Pavement Marking
- ONLY — Pavement Marking
- SCHOOL — Pavement Marking
- Turn Arrow Left/Right
- Turn Arrow Left
- Turn Arrow Right
- Traffic Arrow Straight
- Traffic Arrow Straight/Left
- Traffic Arrow Straight/Right
- Traffic Arrow U-Turn
- Handicap Pavement Marking
- Bike Lane Pavement Marking

PROPERTY MONUMENTS
- RMM — Right-of-Way Monument Found
- CMF — Concrete Monument Found
- IPS — Iron Pin Set
- IPF — Iron Pin Found (Rebar found)
- PKS — PK Nail Set
- PKF — PK Nail Found
- Point
- BM — Benchmark

MISCELLANEOUS
- Land Lot Symbol

SEWER
- GT — Grease Trap
- SS — Sanitary Sewer Manhole
- CO — Cleanout
- Sanitary Sewer Vent Pipe
- Sanitary Sewer Marker
- SV — Sanitary Sewer Force Main Valve
- LS — Sanitary Sewer Lift Station

SITE / TOPOGRAPHIC FEATURES
- Street Sign
- AC — Air Condition Unit
- BOL — Bollard
- MB — Mailbox
- Satellite Dish
- Flag Pole
- Monitoring Well
- Antenna
- Column
- Camera Pole / Camera
- Bore Hole Location
- Mile Post
- Rail Road Mile Post

STORM / DRAINAGE
- Storm Structure Lid
- DI — Drop Inlet
- Catch Basin
- Single Wing Catch Basin
- Double Wing Catch Basin
- Weir Inlet
- Head Wall
- JB — Junction Box
- Curb Inlet
- Flared-in Section
- DS — Down Spout

TELEPHONE
- T — Telephone Terminal Box
- Telephone Marker
- TH — Telephone Handhole Box
- Telephone Manhole
- Telephone Cabinet

TRAFFIC
- Overhead Traffic Signal
- TH — Traffic Handhole Box
- TS — Telephone Handhole Box
- Traffic Signal Pole
- TLC — Traffic Signal Loop Control Box

WATER
- Fire Hydrant
- I — Irrigation Control Valve
- W — Water Meter
- Water Valve
- Fire Department Connection
- Water Vault
- PRV — Pressure Irrigation Valve
- Water Vent Pipe
- Water Valve Marker
- Water Marker
- Water Manhole
- ARV — Water Air Release Valve
- BFP — Water Back Flow Preventer
- Sprinkler Head
- Sprinkler Valve

LINETYPES

PROPERTY
- Adjacent Property
- Property Line
- Center of Creek

FENCE LINES
- X — Barb Wire Fence
- o — Chain link fence
- D — Wood Fence
- # — Woven Wire Fence

SITE / TOPOGRAPHIC FEATURES
- Guardrail

EXISTING OVERHEAD
- OW — Overhead Wires

EXISTING UNDERGROUND
- C — Cable
- E — Electric
- FO — Fiber Optic
- G — Gas
- T — Telecommunications
- W — Water
- TV — Television
- Storm Drainage Line
- SS — Sanitary Sewer

ABBREVIATIONS

APPROX.	Approximate	I.E.	Invert Elevation
#4	1/2" Rebar	IPF	Iron Pin Found
C&G	Curb and Gutter	IPS	Iron Pin Set
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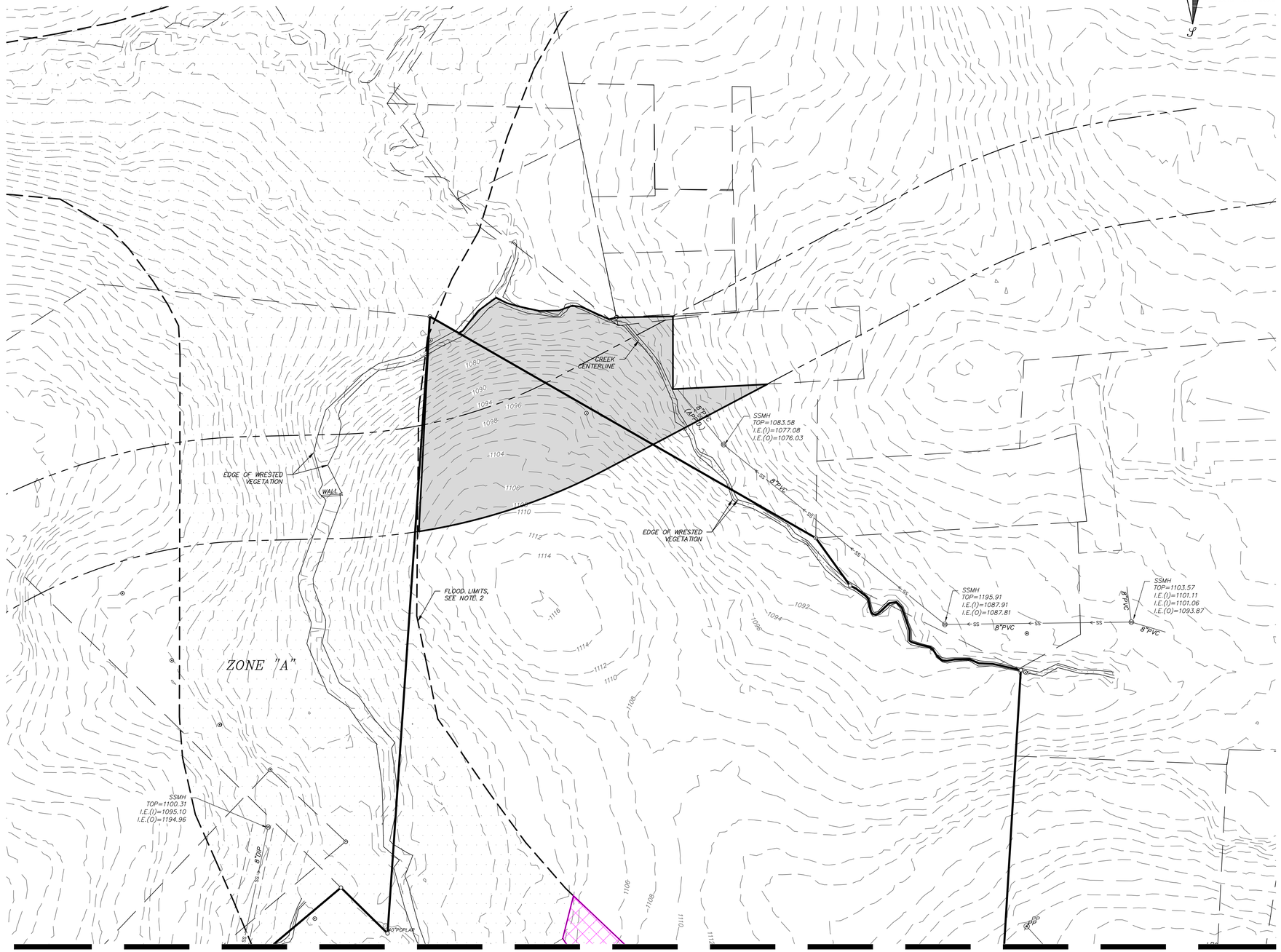
GM	Gas Meter	TRAN	Transformer
GW	Guy Wire	VCP	Vitrified Clay Pipe
HDR	Hand Rail	W.D.F.	Wood Fence
H.W.	Hard Wood	WM	Water Meter
HW	Headwall	WV	Water Valve
ICV	Irrigation Control Valve		



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N
NW GRID NORTH NE
W PLANNERS AND ENGINEERS COLLABORATIVE E
SW SE
S
GEORGIA WEST ZONE

SHEET 5 OF 6
DRAWN BY: MS
CHECKED BY: JNH
FINAL: 7/31/2024
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23
0 25 50 100

GEORGIA REGISTERED No. 3006 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY
FOR
IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY
CITY OF VILLA RICA CARROLL COUNTY GEORGIA
LAND LOT(S) 161
DISTRICT 6TH

REVISIONS

REV	DATE	DESCRIPTION	BY
5			
4			
3			
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS	NAV
1	3/26/24	ALTA UPDATE	NAV

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NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION SUPPLIED AND TO THE SURVEYOR'S BEST KNOWLEDGE ARE APPROXIMATELY AS SHOWN. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ALL UTILITIES SERVING THE PROPERTY ENTER THROUGH ADJOINING PUBLIC STREETS AND/OR EASEMENTS OF RECORD.

2. I HAVE EXAMINED THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CARROLL COUNTY, GEORGIA AND INCORPORATED AREAS, COMMUNITY PANNEL NUMBER 13045C0156D, PANEL 156 OF 430, EFFECTIVE DATE SEPTEMBER 19, 2007 AND FOUND A PORTION OF THE PROPERTY SHOWN HEREON TO FALL WITHIN A DESIGNATED FLOOD ZONE "A" (AREAS OF 100 YEAR FLOOD). THE PROPERTY SHOWN HEREON TO FALL WITHIN A DESIGNATED FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

3. THE ORTHOMETRIC HEIGHTS (ELEVATIONS AND CONTOURS) SHOWN HEREON WERE DETERMINED BY GPS OBSERVATIONS AND WERE ADJUSTED BY PLANNERS AND ENGINEERS COLLABORATIVE IN APRIL / MAY 2023. NORTH AMERICAN DATUM OF 1983 (NAD83), NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEORGIA WEST ZONE STATE PLANE COORDINATES.

4. THE TERM "CERTIFICATION" RELATING TO PROFESSIONAL ENGINEERING AND LAND SURVEYING SERVICES SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.

5. THE PROPERTY DESCRIBED HERE ON (THE "PROPERTY") IS THE SAME AS THE PROPERTY DESCRIBED IN COMMITMENT NO. NCS–1183933–ATL WITH AN EFFECTIVE DATE OF MARCH 08, 2024 AND THAT ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE PROPERTY OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE PROPERTY.

6. NO ZONING INFORMATION PROVIDED FOR BUILDING SETBACKS.

7. THIS SURVEY WAS MADE IN ACCORDANCE WITH LAWS AND/OR MINIMUM STANDARDS OF THE STATE OF GEORGIA.

8. THE PROPERTY HAS DIRECT ACCESS TO EAST GORDON STREET, RUBY STREET, & W RUSSELL STREET, DEDICATED PUBLIC STREETS. THERE ARE NO GAP OR GORES BETWEEN THE BOUNDARY LINE OF THE PROPERTY AND RIGHT OF WAY.

9. THERE IS NO OBSERVED EVIDENCE OF USE OF THE PROPERTY AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

10. THE SURVEYED LEGAL DESCRIPTION IS WHOLLY CONTAINED WITHIN THE BOUNDARIES OF THE PROPERTY DESCRIBED IN THAT CERTAIN FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. NCS–118–3933–ATL, WITH AN EFFECTIVE DATE OF MARCH 08, 2024.

TITLE EXCEPTIONS

First American Title Insurance Company Commitment number NCS–1183933–ATL with an effective date of March 8, 2024 at 7:30 AM was used in the preparation of this survey and the listed exceptions are as follows:

12. Matters shown on plat recorded in Plat Book 19, Page 47, Carroll County, Georgia records. Comment: Matters as shown.

13. Matters shown on plat recorded in Plat Book 24, Page 137, aforsaid records. Comment: Matters as shown.

14. Boundary Line Agreement by and between James J. Waldrop and Gladys McCullough Scott, dated January 20, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 138, aforesaid records. Comment: Affects subject property as shown hereon.

15. Boundary Line Agreement by and between James J. Waldrop and Villa Rica Housing Authority, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 140, aforesaid records. Comment: Affects subject property as shown hereon.

16. Boundary Line Agreement by and between James J. Waldrop and Thomas Early Hembree, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 142, aforesaid records. Comment: Affects subject property as shown hereon.

17. Boundary Line Agreement by and between James J. Waldrop and Leroy McKinney, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 144, aforesaid records. Comment: Affects subject property as shown hereon.

18. Boundary Line Agreement by and between James J. Waldrop and H.G. Brown, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 146, aforesaid records. Comment: Affects subject property as shown hereon.

19. Boundary Line Agreement by and between James J. Waldrop and T.C. Daniell, dated January 13, 1979, filed for record February 5, 1979, and recorded in Deed Book 387, Page 148, aforesaid records. Comment: Affects subject property as shown hereon.

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ALTA/NSPS LAND TITLE SURVEY – TABLE "A" ITEMS

1. MONUMENTS PLACED OR FOUND AT ALL MAJOR CORNERS OF THE BOUNDARY OF THE SURVEYED PROPERTY, AND SHOWN HEREON.

2. ADDRESS OF THE SURVEYED PROPERTY: 11 GORDON STREET, VILLA RICA, GEORGIA 30180

3. FLOOD ZONE INFORMATION IS INCLUDED IN GENERAL NOTES, NOTE 2.

4. GROSS LAND AREA OF SUBJECT PROPERTY IS 25.838± ACRES.

6(A). IF THE CURRENT ZONING CLASSIFICATION, SETBACK REQUIREMENTS, THE HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, AND PARKING REQUIREMENTS SPECIFIC TO THE SURVEYED PROPERTY ARE SET FORTH IN A ZONING REPORT OR LETTER PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE, LIST THE ABOVE ITEMS ON THE PLAT OR MAP AND IDENTIFY THE DATE AND SOURCE OF THE REPORT OR LETTER.

6(B). IF THE ZONING SETBACK REQUIREMENTS SPECIFIC TO THE SURVEYED PROPERTY ARE SET FORTH IN A ZONING REPORT OR LETTER PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE, AND IF THOSE REQUIREMENTS DO NOT REQUIRE AN INTERPRETATION BY THE SURVEYOR, GRAPHICALLY DEPICT THOSE REQUIREMENTS ON THE PLAT OR MAP AND IDENTIFY THE DATE AND SOURCE OF THE REPORT OR LETTER.

8. SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK ARE SOWN HEREON.

10. THERE ARE NO ENCROACHMENTS ONTO ADJOINING PREMISES, STREETS OR ALLEYS BY ANY BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS LOCATED ON THE PROPERTY. NO ENCROACHMENTS ONTO THE PROPERTY BY BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS SITUATED ON ADJOINING PREMISES, EXCEPT THE FOLLOWING:

a) 24"CURB AND GUTTER ALONG SOUTHWESTERLY PROPERTY LINE
b) POWER POLES AND POWER LINES ALONG WESTERLY PROPERTY LINE
c) DITCH ALONG WESTERLY PROPERTY LINE
d) SOUTHERLY EDGE OF PAVEMENT OF EAST GORDON STREET
e) GRAVEL DRIVEWAY ENTERING FROM EAST GORDON STREET
f) NUMEROUS STORM PIPES ALONG WESTERLY PROPERTY LINE
g) DRIVE WAY FROM STONE STREET STATION PROPERTY ALONG SOUTHWESTERN PROPERTY LINE

11. OBSERVED EVIDENCE OF UNDERGROUND UTILITIES EXISTING ON OR SERVING THE SURVEYED PROPERTY LOCATED AND SHOWN HEREON. NO ADDITIONAL LOCATE OR INVESTIGATION OF UTILITIES REQUESTED BY THE CLIENT.

13. ADJACENT OWNER INFORMATION IS SHOWN HEREON AS REQUIRED BY GEORGIA STANDARDS.

16. NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

17. NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES IF SUCH INFORMATION IS MADE AVAILABLE TO THE SURVEYOR BY THE CONTROLLING JURISDICTION. NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.

18. THERE ARE NO OFFSITE PLOTTABLE EASEMENTS. (NONE)

19. THE SUBJECT PROPERTY FORMS A MATHEMATICALLY CLOSED FIGURE, IS CONTIGUOUS WITHOUT GAPS, GORES, OR OVERLAPS.

TITLE EXCEPTIONS

First American Title Insurance Company Commitment number NCS–1183933–ATL with an effective date of March 8, 2024 at 7:30 AM was used in the preparation of this survey and the listed exceptions are as follows:

20. Non–Exclusive Easement from H. Grady Brown to The City of Villa Rica, dated November 15, 1990, filed for record April 10, 1991, and recorded in Deed Book 695, Page 726, aforesaid records. Comment: May affect subject property, approximate location of easement shown.

21. Non–Exclusive Easement from H. Grady Brown to The City of Villa Rica, dated October 26, 1990, filed for record April 10, 1991, and recorded in Deed Book 695, Page 727, aforesaid records. Comment: Does not affect subject property.

22. Easements acquired pursuant to Notice of Order and Judgment Affecting Interest in Real Estate [Final Order and Judgment of the Court on Certifying A Class and Approving Settlement], entered in Civil Action No. IP00–1232–CB/S, entered in the District Court for the Southern District of Indiana, styled Frederick A. Uhl, et al v. Thoroughbred Technology and Telecommunications, Inc., a Virginia limited liability company, dated September 5, 2001, filed for record May 9, 2005, and recorded in Deed Book 3107, Page 87, aforesaid records; as assigned by Deed of Assignment of Cable Side Settlement Corridor Easements by and between Class Corridor, LLC, a Delaware limited liability company and Thoroughbred Technology and Telecommunications, Inc., a Virginia limited liability company, dated September 27, 2005 filed for record October 10, 2005, and recorded in Deed Book 3298, Page 53, aforesaid records. Comment: May affect subject property, deed to vague to plot.

23. Sewer Line and Water Line Agreement from James J. Waldrop to The City of Villa Rica, Georgia, dated November 7, 2013, filed for record November 21, 2013, and recorded in Deed Book 5297, Page 616, aforesaid records. Comment: Affects subject property as shown hereon.

24. Right of way for railroad, switch tracks, railroad facilities and other related easements, if any, located on, across or along a portion of the southeast lot line of subject property.

25. Matters as would be disclosed by a current and accurate survey and inspection of the Land.

LEGAL DESCRIPTION – AS SURVEYED

ALL THAT TRACT OR PARCEL OF LAND lying and being in Land Lot 161, 6th District, City of Villa Rica, Carroll County, Georgia and being more particularly described as follows:

BEGIN at a set 1/2 inch rebar with cap, said rebar having coordinates of North: 1,357,933.0 and East: 2,068,542.3, coordinates based on NAD83 State Plane Coordinate system, Georgia West zone, said rebar located on the southeasterly right of way of East Gordon Street (30 foot public right of way), said rebar being the TRUE POINT OF BEGINNING;

THENCE along said southeasterly right of way of East Gordon Street the following courses and distances: North 44 degrees 16 minutes 02 seconds East a distance of 148.64 feet to a found 1/2 inch rbear; North 45 degrees 47 minutes 17 seconds East a distance of 267.65 feet to a point; thence leaving said southeasterly right of way and proceed North 49 degrees 53 minutes 27 seconds East a distance of 381.00 feet to a set 1/2 inch rebar with cap; thence South 45 degrees 29 minutes 33 seconds East a distance of 62.75 feet to a set 1/2 inch rebar with cap at the base of the found 40 inch poplar tree; thence North 03 degrees 55 minutes 27 seconds East a distance of 593.70 feet to a found 1/8 inch open top pipe; thence South 60 degrees 08 minutes 55 seconds East a distance of 427.09 feet to a found 1/2 inch rebar; thence South 35 degrees 43 minutes 34 seconds East a distance of 56.37 feet more or less to a point at the centerline of a branch, said point being referred to as Point "A" (the commencement point of a tie–in line "A"–"B"); thence following the centerline of said branch and the meanderings thereof, 220 feet more or less to a point, said point being referred to as point "B", (the terminus of said tie–in line "A"–"B"), said tie–in line from point "A" and to point "B" having the course of South 63 degrees 40 minutes 44 seconds East a distance of 182.93 feet more or less to a point; thence leaving said centerline of a branch and proceed South 03 degrees 27 minutes 27 seconds West a distance of 269.52 feet to a set 1/2 inch rebar with cap; thence South 89 degrees 37 minutes 33 seconds East a distance of 3.65 feet to a set 1/2 inch rebar with cap; thence South 01 degrees 07 minutes 33 seconds East a distance of 240.06 feet to a set 1/2 inch rebar with cap; thence South 01 degrees 16 minutes 09 seconds West a distance of 195.33 feet to a found 1/2 inch rebar disturbed; thence South 00 degrees 15 minutes 18 seconds West a distance of 324.71 feet to a set 1/2 inch rebar with cap on the northerly right of way line of Southern Railroad (variable right of way); thence along said northerly right of way along a curve turning to the right with an arc length of 733.63 feet, having a radius of 1596.62 feet, being subtended by a chord bearing of South 75 degrees 52 minutes 47 seconds West, and a chord length of 727.19 feet to a set 1/2 inch rebar with cap; thence leaving said northerly right of way North 44 degrees 47 minutes 32 seconds West a distance of 138.90 feet to a set 1/2 inch rebar with cap; thence North 47 degrees 12 minutes 32 seconds West a distance of 321.00 feet to a set 1/2 inch rebar with cap; thence North 51 degrees 00 minutes 32 seconds West a distance of 173.80 feet to a set 1/2 inch rebar with cap; thence North 57 degrees 41 minutes 02 seconds West a distance of 61.87 feet to a set 1/2 inch rebar with cap, said rebar being the TRUE POINT OF BEGINNING.

Tract or parcel contains 1,125,496 square feet or 25.838 acres, more or less.

LEGAL DESCRIPTION – RECORD

PARCEL A

ALL OF THAT TRACT OR PARCEL OF LADING SITUATE, LYING AND BEING IN THE COUNTY OF CARROLL SAID STATE OF GEORGIA IN LAND LOT 161 OF THE 6TH DISTRICT OF CARROLL COUNTY, GEORGIA, IN THE CITY OF VILLA RICA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN ON THE NORTHERLY SIDE OF SWEETWATER STREET 75 FEET SOUTHEASTERLY OF THE POINT WHERE SAID STREET INTERSECTS STONE ROAD AND RUNNING THENCE SOUTH 52 DEGREES 29 MINUTES EAST 173.80 FEET TO AN IRON PIN; THENCE NORTH 40 DEGREES 35 MINUTES EAST 447.90 FEET TO AN IRON PIN; THENCE SOUTH 48 DEGREES 30 MINUTES EAST 150 FEET TO AN IRON PIN; THENCE SOUTH 19 DEGREES 50 MINUTES WEST 481 FEET TO AN IRON PIN; THENCE SOUTH 46 DEGREES 16 MINUTES EAST 138.90 FEET TO AN IRON PIN ON THE NORTHERN RIGHT OF WAY OF SOUTHERN RAILWAY COMPANY; AND RUNNING THENCE ALONG A CHORD NORTH 81 DEGREES 02 MINUTES EAST 420.94 FEET; THENCE ALONG A CHORD NORTH 67 DEGREES 55 MINUTES EAST 303.08 FEET TO AN IRON PIN; THENCE NORTH 01 DEGREE 04 MINUTES EAST 326.26 FEET TO AN IRON PIN; THENCE NORTH 00 DEGREES 58 MINUTES EAST 195.68 FEET TO AN IRON PIN; THENCE NORTH 01 DEGREES 25 MINUTES WEST 240.06 FEET TO AN IRON PIN AT THE POINT WHERE CLEGHORN STREET DEAD–ENDS; THENCE 40 FEET NORTH ALONG THE END OF CLEGHORN STREET TO AN IRON PIN; THENCE NORTH 89 DEGREES 55 MINUTES WEST 3.65 FEET TO AN IRON PIN; THENCE NORTH 03 DEGREES 10 MINUTES BAST 260.56 FEET TO AN IRON PIN; THENCE NORTH 80 DEGREES 06 MINUTES WEST 115.12 FEET TO AN IRON PIN; THENCE NORTH 35 DEGREES 25 MINUTES WEST 142.42 FEET TO AN IRON PIN; THENCE NORTH 60 DEGREES 38 MINUTES WEST 427.52 FEET TO AN IRON PIN; THENCE SOUTH 03 DEGREES 38 MINUTES WEST 593.70 FEET TO AN IRON PIN; THENCE NORTH 45 DEGREES 47 MINUTES WEST 62.75 FEET TO AN IRON PIN; THENCE SOUTH 49 DEGREES 36 MINUTES WEST 381 FEET TO AN IRON PIN; THENCE ALONG STONE ROAD SOUTH 44 DEGREES 14 MINUTES WEST 279.85 FEET TO IRON AN PIN; THENCE SOUTH 84 DEGREES 32 MINUTES EAST 140 FEET TO AN IRON PIN; THENCE SOUTH 16 DEGREES 06 MINUTES WEST 150.18 FEET TO AN IRON PIN; THENCE NORTH 82 DEGREES 17 MINUTES WEST 150 FEET TO AN IRON PIN AT THE POINT OF BEGINNING, BEING 22.881 ACRES ACCORDING TO A PLAT OF SURVEY OF THE VILA WILSON ESTATE PREPARED BY WYMAN C. HUDSON, NOVEMBER 4, 1978. SAID SURVEY IS, BY REFERENCE, INCORPORATED HEREIN AND IT SHOULD BE REFERRED TO FOR A MORE COMPLETE, ACCURATE DESCRIPTION OF SAID PROPERTY.

PARCEL B

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOT 161, 6TH DISTRICT, CARROLL COUNTY, GEORGIA, BEING SHOWN AND DELINEATED AS "PARCEL NO. 5," BEING 0.583 ACRES, MORE OR LESS, AS SHOWN ON THAT CERTAIN PLAT ENTITLED "SURVEY FOR GOLDEN CITY HOSIERY MILL, INC." DATED JUNE 18, 1983, REVISED JULY 12, 1983, PREPARED AND CERTIFIED BY ROBERT T. ARMSTRONG, GA RLS #1901, FILED FOR RECORD AT PLAT BOOK 24, PAGE 137, PUBLIC LAND RECORDS CARROLL COUNTY, GEORGIA.

SAID PROPERTY BEING THE SAME PROPERTY AS PREVIOUSLY CONVEYED BY HERMAN S. SMITH TO MRS. ELMA T. BROWN BY WARRANTY DEED FILED FOR RECORD AT DEED BOOK 100, PAGE 68, FROM MRS. ELMA T. BROWN TO H.G. BROWN BY WARRANTY DEED FILED FOR RECORD AT DEED BOOK 154, PAGE 214, AND FROM PHYLLIS B. WOODALL AS LAST SURVIVING CORPORATE OFFICER OF GOLDIN CITY HOSIERY MILLS, INC. BY QUITCLAIM DEED (CONFIRMING TITLE) FILED FOR RECORD AT DEED BOOK 3837, PAGE 34, PUBLIC LAND RECORDS OF CARROLL COUNTY, GEORGIA.

PARCEL C

ALL THAT TRACT OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE CITY OF VILLA RICA, COUNTY OF CARROLL, STATE OF GEORGIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN ON THE NORTH SIDE OF SWEETWATER STREET AT THE POINT WHERE THE WEST BANK OF A BRANCH INTERSECTS THE NORTH SIDE OF SWEETWATER STREET; RUNNING THENCE IN A NORTHWESTERLY DIRECTION 321 FEET ALONG THE NORTH SIDE OF SWEETWATER STREET TO AN IRON PIN; THENCE NORTH 31 DEGREES 37 MINUTES EAST 200 FEET TO AN IRON PIN; THENCE NORTH 44 DEGREES 26 MINUTES EAST 250 FEET TO AN IRON PIN; THENCE SOUTH 50 DEGREES 30 MINUTES EAST 150 FEET TO THE WEST BANK OF A BRANCH; THENCE IN A SOUTHWESTERLY DIRECTION ALONG THE WEST BANK OF A BRANCH 487 FEET TO THE POINT OF BEGINNING.

THE ABOVE PROPERTY BEING THE SAME PROPERTY AS THAT CONVEYED BY A CERTAIN DEED RECORDED IN DEED BOOK 128, PAGE 198, CARROLL COUNTY, GEORGIA PUBLIC RECORDS.



SITE MAP (NTS)

The field data upon which this map or plat is based has a closure precision of one foot in 21,618 feet and an angular error of 00° 00' 02" per angle point and was adjusted using the compass adjustment rule.

This map or plat has been calculated for closure and is found to be accurate to within one foot in 1,248,011 feet.

EQUIPMENT USED:

ANGULAR: TOPCON TOTAL STATION

LINEAR: TOPCON TOTAL STATION

To Imperium Development Partners, LLC, & First American Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1–4, 8, 13, 14, and 16 of Table A thereof. The field work was completed on: 5/13/2023

Date of Map or Plat: 03/25/2024

_____
Surveyor's Signature

JONATHAN N. HOWARD
Printed name

SHEET 6 OF 6
DRAWN BY: MS
CHECKED BY: JNH
FILE NO.: 21217.00
DATE: 05/16/2023
SCALE: 1" = 50'
DATE OF FIELD WORK: 5/13/23
0 25 50 100

GEORGIA REGISTERED No. 3006 LAND SURVEYOR JONATHAN N. HOWARD

ALTA/NSPS LAND TITLE SURVEY

FOR

IMPERIUM DEVELOPMENT PARTNERS, LLC &
FIRST AMERICAN TITLE INSURANCE COMPANY

CARROLL COUNTY GEORGIA
CITY OF VILLA RICA
LAND LOT(S) 161
DISTRICT 6TH

REVISIONS

	REV	DATE	DESCRIPTION	BY
5				
4				
3				
2	4/11/24	UPDATE TITLE & ADDRESS LENDER COMMENTS		NAV
1	3/26/24	ALTA UPDATE		NAV

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
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(770)447-1201 WWW.PECLTD.US
C.O.A.: LSF000004

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-ARMY CORPS OF ENGINEERS APPROVAL LETTER

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT
4751 BEST ROAD, SUITE 140
COLLEGE PARK, GEORGIA 30337

December 3, 2024

Regulatory Division
SAS-2024-00317

Mr. Bryan Flint
Arrowhead Real Estate Partners, LLC
350 Research Court, Suite 100
Peachtree Corners, Georgia 30092

Dear Mr. Flint:

I refer to the Pre-Construction Notification received on April 4, 2024, and subsequent information provided via email on May 31, September 24, and November 11, 2024, submitted on your behalf by Planners and Engineers Collaborative, Inc. (PEC), requesting verification under Nationwide Permit (NWP) No. 29 in conjunction with the proposed construction of a multi-family residential development. The 25.83-acre site is located north of East Montgomery Street, west of Cleghorn Street, and east of Stone Street, in Villa Rica, Carroll County, Georgia (Latitude 33.731632, Longitude -84.91433). The nearest named water body is Town Branch which is located within the northern portion of the site. This project has been assigned number SAS-2024-00317, and it is important that you refer to this number in all communication concerning this matter.

The construction of the project would result in impacts to 79 linear feet (0.0085-acre) of perennial stream for the construction of a 48” reinforced concrete pipe embedded 20% into the existing streambed elevation, and 0.091-acre of wetland for grading the associated building pads. Also proposed is an 8' span open bottom culvert that would avoid impacts to a perennial stream. The project would be constructed in accordance with the six enclosed exhibits entitled, “Sheet EX 2 Proposed Conditions and Disturbances, Gordon Street Villa Rica, A Master Planned Residential Development”, “Sheet EX 3 Existing Conditions Stream Crossing, Gordon Street Villa Rica, A Master Planned Residential Development”, “Sheet EX 4 Proposed Conditions Stream Crossing, Gordon Street Villa Rica, A Master Planned Residential Development”, Sheet EX 5 Existing Conditions Stream Crossing, Gordon Street Villa Rica, A Master Planned Residential Development”, ‘‘Sheet EX 6 Proposed Conditions Stream Crossing, Gordon Street Villa Rica, A Master Planned Residential Development”, dated March 27, 2024, as prepared by PEC.

The enclosed exhibit entitled, “Sheet EX 1 Existing Conditions, Gordon Street Villa Rica, A Master Planned Residential Development”, dated March 27, 2024, as prepared by PEC, identifies the delineation limits of all aquatic resources within the project area. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual,” as amended by the most recent regional

supplements to the Manual. Should this delineation require reverification, it is subject to change based on site conditions at the time of reevaluation.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

We have completed coordination with other federal and state agencies as described in Part C (32)(d) of our NWP Program, published in the January 13, 2021, Federal Register, Vol. 86, No. 8, Pages 2744-2877 (86 FR). The NWPs and Savannah District's Regional Conditions for NWPs can be found on our website at http://www.sas.usace.army.mil/Missions/Regulatory/Permitting/GeneralPermits/NationwidePermits.aspx. During our coordination procedure, no adverse comments regarding the proposed work were received.

As a result of our evaluation of your project, we have determined that the proposed activity is authorized as described in Part B of the NWP Program. Your use of this NWP is valid only if:

a. The activity is conducted in accordance with the information submitted and meets the conditions applicable to the NWP, as described at Part C of the NWP Program and the Savannah District's Regional Conditions for NWPs.

b. You shall notify the Corps, in writing, at least 10 days in advance of commencement of work authorized by this permit.

c. You fill out and sign the enclosed certification and return it to our office within 30 days of completion of the activity authorized by this permit.

This proposal was reviewed in accordance with Section 7 of the Endangered Species Act. Based on the information we have available, we have determined that the project may affect, but is not likely to adversely affect the gray bat and tricolored bat and would have no effect on any other threatened or endangered species nor any critical habitat for such species. Authorization of an activity by a NWP does not authorize the "take" of threatened or endangered species. In the absence of separate authorization, both

lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. See Part (C) of 86 FR for more information.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to expire on March 14, 2026. It is incumbent upon you to remain informed of changes to the NWPs. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

This authorization should not be construed to mean that any future projects requiring Department of the Army authorization would necessarily be authorized. Any new proposal, whether associated with this project or not, would be evaluated on a case-by-case basis. Any prior approvals would not be a determining factor in making a decision on any future request.

Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, I recommend that you coordinate with us prior to proceeding with the work.

This communication does not relieve you of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state or local authorities. It does not affect your liability for any damages or claims that may arise as a result of the work. It does not convey any property rights, either in real estate or material, or any exclusive privileges. It also does not affect your liability for any interference with existing or proposed federal projects. If the information you have submitted and on which the Corps bases its determination/decision of authorization under the NWP is later found to be in error, this determination may be subject to modification, suspension, or revocation.

An electronic copy of this letter is being provided to the following party:
Mr. Neil Schaap of PEC, at: NSchaap@pec.plus.

Thank you in advance for completing our on-line Customer Survey Form located at https://regulatory.ops.usace.army.mil/customer-service-survey/. We value your comments and appreciate you taking the time to complete a survey each time you interact with our office.

If you have any questions, please contact me at (678) 422-6571 or amy.k.egoroff@usace.army.mil.

Sincerely,

Amy K. Egoroff

Amy K. Egoroff
Biologist, Piedmont Branch

Enclosures

Regulatory Division

CERTIFICATION OF COMPLIANCE
WITH DEPARTMENT OF THE ARMY
NATIONWIDE PERMIT (29)

PERMIT FILE NUMBER: SAS-2024-00317

PERMITTEE/ADDRESS:Mr. Bryan Flint, Arrowhead Real Estate Partners, LLC, 350 Research Court, Suite 100, Peachtree Corners, Georgia 30092

LOCATION OF WORK: The 25.83-acre site is located north of East Montgomery Street, west of Cleghorn Street, and east of Stone Street, in Villa Rica, Carroll County, Georgia (Latitude 33.731632, Longitude -84.91433). The nearest named water body is Town Branch which is located within the northern portion of the site.

PROJECT DESCRIPTION: The proposed project is the construction of a multifamily residential subdivision and associated infrastructure. The construction of the project will result in impacts to 79 linear feet (0.0085-acre) of perennial stream for the construction of a 48” reinforced concrete pipe embedded 20% into the existing streambed elevation, and 0.091-acre of wetland for grading the associated building pads. Also proposed is an 8' span open bottom culvert that will avoid impacts to a perennial stream.

WATERS OF THE UNITED STATES IMPACTED: Permanent impacts to 79 linear feet (0.0085-acre) of perennial stream and 0.091-acre of wetland

COMPENSATORY MITIGATION REQUIRED: N/A

_____

DATE WORK IN WATERS OF UNITED STATES COMPLETED:_____

_____

I understand that the permitted activity is subject to a U.S. Army Corps of Engineers' Compliance Inspection. If I fail to comply with the permit conditions at Part C of the Nationwide Permit Program, published in the January 13, 2021, Federal Register, Vol. 86, No.8, Pages 2744-2877, it may be subject to suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit as well as any required mitigation (if applicable) has been completed in accordance with the terms and conditions of the said permit.

_____ _____

Signature of Permittee Date

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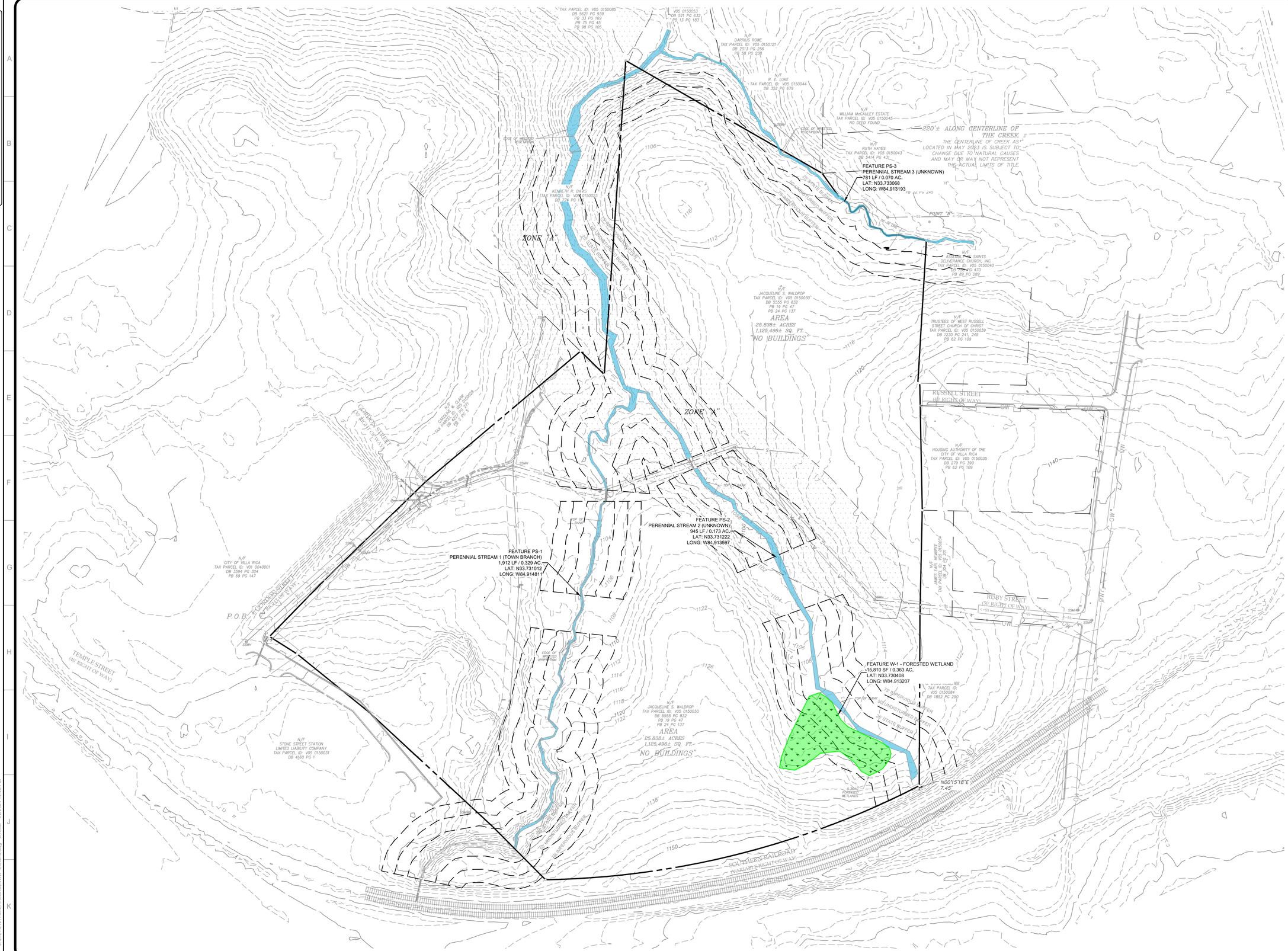

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PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

PRELIMINARY

NOT TO BE RELEASED FOR CONSTRUCTION

EXISTING CONDITIONS

0 40 80 160 240

SCALE: 1" = 80'
DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 1
SHEET

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL

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PROPOSED CONDITIONS & DISTURBANCES

0 40 80 160 240

SCALE: 1" = 80'
DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 2
SHEET

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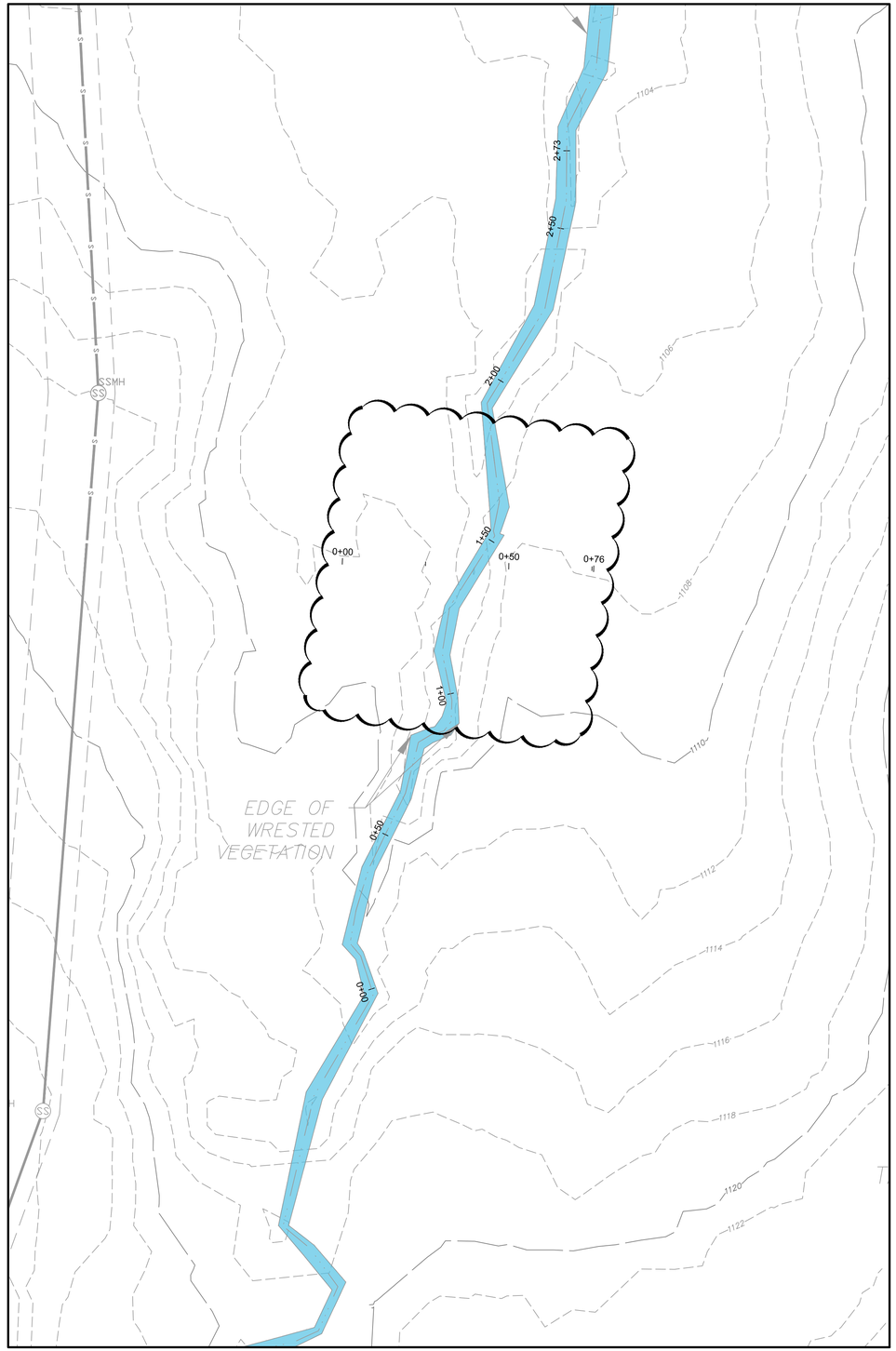
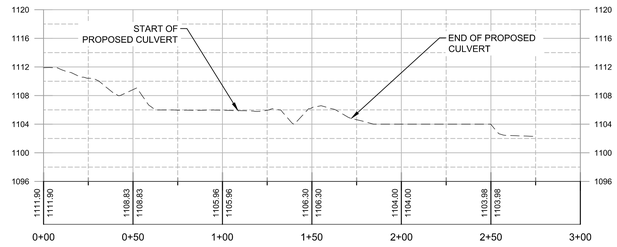


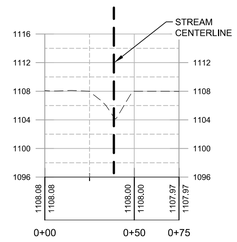
EXISTING STREAM CONDITIONS (PS-1)
PLAN VIEW

0 10 20 40 60

1" = 20'



PS-1 EXISTING LONGITUDINAL
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



PS-1 EXISTING CROSS SECTION
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

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PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL

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EXISTING CONDITIONS
STREAM CROSSING

SCALE: N/A
DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 3
SHEET

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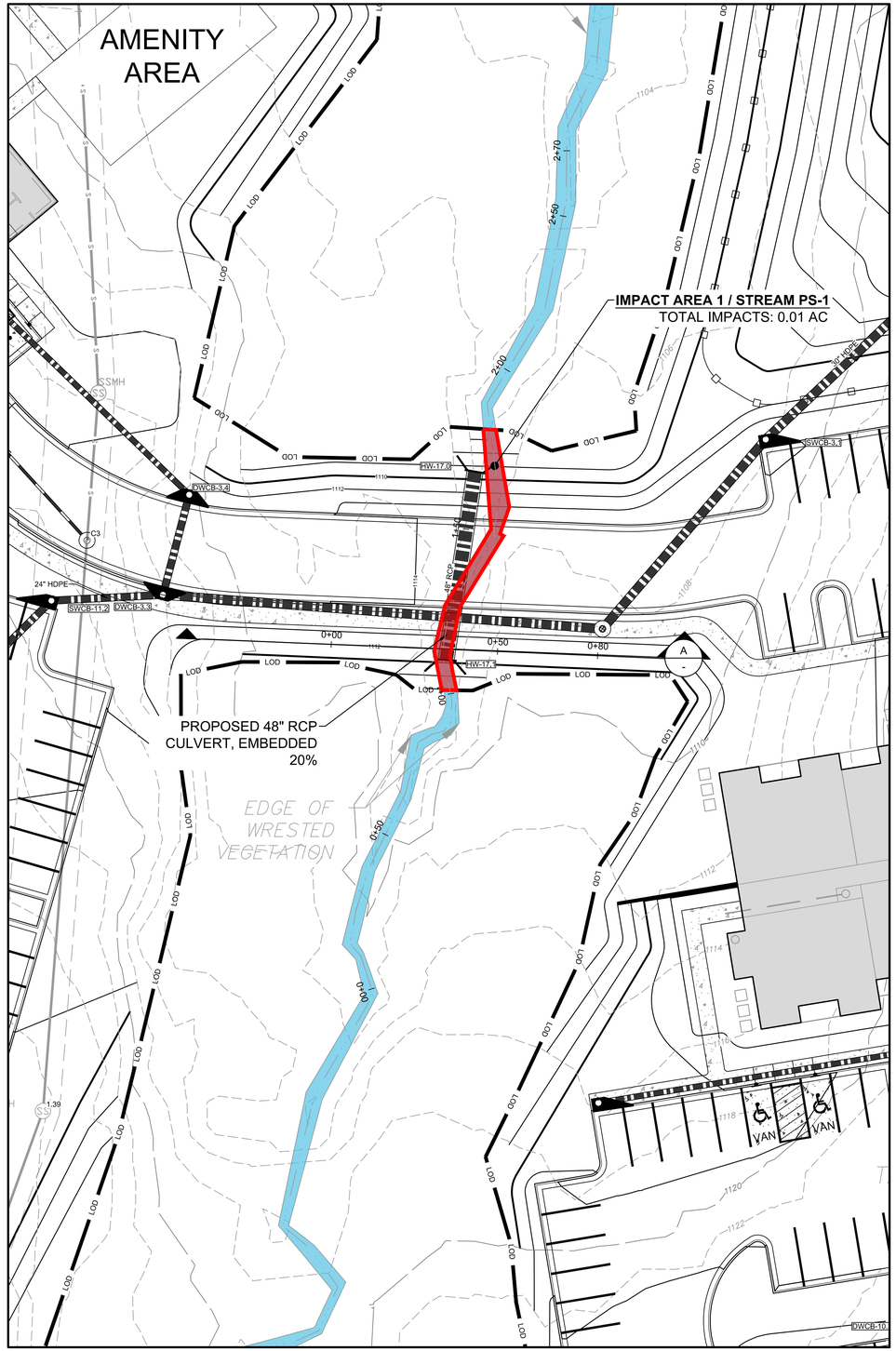
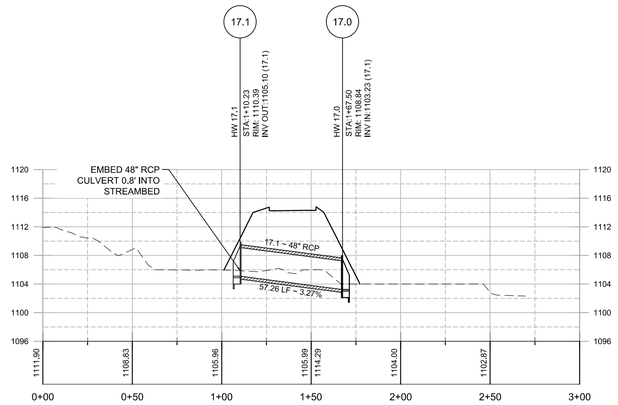


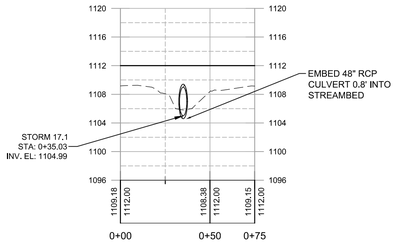
PROPOSED STREAM CROSSING CONDITIONS (PS-1)
PLAN VIEW

0 10 20 40 60

1" = 20'



PS-1 PROPOSED LONGITUDINAL
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



PS-1 PROPOSED CROSS SECTION
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

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PROJECT

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MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL

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PROPOSED CONDITIONS
STREAM CROSSING

SCALE: N/A
DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 4
SHEET

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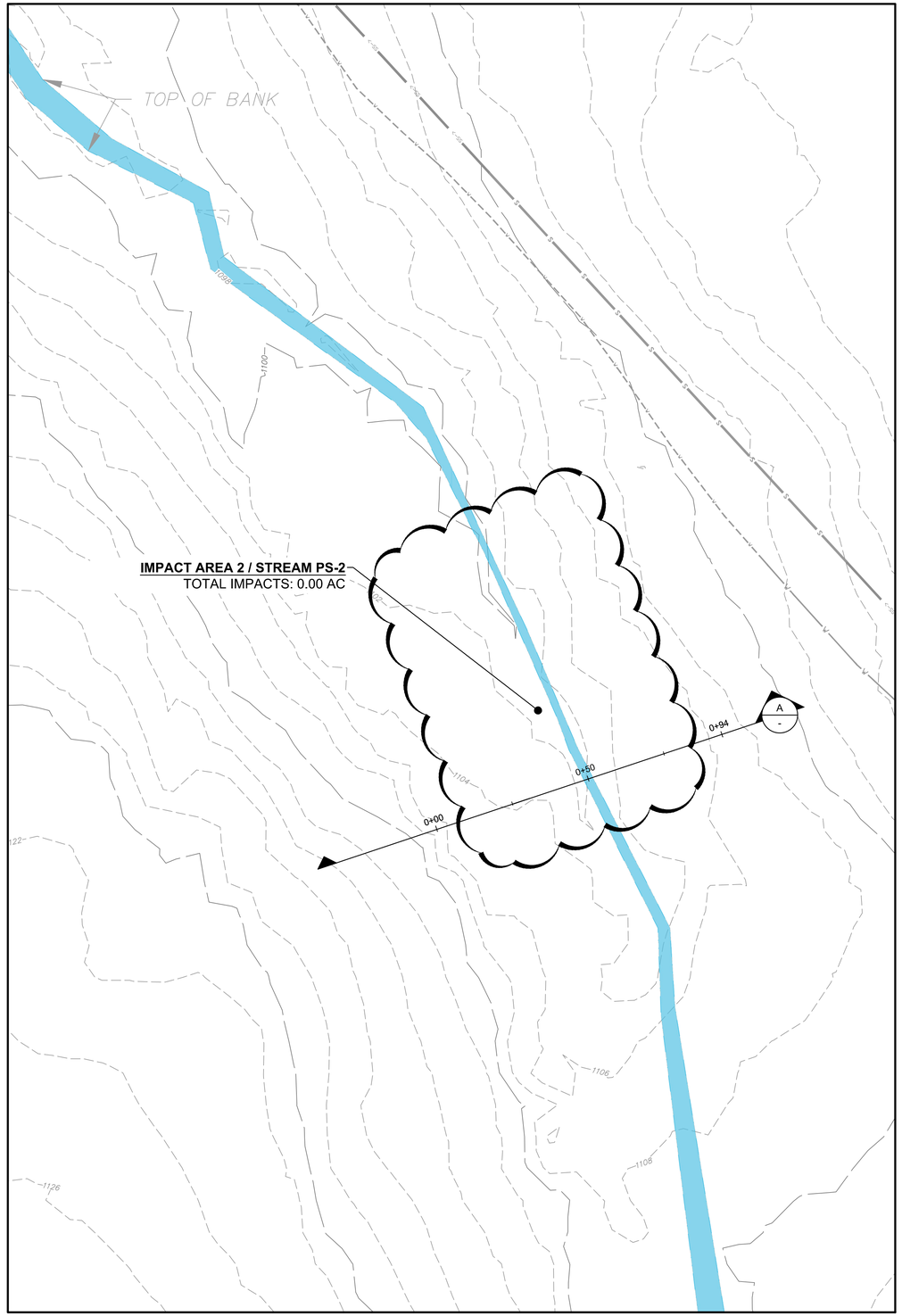
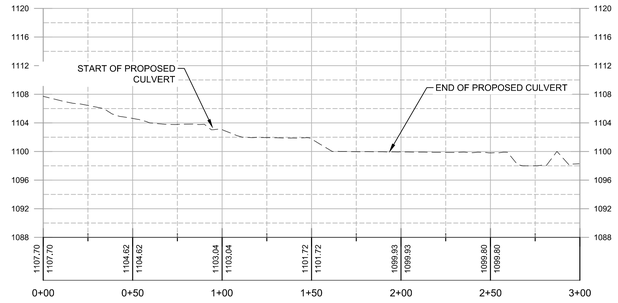


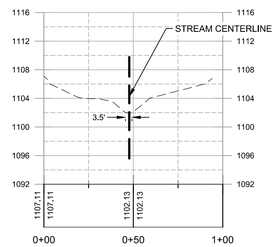
EXISTING STREAM CONDITIONS (PS-2)
PLAN VIEW

0 10 20 40 60

1" = 20'



PS-2 EXISTING LONGITUDINAL
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



PS-2 EXISTING CROSS SECTION
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

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FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION
-1	03-01-2024	CH	1ST LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

EXISTING CONDITIONS
STREAM CROSSING

SCALE: N/A
DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 5
SHEET

J:\2021\21217\00\Env\USACE\WWP Exhibits_Revised 5-28-2024.dwg - NSchaap - 5/30/2024 5:00 PM

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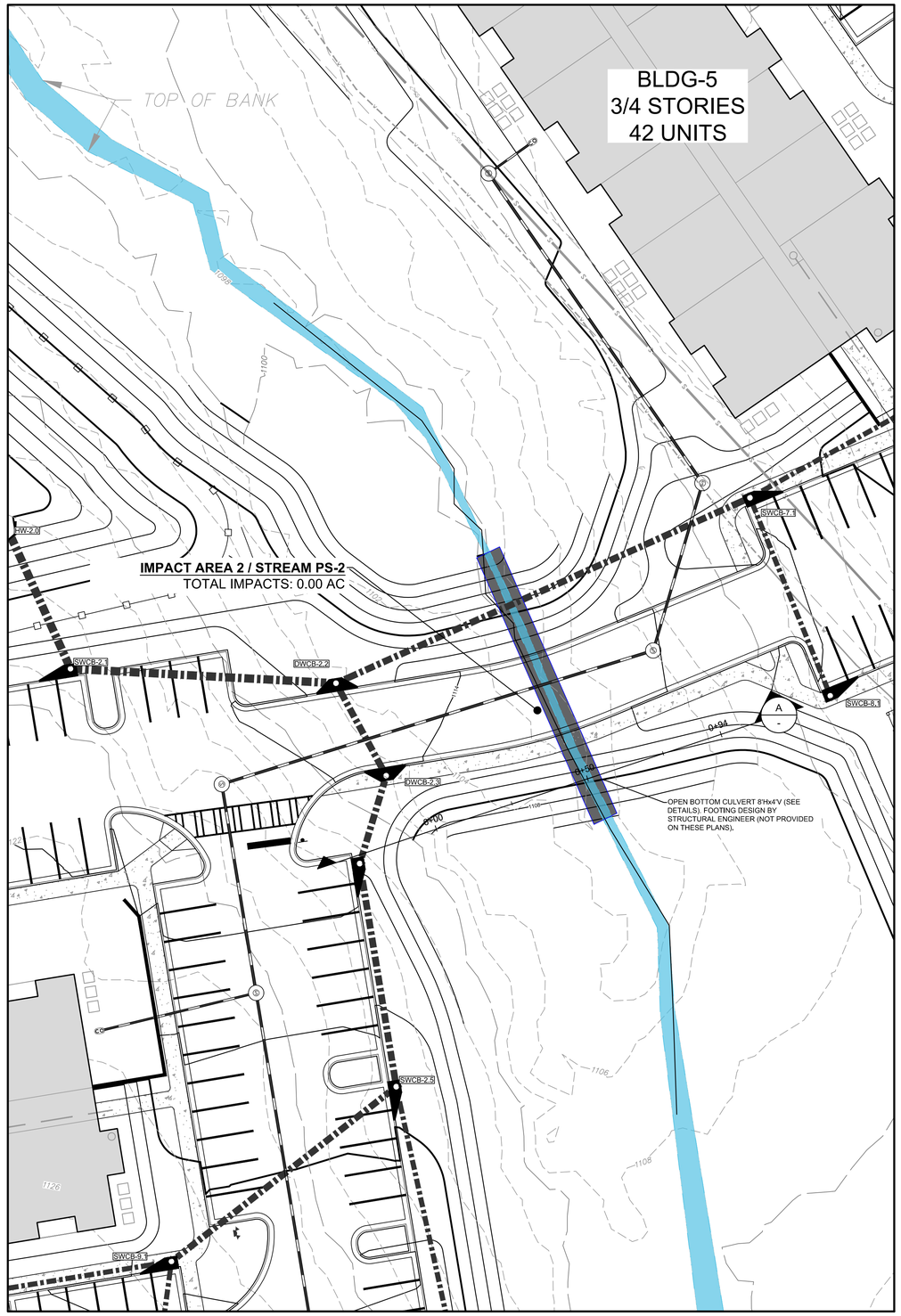
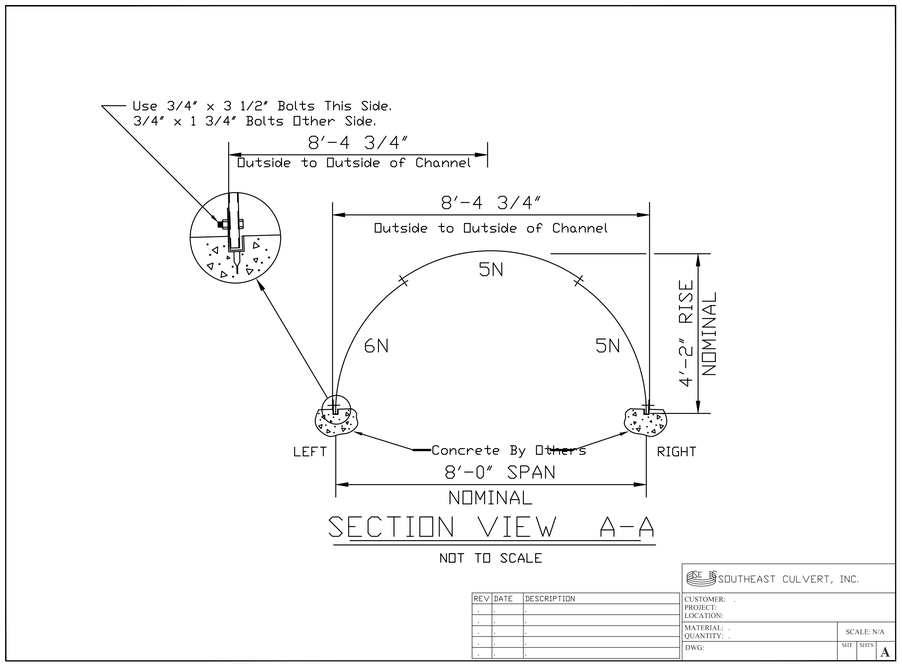


PROPOSED STREAM CROSSING CONDITIONS (PS-2)
PLAN VIEW

0 10 20 40 60

1" = 20'



SECTION VIEW A-A

NOT TO SCALE

SOUTHEAST CULVERT, INC.

REV	DATE	DESCRIPTION
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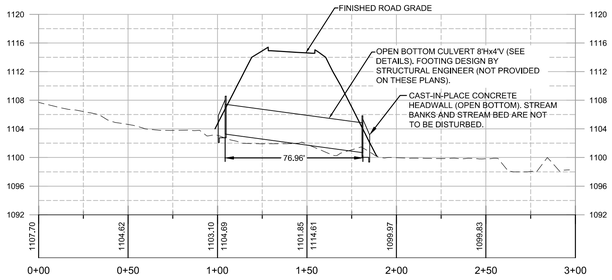
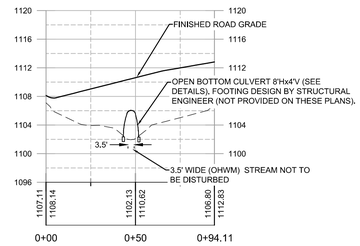
.	.	.
.	.	.
.	.	.
.	.	.

CUSTOMER: .
PROJECT: .
LOCATION: .
MATERIAL: .
QUANTITY: .
DWG: .
SCALE: N/A
SHT | SHTS | A



PS-2 PROPOSED LONGITUDINAL

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



PS-2 PROPOSED CROSS SECTION

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

LEGEND:
- EXISTING GRADE
- PROPOSED GRADE

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

GORDON STREET

A MASTER PLANNED RESIDENTIAL DEVELOPMENT

AT

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD
350 RESEARCH COURT
NORCROSS, GA 30092
P: 404.867.3572

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PROPOSED CONDITIONS
STREAM CROSSING

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DATE: 03/27/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

EX 6
SHEET

J:\2021\21217\00\Env\USACE\NWP Exhibits_Revised 5-28-2024.dwg - NSchaap - 5/30/2024 4:49 PM

-FEMA CLOMR APPROVAL LETTER

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF VILLA RICA, CARROLL COUNTY, GEORGIA	A portion of Parcel 5, as described in the Warranty Deed recorded in Book 5555, Pages 832, 833, and 834, in the Office of the Clerk of Superior Court, Carroll County, Georgia The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 130289	
AFFECTED MAP PANEL	NUMBER: 13045C0156D	
	DATE: 9/19/2007	
FLOODING SOURCE: TOWN BRANCH TRIBUTARY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:33.731685, -84.913548 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
Parcel 5	--	--	11 East Gordon Street	Portion of Property	X (unshaded)	--	--	1102.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION PORTIONS REMAIN IN THE SFHA ZONE A

STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)
ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)
TO FIND THE TRUE POINT OF BEGINNING, COMMENCE AT A SET 1/2 INCH REBAR WITH CAP, SAID REBAR HAVING COORDINATES OF NORTH: 1,357,933.0 AND EAST: 2,068,542.3, COORDINATES BASED ON NAD83 STATE PLANE COORDINATE SYSTEM, GEORGIA WEST ZONE, SAID REBAR LOCATED ON THE SOUTHEASTERLY RIGHT OF WAY OF EAST GORDON STREET (30 FOOT PUBLIC RIGHT OF WAY), THENCE LEAVING SAID RIGHT OF WAY NORTH 58 DEGREES 31 MINUTES 44 SECONDS EAST A DISTANCE OF 937.80 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 14 DEGREES 07 MINUTES 26 SECONDS EAST A DISTANCE OF 42.37 FEET TO A POINT; THENCE SOUTH 46 DEGREES 27 MINUTES 45 SECONDS EAST A DISTANCE OF 91.47 FEET TO A POINT; THENCE SOUTH 46 DEGREES 57 MINUTES 05 SECONDS EAST A DISTANCE OF 114.72 FEET TO A POINT; THENCE SOUTH 47 DEGREES 55 MINUTES 01 SECONDS EAST A DISTANCE OF 127.80 FEET TO A POINT; THENCE SOUTH 42 DEGREES 02 MINUTES 18 SECONDS EAST A DISTANCE OF 107.24 FEET TO A POINT; THENCE SOUTH 56 DEGREES 48 MINUTES 03 SECONDS WEST A DISTANCE OF 98.19 FEET TO A POINT; THENCE NORTH 42 DEGREES 12 MINUTES 23 SECONDS WEST A DISTANCE OF 153.86 FEET TO A POINT; THENCE NORTH 34 DEGREES 35 MINUTES 45 SECONDS WEST A DISTANCE OF 249.42 FEET THE TRUE POINT OF BEGINNING

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)
Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

ZONE A (This Additional Consideration applies to the preceding 1 Property.)

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))
Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

-GSWCC APPROVAL

v3.1.3

PLAN REVIEW #:
LWB 507R393

EROSION SEDIMENT & POLLUTION CONTROL PLAN REVIEW

West Georgia SOIL AND WATER CONSERVATION DISTRICT

3/1/2024	Villa Rica	9/16/2024
DATE ON PLANS	LIA	DATE RECEIVED

18.28	18.30
TOTAL PROJECT ACRES	TOTAL DISTURBED ACRES

Gordon Street R	11 Gordon Street, Villa Rica 30180 / Carroll County
NAME OF PROJECT	ADDRESS (INCLUDING COUNTY)

Lat: 33.731546 Long: -84.915844
SPECIFIC INFORMATION ON PROJECT (GPS Location)

Matthew E. Kaczenski	66476 / 6.27.277/23/24	MuD2, DrC2, Cfs, DsC3, DsD3, Drb2
DESIGN PROFESSIONAL	LEVEL II CERTIFICATION/EXPIRATION DATE	SOIL SERIES

Bryan Flint	350 Research Ct, Norcross 30092	404.867.3572
APPLICANT	ADDRESS	PHONE NUMBER

REPORT OF TECHNICAL REVIEW

X The Erosion Sediment and Pollution Control Plan for the above named project or activity meets the requirements of the Erosion and Sediment Control Ordinance or Rules and Regulations Governing Land-Disturbing Activities in Villa Rica under the provisions of the Erosion and Sedimentation Act of 1975, as amended.

_____ The Erosion Sediment and Pollution Control Plan for the above named project or activity does not meet the requirements in Villa Rica through failure to include the following listed at the bottom of the page.

> Any questions, comments, or concerns regarding this plan review should be addressed to:

Technical review by: Lindy W. Bates
Level II Certification #/Expiration Date: 104541 / 2.2.27
Organization: GSWCC
Date: 09/17/24

The technical review as accomplished and reported above was done at the request of and is concurred by the West Georgia Soil and Water Conservation District.

DISTRICT SUPERVISOR DATE

Comments:

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GORDON STREET

11 GORDON STREET
VILLA RICA, GA 30180

FOR

ARROWHEAD

350 RESEARCH COURTSTE.100
NORCROSS, GA 30092
PHONE: 404.867.3572

VA-09-23 Variance Request from Stream Bufffer Standards for 11 Gordon Street and Public Hearing.

Applicants Chad Lambeth and Haley Todd presented in support of variance.

Alita Farmer wanted to know how this development would impact her home at 216 Anderson Road.

Ken Davis wanted to know what would happen to the creek running through his property at 105 W. Gordon Street.

Councilman Danny Carter moved to approve the requested variance in request by Kenneth Wood for property located at 11 Gordon Street to encroach in the City's 75' stream buffer by 34000 SF and the 50' stream buffer by 9200 SF.

RESULT:	**APPROVED (UNANIMOUS)**
MOVER:	Danny Carter, Councilman
SECONDER:	Matthew Momtahan, Councilman
AYES:	Marchman, Momtahan, Warmoth, McCoy, Carter

GENERAL NOTES:

1. PRIOR TO LAND DISTURBING AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE AREA EROSION CONTROL / SITE DEVELOPMENT INSPECTOR.
2. IF THE CONTRACTOR, DURING THE COURSE OF THE WORK, FINDS ANY DISCREPANCIES BETWEEN THE PLANS AND THE PHYSICAL CONDITIONS OF THE LOCALITY, OR ANY ERRORS OR OMISSIONS IN THE PLANS OR IN THE LAYOUT AS GIVEN BY THE ENGINEER, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER, IN WRITING, AND THE ENGINEER WILL PROMPTLY VERIFY THE SAME. ANY WORK DONE AFTER SUCH A DISCOVERY, UNTIL AUTHORIZED, WILL BE AT THE CONTRACTOR'S RISK.
3. THE EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN PREPARED FROM THE INFORMATION AVAILABLE TO THE ENGINEER AND MAY NOT BE ACCURATE TO EXTENT OR LOCATIONS, PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL NOTIFY UTILITIES AND THEN MARK OR REMARK THEIR FACILITIES.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING VEGETATION WHICH DOES NOT UNREASONABLY INTERFERE WITH CONSTRUCTION.
5. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, REFERENCE POINTS AND STAKES.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES FOR EXECUTION OF ALL MATERIALS. THE EXECUTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE STATE AND LOCAL CODES, RULES, AND REGULATIONS.
7. TESTING SHALL BE DONE BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
8. SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. SHORING SHALL BE IN ACCORDANCE WITH SECTION 7 OF THE MANUAL OF ACCIDENT PROTECTION IN CONSTRUCTION AS PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, OSHA, AND THE LOCAL REGULATIONS.
9. ANY AND ALL WALLS SHOWN HEREIN ARE FOR LAYOUT PURPOSES ONLY. WALL STRUCTURAL DESIGN, DETAILS, CALCULATIONS, APPROVALS, PERMITS, FEES, INSPECTIONS AND CERTIFICATIONS REQUIRED BY THE GOVERNING AUTHORITY SHALL BE PROVIDED BY OTHERS. CONTRACTOR SHALL INSTALL FALL PROTECTION RAIL SYSTEM(s) FOR ALL WALLS 30 INCHES IN HEIGHT OR GREATER UNLESS OTHERWISE SPECIFIED BY STATE AND/OR LOCAL CODES, RULES, OR REGULATIONS. FALL PROTECTION RAIL SYSTEM(s) SHALL BE IN ACCORDANCE WITH OSHA STANDARD 1926, SUBPART M - FALL PROTECTION.
10. ALL STAIRWAYS HAVING MORE THAN THREE (3) RISERS ABOVE A FLOOR OR GRADE SHALL BE EQUIPPED WITH HANDRAILS LOCATED NOT LESS THAN 34 INCHES (34") NOR MORE THAN 38 INCHES (38") ABOVE THE LEADING EDGE OF A TREAD. EXCEPTION: HANDRAILS THAT FORM PART OF A GUARDRAIL MAY BE 42 INCHES (42") HIGH.
11. ALL WALL TOPS TO BE SIX INCHES (6") ABOVE GRADE UNLESS OTHERWISE NOTED.
12. MAXIMUM CUT OR FILL SLOPE IS 2H:1V UNLESS OTHERWISE SPECIFIED. SLOPES EQUAL TO OR STEEPER THAN 2.5H:1V AND WITH A HEIGHT OF 10' OR GREATER SHALL BE STABILIZED WITH APPROPRIATE MATTING OR BLANKETS.

SITE INFORMATION

1. TOTAL ONSITE AREA: 18.28 ACRES / TOTAL AREA DISTURBED 18.30 ACRES.
2. BOUNDARY & TOPOGRAPHIC INFORMATION PROVIDED BY PLANNERS AND ENGINEERS COLLABORATIVE, DATED 05/16/2023.
3. THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CARROLL COUNTY, GEORGIA AND INCORPORATED AREAS, COMMUNITY PANEL NUMBER(S) 13045C0156D, EFFECTIVE DATE 09/19/2007 WAS EXAMINED AND PORTION OF THE PROPERTY SHOWN HEREIN WAS FOUND TO FALL WITHIN A DESIGNATED FLOOD ZONE "A" (AREAS OF 100-YEAR FLOOD) OR SPECIAL FLOOD HAZARD ZONE (AREAS OF 500-YEAR FLOOD).
4. THERE ARE KNOWN STATE WATERS LOCATED ON OR WITHIN 200 FEET OF THE SITE.
5. THERE ARE KNOWN WETLANDS ON THIS SITE
6. THE ORTHOMETRIC HEIGHTS (ELEVATIONS AND CONTOURS) SHOWN HEREON WERE DETERMINED BY FIELD RUN SURVEY BY PLANNERS AND ENGINEERS COLLABORATIVE, DATED 05/16/2023.

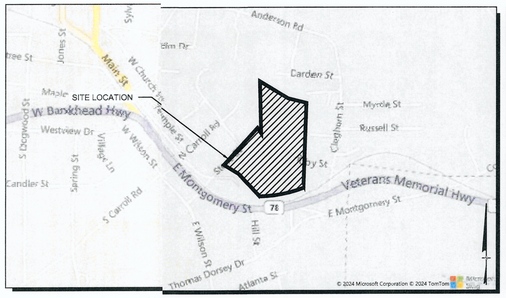
SITE DATA

ADDRESS: 11 GORDON STREET
VILLA RICA, GA 30180
SITE AREA: 18.28 AC
ZONING: CMU
DISTRICT: 2ND
LAND LOT: 161

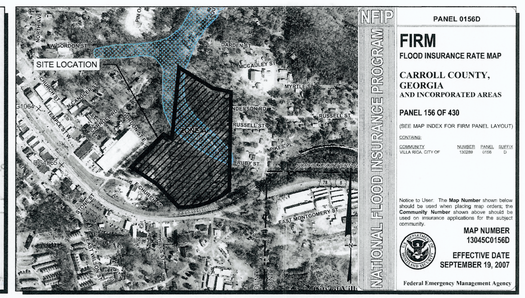
GSWCC rcv'd: 9/16/2024
(R-LBates) Gordon Street

PREPARED BY:

Planners & Engineers Collaborative+
LAND PLANNING + LANDSCAPE ARCHITECTURE + CIVIL ENGINEERING
ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200 PEACHTREE CORNERS, GA 30092 P: (770) 451-2741



SITE LOCATION MAP
NOT TO SCALE



FEMA FIRM MAP
FEMA FIRM PANEL NO.: 13045C0156D
NOT TO SCALE

24 HOUR CONTACT:
BRYAN FLINT @ 404.867.3572

CONTACT INFORMATION:

ENGINEER:	MATTHEW E. KACZENSKI, P.E. PLANNERS AND ENGINEERS COLLABORATIVE	OWNER:	BRYAN FLINT ARROWHEAD
		EMAIL:	BRYAN@ARROWHEADRE.COM
ADDRESS:	350 RESEARCH COURT PEACHTREE CORNERS, GEORGIA 30092	ADDRESS:	350 RESEARCH COURT STE.100 NORCROSS, GA 30092
PHONE:	770.451.2741	PHONE:	404.867.3572
EMAIL:	MKACZENSKI@PECATL.COM		

DEVELOPMENT SERVICES PERMITTING DISCLAIMER:

THE APPROVAL OF THESE PLANS AND THE ISSUANCE OF THIS LAND DISTURBANCE PERMIT DOES NOT IN ANY WAY SUGGEST THAT ALL OTHER REQUIREMENTS FOR THE LEGAL OR APPROPRIATE OPERATIONS FOR THIS ACTIVITY, WHICH MAY REQUIRE ADDITIONAL PERMITTING, HAVE BEEN MET. THE ONUS IS ON THE OWNER/DEVELOPER/BUILDER TO DISCOVER WHAT ADDITIONAL PERMITTING OR APPROVALS MAY BE NECESSARY TO OPERATE FROM THIS POINT IN AN APPROPRIATE AND LEGAL MANNER. PLAN APPROVAL OR PERMIT ISSUANCE DOES NOT ABSOLVE THE APPLICANT FROM COMPLYING WITH ALL APPLICABLE LAWS, POLICIES, STANDARDS OR OTHER PERMITS WHICH MAY BE REQUIRED FOR THIS PROJECT.

SHEET INDEX

SHEET NO.	SHEET NAME
C0.00	COVER SHEET
C0.01 - C0.03	STANDARD SPECIFICATIONS
SURV	BOUNDARY AND TOPOGRAPHIC SURVEY
C2.00	DEMOLITION PLAN
C3.00	MASTER SITE PLAN
C3.01 - C3.03	SITE PLAN
C3.50	FIRE ACCESS PLAN
C4.00	MASTER GRADING PLAN
C4.01 - C4.03	GRADING PLAN
C4.10	MASTER ADA ACCESSIBILITY PLAN
C4.11 - C4.18	ADA ACCESSIBILITY PLAN
C4.40 - C4.42	STORMWATER MANAGEMENT PLAN & DETAILS
C5.00	MASTER SEWER PLAN
C5.01 - C5.03	SEWER PLAN
C5.10	MASTER WATER PLAN
C5.11 - C5.13	WATER PLAN
C6.00 - C6.03	EROSION CONTROL NOTES
C6.10	INITIAL EROSION CONTROL PLAN
C6.20	INTERMEDIATE EROSION CONTROL PLAN
C6.30	FINAL EROSION CONTROL PLAN
C6.40 - C6.45	EROSION CONTROL DETAILS
C7.00 - C7.03	SANITARY SEWER PROFILES
C7.50 - C7.52	STORM SEWER PROFILES
C7.53	PIPE CHARTS
C8.00	SIGHT DISTANCE PROFILES
C9.00 - C9.05	CONSTRUCTION DETAILS
TPR.1 - TPR.4	TREE LOCATION & PROTECTION PLANS
L5.00 - L5.01	LIGHTING PLANS

GEORGIA SOIL AND WATER CONSERVATION COMMISSION
SEP 17 2024
IC45L11
APPROVED

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PROJECT

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A MASTER PLANNED RESIDENTIAL DEVELOPMENT

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-1	03-01-2024	CH	1ST LDP SUBMITTAL
-2	06-24-2024	CH	2ND LDP SUBMITTAL
-3	09-06-2024	CH	3RD LDP SUBMITTAL

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.

GEORGIA REGISTERED No. 37096 PROFESSIONAL ENGINEER MATTHEW E KACZENSKI

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000066476 EXP. 06/27/2027

COVER SHEET

SCALE: N/A
DATE: 09/06/2024
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

C0.00
SHEET

-STREAM BUFFER VARIANCE APPROVAL

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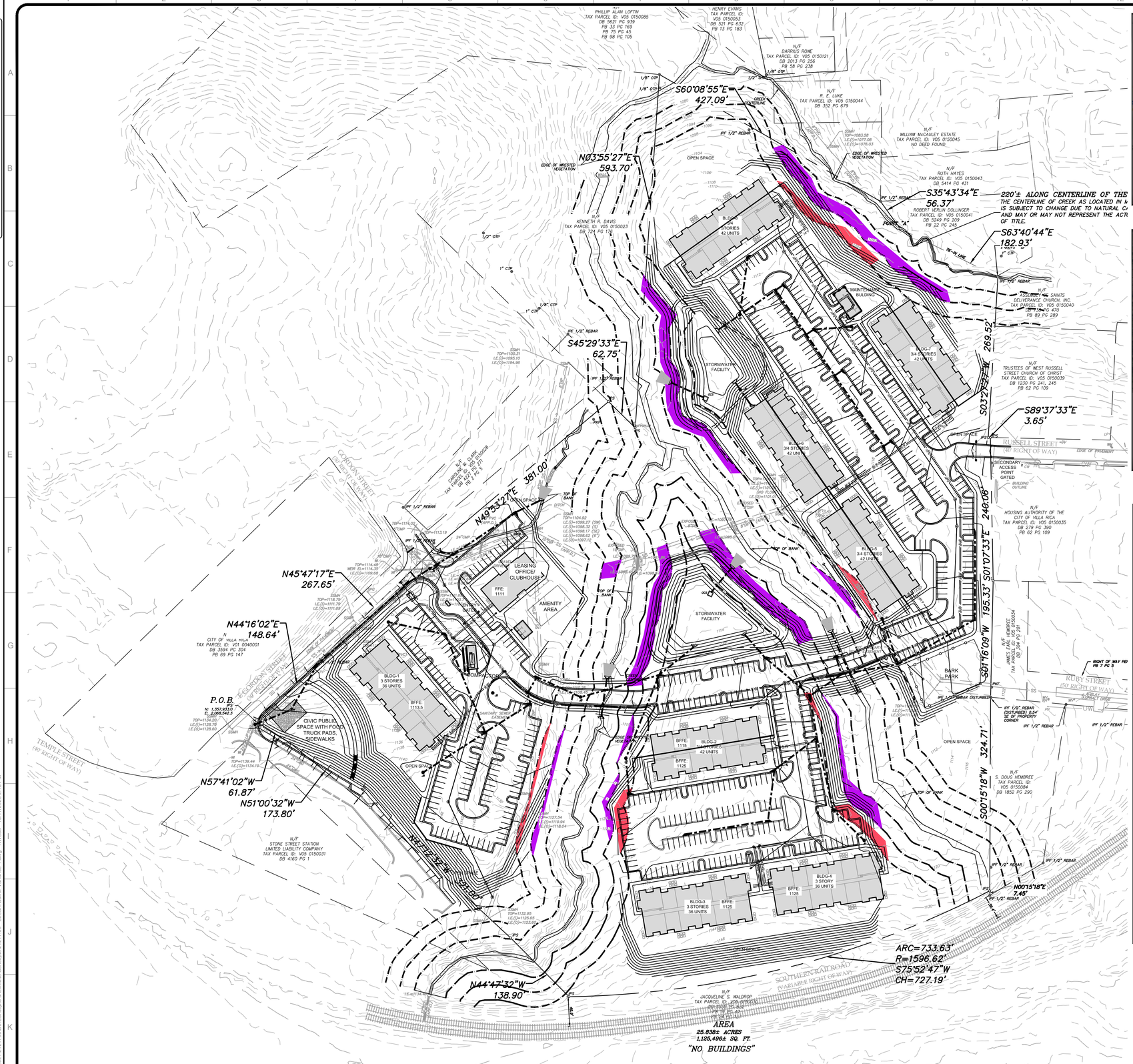
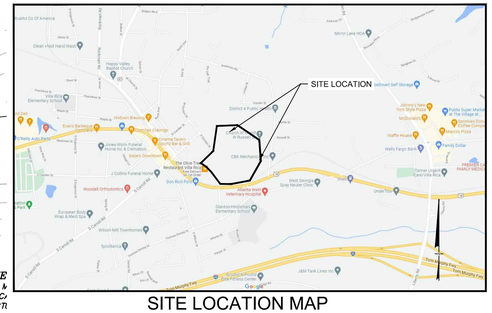
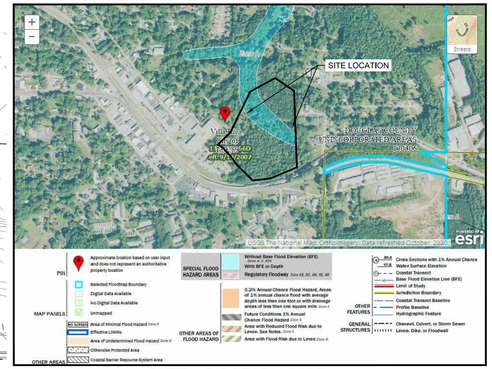




SITE LOCATION MAP
NOT TO SCALE



SITE LOCATION MAP
NOT TO SCALE

IMPERVIOUS SETBACK DISTURBANCE
9,200 SF TOTAL

UNDISTURBED CITY BUFFER DISTURBANCE
33,943 SF TOTAL

JUSTIFICATION:
The Site has a extreme hardship of Size, Shape, Topography, and also special circumstances. The shape of the property odd as a triangle with many angles that make development challenging. The topography is one of the most challenging portions of this development. It slopes heavily in usable areas and very flat in low areas creating limited areas of development. The way the stream buffers cross the site creates limited areas that can be developed. In addition to the site issues the special circumstances that exists on the property is the number of existing sanitary sewer lines that traverse the property. There are 4 different sanitary outfalls that run across the property and serve the downtown area. There is also a waterline that serves the city that runs through the middle of the site. This is a major tract of land for the development of the downtown area and these sewer lines, creek locations, topography, and shape/size provide a real hardship for relief for this property.

24 HOUR CONTACT:
BRYAN FLINT

GEORGIA811
www.Georgia811.com
Know what's below. Call before you dig.

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ARBORISTS + SURVEYING & CONSTRUCTION + WATER RESOURCES
350 RESEARCH COURT STE 200
PEACHTREE CORNERS, GA 30092

PROJECT

EAST GORDON STREET AT WEST GORDON

A WALKABLE DOWNTOWN MASTER PLANNED RESIDENTIAL DEVELOPMENT
AT
GORDON STREET AT EAST GORDON
CITY OF VILLA RICA, CAROLL COUNTY JURISDICTION

FOR
ARROWHEAD REAL ESTATE

MUNICIPALITY PROJECT #

REVISIONS

NO.	DATE	BY	DESCRIPTION

THIS SEAL IS ONLY VALID IF COUNTER SIGNED AND DATED WITH AN ORIGINAL SIGNATURE.
GEORGIA REGISTERED No. 34393 PROFESSIONAL ENGINEER KENNETH J WOOD
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION # 0000059389 EXP. 10/28/2021

STREAM BUFFER VARIANCE

0 40 80 160 320

SCALE: 1" = 80'
DATE: 10/17/2023
PROJECT: 21217.00

GRID NORTH
GEORGIA WEST ZONE

SB1
SHEET

J:\2021\21217.00\Civil\Concepts & Exhibits\Concepts\21217.00 - Stream Buffer Variance-1.dwg, 4/Wed - 10/17/2023 2:15 PM

CITY OF VILLA RICA

City Council Packet

SUBJECT: Building Development Update

CITY COUNCIL AGENDA DATE: November 11, 2025

DATE: October 30, 2025

PREPARED BY: Nic Griffin
FUNDING SOURCE: N / A

PURPOSE: To give a broad update on the status' of developments within the City of Villa Rica.

BACKGROUND: There is a variety of development that is currently under construction, engineering, design, and concept. Staff is going to present developments that have had status changes. Staff can also answer Council and Mayor questions regarding each development.

Complex	Developer	Status	Possible	Active	Notes
Arbors Phase I	Arbor Valley Communities	Complete	192	192	Open 2024
Arbors Phase II	Arbor Valley Communities	No movement	57	0	Have had no correspondence regarding development time-frame
Fuqua Apts - VR Parcel A	Flournoy	Under Const.	252	0	Civil Construction has began. Have held multiple pre-construction meetings. City has enforced Construction traffic be limited to the Villa Rica Connector.
Fuqua TH's	Flournoy	Under Const.	235	0	Civil Construction has began. Have held multiple pre-construction meetings. City has enforced Construction traffic be limited to the Villa Rica Connector.
Fuqua SF	TBD	No movement	255	0	Have had no correspondence regarding development time-frame
Fortune Prky. / Inline Apts.	Linco & Inline	No movement	302	0	No LDP has been issued for this development. Entire project under a stop-work order.
Fortune Prky. / Inline TH's	Linco & Inline	LDP Issued.	52	0	Civil construction has began. Entire project is under stop-work order due to deviation from approved plans.
Fortune Prkwy. / Inline SF	Linco & Inline	LDP Issued	91	0	Civil construction has began. Entire project is under stop-work order due to deviation from approved plans.
Gordon St. Apts	Wood Partners	Plan Approval Expired	320	0	Denied Water/Sewer availability letter. Appealing the decision to Council on 11/11/25
Legacy @ Walton Phase II	Walton Communities	Near Completion	139	139	Final Inspections are underway.
Jameson Townhomes	Tanner/Reid	Under Const.	194	176	Final Plat approved for Phase 2- Under Construction. 18 units have a CO.
ALTA Apts	Wood Partners	Complete	280	280	Complete.
Twin Oaks Phase II	TPA	Near Completion	67	38	38 lots have been issued a CO
Charleston Place III		Under Const.	54	37	17 Lots are remaining.
Hickory Level TH's	TPA	Complete	110	110	Open 2025
Summergate Phase III SF		No movement	60	0	Have had no correspondence regarding development time-frame
Larry Boggs TH	Larry Boggs	No movement	64	0	Have had no correspondence regarding development time-frame
Arpit TH's	Dobbins	Civil Plan Review	140	0	State has approved E&S Plans. Grading permit applied for.
South Harbor 2A		No movement	31	11	20 lots remaining for CO. Developer has paused construction.
South Harbor 2B		No movement	36	0	On hold
Northwoods II		Under Construction	105	11	94 lots remaining
Northwoods III	Meritage	Under Construction	154	0	Preparing for Final Plat.
Conners Landing		Under Const.	249	129	120 lots remaining
Watermist II		Under Const.	105	12	Under Construction.
Watermist III		No movement	268	0	Have had no correspondence regarding development time-frame
Fairway 16		Under Const.	61	0	Civil Construction is underway.
Fairway 17		Under Const.	112	12	12 Lots have been issued a CO.
Rivershire TH's	Rockhaven	Under Const.	186	109	Phase 1 construction has been completed except for 7 lots. Phase 2 is in progress and will complete phase 1's remaining at the end of 2. 77 remaining
Larry Boggs SF	Larry Boggs	Under Const.	20	20	
Emery TH's	Starlight	Under Const.	268	72	There are 196 lots remaining.
Cottages next to FBC	Chapman	LDP Issued	191	0	Working on civil construction
Villa Trace Apts	Trey Robinson	LDP Issued	50	0	Civil Construction has began
Village Walk	Ridgeland Construction	Civil plans under review	16	0	Preparing for Land Disturbance Permit. Approved by GSWCC. Most of the Infrastructure has been installed.
Alma Grove TH	Land Art	No movement	24	24	Have had very little correspondence.
Commercial Complex	**Developer**	**Status**	**Notes**		
Hwy 101 Liquor store	Arpit	LDP Issued	Civil Construction underway.		
VR Liquor Store	A&M 662 Property LLC	Building Permit Issued	Under Renovation, have applied for variance regarding fa[illegible]ade requirements.		
Hwy 78 Liquor Store	Patel	Concept, Changed civil plans	In Engineering and Design.		
Connors Road Liquor Store	Patel	Civil plans reviewed	Comments issued to Engineer.		
Rockmart RD/ Hwy 101	Crowe Holdings	LDP issued	Under Construction		
111 Boggs Rd	Benchmark united	Civil plans reviewed	Comments issued to Engineer.		
Turano Baking Expansion	Turano	Under Const.	Building Permit has been issued.		
Peachstate Trucking	Pro Building Systems	Near Completion	Final inspection complete. CO issued. Applied for Sign.		
Robbie's Food Hall	Brandon Thompson	Under Const.	Building permit issued.		
Sunbelt Asphalt.	Sunbelt Asphalt	LDP Issued	Asphalt manufacturing, Civil construction in progress.		
Tractor Supply	Tractor Supply	Under Const.	Building permit issued.		
WhataBurger	Whataburger	Civil plans reviewed.	Waiting on GSWCC approval.		
Wellstar	Wellstart	Complete	CO issued.		
Arpit PunkinTown Rd Commerci	Dobbins	Engineering and design.	Grading Permit applied for.		
Punkintown Rd-Arpit- Road De	Dobbins	Timber Permit issued, civil plan review*	Grading Permit applied for.		
Scott Evans Dealership	Scott Evans	Building Permit Issued*	Civil plans in review. Waiting on GDOT permit.		
Liberty Logistics	Dickenson	No movement			
Waffle House	Waffle House	Under Const.	Building permit issued, footings and vertical work in progress.		
Chipotle	Jeff Matthews	Complete	Complete		
Fuqua Commercial	Fuqua	Under Const.	Open 2024 - Publix, restaurants, etc.		
Chickfila, Chase	Fuqua	Complete	Complete		
Carroll Road Storage Expansion	10 Federal Storage	Under Const.*	Building Permit issued.		

Flex Storage	DYO Investments	Engineering and design.	No impact on W/S
Strickland Brothers Oil	RFT Properties	Complete	
Camp Dentistry	Bruce Camp	Under Const.	
Fortune Prky Road Development	Linco & Inline	Under Const.	Stop Work order issued.
Hwy 101 / Rockmart Road Ind	CHI/Acquisitions, LP	Civil Plan Review	
Tanner Lab and Morgue Expanisio	Tanner	Under Const.	
Tanner Exp: 2	Tanner	Civil Construction has began	Phase 1 LDP issued. Preparing for full LDP.
Kona Ice	Owner	LDP issued.	Under civil construction.
Struktol	Struktol	No movement	
Kroger Hole Commercial	Halpern	No movement	
Arpit Commercial	Dobbins	Civil Plan Review	On hold
Ultimate Carwash Retail	Smith and Kindred Group	Waiting on Submittal	Last correspondence regarded possible variance for buffer and set backs.
Fuqua Commercial	Fuqua	Under Const.	Tidal Wave under construction.

CITY OF VILLA RICA

City Council Meeting
Agenda Item Cover Sheet

SUBJECT: Approval of the City of Villa Rica 2026 Holiday Schedule
AGENDA DATE: November 4, 2025

DATE PREPARED: October 9, 2025
PREPARED BY: Tiffany Lanford, HR Director

AMOUNT: N/A
GL ACCOUNT #: N/A
FUNDING SOURCE: N/A
BUDGETED ITEM? N/A

PURPOSE: To approve the 2026 City-wide Holiday Schedule.

BACKGROUND: Each year, the City of Villa Rica adopts an official holiday schedule to ensure consistency across all departments and alignment with City operations. The schedule outlines recognized holidays for the upcoming calendar year during which City offices will be closed, with the exemption of essential personnel required to maintain public safety and essential services.

The proposed 2026 holiday schedule is consistent with previous years and includes the standard 12 paid holidays observed by the City. The proposed 2026 holiday schedule is as follows:

Holiday	Date Observed
New Year's Day	Thursday, January 1, 2026
Martin Luther King Jr. Day	Monday, January 19, 2026
Presidents' Day	Monday, February 16, 2026
Good Friday	Friday, April 3, 2026
Memorial Day	Monday, May 25, 2026
Independence Day	Friday, July 3, 2026 (Observed)
Labor Day	Monday, September 7, 2026
Veterans Day	Wednesday, November 11, 2026
Thanksgiving Day	Thursday, November 26, 2026
Day After Thanksgiving	Friday, November 27, 2026
Christmas Eve	Thursday, December 24, 2026
Christmas Day	Friday, December 25, 2026

STAFF RECOMMENDATION: Approval.

MOTION: I move to approve the City of Villa Rica 2026 Holiday Schedule as listed.

2026 City Holiday Schedule

NEW YEAR'S DAY **Thursday, Jan. 1, 2026**	MLK JR. DAY **Monday, Jan. 19, 2026**	PRESIDENTS' DAY **Monday, Feb. 16, 2026**
GOOD FRIDAY **Friday, April 3, 2026**	MEMORIAL DAY **Monday, May 25, 2026**	INDEPENDENCE DAY Observed on **Friday, July 3, 2026**
LABOR DAY **Monday, Sept. 7, 2026**	VETERANS DAY **Wednesday, Nov. 11, 2026**	THANKSGIVING DAY **Thursday, Nov. 26, 2026**
DAY AFTER THANKSGIVING **Friday, Nov. 27, 2026**	CHRISTMAS EVE **Thursday, Dec. 24, 2026**	CHRISTMAS DAY **Friday, Dec. 25, 2026**

CITY OF VILLA RICA

City Council Meeting
Agenda Item Cover Sheet

SUBJECT: Text Message/Social Media Archiving
AGENDA DATE: 11/4/2025

DATE PREPARED: 10/30/2025
PREPARED BY: Jim Chambers

AMOUNT: $32,880
GL ACCOUNT #: 100-1535-521300
FUNDING SOURCE: IT Technical
BUDGETED ITEM? NO
PUBLIC HEARING: NO

PURPOSE:

Due to the Opens Records Act OCGA 50-18-71 and the current retention schedule of the state of Georgia, which the City of Villa Rica has adopted, (Article 70-2-190) the city attorney has advised that we have a way to archive all electronic communications.

BACKGROUND:

Currently the City archives emails but has limited ability to archive text messages and social media. Engaging in this upgrade would allow us to archive almost all forms of communication and Meta Data.

STAFF RECOMMENDATION:

Approve

MOTION:

I move to approve the Support Agreement with Intradyne in an amount not to exceed $32,880, and with an annual support fee not to exceed $23,880.

Planning & Zoning
Community Development Department

Villa Rica City Hall
571 W. Bankhead Hwy
Villa Rica, GA 30180
T: 678.840.1238
F: 770.459.7003
www.villarica.gov

City Council Public Hearing: 11/11/2025.

Staff Report: VA -05-2025

Applicant: Milan Patel (Kuviha Group, Inc.)
Contractor: Kevin Bell (Suntan Construction)
Case No.: VA-05-25
Address: 113 Commons Way
Land Lot: 131, District 6
Parcel: V07 0100183, Carroll County, Georgia
Acreage: 0.98 ± acres
Zoning: C-2, Commercial Medium Density
Ward: 2
Council Member: Matthew Momtahan
Planning Commission Member: Julie Cepin

The applicant, Milan Patel of Kuviha Group, Inc., requests two variances to facilitate the rehabilitation of an existing inline retail strip center into a stand-alone distilled spirits package store at 113 Commons Way. The variances are as follows:

1. **Variance from *Sec. 4-401*** – *License issuance—Retail dealer building and inventory requirements* to reduce the requirement that the building be bricked on all sides. Specifically:
    i. To allow Nichiha fiber cement architectural faux brick panels in lieu of traditional brick on the newly constructed façade section;
    ii. To allow the existing stucco fascia section to remain; and
    iii. To allow the existing stone water table to remain.

2. **Variance from *Sec. 8.27(a)*** – *Liquor Stores, Package Stores, and Liquor Outlets* to reduce the minimum lot size requirement from one (1) acre to approximately 0.98 acres.

The following documents, which were submitted in support of the application, have been reviewed:

1. Application for a Variance, dated October 9, 2025, signed by Milan Patel (1 page).
2. Letter of Intent, dated October 9, 2025, signed by Kevin Bell (1 page).
3. Rendering of proposed front elevation (1 page).
4. Vicinity Map of subject site. (1 page).
5. Warranty Deed, dated June 27, 2024, signed by Danny Fang, Marins Property Management Holdings LLC (1 page).
6. Color rendering of front façade, and images of the partially constructed new façade section, submitted on October 30, 2025.

A. Existing Conditions and Background

Milan Patel (Kuviha Group) received presumptive alcohol license approval for a distilled spirits retail package store at this location on January 14, 2025, under City Council Case ABL-03-25.
The applicant has since initiated plans to remodel and reconfigure the existing retail strip building into a single-use structure consistent with the city's standards for package stores. Kevin Bell of Suntan Construction Company is the contractor for the renovation project.

On October 30, 2025, a Stop Work Order was issued after City staff observed construction activity that deviated from the approved building permit and submitted variance renderings. Specifically, the applicant began construction of the main entrance focal point façade as a blank, windowless wall, contrary to the submitted plans that depicted a fenestrated façade treatment *(Figure 2)*.

This modification is inconsistent with Sec. 9.04(6)(f) – Four-Sided Architecture, which states that *"Blank, windowless walls are prohibited along facades fronting a public way."* The partially constructed wall, as built, eliminates the visual interest and transparency features originally proposed. The attached images illustrate the deviation between the approved rendering and the current state of construction.

TABLE 1. SURROUNDING LAND USES

	Current Zoning	Current Use	Land Use Character Area
North	Commercial Medium Density (C-2)	Commercial	Commercial Village
East	Commercial Medium Density (C-2)	Commercial	Commercial Village
South	Commercial Medium Density (C-2)	Commercial	Commercial Village
West	Commercial Medium Density (C-2)	Commercial	Commercial Village

The property is located within the Commercial Village character area as identified in the City's Comprehensive Plan. The Commercial Village supports redevelopment of existing commercial centers, infill commercial uses, and improved architectural design along key corridors.

The site is also part of the I-20 Gateway area, which emphasizes visually appealing, high-quality commercial development that serves as an entry corridor to the city. While the proposed redevelopment supports these objectives by reinvesting in an existing commercial property, the proposed use of Nichiha fiber cement faux brick panels deviates from the intent of the code, which requires package stores to be constructed as fully bricked buildings on all sides.



FIGURE 1. VICINITY MAP. 113 COMMONS WAY. SOURCE: CARROLL COUNTY QPUBLIC.

B. Site History

The subject property, located at 113 Commons Way, was originally constructed in 2005 as part of a small retail center development consisting of multiple inline commercial suites. The building is now being rehabilitated for use as a stand-alone distilled spirits package store.

On January 14, 2025, City Council approved the issuance of a presumptive alcohol license (Case ABL-03-25) to Kuviha Group, Inc. for a distilled spirits retail package store at this location. Following license approval, the applicant applied for and received all necessary building permits to commence interior and exterior renovations. A Commercial Alteration Permit (25VR-BLD00347) was issued on October 16, 2025, along with associated plumbing and electrical permits. Construction is currently underway to complete the rehabilitation of the existing structure in accordance with city requirements.

On October 30, 2025, a Stop Work Order was issued after City staff observed construction activity that deviated from the approved building permit and submitted variance renderings.

C. Proposed Development

The applicant proposes to complete the renovation using Nichiha fiber cement architectural wall panels as a masonry-equivalent façade material. While Nichiha is a durable and architecturally acceptable material in many contexts, it represents a deviation from the existing brick façade and from the intent of Sec. 4-401, which requires that package store buildings be bricked on all sides.

According to the applicant, the existing building was not originally constructed to support a full brick façade, and applying brick at this stage would require substantial foundation and structural reinforcement to accommodate the additional weight. These structural challenges would result in significant cost and potential construction complications without adding meaningful architectural value.

Staff's opinion is that the newly constructed entrance wall could feasibly be built using full brick to match the existing building's materials. Therefore, the requested variance is not the minimum necessary to make the project feasible. While a limited variance for the existing stucco fascia and the existing stone water table could be considered reasonable, the variance requested for the newly constructed façade section is excessive because it can be completed with full brick consistent with both the ordinance and the building's established architectural character.

The applicant's justification for the request is primarily based on expense; however, economic hardship is not a valid justification for granting a variance under state law or the City's zoning ordinance. The hardship is self-imposed, as the applicant voluntarily initiated construction in a manner inconsistent with approved plans and code standards.

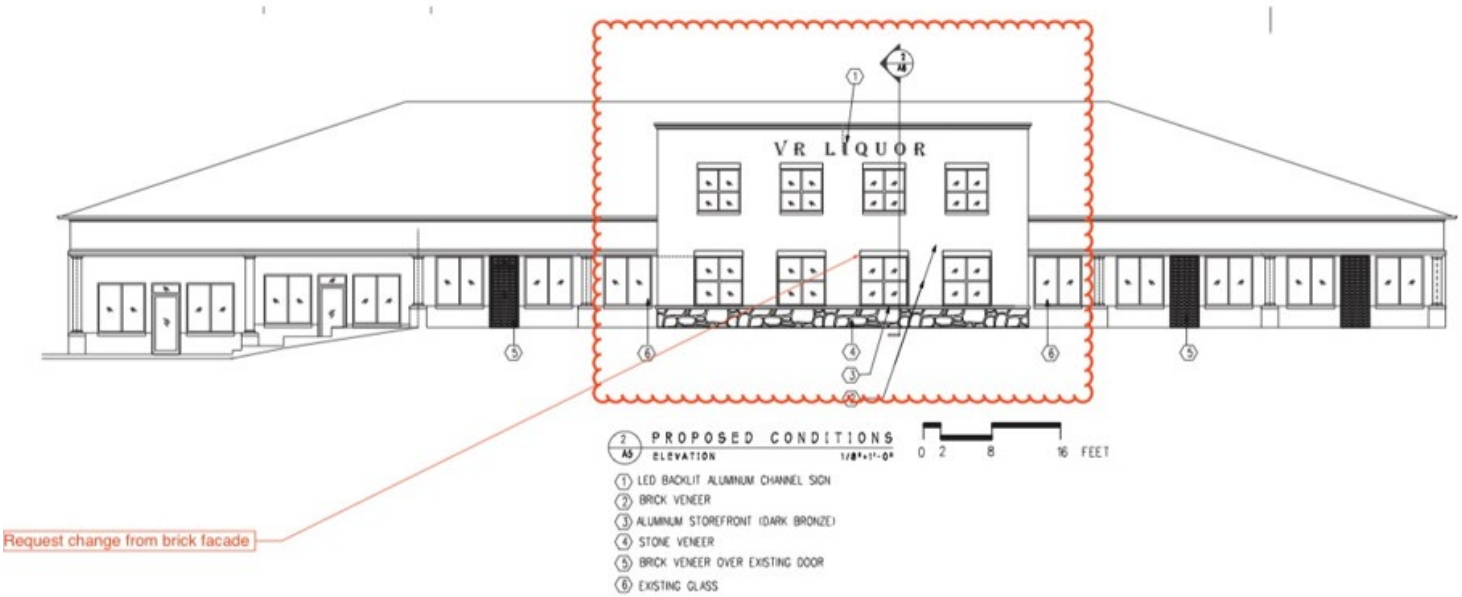


FIGURE 2. RENDERING. FRONT ELEVATION WITH PROPOSED MASONRY TREATMENTS.



FIGURE 3. RENDERING. PROPOSED FINISHED FRONT ELEVATION WITHOUT WINDOWS.



FIGURE 4. CURRENT CONDITIONS. IMAGE CAPTURED ON 10/30/2025



FIGURE 5. FRONT ELEVATION WITH FACADE ELEMENTS LABELED

Flood Plain

The property is not located within a flood zone, as shown in Figure 4 below.

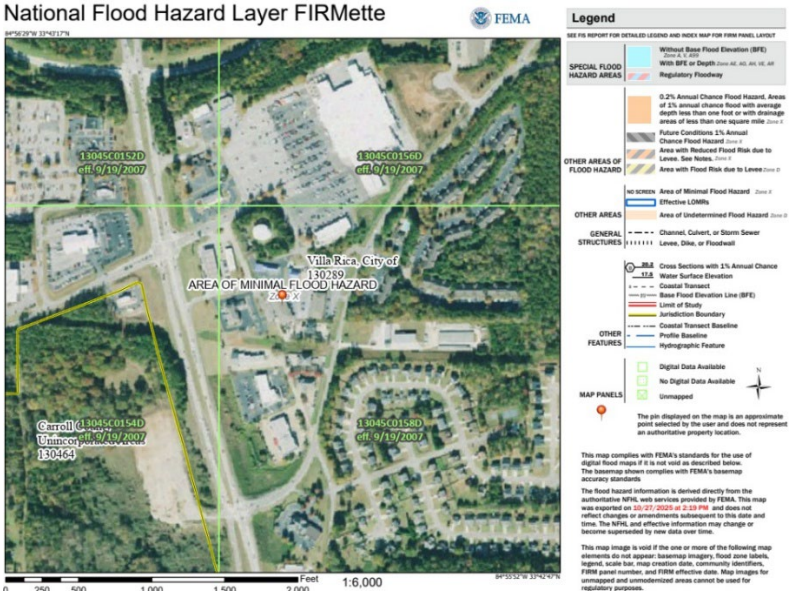


FIGURE 6. FEMA FLOOD MAP



FIGURE 7. VILLA RICA ZONING MAP

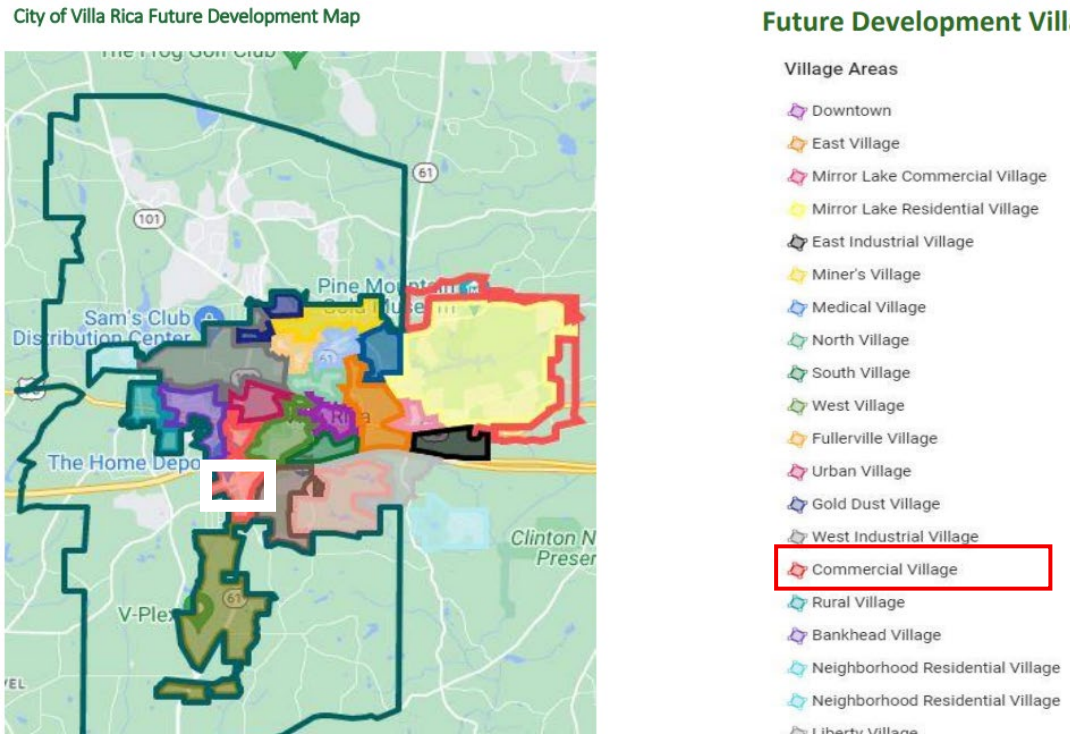


FIGURE 8. VILLA RICA FUTURE LAND DEVELOPMENT MAP

D. Variances

1. **Variance from *Section 4-401 – License Issuance, Retail Dealer Building and Inventory Requirements*.**

   i. To allow Nichiha fiber cement architectural faux brick panels in lieu of traditional brick on the newly constructed façade section;
   ii. To allow the existing stucco fascia section to remain; and
   iii. To allow the existing stone water table to remain.

   Brick on All Sides.

   The applicant's proposed masonry treatments are intended to satisfy the ordinance's intent by maintaining a high-quality and architecturally consistent appearance, but staff hold the opinion that the newly constructed section should satisfy the intent of the code and be consistent with the brick that already exists on the building.

2. **Variance from *Section 8.27 – Liquor Stores, Package Stores, and Liquor Outlets*.**

   ***(a) Minimum Lot Size*.**

   Reduction of the 1-acre minimum lot size requirement to allow redevelopment of an existing 0.98-acre. The shortfall of 0.02 acres represents less than a 2% deviation.

Variance Decision Criteria

In taking action on all variance requests, the Council shall use the following decision criteria, consistent with the requirements of the Georgia Code.

a) Development Standards Variance. The Council may grant a variance from the development standards of this ordinance (such as height, bulk, area) if, after a public hearing, it makes a determination in writing (consistent with *O.C.G.A. 36-66-1*), that:

I. **General Welfare:** Approval of the variance would be injurious to the City's efforts to maintain consistent, high-quality commercial design along major corridors. The proposed Nichiha fiber cement façade treatment is inconsistent with the existing buildings architectural character, as well as the code's intent for full brink facades on retail package stores. The removal of windows is a deviation from approved permit plans and is inconsistent with city's adopted design standards.

II. **Adjacent Property:** Allowing a blank, windowless façade facing the public street would diminish the area's architectural character and could negatively affect the appearance of the building and the perceived value of surrounding commercial properties.

III. **Practical Difficulty:** The hardship claimed by the applicant is based on construction cost and design preference, not on a unique physical condition of the property. Economic considerations are not grounds for a variance. The need for relief is self-imposed and avoidable through compliance with the code's requirements for the newly constructed entrance section.

E. Comments

No additional staff Comments.

F. Public Notification

As required by *Section 11.05* in the Code of the City of Villa Rica, the public has been notified in *Times-Georgian* and the *Douglas County Sentinel* on October 21, 2025, a sign has been posted on the subject properties; and all abutting property owners have received notification via regular and certified mail.

Public Response:
In response to the public notifications, no residents have contacted the City objecting to the proposed variances.

G. Recommendations

Staff recommends **Denial** of the requested variances.

Should approval be considered, then staff propose the following conditions:

1. All building, fire life safety, and zoning requirements shall be met in accordance with all applicable City codes and regulations.

2. Architectural treatments of the newly constructed façade section shall be brick, consistent with the intent of Section 4-401 and the existing brick façade of the building. The existing stucco fascia section is allowed to remain, and the existing stone water table is allowed to remain.

3. The reduction of the 1-acre minimum lot size requirement to allow redevelopment of an existing 0.98-acre, is approved.

4. The parking lot shall be restriped in accordance with the code's requirements, subject to review and approval by the Community Development Department.

5. The final façade improvements shall require design review approved by the Community Development Department.

CITY OF VILLA RICA

City Council Meeting
Agenda Item Cover Sheet

SUBJECT: Variance request by Milan Patel, for a reduction in the minimum masonry required on building facades and a reduction to the minimum lot size, in accordance with *Sec. 4-401 License issuance - Retail dealer building and inventory requirements, and Sec. 8.27 Liquor Stores, Package Stores, and Liquor Outlets*. For the property located at 113 Commons Way, Land Lot 131, District 6, also known as Parcel Number: V07 0100183. The property lot size is 0.98 +/- acres. The subject property is zoned Commercial Medium Density (C2) located within Carroll County, GA, Ward 2. **This is a Public Hearing.**

WORK SESSION DATE: **November 4, 2025**

MEETING DATE: **November 11, 2025**

PREPARED BY: **Shaun Myers, Planning and Zoning Administrator**

PUBLIC HEARING: **YES**

PURPOSE:

The applicant requests variances from two sections of the City Code*: Sec. 4-401 – License Issuance, Retail Dealer Building and Inventory Requirements*, to reduce the requirement that the building be bricked on all sides, and *Sec. 8.27 – Liquor Stores, Package Stores, and Liquor Outlets*, to reduce the one-acre minimum lot size requirement to approximately 0.98 acres. These variances are necessary to enable rehabilitation of an existing commercial building that was not originally constructed to support full brick veneer and to recognize a minimal lot-area deficiency.

BACKGROUND:

The building at 113 Commons Way was originally constructed in 2005 as part of a small commercial strip development. On January 14, 2025, City Council approved a presumptive alcohol license (Case ABL-03-25) for Kuviha Group, Inc. to operate a distilled spirits package store at this location.

A Commercial Alteration Permit (25VR-BLD00347) was issued on October 16, 2025, along with plumbing and electrical permits. Renovation work is currently underway to convert the

existing multi-suite structure into a single-tenant facility consistent with the City's architectural standards for package stores.

The property lies within the Commercial Village and I-20 Gateway character areas, which encourage corridor revitalization and high-quality commercial redevelopment.

IMPACT: N/A

STAFF RECOMMENDATION:

Staff recommends **Denial** of the requested variance from Sec. 4-401.
The applicant has constructed a portion of the façade inconsistent with the approved plans and renderings, and the newly built section can feasibly be completed in full brick consistent with ordinance standards and existing materials. The request does not represent the minimum variance necessary, the hardship is self-imposed, and approval would conflict with the City's non-residential design standards and four-sided architecture requirements for retail package stores.

Should approval be considered, then staff propose the following conditions:

1. All building, fire life safety, and zoning requirements shall be met in accordance with all applicable City codes and regulations.

2. Architectural treatments of the newly constructed façade section shall be brick, consistent with the intent of Section 4-401 and the existing brick façade of the building. The existing stucco fascia section is allowed to remain, and the existing stone water table is allowed to remain.

3. The reduction of the 1-acre minimum lot size requirement to allow redevelopment of an existing 0.98-acre, is approved.

4. The parking lot shall be restriped in accordance with the code's requirements, subject to review and approval by the Community Development Department.

5. The final façade improvements shall require design review approved by the Community Development Department.

MOTION:

I move to Deny the requested variances from Sec. 4-401 and Sec. 8.27 for the property located at 113 Commons Way (Case No. VA-05-25).

City of Villa Rica

25VR-VA00001

☐ APPEAL ☑ VARIANCE

The procedure for requesting a Variance or filing an Appeal is set forth in Section 606 of the City of Villa Rica Zoning Ordinance. Generally, the amendment process involves review by the Community Development Manager and City Council.

Date of Application: 10/09/25

Applicant Name: Milan Patel

Address: 113 Commons Way City: Villa Rica State: GA Zip: 30180

Phone: 240-421-0102 Email: kuvina113@gmail.com

Agent Name: Sun Tan Construction

Address: P.O Box 252 City: Villa Rica State: GA Zip: 30180

Phone: 404-518-8163 Email: Kevin@Suntanrepair.com

Owner Name (*if different from applicant*): _____

Address: _____ City: _____ State: _____ Zip: _____

Phone: _____ Email: _____ **(Note: A notarized statement signed by the property owner(s) authorizing the applicant to make this request shall be attached to the application)**

VARIANCE OR APPEAL INFORMATION

Address of Variance or Appeal Location: 113 Commons Way, Villa Rica GA 30180

I, Milan Patel, hereby state that all the above statements and statements contained in the documents submitted with this application are true. I hereby request processing of this application.

Signature of Applicant

10/09/25
Date

SCR
Construction
Repair

117 W. Wilson Street
Villa Rica, GA 3 0180

10/9/2025

Subject: Request for Variance – Use of Masonry Materials Other Than Brick

Dear Members of the Planning and Zoning Department,

We are respectfully requesting a variance from the City's brick façade requirement for our new project, which will be the **first liquor store in Villa Rica**. Our goal is to develop a building that presents a **modern, attractive, and high-quality design** that aligns with current retail trends and enhances the appearance of the area.

The existing building **was not originally constructed to support a brick façade**, and applying brick at this stage would likely require **additional foundation and structural work** to accommodate the added weight. This would create unnecessary expense and potential construction complications without adding significant architectural value.

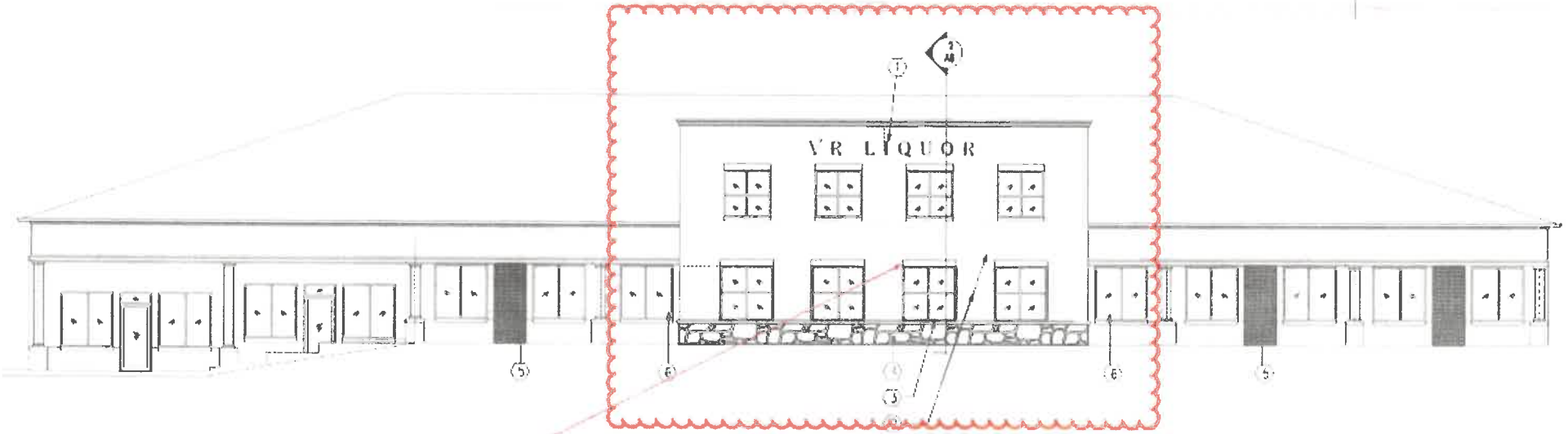
We are proposing to use **alternative masonry materials** that are durable, low-maintenance, and visually appealing, while offering a more contemporary and inviting aesthetic. These updated materials will provide a fresh, professional look suitable for this new retail establishment and will help set a positive design precedent for future development in the community.

At the upcoming meeting, we will present **visual samples and renderings** to illustrate the materials and demonstrate how they will complement Villa Rica's overall architectural character.

We sincerely appreciate your time and consideration of this request, and we look forward to discussing our proposal further at the meeting.

Respectfully submitted,

Kevin Bell
404-518-8163



1 PROPOSED CONDITIONS
A5 ELEVATION 1/8"=1'-0"

0 4 8 16 FEET

1. LED BACKLIT ALUMINUM CHANNEL SIGN
2. BRICK VENEER
3. ALUMINUM STOREFRONT WITH BRONZE
4. STONE VENEER
5. BRICK VENEER OVER EXISTING DOOR
6. EXISTING GLASS

Request change from brick facade

LOCATION MAP

PROJECT SITE



OCCUPANT LOAD

				SF /	NET/	OCCUPA

eFiled and eRecorded
DATE: 06/27/2024
TIME: 1:13 PM
DEED BOOK: 6254
PAGE: 81 - 83
FILING FEES: $25.00
TRANSFER TAX: $0.00
INTANGIBLE TAX: $0.00
PARTICIPANT ID: 4788494558
CROSS REFERENCES: 1
PT61: 022-2024-002767
RECORDED BY: WT
CLERK: Alan J. Lee
Carroll County, GA

Cross Reference:
Deed Book 6252, Page 160
Carroll County, Georgia Records

Return to:
SMITH CONERLY LLP
402 Newnan Street
Carrollton, Georgia 30117

CORRECTIVE LIMITED WARRANTY DEED

THIS INDENTURE is made this 27th day of June, 2024 between MARIN PROPERTY MANAGEMENT & HOLDINGS LLC, a Georgia limited liability company, as party of the first part (the "Grantor"), and A&M 662 PROPERTY LLC, a Georgia limited liability company, as party of the second part (the "Grantee") (the words "Grantor" and "Grantee" to include their respective heirs, successors and assigns where the context requires or permits).

WITNESSETH:

That Grantor, for and in consideration of Ten and No/100 Dollars ($10.00) and other good and valuable consideration, in hand paid at and before the sealing and delivery of these presents, the receipt and sufficiency of which are hereby acknowledged, has granted, bargained, sold, aliened, conveyed and confirmed, and by these presents does grant, bargain, sell, alien, convey and forever confirm unto the said Grantee the following described real property (the "Property"):

> All that tract or parcel of land lying and being in Land Lot 131 of the 6th District, Carroll County, Georgia, being Tract 1: 1.06 Acres, as per plat thereof recorded in Plat Book 104, Page 210, Carroll County, Georgia Records, which plat is incorporated herein by reference and made a part of this description.

TO HAVE AND TO HOLD the said tract or parcel of land, with all and singular rights, members and appurtenances thereof, to the same being, belonging, or in anywise appertaining, to the only proper use, benefit and behoof of the said Grantee forever in FEE SIMPLE.

AND THE SAID Grantor will warrant and forever defend the right and title to the above-described property unto the said Grantee against the claims of any and all persons claiming by, through or under Grantor. Without expanding by implication the limited warranty set forth herein, this conveyance is made subject to the following matters (the "Permitted Exceptions"): (i) ad valorem real property taxes for the year 2024 and subsequent years not yet due and payable; (ii) All matters shown on plat of survey entitled "Survey for: Garrett Commercial Properties, LLC", dated February 7, 2017, as prepared by Pioneer Land Surveying, and certified by Lester E. Bell,

GRLS #2935 and recorded in Plat Book 104, Page 210, Carroll County, Georgia; (iii) Easement from J.B. Chappell to Plantation Pipe Line Company, dated September 8, 1941 and filed September 23, 1941 in Deed Book 65, Page 189, Carroll County, Georgia Records, as amended and supplemented by Easement Grant and Amendment, from Mrs. Margaret Bryce Chappell, also known as Mrs. J.C. Chappell to Plantation Pipeline Company, filed March 27, 1968 in Deed Book 192, Page 127, Carroll County, Georgia Records as affected by Development Agreement by and between Plantation Pipe Line Company, dated December 14, 2015 and filed April 18, 2016 in Deed Book 5460, Page 196, Carroll County, Georgia Records; (iv) Easements with Covenants and Restrictions Affecting Land ("ECR") by and between Wal-Mart Real Estate Business Trust, LLC, Villa Rica WM Associates, LLC, and Villa Rica Shops Associates, LLC, dated April 29, 1999 and filed May 7, 1999 in Deed Book 1132, Page 1, Carroll County, Georgia Records, as amended by First Amendment to Easements with Covenants and Restrictions Affecting Land, dated April 27, 2001 and filed June 11, 2001 in Deed Book 1525, Page 206, Carroll County, Georgia Records, as affected by Second Amendment to Easements with Covenants and Restriction Affecting Land, dated February 14, 2003 and filed February 26, 2003 in Deed Book 2147, Page 53, Carroll County, Georgia Records; (v) Sewer Easement Agreement by and between Villa Rica Business Park, LLC, Villa Rica Land Associates, L.L.C., Villa Rica Shops Associates, L.L.C., Citizens Bank and Trust of West Georgia, Standing Boy Properties, LLC, SB Villa Rica Associates, LLC, and the City of Villa Rica, dated February 14, 2003 and filed February 26, 2003 in Deed Book 2147, Page 66, Carroll County, Georgia Records; (vi) Matters shown on plat entitled "Final Plat for Villa Rica Business Park", dated February 18, 2005, as revised February 23, 2005, prepared by Crawford & Associates, C.H.F., Inc., certified by Douglas C. Crawford, GA RLS #1833, which plat is recorded in Plat Book 86, Page 153, Carroll County, Georgia Records; (vii) Access Easement Agreement by and between Villa Rica Shops Associates, L.L.C., Villa Rica Land Associates, L.L.C., Villa Rica WM Associates, L.L.C. and The City of Villa Rica, dated April 29, 1999 and filed May 7, 1999 in Deed Book 1131, Page 767, Carroll County, Georgia Records; (viii) Water Line Easement Agreement by and between Villa Rica Shops Associates, L.L.C., Villa Rica Land Associates, L.L.C. and The City of Villa Rica, dated April 29, 1999 and filed May 7, 1999 in Deed Book 1131, Page 784, Carroll County, Georgia Records; (ix) Easement Agreement by and between Villa Rica WM Associates, L.L.C., Villa Rica Shops Associates, L.L.C. and Villa Rica Land Associates, L.L.C., dated April 29, 1999 and filed May 7, 1999 in Deed Book 1131, Page 797, Carroll County, Georgia Records, as amended by Frist Amendment to Easement Agreement, dated February 14, 2003 and filed February 26, 2003 in Deed Book 2147, Page 40, Carroll County, Georgia Records; (x) Easement Agreement by and between Villa Rica Land Associates, LLC and Quiktrip Corporation, dated May 7, 2001 and filed June 12, 2001 in Deed Book 1527, Page 347, Carroll County, Georgia Records; (xi) Grant of Easement from Villa Rica Land Development, LLC to Atlanta Gas Light Company, dated June 13, 2001 and filed June 15, 2001 in Deed Book 1532, Page 131, Carroll County, Georgia Records; (xii) Matters shown on plat of survey entitled "Property Survey for: Villa Rica Properties, LLC", dated 1/20/2006, as prepared by Crawford & Associates, C.H.F., Inc., and certified by Douglas C. Crawford. GRLS #1833 and recorded in Plat Book 88, Page 235, Carroll County, Georgia; (xiii) Order of Condemnation in the Superior Court of the County of Carroll, State of Georgia, Plantation Pipe Line Company vs. J. Carl Chappell, Case Number 5502, filed in Deed Book 199, Page 50, Carroll County, Georgia Records; (xiv) Easement Agreement by and between Villa Rica Properties, LLC and Atlanta Gas Light Company, dated November 14, 2004 and filed November 22, 2004 in Deed Book 2919, Page 33, Carroll County, Georgia Records; (xv) Master Declaration of Protective Covenants, Conditions,

Restrictions and Easements for Villa Rica Marketplace, November 30, 2004 and filed December 3, 2004 in Deed Book 2931, Page 2, Carroll County, Georgia Records, as amended by Amended and Restated Master Declaration of Protective Covenants, Conditions, Restrictions and Easements for Villa Rica Marketplace, dated April 30, 2012 and filed May 3, 2012 in Deed Book 5104, Page 168, Carroll County, Georgia Records; and (xvi) Grant of Easement for Ingress and Egress from Villa Rica Properties, LLC to Villa Rica Marketplace Owners Association, Inc., dated January 30, 2006 and filed February 10, 2006 in Deed Book 3442, Page 259, Carroll County, Georgia Records.

The sole purpose of this Corrective Limited Warranty Deed is to correct and replace the legal description in that certain Limited Warranty Deed from Marin Property Management & Holdings LLC, a Georgia limited liability company in favor of A&M 662 Property LLC, a Georgia limited liability company, dated June 18, 2024 and filed June 18, 2024 in Deed Book 6252, Page 160, Carroll County, Georgia Records.

IN WITNESS WHEREOF, Grantor has executed and delivered this deed under seal the day and year first above-written.

Signed, sealed and delivered
in the presence of:

Unofficial Witness

Notary Public

KAREN EARNEST
NOTARY PUBLIC
CARROLL COUNTY, GEORGIA

MARIN PROPERTY MANAGEMENT &
HOLDINGS LLC,
a Georgia limited liability company

By:
Danny Hankuon Tang
Sole Member

City of Villa Rica
42 Community Sq
Villa Rica, GA 30180
(678) 785-1000
customerservice@villarica.gov

XBP Confirmation Number: 245499526

Transaction detail for payment to City of Villa Rica. **Date: 10/10/2025 - 8:02:02 AM MT**

Transaction Number: 253752999
Visa — XXXX-XXXX-XXXX-2885
Status: Successful

Account #	Item	Quantity	Item Amount
25VR-VA00001	ZONING LAND USE 25VR-VA00001	1	$400.00

TOTAL: ***$400.00***

Transaction detail for payment to City of Villa Rica. **Date: 10/10/2025 - 8:02:03 AM MT**

Transaction Number: 253753004
Visa — XXXX-XXXX-XXXX-2885
Status: Successful

Account #	Item	Quantity	Item Amount
	Service Fee	1	$8.00

TOTAL: ***$8.00***

Billing Information
JENNIFER ALONSO
30180

Transaction taken by: Admin WhitneyCCaselle WhitneyC

AFFP
PUBLIC HEARING 11/11

Affidavit of Publication

STATE OF GEORGIA }
COUNTY OF CARROLL } SS

Rachael Raney, being duly sworn, says:

That she is publisher of the Times-Georgian, a newspaper of general circulation, printed and published in Carrollton, Carroll County, Georgia; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

October 21, 2025

Publication Fees: $ 72.00

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

Subscribed to and sworn to me this 21st day of October 2025.

SHARON GRAY
NOTARY PUBLIC
CARROLL COUNTY, GEORGIA
MY COMMISSION EXPIRES MARCH 12, 2028

70147755 71341834

NOTICE OF PUBLIC HEARING

Application #VA-05-25

Please let this document serve as notification that the City of Villa Rica City Council will hold a public hearing to consider the proposed Variance request by Mllan Patel, for a reduction in the minimum masonry required on building facades and a reduction to the minimum lot size, in accordance with Sec. 4-401 License issuance-Retail dealer building and inventory requirements, and Sec. 8.27 Liquor Stores, Package Stores, and Liquor Outlets. For the property located at 113 Commons Way, Land Lot 131, District 6, also known as Parcel Number: V07 0100183. The property lot size is 0.98+/- acres.

The subject property is zoned Commercial Medium Density (C2) located within Carroll County, GA, Ward 2.

The Public hearing will be conducted by the City Council at 6:00 PM on Tuesday November 11th, 2025 at the Holt-Bishop Justice Center, Municipal Court Room, 101 Main Street, Villa Rica, Georgia.

Comments may be presented at the public hearing or filed in writing prior to the public hearing. For any additional information, please contact the Office of Community Development at 678.840.1238
10/21

MILAN PATEL
913 CENTER BAY DR
VILLA RICA, GA 30180

AFFP

PUBLIC HEARING 11/11

Affidavit of Publication

STATE OF GEORGIA }
COUNTY OF DOUGLAS } SS

Rachael Raney, being duly sworn, says:

That she is Publisher of the Douglas County Sentinel, a newspaper of general circulation, printed and published in Douglasville, Douglas County, Georgia; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

October 21, 2025

Publication Fees: $ 72.00

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

Subscribed to and sworn to me this 21st day of October 2025.

SHARON GRAY
NOTARY PUBLIC
CARROLL COUNTY, GEORGIA
MY COMMISSION EXPIRES MARCH 12, 2028

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MILAN PATEL
913 CENTER BAY DR
VILLA RICA, GA 30180