City Council
7224 GA Highway 21
Port Wentworth, GA 31407

SUBMITTED

Meeting: 10/27/22 07:00 PM
Department: Development Services
Category: Ordinance
Prepared By: Melanie Ellis
Department Head: Brian Harvey

AGENDA ITEM (ID # 2747)

DOC ID: 2747

Zoning Map Amendment Application submitted by David Smith, Kimley-Horn, on behalf of Joseph H. Honerlein, for PIN # 70976 01012B (640 Highway 30) to Rezone from RA (Residential Agriculture) to P-C-3 (Planned General Business) Zoning District for the purpose of a Convenience Store / Fuel Service Station (Parker's kitchen) 1st Reading

Issue/Item: Zoning Map Amendment Application submitted by David Smith, Kimley-Horn, on behalf of Joseph H. Honerlein, for PIN # 70976 01012B (640 Highway 30) to Rezone from RA (Residential Agriculture) to P-C-3 (Planned General Business) Zoning District for the purpose of a Convenience Store / Fuel Service Station (Parker's kitchen) 1st Reading

Background: The subject property is currently woodland.

Facts and Findings: The total amount of property to be rezoned is 4.38 acres. The applicant is requesting to rezone for a commercial development that will include a fuel station and a convenience Store. The project will also include associated parking, and drainage. The proposed access will be on Highway 30 and the Effingham Parkway once completed. According to the 2021 City of Port Wentworth Comprehensive Plan this property is under the Suburban Character Area.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, October 10, 2022 at 6:30 PM. **/ UPDATE: The Planning Commission voted to deny this application.**

ATTACHMENTS:

- ZMA PARKERS 7-0976-01-012B RA TO PC3 OCT 2022 - Application (PDF)
- ZMA PARKERS 7-0976-01-012B RA TO PC3 OCT 2022 - Sealed Site Survey (PDF)
- ZMA PARKERS 7-0976-01-012B RA TO PC3 OCT 2022 - Conceptual Site Plan (PDF)
- ZMA PARKERS 7-0976-01-012B RA TO PC3 OCT 2022 - Timeline (DOCX)

APPLICATION TO AMEND THE ZONING MAP OF PORT WENTWORTH, GEORGIA

RECEIVED AUG 10 2022 BY: CS

Applicant: David D. Smith Phone # 912-226-2607

Mailing Address: 100 Bull Street, Suite 200 Savannah, GA 31401

Property Owner: Joseph H. Honerlein Phone # _____

Use back if more than one owner

Owner Address: 13 Putters Place Savannah, GA 31419

PIN #('s): 70976 01012B # of Acres 4.38

Zoning Classification: Present Residential-Agriculture (RA) Requested General-Business (P-C-3)

Use of Property: Present Vacant Requested Convenience Store/Fuel Service Station

_____ If the requested changed is to extend an existing adjacent zoning district to include this property, explain below why the proposed change should be made.

✔ If the requested changed is not to extend an adjacent zoning district, explain below why this property should be placed in a different zoning district than all adjoining properties. (How does it differ from adjoining properties and why should it be subject to different restrictions than those applying to adjoining properties?)

The proposed rezoning will provide an opportunity for convenience and retail business to develop along State Route 30. This will provide service to the increased traffic volumes anticipated along the SR30 corridor as well as the proposed future development of Effingham Parkway. Several businesses east and west of the site currently operate along the SR30 corridor within a mile of the proposed property, so the proposed zoning is not inconsistent with current development patterns

Attach the following documents:

1. Written legal description of the property (e.g. copy of deed) – full metes and bounds description rather than plat reference.
2. Name, PIN #, property address and mailing address of property owners withing 250 feet of this property.
3. Plat showing property lines with lengths and bearings, adjoining streets, locations of existing buildings, north arrow and scale. Submit fifteen (15) copies of in 11" x 17", one 1 copy in 8.5" x 11", and a PDF on a flash drive.
4. Site Plan of proposed use of property. Submit fifteen (15) copies in 11" x 17", one 1 copy in 8.5" x 11", and a PDF on a flash drive.
5. Disclosure of Campaign Contributions and Gifts form.
6. Disclosure of Financial Interests form
7. If property owner and applicant are not the same, Authorization by Property Owner form or Authorizations of Attorney form.
8. Filing fee of $356.00 + $50.00 per acre + $50.00 Administrative Fee, payable to the City of Port Wentworth.

APPLICATION MUST BE FILED 45 BUSINESS DAYS PRIOR TO THE PLANNING COMMISSION MEETING AT WHICH THEY ARE TO BE CONSIDERED.

I hereby authorize the staff of the City of Port Wentworth to inspect the premises of the above described property and to post this property with the duly required notices. I hereby depose and say that all statements herein and attached statements submitted are true and correct to the best of my knowledge and belief.

Sworn to and subscribed before me this 3rd day of August, 2022.

Notary Public

Signature of Applicant

MELISSA R WRIGHT
NOTARY PUBLIC
Chatham County
State of Georgia
My Comm. Expires June 13 2026

Kimley»Horn

City of Port Wentworth
Melanie Ellis
7224 GA Highway 21
Porth Wentworth, GA 31407

July 27, 2022

RE: ***Written Legal Description***
SR 30 and Future Effingham Parkway
Porth Wentworth, GA

Dear Melanie,

Below is a written legal description of the property contained in the attached signed and sealed ALTA Survey provided by Survey Matters:

> *All that certain piece, parcel, or tract of land laying and being in Chatham County, Georgia, and being more particularly described as follows:*
>
> *Beginning at a monument on the miter forming the intersection of the northwesterly margin of the right-of-way of Georgia Highway 30 (variable width public Right-of-Way) and the northeasterly margin of the Right-of-Way of Effingham Parkway (DB. 1828, PG. 2) Having GA East Grid Coordinates of N798,974.75, E 948,061.54; Thence along the northeasterly margin of the Right-of-Way of Effingham parkway (for the following two calls) (1) N46°44'51"W a distance of 77.91 feet to an iron pin, (2) Thence N24°58'01"W a distance of 158.40 feet to an iron pin, Thence along the common line of Quarterman N45°40'58"E a distance of 611.99 feet to an iron pin, thence along the common line of Jeffers S12°30'58"E a distance of 510.31 feet to a monument, Thence along the northwesterly margin of the Right-of-Way of Georgia Highway 30 (for thw following two calls) (1) S67°41'20"W a distance of 282.12 feet to the point of beginning and containing 190,918 S.F. or 4.383 Acres more or less.*

Very truly yours;
Kimley-Horn and Associates, Inc.

David D Smith
david.smith@kimley-horn.com

PROPERTIES WITHIN 250FT OF PID 70976 01012B

Owner Name	Parcel Number	Property Address	Owner Address
FIELDSTONE GROUP LLC, & LBC CAPITAL II LLC	7097601041Z	1100 MEINHARD RD, PORT WENTWORTH, GA 31407	204 WILEY BOTTOM RD, SAVANNAH, GA 31411-1537
JEFFERS, LYNN	7097601048	HIGHWAY 30, PORT WENTWORTH, GA 31407	222 JEFFERS RD, PORT WENTWORTH, GA 31407-9734
ORR, BRIAN P	7097601012	700 MONTIETH RD, PORT WENTWORTH, GA 31407	700 MONTIETH RD, PORT WENTWORTH, GA 31407
KENDRICK, FREDDY L & KENDRICK, DONNA A	7097601014	614 HIGHWAY 30, PORT WENTWORTH, GA 31407	614 GA HIGHWAY 30, PORT WENTWORTH, GA 31407-9602
HOHNERLEIN, JOSEPH H	7097601012B	640 HIGHWAY 30, PORT WENTWORTH, GA 31407	13 PUTTERS PL, SAVANNAH, GA 31419-6067
QUARTERMAN, OF ZIKE	7097601013	MONTIETH RD, PORT WENTWORTH, GA 31407	327 MONTEITH RD, PORT WENTWORTH, GA 31407-9777
JEFFERS, LYNN	7097601049	HIGHWAY 30, PORT WENTWORTH, GA 31407	222 JEFFERS RD, PORT WENTWORTH, GA 31407-9734
JEFFERS, LYNN	7097601050	HIGHWAY 30, PORT WENTWORTH, GA 31407	222 JEFFERS RD, PORT WENTWORTH, GA 31407-9734
RAHN, GUY K	7097601023	732 HIGHWAY 30, PORT WENTWORTH, GA 31407	732 GA HIGHWAY 30, PORT WENTWORTH, GA 31407-9604

DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

(Required by Title 36, Chapter 67A, Official Code of Georgia Annotated)

Reference: Application filed on August 3rd, 2022, to rezone real property described as follows:

Withing the two years preceding the above filing date, the applicant has made campaign contributions aggregating $250.00 or more to each member of the City Council of the City of Port Wentworth who will consider the application and is listed below. List (1) the name and official position of the local government official and (2) the dollar amount, description and date of each campaign contribution.

I certify that I have not, within two years preceding the above filing date, made any contributions aggregaring $250.00 or more to any member of the City council of the City of Port Wentworth.

I hereby depose and say that all statements herein are true, correct and complete to the best of my knowledge and belief.

Sworn to and subscribed before me this 3rd day of August, 2022.

Notary Public

Signature of Applicant

MELISSA R WRIGHT
NOTARY PUBLIC
Chatham County
State of Georgia
My Comm. Expires June 13 2026

DISCLOSURE OF FINANCIAL INTERESTS

(Required by Title 36, Chapter 67A, Official Code of Georgia Annotated)

Reference: Application filed on August 3rd, 2022, to rezone real property described as follows:

The undersigned official of the City of Port Wentworth has a property interest (Note 1) in said property as follows:

The undersigned official of the City of Port Wentworth has financial interest (Note 2) in a business entity (Note 3) which has property interest in said property, which financial interests as follows:

The undersigned official of the City of Port Wentworth has a member of the family (Note 4) having a property interest in said property or a financial interest in a business entity which has a property interest in said property, which family member and property interest or financial interest are as follows:

Note 1: Property Interest – Direct ownership of real property, including any percentage of ownership less than total ownership

Note 2: Financial Interest – All direct ownership interest of the total assets or capital stock of a business entity where such ownership interest is 10 percent or more

Note 3: business entity – Corporation, partnership, limited partnership, firm, enterprise, franchise, association or trust

Note 4: Member of family – Spouse, mother, father, brother, sister, son, or daughter

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I hereby depose and say that all statements herein are true, correct and complete to the best of my knowledge and belief.

Sworn to and subscribed before me this 3rd day of August, 2022.

Signature of Official

Notary Public

AUTHORIZATION OF PROPERTY OWNER

Application for Rezoning or Variance

I swear that I am the owner of the property which is the subject matter of the attached application, as is shown in the records of Port Wentworth, Georgia.

I authorize the person named below to act as applicant in the pursuit of a variance or for the rezoning of this property.

Name of Applicant: David D. Smith

Address: 100 Bull Street, Suite 200 Savannah, GA 31401

Telephone Number: 912-226-2607

Lynette Hohnerlein

Signature of Owner

Personally appeared before me

Lynette Hohnerlein

who swears that the information contained in this authorization is true and correct to the best of his or her knowledge and belief.

Patricia S. Neubaum

Notary Public

June 29, 2022

Date

PATRICIA S. NEUBAUM
MY COMM. EXPIRES
NOTARY
PUBLIC
JANUARY 28, 2025
CHATHAM COUNTY, GA

CITY OF PORT WENTWORTH
(912) 964-4379

REC#: 00365954 8/12/2022 1:20 PM
OPER: KS TERM: 055
REF#: 0027916

TRAN: 112.0000 BLDG PERMIT
220367 625.00CR
HONERLEIN, JOSEPH
PIN# 7-0976-01-012B
DEV-ZMA 625.00CR

TENDERED: 625.00 CHECK
APPLIED: 625.00-

CHANGE: 0.00

WWW.CITYOFPORTWENTWORTH.COM

Kimley»Horn



City of Port Wentworth
Melanie Ellis
7224 GA Highway 21
Porth Wentworth, GA 31407

August 3rd, 2022

RE: ***Proposed Convivence Store Rezoning Submittal***
SR 30 and Future Effingham Parkway
Porth Wentworth, GA

Dear Melanie,

Below is an explanation of how we addressed the comments received on July 7th, 2022 regarding the application to amend the zoning map of Port Wentworth, GA for PIN# 70976 01012B.

City of Port Wentworth Development Services:

1) Comment # 1. Completed application with original signature (not copies or digital)

    i) *Comment #1 response. Completed application re-submitted with original signatures.*

2) Comment # 2. Application Fee check (total due $625.00)

    i) *Comment #2 response. Application check for $625.00 included.*

3) Comment # 3. Written legal description of the property (see item #1 on application under *Attach the following documents*)

    i) *Comment #3 response. Legal description included in provided in re-submittal.*

4) Comment # 4. Developments of Regional Impact (DRI) initial form – attached in email

    i) *Comment #4 response. Based on the discretion of the client the truck diesel portion of the proposed site has been removed and relieves the requirement of a DRI.*

5) Comment # 5. The requested zoning district will need to be a planned district (P)

    i) *Comment #5 response. Zoning district amended to be a planned district (P).*

6) Comment # 6. The requested zoning of C-1 does not allow Truck stops as a use. You will need to review the Zoning Districts in the City of Port Wentworth zoning ordinance (section 5.2) and choose an appropriate district for your requested use. Once a zoning district will need to be on the original signed form under requested zoning (P-X-X).

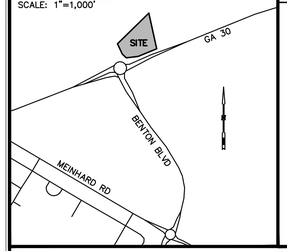
    i) *Comment #6 response. Based on the discretion of the client the truck diesel portion of the proposed site has been removed; however, the form has been updated to reflect a requested zoning of P-C-3.*

Very truly yours;
Kimley-Horn and Associates, Inc.



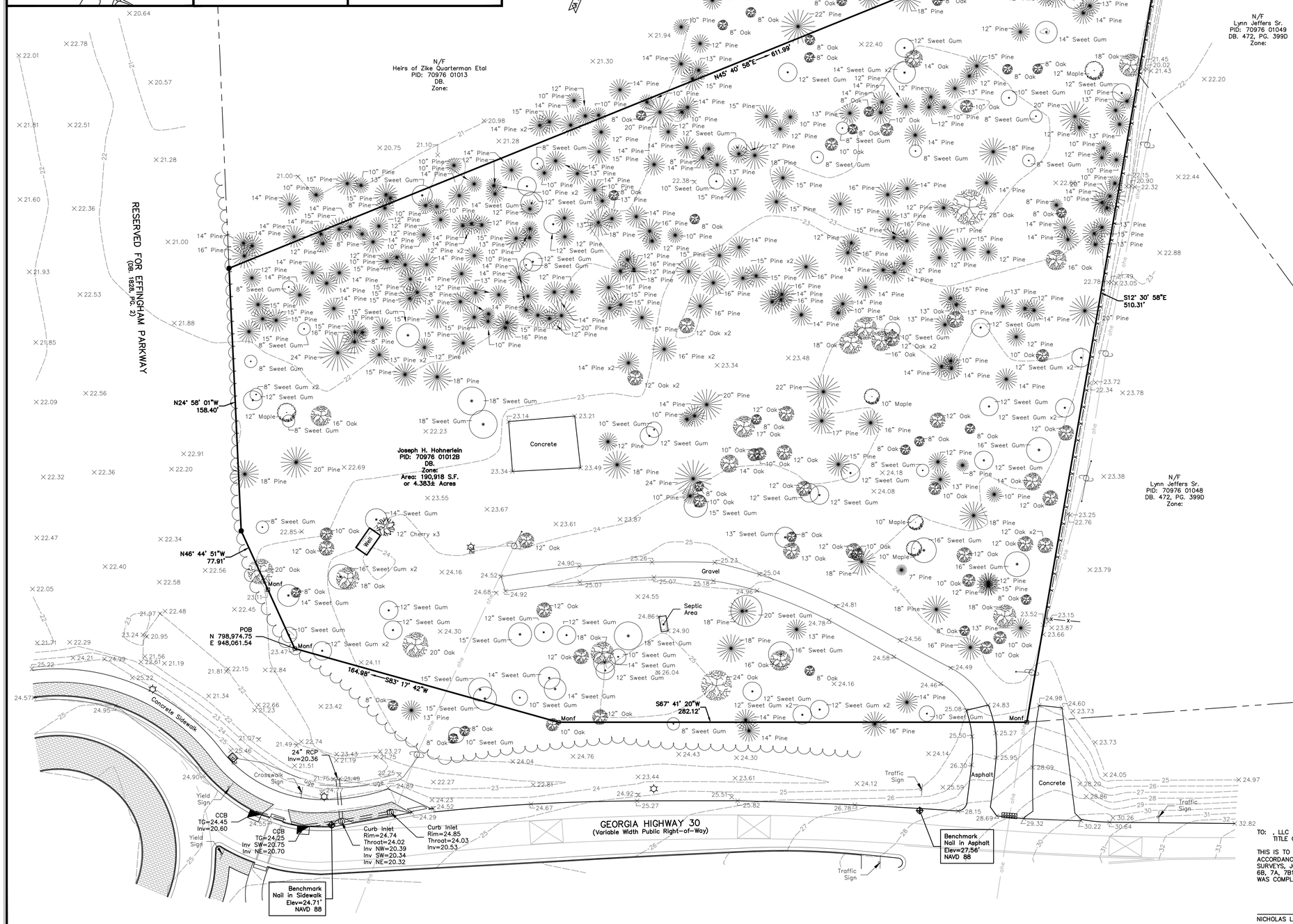
David D Smith
david.smith@kimley-horn.com

LOCATION MAP
SCALE: 1"=1,000'



UTILITY INFORMATION
WATER AND SEWER: CITY OF PORT WENTWORTH (912) 964-4379 ELECTRIC: GEORGIA POWER (888) 660-5890 GAS: GEORGIA NATURAL GAS (877) 850-6200 TELEPHONE: AT&T (888) 757-6500 CABLE: COMCAST (912) 354-7531

ZONING DATA
ZONED: ()
SETBACK LINES: FRONT: ' SIDE: ' REAR: '
MAXIMUM BUILDING HEIGHT: '
FLOOD INFORMATION
FLOOD ZONE "X" (MINIMAL FLOOD HAZARD) PER FEMA MAP NO. 13051C0030G EFFECTIVE DATE: AUGUST 16, 2018
PARKING
REGULAR = N/A HANDICAP = N/A



NOTES:

1. NORTH ARROW, BEARINGS, AND COORDINATES ARE BASED UPON GA EAST GRID NAD 83 ESTABLISHED BY VIRTUAL REFERENCE STATION REAL TIME NETWORK GPS OBSERVATION.
2. ELEVATIONS ARE BASED UPON NAVD 88 ESTABLISHED BY VIRTUAL REFERENCE STATION REAL TIME NETWORK GPS OBSERVATION.
3. REFERENCE IS HEREBY MADE TO THE FOLLOWING MAPS:
   A. DEED BOOK 1404, PAGE 368 RECORDED IN THE CHATHAM COUNTY REGISTER OF DEEDS OFFICE.
   B. DEED BOOK 1404, PAGE 395 RECORDED IN THE CHATHAM COUNTY REGISTER OF DEEDS OFFICE.
4. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT.
5. THIS SURVEY MEETS THE REQUIREMENT FOR A CLASS "A" SURVEY (1:10,000) AS DEFINED FOR THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF GEORGIA.
6. THE AREA WAS DETERMINED BY DMD METHOD.
7. ALL HORIZONTAL DISTANCES ARE GROUND DISTANCES.
8. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM ONE CALL TICKET #220511-005618, FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE 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 AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
9. THE PROPERTY APPEARS TO BE IN FEMA ZONE "X" (AREA OF MINIMAL FLOOD HAZARD), PER MAP #13051C0030G; EFFECTIVE AUGUST 16, 2018.
10. ZONING PROVIDED BY THE CITY OF PORT WENTWORTH TO BE USED FOR INFORMATIONAL PURPOSES ONLY.
11. TOTAL AREA = 190,918 S.F. = 4.383± ACRES
12. NO EVIDENCE OF RECENT EARTH MOVING, BUILDING CONSTRUCTION, STREET OR SIDEWALK CONSTRUCTION WAS OBSERVED ON SITE.
13. THE SITE DOES NOT APPEAR TO HAVE BEEN USED AS A SOLID WASTE DUMP, SUMP, OR SANITARY LANDFILL.
14. NO VISIBLE FLAGGING EVIDENCE OF POTENTIAL WETLANDS WERE OBSERVED ON THE SUBJECT PROPERTY AT THE TIME THE SURVEY WAS CONDUCTED, NOR HAVE WE RECEIVED ANY DOCUMENTATION OF ANY WETLANDS BEING LOCATED ON THE SUBJECT PROPERTY.

PARCEL DESCRIPTION:

ALL THAT CERTAIN PIECE, PARCEL, OR TRACT OF LAND LYING AND BEING IN CHATHAM COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A MONUMENT ON THE MITER FORMING THE INTERSECTION OF THE NORTHWESTERLY MARGIN OF THE RIGHT-OF-WAY OF GEORGIA HIGHWAY 30 (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY) AND THE NORTHEASTERLY MARGIN OF THE RIGHT-OF-WAY OF EFFINGHAM PARKWAY (DB. 1828, PG. 2) HAVING GA EAST GRID COORDINATES OF N 798,974.75, E 948,061.54; THENCE ALONG THE NORTHEASTERLY MARGIN OF THE RIGHT-OF-WAY OF EFFINGHAM PARKWAY (FOR THE FOLLOWING TWO CALLS) (1) N46°44'51"W A DISTANCE OF 77.91 FEET TO AN IRON PIN, (2) THENCE N24°58'01"W A DISTANCE OF 158.40 FEET TO AN IRON PIN, THENCE ALONG THE COMMON LINE OF QUARTERMAN N45°40'58"E A DISTANCE OF 611.99 FEET TO AN IRON PIN, THENCE ALONG THE COMMON LINE OF JEFFERS S12°30'58"E A DISTANCE OF 510.31 FEET TO A MONUMENT, THENCE ALONG THE NORTHWESTERLY MARGIN OF THE RIGHT-OF-WAY OF GEORGIA HIGHWAY 30 (FOR THE FOLLOWING TWO CALLS) (1) S67°41'20"W A DISTANCE OF 282.12 FEET TO A MONUMENT, (2) THENCE S83°17'42"W A DISTANCE OF 164.98 FEET TO THE POINT OF BEGINNING AND CONTAINING 190,918 S.F. OR 4.383 ACRES MORE OR LESS.

LEGEND

	PROPERTY LINE
	ADJOINER PROPERTY LINE
	EASEMENT LINE
	STORM DRAINAGE PIPE
uge	UNDERGROUND ELECTRIC
ohe	OVERHEAD ELECTRIC
	WIRE FENCE
	TREELINE
	GUY WIRE
	DRAINAGE MANHOLE
	CATCH BASIN W/ GRATE
	ELECTRIC METER
	LIGHT POLE
	UTILITY POLE
	UTILITY BOX
	MAILBOX
	SIGN
IPINF	IRON PIN-REBAR FOUND
MON	CONCRETE MONUMENT FOUND
	IRON PIN SET-5/8" REBAR

TO: , LLC
TITLE 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, 2, 3, 4, 5, 6A, 6B, 7A, 7B1, 7C, 8, 9, 10, 11A, 11B, 13, 14, 15, 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MAY 25, 2022.

NICHOLAS L. MANSFIELD DATE: JUNE 2, 2022 REGISTRATION #3260

* THE WORDS "CERTIFY", "CERTIFICATES" OR "CERTIFICATION" AS USED HEREON ARE UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR, BASED UPON HIS BEST KNOWLEDGE, INFORMATION AND BELIEF, AS SUCH, DO NOT CONSTITUTE A GUARANTEE NOR A WARRANTY, EXPRESSED OR IMPLIED.

GEORGIA No. 003260 REGISTERED LAND SURVEYOR

SURVEY MATTERS
LAND SURVEYING SERVICES
107 Hillcrest Avenue
Simpsonville, South Carolina 29681
(864) 451-0176
nick@survey-matters.com
GA LSF #1129

REVISIONS

ALTA/NSPS LAND TITLE SURVEY

PREPARED FOR:

PROPERTY OF:
JOSEPH H. HOHNERLEIN
640 HIGHWAY 30
CITY OF PORT WENTWORTH, CHATHAM COUNTY, GEORGIA

DRAWN	CHECKED
NMR	NLM

SCALE: 1" = 30'
0 15' 30'

DATE OF SURVEY: MAY 25, 2022
DATE OF PLAT: JUNE 2, 2022

PROJECT NO. 22-081

1 of 1
SHEET NO.





VICINITY MAP

PROPOSED DEVELOPMENT SUMMARY:

SITE SUMMARY:

CURRENT ZONING:	R-A (RESIDENTIAL-AGRICULTURAL)
PROPOSED ZONING:	P-C-3 (GENERAL-BUSINESS)
SITE AREA:	4.35 ACRES

BUILDING SETBACK:

FRONT:	40 FT
SIDE:	10 FT
BACK:	N/A

LANDSCAPE SETBACK:

FRONT:	25 FT
SIDE:	25 FT
BACK:	25 FT

PROPOSED LAND USES & DENSITIES:

CONVENIENCE STORE	5,175 SF
SERVICE STATION	8 MPD

PARKING SUMMARY:

REQUIRED STANDARD PARKING:	**28 SPACES** (TOTAL)
REQUIRED HANDICAP PARKING:	**2 SPACE**
PROPOSED PARKING:	**58 SPACES** (TOTAL)
STANDARD SPACES:	55 SPACES
HANDICAP SPACES:	3 SPACES

NOTE: CONCEPT PLAN BASED ON PARCEL DIMENSIONS FROM GIS PARCELS.
ACTUAL BOUNDARY LINES MAY VARY FROM THOSE INDICATED HEREIN.

CONCEPTUAL PLAN
SUBJECT TO CHANGE

GRAPHIC SCALE IN FEET
0 15 30 60

PREPARED BY
Kimley»Horn
© 2022 KIMLEY-HORN AND ASSOCIATES, INC.
100 BULL STREET, SUITE 200
SAVANNAH, GEORGIA 31401
PHONE (912) 712-9838
WWW.KIMLEY-HORN.COM

PREPARED FOR
Parker's kitchen
DRAYTON-PARKER COMPANIES, LLC.
17 WEST MCDONOUGH STREET
SAVANNAH, GEORGIA 31401
PHONE: 912-231-1001

No.	ISSUANCE AND REVISION DESCRIPTIONS	DATE	BY
1	CSP 1 LAYOUT REVISIONS	04/05/2022	JG

PRELIMINARY:
NOT FOR CONSTRUCTION

PROJECT
PARKER'S - 640 HIGHWAY 30
PORT WENTWORTH, GEORGIA
CITY OF PORT WENTWORTH, GEORGIA
PARCEL I.D.: 109I0 07013

GSWCC NO. (LEVEL II)	0000000000
DRAWN BY	JG
DESIGNED BY	DS
REVIEWED BY	JG
DATE	03/28/22
PROJECT NO.	014774001

TITLE
CONCEPTUAL SITE PLAN

SHEET NUMBER
C100

Drawing name: K:\SAV_Civil\014774000_Pecan\014774001_Port Wentworth_SR30_GA\CAD\Plansheets\014774001-Highway 30-Port Wentworth-GA-CSP4.dwg Layout1 Aug 10, 2022 9:37am by David.Smith

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Project Timeline

Project Number: 220367

Project Name: Parker's 7-0976-01-012B

Applicant / Engineer: David D Smith – Kimley-Horn

Owner: Joseph H Honerlein

City Review Engineer: N/A

- 06.30.22 –Application Received - Incomplete
- 07.07.22 – Letter of Missing Items in Application sent to David D. Smith
- 08.10.22 – Revised Application Received – Complete
- 09.23.22 – public hearing notice letters mailed
- 09.23.22 – public hearing notice sent to Savannah Morning News (published 9/26/22)
- 09.26.22 – Public hearing notice signs posted.
- 10.10.22 – The Planning Commission voted to deny this application.

City Council
7224 GA Highway 21
Port Wentworth, GA 31407

SUBMITTED

Meeting: 10/27/22 07:00 PM
Department: Development Services
Category: Planning/Zoning Item
Prepared By: Melanie Ellis
Department Head: Brian Harvey

AGENDA ITEM (ID # 2748)

DOC ID: 2748

Site Plan Review Application submitted by Felipe Toledo, P.E., Thomas & Hutton of behalf of LRE Crossgate North, LLC., for PIN # 7-0035-01-007 (Northeast corner of Crossgate Rd & Jimmy Deloach Parkway) for a Specific Development Site Plan to allow a warehouse development (NFI Crossgate Industrial Park) in a P-I-1 (Planned Industrial) Zoning District

Issue/Item: Site Plan Review Application submitted by Felipe Toledo, P.E., Thomas & Hutton of behalf of LRE Crossgate North, LLC., for PIN # 7-0035-01-007 (Northeast corner of Crossgate Rd & Jimmy Deloach Parkway) for a Specific Development Site Plan to allow a warehouse development (NFI Crossgate Industrial Park) in a P-I-1 (Planned Industrial) Zoning District

Background: The subject property is currently vacant woodland. There are no buildings or structures on the subject property. The general development site plan for this project was approved during the March 8, 2022 City Council Meeting.

Facts and Findings: The proposed project consist of a 332,450 s.f. warehouse and a 96,250 s.f. warehouse with associated parking, utilities, drainage and infrastructure improvements. The entrance will be located off of Crossgate Road. The applicant provided a Traffic Impact Analysis with the general development plan. The site plan has been reviewed by City Engineer's T. R. Long Engineering and a concurrence letter issued. According to the 2021 City of Port Wentworth Comprehensive Plan this property is under the Industrial Park Character Area.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, October 10, 2022 at 6:30 PM. **/ UPDATE: The Planning Commission voted to approve this application with the condition that all comments from the Public Works Director are met.**

ATTACHMENTS:

- NFI Crossgate Ind Pk 7-0035-01-007 S-Site Plan 2022-Site Plan App (PDF)
- NFI Crossgate Ind Pk 7-0035-01-007 S-Site Plan 2022-Adj Prop Owners (PDF)
- NFI Crossgate Ind Pk 7-0035-01-007 S-Site Plan 2022-Timeline (DOCX)
- NFI Crossgate Ind Pk 7-0035-01-007 S-Site Plan 2022-TR Long Concurrence 9.14.22 (PDF)

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application

Site Plan Application is required for all new construction in a "P" or "MPO" zone as defined in the Zoning Ordinance of the City of Port Wentworth.

Site Plan Type (*Check One*): ☐ General / Concept ☒ Specific Development

Site Plan Address: CROSSGATE RD, PORT WENTWORTH, GA 31407

PIN #(s): 7003501007

Zoning: P-I-1 Estimated Cost of Construction: $_____

Type of Construction: Two Warehouses (Building A ±106,250 - Building B ±332,450)

Project Name: NFI Crossgate Industrial Park

Applicant's Name: Felipe Toledo, P.E

Mailing Address: 50 Park of Commerce Way, Savannah, GA 31405

Phone #: 912-721-4090 Email: toledo.f@tandh.com

Owner's Name (If Different form Applicant): LRE Crossgate North LLC (c/o Brian Werrell)

Mailing Address: Triad1828 Centre, 2 Copper Street, Camden, NJ, 08102

Phone #: Brian Werrell Email: Brian.werrell@nfiindustries.com

---

I hereby acknowledge that the above information is true and correct.

Felipe Toledo — 3/11/2022

Applicant's Signature — Date

Brian Werrell, Development Manager — 3/11/2022

Owner's Signature (If Different form Applicant) — Date

Please see page 2 for required submittal checklist

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application Submittal Checklist

Documentation below is required for a complete submittal.

- ☒ Signed and Completed Application
- ☒ 3 Full size sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ 15 half size (11" X 17") sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ 2 copies of hydrology reports (if applicable)
- ☒ Names, mailing address, and PIN number of all property owners within 250 feet of all property lines
- ☒ 1 8 ½" X 11" of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ PDF of entire submittal on a flash drive or download link ONLY (NO CD'S)
- ☐ Other Engineering details or reports may be required once submittal has been received
- ☒ Site plan review fee check
    - No Land Disturbance- $206.00 Site Plan Fee + $50.00 Admin Fee = Total $256.00
    - With Land Disturbance - $836.00 Site Plan Fee + $50.00 Admin Fee = Total $886.00

Additional Fee Statement: If engineer review cost to the City exceeds the site plan review fee that is paid at the time of initial application submittal, you may be required to pay additional review cost.

I have read and agree to the above additional fee statement

Felipe Toledo _____ 9/28/2022

Applicant's Signature Date

Updated 10/19/2021

Owner Name	Parcel Number	Property Address	Owner Address	County	State
LRE CROSSGATE SOUTH LLC	7003301004	CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
GEORGIA POWER COMPANY	7003501006	HIGHWAY 21, PORT WENTWORTH, GA 31407	241 RALPH MCGILL BLVD NE, ATLANTA, GA 30308-3374	Chatham	GA
MCCASKLE, JULIA & HARRIS, SARAH	7001018008	101 GORDON ST, PORT WENTWORTH, GA 31407	101 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
PORT WENTWORTH CITY OF	7000803039	WARREN DR, PORT WENTWORTH, GA 31407	PO BOX 4086, SAVANNAH, GA 31407-4086	Chatham	GA
CRESCENT INVESTMENTS INC	7003501002	6232 HIGHWAY 21 RD, PORT WENTWORTH, GA 31407	6232 GA HIGHWAY 21, PORT WENTWORTH, GA 31407-9796	Chatham	GA
MCINTOSH, OWEN E & MCINTOSH, ERMA J	7001018001	115 GORDON ST, PORT WENTWORTH, GA 31407	115 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
CROSSGATE INDL INVTRS LLC	7003501008	1500 CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
BROWNFIELD, PAMELA	7001018002	113 GORDON ST, PORT WENTWORTH, GA 31407	113 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
WATSON, JACQUELINE & WATSON, MARCUS	7001018003	111 GORDON ST, PORT WENTWORTH, GA 31407	111 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
SAVANNAH ECONOMIC DEV AUTHORIT	7003301005	1501 CROSSGATE RD, PORT WENTWORTH, GA 31407	131 HUTCHINSON ISLAND RD, SAVANNAH, GA 31421-7006	Chatham	GA
GUNN, KELLY LAPERAL	7000803037	60 WARREN DR, PORT WENTWORTH, GA 31407	117 WREN CT, SAVANNAH, GA 31419-8340	Chatham	GA
SAVANNAH ECONOMIC DEVELOPMENT AUTHORITY	7000902002	1 BIRKENHEAD ST, PORT WENTWORTH, GA 31407	131 HUTCHINSON ISLAND RD, SAVANNAH, GA 31421-7006	Chatham	GA
LRE CROSSGATE NORTH LLC	7003501007	CROSSGATE RD, PORT WENTWORTH, GA 31407	CROSSGATE RD, PORT WENTWORTH, GA 31407	Chatham	GA
PARTAIN, KAREN D EDITH F	7001018005	107 GORDON RD, PORT WENTWORTH, GA 31407	107 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
NORTON, GARY WILSON & NORTON, DONNA	7001018006	105 GORDON ST, PORT WENTWORTH, GA 31407	105 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
SOUTHERN REGION INDUSTRIAL REALTY INC	7001001001	DORSET RD, PORT WENTWORTH, GA 31407	3 COMMERCIAL PL Unit 209, NORFOLK, VA 23510-2108	Chatham	GA
NRPH INC	7003501005	1000 CROSSGATE RD, PORT WENTWORTH, GA 31407	15 FAIR LAWN AVE Unit 2A, FAIR LAWN, NJ 07410-2322	Chatham	GA
L-A SAVANNAH-CROSSGATE LLC	7000501004	BONNYBRIDGE RD, PORT WENTWORTH, GA 31407	1960 SATELLITE BLVD Unit 3000, DULUTH, GA 30097-4129	Chatham	GA
PERRY, JULIE STALLINGS	7001018004	109 GORDON ST, PORT WENTWORTH, GA 31407	109 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA
NORFOLK SOUTHERN COPR TAXATION DEPT BOX 209	7000901001	BIRKENHEAD ST, PORT WENTWORTH, GA 31407	3 COMMERCIAL PL, NORFOLK, VA 23510-2108	Chatham	GA
HENDRICK, ROBERT EWING	7001018007	103 GORDON ST, PORT WENTWORTH, GA 31407	103 GORDON ST, PORT WENTWORTH, GA 31407-1401	Chatham	GA

Project Timeline

Project Number: 220478

Project Name: NFI Crossgate Ind Pk

Applicant / Engineer: Felipe Toledo, P.E. – Thomas & Hutton

Owner: LRE Crossgate North LLC (c/o Brian Werrell)

City Review Engineer: Trent Long, TR Long

- 09/12/2022 – Application received; Incomplete.
- 09/13/2022 – Sent email to Felipe Toledo asking for a PDF of the entire submittal.
- 09/13/2022 – Recv'd Electronic PDF link of submittal.
- 09/14/2022 – Recv'd Email from Felipe Toledo about adding TR Long to the Email thread.
- 09/14/2022 – Received concurrence from TR Long. Placing on the October 2022 agendas.
- 09/23/2022 – Public hearing notice letters mailed
- 09/23/2022 - Public hearing notice sent to Savannah Morning Newspaper (published 9/26/22)
- 10/10/2022 – The Planning Commission voted to approve the application with the condition that all concerns by the Public Works Director are met.

114 North Commerce Street
Hinesville, Georgia 31313
(912) 368-5664 Office
(912) 368-7206 Fax

T R LONG ENGINEERING, P.C.

1000 Towne Center Blvd.
Suite 304
Pooler, Georgia 31322
(912) 355-1046

September 14, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: NFI Industries Building A and B
Crossgate Industrial Park
Revised August 15, 2022
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the entitled "Site Development for Buildings A & B at Crossgate Industrial Park" prepared by Thomas and Hutton dated February 14, 2022, and revised August 15, 2022. The specific development plan generally meets the intent of the development requirements in Port Wentworth. T. R. Long Engineering, P.C. concurs with the plans as presented with the exception of an off-site water main installation.

There is a water main that needs to be installed to comply with the "Water, Sewer and Re-use Water Service Agreement" between the City of Port Wentworth and L-A Savannah Crossgate, LLC. In order to meet the intent of this agreement a water main should be installed between Crossgate Boulevard and existing water main near Bonnybridge Road. T. R. Long Engineering recommends that the city and the developer enter into an agreement to design and install this water meter.

Concurrence by T. R. Long Engineering, P.C. and Port Wentworth does not relieve the owner/developer, designer, engineer and contractor nor their representatives from their individual or collective responsibilities to comply with provisions of Local, State, and Federal regulations and/or ordinances. T. R. Long Engineering, P.C. and Port Wentworth review the submitted documents for completeness and general compliance with codes, ordinances and/or standards. No design liability can be assumed or assigned to T. R. Long Engineering, P.C., or Port Wentworth. All design liability remains with the professional engineer who signed and sealed those documents. Additionally, concurrence with the submitted documents and their intent is not to be construed as a check of every item submitted and does not prevent Port Wentworth from requiring corrections and/or addressing of omissions in the submitted documents and/or construction.

Should you have any questions, comments or need additional information please contact us.

Sincerely,

Trent R. Long, P.E.

Z:\26327\26327.0000\Engineering\Drawings\Construction Plans\SITE DEVELOPMENT\C0 COVER SHEET.dwg - Jan 20, 2022 - 4:05:09 PM

SITE DEVELOPMENT FOR BUILDINGS A & B
AT
CROSSGATE INDUSTRIAL PARK
PORT WENTWORTH, GEORGIA

PREPARED FOR:

NFI INDUSTRIES
TRIAD 1828 CENTER
2 COOPER STREET
CAMDEN, NJ 08102

FEBRUARY 14, 2022
LAST REVISION - AUGUST 15, 2022

J-26327.0010

PREPARED BY:

THOMAS & HUTTON

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

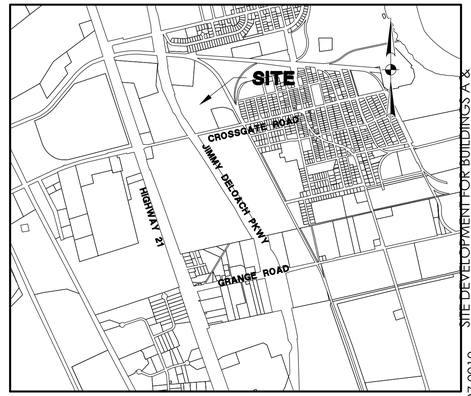
GEORGIA REGISTERED No. 033172 PROFESSIONAL 08/18/2022 ENGINEER JASON ORNE CHAMBLESS

SUBMITTAL HISTORY

----	----
SUBMITTED TO	DATE

REVISION HISTORY

----		----	----
REV. NO.	REVISION	BY	DATE



VICINITY MAP
SCALE: 1" = 2000'

J-26327.0010
2/14/22
SITE DEVELOPMENT FOR BUILDINGS A & B

Sheet List Table

Sheet Number	Sheet Title
C0	COVER SHEET
GN	GENERAL NOTES
SC1	SURVEY CONTROL SHEET
C1.1 (3)	SITE LAYOUT - SHEET 1
C1.2 (1)	SITE LAYOUT - SHEET 2
C1.3	ENLARGED PLAN AT BUILDING A
C1.4	ENLARGED PLAN AT BUILDING B
C2.1 (3)	WATER & SEWER PLAN - SHEET 1
C2.2 (3)	WATER & SEWER PLAN- SHEET 2
C2.2A (2)	ENLARGED PLANS FOR WATER SYSTEM
C2.3 (2)	SANITARY SEWER PROFILES
C2.4	SANITARY SEWER DETAILS
C2.5	WATER SYSTEM DETAILS
C2.6	WATER SYSTEM DETAILS
C2.7	WATER SYSTEM DETAILS
C3.1 (3)	PAVING GRADING & DRAINAGE - SHEET 1
C3.2	PAVING GRADING & DRAINAGE - SHEET 2
C3.3	DRAINAGE PROFILES
C3.4	DRAINAGE PROFILES
C3.5	DETAILS
C3.6	DETAILS
EC0.1	EROSION CONTROL NOTES
EC0.2	EROSION CONTROL NOTES
EC0.3	EROSION CONTROL NOTES
EC1.1	INITIAL ESPC PLAN
EC1.2	INITIAL ESPC PLAN
EC1.3 (1)	INTERMEDIATE ESPC PLAN
EC1.4	INTERMEDIATE ESPC PLAN
EC1.5 (1)	FINAL ESPC PLAN
EC1.6	FINAL ESPC PLAN
EC2.1	EROSION CONTROL DETAILS
EC2.2	EROSION CONTROL DETAILS
EC2.3	EROSION CONTROL DETAILS
L1.0	OVERALL LANDSCAPE PLAN
L1.1	LANDSCAPE PLAN
L1.2	LANDSCAPE PLAN
L1.3	LANDSCAPE PLAN
L1.4	LANDSCAPE PLAN
L1.5	LANDSCAPE PLAN
L2.1	LANDSCAPE DETAILS
L2.2	LANDSCAPE SPECIFICATIONS
L2.3	GRASSING SPECIFICATIONS

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

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405
p.912.234.5300
www.thomasandhutton.com

Z:\26327\26327.000\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\GENERAL NOTES.DWG - Aug 16, 2022 - 10:23 AM

WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	10"W	10"W
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
POST HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

ABBREVIATIONS

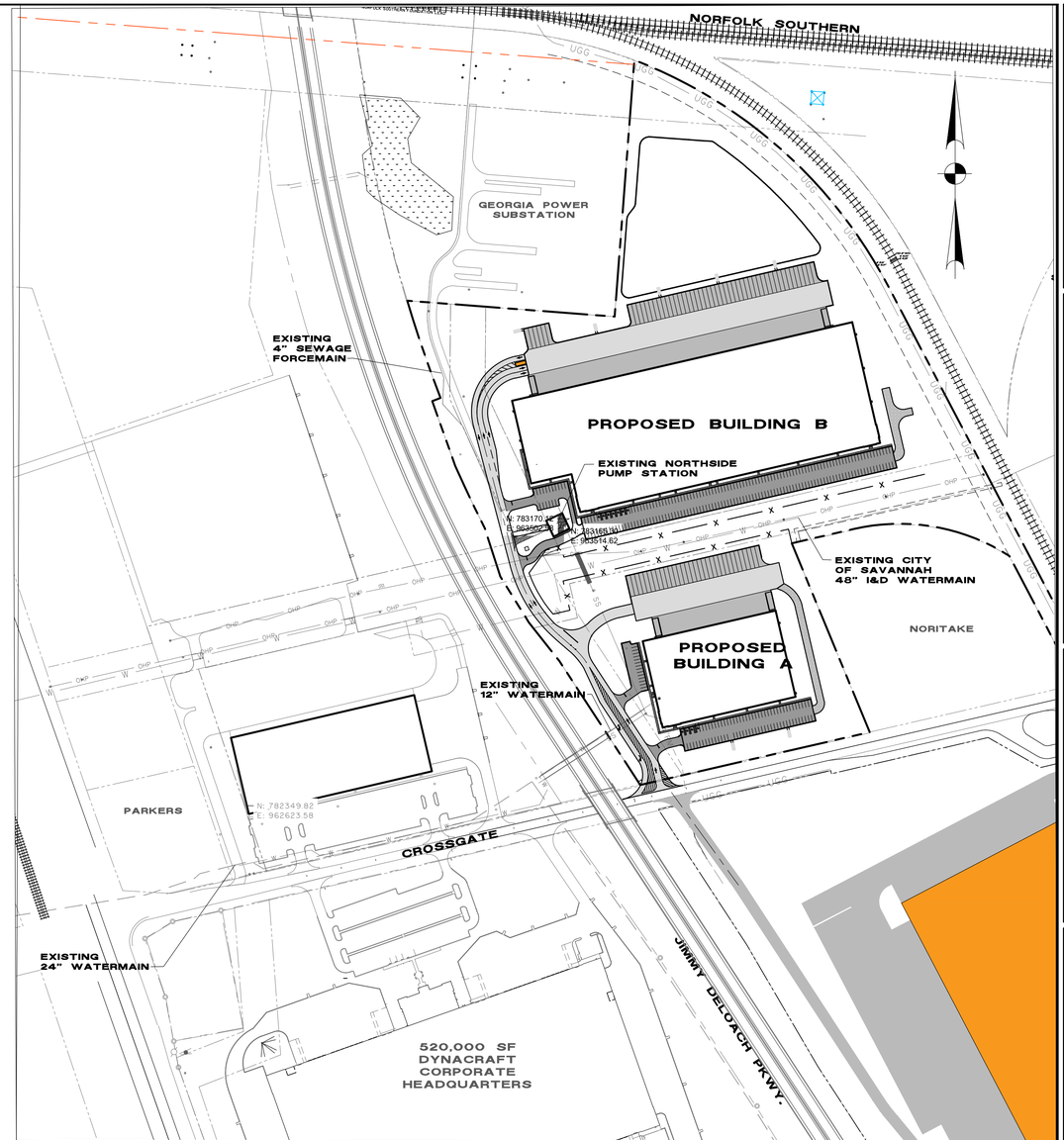
HDPE	HIGH DENSITY POLYETHELENE		JB	JUNCTION BOX		SDMH	STORM DRAINAGE MANHOLE
BOT	BOTTOM		LF	LINEAR FEET		SF	SQUARE FEET
CI	CURB INLET		MAX	MAXIMUM		SS	SANITARY SEWER
CPP	CORRUGATED PLASTIC PIPE		MIN	MINIMUM		TC	TOP OF CURB
DIP	DUCTILE IRON PIPE		MH	MANHOLE		TG	TOP OF GUTTER
EL	ELEVATION		OC	ON CENTER		TP	TOP OF PAVEMENT
FG	FINISH GRADE		PC	POINT OF CURVE		TW	TOP OF WALK
FH	FIRE HYDRANT		PH	POST HYDRANT		TYP	TYPICAL
FM	FORCE MAIN (SANITARY SEWER)		PT	POINT OF TANGENT		W	WATER
FP	FINISH PAD		PVC	POLYVINYL CHLORIDE		W/	WITH
FR	FRAME		RCP	REINFORCED CONCRETE PIPE		WV	WATER VALVE
GI	GRATE INLET		RJP	RESTRAINED JOINT PIPE		YI	YARD INLET
GV	GATE VALVE		R/W	RIGHT-OF-WAY			
INV	INVERT ELEVATION		SD	STORM DRAINAGE			

SEWER LEGEND

DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE	SS	
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
MANHOLE		
CLEANOUT		
FORCEMAIN	10"FM 10"FM	10"FM 10"FM
VALVE AND BOX		
FLUSH HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG		

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE TIE-IN OF NEW WATER AND SEWER FACILITIES TO CITY OF PORT WENTWORTH SYSTEM. ALL WORK ON THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH CITY OF PORT WENTWORTH SPECIFICATIONS AND DETAILS.
2. EXISTING NORTHSIDE PUMP STATION AS WELL AS FORCEMAIN, GRAVITY SEWER AND WATER MAINS EXIST ON THE PROJECT SITE THAT ARE OWNED AND MAINTAINED BY THE CITY OF PORT WENTWORTH. CONSTRUCTION OF IMPROVEMENTS WILL REQUIRE MODIFICATIONS, RELOCATIONS AND CONNECTION TO PORT WENTWORTH UTILITIES AND ALL OUTAGES MUST BE SCHEDULED WITH CITY PERSONNEL (OMAR SENATI-MARTINEZ 912-999-2084)
3. SITEWORK FOR THE DISTRIBUTION CENTER PROJECT WILL BE CONSTRUCTED IN CLOSE PROXIMITY TO EXISTING GA POWER TRANSMISSION LINE POLES. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING THE LOCATION OF ORANGE SAFETY BARRIER AROUND THE POLES AND GUY WIRES AND MEETING WITH REPRESENTATIVE FROM GA POWER (STEVE KENARD - 912- 547-1494) PRIOR TO INSTALLATION. ALL WORK SHALL BE PERFORMED SO AS TO CAUSE NO DAMAGE TO EXTING POLES, GUYS OR POWERLINES. THERE IS AN EXISTING GRAVEL DRIVEWAY THAT PROVIDES ACCESS FOR GEORGIA POWER FROM CROSSGATE ROAD TO THE SUBSTATION. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 12' WIDE ACCESS TO THE SUBSTAION AT ALL TIMES.
4. A CITY OF SAVANNAH 48" DIAMETER INDUSTRIAL AND DOMESTIC WATER LINE BISECTS THE PROPERTY THAT IS BEING DEVELOPED. PRIOR TO START OF ANY WORK AT THE PROJECT SITE, THE CONTRACTOR SHALL INSTALL ORANGE SAFETY BARRIER AS SHOWN ON DRAWING C1 AND C2 AND NO EQUIPMENT , MATERIAL OR PERSONNEL SHALL BE ALLOWED IN FENCED OFF AREA.
5. CONTRACTOR SHALL MAINTAIN MINIMUM COVER OVER THE WATER MAIN PIPE BARREL OF 3'-0" UNLESS OTHERWISE INDICATED. TOP OF PIPE ELEVATIONS ARE SHOWN FOR CASES WHERE FUTURE STORM SEWERS ARE TO BE INSTALLED. IN NO CASE SHALL THE WATER MAIN BE INSTALLED AT A LOWER ELEVATION THAN THAT SHOWN.
6. SHOULD PIPE, FITTINGS, AND OTHER MATERIALS BE NEEDED IN ADDITION TO THAT SHOWN ON THE DRAWINGS BECAUSE PIPELINE WAS NOT INSTALLED TO THE ALIGNMENT AND PROFILE SHOWN, THEN THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THOSE NECESSARY MATERIALS AND PROVIDING THE EQUIPMENT AND LABOR TO INSTALL THEM TO MEET THE DESIGN INTENT OF THE WATERMAIN AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND INSPECTIONS.
8. THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
9. ALL WATERMAINS SHALL BE POLYVINYL CHLORIDE (PVC C900) UNLESS OTHERWISE INDICATED.
10. ALL GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE (PVC SDR26) UNLESS OTHERWISE INDICATED.
11. SURVEYING AND BOUNDARY INFORMATION BY THOMAS AND HUTTON
12. ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
13. TOPOGRAPHIC SURVEY BY THOMAS AND HUTTON.
14. CONTRACTOR SHALL VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
15. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION / DEPTH OF ALL UTILITIES THAT MAY BE IMPACTED BY HIS CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
16. IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
17. THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION
18. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL AND PREVENTION STRUCTURES SHOWN ON THE PLANS. BOTH MUST BE APPROVED BY CITY OF PORT WENTWORTH PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES.
19. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE DISTURBANCE OF THE LAND AND SHALL REMAIN FUNCTIONAL UNTIL THE CONTRIBUTING DISTURBED AREAS ARE STABILIZED. SILT BARRIERS WILL BE INSTALLED AS NECESSARY TO PREVENT EXCESSIVE SEDIMENTATION OF DOWNSTREAM AREAS. CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL APPROVAL.
20. ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.



PROJECT MAP

SCALE: 1" = 200'

GENERAL INFORMATION

GENERAL CONTRACTOR

COUNTY CHATHAM
CITY PORT WENTWORTH
ZONING P-I-I

OWNER OF PROPERTY
NFI INDUSTRIES
TRIAD 1828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
856-470-2078

ENGINEER:
THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31402
(912) 234-5300

PREPARED FOR:
NFI INDUSTRIES
TRIAD 1828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
856-470-2078

SURVEYOR: THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31402
(912) 234-5300

UTILITY: CITY OF PORT WENTWORTH
ATTN: BRIAN HARVEY
DIRECTOR OF DEVELOPMENT SERVICES
305 SOUTH COASTAL HIGHWAY
PORT WENTWORTH, GA 31407
912-964-4379 EXT 108

GEORGIA REGISTERED LANDSCAPE ARCHITECT NO. 001372 PROFESSIONAL SEAL JASON ORME CHAMBERS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

GENERAL NOTES

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS LISTED

GN

J:\26327\1\26327-0010\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-0010 SURVEY CONTROL SHEET.DWG - Feb 14, 2022 - 10:23 AM

NOTES

1. HORIZONTAL AND VERTICAL CONTROL SHOWN ON THIS SHEET SHOULD BE USED FOR ALL LAYOUT AND RECORD DATA FOR THIS PROJECT. IF DISCREPANCIES ARE FOUND, PLEASE CONTACT THOMAS & HUTTON PRIOR TO PROCEEDING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH SUPPLEMENTAL CONTROL WITHIN THE PROJECT AS NEEDED.
2. ELEVATIONS FOR THIS PROJECT ARE BASED ON NAVD88.
3. COORDINATES FOR THIS PROJECT ARE BASED ON THE GEORGIA STATE PLANE COORDINATE SYSTEM, GEORGIA EAST ZONE, NAD83. DUE TO NORMAL VARIATIONS INHERENT TO ESTABLISHING COORDINATE POSITIONS, INDIVIDUAL GPS UNITS SHOULD BE LOCALIZED (OR CALIBRATED) TO THIS SITE.

GRID NORTH, NAD83 (2011)
GEORGIA SPC, EAST ZONE

SAVANNAH & ATLANTA RAILROAD
100' RIGHT-OF-WAY

1304
1100
1202
1206
1207
1210
1211
1212
1215
1220
1222
1223
1016

NOW OR FORMERLY
NRPH, INC
7-0035-01-005
DB 152-B PAGE 215

NOW OR FORMERLY
GEORGIA POWER COMPANY
7-0035-01-006
PRB 47-P PAGE 159
DB 388-D PAGE 124

REMAINING PORTION OF PARCEL B

CROSSGATE ROAD
(PUBLIC RIGHT-OF-WAY VARIES)

JIMMY DELOACH PARKWAY
(PUBLIC RIGHT-OF-WAY VARIES - A LIMITED ACCESS HIGHWAY)

100 0 100 200
1 INCH = 100 FEET

VERTICAL CONTROL TABLE

Point	Elevation (88)	Description
1016	27.86	REBAR W/ T&H CAP
1304	23.89	NGS DISC Z 212

HORIZONTAL CONTROL TABLE

Point	Northing	Easting	Description
1016	782328.399	963555.126	REBAR W/ T&H CAP
1100	782673.223	965029.803	REBAR W/ T&H CAP
1202	783291.459	964702.241	REBAR W/ T&H CAP
1206	783861.531	964402.184	REBAR W/ T&H CAP
1207	784297.056	964054.310	REBAR W/ T&H CAP
1210	784500.786	963592.355	REBAR W/ T&H CAP
1211	784179.071	963248.379	REBAR W/ T&H CAP
1212	783847.318	963197.799	REBAR W/ T&H CAP
1215	783577.383	963204.774	REBAR W/ T&H CAP
1220	782901.922	963443.323	REBAR W/ T&H CAP
1222	782711.639	963647.228	REBAR W/ T&H CAP
1223	782475.455	963815.072	REBAR W/ T&H CAP

GEORGIA REGISTERED LS 003172 PROFESSIONAL JASON ORME CHAMBLESS 08/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SURVEY CONTROL SHEET

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 100'

SC1

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. C1.2

BUILDING A
96,250 SF
FF ELEV. 32.0

PARKING SUMMARY - BUILDING B	
EMPLOYEE/VISTORS PARKING SPACES (INCLUDING FOUR STANDARD AND THREE VAN ACCESSIBLE HANDICAP SPACES)	233
TRUCK SPACES	51

PARKING SUMMARY - BUILDING A	
EMPLOYEE/VISTORS PARKING SPACES (INCLUDING ONE STANDARD AND FOUR VAN ACCESSIBLE HANDICAP SPACES)	94
TRUCK SPACES	32

(100) 9' WIDE X 19' LONG PARKING SPACES = 900'

(32) 12' WIDE X 60' LONG TRUCK SPACES = 384'

(15) 9' WIDE X 19' LONG SPACES

(42) 9' WIDE x 19' LONG PARKING SPACES = 378'

PRIOR TO START OF CONSTRUCTION INSTALL ORANGE SAFETY FENCE AS SHOWN. MATERIAL, PERSONNEL OR EQUIPMENT SHALL NOT BE ALLOWED TO CROSS OVER THE SAFETY FENCE.

COORDINATE DOOR LOCATIONS WITH ARCHITECTURAL PLANS. INSTALL 5' X 5' LANDING AT EACH DOOR WITH A 5' X 5' TRANSITION SLOPED AT 5% TO MATCH GRADE OF SIDEWALK.

SEE DWG. C4 FOR ENLARGED PLAN

SEE DWG. C3 FOR ENLARGED PLAN

5' WIDE SIDEWALK

18" CURB & GUTTER

GRAVEL ACCESS ROAD

CROSSGATE ROAD

SAWCUT EXISTING ROLLER COMPACTED ROADWAY TO A NEAT EDGE AND INSTALL NEW CONCRETE PAVEMENT TO ABUT ROADWAY PROVIDING A SMOOTH TRANSITION.

STOP
R1-1
(30)30

R3-2
(24)24

PC N: 783449.36 E: 963272.43
EDGE OF PVMT N: 783457.87 E: 963301.22
EDGE OF PVMT N: 783377.35 E: 963322.35
EDGE OF PVMT N: 783277.91 E: 963332.93
EDGE OF PVMT N: 783267.53 E: 963425.95
BUILDING CORNER N: 783283.26 E: 963420.77
BUILDING CORNER N: 783309.59 E: 963534.77
EDGE OF PVMT N: 783289.80 E: 963522.41
BUILDING CORNER N: 783202.40 E: 963559.52
EDGE OF PVMT N: 783207.11 E: 963439.89
PT N: 783054.71 E: 963375.99
EDGE OF PVMT N: 783021.75 E: 963688.34
EDGE OF PVMT N: 782943.80 E: 963706.34
EDGE OF PVMT N: 782895.09 E: 963717.59
EDGE OF PVMT N: 782832.09 E: 963720.33
EDGE OF PVMT N: 782831.18 E: 963676.41
PC N: 782854.74 E: 963500.02
PT N: 782819.24 E: 963540.74
PC N: 782778.05 E: 963576.62
EDGE OF PVMT N: 782761.10 E: 963569.79
EDGE OF PVMT N: 782665.62 E: 963614.38
BUILDING CORNER N: 782837.75 E: 963735.96
EDGE OF PVMT N: 782700.55 E: 963750.70
BUILDING CORNER N: 782594.16 E: 963792.20
EDGE OF PVMT N: 782528.24 E: 963855.65
N: 782421.44 E: 963810.11
EDGE OF PVMT N: 783108.36 E: 964063.47
EDGE OF PVMT N: 783059.91 E: 964120.33
EDGE OF PVMT N: 782991.69 E: 964136.34
BUILDING CORNER N: 782924.36 E: 964111.09
BUILDING CORNER N: 782680.77 E: 964167.33
EDGE OF PVMT N: 782613.28 E: 964223.96
BUILDING CORNER N: 783517.11 E: 963366.78
BUILDING CORNER N: 783738.92 E: 964327.51
EDGE OF PVMT N: 783549.98 E: 964411.19
EDGE OF PVMT N: 783554.93 E: 964432.62
BUILDING CORNER N: 783397.89 E: 964406.25
EDGE OF PVMT N: 783388.45 E: 964438.70
EDGE OF PVMT N: 783328.04 E: 964452.65
GRAVEL ACCESS ROAD

1. ALL SIGNS TO BE MOUNTED ON U-CHANNEL POSTS 14' IN LENGTH UNLESS OTHERWISE NOTED IN DETAILS. SEE DETAIL SHEET C16.
2. ALL SIGNS SHALL BE PLACED WITH A MINIMUM OF 2' BETWEEN BACK OF CURB OR EDGE OF PAVEMENT AND 7' VERTICALLY BETWEEN PAVEMENT AND BOTTOM OF SIGN.
3. ALL SIGNS SHALL MEET THE REQUIREMENTS OF MUTCD.
4. PEDESTRIAN / HANDICAP SIGNS TO BE MOUNTED BEHIND SIDEWALK. PROVIDE ONE 6' LONG PRECAST WHEEL STOPS FOR EACH SPACE.
5. STRIPING SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF GADOT STD. SPEC.
6. AT HANDICAP PARKING SPACE PROVIDE A 3' HT-UNIVERSAL HANDICAP SYMBOL PAINTED BLUE PER DETAIL ON DRAWING C16.
7. BLUE METAL REFLECTIVE SIGN @ LEAST 12" IN WIDTH & 18" IN LENGTH & ERECTED AT SUCH HEIGHT OR IN SUCH MANNER SO AS TO BE CLEARLY VISIBLE TO THE PARKING VEHICLE. THE SIGN SHALL HAVE PRINTED IN WHITE LETTERS NOT LESS THAN ONE INCH IN HEIGHT ON THREE SEPARATE LINES & CENTERED, THE FOLLOWING WORDS: "PERMIT PARKING ONLY". "TOW-AWAY ZONE". & "MAXIMUM FINE $500.00". SUCH SIGNS SHALL ALSO DISPLAY THE SYMBOL FOR HANDICAP ACCESSIBILITY CENTERED BETWEEN THE SECOND & THIRD LINES VAN ACCESSIBLE SPACE SHALL HAVE ADDITIONAL SIGN WITH FOLLOWING: " VAN ACCESSIBLE".
8. CONTRACTOR SHALL STAKE LOCATION OF PROPOSED FENCE IN THE FIELD FOR OWNER'S REVIEW PRIOR TO INSTALLATION.
9. ALL DIMENSIONS AND RADII ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. ADD 18" TO GET DIMENSION TO BACK OF CURB.
10. ALL PARKING SPACES ON ASPHALT OR CONCRETE SHALL BE DELINEATED BY 4" WIDE SOLID WHITE LINES.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSS JASON LORNE CHAMBERS No. 031372 PROFESSIONAL ENGINEER 08/18/2022

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
3	CHANGED SIZE OF BUILDING A	SSF	8/5/22
2	ADDED NOTE ON PAVING	SSF	6/20/22
1	MODIFIED STRIPING ON ENTRANCE ROAD	SSF	5/10/22

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SITE LAYOUT - SHEET 1

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C1.1

D:\26327\NAS\2000\ENGR\DWG\GRADING\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-000-SITE LAYOUT.DWG - Aug 16, 2022 - 10:28 AM

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. C1.1

(6) 12' WIDE X 60 ' LONG TRUCK SPACES = 72'

(45) 12' WIDE X 60 ' LONG TRUCK SPACES = 540'

EDGE OF PVMT N: 783719.79 E: 963400.04
EDGE OF PVMT N: 783735.99 E: 963470.20
EDGE OF PVMT N: 783787.28 E: 963692.35
CONCRETE FLUME
EDGE OF PVMT N: 783908.76 E: 964218.51
18" CURB & GUTTER
EDGE OF PVMT N: 783648.21 E: 963401.17
EDGE OF PVMT N: 783642.53 E: 963376.57
EDGE OF PVMT N: 783856.14 E: 964257.34
PT N: 783609.92 E: 963368.70
EDGE OF PVMT N: 783787.94 E: 964273.09
EDGE OF PVMT N: 783593.12 E: 963429.29
EDGE OF PVMT N: 783721.51 E: 964252.08
EDGE OF PVMT N: 783534.66 E: 963442.78
BUILDING CORNER N: 783507.11 E: 963366.78
BUILDING CORNER N: 783738.92 E: 964327.51
EXISTING GRAVEL ROADWAY TO REMAIN. INSTALL ADDITIONAL GRAVEL WHERE THE EXISTING ROAD WILL CONNECT TO NEW TO PROVIDE A SMOOTH TRANSITION
EDGE OF PVMT N: 783446.62 E: 963257.65
PC N: 783449.36 E: 963272.43
EDGE OF PVMT N: 783457.87 E: 963301.22
EDGE OF PVMT N: 783377.35 E: 963322.35
BUILDING CORNER N: 783283.26 E: 963420.77
BUILDING CORNER N: 783309.59 E: 963534.77
EDGE OF PVMT N: 783277.91 E: 963332.93
EDGE OF PVMT N: 783267.53 E: 963425.95
EDGE OF PVMT N: 783549.98 E: 964411.19
EDGE OF PVMT N: 783554.93 E: 964432.62
EDGE OF PVMT N: 783289.80 E: 963522.41
GRAVEL ACCESS ROAD
BUILDING CORNER N: 783202.40 E: 963559.52
SEE DWG. C4 FOR ENLARGED PLAN
5' WIDE SIDEWALK
COORDINATE DOOR LOCATIONS WITH ARCHITECTURAL PLANS. INSTALL 5' X 5' LANDING AT EACH DOOR WITH A 5' X 5' TRANSITION SLOPED AT 5% TO MATCH GRADE OF SIDEWALK.
18" CURB & GUTTER
BUILDING CORNER N: 783397.89 E: 964406.25
EDGE OF PVMT N: 783207.11 E: 963439.89
EDGE OF PVMT N: 783388.45 E: 964438.70
PT
TWO 18" RCP IE 19.40' IE 19.39'
IE 19.61' IE 19.37'

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSF JASON ORME CHAMBERS
NO. 031772 PROFESSIONAL ENGINEER
09/18/2022

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
1	ADJUSTED TRUCK APRON	SSF	6/20/22

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SITE LAYOUT - SHEET 2

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C1.2

Z:\26327\26327.0010\ENGINEERING\DRAINAGE\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 ENLARGED PLAN AT BLDG A.DWG - Aug 16, 2022 - 10:08 AM

BUILDING A
FF ELEV. 32.0

STOP
R1-1
(30)30

R7-8
(12)18

ACCESIBLE ROUTE

5' x 5' LANDING WITH
5' x 5' TRANSITION SLOPED AT
5% TO SIDEWALK

5' x 5' LANDING WITH
5' x 5' TRANSITION SLOPED AT
5% TO SIDEWALK

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

GEORGIA REGISTERED
No. 031172
PROFESSIONAL
08/18/2022
ENGINEER
JASON ORME CHAMBLESS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

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NO.	REVISIONS	BY	DATE
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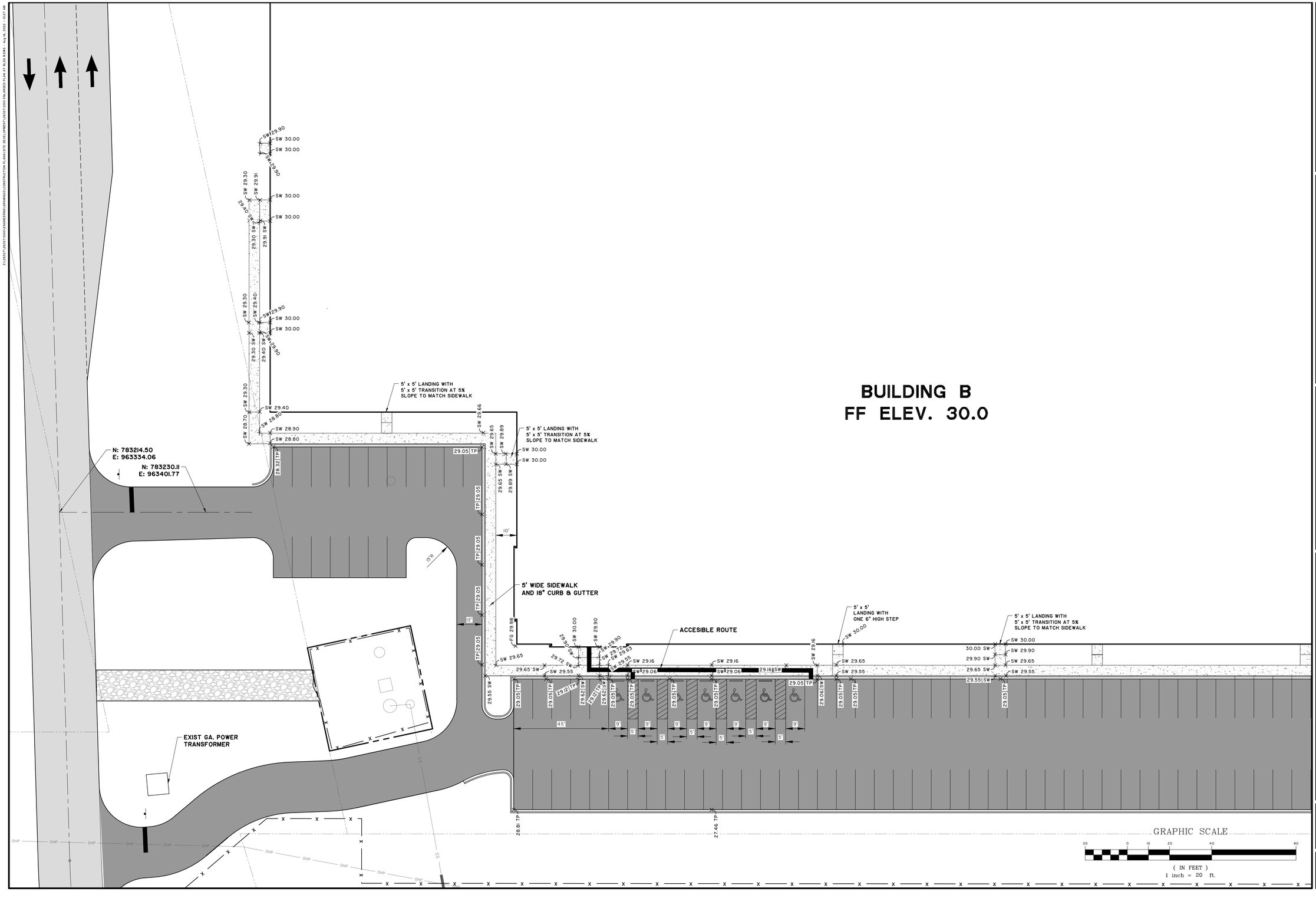
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

ENLARGED PLAN AT BUILDING A

JOB NO:	J-26327.0010
DATE:	2/24/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 20'

C1.3



GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

GEORGIA REGISTERED ENGINEERS
No. 031172
PROFESSIONAL
09/18/2022
JASON ORME CHAMBLESS

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

ENLARGED PLAN AT BUILDING B

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 20'

C1.4

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. C2.2

10" PVC
285 LF 8" PVC - SDR 26 @ 0.50%
SEE ENLARGED PLAN OF WATER SYSTEM ON DWG. C2.2A
10" X 10" TEE
10" 45° BEND
10" PVC
10" PVC
INSTALL 12" X 4" TEE, 4"X2" REDUCER AND 2" GATE VALVE AND CONNECT TO EXISTING WATER SERVICE TO PUMP STATION
10.00" RPZ WATTS SERIES 957 OR APPROVED EQUAL
12" 45° BEND
123 LF 8" PVC - SDR 26 @ 0.50%
12" 45° BEND "WM"
..ORTHERN TERMINUS OF 24" STEEL CASING PIPE WHICH WAS INSTALLED UNDER PREVIOUS PROJECT BY DIRECTIONAL DRILLING. A 2" WATERMAIN WAS INSTALLED WITHIN THE CASING TO SERVE THE EXISTING NORTHSIDE PUMP STATION. EXISTING WATERMAIN SHALL BE REMOVED. A NEW 12" DIA. BUTT FUSION WELDED FPVC (C-900, DRIB) WATERMAIN SHALL BE INSTALLED WITHIN THE CASING PIPE WITH VERTICAL ELL TRANSITION PIECE.
EXISTING STEEL CASING PIPE
MH #B2
FR: 28.38
INV. IN: 18.08 (N)
INV. OUT: 17.88 (E)
10" X 8" TEE
8" X 6" REDUCER FIRE DEPT. CONNECTION
12" PVC
6" GV
4"FM
FH ASSEMBLY
INSTALL NEW 4" DIA FORCEMAIN IN LOCATION SHOWN AND REMOVE ABANDONED FORCEMAIN IN ITS ENTIRETY. EXISTING SEWAGE CONVEYANCE SYSTEM IS LIVE AND SYSTEM SHALL BE TAKEN OUT OF SERVICE SO AS TO CAUSE MINIMAL INTERUPTION.
53 LF 8" PVC - SDR 26 @ 0.50%
MH #B1
FR: 28.41
INV. IN: 17.27 (W)
INV. OUT: 17.07 (S)
298 LF 8" PVC - SDR 26 @ 0.40%
MH #3
FR: 28.91
INV. IN: 18.13 (E)
INV. OUT: 18.03 (W)
300 LF 8" PVC - SDR 26 @ 0.40%
MH #2
FR: 28.92
INV. OUT: 19.33 (W)
297 LF 8" PVC - SDR 26 @ 0.40%
MH #1
FR: 28.91
INV. OUT: 20.61 (W)
8" CAP
10"W
10" X 6" TEE
10" X 8" TEE
10" PVC
10" 45° BEND
6" GV
FH
MH #4
FR: 28.55
INV. IN: 16.85 (E)
INV. IN: 16.80 (N)
INV. OUT: 16.59 (SW)
CONNECT TO EXISTING MANHOLE WITHIN PORT WENTWORTH PUMP STATION SITE WITH OUTSIDE DROP AT IE: 16.50
CAUTION!! TEN BURIED POWER CABLES
GEORGIA POWER PAD MOUNTED TRANSFORMER
EXIST. MH FR: 28.87 IE (S) 10.28 IE (W) 10.20
20 LF 8" PVC - SDR 26 @ 0.46%
CAUTION!! UNDERGROUND POWER TO PUMP STATION
CAUTION!! 48" CITY OF SAVANNAH I&D WATERMAIN
EXIST. MH (DROP-TYPE) FR: 29.86 IE (S) 19.53 IE (N) 11.06
EXISTING VAULT WITH 48" BUTTERFLY VALVE
EXISTING 24" STEEL CASING PIPE INSTALLED BY DIRECTIONAL DRILLING. 2" WATERMAIN HAS BEEN INSTALLED WITHIN CASING.
8" 45° BEND
8" PVC
100 LF 8" PVC - SDR 26 @ 1.00%
MH #8 (1)
FR: 26.44
INV. IN: 21.50 (E)
INV. OUT: 20.05 (NW)
8" 45° BEND
12" 11.25° BEND
MH #7
FR: 29.08
INV. OUT: 23.00 (S)
12" X 8" TEE , OUT: 22.50 (W)
SOUTHERN TERMINUS OF 24" STEEL CASING PIPE WHICH WAS INSTALLED UNDER PREVIOUS PROJECT BY DIRECTIONAL DRILLING. A 2" WATERMAIN WAS INSTALLED WITHIN THE CASING TO SERVE THE EXISTING NORTHSIDE PUMP STATION. EXISTING WATERMAIN SHALL BE REMOVED. A NEW 12" DIA. BUTT FUSION WELDED FPVC (C-900, DRIB) WATERMAIN SHALL BE INSTALLED WITHIN THE CASING PIPE WITH VERTICAL ELL TRANSITION PIECE.
10.00" RPZ WATTA SERIES 957 OR APPROVED EQUAL
10" X 4" TEE
INSTALL 12"X6" TEE, 6" GATE VALVE AND BOX AND FIRE HYDRANT
EXIST. MH FR: 29.93 IE (W) 21.19 IE (N) 20.8
REMOVE EXISTING 12" GATE VALVE AND MH AND EXISTING 12" WATERMAIN TO LOCATION SHOWN AND INSTALL NEW 12" GATE VALVE AND MANHOLE.
SEE ENLARGED PLAN OF WATER SYSTEM ON DWG. C2.2A
10" CAP
2" CAP
"WM"
12" 22.5° BEND
12" 45° BEND
INSTALL NEW 4" DIA FORCEMAIN IN LOCATION SHOWN AND REMOVE ABANDONED FORCEMAIN IN ITS ENTIRETY. EXISTING SEWAGE CONVEYANCE SYSTEM IS LIVE AND SYSTEM SHALL BE TAKEN OUT OF SERVICE SO AS TO CAUSE MINIMAL INTERUPTION.
12" CAP
10" 22.5° BEND
10" 22.5° BEND
6" GV
6" PVC
FH
10" X 6" TEE
8" 45° BEND
8" X 6" REDUCER
6" GV
FH
14" GAS TRANSMISSION MAIN
GAS EASEMENT
NORFOLK SOUTHERN FOUNDATION LEAD
NORFOLK SOUTHERN
JIMMY DELOACH PARKWAY
CROSSGATE ROAD
UGG
OHP
UTL
W
4"FM

BLDG. A
96,250 SF
FF ELEV. 32.0

NOTES:

1. DESIGN OF THE PUMPS, AND ALL FIRE PROTECTION MAINS TO SERVE THE BUILDING SHALL BE PERFORMED UNDER A SEPARATE PROJECT.
2. SITE FIRE PROTECTION LOOP SHOWN FOR LOCATION AND COORDINATION ONLY. SEE FIRE PROTECTION PLANS FOR FIRE LOOP INFORMATION. SITE FIRE PROTECTION DESIGNED BY OTHERS. NO IMPROVEMENTS THAT WOULD IMPACT FIRE PROTECTION LINES SHALL TAKE PLACE UNTIL DESIGN OF FIRE PROTECTION SYSTEM SERVING THE WAREHOUSES IS APPROVED BY THE CITY.
3. BUILDING SPRINKLER SYSTEM: BUILDING CONTRACTOR SHALL SUBMIT THE FOLLOWING INFORMATION TO THE CITY OF PORT WENTWORTH FOR REVIEW AND APPROVAL PRIOR TO ANY CONNECTION BEING MADE TO THE CITY WATER SYSTEM.
   - 3.A. COMPLETE PLANS AND HYDRAULIC CALCULATIONS OF PROPOSED SYSTEM.
   - 3.B. OWNER CLIENT DECLARATION FORM DELINEATING RESPONSIBILITY OF MAINTENANCE OF SUBJECT FIRE LINE AND APPURTENANCES. NO WATER AND / OR SEWER CONNECTION WILL BE PERMITTED UNTIL A COMPLETED OWNER / CLIENT DECLARATION FORM IS RECEIVED.
   - 3.C. DETAIL OF THE INSTALLATION OF A DOUBLE CHECK VALVE AND POST INDICATOR ON THE FIRE LINE.
4. CONTRACTOR SHALL REVIEW PAVING, GRADING, AND DRAINAGE DRAWINGS FOR LOCATION AND DEPTH OF STORM DRAINS AND SHALL ADJUST DEPTH OF WATER MAINS TO AVOID INTERFERENCES.
5. ALL NEW WATERMAINS FROM EXISTING MAIN TO THE BUILDING SHALL BE PVC (AWWA C-900, DR18, 235 PSI) OR DUCTILE IRON (AWWA C-150, CLASS 350) FOR PIPE 4" THRU 12" DIAMETER. 16" PIPE SHALL BE PVC C905, CLASS 235 OR CLASS 350 DIP. PIPE MATERIAL FOR FIRE LOOP AROUND THE BUILDING SHALL BE PER THE REQUIREMENTS OF THE DESIGNER OF THE FIRE PROTECTION SYSTEM.
6. WATER SERVICE LATERALS SHALL BE POLYETHYLENE TUBING (AWWA C-901, 200 PSI).
7. PVC SEWER PIPE SHALL MEET ALL REQUIREMENTS OF ASTM D3034, SDR 26.
8. VALVES 8" AND LARGER ON PUBLIC LINES SHALL BE INSTALLED IN MANHOLE .

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSS JASON LORNE CHANCEY No. 03172 PROFESSIONAL ENGINEER 08/18/2022
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
4	CHANGED SIZE OF BUILDING A	SSF	8/15/22
3	REVISED WATER SYSTEM	SSF	7/31/22
2	REVISED WATER AND SEWER SYSTEM	SSF	6/2/22
1	WATER SYSTEM REVISION	SSF	5/27/22

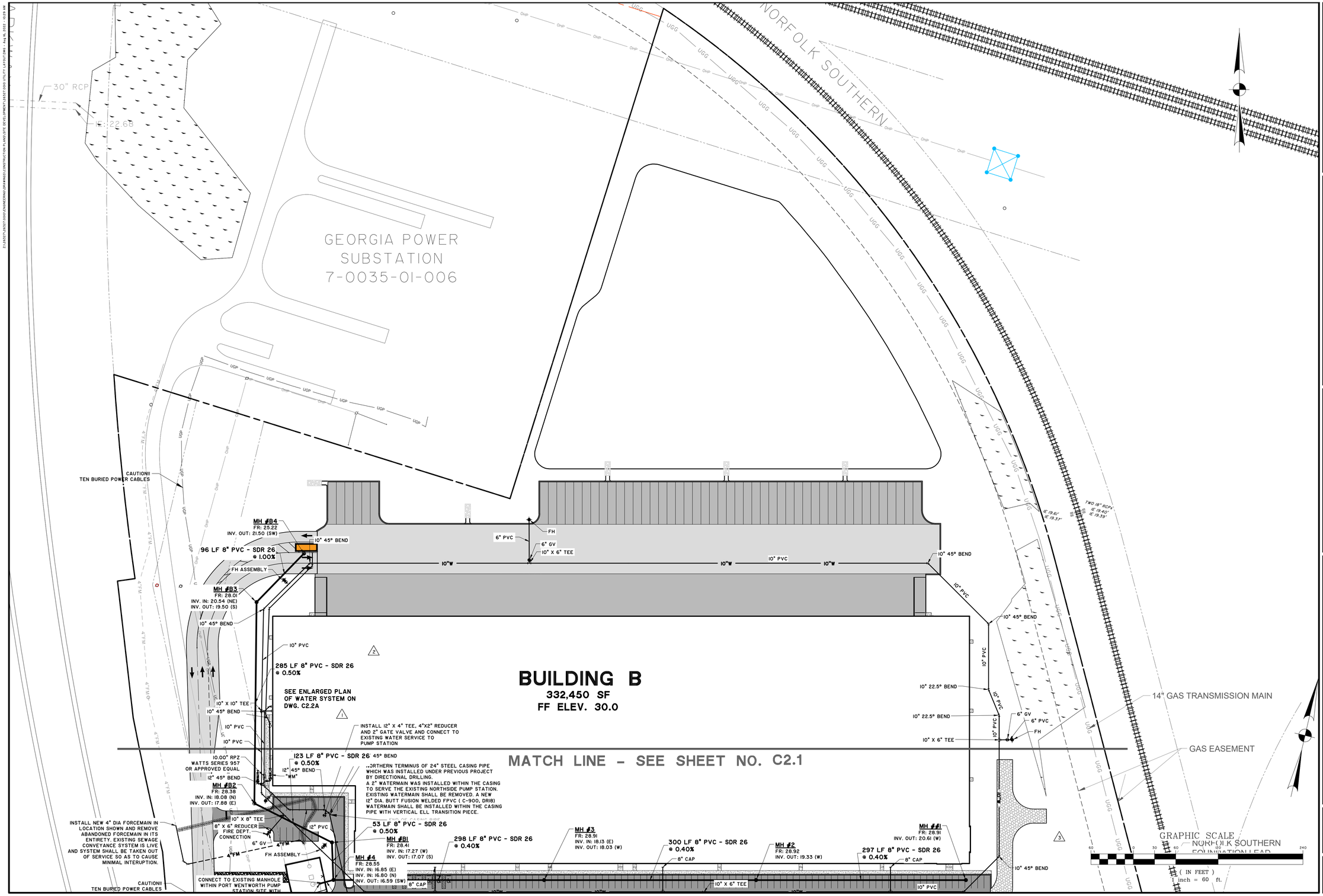
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA
SITE DEVELOPMENT FOR BUILDINGS A & B
WATER & SEWER PLAN - SHEET 1

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C2.1

E:\26327\26327.0010\CAD\REVISION\20\WATER\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 UTILITY LAYOUT.DWG - Aug 16, 2022 - 10:03 AM



GEORGIA REGISTERED
SS3
No. 031772
PROFESSIONAL
08/18/2022
ENGINEER
JASON ORME CHAN

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
3	REVISED WATER SYSTEM	SSF	7/31/22
2	REVISED WATER AND SEWER SYSTEM	SSF	6/2/22
1	WATER SYSTEM REVISION	SSF	5/27/22

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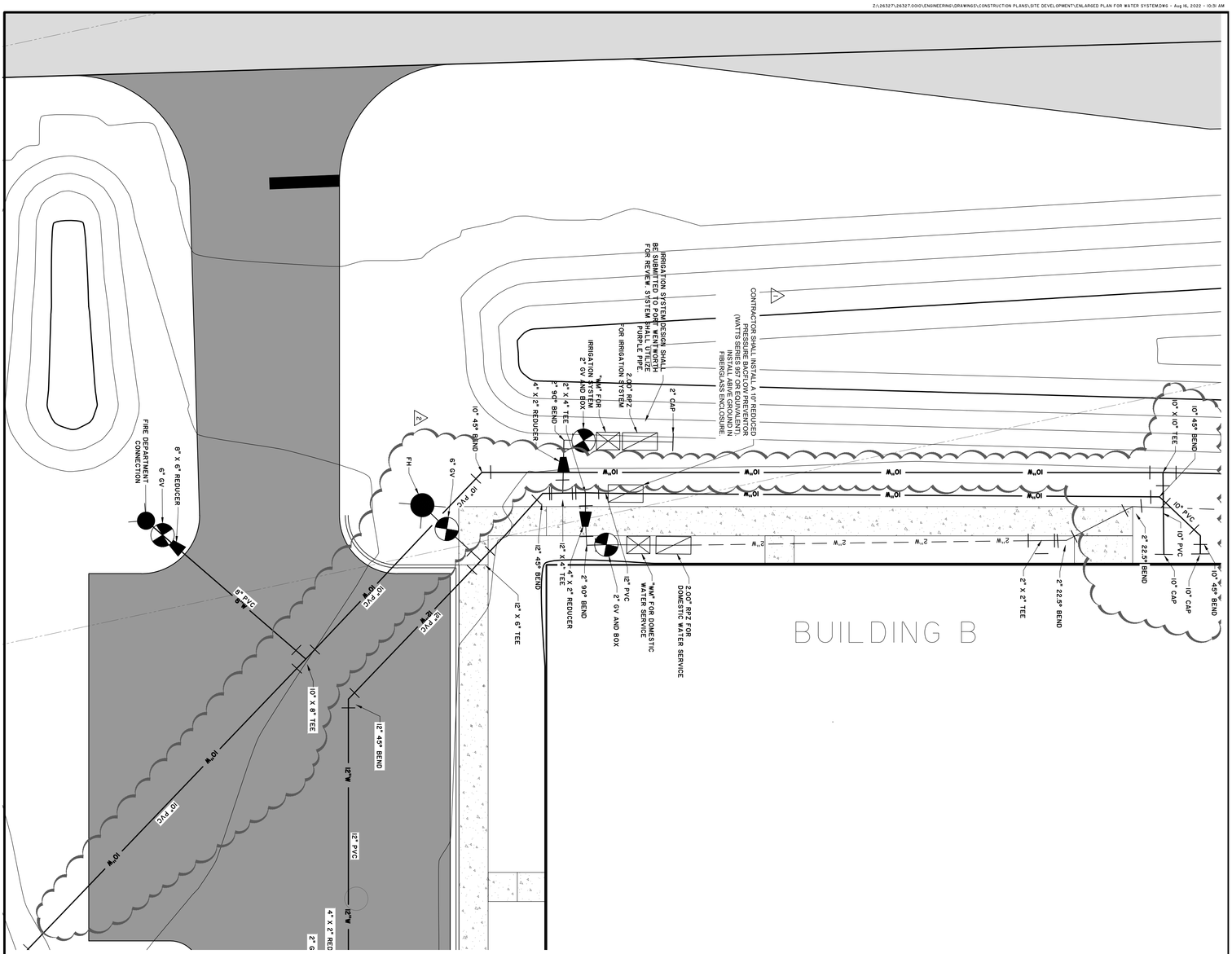
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

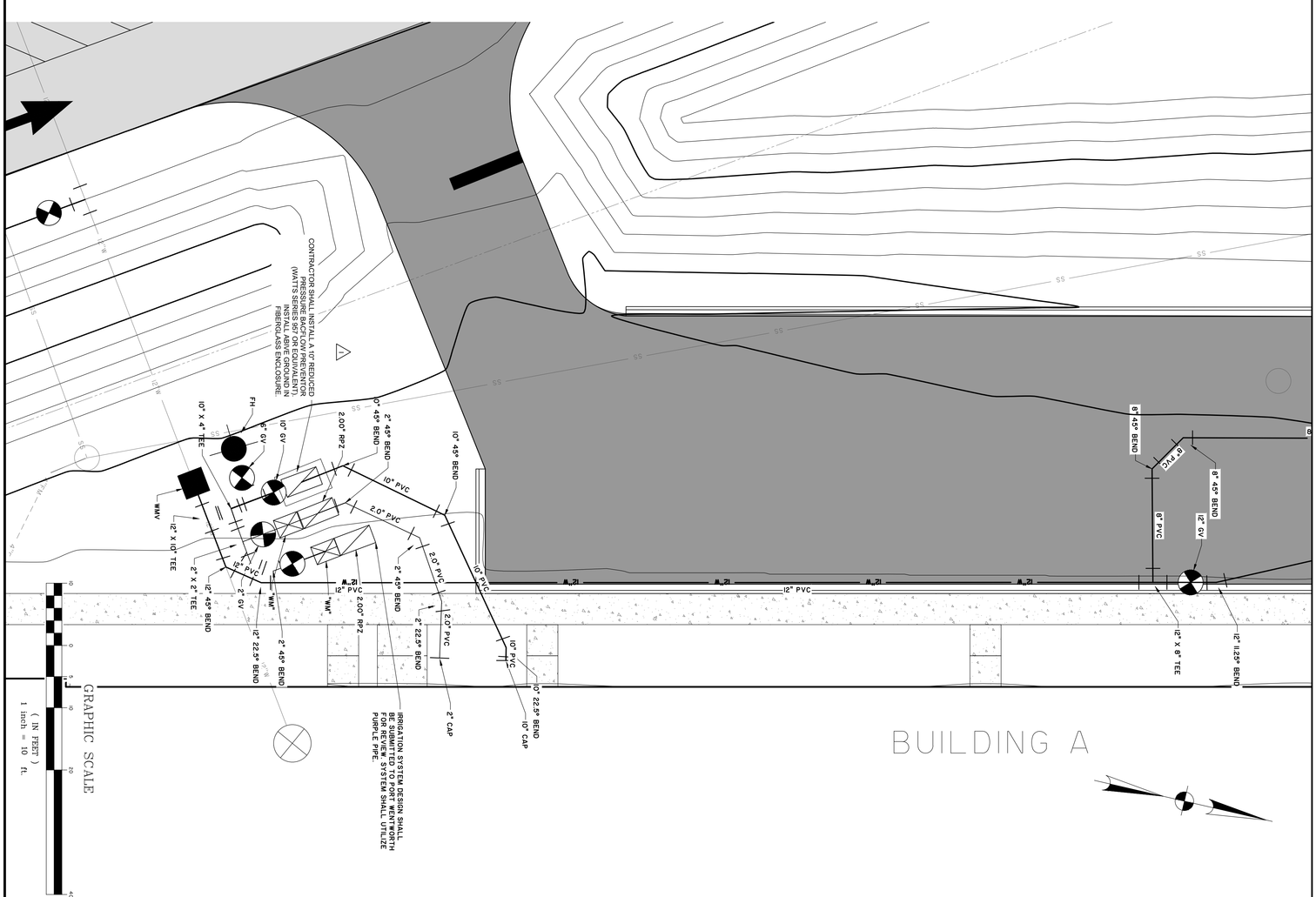
SITE DEVELOPMENT FOR BUILDINGS A & B

WATER & SEWER PLAN- SHEET 2

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C2.2





C2.2A

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

ENLARGED PLANS FOR WATER SYSTEM

JOB NO: 26327.000
DATE: 2/24/22
DRAWN: SSF
DESIGNED: SSF
REVIEWED: JT
APPROVED: FIT
SCALE: 1" = 10'

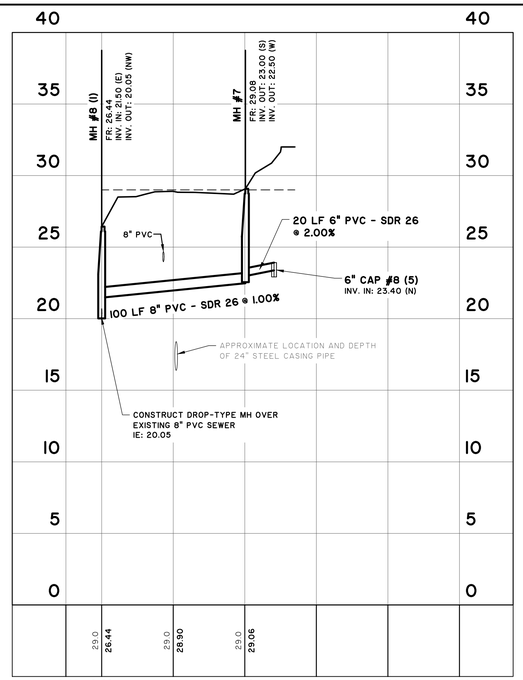
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NO.	REVISIONS	BY	DATE
2	REVISED WATER SYSTEM	SSF	7/31/22
1	REVISED BACKFLOW PREVENTOR	SSF	6/20/22

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#00000055539
EXPIRATION DATE:
9/12/2023

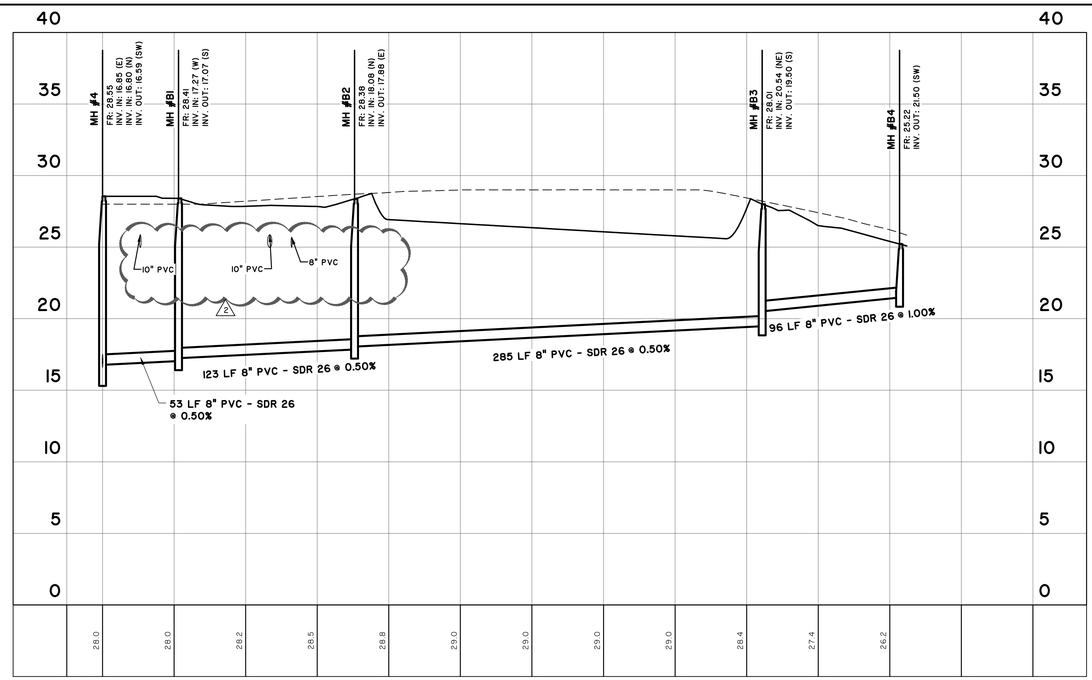
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 033172 08/18/2022 JASON ORNE CHAMBLESS

Z:\26327\26327.0010\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 SANITARY SEWER PROFILES.DWG - Aug 16, 2022 - 10:03 AM



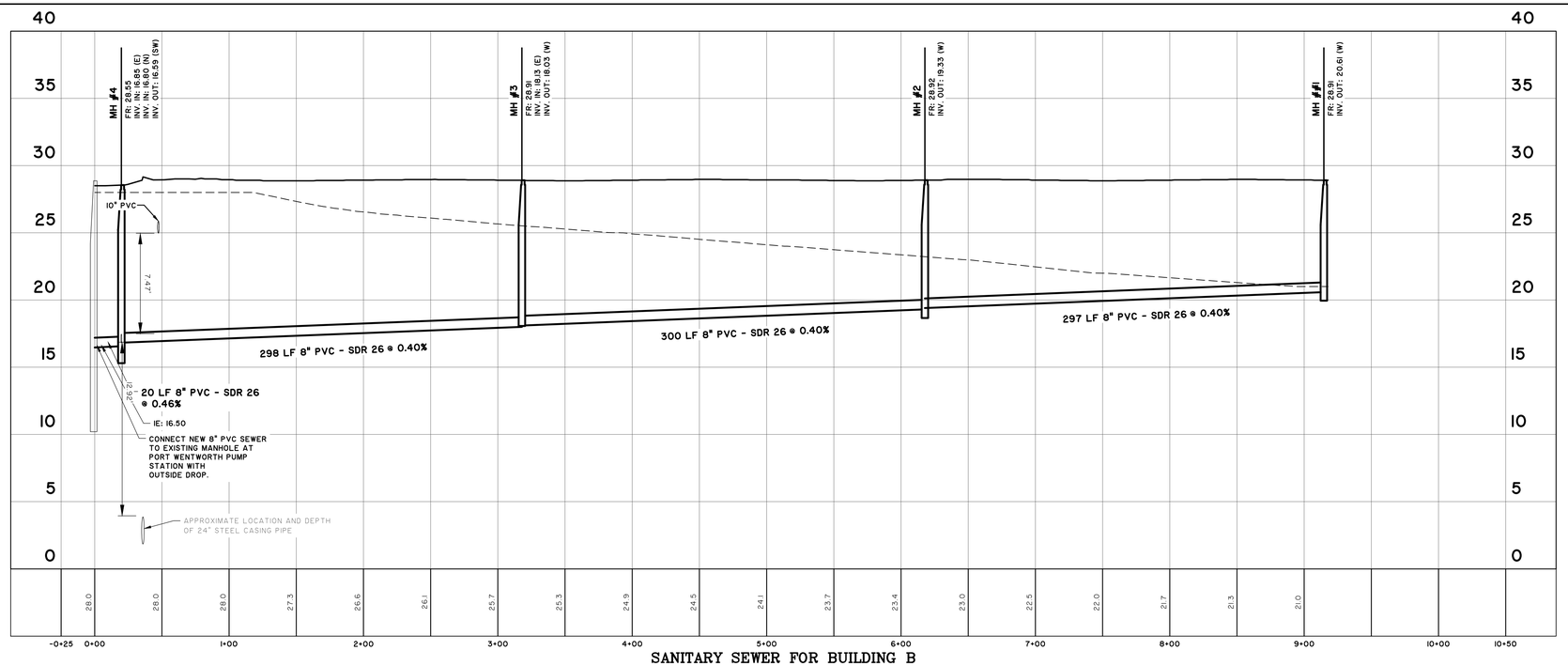
SANITARY SEWER FOR BUILDING A

STATIONS: −0+25 – 2+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



SANITARY LINE B

STATIONS: −0+25 – 6+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



SANITARY SEWER FOR BUILDING B

STATIONS: −0+25 – 10+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

△1

GEORGIA REGISTERED PROFESSIONAL ENGINEER JASON ORME CHAMBERS SS37172

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
2	LABELLED CROSSING PIPES	SSF	6/20/22
1	REVISED SANITARY SEWER TO BUILDING A	SSF	6/1/22

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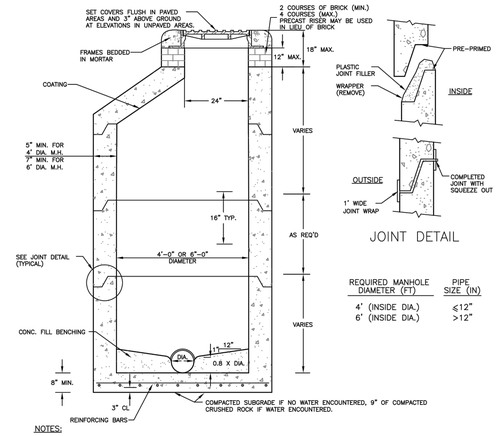
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SANITARY SEWER PROFILES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

C2.3



REQUIRED MANHOLE DIAMETER (FT)	PIPE SIZE (IN)
4' (INSIDE DIA.)	≤12"
6' (INSIDE DIA.)	>12"

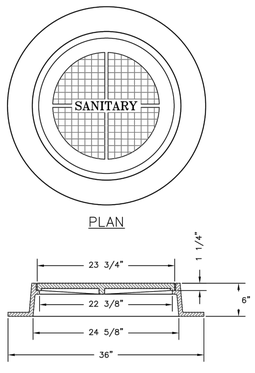
NOTES:

1. PRECAST REINFORCED CONCRETE TOPS, RISERS, BASES AND REBARS SHALL CONFORM TO LATEST ASTM C-478 STD. SPECIFICATIONS.
2. INTERIOR OF MANHOLE SHALL BE COATED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STD. SPECIFICATIONS. THE EXTERIOR OF MANHOLE SHALL BE COATED WITH CONSEAL CS-55 DAMP-PROOF COATING OR EQUAL
3. MANUFACTURER CERTIFICATION THAT MANHOLE MEETS ASTM SPECIFICATION SHALL BE SUBMITTED TO CITY OF PORT WENTWORTH.
4. SEE DETAIL SHEET FOR MANHOLE COVER & FRAME.
6. BUOYANCY MAY NEED TO BE CHECKED IF NECESSARY
7. ALL PIPE PENETRATIONS SHALL HAVE A BOOT CONNECTION. SEE DETAIL S-6.

PRECAST CONCRETE MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S-1

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

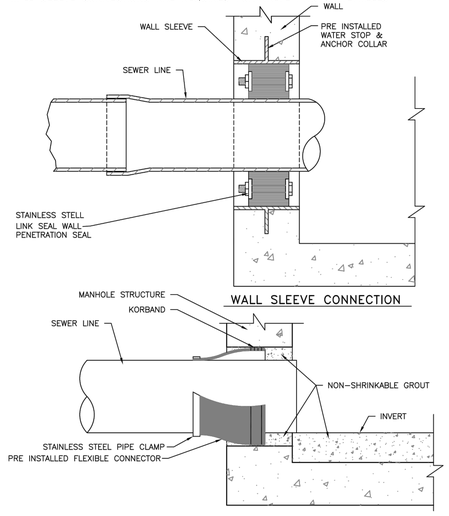
MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "SANITARY" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
S-2

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

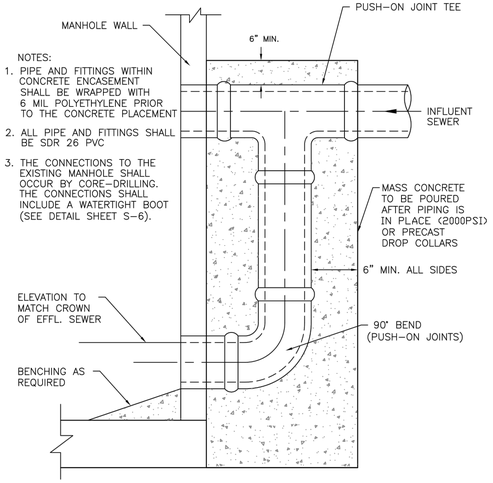
NOTE:
WALL SLEEVE CONNECTIONS ARE REQUIRED FOR VALVE PITS & WETWELLS



PRECAST STRUCTURE PIPE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-6

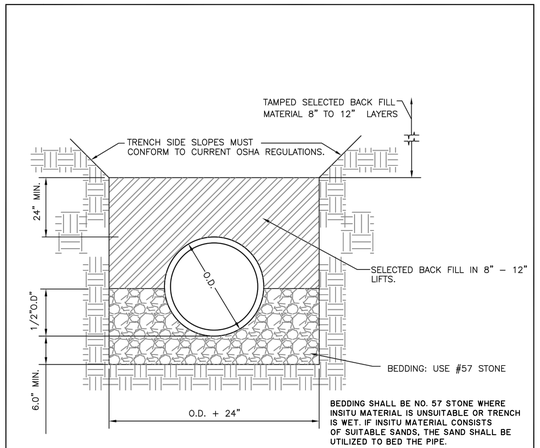
PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



DROP MANHOLE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-7

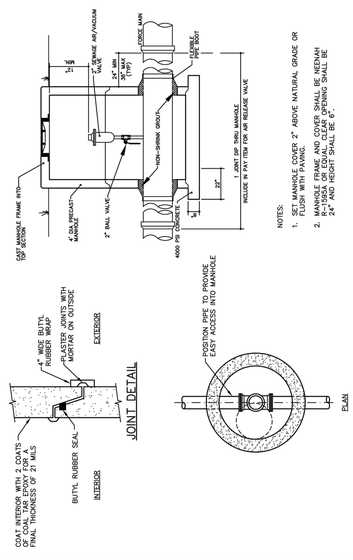
PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
S-8

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



COMBINATION AIR VALVE & MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S-9

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED SSF 03172 PROFESSIONAL ENGINEER JASON ORME CHAMBERS 08/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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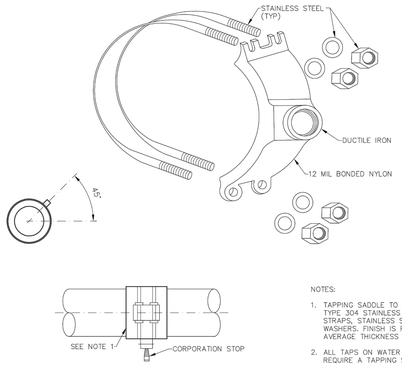
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

SANITARY SEWER DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.109'

C2.4



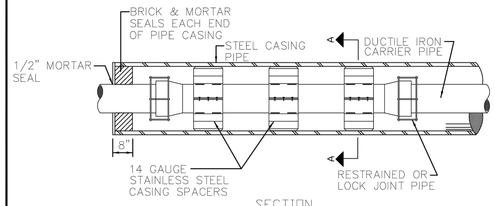
NOTES:

1. TAPPING SADDLE TO BE DUCTILE IRON WITH TYPE 304 STAINLESS STEEL FORGED DOUBLE STRAPS, STAINLESS STEEL BOLTS, NUTS AND WASHERS. FINISH IS FUSION-BONDED NYLON TO AVERAGE THICKNESS OF 12 MILS.
2. ALL TAPS ON WATER MAIN WILL REQUIRE A TAPPING SADDLE.

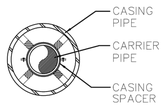
1" AND 2" TAPPING SADDLE

City of Port Wentworth
TECHNICAL DETAILS
W-2

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



SECTION



SECTION A-A

NOTES:

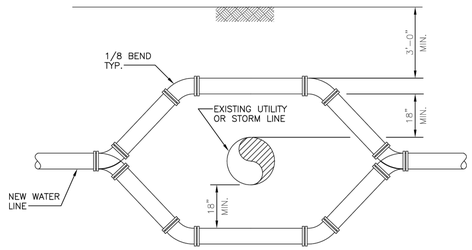
1. CASING SPACERS SHALL BE PLACED ON 6' CENTERS MINIMUM.
2. ALL RAILROAD CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH AMERICAN RAILWAY ENGINEERING ASSOCIATION REGULATIONS, UNDER PART 5, PIPELINES (LATEST EDITION) AND PERMIT REQUIREMENTS.
3. ALL HIGHWAY CROSSINGS SHALL BE INSTALLED IN ACCORDANCE WITH GA. D.O.T. REGULATIONS & PERMIT REQUIREMENTS.

CARRIER PIPE INSTALLATION

CARRIER PIPE INSTALLATION

City of Port Wentworth
TECHNICAL DETAILS
W-3

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: NFEBRUARY 2007



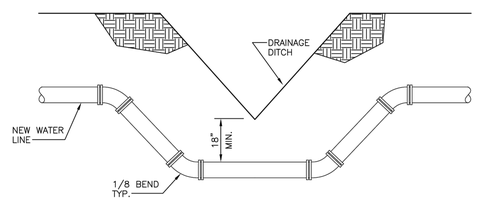
NOTES:

1. WATER LINE SHALL BE INSTALLED ABOVE SANITARY OR STORM LINE IF POSSIBLE.
2. STRAIGHT RUN OF WATER LINE DIRECTLY ABOVE OR BELOW EXISTING UTILITY LINE MUST BE 10' MINIMUM WITH NO JOINT.
3. IF WATER LINE IS INSTALLED BELOW SANITARY LINE WATER LINE SHALL BE DUCTILE IRON PIPE.
4. JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STANDARD DETAILS.

STANDARD UTILITY CROSSING

City of Port Wentworth
TECHNICAL DETAILS
W-6

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



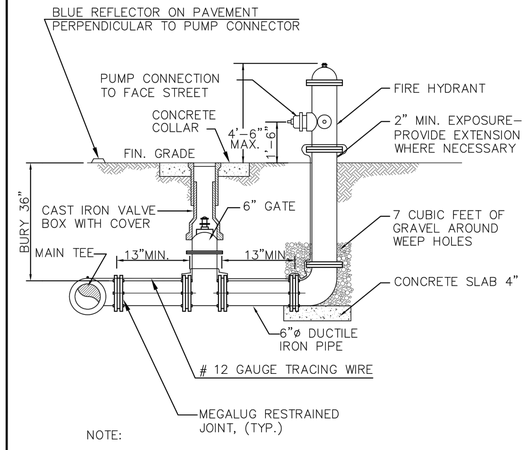
NOTES:

1. WATER LINE SHALL BE DUCTILE IRON BELOW STORM DRAINAGE DITCH.
2. STRAIGHT RUN OF WATER LINE DIRECTLY BELOW NEW OR EXISTING DRAINAGE DITCH MUST BE 10' MINIMUM WITH NO JOINT.
3. JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STANDARD DETAILS.

UTILITY CROSSING DRAINAGE DITCH

City of Port Wentworth
TECHNICAL DETAILS
W-7

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



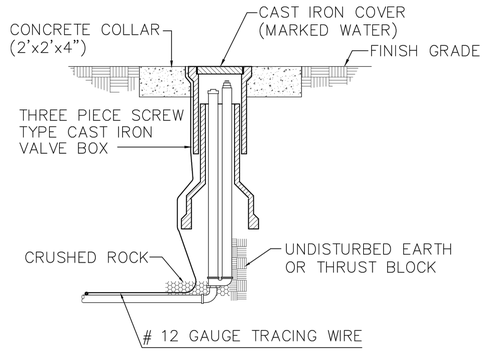
NOTE:

1. ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED.
2. PROTECT BOLTS AND THREADS FROM CONCRETE.

STANDARD FIRE HYDRANT

City of Port Wentworth
TECHNICAL DETAILS
W-9

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



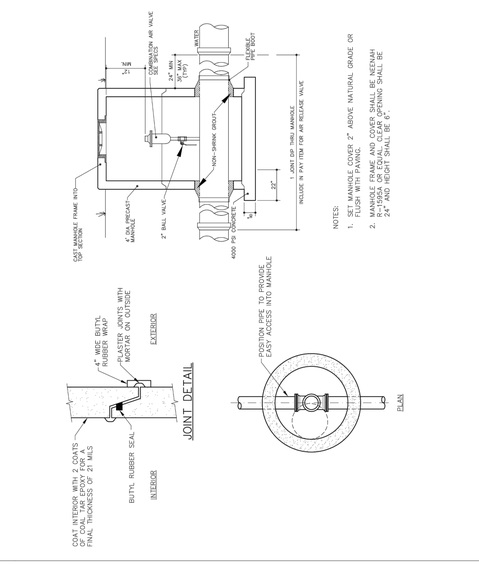
NOTE:

1. MAINGUARD #79 BLOW-OFF HYDRANT BY THE KUPFERLE FOUNDRY COMPANY. SEE MANUFACTURER'S SPECIFICATION FOR FURTHER DETAIL.

BLOW-OFF HYDRANT

City of Port Wentworth
TECHNICAL DETAILS
W-10

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES

1. SET MANHOLE COVER 2" ABOVE NATURAL GRADE OR FLUSH WITH PAVING.
2. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO. CATALOG NO. R-1668, TYPE C. CASTING SHALL BE 24" AND HEIGHT SHALL BE 6".

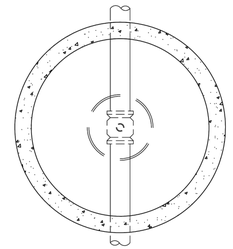
COMBINATION AIR VALVE & MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
W-13

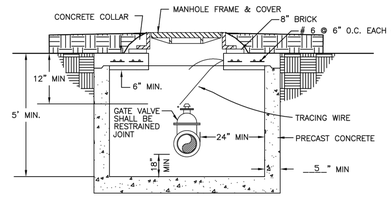
PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTES:

1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO. CATALOG NO. R-1668, TYPE C, LABELED "WATER".
2. THE BOTTOM OF THE MANHOLE FRAME SHALL NOT BE MORE THAN 12" ABOVE THE TOP OF THE MANHOLE STRUCTURE.
3. PRECAST CONCENTRIC CONE RISERS MAY BE USED WHERE REQUIRED FOR DEPTH.
4. THE MANHOLE FRAME AND COVER MUST BE CENTERED OVER THE VALVE.



PLAN



VALVE MANHOLE FOR 8" & GREATER GATE VALVE

City of Port Wentworth
TECHNICAL DETAILS
W-14

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED SSF ENGINEER No. 033172 PROFESSIONAL 08/18/2022 JASON ORME CHAMBERS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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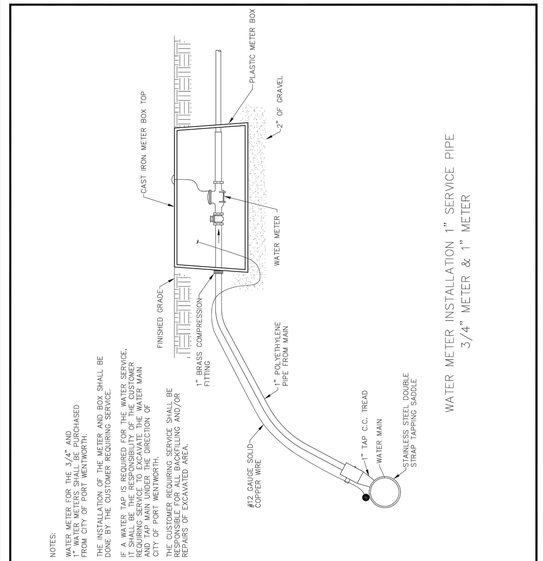
SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1'-10"

C2.5

Z:\26300\26327\000\Engineering\26327000 WATER AND SEWER SYSTEM NORTH SIDE\CONSTRUCTION PLANS\26327000 C4 WATER DETAIL SHEET.dwg - Dec 1, 2021 - 4:09:03 PM



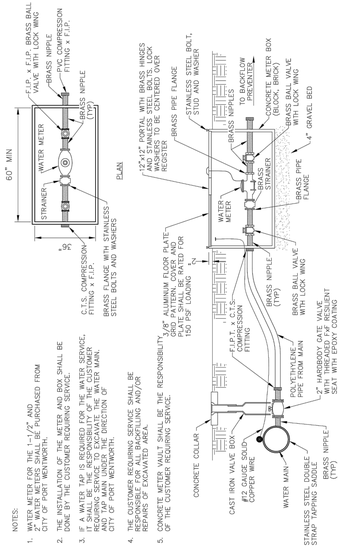
NOTES:
1. WATER METER FOR 3/4" AND 1" METERS SHALL BE PURCHASED FROM CITY OF PORT WENTWORTH.
2. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
3. IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE, THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF CITY OF PORT WENTWORTH.
4. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR ALL BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.

WATER METER INSTALLATION 1" SERVICE PIPE
3/4" METER & 1" METER

RESIDENTIAL WATER METER W/BACKFLOW PREVENTER

City of Port Wentworth
TECHNICAL DETAILS
W-17

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



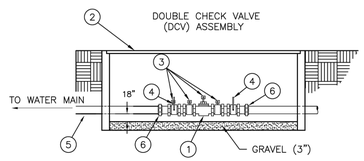
NOTES:
1. WATER METER FOR THE 1-1/2" AND 2" WATER METERS SHALL BE PURCHASED FROM CITY OF PORT WENTWORTH.
2. THE INSTALLATION OF THE METER AND BOX SHALL BE DONE BY THE CUSTOMER REQUIRING SERVICE.
3. IF A WATER TAP IS REQUIRED FOR THE WATER SERVICE, IT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE TO EXCAVATE, THE WATER MAIN AND TAP MAIN UNDER THE DIRECTION OF CITY OF PORT WENTWORTH.
4. THE CUSTOMER REQUIRING SERVICE SHALL BE RESPONSIBLE FOR ALL BACKFILLING AND/OR REPAIRS OF EXCAVATED AREA.
5. CONCRETE METER VAULT SHALL BE THE RESPONSIBILITY OF THE CUSTOMER REQUIRING SERVICE.

WATER METER INSTALLATION 2" SERVICE PIPE,
1-1/2" METER & 2" METER

WATER METER INSTALLATION 2" SERVICE PIPE

City of Port Wentworth
TECHNICAL DETAILS
W-19

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY *
2	2	METER BOX (JUMBO METER BOX FOR 5/8", 3/4", 1" & 1 1/2" BFD ONLY)
3	4	TEST COCKS
4	2	FULL PORT BALL VALVES
5		POLYETHYLENE, COPPER OR BRASS CUT TO LENGTH
6	2	UNION

* DUAL CHECK VALVES ARE NOT ALLOWABLE

INSTALLATION INSTRUCTIONS:

THE ASSEMBLY SHALL NOT BE BURIED IN EARTH, BUT MAY BE INSTALLED IN A UTILITY BOX ADJACENT TO OR AS CLOSE AS PRACTICAL TO, THE OUTLET SIDE OF THE METER. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT.

NOTES:

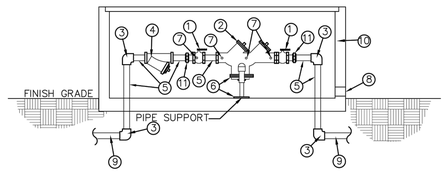
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE. INSTALLER MUST PROVIDE FOR THERMAL EXPANSION DOWNSTREAM OF THE BACKFLOW PREVENTOR.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL OUTSIDE INSTALLATION
(3/4", 1", 1 1/2", 2" & 2 1/2" SIZES)

DOMESTIC DOUBLE CHECK VALVE ASSEMBLY (A)

City of Port Wentworth
TECHNICAL DETAILS
W-20

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN	DESCRIPTION
1	2	FULL PORT BALL VALVE
2	1	REDUCED PRESSURE ZONE DEVICE
3	4	BRASS ELLS THREADED OR FLANGED
4	1	STRAINER W/ RPZ DEVICE (OPTIONAL) SEE NOTE 3
5	6	BRASS OR COPPER ONLY. NIPPLES CUT TO LENGTH
6		PIPE STAND MIN.12"
7	4	BRASS PLUGS INSERTED IN TEST COCKS
8		2" X 2" DRAIN
9		POLYETHYLENE OR COPPER
10		PREFABRICATED ENCLOSURE BY HOT BOX OR EQUAL
11	2	UNION SEE NOTE 3

NOTES:

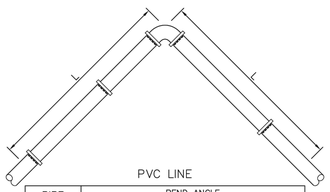
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER.
2. UNDER NO CIRCUMSTANCE SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR ANY USE OTHER THAN BACKFLOW DEVICE TESTING.
3. ITEMS 4 AND 11 (THE STRAINER AND THE UNIONS) MAY BE INSTALLED ON THE VERTICAL RISERS TO REDUCE THE OVERALL LAYING LENGTH.

TYPICAL OUTSIDE INSTALLATION
REDUCED PRESSURE
TYPE BACKFLOW PREVENTION DEVICE
(3/4", 1", 1 1/2", 2", & 2 1/2" SIZES)

BACKFLOW PREVENTION DEVICE

City of Port Wentworth
TECHNICAL DETAILS
W-25

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	3	6	12	29
6	4	8	17	41
8	5	11	22	53
10	6	13	26	64
12	7	15	31	75

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	2	4	8	20
6	3	6	12	28
8	4	7	15	36
10	4	9	18	43
12	5	10	21	51
16	6	13	27	65
20	8	16	33	79
24	9	18	38	92

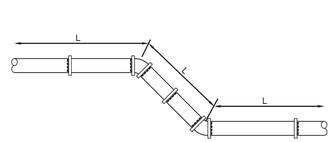
MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD HORIZONTAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-27

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	5	10	22	52
6	7	15	30	74
8	9	19	40	96
10	11	23	48	115
12	13	27	56	136

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	3	6	12	28
6	4	8	17	40
8	4	10	22	52
10	5	12	26	62
12	6	15	30	73
16	7	19	39	94
20	11	23	47	114
24	13	26	55	132

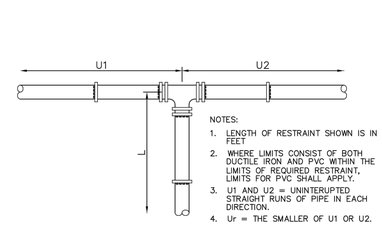
MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD VERTICAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-28

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERRUPTED STRAIGHT RUNS OF PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2.
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

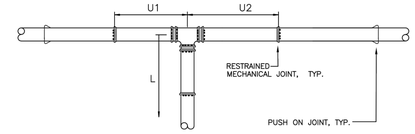
TEE Ur	5'-10"	11'-20"	21'-35"	> 35'
4x4	43	28	4	*
6x4	38	17	*	*
6x6	64	49	25	*
8x4	34	6	*	*
8x6	61	42	10	*
8x8	87	72	48	12
10x4	29	*	*	*
10x6	58	34	*	*
10x8	84	66	35	*
10x10	106	91	67	31
12x4	24	*	*	*
12x6	54	26	*	*
12x8	82	60	23	*
12x10	104	86	57	13
12x12	126	112	87	51

MINIMUM RESTRAINED LENGTH (L)
* RESTRAIN AT TEE ONLY

STANDARD TEE RESTRAINT (PVC LINE)

City of Port Wentworth
TECHNICAL DETAILS
W-29

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERRUPTED STRAIGHT RUNS OF RESTRAINED JOINT PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2 (E.G., U1, IN THE ABOVE DIAGRAM)
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH.
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

DUCTILE IRON LINE

TEE Ur	5'-10"	11'-20"	21'-35"	36'-50"	50'-75"	75'-100"
4X4	23	15	2	*	*	*
6X4	21	9	*	*	*	*
6X6	35	27	14	*	*	*
8X4	18	3	*	*	*	*
8X6	33	23	5	*	*	*
8X8	47	39	26	6	*	*
10X4	16	*	*	*	*	*
10X6	31	18	*	*	*	*
10X8	46	36	19	*	*	*
10X10	57	49	36	17	*	*
12X4	13	*	*	*	*	*
12X6	30	14	*	*	*	*
12X8	44	32	13	*	*	*
12X10	56	47	31	7	*	*
12X12	68	60	47	28	*	*
16X6	28	4	*	*	*	*
16X8	41	25	*	*	*	*

DUCTILE IRON LINE

TEE Ur	5'-10"	11'-20"	21'-35"	36'-50"	50'-75"	75'-100"
16X10	54	41	20	*	*	*
16X12	66	56	38	*	*	*
16X16	89	81	38	*	*	*
20X6	22	*	*	*	*	*
20X8	38	18	*	*	*	*
20X10	51	35	8	*	*	*
20X12	64	51	28	*	*	*
20X16	87	77	60	35	10	*
20X20	108	100	87	67	48	*
24X6	18	*	*	*	*	*
24X8	35	10	*	*	*	*
24X10	49	29	*	*	*	*
24X12	62	45	17	*	*	*
24X16	86	73	53	22	*	*
24X20	107	97	81	57	33	*
24X24	127	119	106	86	66	33

MINIMUM RESTRAINED LENGTH (L)
*RESTRAIN AT TEE ONLY.

STANDARD TEE RESTRAINT (DUCTILE IRON PIPE)

City of Port Wentworth
TECHNICAL DETAILS
W-30

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED SSLT
No. 003172
PROFESSIONAL
08/18/2022
ENGINEER
JASON ORME CHAMBERS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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Savannah, GA 31402-2727 • 912.234.5300
www.thomasandhutton.com
Brunswick, GA | Columbia, SC | Charleston, SC
Myrtle Beach, SC | Wilmington, NC

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.1108'

C2.6

Z:\26xx\26327\0010\drawings\26327-0010 WATER AND SEWER SYSTEM NORTH SIDE\CONSTRUCTION PLANS\26327-0010-C4 WATER DETAIL SHEET.dwg - Dec 1, 2021 - 4:59:03 PM



DUCTILE IRON LINE	
PIPE DIA.	L
4	28
6	40
8	52
10	62
12	73
16	94
20	114
24	132

PVC LINE	
PIPE DIA.	L
4	52
6	74
8	96
10	115
12	136

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. FOR LINE STUBS (SEE DETAIL W39). THE LENGTH OF RESTRAINT (L) SHALL BE FROM THE VALVE AND NOT THE CAP.

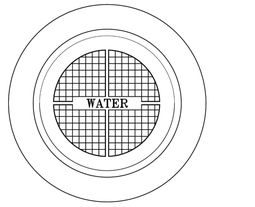
STANDARD DEAD END RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS

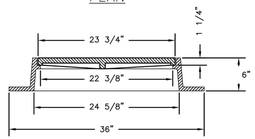
W-31

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



PLAN



SECTION

NOTE:

MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "WATER" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

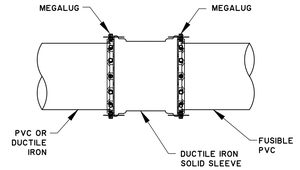
MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS

W-34

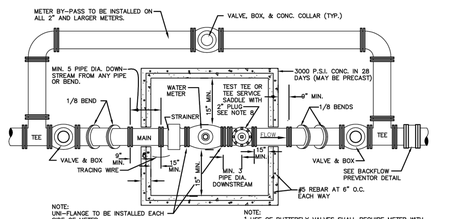
PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



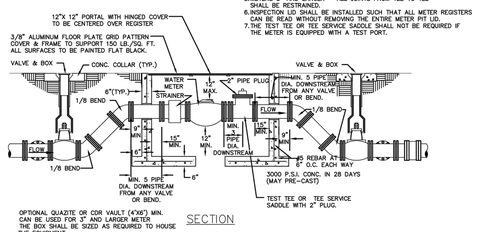
FPVC CONNECTION DETAIL

SCALE: NONE



PLAN

NOTE:
1. USE OF BUTTERFLY VALVES SHALL REQUIRE METER WITH DOUBLE STRAINER.
2. TURBINE METERS (CLASS II) SHALL HAVE U.L. APPROVED STRAINERS
3. COMPLETE BY-PASS ASSEMBLY IS REQUIRED ON ALL METERS.
4. VALVES: GREATER THAN 2" SHALL BE MECHANICAL JOINT GATE VALVES.
5. METERS 3" AND LARGER – ALL JOINTS FROM TEE TO TEE SHALL BE RESTRAINED.
6. INSPECTION LID SHALL BE INSTALLED SUCH THAT ALL METER REGISTERS CAN BE READ WITHOUT REMOVING THE ENTIRE METER PIT LID.
7. THE TEST TEE OR TEE SERVICE SADDLE SHALL NOT BE REQUIRED IF THE METER IS EQUIPPED WITH A TEST PORT.



SECTION

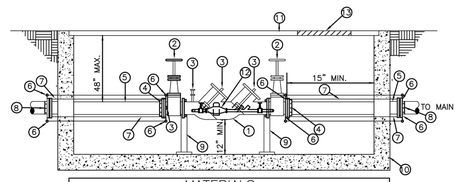
WATER METER INST. 3" AND LARGER

City of Port Wentworth
TECHNICAL DETAILS

W-15

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	1	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
2	2	OS&Y RESILIENT SEAT GATE VALVES
3	4	TEST COCKS
4	2	COMPANION FLANGE (UNION SHALL BE USED FOR 2")
5		DUCTILE IRON PIPE, CUT TO FIT
6	8	CARBON STEEL EYE BOLTS
7		3/4 GALV. ALL THREAD ROD
8		MEGA LUG OR EQUIVALENT FOR DUCTILE PIPE
9	2	2" SCH. 40 GALV. PIPE STAND & BASE BOLTED TO FLANGE
10		PIT-CEMENT BLOCK, POURED CONCRETE, OR PREFABRICATED BOX PER CITY SPECS.
11		3/8 ALUMINUM FLOOR PLATE / HATCH COVER
12	1	3/4 CUBIC FT. BYPASS METER
13		2' X 2' MIN. HATCH

NOTES:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE (IF APPLICABLE). UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR THE SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS, AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTER; UNDER NO CIRCUMSTANCE SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.
3. IF ADDITIONAL SIAMESE CONNECTION IS REQUIRED FOR FIRE SERVICE, SEE DETAIL SHEET STD. FIRE SERVICE SYSTEM FOR BUILDINGS.

TYPICAL BELOW GRADE INSTALLATION
(2", 3", 4", 6", 8", & 10" SIZES)

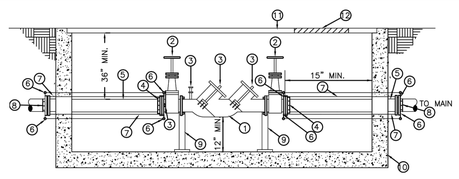
FIRE SYTEM DOUBLE DETECTOR CHECK VALVE

City of Port Wentworth
TECHNICAL DETAILS

W-22

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	1	DOUBLE CHECK VALVE ASSEMBLY
2	2	NON-RISING RESILIENT SEAT GATE VALVES
3	4	TEST COCKS
4	2	COMPANION FLANGE
5		DUCTILE IRON PIPE, CUT TO FIT
6	8	CARBON STEEL EYE BOLTS
7		3/4 GALV. ALL THREAD ROD
8		MEGA LUG OR EQUIVALENT FOR DUCTILE PIPE
9	2	2" SCH. 40 GALV. PIPE STAND & BASE BOLTED TO FLANGE
10		PIT-CEMENT BLOCK, POURED CONCRETE, OR PREFABRICATED BOX PER CITY SPECS.
11		3/8 ALUM. FLOOR PLATE / HATCH COVER W/FLUSH HANDLE
12		2' X 2' MIN. HATCH

NOTE:
1. FOR FINAL APPROVAL, ASSEMBLY MUST BE CENTERED IN ENCLOSURE (IF APPLICABLE), UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
2. IF A PRESSURE MONITOR IS TO BE INSTALLED, ADD A TEE, VALVE, FITTINGS, AND MOUNT ON SUPPLY SIDE PRIOR TO BACKFLOW PREVENTION DEVICE; UNDER NO CIRCUMSTANCE, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION, OTHER THAN BACKFLOW DEVICE TESTING.

TYPICAL BELOW GRADE INSTALLATION
(3", 4", 6", 8", & 10" SIZES)

DOMESTIC DOUBLE CHECK VALVE ASSEMBLY (B)

City of Port Wentworth
TECHNICAL DETAILS

W-21

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.

SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED SSS ENGINEER
JASON ORME CHANCEY
No. 033172
PROFESSIONAL
08/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

WATER SYSTEM DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1.1108'

C2.7

Z:\26327\0010\Engineering\Drawings\26327.0010 WATER AND SEWER SYSTEM NORTH SIDE\CONSTRUCTION PLANS\26327.0010 C4 WATER DETAIL SHEET.dwg - Dec 1, 2006 - 4:59:03 PM

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. C3.2

OF 3' WIDE FOOTER. EXTEND VERT. 12" PVC TO MATCH FINISHED GRADE. CENTER PIPE BENEATH DOWNSPOUT AND PROVIDE AIR GAP.

PROVIDE NOTCH OUT OF 3' WIDE FOOTER. EXTEND VERT. 12" PVC TO MATCH FINISHED GRADE. CENTER PIPE BENEATH DOWNSPOUT AND PROVIDE AIR GAP.

FES #21
INV. OUT: 22.00 (N)

FES
INV. OUT: 24.20 (S)

73 LF 18" RCP @ 0.41%

CI #A5
TYPE C
FR: 27.96
INV. OUT: 21.00 (E)

CI #A4
TYPE C
FR: 27.89
INV. IN: 19.96 (W)
INV. OUT: 19.97 (E)

CI #1
TYPE C
FR: 27.89
INV. IN: 9.50 (S)
INV. IN: 19.00 (W)
INV. OUT: 19.00 (E)

CI #A3
TYPE C
FR: 27.89
INV. IN: 18.58 (W)
INV. OUT: 18.58 (E)

432 LF 48" RCP @ 0.24%

220 LF 30" RCP @ 0.47%

204 LF 36" RCP @ 0.47%

174 LF 42" RCP @ 0.24%

200 LF 48" RCP @ 0.24%

CI #A2
TYPE C
FR: 27.97
INV. IN: 18.09 (W)
INV. OUT: 18.09 (N)

JACK AND BORE 130 LF OF 48" DIA. STEEL PIPE AT 0.0% BENEATH CITY OF SAVANNAH I & D WATERMAIN

FES #6
INV. IN: 21.50 (E)

164 LF 30" RCP @ 0.44%

85 LF 36" RCP @ 0.44%

200 LF 36" RCP @ 0.45%

FES #24
INV. OUT: 21.50 (S)

FES #32
INV. OUT: 19.50 (W)

RI #2
FR: 20.19 20.35
TH: 19.52
INV. OUT: 9.50 (N)

CI #5
TYPE C
FR: 26.18
INV. IN: 20.77 (E)
INV. OUT: 20.77 (W)

CI #3
TYPE C
FR: 26.01
INV. IN: 19.88 (E)
INV. OUT: 19.88 (W)

FES #7
INV. IN: 22.00 (N)

89 LF 24" RCP @ 0.56%

FES #10
INV. OUT: 24.00 (SW)

71 LF 18" RCP @ 1.00%

25 LF 18" RCP @ 1.18%

FES #36
INV. OUT: 25.00 (E)

JB #35
FR: 29.77
INV. IN: 24.71 (NE)
INV. IN: 24.71 (W)
INV. OUT: 24.71 (S)

29 LF 18" RCP @ 1.01%

FES #11
INV. IN: 25.00 (N)

90° ELL

IE: 28.2

12" DIA. PVC DRAIN LINE SLOPED AT MIN 2%

PROVIDE NOTCH OUT OF 3' WIDE FOOTER. EXTEND VERT. 12" PVC TO MATCH FINISHED GRADE. CENTER PIPE BENEATH DOWNSPOUT AND PROVIDE AIR GAP.

BUILDING A
96,250 SF
FF ELEV. 32.0

FES #8
INV. OUT: 24.00 (SE)

61 LF 18" RCP @ 1.64%

FES #9
INV. IN: 25.00 (NW)

FES #38
INV. IN: 25.00 (SE)

68 LF 18" RCP @ 1.47%

FES #37
INV. OUT: 26.00 (NW)

PAVEMENT LEGEND

- 5" CONCRETE PAVEMENT / 4" GAB[2]
- 7" CONCRETE PAVEMENT / 4" GAB[2]
- 10" CONCRETE PAVEMENT / 4" GAB WITH DOWEL BASKETS[2]
- 4" SIDEWALK[2]
- GRAVEL ACCESS STRIP[3]

[1]SEE C17 - PAVING AND DRAINAGE DETAILS
[2]IF CONCRETE PAVEMENT IS PLACED OVER CEMENT-TREATED SUBGRADE, GAB MAY BE ELIMINATED. (SEE GEOTECH REPORT)
[3]PAVEMENT RECOMMENDATION PER TERRACON REPORT DATED MAY 4, 2021

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSS JASON LORNE CHANEY
No. 031172 PROFESSIONAL ENGINEER
08/18/2022

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
2	CHANGED BUILDING A SIZE AND GRADING	SSF	8/5/22
1	ADJUSTED FRAME ELEVATION	SSF	7/5/22

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Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

PAVING GRADING & DRAINAGE - SHEET I

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C3.1

Z:\26327\26327.0010\ENGINEERING\26327.0010 PAVING SITE DEVELOPMENT.DWG | Aug 16, 2022 - 10:08 AM

STORMWATER
DETENTION POND I
3H:IV SIDESLOPES (TYP. ABOVE ELEV. 19
IH:IV SIDESLOPES FROM ELEV. 10 TO 19))
BOTTOM: 10.0'
NWL: 20.00'
TOP: 24.0'
25-YR: 22.81'
50-YR: 23.48'
100-YR: 23.92'

FES #29
INV. IN: 18.00 (S)

74 LF 36" RCP
@ 2.71%

FES #39
INV. OUT: 20.00 (N)

FES #30
INV. OUT: 20.00 (NE)

46 LF 36" RCP
@ 1.08%

FES #31
INV. IN: 19.50 (SW)

FES #19
INV. IN: 16.00 (SE)

85 LF 60" RCP
@ 0.24%

FES #22
INV. IN: 20.00 (S)

131 LF 18" RCP
@ 1.53%

CI #18
TYPE C
FR: 25.08
INV. IN: 16.70 (SE)
INV. OUT: 16.20 (NW)

145 LF 54" RCP
@ 0.24%

SMH #A1
FR: 24.22
INV. IN: 17.05 (S)
INV. OUT: 17.05 (NW)

90° ELL
IE: 26.2
TP 26.00

12" DIA. PVC DRAIN LINE SLOPED AT MIN 2%

PROVIDE NOTCH OUT
OF 3' WIDE FOOTER.
EXTEND VERT. 12" PVC
TO MATCH FINISHED GRADE.
CENTER PIPE BENEATH
DOWNSPOUT AND PROVIDE
AIR GAP.

BUILDING B
332,450 SF
FF ELEV. 30.0

FES #21
INV. OUT: 22.00 (N)

MATCH LINE - SEE SHEET NO. C3.1

FES
INV. OUT: 24.20 (S)

73 LF 18" RCP
@ 0.41%

432 LF 48" RCP
@ 0.24%

CI #A5
TYPE C
FR: 27.96
INV. OUT: 21.00 (E)

CI #A4
TYPE C
FR: 27.89
INV. IN: 19.96 (W)
INV. OUT: 19.97 (E)

CI #1
TYPE C
FR: 27.89
INV. IN: 9.50 (S)
INV. IN: 19.00 (W)
INV. OUT: 19.00 (E)

CI #A3
TYPE C
FR: 27.89
INV. IN: 18.58 (W)
INV. OUT: 18.58 (E)

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED
SS
SCOTT S. FIT
No. 031772
PROFESSIONAL
09/18/2022
ENGINEER
JASON ORME CHAMBERS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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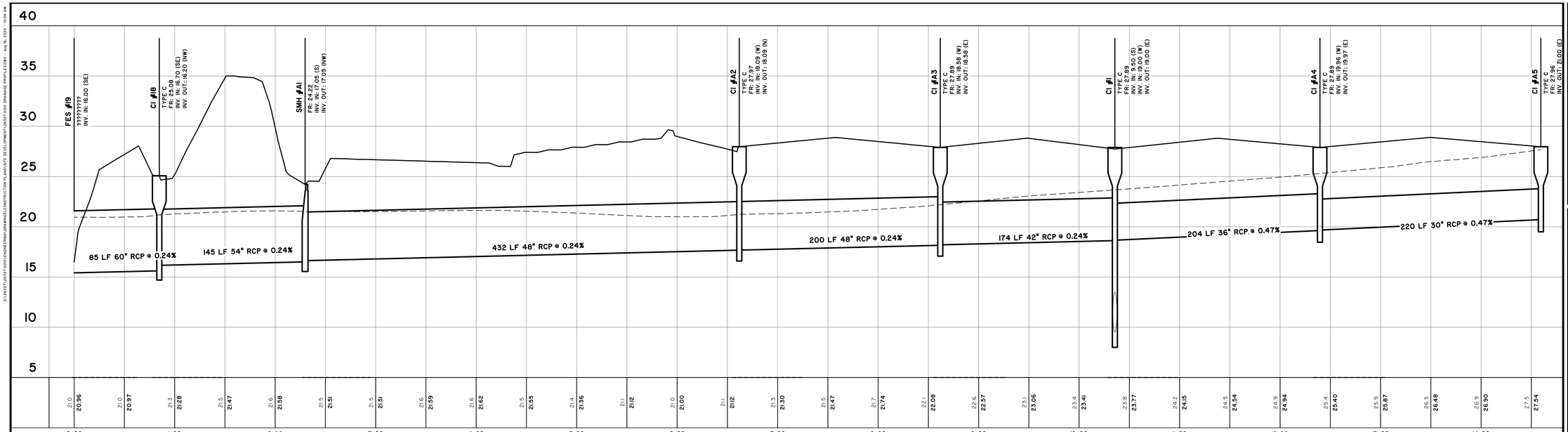
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

PAVING GRADING & DRAINAGE - SHEET 2

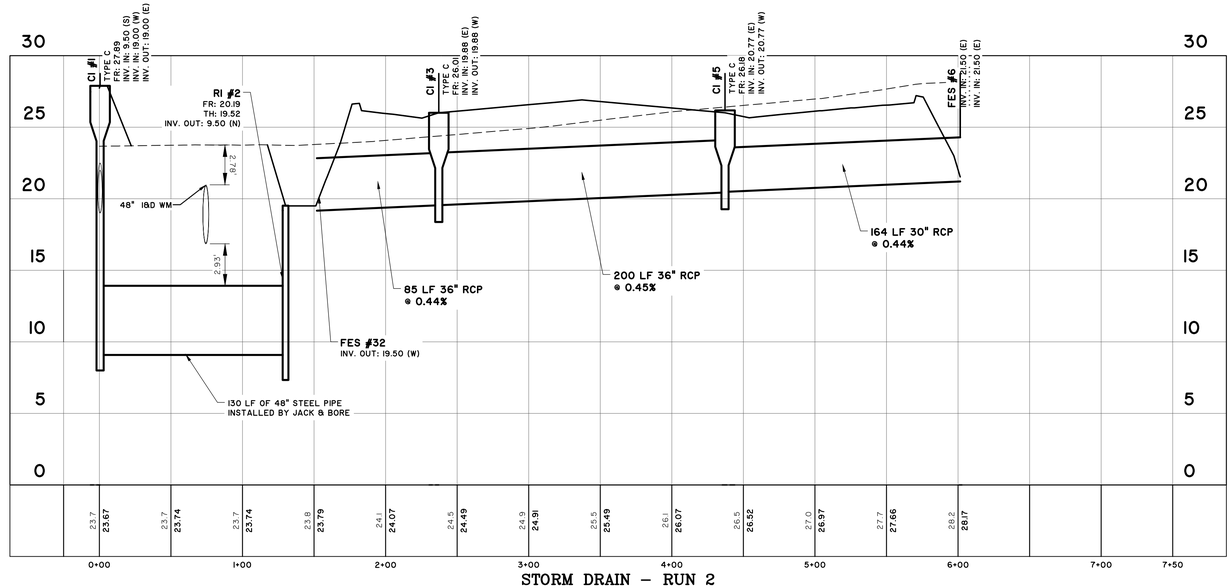
JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

C3.2



STORM DRAIN – RUN 1

STATIONS: –0+25 – 15+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN – RUN 2

STATIONS: –0+25 – 7+50
SCALE: HORZ.: 1" = 50'

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GEORGIA REGISTERED SSS PROFESSIONAL ENGINEER JASON S. SCHMIDT

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

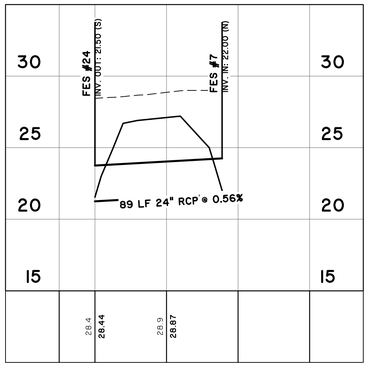
DRAINAGE PROFILES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

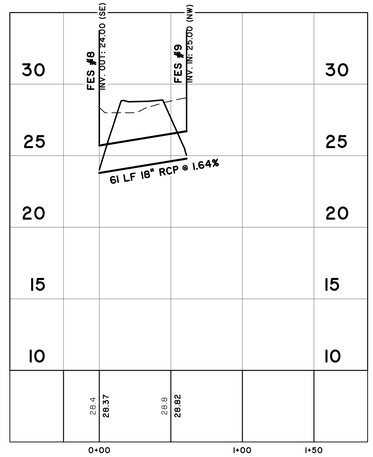
C3.3

Z:\26327\26327.0010\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010 DRAINAGE PROFILES.DWG - Aug 16, 2022 - 10:08 AM

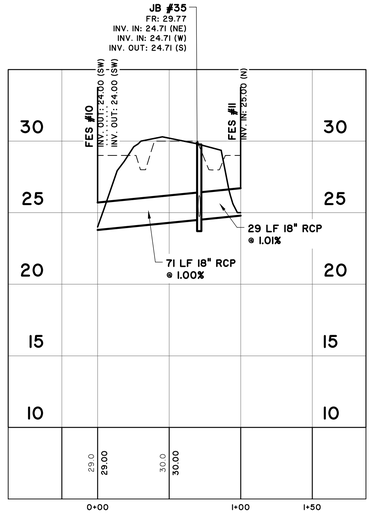
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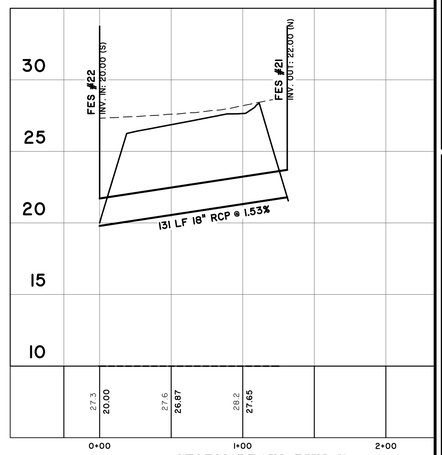
STORM DRAIN RUN 3
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 4
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 5
STATIONS: −0+25 – 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



STORM DRAIN RUN 7
STATIONS: −0+25 – 2+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

GEORGIA REGISTERED
SSF
No. 031172
PROFESSIONAL
08/18/2022
ENGINEER
JASON STONE CHANCEY

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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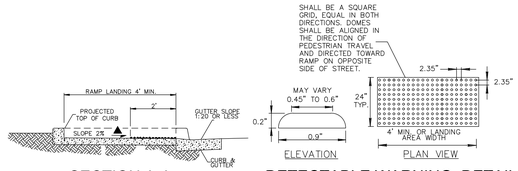
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

DRAINAGE PROFILES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	AS NOTED

C3.4

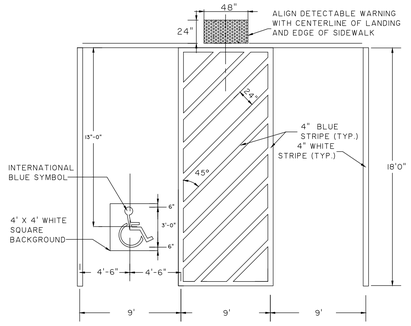


SECTION A-A

DETECTABLE WARNING DETAIL

NOTES:

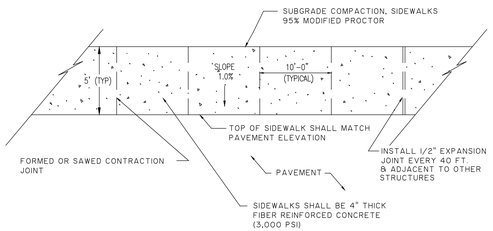
1. HANDICAP RAMP CONSTRUCTION SHALL CONFORM TO ALL FEDERAL, STATE AND GARDEN CITY CODES AND SPECIFICATIONS.
2. SURFACES SHALL MEET THE GUIDELINES OF THE ADA STANDARDS FOR ACCESSIBILITY, APPENDIX A, PART 36.
3. THE SLOPE OF THE GUTTER MUST NOT EXCEED 1:20 ADJACENT TO THE RAMP.
4. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HIEGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF CONCRETE, THE WARNING AREA SHALL BE RED BRICK IN COLOR. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF RED BRICK, THE WARNING AREA SHALL BE GREY IN COLOR. THE COLOR USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.



NOTE:
STRIPING AND CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND SPECIFICATIONS

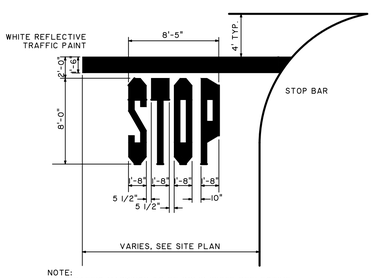
HANDICAP PARKING

NOT TO SCALE



SIDEWALK AND WALKWAY DETAILS

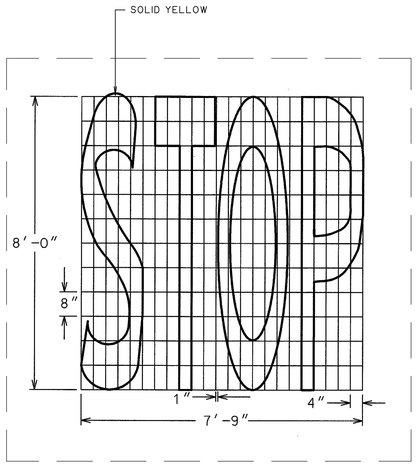
NOT TO SCALE

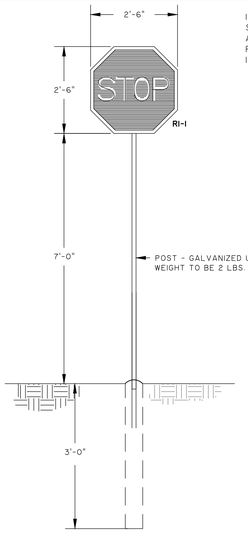


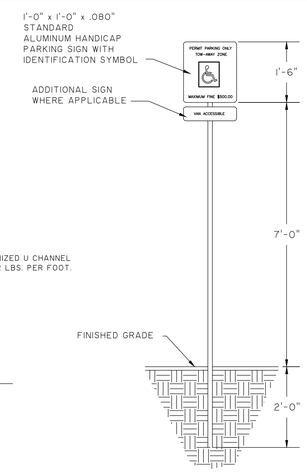
NOTE:
ALL TRAFFIC MARKINGS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE

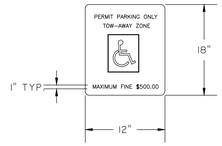
TYPICAL PAVEMENT MARKINGS

NOT TO SCALE









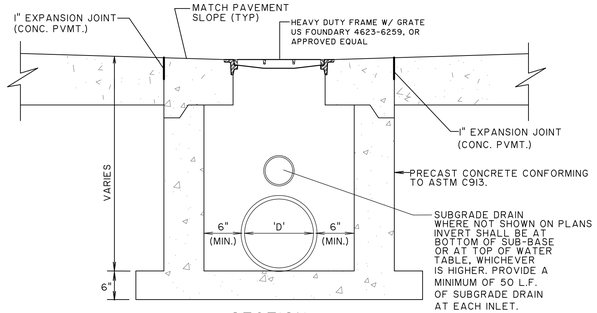


R1-1
(30)30

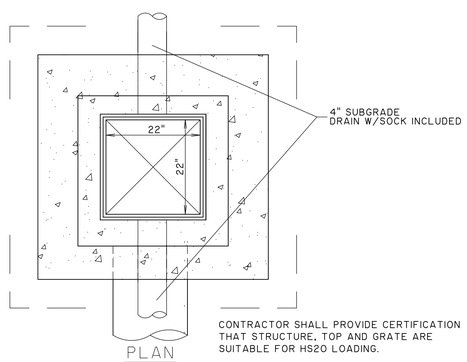
NOTE:

SIGNAGE SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND SPECIFICATIONS

NOT TO SCALE



SECTION

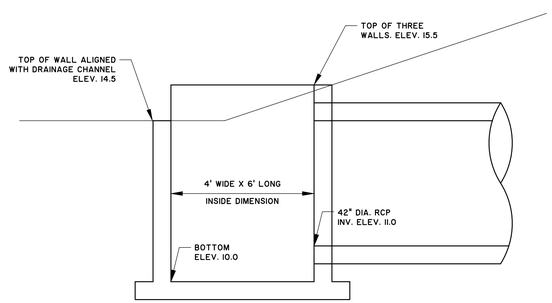


PLAN

CONTRACTOR SHALL PROVIDE CERTIFICATION THAT STRUCTURE, TOP AND GRATE ARE SUITABLE FOR HS20 LOADING.

GRATE INLET

NOT TO SCALE



CONTRACTOR SHALL PROVIDE CERTIFICATION THAT STRUCTURE IS SUITABLE FOR HS20 LOADING APPLIED IMMEDIATELY ADJACENT TO WALL.

JUNCTION BOX A AND B

NOT TO SCALE

GEORGIA REGISTERED SSS ENGINEER
No. 031172
PROFESSIONAL
08/18/2022
JASON ORME CHAMBERS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
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EXPIRATION DATE:
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Engineering | Surveying | Planning | GIS | Consulting
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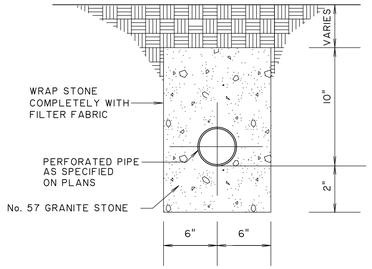
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

DETAILS

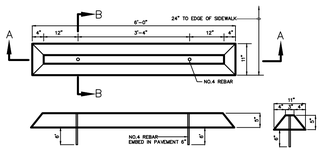
JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1'

C3.5



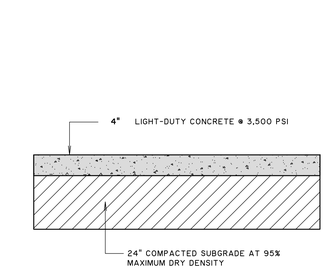
SUBGRADE DRAIN DETAIL AT NW TRUCK COURT

NOT TO SCALE



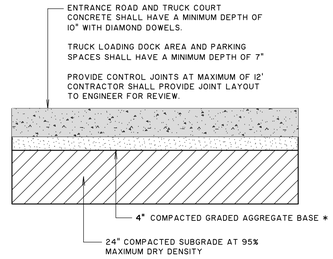
CONCRETE WHEEL STOP DETAIL

NOT TO SCALE



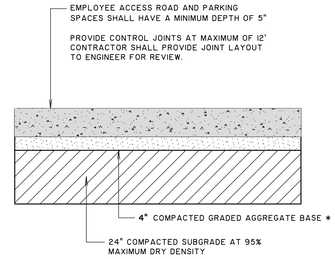
CONCRETE SIDEWALK SECTION

NOT TO SCALE - PAVEMENT RECOMMENDATION



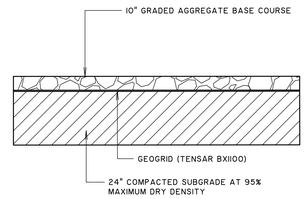
CONCRETE PAVEMENT SECTION

USE: ENTRANCE ROAD, TRUCK COURT AND DOCKING AREA
NOT TO SCALE - PAVEMENT RECOMMENDATION
PROVIDED BY TERRACON CONSULTANTS, INC.
MAY 4, 2021



CONCRETE PAVEMENT SECTION

USE: EMPLOYEE ACCESS ROAD AND PARKING AREA
NOT TO SCALE - PAVEMENT RECOMMENDATION
PROVIDED BY TERRACON CONSULTANTS, INC.
MAY 4, 2021

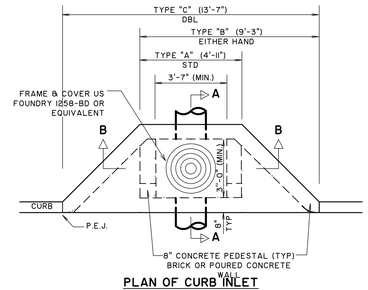


GRAVEL PAVEMENT SECTION

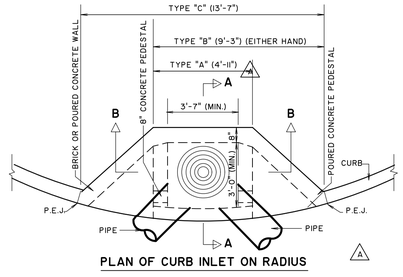
USE: FIRE ACCESS ROAD
NOT TO SCALE - PAVEMENT RECOMMENDATION

*NOTE:
CEMENT-TREATED SUBGRADE MAY REPLACE SUITABLE FILL UNDERNEATH GAB FOR ASPHALT PAVEMENT (SEE GEOTECH REPORT)

* NOTE:
IF CONCRETE PAVEMENT IS PLACED OVER CEMENT-TREATED SUBGRADE, GAB MAY BE ELIMINATED (SEE GEOTECH REPORT)

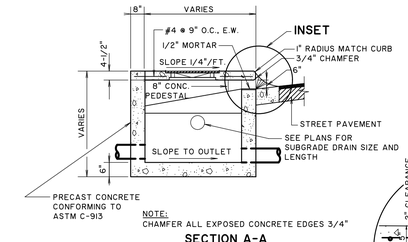


PLAN OF CURB INLET



PLAN OF CURB INLET ON RADIUS

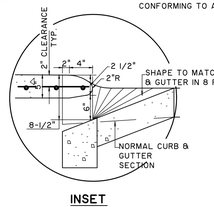
A



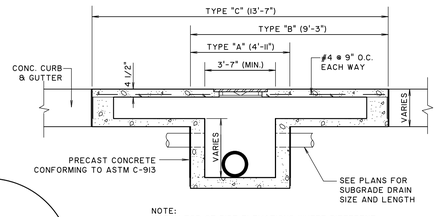
SECTION A-A

CURB INLET DETAIL

NOT TO SCALE



INSET

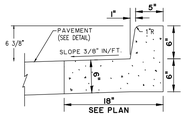


NOTE:
MATCH TOP OF PIPE ELEVATIONS WHERE DIFFERENT SIZE PIPES ARE CONSTRUCTED IN CURB INLET.

SECTION B-B



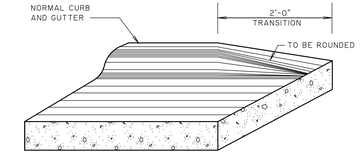
NORMAL GUTTER



PITCHED GUTTER

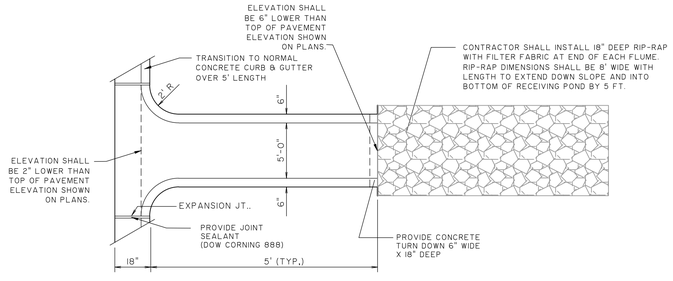
CURB AND GUTTER DETAILS

NOT TO SCALE

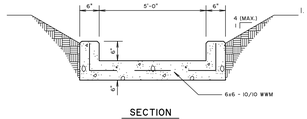


FEATHERING OF CURB AND GUTTER DETAIL

NOT TO SCALE



PLAN



SECTION

NOTES:

1. CONTRACTOR SHALL TAKE CARE TO COMPACT AREA BELOW AND WITHIN 5' OF FLUME AND CURB AND GUTTER TO 98% MAXIMUM DENSITY (MODIFIED PROCTOR). AREA WITHIN 5' OF FLUME AND CURB AND GUTTER SHALL BE BROUGHT TO FINAL GRADE AND GRASSED IMMEDIATELY AFTER INSTALLATION OF CONCRETE. AREA SHALL BE PROTECTED FROM EROSION UNTIL FULL COVERAGE OF GRASS HAS BEEN ESTABLISHED.

5' WIDE CONCRETE FLUME

NOT TO SCALE

GEORGIA REGISTERED SSF
No. 03172 PROFESSIONAL ENGINEER
08/18/2022
JASON FORME CHANCEY

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Construction Management
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 1'

C3.6

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EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCC: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

ATTACHED | YES

1. THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN THE LAND-DISTURBING ACTIVITY WAS PERMITTED. (THE COMPLETED CHECKLIST MUST BE SUBMITTED WITH THE ES&PC PLAN OR THE PLAN WILL NOT BE REVIEWED) (PERMIT IV.D.1 PG 26)

PLEASE FIND THE CURRENT STAND ALONE EROSION, SEDIMENTATION AND POLLUTION CONTROL CHECKLIST ATTACHED WITH THIS PLAN

ALL | YES

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)

PLEASE FIND ON EACH SHEET OF THIS PLAN THE GSWCC LEVEL II CERTIFICATION NUMBER, SIGNATURE AND SEAL FOR MR. JASON CHAMBLESS, PE.

EC0.1 | YES

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 CHECK LIST. (A COPY OF THE THE WRITTEN APPROVAL BY EPD MUST BE ATTACHED TO THE PLAN FOR THE PLAN TO BE REVIEWED. (PERMIT IV.D3 PG 27)

AREA OF DISTURBANCE DOES NOT EXCEED 50 ACRES.

EC0.1 | YES

4. THE NAME AND PHONE NUMBER OF 24-HOUR LOCAL CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS. (PERMIT II.B.1.c PG 12)

BRIAN WERRELL, PE
302-540-8025

EC0.1 | YES

5. PROVIDE NAME, ADDRESS, EMAIL ADDRESS AND PHONE NUMBER OF PRIMARY PERMITTEE. (PERMIT II.B.1 b PG 12)

NFI INDUSTRIES
TRIAD I828 CENTER, 2 COOPER STREET
CAMDEN, NJ 08102
BRIAN WERREL: (302)-540-8025 ; BRIAN.WERRELL@NFI INDUSTRIES.COM

EC0.1 | YES

6. NOTE TOTAL AND DISTURBED ACREAGE OF THE PROJECT OR PHASE UNDER CONSTRUCTION. (PERMIT IV.D.2 c PG 27)

TOTAL PARCEL ACREAGE IS 72.81 ACRES. DISTURBANCE FOR THIS PROJECT IS 35.5 ACRES.

EC0.1 | YES

7. PROVIDE THE GPS LOCATION OF THE CONSTRUCTION EXIT FOR THE SITE. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES. PERMIT II.B.1 a PG 12

CONSTRUCTION EXIT IS LOCATED AT:
LAT: N 32.14722 ; LONG: W 81.17250

ALL | YES

8. INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS.

PLEASE FIND THE INITIAL DATE OF THE PLAN AND ALL REVISIONS ON THE COVER SHEET AS WELL AS EACH INDIVIDUAL SHEET OF THE PLAN.

EC0.1 | YES

9. DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY. (PERMIT IV.D.2 a PG 27)

THE CONSTRUCTION ACTIVITY AT THE SITE WILL INVOLVE THE CONSTRUCTION OF A 332,500 SF AND I06,250 SF WAREHOUSE INCLUDING ASSOCIATED TRUCK COURTS AND EMPLOYEE PARKING, AND UTILITY INFRASTRUCTURE. EROSION CONTROL MEASURES, DRAINAGE INFRASTRUCTURE, AND PONDS WILL BE IMPLEMENTED TO FACILITATE DRAINAGE AND MINIMIZE EROSION. PRE-DEVELOPED SITE CONDITIONS CONSIST OF WOODED UPLANDS AND WETLANDS.

COVER | YES

10. PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY. (PERMIT IV.D.2 e PG 27)

PLEASE FIND THE VICINITY MAP LOCATED ON THE COVER SHEET OF THE PLANS

EC0.1,0.3 | YES

11. IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, MARSHLANDS, ETC. WHICH MAY BE AFFECTED. (PERMIT IV.D.2.f PG 27)

THE RECEIVING WATERS FOR THE PROJECT ARE PIPES AND DITCHES THAT ARE TRIBUTARY TO WETLANDS ALONG ST. AUGUSTINE CREEK WHICH ULTIMATELY OUTFALLS TO THE SAVANNAH RIVER.

EC0.1 | YES

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 19 OF THE PERMIT.

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR AUTHORIZED AGENT UNDER MY SUPERVISION.

JASON CHAMBLESS, PE
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000055539
EXPIRATION DATE: 9/12/2023

EC0.1 | YES

13. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMP'S AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON PART IV PAGE 19 OF THE PERMIT.

I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION & 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 I0000I.

JASON CHAMBLESS, PE
GSWCC LEVEL II DESIGN PROFESSIONAL
CERTIFICATION #0000055539
EXPIRATION DATE: 9/12/2023

EC0.1 | YES

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 BMP'S WITHIN 7 DAYS AFTER INSTALLATION, IN ACCORDANCE WITH PART IV.A.5 PAGE 25 OF THE PERMIT.

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN 7 DAYS AFTER INSTALLATION.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION

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.

DATE OF INSPECTION: _____

I CERTIFY THE SITE WAS _____ WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

_____ _____
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN

_____
_____
_____
_____

THESE DEFICIENCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.

EC0.1 | YES

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." (PART IV.(i)-(iv) PG I9-24 OF THE PERMIT).

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.

N/A

16. PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED.

THERE WILL BE NO BUFFER ENCROACHMENTS AS PART OF THE PROJECT THUS A BUFFER VARIANCE IS NOT REQUIRED.

EC0.1 | YES

17. CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.", (PART IV.C PG 26 OF PERMIT).

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

EC0.1 | YES

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. (PERMIT IV.D.3.c(I) PG 30).

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

EC0.1 | YES

19. CLEARLY NOTE THE 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."

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.

EC0.1 | YES

20. CLEARLY NOTE THE 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."

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.

EC0.1 | YES

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." (PERMIT IV.D.3.a.(I) PG 28).

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

N/A

22. 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 BMP'S THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT. (PART III.C.2.A - V. PG 19-21)

THE SITE IS LOCATED MORE THAN 1 LINEAR MILE UPSTREAM OF THE NEAREST IMPAIRED STREAM SEGMENT.

N/A

23. IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 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. (PERMIT III.C.1 PG 15)

THE SITE IS LOCATED MORE THAN 1 LINEAR MILE UPSTREAM OF THE NEAREST IMPAIRED STREAM SEGMENT.

NA

24. BMP'S 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, (PERMIT IV.D.3.c(6) PG 31).

CONCRETE WASHOUT AREA WILL NOT BE REQUIRED DURING THIS STAGE OF CONSTRUCTION

EC0.1 | YES

25. PROVIDE BMP'S FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS, (PERMIT IV.D.3.c.(5) PG 31).

PETROLEUM BASED PRODUCTS- CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE FOR SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/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. HAVE EQUIPMENT TO CONTAIN AND CLEAN UP PETROLEUM SPILLS IN FUEL STORAGE AREAS OR ON MAINTENANCE AND FUELING VEHICLES. STORE IN COVERED AREAS PROTECTED WITH DIKES. REGULARLY INSPECT FOR CRACKS OR LEAKAGE IN CONTAINERS/TANKS.

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 INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST, AND PROPERLY LABELED PLASTIC AND MEAL WASTE CONTAINERS.**
- **SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.**
- **FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.**
- **FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS**
- **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 (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

EC0.1 | YES

26. 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. (PERMIT IV.D.3.b PG 29).

THE MAIN PERMANENT EROSION CONTROL PRACTICE AT THE POND DISCHARGES IS RIP-RAP. THE PONDS INCLUDE DISCHARGE POINTS TO HELP SPREAD THE FLOW OVER A LARGE AREA AND TO DECREASE VELOCITIES. PERMANENT GRASSING AND LANDSCAPING WILL BE INSTALLED TO PROTECT EARTHEN AREAS FROM EROSION ONCE CONSTRUCTION IS COMPLETE.

EC0.1 | YES

27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE, (PERMIT IV.D.3.c.(2) PG 30).

THE CONTRACTOR IS TO PROVIDE COVER FOR: BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS THAT ARE STORED ON SITE BY USING PLASTIC SHEETING AS COVER AND PROTECTION FROM PRECIPITATION. THE ABOVE PRODUCTS WILL BE STORED IN A LOCATION THAT WOULD MINIMIZE EXPOSURE TO PRECIPITATION AND TO STORMWATER.

EC0.1 | YES

28. DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES. (PERMIT IV PG 24)

POLLUTANT PREVENTION

THE FOLLOWING MATERIALS ARE EXPECTED ONSITE DURING CONSTRUCTION: PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, ADDITIVES FOR SOIL STABILIZATION, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, CONCRETE PRODUCTS, ASPHALT, TAR, LUMBER, PAINTS/STAINS/FINISHING TREATMENTS, PAINT SOLVENTS, CLEANING SOLVENTS, PLASTICS AND METAL PIPES.

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISK OF SPILLS FROM DISCHARGING INTO STORM WATER RUNOFF.

GOOD HOUSEKEEPING

- **QUANTITIES ONSITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.**
- **PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE.**
- **PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER'S LABELS LEGIBLE AND VISIBLE.**
- **PRODUCT MIXING, DISPOSAL, AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.**
- **THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE AND DISPOSAL.**

PRODUCT SPECIFIC PRACTICES

FERTILIZER/HERBICIDES/PESTICIDES/DETERGENTS- THESE 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 SEDIMENTATION CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS. DO NOT DISCHARGE WASH WATER INTO STORM WATER SYSTEM. INSTALL CURBS OR DIKES AROUND STORAGE AREA TO PROTECT AGAINST SPILLS. LIMIT USE OF DETERGENTS ON-SITE.

PAINTS/FINISHES/SOLVENTS- ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING- CONCRETE WASHOUT SHALL OCCUR ONLY IN THE WASH PAD VICINITY DELINEATED IN THE PLANS.

BUILDING MATERIALS- NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

GEORGIA REGISTERED SS3 JASON ORME CHAMBLESS No. 0337I PROFESSIONAL ENGINEER 08/18/2022

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.1

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EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCD: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

ECO.2 | YES

29. 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 BMP'S, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION). (PERMIT IV.D.2b PG 27)

A SPECIFIED WORK SCHEDULE IS NEEDED TO COORDINATE THE TIMING OF LAND DISTURBING ACTIVITIES WITH THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES.

THE PURPOSE OF THE SCHEDULE IS TO REDUCE ON-SITE EROSION AND OFF-SITE SEDIMENTATION BY PERFORMING LAND DISTURBING ACTIVITIES AND INSTALLING EROSION AND SEDIMENTATION CONTROL PRACTICES IN ACCORDANCE WITH A PLANNED SCHEDULE.

IN PLANNING CONSTRUCTION WORK, IT MAY BE HELPFUL TO OUTLINE ALL LAND DISTURBING ACTIVITIES NECESSARY TO COMPLETE THE PROPOSED PROJECT. THEN LIST ALL PRACTICES NEEDED TO CONTROL EROSION AND SEDIMENTATION ON THE SITE. THESE TWO LISTS CAN THEN BE COMBINED IN LOGICAL ORDER TO PROVIDE A PRACTICAL AND EFFECTIVE CONSTRUCTION SEQUENCE SCHEDULE THAT BECOMES PART OF THE EROSION AND SEDIMENTATION CONTROL PLAN.

CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
1. OBTAIN ALL PLAN APPROVALS AND OTHER APPLICABLE PERMITS.	
2. FLAG THE WORK LIMITS AND MARK THE TREES AND BUFFER AREAS FOR PROTECTION.	
3. HOLD PRE CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.	
4. CONSTRUCTION ACCESS - CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES, EQUIPMENT PARKING AREAS.	FIRST LAND DISTURBING ACTIVITY - STABILIZE BARE AREAS IMMEDIATELY WITH GRAVEL AND TEMPORARY VEGETATION AS CONSTRUCTION TAKES PLACE.
5. SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SEDIMENT FENCES, AND OUTLET PROTECTION.	INSTALL PRINCIPAL BASINS AFTER CONSTRUCTION SITE IS ACCESSED. INSTALL ADDITIONAL TRAPS AND BARRIERS AS NEEDED DURING GRADING.
6. RUNOFF CONTROL - DIVERSIONS, PERIMETER DIKES, WATER BARS, AND OUTLET PROTECTION.	INSTALL KEY PRACTICES AFTER PRINCIPAL SEDIMENT TRAPS AND BEFORE LAND GRADING. INSTALL ADDITIONAL RUNOFF-CONTROL MEASURES DURING GRADING.
7. RUNOFF CONVEYANCE SYSTEM- STABILIZE STREAM BANKS, STORM DRAINS, CHANNELS, INLET AND OUTLET PROTECTION, SLOPE DRAINS.	WHERE NECESSARY, STABILIZE STREAM BANKS AS EARLY AS POSSIBLE. INSTALL PRINCIPAL RUNOFF CONVEYANCE SYSTEM WITH RUNOFF-CONTROL MEASURES. INSTALL REMAINDER OF SYSTEM AFTER GRADING.
8. LAND CLEARING AND GRADING - SITE PREPARATION CUTTING, FILLING AND GRADING, SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS,SURFACE ROUGHENING.	BEGIN MAJOR CLEARING AND GRADING AFTER PRINCIPAL SEDIMENT AND KEY RUNOFF - CONTROL MEASURES ARE INSTALLED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES. MARK TREES AND BUFFER AREAS FOR PRESERVATION.
9. SURFACE STABILIZATION - TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIPRAP.	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
10. BUILDING CONSTRUCTION- BUILDINGS UTILITIES, PAVING.	INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROL PRACTICES AS WORK TAKES PLACE.
11. LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING RIPRAP.	LAST CONSTRUCTION PHASE--STABILIZE ALL OPEN AREAS, INCLUDING BORROW AND SPOIL AREAS. REMOVE AND STABILIZE ALL TEMPORARY CONTROL MEASURES.

CONSTRUCTION SCHEDULE

ACTIVITY	MONTH 1					MONTH 12
PERIMETER BMPS	■					
TEMPORARY SEDIMENT CONTROL BMPS	■	■				
SITE CLEARING	■	■				
SITE GRADING		■	■	■	■	
TEMPORARY GRASSING		■	■	■		
PERMANENT GRASSING					■	■
FINAL STABILIZATION/ BMP REMOVAL						■
BMP MAINTENANCE	■	■	■	■	■	

ECO.2 | YES

30. PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITEE, (PERMIT IV.D.4.a PG 31-33).

INSPECTIONS AND RECORD KEEPING

A. PRIMARY PERMITTEE:

I. 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 OF THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT. (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.

2. MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE 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.

3. CERTIFIED PERSONAL (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 OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY 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): (a) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE. (b) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION. AND (c) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY 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.a.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

4. CERTIFIED PERSONNEL (PROVIDED BY PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.e. UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE 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).

5. 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.

6. 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). 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 PROJECT 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 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.

AN "EROSION & SEDIMENTATION INSPECTION AND MAINTENANCE REPORT" SHEET IS ATTACHED. SHOULD THE INSPECTION REVEAL ANY DEFICIENCIES, A COPY SHALL BE SENT TO:

JASON CHAMBLESS
THOMAS & HUTTON
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405
912.721.4170

ECO.2 | YES

31. PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS. (PART IV.D.6.d PG 35-37 & PART IV.E PG 37)

RT IV.D.6.d PG 35-37 & PART IV.E PG 37)

SAMPLING REQUIREMENTS. THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS PARAGRAPH SHALL NOT APPLY TO ANY LAND DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF SINGLE-FAMILY HOMES WHICH ARE NOT PART OF A SUBDIVISION OR PLANNED COMMON DEVELOPMENT UNLESS FIVE (5) ACRES OR MORE WILL BE DISTURBED. 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 STAND ALONE CONSTRUCTION; (a) THE LOCATION OF ALL 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. WHEN 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 FOR 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) A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE 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 SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN 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 MAY BE 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 THE PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E. OF THE PERMIT.

c. SAMPLING POINTS: THERE WILL BE 2 STORM WATER SAMPLING LOCATIONS. THE SAMPLING LOCATION WILL BE THE DOWNSTREAM POINTS, PER NPDES PERMIT GAR 100001, FOR CONSTRUCTION ACTIVITIES, THE PRIMARY PERMITTEE MUST COMPLETE ALL SAMPLING.

I. FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE 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 OUTFALL(S) 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 STORM WATER 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 STORM WATER OUTFALL CHANNELS(S).

D. CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER 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 SHEETFLOW 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 STRUCTURES AND 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).

A. ALL SAMPLING PURSUANT TO THIS PERMIT 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 II.D.3. OR II.D.4., WHICHEVER IS APPLICABLE.

d. SAMPLING FREQUENCY

I. THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER 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 STORM WATER 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 CLEARING AND GRUBBING 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 STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THE 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 LOCATIONS, 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) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.a.(6), 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 HAVE 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.

REPORTING

I. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING 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 STORM WATER 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 REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

2. ALL SAMPLING REPORT 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 NAMES(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;

GEORGIA REGISTERED SSS PROFESSIONAL NO. 03172 SOILS JASON CHAMBLESS
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.2

Z:\26XXX\26327.0010\Engineering\Drawings\Construction Plans\26327.0010 Erosion Control Notes.dwg - Mar 25, 2022 - 3:38:06 PM

EROSION,SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST - STAND ALONE CONSTRUCTION PROJECTS

SWCD: COASTAL
PROJECT NAME: NFI BUILDINGS A & B SITE DEVELOPMENT
CITY/COUNTY: PORT WENTWORTH/CHATHAM

ADDRESS: CROSSGATE ROAD
DATE ON PLANS: 08/13/21
REVISED DATE:

h. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND

i. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.

3. 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 PERMITTEE 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.

EPD OFFICE:
COASTAL DISTRICT - BRUNSWICK OFFICE
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
400 COMMERCE CENTER DRIVE
BRUNSWICK, GA 31523-8687
912-264-7284

ECO.3 | YES — 32. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. PG 38 OF THE PERMIT.

RETENTION OF RECORDS

I. 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 NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI.

- COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD.
- A COPY OF THE ES&PC PLAN REQUIRED IN PERMIT No. GAR 100001.
- THE DESIGN PROFESSIONALS REPORT OF THE THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5 IN PERMIT No. GAR 100001.
- A COPY OF ALL SAMPLING INFORMATION , RESULTS, AND REPORTS REQUIRED BY IN PERMIT No. GAR 100001.
- A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.a OF PERMIT No. GAR 100001.
- A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2 IN PERMIT No. GAR 100001.
- DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.a.(2). IN PERMIT No. GAR 100001.

2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND 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 NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI OF THE GAR100001. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION 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.

ECO.3 | YES — 33. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION. (PERMIT IV.D.6.a.(3) PG 33-35)

STORM WATER SAMPLES ARE TO BE ANALYZED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 AND THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT EPA 833-B-92-001.

ECO.3 | YES — 34. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE. (PERMIT IV.D.6.a.(3) PG 33)

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATIONS. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 50, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT No. GAR 100001. THE NTU IS BASED UPON THE DISTURBED ACREAGE OF 35.5 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA OF LESS THAN 4.99 SQUARE MILES AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES. APPENDIX B WAS USED TO DETERMINE THE NTU ALLOWABLE AND DOWNSTREAM SAMPLING WILL BE PERFORMED FOR THIS PROJECT.

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

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

ECO.3 | YES — 35. DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED. (PERMIT IV.D.6.a.(3) PG 33)

PLEASE SEE PLAN SHEETS FOR DELINEATION OF SAMPLING LOCATIONS, PERENNIAL, INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED.

ECO.3 | YES — 36. A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S, (2) INTERMEDIATE GRADING AND DRAINAGE BMP'S, AND (3) FINAL BMP'S. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMP'S, INTERMEDIATE GRADING AND DRAINAGE BMP'S, AND FINAL BMP'S ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMP'S INTO A SINGLE PHASE. (PERMIT IV.D.3 PG 27)

INITIAL PHASE - THE INITIAL PHASE OF THE ES&PC PLAN WILL INCLUDE THE INSTALLATION OF THE CONSTRUCTION EXIT AND SILT FENCE. TYPE NS & S SILT FENCE WILL BE USED. STORM PONDS AND DITCHES WILL BE CONSTRUCTED AND MAINTAINED DURING SITE CLEARING. STORM DRAIN OUTLET PROTECTION WILL BE INSTALLED AND MAINTAINED AT DISCHARGE LOCATIONS. DUST CONTROL AND MULCHING WILL BE IMPLEMENTED AS NECESSARY TO PROVIDE INITIAL SEDIMENT STORAGE.
INTERMEDIATE PHASE - THE INTERMEDIATE GRADING AND DRAINAGE BMP'S WILL INCLUDE THE MAINTENANCE OF ALL SILT FENCE. STORM DRAIN OUTLET PROTECTION WILL BE INSTALLED AND MAINTAINED AT DISCHARGE LOCATIONS. DUST CONTROL, MULCHING, AND TEMPORARY SEEDING WILL BE IMPLEMENTED AS NECESSARY.

FINAL PHASE - THE FINAL GRADING AND DRAINAGE BMP'S WILL INCLUDE THE MAINTENANCE OF ALL SILT FENCE. STORM DRAIN OUTLET PROTECTION WILL BE MAINTAINED AT DISCHARGE LOCATIONS. PERMANENT SEEDING WILL BE IMPLEMENTED FOR SITE STABILIZATION. ONCE THE SITE IS STABILIZED, ALL TEMPORARY BMPS ARE TO BE REMOVED.

ALL | YES — 37. GRAPHIC SCALE AND NORTH ARROW.

GRAPHIC SCALE AND NORTH ARROW ARE LOCATED ON EACH PLAN SHEET.

ECLI-L3 | YES — 38. EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE FOLLOWING:

EXISTING AND PROPOSED CONTOUR LINES DRAWN AT AN INTERVAL OF 1' ARE SHOWN ON EACH PLAN SHEET.

N/A | — 39. USE OF ALTERNATIVE BMP'S WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMP'S AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT www.gaswcc.org. (PERMIT IV.D.3.a(4) PG 29)

NOT APPLICABLE FOR THIS PROJECT.

N/A | — 40. 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.

NOT APPLICABLE FOR THIS PROJECT.

N/A | — 41. 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. (PERMIT IV.D.2.e PG 27)

THERE ARE NO BUFFERS ASSOCIATED WITH THIS PROJECT.

ECO.3 | YES — 42. DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE.

THE WETLANDS ARE DELINEATED ON THE PLANS.

ALL | YES — 43. DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE. (PERMIT IV.D.2.e PG 27)

ALL CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE ARE CLEARLY DELINEATED IN AN EXHIBIT AS PART OF THE ATTACHED STORM WATER REPORT.

ATTACHED | YES — 44. PROVIDE HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH PRE- AND POST-DEVELOPMENT CONDITIONS.

PLEASE SEE ATTACHED REPORT WITH DETAILS FOR PRE AND POST DEVELOPMENT HYDROLOGY..

ECO.3 | YES — 45. AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. (PERMIT IV.D.2.d PG 27)

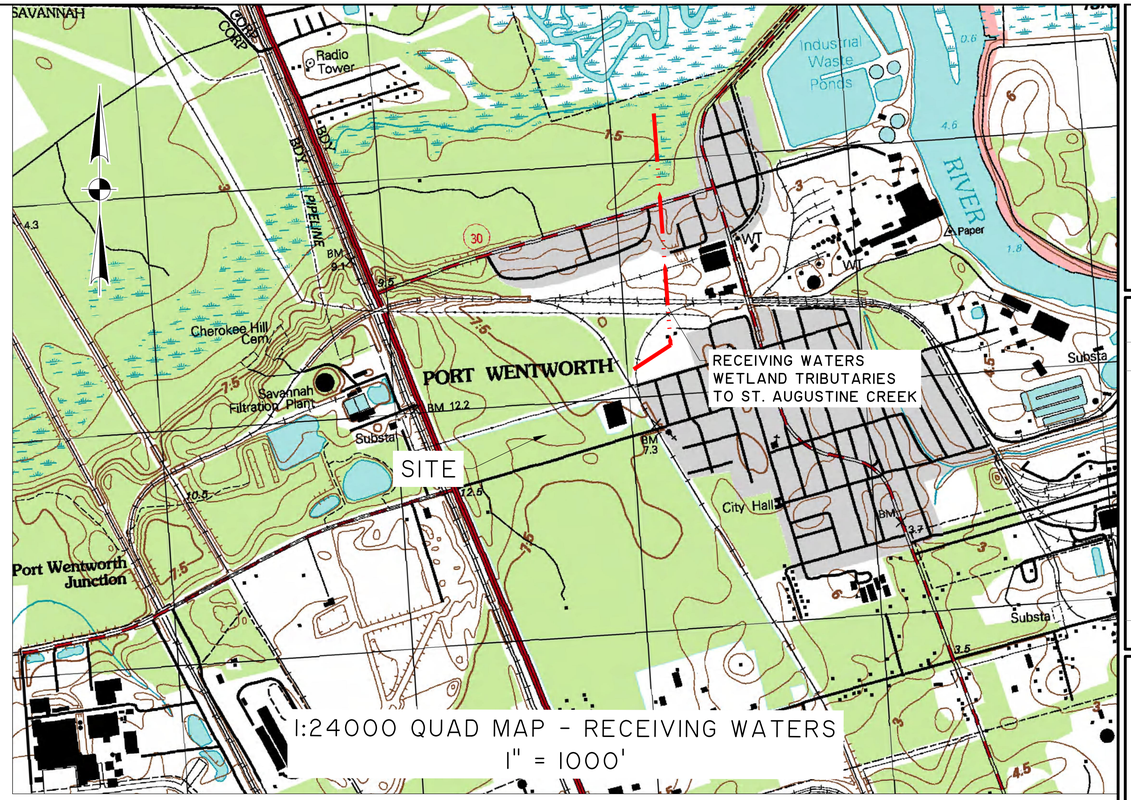
RUNOFF COEFFICIENT: PRE-CONSTRUCTION CN = 80
POST-CONSTRUCTION CN = 86

ECLI-L3 | YES — 46. STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS.

THE RIP-RAP CHARTS CONTAIN THE STORMWATER VELOCITIES. THE STORMWATER DISCHARGE POINTS ARE INDICATED ON THE PLANS.

ECO.3 | YES — 47. SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION.

SOILS ARE DELINEATED ON THE EROSION CONTROL SHEETS. THE SOILS FOR THE SITE ARE Lp - Lakeland sand (A), Ok - OGEECHEE LOAMY FINE SAND (B/D), Okc Ogeechee-Urban land complex (B/D), Pn - Pooler fine sandy loam (C/D), As - Albany fine sand (A/D).



1:24000 QUAD MAP - RECEIVING WATERS
1" = 1000'

ECLI-L3 | YES — 48. THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.

PLEASE SEE THE PLAN FOR THE DELINEATION OF THE LIMITS OF DISTURBANCE. THEY ARE THE SAME FOR ALL PHASES OF CONSTRUCTION.

ECO.3 | YES — 49. 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 STORAGE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITEES 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. (PERMIT IV.D.3.a.(3) PG 28)

AN RT-B WAS SELECTED AS THE DEWATERING STRUCTURE FOR THIS PROJECT. WHILE WE DO AGREE THAT AN RT-B DOES NOT ONLY DEWATER FROM THE TOP BUT IN THIS INSTANCE, WE BELIEVE IT IS THE BEST OPTION TO KEEP SEDIMENT FROM ESCAPING THE POND. THE USE OF SKIMMER MORE OFTEN THAN NOT RESULTS IN CLOGGING OR SEDIMENT LEAVING THE SITE THROUGH THE SPILLWAY. THE RT-B ALLOWS FOR A MORE SUSTAINED DEWATERING.

SEDIMENT STORAGE - THE PERMIT REQUIRES A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED.

THE SEDIMENT STORAGE REQUIREMENT WILL BE ACHIEVED BY UTILIZING THE NEW STORM POND.
SEDIMENT STORAGE REQUIRED
ACREAGE = 35.5
REQUIRED ON SITE SEDIMENT STORAGE = 35.5 AC X 67 CY/AC = 2,378 CY
POND #1:
TOTAL AREA: 145,992 SF (AT BOTTOM - ELEV. 10.0), 162,052 SF (9' ABOVE BOTTOM - ELEV. 19.0)
(½(145,992 + 162,052) * 0.5 FT)/27 = 51,340 CY

51,340 CY EXCEEDS THE REQUIRED 2,378 CY

ECLI-L3 | YES — 50. 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.

PLEASE SEE THE PLAN SHEETS FOR THE LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA USING THE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6 WITH ACCOMPANYING LEGEND.

EC2.I-2.3 | YES — 51. 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.

PLEASE SEE THE DETAIL SHEET FOR DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES WITH SPECIFICATIONS MEETING THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

EC2.I-2.3 | YES — 52. 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 APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

PLEASE SEE THE PLAN AND DETAIL SHEETS FOR THE VEGETATIVE PLAN NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES INCLUDING SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. THIS PLAN IS SPECIFIC TO THE SITE AND APPROPRIATE FOR TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

EFFECTIVE JANUARY 1, 2021

GEORGIA REGISTERED ENGINEER No. 033172 PROFESSIONAL 08/18/2022 JASON ORME CHATHAM

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL NOTES

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	N.T.S.

EC0.3

Z:\26\0\26327.0010\Engineering\Drawings\Construction Plans\26327.0010 Erosion Control Notes.dwg - Mar 25, 2022 - 3:38:06 PM

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.2

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN FOUNDATION LEAD

END OF CASING PIPE
TOP ELV: 23.38
N: 783201.52
E: 963508.54

Sd1-NS

CAUTION!! TEN BURIED POWER CABLES

GEORGIA POWER PAD MOUNTED TRANSFORMER

CAUTION!! UNDERGROUND POWER TO PUMP STATION

Sd1-S

Sd1-NS

Sd1-NS

CAUTION!! 48" CITY OF SAVANNAH I&D WATERMAIN

EXISTING 24" STEEL CASING PIPE INSTALLED BY DIRECTIONAL DRILLING. 2" WATERMAIN HAS BEEN INSTALLED WITHIN CASING.

EXISTING VAULT WITH 48" BUTTERFLY VALVE

Du
Ds1
Ds2

END OF CASING PIPE
TOP ELV: 25.24
N: 782825.47
E: 963718.33

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

BUILDING A
106,250 SF
FF ELEV. 32.0

Sd1-NS

Sd1-NS

Co
LAT: N032° 08' 50"
LONG: W081° 10' 21"
or
LAT: N32.14722
LONG: W81.17250

JIMMY DELOACH PARKWAY

CROSSGATE ROAD

NORITAKE WHSE
NPRH, INC.
7-0035-01-0

NORFOLK SOUTHERN

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING ONLY)	DS1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	DS2
DISTURBED AREA STABILIZATION (PERMANENT SODDING)	DS3
DUST CONTROL	DU
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SB	SF
STORM DRAIN OUTLET PROTECTION	SO
SEDIMENT BASIN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT (CE).
2. INSTALL PERIMETER SILT FENCE (SxT-NS).
3. INSTALL SILT FENCE (SxT-S) AS SHOWN (SxS).
4. INSTALL SILT FENCE (SxT-A).
5. PROVIDE DUST CONTROL (DU) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (DS3) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT.

Soils
Ca Leeland sand - Hydrologic Soil Group C
Ja Albany fine sand - Hydrologic Soil Group B/D
Jo Albany fine sand - Hydrologic Soil Group A/D
Or Otualco fine sand - Hydrologic Soil Group C
Oo Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC0.1 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC2.1 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND BEDDING SCHEDULE.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SOIL & WATER CONSERVATION PROFESSIONAL
JASON LORNE CHANEY
No. 03172
PROFESSIONAL
09/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INITIAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.1

Z:\J26327\26327.0010\DWG\PDWG\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010_SITE DEVELOPMENT ESPC PLAN - INITIAL.DWG - Aug 16, 2022 - 10:43 AM

GEORGIA POWER SUBSTATION
7-0035-01-006

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.2

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

CAUTION!! TEN BURIED POWER CABLES

END OF CASING PIPE
TOP ELEV: 23.38
N: 783201.52
E: 963508.54

WETLANDS "STATE WATERS"

"TWO 18" RCPs"
E 19.62'
E 19.37'

"TWO 18" RCPs"
E 19.42'
E 19.39'

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN FOUNDATION LEAD

NORFOLK SOUTHERN

Sd1-NS

Sd1-S

Du
Ds1
Ds2

As
Ok
Oc
Oj
Ol

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BELOW SILT)	Ds1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	Ds2
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	Ds3
DUST CONTROL	Du
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SR	SFSR
STORM DRAIN OUTLET PROTECTION	SP
SEDIMENT BARR	SDB

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT
2. INSTALL PERIMETER SILT FENCE (Sd1-NS).
3. INSTALL SEDIMENT POND AS SHOWN (SW).
4. INSTALL SILT FENCE (Sd1-S).
5. INSTALL TEMPORARY SEEDING (Ds2) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds3) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS:
Ok - Okeetland sand - Hydrologic Soil Group A
Oc - Ogeechee loamy fine sand - Hydrologic Soil Group B/D
As - Albany fine sand - Hydrologic Soil Group A/D
Oj - Ocilla loamy fine sand - Hydrologic Soil Group B/D
Ol - Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTES:
1. SEE SHEET EC0.2 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC2.1 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GEORGIA REGISTERED SSS PROFESSIONAL ENGINEER JASON ORME CHANCEY No. 033172 09/18/2022

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

NO.	REVISIONS	BY	DATE
---	---	---	---

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INITIAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.2

Z:\26327\26327.0000\ENGINEERING\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0000 SITE DEVELOPMENT ESPC PLAN - INTERMEDIATE.DWG - Aug 16, 2022 - 10:07 AM

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.4

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

END OF CASING PIPE
TOP ELV: 23.38
N: 783201.52
E: 963508.54

CAUTION!! TEN BURIED POWER CABLES

GEORGIA POWER PAD MOUNTED TRANSFORMER

CAUTION!! UNDERGROUND POWER TO PUMP STATION

CAUTION!! 48" CITY OF SAVANNAH I&D WATERMAIN

EXISTING 24" STEEL CASING PIPE INSTALLED BY DIRECTIONAL DRILLING. 2" WATERMAIN HAS BEEN INSTALLED WITHIN CASING.

EXISTING VAULT WITH 48" BUTTERFLY VALVE

END OF CASING PIPE
TOP ELV: 25.24
N: 782825.47
E: 963718.33

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

BUILDING A
96,250 SF
FF ELEV. 32.0

Du
Ds1
Ds2

Sd1-NS

Sd1-S
DOUBLE ROW

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN FOUNDATION LEAD

NORFOLK SOUTHERN

NORITAKE WHSE
NPRH, INC.
7-0035-01-0

JIMMY DELOACH PARKWAY

CROSSGATE ROAD

Co
LAT: N032° 08' 50"
LONG: W081° 10' 21"
or
LAT: N32.14722
LONG: W81.17250

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING SILT)	DA1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	DA2
DISTURBED AREA STABILIZATION (PERMANENT SEEDING)	DA3
DUST CONTROL	DC
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SS	SF
STORM DRAIN OUTLET PROTECTION	SO
SEDIMENT BASIN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT (CE).
2. INSTALL PERIMETER SILT FENCE (Sd1-NS).
3. INSTALL SILT FENCE (Sd1-S) AS SHOWN (SM).
4. INSTALL SILT FENCE (Sd1-S).
5. PROVIDE DUST CONTROL (Du) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds2) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT.

Soils
- Ca Lakeland sand - Hydrologic Soil Group A
- Lp Leefield loamy sand - Hydrologic Soil Group B/D
- Aa Albany fine sand - Hydrologic Soil Group A/D
- Ok Okatee fine sand - Hydrologic Soil Group C
- Opc Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
- EXISTING CONTOUR
- PROPOSED CONTOUR
- LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC0.1 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC0.1 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEDIMS SCHEDULE.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSS JASON ORME CHANEY No. 033172 PROFESSIONAL ENGINEER 09/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
1	CHANGED SIZE OF BUILDING A AND GRADING	SSF	8/15/22

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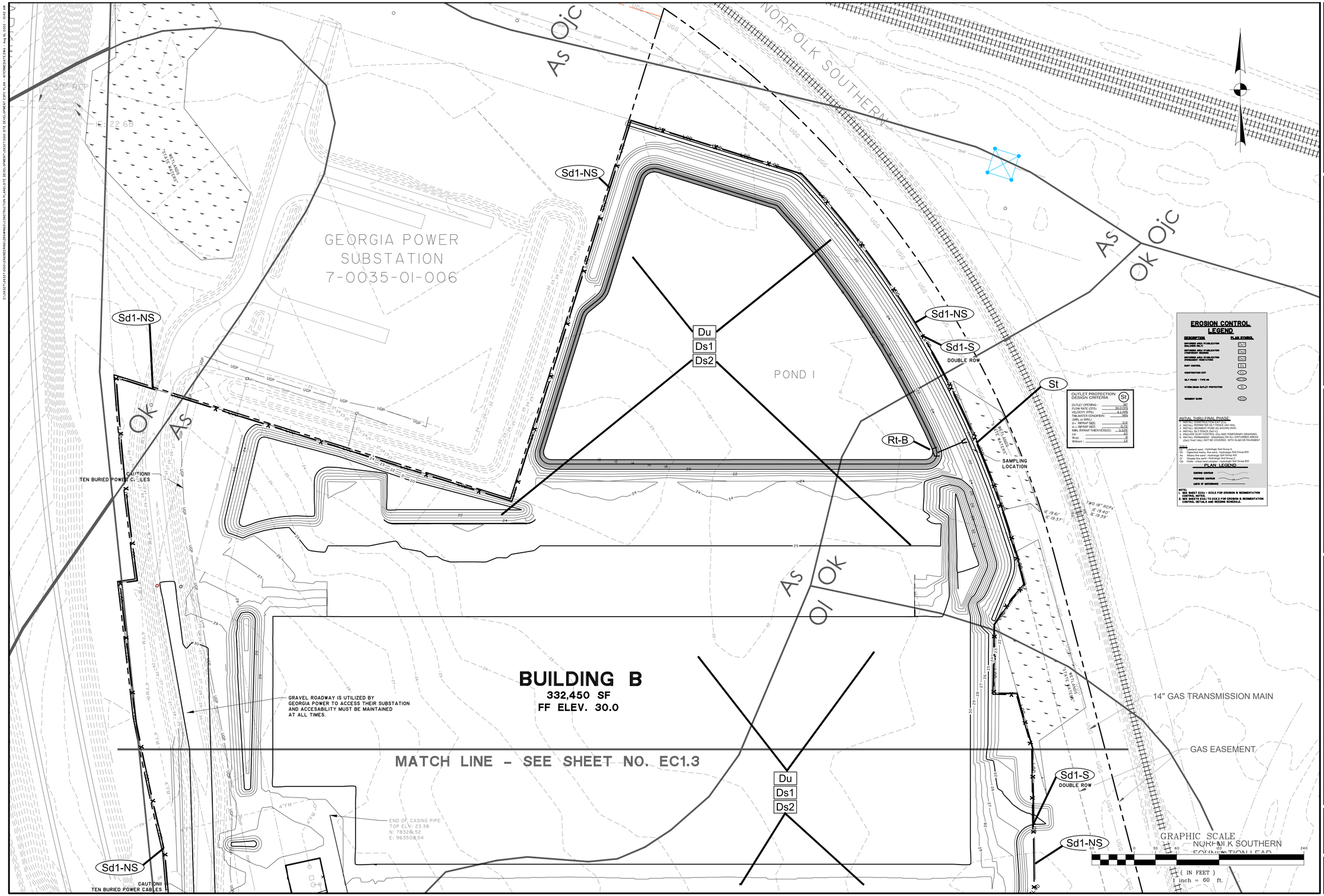
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INTERMEDIATE ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.3



EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING SLAB)	Du
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	Ds1
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	Ds2
DUST CONTROL	Dc
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE HS	SF(HS)
STORM DRAIN OUTLET PROTECTION	St
SEDIMENT BARN	SB

INITIAL THRU FINAL PHASE:

1. INSTALL CONSTRUCTION EXIT (CE).
2. INSTALL PERIMETER SILT FENCE (SF(HS)).
3. INSTALL SEDIMENT POND AS SHOWN (SB).
4. INSTALL SILT FENCE (SF(HS)).
5. PROVIDE DUST CONTROL (Dc) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds2) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS:
- Ob – Bibb and sand - Hydrologic Soil Group A
- Ok – Okeetee loamy fine sand - Hydrologic Soil Group B/D
- As – Albany fine sand - Hydrologic Soil Group A/D
- Oi – Ousley fine sand - Hydrologic Soil Group C
- Ok – Ocilla - Loamy fine sand - Hydrologic Soil Group B/D

PLAN LEGEND

EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC0.2 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEET EC1.2 - EC1.3 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

OUTLET PROTECTION DESIGN CRITERIA (St)

OUTLET OPENING :	36"
FLOW RATE (CFS):	30.0 CFS
VELOCITY (FPS):	4.3 FPS
TAILWATER CONDITION:	MIN
(MIN, or MAX.)	
d= RIPRAP SIZE:	0.5'
d$_{50}$ RIPRAP SIZE:	0.75'
MIN. RIPRAP THICKNESS(D):	1.125'
L=	42'
W@I:	12'
W@exit:	18'

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

GEORGIA REGISTERED No. 031172 PROFESSIONAL ENGINEER JASON ORME CHAMBERS 09/18/2022

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

INTERMEDIATE ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.4

21-26327-26327-00\CIVIL\ENGR\DRAWINGS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327-0000 SITE DEVELOPMENT ESPC PLAN - FINAL.DWG - Aug 16, 2022 - 10:43 AM

BUILDING B
332,450 SF
FF ELEV. 30.0

MATCH LINE - SEE SHEET NO. EC1.6

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

END OF CASING PIPE
TOP ELV: 23.38
N: 783204.52
E: 963508.54

CAUTION!! TEN BURIED POWER CABLES

GEORGIA POWE
PAD MOUNTE
TRANSFORME

CAUTION!! UNDERGROUND POWER TO PUMP STATION

CAUTION!! 48" CITY OF SAVANNAH I&D WATERMAIN

EXISTING VAULT WITH 48" BUTTERFLY VALVE

END OF CASING PIPE
TOP ELV: 25.24
N: 782825.47
E: 963718.33

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

BUILDING A
96,250 SF
FF ELEV. 32.0

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN FOUNDATION LEAD

NORITAKE WHSE
NPRH, INC.
7-0035-01-0

JIMMY DELOACH PARKWAY

CROSSGATE ROAD

Du
Ds1
Ds3

Sd1-NS

Sd1-S
DOUBLE ROW

Co
LAT: N032° 08' 50"
LONG: W081° 10' 21"
or
LAT: N32.14722
LONG: W81.17250

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING SILT)	DS1
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	DS2
DISTURBED AREA STABILIZATION (PERMANENT SEEDING)	DS3
DUST CONTROL	DU
CONSTRUCTION EXIT	CE
SILT FENCE - TYPE SB	SB
STORM DRAIN OUTLET PROTECTION	SD
SEDIMENT BASIN	SB

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT (CE).
2. INSTALL PERIMETER SILT FENCE (Sd1-NS).
3. INSTALL INLET SILT FENCE (SIF) AS SHOWN (SIS).
4. INSTALL SILT FENCE (Sd1-S).
5. PROVIDE DUST CONTROL (Du) AND TEMPORARY GRASSING.
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds3) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT.

Soils
Ok Lakeland sand - Hydrologic Soil Group A
Ol Leefield loamy sand - Hydrologic Soil Group B/D
Aa Albany fine sand - Hydrologic Soil Group A/D
Or Otualco fine sand - Hydrologic Soil Group C
Op Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC0.1 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEETS EC0.1 TO EC2.3 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED SSF JASON ORME CHAMBERS
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023
No. 031172 PROFESSIONAL ENGINEER 09/18/2022

NO.	REVISIONS	BY	DATE
1	CHANGED SIZE OF BUILDING A AND GRADING	SSF	8/15/22

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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

FINAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

EC1.5

21-26327-1\26327.0010\ENGINEERING\SAVANNAH\CONSTRUCTION PLANS\SITE DEVELOPMENT\26327.0010_SITE DEVELOPMENT ESPC PLAN - FINAL.DWG | Aug 16, 2022 - 10:43 AM

GEORGIA POWER SUBSTATION
7-0035-01-006

BUILDING B
332,450 SF
FF ELEV. 30.0

POND I

MATCH LINE - SEE SHEET NO. EC1.5

GRAVEL ROADWAY IS UTILIZED BY GEORGIA POWER TO ACCESS THEIR SUBSTATION AND ACCESABILITY MUST BE MAINTAINED AT ALL TIMES.

CAUTION!! TEN BURIED POWER CABLES

CAUTION!! TEN BURIED POWER CABLES

END OF CASING PIPE
TOP ELV: 23.38
N: 783208.52
E: 963508.54

SAMPLING LOCATION

14" GAS TRANSMISSION MAIN

GAS EASEMENT

NORFOLK SOUTHERN

"TWO 18" RCP"
E 19.40'
E 19.39'

WETLANDS "JD" WATERS

Sd1-NS
Sd1-S
DOUBLE ROW
Du
Ds1
Ds3
St
Rt-B

OUTLET PROTECTION DESIGN CRITERIA (St)

OUTLET OPENING:	36"
FLOW RATE (CFS):	30.0 CFS
VELOCITY (FPS):	4.1 FPS
TAILWATER CONDITION: (MIN, or MAX.)	MIN
d_{50} RIPRAP SIZE:	0.5'
d_{100} RIPRAP SIZE:	0.75'
MIN. RIPRAP THICKNESS(D):	1.125'
Lo:	42'
W@d:	12'
W@wd:	12'

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
DISTURBED AREA STABILIZATION (BUILDING SLAB)	(Ds1)
DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)	(Ds2)
DISTURBED AREA STABILIZATION (PERMANENT VEGETATION)	(Ds3)
DUST CONTROL	(Du)
CONSTRUCTION EXIT	(CE)
SILT FENCE - TYPE HS	(SFHS)
STORM DRAIN OUTLET PROTECTION	(SP)
SEDIMENT BARN	(SB)

INITIAL THRU FINAL PHASE:
1. INSTALL CONSTRUCTION EXIT (CE)
2. INSTALL PERIMETER SILT FENCE (SFHS);
3. INSTALL SEDIMENT POND AS SHOWN (SP)
4. INSTALL SILT FENCE (SFHS)
5. PROVIDE DUST CONTROL (Du) AND TEMPORARY GRASSING;
6. INSTALL PERMANENT GRASSING ON ALL DISTURBED AREAS (Ds3) THAT WILL NOT BE COVERED WITH SLAB OR PAVEMENT

SOILS:
Ld Leeland sand - Hydrologic Soil Group A
Ok Ocilla fine sand - Hydrologic Soil Group B/D
As Albany fine sand - Hydrologic Soil Group A/D
Os Ousley fine sand - Hydrologic Soil Group C
Oc Ocilla - Urban land complex - Hydrologic Soil Group B/D

PLAN LEGEND
EXISTING CONTOUR
PROPOSED CONTOUR
LIMITS OF DISTURBANCE

NOTE:
1. SEE SHEET EC0.2 - EC0.3 FOR EROSION & SEDIMENTATION CONTROL NOTES.
2. SEE SHEET EC2.1 - EC2.3 TO EC2.5 FOR EROSION & SEDIMENTATION CONTROL DETAILS AND SEEDING SCHEDULE.

GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

GEORGIA REGISTERED No. 031172 PROFESSIONAL ENGINEER JASON ORME CHAMBERS 08/18/2022

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE

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SITE DEVELOPMENT FOR BUILDINGS A & B

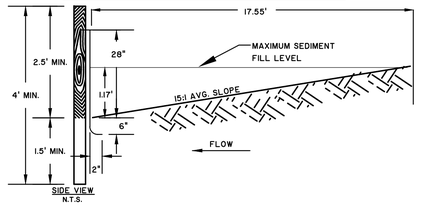
FINAL ESPC PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	1" = 60'

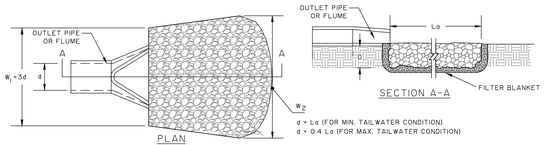
EC1.6

Z:\JOBS\26200\26327.000\Engineering\Drawings\Construction Plans\26327.000 - Erosion Control Details.dwg - Mar 24, 2023 - 10:32:25 AM

STORAGE VOLUME PER LINEAR FOOT OF SILT FENCE



PIPE (OR FLUME) TO FLAT AREA - NO WELL-DEFINED CHANNEL



d + Lo (FOR MIN. TAILWATER CONDITION)
d + 0.4 Lo (FOR MAX. TAILWATER CONDITION)

NOTES:
1. L_o = LENGTH THE RIP-RAP APRON
2. d = OUTLET PIPE DIAMETER
3. d_{50} = AVERAGE RIP RAP STONE DIAMETER
5. d_{MAX} = MAXIMUM RIP RAP STONE DIAMETER = 1.5 TIMES d_{50}
6. D = RIP RAP APRON DEPTH = 1.5 TIMES d_{MAX} BUT NOT LESS THAN 6"
7. W_1 = UPSTREAM RIP RAP APRON WIDTH + 3d
8. W_2 = DOWNSTREAM RIP RAP APRON WIDTH, SEE DETAIL
7. 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.
8. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP-RAP AND SOIL FOUNDATION.
9. INSPECT RIP RAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

STORM DRAIN OUTLET PROTECTION FOR PIPE OR CONCRETE FLUME

NOT TO SCALE

St

Table 1. Mulching Application Requirements

Material	Rate	Depth
Straw or hay	-	2" to 4"
Wood waste, chips, sawdust, bark	-	2" to 3"
Polyethylene film	Secure with soil, anchors, weights	-
Geotextiles, jute matting, netting, etc.	See manufac-turer's recom-mentations	-

Ds1

SEEDING RATES FOR TEMPORARY & PERMANENT COVER

MONTH	TEMPORARY COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX	PERMANENT COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX
JANUARY	* LESPEDEZA, ANNUAL * RYE * RYEGRASS, ANNUAL * WHEAT	40 lbs. 3 bu. 40 lbs. 3 bu.	10 lbs. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SERICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -
FEBUARY	LESPEDEZA, ANNUAL * LOVEGRASS, WEEPING * RYE * RYEGRASS, ANNUAL	40 lbs. 4 lbs. 3 bu. 40 lbs.	10 lbs. 2 lbs. .5 bu. -	* BAHIA, PENSACOLA CENTIPEDE, SOD LESPEDEZA, SEDICEA 1 * LESPEDEZA, SEDICEA 2 * LOVEGRASS, WEEPING	60 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. - - - 2 lbs.
MARCH	* LESPEDEZA, ANNUAL LOVEGRASS, WEEPING * RYEGRASS, ANNUAL * SUDANGRASS	40 lbs. 4 lbs. 40 lbs. 60 lbs.	10 lbs. 2 lbs. - -	BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
APRIL	LOVEGRASS, WEEPING MILLET, BROWNTOP * MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA BERMUDA, HULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
MAY	LOVEGRASS, WEEPING MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA BERMUDA, HULLED CENTIPEDE, SOD * LESPEDEZA, SEDICEA 1 LESPEDEZA, SEDICEA 2 LOVEGRASS, WEEPING	60 lbs. 10 lbs. - 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - - 2 lbs.
JUNE	* LOVEGRASS, WEEPING MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	4 lbs. 40 lbs. 50 lbs. 60 lbs.	2 lbs. 10 lbs. - -	BAHIA, PENSACOLA * BERMUDA, UNHULLED * LESPEDEZA, SEDICEA 1 * LESPEDEZA, SEDICEA 2 * LOVEGRASS, WEEPING	60 lbs. 10 lbs. 75 lbs. 75 lbs. 4 lbs.	30 lbs. 6 lbs. - - 2 lbs.

SEEDING RATES FOR TEMPORARY & PERMANENT COVER

MONTH	TEMPORARY COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX	PERMANENT COVER	RATE PER ACRE: SEEDED ALONE	RATE PER ACRE: ADDED TO MIX
JULY	* MILLET, BROWNTOP MILLET, PEARL SUDANGRASS	40 lbs. 50 lbs. 60 lbs.	10 lbs. - -	* BAHIA, PENSACOLA * LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
AUGUST	* MILLET, PEARL * RYEGRASS, ANNUAL	50 lbs. 40 lbs.	- -	* BAHIA, PENSACOLA * LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
SEPTEMBER	* BARLEY * OATS * RYE RYEGRASS, ANNUAL * WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
OCTOBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA LESPEDEZA, SEDICEA 1	60 lbs. 75 lbs.	30 lbs. -
NOVEMBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SEDICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -
DECEMBER	BARLEY OATS RYE RYEGRASS, ANNUAL WHEAT	3 bu. 4 bu. 3 bu. 40 lbs. 3 bu.	.5 bu. 1 bu. .5 bu. - .5 bu.	* BAHIA, PENSACOLA BERMUDA, UNHULLED CENTIPEDE, SOD LESPEDEZA, SEDICEA 1	60 lbs. 10 lbs. - 75 lbs.	30 lbs. 6 lbs. - -

NOTES
ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED
** INDICATES MARGINAL (BUT PERMISSIBLE) PLANTING DATE*
1. UNSCARIFIED
2. SCARIFIED
3. CENTIPEDE SOD CAN BE USED AS PERMANENT COVER ANYTIME EXCEPT JUNE THRU OCTOBER

Table 2. Fertilizer Requirements for Temporary Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	N 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
Cool seasn grasses & legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Temporary cover crops seeded alone	First	10-10-10	500	30
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

- Apply agricultural lime at the rate determined by soil test pH.

Table 2. Fertilizer Requirements for Permanent Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./ acre)	N 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
Cool grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30
Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	50 --- ---

- Apply agricultural lime at a rate of 1-2 tons/ acre unless soil tests indicate otherwise.

DUST CONTROL

DEFINITION: CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON LAND-DISTURBING ACTIVITIES.

PURPOSE: PREVENT THE MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES AND PREVENT THE MOVEMENT OF AIRBORNE SUBSTANCES THAT MAY BE HARMFUL TO HEALTH.

TEMPORARY METHODS	PERMANENT METHODS
- MULCHES - TEMPORARY VEGETATIVE COVER - SPRAY ON ADHESIVES - TILLAGE - IRRIGATION - BARRIERS - CALCIUM CHLORIDE	- PERMANENT VEGETATION - TOPSOILING - STONE COVER

INSTALLATION:
APPLY ACCORDING TO APPROVED PLAN, IF SHOWN. MULCH DISTURBED AREAS AND TACKIFY WITH REDSINS SUCH AS ASPHALT, CURASOL OR TERRATACK ACCORDING TO MANUFACTURES RECOMMENDATIONS. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT VEGETATION. COVER SURFACES WITH CRUSHED STONE OR GRAVEL. APPLY CALCIUM CHLORIDE AT A RATE TO KEEP SURFACES MOIST. APPLY SPRAY-ON ADHESIVES TO MINERAL SOILS (NOT MUCK SOILS AS DESCRIBED IN TABLE I.

TABLE I. SPRAY-ON ADHESIVE APPLICATION REQUIREMENTS

ADHESIVE	WATER DILUTION	NOZZLE TYPE	APPLICATION (GAL / ACRE)
ANIONIC ASPHALT EMULSION	7:1 *	COARSE SPRAY	1,200
LATEX EMULSION	12.5:1 *	FINE SPRAY	235
RESIN-IN-WATER EMULSION	4:1 *	FINE SPRAY	300

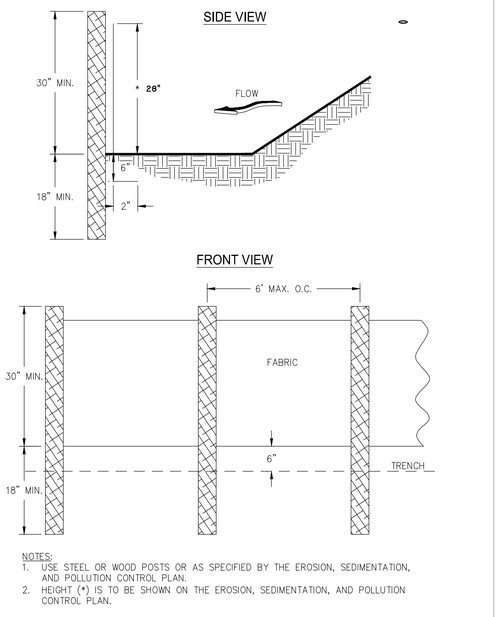
MAINTENANCE:
PROHIBIT TRAFFIC ON SURFACE AFTER SPRAYING.
SUPPLEMENT SURFACE COVERING AS NEEDED.

Du

DUST CONTROL

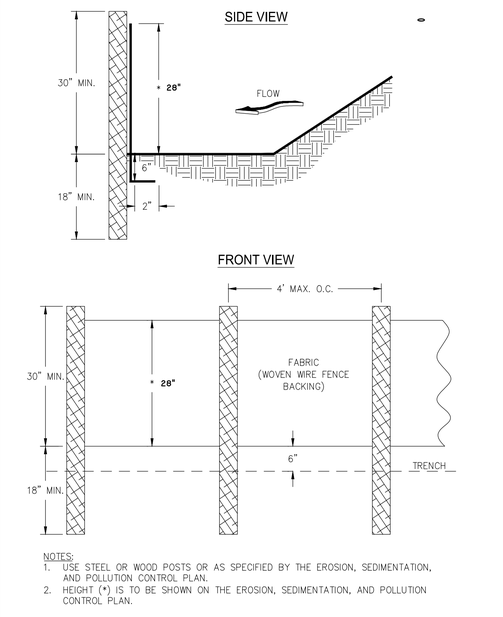
NOT TO SCALE

SILT FENCE - TYPE NON-SENSITIVE



NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

SILT FENCE - TYPE SENSITIVE



NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

GEORGIA REGISTERED SSS 3172 PROFESSIONAL SURVEYOR JASON ORME CHANCEY

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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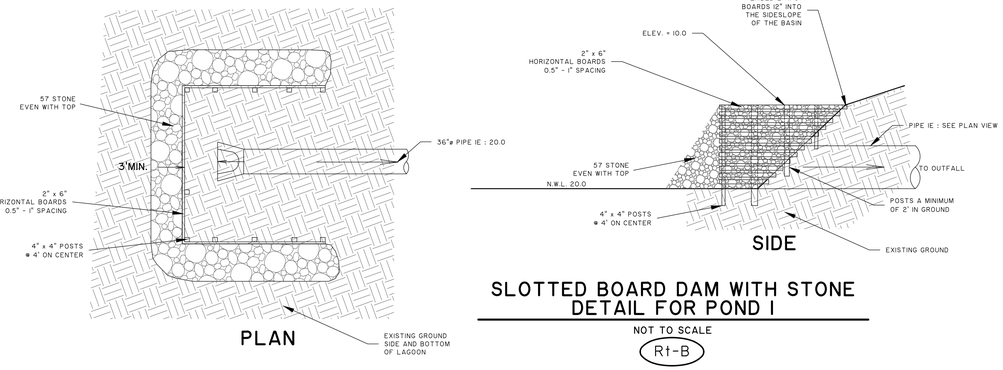
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL DETAILS

JOB NO:	J-26327.000
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	NOT TO SCALE

EC2.1



SLOTTED BOARD DAM WITH STONE DETAIL FOR POND 1

NOT TO SCALE

R1-B

STORAGE CALCULATIONS PROPOSED POND

1. REQUIRED STORMWATER STORAGE = 2,379 CY (SEDIMENT STORAGE BELOW N.W.L.)
2. REQUIRED SEDIMENT STORAGE = 2,379 CY
   (67 CY/AC X 35.5 AC. DISTURBED AREA)
3. TOTAL REQUIRED STORAGE = 0 + 2,379 = 2,379 CY
4. AVAILABLE STORAGE = 51,340 CY
5. IS THE AVAILABLE STORAGE (4) GREATER THAN THE TOTAL REQUIRED STORAGE (3)
   X YES _____ NO
6. IF "NO", THE SEDIMENT STORAGE CAPACITY OF THE POND MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
   N/A RAISE THE INVERT OF THE OUTLET STRUCTURE ____ INCHES
   N/A UNDERCUT THE POND ____ FEET
   OTHER _____
7. CLEAN-OUT ELEVATION = VARIES FEET (SEE IE)
   (ELEVATION CORRESPONDING TO 45 CY/AC * 35.5 AC OF DISTURBED AREA)
8. IS THE LENGTH-WIDTH RATIO 2:1 OR GREATER?
   X YES ____ NO
9. IF "NO", THE LENGTH OF FLOW MUST BE INCREASED. CHOOSE THE METHOD TO BE USED:
   N/A BAFFLES (TYPE OF BAFFLE: _____)
   N/A OTHER _____

NOTE THE CMP DIAMETER AND HEIGHT IF A HALF-ROUND CMP RETROFIT IS TO BE USED.
DIAMETER = N/A INCHES HEIGHT = N/A FEET

SILT FENCE MAINTENANCE

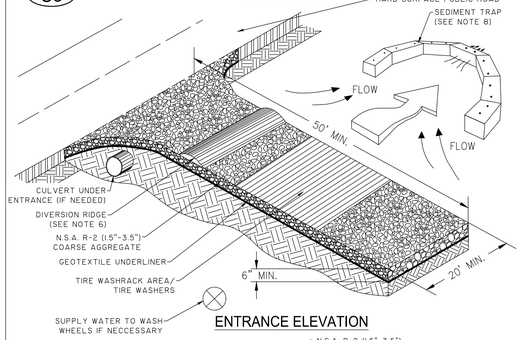
MAINTENANCE

- Remove the sediment once it has accumulated to one-half the original height of the barrier.
- Replace barrier whenever it has deteriorated to such an extent that the effectiveness of the product is reduced (~ 6 months) or the height of the product is not maintaining 80% of its properly installed height.
- Remove and dispose of all accumulated sediment at the barrier before it is removed.
- Leave in place until all disturbed areas are permanently stabilized.

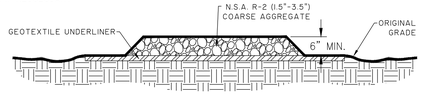
CRUSHED STONE CONSTRUCTION EXIT

Co

EXIT DIAGRAM

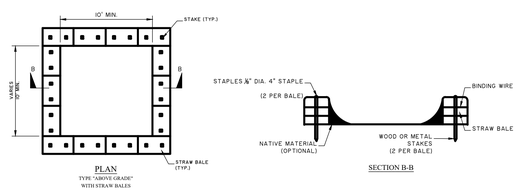


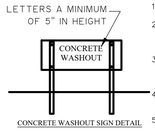
ENTRANCE ELEVATION



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.

STRAW BALE BARRIER CONCRETE WASHOUT





CONCRETE WASHOUT SIGN DETAIL

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

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.

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 at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this 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. Cutback asphalt (slow curing) shall be applied at 1200 gallons per acre (or 1/4 gallon per sq.yd.).
4. 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 mechanicalequipment.
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. Cutback asphalt shall be applied uniformly. Care should be taken in areas of pedestrian traffic due to problems of 'tracking in" or damage to shoes, clothing, etc.
4. 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 with emulsified asphalt (Grade AE-5 or SS-1). The asphalt emulsion shall be sprayed onto the mulch as it is ejected from the machine. Use 100 gallons of emulsified asphalt and 100 gallons of water per ton of mulch. Tackifers and binders can be substituted for emulsified asphalt. Please refer to specification Tb -Tackifers and Binders. 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.

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)

GEORGIA REGISTERED SS1 No. 03172 PROFESSIONAL 08/18/2022 JASON ORME CHANCEY

GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #0000055539 EXPIRATION DATE: 9/12/2023

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NO.	REVISIONS	BY	DATE

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

EROSION CONTROL DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	SSF
DESIGNED:	SSF
REVIEWED:	FIT
APPROVED:	FIT
SCALE:	NOT TO SCALE

EC2.2

Z:\26327\0026327.0010\Engineering\Drawings\Construction Plans\26327.0010 - Erosion Control Details.dwg - Mar 24, 2022 - 10:26:25 AM

Z:\26537\26537-2000\DWGS\PLANS\CONSTRUCTION PLANS\SITE DEVELOPMENT\26537-2000 SITE DEVELOPMENT EROSION CONTROL SETTLEMENT - Aug 9, 2022 - 10:44 AM

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.
eeded.

SEEDING RATES FOR TEMPORARY SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre *	PLANTING DATES **
Rye	3.9 pounds	3 bu.	9/1-3/1
Ryegrass	0.9 pound	40 lbs.	8/15-4/1
Annual Lespedeza	0.9 pound	40 lbs.	1/15-3/15
Weeping Lovegrass	0.4 pound	4 lbs.	2/15-6/15
Sudangrass	1.4 pounds	60 lbs.	**3/1-8/1**
Browntop Millet	0.9 pound	40 lbs.	**4/1-7/15**
Wheat	4.1 pounds	3 bu.	9/15-2/1

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

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

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.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

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 cases, 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 insure germination of the seed. Subsequent applications should be made when needed.

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.

oncentrations 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.

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:

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 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.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted 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.

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

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.

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.

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.

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 achieve 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. Drystraw 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 ornamentals 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. Emulsified asphalt can be (a) sprayed uniformly onto the mulch as it is ejected from the blower machine or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.

The combination of asphalt emulsion and water shall consist of a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of grade SS-1h or CSS-1h emulsified asphalt and 100 gallons of water per ton of mulch.
Care shall be taken at all times to protect state waters, the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.
2. 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.
3. 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 Binders.
4. 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.
5. 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.	1/1-12/31
BERMUDA	0.2 POUND	10 LBS.	2/15-7/1
CENTIPEDE	BLOCK SOD ONLY	BLOCK SOD ONLY	4/1-7/1
LESPEDEZA	1.7 POUNDS	75 LBS.	1/1-12/31
WEEPING LOVE GRASS	0.4 POUND	4 LBS.	2/1-6/15
SWITCH GRASS	0.9 POUND	40 LBS.	3/15-6/1

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

GEORGIA REGISTERED ENGINEER No. 033172 PROFESSIONAL 09/18/2022 JASON ORME CHAMBLESS

GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION
#0000055539
EXPIRATION DATE:
9/12/2023

NO.	REVISIONS	BY	DATE
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50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
2 Corporate Exchange Dr. Suite 201
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

NFI INDUSTRIES
PORT WENTWORTH, GEORGIA
BUILDING #2
EROSION CONTROL DETAILS

JOB NO:	J-28219.0004
DATE:	04/30/21
DRAWN:	MLM
DESIGNED:	SSF
REVIEWED:	JOC
APPROVED:	JOC
SCALE:	NOT TO SCALE

EC2.3

MATCH LINE - SEE SHEET NO. L1.2

L1.4

L1.5

L1.2

L1.3

L1.1

STORMWATER
DETENTION POND I
3H:1V SIDESLOPES (TYP. ABOVE ELEV. 15
1H:1V SIDESLOPES FROM ELEV. 10 TO 15))
BOTTOM 10.0'
NWL 10.00'
TOP 14.0'
25-YR 22.81'
50-YR 23.48'
100-YR 23.92'

BUILDING B
332,450 SF
FF ELEV. 30.0

BUILDING A
106,250 SF
FF ELEV. 32.0

JIMMY DELOACH PKWY

CROSSGATE RD.

GRAPHIC SCALE
100 0 50 100 200.000 400.000
(IN FEET)
1 inch = 100 ft.

NO.	REVISIONS	BY	DATE
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Savannah, GA 31405 • 912.234.5300
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

OVERALL LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 100'

L1.0

MATCH LINE - SEE SHEET NO. L1.2

BUILDING A

106,250 SF

FF ELEV. 32.0

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
24	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

EXISTING VEGETATION TO REMAIN, TYP.

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

OVERHEAD POWER LINE, TYP.

JIMMY DELOACH PKWY

CROSSGATE RD.

RAMP

GRAPHIC SCALE

(IN FEET)

1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
---	---	---	---
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.1

Z:\26327\Y26327.0000\LANDSCAPE ARCHITECTURE\DRAWINGS\CONSTRUCTION PLANS\26327.0010_L1.1_PLT.DWG • Aug 16, 2022 - 10:58 AM

MATCH LINE - SEE SHEET NO. L1.4

MATCH LINE - SEE SHEET NO. L1.3

BUILDING B

332,450 SF

FF ELEV. 30.0

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
24	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
141	LOMD	Lomandra longifolia 'LM300' P.P. #15420	Dwarf Mat Rush	CONT. ; 6" X 10"	3'	Full
98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuff'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet

EXISTING VEGETATION TO REMAIN, TYP.

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

GRAPHIC SCALE

(IN FEET)

1 inch = 30 ft.

MATCH LINE - SEE SHEET NO. L1.1

NO.	REVISIONS	BY	DATE
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Savannah, GA 31405 • 912.234.5300
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	1" = 30'

L1.2

Z:\26327\26327.000\LANDSCAPE ARCHITECTURE\DRAWINGS\CONSTRUCTION PLANS\26327000_L1.3.PLT | CMB | Aug 16, 2022 - 10:48 AM

MATCH LINE – SEE SHEET NO. L1.2

MATCH LINE – SEE SHEET NO. L1.5

RAMP

QP 1
MGBB 2

ILVN 15

ILVN 14
ILVN 14

ILVN 14 | ILVN 14 | ILVN 13 | ILVN 10 | ILVN 31

QP 1
ICBN 13

ICBN 10 / AZE 10 | ICBN 13 / AZE 10 | ICBN 10 / AZE 10 | ICBN 10 | AZE 10 | ICBN 10 | AZE 10 | ICBN 10 | AZE 10

ICBN 10 | AZE 8

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

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EXISTING VEGETATION TO REMAIN, TYP.

GRAPHIC SCALE

50 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
6	LIM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	B & B OR CONT. ; 10 - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min
24	MGBB	Magnolia grandiflora 'Bracken's Brown Beauty'	'Bracken's Brown Beauty' Southern Magnolia	B & B OR CONT. ; 6 - 8' HT.	AS SHOWN	Specimen, Full to Ground
58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
278	AZE	Azalea x 'Conlee' PP#10567	Encore Azalea Autumn Amethyst™	CONT. ; 18" X 18"	AS SHOWN	Full to Ground
102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
33	MYRC	Myrica cerifera	Wax Myrtle	CONT. ; 36" X 36"	AS SHOWN	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
794	LIBB	Liriope muscari 'Big Blue'	Big Blue Liriope	CONT. ; 6" X 10"	18"	Full and well formed
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98	MUHC	Muhlenbergia capillaris	Pink Muhly Grass	CONT. ; 6" X 10"	3'	Full
443	PENA	Pennisetum alopecuroides 'Hameln'	Fountain Grass	CONT. ; 6" X 10"	3'	Full
1947	SPAR	Spartina bakeri	Cord Grass	CONT. ; 6" X 10"	5'	Full

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Turf'	Tif-Tuff Bermudagrass	----------	12"	Dense roots, measure in sqaure feet

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
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DESIGNED:	MAR
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SCALE:	1" = 30'

L1.3

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PLANT SCHEDULE

TREES

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58	QP	Quercus phellos	Willow Oak	B & B OR CONT. ; 3" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen
94	TD	Taxodium distichum	Bald Cypress	B & B OR CONT. ; 2.5" CAL. ; 10' - 12' HT.	AS SHOWN	Specimen

SHRUBS

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102	CGD	Distylium 'Cinnamon Girl' PP #027631	Cinnamon Girl Distylium	CONT. ; 18" X 18"	AS SHOWN	Full
296	ICBN	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	5 GAL. ; 24" X 24"	AS SHOWN	Full to ground and well formed
416	ILVN	Ilex vomitoria 'Nana'	Dwarf Youpon Holly	CONT. ; 24" X 24"	AS SHOWN	Full & Vigorous
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ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
157,000 SF	SOD	Cynodon dactylon 'Tif-Tuft'	Tif-Tuft Bermudagrass	----------	12"	Dense roots, measure in square feet

PROPERTY LINE, TYP.

NOTE: ALL DISTURBED AREAS NOT SHOWN AS SOD, MULCH, IN PLANTING BEDS OR OTHERWISE IMPROVED SHALL BE SEEDED WITH PERMANENT SEEDING PER EROSION CONTROL PLANS AND GRASSING SPECIFICATIONS

STORMWATER
DETENTION POND 1
3H:1V SIDESLOPES (TYP. ABOVE ELEV. 19
1H:1V SIDESLOPES FROM ELEV. 10 TO 19))
BOTTOM: 10.0'
NWL: 20.00'
TOP: 24.0'
25-YR: 22.81'
50-YR: 23.48'
100-YR: 23.92'

MATCH LINE - SEE SHEET NO. L1.5

MATCH LINE - SEE SHEET NO. L1.2

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
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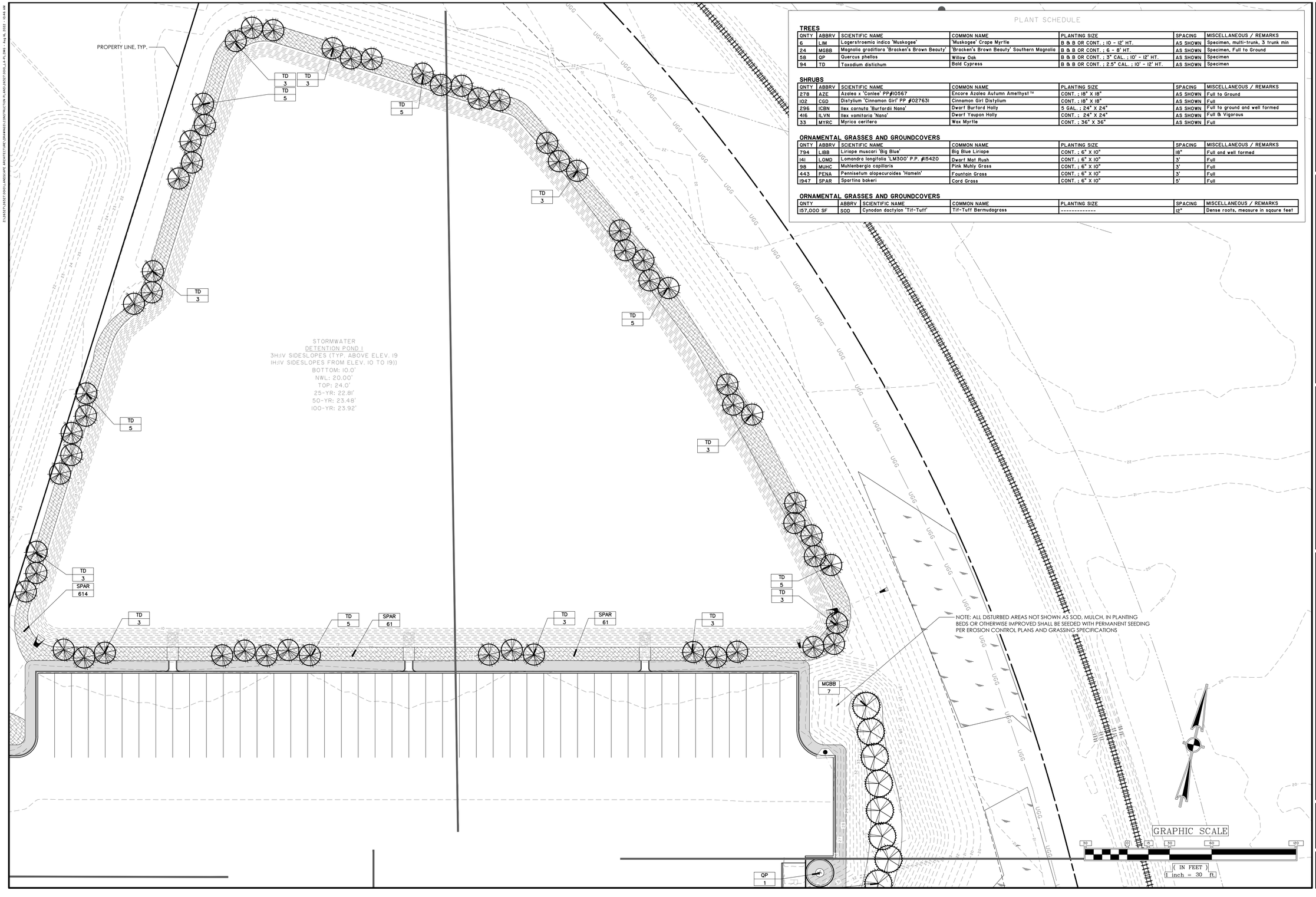
NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE PLAN

JOB NO:	J-26327.0010
DATE:	2/14/22
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DESIGNED:	MAR
REVIEWED:	RPT
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SCALE:	1" = 30'

L1.4



PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
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NO.	REVISIONS	BY	DATE
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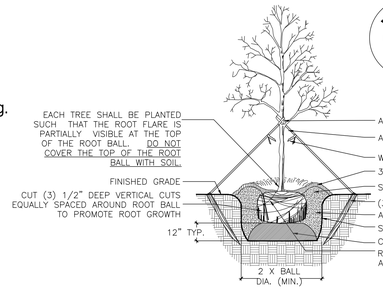
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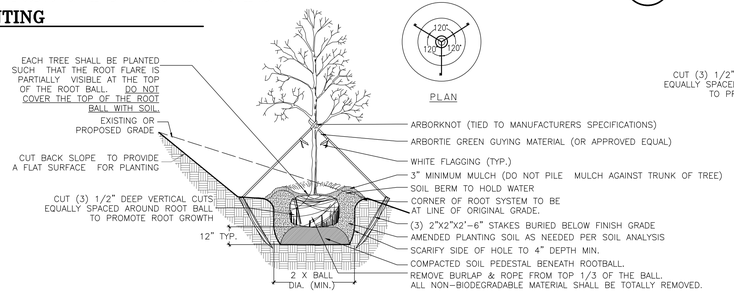
L1.5

Know what's below.
Call before you dig.



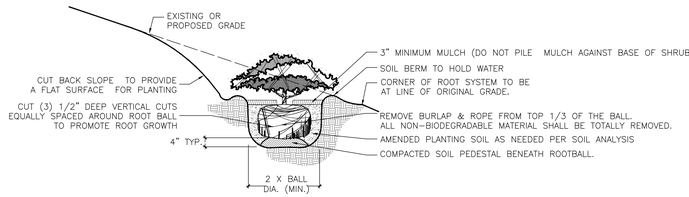
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) ONLY GUY TREES WHEN SITE CONDITIONS REQUIRE IT.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE.
4) REMOVE ALL BRANCHES THAT ARE DAMAGED, RUBBING, OR CROSSING OTHER BRANCHES.
5) NEVER CUT A CENTRAL LEADER.
6) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
7) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

TREE PLANTING
NOT TO SCALE



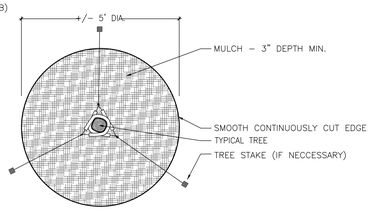
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TREE PLANTING ON A SLOPE
NOT TO SCALE



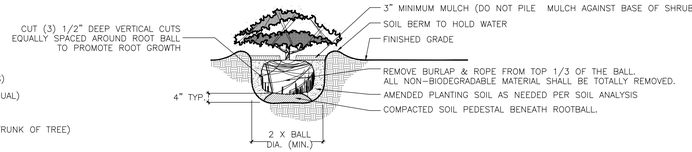
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) WHEN GROUNDCOVER AND SHRUBS ARE USED IN MASSES, DO NOT FORM SOIL BERMS ON INDIVIDUAL PLANTS AND ENTIRE PLANTING BED SHALL BE EXCAVATED TO RECEIVE PLANTING SOIL AND PLANT MATERIAL.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE. COORDINATE WITH OWNER'S REP. PRIOR TO SETTING ROOTBALL ELEVATIONS.
4) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

SHRUB PLANTING ON A SLOPE
NOT TO SCALE



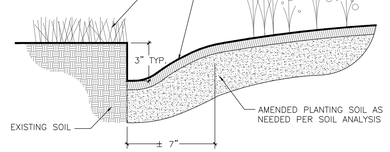
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) APPLY MULCH IN A +/- 5' DIAMETER WHERE PROPOSED TREE PLANTINGS OCCUR IN SOD OR SEEDED AREA.

TREE RING
NOT TO SCALE



NOTES:
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SHRUB PLANTING
NOT TO SCALE



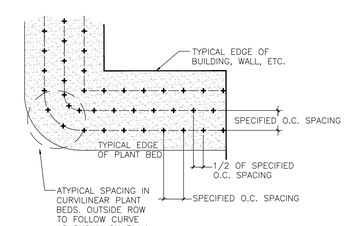
NOTES:
1) TRENCH EDGE TO BE LOCATED BETWEEN PLANTING BEDS AND ALL LAWN AREAS.

SOD TO PLANT BED EDGE
NOT TO SCALE

GENERAL PLANTING / IRRIGATION NOTES:

1. REQUIREMENTS FOR THE MEASUREMENTS, BRANCHING, GRADING, QUALITY, BALLING AND BURLAPPING OF PLANTS IN THE PLANT LIST SHOULD FOLLOW OR EXCEED THE STANDARDS CURRENTLY RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN THE AMERICAN STANDARD FOR NURSERY STOCKS (ASNS). UNLESS OTHERWISE SPECIFIED, ANY SIZE SPECIFIED SHALL BE CONSIDERED MINIMUM. MINIMUMS FOR HEIGHT, SPREAD, CALIPER, ETC. SHALL TAKE PRECEDENT OVER A SPECIFIED CONTAINER SIZE. (I.E. - IF 7 GALLON IS REQUIRED, TO PROVIDE A SPECIFIED HEIGHT OR SPREAD THAT IS SPECIFIED AS A 3 GALLON, THEN THE 7 GALLON SHALL BE SHALL BE REQUIRED AND INCLUDED IN THE BASE BID AND SHALL NOT BE CONSIDERED A CHANGE ORDER.)
2. ALL PLANTS SHALL HAVE A WELL FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.
3. MEASUREMENT OF CONIFER HEIGHT SHALL INCLUDE NOT MORE THAN FIFTY (50) PER CENT OF THIS YEARS' VERTICAL GROWTH (TOP CANDLE).
4. THE LANDSCAPE CONTRACTOR IS HEREBY NOTIFIED OF THE EXISTENCE OF UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE PROJECT AREA. THE CONTRACTOR SHOULD VERIFY THE EXACT LOCATION OF ALL UTILITY LINES PRIOR TO COMMENCEMENT OF DIGGING OPERATIONS. CONTRACTOR RESPONSIBLE FOR LOCATING, PROTECTING, AND REPAIRING ALL DAMAGE TO BUILDINGS, UTILITIES, PAVEMENT, AND CURB & GUTTER. ANY REPAIRS SHALL BE DONE PROMPTLY AT CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS ON THIS PROJECT. THE LANDSCAPE ARCHITECT OR OWNER SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION ON VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO OPENING ANY PLANTING PITS.
6. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF HOLES WITH SIX (6) INCHES OF WATER. THIS WATER SHOULD PERCOLATE WITHIN A TWENTY-FOUR (24) HOUR PERIOD. IF WATER DOESN'T PERC, CONTRACTOR SHALL NOTIFY THE OWNER'S REP PRIOR TO INSTALLING PLANTS.
7. SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PANS, STEAM OR OTHER UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS. OTHERWISE, THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE FOR PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE SITE AT THE COMPLETION OF THE PROJECT AND SHALL MAINTAIN THE SITE IN A REASONABLY NEAT AND CLEAN STATE THROUGHOUT THE INSTALLATION PROCESS. STREETS AND PAVED AREAS SHALL BE CLEANED REGULARLY TO REMOVE CONSTRUCTION MATERIALS AND OTHER DEBRIS RESULTING FROM WORK OF THE PROJECT.
9. REPLACEMENTS OF DEAD OR UNSATISFACTORY MATERIAL SHALL BE MADE AS SPECIFIED IN THE PLANT LIST. THE OWNER OR LANDSCAPE ARCHITECT SHALL INSPECT REPLACED PLANTS WHEN ALL REPLACEMENTS HAVE BEEN MADE. REPLACEMENTS ARE TO BE ALIVE AND IN A HEALTHY CONDITION WHEN THE REPLACEMENTS ARE COMPLETE. REPLACEMENTS ARE NOT SUBJECT TO AN ADDITIONAL GUARANTEE, BUT THE LANDSCAPE CONTRACTOR SHALL CONSULT WITH THE LANDSCAPE ARCHITECT ON REASON FOR PLANT DECLINE/DEATH AND HOW TO AVOID FUTURE INSTANCES.
10. SHOULD THE CONTRACTOR NOT MAKE REPLACEMENTS IN A SATISFACTORY AND TIMELY FASHION IN ACCORD WITH THE PLANTING NOTES, THE OWNER, AFTER PROPER NOTIFICATION TO THE CONTRACTOR MAY UTILIZE THE FUNDS OF THE RETAINAGE TO HAVE THE REPLACEMENTS MADE IN ACCORDANCE WITH THE SPECIFICATIONS BY ANOTHER CONTRACTOR.
11. NO EXCAVATION OR PLANTING PIT SHALL BE LEFT UNATTENDED OVERNIGHT.
12. PLANT MATERIAL QUANTITIES PROVIDED IN THE PLANT LIST ARE FOR REFERENCE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR THE ACTUAL PLANT MATERIAL COUNTS. DISCREPANCIES BETWEEN QUANTITIES SHOWN ON THE PLANTING PLAN AND THOSE IN THE PLANT LIST SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION. IF CLARIFICATION OF DISCREPANCIES FROM THE LANDSCAPE ARCHITECT IS NOT POSSIBLE, THEN QUANTITIES SHOWN ON THE PLANTING PLAN SHALL TAKE PRECEDENCE.
13. REMOVE BURLAP/STRAPPING AND WIRE BASKET FROM TOP 1/3 OF ROOT BALL ON TREES.
14. REMOVE PAPER, PLASTIC OR METAL AROUND ROOT BALLS OF SHRUBS.
15. DO NOT WRAP TREES.
16. WATER ALL PLANT MATERIAL IMMEDIATELY AFTER PLANTING.
17. TREE GUYING MATERIAL SHALL BE 'ARBOR-TIE' OR EQUIVALENT.
18. ALL PLANT BEDS TO BE MULCHED WITH 3" DEPTH OF PINE STRAW MULCH.
19. ALL AREAS OF PLANTING, INCLUDING AREAS OF GRASS SEEDING AND SOD, SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AND SHALL BE PROVIDED APPROPRIATE SOIL FOR THE PROPOSED PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL ADJUST PH AND / OR SOIL FERTILITY BY UNIFORMLY INCORPORATING REQUIRED SOIL CONDITIONING MATERIALS AT THE RATE AND DEPTH DETERMINED BY THE ANALYSIS OF THE SOIL TEST (AS REQUIRED IN 3.02 AND 3.13 OF THE LANDSCAPING SPECIFICATIONS). EACH SOIL TEST SHALL BE SPECIFIC TO THE PROPOSED PLANT MATERIAL TO BE INSTALLED IN A GIVEN AREA.
20. ALL EXISTING VEGETATION WITHIN AREAS TO BE PLANTED / SODDED / SEEDED SHALL BE REMOVED PRIOR TO PLANTING / SODDING / SEEDING. ALL AREAS INDICATED TO BE GRASS SEED SHALL BE SEEDED PER GRASSING SPECIFICATIONS FOR PERMANENT STABILIZATION.
21. CONTRACTOR TO SUPPLY AUTOMATIC IRRIGATION SYSTEMS, COMPLETE AND INSTALLED. SYSTEM TO INCLUDE ALL VALVES, PIPES, HEADS, FITTINGS, RAIN SENSOR, AND CLOCK AND TO PROVIDE 100% COVERAGE OF ALL NEW SODDED AND IMPROVED EXISTING GRASS AREAS, TREES, SHRUBS AND PLANTING BEDS. COORDINATE IRRIGATION WITH OWNER'S REPRESENTATIVE. (CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PROPOSED IRRIGATION SYSTEM FOR OWNER ACCEPTANCE)
22. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR AUTOMATIC IRRIGATION SYSTEMS. CONTRACTOR SHALL PROVIDE ELECTRIC METER AND SERVICE IN ACCORDANCE WITH STATE AND LOCAL CODES FOR IRRIGATION SYSTEM. LOCATION OF METERS AND CONTROL PANELS FOR IRRIGATION SHALL BE APPROVED BY OWNER'S REP. PRIOR TO INSTALLATION.
23. WHERE IRRIGATION SYSTEM WILL BE INSTALLED WITH ANY WATER SOURCE OTHER THAN DOMESTIC POTABLE WATER, LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR IRRIGATION WATER TESTING. IRRIGATION WATER SHALL BE TESTED FOR LEVELS OF pH, ALKALINITY AND SOLUBLE SALTS. SUBMIT TEST RESULTS TO OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO INSTALLATION OR ORDERING OF IRRIGATION EQUIPMENT, PUMPS OR WELL DIGGING.
24. ALL TREES SHALL BE INSTALLED PER THE REQUIREMENTS OF THE PORT WENTWORTH, GEORGIA APPLICABLE ORDINANCES.
25. ALL PLANT BEDS TO RECEIVE WEED INHIBITOR OF PREEN OR ACCEPTED ALTERNATE.
26. FOR SUMMERTIME PLANTINGS, CONTRACTOR TO USE EITHER CONTAINERIZED OR PRE-DUG B & B PLANT MATERIAL.
27. AS AN ADD ALTERNATE BID, THE CONTRACTOR SHALL PROVIDE "SOIL MOIST TRANSPLANT" (OR ACCEPTED EQUIVALENT) AT THE APPLICATION RATES SHOWN BELOW FOR ALL NEWLY INSTALLED PLANTINGS.

Container Size/Amount	Caliper Size/Amount
1 Gallon/.75 oz.	1"/3.0 oz.
2 Gallon/1.5 oz.	2"/6.0 oz.
3 Gallon/1.5 oz.	3"/9.0 oz.
5 Gallon/2.0 oz.	4"/12.0 oz.
7 Gallon/3.0 oz.	5"/15.0 oz
10 Gallon/3.0 oz.	6"/18.0 oz
15 Gallon/5.0 oz.	7"/21.0 oz
20 Gallon/7.0 oz.	8"/24.0 oz
Plant Height/Amount	**Box Size/Amount**
2'/1.5 oz.	16"/5.0 oz.
3'/2.0 oz.	20"/6.0 oz.
4'/3.0 oz.	24"/9.0 oz.
5'/4.0 oz.	30"/12.0 oz.
6'/5.0 oz.	36"/18.0 oz
7'/6.0 oz.	42"/27.0 oz
	60"/30.0 oz.



NOTES:
1) EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER PLANTING TO A DEPTH OF 12".

PLANT SPACING DETAIL
NOT TO SCALE

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE DETAILS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NTS

L2.1

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LANDSCAPING SPECIFICATION

LANDSCAPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work covered in this section consists of soil preparation, fine grading, lawns, trees, shrubs and ground cover plantings, their protection and maintenance of planted areas until acceptance.

1.2 RELATED WORK

A. See Civil and Landscape plans and specifications.

1.3 QUALITY ASSURANCE

A. Qualifications of Workmen: Contractor shall provide at least one person present at all times during execution of work that is thoroughly familiar with the type of materials being installed and proper equipment and methods for their installation and who shall direct all work performed under this section.

B. Standards: All seed, sod, trees, shrubs, and ground covers shall meet or exceed the specifications of Federal, State, County and / or Municipality laws requiring inspection for disease and insect control.

1. Plants and planting methods shall conform to the latest edition of American Standard for Nursery Stock, American Nursery & Landscape Association, 1000 Vermont Avenue, NW, Suite 300, Washington, DC 20005

2. Plants shall be true and representative of their genus, species, cultivar, or variety. Nursery stock shipped in accordance with the required specifications shall be deemed to be acceptable within the terms of this section if it is typical in size and habit for the species in the region of the country in which it is grown unless the specifications include additional details.

3. **Prior to ordering any plant material, representative photos of each species shall be provided for review and acceptance.**

4. One of each bundle or lot shall be tagged with name and size of the plant in accordance with American Nursery & Landscape Association standards. In all cases, botanical names shall take precedence over common names. Landscape Architect should be consulted in the event questions arise about nomenclature of plants to be used and their availability.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver sod on pallets.

D. Handling of plants shall be by lifting the root mass or container and not by lifting plant by trunk or branches. Handling of plants in an improper fashion shall be cause for rejection of plant materials. Care must be taken during all phases of the location and planting procedures not to damage root system, trunk or branches. All plant materials shall be planted as soon after arrival at the site as possible. Contractor is responsible for keeping plants safe from injury by the construction activity and watered to prevent drying out before planting. Balled and burlapped plants shall be "Healed-in" and protected with burlap or other accepted material if they cannot be planted upon delivery. Plants with broken major branches, badly bruised or damaged bark are not acceptable and will be rejected.

1.5 PLANTING DATES

A. The planting season for trees, shrubs and groundcovers is between October 1st and June 1st of the following year. Do not plant if temperature is below freezing or above 90 degrees. Planting at any other time other than the planting season is the Contractor's option and full responsibility and without additional compensation. Planting may, at the option of the Contractor, be postponed into the following planting season but without additional compensation provided the Owner and local governing jurisdiction have approved.

C. Planting dates for sod, sprigging or seeding shall be per the grassing specification.

1.6 MEASUREMENT AND PAYMENT

A. Measurement - The items listed in the proposal shall be considered as sufficient to complete the work in accordance with the plans and specifications. Any portion of the work not listed in bid form, but required to complete the work, shall be deemed to be a part of the item with which it is associated and shall be included in the cost of the unit shown on the bid form.

B. Payment - Payment for the unit shown on the bid form shall be considered to cover the cost of all labor, material, equipment, and performing all operations necessary to complete the work in place. No payment will be made for any material wasted, used for the convenience of the Contractor, unused or rejected.

1. Trees, Shrubs, and Groundcovers - Will be paid for at the contract unit price for planted/installed and accepted trees, shrubs, and groundcovers.

2. Payment for grassing will be made per the grassing specification.

3. Clearing - Will be paid for at the lump sum price for clearing.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall, at time of delivery, furnish Owner and / or Landscape Architect with invoices of all materials received; in order the quality and source of materials may be reviewed.

2.2 TOPSOIL

A. TOPSOIL SHALL BE FERTILE, FRIABLE SOIL CONTAINING LESS THAN 5% TOTAL VOLUME OF THE COMBINATION OF SUBSOIL, REFUSE, ROOTS LARGER THAN 1 INCH DIAMETER, HEAVY, STICKY OR STIFF CLAY, STONES LARGER THAN 2 INCHES IN DIAMETER, NOXIOUS SEEDS, STICKS, BRUSH, LITTER, OR ANY SUBSTANCES DELETERIOUS TO PLANT GROWTH. THE PERCENT (%) OF THE ABOVE OBJECTS SHALL BE CONTROLLED BY SOURCE SELECTION NOT BY SCREENING THE SOIL. TOPSOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND THE SUPPORT OF VEGETATIVE GROWTH. IMPORTED TOPSOIL SHALL NOT CONTAIN WEED SEEDS IN QUANTITIES THAT CAUSE NOTICEABLE WEED INFESTATIONS IN THE FINAL PLANTING BEDS. IMPORTED TOPSOIL SHALL MEET THE FOLLOWING PHYSICAL AND CHEMICAL CRITERIA:

1. SOIL TEXTURE: USDA LOAM, SANDY CLAY LOAM OR SANDY LOAM WITH CLAY CONTENT BETWEEN 15 AND 25%. AND A COMBINED CLAY/SILT CONTENT OF NO MORE THAN 55%.
2. PH VALUE SHALL BE BETWEEN 5.5 AND 7.0.
3. PERCENT ORGANIC MATTER (OM): 2.0-5.0%, BY DRY WEIGHT.
4. SOLUBLE SALT LEVEL: LESS THAN 2 MMHO/CM.
5. SOIL CHEMISTRY SUITABLE FOR GROWING THE PLANTS SPECIFIED.

B. IMPORTED TOPSOIL SHALL BE A HARVESTED SOIL FROM FIELDS OR DEVELOPMENT SITES. THE ORGANIC CONTENT AND PARTICLE SIZE DISTRIBUTION SHALL BE THE RESULT OF NATURAL SOIL FORMATION. MANUFACTURED SOILS WHERE COARSE SAND, COMPOSTED ORGANIC MATERIAL OR CHEMICAL ADDITIVES HAS BEEN ADDED TO THE SOIL TO MEET THE REQUIREMENTS OF THIS SPECIFICATION SECTION SHALL NOT BE ACCEPTABLE. RETAINED SOIL PEDS SHALL BE THE SAME COLOR ON THE INSIDE AS IS VISIBLE ON THE OUTSIDE.

C. IMPORTED TOPSOIL FOR PLANTING SOIL SHALL NOT HAVE BEEN SCREENED AND SHALL RETAIN SOIL PEDS OR CLODS LARGER THAN 2 INCHES IN DIAMETER THROUGHOUT THE STOCKPILE AFTER HARVESTING.

D. STOCKPILED EXISTING TOPSOIL AT THE SITE MEETING THE ABOVE CRITERIA MAY BE ACCEPTABLE.

E. PROVIDE A ONE GALLON SAMPLE FROM EACH IMPORTED TOPSOIL SOURCE(S) WITH REQUIRED SOIL TESTING RESULTS OF ALL EXISTING TOPSOIL TO BE USED. THE SAMPLE SHALL BE A MIXTURE OF THE RANDOM SAMPLES TAKEN AROUND THE SOURCE STOCKPILE OR FIELD.

2.3 SEED

A. See grassing specification.

2.4 SPRIG

A. See grassing specification.

2.5 SOD

A. See grassing specification.

2.6 PLANT MATERIALS

A. Provide all plant materials as indicated on the plans. In the event of any discrepancies between quantities of plants indicated on the plant schedule and those indicated on the plan, plan quantities shall govern.

B. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae, and shall have healthy, well developed root systems. Plants shall be from a nursery within 300 miles north or south of the project location and shall have been grown under climate conditions similar to those in the locality of project. Trees for planting in rows shall be uniform in size and shape.

B. Plants shall possess a normal balance between height and width. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of plant and not from branch tip to tip. Plants larger in size than specified may be used with no change in contract price.

C. Plants shall be dug with firm natural balls of earth, of diameter not less than recommended by American Standard for Nursery Stock and of sufficient depth to include fibrous and feeding roots. Plants will not be accepted if ball is cracked or broken before or during planting operations.

D. Trees specified for Street Tree Grade shall conform to standards of the A.N.L.A.:

1. Suitable for planting as street trees.

2. Free of branches to approximately 50% of height from ground.

3. Crown of tree shall be in good balance with the trunk.

2.7 FERTILIZER

A. Commercial fertilizer shall be slow release 5-10-10 or 6-12-12 (or as recommended by soil test), uniform in composition, free flowing, and suitable for application with appropriate equipment. Deliver to site unopened in manufacturer's standard containers showing weight, analysis and name of manufacturer. If stored on site, protect from the elements.

2.8 PEAT MOSS

A. Peat moss shall be finely shredded, 90% organic moss peat, brown in color and suitable for horticultural purposes. Peat shall be measured in air dry condition, containing not more than 35% moisture by weight. Ash content shall not exceed 10%.

2.9 MULCH FOR TREES, SHRUBS, AND GROUND COVERS

A. Mulch for non bio-retention areas shall be as shown on plans.

B. Mulch for bio-retention areas shall be shredded hardwood.

2.10 STAKING EQUIPMENT

A. Trees and palms shall be staked as shown in landscape plans.

2.11 WATER

A. Contractor shall provide water to the project via the installation of a new irrigation system for the area shown on the plans. For bidding purposes, the contractor shall assume drilling a new well with associated pumps and controls as needed for irrigation.

PART 3 - EXECUTION

3.1 FINE GRADING

A. All areas within limits of construction shall be fine graded to the desired grades. All areas within limits of construction are to be fine graded, free of roots, debris and/or other objectionable material, before planting or grassing commence. Any additional fill material needed to fill low or uneven areas shall be provided by the Contractor. Positive drainage away from structures shall be provided in all plant beds so standing water does not occur. Planting beds shall be raised above adjacent lawn areas to provide good drainage conditions.

B. Planting and grassed areas, if not loose, shall be loosened to a minimum depth of 3-inches before fertilizer, seed or sod is applied.

3.2 FERTILIZER AND SOIL AMENDMENTS

A. Contractor shall provide Topsoil Analysis Tests that has been performed by a State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, as approved by Landscape Architect.

B. Apply fertilizer and soil amendments after fine grading and mix thoroughly into upper 2 inches of soil.

C. Fertilizer and other necessary soil amendments shall be applied at the rate recommended by Topsoil Analysis Test.

3.3 SODDING

A. See grassing specification.

3.4 SPRIGGING

A. See grassing specification.

3.5 SEEDING

A. See grassing specification.

3.6 SEED PROTECTION

A. See grassing specification.

3.7 LAYOUT OF TREES, SHRUBS, AND GROUND COVERS

A. All plants shall be placed in the proper location as shown on construction plans, allowing Landscape Architect to review all plant locations prior to actual planting. Landscape Architect may make minor adjustments which shall not be cause for changes to the contract price.

3.8 OBSTRUCTIONS BELOW GROUND

A. Prior to excavating planting holes, Contractor shall determine the exact location of electrical, phone, or television cables or conduits, water, drainage or sewer lines, and any other subsurface structures and take precautions to protect them. Any damage to underground utilities shall be repaired immediately at the Contractor's expense.

B. In the event rock, underground construction work, or other obstructions are encountered in any plant hole excavation under this contract, alternate locations may be selected. Where locations cannot be changed, the obstructions shall be removed to a depth of not less than three (3) feet below grade and not less than six (6) inches below bottom of ball or roots when plant is properly set at the required grade. The Contractor shall be responsible for the removal of such rock or other underground obstructions encountered.

3.9 PLANTING HOLES

A. For trees, shrubs and ground covers the planting hole shall be as shown on planting details in the plans. Do not leave planting holes open overnight. In the event that plant holes are dug and not planted in a timely manner, install four (4) foot high orange safety fencing around all excavated areas.

3.10 PLANTING TREES AND SHRUBS

A. Shall be same as grown in the nursery and/or container soil level. Adjust bottom soil mix to insure proper planting level with the proposed surrounding grades. Check plants to insure proper vertical alignment.

B. Fill holes to proper height to receive plant, and thoroughly tamp before setting the plant. Set plant in upright position in the center of the hole, and compact the backfill mixture around the ball or roots. Add soil amendments as required to improve fertility of existing soil and plant growing conditions.

1. When balled or burlapped plants are set, compact topsoil around base of ball to fill all voids. All bindings shall be removed and the top half of burlap removed from around root ball. If burlap is made of natural fibers it can be laid back from the root mass or can be cut away. Remove all burlap if it is made of non-degradable material/fabric. All weeds growing on the root mass shall be removed prior to planting.

2. Containerized plants shall have the container removed prior to planting. Care shall be taken to protect root mass from injury and the root mass intact. If root mass shows evidence of being bound or matted, three vertical 1/2" deep cuts shall be made on alternate sides of the root mass and roots pulled away slightly. This is to untangle roots which have begun to "circle" the root mass and to encourage new root growth. All weeds growing in the root mass shall be removed prior to planting.

3. Roots of bare root plants shall be spread out and topsoil carefully worked in among them. Remove with a clean cut, any broken or frayed roots.

3.11 PLANTING GROUND COVERS

A. Planting beds shall be thoroughly worked to a depth of twelve (12) inches incorporating fertilizer and other soil improvements at the recommended rate suggest by the soils test. Rake prepared planting bed until level, smooth and free from all soil, lumps, rocks, sticks and other deleterious materials. Bed area should be neatly outlined. Space the plants evenly as indicated on the drawings. Plant only in soil that is moist and friable, and not wet or soggy. In the case of planting in the open on hot days, shorten the time between planting and watering.

3.12 WATERING

A. Thoroughly water each plant when the hole is 1/3 full, again at 2/3 full and then complete backfilling. Once backfilling is complete, water again, then tamp the soil in place until the surface of the backfill is level with the surrounding area and the plant bears the same relation of finished grade as it bore to existing grade before being dug.

B. Earth saucers shall be constructed around the perimeter of planting holes of all trees and all single planted shrubs. Earth saucers shall be minimum 3" high and compacted to retain water. Earth saucers shall not be installed in areas where the subsoil is very poorly drained or around mass shrub / groundcover plantings.

C. All trees and shrubs to be hand watered on a regular basis as necessary during the warranty period.

3.13 SOIL MIX

A. Shall be per existing soils on site with recommended amendments from soils test.

3.14 STAKING OF TALL PLANTS

A. Shall be done only if site / environment conditions make if required. If required, trees and palms shall be staked as indicated on the plans.

3.15 MULCHING

A. All plants shall be mulched with an evenly thick layer of clean mulch immediately after planting. Mass plant beds shall be completely mulched to the limits of the bed as shown on the plans. Limit of mulching for individual trees and shrubs shall be slightly beyond the saucer berm. The areas mulched shall be tidy and clean in appearance.

3.16 PRUNING

A. Remove dead, broken or bruised branches after planting using clean, sharp tools.

3.17 WEEDING

A. All planted areas shall be kept free from weeds and undesirable grasses until final acceptance by the Owner. See General notes on plans for additional information.

3.18 INSECT AND DISEASE CONTROL

A. All plant materials shall be disease or insect free upon arrival to the site, however, should any plants show signs of insect or disease infestations, Contractor shall identify nature of infestation and submit to Landscape Architect a proposed method of control. Contractor shall treat all infested plants at its expense. Should the infestation be wide spread and uncontrollable, plants affected shall be removed from site, fresh plants brought in and all other plants treated to prevent infestation of remaining plants at Contractor's expense.

3.19 CLEAN UP

A. Contractor is responsible for removing all trash, debris, rubbish and all other materials associated with the construction from site on a daily basis. All tags, flags, and labels will be removed from plants and trees. The site shall be left broom clean and tidy. Clean up of the site is a prerequisite to final acceptance by the Owner.

PART 4 - MAINTENANCE AND WARRANTY

4.1 MAINTENANCE

A. Protect all plantings (grass, plants and trees) until accepted by Owner. All damage, regardless of cause, shall be immediately repaired and plants replaced if necessary. Erect temporary fences, barricades, signs and other protection as needed to prevent trampling. Contractor is not responsible for replacement of damaged or missing plants and plant materials due to vandalism or other acts beyond the control of the Contractor if proper barriers or other safeguards have been maintained.

B. Maintenance shall include but is not limited to watering, weeding, cultivating, removal of dead material, mulch reapplication, resetting plants to proper grades or upright position, lawn mowing, fertilizing, and other necessary operations.

C. The Contractor shall repair immediately any areas damaged as a result of construction operations or erosion.

E. The Contractor shall maintain all proposed plantings until final acceptance is issued by the Owner.

F. At the end of the maintenance period, all plants shall be in a healthy growing condition. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace without additional cost to the Owner. Replacements required because of vandalism or other causes beyond the control of the Contractor are not part of this contract.

4.2 WARRANTY

A. All shrubs, ground cover, and trees shall be guaranteed by the Contractor to be alive and healthy for a one year period after substantial completion is issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any plants will be required to be replaced.

B. Any lawn, plant, or tree which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind.

END OF SECTION

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

LANDSCAPE SPECIFICATIONS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NO SCALE

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GRASSING SPECIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Seeding, planting grass, and fertilizing graded areas around buildings, structures, soccer fields and sidewalk shoulders and other disturbed areas.

B. Seed protection.

C. Maintaining grassed areas until final acceptance.

1.2 RELATED WORK

A. Civil and Landscape plans and specifications.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging. Damaged packages are not acceptable. Store in cool, dry locations away from contaminants.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Damaged bags are not acceptable. Store in cool, dry locations away from contaminants.

C. Deliver sod on pallets.

D. All material shall be acceptable to Engineer prior to use.

1.4 PLANTING DATES

A. This specification provides for establishment of a permanent grass cover between the dates of March 1 and September 30. If finished earth grades are not completed in time to permit planting and establishment of permanent grass during the favorable season between dates specified above unless otherwise accepted, Contractor will be required to plant a temporary cover to protect new graded areas from erosion and to keep windborne dust to a minimum. The temporary cover shall be planted between October 1 and February 28 unless otherwise permitted.

1.5 MEASUREMENT AND PAYMENT

A. When the season or stage of project is such results of grassing work cannot be determined, conditional acceptance will be made on work completed. When conditional acceptance is made for items of work covered, Contractor shall be entitled to 50% of bid price for the actual work placed and shall receive remaining 50% of bid price when final acceptance is made. Conditional acceptance shall not apply to the remaining items of work, and full bid price payment shall be made when work is acceptably placed and completed in accordance with specifications.

B. Payment for grassing will be made at contract unit price for the item "Grassing" and such payment shall constitute full compensation for furnishing and placing seed and fertilizer or sod where directed and protecting and maintaining seed and sod in all graded and disturbed areas.

PART 2 - PRODUCTS

Contractor shall submit source and species certification documents to Engineer and Owner's Representative for review prior to installation. Supply complete information on all analysis / test methodologies and results; laboratory certifications, manufacturer's specifications, and agency approvals to the Landscape Architect prior to placement of soil mixtures. In addition, provide the Landscape Architect with thoroughly mixed sample of soil mixes for approval prior to placement. Landscape Contractor shall make modifications and improvements to soil mixes deemed necessary by the soil analysis to meet requirements specified here in before, and to ensure proper growing medium for plant material.

2.1 SEED

A. All seed shall conform to all State Laws and to all requirements and regulations of the State Department of Agriculture.

B. The varieties of seed, as specified in Section 2.2, shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the State Department of Agriculture.

C. The Engineer reserves the right to test, reject, or accept all seed before seeding.

2.2 SEEDING SCHEDULE

A. SEED	RATE	PLANTING DATES
'Princess 77' Bermuda	75 lbs/ acre	March 1 - September 30
Annual Rye (Temp only)	75 lbs/acre	October 1 - February 28

2.3 FERTILIZER

A. Commercial fertilizer of approved type, conforming to state fertiilzer laws at the rate as recommended by soils test.

2.4 LIME

A. Agricultural grade, ground limestone at the rate as recommended by soils test.

2.5 SPRIG

A. Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 4 to 6 inches long. Obtain from heavy, dense certified sod. Provide sprigs which have been grown under climatic conditions similar to those in the locality of the project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs showing signs of wilt, mold, containing weeds or other detrimental material or that are heat damaged will be rejected.

B. The varieties of sprig, as specified in section 2.6, shall be individually packaged or bagged, and tagged to show name of sprig, net weight, origin and other information required by the State Department of Agriculture.

C. Sprigs shall be pure to variety specified and shall be free of other grass species, weeds or foreign matter.

D. Sprigs shall be harvested by digging (not collected above soil level) shredding sod, by rototilling sod and raking, by vericutting or by a sprig harvester. Sprigs shall consist of mostly rhizomes and crowns with only a few green leaves.

2.6 SPRIGGING SCHEDULE

A. SPRIG	RATE	PLANTING DATES
'Tifway 419' Bermuda (or approved equal)	1,000 bushels / ac. (Coverage in 3 months)	April 1 - August 31
Stabilize site with temporary grass seed (See section 2.2)		September 1 - March 31

B. In areas where existing grass is to be matched, Contractor shall sprig at the rate and dates recommended by sprig distributor.

2.7 SOD

A. Sod shall be premium grade, densely rooted, good quality grass of the species and certified variety as shown on the plans, free from noxious weeds with no surface soil being visible. The sod shall be obtained from areas where the soil is reasonably fertile. Sod of specified species with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed. The sod shall be machine cut to a uniform soil thickness that shall contain practically all of the dense root system and not be less than 1-inch thick.

B. Before cutting, sod shall be mowed to a height of not less that 1-1/2" or more than 2". Sod shall be cut in uniform widths min. 12" and in lengths min. 24 inches.

C. Sod shall be delivered to site in a fresh, moist condition with healthy green foliage. It shall be unloaded from delivery trucks on pallets or rolls and placed in final position within 24 hours of delivery. Sod shall be protected from wind and sun and shall not be allowed to dry out before planting.

D. Sod shall be strong enough to support its own weight and retain its size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.

2.8 ACCESSORIES

A. Straw Mulch: Oat or wheat straw, reasonably free from weeds, foreign matter detrimental to plant life, and in dry condition.

B. Excelsior Mulch: Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of fibers shall be 4 to 6 inches. Cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to natural grain of the wood to cause splintering of fibers when weathering in order to provide adherence to each other and to soil.

C. Wood cellulose fiber shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogenous slurry. Mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate into underlying soil. The mulch shall be heat processed to contain no germination or growth-inhibiting factors. It shall be dyed (non-toxic) an appropriate color to facilitate metering of material.

2.9 PRODUCT REVIEW

A. Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 - EXECUTION

3.1 PREPARATION

A. Areas to be seeded or sprigged shall be made smooth and uniform and shall conform to the finished grade indicated on plans.

B. Remove foreign materials, plants, roots, stones, and debris from surfaces to be seeded.

C. Grassing areas, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer, seed, sprig or sod is applied.

D. Amendments to soils shall be incorporated into loosened 3 inch top soil layer as recommended by soils test.

E. No seeding shall occur until acceptance of the seed bed preparation has occurred. Contractor shall notify owner and landscape architect once seed bed is prepared for review and acceptance.

3.2 STAND OF GRASS

A. Before acceptance of seeding or sprigging is performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of re-establishment in spring.

B. Before acceptance of seeding performed for the establishment of temporary vegetation, Contractor will be required to produce a stand of grass sufficient to control erosion for a given area and length of time before the next phase of construction or establishment of permanent vegetation is to commence.

3.3 SEEDING AND SPRIGGING DATES

A. Seeding and sprigging shall be performed during periods and at rates specified in their respective schedules. Seeding and sprigging work may, at discretion of Contractor, be performed throughout the year using schedule prescribed for given period. Seeding and sprigging work shall not be conducted when the ground is frozen or excessively wet. Contractor will be required to produce a satisfactory stand of grass regardless of the period of year work is performed.

3.4 APPLYING LIME AND FERTILIZER

A. Following advance preparation and placing selected material for shoulders and slopes, lime and fertilizer, if called for based on soil tests, shall be spread uniformly over the designated areas, and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer and lime shall be applied at the rate at the rate recommended by required soils test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic methods as a mixture of fertilizer and seed. When fertilizer is applied with combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when Wood Cellulose Fiber Mulch is used. Any stones larger than 2 ½ inches in any dimension, larger clods, roots, or other debris brought to the surface shall be removed.

3.5 SEEDING

A. Seed shall be sown within 24 hours following application of fertilizer and lime and preparation of the seedbed as specified in Section 3.4. Seed shall be uniformly sown at rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas inaccessible to seed drills.

B. Seeds shall be covered and lightly compacted by means of cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.

C. Apply water with fine spray immediately after each area has been sown.

D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.

E. If permitted by the special provisions, wood cellulose fiber mulch or excelsior fiber mulch may be used.

3.6 SEED PROTECTION (STRAW MULCH)

A. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

3.7 SEED PROTECTION (EXCELSIOR MULCH)

A. Seed shall be sown as specified in Section 3.5. Within 24 hours after covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. Engineer may require light rolling of the mulch to form a fight mat.

3.8 SEED PROTECTION (WOOD CELLULOSE FIBER MULCH)

A. After the lime has been applied and ground prepared as specified in Section 3.4, wood cellulose fiber mulch shall be applied at a rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for application of fertilizer, seed, and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of slurry on various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons.

Seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by hydraulic seeding method specified herein. Materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be regulated so amounts and rates of application shall result in a uniform application of all materials at rates not less than amount specified. Using the color of wood pulp as a guide, equipment operator shall spray prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream to fall like rain, allowing wood fibers to build upon each other until an even coat is achieved.

3.9 SPRIGGING

A. Sprigs shall be placed at the date and rates as shown in section 2.6. The sprigging method shall be by broadcast sprigging, hydroplanting or row planter. Sprigging procedure shall ensure even coverage.

B. Sprigs applied by broadcast over the site with a distributor or hydroseeder shall be planted at the rates listed in section 2.6. Cover broadcast sprigs with straw mulch immediately after broadcast and water in immediately (within 2 hours).

C. Sprigs installed by row planter creating a narrow furrow that covers 50 to 80% of the sprig with soil may use less sprig material. Rate shall be as recommended by sprig supplier to provide a solid stand of turf within the time required in Section 2.6. Water in immediately (within 1 hour).

3.10 SODDING

A. Sod shall be placed between March 1st and December 1st. However, if sod is to be placed during periods of temperatures over 90 degrees F., the contractor shall take extra care for quick placement of sod with adequate, consistent watering necessary to ensure sod thrives as planted.

B. Sod shall be placed within 24 hours of cutting.

C. Place top elevation of sod 1/2 inch below adjoining paving or curbs.

D. All areas to be sodded shall be brought to the proper line grade or cross section as was existing prior to construction. Sod shall be placed so that, upon completion, the edges of the sodded areas will be smooth and will conform to the proposed finished grade. Sod shall be laid smooth, edge to edge, with staggered joints. Sod shall be immediately pressed firmly into contact with the sod bed by tamping or rolling, to eliminate any air pockets. A true and even surface shall be provided, to insure knitting without displacement of the sod or deformation of the surfaces of the sodded areas. Do not stretch or overlap sod pieces. Following compaction, screened soil of good quality shall be used to fill all cracks, and excess soil shall be worked into the grass with rakes or other suitable equipment. On slopes steeper than 4 to1, the sod shall be fastened in place with suitable wood or metal pins to hold the sod in place. Any damage by erosion or other causes that may have occurred after completion of grading operations shall be repaired, before commencing with the sodding operations.

E. Immediately before sodding, moisten topsoil with a fine spray to a minimum 1" depth. Sod shall not be laid on soil that is dry and powdery.

F. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of the strips shall be at right angles to the flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. The sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement. The sod shall be watered, mowed, weeded, repaired, or otherwise maintained, to insure the establishment of a uniform healthy stand of grass until acceptance.

G. Within 2 hours after sod has been placed, thoroughly water to a minimum depth of 4". After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove depressions and irregularities. Roll sodded areas with a roller not exceeding 150 lbs. per foot of roller width. Top dress and roll again as necessary to create a smooth even surface.

PART 4 - MAINTENANCE, WARRANTY AND ACCEPTANCE

4.1 MAINTENANCE

A. Maintenance shall consist of providing protection against traffic, watering to ensure uniform seed germination and to keep surface of soil damp, and repairing any areas damaged as a result of construction operations or erosion. Maintenance shall also include, but is not limited to, watering, weeding, cultivating, removal of dead material, lawn mowing, fertilizing, and other necessary operations.

B. The Contractor shall maintain all proposed plantings until the date of final acceptance by the Owner.

4.2 WARRANTY

A. All grassed areas shall be guaranteed by the Contractor to be alive and healthy for a one year period from the date of substantial completion issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any areas require replanting. At the end of the warranty period, the sod shall show evidence of rooting to the underlying soil and shall have no competitive weed growth from either the sod or from between the sod joints.

B. Any grassed area which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind. Replacements required because of vandalism, excessive use or other causes beyond the control of the Contractor are not part of this contract.

4.3 ACCEPTANCE

A. Before acceptance of seeding performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of reestablishment in spring.

B. A minimum coverage of 80% density over 100% of the disturbed area is required for seeded areas before project acceptance. Sprig and sod areas shall have 95 % coverage over 100% of the disturbed area prior project acceptance.

END OF SECTION

NO.	REVISIONS	BY	DATE
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NFI INDUSTRIES
PORT WENTWORTH, GEORGIA

SITE DEVELOPMENT FOR BUILDINGS A & B

GRASSING SPECIFICATIONS

JOB NO:	J-26327.0010
DATE:	2/14/22
DRAWN:	MAR
DESIGNED:	MAR
REVIEWED:	RPT
APPROVED:	RPT
SCALE:	NO SCALE

L2.3

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT FOR:

NFI BUILDINGS A & B

PORT WENTWORTH, GEORGIA

PREPARED FOR:
NFI INDUSTRIES



J – 26327.0004

AUGUST 2021

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The following can be found at the end of this report:

Pre–Development Drainage Exhibit

Post–Development Drainage Exhibit

Soils Map

Location Map

FEMA Flood Map

CSS Exhibit

SECTION 1 – SUMMARY OF RESULTS

TABLE 1
Summary of Results

Analysis Point	Peak Runoff (cfs)									
	2–yr		*10–yr*		*25–yr*		*50–yr*		*100-yr*	
	Pre	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
Outfall 1	17.6	17.6	27.2	26.2	31.3	30.3	35.2	34.1	37.8	36.4

**All flows are reported in cfs.*

TABLE 2
Summary of Results – Peak Pond Stages

Pond	NWL (ft)	TOB (ft)*	Peak Pond Stage (ft)				
			2–yr	*10–yr*	*25–yr*	*50–yr*	*100–yr*
A1	20	24	21.5	22.3	22.9	23.4	23.8
A2	20	24	21.5	22.3	22.9	23.4	23.8
A3	22	28	22.0	22.3	22.9	23.4	23.8
B1	19.5	24	21.5	22.7	23.5	24.2	25.0
B2	21.5	26	22.5	22.7	23.6	24.3	25.0
B3	22	27	22.6	22.9	23.6	24.3	25.0
B4	25	29	25.7	25.9	26.1	26.2	26.3

*TOB – Top of Bank

SECTION 2 – PROJECT NARRATIVE

NFI Buildings A & B includes the clearing, grading, erosion control, and construction of approximately 96,250 (Building A) and 332,450 (Building B) million–square–foot industrial building and associated service utilities and parking. The development is located on approximately 41.52 acres of undeveloped land, south of Bonnybridge Road and east of Jimmy DeLoach Parkway in Port Wentworth, Georgia. The existing elevations on site range from 20 to 29 feet (NAVD 88).

Stormwater from the proposed site will be collected by a stormwater drainage system and a series of interconnected ponds and swales before discharging to two existing 18" RCP crossing pipes underneath the existing Norfolk Southern Railroad along the eastern boundary of the development. This drainage will then be conveyed through existing tributaries of St. Augustine Creek and ultimately outfall into the Savannah River.

SECTION 3 – PURPOSE

- To define the limits of the drainage basin(s) that contains this project.
- To document that major drainage infrastructure such as road crossings, drainage connectors, ponds, and outfalls are adequately sized for all existing and proposed development within the drainage basin.
- To document compliance with regulatory requirements of the City of Port Wentworth and the State of Georgia summarized as follows:

City of Port Wentworth

- Post–Development peak runoff rates shall not exceed the 2–, 5–, 10–, 25–, and 50–year, 24–hour storm pre–developed rates.
- Storm drainage culverts and pipe systems shall be sized to accommodate runoff from the 25–year, 24–hour storm.
- Aquatic Resource Protection shall be provided for each site through management and extended detention of the 1–year, 24–hour storm event released over a period of 24–hours.
- Reduce on–site the stormwater runoff volume generated by the 85th percentile storm event to the maximum extent practicable. This equates to reducing the storm water runoff volume generated by the 1.2–inch rainfall event and first 1.2 inches of all larger events.
- Intercept and treat any of the stormwater runoff generated by the 1.2–inch rainfall event (and the first 1.2 inches of all larger events) that is not reduced by runoff reduction in one or more storm water management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.
- All stormwater management systems shall be designed to control and/or safely convey the post–development peak discharge generated by the 100–year, 24–hour storm event.

Georgia EPD

- Sediment shall be prevented from leaving the site during construction.

SECTION 4 – PRE–DEVELOPMENT CONDITIONS

The existing site is largely pervious and wooded. Pre–development site soils consist of Hydrologic Soil Group (HSG) B/D. Currently, runoff on–site sheet flows from the west towards the east and outfalls to two existing 18" RCP crossing pipes underneath the existing Norfolk Southern Railroad along the eastern boundary of the development. This drainage will then be conveyed through existing tributaries of St. Augustine Creek and ultimately outfall into the Savannah River.

SECTION 5 – POST–DEVELOPMENT CONDITIONS

The proposed site will be graded and developed, altering the land use from wooded areas to mostly impervious. Stormwater runoff from Buildings A & B will be intercepted by a stormwater drainage network and conveyed to interconnected on–site detention ponds shown in the Post–Development Drainage Exhibit and discharged into the existing stormwater system at the eastern outfall as outlined in the pre-development conditions.

SECTION 6 – STORMWATER RUNOFF REDUCTION METHODOLOGY

The Port Wentworth Ordinance mandates developments to meet the guidelines set for in the Coastal Stormwater Supplement Section 4.4.1. The criteria state the following:

> "Reduce the storm water runoff volume generated by the 85th percentile storm event (and the "first flush" of the storm water runoff volume generated by all larger storm events) on a development site through the use of appropriate green infrastructure practices. In coastal Georgia, this equates to reducing the storm water runoff volume generated by the 1.2–inch rainfall event (and the storm water runoff generated by the first 1.2 inches of all larger rainfall events)."

The following equation is used to determine the Runoff Reduction Volume:

$$RR_v = (P)\ (R_v)\ (A) \div (12)$$

Where:
RR_v = runoff reduction volume (acre–feet)
P = target runoff reduction rainfall (inches)
R_v = volumetric runoff coefficient
A = site area (acres)
12 = unit conversion factor (in./ft.)

$R_v = 0.05 + 0.009(I)$
Where:
I = site imperviousness (%)

The spreadsheet included with the Coastal Stormwater Supplement provides various techniques/devises that may be implemented within a development to meet the Runoff Reduction Volume. The proposed design dry swales, vegetated filter strips and stormwater detention ponds to reduce the runoff reduction volume to the maximum extent practicable. Any remaining volume to be treated shall be conveyed through stormwater wetlands in order to achieve the required 80

percent reduction in TSS loads and reduce nitrogen and bacteria loads to the maximum extent practical. The applicant is requesting a waiver from the City of Port Wentworth for the remaining runoff reduction volume. See Appendix D for the CSS spreadsheet calculations.

SECTION 7 – STORMWATER QUALITY TREATMENT METHODOLOGY

The Port Wentworth Ordinance mandates developments to meet the guidelines set for in the Coastal Stormwater Supplement Section 4.4.2. The criteria state the following:

> "Adequately treat post–construction storm water runoff before it is discharged from a *development site. In coastal Georgia, these criteria can be satisfied simply by satisfying the storm water runoff reduction criteria. However, if any of the storm water runoff generated by the 1.2–inch storm event (and the first 1.2 inches of all larger rainfall events), cannot be reduced on a development site, due to site characteristics or constraints, it should be intercepted and treated in one or more storm water management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.*"

Stormwater Quality Treatment is calculated in the same manner as Runoff Reduction with the exception that the volume reduction made in Section 5 may be deducted from the "Water Quality Volume" in this section.

Stormwater Quality Treatment is essentially equivalent to the standard set forth in the Georgia Storm Water Management Manual for water quality. Per Section 1.2.2.2 "Minimum Standard #2– Storm Water Runoff Quality" of the Georgia Storm Water Management Manual, it is presumed that a storm water management system complies with the performance standard if:

- It is sized to capture and treat the prescribed water quality treatment volume, which is defined as the runoff volume resulting from the first 1.2 inches of rainfall from impervious areas; and
- Appropriate structural storm water controls are selected, designed, constructed and maintained according to the specific criteria in this Manual.

In order to meet stormwater quality treatment requirements from the first 1.2 inches of rainfall from impervious areas, stormwater wetlands are used. According to the Georgia Storm Water Management Manual Section 3.2.1 stormwater wetlands reduce TSS by 80%, total phosphorus by 50%, nitrogen by 30%, metals by 50%, and pathogens by 70%.

As illustrated in Appendix D, the proposed site meets the requirements set forth in the CSS.

SECTION 8 – STORMWATER QUANTITY METHODOLOGY

The existing and proposed conditions will be analyzed using the Advanced Interconnected Channel and Pond Routing (ICPR) computer program developed by Streamline Technologies. The program is used to model rainfall and stormwater runoff and to perform hydraulic routing through the storm drainage system. The ICPR program is a FEMA approved model that has the ability to analyze complex interconnected drainage systems dynamically over extended time periods.

The hydrologic input data consists of information for each drainage basin, or subwatershed, within the project. Input variables include runoff curve number, rainfall distribution pattern, hydrograph peaking factor, area of each drainage basin, and time of concentration (see below section

"Hydrology" for specifics on the values of these variables that were used in this model). The ICPR program generates runoff hydrographs for each subwatershed based on the user–specified variables. Hydrographs are generated by ICPR using the SCS Unit Hydrograph Method.

The model hydraulic input data consists of a system of nodes and links. Nodes represent locations where flows enter or exit the system, pipe or channel characteristics change, or where stage/storage/time relationships are provided. Links represent traditional types of hydraulic conveyance such as pipes, channels, drop structures, weirs, etc. The sizes, inverts, lengths, and Manning n values for all pipes connecting the lagoons are input into the model. In addition to pipe information, all lagoon and detention area stage–storage information and the respective outfall structure information is input into the model. The node and link conditions are analyzed within the model for a given storm, and flow conditions are determined.

The basic equation used by ICPR to route flows through the system is:

$$\Delta s = (Q_{in} - Q_{out})\ \Delta t$$

Where:
- Δs = Change in storage for time step
- Q_{in} = Flow into a node at time "t"
- Q_{out} = Flow out of a node at time "t"
- Δt = Length of time step; user defined range from 1.0 sec to 0.1 sec.

Hydrographs for each drainage area are merged within the ICPR program, and the hydrologic results are then combined with the hydraulic information to model the hydraulic interactions of the entire drainage system. The results include lagoon and detention area discharge rates and stage/storage information during the design storm.

For the design of the storm drainage system, a warning stage elevation is set for each lagoon and detention area and structure to assure no stormwater ponding. In addition, stages are compared to determine adequate pipe and control structure sizes. Knowing these two factors, the drainage system is designed by trial and error.

SECTION 9 – HYDROLOGY

- SCS Unit Hydrograph Method is used.
- Amount of rainfall for each storm frequency is determined based on NOAA, Atlas 14 The following 24–hour design storms are used in the model simulations:

TABLE 3
Rainfall Depths

Storm Event	Rainfall (inches)
2–year	4.4
10–year	6.5
25–year	8.1
50–year	9.5
100–year	10.9

- SCS Type III Statistical Rainfall Distribution is used. This distribution pattern is determined by the Soil Conservation Service comparing regional rain–gage data.

- A 323 Hydrograph Peaking Factor is used. The 323 Factor is based on statistical analysis of actual rainfall and runoff data from the Southeastern United States and is typical for coastal areas.

SECTION 10 – RUNOFF CALCULATIONS

Peak flow rates for each design storm are calculated by ICPR based on drainage area, hydrologic and hydraulic parameters, and the following runoff parameters:

10.1 Curve Numbers

Curve numbers are generated according to procedures set forth in SCS Technical Release 55 (TR–55). The composite curve numbers for each drainage basin are calculated using soils information from the SCS Soil Survey of Chatham County. Pre–Development Curve Numbers were weighted based on the type and amount of soil within the basin. WinTR–55 was used to calculate the weighted curve number. Curve number calculations from WinTR–55 can be found in Appendix A.

10.2 Time of Concentration

Times of concentration were calculated according to procedures set forth in SCS Hydrology Technical Note No. N4, as referenced in TR–55. The travel times (T_t) for overland flow, shallow concentrated flow, and channel flow are added together for the drainage basin to get the total time of concentration T_c. The total time of concentration path used for each basin is shown on the Pre–Development Drainage Basins Exhibit and the Post–Development Drainage Basins Exhibit.

- Overland Flow

  The equation for overland flow travel time is as follows:

  $$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

  Where: n = Manning's friction factor
  L = slope length (ft)
  S = Slope (ft/ft)
  P_2 = 24–hour precipitation (inches)

  The travel time as calculated in the above equation in hours.

- Shallow Concentrated Flow

  The equation for shallow concentrated flow travel time is as follows:

  $$T_t = \frac{L}{60v} \text{ (min)}$$

  Where: L = length (ft)
  v = velocity (ft/sec)

- Channel and Pipe Flow

  The equation for channel flow travel time is as follows:

  $$T_t = \frac{L}{60v} \text{ (min)}$$

  Where: L = length of channel (ft)
  v = velocity (ft/sec)

The velocity is determined using Manning's equation:

$v = (1.49/n)r^{2/3}S^{1/2}$ Where: r = hydraulic radius (ft) = A/P
A_x = cross–sectional area (sf)
P = wetted perimeter (ft)
S = slope (ft/ft)

Channel flow was assumed to have a velocity of 2 fps.

SECTION 11 – AQUATIC RESOURCE PROTECTION

The Port Wentworth Ordinance mandates developments to meet the guidelines set forth in the Coastal Stormwater Supplement Section 4.4.3. The criteria states the following:

> *"24 hours of extended detention be provided for the stormwater runoff volume generated by the 1–year, 24–hour storm event before it is discharged from a development site. Providing the storage needed to provide 24 hours of extended detention for the stormwater runoff volume generated by the 1–year, 24–hour storm event, which is known as the aquatic resource protection volume (ARPv) (Section 5.3), will not only help control streambank erosion in coastal Georgia's freshwater rivers and streams (by reducing the frequency and duration of channel forming bankfull and near bankfull events), but will also help control the harmful salinity fluctuations that occur in the region's tidal creeks, coastal marshlands and other vital estuarine resources."*

The drawdown showing extended detention over 24 hours for the 1–year 24–hour storm event can be found in the 1–year simulation graph in Appendix F. The graph demonstrates that the ponds release runoff for 72 hours and are therefore in compliance with the CSS and Port Wentworth Ordinance.

SECTION 12 – CONCLUSIONS

In accordance with the City of Port Wentworth Ordinance, post–development peak runoff rates are less than pre–development rates for the 2– though 50–year rainfall events and are safely conveyed for the 100–year storm event. Stormwater runoff reduction, water quality treatment, and aquatic resource protection have been addressed on–site per the City of Port Wentworth's Stormwater Management Ordinance. The proposed development was analyzed using the methods identified in this report and were found to be compliant with the City of Port Wentworth's requirements and Georgia EPD regulations.

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX A

CURVE NUMBER & TIME OF CONCENTRATION CALCULATIONS

26327.0010

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Pre Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Pre\Pre CN TC.w55

Date: 7/20/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-101A			41.78	87	0.684
WS-101			3.6	90	0.247
WS-100			22.82	87	.684
NORITAKE			10.04	90	.247

Total area: 78.24 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-101A	41.78	0.684	87		
WS-101	3.60	0.247	90		
WS-100	22.82	0.684	87		
NORITAKE	10.04	0.247	90		

Total Area: 78.24 (ac)

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-101A							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		0.684
WS-101							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-100							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		.684
NORITAKE							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247

NFI Crossgate NE Quadrant
Pre Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-101A	Paved; curbs and storm sewers		D	5	98
	Woods - grass combination	(poor)	D	36.78	86
	Total Area / Weighted Curve Number			41.78	87
WS-101	Open space; grass cover > 75%	(good)	D	1.6	80
	Paved parking lots, roofs, driveways		D	2	98
	Total Area / Weighted Curve Number			3.6	90
WS-100	Paved; curbs and storm sewers		D	1.49	98
	Woods - grass combination	(poor)	D	21.33	86
	Total Area / Weighted Curve Number			22.82	87
NORITAKE	Open space; grass cover > 75%	(good)	D	3.54	80
	Paved parking lots, roofs, driveways		D	5.5	98
	Woods - grass combination	(poor)	D	1	86
	Total Area / Weighted Curve Number			10.04	90

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Post Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Post\Post CN TC.w55

Date: 8/11/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-101A			23.02	87	0.684
WS-101			3.6	90	0.247
WS-100			6.27	87	.684
NORITAKE			9.37	91	0.247
WS-200			12.37	96	.247
WS-201			6.46	96	.247
WS-202			3.17	96	.247
WS-203			4.86	90	.247
WS-204			2.1	96	.247
WS-205			0.9	90	0.247

Total area: 72.12 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-101A	23.02	0.684	87		
WS-101	3.60	0.247	90		
WS-100	6.27	0.684	87		
NORITAKE	9.37	0.247	91		
WS-200	12.37	0.247	96		
WS-201	6.46	0.247	96		
WS-202	3.17	0.247	96		
WS-203	4.86	0.247	90		
WS-204	2.10	0.247	96		
WS-205	.90	0.247	90		

Total Area: 72.12 (ac)

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-101A							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		0.684
WS-101							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-100							
SHEET	100	0.0100	0.240				0.270
SHALLOW	1300	0.0050	0.050				0.317
CHANNEL	695					2.000	0.097
					Time of Concentration		.684
NORITAKE							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247
WS-200							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-201							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-202							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-203							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-204							
SHEET	100	0.0100	0.011				0.023
SHALLOW	1000	0.0025	0.050				0.424

Sub-Area Time of Concentration Details (continued)

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
					Time of Concentration		.247
WS-205							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		0.247

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-101A	Paved; curbs and storm sewers		D	2.755	98
	Woods - grass combination	(poor)	D	20.26	86
	Total Area / Weighted Curve Number			23.02	87
WS-101	Open space; grass cover > 75%	(good)	D	1.6	80
	Paved parking lots, roofs, driveways		D	2	98
	Total Area / Weighted Curve Number			3.6	90
WS-100	Paved; curbs and storm sewers		D	.41	98
	Woods - grass combination	(poor)	D	5.86	86
	Total Area / Weighted Curve Number			6.27	87
NORITAKE	Open space; grass cover > 75%	(good)	D	3.67	80
	Paved parking lots, roofs, driveways		D	5.5	98
	Woods - grass combination	(poor)	D	.2	86
	Total Area / Weighted Curve Number			9.37	91
WS-200	Open space; grass cover > 75%	(good)	D	1.37	80
	Paved parking lots, roofs, driveways		D	11	98
	Total Area / Weighted Curve Number			12.37	96
WS-201	Open space; grass cover > 75%	(good)	D	.66	80
	Paved parking lots, roofs, driveways		D	5.8	98
	Total Area / Weighted Curve Number			6.46	96
WS-202	Open space; grass cover > 75%	(good)	D	.37	80
	Paved parking lots, roofs, driveways		D	2.8	98
	Total Area / Weighted Curve Number			3.17	96
WS-203	Open space; grass cover > 75%	(good)	D	2.26	80
	Paved parking lots, roofs, driveways		D	2.6	98
	Total Area / Weighted Curve Number			4.86	90
WS-204	Open space; grass cover > 75%	(good)	D	.2	80
	Paved parking lots, roofs, driveways		D	1.9	98
	Total Area / Weighted Curve Number			2.1	96
WS-205	Open space; grass cover > 75%	(good)	D	.4	80
	Paved parking lots, roofs, driveways		D	.5	98
	Total Area / Weighted Curve Number			.9	90

WinTR-55 Current Data Description

--- Identification Data ---

User: EMD
Project: NFI Crossgate NE Quadrant
SubTitle: Post Dev Basins
State: Georgia
County: Chatham
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\Basins\Post\Post1 CN TC.w5

Date: 8/11/2021
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
WS-206			0.24	98	.247
WS-207			0.58	98	.247
WS-208			1.72	96	.247

Total area: 2.54 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

EMD

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
4.33	5.46	6.5	8.09	9.44	10.9	3.7

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
WS-206	.24	0.247	98		
WS-207	.58	0.247	98		
WS-208	1.72	0.247	96		

Total Area: 2.54 (ac)

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
WS-206							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-207							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247
WS-208							
SHEET	100	0.0100	0.011				0.023
SHALLOW	650	0.0025	0.050				0.224
					Time of Concentration		.247

NFI Crossgate NE Quadrant
Post Dev Basins
Chatham County, Georgia

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
WS-206	Paved parking lots, roofs, driveways	D	.24	98
	Total Area / Weighted Curve Number		.24	98
WS-207	Paved parking lots, roofs, driveways	D	.58	98
	Total Area / Weighted Curve Number		.58	98
WS-208	Open space; grass cover > 75% (good)	D	.22	80
	Paved parking lots, roofs, driveways	D	1.5	98
	Total Area / Weighted Curve Number		1.72	96

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX B

PRE–DEVELOPMENT ICPR INPUT AND OUTPUT

26327.0010

==========
==== Basins ====
==========

Name: Noritake Node: NORITAKE Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 10.040 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-100 Node: RR-US Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 22.820 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101 Node: SUBSTATION Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.600 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101A Node: D1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 41.780 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

==========
==== Nodes ====
==========

Name: D1 Base Flow(cfs): 0.000 Init Stage(ft): 21.100
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.000	16.5000
22.000	25.6000
23.000	32.0000
24.000	41.7800

Name: NORITAKE Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	6.0000
24.000	10.0000

Name: Rail Outfall Base Flow(cfs): 0.000 Init Stage(ft): 19.390

Group: BASE Warn Stage(ft): 24.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	19.390
36.00	19.390

Name: RR-US Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.390	0.0050
20.000	0.0080
21.000	5.8300
22.000	12.7000
23.000	20.0000
24.000	22.8200

Name: SUBSTATION Base Flow(cfs): 0.000 Init Stage(ft): 21.300
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.300	0.0027
21.500	0.1211
22.000	0.3018
22.500	0.3596
23.000	0.4124
24.000	0.5190
25.000	3.6000

==========
==== Pipes ==========
==========

Name: Ex. Pipe 1 From Node: RR-US Length(ft): 22.00
Group: BASE To Node: Rail Outfall Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Automatic
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.50
Invert(ft):	19.610	19.400	Exit Loss Coef:	0.50
Manning's N:	0.013000	0.013000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: Ex. Pipe 2 From Node: RR-US Length(ft): 22.00
Group: BASE To Node: Rail Outfall Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Automatic
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.50
Invert(ft):	19.390	19.390	Exit Loss Coef:	0.50
Manning's N:	0.013000	0.013000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Channels

Name:	OFF-SITE D1	From Node:	D1	Length(ft):	950.00
Group:	BASE	To Node:	RR-US	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	21.100	19.390	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	50.000	50.000		
LtSdSlp(h/v):	0.33	0.33		
RtSdSlp(h/v):	0.33	0.33		

Name:	OFF-SITE D2	From Node:	NORITAKE	Length(ft):	1600.00
Group:	BASE	To Node:	RR-US	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	23.000	19.390	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.040000	0.040000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	20.000	20.000		
LtSdSlp(h/v):	0.33	0.33		
RtSdSlp(h/v):	0.33	0.33		

Drop Structures

Name:	Control	From Node:	SUBSTATION	Length(ft):	32.00
Group:	BASE	To Node:	D1	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	18.00	18.00	Solution Algorithm:	Most Restrictive
Rise(in):	18.00	18.00	Flow:	Both
Invert(ft):	21.200	21.100	Entrance Loss Coef:	0.500
Manning's N:	0.013000	0.013000	Exit Loss Coef:	0.500
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure Control ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600

```
              Span(in): 6.00                      Invert(ft): 21.300
              Rise(in): 18.00                 Control Elev(ft): 21.300

*** Weir 2 of 3 for Drop Structure Control ***
                                                                      TABLE
                 Count: 1                     Bottom Clip(in): 0.000
                  Type: Horizontal               Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                     Invert(ft): 24.500
              Rise(in): 36.00                 Control Elev(ft): 24.500

*** Weir 3 of 3 for Drop Structure Control ***
                                                                      TABLE
                 Count: 3                     Bottom Clip(in): 0.000
                  Type: Vertical: Mavis          Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 36.00                     Invert(ft): 23.900
              Rise(in): 7.00                  Control Elev(ft): 23.900


================================================================================
==== Hydrology Simulations ====================================================
================================================================================

         Name: 002
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\002.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 4.40

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 010
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\010.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 6.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 025
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\025.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 8.11

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 050
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\050.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 9.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

--------------------------------------------------------------------------------------------------------
         Name: 100
     Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\100.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 10.90
```

Time(hrs)	Print Inc(min)
36.000	5.00

==========
==== Routing Simulations ==========
==========

Name: 002 Hydrology Sim: 002
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\002.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 002 Boundary Flows: Amazon 002

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 010 Hydrology Sim: 010
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\010.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 010 Boundary Flows: Amazon 010

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 025 Hydrology Sim: 025
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\025.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 025 Boundary Flows: Amazon 025

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 050 Hydrology Sim: 050
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\050.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 050 Boundary Flows: Amazon 050

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Name: 100 Hydrology Sim: 100
Filename: Z:\26327\26327.0010\Engineering\Calculations and Reports\Storm Water\ICPR\PRE\100.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 100 Boundary Flows: Amazon 100

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

Boundary Conditions

Name: 002 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	20.400
24.000	19.390
36.000	19.390

Name: 010 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	21.700
24.000	19.390
36.000	19.390

Name: 025 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.400
24.000	19.390
36.000	19.390

Name: 050 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.900
24.000	19.390
36.000	19.390

Name: 100 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	23.500
24.000	19.390
36.000	19.390

Name: Amazon 025 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	0.000
10.000	4.700
13.200	47.000
20.250	6.340
30.000	0.500
36.000	0.100

Name: Amazon 010 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
8.500	1.000
13.250	36.800
19.000	6.900
24.250	2.800
36.000	0.000

Name: Amazon 002 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
10.250	1.000
13.250	22.900
21.000	3.000
36.000	0.000

Name: Amazon 050 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	1.000
13.000	61.920
20.000	7.700
36.000	0.000

Name: Amazon 100 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
6.000	1.000
13.000	69.950
20.000	9.400
28.000	1.000
36.000	0.000

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002	Noritake	BASE	12.30	22.38	3.301	120324
010	Noritake	BASE	12.27	35.20	5.336	194473
025	Noritake	BASE	12.27	44.94	6.917	252084
050	Noritake	BASE	12.27	53.30	8.289	302096
100	Noritake	BASE	12.27	61.68	9.676	352626
002	WS-100	BASE	12.50	29.30	3.003	248792
010	WS-100	BASE	12.50	48.08	4.993	413589
025	WS-100	BASE	12.50	62.43	6.551	542689
050	WS-100	BASE	12.50	74.75	7.909	655153
100	WS-100	BASE	12.50	87.11	9.284	769027
002	WS-101	BASE	12.24	8.98	3.301	43144
010	WS-101	BASE	12.24	14.07	5.336	69731
025	WS-101	BASE	12.24	17.93	6.917	90389
050	WS-101	BASE	12.24	21.24	8.289	108321
100	WS-101	BASE	12.24	24.57	9.676	126440
002	WS-101A	BASE	12.50	53.64	3.003	455500
010	WS-101A	BASE	12.50	88.02	4.993	757220
025	WS-101A	BASE	12.50	114.30	6.551	993581
050	WS-101A	BASE	12.50	136.86	7.909	1199488
100	WS-101A	BASE	12.50	159.48	9.284	1407973

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
D1	002	21.68	24.00	0.0016	1012692	73.43	19.08
D1	010	22.20	24.00	0.0029	1195078	122.87	22.63
D1	025	22.58	24.00	0.0031	1302440	156.24	24.38
D1	050	23.02	24.00	0.0038	1428568	199.88	27.95
D1	100	23.36	24.00	0.0039	1570356	233.22	29.26
NORITAKE	002	23.23	24.00	0.0007	317513	22.11	3.36
NORITAKE	010	23.36	24.00	0.0009	339823	34.86	5.74
NORITAKE	025	23.44	24.00	0.0009	355140	44.52	7.81
NORITAKE	050	23.52	24.00	0.0011	368782	52.83	9.13
NORITAKE	100	23.60	24.00	0.0016	381917	61.13	10.48
Rail Outfall	002	20.40	24.00	0.0014	31	17.60	0.00
Rail Outfall	010	21.70	24.00	0.0032	2	27.19	0.00
Rail Outfall	025	22.40	24.00	0.0042	2	31.31	0.00
Rail Outfall	050	22.90	24.00	0.0049	2	35.19	0.00
Rail Outfall	100	23.50	24.00	-0.0057	2	37.81	0.00
RR-US	002	21.46	24.00	0.0045	432707	39.46	17.60
RR-US	010	22.16	24.00	0.0050	645237	56.04	27.19
RR-US	025	22.56	24.00	0.0050	773416	66.25	31.31
RR-US	050	23.01	24.00	0.0050	915036	87.69	35.19
RR-US	100	23.35	24.00	0.0050	956680	105.93	37.81
SUBSTATION	002	22.80	25.00	0.0050	17063	8.97	2.46
SUBSTATION	010	23.39	25.00	0.0050	19784	14.06	3.77
SUBSTATION	025	23.83	25.00	0.0050	21831	17.91	4.34
SUBSTATION	050	24.09	25.00	0.0050	35101	21.23	6.60
SUBSTATION	100	24.22	25.00	0.0050	52689	24.54	8.93

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX C

POST–DEVELOPMENT ICPR INPUT AND OUTPUT

26327.0010

==========
==== Basins ==========
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Name: Noritake Node: NORITAKE Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 9.370 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-100 Node: RR-US Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 6.270 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101 Node: SUBSTATION Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.600 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-101A Node: D1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 41.00
Area(ac): 23.020 Time Shift(hrs): 0.00
Curve Number: 87.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-200 Node: POND A-1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 12.370 Time Shift(hrs): 0.00
Curve Number: 96.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-201 Node: POND A-2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Scsiii Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 6.460 Time Shift(hrs): 0.00
Curve Number: 96.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: WS-202 Node: POND B1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0

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         Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 3.170                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-203                  Node: DITCH TO B1            Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 4.860                   Time Shift(hrs): 0.00
          Curve Number: 90.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-204                  Node: POND B2                Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 2.100                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-205                  Node: DITCH TO B3            Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 0.900                   Time Shift(hrs): 0.00
          Curve Number: 90.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-206                  Node: EP-3                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 0.240                   Time Shift(hrs): 0.00
          Curve Number: 98.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-207                  Node: EP-4                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
              Area(ac): 0.580                   Time Shift(hrs): 0.00
          Curve Number: 98.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


-------------------------------------------------------------------------------------------------
          Name: WS-208                  Node: EP-5                   Status: Onsite
         Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                   Peaking Factor: 323.0
          Rainfall File: Scsiii              Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 15.00
              Area(ac): 1.720                   Time Shift(hrs): 0.00
          Curve Number: 96.00               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


=================================================================================
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==== Nodes ==
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Name: D1 Base Flow(cfs): 0.000 Init Stage(ft): 21.100
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.000	16.5000
22.000	17.0000
23.000	23.0200

Name: DITCH TO B1 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	0.0100
24.000	0.0120
25.000	0.0150
26.000	0.0200
27.000	0.1000
28.000	0.1800
29.000	0.2400

Name: DITCH TO B3 Base Flow(cfs): 0.000 Init Stage(ft): 26.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
26.000	0.0233
27.000	0.0780
28.000	0.1250
29.000	0.2180

Name: EP-1 Base Flow(cfs): 0.000 Init Stage(ft): 16.700
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-2 Base Flow(cfs): 0.000 Init Stage(ft): 17.050
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-3 Base Flow(cfs): 0.000 Init Stage(ft): 18.090
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: EP-4 Base Flow(cfs): 0.000 Init Stage(ft): 9.500
Group: BASE Warn Stage(ft): 28.900
Type: Stage/Area

Stage(ft)	Area(ac)
9.500	0.0100
28.900	0.0100

Name: EP-5 Base Flow(cfs): 0.000 Init Stage(ft): 21.000
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: NORITAKE Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	6.0000
24.000	10.0000

Name: POND A-1 Base Flow(cfs): 0.000 Init Stage(ft): 19.500
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
9.500	3.3000
19.500	3.7000
24.000	4.3400

Name: POND A-2 Base Flow(cfs): 0.000 Init Stage(ft): 20.000
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
20.000	0.3720
24.000	0.7000

Name: POND A-3 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 28.000
Type: Stage/Area

Stage(ft)	Area(ac)
22.000	0.0060
28.000	0.2400

Name: POND B-4 Base Flow(cfs): 0.000 Init Stage(ft): 25.000
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)
25.000	0.0230
29.000	0.9200

Name: POND B1 Base Flow(cfs): 0.000 Init Stage(ft): 19.500
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.500	0.2490
20.000	0.2510
25.000	0.6440

Name: POND B2 Base Flow(cfs): 0.000 Init Stage(ft): 21.500

Group: BASE Warn Stage(ft): 26.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.500	0.0600
26.000	0.2020

Name: POND B3 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 27.000
Type: Stage/Area

Stage(ft)	Area(ac)
22.000	0.0700
24.000	0.1540
27.000	0.2900

Name: Rail Outfall Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	19.390
36.00	19.390

Name: RR-US Base Flow(cfs): 0.000 Init Stage(ft): 19.390
Group: BASE Warn Stage(ft): 24.000
Type: Stage/Area

Stage(ft)	Area(ac)
19.390	0.0050
20.000	0.0080
21.000	0.5000
22.000	1.5000
23.000	4.0000
24.000	6.2700

Name: SUBSTATION Base Flow(cfs): 0.000 Init Stage(ft): 21.300
Group: BASE Warn Stage(ft): 25.000
Type: Stage/Area

Stage(ft)	Area(ac)
21.300	0.0027
21.500	0.1211
22.000	0.3018
22.500	0.3596
23.000	0.4124
24.000	0.5190
25.000	3.6000

==========
==== Pipes ==========
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Name: 18"_B3_B4 From Node: POND B-4 Length(ft): 60.00
Group: BASE To Node: POND B3 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	18.00	18.00
Rise(in):	18.00	18.00
Invert(ft):	25.000	24.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	18"_B3_D	From Node:	DITCH TO B3	Length(ft): 76.00
Group:	BASE	To Node:	POND B3	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	18.00	18.00		Entrance Loss Coef: 0.50
Rise(in):	18.00	18.00		Exit Loss Coef: 0.50
Invert(ft):	25.000	24.000		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	18"_P-A-2_P-A-3	From Node:	POND A-3	Length(ft): 123.00
Group:	BASE	To Node:	POND A-2	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	18.00	18.00		Entrance Loss Coef: 0.50
Rise(in):	18.00	18.00		Exit Loss Coef: 0.50
Invert(ft):	22.000	20.000		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	24"_B2_B3	From Node:	POND B3	Length(ft): 100.00
Group:	BASE	To Node:	POND B2	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	24.00	24.00		Entrance Loss Coef: 0.50
Rise(in):	24.00	24.00		Exit Loss Coef: 0.50
Invert(ft):	22.000	21.500		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_B1_B2	From Node:	POND B2	Length(ft): 440.00
Group:	BASE	To Node:	POND B1	Count: 1
				Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular		Flow: Both
Span(in):	36.00	36.00		Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00		Exit Loss Coef: 0.50
Invert(ft):	21.500	19.500		Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000		Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec: Use dc

Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_EP-4-EP-5	From Node: EP-5	Length(ft): 424.00
Group:	BASE	To Node: EP-4	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	42.00	42.00	Entrance Loss Coef: 0.50
Rise(in):	42.00	42.00	Exit Loss Coef: 0.50
Invert(ft):	21.000	19.000	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	36"_P-A-1_P-A-2	From Node: POND A-2	Length(ft): 74.00
Group:	BASE	To Node: Pond A-1	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.50
Rise(in):	36.00	36.00	Exit Loss Coef: 0.00
Invert(ft):	20.000	18.000	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	48"_EP-2_EP-3	From Node: EP-3	Length(ft): 432.00
Group:	BASE	To Node: EP-2	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	48.00	48.00	Entrance Loss Coef: 0.50
Rise(in):	48.00	48.00	Exit Loss Coef: 0.50
Invert(ft):	18.090	17.050	Bend Loss Coef: 0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	48"_EP-3_EP-4	From Node: EP-4	Length(ft): 374.00
Group:	BASE	To Node: EP-3	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both

Span(in):	48.00	48.00	Entrance Loss Coef:	0.50
Rise(in):	48.00	48.00	Exit Loss Coef:	0.50
Invert(ft):	19.000	18.090	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	54"_EP-1_EP-2	From Node: EP-2	Length(ft):	145.00
Group:	BASE	To Node: EP-1	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	54.00	54.00	Entrance Loss Coef:	0.50
Rise(in):	54.00	54.00	Exit Loss Coef:	0.50
Invert(ft):	17.050	16.700	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	60"_A-1_EP-1	From Node: EP-1	Length(ft):	85.00
Group:	BASE	To Node: POND A-1	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	60.00	60.00	Entrance Loss Coef:	0.50
Rise(in):	60.00	60.00	Exit Loss Coef:	0.50
Invert(ft):	16.700	16.500	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	Ex. Pipe 1	From Node: RR-US	Length(ft):	22.00
Group:	BASE	To Node: Rail Outfall	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	18.00	18.00	Entrance Loss Coef:	0.50
Rise(in):	18.00	18.00	Exit Loss Coef:	0.50
Invert(ft):	19.610	19.400	Bend Loss Coef:	0.00
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
        Name: Ex. Pipe 2          From Node: RR-US              Length(ft): 22.00
       Group: BASE                  To Node: Rail Outfall           Count: 1
                                                        Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                        Flow: Both
    Span(in): 18.00          18.00                     Entrance Loss Coef: 0.50
    Rise(in): 18.00          18.00                         Exit Loss Coef: 0.50
   Invert(ft): 19.390        19.390                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


--------------------------------------------------------------------------------------------------
        Name: POND2>OUTFALL       From Node: Pond A-1           Length(ft): 46.00
       Group: BASE                  To Node: RR-US                  Count: 1
                                                        Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                        Flow: Both
    Span(in): 36.00          36.00                     Entrance Loss Coef: 0.50
    Rise(in): 36.00          36.00                         Exit Loss Coef: 0.50
   Invert(ft): 20.000        19.500                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                     Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


==================================================================================================
==== Channels ====================================================================================
==================================================================================================

         Name: B1 DITCH            From Node: DITCH TO B1        Length(ft): 43.00
        Group: BASE                  To Node: POND B1                Count: 1

              UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
    Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
   Invert(ft): 23.000        19.500                          Flow: Both
TClpInitZ(ft): 9999.000      9999.000                  Contraction Coef: 0.100
  Manning's N: 0.040000      0.040000                    Expansion Coef: 0.300
 Top Clip(ft): 0.000         0.000                     Entrance Loss Coef: 0.000
 Bot Clip(ft): 0.000         0.000                         Exit Loss Coef: 0.000
    Main XSec:                                         Outlet Ctrl Spec: Use dc or tw
 AuxElev1(ft):                                          Inlet Ctrl Spec: Use dc
    Aux XSec1:                                        Stabilizer Option: None
 AuxElev2(ft):
    Aux XSec2:
Top Width(ft):
    Depth(ft):
Bot Width(ft): 23.000        19.500
 LtSdSlp(h/v): 3.00          3.00
 RtSdSlp(h/v): 3.00          3.00


--------------------------------------------------------------------------------------------------
         Name: OFF-SITE D1         From Node: D1                 Length(ft): 950.00
        Group: BASE                  To Node: RR-US                  Count: 1

              UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
    Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
   Invert(ft): 21.100        19.390                          Flow: Both
TClpInitZ(ft): 9999.000      9999.000                  Contraction Coef: 0.100
  Manning's N: 0.040000      0.040000                    Expansion Coef: 0.300
 Top Clip(ft): 0.000         0.000                     Entrance Loss Coef: 0.000
 Bot Clip(ft): 0.000         0.000                         Exit Loss Coef: 0.000
    Main XSec:                                         Outlet Ctrl Spec: Use dc or tw
 AuxElev1(ft):                                          Inlet Ctrl Spec: Use dc
    Aux XSec1:                                        Stabilizer Option: None
 AuxElev2(ft):
```

```
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft): 50.000          50.000
  LtSdSlp(h/v): 3.00            3.00
  RtSdSlp(h/v): 3.00            3.00



-------------------------------------------------------------------------------------------------
          Name: OFF-SITE D2          From Node: NORITAKE           Length(ft): 1600.00
         Group: BASE                   To Node: RR-US                 Count: 1

                UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
      Geometry: Trapezoidal    Trapezoidal               Solution Algorithm: Automatic
    Invert(ft): 23.000         19.390                               Flow: Both
 TClpInitZ(ft): 9999.000       9999.000                  Contraction Coef: 0.100
   Manning's N: 0.040000       0.040000                    Expansion Coef: 0.300
  Top Clip(ft): 0.000          0.000                    Entrance Loss Coef: 0.000
  Bot Clip(ft): 0.000          0.000                        Exit Loss Coef: 0.000
     Main XSec:                                          Outlet Ctrl Spec: Use dc or tw
  AuxElev1(ft):                                           Inlet Ctrl Spec: Use dc
     Aux XSec1:                                        Stabilizer Option: None
  AuxElev2(ft):
     Aux XSec2:
 Top Width(ft):
     Depth(ft):
 Bot Width(ft): 20.000          20.000
  LtSdSlp(h/v): 3.00            3.00
  RtSdSlp(h/v): 3.00            3.00



===============================================================================================
==== Drop Structures ==========================================================================
===============================================================================================

          Name: 42" - RI#1          From Node: POND B1            Length(ft): 130.00
         Group: BASE                   To Node: EP-4                  Count: 1

                UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
      Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
      Span(in): 42.00          42.00                                Flow: Both
      Rise(in): 42.00          42.00                    Entrance Loss Coef: 0.500
    Invert(ft): 9.500          9.500                        Exit Loss Coef: 0.500
   Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall



*** Weir 1 of 1 for Drop Structure 42" - RI#1 ***
                                                                                    TABLE
                   Count: 1                      Bottom Clip(in): 0.000
                    Type: Vertical: Mavis           Top Clip(in): 0.000
                    Flow: Both                   Weir Disc Coef: 3.200
                Geometry: Rectangular          Orifice Disc Coef: 0.600

                Span(in): 240.00                     Invert(ft): 19.500
                Rise(in): 6.00                 Control Elev(ft): 19.500


-------------------------------------------------------------------------------------------------
          Name: Control             From Node: SUBSTATION         Length(ft): 32.00
         Group: BASE                   To Node: D1                    Count: 1

                UPSTREAM       DOWNSTREAM                 Friction Equation: Automatic
      Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
      Span(in): 18.00          18.00                                Flow: Both
      Rise(in): 18.00          18.00                    Entrance Loss Coef: 0.500
    Invert(ft): 21.200         21.100                       Exit Loss Coef: 0.500
   Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall
```

```
*** Weir 1 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 1                       Bottom Clip(in): 0.000
                  Type: Vertical: Mavis            Top Clip(in): 0.000
                  Flow: Both                     Weir Disc Coef: 3.200
              Geometry: Rectangular            Orifice Disc Coef: 0.600

              Span(in): 6.00                         Invert(ft): 21.300
              Rise(in): 18.00                  Control Elev(ft): 21.300

*** Weir 2 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 1                       Bottom Clip(in): 0.000
                  Type: Horizontal                 Top Clip(in): 0.000
                  Flow: Both                     Weir Disc Coef: 3.200
              Geometry: Rectangular            Orifice Disc Coef: 0.600

              Span(in): 36.00                        Invert(ft): 24.500
              Rise(in): 36.00                  Control Elev(ft): 24.500

*** Weir 3 of 3 for Drop Structure Control ***
                                                                                TABLE
                 Count: 3                       Bottom Clip(in): 0.000
                  Type: Vertical: Mavis            Top Clip(in): 0.000
                  Flow: Both                     Weir Disc Coef: 3.200
              Geometry: Rectangular            Orifice Disc Coef: 0.600

              Span(in): 36.00                        Invert(ft): 23.900
              Rise(in): 7.00                   Control Elev(ft): 23.900


================================================================================================
==== Weirs =====================================================================================
================================================================================================

         Name: Weir - A1           From Node: POND A-1
        Group: BASE                  To Node: RR-US
         Flow: Both                    Count: 1
         Type: Vertical: Mavis      Geometry: Trapezoidal

            Bottom Width(ft): 20.00
        Left Side Slope(h/v): 3.00
       Right Side Slope(h/v): 3.00
                  Invert(ft): 23.000
       Control Elevation(ft): 23.000
      Struct Opening Dim(ft): 9999.00
                                        TABLE
             Bottom Clip(ft): 0.000
                Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
      Orifice Discharge Coef: 0.600



================================================================================================
==== Hydrology Simulations =====================================================================
================================================================================================

         Name: 002
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\002.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 4.40

Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          5.00

------------------------------------------------------------------------------------------------------
         Name: 010
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\010.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Scsiii
    Rainfall Amount(in): 6.50

Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.00

------------------------------------------------------------------------------------------------------
         Name: 025
```

Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\025.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 8.11

Time(hrs)	Print Inc(min)
36.000	5.00

Name: 050
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\050.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 9.50

Time(hrs)	Print Inc(min)
36.000	5.00

Name: 100
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\100.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsiii
Rainfall Amount(in): 10.90

Time(hrs)	Print Inc(min)
36.000	5.00

==========

==== Routing Simulations ==========

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Name: 002 Hydrology Sim: 002
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\002.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 72.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 002 Boundary Flows: Amazon 002

Time(hrs)	Print Inc(min)
72.000	15.000

Group	Run
BASE	Yes

Name: 010 Hydrology Sim: 010
Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\010.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: 010 Boundary Flows: Amazon 010

Time(hrs)	Print Inc(min)
36.000	15.000

Group	Run
BASE	Yes

```
-------------------------------------------------------------------------------------------------
         Name: 025                 Hydrology Sim: 025
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\025.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 025                  Boundary Flows: Amazon 025


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 050                 Hydrology Sim: 050
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\050.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 050                  Boundary Flows: Amazon 050


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
         Name: 100                 Hydrology Sim: 100
     Filename: Z:\26327\26327.0006\Engineering\Calculations and Reports\Storm Water\ICPR\POST\100.I32

      Execute: No          Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 36.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
        Boundary Stages: 100                  Boundary Flows: Amazon 100


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          15.000

Group           Run
--------------- -----
BASE            Yes


=================================================================================================
==== Boundary Conditions ========================================================================
=================================================================================================

      Name: 002                  Node: Rail Outfall          Type: Stage

      Time(hrs)       Stage(ft)
--------------- ---------------
          0.000          19.390
         12.000          20.400
         24.000          19.390
         36.000          19.390
         72.000          19.390
```

Name: 010 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	21.700
24.000	19.390
36.000	19.390

Name: 025 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.400
24.000	19.390
36.000	19.390

Name: 050 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	22.900
24.000	19.390
36.000	19.390

Name: 100 Node: Rail Outfall Type: Stage

Time(hrs)	Stage(ft)
0.000	19.390
12.000	23.500
24.000	19.390
36.000	19.390

Name: Amazon 025 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	0.000
10.000	4.700
13.200	47.000
20.250	6.340
30.000	0.500
36.000	0.100

Name: Amazon 010 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
8.500	1.000
13.250	36.800
19.000	6.900
24.250	2.800
36.000	0.000

Name: Amazon 002 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
10.250	1.000
13.250	22.900
21.000	3.000
36.000	0.000
72.000	0.000

Name: Amazon 050 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
7.000	1.000
13.000	61.920
20.000	7.700
36.000	0.000

Name: Amazon 100 Node: D1 Type: Flow

Time(hrs)	Flow(cfs)
0.000	0.000
6.000	1.000
13.000	69.950
20.000	9.400
28.000	1.000
36.000	0.000

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002	Noritake	BASE	12.30	20.89	3.301	112294
002	WS-100	BASE	12.50	8.05	3.003	68358
002	WS-101	BASE	12.24	8.98	3.301	43144
002	WS-101A	BASE	12.50	29.56	3.003	250972
002	WS-200	BASE	12.27	30.79	3.938	176845
002	WS-201	BASE	12.27	16.08	3.938	92354
002	WS-202	BASE	12.27	7.89	3.938	45319
002	WS-203	BASE	12.30	10.83	3.301	58244
002	WS-204	BASE	12.27	5.23	3.938	30022
002	WS-205	BASE	12.30	2.01	3.301	10786
002	WS-206	BASE	12.24	0.68	4.166	3629
002	WS-207	BASE	12.24	1.63	4.166	8771
002	WS-208	BASE	12.27	4.28	3.938	24590
010	Noritake	BASE	12.27	32.85	5.336	181495
010	WS-100	BASE	12.50	13.21	4.993	113637
010	WS-101	BASE	12.24	14.07	5.336	69731
010	WS-101A	BASE	12.50	48.50	4.993	417214
010	WS-200	BASE	12.27	46.14	6.028	270675
010	WS-201	BASE	12.27	24.09	6.028	141355
010	WS-202	BASE	12.27	11.82	6.028	69365
010	WS-203	BASE	12.27	17.04	5.336	94137
010	WS-204	BASE	12.27	7.83	6.028	45951
010	WS-205	BASE	12.27	3.16	5.336	17433
010	WS-206	BASE	12.24	1.00	6.264	5457
010	WS-207	BASE	12.24	2.42	6.264	13188
010	WS-208	BASE	12.27	6.42	6.028	37636
025	Noritake	BASE	12.27	41.95	6.917	235262
025	WS-100	BASE	12.50	17.15	6.551	149109
025	WS-101	BASE	12.24	17.93	6.917	90389
025	WS-101A	BASE	12.50	62.98	6.551	547445
025	WS-200	BASE	12.27	57.83	7.634	342782
025	WS-201	BASE	12.27	30.20	7.634	179012
025	WS-202	BASE	12.27	14.82	7.634	87843
025	WS-203	BASE	12.27	21.76	6.917	122025
025	WS-204	BASE	12.27	9.82	7.634	58193
025	WS-205	BASE	12.27	4.03	6.917	22597
025	WS-206	BASE	12.24	1.25	7.874	6859
025	WS-207	BASE	12.24	3.02	7.874	16577
025	WS-208	BASE	12.27	8.04	7.634	47663
050	Noritake	BASE	12.27	49.74	8.289	281936
050	WS-100	BASE	12.50	20.54	7.909	180009
050	WS-101	BASE	12.24	21.24	8.289	108321
050	WS-101A	BASE	12.50	75.41	7.909	660895
050	WS-200	BASE	12.27	67.91	9.022	405094
050	WS-201	BASE	12.27	35.46	9.022	211553
050	WS-202	BASE	12.27	17.40	9.022	103811
050	WS-203	BASE	12.27	25.80	8.289	146234
050	WS-204	BASE	12.27	11.53	9.022	68771
050	WS-205	BASE	12.27	4.78	8.289	27080
050	WS-206	BASE	12.24	1.47	9.263	8070
050	WS-207	BASE	12.24	3.55	9.263	19503
050	WS-208	BASE	12.27	9.44	9.022	56327
100	Noritake	BASE	12.27	57.56	9.676	329094
100	WS-100	BASE	12.50	23.93	9.284	211297
100	WS-101	BASE	12.24	24.57	9.676	126440
100	WS-101A	BASE	12.50	87.87	9.284	775767
100	WS-200	BASE	12.27	78.04	10.420	467886
100	WS-201	BASE	12.27	40.75	10.420	244345
100	WS-202	BASE	12.27	20.00	10.420	119903
100	WS-203	BASE	12.27	29.86	9.676	170694
100	WS-204	BASE	12.27	13.25	10.420	79431
100	WS-205	BASE	12.27	5.53	9.676	31610
100	WS-206	BASE	12.24	1.68	10.663	9290
100	WS-207	BASE	12.24	4.07	10.663	22451
100	WS-208	BASE	12.27	10.85	10.420	65058

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
D1	002	21.65	24.00	0.0003	759317	49.45	15.27
D1	010	22.36	24.00	0.0002	863029	83.35	18.79
D1	025	22.88	24.00	0.0004	1000806	104.96	22.17
D1	050	23.44	24.00	0.0005	1149556	138.51	24.83
D1	100	23.81	24.00	0.0005	1248956	161.69	30.14
DITCH TO B1	002	23.19	29.00	-0.0004	951	10.70	10.69
DITCH TO B1	010	23.25	29.00	0.0003	965	16.88	16.86
DITCH TO B1	025	23.52	29.00	0.0041	1136	21.56	21.54
DITCH TO B1	050	24.24	29.00	-0.0062	1302	25.57	38.99
DITCH TO B1	100	24.91	29.00	-0.0397	1476	29.60	309.27
DITCH TO B3	002	26.00	29.00	-0.0101	1069	1.98	3.39
DITCH TO B3	010	26.00	29.00	-0.0101	1069	3.13	3.39
DITCH TO B3	025	26.09	29.00	-0.0101	1281	3.99	3.90
DITCH TO B3	050	26.21	29.00	-0.0101	1567	4.74	4.59
DITCH TO B3	100	26.33	29.00	-0.0101	1842	5.48	5.27
EP-1	002	21.44	25.00	0.0607	224	21.32	21.80
EP-1	010	22.31	25.00	0.0607	140	27.85	28.12
EP-1	025	22.92	25.00	0.0607	140	31.29	31.49
EP-1	050	23.49	25.00	0.0607	140	32.04	32.99
EP-1	100	23.86	25.00	0.0607	140	34.36	34.89
EP-2	002	21.47	25.00	0.0133	368	21.02	21.32
EP-2	010	22.38	25.00	0.0213	173	27.26	27.85
EP-2	025	22.87	25.00	0.0133	173	30.73	31.29
EP-2	050	23.44	25.00	0.0133	173	32.19	32.04
EP-2	100	23.81	25.00	-0.0156	173	34.44	34.36
EP-3	002	21.47	25.00	0.0034	1181	21.50	21.02
EP-3	010	22.37	25.00	0.0035	320	27.60	27.26
EP-3	025	22.91	25.00	-0.0053	240	30.77	30.73
EP-3	050	23.50	25.00	0.0055	194	32.20	32.19
EP-3	100	24.01	25.00	0.0055	194	34.53	34.44
EP-4	002	21.47	28.90	0.0024	1750	21.45	21.06
EP-4	010	22.38	28.90	0.0022	1238	27.68	26.92
EP-4	025	23.09	28.90	0.0022	683	30.26	29.84
EP-4	050	23.76	28.90	0.0026	652	31.49	31.22
EP-4	100	24.34	28.90	0.0026	577	33.66	33.41
EP-5	002	21.82	25.00	-0.0013	723	4.24	4.21
EP-5	010	22.38	25.00	0.0012	725	6.36	6.26
EP-5	025	23.10	25.00	0.0018	668	7.98	7.40
EP-5	050	23.76	25.00	0.0020	576	9.37	8.76
EP-5	100	24.35	25.00	0.0026	350	10.76	10.18
NORITAKE	002	23.21	24.00	0.0003	317490	20.64	3.03
NORITAKE	010	23.33	24.00	0.0002	339888	32.53	5.14
NORITAKE	025	23.42	24.00	0.0002	355178	41.56	6.87
NORITAKE	050	23.50	24.00	0.0003	370080	49.31	7.49
NORITAKE	100	23.81	24.00	0.0004	427503	57.06	8.00
POND A-1	002	21.46	24.00	0.0016	173478	58.96	4.74
POND A-1	010	22.34	24.00	0.0012	178869	84.05	20.19
POND A-1	025	22.88	24.00	0.0010	182134	108.60	29.06
POND A-1	050	23.44	24.00	0.0010	185601	118.34	33.97
POND A-1	100	23.82	24.00	0.0013	187932	131.84	53.63
POND A-2	002	21.46	24.00	0.0020	21536	15.94	9.39
POND A-2	010	22.34	24.00	0.0015	24664	23.90	19.83
POND A-2	025	22.88	24.00	0.0011	26538	29.93	22.90
POND A-2	050	23.44	24.00	0.0011	28512	34.36	19.92
POND A-2	100	23.82	24.00	0.0020	29849	39.16	21.57
POND A-3	002	22.00	28.00	0.0000	266	0.00	0.00
POND A-3	010	22.34	28.00	0.0001	902	0.00	0.01
POND A-3	025	22.88	28.00	0.0008	1819	0.00	0.03
POND A-3	050	23.44	28.00	0.0016	2737	0.00	0.05
POND A-3	100	23.82	28.00	0.0018	3353	0.00	0.09
POND B-4	002	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	010	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	025	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	050	25.00	29.00	0.0000	1004	0.00	0.00
POND B-4	100	25.00	29.00	0.0000	1004	0.00	0.00
POND B1	002	21.47	25.00	0.0031	17150	23.82	16.99
POND B1	010	22.68	25.00	0.0023	20768	36.63	21.43
POND B1	025	23.50	25.00	0.0023	23946	42.60	22.80
POND B1	050	24.24	25.00	0.0023	26491	55.21	24.41
POND B1	100	24.90	25.00	0.0030	28753	320.37	26.28

Name	Simulation	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Inflow cfs	Max Outflow cfs
POND B2	002	22.53	26.00	0.0015	4734	6.34	5.84
POND B2	010	22.81	26.00	0.0013	5006	9.64	8.96
POND B2	025	23.56	26.00	0.0015	5931	10.80	8.60
POND B2	050	24.29	26.00	0.0022	6714	9.23	6.74
POND B2	100	24.96	26.00	0.0030	7413	9.86	7.54
POND B3	002	22.59	27.00	0.0010	4277	3.39	1.61
POND B3	010	22.85	27.00	0.0009	4761	3.39	2.53
POND B3	025	23.57	27.00	0.0015	6031	3.90	2.26
POND B3	050	24.30	27.00	0.0022	7395	4.59	2.86
POND B3	100	24.98	27.00	0.0031	8735	5.27	3.26
Rail Outfall	002	20.40	24.00	-0.0001	31	17.60	0.00
Rail Outfall	010	21.70	24.00	0.0001	2	26.22	0.00
Rail Outfall	025	22.40	24.00	0.0001	2	30.34	0.00
Rail Outfall	050	22.90	24.00	-0.0002	2	34.14	0.00
Rail Outfall	100	23.50	24.00	-0.0002	2	36.43	0.00
RR-US	002	21.46	24.00	0.0009	94113	21.53	17.60
RR-US	010	22.34	24.00	0.0003	159924	27.45	26.22
RR-US	025	22.87	24.00	0.0004	221398	30.39	30.34
RR-US	050	23.43	24.00	0.0005	282445	37.17	34.14
RR-US	100	23.81	24.00	0.0005	322463	40.34	36.43
SUBSTATION	002	22.80	25.00	0.0021	17060	8.98	2.46
SUBSTATION	010	23.39	25.00	0.0015	19781	14.06	3.77
SUBSTATION	025	23.83	25.00	0.0014	21825	17.92	4.35
SUBSTATION	050	24.10	25.00	0.0016	35878	21.23	6.62
SUBSTATION	100	24.24	25.00	0.0022	54498	24.54	8.81

THOMAS & HUTTON

STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX D

CSS SPREADSHEET

26327.0010

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

Site Data

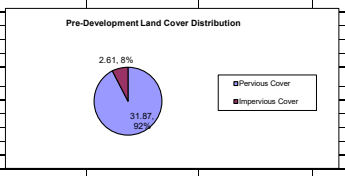
Site Name: NFI BUILDINGS A & B

	data input cells
	calculation cells
	constant values

Step 1: Enter Site Information

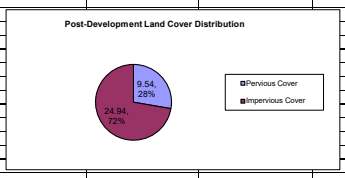
Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	31.87	31.87
Impervious Cover	0.00	0.00	0.00	2.61	2.61
				Total	34.48

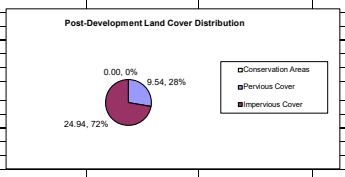


Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	9.54	9.54
Impervious Cover	0.00	0.00	0.00	24.94	24.94
				Total	34.48



Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	72%
Post-Development Site Runoff Coefficient, Rv	0.70
Target Runoff Reduction Volume, RRv (acre-feet)	2.42
Target Runoff Reduction Volume, RRv (cubic feet	105,285

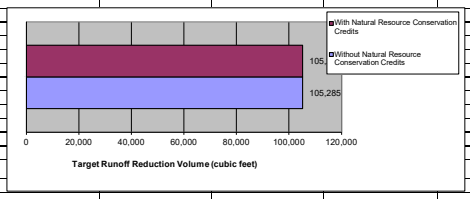


Step 2: Apply Better Site Planning Techniques

Natural Resource Conservation Credits	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Secondary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Total (acres)					0.00

Target Runoff Reduction Volume with Natural Resource Conservation Credits, RRv

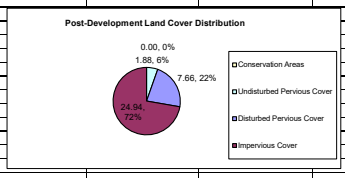
Target Runoff Reduction Volume, RRv (acre-feet)	2.42
Target Runoff Reduction Volume, RRv (cubic feet	105,285



Step 3: Apply Better Site Design Techniques

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.0	0.0	0.0	1.9	1.88



Revised Post-Development Land Cover (acres)

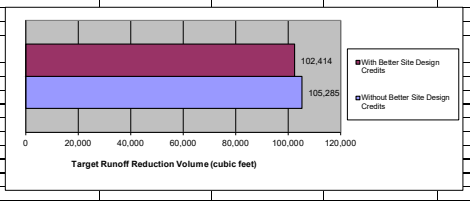
Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	1.88	1.88
Disturbed Pervious Cover	0.00	0.00	0.00	7.66	7.66
Impervious Cover	0.00	0.00	0.00	24.94	24.94
				Total	34.48

Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.0
Site Reforestation/Vegetation (Acres)	0.0
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.0

Target Runoff Reduction Volume After Application of Better Site Design Credits, RRv

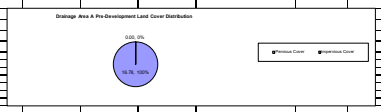
Target Runoff Reduction Volume, RRv (acre-feet)	2.35
Target Runoff Reduction Volume, RRv (cubic feet	102,414



Note: Remainder of Better Site Design Techniques are considered to be "self-crediting."

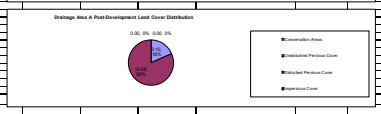
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area A
Drainage Area Information



Drainage Area A Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	16.78	16.78
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	16.78



Drainage Area A Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	3.10	3.10
Impervious Cover	0.00	0.00	0.00	13.68	13.68
				Total	16.78

Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Vegetated Filter Strip, C/D Soils 1	5.33	5.09	21115.7	30% of volume received by the practice	0.0	21115.7	0.0	21115.7	N/A	N/A	6334.7	14781.0	6334.7	14781.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

Stormwater Pond, Wetland, or Wet Swale 1	11.45	8.59	36170.0	None	14781.0	50951.0	14781.0	50951.0	Volume in Wet Pool and Extended Detention	600000.0	0.0	50951.0	50951.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**16.78**	**13.68**									**6334.7**		**57285.8**		

Practice	Method	Storage Volume	Reduction	Treatment?	Loss Calculation Meth	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Surface Area x Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Surface Area x Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel, C/D
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 5	25% of volume	N/A	25%		N/A	Rain Garden 1
Grass Channel, C/D Soils 1	12.5% of volume	N/A	12.50%		N/A	Rain Garden 2
Grass Channel, C/D Soils 2	12.5% of volume	N/A	12.50%		N/A	Rain Garden 3
Grass Channel, C/D Soils 3	12.5% of volume	N/A	12.50%		N/A	Rain Garden 4
Grass Channel, C/D Soils 4	12.5% of volume	N/A	12.50%		N/A	Rain Garden 5
Grass Channel, C/D Soils 5	12.5% of volume	N/A	12.50%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 1	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Stormwater Planter
Simple Downspout Disconnection, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Dry Well 1
Simple Downspout Disconnection, C/D Soils 1	30% of volume	N/A	30%		N/A	Dry Well 2
Simple Downspout Disconnection, C/D Soils 2	30% of volume	N/A	30%		N/A	Dry Well 3
Simple Downspout Disconnection, C/D Soils 3	30% of volume	N/A	30%		N/A	Dry Well 4
Simple Downspout Disconnection, C/D Soils 4	30% of volume	N/A	30%		N/A	Dry Well 5
Simple Downspout Disconnection, C/D Soils 5	30% of volume	N/A	30%		N/A	Rainwater
Rain Garden 1	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater
Rain Garden 2	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater
Rain Garden 3	100% of storage		100%	Y	Surface Area x (Ponde	Rainwater

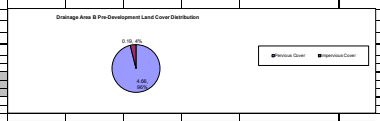
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area B

Drainage Area Information

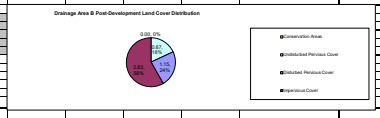
Drainage Area B Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	4.66	4.66
Impervious Cover	0.00	0.00	0.00	0.19	0.19
				Total	4.85



Drainage Area B Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.87	0.87
Disturbed Pervious Cover	0.00	0.00	0.00	1.15	1.15
Impervious Cover	0.00	0.00	0.00	2.83	2.83
				Total	4.85



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Dry Swale, Non-Underdrained 1	4.85	2.83	12151.1	100% of storage volume	0.0	12151.1	0.0	12151.1	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	31948.0	12151.1	0.0	12151.1	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

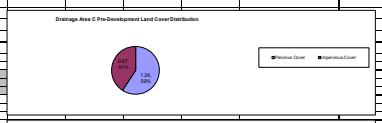
Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**4.85**	**2.83**									**12151.1**		**12151.1**		

Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

Coastal Stormwater Supplement Site Planning & Design Worksheet
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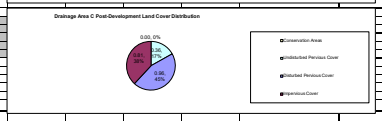
Drainage Area C

Drainage Area Information



Drainage Area C Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.26	1.26
Impervious Cover	0.00	0.00	0.00	0.87	0.87
				Total	2.13



Drainage Area C Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.36	0.36
Disturbed Pervious Cover	0.00	0.00	0.00	0.96	0.96
Impervious Cover	0.00	0.00	0.00	0.81	0.81
				Total	2.13

Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

"Receiving" Low Impact Development Practices

Dry Swale, Non-Underdrained 1	2.13	0.81	3639.4	100% of storage volume	0.0	3639.4	0.0	3639.4	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	3973.0	3639.4	0.0	3639.4	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	

Treatment Only Practices

Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**2.13**	**0.81**									**3639.4**		**3639.4**		

Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A	0%	N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 4
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 5
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout, Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

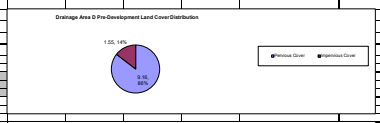
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area D

Drainage Area Information

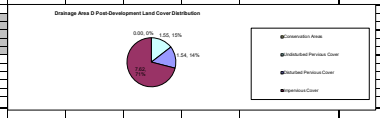
Drainage Area D Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	9.16	9.16
Impervious Cover	0.00	0.00	0.00	1.55	1.55
				Total	10.71



Drainage Area D Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	1.55	1.55
Disturbed Pervious Cover	0.00	0.00	0.00	1.54	1.54
Impervious Cover	0.00	0.00	0.00	7.62	7.62
				Total	10.71



Low Impact Development Practices

Alternatives to Impervious Surfaces

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Dry Swale, Non-Underdrained 1	10.71	7.62	32206.1	100% of storage volume	0.0	32206.1	0.0	32206.1	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio)	46178.0	32206.1	0.0	32206.1	0.0	Stormwater Pond, Wetland, or Wet Swale 1
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
Stormwater Pond, Wetland, or Wet Swale 1	0.00	0.00	0.0	None	0.0	0.0	0.0	0.0	Volume in Wet Pool and Extended Detention	660000.0	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**10.71**	**7.62**									**32206.1**		**32206.1**		

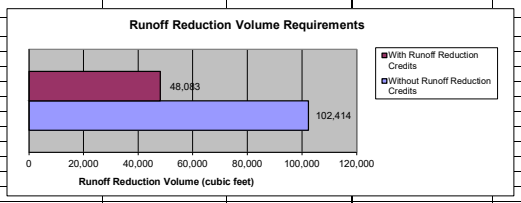
Practice	Method	Storage Volume	Reduction	Treatment?	Storage Calculation Method	Downstream List
None	N/A	N/A		0 N	N/A	No Downstream Practice
Green Roof 1	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 1
Green Roof 2	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 2
Green Roof 3	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or Amended Soils 3
Green Roof 4	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or
Green Roof 5	60% of volume received by the practice	N/A	60%	Y	N/A	Vegetated Filter Strip, A/B or
Permeable Pavement System, Underdrained 1	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 1
Permeable Pavement System, Underdrained 2	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 2
Permeable Pavement System, Underdrained 3	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 3
Permeable Pavement System, Underdrained 4	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 4
Permeable Pavement System, Underdrained 5	50% of storage volume		50%	Y	Depth x Void Ratio (0.32)	Vegetated Filter Strip, C/D Soils 5
Permeable Pavement System, Non-Underdrained 1	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 1
Permeable Pavement System, Non-Underdrained 2	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 2
Permeable Pavement System, Non-Underdrained 3	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 3
Permeable Pavement System, Non-Underdrained 4	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 4
Permeable Pavement System, Non-Underdrained 5	100% of storage volume		100%	Y	Depth x Void Ratio (0.32)	Grass Channel, A/B or Amended Soils 5
None	N/A	N/A	0%	N	N/A	Grass Channel, C/D Soils 1
Vegetated Filter Strip, A/B or Amended Soils 1	60% of volume received by the practice	N/A	60%		N/A	Grass Channel, C/D Soils 2
Vegetated Filter Strip, A/B or Amended Soils 2	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 3	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 4	60% of volume	N/A	60%		N/A	Grass Channel,
Vegetated Filter Strip, A/B or Amended Soils 5	60% of volume	N/A	60%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 1	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 2	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 3	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 4	30% of volume	N/A	30%		N/A	Simple Downspout
Vegetated Filter Strip, C/D Soils 5	30% of volume	N/A	30%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 1	25% of volume received by the	N/A	25%		N/A	Simple Downspout Disconnection, C/D
Grass Channel, A/B or Amended Soils 2	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 3	25% of volume	N/A	25%		N/A	Simple Downspout
Grass Channel, A/B or Amended Soils 4	25% of volume	N/A	25%		N/A	Simple Downspout

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

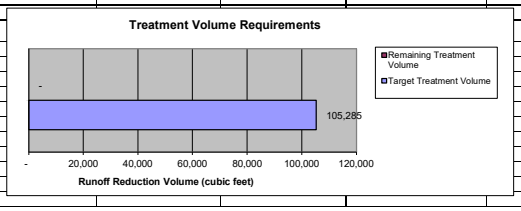
Stormwater Runoff Reduction Summary

Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	105,285
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	57,202
Percentage of Target Runoff Reduction Volume Achieved	54%
Runoff Reduction Volume Achieved (in)	0.65
Runoff Reduction Volume Remaining (cubic feet)	48,083



Note: If any of the target runoff reduction volume cannot be reduced on the development site, due to site characteristics or constraints, it should be intercepted and treated in one or more stormwater management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.

Treatment Volume Achieved (cubic feet)	108,153
Treatment Volume Remaining (cubic feet)	-



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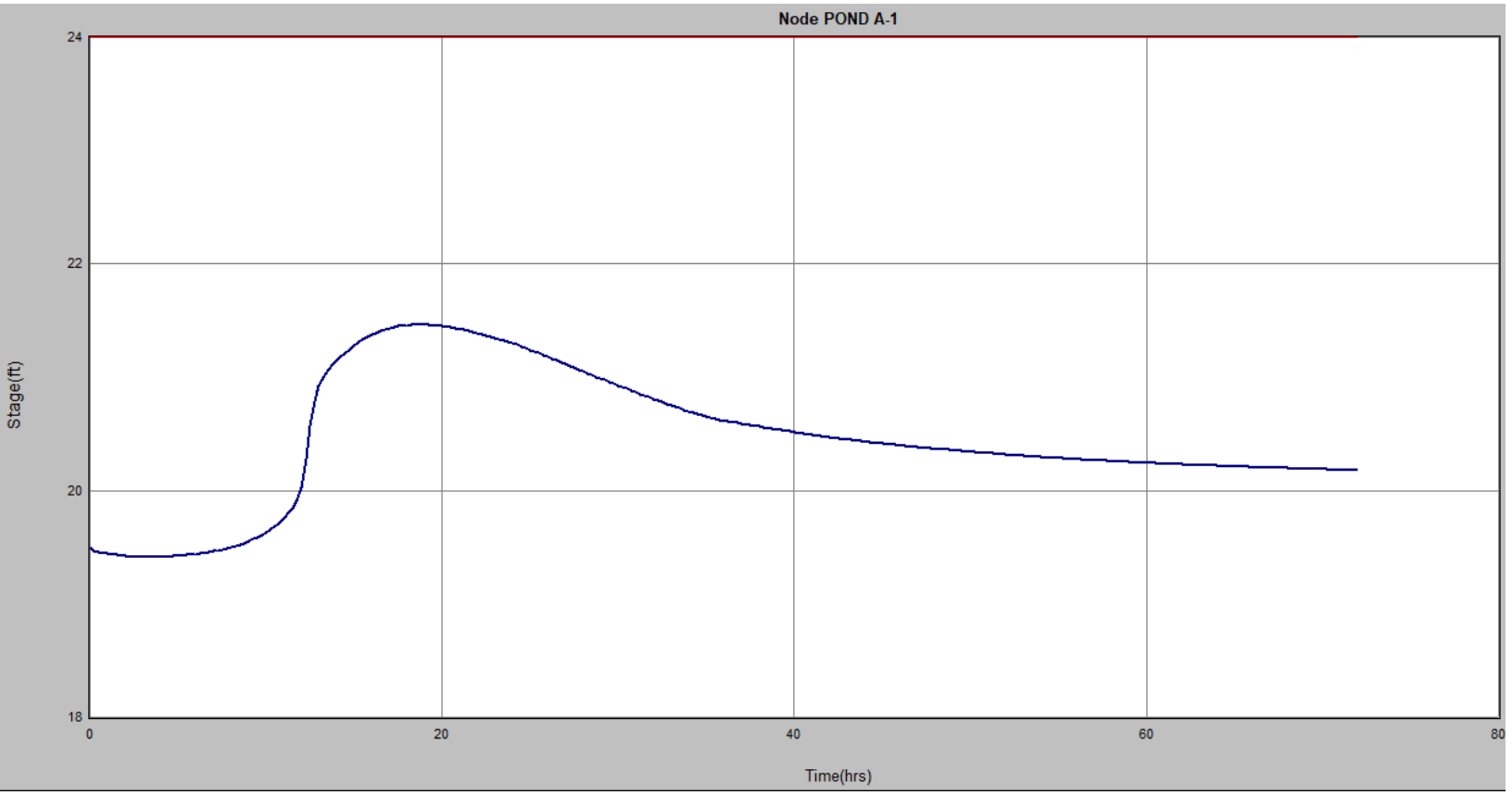
STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

APPENDIX E

AQUATIC RESOURCE PROTECTION CALCULATIONS

26327.0010


Node POND A-1
24
22
20
18
Stage(ft)
0
20
40
60
80
Time(hrs)

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STORMWATER MANAGEMENT REPORT

NFI BUILDINGS A & B

EXHIBITS

26327.0010



PRE-DEVELOPMENT BASINS

BLDGS A & B

CHATHAM COUNTY, GA

PREPARED FOR:

NFI

PREPARED BY:

THOMAS & HUTTON

50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300

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ULTIMATE STORM DRAINAGE
RUNOFF OUTFALL
INV. 19.39

WS-100
6.27 AC
CN: 87
Tc: 41 MINUTES

WS-206
0.24 ACRES
CN: 98
Tc: 15 MINUTES

NORITAKE
9.37 AC
CN: 90
Tc: 15 MINUTES

WS-207
0.58 ACRES
CN: 98
Tc: 15 MINUTES

WS-200
12.37 ACRES
CN: 96
Tc: 15 MINUTES

WS-208
1.72 ACRES
CN: 96
Tc: 15 MINUTES

WS-203
4.86 ACRES
CN: 90
Tc: 15 MINUTES

WS-202
3.17 ACRES
CN: 96
Tc: 15 MINUTES

WS-205
0.9 ACRES
CN: 90
Tc: 15 MINUTES

WS-204
2.1 ACRES
CN: 96
Tc: 15 MINUTES

WS-201
6.46 ACRES
CN: 96
Tc: 15 MINUTES

WS-101
SUBSTATION BASIN
3.6 ACRES
CN: 90
Tc: 15 MINUTES

WS-101A
23.02 AC
CN: 87
Tc: 41 MINUTES

N E S W

POST-DEVELOPMENT BASINS

BLDGS A & B

CHATHAM COUNTY, GA

PREPARED FOR:

NFI

PREPARED BY:

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50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
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Soils Map

NFI Buildings A & B

08/11/2021

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not Classified

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Location Map

NFI Buildings A & B

08/11/2021

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FEMA Flood Map

NFI Buildings A & B

08/11/2021

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area of Minimal Flood Hazard

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Dixie St

Dorset Rd

Evora St

Falkirk St

Crossgate Rd

Gordon St

STORMWATER DETENTION POND

DA - A
16.78 ACRES

DA - B
4.85 ACRES

DA - C
2.13 ACRES

DA - D
10.71 ACRES

VEGETATED FILTER STRIP
CONTRIBUTING AREA: 5.33 AC.
(5.09 AC. IMPERVIOUS)

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 4.85 AC.
(2.83 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.87 AC.

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 2.13 AC.
(0.81 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.36 AC.

DRY SWALE
(NON-UNDERDRAINED)
CONTRIBUTING AREA: 10.71 AC.
(7.62 AC. IMPERVIOUS)

UNDISTURBED PERVIOUS COVER
0.65 AC.

Jimmy DeLoach Pkwy

CSS EXHIBIT

NFI BLDGS A & B

CHATHAM COUNTY, GA

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