Growth Management Department
Planning & Development
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.gov
Phone: (386)313-4003
Fax: (386)313-4102

FLAGLER COUNTY TECHNICAL REVIEW COMMITTEE

GOVERNMENT SERVICES BUILDING
First Floor Conference Room B108

1769 EAST MOODY BOULEVARD, BUILDING 2, BUNNELL, FL 32110

A G E N D A

DATE – September 18, 2024 **TIME – 9:00 A.M.**

WHILE THE TECHNICAL REVIEW COMMITTEE IS OPEN TO THE PUBLIC, IT IS **NOT A PUBLIC HEARING**. COMMENTS MAY BE SUBMITTED PRIOR TO THE MEETING BY EMAIL TO PLANNINGDEPT@FLAGLERCOUNTY.GOV.

1. Project 2024080037 – **SITE PLAN IN THE C-2 (GENERAL COMMERCIAL AND SHOPPING CENTER) DISTRICT** – request for Site Plan approval in the C-2 (General Commercial and Shopping Center) District at 9100 U.S. Highway 1. Parcel Number: 22-13-31-0000-03030-0050; 94,902 +/- square feet (2.16 +/- acres). Owner: D Industries, LLC/Applicant: Newkirk Engineering, Inc. (AR No. 5105) *(TRC Only)*

2. Project 2024080009 – **VARIANCE IN THE PUD (PLANNED UNIT DEVELOPMENT) DISTRICT** – request for a Variance from the 10 Foot Minimum Rear (East) Yard Setback Requirement for a Pool in the PUD (Planned Unit Development) District at 326 Ocean Crest Drive. Parcel Number: 04-11-31-3604-00000-0040; 5,335 +/- square feet (0.12 +/- acres). Owner: Patrick and Heather Cua/Applicant: William Groff. (AR No. 507). *(TRC, PDB)*

3. Project 2024080040 – **VARIANCE IN THE PUD (PLANNED UNIT DEVELOPMENT) DISTRICT** - request for a Variance from the 10 Foot Minimum Rear (East) Yard Setback Requirement for a Patio in the PUD (Planned Unit Development) District at 36 Ocean Ridge Boulevard North. Parcel Number: 04-11-31-4900-00000-0260; 10,342 +/- square feet (0.24 +/- acres). Owners: Jinan and David Duncan/Applicant: Allure Contracting and J. Burke Construction, Inc. (AR No. 5108) *(TRC, PDB)*

4. Project 2024080042 – **VARIANCE IN THE MH-1 (RURAL MOBILE HOME) DISTRICT** – request for a Variance from the 20 Foot Minimum Rear (North) Yard and 15 Foot Minimum Side (East) Yard Setback Requirements in the MH-1 (Rural Mobile Home) District at 3644 Greenbriar Ave. Parcel Number: 13-12-28-1800-01240-0080; 49,000 +/- square feet (1.14 +/- acres). Owners/Applicants: Lisa and Scott Skrogstad. (AR. No. 5110) *(TRC, PDB)*

5. Project 2024080043 – **VARIANCE IN THE PUD (PLANNED UNIT DEVELOPMENT) DISTRICT** – request for a Variance from the 10 Foot Minimum Required Rear (East) Yard Setback Requirement in the PUD (Planned Unit Development) District at 82 Coronado Road. Parcel Number: 38-12-31-7220-00000-0400; 6,499 +/- square feet (0.15 +/- acres). Owners: Julie and Ron York/Applicant: Megan Ray. (AR. No. 5111) *(TRC, PDB)*

6. Project 2024080050 – **VARIANCE IN THE R/C (RESIDENTIAL LIMITED COMMERCIAL) DISTRICT** – request for a Variance from the Maximum Lot Coverage Requirement in the R/C (Residential/Limited Commercial) District at 23 Cinnamon Grove Lane. Parcel Number: 40-10-31-1085-00000-0050; 9,008 square feet (0.20 +/- acres). Owners: Marie and Bruce Len/Applicant: Jimmy Davis. (AR. No. 5120) *(TRC, PDB)*

PLEASE TAKE NOTICE THAT INDIVIDUAL COMMISSIONERS OF THE BOARD OF COUNTY COMMISSIONERS MAY ATTEND THIS EVENT. THE COMMISSIONERS WHO ATTEND WILL NOT TAKE ANY ACTION OR TAKE ANY VOTE AT THIS MEETING. THIS IS NOT AN OFFICIAL MEETING OF THE BOARD OF COUNTY COMMISSIONERS OF FLAGLER COUNTY. THIS NOTICE IS BEING PROVIDED TO MEET THE SPIRIT OF THE SUNSHINE LAW TO INFORM THE PUBLIC THAT COMMISSIONERS MAY BE PRESENT AT THESE DISCUSSIONS. IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT, PERSONS NEEDING ASSISTANCE TO PARTICIPATE IN THIS MEETING SHOULD CONTACT THE PLANNING & ZONING DEPARTMENT AT (386) 313-4009 AT LEAST 48 HOURS PRIOR TO THE MEETING.

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080037 / AR #5105

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ENGIN1 - DEVELOPMENT ENGINEERING (386-313-4082)

Comments:
Marked INFORMATION By: SUSAN GRAHAM - SGRAHAM@FLAGLERCOUNTY.GOV
1.Provide the status of all other Agency Permits.
2.Were all trees located on the survey.
3.Confirm that there is well and septic only at this site.
4.Ensure that the FDOT manual dates are the most current.
5.Site development usage should be Site Data Table.
6.In the erosion notes, provide for the maintenance of the FDOT ROW.
7.#9 erosion notes – weather or nightfall?
8.Demo and SWPPP notes replace all references to City to Flagler County.
9.Site layout plan shall be fully dimensioned (buildings, setbacks, entrance/exit door pads, retaining walls etc.)
10.The retaining walls shall be permitted with separate building permits.
11.There is no grate elevation on D-03.
12.Storm Structures D-02, D-03and D-04 are in conflict with the curb, relocate as needed.
13.Ensure that the elevations on the storm structures are consistent with the stormwater calculations.
14.Provide a north arrow and graphic scale on all sheets.
15.Ensure that the site grading is consistent with the storm structure elevations.
16.Section A-A shows that the elevation is to be lowered. If there are trees in the area to remain will the grading need to be modified.
17.Provide the Design High Elevations in the retention areas.
18.Provide a legend for the Basin / Node Plan.

Additional comments may be provided upon subsequent submittals.

ZON - ZONING (386-313-4009)

Comments:
Rejected By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Please provide building setbacks and dimensions.
2. Site Development Table states buildings are 65' in height. Please confirm.
3. Please provide justification for parking calculations. Which buildings are considered office and warehouse? Is it proportional? What is to prevent more parking-intensive uses from operating there?
4. Please differentiate between parking spaces and accessways (in front of building) and dimension.
5. Based on current spaces provided, 3 ADA spaces required.
6. Based of 28,407 sf of VUA, 5 interior landscape islands are required being at least 250 sf each, 6' in width, and containing at least 1 native tree with ground cover.
7. Provide tree survey or affidavit that there are no index trees on the property.

FD1 - FIRE REVIEW

Comments:
Marked INFORMATION By: JERRY SMITH - -
Is it going to be gated?

EH - ENVIRONMENTAL HEALTH DEPT

Comments:
Rejected By: JOHN BEY - JOHN.BEY@FLHEALTH.GOV
- An approved potable water system will be required for water service. Application for a Limited Use Commercial Water System and Well Construction Permit shall be made through the Florida Department of Health in Flagler County prior to installation. Well shall be setback 100ft from septic systems and surface water bodies. Clearance sampling of the water system will be required prior to approval of the limited use commercial water system. 5 consecutive day raw water source bacteriological samples, 2 consecutive day distribution bacteriological samples, a lead sample from distribution, and a raw water nitrate sample will be required. In addition, the water system shall be sampled quarterly for bacteria, and sampled every 5 years for lead and nitrates. Sample results shall submitted to the Florida Department of Health in Flagler County. Please note that if consumption is proposed for 25 or more people per day, a public water system that meets Safe Drinking Water Act standards, regulated by the Florida Department of Environmental Protection, will be required.

- Potable water pipes shall be no closer than five (5) feet horizontally to building sewer pipes and effluent transmission lines of an onsite sewage treatment and disposal system (OSTDS) as defined in rule 64E-6.002, F.A.C. This separation shall not apply where all portions of the bottom of the water pipe within five (5) feet of the sewer pipe are a minimum of twelve (12) inches above the top of the sewer pipe, or the water pipe is sealed with a waterproof sealant within a sleeve of similar or stronger material pipe to a distance of at least five (5) feet from the nearest portion of the sewer pipe.

- A septic system meeting the requirements of 62-6, FAC will be required. The septic system will be sized based on proposed uses. System shall be setback 100ft from public well and 75ft from surface water bodies. Application for system construction shall be made to the Florida Department of Health in Flagler County. A low-pressure distribution network designed by a professional engineer will be required where drainfield size is over 1,000 sqft.

- Septic system shall be no closer than 10ft from any storm sewer pipe, to the maximum extent possible, but in no instance shall the setback be less than 5ft.

- Based on the sewage flow categories of shopping center, stores, or office – there does not appear to be enough unobstructed area (area that meets required setbacks) provided contiguous to the proposed septic area. There appears to be approximately 2150 sqft of unobstructed area available, however, 3000 sqft of unobstructed area would be required for the smallest estimated sewage flow categories.

APPLICATION FOR SITE DEVELOPMENT PLAN
LESS THAN 5 ACRES

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s): D Industries, LLC (Manager Jason P Durgan)			
Mailing Address: 405 Oakridge Rd			
City: Ormond Beach	State: FL	Zip: 32174	
Telephone Number 386-316-7801		Fax Number	

APPLICANT - AGENT			
Name(s): Newkirk Engineering, Inc. (Cody Bogart, PE)			
Mailing Address: 1230 North US Hwy 1, Suite 3			
City: Ormond Beach	*State:* FL	*Zip:* 32174	
Telephone Number 386-872-7794 ext 113		*Fax Number*	
Email Address cody@newkirk-engineering.com			

SUBJECT PROPERTY			
SITE LOCATION (*street address):*	9100 S U..S. Highway 1, Bunnell, FL 32110		
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	On the SW side of US HWY 1S between Eagle Rock Rd and County Rd 200		
Parcel # (*tax ID #):*	22-13-31-0000-03030-0050		
Parcel Size:	2.18		
Current Zoning Classification:	C-2 General Commercial		
Current Future Land Use Designation	Commercial High Intensity		
Subject to A1A Scenic Corridor IDO?	☐ YES	☑ NO	

PROJECT DATA: 2.16 acre lot with 171' of frontage along US 1. Proposed Office and Warehouse development consisting of paved parking, two, one-story buildings with drive up garages. Improvements include: septic tank for sewer, private well for potable water and irrigation, landscaping as shown on plans, dry retention areas for stormwater treatment and attenuation before discharge to the FDOT ROW, double dumpster enclosure, ground sign located at entrance.

_____ 8/19/24
Signature of Owner(s) or Applicant/Agent if Owner Authorization form attached — Date

Note: The applicant or a representative, must be present at the Public Hearing since the Board at its discretion, may defer action, table, or take decisive action on any application.

Rev. 05/08

08/23/2024 11:58 am IP:[75.49.161.169] Packet No: 9942

Owner's Authorization for Applicant/Agent

FLAGLER COUNTY, FLORIDA
1769 E. Moody Boulevard, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #_____

Newkirk Engineering, Inc. and its agents, is hereby authorized TO ACT ON BEHALF OF D Industries, LLC, the owner(s) of those lands described within the attached application, and as described in the attached deed or other such proof of ownership as may be required, in applying to Flagler County, Florida for an application for Site Plan.

(ALL PERSONS, WHO'S NAMES APPEAR ON THE DEED MUST SIGN)

By: _____
Signature of Owner

Jason P Durgan, Manager
Printed Name of Owner / Title (if owner is corporation or partnership)

_____
Signature of Owner

_____
Printed Name of Owner

Address of Owner:

405 OAKRIDGE RD
Mailing Address

Ormond Beach FL 32174
City State Zip

Telephone Number (incl. area code)

386-316-7801

STATE OF Florida
COUNTY OF Volusia

The foregoing was acknowledged before me this 19th day of August 2024, 20~~__~~ by Jason Durgan and _____ who is/are personally known to me or who has produced _____ as identification, and who (did) / (did not) take an oath.

_____
Signature of Notary Public

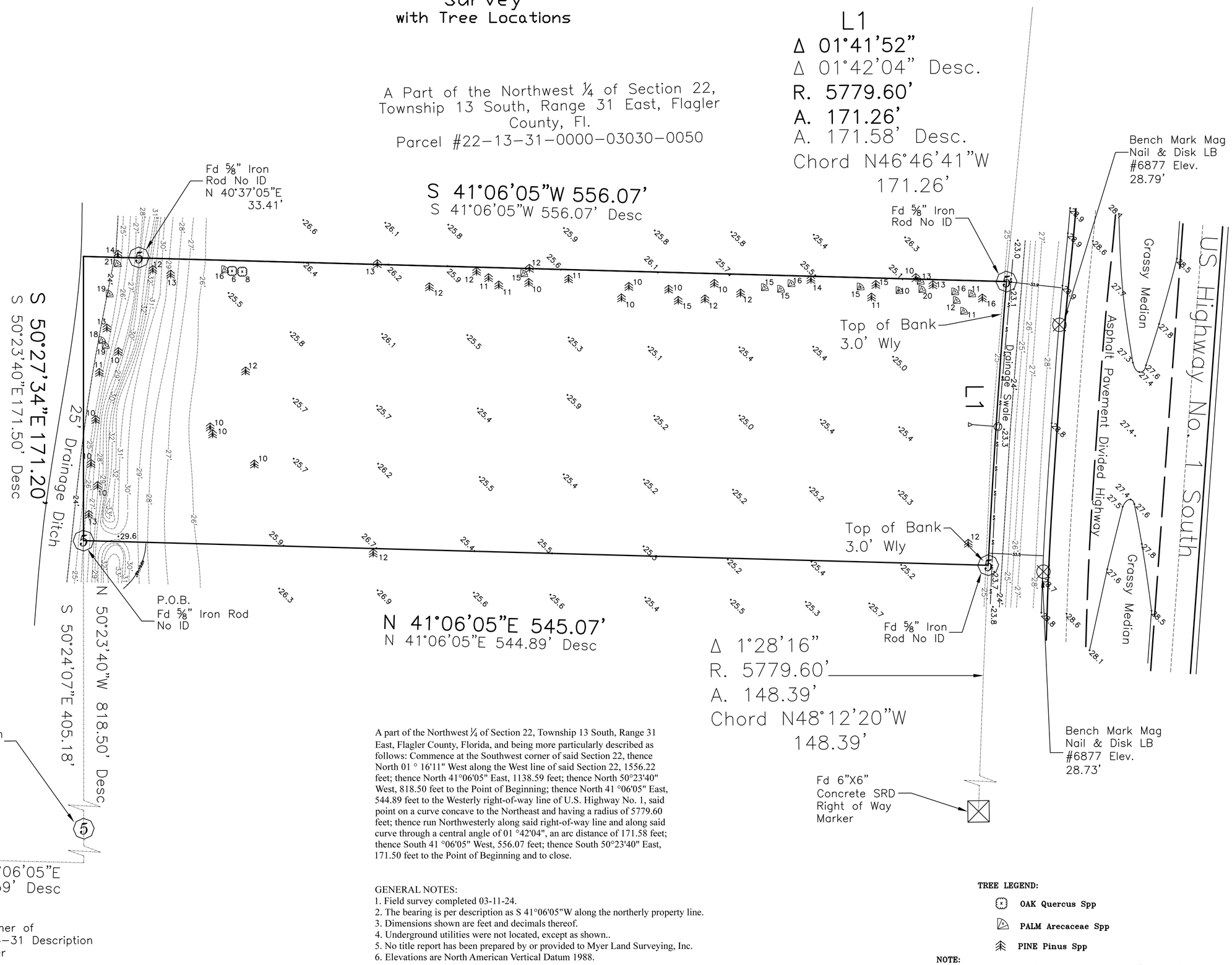
(Notary Stamp)

JUSTIN PAYNE NOTARY PUBLIC
MY COMMISSION EXPIRES 5-5-2027
STATE OF FLORIDA COMMISSION NUMBER HH 346690

http://www.flaglercounty.org/doc/dpt/centprmt/landdev/owner%20auth.pdf
Revised 5/08

Boundary and Topographic Survey
with Tree Locations

A Part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Fl.
Parcel #22-13-31-0000-03030-0050



0 20 40 60 80

SCALE : 1" = 40'

LEGEND:

AC	Air conditioning pad
A\U	Aerial utilities
CALC	Calculation
CB	Catch basin
CL	Centerline
CLF	Chain Link Fence
CM	Concrete monument
CONC	Concrete
©	Cable riser
▣	Cable TV service
Δ	Delta
°	Degree
DESC	Description
Doc	Document
E(LY)	East(erly)
Ⓔ	Electric meter
EMT	Electrical metal tubing
Elev.	Elevation
ES	Electric Service
FD	Found
FLD	Field
FPL	Florida Power and Light Corporation
FPLS	Florida Professional Land Surveyor
	Fire Hydrant
Ⓖ	Gas meter
▶	Guy Anchor
H	Pool Heater
IP	Iron pipe
L	Arc length
LB	Licensed business
LS	Licensed Surveyor
N(LY)	North(erly)
NAVD	North American Vertical Datum
MES	Mitered End Section
MF	Metal Fence
PC	Point of curve
PCP	Permanent control point
POB	Point of beginning
POC	Point of commencement
POT	Point of terminus
PT	Point of tangent
R	Radius
R&C	Rod and cap
REC	Recovered
RLS	Registered land surveyor
R/W	Right of Way
	Sign
sf	Square Foot
S(LY)	South(erly)
Ⓣ	Telephone service
TYP	Typical
Ⓤ	Utility pole
	Utility services
	Well
W(LY)	West(erly)
Ⓦ	Water meter
WF	Wooden Fence
VF	Vinyl Fence

A part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Florida, and being more particularly described as follows: Commence at the Southwest corner of said Section 22, thence North 01 ° 16'11" West along the West line of said Section 22, 1556.22 feet; thence North 41°06'05" East, 1138.59 feet; thence North 50°23'40" West, 818.50 feet to the Point of Beginning; thence North 41 °06'05" East, 544.89 feet to the Westerly right-of-way line of U.S. Highway No. 1, said point on a curve concave to the Northeast and having a radius of 5779.60 feet; thence run Northwesterly along said right-of-way line and along said curve through a central angle of 01 °42'04", an arc distance of 171.58 feet; thence South 41 °06'05" West, 556.07 feet; thence South 50°23'40" East, 171.50 feet to the Point of Beginning and to close.

GENERAL NOTES:
1. Field survey completed 03-11-24.
2. The bearing is per description as S 41°06'05"W along the northerly property line.
3. Dimensions shown are feet and decimals thereof.
4. Underground utilities were not located, except as shown..
5. No title report has been prepared by or provided to Myer Land Surveying, Inc.
6. Elevations are North American Vertical Datum 1988.

TREE LEGEND:

OAK Quercus Spp

PALM Arecaceae Spp

PINE Pinus Spp

NOTE:
Number beside tree indicates diameter at 4.5' Above Grade.

Job Number 23128-2 Crd #23128
FB 356 @ 3

MICHAEL M. MYER, FL PSM LS4006 _____

MYER LAND SURVEYING, INC., LICENSED BUSINESS #6877

Not valid unless signed and embossed with surveyor's seal and/or displaying a digital signature badge. The date of the digital signature is not the date of the field survey.

Survey Exclusively prepared for: Jason Durgan

MYER LAND SURVEYING, INC.
LICENSED BUSINESS #6877
MICHAEL M. MYER #LS 4006
PROFESSIONAL LAND SURVEYOR
316 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
386 255-6304 Phone MyerLandSurveying@Gmail.Com

SCALE	DESIGNED	DRAWN	CHECKED	DATE
1" = 20'		ALH	MMM	3/26/2023

08/23/2024 11:58 am IP:[75.49.161.169] Packet No: 9942

INDEX OF SHEETS	
SHEET No.	SHEET TITLE
01	COVER
02	SURVEY
03	DEVELOPMENT INFORMATION
04	DEMOLITION AND SWPPP PLAN
05	SWPPP DETAILS AND NOTES
06	SITE LAYOUT PLAN
07	US 1 IMPROVEMENTS
08	DRAINAGE PLAN
09	GRADING PLAN
10	CROSS SECTIONS 1
11	CROSS SECTIONS 2
12	RETAINING WALL DETAILS
13	RETAINING WALL NOTES
14	UTILITY PLAN
15	MISC. DETAILS 1
16	MISC. DETAILS 2
17	FDOT DETAILS
18	MAINTENANCE OF TRAFFIC
19	AUTOTURN FIRE TRUCK
L1	LANDSCAPE PLAN
L2	LANDSCAPE DETAILS
L3	IRRIGATION PLAN
L4	IRRIGATION DETAILS

LEGAL DESCRIPTION

MAP OF FAVORETTA, AS RECORDED IN MAP BOOK 1, PAGES 3 THROUGH 6 INCLUSIVE IN THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA, BEING LOTS 1 THROUGH 11 & 14 THROUGH 24, BLOCK 2; LOTS 1 THROUGH 11 & LOTS 14 THROUGH 24, BLOCK 3, ALL OF LOTS 12 & 13, PARTS OF LOTS 11 & 14, BLOCK 9; ALL OF LOTS 11, 12, &13, PART OF LOTS 10 & 14 BLOCK 8; UN-NAMED ALLEYS & STREETS WITHIN OR BETWEEN BLOCKS 2, 3, 8 & 9, BEING FURTHER DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE EASTERLY SIDE OF COUNTY ROAD 203 SAID POINT OF BEGINNING BEING 509.86 FEET NORTHERLY ALONG THE EASTERLY SIDE OF COUNTY ROAD 203 FROM THE NORTHERLY SIDE OF COUNTY ROAD 200, DEPARTING SAID EASTERLY RIGHT OF WAY SOUTH 51 DEGREES 57 MINUTES 04 SECONDS WEST A DISTANCE OF 50.01 FEET TO THE WESTERLY RIGHT OF WAY OF AFORESAID COUNTY ROAD 203 THENCE ALONG SAID RIGHT OF WAY NORTH 39 DEGREES 34 MINUTES 13 SECONDS WEST, A DISTANCE OF 633.36 FEET; THENCE DEPARTING SAID WESTERLY RIGHT OF WAY NORTH 69 DEGREES 09 MINUTES 54 SECONDS EAST A DISTANCE OF 52.80 FEET TO THE AFOREMENTIONED EASTERLY RIGHT OF WAY; THENCE ALONG SAID EASTERLY RIGHT OF WAY OF COUNTY ROAD 203 AND THE SOUTHERLY RIGHT OF WAY OF COUNTY ROAD 202, NORTH 02 DEGREES 05 MINUTES 59 SECONDS WEST A DISTANCE OF 50.94 FEET; THENCE NORTH 51 DEGREES 19 MINUTES 06 SECONDS EAST A DISTANCE OF 481.99 FEET TO THE WESTERLY RIGHT OF WAY OF U.S. HIGHWAY NUMBER 1; THENCE ALONG SAID WESTERLY RIGHT OF WAY OF LINE SOUTH 39 DEGREES 33 MINUTES 02 SECONDS EAST A DISTANCE OF 664.30 FEET; THENCE DEPARTING SAID WESTERLY RIGHT OF WAY SOUTH 51 DEGREES 57 MINUTES 04 SECONDS WEST A DISTANCE OF 512.88 FEET TO THE EASTERLY RIGHT OF WAY OF COUNTY ROAD 203, SAID POINT ALDO BEING THE POINT OF BEGINNING.

PROJECT STATEMENT

THE PROPOSED 2.16-ACRE PROJECT CONSISTS OF TWO (2), ONE-STORY OFFICE / WAREHOUSE BUILDINGS ON A CURRENTLY VACANT, UNDEVELOPED LOT. THE PROPOSED BUILDINGS HAVE DRIVE UP AND IN GARAGE BAYS. THESE BUILDINGS WILL TOTAL TO 20,000 SF AND 16 TOTAL UNITS. ACCESS WILL BE PROVIDED BY A 24-FT WIDE DRIVEWAY ALONG US1. SEWER IS TO BE PROVIDED BY A SEPTIC TANK DESIGNED AND PERMITTED BY OTHER. WATER AND IRRIGATION WILL BE PROVIDED BY A PRIVATE WELL DESIGNED AND PERMITTED BY OTHERS. STORMWATER RUNOFF IS TO BE CAPTURED BY INLETS AND PIPES AND ROUTED TO THE PROPOSED DRY RETENTION PONDS THAT DISCHARGE TO THE US 1 RIGHT-OF-WAY. AN ENCLOSED DOUBLE DUMPSTER IS PROPOSED FOR SITE WASTE MANAGEMENT.

JURISDICTIONAL AGENCY — PERMIT No.

FLAGLER COUNTY (SITE PLAN)	.
FDEP NPDES 10 / 2 STORMWATER	.
FLORIDA DEPARTMENT OF TRANSPORTATION (ACCESS)	.
FLORIDA DEPARTMENT OF TRANSPORTATION (DRAINAGE)	.
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (NOI)	.

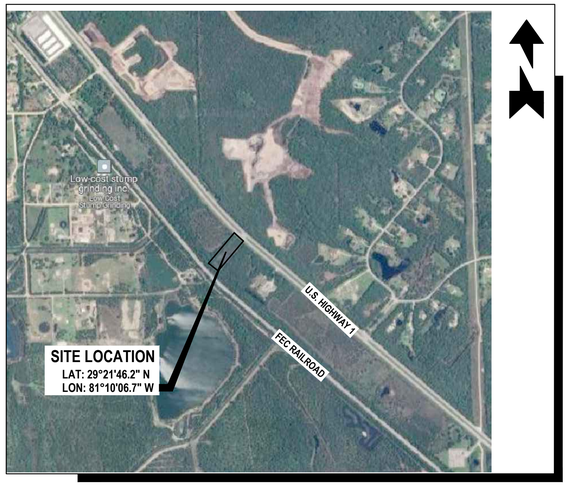
THE GENERAL CONTRACTOR SHALL ENSURE THAT ANY SUBCONTRACTOR HAS A COMPLETE SET OF CONSTRUCTION DRAWINGS FOR ITS RESPECTIVE WORK. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR SUBCONTRACTORS ONLY UTILIZING INDIVIDUAL DRAWINGS FOR ITS WORK WHERE ADDITIONAL INFORMATION MAY BE CONTAINED ON OTHER DRAWINGS WITHIN THE SET.

THESE DRAWINGS ARE THE PROPERTY OF NEWKIRK ENGINEERING, INC. ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING, INC. COPYRIGHT 2013 ALL RIGHTS RESERVED.

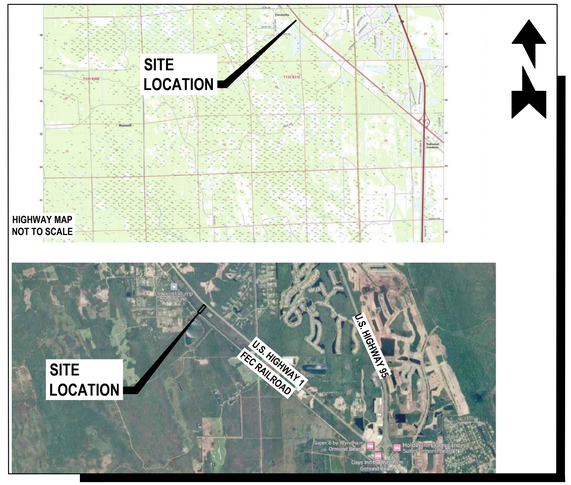
SITE PLAN DRAWINGS FOR

OFFICE AND WAREHOUSE

SECTION 22, TOWNSHIP 13 S, RANGE 31 E
TAX PARCEL ID # 22-13-31-0000-03030-0050
9100 S U.S. HIGHWAY 1
BUNNELL, FL 32110
AUGUST 2024

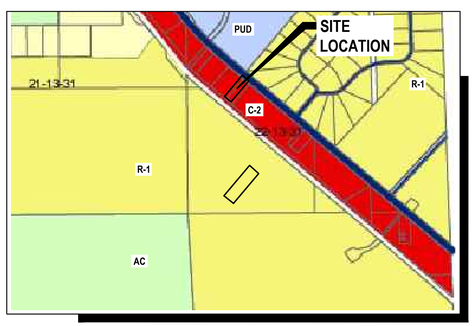


AERIAL MAP
SCALE: 1" = 1,000'



LOCATION MAP
SCALE: 1" = 4,600'

FLOOD ZONE MAP
FLOOD ZONE "X" PER FEMA MAP PANEL No. 12035C0335E, DATED JUNE 6, 2018
SCALE: 1" = 600'



ZONING MAP
ZONING : C-2 (GENERAL COMMERCIAL AND SHOPPING CENTER)
SCALE: 1" = 1,450

SOILS MAP
SOIL TYPES:
(19) VALKARIA FINE SAND, 0 TO 2 PERCENT SLOPES
SCALE: 1" = 250'

PROJECT TEAM

PROPERTY OWNER/ APPLICANT: CENTRAL FLORIDA PREFERRED SERVICES, INC.
405 OAKBRIDGE ROAD
ORMOND BEACH, FL 32174
PHONE: (386) 316-7801
EMAIL: CFLPREFERREDSERVICES@GMAIL.COM

CIVIL ENGINEER/ PROJECT MANAGER/ LANDSCAPE ARCHITECT: NEWKIRK ENGINEERING, INC.
1230 NORTH US HIGHWAY 1, SUITE 3
ORMOND BEACH, FL 32174
PHONE: (386) 872-7794
EMAIL: HARRY@NEWKIRK-ENGINEERING.COM

ARCHITECT: BPF DESIGN INCORPORATED
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114
PHONE: (386) 257-0502
EMAIL: BFREDLY@BPFDESIGN.COM

SURVEYOR: MYER LAND SURVEYING, INC.
316 RIDGEWOOD AVENUE
HOLLY HILL, FL 32117
PHONE: (386) 255-6304
EMAIL: MYERLANDSURVEYING@GMAIL.COM

GEOTECHNICAL: UNIVERSAL ENGINEERING SCIENCES INC
911 BEVILLE ROAD, SUITE 3
SOUTH DAYTONA, FL 32119
PHONE: (386) 756-1105
FAX: (386) 760-4067
EMAIL: BPOHL@UNIVERSALENGINEERING.COM

CONTACT NUMBERS

PLANNING DIVISION - FLAGLER COUNTY (386) 313-4003
BUILDING SERVICES - FLAGLER COUNTY (386) 313-4003
WATER - PRIVATE WELL
WASTEWATER - PRIVATE SEPTIC
DEVELOPMENT ENGINEERING - FLAGLER COUNTY (386) 313-4082
GAS - TECO PEOPLES GAS - (352) 208-1844
ELECTRIC - FLORIDA POWER & LIGHT (386) 257-7502
TELEPHONE/CABLE - AT&T (386) 254-8550

One Nation... One Number... 811 Know what's below. Call before you dig.

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30206
L.C. # 26000584
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Civil Engineering, Transportation, CEI & Landscape Architecture
NEWKIRK ENGINEERING INC.

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY CODY A. BOGART, PE # 94133 ON

CODY A. BOGART LICENSE No. 94133 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

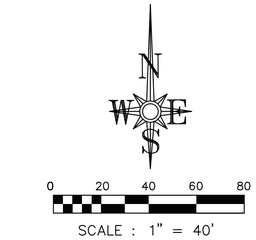
DRAWING NUMBER
01

PROJECT No. 2024-31

08/23/2024 12:04 pm IP:[75.49.161.169] Packet No: 9942

Boundary and Topographic Survey
with Tree Locations

A Part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Fl.
Parcel #22-13-31-0000-03030-0050



LEGEND:

AC Air conditioning pad
A\U Aerial utilities
CALC Calculation
CB Catch basin
CL Centerline
CLF Chain Link Fence
CM Concrete monument
CONC Concrete
Ⓒ Cable riser
Ⓒ Cable TV service
Δ Delta
° Degree
DESC Description
Doc Document
E(LY) East(erly)
Ⓔ Electric meter
EMT Electrical metal tubing
Elev. Elevation
ES Electric Service
FD Found
FLD Field
FPL Florida Power and Light Corporation
FPLS Florida Professional Land Surveyor
Fire Hydrant
Ⓖ Gas meter
Guy Anchor
H Pool Heater
IP Iron pipe
L Arc length
LB Licensed business
LS Licensed Surveyor
N(LY) North(erly)
NAVD North American Vertical Datum
MES Mitered End Section
MF Metal Fence
PC Point of curve
PCP Permanent control point
POB Point of beginning
POC Point of commencement
POT Point of terminus
PT Point of tangent
R Radius
R&C Rod and cap
REC Recovered
RLS Registered land surveyor
R/W Right of Way
Sign
sf Square Foot
S(LY) South(erly)
Ⓣ Telephone service
TYP Typical
Ⓤ Utility pole
Utility services
Well
W(LY) West(erly)
Ⓦ Water meter
WF Wooden Fence
VF Vinyl Fence

L1
Δ 01°41'52"
Δ 01°42'04" Desc.
R. 5779.60'
A. 171.26'
A. 171.58' Desc.
Chord N46°46'41"W
171.26'

S 41°06'05"W 556.07'
S 41°06'05"W 556.07' Desc

Fd 5/8" Iron
Rod No ID
N 40°37'05"E
33.41'

Fd 5/8" Iron
Rod No ID

Bench Mark Mag
Nail & Disk LB
#6877 Elev.
28.79'

Top of Bank
3.0' Wly

Top of Bank
3.0' Wly

Drainage Swale

L1

Grassy Median

Asphalt Pavement Divided Highway

Grassy Median

US Highway No. 1 South

S 50°27'34"E 171.20'
S 50°23'40"E 171.50' Desc

25' Drainage Ditch

S 50°24'07"E 405.18'

N 50°23'40"W 818.50' Desc.

P.O.B.
Fd 5/8" Iron Rod
No ID

N 41°06'05"E 545.07'
N 41°06'05"E 544.89' Desc

Δ 1°28'16"
R. 5779.60'
A. 148.39'
Chord N48°12'20"W
148.39'

Fd 5/8" Iron
Rod No ID

Fd
Fd 5/8" Iron
Rod No ID

Bench Mark Mag
Nail & Disk LB
#6877 Elev.
28.73'

Fd 6"X6"
Concrete SRD
Right of Way
Marker

N 01°16'11"W
1556.22' Desc

N 41°06'05"E
1138.59' Desc

P.O.C.
Southwest Corner of
Section 22-13-31 Description
Did not recover

A part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Florida, and being more particularly described as follows: Commence at the Southwest corner of said Section 22, thence North 01 ° 16'11" West along the West line of said Section 22, 1556.22 feet; thence North 41°06'05" East, 1138.59 feet; thence North 50°23'40" West, 818.50 feet to the Point of Beginning; thence North 41 °06'05" East, 544.89 feet to the Westerly right-of way line of U.S. Highway No. 1, said point on a curve concave to the Northeast and having a radius of 5779.60 feet; thence run Northwesterly along said right of way line and along said curve through a central angle of 01 °42'04", an arc distance of 171.58 feet; thence South 41 °06'05" West, 556.07 feet; thence South 50°23'40" East, 171.50 feet to the Point of Beginning and to close.

GENERAL NOTES:
1. Field survey completed 03-11-24.
2. The bearing is per description as S 41°06'05"W along the northerly property line.
3. Dimensions shown are feet and decimals thereof.
4. Underground utilities were not located, except as shown..
5. No title report has been prepared by or provided to Myer Land Surveying, Inc.
6. Elevations are North American Vertical Datum 1988.

TREE LEGEND:

OAK Quercus Spp
PALM Arecaceae Spp
PINE Pinus Spp

NOTE:
Number beside tree indicates diameter at 4.5' Above Grade.

Digitally signed by Michael M. Myer
Date: 2024.03.26 14:31:12 -04'00'

MICHAEL M. MYER, FL PSM LS4006
MYER LAND SURVEYING, INC., LICENSED BUSINESS #6877
Not valid unless signed and embossed with surveyor's seal and/or displaying a digital signature badge. The date of the digital signature is not the date of the field survey.

Survey
Exclusively prepared for:
Jason Durgan

MYER LAND SURVEYING, INC.
LICENSED BUSINESS #6877
MICHAEL M. MYER #LS 4006
PROFESSIONAL LAND SURVEYOR
316 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
386 255-6304 Phone MyerLandSurveying@Gmail.Com

SCALE	DESIGNED	DRAWN	CHECKED	DATE
1" = 20'		ALH	MMM	3/26/2023

Job Number 23128-2 Crd #23128
FB 356 @ 3

GENERAL CONSTRUCTION NOTES

1. GOVERNING SPECIFICATIONS: FLAGLER COUNTY LAND DEVELOPMENT CODE, FLAGLER COUNTY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, CURRENT EDITION.
2. ALL CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY SHALL CONFORM TO THE 2024 - 2025 EDITION OF THE FDOT DESIGN STANDARD INDEXES, THE JULY 2017 EDITION OF THE FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION AND THE 2010 EDITION OF THE FDOT UTILITY ACCOMMODATIONS MANUAL.
3. ALL UTILITY MATERIAL, CONSTRUCTION AND TESTING COVERED BY THESE DRAWINGS SHALL COMPLY WITH THE FLAGLER COUNTY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, LATEST EDITION. ALL UTILITY WORK AND CONNECTIONS SHALL BE COORDINATED WITH THE FLAGLER COUNTY INSPECTOR.
4. THE CONTRACTOR SHALL PAY FOR AND OBTAIN A BUILDING PERMIT. THE ENGINEER OF RECORD WILL SCHEDULE THE PRECONSTRUCTION CONFERENCE BEFORE THE CONTRACTOR'S START OF WORK. THE CONTRACTOR SHALL CONTACT THE BUILDING DEPARTMENT AT (386) 313-4003 FOR INFORMATION ON ISSUANCE OF CITY PERMITS AND / OR OTHER REQUIREMENTS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF RECORD OF ANY DEFICIENCIES OR DISCREPANCIES AMONG THE DIVISIONS OF THE DRAWING AND SPECIFICATIONS PRIOR TO THE BID DATE. NEITHER THE OWNER OR ENGINEER OF RECORD WILL BE RESPONSIBLE FOR ANY DEFICIENCIES OR DISCREPANCIES RAISED AFTER THE BID OPENING. ACCORDINGLY, IN LIGHT OF THESE OBLIGATIONS, THE ENGINEER OF RECORD IS OBLIGATED TO INTERPRET THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT WILL PROVIDE THE OWNER WITH A COMPLETE, FUNCTIONING FACILITY FOR THE BID PRICE.
6. THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLEMENTARY, AND ANY REQUIREMENT OF ONE SHALL BE A REQUIREMENT OF THE OTHER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CAREFULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS AND TO COMPARE THE REQUIREMENTS OF EACH DIVISION AND ENSURE THAT EACH TRADE OR SUBCONTRACTOR IS MAKING THE ALLOWANCES NECESSARY TO PROVIDE THE OWNER A COMPLETE FACILITY, OPERATIONAL IN ALL RESPECTS, UNLESS OTHERWISE SPECIFICALLY STATED IN THE DRAWINGS.
7. THE ENGINEER OF RECORD ASSUMES NO RESPONSIBILITY FOR INSTRUCTING THE CONTRACTOR IN THE METHODS OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE METHOD TO CONSTRUCT THE IMPROVEMENTS AS SHOWN ON THE PLANS.
8. ONLY ONE TEMPORARY CONSTRUCTION SIGN IS PERMITTED, NOT TO EXCEED 32 SQUARE FEET IN SIGN AREA, MAXIMUM HEIGHT OF 8 FEET AND NO CLOSER THAN 10 FT FROM PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL APPLY FOR A TEMPORARY SIGN PERMIT AT THE FLAGLER COUNTY BUILDING DEPARTMENT. THE SIGN MUST BE REMOVED UPON RECEIPT OF THE CERTIFICATE OF OCCUPANCY.
9. LITTER CONTROL MEASURES TO PREVENT WIND-DRIVEN DEBRIS SHALL BE IMPLEMENTED THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DEBRIS SHALL BE REMOVED AND THE PROJECT SITE CLEANED WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
10. AT NO TIME SHALL EXCAVATIONS BE LEFT UNCOVERED AFTER WORKING HOURS. CONTRACTOR SHALL SECURE THE WORK AREA AT THE END OF EACH DAY'S WORK.
11. AT ALL TIMES, THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT UNDERGROUND UTILITIES, STRUCTURES AND OTHER ASSOCIATED FACILITIES FROM DAMAGE DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE MEASURES OF PROTECTION. ANY DAMAGED FACILITIES SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE CITY OR ENGINEER OF RECORD AT THE CONTRACTORS EXPENSE.
12. THERE SHALL BE NO DEVIATIONS FROM THESE PLANS UNLESS APPROVED IN WRITING BY THE ENGINEER OF RECORD AND THE OWNER.
13. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.
14. CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL UTILITY COMPANIES INVOLVED IN PROJECT AND PAY ALL REQUIRED FEES AND COST.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED MATERIAL TEST RESULTS TO THE ENGINEER OF RECORD OF THE RECORD PRIOR TO THE RELEASE OF FINAL CERTIFICATION BY THE ENGINEER OF RECORD, TEST RESULTS MUST INCLUDE, BUT MAY NOT BE LIMITED TO, DENSITIES FOR SUBGRADE AND BASE DENSITIES AT UTILITY CROSSINGS, MANHOLES, INLETS, STRUCTURES. TEST SHALL INCLUDE ASPHALT GRADATION REPORTS, CONCRETE CYLINDERS, ETC.
16. WHERE NEW ASPHALT MEETS EXISTING ASPHALT, THE EXISTING ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
17. PRIOR TO REMOVING CURB OR GUTTER, THE ADJACENT ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
18. ALL PROPOSED ELEVATIONS REFER TO FINISHED GRADES.
19. CONCRETE WALKS SHALL BE 4 INCHES THICK HAVING A 3,000 PSI STRENGTH, POURED OVER PROPERLY PREPARED SUBGRADE. ALL CONCRETE SIDEWALKS SHALL BE 8 INCHES THICK ACROSS DRIVEWAYS. 1/2 INCH EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 50'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTERS.
20. CORE TESTS SHALL BE TAKEN TO VERIFY THICKNESS AND SUBSURFACE COMPACTION. PROVIDE FOR THREE SAMPLES, RANDOMLY LOCATED. TEST FOR EXTRACTION, GRADATION, LABORATORY DENSITY, AND MARSHALL'S STABILITY. PROVIDE A CERTIFICATE FROM THE TESTING AGENCY THAT MATERIALS AND INSTALLATION COMPLY WITH SPECIFICATIONS, SIGNED BY THE ASPHALTIC CONCRETE PRODUCER AND CONTRACTOR. ALL COSTS OF TESTS SHALL BE PAID BY THE CONTRACTOR. IF TESTS SHOW THE INSTALLATION DOES NOT MEET SPECIFICATIONS, THE PAVING SHALL BE REMOVED, REPLACED, AND RETESTED.
21. IF ANY MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
22. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T-180).
23. NO BURYING OF ANY ORGANIC MATERIALS ALLOWED.
24. ALL UTILITIES SHALL BE LOCATED UNDERGROUND.
25. CONTRACTOR SHALL ATTEND A MANDATORY PRE-CONSTRUCTION MEETING PRIOR TO ANY DISTURBANCE OF THE SITE.

SITE AND GENERAL INFORMATION

1. THE PROPERTY AREA BOUNDARY CONSISTS OF 94,151 SF OR 2.161 ACRES. FOR BOUNDARY AND TOPOGRAPHIC SURVEY REFER TO THE SURVEY PERFORMED BY MYER LAND SURVEYING, INC. (SEE SHEET No. SU-1 OF THESE PLANS).
2. THE ZONING IS C-2 (GENERAL COMMERCIAL AND SHOPPING CENTER).
3. THE TAX PARCEL NUMBER IS 22-13-31-0000-03030-0050.
6. THE EXISTING SITE CONDITION IS VACANT, MOSTLY WOODED WITH NO LARGE OR HISTORIC TREES. THE FLUCFCS LAND USE IS (191) UNDEVELOPED LAND WITHIN URBAN AREAS.
7. PER THE USDA NATURAL RESOURCES CONSERVATION SERVICE FOR FLAGLER COUNTY, THE SCS SOILS MAP INDICATES THE SITE CONSISTS OF (19) VALKARIA FINE SAND, 0 TO 2 PERCENT SLOPES.
8. THE SITE IS LOCATED WITHIN ZONE "X" PER FEMA MAP PANEL No. 12035C0335 E, DATED JUNE 6, 2018.
9. ELECTRICAL UTILITY SERVICE WILL BE PROVIDED BY FLORIDA POWER & LIGHT. NATURAL GAS WILL BE PROVIDED BY TECO PEOPLES GAS COMPANY. TELEPHONE, CABLE AND INTERNET SERVICE WILL BE PROVIDED BY AT&T. CABLE TV AND INTERNET CAN ALSO BE PROVIDED BY SPECTRUM.
10. SOLID WASTE WILL BE COLLECTED AND DISPOSED OF BY WASTE MANAGEMENT, INC.
11. THE SITE IS NOT LOCATED WITHIN THE LIMITS OF A WELLHEAD PROTECTION ZONE AND THERE IS NO ORDINARY HIGH WATER (OHW) LINE WITHIN THE SITE.
12. POTABLE WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY PRIVATE WELL AND PRIVATE SEPTIC SYSTEM.
13. IRRIGATION SERVICE WILL BE PROVIDED BY PRIVATE WELL.
14. ALL ON-SITE WATER AND SEWER FACILITIES ARE OWNED AND MAINTAINED BY THE PROPERTY OWNER.

LEGEND

NOTE: NOT ALL SYMBOLS SHOWN HERE MAY BE APPLICABLE TO THESE DRAWINGS, ALSO THERE MAY BE ADDITIONAL SYMBOLS WITHIN PLANS NOT SHOWN HERE, SEE INDIVIDUAL DRAWING LEGEND WHERE APPLICABLE.

- #3 — BENCHMARK ID
- B24 — BORING ID
- TV — EXISTING CABLE TV PEDESTAL
- EXISTING CAP OR PLUG
- EXISTING CLEAN OUT
- EXISTING CONDUIT RISER/ MARKER
- E — EXISTING ELECTRIC METER
- +11.7 — EXISTING ELEVATION (SOFT)
- 5.0± — PROPOSED ELEVATION (SOFT)
- +11.75 — EXISTING ELEVATION (HARD)
- 5.00 — PROPOSED ELEVATION (HARD)
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING FLOW DIRECTION
- PROPOSED FLOW DIRECTION
- EXISTING GAS METER
- EXISTING GAS VALVE
- EXISTING GUY WIRE & ANCHOR PIN
- EXISTING MAIL BOX
- EXISTING MANHOLE (UNKNOWN)
- PROPOSED MANHOLE
- EXISTING SANITARY SEWER CLEANOUT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING ROAD SIGNS AND POSTS
- PROPOSED SIGN AND POST
- EXISTING TEE
- EXISTING UTILITY POLE
- EXISTING VALVE IRRIGATION
- EXISTING VALVE WATER
- PROPOSED WATER VALVE
- EXISTING WATER METER
- EXISTING STORM SEWER WITH INLET
- PROPOSED STORM SEWER WITH INLET
- 1/2" IRON ROD (NO I.D.)
- 4" BY 4" CONCRETE MONUMENT
- EXISTING EASEMENT
- FOC — EXISTING UNDERGROUND FIBER OPTIC CABLE
- #"M — EXISTING FORCE MAIN (# INDICATES SIZE)
- GAS — EXISTING GAS MAIN
- OHE — EXISTING OVERHEAD ELECTRIC CABLES
- OHT — EXISTING OVERHEAD TRAFFIC SIGNAL CABLE
- #RAW — EXISTING RAW WATER MAIN (# INDICATES SIZE)
- #REC — EXISTING RECLAIM WATER MAIN (# INDICATES SIZE)
- #SAN — PROPOSED SANITARY SEWER (# INDICATES SIZE)
- #WM — PROPOSED WATER MAIN (# INDICATES SIZE)
- 12 — EXISTING CONTOUR
- 10 — PROPOSED CONTOUR (SOFT)
- 10 — PROPOSED CONTOUR (HARD)
- UTEL — EXISTING UNDERGROUND TELEPHONE CABLE
- UTV — EXISTING UNDERGROUND TELEVISION CABLE
- UGE — EXISTING UNDERGROUND ELECTRICAL POWER CABLE
- JURISDICTIONAL WETLAND LINE
- #SAN — EXISTING SANITARY SEWER (# INDICATES SIZE)
- #WM — EXISTING WATER MAIN (# INDICATES SIZE)
- EXISTING PIPE OR CONDUIT (TYPE SPECIFIED)
- EXISTING SWALE OR CENTER OF DITCH
- PROPOSED SWALE OR CENTER OF DITCH
- EXISTING TOP OF DITCH BANK
- EXISTING BOTTOM OF DITCH BANK
- EXISTING WOOD FENCE
- EXISTING WIRE OR CHAIN LINK FENCE
- PROPOSED WIRE OR CHAIN LINK FENCE
- PROPOSED SILT/SEDIMENT FENCE
- PROPOSED COIR ROLL OR WATTLE
- PROPOSED FLOATING TURBIDITY BARRIER
- TP — TP — PROPOSED TREE PROTECTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS - 2024 / 2025 AND QUALIFIED PRODUCTS LIST

INDEX NO.	DESCRIPTION	INDEX NO.	DESCRIPTION
102	TEMPORARY EROSION AND SEDIMENT CONTROL	102-600	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES
425-010	STRUCTURE BOTTOMS - TYPES J AND P	102-602	TWO-LANE AND MULTILANE, WORK ON SHOULDER
205	PIPE BACKFILL	102-603	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY
425-024	CURB INLET TOP TYPE 9	102-613	MULTILANE ROADWAY, LANE CLOSURES
425-052	DITCH BOTTOM INLETS - TYPES C, D, E AND H	515-062	ALUMINUM PEDESTRIAN / BICYCLE PICKET RAILING
522-002	PUBLIC SIDEWALK CURB RAMPS	700-101	TYPICAL SECTIONS FOR PLACEMENT OF SINGLE & MULTIPLE-COLUMN SIGNS
350-001	CONCRETE PAVEMENT JOINTS	711-001	SPECIAL MARKING AREAS
522-001	CONCRETE SIDEWALK		
514	OPTIONAL BASE GROUP AND STRUCTURAL NUMBERS		

ABBREVIATIONS

AWWA	AMERICAN WATER WORKS ASSOCIATION	GW	GROUND WATER	R	RADIUS
CMP	CORRUGATED METAL PIPE	H/C	HANDICAP	RCP	REINFORCED CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE	HDPE	HIGH DENSITY POLYETHYLENE	RPM	REFLECTIVE PAVEMENT MARKER
CTV	CABLE TELEVISION	INV	INVERT	R/W	RIGHT-OF-WAY
DIP	DUCTILE IRON PIPE	K_H	HORIZONTAL PERMEABILITY	SAN	SANITARY
ESMT	EASEMENT	K_V	VERTICAL PERMEABILITY	SH	SEASONAL HIGH
EXIST	EXISTING	KO	KNOCK OUT	SMH	SANITARY MANHOLE
FAC	FLORIDA ADMINISTRATIVE CODE	LF	LINEAL FEET	SJRWMD	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	MB	MAP BOOK	SS	SANITARY SEWER
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	MES	MITERED END SECTION	SWPPP	STORMWATER POLLUTION PREVENTION PLAN
FH	FIRE HYDRANT	MJ	MECHANICAL JOINT	TSB	TEMPORARY SEDIMENT BASIN
FOC	FIBER OPTIC CABLE	N/A	NOT APPLICABLE	TYP	TYPICAL
FF EL	FINISH FLOOR ELEVATION	NIC	NOT IN CONTRACT	UGE	UNDERGROUND ELECTRIC
FP&L	FLORIDA POWER & LIGHT	NGVD	NATIONAL GEODETIC VERTICAL DATUM	UGT	UNDERGROUND TELEPHONE
FM	FORCE MAIN	OHE	OVERHEAD ELECTRIC	USACOE	UNITED STATES ARMY CORP OF ENGINEERS
FPD	FEET PER DAY	OR	OFFICIAL RECORD	W	WATER (POTABLE)
G	GAS	PG	PAGE		
		PSI	POUNDS PER SQUARE INCH		
		PVC	POLYVINYL CHLORIDE		
		PVMT	PAVEMENT		

SITE GEOTECHNICAL CONSIDERATIONS

SEE GEOTECHNICAL REPORT UNIVERSAL ENGINEERING SCIENCES, INC. (REPORT #2094785, DATED JULY 29, 2024) FOR ALL SUBSURFACE CONDITIONS, GROUNDWATER, SITE PREPARATION FOR PAVEMENT AND ALL EARTHWORK REQUIREMENTS.

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DEVELOPMENT INFORMATION
OFFICE & WAREHOUSE
9100 S U.S. HIGHWAY 1
BUNNELL, FL 32110

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY CODY A. BOGART, PE # 94133 ON

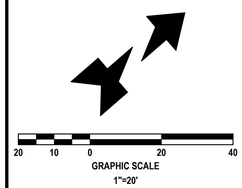
CODY A. BOGART LICENSE No. 94133 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

03



EROSION CONTROL NOTES:

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE SWPPP DURING CONSTRUCTION OPERATIONS.
2. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL DEVICES HAVE BEEN INSTALLED.
3. THE CONTRACTOR SHALL POST "NO TRESPASSING" SIGNAGE AT ALL SITE ENTRANCES PRIOR TO CONSTRUCTION.
4. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
5. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
6. GENERAL CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
7. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
8. NO TURBID WATER SHALL BE DISCHARGED OFF-SITE FROM THE DEWATERING OPERATION. CONTRACTOR SHALL TAKE MEASURES TO CONTROL TURBIDITY.
9. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OF NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
11. PROVIDE DUST CONTROL FOR ALL EARTHWORK OPERATIONS. COVER AREA WITH LIGHT COATING OF WATER OR OTHER APPROVED METHOD.

LAND ALTERATION / TREE PRESERVATION NOTES:

1. ALL TREES TO REMAIN MUST BE PROTECTED BY TREE PRESERVATION BARRICADES MEETING THE MINIMUM STANDARDS. PROTECTIVE BARRICADES SHALL REMAIN IN PLACE UNTIL LAND ALTERATION AND CONSTRUCTION ACTIVITIES ARE COMPLETED.
2. ALL TRIMMING SHALL BE UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.
3. OAK TREES LARGER THAN 36-INCHES AND ABOVE (HISTORIC) PRUNING SHALL BE PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE OR A REGISTERED CONSULTING ARBORIST WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS. THE ARBORIST SHALL UNDERSTAND THAT THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A300 PRUNING STANDARDS IS A STANDARD OF DIVISION 4.0.
4. ALL TREE ROOTS EXISTING WITHIN APPROVED IMPROVEMENT AREAS AND ORIGINATING FROM A PROTECTED TREE, SHALL BE SEVERED CLEAN AT THE LIMITS OF THE PRESERVED AREA WHERE INDICATED ON THIS PLAN.

SWPPP INSPECTIONS AND RECORD KEEPING:

INSPECTIONS ARE REQUIRED AT LEAST EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT OF ONE-HALF (½) OF AN INCH OF RAINFALL OR GREATER AND SHALL CONTINUE UNTIL THE SITE COMPLIES WITH FINAL STABILIZATION (NOTICE OF TERMINATION). INSPECTIONS MUST BE CONDUCTED BY A "QUALIFIED" INSPECTOR. "QUALIFIED" IS DEFINED AS A PERSON THAT A). HAS SUCCESSFULLY COMPLETED AND MET ALL REQUIREMENTS NECESSARY TO BE FULLY CERTIFIED THROUGH THE FDEP STORMWATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR TRAINING PROGRAM; B). HAS SUCCESSFULLY COMPLETED AN EQUIVALENT FORMAL TRAINING PROGRAM; OR C). THAT IS QUALIFIED BY OTHER TRAINING OR PRACTICAL EXPERIENCE IN THE FIELD OF STORMWATER POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL. EACH INSPECTION MUST BE FOLLOWED UP BY A REPORT DOCUMENTING THE INSPECTOR'S FINDINGS AND REQUEST THE REQUIRED MAINTENANCE AND/OR REPAIR FOR THE EROSION AND SEDIMENTATION CONTROL MEASURES. THESE RECORDS ARE USED TO PROVE THAT THE REQUIRED INSPECTION AND MAINTENANCE WERE PERFORMED AND SHALL BE PLACED IN THE SWPPP LEDGER. IN ADDITION TO INSPECTION AND MAINTENANCE REPORTS, RECORDS SHOULD BE KEPT OF CONSTRUCTION ACTIVITIES THAT OCCUR ON THE SITE. THE CONTRACTOR SHALL RETAIN COPIES OF THE SWPPP, ALL REPORTS AND DATA FOR A MINIMUM OF FIVE (5) YEARS AFTER THE PROJECT IS COMPLETE IN PAPER AND CD FORMAT.

LEGEND:

- PROPOSED SILT FENCE (SEE DETAIL SHEET No. 5)
- PROPOSED TREE BARRICADE (SEE DETAIL SHEET No. 5)
- PROPOSED AGGREGATE
- EXISTING TREE (No. INDICATES DIAMETER AT BREAST HEIGHT (DBH) AS MEASURED 4.5' ABOVE THE GROUND)
- TREE TO BE REMOVED

One Nation... One Number... 811 — Know what's below. Call before you dig.

WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

BENCHMARK INFORMATION:

#1 NAIL & DISK
LB #6877
ELEVATION = 28.79

#2 NAIL & DISK
LB #6877
ELEVATION = 28.73

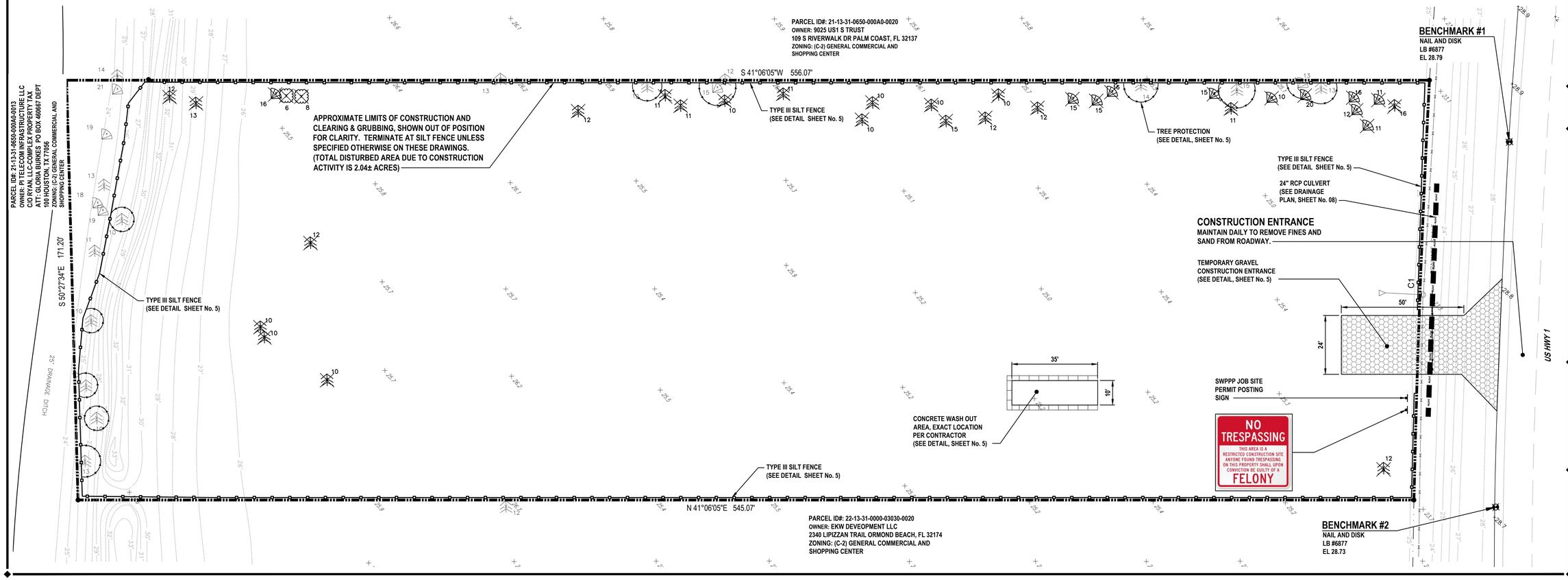
VERTICAL DATA
ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM 1988.

TREE LEGEND :

	SITE EXISTING	SITE REMOVED
OAK TREE	2	2
PALM TREE	17	11
PINE TREE	36	21
	55	34

DEMOLITION AND SWPPP NOTES:

1. ALL EROSION CONTROL DEVICES AND VISIBLE BARRICADES SHALL BE INSTALLED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF CLEARING AND GRUBBING.
2. THE CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE CITY AS SPECIFIED PRIOR TO START OF CONSTRUCTION.
3. THE SITE SHALL BE CLEARED AND GRUBBED OF ALL VEGETATION AND DEBRIS WITHIN THE APPROXIMATE LIMITS OF CLEARING AS INDICATED ON THE DRAWING.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE CITY OF DELAND UTILITY DEPARTMENT, FLORIDA SUNSHINE AND EMERGENCY SERVICES FOR RESPECTIVE UTILITY LOCATIONS AND "NOTICE" OF CONSTRUCTION ACTIVITY.
5. ALL REMOVED MATERIAL SHALL BE HAULED OFF-SITE TO AN APPROVED LANDFILL. TREES MAY BE LOGGED OR MULCHED FOR OFF-SITE DISPOSAL AT THE CONTRACTOR'S DISCRETION.
6. ALL EROSION CONTROL DEVICES SHALL BE PLACED PRIOR TO THE START OF WORK AND REMAIN IN PLACE UNTIL ALL WORK IS COMPLETE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND REMOVAL OF DEBRIS AND SILT BEHIND EROSION CONTROL DEVICES..
8. ALL INLETS AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY INLET PROTECTION MEASURES TO PREVENT SILTATION IN THE DRAINAGE SYSTEM (SEE DETAILS THIS DRAWING). THE ENTIRE DRAINAGE SYSTEM SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE.
9. ALL OFF-SITE AREAS DISTURBED DURING CONSTRUCTION ACTIVITY SHALL BE IMMEDIATELY RESTORED TO PRIOR CONDITION UPON COMPLETION OF WORK.
10. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION, BLOWING SAND AND THE IMPACT TO NEIGHBORING PROPERTIES.
11. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, CITY A MOT PLAN AT PRECONSTRUCTION MEETING. TRAFFIC SHALL BE ALLOWED TO CONTINUE DURING WORK. PROVIDE MEASURES TO DETOUR TRAFFIC AROUND OPEN EXCAVATION WITH ADEQUATE BARRICADES, SIGNAGE AND FLAGPERSON TO DIRECT TRAFFIC. EMERGENCY SERVICES SHALL BE NOTIFIED 48 HOUR IN ADVANCE.
12. EXISTING DRIVEWAYS SHOWN ADJACENT TO OR OUTSIDE LIMITS OF CONSTRUCTION SHALL REMAIN IN-SERVICE. EXISTING UTILITIES AND DRIVEWAYS SHALL NOT BE REMOVED UNLESS OTHERWISE NOTED.
13. IF ANY DEWATERING IS TO OCCUR DURING ANY PHASE OF CONSTRUCTION THEN DEWATERING ACTIVITY SHALL ADHERE TO CHAPTER 40C-22 FAC MORE SPECIFICALLY AS FOLLOWS. PER 40C-22.030(3) A "NOTICED GENERAL SHORT-TERM DEWATERING PERMIT" IS REQUIRED "ONLY IF" DEWATERING EXCEEDS 4 MILLION GALLONS PER DAY, EXCEPT DURING THE FIRST 120 HOURS OF DEWATERING WHEN THE DAILY AND INSTANTANEOUS PUMPAGE RATES SHALL NOT EXCEED 6 MILLION GALLONS PER DAY. AVERAGE DAILY WITHDRAWAL SHALL NOT EXCEED 2 MILLION GALLONS PER DAY FOR THE FIRST 60 DAYS OF THE DEWATERING ACTIVITY AND SHALL NOT EXCEED ONE MILLION GALLONS PER DAY OF A 180 DAY DURATION. EACH SPECIFIC DEWATERING PROJECT SHALL NOT EXCEED 180 DAYS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY DEWATERING ACTIVITY IS BELOW THE SPECIFIED THRESHOLD. OTHERWISE A PERMIT WILL BE REQUIRED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR SHALL FAMILIARIZE ITSELF WITH CHAPTER 40C-22 FAC AND BE SOLELY RESPONSIBLE FOR OBTAINING AND SUBMITTING FORM RDS-50 TO SJRWMD A MINIMUM OF 10 DAYS PRIOR TO ANY DEWATERING ACTIVITY. SUBMITTAL OF FORM RDS-50 IS NOT REQUIRED IF DEWATERING IS 300,000 GALLONS PER DAY OR LESS AND WILL NOT EXCEED 30 DAYS IN DURATION.
14. CONSTRUCTION HOURS ARE 7 A.M. TO 7 P.M., MONDAY THROUGH SATURDAY. NO OUTSIDE CONSTRUCTION ACTIVITIES ARE ALLOWED ON SUNDAY.



REVISIONS

DATE	DESCRIPTION

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www.Newkirk-Engineering.com
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C 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DEMOLITION AND SWPPP PLAN
OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
BUNNELL, FL 32110

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CODY A. BOGART LICENSE No. 94133 STATE OF FLORIDA PROFESSIONAL ENGINEER

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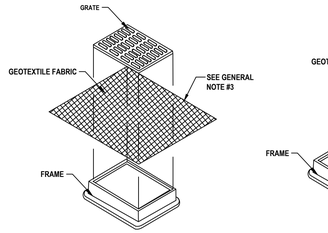
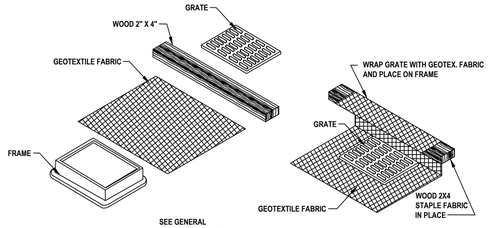
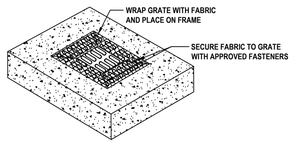
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	DAB
CHECKED BY:	HHN
SCALE:	1"=20'

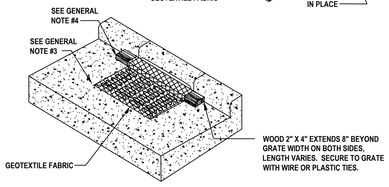
DRAWING NUMBER

04









YARD INLET PROTECTION
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)

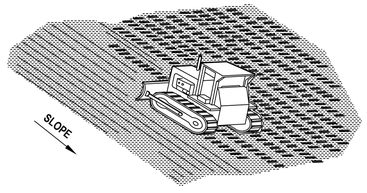
CURB INLET PROTECTION

GENERAL NOTES:

1. GEOTEXTILE TO BE MIRAFI FILTERWEAVE 402 OR GEOTEX 111F. ALTERNATIVES INCLUDE APPROVED EQUAL ASTM D4491 OR 100 TO 150 GALLON PER MINUTE PER SQUARE FOOT.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
3. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
4. FOR CURB INLET PROTECTION AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
5. TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
6. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS, OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

GEOTEXTILE FABRIC INLET PROTECTION

NOT TO SCALE

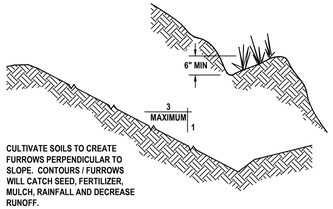


NOTE:

USE DOZER TRACKS TO CREATE GROOVES PERPENDICULAR TO THE SLOPE. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE SEDIMENT IN RUNOFF.

TRACKING DETAIL

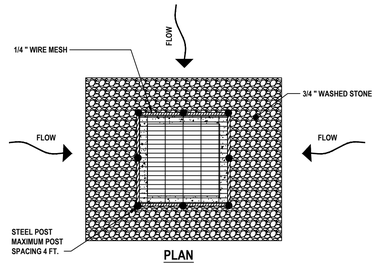
NOT TO SCALE



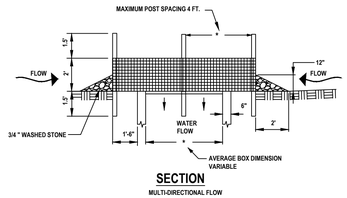
CULTIVATE SOILS TO CREATE FURROWS PERPENDICULAR TO SLOPE. CONTOURS / FURROWS WILL CATCH SEED, FERTILIZER, MULCH. RAINFALL AND DECREASE RUNOFF.

SURFACE ROUGHENING

(NOT TO SCALE)



PLAN
MULTI-DIRECTIONAL FLOW



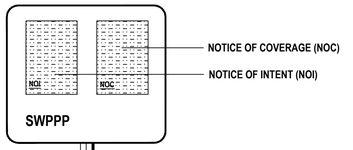
SECTION
MULTI-DIRECTIONAL FLOW

NOTE:

1. SEDIMENT CONTROL STONE SHALL BE 3/4" WASHED STONE.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. STEEL POST SHALL BE 5 FT. IN LENGTH, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 5 FT. IN HEIGHT, BE INSTALLED TO 1.5 FT. DEEP MINIMUM, AND BE 3 INCHES IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4 FT.

HARDWARE CLOTH INLET PROTECTION

NOT TO SCALE



1. NOTICE OF INTENT (NOI) (APPLICATION FOR PERMIT COVERAGE) AND NOTICE OF COVERAGE (NOC) (OR APPROVAL FROM REGULATORY AGENCY) ARE TO BE POSTED.
2. ALL POSTING IS TO BE AT JOB SITE ENTRANCE WHERE IT MAY BE VIEWED BY AUTHORITIES HAVING JURISDICTION AND THE PUBLIC.
3. POSTING IS REQUIRED FROM THE DAY CONSTRUCTION ACTIVITIES START UNTIL THE NOTICE OF TERMINATION (NOT) IS FILED.
4. PROJECT MUST BE POSTED IN TWO LOCATIONS; AT THE JOB SITE ENTRANCE AND INSIDE WALL OF JOB TRAILER.

JOB SITE PERMIT POSTING DETAIL

NOT TO SCALE

TEMPORARY SEEDING SPECIFICATION:

GENERAL
SEEDING CAN BE USED FOR TEMPORARY STABILIZATION. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED AND WATERED. AREAS WHERE FINAL GRADING HAS BEEN COMPLETED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED. TEMPORARY SEED MIXTURE IS SPECIFIED BELOW.

SEEDING MIXTURES
SEED MIXTURE SHALL BE BERMUDA COMMON 90 LB PURE LIVE SEED PER ACRE, FIBER 2000 LB PER ACRE, STABILIZER 120 LB PER ACRE AND FERTILIZER 300 LB PER ACRE.

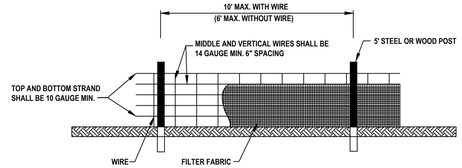
ALL SLOPES AND FLAT GRADE
APPLY 6:20:20 COMMERCIAL ORGANIC FERTILIZER AT A RATE OF 300 LB PER ACRE AND SEED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

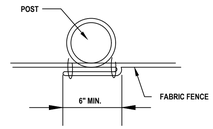
TEMPORARY SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
APRIL 15 - OCTOBER 15	PENSACOLA BAHIA (SCARIFIED)	90
	BERMUDA COMMON (50% HULLED)	25
OCTOBER 16 - APRIL 14	PENSACOLA BAHIA (SCARIFIED)	100
	BERMUDA COMMON (50% HULLED)	35
	ANNUAL RYE GRASS	10
	RYE GRAIN	30

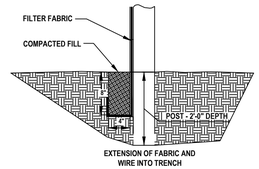
MULCH SEEDED AREA WITH 2 TONS PER ACRE CLEAN GRAIN STRAW. ANCHOR STRAW WITH HYDRAULIC WOOD FIBER MULCH AT THE RATE OF 1000 LB PER ACRE, OR 150-200 POUNDS OF ORGANIC MULCH TACKIFIER PER ACRE, OR USE NETTING.

HYDRO FIBER MULCH MIXTURE SHALL BE PERFORMED IN A TANK WITH A CONTINUOUS AGITATION AND RECIRCULATION SYSTEM WITH SUFFICIENT OPERATING CAPACITY TO PRODUCE A HOMOGENOUS SLURRY AND DISCHARGE SYSTEM WHICH WILL APPLY THE SLURRY AT A CONTINUOUS AND UNIFORM RATE. MIXTURE SHALL CONTAIN A GREEN FUGITIVE DYE AS AN APPLICATION INDICATOR.





JOINING FENCE SECTIONS



EXTENSION OF FABRIC AND WIRE INTO TRENCH

SLOPE LENGTH CHART

SLOPE	SLOPE LENGTH (FT)*	MAXIMUM AREA (FT^2)
< 2%	100	10,000
2 TO 5%	75	7,500
5 TO 10%	50	5,000
10 TO 20%	25	2,500
> 20%	15	1,500

*MAXIMUM LENGTH OF SLOPE BEHIND FENCE

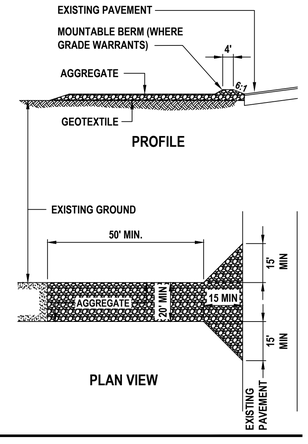
NOTES:

1. WWM MINIMUM 32" WIDTH WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. FILTER FABRIC SHALL BE 36" WIDE AND SHALL BE FASTENED ADEQUATELY TO THE WIRE.
3. STEEL POST SHALL BE 5'-0" IN LENGTH AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WOOD POST SHALL BE 5'-0" IN LENGTH AND 2" IN DIAMETER.
5. SUPPORT POSTS SHALL BE INSTALLED ON THE DOWNHILL SIDE OF THE SEDIMENT FENCE (DOWNSTREAM FROM EXPECTED FLOWS)
6. ACCUMULATED SEDIMENT SHALL REMOVED WHEN 25% THE HEIGHT OF FENCE.
7. MAXIMUM DRAINAGE AREA 10,000 SF PER 100' OF FENCE.
8. MAXIMUM LENGTH UPSLOPE FROM FENCE PER CHART.

SEDIMENT FENCE DETAIL

NOT TO SCALE

1. STONE SIZE - #2 COARSE AGGREGATE, OR RECLAIMED/RECYCLED CONCRETE.
2. LENGTH - AS EFFECTIVE BUT NOT LESS THAN 50'
3. DEPTH - 8" MINIMUM (COMPACTED)
4. WIDTH - 20' MINIMUM
5. GEOTEXTILE - 100% POLYPROPYLENE, 4 OZ/SY OVER THE ENTIRE AREA PRIOR TO PLACEMENT OF AGGREGATE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 6:1 SLOPES IS ACCEPTABLE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. MAINTAIN PERIODIC TOP DRESSING OF ADDITIONAL AGGREGATE AS CONDITIONS REQUIRE AND REPAIR AND/OR CLEANOUT ANY AREAS USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, WASHING SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT POND OR SWALE.
9. INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN OR WEEKLY AT A MINIMUM.



CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION

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Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

SWPPP DETAILS AND NOTES
OFFICE AND WAREHOUSE

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BUNNELL, FL 32110

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PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	DAB
CHECKED BY:	HHN
SCALE:	NTS

DRAWING NUMBER

05

GRAPHIC SCALE
20 10 0 20 40
1"=20'

GENERAL NOTES:

1. FLAGLER COUNTY BUILDING PERMITS ARE REQUIRED FOR BUILDING, CANOPIES, DUMPSTER ENCLOSURE, LIGHT POLES, FENCE AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, ETC.) AT TIME OF BUILDING PERMIT.
2. ALL CONSTRUCTION IN FDOT ROW SHALL CONFIRM TO THE LATEST EDITIONS OF THE FDOT DESIGN STANDARDS [INDEXES], THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE FDOT UTILITY ACCOMMODATION MANUAL.
3. ALL DIMENSIONS AND TIES ARE TO THE EDGE OF PAVEMENT AND OUTSIDE FACE OF BUILDING.
4. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEYOR UTILIZING GEODETIC TOTAL STATION OR GPS. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR'S RISK.
5. THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING ADJACENT BUSINESSES TO ENSURE THERE IS NO DISRUPTION TO THEIR RESPECTIVE OPERATIONS.
6. THE CONTRACTOR AT ITS OWN DISCRETION SHALL MAINTAIN THE CONSTRUCTION SITE SECURE FROM TRESPASS.
7. SOD ALL DISTURBED AREAS IN RIGHT-OF-WAY WITH BAHIA SOD.
8. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
9. ALL PAVEMENT EDGE SHALL HAVE TYPE "D" CURBING UNLESS OTHERWISE NOTED ON THESE PLANS.
10. ALL WALL-MOUNTED EQUIPMENT SUCH AS ELECTRICAL METERS, IRRIGATION METERS, PHONE/CABLE BOXES, EXTERNAL VENTS AND LOUVERS, ETC., SHALL BE PAINTED TO MATCH THE WALL ON WHICH IT IS MOUNTED OR OTHERWISE CONSISTENT WITH THE COLOR(S) OF THE BUILDING.
11. ALL MATERIALS, MACHINERY AND VEHICLES SHALL BE STORED ON-SITE IN AN ORDERLY ORGANIZED FASHION.
12. COMMERCIAL IMPACT FEE SHALL BE CALCULATED, DUE AND PAYABLE WITHIN 30 DAYS OF INITIATION OF PERMANENT ELECTRIC SERVICE.
13. CONTRACTOR TO PROVIDE PREMISE IDENTIFICATION FOR BUILDING DURING CONSTRUCTION.

PAVING LEGEND

US 1 ASPHALT PAVEMENT	3/4" FC-9.5 OPEN GRADED FRICTION COURSE 2" SP-12.5 TL-C PER FDOT SPECIFICATIONS 10" LIMEROCK (LBR=100) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (3" LIFTS) 12" STABILIZED SUBBASE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (TYPE B STABILIZATION) *ALTERNATE: FDOT OPTIONAL BASE GROUP 6 (SEE FDOT INDEX 514, SHEET No. 19) * ALTERNATE: 12" STABILIZED SUBBASE: 6" LIMEROCK (LBR=100) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 OR 6" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180.
STANDARD CONCRETE PAVEMENT	6" CONCRETE (4,000 P.S.I. @ 28 DAYS) 12" STABILIZED SUBGRADE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS) 10'x10' CONTROL JOINTS, 2" SAW CUT DEPTH SEE DETAIL, SHEET No. 15.
CONCRETE SIDEWALK	4" THICK CONCRETE (4,000 P.S.I. @ 28 DAYS) SEE SIDEWALK DETAIL, SHEET No. 15.

PAVEMENT MARKING NOTES:

1. PAINTED PAVEMENT MARKINGS SHALL BE APPLIED AFTER PAVEMENT SURFACE HAS CURED. SURFACE SHALL BE FREE OF FINE SAND AND DEBRIS PRIOR TO APPLICATIONS.
2. APPLY PAINTED PAVEMENT MARKINGS AT LAST STAGE OF CONSTRUCTION AFTER LANDSCAPE PLANTINGS ARE INSTALLED.
3. PAINT SHALL BE SHERWIN WILLIAMS LOW-VOC ACRYLIC PRO PARK PAINT, APPLY PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DRAWINGS FOR LOCATIONS OF SPECIFIC COLORS.
4. ALL REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED IN ACCORDANCE WITH FDOT STANDARD INDEX NO. 706-001.
5. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH INDEX NO. 17301 AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
6. LOCATION OF SIGNS IS APPROXIMATE ONLY AND IS SUBJECT TO CHANGE AS DIRECTED BY THE ENGINEER.
7. FOR ADDITIONAL DETAILS SEE INDEX NO. 700-010, 700-101, 17344 AND 711-001.
8. ALL TRAFFIC CONTROL SIGNS SHALL BE FABRICATED USING 3M BRAND "SCOTCHLITE" SHEETING (ENGINEER GRADE) ON MINIMUM .08 GA ALUMINUM BLANKS. ALL 36"x48" SIGNS SHALL BE .100 GA MINIMUM AND SHALL BE INSTALLED USING 3"x12" ROUND ALUMINUM POST. ALL STOP SIGNS SHALL BE 36" OCTAGON INSTALLED ON 12.3 LBS/FT "U" CHANNEL POST RAIL STEEL ONLY OR 3"x12' ROUND ALUMINUM POSTS. "U" CHANNEL POSTS MAY BE USED FOR SIGNS SMALLER THAN 36"x36". ALL SPEED LIMIT SIGNS SHALL BE 24"x30".

STRIPING KEYNOTES:

1. 6" SOLID WHITE LINE
2. 6" SOLID DOUBLE YELLOW LINE
3. 6" SOLID YELLOW LINE, 4' O.C. @ 45°
4. 24" WHITE STOP BAR
5. WHITE DIRECTIONAL ARROW
6. STANDARD EMPHASIS CROSSWALK
7. 24" DETECTABLE WARNING MAT PER FDOT INDEX 522-002

LEGEND

- TYPE 'F' CURB (SEE DETAIL, SHEET No. 15)
- TYPE 'F1' CURB (SEE DETAIL, SHEET No. 15)
- ENVIRONMENTAL CURB (SEE DETAIL, SHEET No. 15)
- TRANSITION LOCATION FROM TYPE 'F' CURB TO FLAT
- TRANSITION LOCATION FROM TYPE 'F' CURB TO 'F1'

SITE DEVELOPMENT USAGE

PROPERTY INFORMATION	
FUTURE LAND USE (FLU)	COMMERCIAL HIGH INTENSITY
ZONING	(C-2) GENERAL COMMERCIAL AND SHOPPING CENTER
FLOODZONE	"X"
BUILDING USES	MULTI-FAMILY

REQUIRED SETBACKS	BUILDING		BUFFER
FRONT (US HIGHWAY 1)	35	FEET	10
REAR (SOUTH)	10	FEET	NOT REQ.
SIDE (EAST)	10	FEET	5
SIDE (WEST)	10	FEET	NOT REQ.

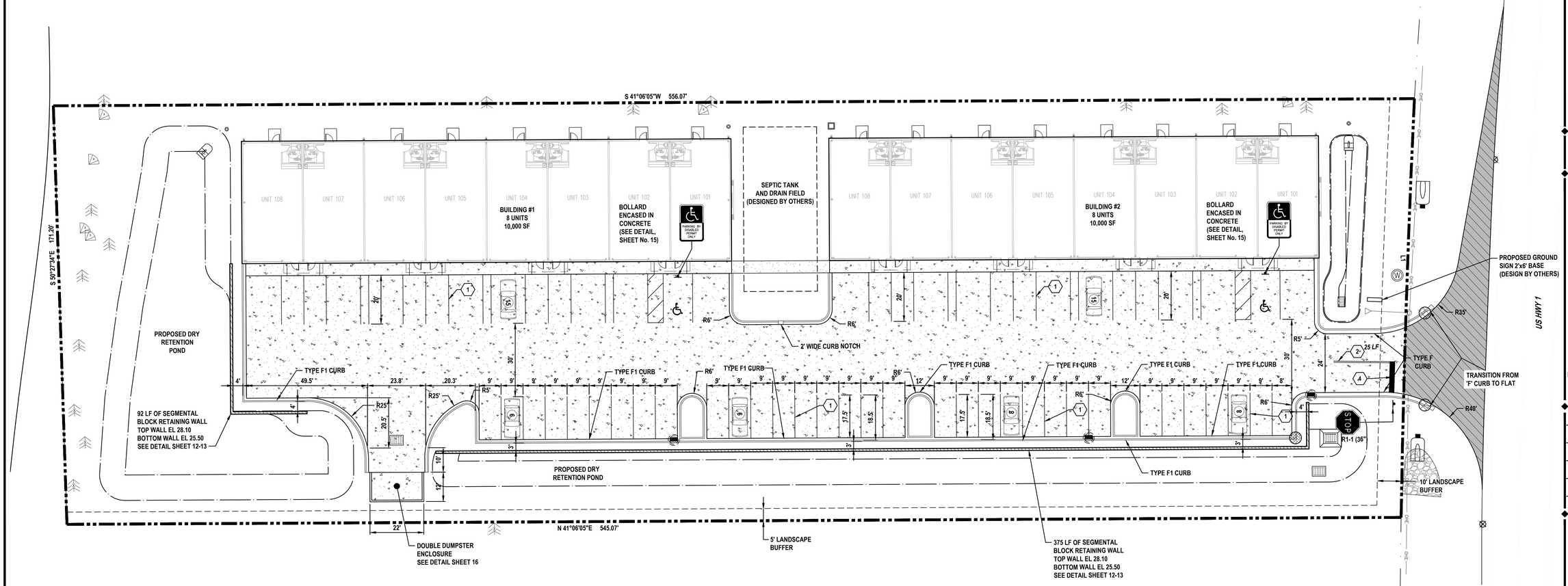
DIMENSIONAL REQUIREMENTS	REQ.	PROV.
MAX. BUILDING HEIGHT	65 FEET	65 FEET
MAX. LOT COVERAGE (FAR)	35%	21%
MIN. PERVIOUS	30%	43.9%

SITE COVERAGE - PROPOSED			
AREA TYPE	SF	ACRE	% OF SITE
BUILDING	20,000	0.459	21.2%
CONCRETE PAVEMENT	30,255	0.695	32.1%
SIDEWALKS	200	0.005	0.2%
GREEN SPACE	43,680	1.003	46.4%
TOTAL SITE	**94,135**	**2.161**	**100.0%**
TOTAL IMPERVIOUS	**50,455**	**1.158**	**53.6%**
TOTAL OPEN SPACE	**43,680**	**1.003**	**46.4%**

PARKING REQUIREMENTS				
BUILDING USE	A. SF/UNITS	B. SPACES	C. PER SF	D. REQ. SPACES
OFFICE	4,000	1	200	20
WAREHOUSE	16,000	1	1,000	16
TOTAL REQUIRED SPACES				**36**

PROVIDED PARKING	%	PROV. SPACES
STANDARD SPACES	67.3%	37
GARAGE SPACES	29.1%	16
ADA SPACES	3.6%	2
TOTAL PROVIDED SPACES		**55**

A Part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Fl.
Parcel #22-13-31-0000-03030-0050



REVISIONS

DATE	DESCRIPTION

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L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

SITE LAYOUT PLAN
OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
BUNNELL, FL 32110

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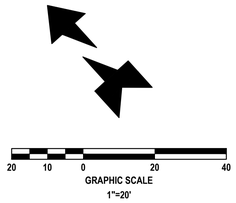
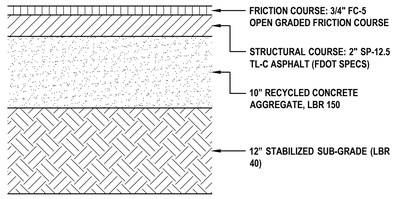
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	DAB
CHECKED BY:	HHN
SCALE:	1" = 20'

DRAWING NUMBER

06





PAVEMENT STRUCTURAL SECTION IS SN = 3.64

ASPHALT SECTION (U.S. HIGHWAY 1)

NOT TO SCALE

PAVING LEGEND

US 1 ASPHALT PAVEMENT — 3/4" FC-9.5 OPEN GRADED FRICTION COURSE
2" SP-12.5 TL-C PER FDOT SPECIFICATIONS
10" LIMEROCK (LBR=100) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (3" LIFTS)
12" STABILIZED SUBBASE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (TYPE B STABILIZATION)

*ALTERNATE: FDOT OPTIONAL BASE GROUP 6 (SEE FDOT INDEX 514, SHEET No. 19)

* ALTERNATE: 12" STABILIZED SUBBASE: 6" LIMEROCK (LBR=100) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 OR 6" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180.

STANDARD CONCRETE PAVEMENT — 6" CONCRETE (4,000 P.S.I. @ 28 DAYS)
12" STABILIZED SUBGRADE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS)
10'x10' CONTROL JOINTS, 2" SAW CUT DEPTH
SEE DETAIL, SHEET No. 15.

CONCRETE SIDEWALK — 4" THICK CONCRETE (4,000 P.S.I. @ 28 DAYS)
SEE SIDEWALK DETAIL, SHEET No. 15.

STRIPING KEYNOTES: (PER FDOT INDEX No. 711-001, ONLY THERMOPLASTIC IN R/W)

1. 6" SOLID WHITE LINE
2. 6" SOLID DOUBLE YELLOW LINE
3. 6" SOLID YELLOW LINE, 4' O.C. @ 45°
4. 24" WHITE STOP BAR
5. WHITE DIRECTIONAL ARROW
6. STANDARD EMPHASIS CROSSWALK
7. 24" DETECTABLE WARNING MAT PER FDOT INDEX 522-002

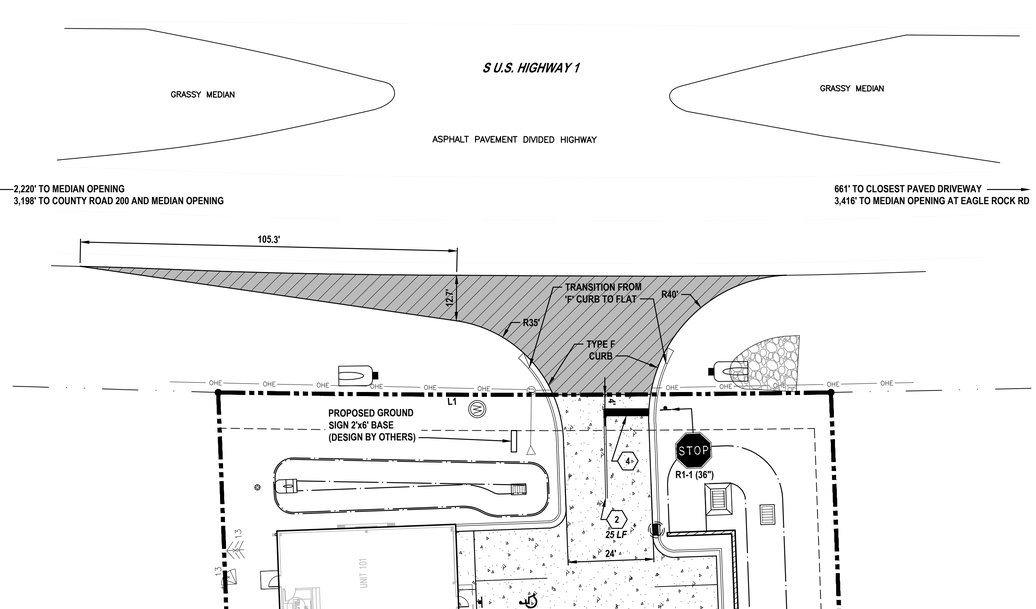
NOTE:
1. RPM'S SHALL BE PROVIDED FOR ALL CONSTRUCTION WITH PUBLIC RIGHTS-OF-WAY OF ALL THOROUGHFARES AND SHALL BE INSTALLED IN ACCORDANCE WITH FDOT STANDARD INDEX No. 706-001.
2. ALL STRIPING WITHIN PUBLIC RIGHT OF WAY SHALL BE THERMOPLASTIC AND INSTALLED IN ACCORDANCE TO FDOT INDEX No. 711-001.

FDOT GENERAL NOTES:

1. MAINTENANCE OF TRAFFIC TO BE SUPERVISED BY A CERTIFIED PERSON (ON SITE).
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK WITH IN THE FDOT R/W.
3. ALL WORK PERFORMED WITH IN THE FDOT R/W SHALL BE IN ACCORDANCE WITH THE 2019 EDITION OF THE FDOT DESIGN STANDARDS & SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, 2017 EDITION OF THE FDOT UTILITY ACCOMMODATION MANUAL AND FDOT STANDARD PLANS FY 2019-20.
4. IT IS THE RESPONSIBILITY OF THE PERMITTEE TO REPAIR ANY DAMAGE TO FDOT FACILITIES CAUSED BY THE CONSTRUCTION OF THIS PROJECT.
5. ANY TEST RESULTS TAKEN DURING CONSTRUCTION OF THE PERMITTED WORK SHALL BE PROVIDED TO THE DEPARTMENT UPON REQUEST.
6. ALL CONCRETE TO BE REMOVED SHALL BE SAW CUT TO NEAREST JOINT IN GOOD CONDITION, SO A CONNECTION THAT IS FREE OF CRACKS, DEFORMITIES OR VOIDS & IRREGULARITIES ARE NOT DEFECTIVE.
7. ALL STRIPING WITHIN THE FDOT RIGHT-OF-WAY SHALL BE PREFORMED THERMOPLASTIC.
8. ALL CONCRETE SHALL BE AN APPROVED FDOT MIX DESIGN OF 3,000 PSI.
9. ALL MATERIALS INSTALLED INSIDE FDOT R/W SHALL BE ON THE QUALIFIED PRODUCTS LIST OR APPROVED PRODUCTS LIST.
10. ALL CONSTRUCTION SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEYOR UTILIZING GEODETIC TOTAL STATION. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR'S RISK.
11. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC AND BARRICADE PLAN TO THE ENGINEER FOR APPROVAL WITH THE BID. INCLUDE THE MOT PLAN AT THE PRECONSTRUCTION MEETING.
12. ALL TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND THE FDOT INSPECTOR NOTIFIED FOR APPROVAL.
13. ALL BARRICADES AND POSTED SIGNAGE SHALL REMAIN IN PLACE UNTIL PAVING WORK IS COMPLETE. ALL BARRICADES SHALL BE VERIFIED IN PLACE BY THE CONTRACTOR AT THE END OF EACH WORK DAY.
14. SOD ALL DISTURBED AREAS IN RIGHT-OF-WAY WITH BAHIA.
15. THE CONTRACTOR SHALL ENSURE THAT ALL SIDEWALKS AND CROSSWALKS CONFORM TO THE CURRENT REQUIREMENTS OF THE AMERICANS WITH DISABILITY ACT (ADA).
16. ALL SIGNS AND PAVEMENT MARKINGS THAT ARE REMOVED OR DAMAGED BY CONSTRUCTION ACTIVITIES RELATED TO THIS PROJECT ARE TO BE REPLACED TO THEIR PRECONSTRUCTION CONDITIONS.
17. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO FDOT STANDARD INDEX No. 711-001.
18. IN THE EVENT PERMANENT VEHICLE DETECTION IS DISRUPTED, PROVIDE AN ALTERNATIVE MEANS OF DETECTION TO ALL LANES APPROACHING THE INTERSECTION, SEPARATING EACH MOVEMENT WHICH PREVIOUSLY HAD DETECTION. THE TYPE OF DETECTOR SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. EQUIPMENT SHALL ONLY DETECT THE INTENDED MOVEMENT.
19. THERE SHALL BE NO SR 44 LANE CLOSURES DURING 7 A.M. TO 7 P.M. MONDAY TO SUNDAY.
20. THERE SHALL BE NO WORK WITHIN THE VICINITY OF THE SIGNALIZED INTERSECTION DURING 7 A.M. TO 7 P.M. MONDAY TO SUNDAY.
21. CONTRACTOR TO PROVIDE TEMPORARY VIDEO DETECTION FOR SIGNAL WHILE LOOPS ARE DISTURBED DURING MILLING AND RESURFACING.

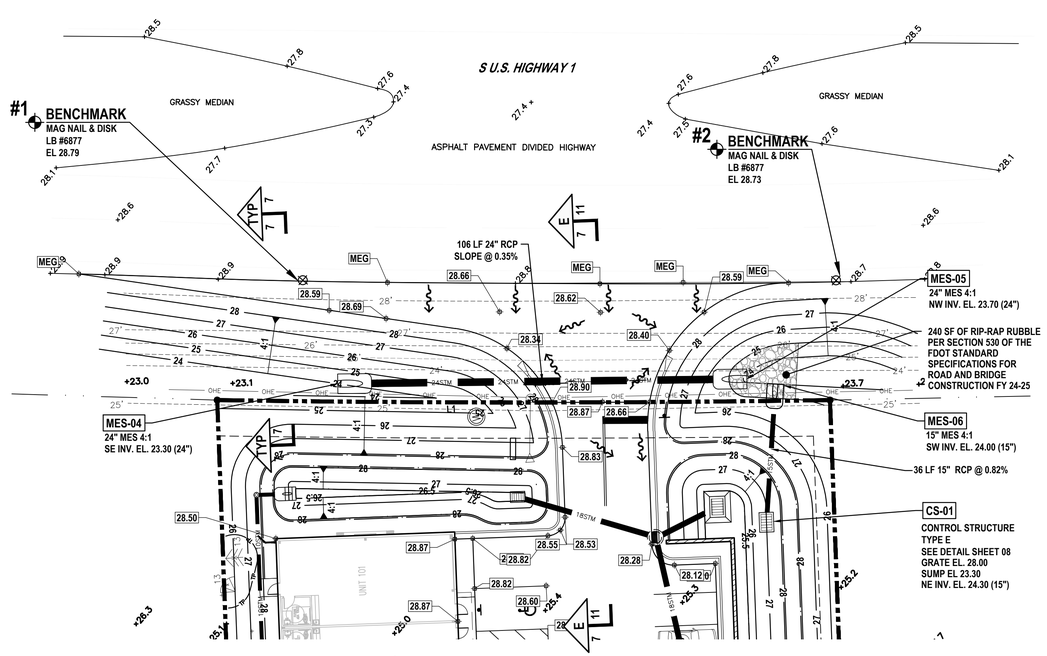
US 1 RIGHT-OF-WAY PAVING AND STRIPING PLAN

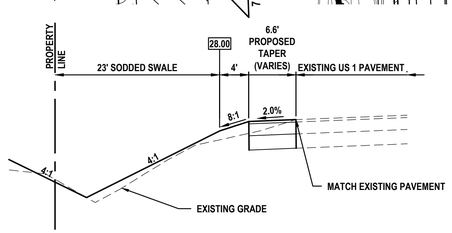
SCALE 1" = 20'



US 1 RIGHT-OF-WAY GRADING AND DRAINAGE PLAN

SCALE 1" = 20'





TYPICAL ROW SECTION

NOT TO SCALE

REVISIONS

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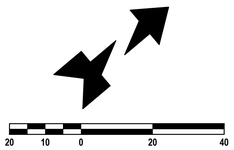


STORMWATER LEGEND

- PROPOSED MITERED END SECTION
- PROPOSED TYPE E CURB INLET
- 18STM — PROPOSED STORM PIPE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM CLEANOUT
- PROPOSED STORM YARD DRAIN (IN-LINE DRAIN)

ROOF DRAIN NOTES:

1. ALL PIPE SHALL BE PVC SDR 35 OR APPROVED EQUAL. ALTERNATE PIPE IS HDPE.
2. ALL CLEANOUTS WITHIN PAVEMENT AREAS SHALL BE TRAFFIC RATED BRASS CAPS WITH 12"x12"x12" CONCRETE COLLAR (3,000 PSI MIN.)
3. ALL CLEANOUTS LOCATED WITHIN PAVEMENT SHALL HAVE TRAFFIC BEARING BRASS TOPS.
4. ALL CLEANOUTS SHALL BE 6" DIAMETER AND TOPS ADJUSTED TO FINISH GRADE.

GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL STORM PIPE SHALL BE CONSTRUCTED OF HDPE (SICE) PIPE WITH CERTIFIED WATERTIGHT JOINTS BY THE MANUFACTURER. ACCEPTABLE HDPE PIPE SHALL BE HANCOR SUR-LOK WT, ADS SERIES 35, ADS N-12 WITH WT JOINT OR EQUAL. ALTERNATE STORM PIPE MATERIAL IS RCP PER FDOT SPECIFICATIONS.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
4. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
5. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
6. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
7. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
8. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
9. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).

STORMWATER SYSTEM MAINTENANCE NOTES:

ONCE THE STORMWATER SYSTEM IS CONSTRUCTED AND THE ENGINEER OF RECORD SUBMITS A REQUEST TO SJRWMD TO PLACE THE SYSTEM INTO FUNCTION, THE MAINTENANCE PERIOD OF THE SYSTEM BEGINS. THE FOLLOWING PROCEDURES ARE RECOMMENDED, AT A MINIMUM, TO BE CONDUCTED BY THE OPERATIONS AND MAINTENANCE ENTITY THROUGHOUT THE USE OF THE STORMWATER SYSTEM.

1. BI-WEEKLY
   - 1.1. MOWING AND LANDSCAPE MAINTENANCE.
   - 1.2. REMOVAL OF MANMADE AND NATURAL DEBRIS FROM IN AND AROUND THE POND.
   - 1.3. REMOVAL OF SEDIMENTATION AND DEBRIS FROM ALL CURB AND GUTTER OR PAVEMENT CONVEYANCE PATHS
2. AFTER FIRST YEAR
   - 2.1. INSPECT POND SLOPES AND BERMS FOR SIGNS OF EROSION. REPAIR AND RE-SOD AS NEEDED.
   - 2.2. CLEAN STORMWATER PIPES AND STRUCTURES AND CONVEYANCE PATHS OF DEBRIS AND SEDIMENTATION, IF PRESENT.
   - 2.3. CHECK OIL AND GREASE FILTER COMPONENTS FOR FUNCTION AND CLEANLINESS (i.e. SKIMMER PLATE, FILTER BOX)
   - 2.4. REMOVE INVASIVE SPECIES OR LARGE VEGETATIVE OVERGROWTH, IF PRESENT.
   - 2.5. CHECK DIMENSIONS OF CONTROL STRUCTURES TO ENSURE DESIGN INTENT IS STILL MET.
   - 2.6. CHECK OPERATOR MANUALS OF MANUFACTURED BMPs (i.e FILTERS, EXFILTRATION, GEOTEXTILES) FOR MAINTENANCE INTERVALS AND LOG ANY MAINTENANCE OR REHAB CONDUCTED.
3. TRIENNIAL (AFTER FIRST YEAR IF NO ISSUES, ANNUALLY IF ISSUES OBSERVED)
   - 3.1. CONDUCT INSPECTIONS ABOVE IN ITEM #4
4. EVERY 5 YEARS (SJRWMD REQUIREMENT)
   - 4.1. IN ACCORDANCE WITH SUBSECTION 62-330.311(1), F.A.C., STORMWATER MANAGEMENT SYSTEMS, DAMS, IMPOUNDMENTS, RESERVOIRS, APPURTENANT WORK, AND WORKS DESIGNED BY A REGISTERED PROFESSIONAL SHALL BE INSPECTED AND DOCUMENTED BY THE REGISTERED PROFESSIONAL AS FOLLOWS, UNLESS OTHERWISE SPECIFIED IN THE PERMIT.
   - 4.2. ACTIVITIES DESIGNED BY A REGISTERED PROFESSIONAL SHALL BE INSPECTED BY THAT SAME REGISTERED PROFESSIONAL, OR BY A SIMILARLY-REGISTERED PROFESSIONAL IN ACCORDANCE WITH THE INSPECTION FREQUENCY AND TERMS REQUIRED IN THE PERMIT.
   - 4.3. ADDITIONAL INFORMATION ON OPERATION AND MAINTENANCE REQUIREMENTS IS CONTAINED IN SECTION 12.4 OF VOLUME I AND IN RULE 62-330.311, F.A.C.

One Nation... One Number... 811

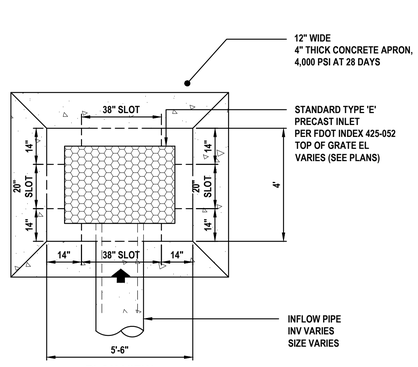
Know what's below. Call before you dig.

WARNING !!

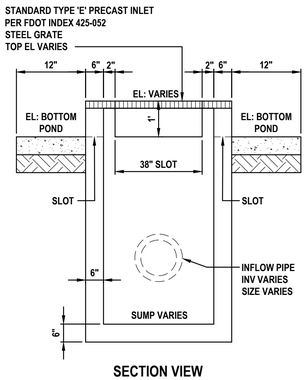
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

DRAINAGE PIPE MINIMUM SLOPE REQUIREMENTS

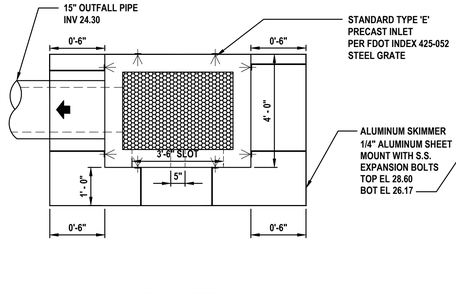
PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER	MINIMUM SLOPE (FT / 100 FT)
15	3.0	0.012	0.6	1.22715	3.9269	0.0027
18	3.0	0.012	0.75	1.767	FULL & ½ FULL	0.0022



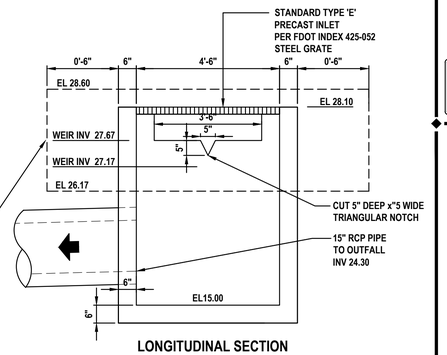
PLAN VIEW



SECTION VIEW



PLAN VIEW



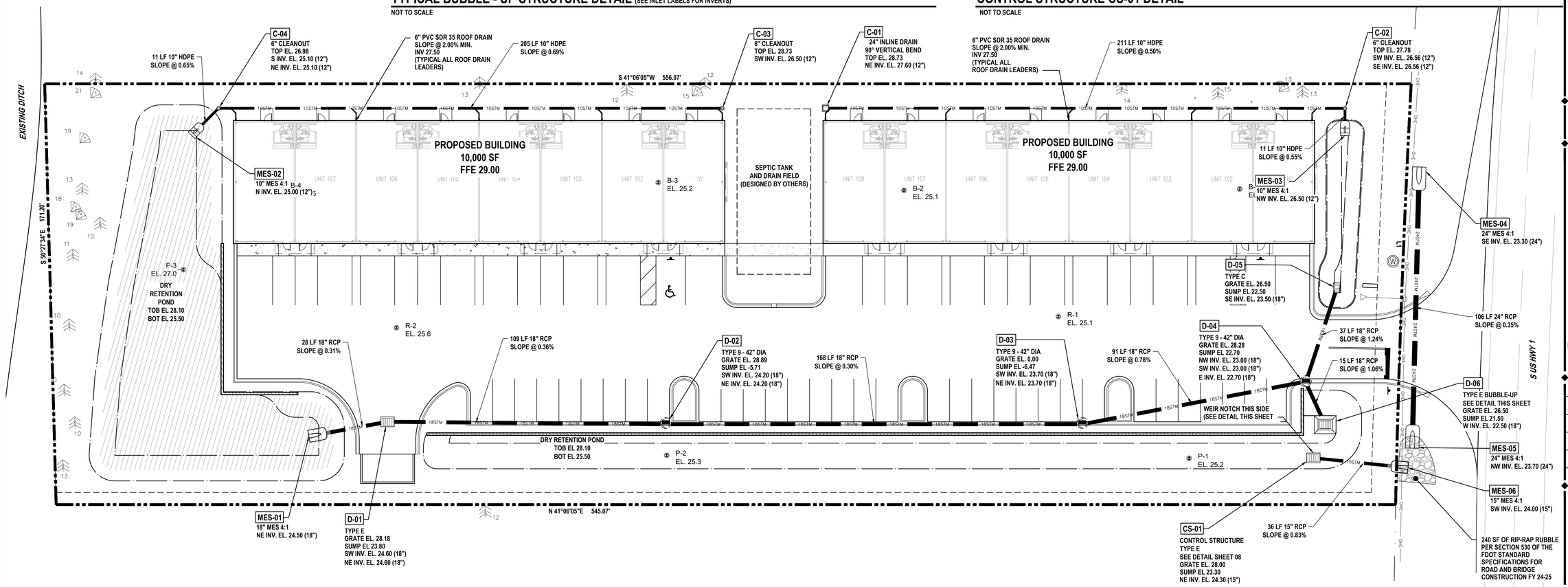
LONGITUDINAL SECTION

TYPICAL BUBBLE - UP STRUCTURE DETAIL (SEE INLET LABELS FOR INVERTS)

NOT TO SCALE

CONTROL STRUCTURE CS-01 DETAIL

NOT TO SCALE



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CHECKED BY:	HHN
SCALE:	1"=20'

DRAWING NUMBER

08

GENERAL GRADING NOTES:

1. CROSS SLOPES OF ACCESSIBLE PARKING SPACES AND ACCESS AISLE SHALL NOT EXCEED 1:48 IN ACCORDANCE WITH SECTION 502.4 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
2. ALL SIDEWALKS SHALL HAVE A 1.0% CROSS SLOPE (2.0% MAXIMUM).
3. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FACBC.
4. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEY OR UTILIZING GEODETIC TOTAL STATION. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR.

GENERAL EARTHWORK NOTES:

1. REMOVE ALL ORGANIC OR UNSUITABLE MATERIALS. IF ANY MUCK OR MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
2. ALL FILLING IS TO BE PERFORMED IN ONE-FOOT LIFTS. THE COMPACTION REQUIREMENT IS 98% FOR PAVED AREAS AND 95% FOR UNPAVED AREAS PER AASHTO T-180 MODIFIED PROCTOR TEST.
3. TEMPORARY FILL STOCKPILING IS NOT PERMITTED IN LIFTS GREATER THAN SIX FEET.
4. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES.
5. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED TO ALLOW THE GRASS TO GROW.
6. ALL NON-PAVED AREAS MUST BE PLANTED, GRASSED, OR MULCHED.

BENCHMARK INFORMATION:

#1 MAG NAIL & DISK
LB #6877
ELEVATION = 28.79

#2 MAG NAIL & DISK
LB #6877
ELEVATION = 28.73

VERTICAL DATA
ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88).

GRADING LEGEND

- 9721 / 72.0 / 98 — EXISTING SPOT ELEVATION
- 25.00 — PROPOSED SPOT ELEVATION
- --15-- — EXISTING CONTOUR
- 15 — PROPOSED CONTOUR
- DRAINAGE FLOW ARROW

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WARNING !!

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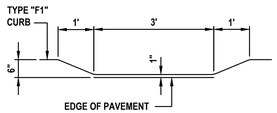
DRY RETENTION POND CONSTRUCTION NOTES:

1. INITIALLY CONSTRUCT THE RETENTION BASIN TO ROUGH GRADE BY UNDER-EXCAVATING THE BASIN BOTTOM AND SIDES BY APPROXIMATELY 12-INCHES AND FILL WITH TYPE "A" OR "B" GRANULAR SAND.
2. AFTER THE DRAINAGE AREA CONTRIBUTING TO THE BASIN HAS BEEN FULLY STABILIZED, THE INTERIOR SIDE SLOPES AND BASIN BOTTOM SHOULD BE EXCAVATED TO FINAL DESIGN SPECIFICATIONS. THE EXCESS SOIL AND UNDESIRABLE MATERIAL SHOULD BE CAREFULLY EXCAVATED AND REMOVED FROM THE POND SO THAT ALL ACCUMULATED SILTS, CLAY, ORGANICS AND OTHER FINE SEDIMENT MATERIAL HAS BEEN REMOVED FROM THE POND AREA. THE EXCAVATED MATERIAL SHOULD BE DISPOSED OF BEYOND THE LIMITS OF THE DRAINAGE AREA OF THE BASIN.
3. ONCE THE BASIN HAS BEEN EXCAVATED TO FINAL GRADE, THE ENTIRE BASIN BOTTOM SHOULD BE DEEP RAKED AND LOOSENED FOR OPTIMAL INFILTRATION.
4. FINALLY, THE BASIN SHOULD BE STABILIZED WITH BAHIA SOD.

DRY RETENTION POND FILL NOTES:

1. PERCENT FINE SAND PASSING THROUGH #200 SIEVE SHALL BE 8-10%
2. VERTICAL PERMEABLITY RATE OF FILL MATERIAL SHALL BE 7.0 FT/DAY.
3. HORIZONTAL PERMEABILITY RATE OF THE FILL MATERIAL SHALL BE 14.0 FT/DAY.
4. FILL MATERIAL MUST BE NATIVE SAND, NOT PROCESSED OR WASHED.
5. EXCAVATION AND FILL MATERIALS SHALL INCLUDE THE ENTIRE FOOTPRINT OF THE DRY RETENTION POND.
6. ADEQUACY OF FILL MATERIAL MUST BE APPROVED BY PROFESSIONAL ENGINEER OR GEOTECHNICAL ENGINEER AT TIME OF PLACEMENT.



CURB NOTCH DETAIL

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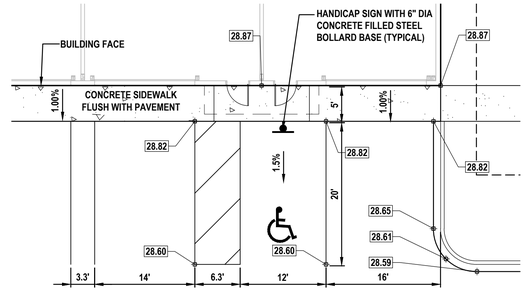

D-02 TYPE 9 - 42" DIA

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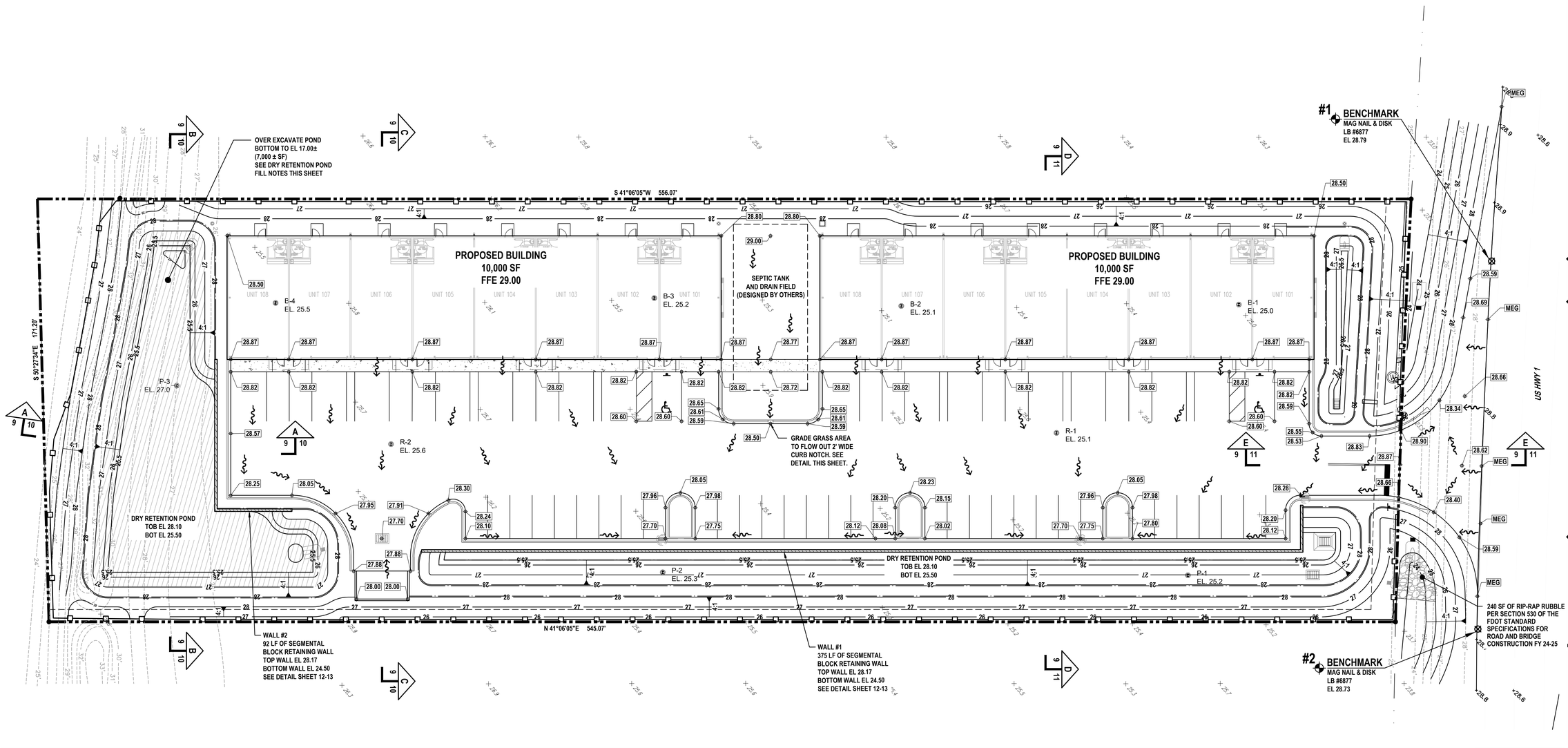

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DATE	DESCRIPTION

GRADING PLAN
OFFICE AND WAREHOUSE

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CHECKED BY:	HHN
SCALE:	1"=20'

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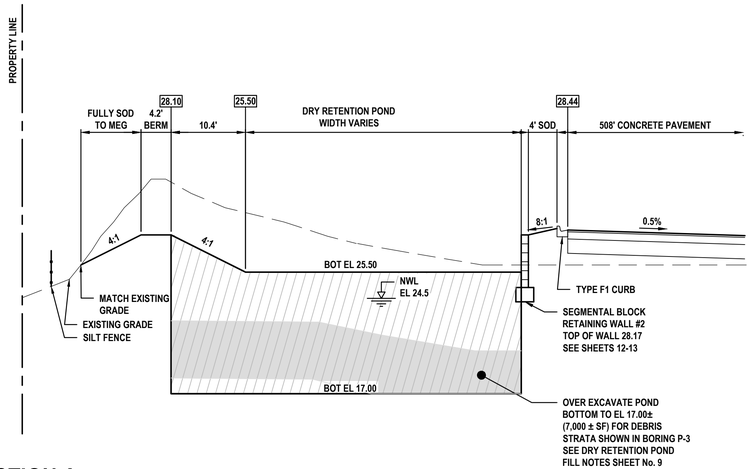
09



SECTION A
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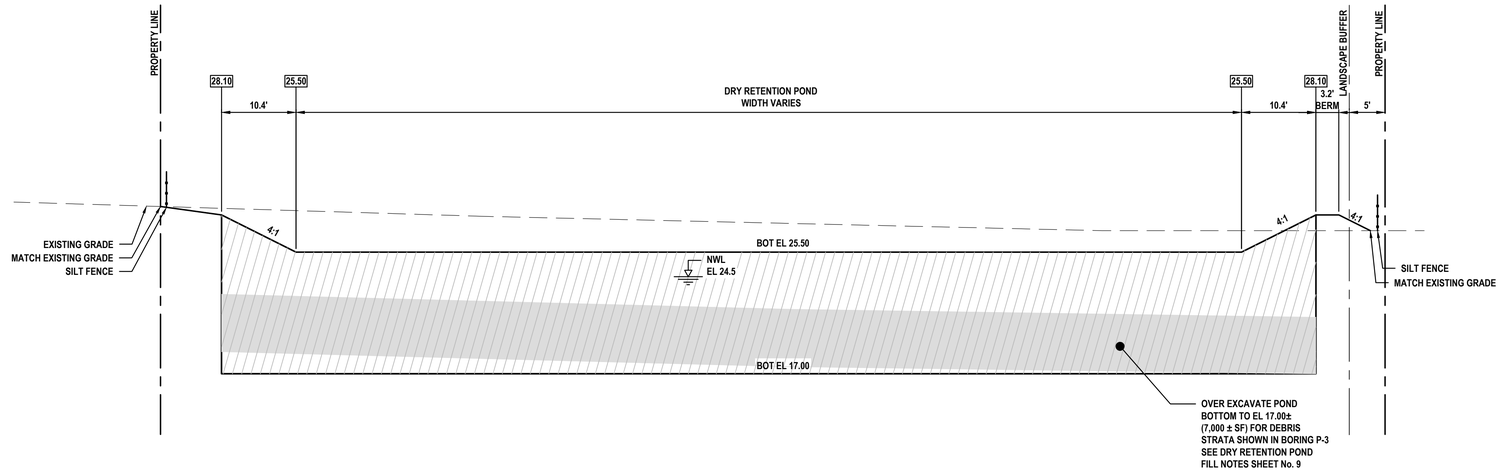

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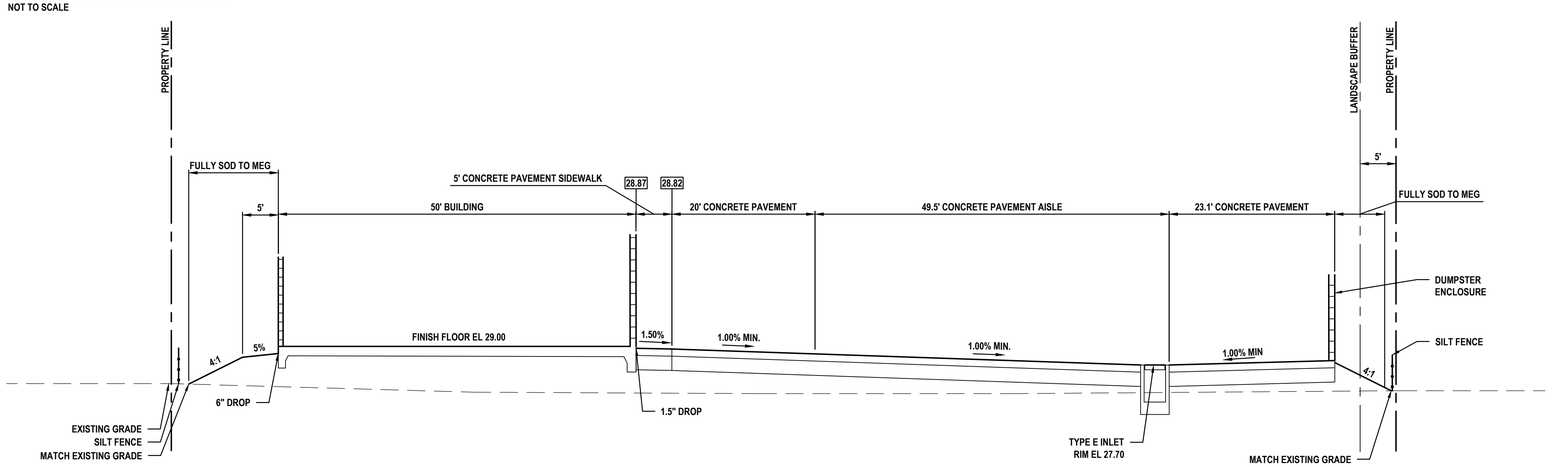

SECTION C
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WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

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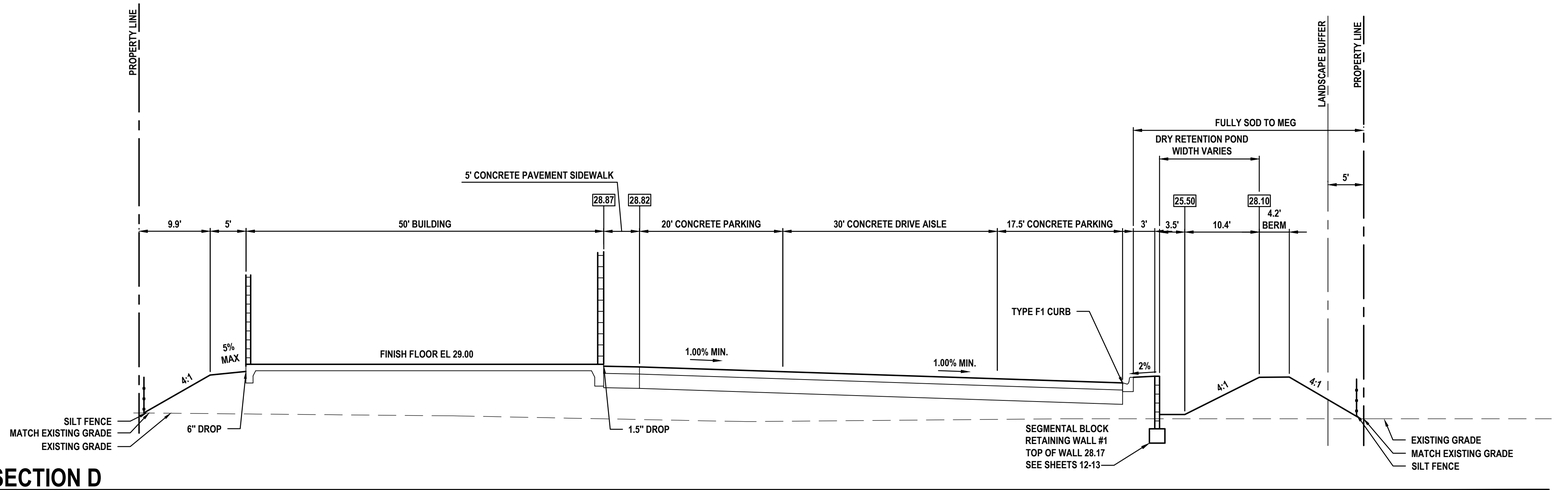
10



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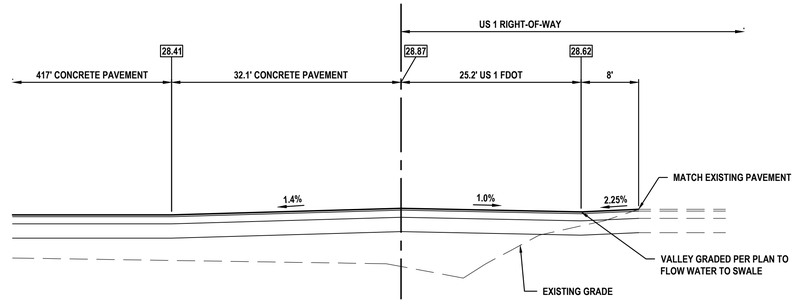

SECTION E

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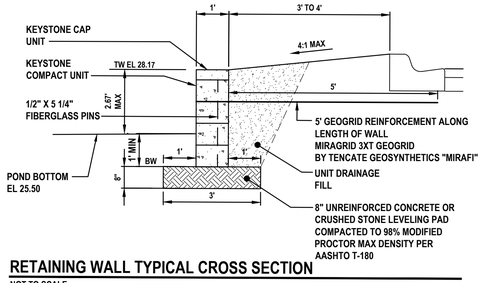

RETAINING WALL TYPICAL CROSS SECTION

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WARNING !!

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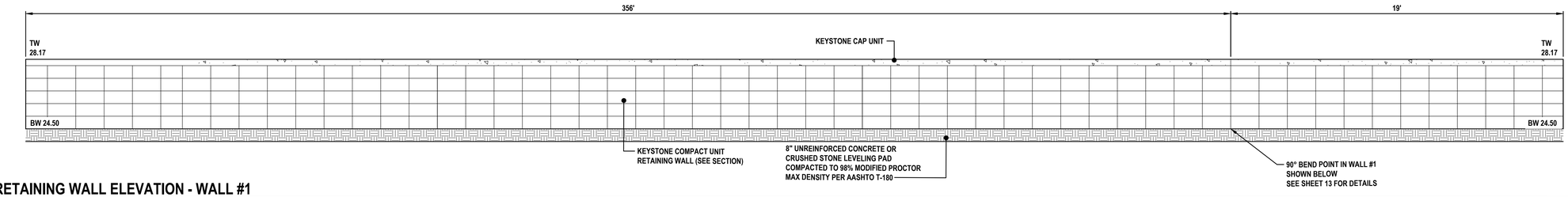

RETAINING WALL ELEVATION - WALL #1

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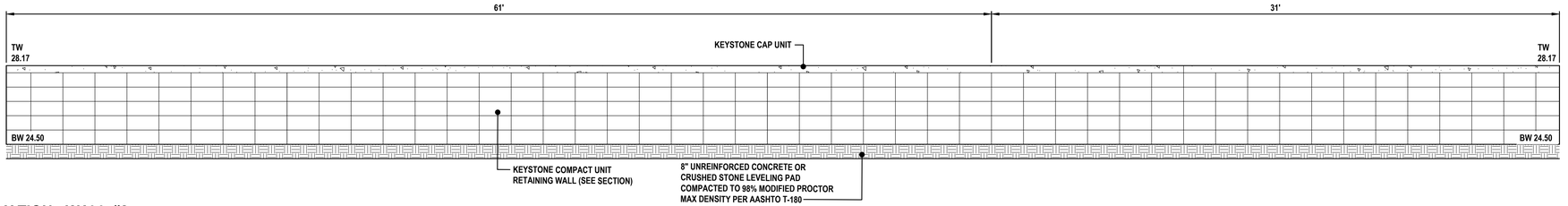

RETAINING WALL ELEVATION - WALL #2

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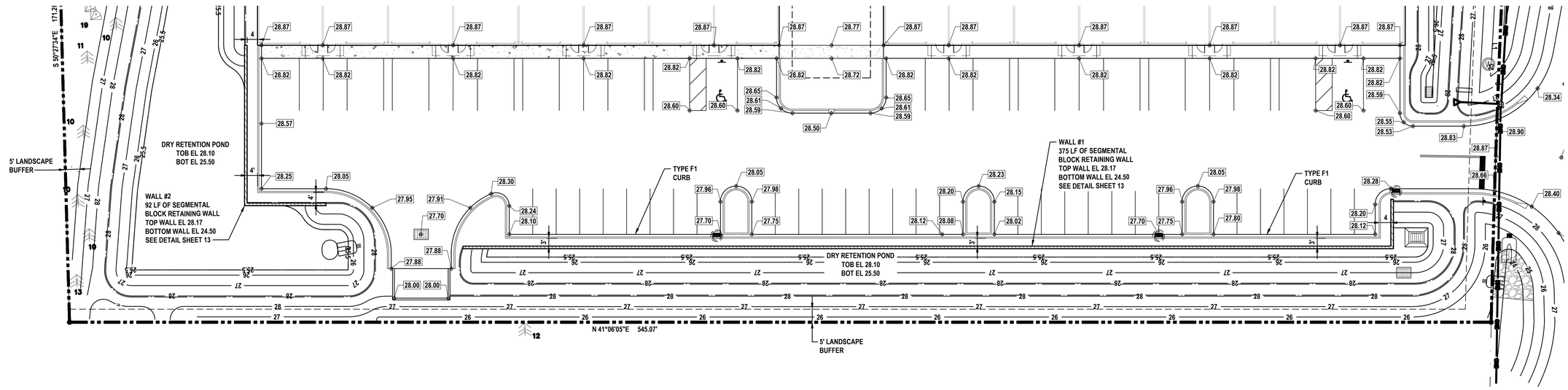

SECTION E

SCALE: 1" = 20'

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PART 1: GENERAL

1.01 DESCRIPTION

A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A KEYSTONE COMPAC UNIT RETAINING WALL SYSTEM OR EQUAL IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.

B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.

C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 RELATED SECTIONS

A. SECTION 02300 (31 00 00) - EARTHWORK

1.03 REFERENCE DOCUMENTS

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

1. ASTM C140 SAMPLING AND TESTING CONCRETE MASONRY UNITS
1. ASTM C1372 SPECIFICATION FOR DRY-CAST SEGMENTAL RETAINING WALL UNITS
2. ASTM D422 PARTICLE-SIZE ANALYSIS OF SOILS
3. ASTM D698 LABORATORY COMPACTION CHARACTERISTICS OF SOIL -STANDARD EFFORT
4. ASTM D1557 LABORATORY COMPACTION CHARACTERISTICS OF SOIL -MODIFIED EFFORT
5. ASTM D3034 POLYVINYL CHLORIDE PIPE (PVC)
6. ASTM D4318 LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS
7. ASTM D4475 HORIZONTAL SHEAR STRENGTH OF PULTRUDED REINFORCED PLASTIC RODS
8. ASTM D4476 FLEXURAL PROPERTIES OF FIBER REINFORCED PULTRUDED PLASTIC RODS
9. ASTM D4595 TENSILE PROPERTIES OF GEOTEXTILES - WIDE WIDTH STRIP
10. ASTM D5262 UNCONFINED TENSION CREEP BEHAVIOR OF GEOSYNTHETICS
11. ASTM D5818 EVALUATE INSTALLATION DAMAGE OF GEOSYNTHETICS
12. ASTM D6637 TENSILE PROPERTIES OF GEOGRIDS - SINGLE OR MULTI-RIB
13. ASTM D6638 CONNECTION STRENGTH - REINFORCEMENT/SEGMENTAL UNITS
14. ASTM D6706 GEOSYNTHETIC PULLOUT RESISTANCE IN SOIL
15. ASTM D6916 SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS

B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

1. AASHTO M 252 CORRUGATED POLYETHYLENE DRAINAGE PIPE

C. GEOSYNTHETIC RESEARCH INSTITUTE (GRI)

1. GRI-GG4 DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEOGRIDS
2. GRI-GG5 DETERMINATION OF GEOGRID (SOIL) PULLOUT

D. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)

1. NCMA SRWU-1 TEST METHOD FOR DETERMINING CONNECTION STRENGTH OF SRW
2. NCMA SRWU-2 TEST METHOD FOR DETERMINING SHEAR STRENGTH OF SRW

1.04 SUBMITTALS/CERTIFICATION

A. CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO START OF WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF THIS SPECIFICATION AND THE STRUCTURE DESIGN.

B. CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS AND DESIGN CALCULATIONS FOR THE RETAINING WALL SYSTEM PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT. THE ENGINEERING DESIGNS, TECHNIQUES, AND MATERIAL EVALUATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DESIGN MANUAL, NCMA DESIGN GUIDELINES FOR SEGMENTAL RETAINING WALLS, OR THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (WHICHEVER IS APPLICABLE TO DESIGNER).

C. CONTRACTOR SHALL SUBMIT A TEST REPORT DOCUMENTING STRENGTH OF SPECIFIC MODULAR CONCRETE UNIT AND GEOGRID REINFORCEMENT CONNECTION. THE MAXIMUM DESIGN TENSILE LOAD OF THE GEOGRID SHALL BE EQUAL TO THE LABORATORY TESTED ULTIMATE STRENGTH OF GEOGRID / FACING UNIT CONNECTION AT A MAXIMUM NORMAL FORCE LIMITED BY THE "HINGE HEIGHT" OF THE STRUCTURE DIVIDED BY A SAFETY FACTOR OF 1.5. THE CONNECTION STRENGTH EVALUATION SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D6638 (NCMA SRWU_1).

1.05 QUALITY ASSURANCE

A. CONTRACTOR SHALL SUBMIT CERTIFICATION, PRIOR TO START OF WORK, THAT THE RETAINING WALL SYSTEM (MODULAR CONCRETE UNITS AND SPECIFIC GEOGRID):

1) HAS BEEN SUCCESSFULLY UTILIZED ON A MINIMUM OF FIVE (5) SIMILAR PROJECTS, I.E., HEIGHT, SOIL FILL TYPES, ERECTION TOLERANCES, ETC.; AND

2) HAS BEEN SUCCESSFULLY INSTALLED ON A MINIMUM OF 1 MILLION (1,000,000) SQUARE FEET OF RETAINING WALLS.

B. CONTRACTOR SHALL SUBMIT A LIST OF FIVE (5) PREVIOUSLY CONSTRUCTED PROJECTS OF SIMILAR SIZE AND MAGNITUDE BY THE WALL INSTALLER WHERE THE SPECIFIC RETAINING WALL SYSTEM HAS BEEN CONSTRUCTED SUCCESSFULLY. CONTACT NAMES AND TELEPHONE NUMBERS SHALL BE LISTED FOR EACH PROJECT.

C. CONTRACTOR SHALL PROVIDE EVIDENCE THAT THE DESIGN ENGINEER HAS A MINIMUM OF FIVE YEARS OF DOCUMENTAL EXPERIENCE IN THE DESIGN FOR REINFORCED SOIL STRUCTURES. THE DESIGN ENGINEER SHALL PROVIDE PROOF OF CURRENT PROFESSIONAL LIABILITY INSURANCE WITH AN AGGREGATE COVERAGE LIMIT OF NOT LESS THAN $2,000,000.

D. OWNER SHALL/MAY PROVIDE SOIL TESTING AND QUALITY ASSURANCE INSPECTION DURING EARTHWORK AND WALL CONSTRUCTION OPERATIONS. CONTRACTOR SHALL PROVIDE ANY QUALITY CONTROL TESTING OR INSPECTION NOT PROVIDED BY THE OWNER. OWNER'S QUALITY ASSURANCE PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR QUALITY CONTROL AND WALL PERFORMANCE.

1.06 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAVE BEEN RECEIVED.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOBSITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 DEFINITIONS

A. MODULAR UNIT _ A CONCRETE RETAINING WALL ELEMENT MACHINE MADE FROM PORTLAND CEMENT, WATER, AND AGGREGATES.

B. STRUCTURAL GEOGRID _ A STRUCTURAL ELEMENT FORMED BY A REGULAR NETWORK OF INTEGRALLY CONNECTED TENSILE ELEMENTS WITH APERTURES OF SUFFICIENT SIZE TO ALLOW INTERLOCKING WITH SURROUNDING SOIL, ROCK, OR EARTH AND FUNCTION PRIMARILY AS REINFORCEMENT.

C. UNIT DRAINAGE FILL _ DRAINAGE AGGREGATE, WHICH IS PLACED WITHIN AND IMMEDIATELY BEHIND THE MODULAR CONCRETE UNITS.

D. REINFORCED BACKFILL _ COMPACTED SOIL, WHICH IS PLACED WITHIN THE REINFORCED SOIL VOLUME AS OUTLINED ON THE PLANS.

2.02 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

1. FACE COLOR - CONCRETE GRAY, UNLESS OTHERWISE SPECIFIED. THE OWNER MAY SPECIFY STANDARD MANUFACTURERS' COLOR.
2. FACE FINISH _ SCULPTURED ROCK FACE IN ANGULAR TRI-PLANER CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.
3. BOND CONFIGURATION _ RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
4. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING AND TESTING CONCRETE MASONRY UNITS:

1. COMPRESSIVE STRENGTH: 3000 PSI (21 MPA);
2. ABSORPTION: 8 % (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;
3. DIMENSIONAL TOLERANCES: ± 1/8" (3 MM) FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" (1.5 MM) UNIT HEIGHT - TOP AND BOTTOM PLANES;
4. UNIT SIZE: 8" (203 MM) (H) X 18" (457 MM)(W) X 12" (304 MM)(D) MINIMUM;
5. UNIT WEIGHT: 75-LBS/UNIT (35 KG/UNIT) MINIMUM FOR STANDARD WEIGHT AGGREGATES.

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING PERFORMANCE TESTING:

1. INTER_UNIT SHEAR STRENGTH IN ACCORDANCE WITH ASTM D6916 (NCMA SRWU-2): 600-PLF (8 KN/M) MINIMUM AT 2-PSI (13 KPA) NORMAL PRESSURE;
2. GEOGRID/UNIT PEAK CONNECTION STRENGTH IN ACCORDANCE WITH ASTM D6638 (NCMA SRWU-1): 500-PLF (7 KN/M) MINIMUM AT 2-PSI (13 KPA) NORMAL FORCE.

E. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

1. VERTICAL SETBACK = 1/8"± (3 MM) PER COURSE (NEAR VERTICAL) OR 1" (25 MM)+ PER COURSE PER THE DESIGN;
2. ALIGNMENT AND GRID POSITIONING MECHANISM _ FIBERGLASS PINS, TWO PER UNIT MINIMUM;
3. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH (13 MM).

2.03 SHEAR CONNECTORS

A. SHEAR CONNECTORS SHALL BE 1/2-INCH (12 MM) DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN_PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS WITH THE FOLLOWING REQUIREMENTS:

1. FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI (882 MPA) MINIMUM;
2. SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI (44 MPA) MINIMUM.

B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE_TENSIONING AND BACKFILLING.

2.04 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED CRUSHED STONE BASE OR NON_REINFORCED CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.05 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF CLEAN 1" (25 MM) MINUS CRUSHED STONE OR CRUSHED GRAVEL MEETING THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422:

SIEVE SIZE	PERCENT PASSING
1 INCH (25 MM)	100
3/4-INCH (19 MM)	75_100
NO. 4	0_10
NO. 50	0_5

B. ONE CUBIC FOOT (0.028 M3), MINIMUM, OF DRAINAGE FILL SHALL BE USED FOR EACH SQUARE FOOT (0.093 M2) OF WALL FACE. DRAINAGE FILL SHALL BE PLACED WITHIN CORES OF, BETWEEN, AND BEHIND UNITS TO MEET THIS REQUIREMENT.

2.06 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422:

SIEVE SIZE	PERCENT PASSING
2-INCH (50 MM)	100
3/4-INCH (19 MM)	100_75
NO. 40	0_60
NO. 200	0_35

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40 PER ASTM D-4318.

B. THE MAXIMUM AGGREGATE SIZE SHALL BE LIMITED TO 3/4 INCH (19 MM) UNLESS FIELD TESTS HAVE BEEN PERFORMED TO EVALUATE POTENTIAL STRENGTH REDUCTIONS TO THE GEOGRID DESIGN DUE TO DAMAGE DURING CONSTRUCTION.

C. MATERIAL CAN BE SITE-EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE BACKFILL OR IN THE REINFORCED SOIL MASS.

D. CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO THE USE OF ANY PROPOSED REINFORCED FILL MATERIAL.

2.07 GEOGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN OR HIGH-DENSITY POLYETHYLENE. POLYESTER GEOGRID SHALL BE KNITTED FROM HIGH TENACITY POLYESTER FILAMENT YARN WITH A MOLECULAR WEIGHT EXCEEDING 25,000 G/M AND A CARBOXYL END GROUP VALUES LESS THAN 30. POLYESTER GEOGRID SHALL BE COATED WITH AN IMPREGNATED PVC COATING THAT RESISTS PEELING, CRACKING, AND STRIPPING.

B. TA, LONG TERM ALLOWABLE TENSILE DESIGN LOAD, OF THE GEOGRID MATERIAL SHALL BE DETERMINED AS FOLLOWS:

TA = TULT / (RFCR*RFD*RFID*FS)
TA SHALL BE EVALUATED BASED ON A 75-YEAR DESIGN LIFE.

1. TULT, SHORT TERM ULTIMATE TENSILE STRENGTH SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D4595 OR ASTM D6637.
TULT IS BASED ON THE MINIMUM AVERAGE ROLL VALUES (MARV).

2. RFCR, REDUCTION FACTOR FOR LONG TERM TENSION CREEP
RFCR SHALL BE DETERMINED FROM 10,000-HOUR CREEP TESTING PERFORMED IN ACCORDANCE WITH ASTM D5262. REDUCTION VALUE = 1.45 MINIMUM.

3. RFD, REDUCTION FACTOR FOR DURABILITY
RFD SHALL BE DETERMINED FROM POLYMER SPECIFIC DURABILITY TESTING COVERING THE RANGE OF EXPECTED SOIL ENVIRONMENTS. RFD = 1.10 MINIMUM.

4. RFID, REDUCTION FACTOR FOR INSTALLATION DAMAGE
RFID SHALL BE DETERMINED FROM PRODUCT SPECIFIC CONSTRUCTION DAMAGE TESTING PERFORMED IN ACCORDANCE WITH ASTM D5818 (GRI_GG4). TEST RESULTS SHALL BE PROVIDED FOR EACH PRODUCT TO BE USED WITH PROJECT SPECIFIC OR MORE SEVERE SOIL TYPE. RFID = 1.05 MINIMUM.

5. FS, OVERALL DESIGN FACTOR OF SAFETY
FS SHALL BE 1.5 UNLESS OTHERWISE NOTED FOR THE MAXIMUM ALLOWABLE WORKING STRESS CALCULATION.

C. THE MAXIMUM DESIGN TENSILE LOAD OF THE GEOGRID SHALL NOT EXCEED THE LABORATORY TESTED ULTIMATE STRENGTH OF THE GEOGRID/FACING UNIT CONNECTION AS LIMITED BY THE "HINGE HEIGHT" DIVIDED BY A FACTOR OF SAFETY OF 1.5. THE CONNECTION STRENGTH TESTING AND COMPUTATION PROCEDURES SHALL BE IN ACCORDANCE WITH ASTM D6638 CONNECTION STRENGTH BETWEEN GEOSYNTHETIC REINFORCEMENT AND SEGMENTAL CONCRETE UNITS (NCMA SRWU-1).

D. SOIL INTERACTION COEFFICIENT, CI
CI VALUES SHALL BE DETERMINED PER ASTM D6706 (GRI:GG5) AT A MAXIMUM 0.75-INCH (19 MM) DISPLACEMENT.

E. MANUFACTURING QUALITY CONTROL
THE GEOGRID MANUFACTURER SHALL HAVE A MANUFACTURING QUALITY CONTROL PROGRAM THAT INCLUDES QC TESTING BY AN INDEPENDENT LABORATORY.
THE QC TESTING SHALL INCLUDE:
TENSILE STRENGTH TESTING
MELT FLOW INDEX (HDPE)
MOLECULAR WEIGHT (POLYESTER)

2.08 DRAINAGE PIPE

A. IF REQUIRED, THE DRAINAGE PIPE SHALL BE PERFORATED OR SLOTTED PVC PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034 OR CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH AASHTO M252.

2.09 GEOTEXTILE FILTER FABRIC

A. WHEN REQUIRED, GEOTEXTILE FILTER FABRIC SHALL BE 4.0 OZ/SY, POLYPROPYLENE, NEEDLEPUNCHED NONWOVEN FABRIC.

PART 3: EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL INSPECT THE EXCAVATION AND APPROVE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS. PROOF ROLL FOUNDATION AREA AS DIRECTED TO DETERMINE IF REMEDIAL WORK IS REQUIRED.

B. OVER_EXCAVATION AND REPLACEMENT OF UNSUITABLE FOUNDATION SOILS AND REPLACEMENT WITH APPROVED COMPACTED FILL WILL BE COMPENSATED AS AGREED UPON WITH THE OWNER.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES (150 MM) AND EXTEND LATERALLY A MINIMUM OF 6" (150 MM) IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. SOIL LEVELING PAD MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95 % STANDARD PROCTOR DENSITY PER ASTM D-698 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557.

C. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES (150 MM) WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES (200 TO 250 MM) WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95 % STANDARD PROCTOR DENSITY PER ASTM D-698 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE DRY OF OPTIMUM, + 0%, - 3%.

D. ONLY LIGHTWEIGHT HAND_OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET (1 M) FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES (150 MM) IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH (15 KPH). SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 AS-BUILT CONSTRUCTION TOLERANCES

A. VERTICAL ALIGNMENT: ± 1.5" (40 MM) OVER ANY 10' (3 M) DISTANCE.

B. WALL BATTER: WITHIN 2 DEGREES OF DESIGN BATTER.

C. HORIZONTAL ALIGNMENT: ± 1.5" (40 MM) OVER ANY 10' (3 M) DISTANCE.
CORNERS, BENDS & CURVES: ± 1 FT (300 MM) TO THEORETICAL LOCATION.

D. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH (13 MM).

3.08 FIELD QUALITY CONTROL

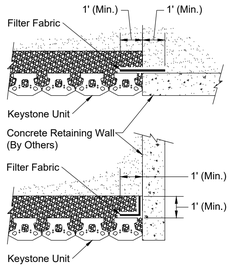
A. QUALITY ASSURANCE - THE OWNER SHALL/MAY ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION. THIS DOES NOT RELIEVE THE CONTRACTOR FROM SECURING THE NECESSARY CONSTRUCTION QUALITY CONTROL TESTING.

B. QUALITY ASSURANCE SHOULD INCLUDE FOUNDATION SOIL INSPECTION. VERIFICATION OF GEOTECHNICAL DESIGN PARAMETERS, AND VERIFICATION THAT THE CONTRACTOR'S QUALITY CONTROL TESTING IS ADEQUATE AS A MINIMUM. QUALITY ASSURANCE SHALL ALSO INCLUDE OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND PROJECT SPECIFICATIONS. (QUALITY ASSURANCE IS USUALLY BEST PERFORMED BY THE SITE GEOTECHNICAL ENGINEER.)

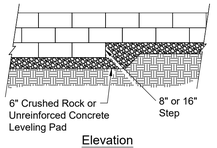
C. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INSPECTION AND TESTING SERVICES TO PERFORM THE MINIMUM QUALITY CONTROL TESTING DESCRIBED IN THE RETAINING WALL DESIGN PLANS AND SPECIFICATIONS. ONLY QUALIFIED AND EXPERIENCED TECHNICIANS AND ENGINEERS SHALL PERFORM TESTING AND INSPECTION SERVICES.

D. QUALITY CONTROL TESTING SHALL INCLUDE SOIL AND BACKFILL TESTING TO VERIFY SOIL TYPES AND COMPACTION AND VERIFICATION THAT THE RETAINING WALL IS BEING CONSTRUCTED IN ACCORDANCE WITH THE DESIGN PLANS AND PROJECT SPECIFICATIONS.

KEYSTONE RETAINING WALL SYSTEMS
A CONTECH COMPANY
4444 W 78th Street
Minneapolis, MN 55435

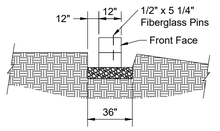


Connection Details
Compac Unit - Shown



Elevation

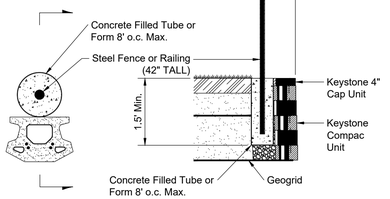
Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi unreinforced concrete.



Section

Leveling Pad Detail

Note:
Concrete filled tube or form to be set during the wall construction, not drilled through geogrid afterwards. when directly behind units.



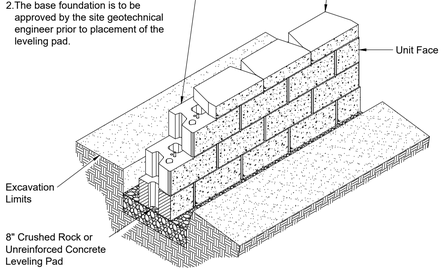
Fence Plan Detail

Fence Section & Plan Detail
Compact Unit - Near Vertical Setback

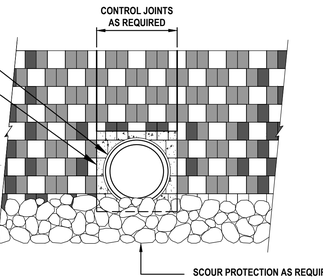
Base Leveling Pad Notes:
1. The leveling pad is to be constructed of crushed stone or 2,000 psi unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Compac Unit	
Width:	18"
*Depth:	12"
Height:	8"
*Weight:	90 lbs

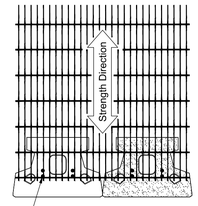
Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs



Compac Unit/Base Pad Isometric Section View
* Dimensions & Weight May Vary by Region



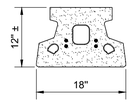
Control Joint Cut



Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection

Compac Elevation

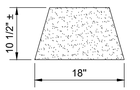


Compac Plan

Compac Unit
* Dimensions May Vary by Region

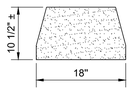
Cap Unit Elevation

Cap Unit Elevation



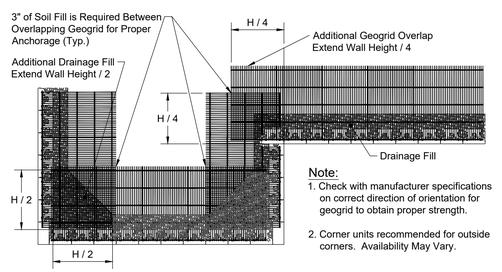
Cap Unit Plan

Universal Cap Unit Option
* Dimensions & Availability Will Vary by Region



Cap Unit Plan

Straight Split Cap Unit Option
* Dimensions & Availability Will Vary by Region



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

Geogrid Installation at Corners

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

RETAINING WALL NOTES
OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
BUNNELL, FL 32110

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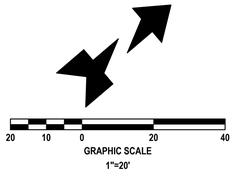
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	CJC
CHECKED BY:	HHN
SCALE:	NTS

DRAWING NUMBER

13



WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

PROPOSED UTILITY LEGEND

Ⓦ — PROPOSED LOCATION OF POTABLE WATER AND IRRIGATION WELL (DESIGN AND PERMIT BY OTHERS)

– – – – – – – – EXTENT OF AREA FOR PROPOSED SEPTIC TANK (DESIGN AND PERMIT BY OTHERS)

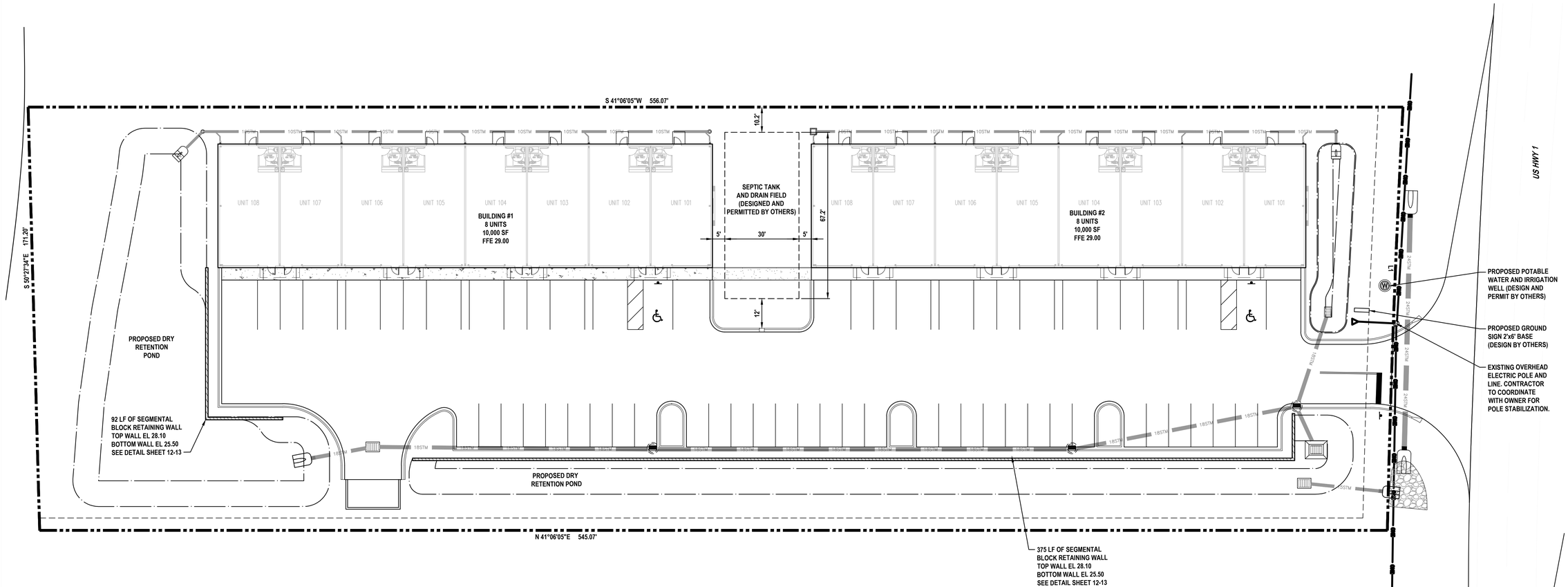
FDEP UTILITY FLOW RATES:

POTABLE WATER DEMAND

AVERAGE DAILY FLOW = 16 FIXTURE x 25 GPD / FIX. = 400 GALLONS PER DAY
MAXIMUM DAILY FLOW = ADF x 2 = 800 GALLONS PER DAY
PEAK MINUTE DAILY FLOW = ADF x 4 / 1400 = 1.1 GALLONS PER MINUTE

WASTEWATER DEMAND

AVERAGE DAILY FLOW = 16 FIXTURE x 25 GPD / FIX. x 0.75 = 300 GALLONS PER DAY
MAXIMUM DAILY FLOW = ADF x 2 = 600 GALLONS PER DAY
PEAK MINUTE DAILY FLOW = ADF x 4 / 1400 = 0.8 GALLONS PER MINUTE



REVISIONS

DATE	DESCRIPTION

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Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
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Civil Engineering
Transportation, CEI &
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NEWKIRK ENGINEERING INC.

UTILITY PLAN
OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
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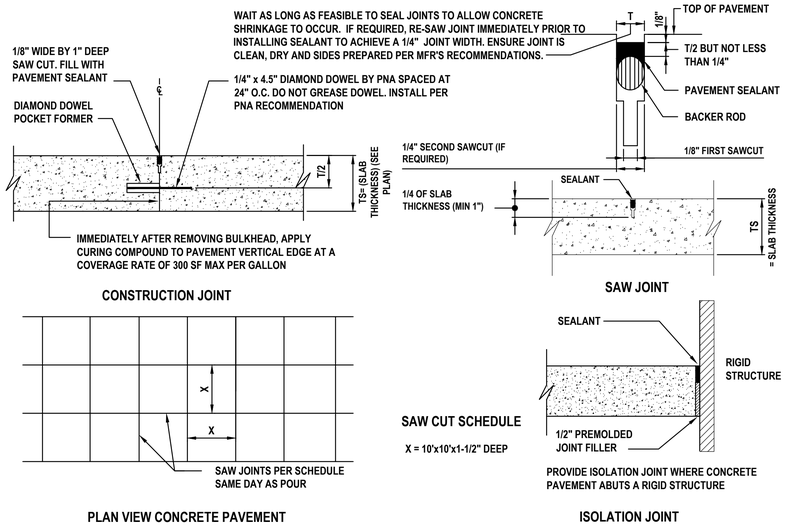
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	CAB
CHECKED BY:	HHN
SCALE:	1"= 20'

DRAWING NUMBER

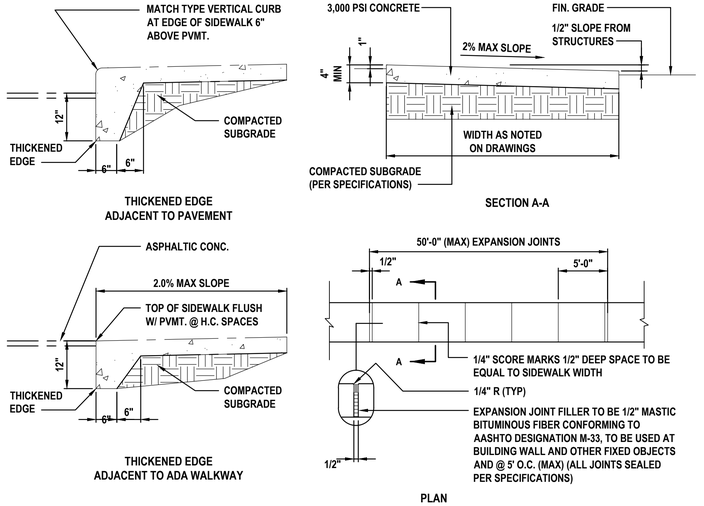
14



CONCRETE PAVEMENT JOINT DETAILS

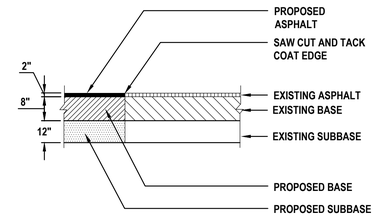
NOT TO SCALE

CONCRETE WALKS SHALL BE 4 INCHES THICK, CLASS I, HAVING A 3,000 PSI STRENGTH @ 28 DAYS, POURED OVER PROPERLY PREPARED SUBGRADE. ALL CONCRETE SIDEWALKS SHALL BE 8 INCHES THICK ACROSS DRIVEWAYS. 1/2 INCH EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 5'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTERS.



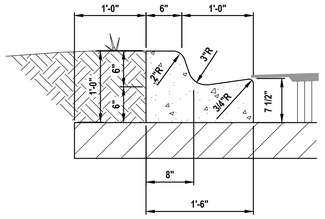
SIDEWALK DETAILS

NOT TO SCALE



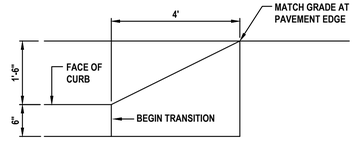
PAVEMENT BUTT JOINT DETAIL

NOT TO SCALE



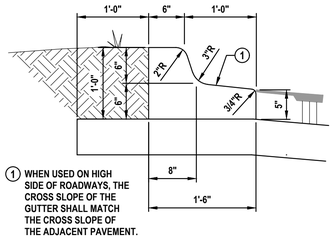
TYPE "F1" CATCH CURB DETAIL

NOT TO SCALE



"F" CURB TRANSITION TO FLAT DETAIL

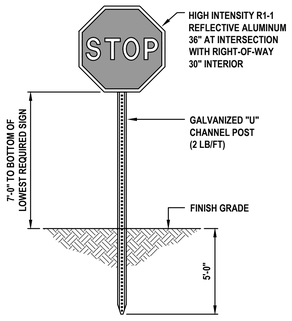
NOT TO SCALE



1 WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT.

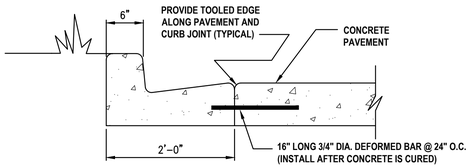
TYPE "F1" SPILLOUT CURB DETAIL

NOT TO SCALE



STOP SIGN DETAIL

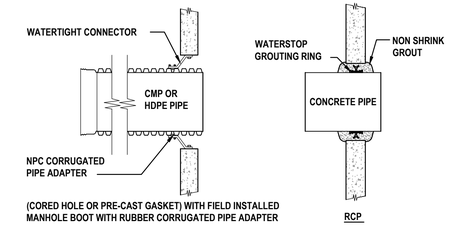
NOT TO SCALE



NOTE: DOWELS NOT REQUIRED IF MONOLITHIC POUR

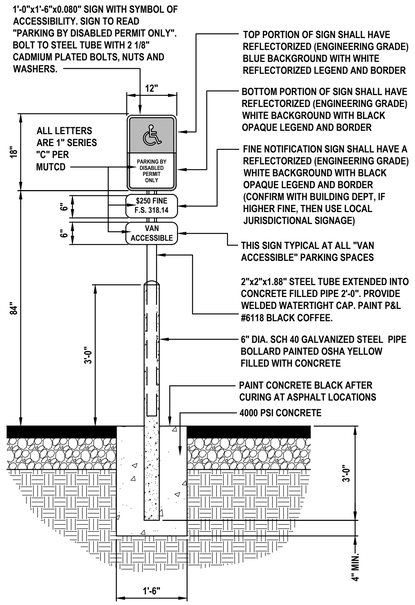
CONCRETE CURB AND GUTTER DOWELED JOINT DETAIL

NOT TO SCALE



WATER-TIGHT PIPE TO MANHOLE CONNECTION DETAIL PRECAST HOLES REQUIRED

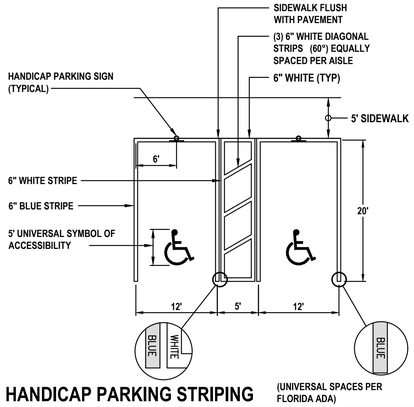
NOT TO SCALE



NOTE:
1. PARKING SPACE IDENTIFICATION SIGN SHALL CONFORM WITH CURRENT STATE, LOCAL AND FEDERAL CODES AND REGULATIONS.
2. ALL SIGNS SHALL BE DESIGNATED TO WITHSTAND 130 MPH WIND SPEED.

HANDICAP PARKING SIGN

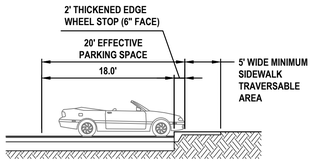
NOT TO SCALE

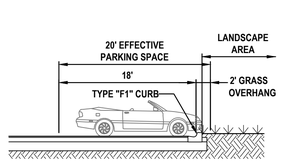


HANDICAP PARKING STRIPING

(UNIVERSAL SPACES PER FLORIDA ADA)

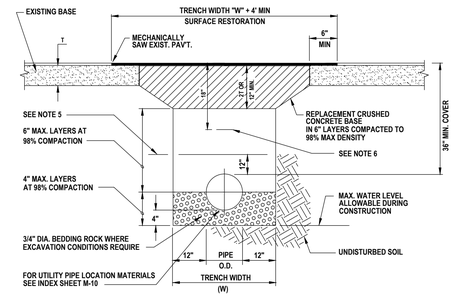
SCALE: 1" = 10'





PARKING SPACE OVERHANG DETAIL

NOT TO SCALE



NOTES:
1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (1 1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COMPACTION TEST REPORTS TO CITY INSPECTOR.
5. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
6. INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE.
7. EIGHT INCHES (8") OF HIGH EARLY-STRENGTH CONCRETE MAY BE SUBSTITUTED FOR LIMEROCK UPON APPROVAL BY CITY ENGINEER.

PAVEMENT CUT AND PATCH DETAIL

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

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MISCELLANEOUS DETAILS AND NOTES

OFFICE & WAREHOUSE

9100 S U.S. HIGHWAY 1
BUNNELL, FL 32110

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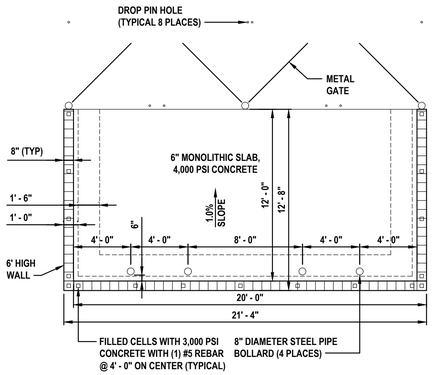
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

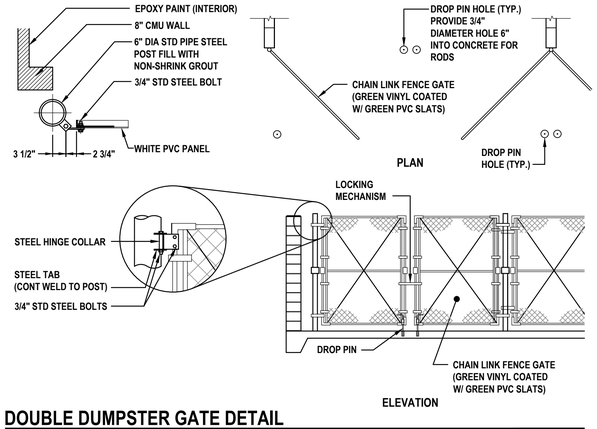
DRAWING NUMBER

15



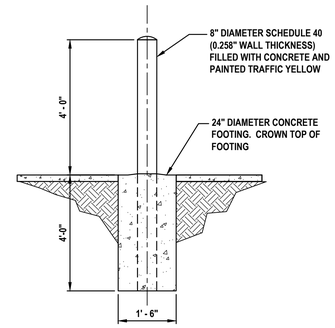
DOUBLE DUMPSTER ENCLOSURE PLAN

SCALE: 1"=5'



DOUBLE DUMPSTER GATE DETAIL

NOT TO SCALE



DUMPSTER BOLLARD DETAIL

NOT TO SCALE

MASONRY CONSTRUCTION NOTES:

1. THE WALL IS DESIGNED TO CONFORM TO THE STRUCTURAL REQUIREMENTS OF THE 2020 FLORIDA BUILDING CODE, 7TH EDITION FOR EXPOSURE B & C, A ULTIMATE DESIGN WIND LOAD OF 140 MPH AND A NOMINAL DESIGN WIND SPEED OF 108 MPH. THE WALL DESIGN PRESSURE IS +/- 19.7 PSF.
2. DESIGN BASED ON A MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 2,000 PSF AT (-) 1.5 FEET BELOW GRADE.

MASONRY BLOCK

1. CONCRETE MASONRY UNITS SHALL BE OF SIZES ON DRAWINGS AND CONFORM TO ASTM C90 MEDIUM WEIGHT UNITS WITH MAXIMUM LINEAR SHRINKAGE OF 0.06%, f'm = 1,500 PSI GROUTED SOLID REINFORCED CELLS.
2. ALL HEAD AND BED JOINTS SHALL BE 3/8"THICK. BED JOINTS OF THE STARTING COURSE OVER THE CONCRETE FOUNDATION MAY BE BETWEEN 1/4" AND 3/4".

CONCRETE MIX REQUIREMENTS

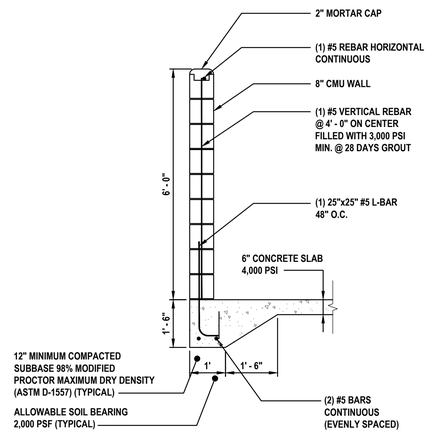
1. THE CONCRETE MIX FOR FOOTINGS MUSH HAVE A COMPRESSIVE STRENGTH OF AT LEAST f'c = 3,000 PSI IN 28 DAYS.
2. THE MORTAR MIX MUSH HAVE A COMPRESSIVE STRENGTH OF AT LEAST 1,800 PSI. MORTAR SHALL CONFORM TO ASTM C270.
3. GROUT MUST HAVE A COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI IN 28 DAYS. GROUT SHALL CONFORM TO ASTM C476. UNITS SHALL BE LAID A MAXIMUM OF 4 FEET BEFORE GROUTING. ADD WATER UNTIL YOU ACHIEVE POURING CONSISTENCY WITHOUT SEGREGATING THE GROUT COMPONENTS. ROD OR VIBRATE IMMEDIATELY. RE-ROD OR RE-VIBRATE THE GROUT ABOUT 10 MINUTES AFTER POURING TO ENSURE PROPER CONSOLIDATION. WHEN THE GROUTING OF A SECOND LIFT IS TO BE CONTINUED AT LATER TIME, STOP THE GROUT PLACEMENT 2 INCHES FROM THE TOP OF THE MASONRY UNITS. ALL CELLS MUST BE FILLED SOLID WITH GROUT.

REINFORCING STEEL

1. USE REINFORCING STEEL BARS WHICH CONFORM TO ASTM SPECIFICATIONS A615-85, GRADE 60. WHEN YOU CAN'T USE ON CONTINUOUS BAR, YOU MUST LAP OR SPLICE BARS A DISTANCE OF AT LEAST 40-BAR DIAMETERS (i.e. 15" FOR #3BARS, 20" FOR #4 BARS, 25" FOR #5 BARS, 30" FOR # 6 BARS, 35" FOR #7 BARS). THE REQUIRED MINIMUM LAP SPLICE FOR BARS OF DIFFERENT SIZE MUST BE BASED ON THE DIAMETER OF THE LARGER SIZE BAR. BENDS IN THE REINFORCING STEEL MUST CONFORM TO THE MANUAL OF STANDARD PRACTICE OF THE AMERICAN CONCRETE INSTITUTE. BACKING FOR HOOKS MUST BE AT LEAST A DISTANCE EQUAL TO FOUR BAR DIAMETERS. ALL REQUIRED BAR EMBEDMENT DIMENSIONS ARE CLEAR DISTANCES TO OUTSIDE OF BAR. SPACING FOR PARALLEL BARS IS CENTER TO CENTER OF BARS.

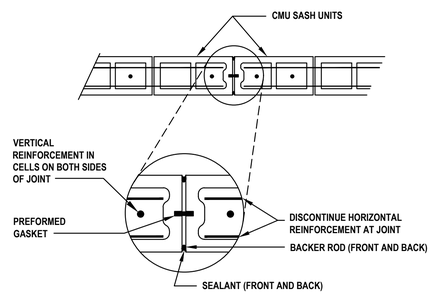
JOINTS

1. VERTICAL CONTROL JOINTS ARE NEEDED AT INTERVALS OF NOT MORE THAN 20 FEET.
2. VERTICAL EXPANSION JOINTS ARE NEEDED AT INTERVALS OF NOT MORE THAN 80 FEET.



TYPICAL DUMPSTER ENCLOSURE WALL SECTION

NOT TO SCALE



NOTE: VERTICAL EXPANSION JOINTS ARE NEEDED AT INTERVALS OF NO MORE THAN 80 FEET.

TYPICAL WALL SECTION - EXPANSION JOINT

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION

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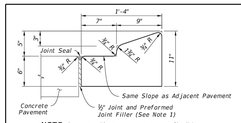
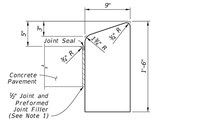


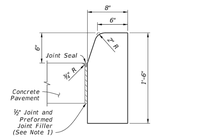
NOTE: For use adjacent to concrete or flexible pavement, concrete shown (See Note 4).

TYPE A



NOTE: For use adjacent to concrete or flexible pavement, concrete shown.

TYPE B

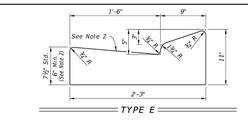


NOTE: For use adjacent to concrete or flexible pavement, concrete shown.

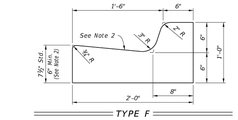
TYPE D

NOTES:

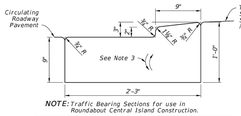
1. For Type A, Type B, and Type D Curb: Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only, see Sheet 3.
2. For Type E, Type F, Drop Curb, and Valley Gutter: When used on high side of roadways, match the cross slope of the gutter to the cross slope of the adjacent pavement. The thickness of the lip is 6", unless otherwise shown on Plans.
3. For Type RA, rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.
4. For details depicting usage of Type A Curb adjacent to flexible pavement see Sheet 3.



TYPE E

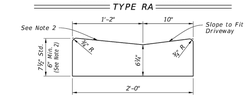


TYPE F

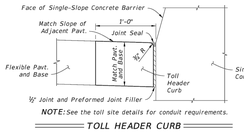


NOTE: Traffic Bearing Sections for use in Roundabout Central Island Construction.

TYPE RA

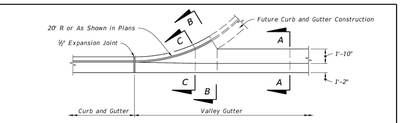


DROP CURB

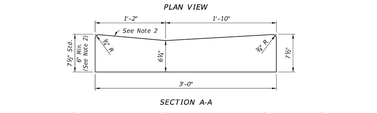


NOTE: See the toll site details for conduit requirements.

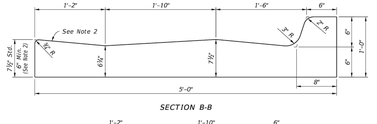
TOLL HEADER CURB



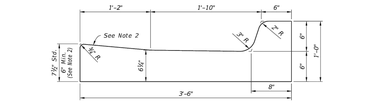
PLAN VIEW



SECTION A-A

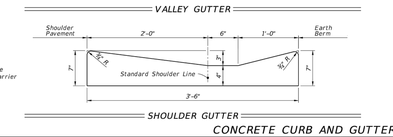


SECTION B-B



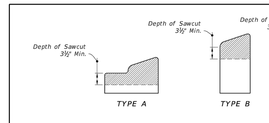
SECTION C-C

VALLEY GUTTER

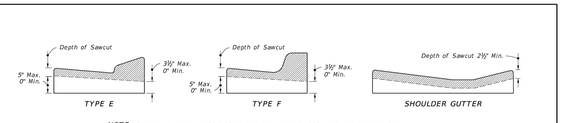


SHOULDER GUTTER

CONCRETE CURB AND GUTTER

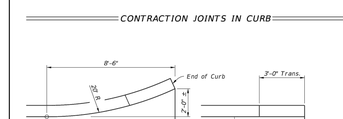


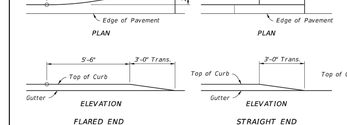
CONTRACTION JOINTS IN CURB



NOTE: Sawcuts should be avoided within valley gutter and within curb and gutter endings.

CONTRACTION JOINTS IN CURB & GUTTER



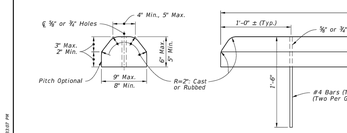


CURB TYPE A

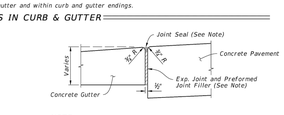
CURB AND GUTTER TYPE E AND TYPE F

NOTE: Ends of Type B and D Curb transition from full to zero heights in 3 ft.

CURB AND CURB & GUTTER ENDINGS

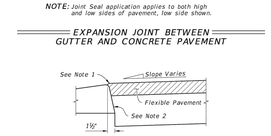


CONCRETE BUMPER GUARD



NOTE: Joint Seal application applies to both high and low sides of pavement, low side shown.

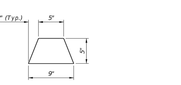
EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT



NOTES:

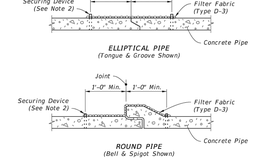
1. Surface on Low Side of Pavement to be ½" Above Lip of Gutter. Surface on High Side to be Flush With Lip of Curb or Curb & Gutter.
2. Applies to both high and low sides of pavement, low side shown. Applies to shoulder gutter only where adjoining traffic lanes.

CURB AND GUTTER AND TYPE A CURB ADJACENT TO FLEXIBLE PAVEMENT

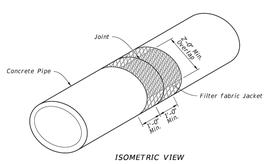


ASPHALTIC CONCRETE CURB

CURB AND GUTTER JOINTS AND ENDINGS, CONCRETE BUMPER GUARD, AND ASPHALTIC CONCRETE CURB



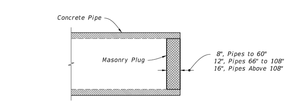
SECTION VIEW



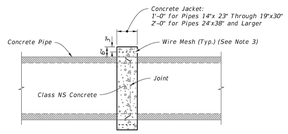
ISOMETRIC VIEW

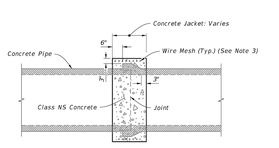
FILTER FABRIC JACKET

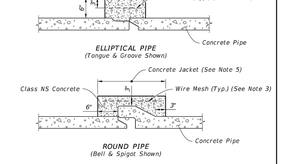
(For All Pipe Types - Concrete Elliptical Pipe Shown)



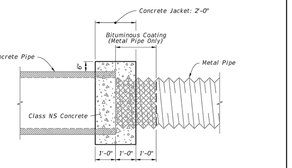
PIPE PLUG







DISSIMILAR JOINTS



CONCRETE JACKET

NOTES:

1. Alternate connection must be approved by the Engineer.
2. Install securing device in accordance with Specification 985.
3. Any wire mesh arrangement which provides 0.126 square inches of steel area per linear foot both ways may be used, provided the wires are spaced a minimum of 2" and/or a maximum of 6" on centers.
4. Do not use a concrete jacket to join dissimilar metal pipes.
5. 12" for pipes 15" through 24"; 24" for pipes 30" and larger.
6. 12" for pipes 14" x 23" through 19" x 30"; 24" for pipes 24" x 38" and larger.

FILTER FABRIC JACKET, CONCRETE JACKET, AND PIPE PLUG

REVISIONS

DATE	DESCRIPTION

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C.A. # 30209
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CODY A. BOGART LICENSE No. 94133 STATE OF FLORIDA PROFESSIONAL ENGINEER

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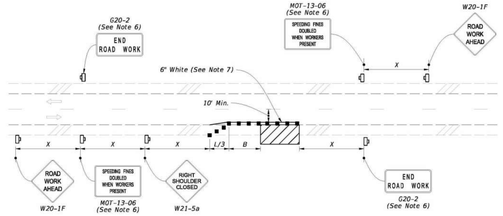
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

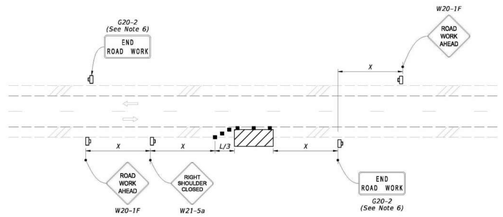
17

NOTE:

1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2. L = Taper Length
   X = Work Zone Sign Spacing
   B = Buffer Length
   See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).



TWO-LANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY WITH WORK ZONE SPEED OF 45 MPH OR LESS



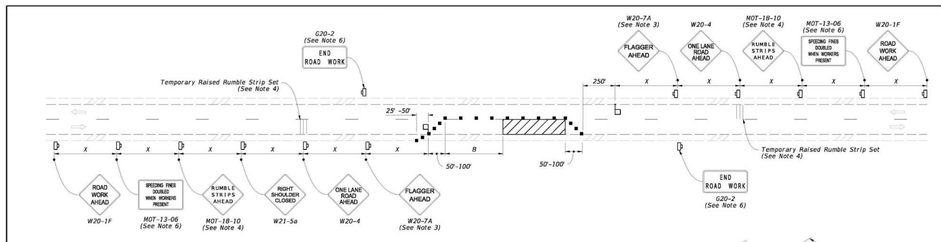
TWO-LANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic

8/23/2022 2:40:48 PM

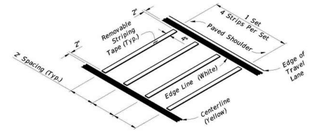
LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2022-23 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2



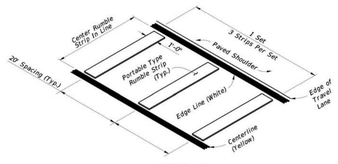
NOTES:

1. This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
2. L = Taper Length
   B = Buffer Length
   X = Work Zone Sign Spacing
   See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
4. Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
5. Additional one-way control may be provided by the following means:
   a. Flag-carrying vehicle
   b. Official vehicles
   c. Pilot vehicles
   d. Traffic signals

   When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
7. Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
8. Railroad Crossings:
   a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
   b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.



OPTION - 1
REMOVABLE STRIPING TYPE



OPTION - 2
PORTABLE TYPE

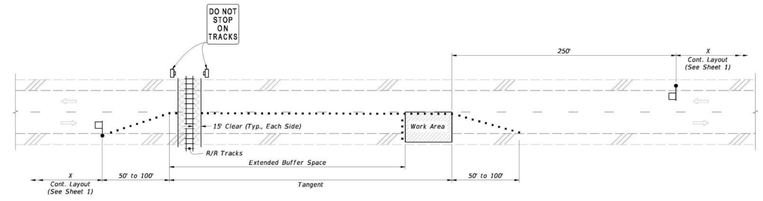
RUMBLE STRIP SETS

SYMBOLS:

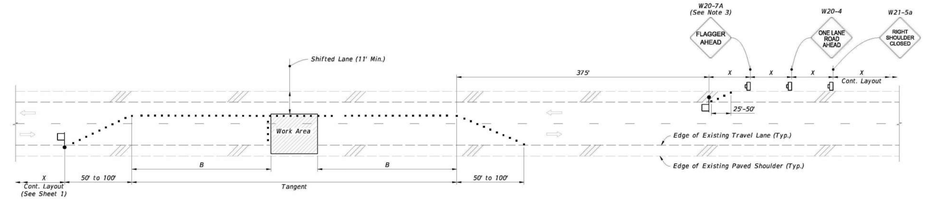
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

7/13/2022 7:58:29 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2022-23 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2



TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE
(For Work Operations In place 24 Hours or Less)

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

SPECIAL CONDITIONS

7/13/2022 7:58:37 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2022-23 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 2 of 2

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584

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NEWKIRK ENGINEERING INC.

MAINTENANCE OF TRAFFIC
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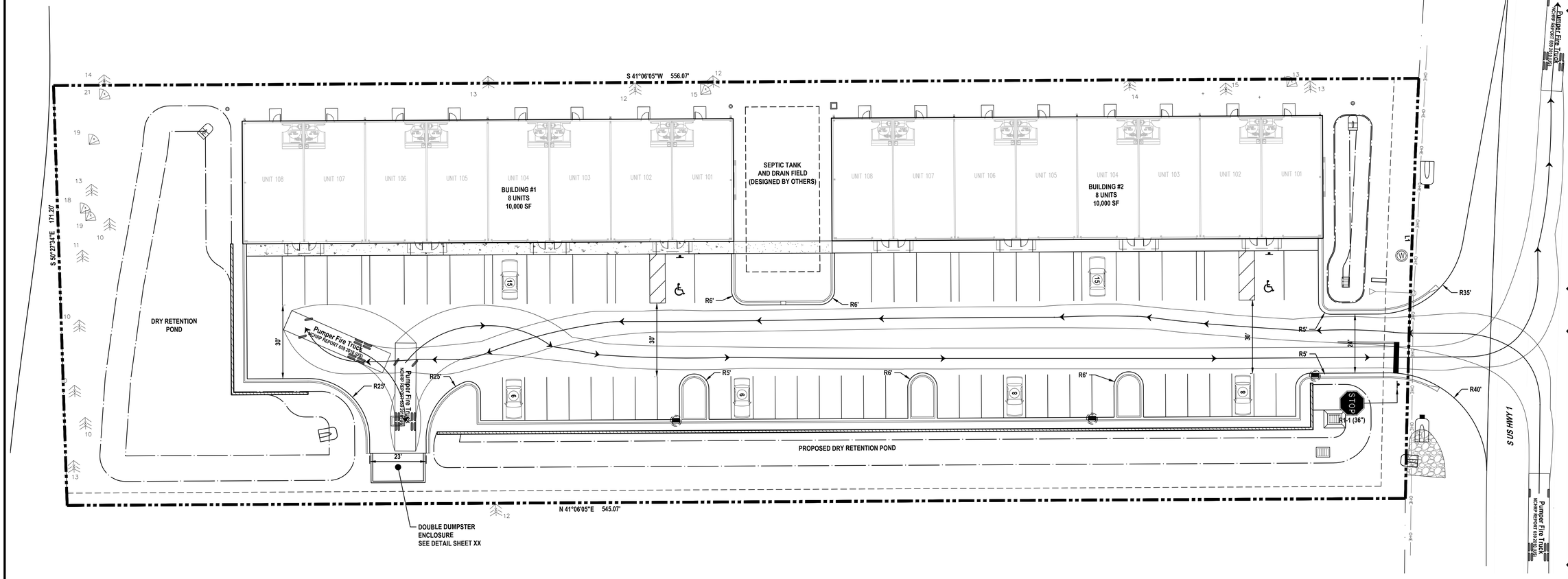
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

18

GRAPHIC SCALE
1"=20'

A Part of the Northwest ¼ of Section 22, Township 13 South, Range 31 East, Flagler County, Fl.
Parcel #22-13-31-0000-03030-0050



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PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	DAB
CHECKED BY:	HHN
SCALE:	1" = 20'

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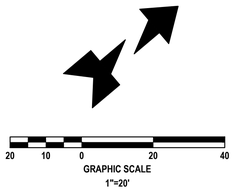
19



PLANT SCHEDULE

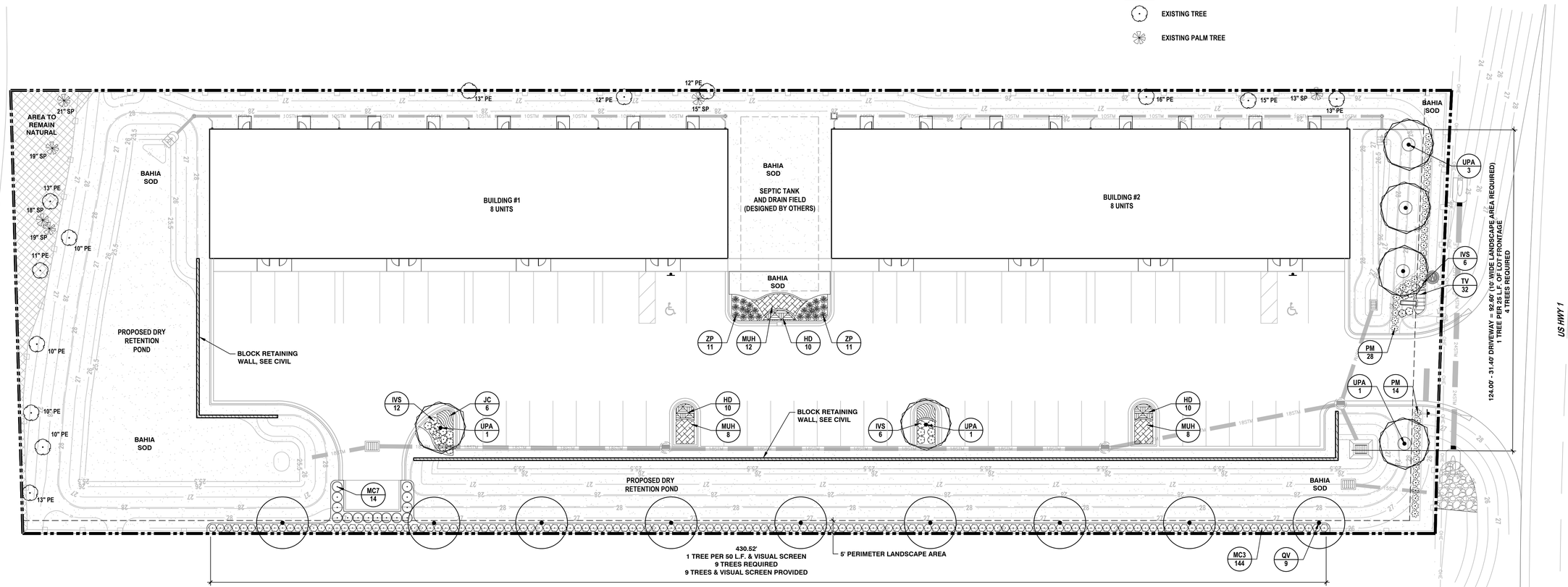
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
SHADE TREES					
QV	9	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	1.5" CAL., 8` HT.	
UPA	6	ULMUS PARVIFOLIA 'ALLEE'	ALLEE® ELM	1.5" CAL., 8` HT.	
SHRUBS					
IVS	24	ILEX VOMITORIA `STOKES DWARF`	STOKES DWARF YAUPON HOLLY	3 GAL., 12" HT. X 18" SPRD.	36" O.C.
MC3	144	MYRICA CERIFERA	WAX MYRTLE	3 GAL.	36" O.C.
MC7	14	MYRICA CERIFERA	WAX MYRTLE	7 GAL., 36" HT, X 12" SPRD	48" O.C., FTG
PM	42	PODOCARPUS MACROPHYLLUS	YEW PINE	3 GAL., 24" HT. X 6" SPRD.	36" O.C.
ZP	22	ZAMIA PUMILA	COONTIE CYCAD	3 GAL.	36" O.C.
GROUND COVERS					
HD	30	HELIANTHUS DEBILIS	DUNE SUNFLOWER	1 GAL.	24" O.C.
JC	6	JUNIPERUS CONFERTA	SHORE JUNIPER	1 GAL.	30" O.C.
MUH	28	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	3 GAL.	36" O.C.
TV	32	TULBAGHIA VIOLACEA	SOCIETY GARLIC	1 GAL.	12" O.C.

INTERIOR PLANTING AREAS	
VEHICULAR USE AREAS	28,407
LANDSCAPE REQUIRED (250 S.F./5,000 S.F.)	1,420
LANDSCAPE PROVIDED	2,231

REQUIRED LANDSCAPE AREA	
TOTAL SITE AREA	94,135
REQUIRED LANDSCAPE (15%)	14,120
PROVIDED LANDSCAPE (46%)	43,680
REQUIRED INTERIOR LANDSCAPE (1/3)	31,375
PROVIDED INTERIOR LANDSCAPE	35,185

LEGEND

- AREA TO REMAIN NATURAL
- BAHIA SOD
- EXISTING TREE
- EXISTING PALM TREE



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LAUREN ADAMS
LICENSE
NO. 6667278
STATE OF FLORIDA
LANDSCAPE ARCHITECT

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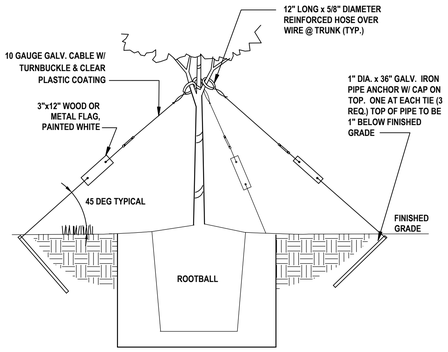
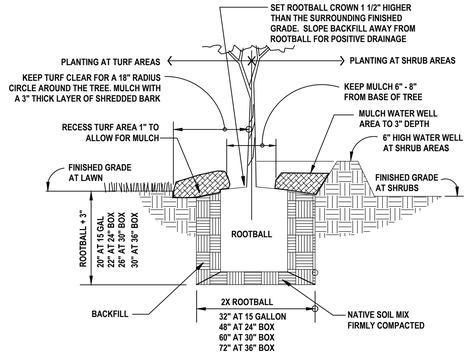
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	LAA
DRAWN BY:	BWV
CHECKED BY:	LAA
SCALE:	1" = 20'

DRAWING NUMBER

L1



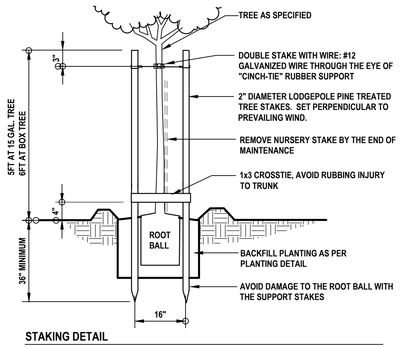
STAKING DETAIL



PLANT PIT DETAIL

1 TREE PLANTING DETAIL

1" = 1'-0" P-CO-2024-31-01



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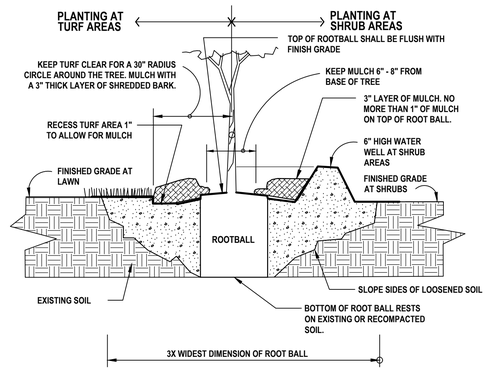
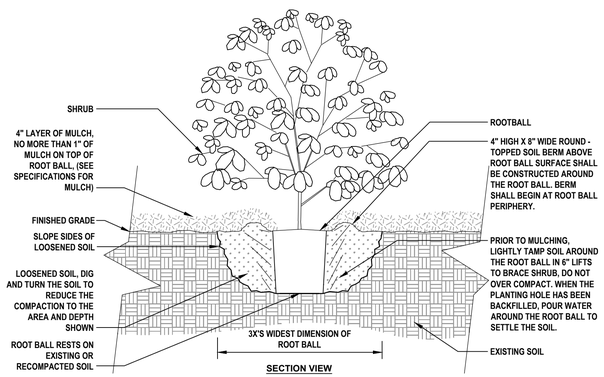


PLANT PIT DETAIL

2 SMALL TREE PLANTING DETAIL

1" = 1'-0" P-CO-2024-31-03



SECTION VIEW

NOTES:
1. SHRUBS SHALL BE OF QUALITY PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

3 SHRUB PLANTING DETAIL

NTS P-CO-2024-31-04

URBAN TREE FOUNDATION © 2014
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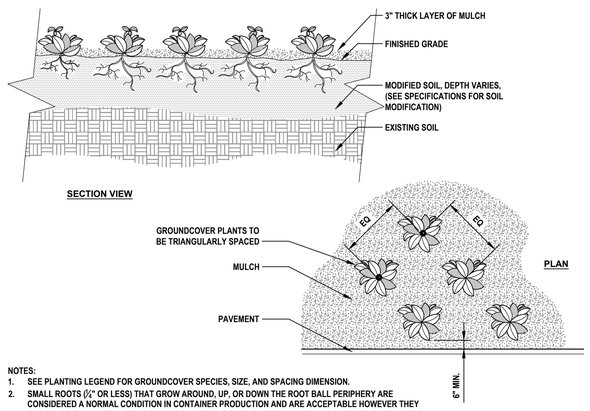

NOTES:
1. SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2. SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAN BE REMOVED AT THE TIME OF PLANTING. (SEE ROOT BALL SHAVING CONTAINER DETAIL).
3. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.

4 GROUNDCOVER LAYOUT

1/16" = 1'-0" P-CO-2024-31-02

LANDSCAPE SOIL SPECIFICATIONS

1. CONTRACTOR WILL BE RESPONSIBLE FOR ANY REQUIRED EXCAVATION AND FOR RAKING AND SMOOTHING OF GRADE. IT IS RECOMMENDED THAT LANDSCAPE CONTRACTOR COORDINATE WITH GRADING CONTRACTOR TO ESTABLISH SUBGRADES FOR PLANTING AREAS AS REQUIRED BELOW.
2. LANDSCAPE SOIL REFERS TO STOCKPILED TOPSOIL OR THE PLANTING MIXTURE AS SPECIFIED BELOW. STRUCTURAL SOIL OR FILL DIRT SHALL NOT BE USED IN PLANTED AREAS.
3. TOPSOIL SHALL BE STOCKPILED IF THE SITE CONSISTS OF NATIVE PLANT COMMUNITIES. IF NOXIOUS AND/OR INVASIVE PLANT SPECIES ARE PRESENT, TOPSOIL SHALL NOT BE STOCKPILED AND THE PLANTING MIXTURE BELOW SHALL BE USED.
4. IF STOCKPILED, THE TOPSOIL SHALL BE SALVAGED TO A DEPTH OF 4 TO 6 INCHES AND STOCKPILED NO HIGHER THAN 3 FEET IN HEIGHT.
5. TOPSOIL SHALL BE STORED FOR AS SHORT A DURATION AS POSSIBLE TO ENSURE SURVIVAL OF SEEDS AND SOIL ORGANISMS.
6. IF TOPSOIL HAS NOT BEEN STOCKPILED, PLANTING MIXTURE FOR TREES AND SHRUBS SHALL CONSIST OF 1/3 "COMPOST", 1/3 COARSE SAND, AND 1/3 EXISTING SOIL, THOROUGHLY MIXED. IF THE EXISTING SOIL IS NOT NATIVE AND FREE OF INVASIVES, THEN TOPSOIL SHALL BE IMPORTED FOR THIS COMPONENT.
7. MIXTURE FOR PALMS SHALL BE 50 PERCENT COARSE SAND AND 50 PERCENT EXISTING SOIL. MIX THOROUGHLY WITH EXISTING SOIL.
8. LANDSCAPE SOIL SHALL BE USED IN ALL PLANT BEDS CONSISTING OF SHRUBS AND GROUNDCOVER TO A DEPTH OF 6" AND MULCH TO A DEPTH OF 3".
9. LANDSCAPE SOIL SHALL BE FREE OF DEBRIS, WEEDS, PARTICLES LARGER THAN 0.50 INCHES AND RINSATE CONTAINING LIME OR TOXIC MATERIALS.
10. EXISTING SOIL SHOULD NOT BE CONTINUOUSLY EXCAVATED BENEATH THE DRIP LINE OF EXISTING TREES. IN THIS CASE, IF SHRUBS OR GROUNDCOVER ARE PROPOSED, THEY SHOULD BE PLANTED IN NATIVE SOIL WITHOUT AMENDMENT.

REFER TO LANDSCAPE DETAILS FOR MINIMUM PLANTING PIT DIMENSIONS.

EXISTING TREE NOTES

1. PRUNE ALL TREES TO REMAIN IN ACCORDANCE WITH ANSI A 300 PRUNING STANDARDS AS PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) OR A REGISTERED CONSULTING ARBORIST WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS (ASCA).
2. REMOVE ALL EXISTING MULCH AND ENSURE ONE OR TWO LARGE ROOTS ARE EXPOSED. ADD NEW MULCH TO A DEPTH OF 3" TO BED SURROUNDING TREES. KEEP MULCH 6" FROM TRUNK. DO NOT PILE MULCH AGAINST TRUNK.

LANDSCAPE NOTES

1. ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS FOR FLORIDA #1 OR BETTER AS DESCRIBED IN THE CURRENT "GRADES AND STANDARDS FOR NURSERY PLANTS", STATE OF FLORIDA, DEPARTMENT OF AGRICULTURE, TALLAHASSEE, OR THEIR EQUAL AS DETERMINED BY THE LANDSCAPE ARCHITECT. PLANT MATERIAL SHALL BE CLEARLY IDENTIFIED AS FLORIDA #1 OR BETTER ON EITHER LABELS OR INVOICES.
2. ALL PLANT SPECIFICATIONS MUST BE MET OR EXCEEDED. SIZES IN PLANT SCHEDULE ARE MINIMUMS AND EACH MUST BE MET. CONTAINERS MAY NEED TO BE UP SIZED TO MEET ALL SPECIFICATIONS.
3. ALL MULCH SHALL BE PINE BARK AND INSTALLED 3" DEEP. TREES IN SOD TO BE IN A 5' MINIMUM-MULCHED RING. ALL PALMS TO BE IN A 3' MULCH RING. MULCH TO BE INSTALLED 6" FROM TRUNK AND 2" FROM PLANTS.
4. SOD SHALL BE ST. AUGUSTINE "FLORITAM" UNLESS OTHERWISE NOTED ON THE PLAN AND SHALL BE 95% WEED-FREE. WHERE SPECIFIED, BAHIA SOD SHALL BE 85% WEED-FREE. ALL SOD SHALL BE INSTALLED WITH TIGHT JOINTS, ROLLED AND FERTILIZED. ALL UNIMPROVED AREA NOT OTHERWISE PLANTED OR MULCHED SHALL BE SODDED WITH BAHIA UNLESS OTHERWISE NOTED ON THE LANDSCAPE PLAN.
5. ALL DIMENSIONS SHALL BE FIELD-CHECKED BY THE LANDSCAPE CONTRACTOR PRIOR TO CONSTRUCTION, WITH ANY DISCREPANCIES REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT.
6. THE PLANT MATERIALS SCHEDULE IS PROVIDED FOR THE CONVENIENCE OF THE LANDSCAPE CONTRACTOR; SHOULD THERE BE ANY DISCREPANCY BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN WILL PREVAIL.
7. ALL MATERIALS MUST BE AS SPECIFIED AS ON THE LANDSCAPE PLAN. IF MATERIALS OR LABOR DO NOT ADHERE TO THE SPECIFICATIONS, THEY WILL BE REJECTED AT NO ADDITIONAL COST TO THE OWNER.
8. NO SUBSTITUTIONS OR CHANGES OF ANY KIND WILL BE ALLOWED AT THE TIME OF BIDDING SO AS TO PROVIDE FOR FAIR COMPARISON.
9. VERIFY EXISTENCE AND LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND CONDITIONS PRIOR TO HIS COMMENCEMENT OF THE ANY WORK.
10. ALL BUILDING MATERIALS AND LABOR SHALL CONFORM TO THE FLORIDA BUILDING CODE AND ALSO TO ALL LOCAL CODES THAT HAVE JURISDICTION.
11. PRIOR TO CONSTRUCTION OF PLANTING BEDS, ALL AREAS ARE TO HAVE SOIL TESTS CONDUCTED TO DETERMINE pH AND SOIL FERTILITY. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO AMEND THE SOIL TO MEET ADEQUATE FERTILITY AND pH FOR CORRESPONDING PLANT MATERIAL. ALL TEST RESULTS SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT.
12. WHERE AZALEAS, ROSES OR LOROPETALUMS ARE TO BE PLANTED, THE SOIL SHALL BE AMENDED BY REMOVING SOME OF THE NATIVE SOIL AND REPLACING WITH SOIL WITH A PH RANGE OF BETWEEN 5.5 - 6.5.
13. EQUIPMENT SHALL BE OPERATED IN A MANNER AS NOT TO INJURE OR DESTROY ANY TREES SHOWN TO REMAIN. CONTRACTOR SHALL NOT CAUSE OR ALLOW THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE DRIP LINE OF ANY TREE OR GROUPS OF TREES TO BE RETAINED OR THOSE PROPOSED. NOR SHALL THE CONTRACTOR ALLOW THE DISPOSAL OF WASTE MATERIAL, SUCH AS PAINT, OIL SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE WITHIN THE DRIP LINE OF ANY TREE OR GROUP OF TREES. NO ATTACHMENT, WIRES (OTHER THAN PROTECTIVE GUY WIRES), SIGNS, OR PERMITS MAY BE FASTENED TO A TREE.
14. ANY EXISTING TREES CREDITED TOWARDS REQUIRED BUFFERS OR LANDSCAPE REQUIREMENTS REMOVED FOR ANY REASON SHALL BE REPLACED WITH TREES MEETING CITY APPROVAL WITH REGARDS TO SPECIES AND SIZE.
15. ALL QUESTIONS CONCERNING THE PLAN AND/OR SPECIFICATIONS SHALL BE DIRECTED TO THE LANDSCAPE ARCHITECT (386) 872-7794.
16. ALL TREES AND PALMS MUST BE STAKED USING THE DETAILS PROVIDED OR ARBORGUY STAKING SYSTEMS. ANY STAKING SYSTEM NOT INCLUDED MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
17. ALL UNIMPROVED AREA NOT OTHERWISE PLANTED OR MULCHED SHALL BE SODDED WITH BAHIA UNLESS OTHERWISE NOTED ON THE LANDSCAPE PLAN.
18. THE CONTRACTOR SHALL GUARANTEE ALL INSTALLED PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE IN WRITING BY OWNER OR OWNER'S REPRESENTATIVE. ALL PLANT MATERIAL SHALL BE WATERED REGULARLY AS NEEDED UNTIL ESTABLISHED. FOR TREES, UP TO ONE YEAR AND FOR SHRUBS/GROUNDCOVER, GENERALLY 2 -3 MONTHS.
19. REMOVE ALL CONSTRUCTION DEBRIS, LIMEROCK, EXCESS OF BUILDERS SAND, CONCRETE AND MORTAR DEBRIS, EXISTING WEEDS AND GRASS, AND ALL FOREIGN MATERIALS IN THE PLANTING BED AND SOD AREAS.
20. ALL EXISTING TREES AND PALMS WILL BE PROPERLY PRUNED AND CLEANED OF DEADWOOD, BROKEN BRANCHES, DEAD FROND AND VINES AS NEEDED. ALL STRUCTURAL PRUNING OF HARDWOOD TREES SHALL BE PERFORMED UNDER THE DIRECTION OF A CERTIFIED ARBORIST.
21. ALL NOXIOUS OR EXOTIC VEGETATION THAT DETRACTS FROM THE APPEARANCE OF THE EXISTING OR PLANTED VEGETATION WITHIN THE TREE PROTECTION AREA OR BUFFERS SHALL BE REMOVED. THE EDGE OF THE AREAS TO REMAIN NATURAL SHALL BE MULCHED 5' IN AND A CURVILINEAR BED LINE SHALL BE CREATED ADJACENT TO SODDED AREAS.
22. ALL PLANTS SHALL BE INSTALLED ACCORDING TO THE FLORIDA FRIENDLY BEST MANAGEMENT PRACTICES FOR PROTECTION OF WATER RESOURCES BY THE GREEN INDUSTRIES.
30. NATURAL AREA: AREAS TO REMAIN NATURAL SHALL BE CLEANED OF ALL INVASIVE PLANT SPECIES AND UNDERBRUSH SHOULD BE REMOVED WITHIN 5' OF EDGE. PINE STRAW MULCH SHOULD BE APPLIED CREATING A CURVED BEDLINE.

PLANT SPECIFICATION NOTES

1. PLANT DESCRIPTIONS ARE FOR MINIMUM ACCEPTABLE SPECIFICATIONS. ALL CRITERIA LISTED FOR CONTAINER SIZE, CALIPER, HEIGHT, SPREAD, ETC. MUST BE MET FOR PLANT MATERIAL ACCEPTANCE. FOR EXAMPLE, IF A THREE (3) GALLON SHRUB DOES NOT MEET THE HEIGHT OR SPREAD SPECIFICATION, IT WILL NOT BE ACCEPTED.
2. IF SPECIFIED PLANTS ARE UNAVAILABLE AT THE TIME OF CONSTRUCTION, CONTRACTOR MAY REPLACE SPECIFIED PLANTS WITH PLANTS APPROVED BY LANDSCAPE ARCHITECT AND CITY STAFF.

REVISIONS

DATE	DESCRIPTION

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C.A. # 30209
L.C. # 26000584
C 2013
Civil Engineering
Transportation, CEI &
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NEWKIRK ENGINEERING INC.

LANDSCAPE DETAILS AND NOTES

OFFICE AND WAREHOUSE

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BUNNELL, FL 32110

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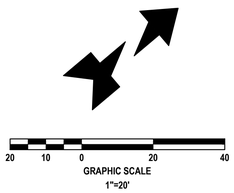
DATE:	AUGUST 2024
DESIGN BY:	LAA
DRAWN BY:	BWV
CHECKED BY:	LAA
SCALE:	AS SHOWN

DRAWING NUMBER

L2



WATERING SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	SUN	MON	TUE	WED	THU	FRI	SAT	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY
1	HUNTER ICV-G-FS	SHRUB SPRAY	1.93 in/h			12 min			12 min		0.75	24	891	446
2	HUNTER ICV-G-FS	AREA FOR DRIPLINE	2.56 in/h			9 min			9 min		0.75	18	106	53.0
3	HUNTER ICV-G-FS	SHRUB SPRAY	1.77 in/h			13 min			13 min		0.75	26	1,013	506
4	HUNTER ICV-G-FS	TURF SPRAY	2.74 in/h			17 min			17 min		1.5	33	541	270
		TOTALS:				51			51			101	2,550	1,275

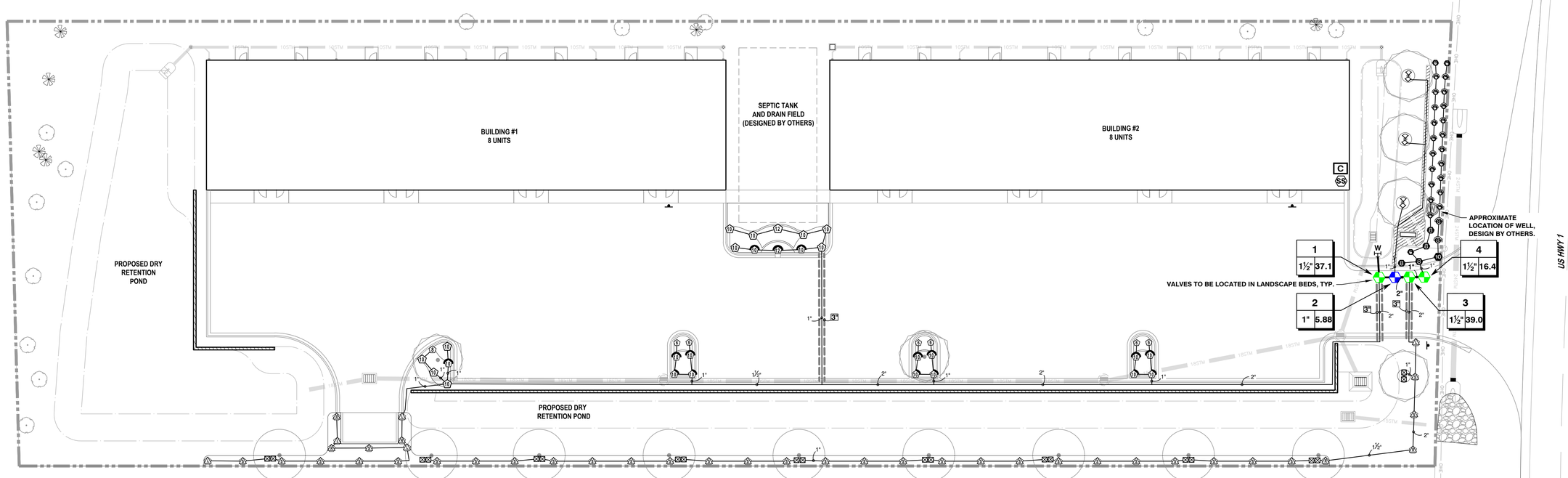
IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
2Q 2H 4Q 4H 6Q 6H	HUNTER PROS-06-PRS30-CV-F SHORT RADIUS NOZZLES	20	30
Q T H F	HUNTER PROS-06-PRS30-CV-F 8` RADIUS	2	30
3 6 8 10 12 15 17	HUNTER PROS-06-PRS30-CV-F ADJUSTABLE ARC	8	30
EST LCS RCS CST SST	HUNTER PROS-12-PRS30-CV-F 5` STRIP SPRAY	41	30
Q T H F	HUNTER PROS-12-PRS30-CV-F 10` RADIUS	15	30
Q T H TT TQ F	HUNTER PROS-12-PRS30-CV-F 12` RADIUS	1	30
8 10 12 15 17 20	HUNTER PROS-12-PRS30-CV-F ADJUSTABLE ARC	18	30
25 50 10 20	HUNTER PCB 10	20	30

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
0.5 1.0 2.0 4.0 6.0	HUNTER HE-B 10HE-B	6	20
	AREA TO RECEIVE DRIPLINE HUNTER HDL-09-12-CV (2)	389.0 L.F.	15

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	HUNTER ICV-G-FS 1", 1-1/2", 2", AND 3" PLASTIC ELECTRIC REMOTE CONTROL VALVES, GLOBE CONFIGURATION, WITH NPT THREADED INLET/OUTLET, FOR COMMERCIAL/MUNICIPAL USE. WITH FILTER SENTRY.	4
C	HUNTER I2C-0800-M (2) 8 STATION OUTDOOR MODULAR CONTROLLER. NO MODULE REQUIRED. COMMERCIAL USE. METAL CABINET.	1
SS	HUNTER SOLAR-SYNC SOLAR, RAIN FREEZE SENSOR WITH OUTDOOR INTERFACE, CONNECTS TO HUNTER PCC, PRO-C, AND I-CORE CONTROLLERS, INSTALL AS NOTED. INCLUDES 10 YEAR LITHIUM BATTERY AND RUBBER MODULE COVER, AND GUTTER MOUNT BRACKET. WIRED.	1
W	POINT OF CONNECTION 4" WELL WITH SUBMERSIBLE PUMP, SEE WELL NOTES SHEET L4	1
	IRRIGATION LATERAL LINE: PVC CLASS 160 SDR 26	1,634 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21	26.7 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40	91.4 L.F.

Valve Callout



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IRRIGATION PLAN
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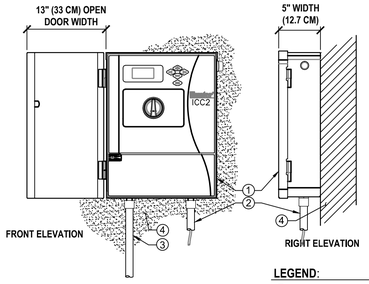
DATE:	AUGUST 2024
DESIGN BY:	LAA
DRAWN BY:	BWV
CHECKED BY:	LAA
SCALE:	1" = 20'

DRAWING NUMBER

L3



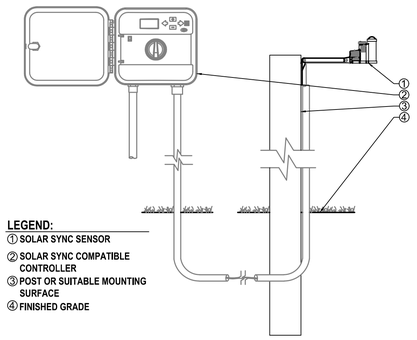
NOTE:
MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL, CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE

LEGEND:

1. IRRIGATION CONTROLLER (12C-800-M) PER PLAN
2. IRRIGATION CONTROL WIRE IN CONDUIT SIZE AND TYPE PER LOCAL CODES
3. ELECTRICAL SUPPLY CONDUIT CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER
4. ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

1 HUNTER ICC2 CONTROLLER

1/8" = 1'-0" P-CO-2024-31-21



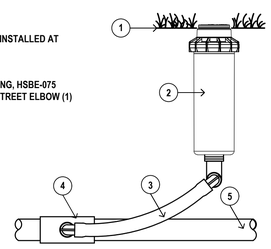
LEGEND:

1. SOLAR SYNC SENSOR
2. SOLAR SYNC COMPATIBLE CONTROLLER
3. POST OR SUITABLE MOUNTING SURFACE
4. FINISHED GRADE

2 HUNTER SOLAR SYNC SENSOR

1/8" = 1'-0" P-CO-2024-31-22

1. FINISH GRADE
2. SPRAY OR ROTOR HEAD INSTALLED AT FINISH GRADE
3. SWING JOINT: HUNTER 'PRO-FLEX' TUBING, HSBE-075 ELBOWS (2), & MARLEX STREET ELBOW (1)
4. LATERAL TEE OR ELL
5. LATERAL PIPE

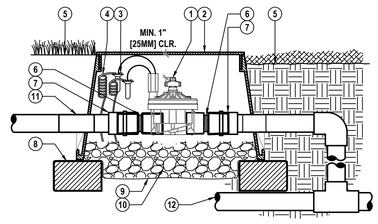


3 SPRAY HEAD AND ROTOR DETAIL

1/4" = 1'-0" P-CO-2024-31-17

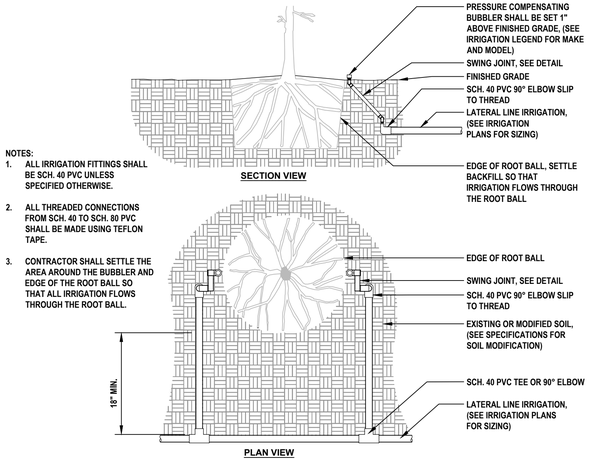
LEGEND

1. HUNTER REMOTE CONTROL VALVE (ICV) WITH FLOW CONTROL
2. IRRIGATION VALVE BOX: HEAT STAMP LID WITH 'RCV' IN 2" LETTERS
3. WATERPROOF CONNECTORS (2)
4. 18"-24" COILED WIRE TO CONTROLLER
5. FINISH GRADE AT ADJACENT SURFACE (TURF OR MULCH)
6. SCH. 80 CLOSE NIPPLE, SIZE PER RCV
7. PVC SLIP X FPT ADAPTOR
8. BRICK SUPPORTS (4)
9. FILTER FABRIC - WRAP TWICE AROUND BRICK SUPPORTS
10. 3/4" WASHED GRAVEL - 4" MIN. DEPTH
11. IRRIGATION LATERAL
12. MAINLINE AND FITTINGS



4 HUNTER REMOTE CONTROL VALVE (ICV)

1 1/2" = 1'-0" P-CO-2024-31-20



NOTES:
1. ALL IRRIGATION FITTINGS SHALL BE SCH. 40 PVC UNLESS SPECIFIED OTHERWISE.
2. ALL THREADED CONNECTIONS FROM SCH. 40 TO SCH. 80 PVC SHALL BE MADE USING TEFLON TAPE.
3. CONTRACTOR SHALL SETTLE THE AREA AROUND THE BUBBLER AND EDGE OF THE ROOT BALL SO THAT ALL IRRIGATION FLOWS THROUGH THE ROOT BALL.

5 IRRIGATION BUBBLER (2) W/ LAYOUT

3/4" = 1'-0" P-CO-2024-31-05

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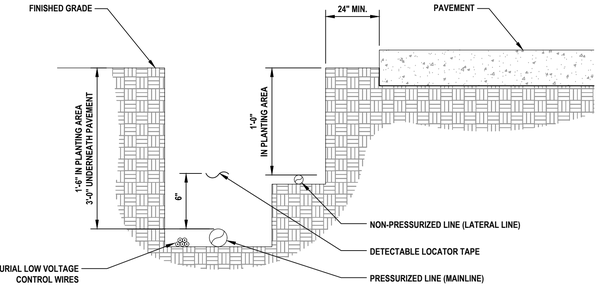

NOTES:
1. SEE IRRIGATION LEGEND FOR MAINLINE AND LATERAL LINE PIPE SIZE AND TYPE.
2. DIRECT BURIAL CONTROL WIRES SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT IF REQUIRED.
3. 2-WIRE IRRIGATION WIRE SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT.
4. DETECTABLE LOCATOR TAPE SHALL BE LOCATED SIX INCHES (6") ABOVE THE ENTIRE MAINLINE RUN.

6 IRRIGATION TRENCHING

1 1/2" = 1'-0" P-CO-2024-31-15

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IRRIGATION NOTES

1. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL EXISTING UTILITIES AND CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. *CHECK PRESSURE AND GPM OF WATER SUPPLY BEFORE BEGINNING JOB AND REPORT FINDING TO LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT WILL MAKE ANY ADJUSTMENT NECESSARY TO MAKE SYSTEM WORK AT ITS BEST.*
3. THE PLAN IS SCHEMATIC ONLY. THE CONTRACTOR SHALL INSTALL PIPING IN A MINIMUM NUMBER OF TRENCHES AND SHALL INSTALL PIPE IN A MINIMUM LENGTH.
4. IRRIGATION LINES ARE SHOWN DIAGRAMMATICALLY AND ARE INTENDED TO SHOW DISTRIBUTION ZONES ONLY. LINES LOCATED UNDER PAVEMENT SHALL BE KEPT TO A MINIMUM AND ALL PIPING UNDER PAVED AREAS SHALL BE SLEEVED.
5. WHEN INSTALLING IRRIGATION PIPING IN ISLAND AND OTHER NARROW PLANTING AREAS RUN PIPING CLOSE TO CURB AND NOT DOWN THE MIDDLE OF THE PLANTING AREA. (BEFORE DOING IRRIGATION GET A COPY OF THE LANDSCAPE PLAN AND KEEP IRRIGATION LINES OUT OF PLANTING AREAS WHERE POSSIBLE.)
6. QUANTITIES FOR IRRIGATION MATERIALS MAY BE ESTIMATES. CONTRACTOR SHALL DO THEIR OWN TAKEOFF.
7. INSTALL SLEEVE PIPING WHERE SHOWN ON THE DRAWINGS AT THE PROPER DEPTH. ALL SLEEVE PIPE SHALL BE SCHEDULE 40 PVC PIPE INSTALLED A MINIMUM OF 20" BELOW FINISHED PAVING GRADES. ALL SLEEVES WHEN PLACED IN FIELD ARE TO BE LOCATED BY A METAL PIPE AT EACH END AND LOCATED FROM TWO STATIONARY POINTS BY TAPE MEASUREMENTS.
8. ALL LATERAL PIPE SHALL BE INSTALLED A MINIMUM OF 12" BELOW GRADE.
9. ALL TRENCHING SHALL BE KEPT OUT OF THE DRIP LINE AREA OF ALL EXISTING TREES. USE RADIAL LINES OR TUNNELING WHEN NECESSARY TO ENCROACH INTO THE DRIP LINE AREA OF TREES.
10. LOCATE ALL VALVES AND OTHER IRRIGATION EQUIPMENT IN PLANT BED AREAS WITHIN THE PROJECT LIMITS FOR CONCEALMENT PURPOSES.
11. RISERS ARE TO BE HIDDEN COMPLETELY IN SHRUBBERY OR PAINTED BLACK AND IN NO CASE BE HIGHER THAN THE SHRUBBERY INSTALLED.
12. ALL VALVES SHALL BE INSTALLED IN VALVE BOXES. PROVIDE A 6" GRAVEL SUMP AT THE BOTTOM OF ALL VALVE BOXES AND INSTALL 1/2" TO 1" DIAMETER GRAVEL AT THE BOTTOM OF THE VALVE PIT.
13. IRRIGATION SHALL MEET ALL APPLICABLE CURRENT MUNICIPAL, COUNTY, STATE OR FEDERAL CODES, ORDINANCES AND REGULATIONS THAT HAVE JURISDICTION.
14. THERE SHALL BE A MINIMUM OF FOUR (4) INCHES OFFSET BETWEEN THE IRRIGATION EQUIPMENT AND PAVEMENT.
15. THERE SHALL BE A MINIMUM OF TWELVE (12) INCHES BETWEEN THE IRRIGATION EQUIPMENT AND STRUCTURES.
16. THERE SHALL BE NO DIRECT SPRAY ON WALKWAYS, BUILDINGS, DRIVES OR ROADWAYS.
17. ALL TURF IRRIGATION HEADS SHALL PROVIDE 100% HEAD TO HEAD COVERAGE.
18. ALL FITTINGS SHALL BE SCHEDULE 40 PVC.
19. ALL SPRAY HEADS ARE TO BE A MINIMUM OF 6" POP-UP AND ALL HEADS IN PLANTING AREAS TO BE 12" POP-UP OR RISERS. RISERS SHALL BE PAINTED HUNTER GREEN.
20. ALL DRIP ZONES SHALL INCLUDE AN AIR RELIEF VALVE INSTALLED IN A VALVE BOX AT OPTIMAL HIGHEST POINT FROM THE CONTROL ZONE KIT. MULTIPLE AIR RELIEF VALVES MAY BE NEEDED TO ACCOMMODATE DIFFERENCES IN GRADE. ECO-INDICATOR TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT IN CLEAR VIEW WHEN POPPED UP. FLUSH POINT TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT TO ALLOW FOR MAXIMUM DEBRIS FLUSH IN SYSTEM.
21. ALL DRIP ROWS SHALL BE SPACED A MINIMUM OF 12" APART AND A MAXIMUM OF 18" APART.
22. ELECTRICAL TO CONTROLLER SHALL BE SUPPLIED BY ELECTRICAL CONTRACTOR (NOT IRRIGATION CONTRACTOR).
23. TREE PROTECTION AREA. HAND TRENCH ALL PIPING IN THESE AREAS TO AVOID IMPACTING THE CRITICAL PROTECTION ZONE OF THE EXISTING TREES TO REMAIN (TYP).
24. CONTRACTOR TO PROVIDE CONTROLLER HANDBOOK AND OPERATION INSTRUCTIONS, AS-BUILT ZONE DIAGRAM, INCLUDING LOCATIONS AND SIZE OF COMPONENTS, AND SOLID MOISTURE SENSOR PROBE LOCATION IF APPLICABLE, PRECIPITATION RATES FOR EACH ZONE, AND SCHEDULE RUN TIMES, WINTER AND SUMMER TO THE OWNER.

PLANT ESTABLISHMENT

1. IRRIGATE EVERY DAY FOR ONE MONTH.
2. IRRIGATE EVERY OTHER DAY FOR ONE ADDITIONAL MONTH.
3. IRRIGATE TWICE A WEEK THEREAFTER OR MORE OFTEN DURING DRY PERIODS IF PLANTS ARE SHOWING SIGNS OF DISTRESS SUCH AS WILTING OR BROWNING.
4. ENSURE RAIN SENSOR IS OPERATING CORRECTLY AND SYSTEM IS NOT WATERING ON DAYS WHEN IT RAINS.

WELL & PUMP NOTE

1. PUMP SPECIFICATIONS:

   PUMP MUST PROVIDE A MINIMUM OF 50 GALLONS PER MINUTE @ 55 PSI AT HEAD.

2. THE WELL SHALL BE CAPABLE OF PROVIDING REQUIRED WATER QUANTITY WITH FOLLOWING WATER QUALITY:
   - A. AT THE REQUIRED FLOW WATER SHALL BE CLEAR AND FREE OF SAND AND OTHER DEBRIS LARGER THAN .030" IN DIAMETER.
   - B. WATER SHALL BE CONSIDERED SAND FREE WHEN NO SAMPLE, TAKEN DURING TEST PUMPING, CONTAINS MORE THAN 2 PARTS PER MILLION OF SUSPENDED SOLID WEIGHT.
   - C. MAXIMUM IRON ALLOWED IN THE WELL WATER SHALL BE LESS THAN 0.3 PARTS PER MILLION.
   - D. MAXIMUM SALT CONTENT SHALL BE LESS THAN 300 PARTS PER MILLION.

REVISIONS

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CHECKED BY:	LAA
SCALE:	AS SHOWN

DRAWING NUMBER

L4

July 29, 2024

Mr. Jason Durgan
Central Florida Preferred Services, Inc.
405 Oakridge Road
Ormond Beach, Florida 32174

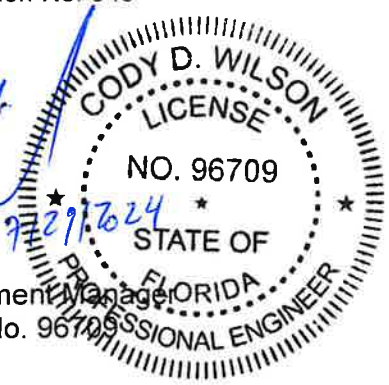
Reference: **GEOTECHNICAL EVALUATION**
9100 US Highway 1
Bunnell, Flagler County, Florida
UES Project No. 0430.2400165.0000
UES Report No. 2094785

Dear Mr. Durgan:

UES has completed the geotechnical evaluation for the subject project. This report contains the results of our evaluation, an engineering interpretation of these with respect to the project characteristics described to us, and recommendations for foundation, pavement support, site preparation, and stormwater management design.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully Submitted,
UNIVERSAL ENGINEERING SCIENCES, LLC
Certificate of Authorization No. 549



7/29/2024

Cody D. Wilson, P.E.
Geotechnical Department Manager
Florida Registration No. 96709

Cc: Mr. Harry Newkirk, P.E. – Newkirk Engineering, Inc.

08/23/2024 11:59 am IP:[75.49.161.169] Packet No: 9942

GEOTECHNICAL EVALUATION

9100 US Highway 1
Bunnell, Flagler County, Florida

UES Project No. 0430.2400165.0000
UES Report No. 2094785

July 29, 2024

Prepared For:

Mr. Jason Durgan
Central Florida Preferred Services, Inc.
405 Oakridge Road
Ormond Beach, Florida 32174

Prepared By:

UES
911 Beville Road, Suite 3
South Daytona, Florida 32119
(386) 756-1105

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION

Project information has been provided to us in correspondence with Mr. Harry Newkirk, P.E. with Newkirk Engineering, Inc. We have been provided with a conceptual site plan which shows the layout of the proposed construction. We understand the project will consist of constructing two (2) 10,000 square foot one story flexible use buildings with associated flexible asphalt pavement areas and two (2) stormwater management facilities. We assume the maximum wall and column loads will not exceed 6 kips per linear foot and 50 kips, respectively. We anticipate that two to four feet of elevating fill will be placed within the structure and pavement areas.

Based on our review of available aerial photographs from Google Earth, we understand that this parcel was partially cleared sometime between 1999 and 2004.

Our recommendations are based upon the above considerations. If any of this information is incorrect, or if you anticipate any changes, inform UES so that we may review our recommendations.

2.0 PURPOSE AND SCOPE

2.1 PURPOSE

The purposes of this investigation were:

- to investigate the general subsurface conditions at the site;
- to interpret and review the subsurface conditions with respect to the proposed construction;
- to provide geotechnical engineering recommendations for foundation support, pavement design and site preparation; and,
- to provide recommendations for stormwater management design.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. UES would be pleased to perform these services, at your request.

Our investigation was confined to the zone of soil likely to be influenced by the proposed construction. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. A deep geological evaluation requires a more extensive range of field services than performed in this study.

2.2 FIELD INVESTIGATION

2.2.1 BORINGS

The subsurface conditions were investigated with:

- Four (4) Standard Penetration Test (SPT) borings, B-1 through B-4, advanced to depths of approximately 20 and 25 feet each below existing grade within the proposed building areas;
- Two (2) SPT Borings, P-1 and P-2, advancing to 10 feet each below existing grade within the proposed dry retention facility and one (1) auger boring, P-3, advanced to 15 feet below existing grade within the wet detention facility.
- Two (2) auger borings advanced to a depth of approximately 6 feet each below existing grade within the proposed pavement and existing golf course areas (designated R-1 and R-2).

We performed the SPT and borings according to the procedures of ASTM D-1586 and ASTM-1452, respectively.

The borings were located by our field personnel using measurements from established landmarks and should be considered accurate only to the degree implied by the method used. The location of the borings is presented on the attached Boring Location Plan in Appendix A.

Samples obtained from the borings were transported to our laboratory for further evaluation. Samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

2.3 LABORATORY TESTING

2.3.1 INDEX TESTING

The soil samples recovered from the soil borings were returned to our laboratory and then a UES Engineer visually examined and reviewed the field descriptions. The soils were classified in accordance with the Unified Soil Classification System (USCS). Tests consisting of percent passing a No. 200 sieve determination were performed to aid in classification of the soils.

3.0 FINDINGS

3.1 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Subsurface Profiles. The classifications and descriptions shown on the profiles are based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Key to Boring Log, for further explanation of the symbols and placement of data on the Subsurface Profiles. The following discussion summarizes the soil conditions encountered.

The results of the SPT borings, B-1 through B-4 and P-1 and P-2, generally indicated approximately 12 inches of topsoil underlain by intermittent layers of very loose to medium dense fine sand with trace silt (SP), fine sand with silt (SP-SM) and silty fine sand (SM) to the deepest boring termination depth of approximately 25 feet below existing grade.

The results of the auger borings, R-1, R-2 and P-3, generally indicated the presence of fine sand (SP), fine sand with silt (SP-SM) and silty fine sand (SM) to the deepest boring termination depth of approximately 15 feet below existing grade. As an exception, large roots and pine needle debris (DEBRIS) were encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3.

3.2 GROUNDWATER

We recorded groundwater subsequent to drilling between depths of approximately 1.6 and 2.0 feet below existing grade at our boring locations. Based on available published literature, existing site features, and the results of the borings, we estimate the normal seasonal high groundwater level to be approximately one foot above the measured levels. We can provide detailed seasonal high estimates once topographic information is available. It should be noted that the estimated seasonal high water level does not provide any assurance that groundwater levels will not exceed these estimated levels during any given year in the future. Should impediments to surface water drainage be present, or should rainfall intensity and duration, or total rainfall quantities, exceed the normally anticipated rainfall quantities, groundwater levels might once again exceed our seasonal high estimates. The depth of the groundwater level encountered at the boring location is presented on the Subsurface Profiles.

We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project.

4.0 FOUNDATION AREA RECOMMENDATIONS

4.1 GENERAL

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the structural loadings, construction locations, or grading information change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

As presented in the subsurface profiles, soils containing large roots and pine needle debris (DEBRIS) were encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3. It is our opinion that this material may indicate buried debris. Due to the close proximity of this boring location to the proposed structure, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if soils containing large root and pine needle debris (DEBRIS) are present within the structure area. It is our opinion that test pits will enable UES to determine the necessity of any materials to be removed and if so, the horizontal and vertical limits of the unsuitable soil to be removed.

Additionally, if subsurface conditions are encountered during construction, which were not encountered in the borings, report those conditions immediately to us for observation and recommendations.

4.2 STRUCTURE FOUNDATIONS

Based on the results of our subsurface exploration, we consider the subsurface conditions at the site favorable for support of the proposed structures when constructed on a properly designed shallow foundation system. Provided the soils are prepared in accordance with the Site Preparation Section of this report, the following parameters may be used for foundation design.

4.2.1 BEARING PRESSURE

The maximum allowable net soil bearing pressure for shallow foundations should not exceed 2,500 pounds per square foot (p.s.f.). Net bearing pressure is defined as the soil bearing pressure at the base of the foundation in excess of the natural overburden pressure. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

4.2.2 FOUNDATION SIZE

The minimum widths recommended for any isolated column footing and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2.3 BEARING DEPTH

The exterior foundations should bear at a depth of at least 12 inches below the exterior final grades and the interior footings should bear at a depth of at least 12 inches below the finish floor elevation to provide confinement to the bearing level soils. We recommend stormwater and surface water be diverted away from the building exterior, both during and after construction, to reduce the possibility of erosion beneath the exterior footings.

4.2.4 BEARING MATERIAL

The foundations may bear on either the compacted suitable natural soils or compacted structural fill. The bearing level soils, after compaction, should exhibit densities of at least 95 percent of the maximum dry density of the bearing soils as determined by ASTM D-1557 (Modified Proctor), to the depth described

subsequently in the Site Preparation section of the report. In addition to compaction, the bearing soils must exhibit stability and be free of “pumping” conditions.

4.2.5 Settlement Estimates

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundations; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from offsite sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structures are based upon the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlement of the structures.

Due to the sandy nature of the surficial soils, following the compaction operations, we expect a significant portion of settlement to be elastic in nature. This settlement is expected to occur relatively quickly, upon application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field test data, which we have correlated to the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structures to be approximately one inch or less.

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. Based on the subsurface conditions as determined by our borings, it is anticipated that differential settlements will be within tolerable limits.

4.3 Site Preparation For Shallow Foundations

We recommend the following site preparation procedures for the building area:

1) Prior to construction, the location of existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of overlying structures.

2) Strip the proposed construction limits of all grass, roots, topsoil, and other deleterious materials within and 5 feet beyond the perimeter of the proposed structures. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches. As discussed, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if over excavation and replacement will be necessary within the proposed building area.

3) Compact the exposed surface using tracked dozer or vibratory equipment. We recommend that vibratory equipment be operated in static mode within 75 feet of any existing structures. The upper one foot of soils below the exposed surface within the building area should be improved to achieve a minimum compaction requirement of 95% of the Modified Proctor Test (ASTM D-1557). We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

4) Test the compacted surface for compliance at a minimum of one location per 2,500 square feet of each building area, or at a minimum of 3 locations.

5) Place the fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent,

but strict moisture control may be required. Place fill in uniform 10 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). If light compaction equipment is used, we recommend the lift thickness be reduced to 8 inch thick lifts.

6) Perform compliance tests within each lift of fill at a minimum of one location per lift per 2,500 square feet of each building area, or at a minimum of 3 locations.

7) Compact and test footing cuts for compaction to a depth of one foot below bearing level. We recommend that you test one out of every four (25 percent) column footings and perform one test per every 50 linear feet of wall footing. Compaction operations in confined areas, such as footing excavations, can best be performed with a lightweight vibratory sled or other hand-held compaction equipment.

5.0 PAVEMENT RECOMMENDATIONS

5.1 GENERAL

We anticipate a flexible asphaltic concrete pavement section will be utilized for the subject project.

As discussed, large roots and pine needle debris (DEBRIS) was encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3. Due to the close proximity of this boring location to the proposed parking lot, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if soils containing large root and pine needle debris (DEBRIS) are present within the parking lot. It is our opinion that test pits will enable UES to determine the necessity of any materials to be removed and if so, the horizontal and vertical limits of the unsuitable soil to be removed.

To achieve the full life expectancy of the pavement, we recommend that soils containing debris be removed from within the pavement areas prior to construction. However, this is likely not cost prohibitive. In lieu of removing the debris, biaxial geogrid may be utilized. We recommend that the biaxial geogrid be placed below the stabilized subgrade. Additionally, we recommend a two-foot separation between soil zones containing debris and biaxial geogrid. This will help reduce distress resulting from differential settlement. It should be anticipated that the asphalt will experience distress sooner than a typical 15 to 20-year life span. Continued maintenance of the pavement should be anticipated.

5.2 FLEXIBLE ASPHALTIC PAVEMENT

Because traffic loadings are commonly unavailable, we have generalized our pavement design into two groups. The group descriptions and the recommended component thicknesses are presented in Table 1 below.

TABLE I
Pavement Component Recommendations

Traffic Group	Component Thickness		
	Stabilized Subgrade	Base Course	Surface Course
Parking Lots – light duty	12	6	1.5
Parking lots – heavy duty	12	8	2.0

5.3 STABILIZED SUBGRADE

We recommend that subgrade materials be compacted in place according to the requirements in the "Site Preparation" section of this report. Further, stabilize the subgrade materials to a minimum Limerock

Bearing Ratio (LBR) of 40 percent as specified by Florida Department of Transportation (FDOT) requirements for Type B Stabilized Subgrade.

Further, the stabilized subgrade can be imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions.

The primary function of stabilized subgrade beneath the base course is to provide a stable and firm subgrade so that the base course can be properly placed and compacted. Depending upon the soil type, the subgrade material may have sufficient stability to provide the needed support without additional stabilizing material. Generally speaking, sands with silt or clay typically have sufficient stability and may not require additional stabilizing material. Conversely, relatively "clean" sands may not provide sufficient stability in order to adequately construct the base course.

5.4 BASE COURSE

We recommend that the base course consist of either limerock or graded crushed aggregate (crushed concrete).

5.4.1 LIMEROCK

Limerock should have a minimum LBR of 100 percent and should be mined from an FDOT approved source. Place limerock in maximum 6-inch lifts and compact each lift to a minimum density of 98 percent of the Modified Proctor maximum dry density.

5.4.2 CRUSHED CONCRETE BASE

Crushed concrete should be supplied by an approved plant with quality control procedures. The crushed concrete stockpiled should be free of sandy pockets, foreign materials, and uncrushed particles. We recommend the following specifications be enforced.

a) Crushed concrete shall not contain lumps, balls or pockets of sand or clay sized material in sufficient quantity as to be detrimental to the proper binding, finishing or strength of the crushed concrete base.

b) Samples of base course materials shall be supplied to the engineer prior to use in the work. Additional samples shall be furnished during construction, as necessary.

c) At least 97 percent (by weight) of the material shall pass a 3-1/2 inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust or fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

d) The base shall be bladed and shaped to conform to the typical sections shown on the plans. Then the base shall be compacted by rolling with a combination of steel wheel and rubber tired rollers until an average density of 98 percent of the maximum density obtainable under AASHTO Method T-180 is reached. The base shall have an average LBR of not less than 150. The LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

Testing shall be performed at the following frequency:

1) Perform in-place density tests on crushed concrete base at a minimum frequency of 2 tests per pavement area or 1 test per 300 linear feet whichever is greater.

2) Perform Limerock Bearing Ratio tests at a frequency of 1 test per visual change in material and a minimum of 1 test per pavement area or every 15,000 square feet whichever is greater.

3) Engineer should perform a final visual base inspection prior to placement of prime or tack coat and paving.

5.5 SURFACE COURSE

In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend using an asphaltic concrete, FDOT Type SP 9.5 mix. In heavy duty areas where truck traffic is predominant, we recommend using an asphaltic concrete, FDOT Type SP 12.5 mix.

It should be noted that if a more aesthetically pleasing asphalt surface is required a layer of Friction Course (FC) (finer aggregate) can be placed. A ½ inch layer of FC asphalt can be placed above the SP asphaltic concrete. However this may result in increased costs.

Asphaltic concrete mixes should be a current FDOT approved design of the materials actually used. Samples of the materials delivered to the project should be tested to verify that the aggregate gradation and asphalt content satisfies the mix design requirements. Compact the asphalt to a minimum of 90 percent of the Gmm (maximum voidless specific gravity).

After placement and field compaction, core the wearing surface to evaluate material thickness and to perform laboratory densities. Obtain cores at frequencies of at least one core per 3,000 square feet of placed pavement or a minimum of two cores per day's production.

In roadways, for extended life expectancy of the surface course, we recommend applying a coal tar emulsion sealer at least six months after placement of the surface course. The seal coat will help to patch cracks and voids, and protect the surface from damaging ultraviolet light and automobile liquid spillage. Please note that applying the seal coat prior to six months after placement may hinder the "curing" of the surface course, leading to its early deterioration.

5.6 CURBING

We recommend that curbing around landscaped sections adjacent to the parking roadways and driveways be constructed with full-depth curb sections. Using extruded curb sections which lie directly on top of the final asphalt level, or eliminating the curbing entirely, may not significantly impede the migration of irrigation water from the landscape areas to the interface between the asphalt and the base. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration. It is recommended that the subgrade below the curbing be stabilized to a minimum LBR of 40.

5.7 CONSTRUCTION TRAFFIC

Light duty roadways and incomplete pavement sections will not perform satisfactorily under construction traffic loadings. We recommend that construction traffic (construction equipment, concrete trucks, sod trucks, garbage trucks, dump trucks, etc.) be re-routed away from these roadways or that the pavement section be designed for these loadings.

5.8 EFFECTS OF GROUNDWATER

We recommend that all pavement sections analyses incorporate the seasonal high groundwater conditions. Based on the groundwater level at the site, the below separations will be maintained.

TABLE II
Recommended Minimum Clearance Between Pavement Base and Wet Season Water Table

Type of Base	Separation (inches)
Limerock	18
Crushed Concrete	12

One of the most critical influences on the pavement performance in Central Florida is the relationship between the pavement subgrade and the seasonal high groundwater level. Many roadways and parking areas have been destroyed as a result of deterioration of the base and the base/surface course bond resulting from a high water table. **Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least the amount presented in Table 2 above.**

5.9 Site Preparation For Pavement Areas

We recommend the following site preparation procedures:

1) Strip the proposed construction limits of all grass, roots, topsoil and other deleterious materials within, and 3 feet beyond, the proposed pavement limits. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches. As discussed, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine in over excavation and replacement or biaxial geogrid will be necessary.

2) Proof-compact the exposed surface with the light to medium roller until you maintain density of at least 98 percent should be obtained in the upper 12 inches below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Vibratory equipment should be operated in static mode within 75 feet of adjacent structures.

3) Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

4) Test the compacted surface for density at a frequency of not less than one test per 10,000 square feet of pavement area (minimum three locations per pavement area).

5) Place and compact backfill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent, but strict moisture control may be required. Place fill in uniform 10 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density with the exception that densities of at least 98 percent should be obtained within the upper one foot below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557).

6) Perform compliance tests within each lift of fill at a frequency of not less than one test per 10,000 square feet of pavement area (minimum of three locations per pavement area).

6.0 STORMWATER MANAGEMENT RECOMMENDATIONS

6.1 GENERAL

For a dry bottom retention facility, performance will be significantly influenced by the soil permeability and the vertical separation between the bottom and the seasonal high groundwater level. A wet retention facility should be excavated to a depth necessary to obtain a sufficient water depth to limit growth of aquatic vegetation.

Borings P-1 and P-2 are located within the proposed dry retention facility and Boring P-3 is located within the proposed wet detention facility.

If requested, UES can assist in evaluating the facility design exfiltration rates, underdrains and/or groundwater baseflow as pond geometry and stormwater volume requirements become available.

6.2 SOIL PERMEABILITY

Six (6) Laboratory Falling-head Saturated Vertical Permeability Tests were performed on relatively undisturbed soil samples. The samples were obtained using thin-walled tube sampling techniques (Shelby Tube). The results of the tests, in feet per day, describe the coefficients of hydraulic conductivity (Permeability) of the soils and are presented on the attached Subsurface Profiles. The measured permeability rates should not be construed to represent the actual pond exfiltration rates.

Upon evaluation of regional and local geology, we have evaluated that the characteristics of the soils within the vicinity of this project are comprised of sedimentary soils which often exhibit thin, alternating layers. Generally, in relatively homogeneous natural deposits where stratification may result from particle orientation, the Permeability in the Horizontal direction can be somewhat greater than that in the Vertical direction. Based on our experience, the estimated coefficient of Horizontal Permeability typically is on the order of 1.5 and 2.0 times greater than the Vertical Permeability for SP-SM and SP soil types, respectively.

6.3 BORROW SUITABILITY

Boring P-3, was performed, in part, to provide an indication of the suitability of excavated soils from the proposed stormwater management area for use as structural fill soil. Based on the boring results and classification of the soil samples, the fine sand with silt (SP-SM) encountered at the boring location is suitable for use as structural fill soil. Because the fine sand with silt (SP-SM) significantly retains moisture, strict moisture control may be required during placement and compaction operations to avoid moisture related instability. The silty fine sand (SM), as encountered, is generally not considered suitable for use as fill due to their fines content making it difficult to place and compact. The fine sand with silt with large roots and pine needle debris (DEBRIS) is not suitable for use as structural fill. It should be noted that this material can be used in green areas. We recommend removing debris larger than one inch in diameter prior to placing this material within green areas.

It should be anticipated the soils in the proposed borrow pit area that are below the groundwater level will have moisture contents in excess of the Modified Proctor optimum moisture content and will require stockpiling or spreading to bring the moisture content within 2 percent of the soil's optimum moisture content corresponding to the required degree of compaction.

7.0 CONSTRUCTION RELATED SERVICES

We recommend the owner retain UES to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation subgrades by monitoring filling operations and performing quality assurance tests on the placement of compacted natural soils and structural fill. We can also perform concrete testing, pavement section testing, structural steel testing and other construction materials testing services.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.

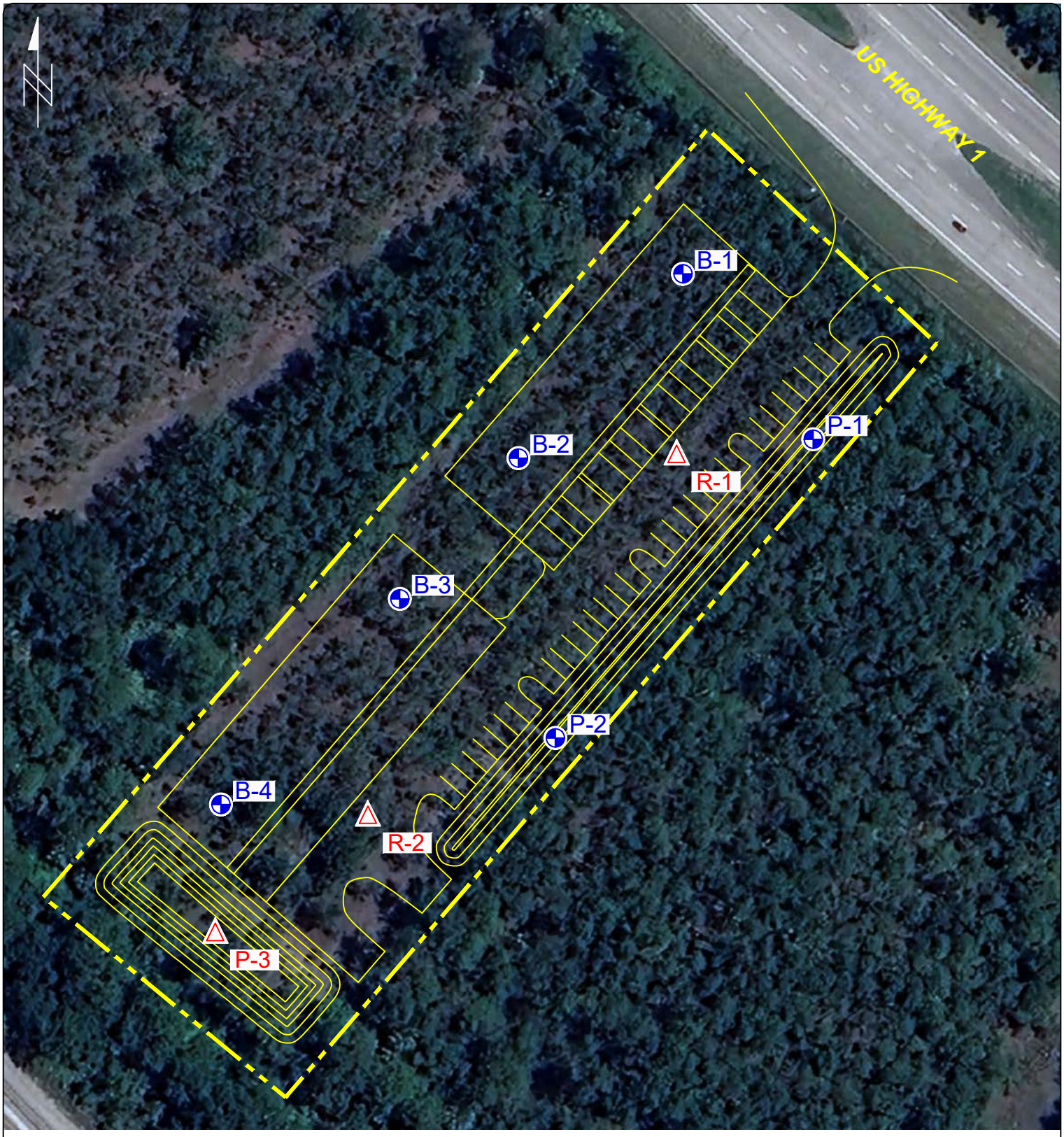
8.0 LIMITATIONS

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information about Your Geotechnical Engineering Report" appears in Appendix B, and will help explain the nature of geotechnical issues. Further, we present documents in Appendix B: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

* * * * * * * * * *

APPENDIX A

UES™



LEGEND

△ APPROXIMATE LOCATION OF AUGER BORING

⊕ APPROXIMATE LOCATION OF STANDARD PENETRATION TEST (SPT) BORING

GRAPHIC SCALE

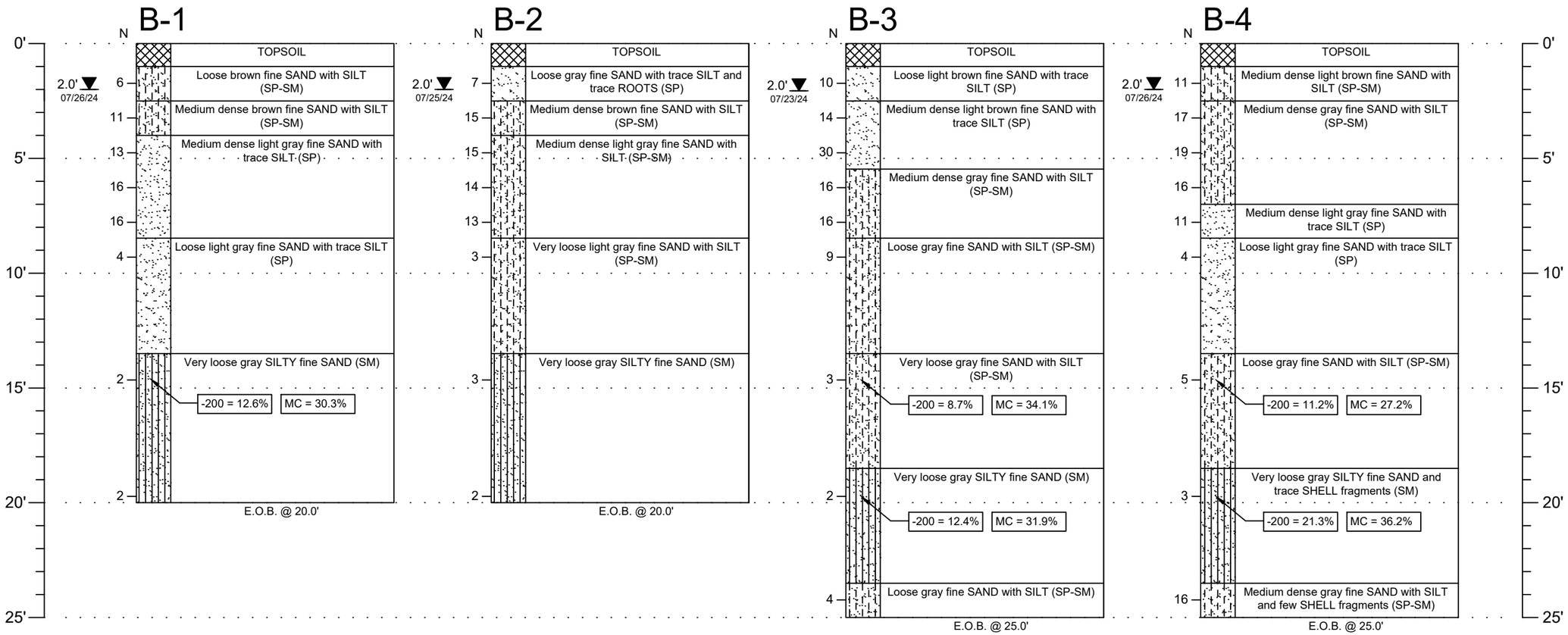
0 40 80

(IN FEET)

1 INCH ≈ 80 ft.

UES

TITLE: BORING LOCATION PLAN			SCALE: 1" ≈ 80'
PROJECT: GEOTECHNICAL EVALUATION 9100 US HIGHWAY 1 BUNNELL, FLORIDA			PAGE/FIG. NO.: A-1
DRAWN BY: MKL	DATE: 07/24/24	PROJECT NO.: 0430.2400165.0000	
CHECKED BY: BP	DATE: 07/24/24	REPORT NO.: 2094785	



Fine SAND (SP)

Fine SAND with SILT (SP-SM)

SILTY fine SAND (SM)

Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

NOTES:

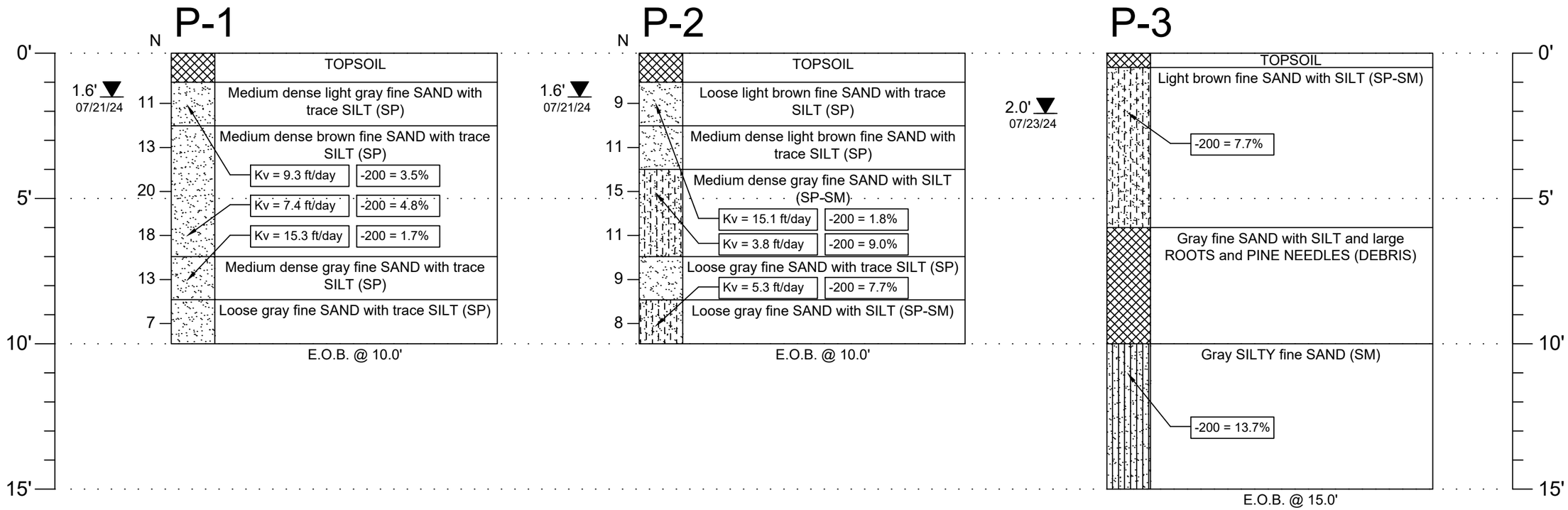
▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method
WOH	Weight of Hammer
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
MC	% Moisture Content

UES

PROJECT:
GEOTECHNICAL EVALUATION
9100 US HIGHWAY 1
BUNNELL, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE: 07/29/24	PROJECT NO.:	0430.2400165.0000	SCALE: NA (in feet)
CHECKED BY:	BP	DATE: 07/29/24	REPORT NO.:	2094785	PAGE/FIG. NO.: A-2



Fine SAND (SP)

Fine SAND with SILT (SP-SM)

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Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

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HA	Hand Auger Method
WOH	Weight of Hammer
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
MC	% Moisture Content

UES

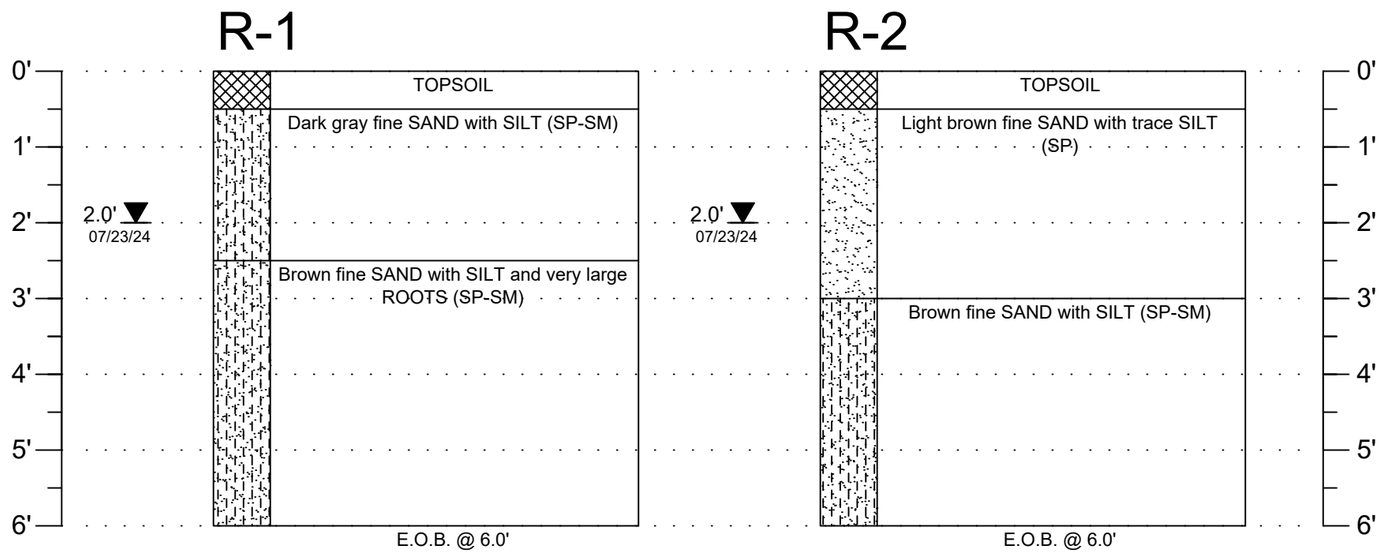
PROJECT:
GEOTECHNICAL EVALUATION
9100 US HIGHWAY 1
BUNNELL, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE:	07/29/24	PROJECT NO.:	0430.2400165.0000
CHECKED BY:	BP	DATE:	07/29/24	REPORT NO.:	2094785

SCALE: NA (in feet)

PAGE/FIG. NO.: A-3



Fine SAND (SP)

Fine SAND with SILT (SP-SM)

Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method
WOH	Weight of Hammer
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
MC	% Moisture Content

UES™

PROJECT:
GEOTECHNICAL EVALUATION
9100 US HIGHWAY 1
BUNNELL, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE:	07/29/24	PROJECT NO.:	0430.2400165.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-4
CHECKED BY:	BP	DATE:	07/29/24	REPORT NO.:	2094785		

KEY TO BORING LOGS

SYMBOLS AND ABBREVIATIONS

SYMBOL	DESCRIPTION
N-Value	No. of Blows of a 140-lb. Weight Falling 30 Inches Required to Drive a Standard Spoon 1 Foot
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
	Sample from Auger Cuttings
	Standard Penetration Test Sample
	Thin-wall Shelby Tube Sample (Undisturbed Sampler Used)
RQD	Rock Quality Designation
	Stabilized Groundwater Level
	Seasonal High Groundwater Level (also referred to as the W.S.W.T.)
NE	Not Encountered
GNE	Groundwater Not Encountered
BT	Boring Terminated
-200 (%)	Fines Content or % Passing No. 200 Sieve
MC (%)	Moisture Content
LL	Liquid Limit (Atterberg Limits Test)
PI	Plasticity Index (Atterberg Limits Test)
NP	Non-Plastic (Atterberg Limits Test)
K	Coefficient of Permeability
Org. Cont.	Organic Content
G.S. Elevation	Ground Surface Elevation

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS More than 50% retained on the No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels and gravel-sand-silt mixtures
			GC	Clayey gravels and gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS 5% or less passing No. 200 sieve	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Poorly graded sands and gravelly sands, little or no fines
		SANDS with 12% or more passing No. 200 sieve	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SIOLS 50% or more passes the No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diamicaceous fine sands or silts, elastic silts
			CH	Inorganic clays or clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

*Based on the material passing the 3-inch (75 mm) sieve
** Use dual symbol (such as SP-SM and SP-SC) for soils with more than 5% but less than 12% passing the No. 200 sieve

RELATIVE DENSITY
(Sands and Gravels)
Very loose – Less than 4 Blow/Foot
Loose – 4 to 10 Blows/Foot
Medium Dense – 11 to 30 Blows/Foot
Dense – 31 to 50 Blows/Foot
Very Dense – More than 50 Blows/Foot

CONSISTENCY
(Silts and Clays)
Very Soft – Less than 2 Blows/Foot
Soft – 2 to 4 Blows/Foot
Firm – 5 to 8 Blows/Foot
Stiff – 9 to 15 Blows/Foot
Very Stiff – 16 to 30 Blows/Foot
Hard – More than 30 Blows/Foot

RELATIVE HARDNESS
(Limestone)
Soft – 100 Blows for more than 2 Inches
Hard – 100 Blows for less than 2 Inches

MODIFIERS

These modifiers Provide Our Estimate of the Amount of Minor Constituents (Silt or Clay Size Particles) in the Soil Sample
Trace – 5% or less
With Silt or With Clay – 6% to 11%
Silty or Clayey – 12% to 30%
Very Silty or Very Clayey – 31% to 50%

These Modifiers Provide Our Estimate of the Amount of Organic Components in the Soil Sample
Trace – Less than 3%
Few – 3% to 4%
Some – 5% to 8%
Many – Greater than 8%

These Modifiers Provide Our Estimate of the Amount of Other Components (Shell, Gravel, Etc.) in the Soil Sample
Trace – 5% or less
Few – 6% to 12%
Some – 13% to 30%
Many – 31% to 50%

APPENDIX B

UES™

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

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CONSTRAINTS & RESTRICTIONS

The intent of this document is to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

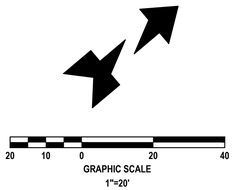
LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

UES



PLANT SCHEDULE

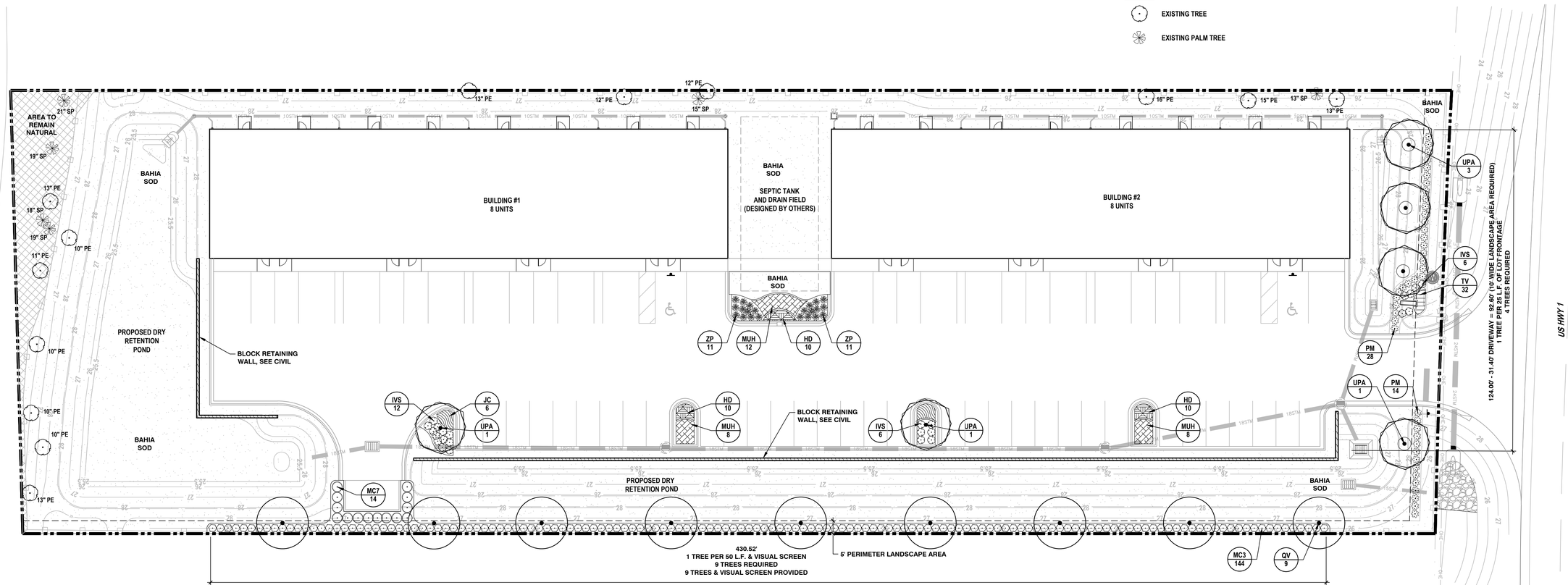
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
SHADE TREES					
QV	9	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	1.5" CAL., 8` HT.	
UPA	6	ULMUS PARVIFOLIA 'ALLEE'	ALLEE® ELM	1.5" CAL., 8` HT.	
SHRUBS					
IVS	24	ILEX VOMITORIA `STOKES DWARF`	STOKES DWARF YAUPON HOLLY	3 GAL., 12" HT. X 18" SPRD.	36" O.C.
MC3	144	MYRICA CERIFERA	WAX MYRTLE	3 GAL.	36" O.C.
MC7	14	MYRICA CERIFERA	WAX MYRTLE	7 GAL., 36" HT, X 12" SPRD	48" O.C., FTG
PM	42	PODOCARPUS MACROPHYLLUS	YEW PINE	3 GAL., 24" HT. X 6" SPRD.	36" O.C.
ZP	22	ZAMIA PUMILA	COONTIE CYCAD	3 GAL.	36" O.C.
GROUND COVERS					
HD	30	HELIANTHUS DEBILIS	DUNE SUNFLOWER	1 GAL.	24" O.C.
JC	6	JUNIPERUS CONFERTA	SHORE JUNIPER	1 GAL.	30" O.C.
MUH	28	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	3 GAL.	36" O.C.
TV	32	TULBAGHIA VIOLACEA	SOCIETY GARLIC	1 GAL.	12" O.C.

INTERIOR PLANTING AREAS	
VEHICULAR USE AREAS	28,407
LANDSCAPE REQUIRED (250 S.F./5,000 S.F.)	1,420
LANDSCAPE PROVIDED	2,231

REQUIRED LANDSCAPE AREA	
TOTAL SITE AREA	94,135
REQUIRED LANDSCAPE (15%)	14,120
PROVIDED LANDSCAPE (46%)	43,680
REQUIRED INTERIOR LANDSCAPE (1/3)	31,375
PROVIDED INTERIOR LANDSCAPE	35,185

LEGEND

- AREA TO REMAIN NATURAL
- BAHIA SOD
- EXISTING TREE
- EXISTING PALM TREE



REVISIONS

DATE	DESCRIPTION

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Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30209
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Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

LANDSCAPE PLAN
OFFICE AND WAREHOUSE

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FLAGLER COUNTY

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LAUREN ADAMS
LICENSE
NO. 6667278
STATE OF FLORIDA
LANDSCAPE ARCHITECT

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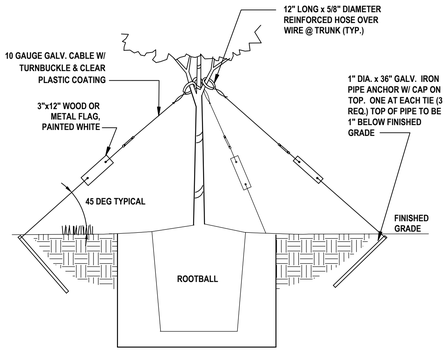
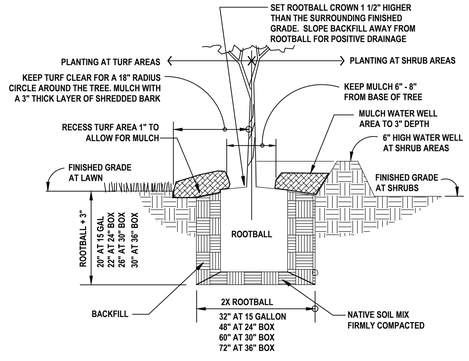
PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	LAA
DRAWN BY:	BWV
CHECKED BY:	LAA
SCALE:	1" = 20'

DRAWING NUMBER

L1



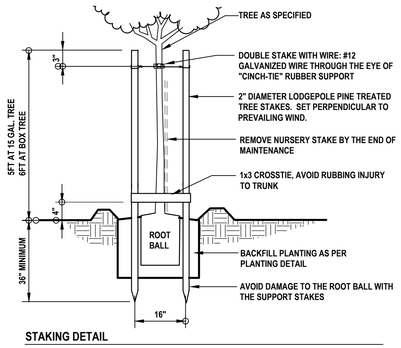
STAKING DETAIL



PLANT PIT DETAIL

1 TREE PLANTING DETAIL

1" = 1'-0" P-CO-2024-31-01



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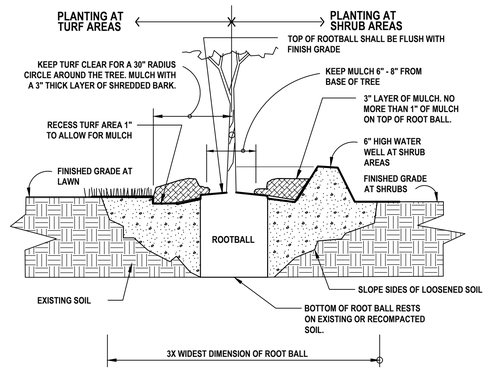
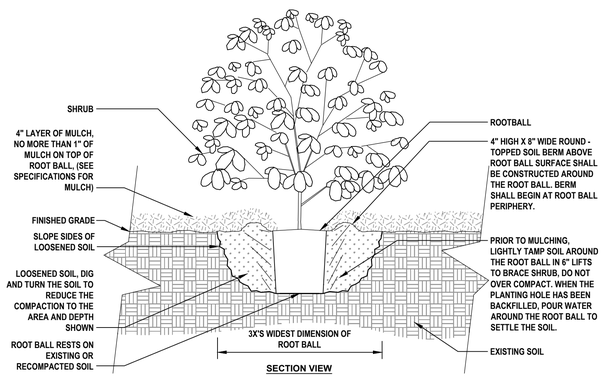


PLANT PIT DETAIL

2 SMALL TREE PLANTING DETAIL

1" = 1'-0" P-CO-2024-31-03



SECTION VIEW

NOTES:
1. SHRUBS SHALL BE OF QUALITY PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

3 SHRUB PLANTING DETAIL

NTS P-CO-2024-31-04

URBAN TREE FOUNDATION © 2014
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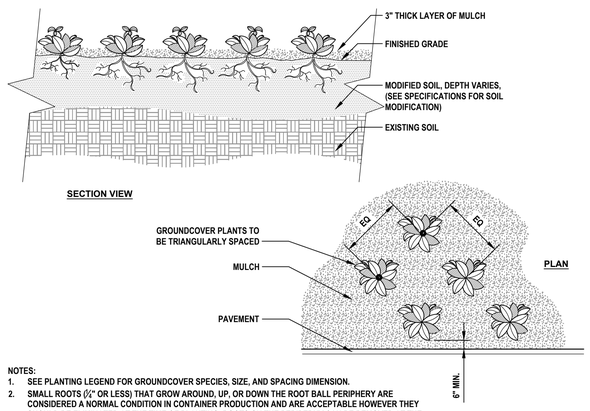

NOTES:
1. SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2. SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAN BE REMOVED AT THE TIME OF PLANTING. (SEE ROOT BALL SHAVING CONTAINER DETAIL).
3. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.

4 GROUNDCOVER LAYOUT

1/16" = 1'-0" P-CO-2024-31-02

LANDSCAPE SOIL SPECIFICATIONS

1. CONTRACTOR WILL BE RESPONSIBLE FOR ANY REQUIRED EXCAVATION AND FOR RAKING AND SMOOTHING OF GRADE. IT IS RECOMMENDED THAT LANDSCAPE CONTRACTOR COORDINATE WITH GRADING CONTRACTOR TO ESTABLISH SUBGRADES FOR PLANTING AREAS AS REQUIRED BELOW.
2. LANDSCAPE SOIL REFERS TO STOCKPILED TOPSOIL OR THE PLANTING MIXTURE AS SPECIFIED BELOW. STRUCTURAL SOIL OR FILL DIRT SHALL NOT BE USED IN PLANTED AREAS.
3. TOPSOIL SHALL BE STOCKPILED IF THE SITE CONSISTS OF NATIVE PLANT COMMUNITIES. IF NOXIOUS AND/OR INVASIVE PLANT SPECIES ARE PRESENT, TOPSOIL SHALL NOT BE STOCKPILED AND THE PLANTING MIXTURE BELOW SHALL BE USED.
4. IF STOCKPILED, THE TOPSOIL SHALL BE SALVAGED TO A DEPTH OF 4 TO 6 INCHES AND STOCKPILED NO HIGHER THAN 3 FEET IN HEIGHT.
5. TOPSOIL SHALL BE STORED FOR AS SHORT A DURATION AS POSSIBLE TO ENSURE SURVIVAL OF SEEDS AND SOIL ORGANISMS.
6. IF TOPSOIL HAS NOT BEEN STOCKPILED, PLANTING MIXTURE FOR TREES AND SHRUBS SHALL CONSIST OF 1/3 "COMPOST", 1/3 COARSE SAND, AND 1/3 EXISTING SOIL, THOROUGHLY MIXED. IF THE EXISTING SOIL IS NOT NATIVE AND FREE OF INVASIVES, THEN TOPSOIL SHALL BE IMPORTED FOR THIS COMPONENT.
7. MIXTURE FOR PALMS SHALL BE 50 PERCENT COARSE SAND AND 50 PERCENT EXISTING SOIL. MIX THOROUGHLY WITH EXISTING SOIL.
8. LANDSCAPE SOIL SHALL BE USED IN ALL PLANT BEDS CONSISTING OF SHRUBS AND GROUNDCOVER TO A DEPTH OF 6" AND MULCH TO A DEPTH OF 3".
9. LANDSCAPE SOIL SHALL BE FREE OF DEBRIS, WEEDS, PARTICLES LARGER THAN 0.50 INCHES AND RINSATE CONTAINING LIME OR TOXIC MATERIALS.
10. EXISTING SOIL SHOULD NOT BE CONTINUOUSLY EXCAVATED BENEATH THE DRIP LINE OF EXISTING TREES. IN THIS CASE, IF SHRUBS OR GROUNDCOVER ARE PROPOSED, THEY SHOULD BE PLANTED IN NATIVE SOIL WITHOUT AMENDMENT.

REFER TO LANDSCAPE DETAILS FOR MINIMUM PLANTING PIT DIMENSIONS.

EXISTING TREE NOTES

1. PRUNE ALL TREES TO REMAIN IN ACCORDANCE WITH ANSI A 300 PRUNING STANDARDS AS PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) OR A REGISTERED CONSULTING ARBORIST WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS (ASCA).
2. REMOVE ALL EXISTING MULCH AND ENSURE ONE OR TWO LARGE ROOTS ARE EXPOSED. ADD NEW MULCH TO A DEPTH OF 3" TO BED SURROUNDING TREES. KEEP MULCH 6" FROM TRUNK. DO NOT PILE MULCH AGAINST TRUNK.

LANDSCAPE NOTES

1. ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS FOR FLORIDA #1 OR BETTER AS DESCRIBED IN THE CURRENT "GRADES AND STANDARDS FOR NURSERY PLANTS", STATE OF FLORIDA, DEPARTMENT OF AGRICULTURE, TALLAHASSEE, OR THEIR EQUAL AS DETERMINED BY THE LANDSCAPE ARCHITECT. PLANT MATERIAL SHALL BE CLEARLY IDENTIFIED AS FLORIDA #1 OR BETTER ON EITHER LABELS OR INVOICES.
2. ALL PLANT SPECIFICATIONS MUST BE MET OR EXCEEDED. SIZES IN PLANT SCHEDULE ARE MINIMUMS AND EACH MUST BE MET. CONTAINERS MAY NEED TO BE UP SIZED TO MEET ALL SPECIFICATIONS.
3. ALL MULCH SHALL BE PINE BARK AND INSTALLED 3" DEEP. TREES IN SOD TO BE IN A 5' MINIMUM-MULCHED RING. ALL PALMS TO BE IN A 3' MULCH RING. MULCH TO BE INSTALLED 6" FROM TRUNK AND 2" FROM PLANTS.
4. SOD SHALL BE ST. AUGUSTINE "FLORITAM" UNLESS OTHERWISE NOTED ON THE PLAN AND SHALL BE 95% WEED-FREE. WHERE SPECIFIED, BAHIA SOD SHALL BE 85% WEED-FREE. ALL SOD SHALL BE INSTALLED WITH TIGHT JOINTS, ROLLED AND FERTILIZED. ALL UNIMPROVED AREA NOT OTHERWISE PLANTED OR MULCHED SHALL BE SODDED WITH BAHIA UNLESS OTHERWISE NOTED ON THE LANDSCAPE PLAN.
5. ALL DIMENSIONS SHALL BE FIELD-CHECKED BY THE LANDSCAPE CONTRACTOR PRIOR TO CONSTRUCTION, WITH ANY DISCREPANCIES REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT.
6. THE PLANT MATERIALS SCHEDULE IS PROVIDED FOR THE CONVENIENCE OF THE LANDSCAPE CONTRACTOR; SHOULD THERE BE ANY DISCREPANCY BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN WILL PREVAIL.
7. ALL MATERIALS MUST BE AS SPECIFIED AS ON THE LANDSCAPE PLAN. IF MATERIALS OR LABOR DO NOT ADHERE TO THE SPECIFICATIONS, THEY WILL BE REJECTED AT NO ADDITIONAL COST TO THE OWNER.
8. NO SUBSTITUTIONS OR CHANGES OF ANY KIND WILL BE ALLOWED AT THE TIME OF BIDDING SO AS TO PROVIDE FOR FAIR COMPARISON.
9. VERIFY EXISTENCE AND LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND CONDITIONS PRIOR TO HIS COMMENCEMENT OF THE ANY WORK.
10. ALL BUILDING MATERIALS AND LABOR SHALL CONFORM TO THE FLORIDA BUILDING CODE AND ALSO TO ALL LOCAL CODES THAT HAVE JURISDICTION.
11. PRIOR TO CONSTRUCTION OF PLANTING BEDS, ALL AREAS ARE TO HAVE SOIL TESTS CONDUCTED TO DETERMINE pH AND SOIL FERTILITY. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO AMEND THE SOIL TO MEET ADEQUATE FERTILITY AND pH FOR CORRESPONDING PLANT MATERIAL. ALL TEST RESULTS SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT.
12. WHERE AZALEAS, ROSES OR LOROPETALUMS ARE TO BE PLANTED, THE SOIL SHALL BE AMENDED BY REMOVING SOME OF THE NATIVE SOIL AND REPLACING WITH SOIL WITH A PH RANGE OF BETWEEN 5.5 - 6.5.
13. EQUIPMENT SHALL BE OPERATED IN A MANNER AS NOT TO INJURE OR DESTROY ANY TREES SHOWN TO REMAIN. CONTRACTOR SHALL NOT CAUSE OR ALLOW THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE DRIP LINE OF ANY TREE OR GROUPS OF TREES TO BE RETAINED OR THOSE PROPOSED. NOR SHALL THE CONTRACTOR ALLOW THE DISPOSAL OF WASTE MATERIAL, SUCH AS PAINT, OIL SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE WITHIN THE DRIP LINE OF ANY TREE OR GROUP OF TREES. NO ATTACHMENT, WIRES (OTHER THAN PROTECTIVE GUY WIRES), SIGNS, OR PERMITS MAY BE FASTENED TO A TREE.
14. ANY EXISTING TREES CREDITED TOWARDS REQUIRED BUFFERS OR LANDSCAPE REQUIREMENTS REMOVED FOR ANY REASON SHALL BE REPLACED WITH TREES MEETING CITY APPROVAL WITH REGARDS TO SPECIES AND SIZE.
15. ALL QUESTIONS CONCERNING THE PLAN AND/OR SPECIFICATIONS SHALL BE DIRECTED TO THE LANDSCAPE ARCHITECT (386) 872-7794.
16. ALL TREES AND PALMS MUST BE STAKED USING THE DETAILS PROVIDED OR ARBORGUY STAKING SYSTEMS. ANY STAKING SYSTEM NOT INCLUDED MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
17. ALL UNIMPROVED AREA NOT OTHERWISE PLANTED OR MULCHED SHALL BE SODDED WITH BAHIA UNLESS OTHERWISE NOTED ON THE LANDSCAPE PLAN.
18. THE CONTRACTOR SHALL GUARANTEE ALL INSTALLED PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE IN WRITING BY OWNER OR OWNER'S REPRESENTATIVE. ALL PLANT MATERIAL SHALL BE WATERED REGULARLY AS NEEDED UNTIL ESTABLISHED. FOR TREES, UP TO ONE YEAR AND FOR SHRUBS/GROUNDCOVER, GENERALLY 2 -3 MONTHS.
19. REMOVE ALL CONSTRUCTION DEBRIS, LIMEROCK, EXCESS OF BUILDERS SAND, CONCRETE AND MORTAR DEBRIS, EXISTING WEEDS AND GRASS, AND ALL FOREIGN MATERIALS IN THE PLANTING BED AND SOD AREAS.
20. ALL EXISTING TREES AND PALMS WILL BE PROPERLY PRUNED AND CLEANED OF DEADWOOD, BROKEN BRANCHES, DEAD FROND AND VINES AS NEEDED. ALL STRUCTURAL PRUNING OF HARDWOOD TREES SHALL BE PERFORMED UNDER THE DIRECTION OF A CERTIFIED ARBORIST.
21. ALL NOXIOUS OR EXOTIC VEGETATION THAT DETRACTS FROM THE APPEARANCE OF THE EXISTING OR PLANTED VEGETATION WITHIN THE TREE PROTECTION AREA OR BUFFERS SHALL BE REMOVED. THE EDGE OF THE AREAS TO REMAIN NATURAL SHALL BE MULCHED 5' IN AND A CURVILINEAR BED LINE SHALL BE CREATED ADJACENT TO SODDED AREAS.
22. ALL PLANTS SHALL BE INSTALLED ACCORDING TO THE FLORIDA FRIENDLY BEST MANAGEMENT PRACTICES FOR PROTECTION OF WATER RESOURCES BY THE GREEN INDUSTRIES.
30. NATURAL AREA: AREAS TO REMAIN NATURAL SHALL BE CLEANED OF ALL INVASIVE PLANT SPECIES AND UNDERBRUSH SHOULD BE REMOVED WITHIN 5' OF EDGE. PINE STRAW MULCH SHOULD BE APPLIED CREATING A CURVED BEDLINE.

PLANT SPECIFICATION NOTES

1. PLANT DESCRIPTIONS ARE FOR MINIMUM ACCEPTABLE SPECIFICATIONS. ALL CRITERIA LISTED FOR CONTAINER SIZE, CALIPER, HEIGHT, SPREAD, ETC. MUST BE MET FOR PLANT MATERIAL ACCEPTANCE. FOR EXAMPLE, IF A THREE (3) GALLON SHRUB DOES NOT MEET THE HEIGHT OR SPREAD SPECIFICATION, IT WILL NOT BE ACCEPTED.
2. IF SPECIFIED PLANTS ARE UNAVAILABLE AT THE TIME OF CONSTRUCTION, CONTRACTOR MAY REPLACE SPECIFIED PLANTS WITH PLANTS APPROVED BY LANDSCAPE ARCHITECT AND CITY STAFF.

REVISIONS

DATE	DESCRIPTION

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LANDSCAPE DETAILS AND NOTES

OFFICE AND WAREHOUSE

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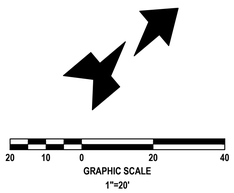


WATERING SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	SUN	MON	TUE	WED	THU	FRI	SAT	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY
1	HUNTER ICV-G-FS	SHRUB SPRAY	1.93 in/h			12 min			12 min		0.75	24	891	446
2	HUNTER ICV-G-FS	AREA FOR DRIPLINE	2.56 in/h			9 min			9 min		0.75	18	106	53.0
3	HUNTER ICV-G-FS	SHRUB SPRAY	1.77 in/h			13 min			13 min		0.75	26	1,013	506
4	HUNTER ICV-G-FS	TURF SPRAY	2.74 in/h			17 min			17 min		1.5	33	541	270
		TOTALS:				51			51			101	2,550	1,275

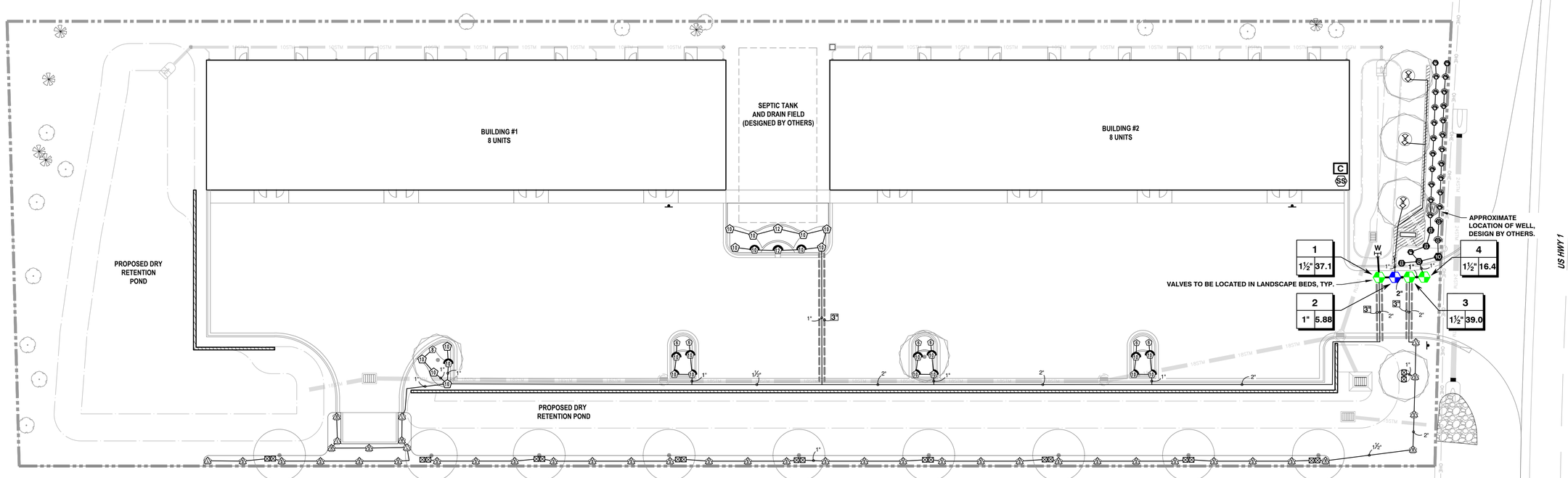
IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
2Q 2H 4Q 4H 6Q 6H	HUNTER PROS-06-PRS30-CV-F SHORT RADIUS NOZZLES	20	30
Q T H F	HUNTER PROS-06-PRS30-CV-F 8` RADIUS	2	30
3 6 8 10 12 15 17	HUNTER PROS-06-PRS30-CV-F ADJUSTABLE ARC	8	30
EST LCS RCS CST SST	HUNTER PROS-12-PRS30-CV-F 5` STRIP SPRAY	41	30
Q T H F	HUNTER PROS-12-PRS30-CV-F 10` RADIUS	15	30
Q T H TT TQ F	HUNTER PROS-12-PRS30-CV-F 12` RADIUS	1	30
8 10 12 15 17 20	HUNTER PROS-12-PRS30-CV-F ADJUSTABLE ARC	18	30
25 50 10 20	HUNTER PCB 10	20	30

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
0.5 1.0 2.0 4.0 6.0	HUNTER HE-B 10HE-B	6	20
	AREA TO RECEIVE DRIPLINE HUNTER HDL-09-12-CV (2)	389.0 L.F.	15

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	HUNTER ICV-G-FS 1", 1-1/2", 2", AND 3" PLASTIC ELECTRIC REMOTE CONTROL VALVES, GLOBE CONFIGURATION, WITH NPT THREADED INLET/OUTLET, FOR COMMERCIAL/MUNICIPAL USE. WITH FILTER SENTRY.	4
C	HUNTER I2C-0800-M (2) 8 STATION OUTDOOR MODULAR CONTROLLER. NO MODULE REQUIRED. COMMERCIAL USE. METAL CABINET.	1
SS	HUNTER SOLAR-SYNC SOLAR, RAIN FREEZE SENSOR WITH OUTDOOR INTERFACE, CONNECTS TO HUNTER PCC, PRO-C, AND I-CORE CONTROLLERS, INSTALL AS NOTED. INCLUDES 10 YEAR LITHIUM BATTERY AND RUBBER MODULE COVER, AND GUTTER MOUNT BRACKET. WIRED.	1
W	POINT OF CONNECTION 4" WELL WITH SUBMERSIBLE PUMP, SEE WELL NOTES SHEET L4	1
	IRRIGATION LATERAL LINE: PVC CLASS 160 SDR 26	1,634 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21	26.7 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40	91.4 L.F.

Valve Callout



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IRRIGATION PLAN
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CHECKED BY:	LAA
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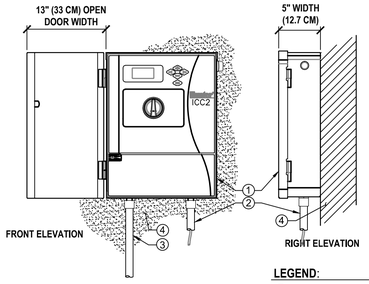
L3



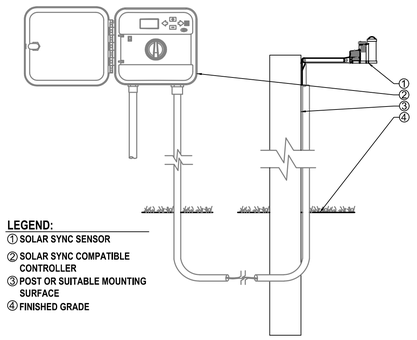
NOTE:
MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL, CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE

LEGEND:

1. IRRIGATION CONTROLLER (12C-800-M) PER PLAN
2. IRRIGATION CONTROL WIRE IN CONDUIT SIZE AND TYPE PER LOCAL CODES
3. ELECTRICAL SUPPLY CONDUIT CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER
4. ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

1 HUNTER ICC2 CONTROLLER

1/8" = 1'-0" P-CO-2024-31-21



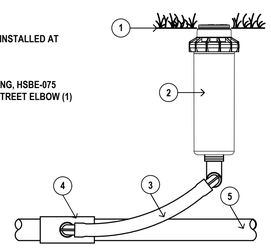
LEGEND:

1. SOLAR SYNC SENSOR
2. SOLAR SYNC COMPATIBLE CONTROLLER
3. POST OR SUITABLE MOUNTING SURFACE
4. FINISHED GRADE

2 HUNTER SOLAR SYNC SENSOR

1/8" = 1'-0" P-CO-2024-31-22

1. FINISH GRADE
2. SPRAY OR ROTOR HEAD INSTALLED AT FINISH GRADE
3. SWING JOINT: HUNTER 'PRO-FLEX' TUBING, HSBE-075 ELBOWS (2), & MARLEX STREET ELBOW (1)
4. LATERAL TEE OR ELL
5. LATERAL PIPE

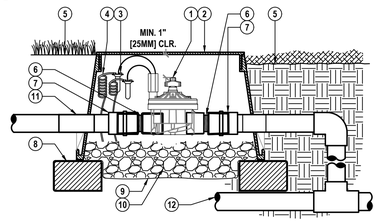


3 SPRAY HEAD AND ROTOR DETAIL

1/4" = 1'-0" P-CO-2024-31-17

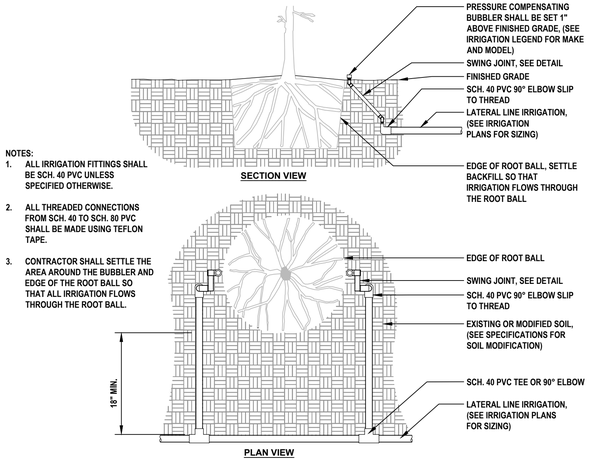
LEGEND

1. HUNTER REMOTE CONTROL VALVE (ICV) WITH FLOW CONTROL
2. IRRIGATION VALVE BOX: HEAT STAMP LID WITH 'RCV' IN 2" LETTERS
3. WATERPROOF CONNECTORS (2)
4. 18"-24" COILED WIRE TO CONTROLLER
5. FINISH GRADE AT ADJACENT SURFACE (TURF OR MULCH)
6. SCH. 80 CLOSE NIPPLE, SIZE PER RCV
7. PVC SLIP X FPT ADAPTOR
8. BRICK SUPPORTS (4)
9. FILTER FABRIC - WRAP TWICE AROUND BRICK SUPPORTS
10. 3/4" WASHED GRAVEL - 4" MIN. DEPTH
11. IRRIGATION LATERAL
12. MAINLINE AND FITTINGS



4 HUNTER REMOTE CONTROL VALVE (ICV)

1 1/2" = 1'-0" P-CO-2024-31-20



NOTES:
1. ALL IRRIGATION FITTINGS SHALL BE SCH. 40 PVC UNLESS SPECIFIED OTHERWISE.
2. ALL THREADED CONNECTIONS FROM SCH. 40 TO SCH. 80 PVC SHALL BE MADE USING TEFLON TAPE.
3. CONTRACTOR SHALL SETTLE THE AREA AROUND THE BUBBLER AND EDGE OF THE ROOT BALL SO THAT ALL IRRIGATION FLOWS THROUGH THE ROOT BALL.

5 IRRIGATION BUBBLER (2) W/ LAYOUT

3/4" = 1'-0" P-CO-2024-31-05

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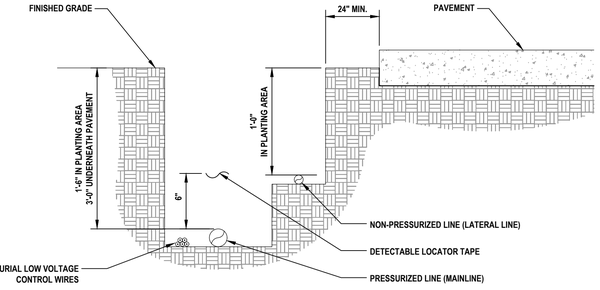

NOTES:
1. SEE IRRIGATION LEGEND FOR MAINLINE AND LATERAL LINE PIPE SIZE AND TYPE.
2. DIRECT BURIAL CONTROL WIRES SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT IF REQUIRED.
3. 2-WIRE IRRIGATION WIRE SHALL BE INSTALLED IN SCH. 40 PVC ELECTRICAL CONDUIT.
4. DETECTABLE LOCATOR TAPE SHALL BE LOCATED SIX INCHES (6") ABOVE THE ENTIRE MAINLINE RUN.

6 IRRIGATION TRENCHING

1 1/2" = 1'-0" P-CO-2024-31-15

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IRRIGATION NOTES

1. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL EXISTING UTILITIES AND CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. *CHECK PRESSURE AND GPM OF WATER SUPPLY BEFORE BEGINNING JOB AND REPORT FINDING TO LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT WILL MAKE ANY ADJUSTMENT NECESSARY TO MAKE SYSTEM WORK AT ITS BEST.*
3. THE PLAN IS SCHEMATIC ONLY. THE CONTRACTOR SHALL INSTALL PIPING IN A MINIMUM NUMBER OF TRENCHES AND SHALL INSTALL PIPE IN A MINIMUM LENGTH.
4. IRRIGATION LINES ARE SHOWN DIAGRAMMATICALLY AND ARE INTENDED TO SHOW DISTRIBUTION ZONES ONLY. LINES LOCATED UNDER PAVEMENT SHALL BE KEPT TO A MINIMUM AND ALL PIPING UNDER PAVED AREAS SHALL BE SLEEVED.
5. WHEN INSTALLING IRRIGATION PIPING IN ISLAND AND OTHER NARROW PLANTING AREAS RUN PIPING CLOSE TO CURB AND NOT DOWN THE MIDDLE OF THE PLANTING AREA. (BEFORE DOING IRRIGATION GET A COPY OF THE LANDSCAPE PLAN AND KEEP IRRIGATION LINES OUT OF PLANTING AREAS WHERE POSSIBLE.)
6. QUANTITIES FOR IRRIGATION MATERIALS MAY BE ESTIMATES. CONTRACTOR SHALL DO THEIR OWN TAKEOFF.
7. INSTALL SLEEVE PIPING WHERE SHOWN ON THE DRAWINGS AT THE PROPER DEPTH. ALL SLEEVE PIPE SHALL BE SCHEDULE 40 PVC PIPE INSTALLED A MINIMUM OF 20" BELOW FINISHED PAVING GRADES. ALL SLEEVES WHEN PLACED IN FIELD ARE TO BE LOCATED BY A METAL PIPE AT EACH END AND LOCATED FROM TWO STATIONARY POINTS BY TAPE MEASUREMENTS.
8. ALL LATERAL PIPE SHALL BE INSTALLED A MINIMUM OF 12" BELOW GRADE.
9. ALL TRENCHING SHALL BE KEPT OUT OF THE DRIP LINE AREA OF ALL EXISTING TREES. USE RADIAL LINES OR TUNNELING WHEN NECESSARY TO ENCROACH INTO THE DRIP LINE AREA OF TREES.
10. LOCATE ALL VALVES AND OTHER IRRIGATION EQUIPMENT IN PLANT BED AREAS WITHIN THE PROJECT LIMITS FOR CONCEALMENT PURPOSES.
11. RISERS ARE TO BE HIDDEN COMPLETELY IN SHRUBBERY OR PAINTED BLACK AND IN NO CASE BE HIGHER THAN THE SHRUBBERY INSTALLED.
12. ALL VALVES SHALL BE INSTALLED IN VALVE BOXES. PROVIDE A 6" GRAVEL SUMP AT THE BOTTOM OF ALL VALVE BOXES AND INSTALL 1/2" TO 1" DIAMETER GRAVEL AT THE BOTTOM OF THE VALVE PIT.
13. IRRIGATION SHALL MEET ALL APPLICABLE CURRENT MUNICIPAL, COUNTY, STATE OR FEDERAL CODES, ORDINANCES AND REGULATIONS THAT HAVE JURISDICTION.
14. THERE SHALL BE A MINIMUM OF FOUR (4) INCHES OFFSET BETWEEN THE IRRIGATION EQUIPMENT AND PAVEMENT.
15. THERE SHALL BE A MINIMUM OF TWELVE (12) INCHES BETWEEN THE IRRIGATION EQUIPMENT AND STRUCTURES.
16. THERE SHALL BE NO DIRECT SPRAY ON WALKWAYS, BUILDINGS, DRIVES OR ROADWAYS.
17. ALL TURF IRRIGATION HEADS SHALL PROVIDE 100% HEAD TO HEAD COVERAGE.
18. ALL FITTINGS SHALL BE SCHEDULE 40 PVC.
19. ALL SPRAY HEADS ARE TO BE A MINIMUM OF 6" POP-UP AND ALL HEADS IN PLANTING AREAS TO BE 12" POP-UP OR RISERS. RISERS SHALL BE PAINTED HUNTER GREEN.
20. ALL DRIP ZONES SHALL INCLUDE AN AIR RELIEF VALVE INSTALLED IN A VALVE BOX AT OPTIMAL HIGHEST POINT FROM THE CONTROL ZONE KIT. MULTIPLE AIR RELIEF VALVES MAY BE NEEDED TO ACCOMMODATE DIFFERENCES IN GRADE. ECO-INDICATOR TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT IN CLEAR VIEW WHEN POPPED UP. FLUSH POINT TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT TO ALLOW FOR MAXIMUM DEBRIS FLUSH IN SYSTEM.
21. ALL DRIP ROWS SHALL BE SPACED A MINIMUM OF 12" APART AND A MAXIMUM OF 18" APART.
22. ELECTRICAL TO CONTROLLER SHALL BE SUPPLIED BY ELECTRICAL CONTRACTOR (NOT IRRIGATION CONTRACTOR).
23. TREE PROTECTION AREA. HAND TRENCH ALL PIPING IN THESE AREAS TO AVOID IMPACTING THE CRITICAL PROTECTION ZONE OF THE EXISTING TREES TO REMAIN (TYP).
24. CONTRACTOR TO PROVIDE CONTROLLER HANDBOOK AND OPERATION INSTRUCTIONS, AS-BUILT ZONE DIAGRAM, INCLUDING LOCATIONS AND SIZE OF COMPONENTS, AND SOLID MOISTURE SENSOR PROBE LOCATION IF APPLICABLE, PRECIPITATION RATES FOR EACH ZONE, AND SCHEDULE RUN TIMES, WINTER AND SUMMER TO THE OWNER.

PLANT ESTABLISHMENT

1. IRRIGATE EVERY DAY FOR ONE MONTH.
2. IRRIGATE EVERY OTHER DAY FOR ONE ADDITIONAL MONTH.
3. IRRIGATE TWICE A WEEK THEREAFTER OR MORE OFTEN DURING DRY PERIODS IF PLANTS ARE SHOWING SIGNS OF DISTRESS SUCH AS WILTING OR BROWNING.
4. ENSURE RAIN SENSOR IS OPERATING CORRECTLY AND SYSTEM IS NOT WATERING ON DAYS WHEN IT RAINS.

WELL & PUMP NOTE

1. PUMP SPECIFICATIONS:

   PUMP MUST PROVIDE A MINIMUM OF 50 GALLONS PER MINUTE @ 55 PSI AT HEAD.

2. THE WELL SHALL BE CAPABLE OF PROVIDING REQUIRED WATER QUANTITY WITH FOLLOWING WATER QUALITY:
   - A. AT THE REQUIRED FLOW WATER SHALL BE CLEAR AND FREE OF SAND AND OTHER DEBRIS LARGER THAN .030" IN DIAMETER.
   - B. WATER SHALL BE CONSIDERED SAND FREE WHEN NO SAMPLE, TAKEN DURING TEST PUMPING, CONTAINS MORE THAN 2 PARTS PER MILLION OF SUSPENDED SOLID WEIGHT.
   - C. MAXIMUM IRON ALLOWED IN THE WELL WATER SHALL BE LESS THAN 0.3 PARTS PER MILLION.
   - D. MAXIMUM SALT CONTENT SHALL BE LESS THAN 300 PARTS PER MILLION.

REVISIONS

DATE	DESCRIPTION

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IRRIGATION DETAILS AND NOTES

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CHECKED BY:	LAA
SCALE:	AS SHOWN

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L4

STORMWATER REPORT

OFFICE AND WAREHOUSE

9100 US HIGHWAY 1, BUNNELL, FL 32110

August 2024

Civil Engineering—Transportation—CEI
1230 North US Highway 1, Suite 3
Ormond Beach, FL 32174
(386) 872-7794
www.Newkirk-Engineering.com

08/23/2024 11:59 am IP:[75.49.161.169] Packet No: 9942

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Newkirk Engineering Inc., a corporation authorized as an engineering business, Certificate of Authorization No. 30209, by the State of Florida, Department of Professional Regulation and Board of Professional Engineers. I have reviewed or approved the evaluation, findings, opinions, and conclusions as reported for:

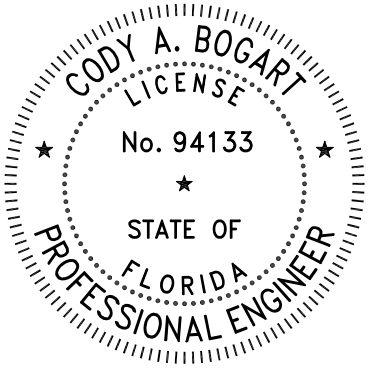
Project: **Office and Warehouse**

Location: **9100 US Highway 1, Bunnell, FL 32110**

Client: **D Industries LLC**

I acknowledge that the procedures and references used to develop the results are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state and local regulatory agencies as well as professional judgment and experience.

This report has been digitally signed and sealed by Cody A. Bogart, PE #94133 on



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Name: Cody A. Bogart, PE
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Address: 1230 North US Highway 1
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Ormond Beach, FL 32174

TABLE OF CONTENTS

INTRODUCTION

This is a proposed development of an office and warehouse in Bunnell, FL. The project is located at 9100 US Highway 1. The existing site is vacant, forested land and is located within Section 22, Township 13 South, Range 31 East. See **Appendix A** for site location and aerial map.

Propose to construct a storm drain collection system and a dry retention pond system to provide water quality and attenuation for the proposed site. The proposed project areas for permitting consist of a total area of 2.162 acres with the stormwater system treating 2.061 acres, of which 1.159 acres are impervious surface. See **Appendix B** and **C** for more calculations and maps.

PROJECT SITE DESCRIPTION

Outfall

The stormwater system is proposed to collect site runoff in dry retention ponds that percolate to the groundwater and discharge to the FDOT right-of-way (US-1).

Soils

The predominant soil on the project site is 19, Valkaria Fine Sand, 0-2% slopes.

Type A soils were used in the post development analysis. See **Appendix A** for soils map. The seasonal high-groundwater table of the site was estimated to be at elevation 24.5’ based on the boring logs provided in the Universal Engineering Services geotechnical report No. 2094785 dated July 29, 2024. Permeability values were calculated using the average of values provided by the Universal Engineering Services report and used in calculations.

Flood Zone

The site is in Flood Zone X, per FEMA Map Panel No. 12035C0335E eff. 6/6/2018. See **Appendix A** for flood map.

EXISTING STORMWATER SYSTEM

Pre-development conditions were modeled as two basins draining to the Northeast and Southwest sides of the property through sheet and overland flow. The existing site consists of forested space and no impervious surface. The off-site discharge points considered in the rate/runoff comparison are OFF-1 and OFF-2. See *PRE vs. POST DEVELOPMENT DISCHARGE RESULTS SUMMARY* on page 6 of this narrative for the comparison of Pre and Post analyses. See **Appendix B** for Pre Basin calculations and modeling.

PRE-1 Drainage Basin

PRE-1 totals 0.101 acres with 100% open green space and a Time of Concentration of 2.2 minutes (10 minutes used in modeling). This small TC is attributed to the small length traveled from the top of a 8-foot-high berm to the offsite ditch. Discharge is to the Southwest side of the property. Elevations vary from 33.0’ to 24.0’.

PRE-2 Drainage Basin

PRE-2 totals 2.061 acres with 100% open green space and a Time of Concentration of 11.9 minutes. Discharge is to the Northeast side of the property and into the FDOT Right-of-Way (US 1). Elevations vary from 33.0' to 23.1'.

ICPR Variables of Pre-Development System

Variables seen in the ICPR report in **Appendix B** are:

- Unit Hydrograph 256
- Mean Annual, 25-year, and 100-year, 24-hour storm events
- 4.8", 8.52" and 11.64" were used in the storm events above, respectively

PROPOSED STORMWATER SYSTEM

Post-development conditions were modeled as two basins. Two dry retention ponds are proposed to provide the required treatment and attenuation volumes for the site. The off-site discharge points considered in the rate/runoff comparison are OFF-1 (same as pre-development) and OFF-2 (FDOT Right-of-Way). See *PRE vs. POST DEVELOPMENT DISCHARGE RESULTS SUMMARY* on page 6 of this narrative for the comparison of Pre and Post analyses. See **Appendix C** for Post Basin calculations and modeling.

PRE-1 Drainage Basin

PRE-1 is undisturbed from pre-development conditions. PRE-1 totals 0.101 acres with 0% impervious surface. Discharge remains the same as existing conditions and flows to the Southwest side of the property. Elevations vary from 33.0' to 24.0'.

POST-2 Drainage Basin

POST-2 consists of the same area as PRE-2 with development proposed. POST-2 totals 2.061 acres with 56.2% impervious surface. Water is directed into the dry retention ponds through pavement grades, curbing and stormwater pipes. Water is then directed to the retention pond on the East side of the basin. The required treatment volume is 0.211 ac-ft and is at elevation 26.61. The control structure (CS-01) discharges water from the retention pond to the Northeast side of the property and has a weir invert of 27.17, providing 0.346 ac-ft of treatment before discharging into the FDOT Right-of-Way (OFF-2).

ICPR Variables of Post-Development System

Variables seen in the ICPR report in **Appendix C** are:

- Unit Hydrograph 256
- Mean Annual, 25-year, and 100-year, 24-hour storm events
- 4.8", 8.52" and 11.64" were used in the storm events above, respectively
- Pond Stage-Area nodes based on contour lines shown for the ponds
- Drop Structure link dimensions are based on FDOT Index for a Types E structure.

WATER QUALITY

Water Quality Treatment volume is provided for the post-development basin using dry retention pond pursuant to the requirements of SJRWMD as outlined in Chapter 40C-4 and pursuant to the Flagler County requirements. This project discharges to the FDOT right-of-way, and an unnamed ditch in the rear of the property. The Parker Canal is the governing water body. The dry retention ponds are designed to provide SJRWMD Treatment or full OFW/BMP treatment. Specifically, the surface water management system is designed using the following requirements:

1. The minimum roadway elevation is designed to be above the peak stage in the retention pond for the 100-year, 24-hour storm event.
2. The post-development total peak rate of discharge cannot exceed the pre-development total peak rate of discharge in any storm event
3. The minimum finished floor elevation is designed to be 1-foot above the peak stage of the retention pond for the 100-year/24-hour storm event.
4. The minimum finished floor elevation for lots are at least 12-inches above the crown of road.

EROSION AND SEDIMENT CONTROL PLANS

All pervious surfaces will be planted with trees, shrubs and sodded solid to prevent erosion. All pond slopes and other pervious areas of the property will be sodded solid or seeded and mulched to prevent erosion. A temporary gravel construction entrance will be provided to prevent fines and sands from leaving the site and contaminating adjacent roadways. Silt fence will be installed around the entire site and around inlets during construction to retain sediment on-site and assure that any discharges from the site do not cause or contribute to a violation of state water quality standards.

MAINTENANCE AND OPERATION

The property owner will inherit the operation and maintenance of the stormwater system. Stormwater pipes and structures that fall within FDOT rights-of-way shall be installed under the jurisdiction of a Temporary Construction Easement that is obtained when the FDOT awards their permit. The FDOT will maintain all drainage components installed in their Right-of-Way.

ASSUMPTIONS AND REFERENCES USED

A. S.C.S. Unit Hydrograph Method
B. SCS III Rainfall Distribution
C. StormWise v 4.08.03 Computer Software for Flood Routing
D. Universal Engineering Services Geotechnical Report
E. Myer Land Surveying, Inc. Surveys
F. FEMA Online Mapping Products
G. Other references and assumptions listed in the drainage calculations.

DISCHARGE RESULTS SUMAMRY

Appendix E is a summary table displaying the pre-development runoff rates and volumes compared to the post-development runoff rates and volumes based on each storm event. The following conclusions can be made based on the results:

- The Stormwater System is designed to provide Net Improvement for discharge rate and volume.
- The Dry Retention Areas are designed to recover their treatment volumes in 36 hours after a storm event with implementing a 2.0 factor of safety for soil conductivity rates.
- There is no change in runoff rates or volume for the OFF-1 and OFF-2 nodes.
- The calculations indicate that the proposed stormwater treatment system meets the requirements for pollution abatement volume per St. Johns River Water Management, Florida Department of Environmental Protection and Flagler County Land Development Code and Florida Department of Transportation.

PERMITTED RUNOFF			OFF-1		OFF-2		Total	
Design Storm		Rainfall (inches)	Charge Rate (cfs)	Inflow Volume (ft^3)	Charge Rate (cfs)	Inflow Volume (ft^3)	Charge Rate (cfs)	Inflow Volume (ft^3)
Mean Annual, 24-Hour	PRE	4.80	0.00	58	0.04	1,186	0.04	1,244
25 Year, 24-Hour	PRE	8.52	0.07	502	1.28	10,241	1.35	10,743
100 Year, 24-Hour	PRE	11.64	0.19	1,092	3.51	22,262	3.70	23,354

PROPOSED - DISCHARGE			OFF-1		OFF-2		Total		STAGE
Design Storm		Rainfall (inches)	Inflow Rate (cfs)	Inflow Volume (ft^3)	Inflow Rate (cfs)	Inflow Volume (ft^3)	Inflow Rate (cfs)	Inflow Volume (ft^3)	DRY RET
Mean Annual, 24-Hour	POST	4.80	0.00	58	0.00	0	0.00	58	26.79
25 Year, 24-Hour	POST	8.52	0.07	503	0.28	5,732	0.35	6,235	27.70
100 Year, 24-Hour	POST	11.64	0.19	1,092	3.22	21,816	3.41	22,908	28.08
								TOB	**28.10**

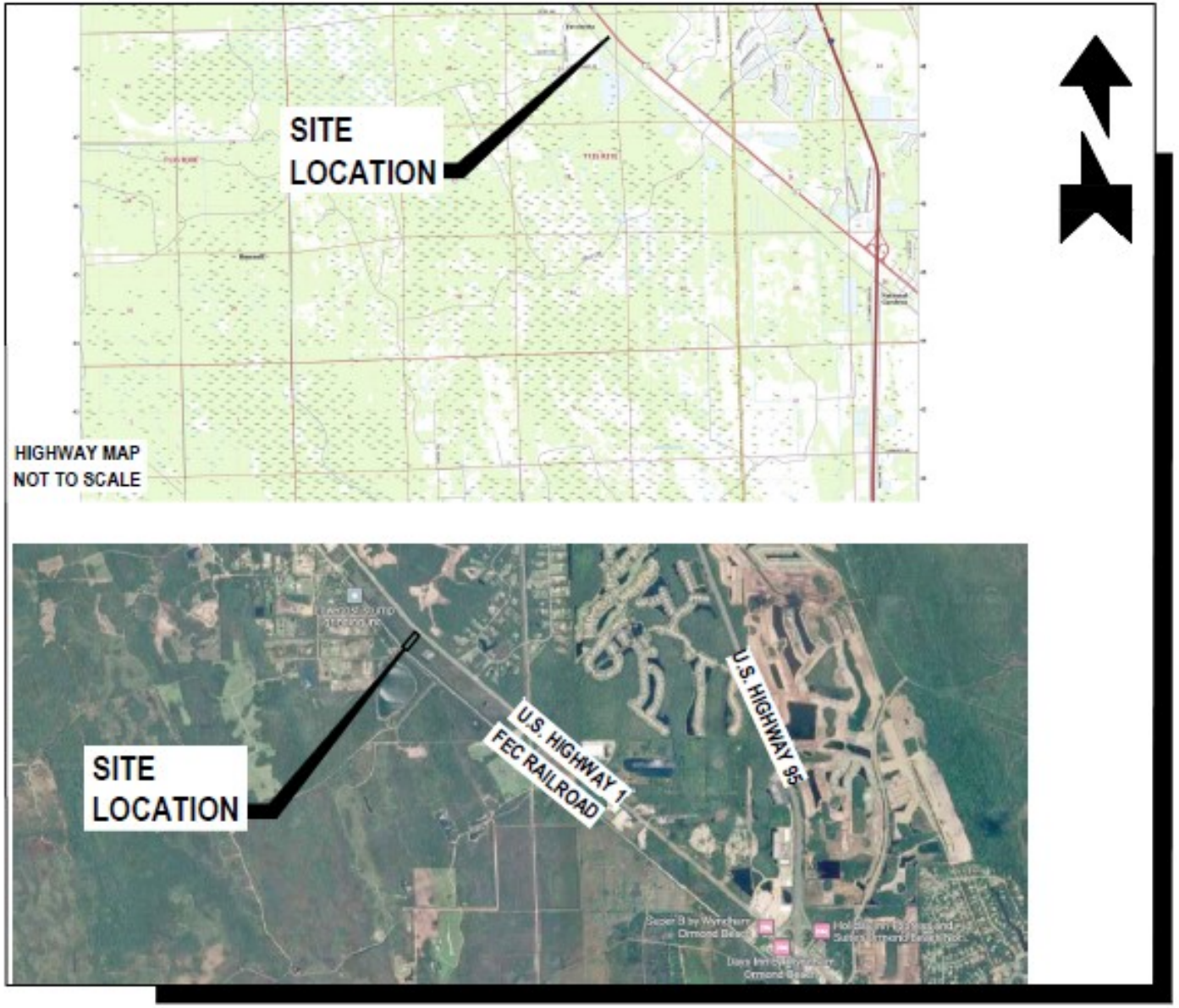
RECOVERY		
	UNITS	**DRY POND**
REQ. TREATMENT VOL.	AC-FT	0.346
REQ. TREATMENT EL	FT	26.61
RECOVERY TIME	HRS	19

APPENDIX A

“MAPS”

AERIAL MAP

SCALE: 1" = 1,000'



LOCATION MAP

SCALE: 1" = 4,600'

FLOOD ZONE MAP

FLOOD ZONE "X" PER FEMA MAP PANEL No. 12035C0335E, DATED JUNE 6, 2018

SCALE: 1" = 600'

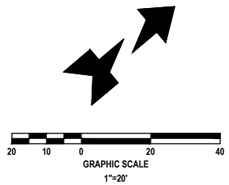
SOILS MAP

SOIL TYPES:
(19) VALKARIA FINE SAND, 0 TO 2 PERCENT SLOPES

SCALE: 1" = 250'

APPENDIX B

“PRE-DEVELOPMENT CALCULATIONS”



LEGEND

- BASIN LINE
- PARCEL LINE
- TOC

PRE-1 BASIN
0.101 ACRES
CN = 39.00
TC = 10.0 MIN

PRE-2 BASIN
2.061 ACRES
CN = 39.00
TC = 11.9 MIN

US HIGHWAY 1

REVISIONS	
DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering,
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

PRE DEVELOPMENT BASIN MAP
OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
BUNNELL, FL 32110

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LICENSE
No. 94133
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	MAH
CHECKED BY:	HHN
SCALE:	1" = 20'

DRAWING NUMBER

PRE

NEWKIRK ENGINEERING, INC.

CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

PRE-DEVELOPMENT

TIME OF CONCENTRATION CALCULATIONS

BASIN: PRE-1

Sheet Flow

Tt = Travel time (min)				
s = slope	s =	0.14430	ft/ft	$s = \frac{EL_2 - EL_1}{L}$
L = Flow length (ft)	L =	55.44	ft	
n = Manning's Roughness Coefficient	n =	0.15	Grass, Short	
P2 = 2-year/24-hour rainfall (in)	P2 =	5	in	
	EL 2 =	32.00	Upsteam Invert	
	EL 1 =	24.00	Downstream Invert	
	Tt =	**2.2**	**min**	$Tt = \frac{(.0007(nL)^{0.8}(60))}{(\sqrt{P2} * s^{0.4})}$

Overland Flow

Tt = Travel time (min)				
s = slope	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	$V_{Paved} = 20.3282s^{.5}$
V = Velocity (ft/s)	V =	0.00	ft/s Unpaved	
	EL 2 =		Upsteam Invert	
	EL 1 =		Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$

Open Channel Flow

Tt = Travel time (min)				
s = slope (ft/ft)	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	
n = Manning's Roughness Coefficient	n =	0	0	
a = Area	a =	0	sf	
p = Wetted perimeter	p =	0	ft	
R = Hydraulic radius (a/p)	R =	0.00	ft	
V = Velocity (ft/s)	V =	0.00	ft/s	$V = \frac{1.486\, R^{\frac{2}{3}} s^{.5}}{n}$
	EL 2 =	0.0	Upsteam Invert	
	EL 1 =	0.0	Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$
	Tc =	**2.2**	**min**	***Use 10 min**

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BASIN: PRE-2

Sheet Flow

Tt = Travel time (min)				
s = slope	s =	0.06300	ft/ft	$s = \frac{EL_2 - EL_1}{L}$
L = Flow length (ft)	L =	100	ft	
n = Manning's Roughness Coefficient	n =	0.15	Grass, Short	
P2 = 2-year/24-hour rainfall (in)	P2 =	5	in	
	EL 2 =	32.00	Upsteam Invert	
	EL 1 =	25.70	Downstream Invert	
	Tt =	**5.0**	**min**	$Tt = \frac{(.0007(nL)^{0.8}(60))}{(\sqrt{P2} * s^{0.4})}$

Overland Flow

Tt = Travel time (min)				
s = slope	s =	0.00532	ft/ft	$V_{Paved} = 20.3282s^{.5}$
L = Flow length (ft)	L =	488.78	ft	$V_{Unpaved} = 16.1345s^{.5}$
V = Velocity (ft/s)	V =	1.18	ft/s Unpaved	
	EL 2 =	25.70	Upsteam Invert	
	EL 1 =	23.10	Downstream Invert	
	Tt =	**6.9**	**min**	$Tt = \frac{L}{60V}$

Open Channel Flow

$V = \frac{1.486\, R^{\frac{2}{3}} s^{.5}}{n}$

Tt = Travel time (min)				
s = slope (ft/ft)	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	
n = Manning's Roughness Coefficient	n =	0	0	
a = Area	a =	0	sf	
p = Wetted perimeter	p =	0	ft	
R = Hydraulic radius (a/p)	R =		ft	
V = Velocity (ft/s)	V =	0.00	ft/s	
	EL 2 =	0.0	Upsteam Invert	
	EL 1 =	0.0	Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$
	Tc =	**11.9**	**min**	

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PRE-DEVELOPMENT HYDROGRAPH WORKSHEET

BASIN NAME	BASIN ACRES	PERVIOUS		DCIA IMPERVIOUS		NON DCIA IMPERVIOUS		WET POND NWL		WETLAND		COMPOSITE CN	NON DCIA CN
		ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN		
PRE-1	0.101	0.101	39.00	0	98.0	0.000	0.0	0	100.0	0.0	93.0	39.00	39.00
PRE-2	2.061	2.061	39.00	0	98.0	0.0	0.0	0	100.0	0.0	93.0	39.00	39.00
TOTAL	2.162	2.162	39.00	0.000	98.0	0.000	0.0	0	100.0	0.000	93.0	39.00	39.00

PRE-DEVELOPMENT

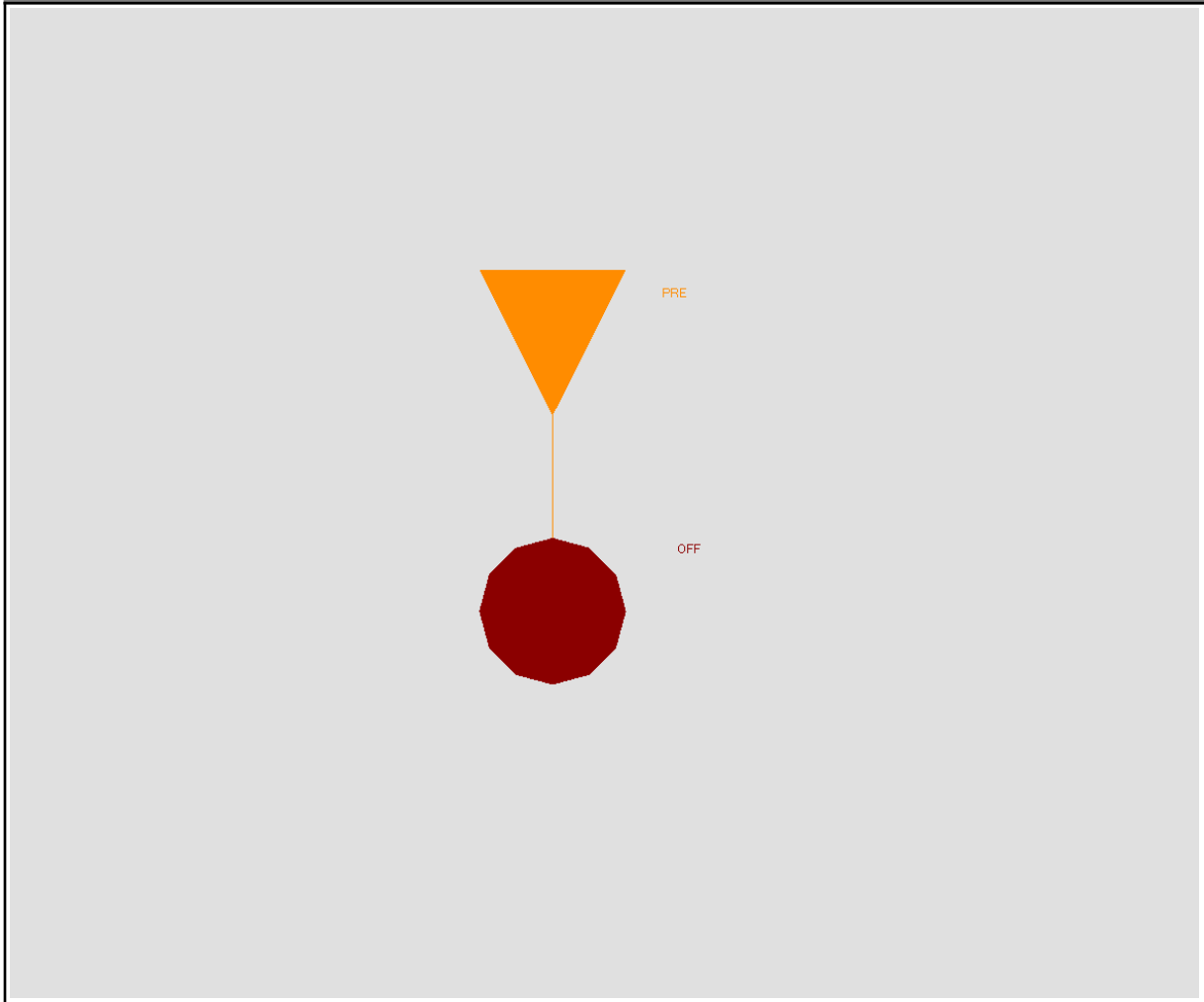
BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
PRE-1	19 Valkaria Fine Sand, 0-2% slopes	URBAN OPEN SPACE	GOOD	A	0.101	39
				TOTAL	0.101	39.00

PRE-DEVELOPMENT

BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
PRE-2	19 Valkaria Fine Sand, 0-2% slopes	URBAN OPEN SPACE	GOOD	A	2.1	39
				TOTAL	2.061	39.00

SOURCES: SCS SOILS SURVEY FOR VOLUSIA COUNTY, FLORIDA
SCS TR 55, Agricultural Lands, Woods

Background Image: PRE



Simple Basin: PRE-1

Scenario:	Scenario1
Node:	OFF-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.1010 ac
Curve Number:	39.0
Ia/S:	0.00

% Impervious: 0.00
% DCIA: 0.00
% Direct: 0.00
Rainfall Name:

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
PRE-1	01_MA_24H	0.00	13.5333	4.80	0.16	0.1010
PRE-1	02_25Y_24H	0.07	12.0833	8.52	1.37	0.1010
PRE-1	03_100Y_24H	0.19	12.0667	11.64	2.98	0.1010

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Runoff	Change Soil Storage
PRE-1 [in]	01_MA_24H	4.80	0.16	4.64
PRE-1 [ft3]	01_MA_24H	1760	58	1702
PRE-1 [ac-ft]	01_MA_24H	0.04	0.00	0.04
PRE-1 [in]	02_25Y_24H	8.52	1.37	7.15
PRE-1 [ft3]	02_25Y_24H	3124	503	2621
PRE-1 [ac-ft]	02_25Y_24H	0.07	0.01	0.06
PRE-1 [in]	03_100Y_24H	11.64	2.98	8.66
PRE-1 [ft3]	03_100Y_24H	4268	1092	3175
PRE-1 [ac-ft]	03_100Y_24H	0.10	0.03	0.07

Simple Basin: PRE-2

Scenario: Scenario1
Node: OFF-2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 11.9000 min
Max Allowable Q: 0.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 2.0610 ac
Curve Number: 39.0
Ia/S: 0.00
% Impervious: 0.00
% DCIA: 0.00
% Direct: 0.00

Rainfall Name:

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
PRE-2	01_MA_24H	0.04	13.5500	4.80	0.16	2.0610
PRE-2	02_25Y_24H	1.28	12.2833	8.52	1.37	2.0610
PRE-2	03_100Y_24H	3.51	12.1000	11.64	2.98	2.0610

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Runoff	Change Soil Storage
PRE-2 [in]	01_MA_24H	4.80	0.16	4.64
PRE-2 [ft3]	01_MA_24H	35911	1187	34724
PRE-2 [ac-ft]	01_MA_24H	0.82	0.03	0.80
PRE-2 [in]	02_25Y_24H	8.52	1.37	7.15
PRE-2 [ft3]	02_25Y_24H	63742	10245	53496
PRE-2 [ac-ft]	02_25Y_24H	1.46	0.24	1.23
PRE-2 [in]	03_100Y_24H	11.64	2.98	8.66
PRE-2 [ft3]	03_100Y_24H	87084	22269	64815
PRE-2 [ac-ft]	03_100Y_24H	2.00	0.51	1.49

Node: OFF-1

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 24.00 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-1	01_MA_24H	0.00	0.00	24.00	0.0000	0.00	0.00	0

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-1	02_25Y_24H	0.00	0.00	24.00	0.0000	0.07	0.00	0
OFF-1	03_100Y_24H	0.00	0.00	24.00	0.0000	0.19	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-1	01_MA_24H	58	0	58
OFF-1	02_25Y_24H	502	0	502
OFF-1	03_100Y_24H	1092	0	1092

Node: OFF-2

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 23.10 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-2	01_MA_24H	0.00	0.00	23.10	0.0000	0.04	0.00	0
OFF-2	02_25Y_24H	0.00	0.00	23.10	0.0000	1.28	0.00	0
OFF-2	03_100Y_24H	0.00	0.00	23.10	0.0000	3.51	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-2	01_MA_24H	1186	0	1186
OFF-2	02_25Y_24H	10241	0	10241
OFF-2	03_100Y_24H	22262	0	22262

Simulation: 01_MA_24H

Scenario: Scenario1
Run Date/Time: 8/1/2024 3:54:23 PM
Program Version: StormWise 4.08.02

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Lookup Tables

Boundary Stage Set:

Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	OF Region Rain Opt:	Global
		Rainfall Name:	~FLMOD
Edge Length Option:	Automatic	Rainfall Amount:	4.80 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 02_25Y_24H

Scenario:	Scenario1
Run Date/Time:	8/1/2024 3:54:23 PM
Program Version:	StormWise 4.08.02

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000

Max Calculation Time: 30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 8.52 in

		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 03_100Y_24H

Scenario: Scenario1
Run Date/Time: 8/1/2024 3:54:23 PM
Program Version: StormWise 4.08.02

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

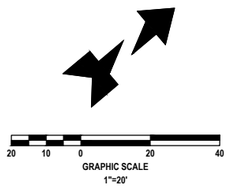
Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	OF Region Rain Opt:	Global
		Rainfall Name:	~FLMOD
Edge Length Option:	Automatic	Rainfall Amount:	11.64 in
		Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

APPENDIX C

“POST-DEVELOPMENT CALCULATIONS”



LEGEND

BASIN LINE

PARCEL LINE

PRE-1 BASIN

0.101 ACRES

CN = 39.00

TC = 10.0 MIN

POST-2 BASIN

2.061 ACRES

CN = 72.17

TC = 10.0 MIN

GRADE GRASS AREA TO FLOW OUT 2' WIDE CURB NOTCH. SEE DETAIL THIS SHEET

DRY RETENTION POND
TOB EL 28.10
BOT EL 25.50

92 LF OF SEGMENTAL BLOCK RETAINING WALL
TOP WALL EL 28.17
BOTTOM WALL EL 24.50
SEE DETAIL SHEET 12-13

WALL #1
375 LF OF SEGMENTAL BLOCK RETAINING WALL
TOP WALL EL 28.17
BOTTOM WALL EL 24.50
SEE DETAIL SHEET 12-13

CS-01
CONTROL STRUCTURE
SEE ICPR RESULTS REPORT FOR DESIGN PARAMETERS

240 SF OF RIP-RAP RUBBLE PER SECTION 530 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FY 24-25

US HIGHWAY 1

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering,
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

POST DEVELOPMENT BASIN MAP

OFFICE AND WAREHOUSE

9100 US HIGHWAY 1
BUNNELL, FL 32110

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No. 94133
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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PROJECT No:	2024-31
DATE:	AUGUST 2024
DESIGN BY:	CAB
DRAWN BY:	MAH
CHECKED BY:	HHN
SCALE:	1" = 20'

DRAWING NUMBER

POST

POST-DEVELOPMENT CALCULATIONS

BASIN	BASIN ACRES	PERVIOUS		DCIA IMPERVIOUS		NON DCIA IMPERVIOUS		WET POND NWL / WETLAND		COMPOSITE CN	NON DCIA CN
		ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN		
POST-1	0.101	0.101	39.00	0	98.00	0.000	98.00	0.000	100.00	39.00	39.00
POST-2	2.061	0.902	39.00	0.000	98.00	1.159	98.00	0.000	100.00	72.17	72.17
TOTAL	2.162	1.004	39.00	0.000	98.00	1.159	98.00	0.000	100.00	70.61	70.61

POST-DEVELOPMENT

BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
POST-1	19 Valkaria Fine Sand, 0-2% slopes	URBAN OPEN SPACE	GOOD	A	0.101	39.00
				TOTAL	0.101	0.00

DCIA IMP	DIRECT	IMP
%	%	%
0.0%	0.0%	0.0%

BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
POST-2	19 Valkaria Fine Sand, 0-2% slopes	URBAN OPEN SPACE	GOOD	A	2.061	39.00
				TOTAL	2.061	0.00

DCIA IMP	DIRECT	IMP
%	%	%
0.0%	0.0%	56.2%

Treatment Volume Calculations: Dry Retention			
SJRWMD	**Dry Retention Pond**		
A. 0.5"	of runoff over drainage basin		**0.090 Ac-Ft**
B. Impervious area x	1.25"	(excluding pond)	**0.121 Ac-Ft**
C. + Additional 0.5" for online system (Max of A or B + A)			**0.211 Ac-Ft**
D. + Additional 50% for OFW			**Ac-Ft**
E. Total Required Treatment Volume for SJRWMD			**0.211 Ac-Ft**
F. Total Provided Treatment Volume			**0.346 Ac-Ft**

Post Dry Retention Pond 1

Stage (MSL)	Area (SF)	Area (Ac)	Volume Ac-Ft	Volume Above EL 25.50	Treatment Depth = Treatment Volume / Basin Area
				Treament Depth (in) =	1.918
25.50	6,165	0.1415	0.000	(0.000)	Bottom of Pond
26.00	7,709	0.177	0.080	0.080	
27.00	11,048	0.254	0.295	0.295	
28.00	14,902	0.342	0.593	0.593	Top of Bank
28.10	15,404	0.354	0.628	0.628	

Treatment Vol Elevation (Ft)
27.17
Treatment Vol
0.346

POND BORING ANALYSIS

Boring	Boring Top Elevation (ft)	Depth to Water (ft)	Seasonal High Water Elevation (ft)
B-1	25.0	2.0	24.0
B-2	25.1	2.0	24.1
B-3	25.2	2.0	24.2
B-4	25.5	2.0	24.5
R-1	25.1	2.0	24.1
R-2	25.6	2.0	24.6
P-1	25.2	1.6	24.6
P-2	25.3	1.6	24.7
P-3	27.0	2.0	26.0
Average	25.4	1.9	24.5

Test Location	Vertical Percolation (ft/day)	Horizontal Percolation (ft/day)	Aquifer Base (EL)
P-1	8.79	17.27	15.3
P-2	5.25	10.81	15.5
P-3	6.24	12.30	17.5
Average	6.76	13.46	16.1
FOS = 2.0	3.38	6.73	

Soil Porosity 25%

*Factor of Safety of 2.0 used in calculations

P-1		
Soil Layer	**Thickness of Soil Layer (ft)**	**Vertical Perm. Rate of Soil Layer (ft/day)**
Layer 1 - Import	1.20	7.0
Layer 2	1.5	9.3
Layer 3	4.5	7.4
Layer 4	1.5	15.3
Layer 5	1.5	7.4
Layer 6		
Layer 7		
Layer 8		

Weighted Vertical Permeability (ft/day): 8.79

Vertical Permeability with a Safety Factor of 2.0 (ft/day): 4.40

P-1

Soil Layer	**Thickness of Soil Layer (ft)**	**Horizontal Perm. Coefficient****	**Horizontal Perm Rate (ft/day)**
Layer 1 - Import	2.2	2.0	14.0
Layer 2	1.5	2.0	18.6
Layer 3	4.5	2.0	14.80
Layer 4	1.5	2.0	30.6
Layer 5	1.5	2.0	14.8
Layer 6			
Layer 7			
Layer 8			

Weighted Horizontal Permeability (ft/day): 17.27

Horizontal Permeability with a Safety Factor of 2.0 (ft/day): 8.63

P-2		
Soil Layer	**Thickness of Soil Layer (ft)**	**Vertical Perm. Rate of Soil Layer (ft/day)**
Layer 1	1.00	7.0
Layer 2	1.5	15.1
Layer 3	1.5	3.8
Layer 4	3.0	3.8
Layer 5	1.5	3.8
Layer 6	1.5	5.3
Layer 7		
Layer 8		

Weighted Vertical Permeability (ft/day): 5.25

Vertical Permeability with a Safety Factor of 2.0 (ft/day): 2.62

P-2

Soil Layer	Thickness of Soil Layer (ft)	Horizontal Perm. Coefficient**	Vertical Perm Rate (ft/day)	Horizontal Perm Rate (ft/day)
Layer 1	2.0	2.00	7.0	14.0
Layer 2	1.5	2.00	15.1	30.2
Layer 3	1.5	2.00	3.8	7.6
Layer 4	3.0	2.00	3.8	7.6
Layer 5	1.5	2.0	3.8	7.6
Layer 6	1.5	2.0	5.3	10.6
Layer 7				
Layer 8				

Weighted Horizontal Permeability (ft/day): 10.81

Horizontal Permeability with a Safety Factor of 2.0 (ft/day): 5.40

P-3

Soil Layer	Thickness of Soil Layer (ft)	Vertical Perm. Rate of Soil Layer (ft/day)
Layer 1	4.00	5.3
Layer 2 - Import	5.0	7.0
Layer 3		
Layer 4		
Layer 5		
Layer 6		
Layer 7		
Layer 8		

Weighted Vertical Permeability (ft/day): 6.24

Vertical Permeability with a Safety Factor of 2.0 (ft/day): 3.12

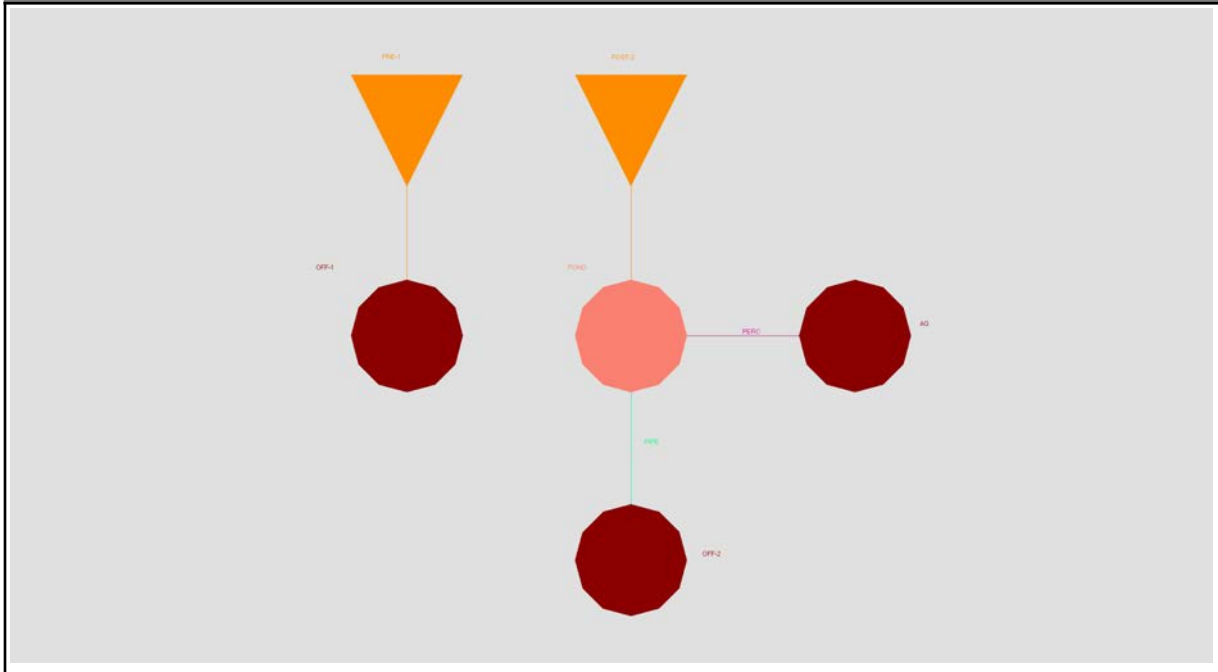
P-3

Soil Layer	Thickness of Soil Layer (ft)	Horizontal Perm. Coefficient**	Horizontal Perm Rate (ft/day)
Layer 1	5.0	2.0	10.6
Layer 2 - Import	5.0	2.0	14.0
Layer 3			
Layer 4			
Layer 5			
Layer 6			
Layer 7			
Layer 8			

Weighted Horizontal Permeability (ft/day): 12.30

Horizontal Permeability with a Safety Factor of 2.0 (ft/day): 6.15

Background Image: post



Simple Basin: POST-2

Scenario:	Scenario1
Node:	POND
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	2.0610 ac
Curve Number:	39.0
Ia/S:	0.00
% Impervious:	56.20
% DCIA:	56.20
% Direct:	6.80
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
POST-2	01_MA_24H	3.76	12.0000	4.80	3.07	2.0610
POST-2	02_25Y_24H	7.07	12.0000	8.52	5.86	2.0610
POST-2	03_100Y_24H	10.36	12.0000	11.64	8.41	2.0610

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Runoff	Change Soil Storage
POST-2 [in]	01_MA_24H	4.80	3.07	1.73
POST-2 [ft3]	01_MA_24H	35911	22990	12921
POST-2 [ac-ft]	01_MA_24H	0.82	0.53	0.30
POST-2 [in]	02_25Y_24H	8.52	5.86	2.66
POST-2 [ft3]	02_25Y_24H	63742	43821	19921
POST-2 [ac-ft]	02_25Y_24H	1.46	1.01	0.46
POST-2 [in]	03_100Y_24H	11.64	8.41	3.23
POST-2 [ft3]	03_100Y_24H	87084	62930	24154
POST-2 [ac-ft]	03_100Y_24H	2.00	1.44	0.55

Simple Basin: PRE-1

Scenario:	Scenario1
Node:	OFF-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.1010 ac
Curve Number:	39.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
PRE-1	01_MA_24H	0.00	13.5333	4.80	0.16	0.1010

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
PRE-1	02_25Y_24H	0.07	12.0833	8.52	1.37	0.1010
PRE-1	03_100Y_24H	0.19	12.0667	11.64	2.98	0.1010

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Runoff	Change Soil Storage
PRE-1 [in]	01_MA_24H	4.80	0.16	4.64
PRE-1 [ft3]	01_MA_24H	1760	58	1702
PRE-1 [ac-ft]	01_MA_24H	0.04	0.00	0.04
PRE-1 [in]	02_25Y_24H	8.52	1.37	7.15
PRE-1 [ft3]	02_25Y_24H	3124	503	2621
PRE-1 [ac-ft]	02_25Y_24H	0.07	0.01	0.06
PRE-1 [in]	03_100Y_24H	11.64	2.98	8.66
PRE-1 [ft3]	03_100Y_24H	4268	1092	3175
PRE-1 [ac-ft]	03_100Y_24H	0.10	0.03	0.07

Node: AQ

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 24.40 ft
Warning Stage: 24.40 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

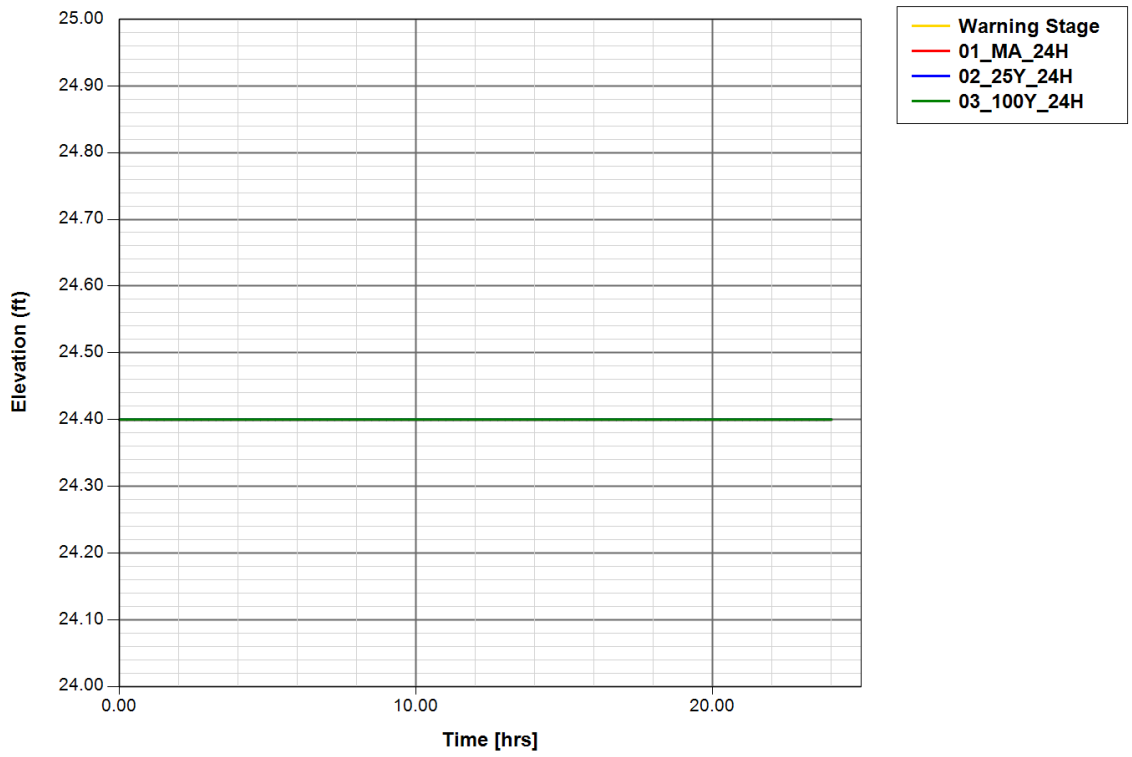
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
AQ	01_MA_24H	24.40	0.00	24.40	0.0000	0.48	0.00	0
AQ	02_25Y_24H	24.40	0.00	24.40	0.0000	0.77	0.00	0
AQ	03_100Y_24H	24.40	0.00	24.40	0.0000	0.96	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
AQ	01_MA_24H	13520	0	13520
AQ	02_25Y_24H	19726	0	19726
AQ	03_100Y_24H	21107	0	21107

Node Stage w/Warning and Alert Stage: AQ [Scenario1]



Node: OFF-1

Scenario:	Scenario1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	24.00 ft
Warning Stage:	0.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

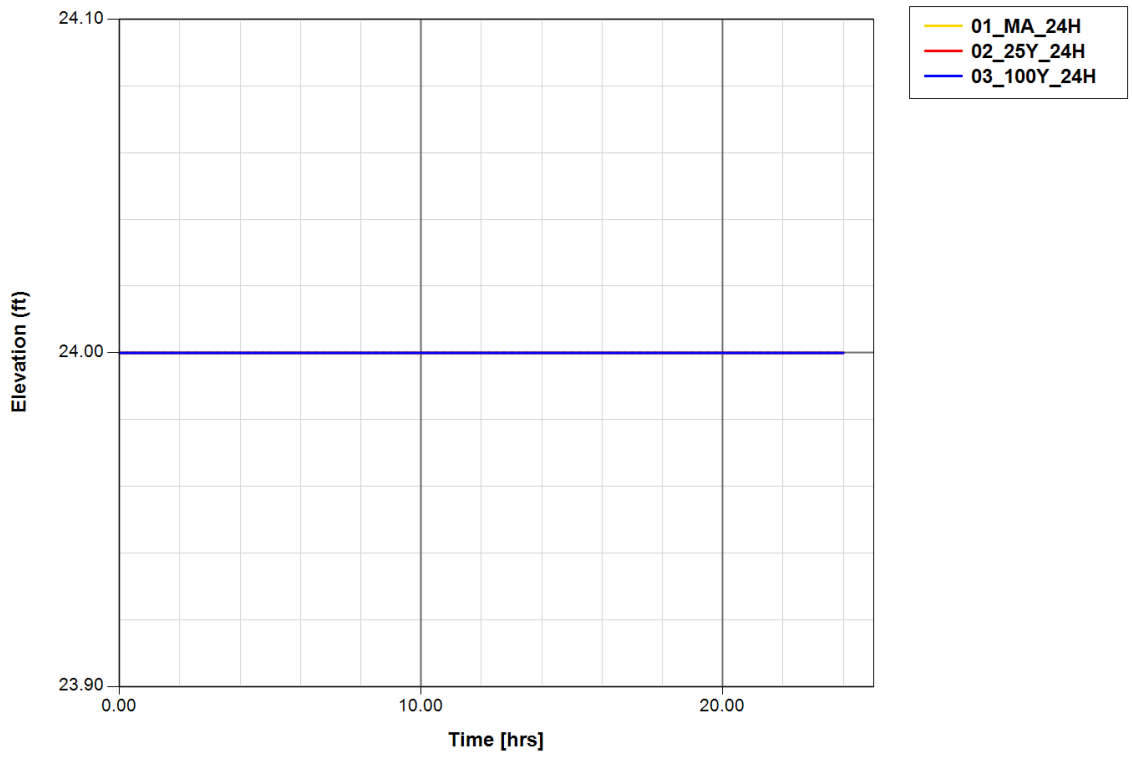
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-1	01_MA_24H	0.00	0.00	24.00	0.0000	0.00	0.00	0
OFF-1	02_25Y_24H	0.00	0.00	24.00	0.0000	0.07	0.00	0
OFF-1	03_100Y_24H	0.00	0.00	24.00	0.0000	0.19	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-1	01_MA_24H	58	0	58
OFF-1	02_25Y_24H	502	0	502
OFF-1	03_100Y_24H	1092	0	1092

Node Stage w/Warning and Alert Stage: OFF-1 [Scenario1]



Node: OFF-2

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 23.10 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

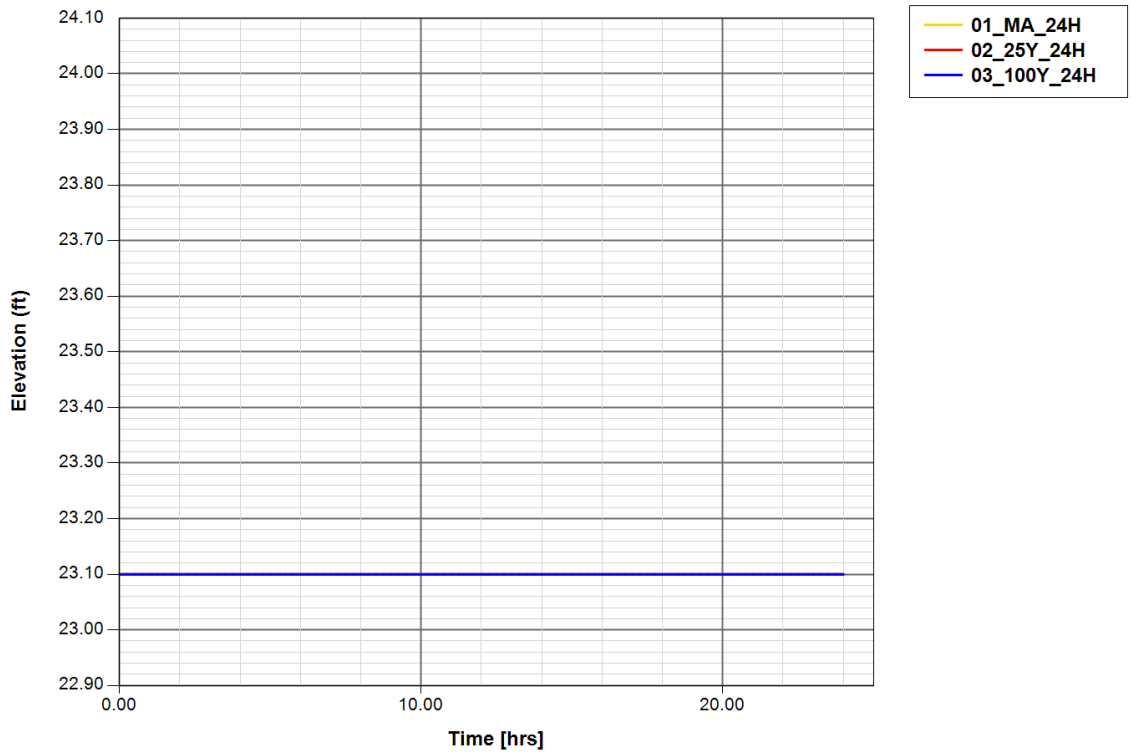
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-2	01_MA_24H	0.00	0.00	23.10	0.0000	0.00	0.00	0
OFF-2	02_25Y_24H	0.00	0.00	23.10	0.0000	0.47	0.00	0
OFF-2	03_100Y_24H	0.00	0.00	23.10	0.0000	3.49	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-2	01_MA_24H	0	0	0
OFF-2	02_25Y_24H	5868	0	5868
OFF-2	03_100Y_24H	22219	0	22219

Node Stage w/Warning and Alert Stage: OFF-2 [Scenario1]



Node: POND

Scenario: Scenario1
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 25.50 ft
Warning Stage: 28.10 ft
Alert Stage: 0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
25.50	0.00	0
26.00	0.08	3485
27.00	0.30	12850
28.00	0.59	25831
28.10	0.63	27356

Comment:

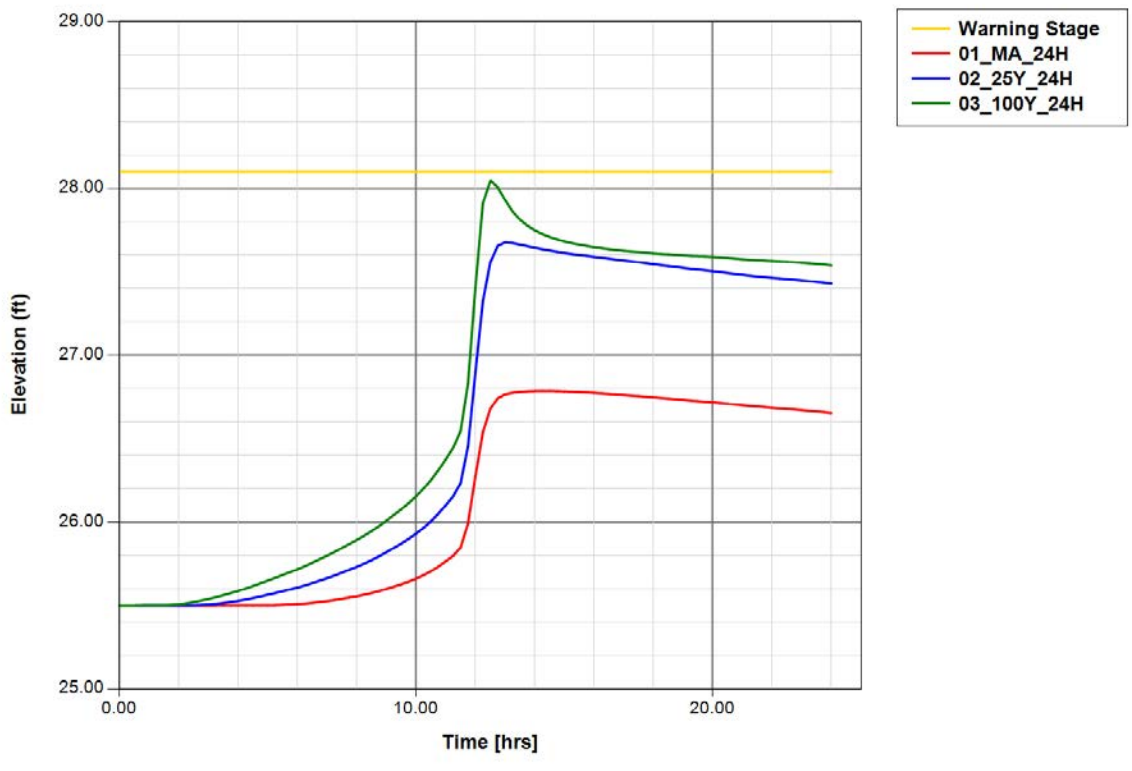
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
POND	01_MA_24H	28.10	0.00	26.79	0.0010	3.76	0.48	10529
POND	02_25Y_24H	28.10	0.00	27.68	0.0010	7.07	1.08	13162
POND	03_100Y_24H	28.10	0.00	28.04	0.0010	10.35	4.32	15103

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
POND	01_MA_24H	22986	13520	9466
POND	02_25Y_24H	43815	25594	18222
POND	03_100Y_24H	62923	43326	19597

Node Stage w/Warning and Alert Stage: POND [Scenario1]



Percolation Link: PERC

Scenario:	Scenario1	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	POND		
To Node:	AQ	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	1172.00 ft
Flow Direction:	Both	Perimeter 2:	1881.00 ft
Aquifer Base Elevation:	16.10 ft	Perimeter 3:	4801.00 ft
Water Table Elevation:	24.50 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	450.00 ft
Horizontal Conductivity:	13.460 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	6.760 fpd	# of Cells P2 to P3:	45
Fillable Porosity:	0.250		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: NOTCH

Scenario:	Scenario1	Bottom Clip	
From Node:	POND	Default:	0.00 ft
To Node:	OFF-2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Sharp Crested Vertical	Op Table:	
Geometry Type:	V-Notch Up	Ref Node:	
Invert:	27.17 ft	Discharge Coefficients	
Control Elevation:	27.17 ft	Weir Default:	2.800
Max Depth:	0.42 ft	Weir Table:	
Max Width:	0.42 ft	Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: WEIR

Scenario:	Scenario1	Bottom Clip	
From Node:	POND	Default:	0.00 ft
To Node:	OFF-2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Sharp Crested Vertical	Op Table:	
Geometry Type:	Rectangular	Ref Node:	
Invert:	27.58 ft	Discharge Coefficients	
Control Elevation:	27.58 ft	Weir Default:	2.800
Max Depth:	0.42 ft	Weir Table:	
Max Width:	3.42 ft	Orifice Default:	0.600
Fillet:	0.00 ft	Orifice Table:	

Comment:

Simulation: 01_MA_24H

Scenario: Scenario1
Run Date/Time: 8/19/2024 5:36:43 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FLMOD
		Rainfall Amount:	4.80 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 02_25Y_24H

Scenario: Scenario1
Run Date/Time: 8/19/2024 5:36:48 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FLMOD
		Rainfall Amount:	8.52 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 03_100Y_24H

Scenario: Scenario1
Run Date/Time: 8/19/2024 5:36:55 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

Hydrology [sec]	Surface Hydraulics

		[sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

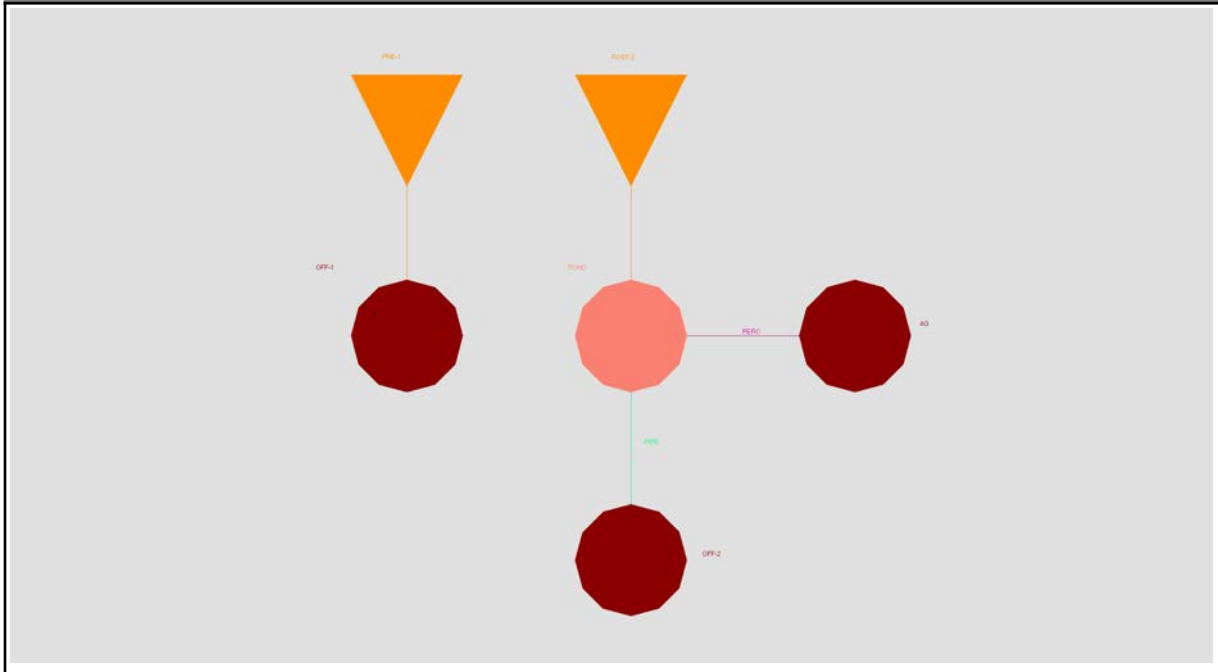
IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 11.64 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

APPENDIX D

“POND RECOVERY”

Background Image: post



Simple Basin: POST-2

Scenario:	Scenario1
Node:	POND
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	2.0610 ac
Curve Number:	39.0
Ia/S:	0.00
% Impervious:	56.20
% DCIA:	56.20
% Direct:	6.80
Rainfall Name:	

Comment:

Simple Basin: PRE-1

Scenario:	Scenario1
Node:	OFF-1
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.1010 ac
Curve Number:	39.0
Ia/S:	0.00
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: AQ

Scenario:	Scenario1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	24.40 ft
Warning Stage:	24.40 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

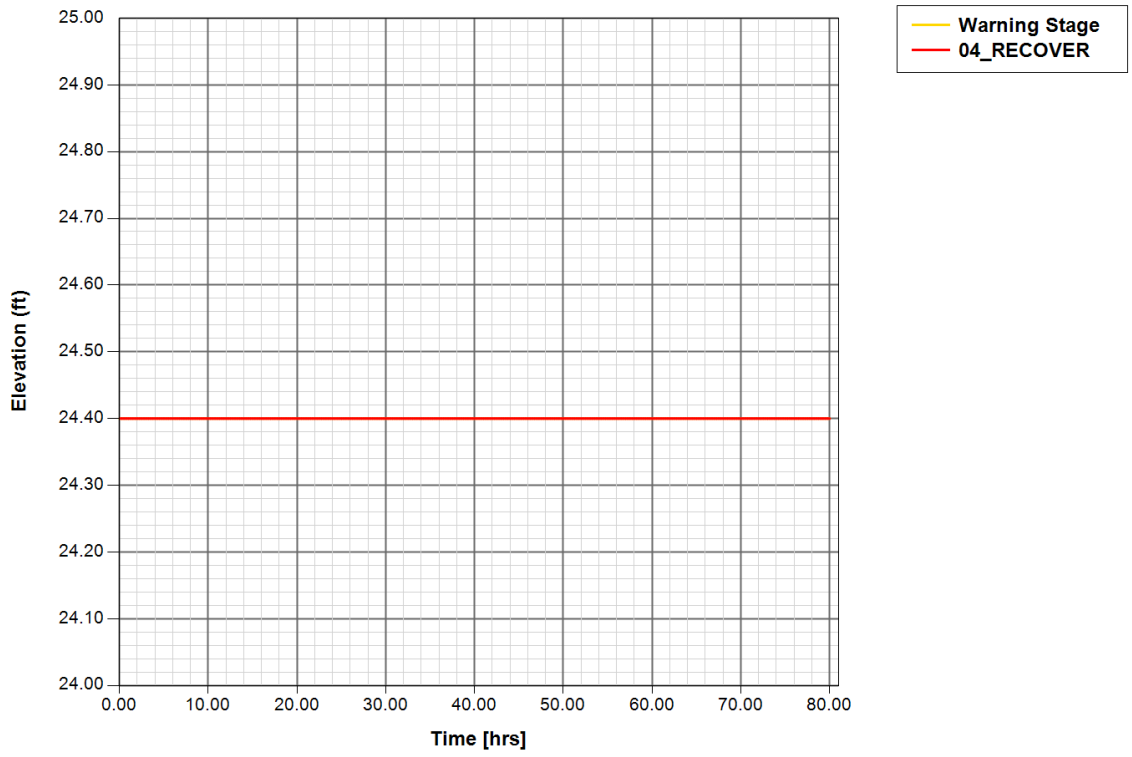
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
AQ	04_RECOVER	24.40	0.00	24.40	0.0000	0.78	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
AQ	04_RECOVER	9025	0	9025

Node Stage w/Warning and Alert Stage: AQ [Scenario1]



Node: OFF-1

Scenario:	Scenario1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	24.00 ft
Warning Stage:	0.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

Node Max Conditions [Scenario1]

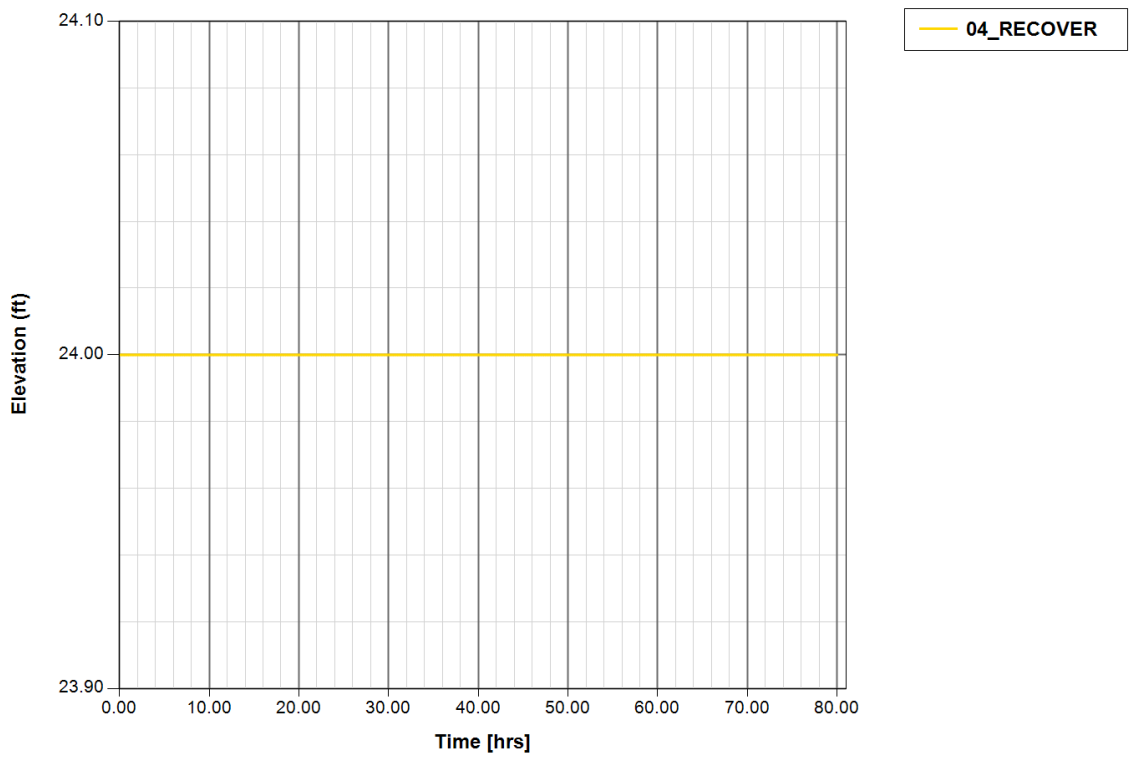
Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-1	04_RECOVE	0.00	0.00	24.00	0.0000	0.00	0.00	0

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
	R							

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-1	04_RECOVER	0	0	0

Node Stage w/Warning and Alert Stage: OFF-1 [Scenario1]



Node: OFF-2

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs

Initial Stage: 23.10 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

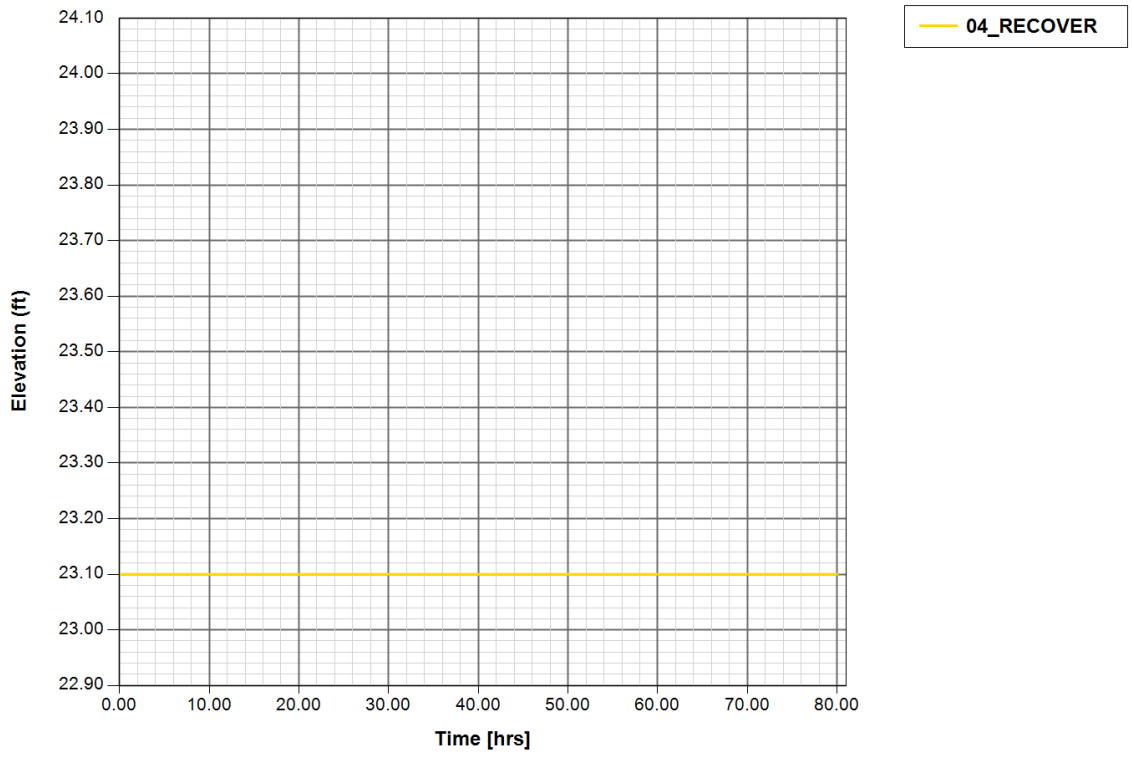
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF-2	04_RECOVER	0.00	0.00	23.10	0.0000	0.00	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF-2	04_RECOVER	0	0	0

Node Stage w/Warning and Alert Stage: OFF-2 [Scenario1]



Node: POND

Scenario: Scenario1
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 26.61 ft
Warning Stage: 25.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
25.50	0.00	0
26.00	0.08	3485
27.00	0.30	12850
28.00	0.59	25831
28.10	0.63	27356

Comment:

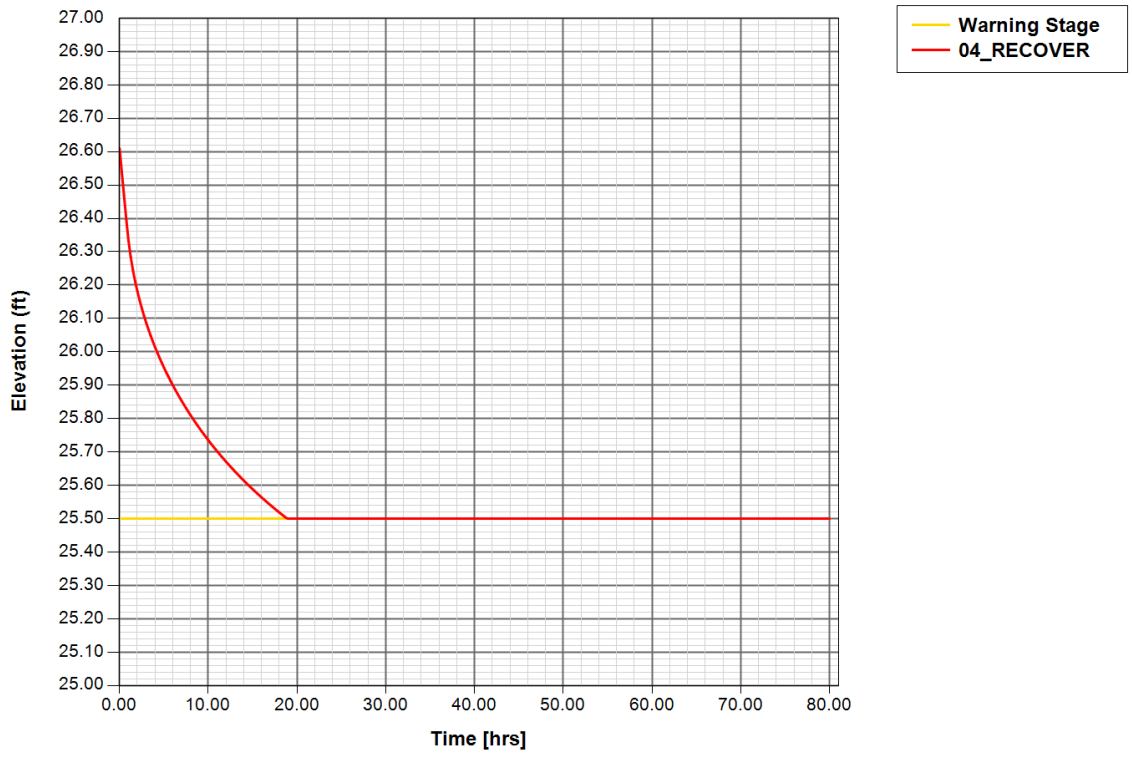
Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
POND	04_RECOVER	25.50	0.00	26.61	-0.0010	0.00	0.78	10001

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
POND	04_RECOVER	0	9025	-9025

Node Stage w/Warning and Alert Stage: POND [Scenario1]



Percolation Link: PERC

Scenario: Scenario1 Surface Area Option: Vary Based on Stage/Area

From Node:	POND		
To Node:	AQ		Table
Link Count:	1	Vertical Flow Termination:	Horizontal Flow Algorithm
Flow Direction:	Both	Perimeter 1:	1172.00 ft
Aquifer Base Elevation:	16.10 ft	Perimeter 2:	1881.00 ft
Water Table Elevation:	24.50 ft	Perimeter 3:	4801.00 ft
Annual Recharge Rate:	0 ipy	Distance P1 to P2:	50.00 ft
Horizontal Conductivity:	13.460 fpd	Distance P2 to P3:	450.00 ft
Vertical Conductivity:	6.760 fpd	# of Cells P1 to P2:	10
Fillable Porosity:	0.250	# of Cells P2 to P3:	45
Layer Thickness:	0.00 ft		

Comment:

Simulation: 04_RECOVER

Scenario: Scenario1
Run Date/Time: 8/19/2024 5:38:28 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	80.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
		Storm Duration:	80.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

APPENDIX E

“GEOTECHNICAL REPORTS”

July 29, 2024

Mr. Jason Durgan
Central Florida Preferred Services, Inc.
405 Oakridge Road
Ormond Beach, Florida 32174

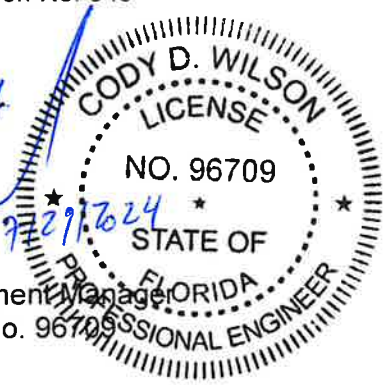
Reference: **GEOTECHNICAL EVALUATION**
9100 US Highway 1
Bunnell, Flagler County, Florida
UES Project No. 0430.2400165.0000
UES Report No. 2094785

Dear Mr. Durgan:

UES has completed the geotechnical evaluation for the subject project. This report contains the results of our evaluation, an engineering interpretation of these with respect to the project characteristics described to us, and recommendations for foundation, pavement support, site preparation, and stormwater management design.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully Submitted,
UNIVERSAL ENGINEERING SCIENCES, LLC
Certificate of Authorization No. 549



7/29/2024

Cody D. Wilson, P.E.
Geotechnical Department Manager
Florida Registration No. 96709

Cc: Mr. Harry Newkirk, P.E. – Newkirk Engineering, Inc.

GEOTECHNICAL EVALUATION

9100 US Highway 1
Bunnell, Flagler County, Florida

UES Project No. 0430.2400165.0000
UES Report No. 2094785

July 29, 2024

Prepared For:

Mr. Jason Durgan
Central Florida Preferred Services, Inc.
405 Oakridge Road
Ormond Beach, Florida 32174

Prepared By:

UES
911 Beville Road, Suite 3
South Daytona, Florida 32119
(386) 756-1105

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION

Project information has been provided to us in correspondence with Mr. Harry Newkirk, P.E. with Newkirk Engineering, Inc. We have been provided with a conceptual site plan which shows the layout of the proposed construction. We understand the project will consist of constructing two (2) 10,000 square foot one story flexible use buildings with associated flexible asphalt pavement areas and two (2) stormwater management facilities. We assume the maximum wall and column loads will not exceed 6 kips per linear foot and 50 kips, respectively. We anticipate that two to four feet of elevating fill will be placed within the structure and pavement areas.

Based on our review of available aerial photographs from Google Earth, we understand that this parcel was partially cleared sometime between 1999 and 2004.

Our recommendations are based upon the above considerations. If any of this information is incorrect, or if you anticipate any changes, inform UES so that we may review our recommendations.

2.0 PURPOSE AND SCOPE

2.1 PURPOSE

The purposes of this investigation were:

- to investigate the general subsurface conditions at the site;
- to interpret and review the subsurface conditions with respect to the proposed construction;
- to provide geotechnical engineering recommendations for foundation support, pavement design and site preparation; and,
- to provide recommendations for stormwater management design.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. UES would be pleased to perform these services, at your request.

Our investigation was confined to the zone of soil likely to be influenced by the proposed construction. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. A deep geological evaluation requires a more extensive range of field services than performed in this study.

2.2 FIELD INVESTIGATION

2.2.1 BORINGS

The subsurface conditions were investigated with:

- Four (4) Standard Penetration Test (SPT) borings, B-1 through B-4, advanced to depths of approximately 20 and 25 feet each below existing grade within the proposed building areas;
- Two (2) SPT Borings, P-1 and P-2, advancing to 10 feet each below existing grade within the proposed dry retention facility and one (1) auger boring, P-3, advanced to 15 feet below existing grade within the wet detention facility.
- Two (2) auger borings advanced to a depth of approximately 6 feet each below existing grade within the proposed pavement and existing golf course areas (designated R-1 and R-2).

We performed the SPT and borings according to the procedures of ASTM D-1586 and ASTM-1452, respectively.

The borings were located by our field personnel using measurements from established landmarks and should be considered accurate only to the degree implied by the method used. The location of the borings is presented on the attached Boring Location Plan in Appendix A.

Samples obtained from the borings were transported to our laboratory for further evaluation. Samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

2.3 LABORATORY TESTING

2.3.1 INDEX TESTING

The soil samples recovered from the soil borings were returned to our laboratory and then a UES Engineer visually examined and reviewed the field descriptions. The soils were classified in accordance with the Unified Soil Classification System (USCS). Tests consisting of percent passing a No. 200 sieve determination were performed to aid in classification of the soils.

3.0 FINDINGS

3.1 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Subsurface Profiles. The classifications and descriptions shown on the profiles are based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Key to Boring Log, for further explanation of the symbols and placement of data on the Subsurface Profiles. The following discussion summarizes the soil conditions encountered.

The results of the SPT borings, B-1 through B-4 and P-1 and P-2, generally indicated approximately 12 inches of topsoil underlain by intermittent layers of very loose to medium dense fine sand with trace silt (SP), fine sand with silt (SP-SM) and silty fine sand (SM) to the deepest boring termination depth of approximately 25 feet below existing grade.

The results of the auger borings, R-1, R-2 and P-3, generally indicated the presence of fine sand (SP), fine sand with silt (SP-SM) and silty fine sand (SM) to the deepest boring termination depth of approximately 15 feet below existing grade. As an exception, large roots and pine needle debris (DEBRIS) were encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3.

3.2 GROUNDWATER

We recorded groundwater subsequent to drilling between depths of approximately 1.6 and 2.0 feet below existing grade at our boring locations. Based on available published literature, existing site features, and the results of the borings, we estimate the normal seasonal high groundwater level to be approximately one foot above the measured levels. We can provide detailed seasonal high estimates once topographic information is available. It should be noted that the estimated seasonal high water level does not provide any assurance that groundwater levels will not exceed these estimated levels during any given year in the future. Should impediments to surface water drainage be present, or should rainfall intensity and duration, or total rainfall quantities, exceed the normally anticipated rainfall quantities, groundwater levels might once again exceed our seasonal high estimates. The depth of the groundwater level encountered at the boring location is presented on the Subsurface Profiles.

We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project.

4.0 FOUNDATION AREA RECOMMENDATIONS

4.1 GENERAL

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the structural loadings, construction locations, or grading information change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

As presented in the subsurface profiles, soils containing large roots and pine needle debris (DEBRIS) were encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3. It is our opinion that this material may indicate buried debris. Due to the close proximity of this boring location to the proposed structure, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if soils containing large root and pine needle debris (DEBRIS) are present within the structure area. It is our opinion that test pits will enable UES to determine the necessity of any materials to be removed and if so, the horizontal and vertical limits of the unsuitable soil to be removed.

Additionally, if subsurface conditions are encountered during construction, which were not encountered in the borings, report those conditions immediately to us for observation and recommendations.

4.2 STRUCTURE FOUNDATIONS

Based on the results of our subsurface exploration, we consider the subsurface conditions at the site favorable for support of the proposed structures when constructed on a properly designed shallow foundation system. Provided the soils are prepared in accordance with the Site Preparation Section of this report, the following parameters may be used for foundation design.

4.2.1 BEARING PRESSURE

The maximum allowable net soil bearing pressure for shallow foundations should not exceed 2,500 pounds per square foot (p.s.f.). Net bearing pressure is defined as the soil bearing pressure at the base of the foundation in excess of the natural overburden pressure. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

4.2.2 FOUNDATION SIZE

The minimum widths recommended for any isolated column footing and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2.3 BEARING DEPTH

The exterior foundations should bear at a depth of at least 12 inches below the exterior final grades and the interior footings should bear at a depth of at least 12 inches below the finish floor elevation to provide confinement to the bearing level soils. We recommend stormwater and surface water be diverted away from the building exterior, both during and after construction, to reduce the possibility of erosion beneath the exterior footings.

4.2.4 BEARING MATERIAL

The foundations may bear on either the compacted suitable natural soils or compacted structural fill. The bearing level soils, after compaction, should exhibit densities of at least 95 percent of the maximum dry density of the bearing soils as determined by ASTM D-1557 (Modified Proctor), to the depth described

subsequently in the Site Preparation section of the report. In addition to compaction, the bearing soils must exhibit stability and be free of “pumping” conditions.

4.2.5 Settlement Estimates

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundations; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from offsite sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structures are based upon the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlement of the structures.

Due to the sandy nature of the surficial soils, following the compaction operations, we expect a significant portion of settlement to be elastic in nature. This settlement is expected to occur relatively quickly, upon application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field test data, which we have correlated to the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structures to be approximately one inch or less.

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. Based on the subsurface conditions as determined by our borings, it is anticipated that differential settlements will be within tolerable limits.

4.3 Site Preparation For Shallow Foundations

We recommend the following site preparation procedures for the building area:

1) Prior to construction, the location of existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of overlying structures.

2) Strip the proposed construction limits of all grass, roots, topsoil, and other deleterious materials within and 5 feet beyond the perimeter of the proposed structures. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches. As discussed, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if over excavation and replacement will be necessary within the proposed building area.

3) Compact the exposed surface using tracked dozer or vibratory equipment. We recommend that vibratory equipment be operated in static mode within 75 feet of any existing structures. The upper one foot of soils below the exposed surface within the building area should be improved to achieve a minimum compaction requirement of 95% of the Modified Proctor Test (ASTM D-1557). We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

4) Test the compacted surface for compliance at a minimum of one location per 2,500 square feet of each building area, or at a minimum of 3 locations.

5) Place the fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent,

but strict moisture control may be required. Place fill in uniform 10 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). If light compaction equipment is used, we recommend the lift thickness be reduced to 8 inch thick lifts.

6) Perform compliance tests within each lift of fill at a minimum of one location per lift per 2,500 square feet of each building area, or at a minimum of 3 locations.

7) Compact and test footing cuts for compaction to a depth of one foot below bearing level. We recommend that you test one out of every four (25 percent) column footings and perform one test per every 50 linear feet of wall footing. Compaction operations in confined areas, such as footing excavations, can best be performed with a lightweight vibratory sled or other hand-held compaction equipment.

5.0 PAVEMENT RECOMMENDATIONS

5.1 GENERAL

We anticipate a flexible asphaltic concrete pavement section will be utilized for the subject project.

As discussed, large roots and pine needle debris (DEBRIS) was encountered between approximately 6 and 10 feet below existing grade at Boring Location P-3. Due to the close proximity of this boring location to the proposed parking lot, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine if soils containing large root and pine needle debris (DEBRIS) are present within the parking lot. It is our opinion that test pits will enable UES to determine the necessity of any materials to be removed and if so, the horizontal and vertical limits of the unsuitable soil to be removed.

To achieve the full life expectancy of the pavement, we recommend that soils containing debris be removed from within the pavement areas prior to construction. However, this is likely not cost prohibitive. In lieu of removing the debris, biaxial geogrid may be utilized. We recommend that the biaxial geogrid be placed below the stabilized subgrade. Additionally, we recommend a two-foot separation between soil zones containing debris and biaxial geogrid. This will help reduce distress resulting from differential settlement. It should be anticipated that the asphalt will experience distress sooner than a typical 15 to 20-year life span. Continued maintenance of the pavement should be anticipated.

5.2 FLEXIBLE ASPHALTIC PAVEMENT

Because traffic loadings are commonly unavailable, we have generalized our pavement design into two groups. The group descriptions and the recommended component thicknesses are presented in Table 1 below.

TABLE I
Pavement Component Recommendations

Traffic Group	Component Thickness		
	Stabilized Subgrade	Base Course	Surface Course
Parking Lots – light duty	12	6	1.5
Parking lots – heavy duty	12	8	2.0

5.3 STABILIZED SUBGRADE

We recommend that subgrade materials be compacted in place according to the requirements in the "Site Preparation" section of this report. Further, stabilize the subgrade materials to a minimum Limerock

Bearing Ratio (LBR) of 40 percent as specified by Florida Department of Transportation (FDOT) requirements for Type B Stabilized Subgrade.

Further, the stabilized subgrade can be imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions.

The primary function of stabilized subgrade beneath the base course is to provide a stable and firm subgrade so that the base course can be properly placed and compacted. Depending upon the soil type, the subgrade material may have sufficient stability to provide the needed support without additional stabilizing material. Generally speaking, sands with silt or clay typically have sufficient stability and may not require additional stabilizing material. Conversely, relatively "clean" sands may not provide sufficient stability in order to adequately construct the base course.

5.4 BASE COURSE

We recommend that the base course consist of either limerock or graded crushed aggregate (crushed concrete).

5.4.1 LIMEROCK

Limerock should have a minimum LBR of 100 percent and should be mined from an FDOT approved source. Place limerock in maximum 6-inch lifts and compact each lift to a minimum density of 98 percent of the Modified Proctor maximum dry density.

5.4.2 CRUSHED CONCRETE BASE

Crushed concrete should be supplied by an approved plant with quality control procedures. The crushed concrete stockpiled should be free of sandy pockets, foreign materials, and uncrushed particles. We recommend the following specifications be enforced.

a) Crushed concrete shall not contain lumps, balls or pockets of sand or clay sized material in sufficient quantity as to be detrimental to the proper binding, finishing or strength of the crushed concrete base.

b) Samples of base course materials shall be supplied to the engineer prior to use in the work. Additional samples shall be furnished during construction, as necessary.

c) At least 97 percent (by weight) of the material shall pass a 3-1/2 inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust or fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

d) The base shall be bladed and shaped to conform to the typical sections shown on the plans. Then the base shall be compacted by rolling with a combination of steel wheel and rubber tired rollers until an average density of 98 percent of the maximum density obtainable under AASHTO Method T-180 is reached. The base shall have an average LBR of not less than 150. The LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

Testing shall be performed at the following frequency:

1) Perform in-place density tests on crushed concrete base at a minimum frequency of 2 tests per pavement area or 1 test per 300 linear feet whichever is greater.

2) Perform Limerock Bearing Ratio tests at a frequency of 1 test per visual change in material and a minimum of 1 test per pavement area or every 15,000 square feet whichever is greater.

3) Engineer should perform a final visual base inspection prior to placement of prime or tack coat and paving.

5.5 SURFACE COURSE

In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend using an asphaltic concrete, FDOT Type SP 9.5 mix. In heavy duty areas where truck traffic is predominant, we recommend using an asphaltic concrete, FDOT Type SP 12.5 mix.

It should be noted that if a more aesthetically pleasing asphalt surface is required a layer of Friction Course (FC) (finer aggregate) can be placed. A ½ inch layer of FC asphalt can be placed above the SP asphaltic concrete. However this may result in increased costs.

Asphaltic concrete mixes should be a current FDOT approved design of the materials actually used. Samples of the materials delivered to the project should be tested to verify that the aggregate gradation and asphalt content satisfies the mix design requirements. Compact the asphalt to a minimum of 90 percent of the Gmm (maximum voidless specific gravity).

After placement and field compaction, core the wearing surface to evaluate material thickness and to perform laboratory densities. Obtain cores at frequencies of at least one core per 3,000 square feet of placed pavement or a minimum of two cores per day's production.

In roadways, for extended life expectancy of the surface course, we recommend applying a coal tar emulsion sealer at least six months after placement of the surface course. The seal coat will help to patch cracks and voids, and protect the surface from damaging ultraviolet light and automobile liquid spillage. Please note that applying the seal coat prior to six months after placement may hinder the "curing" of the surface course, leading to its early deterioration.

5.6 CURBING

We recommend that curbing around landscaped sections adjacent to the parking roadways and driveways be constructed with full-depth curb sections. Using extruded curb sections which lie directly on top of the final asphalt level, or eliminating the curbing entirely, may not significantly impede the migration of irrigation water from the landscape areas to the interface between the asphalt and the base. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration. It is recommended that the subgrade below the curbing be stabilized to a minimum LBR of 40.

5.7 CONSTRUCTION TRAFFIC

Light duty roadways and incomplete pavement sections will not perform satisfactorily under construction traffic loadings. We recommend that construction traffic (construction equipment, concrete trucks, sod trucks, garbage trucks, dump trucks, etc.) be re-routed away from these roadways or that the pavement section be designed for these loadings.

5.8 EFFECTS OF GROUNDWATER

We recommend that all pavement sections analyses incorporate the seasonal high groundwater conditions. Based on the groundwater level at the site, the below separations will be maintained.

TABLE II
Recommended Minimum Clearance Between Pavement Base and Wet Season Water Table

Type of Base	Separation (inches)
Limerock	18
Crushed Concrete	12

One of the most critical influences on the pavement performance in Central Florida is the relationship between the pavement subgrade and the seasonal high groundwater level. Many roadways and parking areas have been destroyed as a result of deterioration of the base and the base/surface course bond resulting from a high water table. **Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least the amount presented in Table 2 above.**

5.9 Site Preparation For Pavement Areas

We recommend the following site preparation procedures:

1) Strip the proposed construction limits of all grass, roots, topsoil and other deleterious materials within, and 3 feet beyond, the proposed pavement limits. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches. As discussed, we recommend that backhoe excavated test pits be performed at and adjacent to P-3 to determine in over excavation and replacement or biaxial geogrid will be necessary.

2) Proof-compact the exposed surface with the light to medium roller until you maintain density of at least 98 percent should be obtained in the upper 12 inches below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Vibratory equipment should be operated in static mode within 75 feet of adjacent structures.

3) Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

4) Test the compacted surface for density at a frequency of not less than one test per 10,000 square feet of pavement area (minimum three locations per pavement area).

5) Place and compact backfill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent, but strict moisture control may be required. Place fill in uniform 10 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density with the exception that densities of at least 98 percent should be obtained within the upper one foot below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557).

6) Perform compliance tests within each lift of fill at a frequency of not less than one test per 10,000 square feet of pavement area (minimum of three locations per pavement area).

6.0 STORMWATER MANAGEMENT RECOMMENDATIONS

6.1 GENERAL

For a dry bottom retention facility, performance will be significantly influenced by the soil permeability and the vertical separation between the bottom and the seasonal high groundwater level. A wet retention facility should be excavated to a depth necessary to obtain a sufficient water depth to limit growth of aquatic vegetation.

Borings P-1 and P-2 are located within the proposed dry retention facility and Boring P-3 is located within the proposed wet detention facility.

If requested, UES can assist in evaluating the facility design exfiltration rates, underdrains and/or groundwater baseflow as pond geometry and stormwater volume requirements become available.

6.2 SOIL PERMEABILITY

Six (6) Laboratory Falling-head Saturated Vertical Permeability Tests were performed on relatively undisturbed soil samples. The samples were obtained using thin-walled tube sampling techniques (Shelby Tube). The results of the tests, in feet per day, describe the coefficients of hydraulic conductivity (Permeability) of the soils and are presented on the attached Subsurface Profiles. The measured permeability rates should not be construed to represent the actual pond exfiltration rates.

Upon evaluation of regional and local geology, we have evaluated that the characteristics of the soils within the vicinity of this project are comprised of sedimentary soils which often exhibit thin, alternating layers. Generally, in relatively homogeneous natural deposits where stratification may result from particle orientation, the Permeability in the Horizontal direction can be somewhat greater than that in the Vertical direction. Based on our experience, the estimated coefficient of Horizontal Permeability typically is on the order of 1.5 and 2.0 times greater than the Vertical Permeability for SP-SM and SP soil types, respectively.

6.3 BORROW SUITABILITY

Boring P-3, was performed, in part, to provide an indication of the suitability of excavated soils from the proposed stormwater management area for use as structural fill soil. Based on the boring results and classification of the soil samples, the fine sand with silt (SP-SM) encountered at the boring location is suitable for use as structural fill soil. Because the fine sand with silt (SP-SM) significantly retains moisture, strict moisture control may be required during placement and compaction operations to avoid moisture related instability. The silty fine sand (SM), as encountered, is generally not considered suitable for use as fill due to their fines content making it difficult to place and compact. The fine sand with silt with large roots and pine needle debris (DEBRIS) is not suitable for use as structural fill. It should be noted that this material can be used in green areas. We recommend removing debris larger than one inch in diameter prior to placing this material within green areas.

It should be anticipated the soils in the proposed borrow pit area that are below the groundwater level will have moisture contents in excess of the Modified Proctor optimum moisture content and will require stockpiling or spreading to bring the moisture content within 2 percent of the soil's optimum moisture content corresponding to the required degree of compaction.

7.0 CONSTRUCTION RELATED SERVICES

We recommend the owner retain UES to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation subgrades by monitoring filling operations and performing quality assurance tests on the placement of compacted natural soils and structural fill. We can also perform concrete testing, pavement section testing, structural steel testing and other construction materials testing services.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.

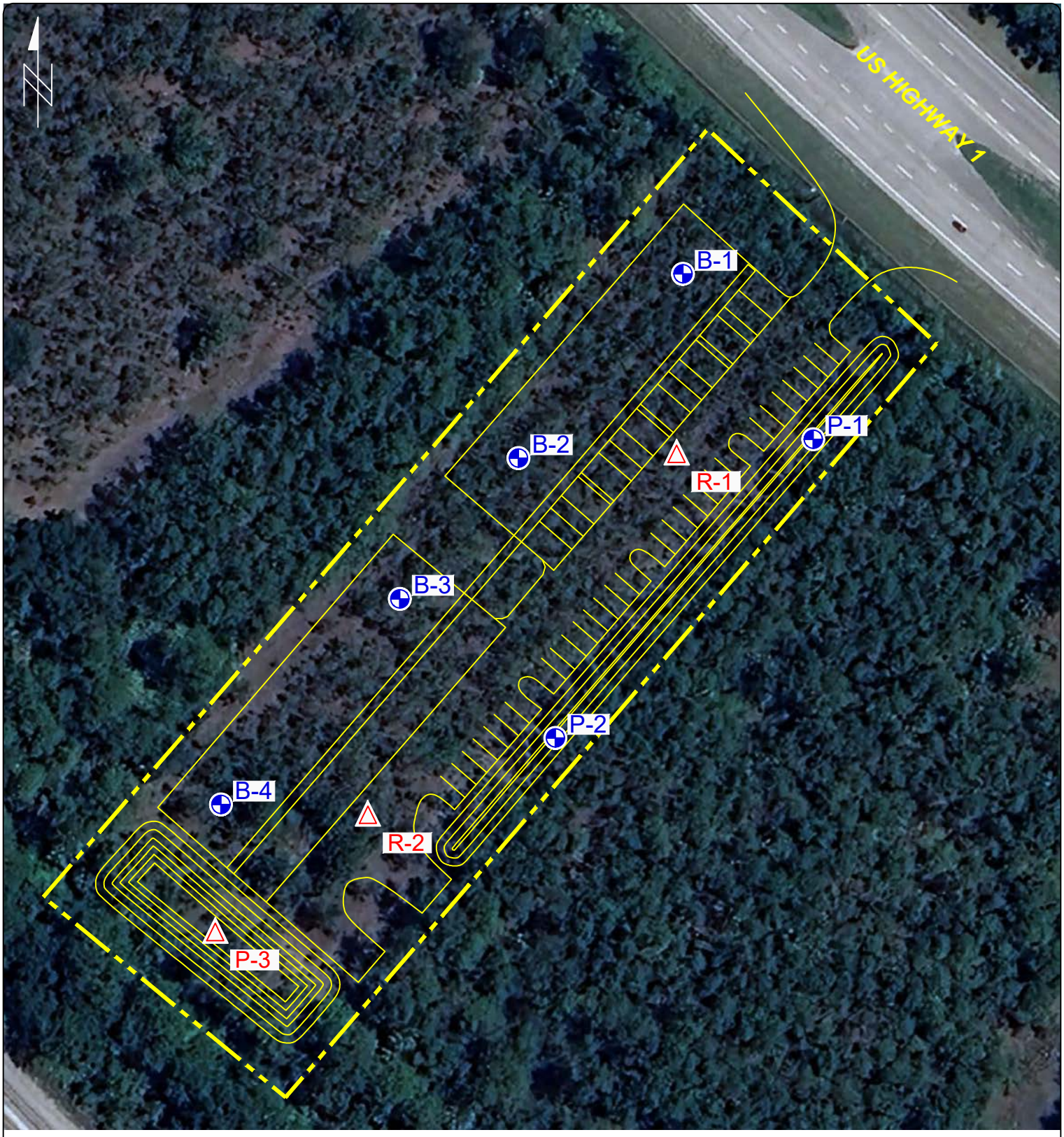
8.0 LIMITATIONS

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information about Your Geotechnical Engineering Report" appears in Appendix B, and will help explain the nature of geotechnical issues. Further, we present documents in Appendix B: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

* * * * * * * * * *

APPENDIX A

UES™



LEGEND

△ APPROXIMATE LOCATION OF AUGER BORING

⊕ APPROXIMATE LOCATION OF STANDARD PENETRATION TEST (SPT) BORING

GRAPHIC SCALE

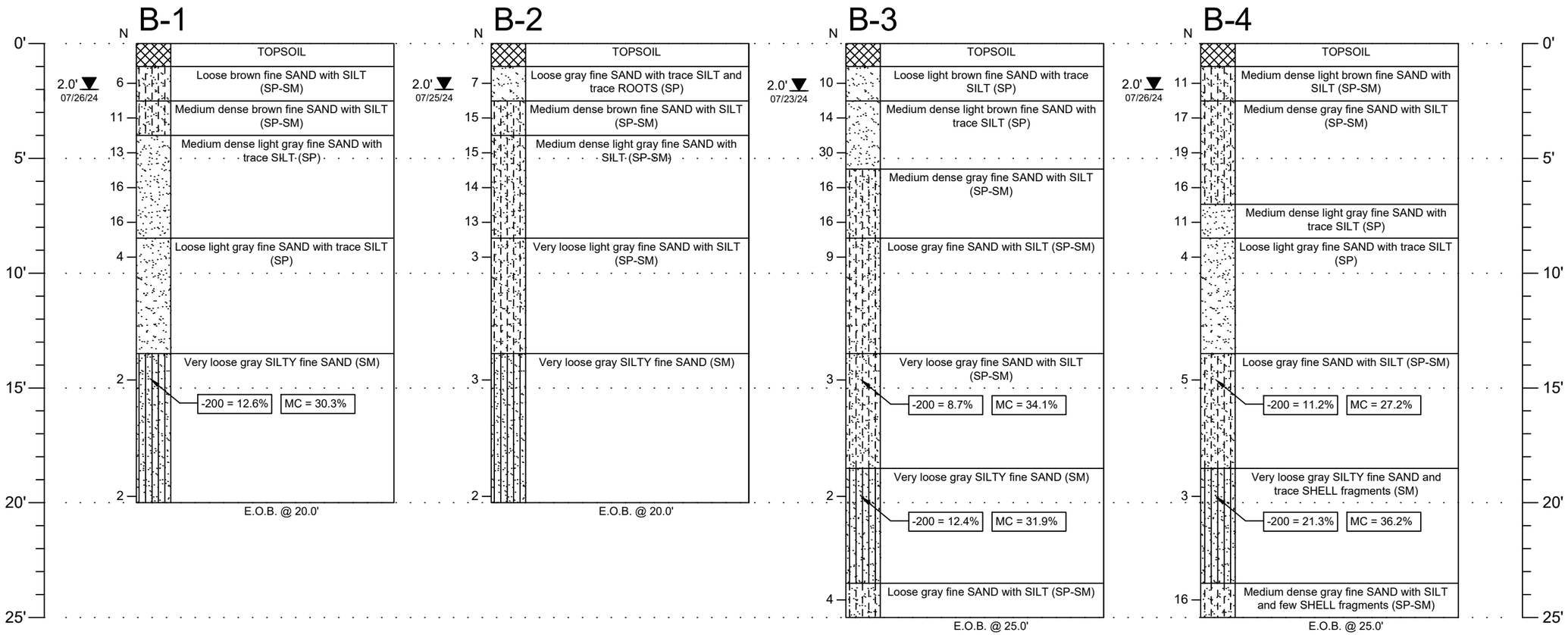
0 40 80

(IN FEET)

1 INCH ≈ 80 ft.

UES

TITLE: BORING LOCATION PLAN			SCALE: 1" ≈ 80'
PROJECT: GEOTECHNICAL EVALUATION 9100 US HIGHWAY 1 BUNNELL, FLORIDA			PAGE/FIG. NO.: A-1
DRAWN BY: MKL	DATE: 07/24/24	PROJECT NO.: 0430.2400165.0000	
CHECKED BY: BP	DATE: 07/24/24	REPORT NO.: 2094785	



Fine SAND (SP)

Fine SAND with SILT (SP-SM)

SILTY fine SAND (SM)

Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
HA	Hand Auger Method
WOH	Weight of Hammer
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
MC	% Moisture Content

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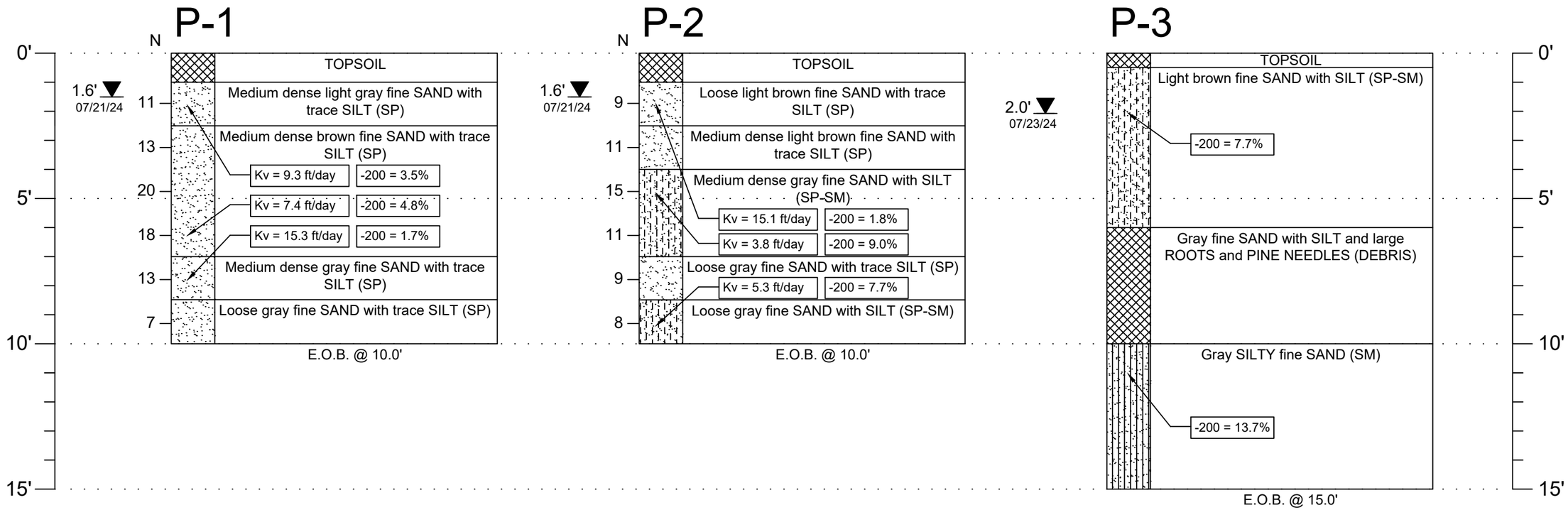
PROJECT:
GEOTECHNICAL EVALUATION
9100 US HIGHWAY 1
BUNNELL, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE: 07/29/24	PROJECT NO.:	0430.2400165.0000	SCALE: NA (in feet)
CHECKED BY:	BP	DATE: 07/29/24	REPORT NO.:	2094785	PAGE/FIG. NO.: A-2



Fine SAND (SP)

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Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

NOTES:

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Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
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UES

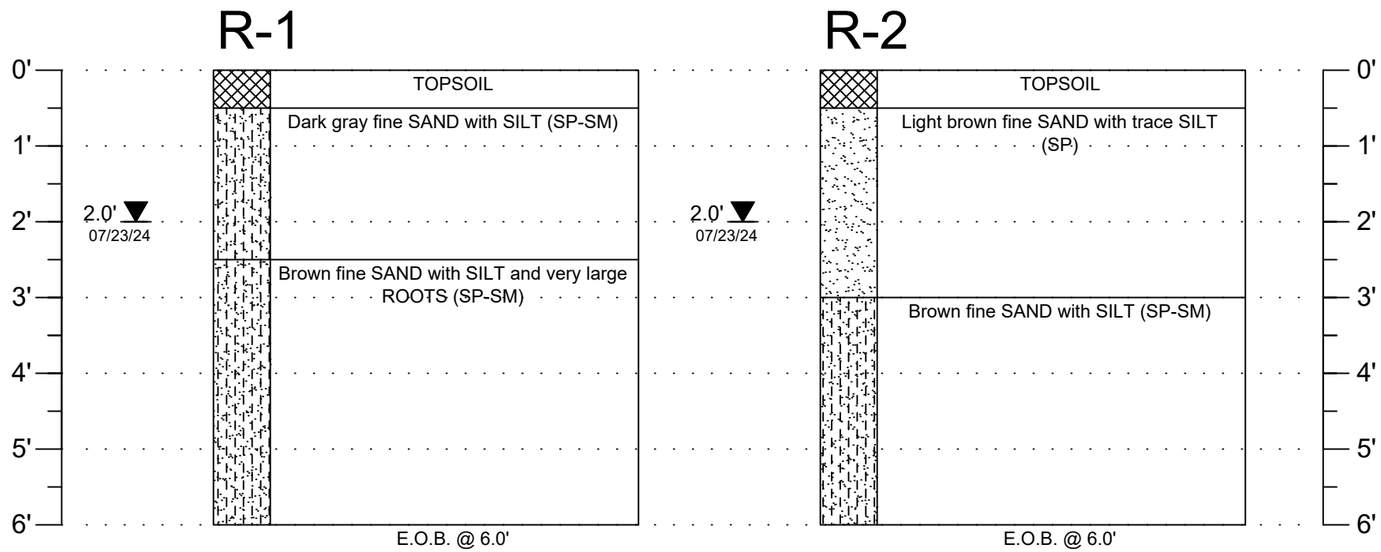
PROJECT:
GEOTECHNICAL EVALUATION
9100 US HIGHWAY 1
BUNNELL, FLORIDA

TITLE:
SUBSURFACE PROFILE

DRAWN BY:	MKL	DATE:	07/29/24	PROJECT NO.:	0430.2400165.0000
CHECKED BY:	BP	DATE:	07/29/24	REPORT NO.:	2094785

SCALE: NA (in feet)

PAGE/FIG. NO.: A-3



Fine SAND (SP)

Fine SAND with SILT (SP-SM)

Topsoil (PT) ... some to many ORGANICS (PT), sometimes DEBRIS

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
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HA	Hand Auger Method
WOH	Weight of Hammer
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve
MC	% Moisture Content

UES™

PROJECT: GEOTECHNICAL EVALUATION 9100 US HIGHWAY 1 BUNNELL, FLORIDA						TITLE: SUBSURFACE PROFILE	
DRAWN BY:	MKL	DATE:	07/29/24	PROJECT NO.:	0430.2400165.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-4
CHECKED BY:	BP	DATE:	07/29/24	REPORT NO.:	2094785		

KEY TO BORING LOGS

SYMBOLS AND ABBREVIATIONS

SYMBOL	DESCRIPTION
N-Value	No. of Blows of a 140-lb. Weight Falling 30 Inches Required to Drive a Standard Spoon 1 Foot
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
	Sample from Auger Cuttings
	Standard Penetration Test Sample
	Thin-wall Shelby Tube Sample (Undisturbed Sampler Used)
RQD	Rock Quality Designation
	Stabilized Groundwater Level
	Seasonal High Groundwater Level (also referred to as the W.S.W.T.)
NE	Not Encountered
GNE	Groundwater Not Encountered
BT	Boring Terminated
-200 (%)	Fines Content or % Passing No. 200 Sieve
MC (%)	Moisture Content
LL	Liquid Limit (Atterberg Limits Test)
PI	Plasticity Index (Atterberg Limits Test)
NP	Non-Plastic (Atterberg Limits Test)
K	Coefficient of Permeability
Org. Cont.	Organic Content
G.S. Elevation	Ground Surface Elevation

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS More than 50% retained on the No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels and gravel-sand-silt mixtures
			GC	Clayey gravels and gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS 5% or less passing No. 200 sieve	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Poorly graded sands and gravelly sands, little or no fines
		SANDS with 12% or more passing No. 200 sieve	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SIOLS 50% or more passes the No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diamicaceous fine sands or silts, elastic silts
			CH	Inorganic clays or clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

*Based on the material passing the 3-inch (75 mm) sieve
** Use dual symbol (such as SP-SM and SP-SC) for soils with more than 5% but less than 12% passing the No. 200 sieve

RELATIVE DENSITY
(Sands and Gravels)
Very loose – Less than 4 Blow/Foot
Loose – 4 to 10 Blows/Foot
Medium Dense – 11 to 30 Blows/Foot
Dense – 31 to 50 Blows/Foot
Very Dense – More than 50 Blows/Foot

CONSISTENCY
(Silts and Clays)
Very Soft – Less than 2 Blows/Foot
Soft – 2 to 4 Blows/Foot
Firm – 5 to 8 Blows/Foot
Stiff – 9 to 15 Blows/Foot
Very Stiff – 16 to 30 Blows/Foot
Hard – More than 30 Blows/Foot

RELATIVE HARDNESS
(Limestone)
Soft – 100 Blows for more than 2 Inches
Hard – 100 Blows for less than 2 Inches

MODIFIERS

These modifiers Provide Our Estimate of the Amount of Minor Constituents (Silt or Clay Size Particles) in the Soil Sample
Trace – 5% or less
With Silt or With Clay – 6% to 11%
Silty or Clayey – 12% to 30%
Very Silty or Very Clayey – 31% to 50%

These Modifiers Provide Our Estimate of the Amount of Organic Components in the Soil Sample
Trace – Less than 3%
Few – 3% to 4%
Some – 5% to 8%
Many – Greater than 8%

These Modifiers Provide Our Estimate of the Amount of Other Components (Shell, Gravel, Etc.) in the Soil Sample
Trace – 5% or less
Few – 6% to 12%
Some – 13% to 30%
Many – 31% to 50%

APPENDIX B

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

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CONSTRAINTS & RESTRICTIONS

The intent of this document is to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

UES

NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

August 22, 2024

Planning and Zoning
1769 E. Moody Blvd.
Building 2, Suite 105
Bunnell, FL 32110

Re: Office and Warehouse 9100 U.S. 1
Parcel # 22-13-31-0000-03030-0050
Site Development Application – 1st Submittal

To whom it will concern,

Submitted are the appropriate documents for a Small Commercial Site Plan Application for the above referenced project. The following materials are attached for your review:

1. Signed Application
2. Civil and Landscape Plan Set
3. Boundary and Topo Survey
4. Stormwater Report

The proposed 2.16-acre project consists of two (2), one-story office / warehouse buildings on a currently vacant, undeveloped lot. The proposed buildings have drive up and in garage bays. These buildings will total to 20,000 SF and 16 total units. Access will be provided by a 24-ft wide driveway along us1. Sewer is to be provided by a septic tank designed and permitted by other. Water and irrigation will be provided by a private well designed and permitted by others. Stormwater runoff is to be captured by inlets and pipes and routed to the proposed dry retention ponds that discharge to the US 1 right-of-way. An enclosed double dumpster is proposed for site waste management.

If you have any questions or need additional information, please feel free to call or email me at cody@newkirk-engineering.com.

Respectfully,

Cody Bogart, PE #94133
Project Engineer
Newkirk Engineering, Inc.

08/23/2024 11:59 am IP:[75.49.161.169] Packet No: 9942

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080009 / AR #5074

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ZON - ZONING (386-313-4009)

Comments:
Marked INFORMATION By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Provide a response to Justification Statements 2 and 4; provide acknowledgment or supporting evidence for each statement.

2. Provide the distance from corner of pool deck to property line.

FD1 - FIRE REVIEW

Comments:
Marked INFORMATION By: JERRY SMITH - -
Fire Rescue has no issues with the variance

ENGIN1 - DEVELOPMENT ENGINEERING (386-313-4082)

Comments:
Held By: SUSAN GRAHAM - (386)313-4082 - SGRAHAM@FLAGLERCOUNTY.GOV
1.No comments at this time.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)		
Name(s): Pat and Heather Cua		
Mailing Address: 326 Ocean Crest Drive		
City:Palm Coast	State: Fl	Zip: 32137
Telephone Number 404-731-4888		Fax Number

APPLICANT/AGENT		
Name(s): William Groff (Country Club Pools)		
Mailing Address: 4440 N. Oceanshore Blvd		
City: Palm Coast	*State:* Fl	*Zip:* 32137
Telephone Number 386-527-5885		*Fax Number*
E-Mail Address: will.ohr@aol.com		

SUBJECT PROPERTY		
SITE LOCATION (*street address*):	326 Ocean Crest Drive	
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	Lot 4 Northshore Plat 4	
Parcel # (*tax ID #*):	04-11-31-3604-00000-0040	
Parcel Size:	5;335 s.f.	
Current Zoning Classification:	Residential	
Current Future Land Use Designation	Residential	
Subject to A1A Scenic Corridor IDO?	[ ] YES	[✓] NO

Relief Requested: Relief from 10' deck setback. Pool is within 10' setback.

_____

Signature of Owner(s) or Applicant/Agent if Owner Authorization form attached

8-2-24
Date

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 32C Ocean Crest

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and
The lot is a pie shape lot.

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and
The deck is fully enclosed by fence. The project was approved by the Ocean Hammock Homeowners Association.

4. No variance may be granted for a use of land or building that is not permitted by this article.

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

Reviewed for Code Compliance: 1/10/2024. PERMIT #: 2023120236

PREPARED BY/RETURN TO:
CHIUMENTO & EMERY, P.A.
FILE NO. 00-0727-CUA
4 Old Kings Road North, Suite B
Palm Coast, Florida 32137

Property Appraisers Parcel Identification Number(s):
04-11-31-3604-00000-~~030~~0030

Grantee(s) S.S #'s:

Inst No:00021474 Date:09/08/2000
Doc Stamp-Deed : 2379.30
SYD CROSBY, FLAGLER County
By: _____ D.C. Time:12:05:49

OFF REC 0707 PAGE 1806

SPACE ABOVE THIS LINE FOR RECORDING DATA

THIS CORPORATE WARRANTY DEED Made and executed the 29th day of August 2000 by **NORTHSHORE OCEAN HAMMOCK INVESTMENT, LP, a Georgia Limited Partnership**, and having its principal place of business at 5 Blue Heron Lane, Palm Coast, FL 32137, hereinafter called the grantor, to **PATRICK F. CUA and HEATHER C. CUA, husband and wife, as tenants by the entireties**, whose post office address is 1543 Timber Edge, McKinney, TX 75070 hereinafter called the grantee:

(Wherever used herein the terms "grantor" and "grantee" include all the parties to this instrument, singular and plural, the heirs, legal representatives and assigns of individuals, and the successors and assigns of corporations, wherever the context so admits or requires.)

WITNESSETH: That the said grantor, for and in consideration of the sum of **$10.00** and other valuable considerations, receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the grantee all that certain land situate in Flagler County, State of Florida, viz:

Lot 3, of NORTHSHORE PLAT 4, according to the plat thereof, as recorded in Plat Book 31, Pages 90-92, of the Public Records of Flagler County, Florida.

SUBJECT TO taxes for the year 2000 and subsequent years; Assessments of any homeowners or community association, Restrictions, Covenants, Easements, Dedications, Reservations, Resolutions and Conditions of record, if any. Balances due on utility assessments, if any.

TOGETHER, with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the grantor hereby covenants with said grantee that it is lawfully seized of said land in fee simple; that it has good right and lawful authority to sell and convey said land; that it hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances, except taxes accruing subsequent to December 31, 1999.

FURTHER SUBJECT TO: restrictions, reservations, covenants and easements of record, if any, however this reference shall not operate to reimpose same.

IN WITNESS WHEREOF the said grantor has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by its proper officers thereunto duly authorized, the day and year first above written.

Signed, sealed and delivered in the presence of:

_____
WITNESS SIGNATURE
CONSTANCE C. GARRISON
Printed Name of Witness

_____
WITNESS SIGNATURE
DEBRA M. PLUMMER
Printed Name of Witness

NORTHSHORE OCEAN HAMMOCK INVESMENT LP, a Georgia Limited Partnership
BY: HAMMOCK GP, LLC, a Georgia Limited Liability Company, It's General Partner

By: _____
J. RYMON WILBORN, VICE-PRESIDENT

STATE OF FLORIDA – COUNTY OF FLAGLER

I hereby certify that on this day, before me, an officer duly authorized to administer oaths and take acknowledgments, personally appeared, **J. RYMON WILBORN**, Vice-President of **HAMMOCK GP, LLC, a Georgia Limited Liability Company**, who acknowledged executing the foregoing in the name of and for that Limited Liability Company, as General Partner of **NORTHSHORE OCEAN HAMMOCK INVESTMENT, LP, a Georgia Limited Partnership**, and that he was duly authorized by the Limited Liability Company so to do.

Witness my hand and official seal in the County and State last aforesaid this 29 day of Aug 2000

[NOTARY SEAL]

My Commission Number/Expires

_____
NOTARY PUBLIC
CONSTANCE C. GARRISON
Printed Name of Notary Public

CONSTANCE C. GARRISON
MY COMMISSION # CC 697652
EXPIRES: November 19, 2001
Bonded Thru Notary Public Underwriters

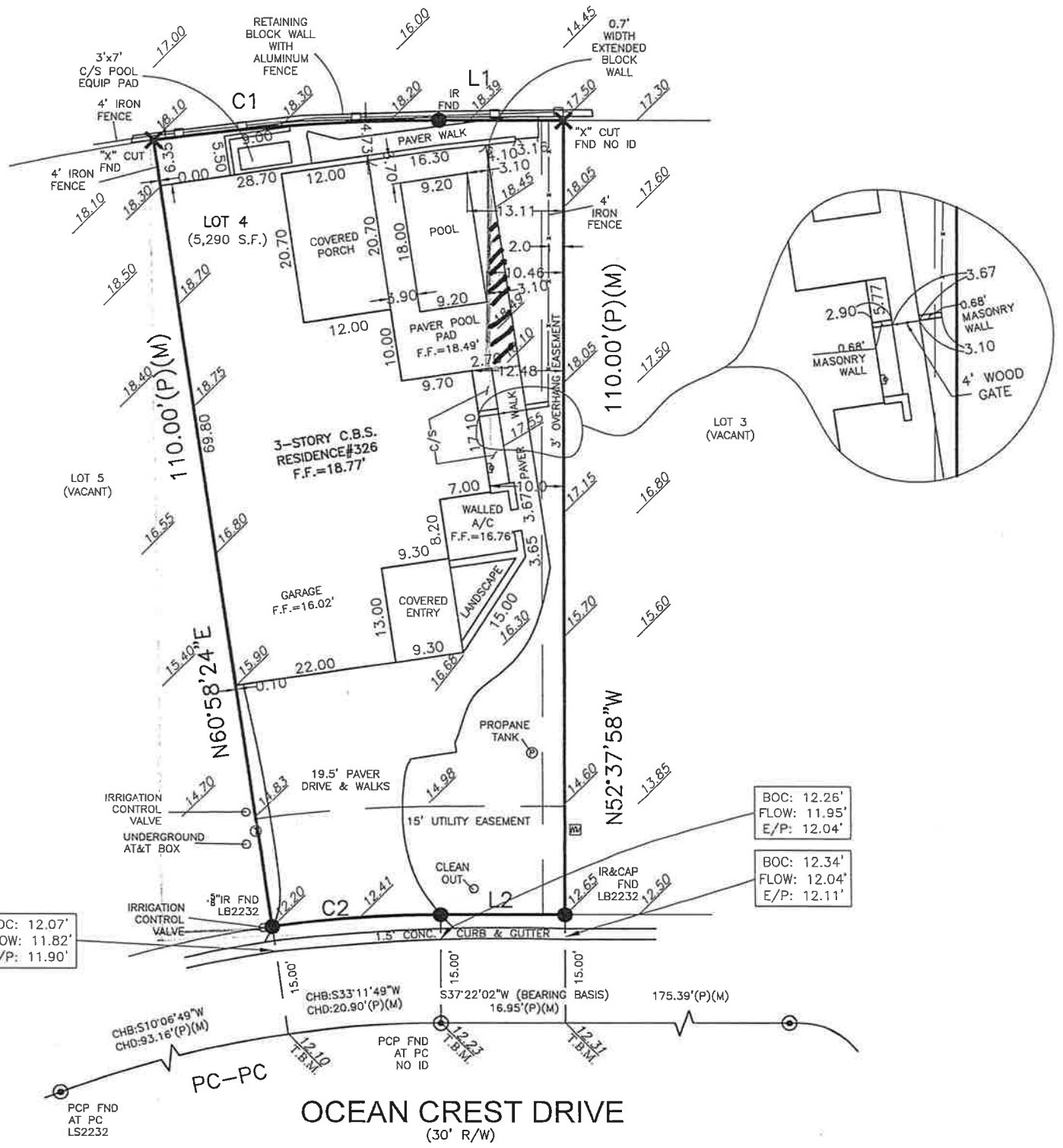
12/28/2023 11:05 am IP:[108.189.116.84] Packet No: 7005

ADDRESS: 326 OCEAN CREST DRIVE

JOB #24-2261

NORTH
SCALE: 1"=20'

NOT PART OF THIS PLAT



PC-PC
Δ =46°10'00"
R =143.70'
L =115.79'
CH =112.68'
CB =S14°17'02"W

C1
Δ =8°20'26"
R =268.70'
L =39.12'
CH =39.09'
CB =S33°11'47"W

C2
Δ =8°20'26"
R =158.70'
L =23.10'
CH =23.09'
CB =N33°11'46"E

L1
L =16.95'
CB =S37°22'02"W

L2
L =16.95'
CB =N37°22'02"E

REVISIONS:
ADDED SIDE POOL DIMENSIONS | 24-2995 | 07/26/24 | TNJ

--

TYPE OF SURVEY: AS-BUILT (FINAL ON ADDITION)
NOTE: THIS SURVEY IS VALID NO MORE THAN 90 DAYS FROM DATE OF LAST FIELD WORK

DESCRIPTION:

LOT 4, NORTHSHORE PLAT 4, A SUBDIVISION AS RECORDED IN MAP BOOK 31, PAGE 92, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA.

LEGEND:

○ IR	1/2" Iron Rod set "LB7672"	(D)	Deed Bearing & Distance	PT	Point of Tangency	A/C	Air Conditioner Pad
● IR	5/8" Iron Rod found	(P)	Plat Bearing & Distance	PI	Point of Intersection	EQP	Pool Equipment Pad
● IP	1/2" Iron Pipe	(M)	Measured Bearing & Distance	U.E.	Utility Easement	PEP	Pretreatment Effluent Pumping Tank
○ N/D	Nail and Disk set "LB7672"	(C)	Calculated Bearing & Distance	D.E.	Drainage Easement	O/E	Overhead Electric
● N/D	Nail and Disk found	C/L	Center Line	L.E.	Landscape Easement	P/P	Power Pole
◉ PCP	Permanent Control Point	E/P	Edge of Pavement	N.G.V.D.	National Geodetic Vertical Datum	Ⓜ	Manhole
□ CM	Concrete Monument set	E/R	Edge of Road	N.A.V.D.	North American Vertical Datum	Ⓣ	Telephone Riser
■ CM	Concrete Monument found	R/W	Right of Way	MSL	Mean Sea Level		Cable Television Riser
PRM	Permanent Reference Monument	Δ	Delta	B.M.	Bench Mark	Ⓕ	Fiber Optic Riser
FND	Found	R	Radius	T.B.M.	Temporary Bench Mark	WM	Water Meter
LB	Licensed Business	L	Length	TOB	Top Of Bank		Electric Meter
LS	Licensed Surveyor	CB	Chord Bearing	TOE	TOE of slope		Fire Hydrant
PSM	Professional Surveyor & Mapper	CH	Chord Distance	F.F.	Finish Floor Elevation		Water Valve
O.R.	Official Records Book	PC	Point of Curvature	INV.	Invert	—o—	Wood Fence
PG.	Page	PRC	Point of Reverse Curvature	C.B.S.	Concrete Block & Stucco	—□—	Vinyl Fence
		N.R.	Non-Radial Curve	Conc.	Concrete	—x—	Chain Link Fence
				C/S	Concrete Slab		

NOTES:

1. The entire map encompassing this survey is recorded in Map Book 31, Pages 90-92.
2. Elevations refer to N.A.V.D. 1988 datum and reference local datum.
3. Underground improvements and utilities not located.
4. Bearings refer to plat datum and to the centerline of OCEAN CREST DRIVE as being S37°22'02"W.
5. Property lies in Flood Zone "X", with reference to Map No. 12035C0127E, Effective Date: June 6, 2018. This location is based on maps prepared by the Federal Emergency Management Agency. Final location and flood zone determination rest with said agency and based on N.A.V.D. 1988 datum.
6. Description provided by client.
7. No search for encumbering instruments was made by surveyor.
8. Error of closure meets or exceeds 1:7500 feet.

CLIENT INFO

OCEANSIDE HOMES & REMODELING,LLLP
4440 NORTH OCEANSHORE BLVD #101
PALM COAST, FL 32137

JOB TYPE:	FIELD DATE	OFFICE DATE	JOB NO.	BY:
Boundary	06/03/24	06/11/24	24-2261	MM
Site Plan				
House Stake				
Final On Addition	07/22/24	07/24/24	24-2995	BAS

swa
STEPHENSON, WILCOX & ASSOCIATES, INC. CA#27726·LB#7672
2729 E. Moody Blvd., Ste. 400
PO Box 186 Bunnell FL 32110
Phone: 386.437.2363 · Email: info.swa@gmail.com
CIVIL ENGINEERS · LAND SURVEYORS · CONSULTANTS · PLANNERS

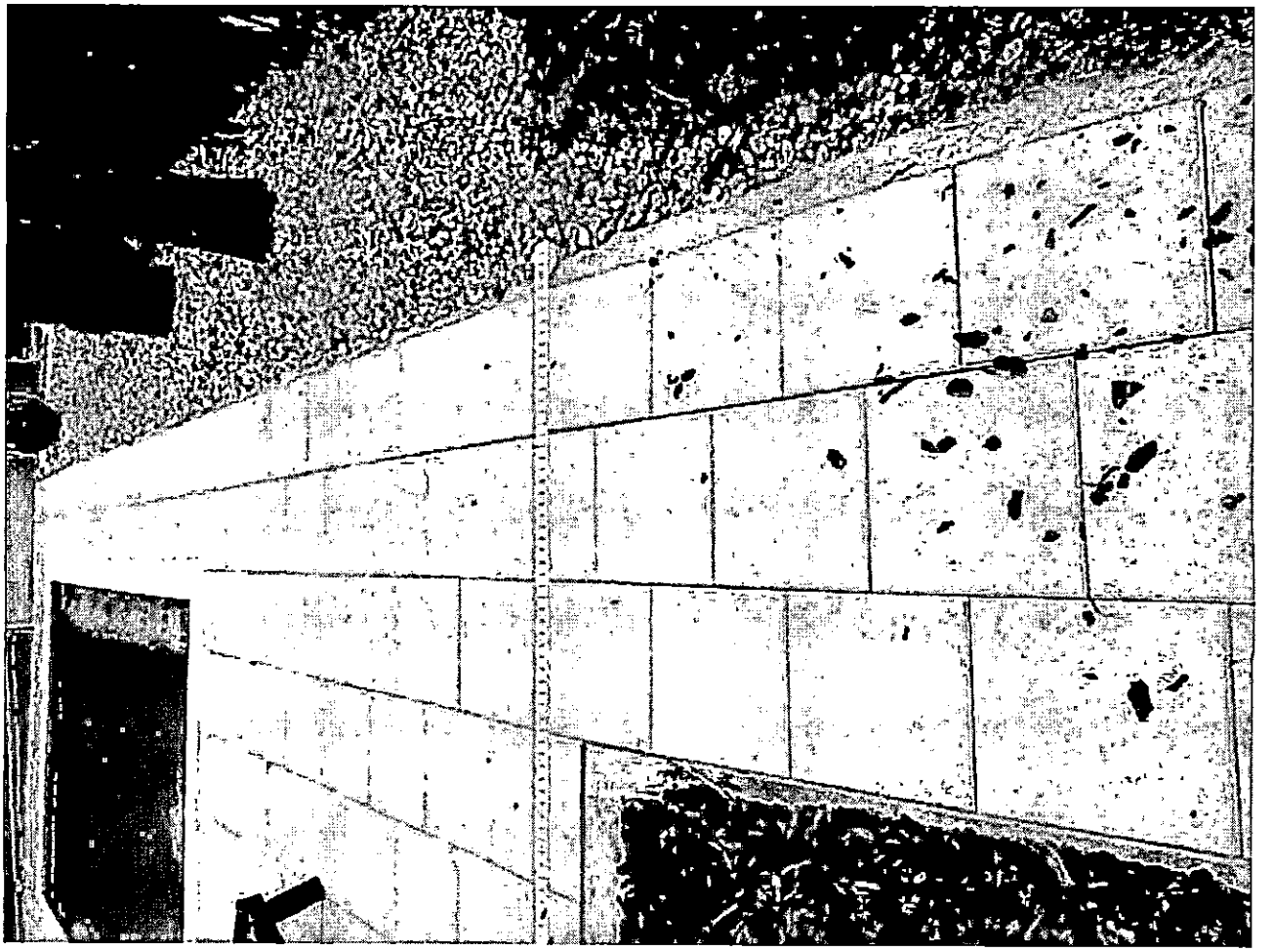
I hereby certify that the survey represented hereon meets or exceeds the minimum standards established pursuant to Section 472.027, Florida Statutes, and adopted in Chapter 5J-17 Florida Administrative Code.

7-29-24

DAN A. WILCOX Jr., PSM No.5749, PE No. 57633
Not valid without the signature and the original raised seal of a Florida Licensed surveyor and mapper.

SHEET
1 of 1

Z:\CAD SERVER 2014NOV12\SWA\Cad Server\sdsk projects\0000-Flagler\000-PLATS\Northshore-Plat4\LOT 4.dwg



LISA M STRADER
Notary Public - State of Illinois
Commission # NO 423412
My Comm. Expires Aug 16, 2017

Owner's Authorization for Applicant/Agent

FLAGLER COUNTY, FLORIDA
1769 E. Moody Boulevard, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #_____

William Groff, is hereby authorized TO ACT ON BEHALF OF Patrick and Heather Cua, the owner(s) of those lands described within the attached application, and as described in the attached deed or other such proof of ownership as may be required, in applying to Flagler County, Florida for an application for Setback variance.

(ALL PERSONS, WHO'S NAMES APPEAR ON THE DEED MUST SIGN)

By: _____
Signature of Owner

PATRICK CUA
Printed Name of Owner / Title (if owner is corporation or partnership)

_____
Signature of Owner

Heather Cua
Printed Name of Owner

Address of Owner:
326 Ocean Crest Dr.
Mailing Address

Palm Coast, FL 32137
City State Zip

Telephone Number (incl. area code)
404-731-4888

STATE OF Florida
COUNTY OF Flagler

The foregoing was acknowledged before me this 7th day of August, 2024 by Patrick + Heather CUA and _____ who is/are personally known to me or who has produced _____ as identification, and who (did) / (did not) take an oath.

_____
Signature of Notary Public

LISA M STRADER
Notary Public - State of Florida
Commission # HH 434123
My Comm. Expires Aug 16, 2027
(Notary Stamp)

http://www.flaglercounty.org/doc/dpt/centprmt/landdev/owner%20auth.pdf
Revised 5/08

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080040 / AR #5108

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ZON - ZONING (386-313-4009)

Comments:
Marked INFORMATION By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Side setbacks are 7.5' not 5' as shown on plan. Please revise.
2. Requested Variance will be 6.5'.
3. Provide an explanation why grass is not being proposed.

FD1 - FIRE REVIEW

Comments:
Marked INFORMATION By: JERRY SMITH - -
Fire Rescue has no issue with this variance.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s):	Jinan & David Duncan		
Mailing Address:	36 Ocean Ridge Blvd N.		
City: Palm Coast	State: FL	Zip: 32137	
Telephone Number (412) 977-0934		Fax Number	

APPLICANT/AGENT			
Name(s):	Allure Contracting / J. Burke Construction Inc		
Mailing Address:	1 Sycamore Terrace		
City: Palm Coast	State: FL	Zip: 32137	
Telephone Number 408 592-8916		Fax Number	
E-Mail Address:	jburkebuilder@Gmail.com		

SUBJECT PROPERTY		
SITE LOCATION (*street address*):	36 Ocean Ridge blvd N.	
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	26 OCEAN RDG 30 9104 11 S31E	
Parcel # (*tax ID #*):	04-11-31-4900-00000-0260	
Parcel Size:	10,290 ft or 0.24 Acres	
Current Zoning Classification:	PUD	
Current Future Land Use Designation	Single Family Residence	
Subject to A1A Scenic Corridor IDO?	[ ] YES	[X] NO

Relief Requested: _____

_____

_____ 8/7/2024

Signature of Owner(s) or Applicant/Agent if Owner Authorization form attached — Date

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 36 Ocean Ridge Blvd. N. Palm Coast Fl. 32137

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and Due to backslope we propose to install retaining wall, and use the space for patio living area.

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and We have acted in good faith. We request your council's permission

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and This project will not cause detriment to public health and is smaller to surrounding properties.

4. No variance may be granted for a use of land or building that is not permitted by this article. Pools and pool decks are permitted

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

Asking for the minimum needed.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Bldg 2
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

Required Attachments for Variance Application:

1.) Copy of Owner(s) recorded Warranty Deed;

2.) Application fee $345.00 plus postage and $50 for notification of public hearing (posting of sign). Make check payable to BOCC. Fee amount per Resolution 2008-31 as amended.

3.) 10 sets of complete application and site plan meeting all requirements of Flagler County Land Development Code.

NOTE: All applicants are requested to provide at least one set of documents/plans in a size no larger than 11" x 17" plus one electronic submittal in PDF format is preferred.

NOTE: Pursuant to Section 286.0105 of Florida Statutes, the Flagler County Planning Board hereby notifies all interested persons that if a person decides to appeal any decision made by the Planning Board with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made which record includes the testimony and evidence upon which the appeal is to be based.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

3.07.03.Procedure for variances and special exceptions.

A. *Request application.* A request for a hearing before the planning board for a variance or special exception shall be made as follows:

1. A completed application form shall be filed with the planning and zoning director. Such application shall state the pertinent facts on which the request is based. The planning and zoning director may assist the applicant in preparing the application.
2. An application shall be accompanied by an acceptable site plan with such reasonable information shown thereon as may be required by the planning and zoning director. Such site plan shall include, as a minimum, the following:
   (a) Lot dimensions with property line monuments located thereon.
   (b) Location and size of existing and proposed structures.
   (c) Easements (public and private), water courses, and if existing and proposed, fences, street names, and street right-of-way lines and such information regarding abutting property, as directly affects the application.

B. *Planning board hearing.*

1. The planning and zoning director shall schedule a hearing before the planning board to consider the application. Scheduling of this hearing shall provide ample time for the planning and zoning director to provide notice to surrounding property owners as set forth in subsection 3.07.03. In no event shall such hearing be scheduled more than forty-five (45) days from the date of application.
2. The hearing provided for under this section shall be for the purpose of reviewing relevant information from the applicant regarding the requested variance and/or special exception. The planning board shall also review written and/or oral comments from the public in accordance with its established procedures.
3. The planning board shall determine whether sufficient factual data was presented in order to render a decision. If the planning board determines that sufficient factual data was presented, then it shall render a decision to either:
   a. Approve the request as submitted;
   b. Approve the request with conditions;
   c. Disapprove the request.

If the planning board determines that sufficient factual data was not presented, the planning board may continue the hearing until the next scheduled meeting to allow for the preparation of such factual data. Only one (1) such continuation shall be allowed for each requested variance and/or special exception.

C. *Appeal of planning board decision.*

1. Within thirty (30) days of the rendering of a decision by the planning board regarding a requested variance and/or special exception, an appeal may be filed with the board of county commissioners. Such appeal may be filed by the original applicant, the planning and zoning director, other county staff as authorized, and a surrounding property owner, as defined in subsection 3.07.03.
2. The application for appeal shall be filed with the planning and zoning director who shall schedule a hearing on the appeal with the board of county commissioners. Scheduling of this hearing shall provide ample time for the applicant to provide notice to surrounding property owners, as set forth in subsection 3.07.03.
3. The appeal hearing provided for under this section shall be for the purpose of reviewing all pertinent information regarding the appeal. The applicant shall provide all relevant factual data, materials and/or oral testimony to support the appeal. The board of county

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

commissioners shall also review written and/or oral comments from the public in accordance with its established procedures.

4. At the conclusion of the appeals hearing provided for under this section, the board of county commissioners shall render a decision on the appeal. Any decision rendered by the board of county commissioners under this section shall be deemed final.

D. *Reserved*

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

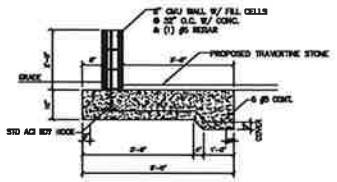
4. No variance may be granted for a use of land or building that is not permitted by this article.

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

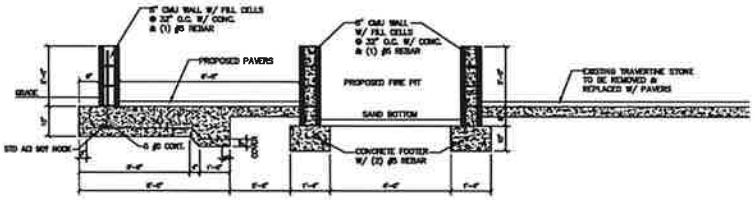
NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

NOTE: COURSES HIGHER THAN
4 COURSES THE 5TH COURSE NEEDS
TO BE AN CMU LINTEL

NOTE: SETBACKS
FRONT 25'-0"
BACK 10'-0"
SIDES 5'-0"



FOUNDATION DETAIL
SCALE: NTS



A CROSS SECTION
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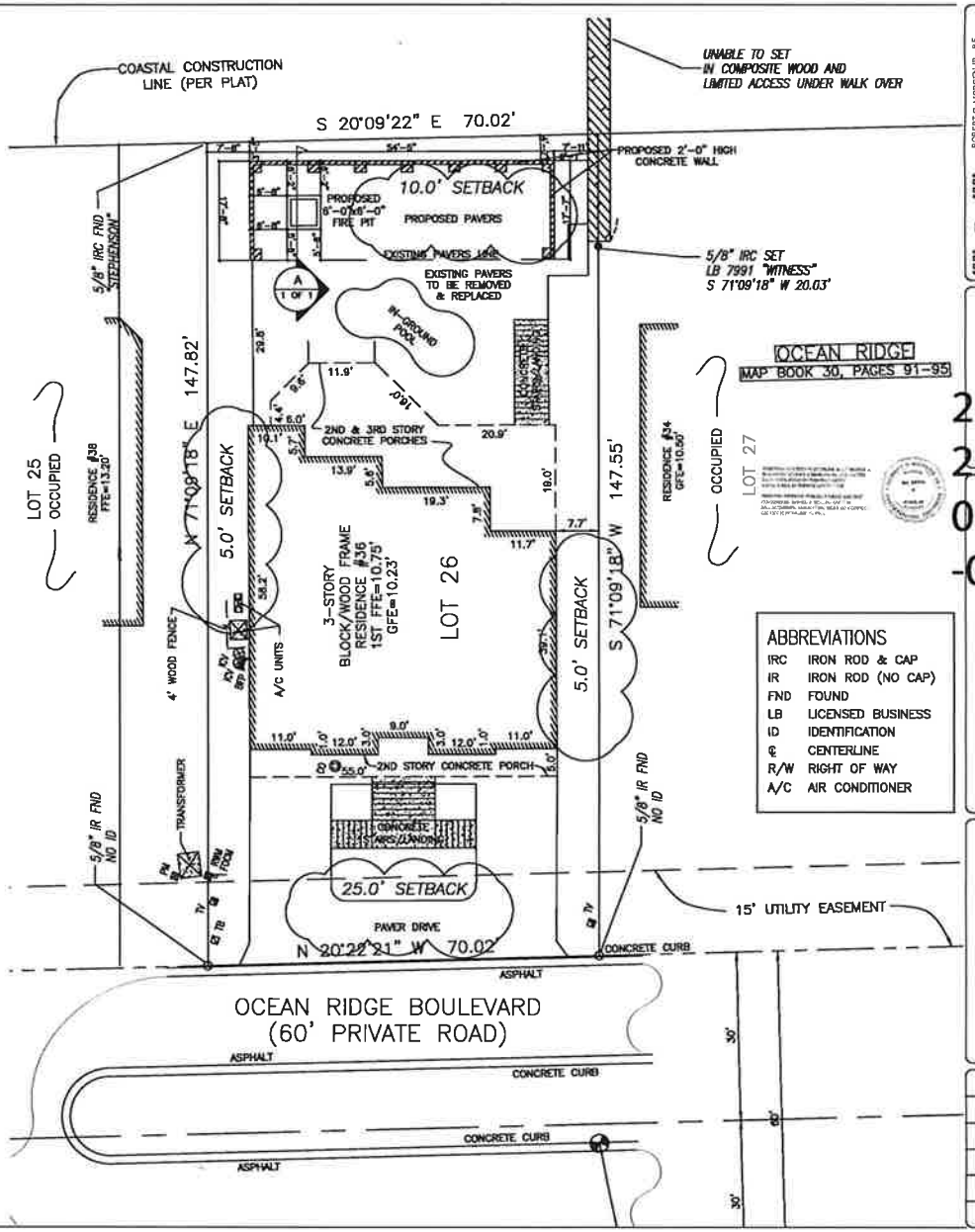


ROBERT G. NORDEN JR., P.E.
#55118
68 TESLA BLVD.
ST. AUGUSTINE, FLORIDA 32084
904-814-7833
RGM Engineering, Inc.

2024.08.02
09:09:19
-04'00'

NEW RETAINING WALL PLANS FOR
36 N. OCEAN RIDGE
FLAGLER COUNTY

K.E.B.
8-1-24
SCALE
R.G.M.
1 OF 1

Owner's Authorization for Applicant/Agent

FLAGLER COUNTY, FLORIDA
1769 E. Moody Boulevard, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #_____

Jeff Burke w/J Burke Const. Inc is hereby authorized TO ACT ON BEHALF OF Duncan's Residence, the owner(s) of those lands described within the attached application, and as described in the attached deed or other such proof of ownership as may be required, in applying to Flagler County, Florida for an application for Variance.

(ALL PERSONS, WHO'S NAMES APPEAR ON THE DEED MUST SIGN)

By: _____
Signature of Owner

Jinan Duncan
Printed Name of Owner / Title (if owner is corporation or partnership)

_____
Signature of Owner

DAVID S. DUNCAN
Printed Name of Owner

Address of Owner:

36 Ocean Ridge Blvd N.
Mailing Address

Palm Coast FL, 32137
City State Zip

Telephone Number (incl. area code)

(412) 977-0939

STATE OF Florida

COUNTY OF Flagler

The foregoing was acknowledged before me this 30th day of August, 2024 by Jinan Duncan and DAVID DUNCAN who is/are personally known to me or who has produced FL DL I C as identification, and who (did) / (did not) take an oath.

_____
Signature of Notary Public

TORRIE S. FRANCOIS
Notary Public, State of Florida
Commission# HH 489906
My commission expires April 18, 2028

(Notary Stamp)

http://www.flaglercounty.org/doc/dpt/centprmt/landdev/owner%20auth.pdf
Revised 5/08

Duncan property

36 Ocean ridge Blvd. N. Palm Coast FL, 32137

Allure Custom Contractors are proposing to build a 2 ft stem wall with decorative columns. We will be running new pavers to the stem wall & the pool will be renovated with a hot tub. We are applying for Variance, and we need the approval of neighbors within 300 FT of the project. We will need your approval to proceed with this project. I hope you are ok with these renovations and would really appreciate your approval and signature. If you can sign and print your name and address for approval that would be great! Thank you so much!

I approve 36 Ocean Ridge Blvd. N. renovations (Jinan & David Duncan)

Resident Name:
Sam Silverberg

Resident signature:
Sam Silverberg

Resident Address:
34 Ocean Ridge Blvd N.
Palm Coast, FL 32137

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080042 / AR #5110

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ZON - ZONING (386-313-4009)

Comments:
Marked INFORMATION By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Reqested Varianve will be 3.62' for rear setback and 0.44' for side setback.
2. Provide explanation how slab shifted so far from approved setbacks.

FD1 - FIRE REVIEW

Comments:
Marked INFORMATION By: JERRY SMITH - -
Fire Rescue has no issues with this variance.

ENGIN1 - DEVELOPMENT ENGINEERING (386-313-4082)

Comments:
Rejected By: SUSAN GRAHAM - (386)313-4082 - SGRAHAM@FLAGLERCOUNTY.GOV
1. The site plan was approved with the corrected setbacks. How did the back get so far off of the approved setback?

EH - ENVIRONMENTAL HEALTH DEPT

Comments:
Marked INFORMATION By: JOHN BEY - - JOHN.BEY@FLHEALTH.GOV
- Please note that septic system received construction approval on 1/4/23, but has not received final approval. System construction permit has expired as of 6/6/2023. Construction permit to be reissued prior to final system approval.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s):	SCOTT & LISA SKROGSTAD		
Mailing Address:	581 SHEARWOOD DR		
City:	FLAGLER BEACH	State: FL	Zip: 32136
Telephone Number	815-622-2725	Fax Number	—

APPLICANT/AGENT			
Name(s):	SAME		
Mailing Address:			
City:	*State:*	*Zip:*	
Telephone Number		*Fax Number*	
E-Mail Address:			

SUBJECT PROPERTY			
SITE LOCATION (*street address*):	3644 GREENBRIAR BUNNELL FL 32110		
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	DAYTONA NORTH SUB, BLK 124, LOTS		
Parcel # (*tax ID #*):	131228 18000 124 000 80		
Parcel Size:	1.1 ACRE		
Current Zoning Classification:	RESIDENTIAL		
Current Future Land Use Designation	RESIDENTIAL		
Subject to A1A Scenic Corridor IDO?	☐ YES	☑ NO	

Relief Requested: REQUESTING A VARIANCE ON THE SET BACKS ON THE NORTH SIDE AND THE EAST SIDE OF THE BUILDING

Lisa Skrogstad
Signature of Owner(s) or Applicant/Agent
if Owner Authorization form attached

8/21/24
Date

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

08/21/2024 03:49 pm IP:[107.145.54.244] Packet No: 9921

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 3644 GREENBRIAR BUNNELL FL 32110

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

MOVING A COMPLETED BUILDING WOULD CAUSE EXTREME FINANCIAL HARDSHIP.

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

WHEN THE SLAB WAS POURED IT ENCROACHED ON THE SET BACK BY 3.62' TO THE NORTH AND 0.44' TO THE EAST.

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

VARIANCE OF REQUESTED SET BACK IS STILL WITHIN PROPERTY LINES.

4. No variance may be granted for a use of land or building that is not permitted by this article.

CORRECT

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

CORRECT

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s):	SCOTT & LISA SKROCSTAD		
Mailing Address:	581 SHEARWOOD DR		
City:	FLAGLER BEACH	State: FL	Zip: 32136
Telephone Number	815-622-2725	Fax Number	—

APPLICANT/AGENT			
Name(s):	SAME		
Mailing Address:			
City:	*State:*	*Zip:*	
Telephone Number		*Fax Number*	
E-Mail Address:			

SUBJECT PROPERTY			
SITE LOCATION (*street address*):	3644 GREENBRIAR BUNNELL FL 32110		
LEGAL DESCRIPTION: (*briefly describe, do not use "see attached"*)	DAYTONA NORTH SUB, BLK 124, LOTS		
Parcel # (*tax ID #*):	131228 18000 124 000 80		
Parcel Size:	1.1 ACRE		
Current Zoning Classification:	RESIDENTIAL		
Current Future Land Use Designation	RESIDENTIAL		
Subject to A1A Scenic Corridor IDO?	☐ YES	☑ NO	

Relief Requested: REQUESTING A VARIANCE ON THE SET BACKS ON THE NORTH SIDE AND THE EAST SIDE OF THE BUILDING

Lisa Skrocstad
Signature of Owner(s) or Applicant/Agent
if Owner Authorization form attached

8/21/24
Date

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

08/21/2024 03:50 pm IP:[107.145.54.244] Packet No: 9921

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 3644 GREENBRIAR BUNNELL FL 32110

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

MOVING A COMPLETED BUILDING WOULD CAUSE EXTREME FINANCIAL HARDSHIP.

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

WHEN THE SLAB WAS POURED IT ENCROACHED ON THE SET BACK BY 3.62' TO THE NORTH AND 0.44' TO THE EAST.

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

VARIANCE OF REQUESTED SET BACK IS STILL WITHIN PROPERTY LINES.

4. No variance may be granted for a use of land or building that is not permitted by this article.

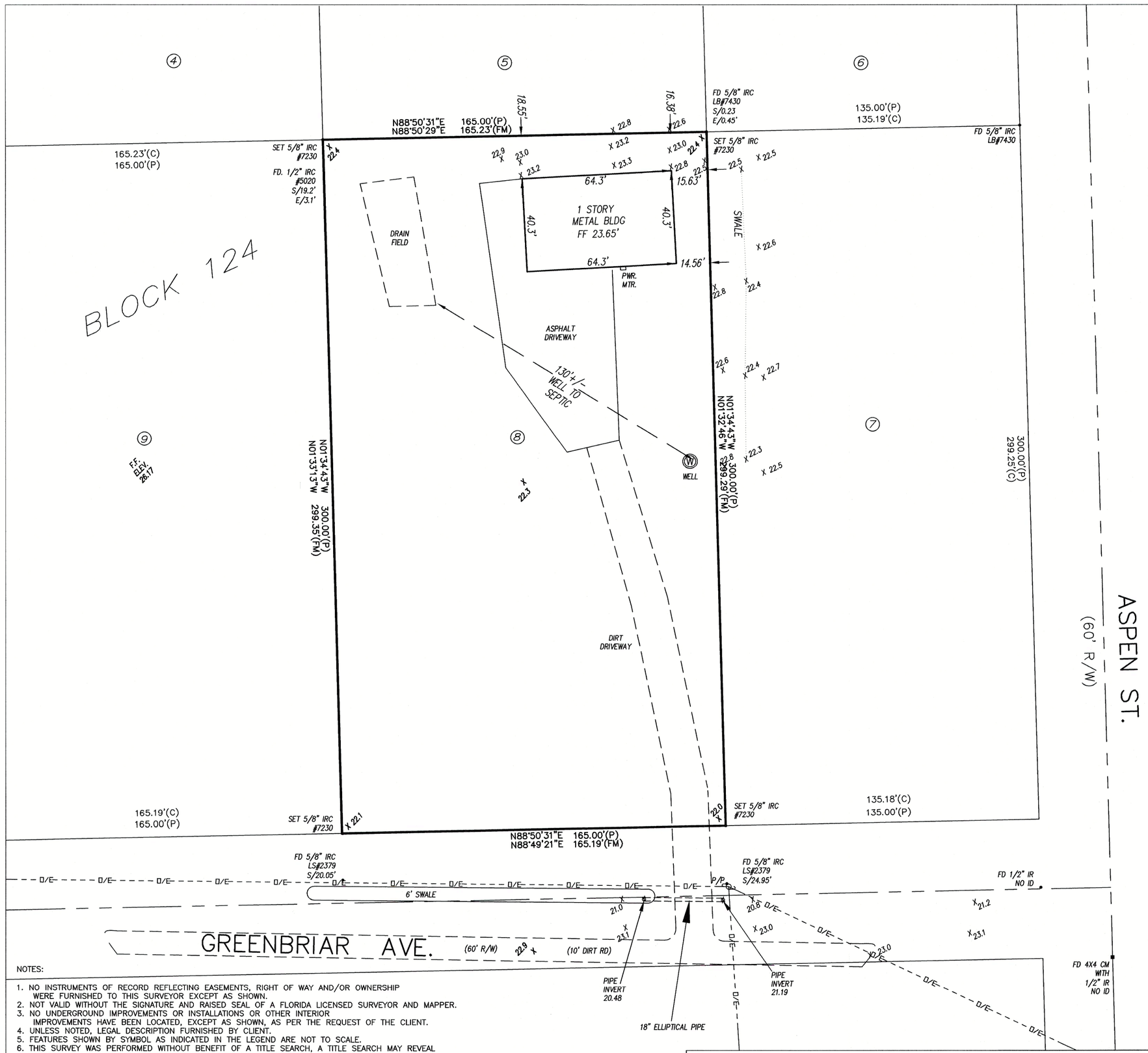
CORRECT

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

CORRECT

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application.

SECTION 16, TOWNSHIP 12 SOUTH, RANGE 29 EAST
BUNNELL
FLAGLER COUNTY, FLORIDA



1" = 30'
GRAPHIC SCALE
0 15 30 60

ABBREVIATIONS:

A/C	=	AIR CONDITIONER
(C)	=	CALCULATED
CL	=	CENTERLINE
CLF	=	CHAIN LINK FENCE
CONC.	=	CONCRETE
CSL	=	CONCRETE SLAB
CB	=	CONCRETE BLOCK
C.M.	=	CONCRETE MONUMENT
(D)	=	DEED OR DESCRIPTION
D/U	=	DRAINAGE/UTILITY EASEMENT
E	=	EAST
E/P	=	EDGE OF PAVEMENT
ESM'T.	=	EASEMENT
ELEV.	=	ELEVATION
F.F.	=	FINISHED FLOOR
FD.	=	FOUND
(FM)	=	FIELD MEASURED
I.D.	=	IDENTIFICATION
IP	=	IRON PIPE
IR	=	IRON ROD
IR&C	=	IRON ROD AND CAP
LS	=	LICENSED SURVEYOR
LB	=	LICENSED SURVEY BUSINESS
N	=	NORTH
N/D	=	NAIL AND DISK
N/W	=	NAIL AND WASHER
O.R.	=	OFFICIAL RECORDS
O/H	=	OVERHANG
O/E	=	OVERHEAD ELECTRIC LINE
PG.	=	PAGE
(P)	=	PLAT (MAP) DIMENSION
P/P	=	POWER POLE
P.C.	=	POINT OF CURVATURE
F.F.	=	FINISHED FLOOR
P.O.B.	=	POINT OF BEGINNING
P/L	=	PROPERTY LINE
R/W	=	RIGHT-OF-WAY
S	=	SOUTH
S/T	=	SEPTIC TANK
S.F.	=	SQUARE FEET
TYP.	=	TYPICAL
UGE	=	UNDER GROUND ELECTRIC
W	=	WEST
W/F	=	WOOD FENCE
W/M	=	WATER METER
Δ	=	DELTA OR CENTRAL ANGLE
L	=	LENGTH OF CURVE
R	=	RADIUS
T	=	TANGENT DISTANCE
C.B.	=	CHORD BEARING
CH.	=	CHORD DISTANCE
X 22.3	=	*ELEVATIONS*

DESCRIPTION: (PER ORB 2579 PG. 1542)

LOT 8, BLOCK 124, DAYTONA NORTH, A SUBDIVISION, ACCORDING TO THE PLAT OR MAP THEREOF DESCRIBED IN PLAT BOOK 10 PAGES 1–15, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA.

NOTE:

THIS SURVEY IS CERTIFIED TO AND PREPARED FOR THE SOLE AND EXCLUSIVE BENEFIT OF THE ENTITIES AND/OR INDIVIDUALS SHOWN HEREON, ON THE MOST CURRENT DATE SHOWN, AND SHALL NOT BE RELIED UPON BY ANY OTHER ENTITY OR INDIVIDUAL WHOMSOEVER. THERE MAY BE ADDITIONAL RESTRICTIONS AND/OR OTHER MATTERS THAT ARE NOT SHOWN HEREON THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THE COUNTY. THIS SURVEY IS PREPARED WITHOUT BENEFIT OF ABSTRACT OR TITLE SEARCH UNLESS OTHERWISE NOTED. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES. THIS SURVEY DRAWING IS THE PROFESSIONAL OPINION OF THIS SURVEYOR AND MAPPER AND THE FIRM, WHICH WAS PREPARED UTILIZING THE BEST AVAILABLE INFORMATION AND AS SUCH DOES NOT CONSTITUTE A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED. FURTHERMORE, THIS SURVEYOR AND FIRM DOES NOT ASSUME RESPONSIBILITY AND SHALL NOT BE HELD LIABLE FOR CLAIMS ARISING FROM ERRONEOUS OR INCORRECT INFORMATION FURNISHED TO THE SURVEYOR, WHICH WAS USED AS A BASIS IN THE PREPARATION OF THIS SURVEY DRAWING.

NOTES:

1. NO INSTRUMENTS OF RECORD REFLECTING EASEMENTS, RIGHT OF WAY AND/OR OWNERSHIP WERE FURNISHED TO THIS SURVEYOR EXCEPT AS SHOWN.
2. NOT VALID WITHOUT THE SIGNATURE AND RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
3. NO UNDERGROUND IMPROVEMENTS OR INSTALLATIONS OR OTHER INTERIOR IMPROVEMENTS HAVE BEEN LOCATED, EXCEPT AS SHOWN, AS PER THE REQUEST OF THE CLIENT.
4. UNLESS NOTED, LEGAL DESCRIPTION FURNISHED BY CLIENT.
5. FEATURES SHOWN BY SYMBOL AS INDICATED IN THE LEGEND ARE NOT TO SCALE.
6. THIS SURVEY WAS PERFORMED WITHOUT BENEFIT OF A TITLE SEARCH, A TITLE SEARCH MAY REVEAL ADDITIONAL INFORMATION AFFECTING THE PARCEL AS SHOWN.
7. WHERE APPLICABLE, MONUMENT DIAMETERS, ETC.. AND/OR LS OR LB NUMBERS ARE SHOWN NEAR RESPECTIVE SYMBOL ABOVE, UNLESS SHOWN IN LEGEND.
8. BEARINGS ASSUMED FROM PLAT, DEED, LEGAL DESCRIPTION.
9. UNLESS SHOWN, ONLY THOSE VISIBLE FEATURES IN THE IMMEDIATE VICINITY OF THE ABOVE DESCRIBED PARCEL BOUNDARY HAVE BEEN LOCATED.
10. SUBJECT PROPERTY LIES WITHIN ZONE "X", AREAS DETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAN AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, FLAGLER COUNTY COMMUNITY #120085, PANEL #12035C0205 E, DATED JUNE 06, 2018. THIS FLOOD INSURANCE RATE MAP IS NOT A SURVEY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF SAID MAP.
11. ELEVATIONS SHOWN HEREON ARE BASED ON NAVD 1988 DATUM.

REVISED 11/8/2023 TO SHOW FINAL SURVEY

REVISED 6/20/2024 TO ADD ADDITIONAL ELEVATIONS

REVISED 7/12/2024 TO CHANGE PIPE DESCRIPTION

EFIRD SURVEYING GROUP, INC.

475 S. BLUE LAKE AVENUE
DELAND, FLORIDA 32724
PHONE: (386) 740-4144 FAX: (386) 740-4155
WEBSITE: www.efirdsurveying.com
e-mail: larry@efirdsurveying.com
Certificate Of Authorization Licensed Business Number 7230

Boundary Survey

Survey Date:	Drawing Number	Scale:	Drawn By:
11/11/2021	21-0757-C	1"=30'	JM/JE/JM

For: SCOTT SKROGSTAD

3644 GREENBRIAR AVE., BUNNELL

I HEREBY CERTIFY THIS SURVEY DRAWING TO BE CORRECT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND COMPLIES IN FORM WITH THE MINIMUM TECHNICAL STANDARDS AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 61G17-6, F.A.C. PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

LARRY R. EFIRD JR.
Professional Surveyor & Mapper No. 5823

08/21/2024 03:49 pm IP:[107.145.54.244] Packet No: 9921

E-RECORDED simplifile
ID: 20220037932
County: Flagler
Date: 7/21/2022 Time: 1:12 pm
BK 2708 PG 1642.

PREPARED BY AND RETURN TO:
VINCENT SULLIVAN, ESQUIRE
CHIUMENTO LAW PLLC
145 CITY PLACE, SUITE 301
PALM COAST, FL 32164
Attn: Caroline McNeil

PREPARED WITHOUT THE BENEFIT OF TITLE EXAMINATION

NOTE TO RECORDING OFFICER: THIS CONVEYANCE INVOLVES ONLY NOMINAL CONSIDERATION AND ONLY THE MINIMUM DOCUMENTARY STAMP TAX IS PAYABLE WITH RESPECT HERETO. F.A.C. 12B-4.014(5)

WARRANTY DEED

THIS INDENTURE made this 20 day of July 2022, by **SNL RENTAL LLC, an Illinois limited liability company**, hereinafter called the **GRANTOR**, whose post office address is P.O. Box 121, DeKalb, Illinois 60115 to **SCOTT E. SKROGSTAD and LISA A. SKROGSTAD, husband and wife,** whose post office address is 2661 Annette Street, Flagler Beach, Florida 32136, hereinafter called the **GRANTEES:**

WITNESSETH, that said Grantor, for and in consideration of the sum of TEN AND NO/100 ($10.00) DOLLARS and other good and valuable consideration to said Grantor in hand paid by said Grantees, the receipt of whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the Grantees, all that certain land situate in **FLAGLER COUNTY**, Florida, to-wit:

Lot 8, Block 124, Daytona North, a subdivision, according to the plat or map thereof described in Plat Book 10, Pages 1-15, of the Public Records of Flagler County, Florida.

Parcel Identification Number: 13-12-28-1800-01240-0080

TOGETHER with all the tenements, hereditament and appurtenances thereto belonging or in anywise appertaining.

Subject to taxes for the year 2022 and subsequent years; covenants, conditions, restrictions, dedications, easements, resolutions, reservations and limitations of record, if any.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the Grantor hereby covenants with said Grantees that the Grantor is lawfully seized of said land in fee simple; that Grantor has good right and lawful authority to sell and convey said land; that the Grantor hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances, except taxes accruing subsequent to December 31, 2021.

08/21/2024 03:49 pm IP:[107.145.54.244] Packet No: 9921

IN WITNESS WHEREOF, the Grantor has signed seal these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF:

Witness Signature above line
Print Witness Name here: Stephanie Lugo-Cervantes

SNL RENTAL LLC, an Illinois limited liability company

SCOTT E. SKROGSTAD, Member

Witness Signature above line
Print Witness Name here: Vincent LSullivan

SNL RENTAL LLC, an Illinois limited liability company

LISA A. SKROGSTAD, Member

STATE OF FLORIDA
COUNTY OF FLAGLER

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me by means of ✓ physical presence or ____ online notarization this 20th day of July 2022 by **SCOTT E. SKROGSTAD and LISA A. SKROGSTAD, as Members of SNL RENTAL LLC, an Illinois limited liability company**, who are ____ personally known to me, or ✓ who produced a driver's license as identification and who did not take an oath.

STEPHANIE LUGO-CERVANTES NOTARY PUBLIC MY COMMISSION EXPIRES 5-19-2026 STATE OF FLORIDA COMMISSION NUMBER HH 265692

Notary Public
State of Florida
My Commission Expires:

Instrument No: 2022037932 7/21/2022 1:12 PM BK: 2708 PG: 1642 PAGES: 2 DOCTAX PD $0.70 -
RECORDED IN THE OFFICIAL RECORDS OF Tom Bexley, Clerk of the Circuit Court & Comptroller Flagler, FL

PREPARED BY AND RETURN TO:
VINCENT SULLIVAN, ESQUIRE
CHIUMENTO LAW PLLC
145 CITY PLACE, SUITE 301
PALM COAST, FL 32164
Attn: Caroline McNeil

PREPARED WITHOUT THE BENEFIT OF TITLE EXAMINATION

NOTE TO RECORDING OFFICER: THIS CONVEYANCE INVOLVES ONLY NOMINAL CONSIDERATION AND ONLY THE MINIMUM DOCUMENTARY STAMP TAX IS PAYABLE WITH RESPECT HERETO. F.A.C. 12B-4.014(5)

WARRANTY DEED

THIS INDENTURE made this 20 day of July 2022, by **SNL RENTAL LLC, an Illinois limited liability company**, hereinafter called the **GRANTOR**, whose post office address is P.O. Box 121, DeKalb, Illinois 60115 to **SCOTT E. SKROGSTAD and LISA A. SKROGSTAD, husband and wife**, whose post office address is 2661 Annette Street, Flagler Beach, Florida 32136, hereinafter called the **GRANTEES:**

WITNESSETH, that said Grantor, for and in consideration of the sum of TEN AND NO/100 ($10.00) DOLLARS and other good and valuable consideration to said Grantor in hand paid by said Grantees, the receipt of whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the Grantees, all that certain land situate in **FLAGLER COUNTY**, Florida, to-wit:

Lot 8, Block 124, Daytona North, a subdivision, according to the plat or map thereof described in Plat Book 10, Pages 1-15, of the Public Records of Flagler County, Florida.

Parcel Identification Number: 13-12-28-1800-01240-0080

TOGETHER with all the tenements, hereditament and appurtenances thereto belonging or in anywise appertaining.

Subject to taxes for the year 2022 and subsequent years; covenants, conditions, restrictions, dedications, easements, resolutions, reservations and limitations of record, if any.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the Grantor hereby covenants with said Grantees that the Grantor is lawfully seized of said land in fee simple; that Grantor has good right and lawful authority to sell and convey said land; that the Grantor hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances, except taxes accruing subsequent to December 31, 2021.

IN WITNESS WHEREOF, the Grantor has signed seal these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF:

SNL RENTAL LLC, an Illinois limited liability company

Witness Signature above line
Print Witness Name here: Stephanie Lugo-Cervantes

SCOTT E. SKROGSTAD, Member

SNL RENTAL LLC, an Illinois limited liability company

Witness Signature above line
Print Witness Name here: Vincent L Sullivan

LISA A. SKROGSTAD, Member

STATE OF FLORIDA
COUNTY OF FLAGLER

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me by means of ✓ physical presence or ____ online notarization this 20th day of July 2022 by **SCOTT E. SKROGSTAD and LISA A. SKROGSTAD, as Members of SNL RENTAL LLC, an Illinois limited liability company**, who are ____ personally known to me, or ✓ who produced a driver's license as identification and who did not take an oath.

STEPHANIE LUGO-CERVANTES NOTARY PUBLIC MY COMMISSION EXPIRES 5-19-2026 STATE OF FLORIDA COMMISSION NUMBER HH 285692

Notary Public
State of Florida
My Commission Expires:

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080043 / AR #5111

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ZON - ZONING (386-313-4009)

Comments:
Marked INFORMATION By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Requested variance will be 1.5'.
2. No other comments at this time.

FD1 - FIRE REVIEW

Comments:
Marked INFORMATION By: JERRY SMITH - -
Fire Rescue has no issues with this

ENGIN1 - DEVELOPMENT ENGINEERING (386-313-4082)

Comments:
Rejected By: SUSAN GRAHAM - (386)313-4082 - SGRAHAM@FLAGLERCOUNTY.GOV
Comments:
1. Provide the approved site plan for review.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s): Ron & Julie York			
Mailing Address: 100 S Virginia Ave, Unit 314			
City: Winter Park	State: FL	Zip: 32789	
Telephone Number		Fax Number	

APPLICANT/AGENT			
Name(s): Megan Ray; Hulbert Homes			
Mailing Address: PO Box 6254			
City: Lakeland	*State:* FL	*Zip:* 33813	
Telephone Number 863-647-5815		*Fax Number*	
E-Mail Address: megan@hulberthomes.com; mike@hulberthomes.com; dwhelan@hulberthomes.com			

SUBJECT PROPERTY		
SITE LOCATION (*street address):*	82 Coronado Road, Flagler Beach, FL 32136	
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	VERANDA BAY PHASE 2A MB 40 PG 65 LOT 40	
Parcel # (*tax ID #):*	38-12-31-7220-00000-0400	
Parcel Size:	6,499.974	
Current Zoning Classification:	PUD	
Current Future Land Use Designation	AGRICULTURE & TIMBERLANDS	
Subject to A1A Scenic Corridor IDO?	☐ YES	☑ NO

Relief Requested: 1.5' rear yard variance, as described in attached letter.

_____

Mark Hulbert _____ 8/26/24 _____
Signature of Owner(s) or Applicant Date
if Owner Authorization form attached

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 82 Coronado Road, Flagler Beach, FL 32136

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

4. No variance may be granted for a use of land or building that is not permitted by this article.

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Bldg 2
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

Required Attachments for Variance Application:

1.) Copy of Owner(s) recorded Warranty Deed;

2.) Application fee $345.00 plus postage and $50 for notification of public hearing (posting of sign). Make check payable to BOCC. Fee amount per Resolution 2008-31 as amended.

3.) Complete application and site plan meeting all requirements of Flagler County Land Development Code.

NOTE: Pursuant to Section 286.0105 of Florida Statutes, the Flagler County Planning Board hereby notifies all interested persons that if a person decides to appeal any decision made by the Planning Board with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made which record includes the testimony and evidence upon which the appeal is to be based.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

3.07.03. Procedure for variances and special exceptions.

A. *Request application.* A request for a hearing before the planning board for a variance or special exception shall be made as follows:
   1. A completed application form shall be filed with the planning and zoning director. Such application shall state the pertinent facts on which the request is based. The planning and zoning director may assist the applicant in preparing the application.
   2. An application shall be accompanied by an acceptable site plan with such reasonable information shown thereon as may be required by the planning and zoning director. Such site plan shall include, as a minimum, the following:
      (a) Lot dimensions with property line monuments located thereon.
      (b) Location and size of existing and proposed structures.
      (c) Easements (public and private), water courses, and if existing and proposed, fences, street names, and street right-of-way lines and such information regarding abutting property, as directly affects the application.

B. *Planning board hearing.*
   1. The planning and zoning director shall schedule a hearing before the planning board to consider the application. Scheduling of this hearing shall provide ample time for the planning and zoning director to provide notice to surrounding property owners as set forth in subsection 3.07.03. In no event shall such hearing be scheduled more than forty-five (45) days from the date of application.
   2. The hearing provided for under this section shall be for the purpose of reviewing relevant information from the applicant regarding the requested variance and/or special exception. The planning board shall also review written and/or oral comments from the public in accordance with its established procedures.
   3. The planning board shall determine whether sufficient factual data was presented in order to render a decision. If the planning board determines that sufficient factual data was presented, then it shall render a decision to either:
      a. Approve the request as submitted;
      b. Approve the request with conditions;
      c. Disapprove the request.

If the planning board determines that sufficient factual data was not presented, the planning board may continue the hearing until the next scheduled meeting to allow for the preparation of such factual data. Only one (1) such continuation shall be allowed for each requested variance and/or special exception.

C. *Appeal of planning board decision.*
   1. Within thirty (30) days of the rendering of a decision by the planning board regarding a requested variance and/or special exception, an appeal may be filed with the board of county commissioners. Such appeal may be filed by the original applicant, the planning and zoning director, other county staff as authorized, and a surrounding property owner, as defined in subsection 3.07.03.

   2. The application for appeal shall be filed with the planning and zoning director who shall schedule a hearing on the appeal with the board of county commissioners. Scheduling of this hearing shall provide ample time for the applicant to provide notice to surrounding property owners, as set forth in subsection 3.07.03.
   3. The appeal hearing provided for under this section shall be for the purpose of reviewing all pertinent information regarding the appeal. The applicant shall provide all relevant factual data, materials and/or oral testimony to support the appeal. The board of county

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

commissioners shall also review written and/or oral comments from the public in accordance with its established procedures.

4. At the conclusion of the appeals hearing provided for under this section, the board of county commissioners shall render a decision on the appeal. Any decision rendered by the board of county commissioners under this section shall be deemed final.

D. *Reserved*

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

4. No variance may be granted for a use of land or building that is not permitted by this article.

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

Hulbert Homes, INC.

Life is better in a Hulbert Home.

Permit #: 2024050263

82 Coronado Road,
Flagler Beach, FL 32136

To Flagler County Planning Board,

We would like to request a rear setback variance of 1.5 feet. The surveyor made a mistake and located the footprint exactly 1.5 feet to the back of the lot. The side yards are correct to the permitted plan.

We actually tried to avoid any location issues by having a check done after we put up stem walls, they confirmed at that time that everything was ok on location but we were maybe .05' to .1' low, which is not a problem because we are on a 3 course stem wall, and well above floodplain for the area.

Subsequent to the 'all good' on location we proceeded to continue with construction, built block walls, poured cells, and are now at framing and setting trusses. Obviously it would be a huge undertaking & hardship financially to tear down the entire house and foundation and move it towards the road 1.5".

The impact to neighbors and others is negligible, in this area the pool set back is only 5', as we are not building a pool the only violation the setback would be the one section of the house that is the master bedroom, about 16'-4" of occupied space. The rest of the back of the house steps in about 7'-4" for the lanai.

We have included a site plan and the signed foundation survey. The current, physical, rear yard setback is at 8.5" as can be seen in the foundation survey.

This was a big mistake on the surveyors part and we thought multiple checks through the process would catch any errors, and it did, but really, just a bit too late, much to our dismay.

We kindly request relief in the form of a rear yard setback variance of 1.5' and appreciate your understanding and consideration. We understand that we can request one more inspection, sheathing, so that we may dry in so as to prevent any damage or destruction of the interior and any more work would be at our risk.

Mark Hulbert
President/*CEO* | Hulbert Homes, Inc.
863-647-5815
P.O. Box 6254 | Lakeland, FL 33807

08/26/2024 11:11 am IP:[108.190.60.93] Packet No: 9962

Owner Information

Primary Owner
York Ron Trustee
100 S Virginia Avenue
Unit 314
Winter Park, FL 32789

Change of Address Application

Change of Address Application

Parcel Summary

Parcel ID	38-12-31-7220-00000-0400
Prop ID	2003272
Location Address	82 CORONADO RD FLAGLER BEACH, FL 32136
Brief Tax Description*	VERANDA BAY PHASE 2A MB 40 PG 65 LOT 40 (Note: *The Description above is not to be used on legal documents.)
Property Use Code	VACANT (000000)
Tax District	GARDENS AT HAMMOCK BEACH CDD (UNINC W/MC) (District 4)
Millage Rate	14.2704
Homestead	N
GIS sqft	6,499.974

View Map

Valuation

	2024 Working Values	2023 Certified Values
Building Value	$0	$0
Extra Features Value	$0	$0
Land Value	$301,000	$285,000
Land Agricultural Value	$0	$0
Agricultural (Market) Value	$0	$0
Just (Market) Value	**$301,000**	**$285,000**
Assessed Value	$301,000	$285,000
Exempt Value	$0	$0
Taxable Value	$301,000	$285,000
Protected Value	$0	$0

"Just (Market) Value" description - This is the value established by the Property Appraiser for ad valorem purposes. This value does not represent anticipated selling price.

Historical Assessment

Year	Building Value	Extra Features Value	Land Value	Agricultural Value	Just (Market) Value	Assessed Value	Exempt Value	Taxable Value	Protected Value
2024	$0	$0	$301,000	$0	$301,000	$301,000	$0	$301,000	$0
2023	$0	$0	$285,000	$0	$285,000	$285,000	$0	$285,000	$0

TRIM Notice

2024 TRIM Notice (PDF)

Sales

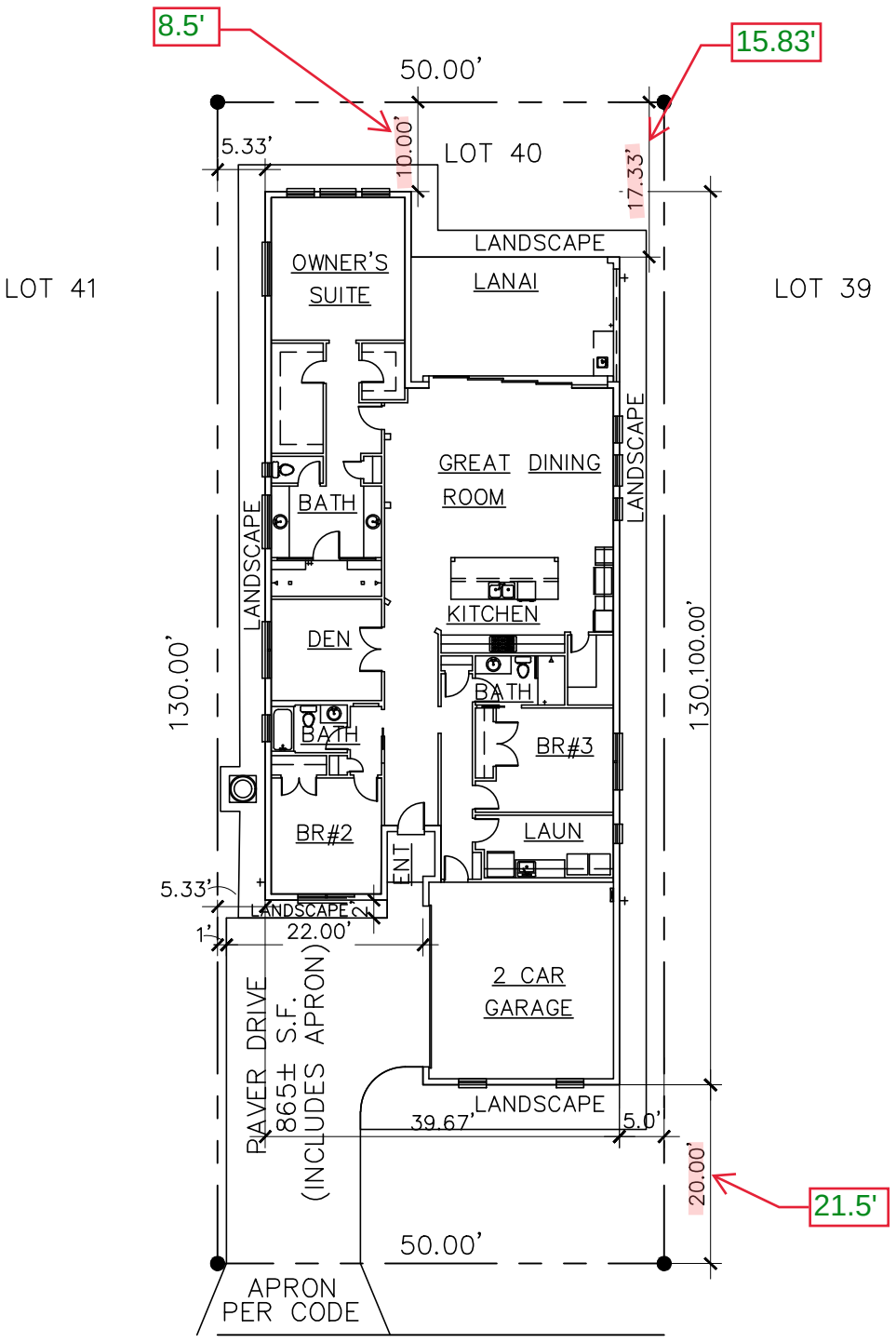
Sale Date	Sale Price	Instrument	Book	Page	Qualification	Vacant/Improved	Grantor	Link to Official Records
1/26/2024	$415,800	WD	2844	190	Qualified (Q)	Vacant	MIDLAND TRUST COMPANY	Link (Clerk)
9/21/2022	$309,900	WD	2725	1593	Qualified (Q)	Vacant	PALM COAST INTRACOASTAL LLC	Link (Clerk)

No data available for the following modules: MLS Listings, Linked Personal Property, Property Information, Residential Buildings, Commercial Buildings, Sketches, Building Area Types, Extra Features, Photos.

Reviewed for Code Compliance: 7/11/2024, PERMIT #: 2024050263

TOTAL LOT AREA: 6,500 SQUARE FEET (APPROX.)
STRUCTURAL AREA = 3,423 SQ.FT. = 52.66%
IMPERVIOUS AREA = 4,297 SQ.FT. = 66.11%

TOTAL LOT AREA: 6,900 SQUARE FEET (APPROX.)
(INCLUDES AREA BETWEEN LOT LINE & ROAD)
PAVER DRIVEWAY AND WALK COVERAGE = 865 SQ.FT. (APPOX.)
LANDSCAPING = 878 SQ.FT. (APPROX.)
A/C PAD COVERAGE = 9 SQ.FT. (APPROX.)
SOD COVERAGE = 1,725 SQ.FT. (APPROX.)



CORONADO ROAD

PROPOSED 1 STORY,
CONC. BLOCK, SINGLE
FAMILY RESIDENCE/R-3

YORK RESIDENCE
VERANDA BAY

Site Plan

1" = 20'-0"

08/26/2024 11:27 am IP:[108.190.60.93] Packet No: 9962

Growth Management Department
Planning & Zoning
1769 E. Moody Blvd, Bldg. 2
Bunnell, FL 32110

www.flaglercounty.org
Phone: (386)313-4009
Fax: (386)313-4109

TECHNICAL REVIEW COMMITTEE COMMENTS

DATE: September 13, 2024

Project #: 2024080050 / AR #5120

Attached are departmental comments regarding your submittal to Flagler County for the above referenced project. **Any questions regarding any of the comments should be addressed to the department providing the comment.**

Flagler County Building Department	386-313-4002
Flagler County Planning Department	386-313-4009
Flagler County Development Engineering	386-313-4082
Flagler County General Services (Utilities)	386-313-4184
County Attorney	386-313-4005
Flagler County Fire Services	386-313-4258
E-911 GIS Specialist	386-313-4274
Environmental Health Department	386-437-7358
Flagler County School Board	386-586-2386

Attachment: Staff Comments

Reviewing Department Comments

ZON - ZONING (386-313-4009)

Comments:
Marked INFORMATION By: SIMONE KENNY - - SKENNY@FLAGLERCOUNTY.GOV
1. Lot coverage calculation based on site plan and construction documents is 39.4%. Therefore, requested variance is 4.4%.
2. Provide written HOA approval, if possible.

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Application/Project #: _____

PROPERTY OWNER(S)			
Name(s): LEN BRUCE A AND MARIE F LEN H+W			
Mailing Address: EDMONTON ALBERTA PO BOX 3003			
City: EUSTIC	State: FL	Zip: 32727	
Telephone Number (352) 800-9806		Fax Number	

APPLICANT/AGENT			
Name(s): Jimmy Davis			
Mailing Address: 12 Cinnamon Grove Ln.			
City: Palm Coast	*State:* FL	*Zip:* 32137	
Telephone Number 386 295 0048		*Fax Number*	
E-Mail Address: JLdcca@aol.com			

SUBJECT PROPERTY		
SITE LOCATION (*street address*):	23 Cinnamon Grove Ln.	
LEGAL DESCRIPTION: *(briefly describe, do not use "see attached")*	lot 5. Cinnamon Grove Village	
Parcel # (*tax ID #*):		
Parcel Size:	83 X 108	
Current Zoning Classification:	R/C	
Current Future Land Use Designation	Single Family	
Subject to A1A Scenic Corridor IDO?	☐ YES	☒ NO

Relief Requested: Increase lot coverage for ADA Accessibility

Signature of Owner(s) or Applicant/Agent if Owner Authorization form attached

Date: 8/28/24

****OFFICIAL USE ONLY****

PLANNING BOARD RECOMMENDATION/ACTION:

APPROVED [ ]
*APPROVED WITH CONDITIONS [ ]
DENIED [ ]

Signature of Chairman: _____

Date: _____ *approved with conditions, see attached.

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

APPLICATION FOR VARIANCE

FLAGLER COUNTY, FLORIDA
1769 E. Moody Blvd, Suite 105
Bunnell, FL 32110
Telephone: (386) 313-4009 Fax: (386) 313-4109

Subject Property: 23 Cinnamon Grove Ln.

E. *Variance guidelines.* A variance may be granted, upon application, from the terms and provisions of this article as will not be contrary to the public health, safety, welfare and morals where, owing to special conditions, a literal enforcement of the provisions of this article will, in an individual case, result in unnecessary hardship. Such variances may be granted by the planning board in such individual case of unnecessary hardship upon a written finding that:

1. There are extraordinary and exceptional conditions pertaining to particular piece of property in question because of its size, shape, topography, or other unique features that, when considered in whole or part, creates an unnecessary hardship; and

ADA structure Hardship.

2. Such conditions were not created by the affirmative actions of the applicant and the applicant has acted at all times in good faith; and

House planning to Accomadate Individual with disability. Every 1" is being used.

3. The variance, if granted, would not cause substantial detriment to the public health, welfare, safety, and morals of the community or impair the purpose and intent of this article; and

HOA has Approved structure

4. No variance may be granted for a use of land or building that is not permitted by this article.

Affirmative

A variance, if granted, shall be the minimum variance necessary to alleviate the hardship. For purposes of this section, an unnecessary hardship shall mean that without the granting of the variance the owner will be deprived of all reasonable use of the property as allowed in the zoning district.

Total structure meets All ADA standards which are Necessary

NOTE: The applicant or a representative, must be present at the Public Hearing since the Board, at its discretion, may defer action, table, or take decisive action on any application. Rev. 09/16

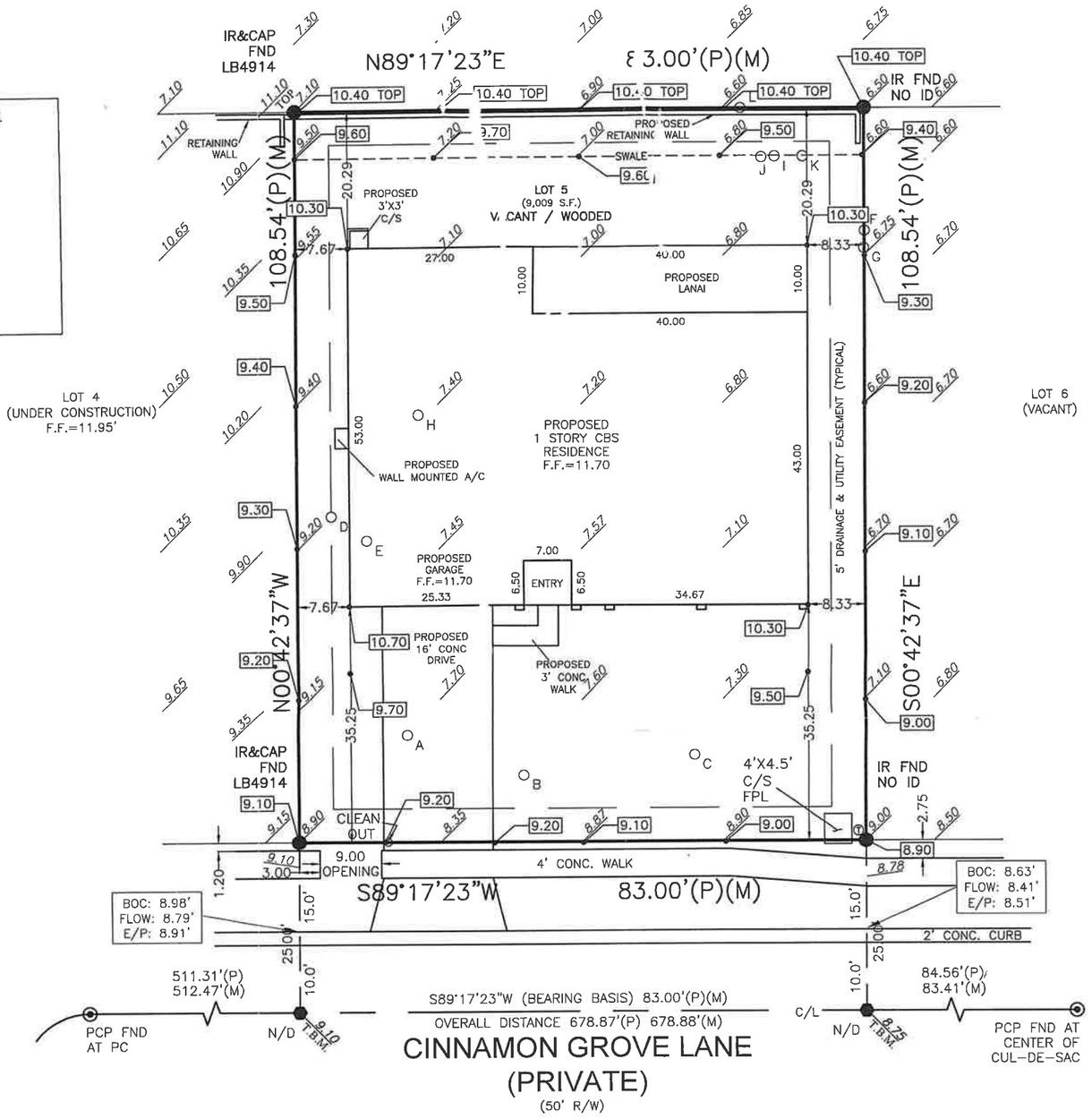
ADDRESS: 23 CINNAMON GROVE VILLAGE

JOB #24-1199

NORTH
SCALE: 1"=20'

OCEAN HAMMOCK INC.
PARCEL ID
40-10-31-5137-000B0-0000

TREE LEGEND:
- A. 10" OAK
- B. 11" OAK
- C. 24" OAK
- D. 6" OAK
- E. 6" OAK
- F. 6" OAK
- G. 7" OAK
- H. 6" OAK
- I. 7" OAK
- J. 6" OAK
- K. 6" OAK
- L. 6" OAK



CINNAMON GROVE LANE
(PRIVATE)
(50' R/W)

STANDARD SITE PLAN / GRADING NOTES

1. ALL SETBACKS, LOCATIONS, AND GRADING SHALL BE SUBMITTED TO AND APPROVED BY THE RESPECTIVE AUTHORIZING AGENCIES.
2. ALL GRADES ALONG IMPROVED PROPERTY LINES SHALL MATCH EXISTING UNLESS OTHERWISE NOTED.
3. PROPOSED CONVEYANCE SWALES ALONG IMPROVED PROPERTIES SHALL BE CONSTRUCTED 4 FEET INSIDE THE SUBJECT PROPERTY UNLESS OTHERWISE NOTED.

DRAINAGE LEGEND

0.00 EXISTING GRADE	PL= PROPERTY LINE
0.00 PROPOSED GRADE	FL= FLOW LINE
PROPOSED FLOW ARROWS	B= BERM
The final design is to be reviewed and approved by the city, county, or other agencies	INV.= INVERT
	HP= HIGH POINT
	LP= LOW POINT
	EX.= MATCH EXISTING

REVISIONS:
REVISED ENTRY | 08/28/24 | NJG
MOVED HOUSE FOWARD | 24-2573 | 07/16/24 | TNJ

ENGINEERED SITE PLAN / GRADING PLAN
TYPE OF SURVEY: BOUNDARY / TOPOGRAPHIC / TREE LOCATION
NOTE: THIS SURVEY IS VALID NO MORE THAN 90 DAYS FROM DATE OF LAST FIELD WORK

DESCRIPTION: LOT 5, CINNAMON GROVE VILLAGE, A SUBDIVISION AS RECORDED IN MAP BOOK 35, PAGE 12, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA.

LEGEND:

○ IR	1/2" Iron Rod set "LB7672"	(D)	Deed Bearing & Distance	PT	Point of Tangency	A/C	Air Conditioner Pad
● IR	5/8" Iron Rod found	(P)	Plat Bearing & Distance	PI	Point of Intersection	EQP	Pool Equipment Pad
● IP	1/2" Iron Pipe	(M)	Measured Bearing & Distance	U.E.	Utility Easement	PEP	Pretreatment Effluent Pumping Tank
○ N/D	Nail and Disk set "LB7672"	(C)	Calculated Bearing & Distance	D.E.	Drainage Easement		
● N/D	Nail and Disk found	C/L	Center Line	L.E.	Landscape Easement	O/E	Overhead Electric
◉ PCP	Permanent Control Point	E/P	Edge of Pavement	N.G.V.D.	National Geodetic Vertical Datum	P/P	Power Pole
□ CM	Concrete Monument set	E/R	Edge of Road	N.A.V.D.	North American Vertical Datum	Ⓜ	Manhole
■ CM	Concrete Monument found	R/W	Right of Way	MSL	Mean Sea Level	☎	Telephone Riser
PRM	Permanent Reference Monument	Δ	Delta	B.M.	Bench Mark		Cable Television Riser
FND	Found	R	Radius	T.B.M.	Temporary Bench Mark		Fiber Optic Riser
LB	Licensed Business	L	Length	TOB	Top Of Bank	WM	Water Meter
LS	Licensed Surveyor	CB	Chord Bearing	TOE	TOE of slope		Electric Meter
PSM	Professional Surveyor & Mapper	CH	Chord Distance	F.F.	Finish Floor Elevation		Fire Hydrant
O.R.	Official Records Book	PC	Point of Curvature	INV.	Invert		Water Valve
PG.	Page	PRC	Point of Reverse Curvature	C.B.S.	Concrete Block & Stucco		Wood Fence
		N.R.	Non-Radial Curve	Conc.	Concrete		Vinyl Fence
				C/S	Concrete Slab		Chain Link Fence

NOTES:

1. The entire map encompassing this survey is recorded in Map Book 35, Pages 10-12.
2. Elevations refer to N.A.V.D. 1988 datum and reference local datum.
3. Underground improvements and utilities not located.
4. Bearings refer to plat datum and to the centerline of CINNAMON GROVE LANE as being S89°17'23"W.
5. Property lies in Flood Zone "X", with reference to Map No. 12035C0129E, Effective Date: June 6, 2018. This location is based on maps prepared by the Federal Emergency Management Agency. Final location and flood zone determination rest with said agency and based on N.A.V.D. 1988 datum.
6. Description provided by client.
7. No search for encumbering instruments was made by surveyor.
8. Error of closure meets or exceeds 1:7500 feet.

CLIENT INFO
BRUCE LEN
P.O. BOX 3003
EUSTIS, FL 32727

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Phone: 386.437.2363 · Email: info.swa@gmail.com
CIVIL ENGINEERS · LAND SURVEYORS · CONSULTANTS · PLANNERS

JOB TYPE:	FIELD DATE	OFFICE DATE	JOB NO.	BY:
Boundary	04/09/24	04/11/24	24-1199	LAD
Site Plan		07/10/24	24-2573	NJG
House Stake				
Formboard				
Foundation				
Final				

I hereby certify that the survey represented hereon meets or exceeds the minimum standards established pursuant to Section 472.027, Florida Statutes, and adopted in Chapter 5J-17 Florida Administrative Code.

DAN A. WILCOX Jr., PSM No.5749, PE No. 57633
Not valid without the signature and the original raised seal of a Florida Licensed surveyor and mapper.

SHEET 1 of 1

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