The Department of Planning and Development Services
City Hall | 16 Colomba Road | DeBary, FL 32713

Development Review Committee (DRC) Meeting

Tuesday, June 20th, 2023 – 9:30 AM

DRC AGENDA

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF MINUTES
   - DRC meeting on June 6th, 2023
4. NEW BUSINESS
   - **Case # 23-04-FSP-Life Storage**; *First Review*, Applicant is requesting approval of a Final Site Plan for the alteration of two existing indoor self-storage buildings to construct a new self-storage building.
5. ADDITIONAL BUSINESS:
6. DISCUSSION:
7. ADJOURNMENT:

DISTRIBUTION:

Technical Review Staff:

- Steven Bapp, AICP, *Growth Management Director - Planning and Zoning* (*SBapp@DeBary.org)*
- Joseph Barker, AICP Candidate, *Senior Planner - Planning and Zoning (JBarker@DeBary.org)*
- Kayla Burney, *Planning Technician - Planning and Zoning (KBurney@DeBary.org)*
- Kevin Hare, *Construction Manager (KHare@DeBary.org)*
- Amy Long, *Deputy Public Works Director (ALong@DeBary.org)*
- Chad Qualls, *Public Works Superintendent (CQualls@DeBary.org)*
- Robert Scott, *Orange City Fire Department* (*RScott@ourorangecity.com*)
- Merylene Thomas, *Senior Planner - Planning and Zoning (MThomas@DeBary.org)*
- Richard Villasenor, *City Engineer (RVillasenor@DeBary.org)*
- Steve Wood, *Building Inspector (Buildingofficial@DeBary.org)*
- E-Sciences, *Environmental Management Consultant (troberts@res.us)*
- Fishback Dominick, *Legal Consultant (DLangley@fishbacklaw.com)*
- SurvTech Solutions, *Surveying Consultant (rfowler@survtechsolutions.com)*
- TEDS, *Transportation Consultant (FerrellFred@stanleygroup.com)*
- Volusia County Utilities, *Utilities (ErinReed@volusia.org)*

PLEASE NOTE: Each DRC project on the agenda will take approximately 30 minutes unless otherwise noted.

APPLICANT(S): Please plan to attend the DRC meeting to discuss your project and review the comments with reviewers. Individuals with disabilities needing assistance to participate in any of these proceedings should contact the City Clerk at least three (3) working days in advance of the meeting date and time at (386) 601-0219.

City of DeBary
Development Review Committee Meeting
June 6, 2023 - MINUTES

CALL TO ORDER:

The meeting of the City of DeBary Development Review Committee was called to order by Steven Bapp, Growth Management Director, at 9:30 am.

DRC MEMBERS PRESENT:

Steven Bapp, City of DeBary
Christopher Karl, Orange City Fire Department
Amy Long*, City of DeBary
Richard Villasenor, City of DeBary
Steve Wood, City of DeBary

OTHERS PRESENT:

Joseph Barker, City of DeBary
Phyllis Butlien, City of DeBary
Karen Chasez, City of DeBary
Johnny Hill, Florida Public Utilities
Christopher Karl, Orange City Fire Department
Chad Qualls, City of DeBary
Carmen Rosamonda, City of DeBary
Shari Simmans, City of DeBary
Mark Watts, Cobb-Cole
Michael Wojtuniak, EPI Engineering

APPROVAL OF MINUTES:

Steve Wood made a motion to approve the May 16, 2023 DRC Meeting Minutes, seconded by Richard Villasenor. The motion was approved by a 4-0 vote.

ADDITIONS, DELETIONS, OR AMENDMENTS TO THE AGENDA:

None

OLD BUSINESS:

None

NEW BUSINESS:

Highbanks Townhomes Overall Development Plan
Project # 23-01-ODP-Highbanks Townhomes

Chairman Steven Bapp briefly summarized the project.

Mark Watts of Cobb-Cole, a representative for the applicant, came forward to speak. He noted coordination on off-site improvements will be necessary. He stated the development agreement for the property lacks development standards appropriate for townhomes. The alternative would be traditional apartments.

Chairman Bapp suggested the best course of action for this project would be a major PUD amendment.

*Ms. Long arrived at the beginning of the discussion for Case # 23-01-ODP-Highbanks Townhomes.

Mr. Watts stated the data provided on the parking to be available did not include the off-street parking spaces for each lot. He stated they would be added to the site data.

Chairman Bapp made note of the necessary improvements to East Highbanks Road, including a center turn-lane. He also made note of the need to align one of the entrances into the development with Amigos Road. Mr. Watts stated they are already aware of this and have been working on amended plans to meet this requirement. There was also a discussion regarding a right-turn lane onto U.S. Highway 17/92 and a bike-pedestrian path on the north side of East Highbanks Road.

Chairman Bapp asked if the western side of the property near the pond would be developed in any way. Mr. Watts stated there would be no development in that area.

Christopher Karl stated the fire hydrants were not delineated on the plans and that they will need details on it. Mr. Karl stated the lengths of the dead-ends and turning radii will need to be provided. Mr. Karl stated no fire lanes have been shown on the plans. He stated the plans call for 18-foot roadways. Mr. Karl stated it needs to be at least 20 feet. Debbie of Kimley-Horn & Associates stated it should be 20 feet total. Mr. Karl stated the address layout will need to be provided.

Amy Long did not have any comments.

Richard Villasenor asked if there is going to be on-street parking control. Mr. Watts stated the designated parking areas will be the only areas for additional parking. Mr. Villasenor stated details for no-parking signs will need to be provided at the time of preliminary plat and construction plan submittal.

Mr. Villasenor noted there are some floodplain encroachments. Debbie stated there will be flood compensation. Mr. Villasenor stated there is a label indicating a proposed RV and boat parking area. Mr. Watts stated that is no longer proposed.

Steve Wood asked for clarification on a Planning & Zoning comment regarding the Land Development Code's supplementary regulations on environmental protection. Joseph Barker, Senior Planner, stated it was an information comment.

Mr. Watts stated they will discuss with the developer the direction they want to take this project.

The item was continued.

450 South Charles Richard Beall Boulevard Future Land Use Amendment
Project # 23-01-CPA-450 South Charles Richard Beall

Chairman Steven Bapp briefly summarized the project.

Michael Wojtuniak of EPI Engineering, a representative for the applicant, came forward to speak.

Richard Villasenor made a motion to recommend approval of the Future Land Use Map Amendment, pending staff comments being addressed, seconded by Steve Wood. The motion was approved by a 5-0 vote.

450 South Charles Richard Beall Boulevard Zoning Map Amendment
Project # 23-01-REZ-450 South Charles Richard Beall Boulevard

Chairman Steven Bapp briefly summarized the project.

Michael Wojtuniak of EPI Engineering, a representative for the applicant, came forward to speak.

Chairman Bapp noted the discrepancy on the Zoning Map was discovered during the course of the review for the Safety Town Final Site Plan, which is located on this property.

Richard Villasenor made a motion to recommend approval of the Zoning Map amendment, seconded by Steve Wood. The motion was approved by a 5-0 vote.

ADJOURNMENT:

The meeting was adjourned at 9:54 AM.

DRC 6-20-2023
Subject Case # 23-04-FSP-Life Storage
Applicant: Life Storage LP

Application Summary:

The applicant is requesting approval of a Final Site Plan for the redevelopment of 3075 Enterprise Road. Parts of two existing structures would be demolished and replaced with a new structure.

Planning & Zoning
Joseph Barker, Senior Planner, AICP

Regarding Case # 23-04-FSP-Life Storage, staff offers the following comments.

Comprehensive Plan Review:

In reviewing the application (proposed project), staff has reviewed it against the policies contained within the City's Comprehensive Plan (Plan) to determine whether the proposed project is consistent with the Plan, as required by Florida Statute 163.3194, and Section 1-2(b)(1) of the City's Land Development Code.

Future Land Use

The goal of the City's Future Land Use element of the Plan is to facilitate the development and use of land, including permanent open space, in an organized arrangement which supports the appropriate development of the overall community, including an efficient multi-modal transportation system that enhances the well-being of the City's residents and businesses.

Objective 5.4 mandates that the City base land use and development decisions on the adopted Future Land Use Map (FLUM). The site's FLUM classification is Commercial/Retail (C/R). While the use of self-storage facilities is not typically considered compatible with the C/R classification, the proposed project is merely a minor redevelopment of the existing use and does not expand any non-conformities with the Plan.

For all other elements of the Plan not discussed in this report, the project has been determined to be consistent with those elements.

Land Development Code Review:

The proposed project has been reviewed against the provisions of the City's Land Development Code (LDC).

Zoning Classification

LDC Chapter 3, Article III, Division 3 provides for zoning classifications and development standards therein. This property is zoned B-5, Heavy Commercial. Thus, the project is subject to the zoning regulations prescribed in LDC Section 3-103. The current use of self-storage is permitted in the B-5 classification.

The maximum lot coverage for the B-5 zoning classification is 35%. **Please provide lot coverage data. Note that FAR and lot coverage are not synonymous with one another**.

Supplementary Regulations

In addition to the development standards of the B-5 zoning classification, LDC Chapter 3, Article III, Division 4 contains supplementary regulations that must be followed.

Section 3-129(5) provides for minimum off-street parking. **Will any existing parking be eliminated? Will any new parking spaces be added?**

Final Site Plan Requirements

LDC Chapter 4, Article II, Division 3, Section 4-62 provides for requirements for final site plan applications. Please provide the following site details:

- **A north arrow on Sheet LS-01;**
- **Depiction of the intended direction of traffic flow; and**
- **Depiction of off-street parking, if any is being added.**

Design and Construction Standards of Improvements

LDC Chapter 4, Article II, Division 4 provides for standards for improvements in terms of design and construction.

LDC Section 4-81(f) requires the area covered by structures and impervious surface to not exceed a ratio of 75%. According to the data provided, the impervious surface ratio would be 88%. **What is the current impervious surface ratio?**

If any parking is being added, please make note of the requirements prescribed by LDC Section 4-88.

Landscaping and Buffer Standards

LDC Chapter 5, Article I provides for landscaping and buffer standards.

LDC Section 5-7(a) requires continuous landscape areas to be located adjacent to all building perimeters. **The western side of the building should have landscaping too.**

LDC Section 5-8(d) requires landscape planters for vehicular use areas to be designed without any sharp corners by using a minimum three-foot transition radius between any two sides. **Please verify this on the plans.**

Public Works Department
Amy Long, Deputy Public Works Director

Comments are forthcoming.

Fire Services
Robert Scott, Fire Marshal

No comments.

Engineering
Richard Villaseñor, P.E., City Engineer

Comments are forthcoming.

Building Department
Steve Wood, Building Official

Comments are forthcoming.

Volusia County Utilities
Erin Reed, PhD, P.E., Water & Utilities Senior Engineer

There do not appear to be any new connections to VCU mains; therefore, VCU has no comments or objections.

Environmental Management
Tom Roberts, Regional Science Manager, RES

Per Sec 5-12. of the land development code, please provide an irrigation plan for the proposed landscaping associated with the retrofitting improvements of the Site.

Surveyor
Ryan Fowler, Surveyor, SurvTech Solutions

Comments are forthcoming.

Transportation
Tanya King, PE, Senior Transportation Engineer, TEDS

No comments.

END OF COMMENTS

A written response to each of the above comments will be required when revisions are re-submitted to the City. Please be advised that additional comments may be forthcoming after a review of the revised plan set has been completed.

If you should have any questions, please feel free to contact me at 386-601-0203.

Steven Bapp, AICP
Sbapp@debary.org
Director of Growth Management
City of DeBary

DETAIL

R=7521.49
L=597.61
D=04°33'09"
C=597.46
CB=N 10°14'43" E

N 26°53'27" E
601.82'

MATCH LINE
S 75°04'25" W
1750.05'

INTERSTATE 4
(300' R/W)

S 16°03'57" W

1121.24'
(TO CENTERLINE ENTERPRISE ROAD)

N 16°03'57" E
993.63'

R=7521.49
L=1062.91
D=08°05'49"
C=1062.03
CB=N 12°01'03" E

SEE DETAIL

MATCH LINE
N 75°04'25" W
1750.05'

POND

ZONE "A"

ZONE "X"

APPROXIMATE FLOOD LINE AS SCALED FROM FEMA MAP

APPROXIMATE EDGE OF WATER

5' WIRE FC. ON LINE

5' WIRE FC. 0.6' OFF

5' WIRE FC. 1.5' OFF

(P.I.) REC 6"x6" CM(BROKEN)

6' CL FC 0.7' ON

N 26°32'27" E
1676.94'

N 26°32'27" E
1743.70'
(TO WESTERLY R/W LINE INTERSTATE 4)

NOT PLATTED

REC 1/2" IRON ID \ P.O.L. 769.80'

APPROXIMATE FLOOD LINE AS SCALED FROM FEMA MAP

ONE STORY BUILDING F.F.=49.89'

ASPHALT

CONC

CURB

F.F.=51.32'

F.F.=52.11'

F.F.=53.10'

F.F.=52.44'

F.F.=52.46'

F.F.=53.08'

F.F.=53.43'

ONE STORY BUILDING

BILLBOARD

WELL #1

BRICK

F.F.=53.72'

T.B.M.#1 (PK NAIL) ELEV.=51.81 (NAVD88)

T.B.M.#2 (PK NAIL) ELEV.=52.77' (NAVD88)

N 24°06'12" W
174.02

N 29°50'06" W
300.81'

N 24°00'16" W
608.94

N 24°00'16" W
60.69

S 24°00'16" E
468.52

N 26°32'27" E
64.76'

P.O.B.

ENTERPRISE ROAD
(R/W VARIES)

CENTERLINE OF ENTERPRISE ROAD

CENTERLINE PAVEMENT OF ENTERPRISE ROAD

SOUTH LINE, SECTION 25-18-30
S 89°38'27" E
267.48'

SW CORNER, SECTION 25-18S-30E

DESCRIPTION AS FURNISHED:

A PORTION OF THE SOUTHWEST 1/4 OF SECTION 25, TOWNSHIP 18 SOUTH, RANGE 30 EAST, AND THE NORTHWEST 1/4 OF SECTION 36, TOWNSHIP 18 SOUTH, RANGE 30 EAST, LYING EASTERLY OF ENTERPRISE ROAD, VOLUSIA COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 25, RUN SOUTH 89°38'27" EAST, ALONG THE SOUTH LINE OF SAID SECTION 25, A DISTANCE OF 267.48 FEET, TO THE CENTERLINE OF PAVEMENT OF ENTERPRISE ROAD AS NOW OCCUPIED AND ESTABLISHED; THENCE SOUTH 24°00'16" EAST, ALONG THE CENTERLINE OF SAID ENTERPRISE ROAD, A DISTANCE OF 468.52 FEET, TO THE POINT OF BEGINNING; THENCE NORTH 26°32'27" EAST, DEPARTING SAID ENTERPRISE ROAD, A DISTANCE OF 174.3.70 FEET, TO THE WESTERLY RIGHT-OF-WAY LINE OF INTERSTATE 4, AS NOW OCCUPIED AND ESTABLISHED; THENCE SOUTHERLY THROUGH A CURVE CONCAVE WESTERLY, SAID CURVE HAVING A CENTRAL ANGLE OF 08°05'49" AND A RADIUS OF 7521.49 FEET, AN ARC DISTANCE OF 1062.91 FEET, TO A POINT OF TANGENCY; THENCE SOUTH 16°03'57" WEST, CONTINUING ALONG WESTERLY RIGHT-OF-WAY LINE OF SAID INTERSTATE 4, A DISTANCE OF 1121.24 FEET TO THE CENTERLINE OF SAID ENTERPRISE ROAD; THENCE NORTH 24°00'16" WEST, ALONG THE CENTERLINE OF SAID ENTERPRISE ROAD, A DISTANCE OF 608.94 FEET, TO THE POINT OF BEGINNING

SPECIFIC PURPOSE SURVEY FOR / CERTIFIED TO: *Appian Engineering*

H.MON

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

TREE LEGEND

= ASH
= OAK
= PALM
= PINE

GRUSENMEYER – SCOTT & ASSOC., INC. – LAND SURVEYORS

5400 E. COLONIAL DR. ORLANDO, FL. 32807 (407)-277-3232 FAX (407)-658-1436
CERTIFICATE OF AUTHORIZATION – LB 4596

LEGEND
B.M.=BENCHMARK
℄=CENTERLINE
CALC=CALCULATED
CM=CONCRETE MONUMENT
CLF=CHAIN LINK FENCE
CONC=CONCRETE
C/B=CONCRETE BLOCK
A/C=AIR CONDITIONER
COV'D=COVERED
DESC=DESCRIPTION
EB=ELECTRIC BOX
FD=FOUND
EP=EDGE OF PAVEMENT
FH=FIRE HYDRANT
F.F.=FINISHED FLOOR ELEVATION
F=FENCE
FHC=FIRE HOSE CONNECTOR
FM=FIRE METER
GA=GUY ANCHOR
GM=GAS METER
GP=GUARD POST
GV=GAS VALVE
INV=INVERT
IR=IRON ROD
IP=IRON PIPE
LP=LIGHT POLE
WM=WATER METER
MH=MAN HOLE
N&D=NAIL AND DISK
O/H=OVERHEAD LINE
P=PLAT
PP=UTILITY POLE
MES=MITERED END SECTION
SV=SEWER VALVE
FO=FIBER OPTIC MARKER

PART OF PROPERTY DOES LIE WITHIN THE ESTABLISHED 100 YEAR FLOOD PLANE AS PER F.I.R.M. COMMUNITY MAP # 12127C0460K (09-29-2017)

LEGEND
POC=POINT OF COMMENCEMENT
POB=POINT OF BEGINNING
RCP=REINFORCED CONC. PIPE
R/W=RIGHT OF WAY
REC.=RECOVERED
SET N&D=NAIL #4596
SN=SIGN
SIR=SET 1/2" IRON ROD W/LB #4596
TB=TELEPHONE BOX
TYP=TYPICAL
WF=WOOD FENCE
WP=WITNESS POINT
WV=WATER VALVE
WM=WATER METER
TRANS/TR=TRANSFORMER
TOB=TOP OF BANK
L = ARC LENGTH
CB = CHORD BEARING
D = DELTA
R = RADIUS
C = CHORD LENGTH
DI = DRAINAGE INLET
ID = IDENTIFICATION
BLDG. = BUILDING
CBS = CONCRETE BLOCK
TBM = TEMPORARY BENCHMARK
(NO I.D.) = NO CAP IDENTIFICATION
UB = UTILITY BOX
UV=UTILITY VAULT
± = MORE OR LESS
N/A=NOT APPLICABLE
BFP=BACK FLOW PREVENTER
SB=SIGNAL BOX
SP=SIGNAL POLE
PP=POWER POLE
● =BOLLARD

NOTES:
1. THE UNDERSIGNED DOES HEREBY CERTIFY THAT THIS SURVEY MEETS THE STANDARDS OF PRACTICE AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17 (FLORIDA ADMINISTRATIVE CODE) PURSUANT TO SECTION 472.027 FLORIDA STATUTES.
2. UNLESS EMBOSSED WITH SURVEYOR'S SIGNATURE AND SEAL, THIS SURVEY IS NOT VALID AND IS PRESENTED FOR INFORMATIONAL PURPOSES ONLY.
3. THIS SURVEY WAS PREPARED FROM TITLE INFORMATION FURNISHED TO THE SURVEYOR. THERE MAY BE OTHER RESTRICTIONS OR EASEMENTS THAT AFFECT THIS PROPERTY.
4. NO UNDERGROUND IMPROVEMENTS HAVE BEEN LOCATED UNLESS OTHERWISE SHOWN.
5. THIS SURVEY IS PREPARED FOR THE SOLE BENEFIT OF THOSE CERTIFIED TO AND SHOULD NOT BE RELIED UPON BY ANY OTHER ENTITY.
6. DIMENSIONS SHOWN FOR THE LOCATION OF IMPROVEMENTS HEREON SHOULD NOT BE USED TO RECONSTRUCT BOUNDARY LINES.
7. BEARINGS, IF SHOWN, ARE BASED ASSUMED DATUM AND ON THE LINE SHOWN AS BASE BEARING (B.B.).
8. ELEVATIONS, IF SHOWN, ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988(UNLESS OTHERWISE NOTED)
9. BENCHMARK USED: Q 470 1997 (ELEV.=75.47' NAVD88)
10. SPECIFIC PURPOSE SURVEY TO SHOW TOPOGRAPHY & TREES AS SPECIFIED BY CLIENT

CERTIFIED BY:

JAMES W. SCOTT, TOM K. GRUSENMEYER,
REGISTERED LAND SURVEYOR #4801 REGISTERED LAND SURVEYOR #4714

FIELD DATE	ORDER #
SPECIFIC PURPOSE SURVEY 08-10-2021	21-4549

LIFE STORAGE DEBARY STORE LS 012 IMPROVEMENTS

FINAL SITE PLAN

PREPARED FOR
LIFE STORAGE
6467 MAIN STREET
WILLIAMSVILLE, NY 14221

DEBARY, FLORIDA

VCPA PARCEL ID: 802500000052

LEGAL DESCRIPTION PER GRUSENMEYER - SCOTT & ASSOC., INC. DATED: AUGUST 10, 2021

DESCRIPTION AS FURNISHED:

A PORTION OF THE SOUTHWEST 1/4 OF SECTION 25, TOWNSHIP 18 SOUTH, RANGE 30 EAST, AND THE NORTHWEST 1/4 OF SECTION 36, TOWNSHIP 18 SOUTH, RANGE 30 EAST, LYING EASTERLY OF ENTERPRISE ROAD, VOLUSIA COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 25, RUN SOUTH 89°38'27" EAST, ALONG THE SOUTH LINE OF SAID SECTION 25, A DISTANCE OF 267.48 FEET, TO THE CENTERLINE OF PAVEMENT OF ENTERPRISE ROAD AS NOW OCCUPIED AND ESTABLISHED; THENCE SOUTH 24°00'16" EAST, ALONG THE CENTERLINE OF SAID ENTERPRISE ROAD, A DISTANCE OF 468.52 FEET, TO THE POINT OF BEGINNING; THENCE NORTH 26°32'27" EAST, DEPARTING SAID ENTERPRISE ROAD, A DISTANCE OF 1743.70 FEET, TO THE WESTERLY RIGHT-OF-WAY LINE OF INTERSTATE 4, AS NOW OCCUPIED AND ESTABLISHED; THENCE SOUTHERLY THROUGH A CURVE CONCAVE WESTERLY, SAID CURVE HAVING A CENTRAL ANGLE OF 08°05'49" AND A RADIUS OF 7521.49 FEET, AN ARC DISTANCE OF 1062.91 FEET, TO A POINT OF TANGENCY; THENCE SOUTH 16°03'57" WEST, CONTINUING ALONG WESTERLY RIGHT-OF-WAY LINE OF SAID INTERSTATE 4, A DISTANCE OF 1121.24 FEET TO THE CENTERLINE OF SAID ENTERPRISE ROAD; THENCE NORTH 24°00'16" WEST, ALONG THE CENTERLINE OF SAID ENTERPRISE ROAD, A DISTANCE OF 608.94 FEET, TO THE POINT OF BEGINNING

SPECIFIC PURPOSE SURVEY FOR / CERTIFIED TO: Appian Engineering

PROJECT TEAM:

PROPERTY OWNER / APPLICANT / DEVELOPER
LIFE STORAGE INC.
CONTACT: DREW PIATEK, PROJECT MANAGER
6467 MAIN STREET
WILLIAMSVILLE, NY 14221
PHONE: (716) 633-1850
EMAIL: DREPIATEK@LIFESTORAGE.COM

CIVIL ENGINEER
APPIAN ENGINEERING, LLC
ENGINEER: MAJOR STACY, P.E.
2221 LEE RD, SUITE 27
WINTER PARK, FL 32789
PHONE: (407) 960-5868
EMAIL: MSTACY@APPIANFL.COM

SURVEYOR
GRUSENMEYER - SCOTT AND ASSOCIATE, INC.
SURVEYOR: JAMES W. SCOTT, P.S.M.
5400 E. COLONIAL DRIVE
ORLANDO, FL 32807
PHONE: (407) 277-3232
EMAIL: GRUSCOTT@GRUSCOTT.COM

ARCHITECT
HEAL ARCHITECT, LLC
ARCHITECT: LANCE HEAL
3549 NORTH UNIVERSITY AVENUE - SUITE 120
PROVO, UT 84604
EMAIL: LANCE@HEALARCHITECT.COM

GEOTECHNICAL ENGINEER
ESC FLORIDA, LLC
GEOLOGIST: VICTOR FALTAS, P.E.
1503 S US HWY 301
TAMPA, FL 33619-5126
PHONE: (386) 944-9588

UTILITY PROVIDERS

WATER RESOURCE & UTILITY:
VOLUSIA COUNTY WATER RESOURCE & UTILITY
3151 E NEW YORK AVE
DELAND, FLORIDA 32724
PHONE: (386) 804-4561

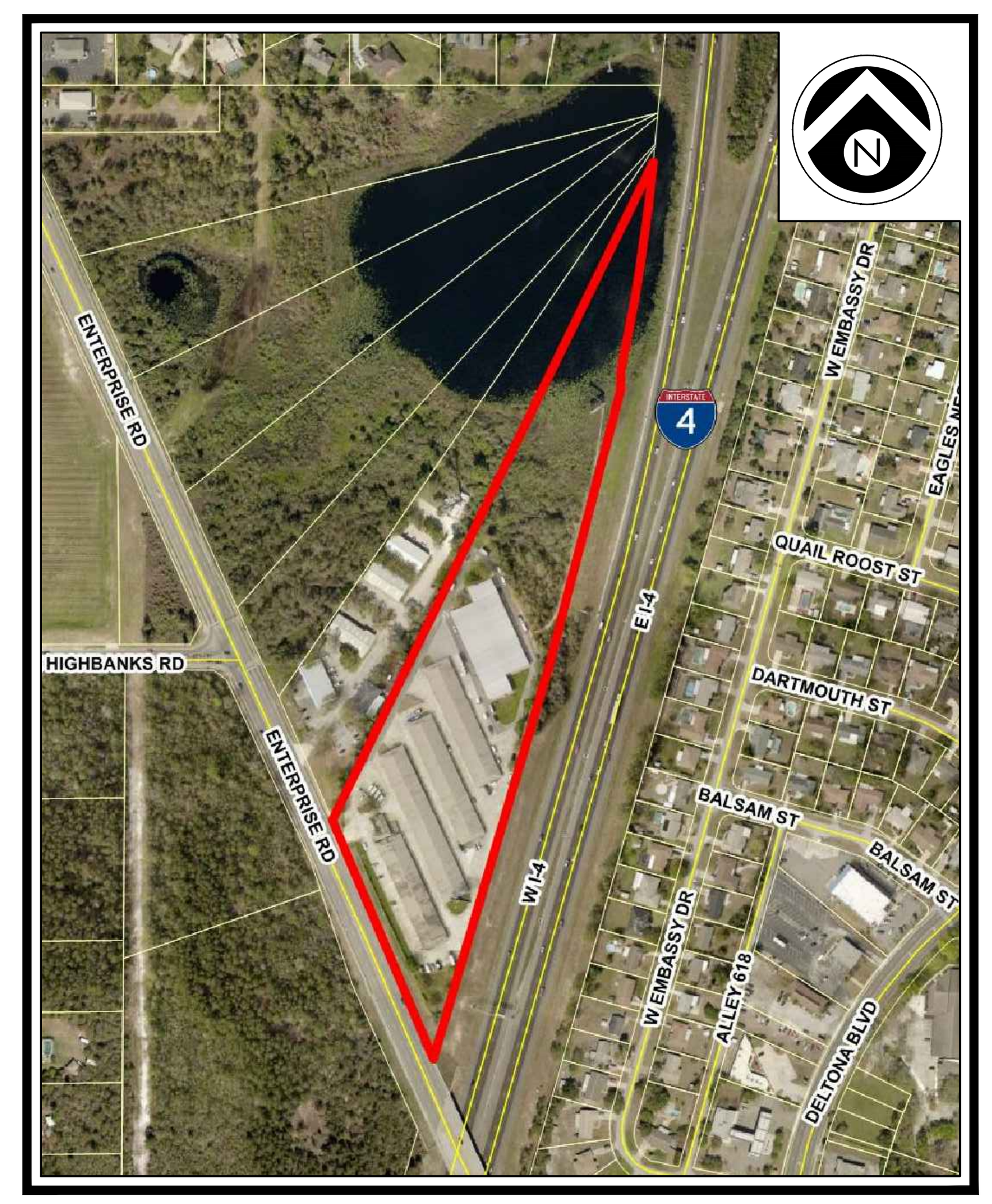
TELEPHONE/FIBER:
AT&T DISTRIBUTION
6628 LAKESIDE ROAD
WEST PALM BEACH, FLORIDA 33411
PHONE: (561) 683-2729

CABLE:
CHARTER COMMUNICATIONS
(A.K.A. SPECTRUM)
3316 BRESLAY DR.
VIERA, FLORIDA 32940
PHONE: (321) 338-1928

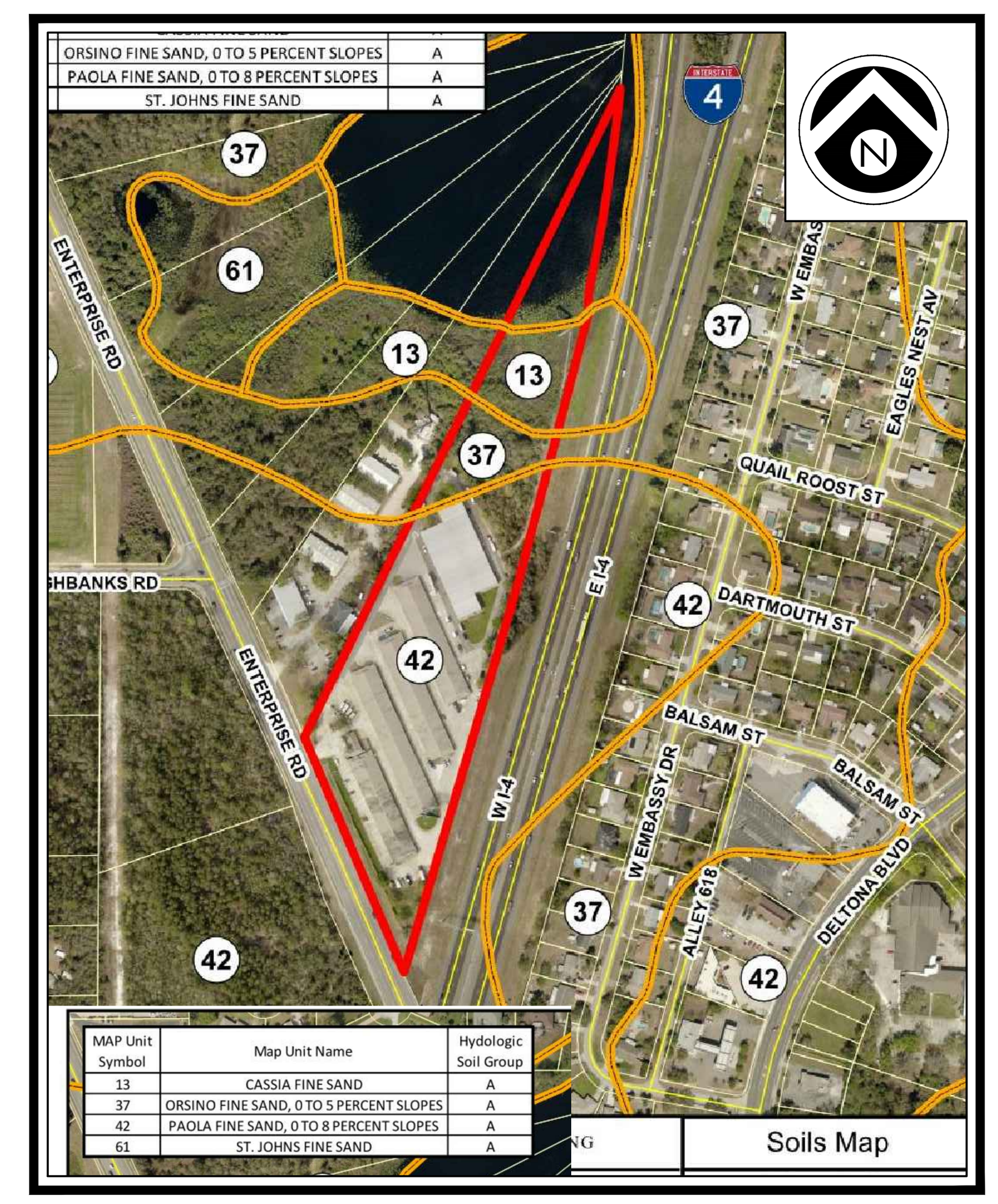
POWER:
DUKE ENERGY
1150 GREENWOOD BLVD.
LAKE MARY, FLORIDA 32746
PHONE: (407) 629-1010

Sheet List Table

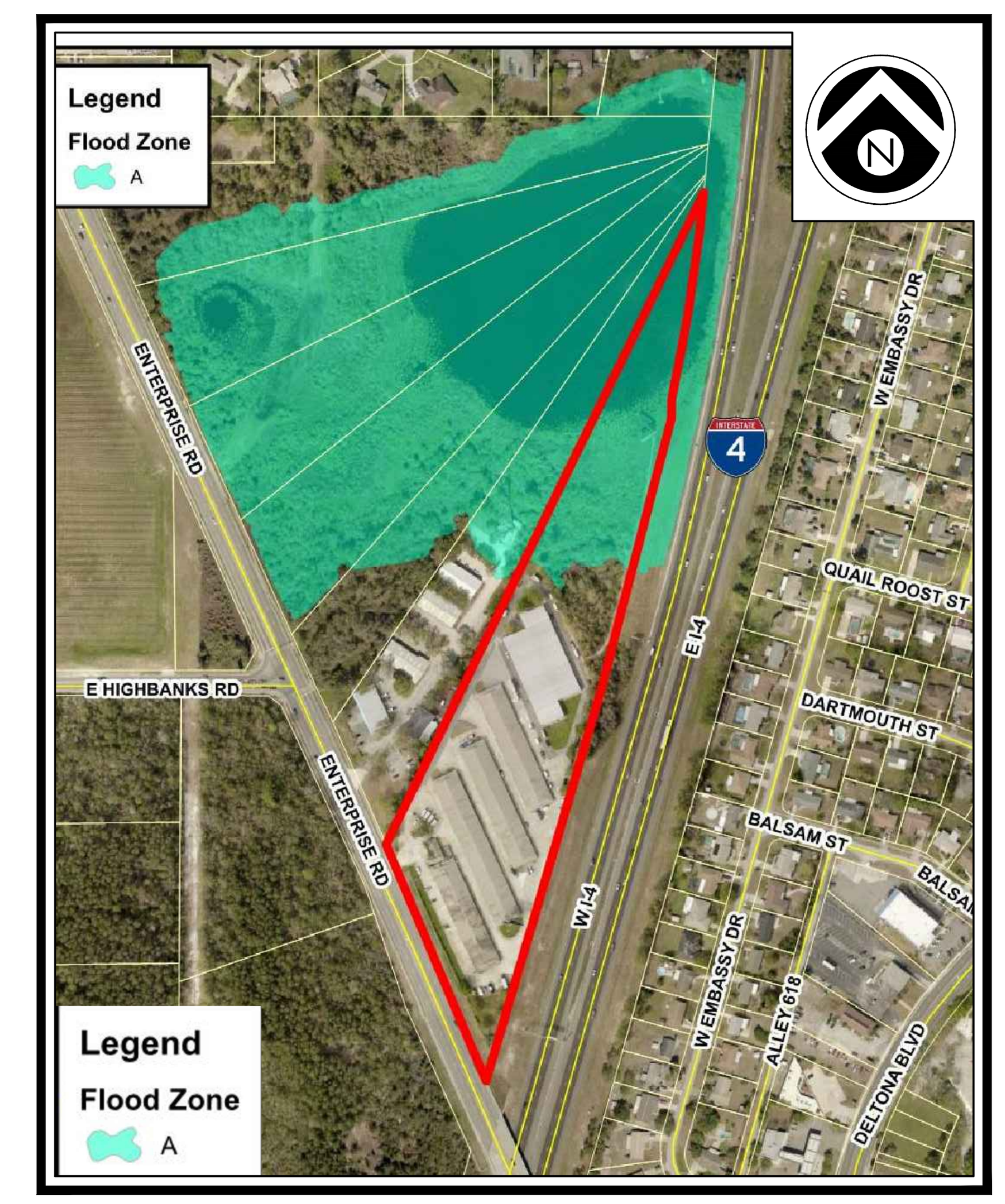
LOCATION MAP
SCALE: 1" = 2000'



AERIAL MAP
SCALE: 1" = 400'



SOILS MAP
SCALE: 1" = 400'



FEMA FLOOD MAP
SCALE: 1" = 400'

APPIAN ENGINEERING

2221 LEE ROAD, SUITE 17
WINTER PARK, FLORIDA 32789
(407) 960-5868

BOARD OF PROFESSIONAL ENGINEERING CERTIFICATE NO. 32714

PERMITS REQUIRED

AGENCY	PERMIT TYPE	DATE APPLIED	DATE APPROVED	APPROVAL NO.
S.J.R.W.M.D.	ERP			
HEALTH DEPARTMENT	WATER			

REV.	DATE	DESCRIPTION

5/15/23

GENERAL NOTES

1. UNLESS OTHERWISE SPECIFIED, ALL WORK SHALL BE PERFORMED CONSISTENT WITH THE FOLLOWING SPECIFICATIONS:
   - CITY OF DEBARY, FLORIDA
   - ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
   - VOLUSIA COUNTY
   - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2. THE GEOTECHNICAL REPORT SHALL BE REVIEWED BY THE CONTRACTOR, AND THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE, INCLUDING ALL SURFACE AND SUBSURFACE CONDITIONS, THE WORK REQUIRED, AND ALL OTHER CONDITIONS THAT MAY AFFECT THE SUCCESSFUL COMPLETION OF THE JOB PRIOR TO COMMENCEMENT OF WORK.
3. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND PERMIT CONDITIONS BEARING ON THE CONDUCT OF THE WORK, AS DRAWN AND SPECIFIED. IF THE CONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT VARIANCE THEREWITH, HE SHALL PROMPTLY NOTIFY THE ENGINEER, IN WRITING, AND ANY NECESSARY CHANGES SHALL BE ADJUSTED, AS PROVIDED IN THE AGREEMENT FOR CHANGES IN THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER AND THE ENGINEER FOR THE ACTS AND OMISSIONS OF CONTRACTOR'S EMPLOYEES AND ALL HIS SUBCONTRACTORS AND THEIR AGENTS AND EMPLOYEES AND OTHER PERSONS PERFORMING ANY OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL NECESSARY ARRANGEMENTS WITH GOVERNMENTAL DEPARTMENTS, PUBLIC UTILITIES, PUBLIC CARRIERS, SERVICE COMPANIES, AND CORPORATIONS OWNING OR CONTROLLING ROADWAYS, RAILWAYS, WATER, SEWER, GAS, ELECTRICAL, TELEPHONE, AND TELEGRAPH FACILITIES SUCH AS PAVEMENTS, TRACKS, PIPING, WIRES, CABLES, CONDUITS, POLES, GUYS, OR OTHER SIMILAR FACILITIES, INCLUDING INCIDENTAL STRUCTURES CONNECTED THEREWITH THAT ARE ENCOUNTERED IN THE WORK IN ORDER THAT SUCH ITEMS MAY BE PROPERLY SUPPORTED, PROTECTED OR LOCATED.
6. UNLESS OTHERWISE SPECIFIED IN THE GENERAL CONDITIONS, ALL CONSTRUCTION IS TO BE GOVERNED BY THE PLANS, APPLICABLE PERMITS, AND SPECIFICATIONS HEREIN, AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING AND SAFETY CODES, LAWS AND ORDINANCES.
7. PRIOR TO PERFORMING ANY WORK WITHIN ANY PUBLIC OR UTILITY RIGHT-OF-WAY, CONTRACTOR SHALL OBTAIN AUTHORIZATION AND PERMIT FROM JURISDICTION RESPONSIBLE FOR SUCH RIGHT-OF-WAY. IN ADDITION, CONTRACTOR SHALL OBTAIN GAS I.D. NUMBER FROM LOCAL GAS COMPANY AND NOTIFY SUNSHINE STATE ONE-CALL UTILITY NOTIFICATION CENTER AT 1-800-432-4770 AT LEAST 72 HOURS PRIOR TO START OF WORK.
8. PRIOR TO PERFORMING ANY WORK WITHIN ANY PUBLIC RIGHT-OF-WAY, CONTRACTOR SHALL DEVELOP AND IMPLEMENT A TRAFFIC CONTROL PLAN CONSISTENT WITH FDOT STANDARD DESIGN INDEX 600 FOR MOT CONTROL PLAN DEVELOPMENT AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, AND SUBMIT TO THE FDOT PERMIT MANAGER TO BE REVIEWED FOR APPROVAL BEFORE BEING IMPLEMENTED.
9. IN THE EVENT THE CONTRACTOR DISCOVERS ANY ERRORS OR OMISSIONS IN THE PLANS HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND/OR OWNER OR OWNER'S AGENT.
10. CONTRACTOR SHALL PRESERVE AND PROTECT ALL PERMANENT REFERENCE MONUMENTS, PERMANENT CONTROL POINTS, PERMANENT BENCH MARKS AND PROPERTY CORNERS. IN THE EVENT THE MONUMENTS, POINTS OR MARKERS ARE DISTURBED THE CONTRACTOR SHALL EMPLOY A FLORIDA REGISTERED LAND SURVEYOR TO RESET OR REPLACE THEM.
11. THE OWNER, OWNER'S AGENT AND INSPECTORS OF APPLICABLE GOVERNMENT JURISDICTIONS, SHALL AT ALL TIMES HAVE ACCESS TO THE WORK WHEREVER AND WHENEVER IT IS IN PREPARATION OR PROGRESS; AND THE CONTRACTOR SHALL PROVIDE PROPER FACILITIES FOR SUCH ACCESS AND FOR THE INSPECTION.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE ALL REASONABLE AND PRUDENT PRECAUTIONS TO INSURE THAT ALL COMPLETED WORK, MATERIALS AND EQUIPMENT STORED ON SITE ARE SAFE AND SECURED FROM UNAUTHORIZED ACCESS, USE, THEFT, OR VANDALISM. SUCH PRECAUTIONS MAY INCLUDE INSTALLATION OF SIGNS, FENCES, OR POSTING OF SECURITY GUARDS. PLEASE ENSURE ANY SIGNS OR FENCES INSTALLED NOT PART OF THESE PLANS, DO NOT OBSTRUCT MOTORIST SIGHTLINES.
13. CONTRACTOR SHALL, AT ALL TIMES, UTILIZE ALL NORMALLY ACCEPTED AND REASONABLY EXPECTED SAFETY PRACTICES AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND GUIDELINES PERTAINING TO SAFE UTILIZATION OF EQUIPMENT OR MATERIALS AS PUBLISHED BY THEIR MANUFACTURER'S.
14. PRIOR TO INITIATING ANY EXCAVATION (INCLUDING BUT NOT LIMITED TO TUNNELS, DITCHES, STORM WATER PONDS, CANALS, ARTIFICIAL LAKES) CONTRACTOR SHALL INSTALL FENCES AND/OR TAKE ALL OTHER REASONABLE AND PRUDENT STEPS TO INSURE THAT ACCESS TO EXCAVATION BY UNAUTHORIZED PERSONNEL IS PREVENTED.
15. CONTRACTOR SHALL COMPLY IN EVERY RESPECT WITH THE PROVISIONS OF THE FLORIDA STATE TRENCH SAFETY ACT.
16. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE ALL REASONABLE PROTECTION TO PREVENT DAMAGE, INJURY OR LOSS TO:
    A. ALL EMPLOYEES ON THE WORK AND ALL OTHER PERSONS WHO MAY BE AFFECTED THEREBY;
    B. ALL THE WORK AND ALL MATERIALS AND EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE, UNDER THE CARE, CUSTODY OR CONTROL OF THE CONTRACTOR OR ANY OF ITS SUBCONTRACTORS;
    C. OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, SHRUBS, LAWNS, WALKS, PAVEMENTS, ROADWAY, STRUCTURES AND UTILITIES NOT DESIGNATED FOR DEMOLITION IN THE COURSE OF CONSTRUCTION.
17. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC, QUASI PUBLIC OR OTHER AUTHORITY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR FOR THEIR PROTECTION AGAINST DAMAGE, INJURY OR LOSS, OR DESIGNED TO PROTECT THE ENVIRONMENT. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT UTILITIES OF THE EXISTENCE OF HAZARDS AND OF THE SAFETY REGULATIONS.
18. ALL DAMAGE OR LOSS TO ANY PROPERTY CAUSED IN WHOLE OR IN PART BY THE CONTRACTOR, A SUBCONTRACTOR, OR BY ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SHALL BE REMEDIED BY THE CONTRACTOR, EXCEPT DAMAGE OR LOSS PROPERLY ATTRIBUTABLE SOLELY TO THE ACTS OR OMISSIONS OF THE OWNER, OR THE ENGINEER OR ANYONE EMPLOYED BY THEM, OR FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, AND NOT PROPERLY ATTRIBUTABLE IN WHOLE OR IN PART, TO THE FAULT OR NEGLIGENCE OF THE CONTRACTOR.
19. THOSE PARTS OF WORK IN PLACE WHICH ARE SUBJECT TO DAMAGE BECAUSE OF OPERATIONS BEING CARRIED ON ADJACENT THERETO SHALL BE COVERED, BOARDED UP OR SUBSTANTIALLY ENCLOSED WITH ADEQUATE PROTECTION BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
20. UNTIL FINAL ACCEPTANCE OF THE WORK BY OWNER, THE CONTRACTOR SHALL HAVE THE CHARGE AND CARE OF AND SHALL BEAR THE RISK OF INJURY OR DAMAGE, LOSS OR EXPENSE TO ANY PART THEREOF, OR TO ANY MATERIALS STORED ON SITE, BY THE ACTION OF THE ELEMENTS OR FROM ANY OTHER CAUSE WHETHER ARISING FROM THE EXECUTION OR NON-EXECUTION OF THE WORK. THE CONTRACTOR SHALL REBUILD, REPAIR, RESTORE AND MAKE GOOD ALL INJURIES OR DAMAGES TO ANY PORTION OF THE WORK OCCASIONED BY ANY OF THE ABOVE CAUSES BEFORE FINAL ACCEPTANCE AND SHALL BEAR THE EXPENSES THEREOF.
21. ADEQUATE TRAFFIC CONTROL, BARRICADES AND FLAGMAN SERVICES SHALL BE FURNISHED AND MAINTAINED BY THE CONTRACTOR AT ALL POINTS WHERE CONVEYING EQUIPMENT ENGAGED ON THE WORK REGULARLY ENTERS ONTO OR CROSSES TRAFFIC-CARRYING ROADS.
22. THE CONTRACTOR SHALL COMPLY IN EVERY RESPECT WITH THE FEDERAL OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970 AND ALL RULES AND REGULATIONS NOW OR HEREAFTER IN EFFECT UNDER SAID ACT, AND THE CONTRACTOR FURTHER AGREES TO COMPLY WITH ANY AND ALL APPLICABLE STATE LAWS AND REGULATIONS PERTAINING TO JOB SAFETY AND HEALTH.
23. CONTRACTOR AND ITS SUBCONTRACTORS SHALL USE, HANDLE, TRANSPORT, AND DISPOSE OF ALL MATERIALS (HAZARDOUS OR OTHERWISE) IN COMPLIANCE WITH ALL PRESENT FEDERAL, STATE AND LOCAL ENVIRONMENTAL, HEALTH OR SAFETY LAW, INCLUDING, BUT NOT LIMITED TO, ALL SUCH STATUTES, REGULATIONS, RULES, ORDINANCES, CODES, AND RULES OF COMMON LAW.
24. CONTRACTOR FURTHER AGREES THAT CONTRACTOR AND ITS SUBCONTRACTORS SHALL NOT CAUSE THE DISCHARGE, RELEASE OR DISPOSAL OF ANY HAZARDOUS MATERIAL CREATED BY ITS WORK ON OR ABOUT THE JOB SITE. IN THE EVENT OF ANY SPILL, RELEASE OR ANY OTHER REPORTABLE OCCURRENCE, CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENTAL AGENCY AND SHALL TAKE SUCH ACTION AS MAY BE NECESSARY TO MINIMIZE THE DELETERIOUS EFFECT OF SUCH SPILL ON PERSONS OR PROPERTY.
25. THE CONTRACTOR SHALL PROTECT AND KEEP OWNER (INCLUDING THEIR AGENTS AND EMPLOYEES) FREE AND HARMLESS FROM ANY AND ALL LIABILITY, PUBLIC OR PRIVATE, PENALTIES, CONTRACTUAL OR OTHERWISE, LOSSES, DAMAGES, COSTS, ATTORNEY'S FEES, EXPENSES, CAUSES OF ACTION, CLAIMS OR JUDGMENTS RESULTING FROM THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AS AMENDED OR ANY RULE OR REGULATION PROMULGATED THEREUNDER OR OF ANY STATE LAWS OR REGULATIONS PERTAINING TO JOB SAFETY AND HEALTH ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF WORK OR WORK TO BE PERFORMED UNDER THIS CONTRACT, AND CONTRACTOR SHALL INDEMNIFY OWNER FROM ANY SUCH CLAIMS, PENALTIES, SUITS OR ACTIONS, PUBLIC OR PRIVATE, ADMINISTRATIVE OR JUDICIAL, INCLUDING ATTORNEY'S FEES PAID OR INCURRED BY OR ON BEHALF OF OWNER, JOINTLY OR SEVERALLY, AND/OR THEIR AGENTS AND EMPLOYEES. THE CONTRACTOR FURTHER AGREES, IN THE EVENT OF A CLAIMED VIOLATION OF ANY FEDERAL OR STATE SAFETY AND HEALTH LAW OR REGULATION ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF WORK OR WORK TO BE PERFORMED UNDER THIS CONTRACT, OWNER MAY IMMEDIATELY TAKE WHATEVER ACTION IS DEEMED NECESSARY BY OWNER TO REMEDY THE CLAIMED VIOLATION. ANY AND ALL COSTS OR EXPENSES PAID OR INCURRED BY OWNER IN TAKING SUCH ACTION SHALL BE BORNE BY CONTRACTOR, AND CONTRACTOR AGREES TO PROTECT, HOLD HARMLESS AND INDEMNIFY OWNER AGAINST ANY AND ALL SUCH COSTS OR EXPENSES.
26. CONTRACTOR AND ITS SUBCONTRACTORS SHALL, UPON COMPLETION OF PERFORMANCE OF ALL DUTIES UNDER THIS CONTRACT, REMOVE ALL SUPPLIES, MATERIALS, AND WASTE CONTAINING AND HAZARDOUS MATERIAL FROM THE JOB SITE. CONTRACTOR SHALL BEAR FULL FINANCIAL RESPONSIBILITY, AS BETWEEN THE PARTIES OF THIS CONTRACT, FOR THE COMPLIANCE OF CONTRACTOR AND ITS SUBCONTRACTORS WITH THE PROVISIONS OF THIS CONTRACT.
27. CONTRACTOR AGREES TO INDEMNIFY, DEFEND, PROTECT AND HOLD THE OWNER HARMLESS FROM AND AGAINST ANY CLAIMS INCLUDING, WITHOUT LIMITATION, ACTUAL ATTORNEY'S FEES AND ANY COSTS OF INVESTIGATION, SOILS TESTING, GOVERNMENTAL APPROVALS, REMEDIATION AND CLEANUP ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FAILURE OF CONTRACTOR OR ITS SUBCONTRACTORS, OR THEIR AGENTS, EMPLOYEES, OFFICERS, OR REPRESENTATIVES, TO COMPLY WITH THE TERMS OF THESE CONSTRUCTION DOCUMENTS.
28. SHOULD CONTRACTOR OR ITS SUBCONTRACTORS DISCHARGE, RELEASE OR DISPOSE OF ANY HAZARDOUS MATERIAL ON OR ABOUT THE JOB SITE IN VIOLATION OF THESE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL IMMEDIATELY SO INFORM OWNER & ENGINEER IN WRITING. IN THE EVENT OF ANY SPILL, RELEASE OR ANY OTHER REPORTABLE OCCURRENCE, CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENTAL AGENCY, OWNER & ENGINEER AND SHALL TAKE SUCH ACTION AS MAY BE NECESSARY TO MINIMIZE THE DELETERIOUS EFFECT OF SUCH SPILL ON PERSONS OR PROPERTY.
29. IN THE EVENT CONTRACTOR OR ITS SUBCONTRACTORS ENCOUNTER ON THE PREMISES ANY PIPELINE, UNDERGROUND STORAGE TANK OR OTHER CONTAINER, OF ANY KIND, THAT MAY CONTAIN A HAZARDOUS MATERIAL, OR ENCOUNTER MATERIAL REASONABLY BELIEVED TO BE A HAZARDOUS MATERIAL, CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AREA AFFECTED AND REPORT THE CONDITION TO OWNER AND/OR ENGINEER IN WRITING.
30. "HAZARDOUS MATERIAL" MEANS ANY SUBSTANCE: (A) THE PRESENCE OF WHICH REQUIRES INVESTIGATION OR REMEDIATION UNDER ANY PRESENT FEDERAL, STATE OR LOCAL STATUTE, REGULATION, ORDINANCE, RULE, CODE, ORDER, ACTION, POLICY OR COMMON LAW, OR (B) WHICH IS OR BECOMES DEFINED AS A "HAZARDOUS WASTE," "HAZARDOUS SUBSTANCE," POLLUTANT OR CONTAMINANT UNDER ANY PRESENT FEDERAL, STATE OR LOCAL STATUTE, REGULATION, RULE OR ORDINANCE OR AMENDMENTS THERETO INCLUDING, WITHOUT LIMITATION, THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (42 U.S.C. SECTIONS 9601 ET SEQ.) AND/OR THE RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTIONS 6901 ET SEQ.), OR (C) WHICH IS TOXIC, EXPLOSIVE, CORROSIVE, FLAMMABLE, INFECTIOUS, RADIOACTIVE, CARCINOGENIC, MUTAGENIC, OR OTHERWISE HAZARDOUS AND IS REGULATED BY ANY GOVERNMENTAL AUTHORITY, AGENCY, DEPARTMENT, COMMISSION, BOARD, AGENCY OR INSTRUMENTALITY OF THE UNITED STATES, THE STATE IN WHICH THE PREMISES ARE LOCATED OR ANY POLITICAL SUBDIVISION THEREOF, OR (D) THE PRESENCE OF WHICH ON THE PREMISES CAUSES OR THREATENS TO CAUSE A NUISANCE UPON THE PREMISES OR TO ADJACENT PROPERTIES OR POSES OR THREATENS TO POSE A HAZARD TO THE HEALTH OR SAFETY OF PERSONS ON OR ABOUT THE PREMISES, OR (E) WHICH CONTAINS GASOLINE, DIESEL FUEL OR OTHER PETROLEUM HYDROCARBONS, OR (F) WHICH CONTAINS POLYCHLORINATED BIPHENYLS (PCBS), ASBESTOS, LEAD OR UREA FORMALDEHYDE FOAM INSULATION.
31. THE CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AS TO SIZE, LOCATION, AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY AND ALL CONFLICTS, DEVIATIONS OR OMISSIONS TO THESE CONSTRUCTION DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
32. IF ANY TESTING, INSPECTION OR APPROVAL REVEAL DEFECTIVE WORK, CONTRACTOR SHALL NOT BE ALLOWED TO RECEIVE ANY ASSOCIATED COSTS AND THE OWNER SHALL BE ENTITLED TO DEDUCT FROM THE CONTRACT PRICE, BY ISSUING A CHANGE ORDER, OWNER'S COSTS ARISING OUT OF THE DEFECTIVE WORK, INCLUDING COSTS OF REPEATED PROCEDURES, COMPENSATION FOR ENGINEER'S AND DESIGN ENGINEER'S SERVICES AND ALL OTHER RELATED COSTS.

ADDITIONAL NOTES

1. BEARINGS, IF SHOWN, ARE BASED ASSUMED DATUM AND ON THE LINE SHOWN AS BASE BEARING (B.B.)
2. ELEVATIONS, IF SHOWN, ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (UNLESS OTHERWISE NOTED)
3. BENCHMARK USED: Q 470 1997 (ELEV.=75.47' NAVD88)
4. ALL TRAFFIC CONTROL DEVICES AND SIGNAGE SHALL MEET OR EXCEED CURRENT F.D.O.T. AND MUNICIPALITY SPECIFICATIONS, AND MEET THE REQUIREMENTS OF CHAPTER 316 FLORIDA STATUTES.
5. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT MUNICIPALITY STANDARDS AND SPECIFICATIONS. IF A CONFLICT OCCURS THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR A DETERMINATION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH ANY OTHER CONTRACTORS WHO MAY BE PERFORMING WORK AT THE PROJECT SITE.
7. EXISTING FACILITIES THAT ARE NOT SHOWN TO BE DEMOLISHED AND ARE DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO A CONDITION EQUIVALENT TO THAT WHICH EXISTED PRIOR TO COMMENCEMENT OF CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.
8. THE CONTRACTOR SHALL KEEP AND MAINTAIN ON THE JOB SITE AN ACCURATE & UP TO DATE SET OF AS-BUILT DRAWINGS. THESE DRAWINGS SHALL INCLUDE LOCATIONS AND ELEVATIONS OF MAINS, FITTINGS, VALVES, SERVICES, CASINGS, AND OTHER APPURTENANCES AS WELL AS ANY DEVIATIONS FROM THAT WHICH IS SHOWN IN THE PLANS. THESE AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE UPON COMPLETION OF THE WORK FOR HIS REVIEW AND USE.
9. THE CONTRACTOR SHALL MAINTAIN COPIES OF ALL APPLICABLE PERMITS ON-SITE AND SHALL BE RESPONSIBLE TO ADHERE TO ALL PERMIT CONDITIONS DURING CONSTRUCTION.
10. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING & OBTAINING ALL REQUIRED PERMITS AS REQUIRED BY ALL REGULATORY AUTHORITIES.
11. ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.
12. NO WORK (CONSTRUCTION, PLANT TRIMMING, REMOVAL OR DISTURBANCE, SOIL DISTURBANCE OR FILLING) SHALL OCCUR WITHIN THE ESTABLISHED WETLAND BUFFERS DEPICTED ON THESE PLANS OTHER THAN NECESSARY FOR THE CONSTRUCTION OF PERMITTED OUTFALL STRUCTURES AND ASSOCIATED ENERGY DISSIPATION DEVICES AS PERMITTED BY THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT.
13. ALL EARTHWORK SHALL BE SODDED/SEEDED UNLESS OTHERWISE NOTED.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING AND COORDINATING ALL SHOP DRAWING APPROVALS WITH ANY AND ALL AUTHORITIES HAVING JURISDICTION.

HANDICAP ACCESSIBILITY NOTES:

1. ALL CONSTRUCTION MUST MEET OR EXCEED ALL REQUIREMENTS AS OUTLINED IN THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE FLORIDA ACCESSIBILITY CODE, MOST RECENT EDITIONS. BOTTOM OF CURB RAMP ELEVATION (B.O. RAMP) IS RELATIVE TO EACH CURB RAMP CONDITION. ACTUAL ELEVATIONS SHALL BE BASED ON EXISTING GRADE OF CURB FLOW LINE AT THE B.O. RAMPS.
2. TOP OF CURB ELEVATION ADJACENT TO B.O. RAMP = 0.50 FT. MAX. UNLESS OTHERWISE NOTED.
3. ADA REQUIREMENTS SUPERSEDE SPOT GRADES AT LOT LINES. CONTRACTOR TO CUT BACK SLOPE AT 3:1 OR FLATTER AS NEEDED FOR RAMP AND SIDEWALK CONNECTION.
4. REFER TO PLAN SHEETS AND SECTIONS FOR LOCATIONS AND SIDEWALK WIDTHS.
5. THE DETECTABLE WARNING STRIP SHALL CONSIST OF A 24 INCH WIDE TACTILE PATTERN OF RAISED TRUNCATED DOMES (ALIGNED PATTERN). DOMES SHALL HAVE A DIAMETER OF 0.9 INCH, A HEIGHT OF 0.2 INCH, AND A CENTER TO CENTER SPACING OF 2.35 INCHES. THE RAMP DETECTABLE WARNING STRIP SHALL BE CONTRASTING IN COLOR. THE MATERIAL USED TO PROVIDE CONTRAST SHALL CONTRAST BY AT LEAST 70%.
6. THE CROSS SLOPE OF RAMP SURFACES AND ADJACENT STREET GRADES SHALL BE NO MORE THAN 1:50 OR 2% MAXIMUM.
7. CURB RAMPS CONSTRUCTED BY THE CONTRACTOR SHALL MEET ALL CURRENT APPLICABLE A.D.A. REQUIREMENTS AND SHALL HAVE DETECTABLE WARNING COMPLYING WITH A.D.A. REQUIREMENTS. ACCESSIBILITY ROUTES SHALL MEET ALL APPLICABLE A.D.A. REQUIREMENTS.
8. CONTRACTOR TO REFER TO MUNICIPALITY DETAILS AS NEEDED.
9. DRIVEWAY/ROADWAY CROSS SLOPES AT CROSSWALKS SHALL BE MAXIMUM 2% PER ADA REQUIREMENTS.
10. SIDEWALK CROSS SLOPES SHALL BE MAXIMUM 2% PER ADA REQUIREMENTS.
11. CURB RAMP FLARES & LANDINGS SHALL MEET ADA REQUIREMENTS.
12. ACCESSIBLE ROUTE WITH RUNNING SLOPES GREATER THAN 1:20 IS A RAMP AND SHALL COMPLY WITH ADA RAMP REQUIREMENTS.
13. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO MEET ALL CURRENT ADA STANDARDS. CONTRACTOR SHALL REFER TO FDOT STANDARDS. (INDEX 304, MOST CURRENT EDITION)

RECORD DRAWING AS-BUILT REQUIREMENTS:

AS-BUILT DRAWINGS SHALL BE PREPARED BY AND CERTIFIED (SIGNED AND SEALED) BY A REGISTERED SURVEYOR, AND SHALL BE PROVIDED TO THE ENGINEER OF RECORD UPON COMPLETION OF THE PROJECT SITE IMPROVEMENTS A MINIMUM OF 1 WEEK PRIOR TO CONTRACTORS ATTEMPT FOR FINAL CERTIFICATE OF OCCUPANCY (CO). AS-BUILT DRAWINGS SHALL REFLECT ANY CHANGES TO THE IMPROVEMENTS MADE DURING CONSTRUCTION AND MUST MEET THE MINIMUM REQUIREMENTS OF ALL REGULATORY AGENCIES HAVING JURISDICTION AS WELL AS THE CRITERIA OUTLINED BELOW. BOTH THE ORIGINAL DESIGN AND REVISED AS-BUILT DATA, AS APPLICABLE, MUST BE CLEARLY SHOWN. THE AS-BUILT DRAWINGS MUST BE CLEARLY LABELED AS AS-BUILT OR RECORD DRAWING. THE FOLLOWING INFORMATION, AT A MINIMUM, SHALL BE CERTIFIED ON THE AS-BUILT DRAWINGS:

WATER DISTRIBUTION SYSTEM:

A. LOCATION AND DIMENSIONS OF PIPES, VALVES, FITTINGS, CHANGE OF DIRECTION, AND OTHER ASSOCIATED FACILITIES.

WASTEWATER COLLECTION/TRANSMISSION SYSTEM:

A. LOCATION, DIMENSION, AND INVERT ELEVATIONS OF PIPES, MANHOLES (INCLUDING RIM ELEVATION), LIFTSTATION, FORCEMAIN, FITTINGS, CHANGE IN DIRECTION AND OTHER ASSOCIATED FACILITIES.

PAVING AND DRAINAGE SYSTEM:

A. DIMENSIONS AND ELEVATIONS OF ALL DISCHARGE STRUCTURES INCLUDING ALL WEIRS, SLOTS, GATES, PIPES, AND SKIMMERS;
B. LOCATIONS, DIMENSIONS, AND ELEVATIONS OF ALL FILTER, EXFILTRATION, OR UNDERDRAIN SYSTEMS INCLUDING CLEANOUTS, PIPES, CONNECTIONS TO CONTROL STRUCTURES, AND POINTS OF DISCHARGE TO THE RECEIVING WATERS;
C. DIMENSIONS, ELEVATIONS, CONTOURS, OR CROSS-SECTIONS OF ALL STORMWATER TREATMENT POND STORAGE AREAS SUFFICIENT TO DETERMINE STAGE-STORAGE RELATIONSHIPS OF THE STORAGE AREA, AND THE POND DEPTH AND VOLUME BELOW THE CONTROL WATER ELEVATION FOR NORMALLY WET SYSTEMS;
D. DIMENSIONS, ELEVATIONS, CONTOURS, FINAL GRADES, OR CROSS-SECTIONS OF THE DRAINAGE SYSTEM IMPROVEMENTS TO DETERMINE FLOW DIRECTIONS AND CONVEYANCE OF RUNOFF TO THE TREATMENT SYSTEM;
E. DIMENSIONS, ELEVATIONS, CONTOURS, FINAL GRADES, OR CROSS-SECTIONS OF ALL CONVEYANCE SYSTEMS UTILIZED TO CONVEY OFF-SITE RUNOFF AROUND THE SYSTEM;
F. EXISTING WATER ELEVATION OF SURFACE WATERS AND THE DATE DETERMINED;
G. ELEVATION AND LOCATION OF BENCHMARK'S FOR THE SURVEY.

ADA FACILITIES:

A. ELEVATIONS AT THE FOUR CORNERS OF ALL HANDICAP PARKING SPACES AND ADJACENT LOADING AISLES.
B. ELEVATIONS AND LOCATIONS FOR ALL ACCESSIBLE RAMPS WHICH ADEQUATELY REFLECT THE BUILT SLOPES.
C. ELEVATIONS AND LOCATIONS ALONG THE PATHS OF CONVEYANCE FOR PEDESTRIAN TRAFFIC AND ALL ADA ACCESSIBLE ROUTES EVERY 25 FT. WHICH ADEQUATELY REFLECT THE SLOPE AND CROSS SLOPE.

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GENERAL NOTES
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
N.T.S.	SSS-005	C1.0

5/15/23

ABBREVIATIONS

A	
A	AREA
AB	ANCHOR BOLT
ABD	ABANDON(ED)
AC	ACRE(S)
AC-FT	ACRE FOOT/FEET
ACP	ASBESTOS CEMENT PIPE
ADDL	ADDITIONAL
ADT	AVERAGE DAILY TRAFFIC
AL	ALUMINUM
ALT	ALTERNATE
AM	BEFORE NOON
AMP	AMPERE(S)
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
ARVV	AIR RELEASE VACUUM VALVE
ASPH	ASPHALT
ASSY	ASSEMBLY
AVE	AVENUE
AVG	AVERAGE
AZ	AZIMUTH
B	
BFP	BACKFLOW PREVENTER
BL	BASELINE
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCH MARK
BND	BOUNDARY
BO	BLOWOFF
BOC	BACK OF CURB
BOT	BOTTOM
BRG	BEARING
BS	BOTTOM OF SLOPE
BV	BUTTERFLY VALVE
C	
CAP	CAPACITY
CB	CATCH BASIN
CC	CENTER TO CENTER
CEM	CEMENT
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
C&G	CURB AND GUTTER
CI	CAST IRON
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
C/L	CENTER LINE
CLP	CONCRETE LIGHT POLE
CLR	CLEAR/CLEARANCE
CLS	CLASS
CM	CONCRETE MONUMENT
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CND	CONDUIT
CO.	COUNTY
CO	CLEANOUT
COL	COLUMN
COMP	COMPLETE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCT(ION)
CONT	CONTINUOUS
COORD	COORDINATE(S)
COR	CORNER
CPLG	COUPLING
CPP	CONCRETE POWER POLE
CS	CONTROL STRUCTURE
CTG	COATING
CTR	CENTER
CTV	CABLE TELEVISION
CULV	CULVERT
CY	CUBIC YARD
CYL	CYLINDER
D	
DBL	DOUBLE
DEG OR °	DEGREE
DEFL	DEFLECT(ION)
DEPT	DEPARTMENT
DET	DETAIL
DHWL	DESIGN HIGH WATER LEVEL
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIST	DISTANCE
DMH	DROP MANHOLE
DN	DOWN
DRN	DRAIN
DWG	DRAWING
DWY	DRIVEWAY
E	
E	EAST
EA	EACH
EC	EDGE OF CONCRETE
ED	ENERGY DISSIPATOR
EF	EACH FACE
EFF	EFFLUENT
EG	EXISTING GRADE
E/L	EASEMENT LINE
ELB	ELBOW
ELEC	ELECTRIC
ELEV	ELEVATION
ELLIP	ELLIPSE/ELLIPTICAL
ENC	ENCASEMENT
ENG	ENGINEER(ING)
EOP	EDGE OF PAVEMENT
EQ	EQUAL/EQUATION
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ESMT	EASEMENT
EST	ESTIMATE
EW	EACH WAY
EWL	ENDWALL
EXC	EXCAVATE/EXCAVATION
EXIST	EXISTING
EXP	EXPAND/EXPANSION
EXT	EXTEND/EXTENSION

F	
F&C	FRAME AND COVER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
F&I	FURNISH AND INSTALL
FIG	FIGURE
FIN	FINISHED
FIT	FITTING
FL	FENCE LINE
FLR	FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FM	FORCE MAIN
FND	FOUND
FPH	FEET PER HOUR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET/FOOT
FTG	FOOTING
G	
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GM	GAS MAIN
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GUARD RAIL
GRD	GROUND/GRADE
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GV&B	GATE VALVE AND BOX
GW	GUY WIRE
GWT	GROUND WATER TABLE
H	
HB	HOSE BIBB
HDW	HARDWARE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HW	HEADWALL
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HYD	HYDRAULIC
I	
I-4	INTERSTATE HIGHWAY
IA	INTERSECTION ANGLE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCHES
INL	INLET
INS	INSERT
INST	INSTALL
IP	IRON PIPE
IR	IRON ROD
INT	INTERSECT/INTERSECTION
INV	INVERT
J	
JB	JUNCTION BOX
JCT	JUNCTION
JST	JOIST
JT	JOINT
L	
L	LENGTH
LAT	LATITUDE
LATL	LATERAL
LB	POUND
LF	LINEAR FEET/FOOT
LG	LONG
LIM	LIMIT(S)
LP	LIGHT POLE
LONG	LONG
LT	LEFT
LWL	LOW WATER LEVEL
M	
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
ME	MITERED END
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MHC	MANHOLE COVER
MHWL	MEAN HIGH WATER LEVEL
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLP	METAL LIGHT POLE
MLWL	MEAN LOW WATER LEVEL
MON	MONUMENT
MPH	MILES PER HOUR
MSL	MEAN SEA LEVEL
MTG	MOUNTING
N	
N	NORTH
NA	NOT APPLICABLE
N&C	NAIL AND CAP
NE	NORTHEAST
NG	NATURAL GROUND
NIC	NOT IN CONTRACT
NO OR #	NUMBER
NOM	NOMINAL
NTP	NOTICE TO PROCEED
NTS	NOT TO SCALE
NW	NORTHWEST
NWL	NORMAL WATER LEVEL
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OR EQUAL
OPNG	OPENING
OPP	OPPOSITE
ORCP	OVAL REINFORCED CONCRETE PIPE
OS	OUTFALL STRUCTURE
OVFL	OVERFLOW
OVHD	OVERHEAD

P	
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PEP	POLYETHYLENE PIPE
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
P/L	PROPERTY LINE
POB	POINT OF BEGINNING
POJ	PUSH ON JOINT
POS	POINT OF SERVICE
PP	POWER POLE
PR	PHONE RISER
PRC	POINT OF REVERSE CURVATURE
PRESS	PRESSURE
PROJ	PROJECT
PROP	PROPOSED
PRVC	POINT OF REVERSE VERTICAL CURVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER
Q	
Q	FLOW RATE
R	
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
RD	ROAD
RDY	ROADWAY
RED	REDUCER
REF	REFERENCE
REINF	REINFORCE(D)
REQD	REQUIRED
REV	REVISE/REVISION
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RT	RIGHT
RV	RELIEF VALVE
R/W	RIGHT-OF-WAY
RWM	REUSE WATER MAIN
S	
S	SOUTH
SAN	SANITARY SEWER
SB	SPLASH BLOCK
SCH	SCHEDULE
SD	SIDE DRAIN
SDN	SHELF DRAIN
SE	SOUTHEAST
SEC	SECONDS
SECT	SECTION
SH	SHEET
SHGWT	SEASONAL HIGH GROUND WATER TABLE
SIM	SIMILAR
S/L	SETBACK LINE
SL	SLOPE
SM	SHEET METAL
SPEC	SPECIFICATION(S)
SQ	SQUARE
SQ IN	SQUARE INCH(ES)
SQ FT	SQUARE FOOT/FEET
SQ YD	SQUARE YARD(S)
SR	STATE ROAD
SS	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRUCTURE
STS	STORM SEWER
SUP	SUPPORT
SUSP	SUSPEND/SUSPENSION
SVC	SERVICE
SW	SOUTHWEST
SWK	SIDEWALK
SYMM	SYMMETRICAL
SYS	SYSTEM
T	
T	TANGENT
TB	TURFBLOCK
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCH MARK
TC	TIME OF CONCENTRATION
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICIAN/TECHNICAL
TEMP	TEMPORARY
TL	TERMINAL LAMPHOLE
TOB	TOP OF BANK
TOC	TOP OF CURB
TOS	TOE OF SLOPE
TOT	TOTAL
TS	TOP OF SLOPE
TWP	TOWNSHIP
TYP	TYPICAL
U	
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UTC	UNDERGROUND TELEPHONE CABLE
V	
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	
W	WEST
W/	WITH
WM	WATER MAIN
W/O	WITHOUT
WP	WATER/WEATHER PROOF
WPP	WOOD POWER POLE
WS	WATER SURFACE
WSWT	WET SEASON WATER TABLE
WT	WEIGHT
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
Y	
YD	YARD
YR	YEAR
MISC	
&	AND
@	AT
Δ	DELTA

EXISTING SYMBOLS

LINES

- CENTER LINE
- CHAIN LINK FENCE
- CONTOUR
- EASEMENT
- FENCE
- GUARDRAIL
- EXISTING PLATS
- RETAINING WALL
- RIGHT-OF-WAY LINE
- SHORELINE
- SWALE
- SOIL BOUNDARY

SANITARY SEWER

- SANITARY SEWER LINE
- CLEANOUT
- FORCE MAIN
- MANHOLE

POTABLE WATER

- WATER MAIN
- EXISTING VALVE
- FIRE HYDRANT
- WATER METER

STORM DRAIN

- STORM SEWER
- CURB INLET
- MANHOLE
- MITERED END
- STORM INLET
- SPOT ELEVATION
- FDOT TYPE 1 INLET
- FDOT TYPE 2 INLET
- FDOT TYPE 3 INLET
- FDOT TYPE 4 INLET
- FDOT TYPE 5 INLET
- FDOT TYPE 6 INLET

HIGHWAY & UTILITIES

- BENCHMARK
- BOUND CORNER
- CONCRETE
- COUNTY ROADS
- INTERSTATE ROADS
- LIGHT POLE
- SIGN
- EDGE OF PAVEMENT W/O CURB
- STATE ROADS
- GUY POLE
- UTILITY POLE
- YARD LIGHT
- GAS MAIN
- OVER HEAD WIRE
- ELECTRIC CABLE OR CONDUIT, BURIED
- UNDERGROUND TELEPHONE CABLE
- EDGE OF PAVEMENT W/CURB

PROPOSED SYMBOLS

LINES

- PROPERTY BOUNDARY
- LOT LINE
- CENTER LINE
- EASEMENT
- BUILDING SETBACK LINE
- WETLAND LINE
- WETLAND BUFFER LINE
- FENCE
- SILT FENCE
- GUARDRAIL
- ENTRY WALL
- RETAINING WALL
- SWALE
- CONTOUR

SANITARY SEWER

100 LF OF 8" PVC @ 0.40%

- SANITARY PIPE
- CLEANOUT
- SINGLE SANITARY SERVICE
- DOUBLE SANITARY SERVICE
- MANHOLE
- FORCE MAIN
- PLUG VALVE

POTABLE WATER

- WATER MAIN
- FIRE MAIN
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- FIRE HYDRANT ASSEMBLY
- METER
- SAMPLE POINT

RECLAIMED WATER

- DOUBLE WATER SERVICE

GENERIC UTILITIES

- 11 1/4° BEND
- 22 1/2° BEND
- 45° BEND
- 90° BEND
- TEE
- CROSS
- GATE VALVE
- REDUCER

STORM

100 LF OF 24" RCP @ 0.20%

- STORM PIPE
- DRAINAGE FLOW DIRECTION
- FDOT INLET TYPE 1
- FDOT INLET TYPE 2
- FDOT INLET TYPE 3
- FDOT INLET TYPE 4
- FDOT INLET TYPE 5
- FDOT INLET TYPE 6
- MANHOLE
- MITERED END SECTION
- STORM INLET

ROADWAY & GRADING

- CONCRETE
- BLDG OR STRUCTURE
- TYPE F CURB & GUTTER
- MIAMI CURB
- 10 / C1.0 — DETAIL REFERENCE
- ×100.00 — SPOT ELEVATION
- LOT TYPE "A" FFE=100.00 — FINISHED FLOOR ELEVATION W/ FHA LOT TYPE
- HANDICAP PARKING
- 95 — INTERSTATE ROADS
- LIGHT POLE
- 50 — STATE ROADS
- SIGN
- TRAFFIC FLOW PAVEMENT MARKING
- UTILITY POLE
- A A — CROSS SECTION DETAIL

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BY	DESCRIPTION	REV.	DATE

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2221 Lee Road, Suite 27, Winter Park, Florida, 32789

STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32674

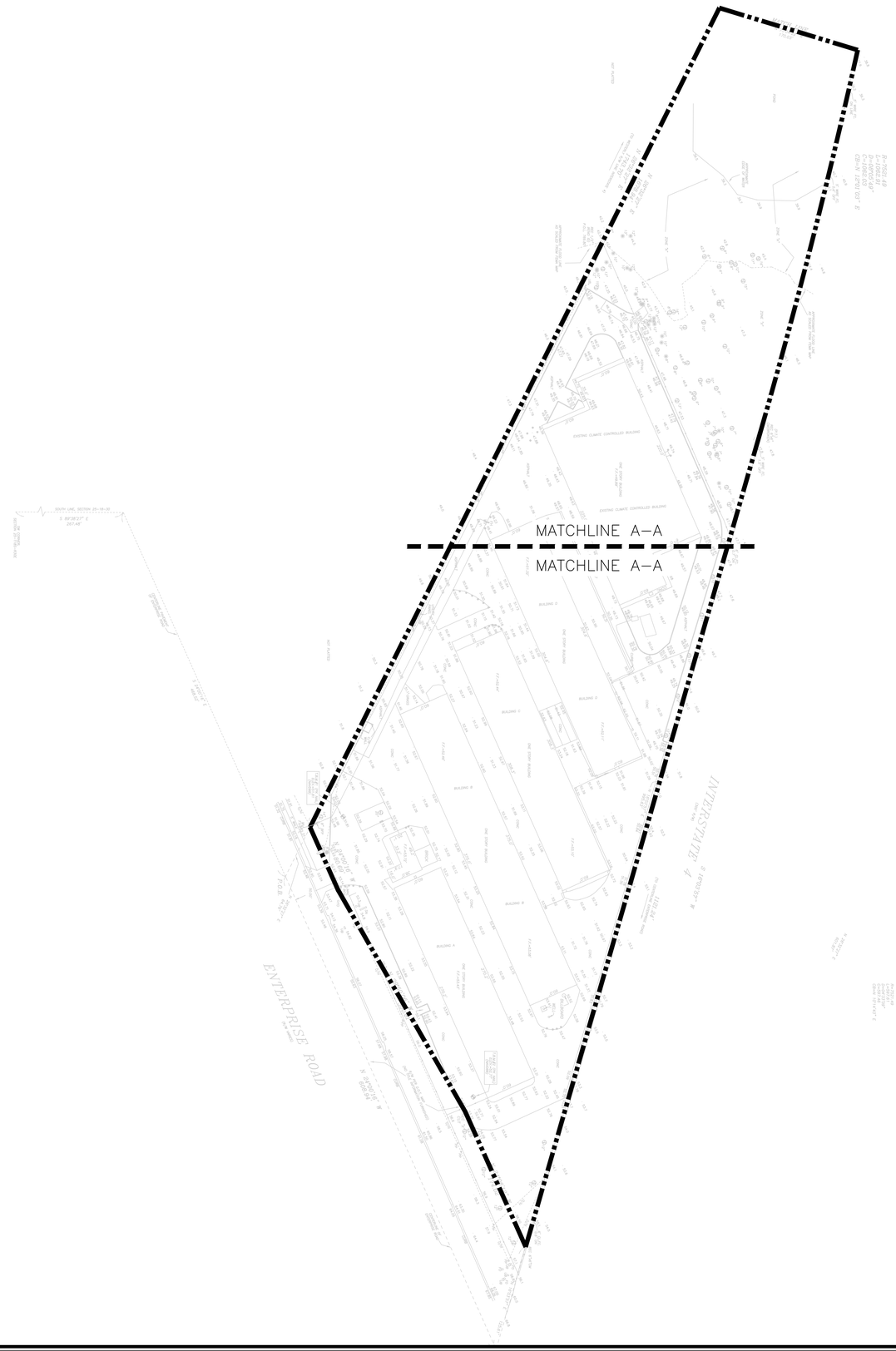
SYMBOLS AND ABBREVIATIONS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: N.T.S.	PROJECT: SSS-005	SHEET: C1.1	

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\SYMBOLS AND ABBREVIATIONS.dwg Modified:5/1/2023 By:tmoore



EXISTING CONDITIONS PLAN BASED ON SURVEY PROVIDED BY:

GRUSENMEYER–SCOTT & ASSOC., INC.
TOM GRUSENMEYER P.S.M.
FLORIDA REGISTRATION NO. 4714
DATED: 08/10/2021

LEGEND

B.M.=BENCHMARK
℄=CENTERLINE
CALC=CALCULATED
CM=CONCRETE MONUMENT
C.L. FC.=CHAIN LINK FENCE
CONC.=CONCRETE
C/B=CONCRETE BLOCK
A/C=AIR CONDITIONER
COV'D.=COVERED
DESC=DESCRIPTION
EB=ELECTRIC BOX
ELEV.=ELEVATION
EP=EDGE OF PAVEMENT
FH=FIRE HYDRANT
F.F.=FINISHED FLOOR ELEVATION
F=FIELD
FC=FIREHOSE CONNECTOR
FM=FIRE METER
GA=GUY ANCHOR
GM=GAS MARKER
GP=GUARD POST
GV=GAS VALVE
INV=INVERT
IR=IRON ROD
IP=IRON PIPE
LP=LIGHT POLE
WM=WATER METER
MH=MAN HOLE
N&D=NAIL AND DISK
O/H=OVERHEAD LINE
P=PLAT
U/P=UTILITY POLE
MES=MITERED END SECTION
SV=SEWER VALVE
FO=FIBER OPTIC MARKER

PART OF PROPERTY DOES LIE WITHIN THE ESTABLISHED 100 YEAR FLOOD PLANE AS PER "FIRM" "X" & "A" MAP # 12127C0620K (09-29-2017)

LEGEND

POC=POINT OF COMMENCEMENT
POB=POINT OF BEGINNING
RCP=REINFORCED CONC PIPE
R/W=RIGHT OF WAY
REC.=RECOVERED
SET N&D=N&D #4596
SN=SIGN
SET I.R.=1/2" IRON ROD W/LB #4596
TB=TELEPHONE BOX
TYP=TYPICAL
WF=WOOD FENCE
WP=WITNESS POINT
WALL=C/B WALL
WV=WATER VALVE
TRAN(TR)=TRANSFORMER
TOB=TOP OF BANK
L = ARC LENGTH
CB = CHORD BEARING
D = DELTA
R = RADIUS
C = CHORD LENGTH
DI = DRAINAGE INLET
ID = IDENTIFICATION
BLDG. = BUILDING
BB = BASE BEARING
TBM = TEMPORARY BENCHMARK
(NO I.D.) = NO CAP IDENTIFICATION
UB = UTILITY BOX
UV=UTILITY VAULT
± = MORE OR LESS
N/A=NOT APPLICABLE
BFP=BACK FLOW PREVENTER
SB=SIGNAL BOX
TP=TRAFFIC POLE
PP=POWER POLE
⊕ =BOLLARD

NOTES:

1. THE UNDERSIGNED DOES HEREBY CERTIFY THAT THIS SURVEY MEETS THE STANDARDS OF PRACTICE AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17 (FLORIDA ADMINISTRATIVE CODE) PURSUANT TO SECTION 472.027 FLORIDA STATUTES.
2. UNLESS EMBOSSED WITH SURVEYOR'S SIGNATURE AND SEAL, THIS SURVEY IS NOT VALID AND IS PRESENTED FOR INFORMATIONAL PURPOSES ONLY.
3. THIS SURVEY WAS PREPARED FROM TITLE INFORMATION FURNISHED TO THE SURVEYOR. THERE MAY BE OTHER RESTRICTIONS OR EASEMENTS THAT AFFECT THIS PROPERTY.
4. NO UNDERGROUND IMPROVEMENTS HAVE BEEN LOCATED UNLESS OTHERWISE SHOWN.
5. THIS SURVEY IS PREPARED FOR THE SOLE BENEFIT OF THOSE CERTIFIED TO AND SHOULD NOT BE RELIED UPON BY ANY OTHER ENTITY.
6. DIMENSIONS SHOWN FOR THE LOCATION OF IMPROVEMENTS HEREON SHOULD NOT BE USED TO RECONSTRUCT BOUNDARY LINES.
7. BEARINGS, IF SHOWN, ARE BASED ASSUMED DATUM AND ON THE LINE SHOWN AS BASE BEARING (B.B.)
8. ELEVATIONS, IF SHOWN, ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988(UNLESS OTHERWISE NOTED)
9. BENCHMARK USED: Q 470 1997 (ELEV.=75.47' NAVD88)
10. SPECIFIC PURPOSE SURVEY TO SHOW TOPOGRAPHY & TREES AS SPECIFIED BY CLIENT

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BY	DESCRIPTION	REV.	DATE

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

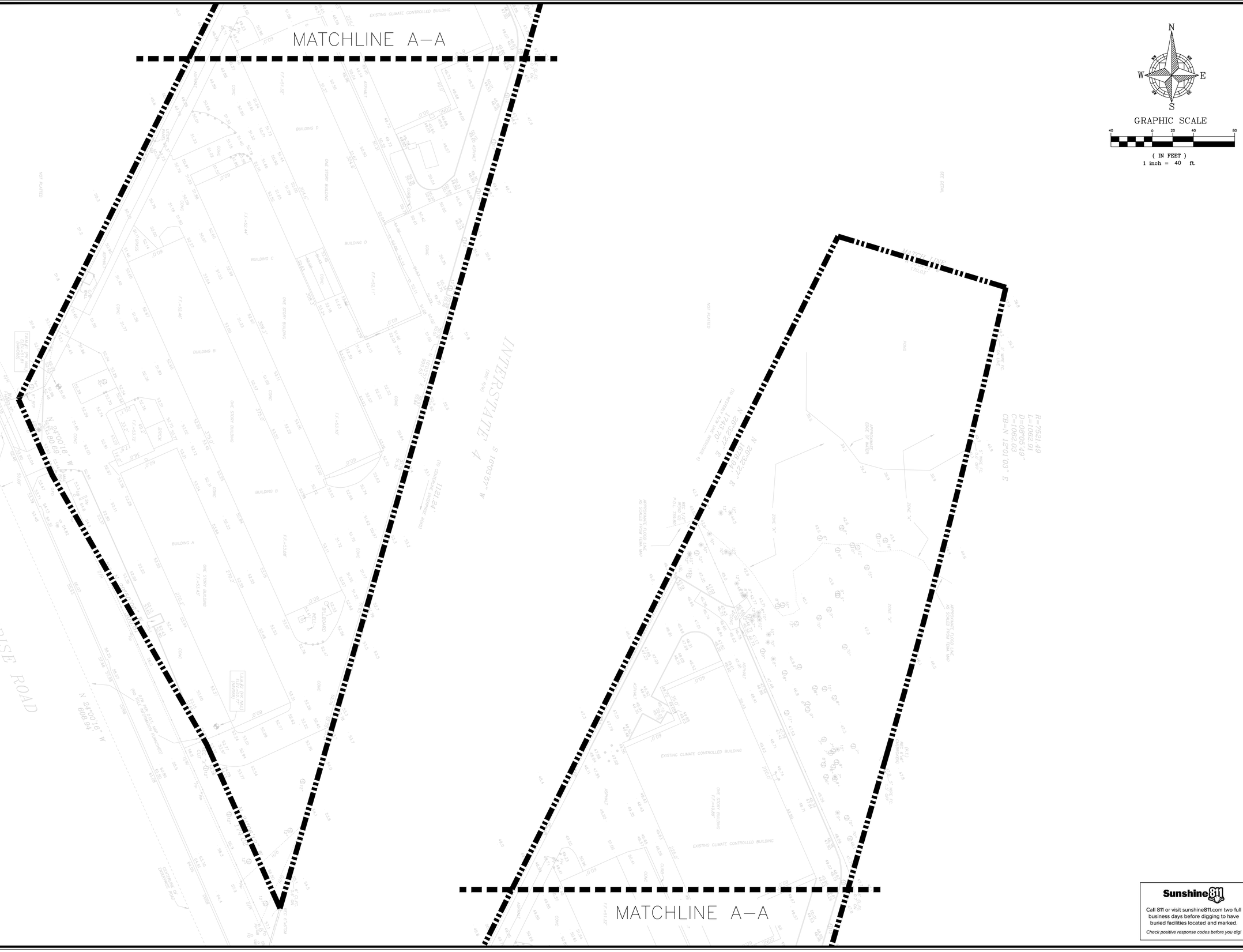
OVERALL EXISTING CONDITIONS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: 1" = 70'	PROJECT: SSS-005	SHEET: C1.2	

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\EXISTING CONDITIONS.dwg Modified: 5/1/2023 By: tmoore



REV.	DATE	DESCRIPTION	BY

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APPIAN ENGINEERING LLC.
APPIANFL.COM • 407.960.5868
2221 Lee Road, Suite 27, Winter Park, Florida, 32789
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

EXISTING CONDITIONS
FINAL SITE PLAN

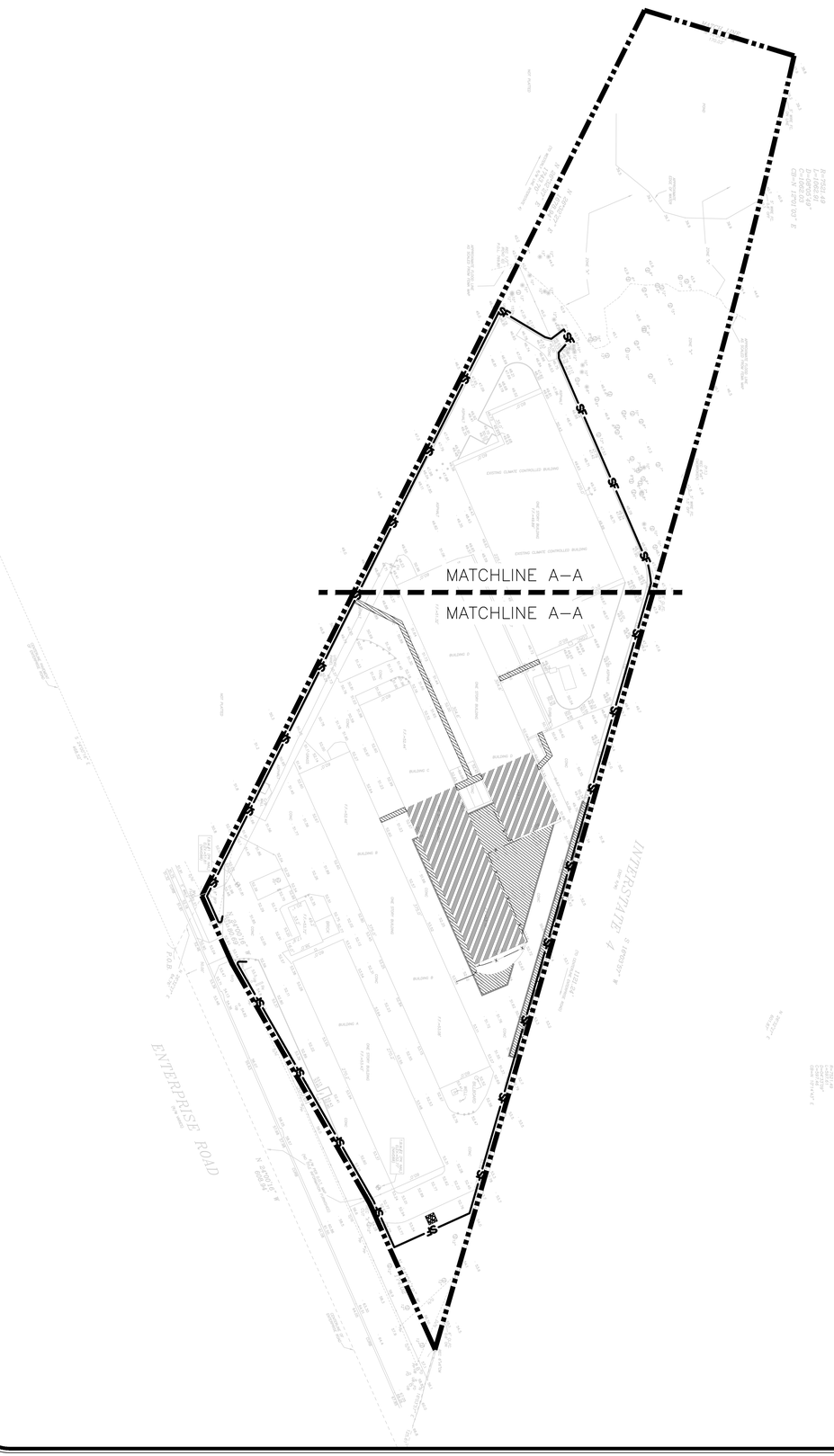
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
1" = 40'	SSS-005	C1.3

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\EXISTING CONDITIONS.dwg Modified: 5/1/2023 By: tmoore



DEMOLITION NOTES

1. ALL DEMOLISHED MATERIAL AND UNSUITABLE SOILS SHALL BE PROPERLY DISPOSED OF OFFSITE, IN ACCORDANCE WITH ALL CITY, STATE, AND FEDERAL REGULATIONS, OR REGULATIONS FROM ANY OTHER AUTHORITIES HAVING JURISDICTION.
2. AREAS REQUIRING FILL SHALL USE GOOD, CLEAN FILL, FREE OF DEBRIS, ORGANIC MATERIAL, AND/OR QUESTIONABLE SOILS AS APPROVED BY A LICENSED GEOTECHNICAL ENGINEER.
3. CONDUCT SITE DEMOLITION OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION.
4. PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS.
5. RESTORE ANY DAMAGED OFFSITE AND OFFSITE IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
6. LOCATE EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES IN AREAS OF WORK. IF UTILITIES ARE TO REMAIN IN PLACE, PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION DURING DEMOLITION OPERATIONS.
7. SHOULD UNCHARTED, OR INCORRECTLY CHARTED PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING DEMOLITION, CONSULT PROJECT ENGINEER AND UTILITY OWNER IMMEDIATELY FOR DIRECTION.
8. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS AND OTHER FACILITIES TO REMAIN FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS CREATED BY DEMOLITION OPERATIONS.
9. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (SYNTHETIC HAY BALES AND/OR SILT FENCE) TO PREVENT SILTATION OF ADJACENT PROPERTIES, STREETS, STORM SEWERS AND WATERWAYS. IN ADDITION, CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL AS NEEDED ON THE GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT THE SITE. MEASURES IN EXCESS OF THOSE SHOWN ON THE PLANS SHALL BE REQUIRED IF NECESSARY TO PREVENT EROSION.
10. CONTRACTOR SHALL REMOVE ALL EXCESS MATERIALS IN THEIR ENTIRETY UPON THE COMPLETION OF WORK.
11. ALL UTILITY MARKERS SHALL BE PROTECTED, AND THE RESPECTIVE UTILITY PROVIDERS NOTIFIED IF THEY BECOME DAMAGED OR MOVED DURING THE COURSE OF DEMOLITION SO THAT THEY MAY BE REPLACED BY QUALIFIED PERSONNEL.
12. ALL DEMOLISHED AND/OR REMOVED EQUIPMENT SUCH AS LIGHTPOLES, LIGHT FIXTURES, BARRICADES, HANDRAILS, POWER POLES, TRANSFORMERS, ETC. SHALL BE RETURNED TO THE OWNER OR DESTROYED ONLY AFTER RECEIVING PERMISSION TO DO SO BY THE OWNER.
13. ALL UTILITIES SHALL BE PROPERLY TERMINATED AND REMOVED, AND THE SITE DEEMED CLEAR OF ALL ACTIVE UTILITIES BEFORE VERTICAL STRUCTURE DEMOLITION MAY BEGIN.
14. THE DEVELOPER'S CONTRACTOR SHALL REMOVE ALL EXISTING WATER SERVICE LINES AND METERS WITHIN THE PROPOSED CONSTRUCTION SITE LIMITS UNDER THE SUPERVISION OF THE VOLUSIA COUNTY INSPECTOR.
15. THE CONTRACTOR SHALL HAUL ALL EXCESS FILL MATERIAL OFFSITE.
16. IF CONTRACTOR UNCOVERS SEWER LATERAL DURING DEMOLITION HE/SHE SHALL CAP THEM AS CLOSE TO SEWER MAIN/ROW AS POSSIBLE.
17. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AS NEEDED PRIOR TO THE START OF CONSTRUCTION. BURIED UNDERGROUND UTILITIES HAVE NOT BEEN FIELD SURVEYED. REFER TO CENTRAL FLORIDA LOCATES FINDINGS PLAN FOR LOCATIONS OF UNDERGROUND UTILITIES THAT HAVE BEEN LOCATED USING GROUND PENETRATING RADAR (GPR).

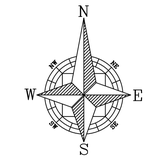
EROSION CONTROL NOTES:

AN EROSION CONTROL AGENDA SHALL BE PREPARED BY THE CONTRACTOR. CONTRACTOR SHALL EXECUTE ALL MEASURES NECESSARY TO LIMIT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT TO THE VOLUME AND AMOUNT THAT ARE EXISTING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS CONDITION WILL BE SATISFIED FOR THE TOTAL ANTICIPATED CONSTRUCTION PERIOD. PROVISION MUST BE MADE TO PRESERVE THE INTEGRITY AND CAPACITY OF CHECK WEIRS, SEDIMENT BASINS, SLOPE DRAINS, GRADING PATTERNS, ETC. REQUIRED TO MEET THIS PROVISION THROUGHOUT THE LIFE OF THE CONSTRUCTION. CONTRACTOR SHALL PROVIDE SYNTHETIC BALES, SILT BARRIERS, TEMPORARY GRASSING, ETC. AS REQUIRES TO FULLY COMPLY WITH THE INTENT OF THIS SPECIFICATION.

1. STOCKPILING MATERIAL:
   NO EXCAVATED MATERIAL SHALL BE STOCKED PILED IN SUCH MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE OR INTO ANY ADJACENT WATER BODY OR STORMWATER COLLECTION FACILITY.
2. EXPOSED AREA LIMITATION:
   THE SURFACE AREA OF OPEN, RAW ERODIBLE SOIL EXPOSED BY CLEARING AND GRUBBING OPERATIONS OR EXCAVATION AND FILLING OPERATIONS SHALL NOT EXCEED 5 ACRES SO LONG AS THIS OPERATION WILL NOT SIGNIFICANTLY AFFECT OFF–SITE DEPOSIT OF SEDIMENT.
3. INLET PROTECTION:
   INLETS AND CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT LADEN STORM RUNOFF UNTIL THE COMPLETION OF ALL CONSTRUCTION OPERATIONS THAT MAY CONTRIBUTE SEDIMENT TO THE INLET.
4. TEMPORARY SEEDING:
   AREAS OPENED BY CONSTRUCTION OPERATIONS AND THAT ARE NOT ANTICIPATED TO BE DRESSED AND RECEIVE FINAL GRASSING TREATMENT WITHIN SEVEN DAYS SHALL BE SEEDED WITH A QUICK GROWING GRASS SPECIES WHICH WILL PROVIDE AN EARLY COVER DURING THE SEASON IN WHICH IT IS PLANTED, AND WILL NOT LATER COMPETE WITH THE PERMANENT GRASSING. THE RATE OF SEEDING SHALL BE 30 LBS. PER ACRE.
5. TEMPORARY SEEDING AND MULCHING:
   SLOPES STEEPER THAN 6:1 THAT FALL WITHIN THE CATEGORY ESTABLISHED IN 4 ABOVE, SHALL ADDITIONALLY RECEIVE MULCHING OF APPROXIMATELY 2 INCHES LOOSE MEASURE OF MULCH MATERIAL CUT INTO THE SOIL OF THE SEEDED AREA TO A DEPTH OF FOUR INCHES.
6. TEMPORARY GRASSING:
   THE SEEDED OR SEEDED AND MULCHED AREA(S) SHALL BE ROLLED AND WATERS AS REQUIRED TO ASSURE OPTIMUM GROWING CONDITIONS FOR THE ESTABLISHMENT OF A GOOD GRASS COVER.
7. TEMPORARY REGRASSING:
   IF, AFTER FOURTEEN DAYS, THE TEMPORARY GRASSED AREAS HAVE NOT ATTAINED A MINIMUM OF 75% GOOD GRASS COVER, THE AREA WILL BE REWORKED AND ADDITIONAL SEED APPLIED SUFFICIENT TO ESTABLISH THE DESIRED VEGETATION COVER.
8. MAINTENANCE:
   ALL FEATURES OF THE PROJECT SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENT AND SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION PROPERLY WITHOUT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT.
9. DUST ABATEMENT:
   DUST SHALL BE CONTROLLED WITH USE OF WATER AND CALCIUM CHLORIDE.
10. ONGOING INSPECTIONS AND PERIODIC MAINTENANCE BY THE CONTRACTOR SHALL OCCUR THROUGHOUT CONSTRUCTION AS OF THEN AS NECESSARY TO INSURE THAT THE ABOVE METHODS ARE WORKING SUITABLY. THIS MAY BE NEEDED AS OFTEN AS DAILY IF CONDITIONS SO WARRANT.
11. THE CONTRACTOR SHALL CONDUCT INSPECTIONS TO DETERMINE THE EFFECTIVENESS OF EROSION/SEDIMENT CONTROL EFFORTS SHALL BE CONDUCTED DAILY AND WITHIN 24 HOURS AFTER EACH 0.50 INCH OR GREATER RAINFALL EVENT. ANY NECESSARY REMEDIES SHALL BE PERFORMED IMMEDIATELY.
12. THE CONTRACTOR SHALL PROMPTLY REMOVE ALL MUD, DIRT OR OTHER MATERIALS TRACKED OR SPILLED ONTO EXISTING PUBLIC ROADS AND FACILITIES, DUE TO CONSTRUCTION, PROVIDE EROSION CONTROL ON ANY EXISTING INLETS THAT MIGHT BE IMPACTED BY THE PROPOSED PROJECT.
13. SODDING OF GREEN SPACE OR OPEN SPACE SHOULD BE ACCOMPLISHED AS SOON AS POSSIBLE FOLLOWING COMPLETION OF GRADING TO MINIMIZE EROSION POTENTIAL.
14. AT A MINIMUM SILT BARRIERS SHALL BE PLACED AS SHOWN ON SHEET C2.1 OF THE CONSTRUCTION PLANS TO INSURE AGAINST POLLUTING, SILTING OR DISTURBING TO SUCH AN EXTENT AS TO CAUSE AN INCREASE IN TURBIDITY TO THE EXISTING WETLAND. IF DURING CONSTRUCTION THE PROPOSED EROSION CONTROL SYSTEM DOES NOT PERFORM SATISFACTORY, ALTERNATIVES AND ADDITIONAL MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR IN ORDER TO COMPLY WITH VOLUSIA COUNTY AND S.J.R.W.M.D. EROSION PROTECTION STANDARDS.
15. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR ALL EROSION PROTECTION COSTS. INCLUDING ANY COSTS ASSOCIATED WITH COMPLIANCE ISSUES AND ENFORCEMENT ACTIONS.
16. ANY EXISTING WELLS ON SITE MUST BE ABANDONED/CAPPED AS PER S.J.R.W.M.D. PROCEDURES.
17. CONTRACTOR SHALL COMPLY WITH THE FEDERAL, STATE, AND LOCAL REGULATIONS FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES AND RELATED ACTIVITIES.

FDEP NPDES PERMIT NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) NOI FDEP PERMIT.
2. THE CONTRACTOR IS RESPONSIBLE FOR CREATING AND MAINTAINING THE REQUIRED STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP SHALL BE SUBMITTED TO THE TOWN OF EATONVILLE FOR REVIEW AND APPROVAL PRIOR TO CONTRACTOR MOBILIZING TO THE SITE AND INSTALLING ANY BMP'S.
3. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING THE WEEKLY INSPECTION REPORTS AND REQUIRED INSPECTIONS AFTER THE SPECIFIED RAINFALL EVENTS PER THE NPDES PERMIT.



GRAPHIC SCALE

70 0 35 70 140

(IN FEET)
1 inch = 70 ft.

LEGEND

- PROPERTY BOUNDARY
- SF — SILT FENCE
- x — x — DEMOLITION
- CONCRETE TO BE REMOVED
- EXISTING STORAGE BUILDING TO BE DEMOLISHED

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BY	DESCRIPTION	REV.	DATE

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

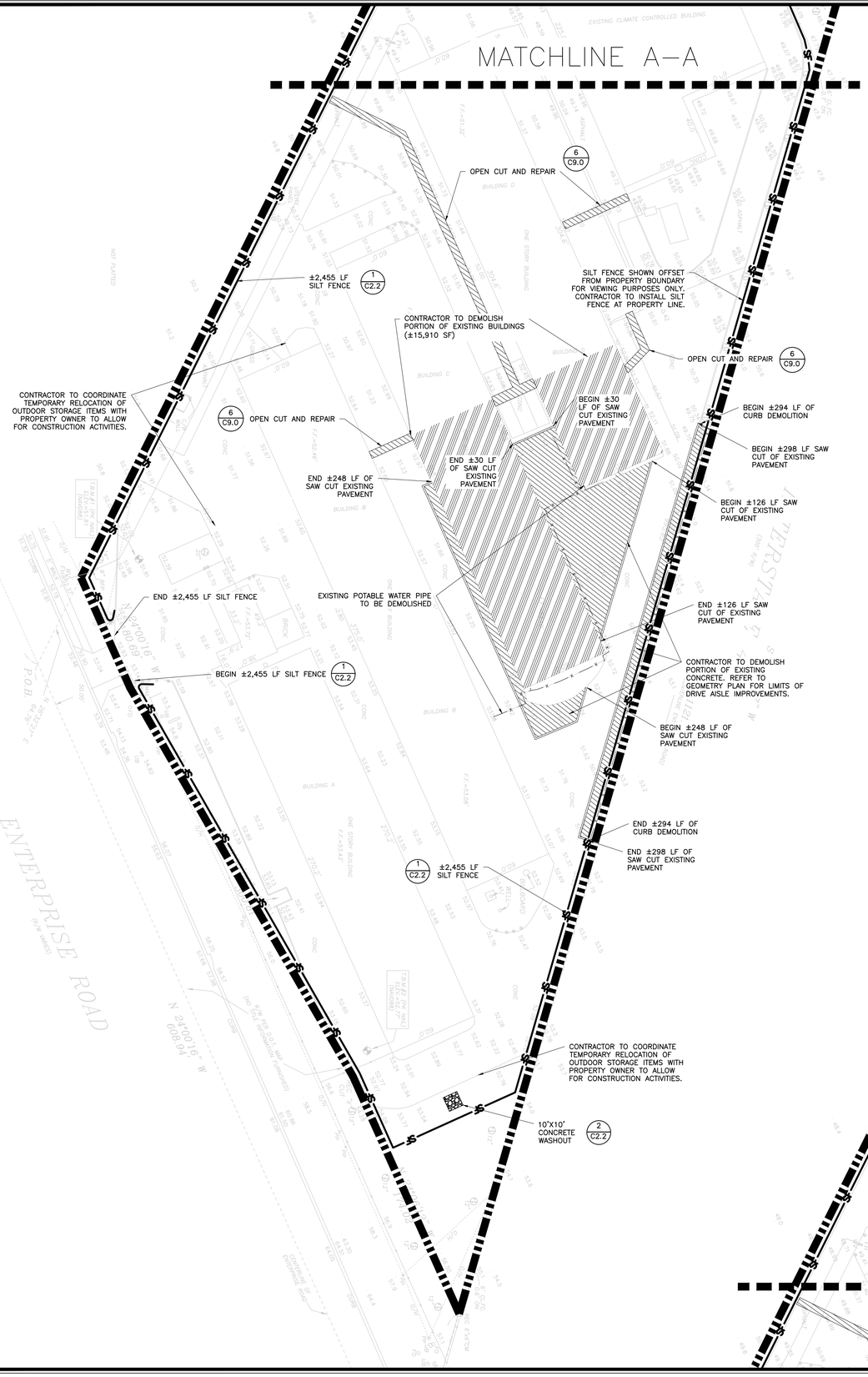
EROSION CONTROL & DEMO PLAN – OVERALL
FINAL SITE PLAN
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
1" = 70'	SSS-005	C2.0

5/15/23

P:_PROJECT DRAWINGS\SSS-005 – Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\EROSION CONTROL PLAN.dwg Modified:5/15/2023 By:tmoore



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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32674

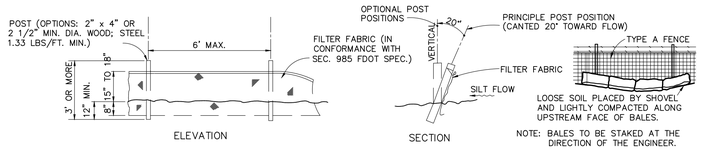
EROSION CONTROL & DEMO PLAN
FINAL SITE PLAN
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
1" = 40'	SSS-005	C2.1

5/15/23

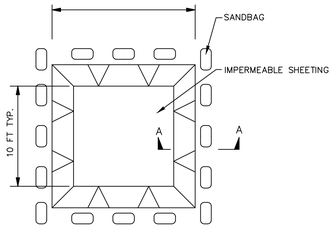
P:_PROJECT DRAWINGS\SSS-005 – Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\EROSION CONTROL PLAN.dwg Modified:5/15/2023 By:tmoore



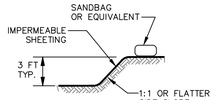
NOTE

SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE (LF).

1 TYPE III SILT FENCE DETAIL
N.T.S.



PLAN



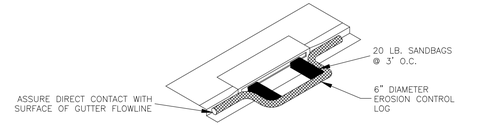
SECTION A–A

EXCAVATED WASHOUT STRUCTURE

NOTES:

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 CONCRETE WASH OUT
N.T.S.



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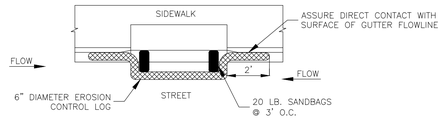
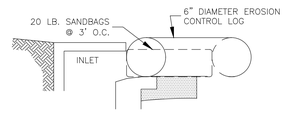


PLAN

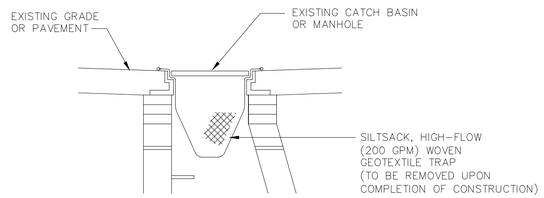


CROSS SECTION

NOTES:

1. EROSION CONTROL LOG CONTAINMENT MESH SHALL BE 100% BIODEGRADABLE, PHOTODEGRADABLE OR RECYCLABLE; AND FILL MATERIAL SHALL CONSIST OF MULCH, ASPEN EXCELSIOR FIBERS, CHIPPED SITE VEGETATION, COCONUT FIBERS, 100% RECYCLABLE FIBERS, OR ANY OTHER ACCEPTABLE MATERIAL EXCLUDING STRAW AND HAY.
2. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
3. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM WATER BEGINS TO OVERTOP THE CURB.
4. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

3A EROSION CONTROL LOG DETAIL (IF NEEDED)
N.T.S.



3B INLET TRAP AND FILTER (IF NEEDED)
N.T.S.

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REV.	DATE	DESCRIPTION	BY

EROSION CONTROL & DEMO PLAN – DETAILS
FINAL SITE PLAN

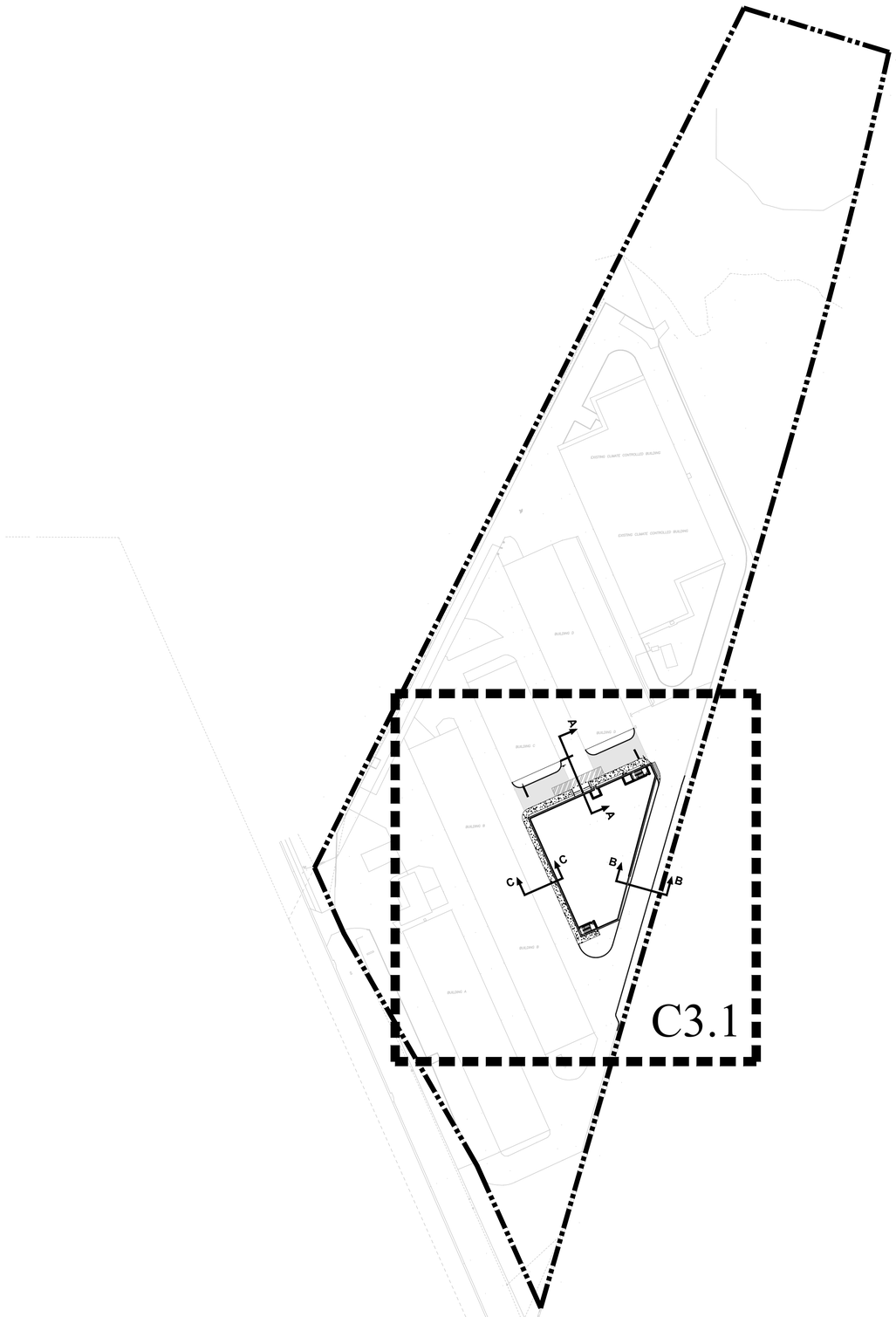
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

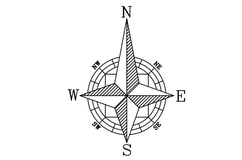
DRAWN: T.MOORE
DESIGNED: J.PALM
CHECKED: M. STACY
DATE: 5/15/2023

SCALE: N.T.S.
PROJECT: SSS-005
SHEET: C2.2

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\EROSION CONTROL PLAN.dwg Modified:5/15/2023 By:tmoore





GRAPHIC SCALE

70 0 35 70 140

(IN FEET)
1 inch = 70 ft.

LEGEND

- PROPERTY BOUNDARY
- PROPOSED CONCRETE
- PROPOSED CONCRETE

SITE DATA

1.	OCPA - PARCEL ID #'s:	17-22-29-5594-00-010
2.	PROPERTY LOCATION:	3075 ENTERPRISE ROAD DEBARY, FLORIDA 32713
3.	TOTAL PROPERTY AREA:	8.53 AC.
4.	LEED SITE AREA:	1.12 AC.
5.	REQUIRED FLOOR AREA RATIO (FAR):	0.70 FAR (MAX)
6.	PROPOSED FLOOR AREA RATIO (FAR):	
	EXISTING STORAGE BUILDINGS TO REMAIN:	1.89Ac. (0.22 FAR)
	PROPOSED STORAGE BUILDING:	0.34 Ac. (0.04 FAR)
	TOTAL:	3.95 Ac. (0.26 FAR)
7.	REQUIRED IMPERVIOUS SURFACE RATIO (ISR):	0.90 ISR (MAX)
8.	PROPOSED IMPERVIOUS SURFACE RATIO (ISR):	7.48 Ac. (0.89 ISR)
9.	FEMA FLOOD INSURANCE RATE MAP FLOOD ZONE: MAP #12127C0620K DATED SEP. 29, 2017	A
10.	EXISTING FUTURE LAND USE (FLU):	C/R COMMERCIAL/RETAIL
11.	ADJACENT FUTURE LAND USE(FLU):	
	NORTH:	140 IMP LAKEFRONT
	SOUTH:	VACANT COMMERCIAL
	EAST:	101 IMP PVD THRU
	WEST:	1200 MIXED, STORE, AND OFFICE
12.	EXISTING ZONING:	B-5 HEAVY COMMERCIAL
13.	ADJACENT ZONING:	
	NORTH:	R-1 SINGLE FAMILY
	SOUTH:	B-5
	EAST:	R-1 SINGLE FAMILY
	WEST:	B-5
14.	LEED SITE AREA SETBACKS:	
	FRONT YARD:	0 FT (MIN)
	BACK YARD:	10 FT
	SIDE YARD:	0 OR 3 FT (MIN)
	STREET YARD:	10 FT
15.	LEED SITE AREA BUFFER YARD REQUIRED:	
	NORTH:	7.5 FT
	SOUTH:	0 FT
	EAST:	7.5 FT
	WEST:	7.5 FT
16.	LEED SITE AREA BUFFER YARD PROVIDED:	
	NORTH:	10 FT
	SOUTH:	0 FT
	EAST:	7.5 FT
	WEST:	12 FT
17.	MAX BUILDING HEIGHT:	3 STORIES
18.	WATER SERVICE PROVIDED BY ORLANDO UTILITY COMMISSION	
19.	SEWER SERVICE PROVIDED BY ORLANDO UTILITY COMMISSION	
20.	ALL UTILITY LINES SHALL BE PROVIDED AND DESIGNED TO MEET ORLANDO UTILITY COMMISSION AND NFPA REQUIREMENTS	
21.	THE PROJECT DOES NOT CONTAIN ONSITE WETLANDS	
22.	PROJECT SIGNAGE SHALL COMPLY WITH THE CITY OF ORLANDO LAND DEVELOPMENT CODE	

BY	DESCRIPTION	REV.	DATE

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

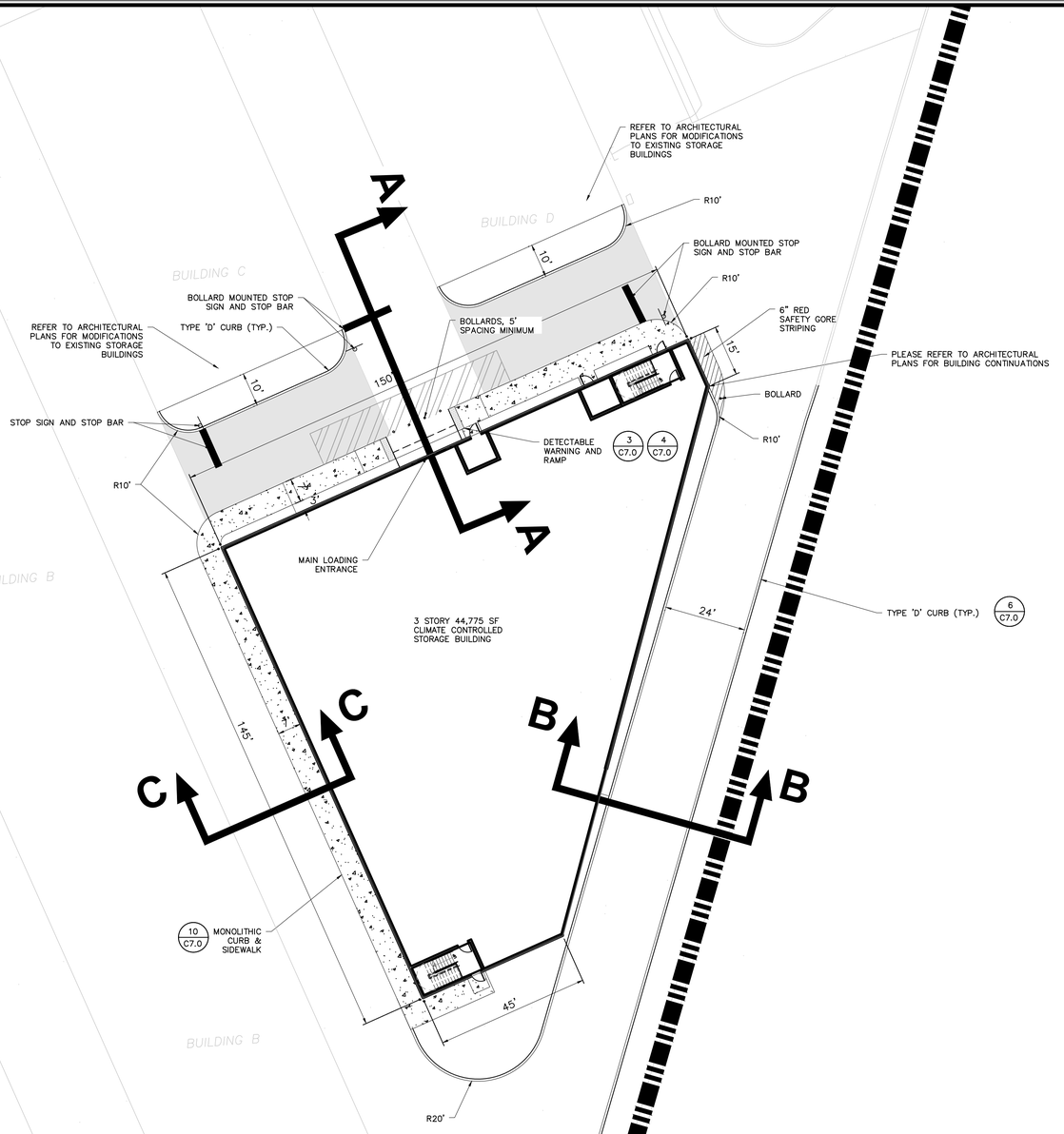
OVERALL GEOMETRY PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE 1" = 70'	PROJECT SSS-005	SHEET C3.0	

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\GEOMETRY CROSS SECTIONS.dwg Modified:5/15/2023 By:tmoore



N

W E

S

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND

PROPERTY BOUNDARY

PROPOSED CONCRETE

PROPOSED CONCRETE

REV.	DATE	DESCRIPTION	BY

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

GEOMETRY PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

SCALE: 1" = 20'	DRAWN: T.MOORE	DESIGNED: J.P.ALM	CHECKED: M. STACY
PROJECT: SSS-005	SHEET: C3.1	DATE: 5/15/2023	

5/15/23

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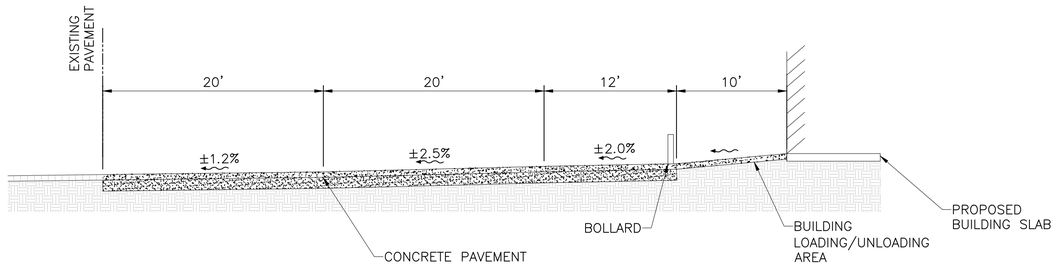
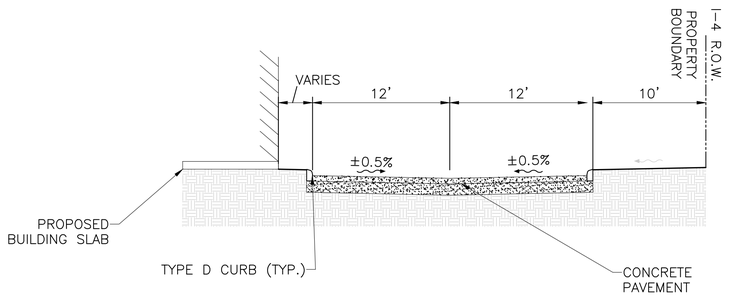


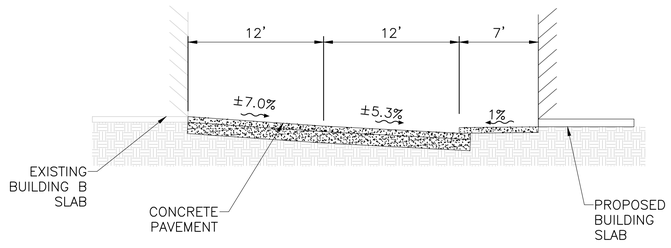
SECTION A-A

N.T.S.



SECTION B-B

N.T.S.



SECTION C-C

N.T.S.

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REV.	DATE	DESCRIPTION	BY

GEOMETRY CROSS SECTIONS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: N.T.S.	PROJECT: SSS-005	SHEET: C3.2	

5/15/23

GENERAL UTILITY NOTES:

1. BACTERIOLOGICAL TESTS WITH CHLORINE RESIDUALS INDICATED (TAKEN ON TWO CONSECUTIVE DAYS) SHALL BE CONDUCTED AT EACH POTABLE WATER METER FOR EVERY BUILDING, AT EVERY WET–TAP CONNECTION AND EVERY LOCATION INDICATED WITHIN THESE PLANS. RESULTS OF THE BACTERIOLOGICAL TESTS SHALL BE PROVIDED TO THE ENGINEER OF RECORD IMMEDIATELY UPON COMPLETION. BACTERIOLOGICAL TEST RESULTS SHALL BE CONSIDERED UNACCEPTABLE IF THE TESTS WERE COMPLETED MORE THAN 30 DAYS BEFORE THE ENGINEER RECEIVED THE RESULTS.

2. ALL WATERMAINS SHALL BE INSTALLED A MINIMUM OF 36" BELOW FINISHED GRADE.

3. ALL WATERMAINS AND FIRELINES PIPES SHALL BE RESTRAINED VIA MECHANICAL JOINTS.

4. WATER MAIN PVC PIPES LESS THAN 4 INCHES MUST CONFORM TO THE SPECIFICATIONS OF ASTM 1785 (SCHEDULE 40, 80, 120) OR ASTM 2241 SDR21 AND MUST BEAR THE NSF LOGO ON EACH INSTALLED LENGTH.

5. UNDERGROUND MARKING TAPE FOR ALL SANITARY FORCEMAINS SHALL BE INSTALLED 4 TO 8 INCHES BELOW THE FINISHED GRADE SURFACE DIRECTLY OVER THE PIPELINE. MARKER TAPE SHALL BE MADE OF AN INERT POLYETHYLENE MATERIAL HAVING A MINIMUM THICKNESS OF 4 MILS AND BE COLOR CODED "SAFETY GREEN".

6. CONTRACTOR SHALL CONDUCT AND PROVIDE RESULTS IMMEDIATELY TO THE ENGINEER OF RECORD FOR PRESSURE AND LEAKAGE TESTS ON THE FORCE MAIN TRUNK LINE ONCE THE PRESSURE SEWER HAS BEEN INSTALLED AND PARTLY BACKFILLED. FINAL BACKFILL AND COMPACTION SHALL NOT COMMENCE UNTIL APPROVAL OF THE PRESSURE AND LEAKAGE TESTS HAS BEEN PROVIDED BY THE ENGINEER OF RECORD.

7. FOLLOWING SATISFACTORY PRESSURE TEST RESULTS, THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE WATER DISTRIBUTION SYSTEM, AND RECEIVE APPROVAL THEREOF FROM APPROPRIATE AGENCIES PRIOR TO PLACING THE SYSTEM INTO SERVICE.

8. FIRE HYDRANTS SHALL BE PLACED A MINIMUM OF 3 FT. AND A MAXIMUM OF 5 FT. FROM THE CURB OR PAVED ROAD SURFACE UNLESS OTHERWISE APPROVED. NO FENCE, TREE, POST, SHRUB, OR OTHER OBJECT WHICH COULD BLOCK THE HYDRANT FROM NORMAL VIEW OR OBSTRUCT THE HYDRANT'S USE SHALL BE LOCATED WITHIN FOUR (4) FEET OF THE HYDRANT. THE FOUR–AND–ONE–HALF INCH (4–1/2") LARGE VOLUME CONNECTION SHALL FACE THE NEAREST ROADWAY. THE CENTER OF THE STEAMER PORT SHALL BE 18 INCHES MINIMUM AND 24 INCHES MAXIMUM ABOVE FINISHED GRADE.

9. ALL FIRE HYDRANT LEADS SHALL HAVE AN INSIDE DIAMETER OF AT LEAST SIX INCHES AND INCLUDE AUXILARY VALVES.

10. WHEN NECESSARY, DEWATERING SHALL BE PROVIDED TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW MAIN BEING LAID.

11. ALL UTILITIES SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.

12. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO CITY OF DEBARY UTILITIES WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTO T–180 MODIFIED PROCTOR TEST.

13. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12 INCHES VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET.

14. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH A 2" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 12" MAXIMUM ABOVE THE GROUND.

15. ALL WATER VALVES, INCLUDING CONCRETE COLLAR (WITH DEBRIS CAP), SHALL BE ADJUSTED TO FINISHED GRADE AND THE VALVE BOX LID, PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.

16. UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY PUBLIC UTILITIES PERSONNEL. AT NO TIME SHALL CONTRACTOR OPERATE ANY EXISTING VALVES WITHOUT CITY OF DEBARY UTILITIES INSPECTOR PRESENT.

17. ALL WATER MAINS SHALL BE NSF–APPROVED FOR POTABLE WATER USE.

18. PIPE USED IN WATER DISTRIBUTION SYSTEMS SHALL BE EITHER POLYVINYL CHLORIDE (PVC), OR DUCTILE IRON PIPE (DIP).

    (a) ALL PVC PIPE OF NOMINAL DIAMETER FOUR (4) INCHES THROUGH TWELVE (12) INCHES SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C900, LATEST EDITION. THE PVC PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 150PSI AND SHALL HAVE A DIMENSION RATIO (DR) OF 18.
    (b) ALL DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA A21.51/C151 AND HAVE A MINIMUM 350 PRESSURE CLASS RATING

19. PIPE USED IN GRAVITY SEWER CONSTRUCTION SHALL BE POLYVINYL CHLORIDE (PVC) OR DUCTILE IRON PIPE (DIP). WHERE REFERENCE IS MADE TO AN ASTM, ANSI, OR AASHTO DESIGNATION, IT SHALL BE THE LATEST REVISION.

    (a) PVC GRAVITY SEWER PIPE (4 INCH – 15 INCH), ASTM D3034, SDR 35 – UNIFORM MINIMUM "PIPE STIFFNESS" AT FIVE (5) PERCENT DEFLECTION SHALL BE 46PSI. THE JOINTS SHALL BE INTEGRAL BELL ELASTOMERIC GASKET JOINTS MANUFACTURED IN ACCORDANCE WITH ASTM D3212 AND ASTM F477. APPLICABLE UNI–BELL PLASTIC PIPE ASSOCIATION STANDARD IS UNI–B–4. ALL PVC PIPE SHALL BEAR THE NSF–DW SEAL AND BE GREEN IN OVERALL COLOR. THE MINIMUM STANDARD LENGTH OF PIPE SHALL BE THIRTEEN (13) FEET.
    (b) DUCTILE IRON PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151, CLASS THICKNESS DESIGNED PER ANSI/AWWA A21.50/C150, WITH MECHANICAL OR PUSH ON JOINTS. AN INTERIOR PROTECTIVE LINING OF COAL TAR EPOXY SHALL BE PROVIDED WITH A MINIMUM DRY THICKNESS OF 30 MILS. DUCTILE IRON GRAVITY SEWERS, WHERE REQUIRED BY CITY OF DEBARY UTILITIES BASED ON GEOTECHNICAL INVESTIGATIONS, SHALL BE WRAPPED WITH POLYETHYLENE FILM, AWWA C105. SEE APPENDIX C. THE MINIMUM STANDARD LENGTH OF PIPE SHALL BE EIGHTEEN (18) FEET.

ADDITIONAL NOTES

1. ALL EXISTING UTILITIES MUST BE FIELD VERIFIED AT ALL POINTS OF CONNECTION TO, AND AT ALL AREAS OF CONFLICT WITH CITY MAINS.

WATER SYSTEM TESTING REQUIREMENTS:

1. THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL WATER DISTRIBUTION SYSTEMS, AS SET FORTH IN THE FOLLOWING AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRESENTATIVES FROM CITY OF DEBARY UTILITIES AND/OR OTHER AUTHORIZED AGENCIES. THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCED NOTICE PRIOR TO TESTING OF THE WATER DISTRIBUTION SYSTEM.

2. ALL TESTING REQUIRED BY CITY OF DEBARY UTILITIES SHALL BE PAID FOR BY THE DEVELOPER / CONTRACTOR.

3. ALL PROPOSED WATER MAINS SHALL BE TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.

4. PRIOR TO HYDROSTATIC TESTING A PRELIMINARY FLUSHING SHALL BE REQUIRED THROUGH FULL DIAMETER FLUSHING OR SWABBING. PRELIMINARY FLUSHING/SWABBING SHALL BE PERFORMED PER AWWA C651 STANDARD – "DISINFECTING WATER MAINS". ALL PIPING SHALL BE THOROUGHLY CLEANED AND FLUSHED PRIOR TO TESTING TO CLEAR THE LINES OF ALL FOREIGN MATTER. WHILE THE PIPING IS BEING FILLED WITH WATER, CARE SHALL BE EXERCISED TO PERMIT THE ESCAPE OF AIR FROM EXTREMITIES ALONG THE TEST SECTION.

5. HYDROSTATIC TESTING SHALL CONSIST OF PRESSURE TEST AND LEAKAGE TEST. PIPING AND APPURTENANCES TO BE TESTED SHALL BE WITHIN SECTIONS BETWEEN VALVES, NOT EXCEEDING 2,000 FEET, UNLESS ALTERNATE METHODS HAVE RECEIVED PRIOR APPROVAL FROM CITY OF DEBARY UTILITIES. TESTING SHALL NOT PROCEED UNTIL CONCRETE THRUST BLOCKS ARE IN PLACE AND CURED, OR OTHER RESTRAINING DEVICES INSTALLED.

6. HYDROSTATIC TESTING SHALL BE PERFORMED AT 150 POUNDS PER SQUARE INCH PRESSURE, UNLESS OTHERWISE APPROVED BY CITY OF DEBARY UTILITIES, FOR A PERIOD OF NOT LESS THAN TWO (2) HOURS.

7. THE ALLOWABLE RATE OF LEAKAGE SHALL BE LESS THAN THE NUMBER OF GALLONS PER HOUR DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{SD*\sqrt{P}}{148{,}000}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

8. SHOULD THE TEST FAIL, NECESSARY REPAIRS SHALL BE ACCOMPLISHED BY THE CONTRACTOR AND THE TEST REPEATED UNTIL WITHIN PASSING LIMITS. THE CONTRACTOR SHALL FURNISH ALL THE NECESSARY LABOR, PUMPS, GAUGES AND ALL OTHER ITEMS NECESSARY TO CONDUCT THE REQUIRED WATER DISTRIBUTION SYSTEM TESTING AND PERFORM NECESSARY REPAIRS.

SEWER SYSTEM TESTING REQUIREMENTS:

1. THE CONTRACTOR SHALL PERFORM TESTING OF ALL SANITARY SEWAGE GRAVITY COLLECTION SYSTEMS, AS SET FORTH IN THE FOLLOWING AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRESENTATIVES FROM CITY OF DEBARY UTILITIES AND/OR OTHER AUTHORIZED AGENCIES. THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCED NOTICE PRIOR TO TESTING OF THE WASTEWATER DISTRIBUTION SYSTEM.

2. ALL TESTING REQUIRED BY CITY OF DEBARY UTILITIES SHALL BE PAID FOR BY THE DEVELOPER / CONTRACTOR.

3. GRAVITY MAINS SHALL BE INSPECTED WITH CCTV FOR ALIGNMENT, GRADE VARIATIONS, SEPARATED PIPES, LEAKS, DEFLECTION, CRACKED, BROKEN OR OTHERWISE DEFECTIVE PIPE TO ENSURE OVERALL PIPE INTEGRITY. THE APPROVED CCTV INSPECTION CONTRACTOR SHALL SUBMIT THE REPORT TO THE UTILITIES DEPARTMENT AS REQUIRED.

4. LEAKAGE TESTING FOR GRAVITY MAINS SHALL BE BY LOW–PRESSURE AIR TEST. LEAKAGE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURE FOR "RECOMMENDED PRACTICE FOR LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE" AS ESTABLISHED BY THE UNI–BELL PVC PIPE ASSOCIATION.

5. EACH GRAVITY MAIN LEAKAGE TEST SECTION SHALL NOT EXCEED 400 FEET IN LENGTH AND SHALL BE TESTED BETWEEN ADJACENT MANHOLES.

LOCATION OF PUBLIC WATER SYSYEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	Water Main 3 ft. minimum	Water Main 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum Water Main
Vacuum Sanitary Sewer	Water Main 10 ft. preferred 3 ft. minimum	Water Main 12 inches preferred 6 inches minimum	Alternate 3 ft. minimum Water Main
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	Water Main 10 ft. preferred 6 ft. minimum (3)	Water Main 12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 6 ft. minimum Water Main
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer – This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

FDEP UTILITY CONSTRUCTION NOTES:

1. NOTE TO THE UTILITY: PURSUANT TO 62–555.345; DO NOT PROVIDE WATER SERVICE TO THIS PROJECT (OTHER THAN FLUSHING/TESTING) UNTIL THE DEPARTMENT OF ENVIRONMENTAL PROTECTION HAS ISSUED A LETTER OF CLEARANCE OR THE UTILITY SHALL BE SUBJECT TO ENFORCEMENT ACTION.

2. THE PERMITTEE WILL PROMPTLY NOTIFY THE DEPARTMENT UPON SALE OR LEGAL TRANSFER OF THE PERMITTED FACILITY

3. ALL WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED AND BACTERIOLOGICALLY EVALUATED IN ACCORDANCE WITH RULE 62–555.340, F.A.C.

4. ALL WATER MAIN PIPE, INCLUDING FITTINGS SHALL BE COLOR CODED OR MARKED USING BLUE AS A PREDOMINANT COLOR TO DIFFERENTIATE DRINKING WATER FROM RECLAIMED OR OTHER WATER. UNDERGROUND PLASTIC PIPE SHALL BE SOLID–WALL BLUE PIPE, SHALL HAVE A CO–EXTRUDED BLUE EXTERNAL SKIN, OR SHALL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO, OR APPLIED TO, THE PIPE WALL; AND UNDERGROUND METAL OR CONCRETE PIPE SHALL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPED DURING MANUFACTURING OF THE PIPE SHALL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE, THAT ARE LOCATED AT NO GREATER THAN 90–DEGREE INTERVALS AROUND THE PIPE, AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT SHALL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED ALONG THE TOP OF THE PIPE; FOR PIPES WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT SHALL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE.

FDEP UTILITY SEPARATION REQUIREMENTS

(62–555.314, F.A.C. LOCATION OF PUBLIC WATER SYSTEM MAINS)

FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS; AND SERVICE LINES THAT ARE UNDER THE CONTROL OF A PUBLIC WATER SYSTEM AND THAT HAVE AN INSIDE DIAMETER OF THREE INCHES OR GREATER.

(1) HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON–SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.

   (a) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THEOUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.
   (b) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM–TYPE SANITARY SEWER.
   (c) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY– OR PRESSURE–TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY–TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
   (d) NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON–SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E–6.002, F.A.C.

(2) VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES.

   (a) NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY– OR VACUUM–TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   (b) NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE–TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   (c) AT THE UTILITY CROSSINGS DESCRIBED IN PARAGRAPHS (A) AND (B) ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM–TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY– OR PRESSURE–TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.

(3) SEPARATION BETWEEN WATER MAINS AND SANITARY OR STORM SEWER MANHOLES.

   (a) NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE.
   (b) EFFECTIVE AUGUST 28, 2003, WATER MAINS SHALL NOT BE CONSTRUCTED OR ALTERED TO PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A STORM SEWER MANHOLE OR INLET STRUCTURE.

(4) SEPARATION BETWEEN FIRE HYDRANT DRAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON–SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS. NEW OR RELOCATED FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE LOCATED SO THAT THE DRAINS ARE AT LEAST THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.; AT LEAST THREE FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED VACUUM–TYPE SANITARY SEWER; AT LEAST SIX FEET, AND PREFERABLY TEN FEET, FROM ANY EXISTING OR PROPOSED GRAVITY– OR PRESSURE–TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62–610, F.A.C.; AND AT LEAST TEN FEET FROM ANY EXISTING OR PROPOSED "ON–SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E–6.002, F.A.C.

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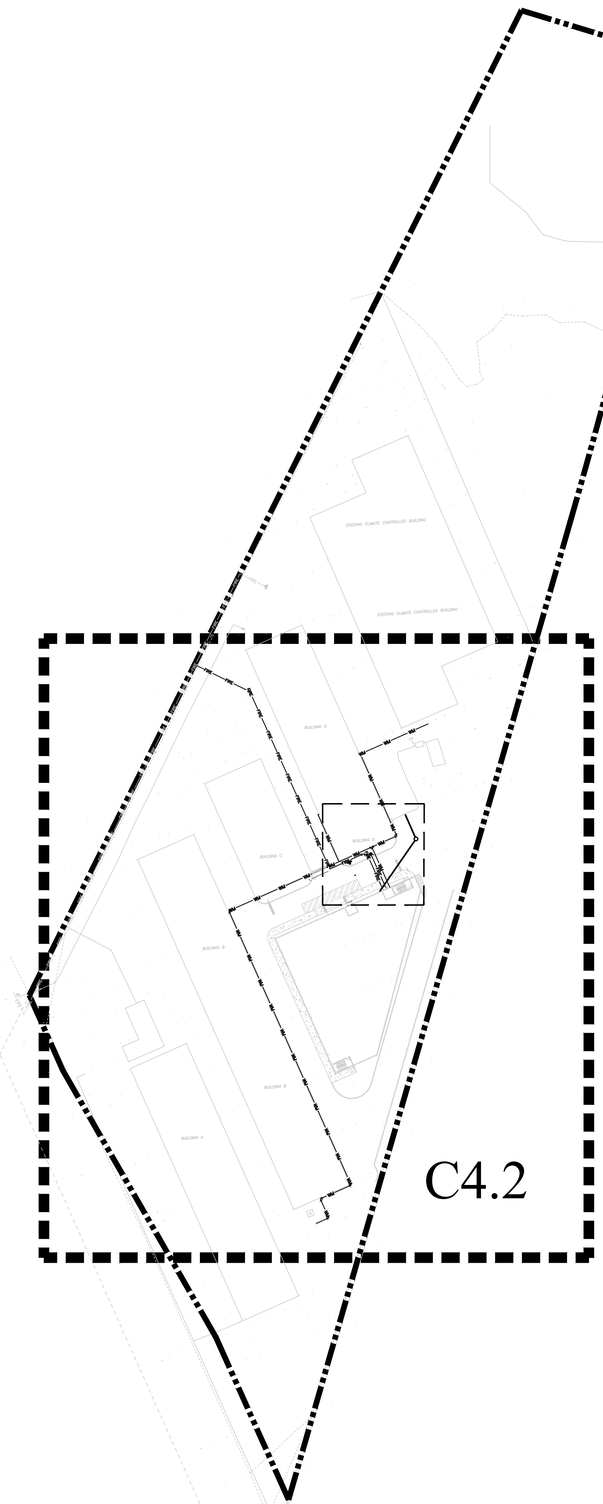
BY	DESCRIPTION	REV.	DATE

UTILITY NOTES
FINAL SITE PLAN
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
N.T.S.	SSS–005	C4.0

5/15/23



UTILITY NOTES

1. THE LOCATION OF EXISTING UTILITIES, SUCH AS WATER MAINS, SEWERS, ETC., AS SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR(S). THE ENGINEER AND/OR THE OWNER DO NOT ASSUME RESPONSIBILITY FOR THE ACCURACY OF THE LOCATIONS SHOWN. IT SHALL BE THE CONTRACTOR(S) RESPONSIBILITY TO VERIFY THE LOCATION OF ANY AND ALL EXISTING UTILITIES AND CONTACT SUNSHINE STATE ON CALL FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO HAVE ANY MUNICIPAL FACILITIES LOCATED IN THE FIELD PRIOR TO ANY WORK.
2. ALL APPLICABLE SANITARY SEWER MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CURRENT CITY OF DEBARY, ORANGE CITY AND FDEP STANDARDS AND SPECIFICATIONS.
3. ALL APPLICABLE WATER MAIN MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CURRENT CITY OF DEBARY, ORANGE CITY AND FDEP WATER RESOURCE & UTILITY STANDARDS AND SPECIFICATIONS.
4. ANY DAMAGE TO UNDERGROUND UTILITIES AND STRUCTURES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. THERE SHALL BE A TEN FOOT (10') MINIMUM HORIZONTAL AND EIGHTEEN INCH (18") MINIMUM VERTICAL SEPARATION BETWEEN APPLICABLE SANITARY SEWER AND WATER LINES (10'/18") BETWEEN POTABLE WATER AND STORM OR REUSE WATER EXCEPT THAT A FIVE FOOT (5') MINIMUM HORIZONTAL CLEARANCE WILL BE ACCEPTED WITH UNRESTRICTED PUBLIC ACCESS REUSE WATER LINES. ALTERNATES SHALL BE IN ACCORDANCE WITH "RECOMMENDED STANDARDS FOR WATER WORKS."
6. THE CONTRACTOR SHALL LAY ALL APPLICABLE UTILITIES A MINIMUM OF THIRTY-SIX INCHES (36") BELOW FINISHED GRADE TO THE TOP OF PIPE.
7. ALL ON SITE UTILITY CONSTRUCTION TO POINT OF SERVICE CONNECTIONS SHALL BE PERFORMED BY AN UNDERGROUND UTILITY CONTRACTOR LICENSED BY THE STATE OF FLORIDA.
8. ALL ON SITE UTILITY SERVICES FROM THE POINT OF SERVICE CONNECTION & INCLUDING ALL BUILDING PLUMBING SHALL BE PERFORMED BY A PLUMBER LICENSED BY THE STATE OF FLORIDA.
9. THE LICENSED UNDERGROUND UTILITY CONTRACTOR AND PLUMBING CONTRACTOR SHALL COORDINATE FULLY WITH THE CITY OF DEBARY AND ORANGE CITY FOR THE REQUIREMENT OF THEIR WORK, INCLUDING NECESSARY PERMITS, INSPECTIONS AND APPROVALS.
10. ALL WATER MAIN PIPE, FITTINGS, VALVE, FIRE HYDRANTS, AND RELATED PRODUCTS THAT WILL COME INTO CONTACT WITH DRINKING WATER SHALL BE IN CONFORMANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE/NSF INTERNATIONAL STANDARD 61.
11. ROCK AND UNSUITABLY SIZED STONES (AS DESCRIBED IN APPLICABLE AWWA STANDARDS AND/OR THE PIPE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES) FOUND IN TRENCHES FOR NEW AND RELOCATED WATER MAIN PIPE SHALL BE REMOVED TO A DEPTH OF AT LEAST SIX INCHES BELOW THE BOTTOM OF THE PIPE, AND CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN TRENCHES FOR NEW AND RELOCATED WATER MAIN PIPE. BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND NEW AND RELOCATED WATER MAIN PIPE TO A SUFFICIENT HEIGHT ABOVE IT TO ADEQUATELY SUPPORT AND PROTECT THE PIPE.
12. BACKFLOW-PREVENTION ASSEMBLIES/DEVICES SHALL BE PROVIDED IN ACCORDANCE WITH RULE 62-555.360, F.A.C., AND THE AWWA MANUAL M14, RECOMMENDED PRACTICE FOR BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL.
13. ALL NEW AND RELOCATED WATER SERVICES SHALL BE IN CONFORMANCE WITH THE STATE PLUMBING CODE, AND ALL PIPE AND PIPE FITTINGS FOR NEW AND RELOCATED WATER SERVICES SHALL CONTAIN NO MORE THAN EIGHT PERCENT LEAD, AND ALL SOLDERS AND FLUX FOR NEW AND RELOCATED WATER SERVICES SHALL CONTAIN NO MORE THAN 0.2 PERCENT LEAD.
14. CONTRACTOR SHALL PROVIDE AT A MINIMUM OF ONE (1) VERTICAL TO ONE (1) HORIZONTAL DIG AT ALL TIMES. WHERE DIG IS STEEPER THAN ONE (1) VERTICAL TO ONE (1) HORIZONTAL, A TRENCH BOX SHALL BE USED.
15. FIRE FLOW REQUIREMENTS FOR BUILDINGS SHALL BE IN ACCORDANCE WITH NFPA I, SECTION 18.4.
16. DOCUMENTATION FOR FIRE FLOW TESTING SHALL INCLUDE A FIRE FLOW REPORT AND A HYDRAULIC GRAPH.
17. ALL POTABLE WATER MAINS SHALL BE C-900, CLASS 150, DR-18 PVC PIPE.
18. ALL FIRE MAINS SHALL BE DR-14 FIRE LINE.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR DEFLECTING WATER MAIN WHEN 12 INCHES (MIN.) OF SEPARATION IS NOT ACHIEVABLE TO THE FDEP UTILITY SEPARATION REQUIREMENTS AND STANDARD UTILITY CROSSING. CONTRACTOR SHALL NOT DEFLECT THE PIPE UNLESS WITH FITTINGS. REFER TO UTILITY NOTES SHEET FOR SEPARATION REQUIREMENTS
20. CONTRACTOR TO PERMANENTLY MARK CURBS WHERE WATER AND SEWER SERVICE LINES AND VALVES EXIST.
21. CONTRACTOR IS REQUIRED TO PROVIDE FIRE DEPARTMENT ACCESS AND WATER PRIOR TO ANY COMBUSTIBLES BEING BROUGHT ON SITE.
22. REFER TO ARCHITECTURAL PLANS FOR BUILDING UTILITY CONTINUATIONS. THE CIVIL ENGINEER SHALL COORDINATE WITH THE ARCHITECT ON THE LOCATIONS OF THE POTABLE WATER, SEWER, AND FIRE CONNECTIONS TO ENSURE CONSISTENCY.
23. CONTRACTOR TO INSTALL CLEANOUTS AT ALL PLACES ALONG SANITARY LATERALS WHERE THERE ARE BENDS.
24. MINIMUM SLOPE FOR SANITARY SERVICE LINES TO BE 1.0% AWAY FROM THE BUILDING.
25. PRIOR TO FIRE LINE INSTALLATION, THE FLORIDA LICENSED CONTRACTOR SHALL SUBMIT LAYOUT DESIGN DRAWINGS TO THE OFFICE OF THE FIRE MARSHAL. IF REQUIRED BY FLORIDA STATUE 553.79, DRAWINGS MUST BE SIGNED AND SEALED BY A FLORIDA LICENSED PROFESSIONAL ENGINEER. THE DRAWINGS MUST SHOW ALL UNDERGROUND FIRE LINES AND COMPONENTS STARTING FROM THE "POINT OF SERVICE" AS DEFINED UNDER FLORIDA STATUE 633.102. THE DESIGN SHALL BE IN ACCORDANCE TO THE CURRENT FLORIDA FIRE PREVENTION CODE AND ALL ADOPTED NFPA CODES AND STANDARDS.
26. ALL FIRE LINES ON THE DOWNSTREAM SIDE OF A DCVA OR FIRE DEPARTMENT CONNECTION (FDC) TO THE BUILDING SHALL BE DR-14 PIPE.
27. CONTRACTOR TO COORDINATE WITH OWNER + PROPERTY MANAGER FOR ANY TEMPORARY INTERRUPTION IN POTABLE WATER OR SANITARY SEWER SERVICE TO ANY EXISTING BUILDINGS. ANY TEMPORARY UTILITY CLOSURES SHALL BE SCHEDULED 30 DAYS IN ADVANCE AND SHALL NOT EXCEED MORE THAN 2+ HOURS OF INTERRUPTED SERVICES. IN THE EVENT TEMPORARY CLOSURES EXCEED 2+ HOURS, CONTRACTOR SHALL MAKE ALL NECESSARY MEASURES AT THE CONTRACTORS EXPENSE TO RESTORE SERVICES IN A TEMPORARY MEANS + METHODS TO BE APPROVED BY THE ENGINEER.

N
W E
S

GRAPHIC SCALE

70 0 35 70 140

(IN FEET)
1 inch = 70 ft.

LEGEND

- PROPOSED WATER MAIN
- PROPOSED FIRE LINE
- TEE
- BEND
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SEWER LATERAL

ADDITIONAL NOTES:

1. UNDERGROUND MAIN CONTRACTOR MUST OBTAIN A FIRE PERMIT FOR THE INSTALLATION OF ANY UNDERGROUND FIRE MAINS AND HYDRANTS PRIOR TO ANY INSTALLATION. IF THE WATER DISTRIBUTION SYSTEM AND FIRE HYDRANTS ARE LOCATED IN A RIGHT OF WAY OR RECORDED EASEMENT AND OWNED/INSTALLED/MAINTAINED BY THE WATER PURVEYOR, THE CITY WILL ONLY REQUIRE INSTALLATION TO THE WATER PURVEYOR'S STANDARDS FOR UNDERGROUND COMPONENTS AND CONNECTIONS. HOWEVER, THE HYDRANTS MUST BE IN COMPLIANCE WITH HYDRANT SPACING, LOCATION, DISTRIBUTION, COLOR CODING, AND NEEDED FIRE FLOW MINIMUMS AS SPECIFIED IN CITY FIRE CODE. ISSUANCE OF THE 'ENG' PERMIT WILL OCCUR WHEN A 'FIR' PERMIT IS ISSUED FOR THE INSTALLATION OF FIRE HYDRANTS AND UNDERGROUND MAINS.
2. THE PRIVATE DEDICATED UNDERGROUND FIRE MAINS AND FIRE HYDRANTS MUST BE INSTALLED BY A LICENSED FIRE CONTRACTOR CLASS I, II, OR V. COMBINATION FIRE MAINS (SHARED DOMESTIC AND FIRE PROTECTION SERVICE) AND FIRE HYDRANTS UP TO THE DEDICATED FIRE PROTECTION SYSTEM "POINT OF SERVICE" CAN BE INSTALLED BY A LICENSED UNDERGROUND UTILITY/EXCAVATOR CONTRACTOR, GENERAL CONTRACTOR, OR PLUMBING CONTRACTOR. [FLORIDA STATUTES 633.021, 633.539, 489.105]
3. ALL UNDERGROUND FIRE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 24, 2022 EDITION, "STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES" [F.A.C. 69A-60.005(2)].
4. THE MINIMUM DEPTH OF COVER TO PREVENT MECHANICAL DAMAGE SHALL BE 30 INCHES MEASURED FROM THE FINAL GRADE TO THE TOP OF THE PIPE. PIPE UNDER DRIVEWAYS SHALL BE BURIED AT A MINIMUM DEPTH OF 3 FEET. [NFPA 24:10.4]
5. HYDRANTS SHALL BE POSITIONED NO MORE THAN 5 FEET FROM THE CURB OR BERM OF THE ROADWAY SERVING AS FIRE DEPARTMENT ACCESS. HYDRANTS AND FDC'S SHALL BE MAINTAINED CLEAR 7'6" TO THE SIDES AND FRONT WITH A 4' CLEARANCE TO THE REAR.
6. WHERE UNDERGROUND MAINS AND HYDRANTS ARE TO BE PROVIDED, THEY SHALL BE INSTALLED, COMPLETED, AND IN SERVICE PRIOR TO CONSTRUCTION WORK. [NFPA 1: 16.4] FIRE DEPARTMENT ACCESS SHALL BE PROVIDED AT THE START OF THE PROJECT AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION [NFPA 1: 18.2]
7. CONTRACTOR WHO INSTALLS THE UNDERGROUND PIPE FROM THE POINT OF SERVICE IS RESPONSIBLE FOR COMPLETING THE INSTALLATION TO THE ABOVEGROUND CONNECTION FLANGE, WHICH BY DEFINITION IN THIS CHAPTER IS NO MORE THAN 1 FOOT ABOVE THE FINISHED FLOOR PER F.S. 633.334(3).

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BY	DESCRIPTION	REV.	DATE

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OVERALL UTILITY PLAN
FINAL SITE PLAN

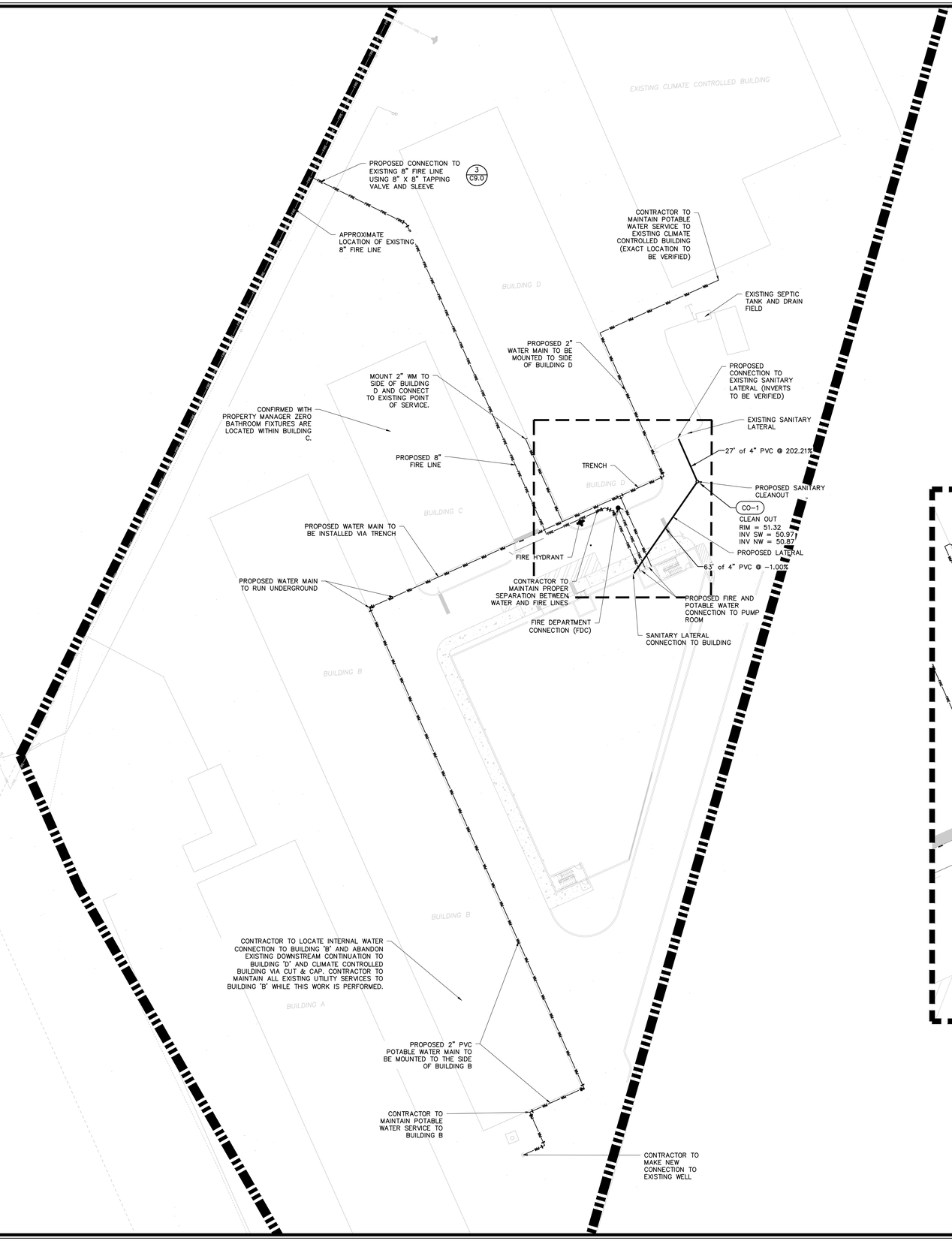
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

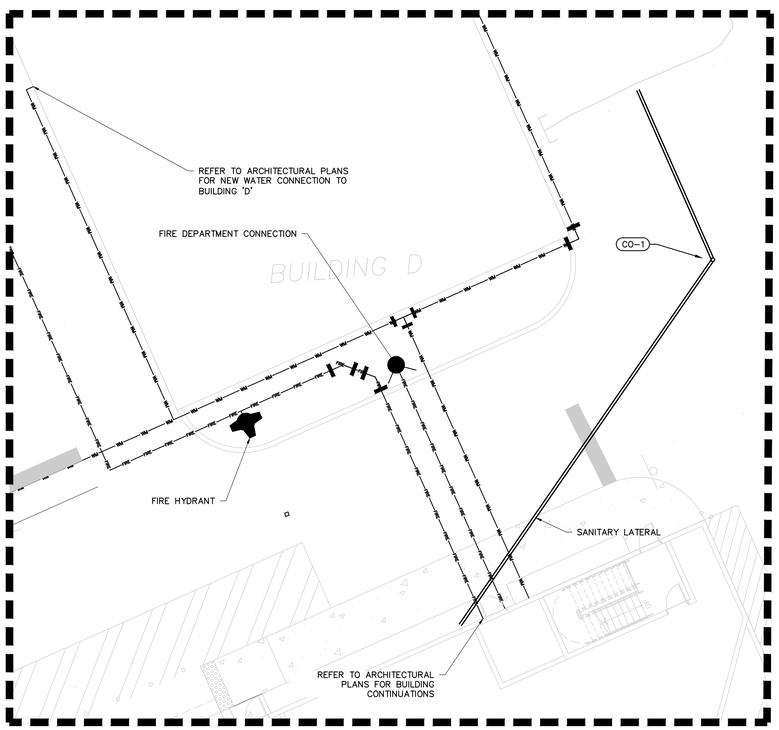
DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
1" = 70'	SSS-005	C4.1

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\UTILITY PLAN.dwg Modified:5/15/2023 By:tmoore





UTILITY CONNECTIONS DETAIL

SCALE: 1" = 10'

N
W E
S

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

- PROPOSED WATER MAIN
- PROPOSED FIRE LINE
- TEE
- BEND
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SEWER LATERAL

BY	DESCRIPTION	REV.	DATE

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

UTILITY PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: 1" = 30'	PROJECT: SSS-005	SHEET: C4.2	

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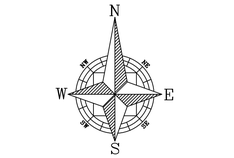
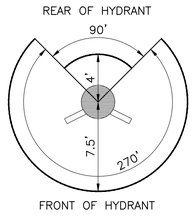
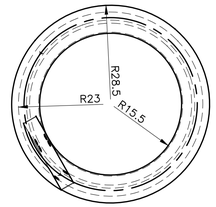




FIRE HYDRANT CLEARANCE DETAIL



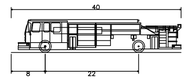
TURNING RADIUS SKETCH

FIRE ACCESS NOTES:

1. FIRE DEPARTMENT ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS AND SHALL BE PROVIDED WITH AN ALL WEATHER DRIVING SURFACE (NFPA 1,18,2,3,4,2).
2. THE LOCATION OF THE FIRE HYDRANTS SHALL BE IDENTIFIED BY A BLUE REFLECTIVE PAVEMENT MARKER (NFPA 1,18,5,10,1).

FIRE HYDRANT NOTES:

1. FIRE HYDRANT LOCATION AND DISTRIBUTION SHALL FOLLOW NFPA 1.
2. A 36 INCH CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED. (NFPA 1, 18.5.7.1).
3. A CLEAR SPACE OF NOT LESS THAN 60 INCHES SHALL BE PROVIDED IN FRONT OF EACH HYDRANT CONNECTION HAVING A DIAMETER GREATER THAN 2.5 INCHES. (NFPA 1, 18.5.7.2)
4. AFTER THE INSTALLATION OF THE NE HYDRANTS, A FIRE FLOW TESTING SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 291, RECOMMENDED PRACTICE A FIRE FLOW TEST RESULTS FROM THE NEAREST EXISTING HYDRANT THAT HAS BEEN WITNESSED BY A UTILITIES INSPECTOR WILL NEED TO BE PROVIDED. DOCUMENTATION FRO FIRE FLOW TESTING SHALL INCLUDE A FIRE FLOW A FIRE FLOW TEST REPORT AND A HYDRAULIC GRAPH. (SCPSTM, FIRE FLOW TESTING PRODCEDURE)
6. THE LOCATION OF THE FIRE HYDRANTS SHALL BE IDENTIFIED BY A BLUE REFLECTIVE PAVEMENT MARKER. (NFPA 1, 18.5.10.1)



Pumper Fire Truck	
Overall Length	40.000ft
Overall Width	8.167ft
Overall Body Height	7.745ft
Min Body Ground Clearance	0.656ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

FIRE TRUCK ROUTE PLAN

SCALE: 1" = 40'

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

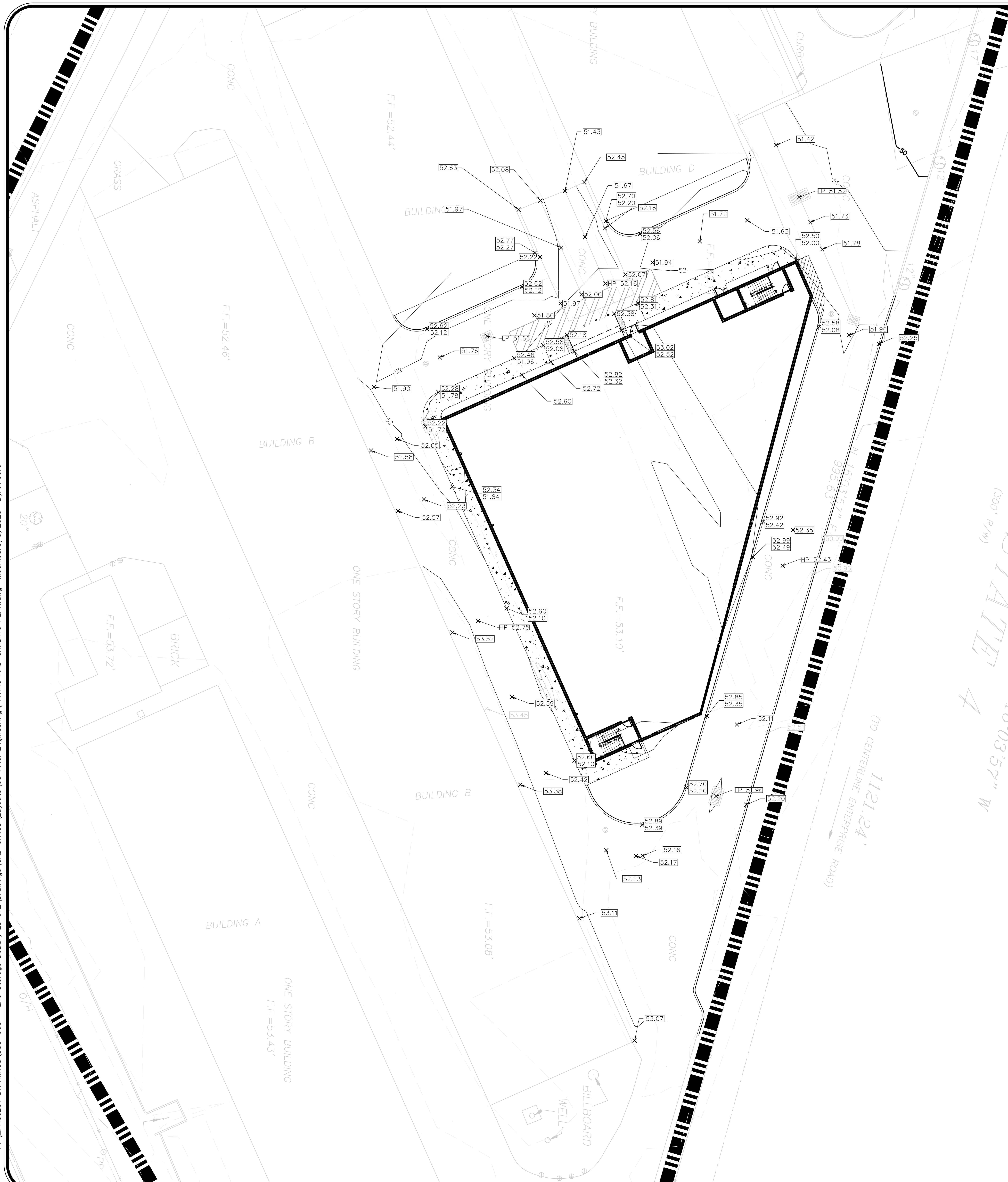
FIRE TRUCK ROUTE PLAN
FINAL SITE PLAN

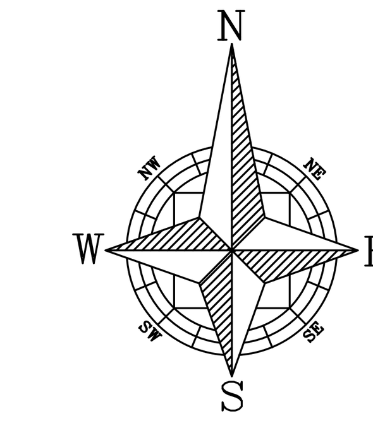
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: 1" = 70'	PROJECT: SSS-005	SHEET: C4.3	

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\FIRE TRUCK ROUTE PLAN.dwg Modified: 5/1/2023 By: tmoore





GRAPHIC SCALE

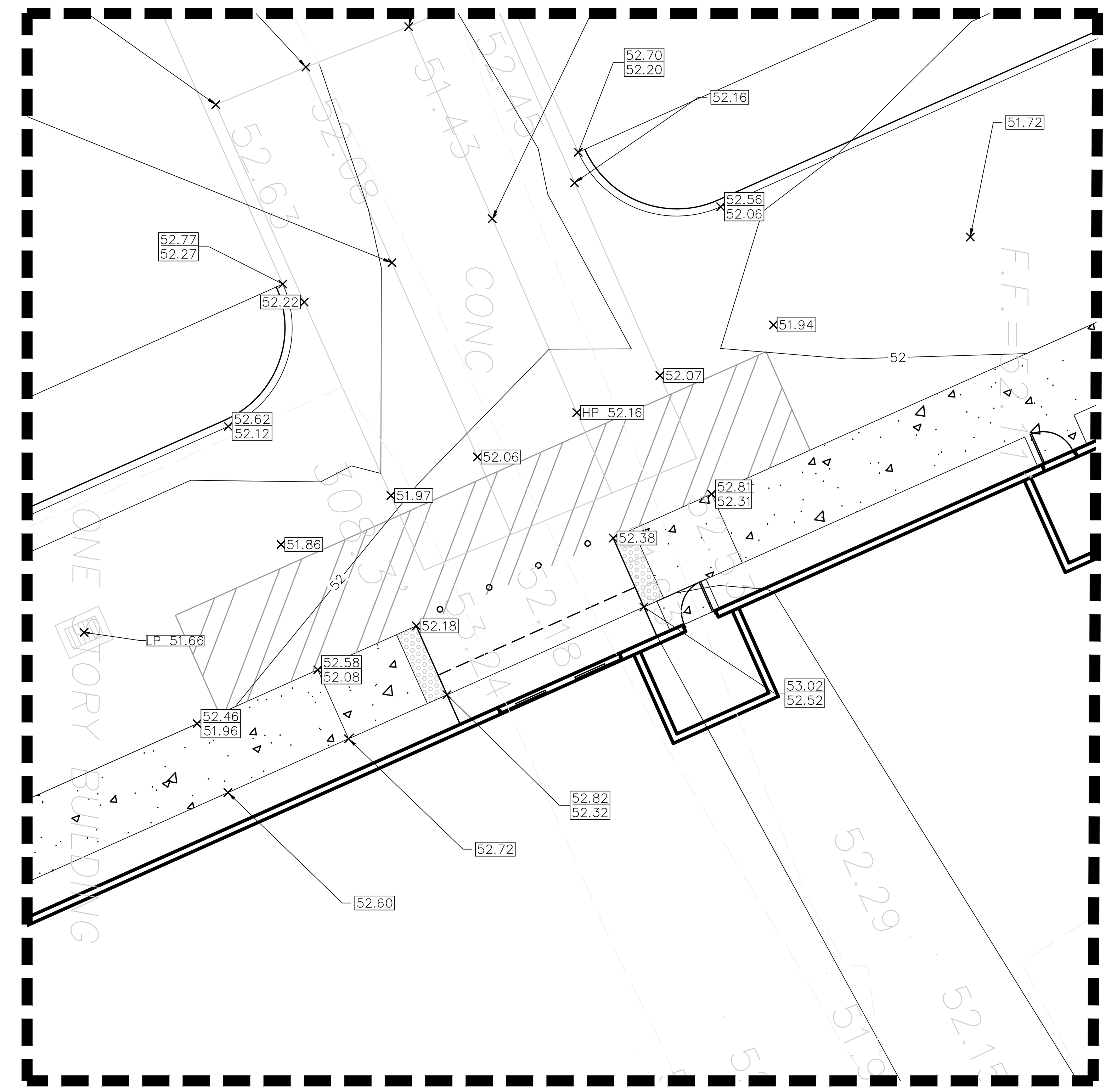
(IN FEET)
1 inch = 20 ft.

GRADING NOTES:

1. FINISHED FLOOR TO BE SET 18" ABOVE THE ELEVATION OF 100 YEAR FLOOD FOR THOSE SITES LOCATED IN SPECIAL FLOOD HAZARD AREA, AND/OR 1' ABOVE THE DESIGN HIGH WATER ELEVATION OR ADJACENT STORMWATER RETENTION/DETENTION PONDS.

GRADING PLAN LEGEND:

- 123.1 PROPOSED GRADE
- 55.1 EXISTING GRADE
- HP 115 HIGH POINT
- LP 115 LOW POINT
- 123 PROPOSED CONTOUR
- EXISTING CONTOUR
- SURFACE DRAINAGE FLOW ARROW



LOADING/UNLOADING DETAIL

SCALE: 1" = 10'

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REV.	DATE	DESCRIPTION	BY

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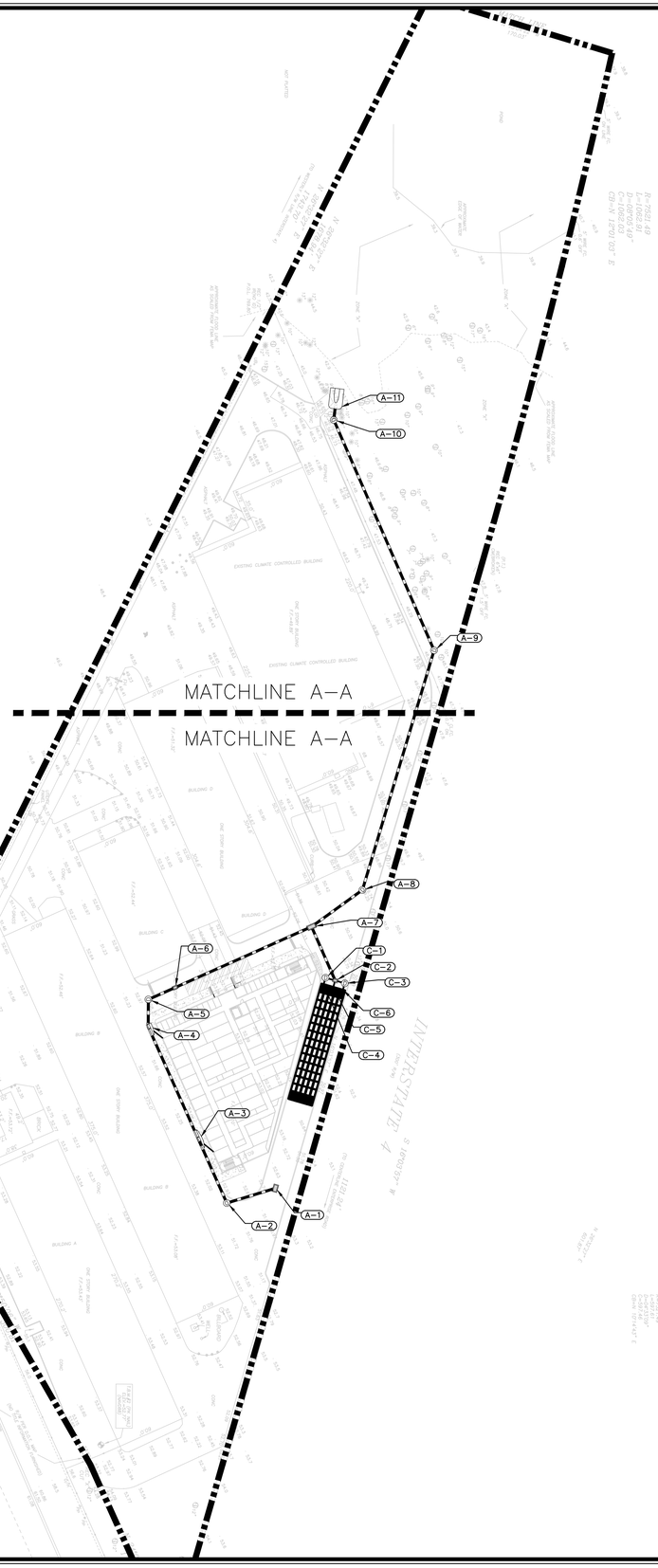
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32174

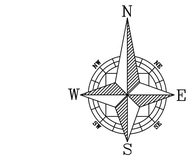
PAVING AND GRADING PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

SCALE: 1" = 20'	DRAWN: T.MOORE
PROJECT: SSS-005	DESIGNED: J.PALM
	CHECKED: M. STACY
SHEET: C5.0	DATE: 5/15/2023

P:_PROJECT DRAWINGS\SSS-005 – Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\PAVING AND GRADING PLAN.dwg Modified:5/3/2023 By: tmoore





GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

LEGEND

- PROPERTY BOUNDARY
- STORM PIPE
- TYPE 4 CURB INLET
- TYPE 3 CURB INLET
- TYPE C INLET
- TYPE E INLET
- TYPE H INLET
- TYPE 5 INLET
- STORM MANHOLE
- MITERED END SECTION

DRAINAGE NOTES:

1. ALL STORM PIPE SHALL BE ADS–HP UNLESS OTHERWISE SPECIFIED. POLYPROPYLENE PIPE SHALL MEET ALL REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), SECTION 948–7.2 ADDITIONAL REQUIREMENTS FOR CLASS II (100–YEAR DESIGN SERVICE LIFE) PP PIPE. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. THE PIPE SHALL HAVE TWO GASKETS AND THE GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477.
2. ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.
3. ALL REINFORCED CONCRETE PIPE (RCP) JOINTS SHALL BE WRAPPED PER FDOT 2021–2022 STANDARD INDEX 280.
4. ALL DRAINAGE STRUCTURE INVERTS ARE TO BE POURED PER FDOT 2021–2022 STANDARD INDEX 201.
5. ALL DRAINAGE STRUCTURES LOCATED WITHIN PARKING AREAS, ROADWAYS, ALLEYS, DRIVE ISLES, OR STORAGE AREAS ARE TO BE INSTALLED WITH CAST IRON LOAD BEARING GRATES PER FDOT INDEX 232.
6. ALL INLET GRATES ARE REQUIRED TO BE CHAINED.
8. ALL ROOF AND FOUNDATION DRAINS ASSUMED TO BE RAN AT 1.0% MINIMUM UNLESS OTHERWISE NOTED.
9. POND SIDE SLOPES AND MAINTENANCE BERM TO BE SODDED (MUCK FREE SOD) TO PROVIDE SLOPE STABILIZATION.
10. GEOTECHNICAL ENGINEER IS REQUIRED TO BE PRESENT TO INSPECT ALL EARTHWORK PROCEDURES IN ORDER TO PROVIDE PROPER DOCUMENTATION OF THE EARTHWORK ACTIVITIES.
11. MITERED END SECTIONS ARE TO BE INSTALLED AND CONSTRUCTED PER ALL APPLICABLE DETAILS LOCATED WITHIN THESE SITE CONSTRUCTION PLANS.
12. MITERED END SECTIONS TO BE INSTALLED NO DEEPER THAN POND BOTTOM.

REV.	DATE	DESCRIPTION	BY

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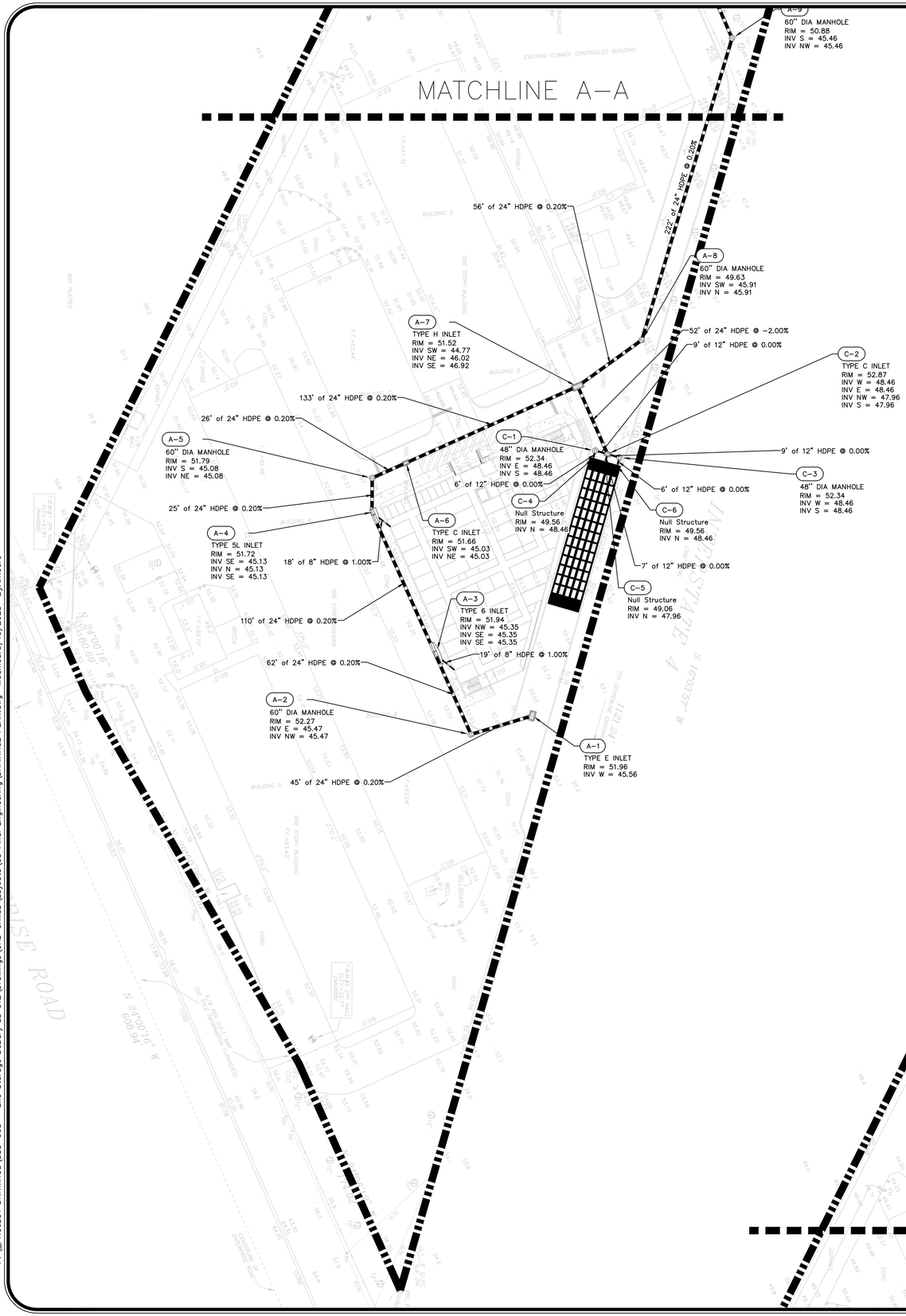
OVERALL DRAINAGE PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: 1" = 60'	PROJECT: SSS–005	SHEET: C6.0	

5/15/23

P:_PROJECT DRAWINGS\SSS–005 – Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\DRAINAGE PLAN.dwg Modified: 5/15/2023 By: tmoore



N

W E

S

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

LEGEND

- PROPERTY BOUNDARY
- STORM PIPE
- TYPE 4 CURB INLET
- TYPE 3 CURB INLET
- TYPE C INLET
- TYPE E INLET
- TYPE H INLET
- STORM MANHOLE
- MITERED END SECTION

BY	DESCRIPTION	REV.	DATE

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32274

DRAINAGE PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
1" = 40'	SSS-005	C6.1

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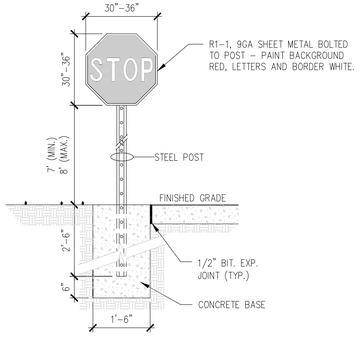
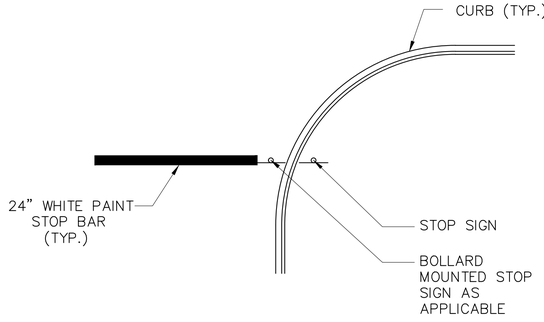
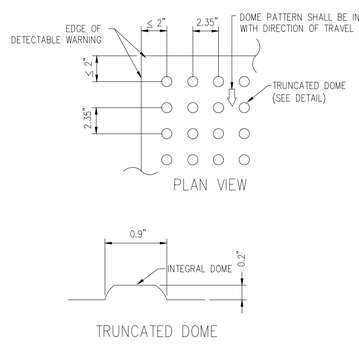


1 STOP SIGN
N.T.S.



2 STOP SIGN / STOP BAR DETAIL
N.T.S.



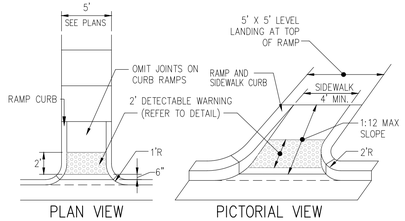
3 DETECTABLE WARNING
N.T.S.

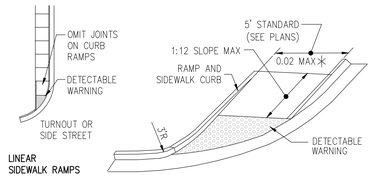
NOTE:

1. CURB RAMP RUNNING SLOPES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPE SHALL BE 0.02 OR FLATTER.
2. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING OR APPLYING A TRUNCATED DOME MATERIAL IN CONFORMANCE WITH THE U.S. DEPARTMENT OF JUSTICE A.D.A. STANDARDS FOR ACCESSIBLE DESIGN, A.D.A. ACCESSIBILITY GUIDELINES, SECTION 4.29.2. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS.
3. WHERE A CURB RAMP IS CONSTRUCTED WITHIN AN EXISTING CURB, CURB AND GUTTER AND/OR SIDEWALK, THE EXISTING CURB OR CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5'.
4. WHERE ADJACENT WALKING SURFACES ARE COLORED OR ARE CONSTRUCTED WITH MATERIALS OTHER THAN STANDARD CLASS I PORTLAND CEMENT CONCRETE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS, THE PLAN MUST PROVIDE FOR DETECTABLE WARNING SURFACE COLORS OR MATERIALS THAT PROVIDE THE NECESSARY CONTRAST, EITHER DARK–ON–LIGHT OR LIGHT–ON–DARK. (SAFETY YELLOW OR BRICK RED)
5. RECOMMENDED MANUFACTURER: ENGINEERED PLASTICS, INC. (ARMOR TILE) OLYMPIC TOWERS, 300 PEARL STREET, SUITE 200, BUFFALO, NY 14202. PHONE: (800) 682–2525

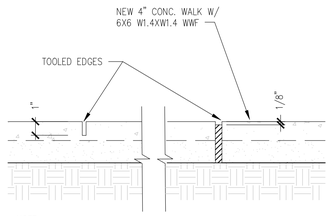
NOTE 1:
REFERENCE FDOT INDEX 304, PAGE 1, GENERAL AND DESIGN NOTES FOR RAMPS IN R.O.W.

NOTE 2:
CONSTRUCT RAMP TO LEAST POSSIBLE SLOPE (MAX = 1:12). CROSS SLOPE OF RAMP AND LANDING SHALL NOT EXCEED 1:50.





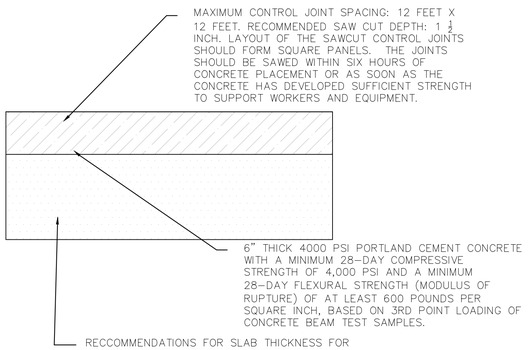
4 HANDICAP END RAMP
3000 PSI (MIN.) CONCRETE
N.T.S.



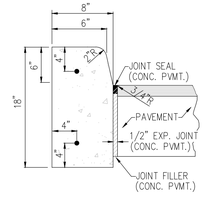
NOTE:
EXPANSION JOINTS SHALL BE LOCATED AT ALL CONCRETE WALK INTERSECTIONS, AT ALL DOOR OPENINGS AND AT 12' O.C. MAXIMUM.

EXPANSION JOINT (1/4" PREMOLDED ASPHALT STRIP) SHALL BE SET 1/8" BELOW TOP OF WALK.
SCORE MARK (1" DEPTH) SHALL BE 4' (MAX.) O.C.

5 CONCRETE WALK
(3,500 PSI (MIN)) N.T.S.



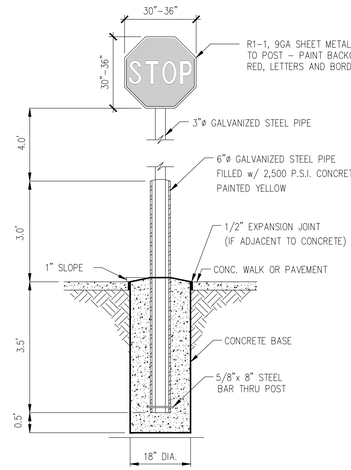
8 RIGID PAVEMENT SECTION
(PER GEOTECHNICAL REPORT PROVIDED BY ECS FLORIDA, LLC DATED FEBRUARY 15, 2021)
N.T.S.



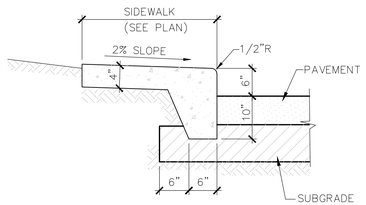
NOTES:

1. COST OF 2–#4 BARS (CONT.) SHALL BE INCLUDED.
2. PROVIDE 2–#6 SMOOTH BARS W/ EXPANSION CAPS AT EACH EXPANSION JOINT, 20'–0" O.C. MAX.
3. CONTRACTION JOINTS – CONTRACTION JOINTS SHALL BE PLACED AT EQUAL SPACES (10' MAX.) BETWEEN NORMAL EXPANSION JOINTS. CONTRACTION JOINTS SHALL BE SAW CUT IN THE UPPER 1/3 OF CURB AND GUTTER WITHIN 24 HOURS OF PLACEMENT.
4. ENDS OF VERTICAL CURB SHALL TRANSITION FROM FULL TO ZERO HEIGHTS IN 3 FEET.

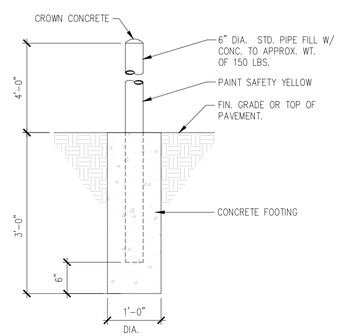
6 TYPE 'D' CURB
(3,500 PSI (MIN)) N.T.S.



7 BOLLARD MOUNTED STOP SIGN
N.T.S.



9 MONOLITHIC CURB AND SIDEWALK
(REFER TO F.D.O.T. INDEX 515) N.T.S.
(3,500 PSI (MIN))



10 BOLLARD
N.T.S.

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BY	DESCRIPTION	REV.	DATE

CIVIL DETAILS
FINAL SITE PLAN

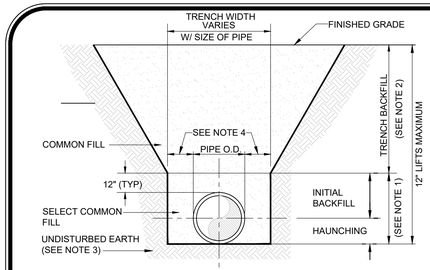
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.PALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
N.T.S.	SSS–005	C7.0

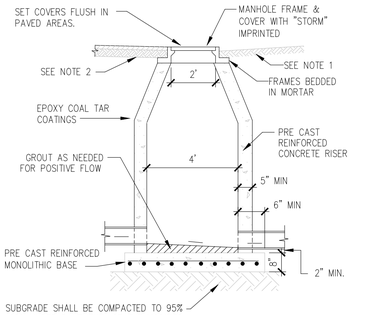
5/15/23

P:_PROJECT DRAWINGS\SSS–005 – Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\CIVIL DETAILS.dwg Modified:5/15/2023 By:tmoore



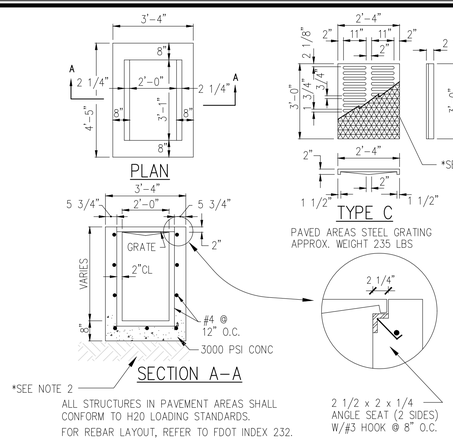
NOTES:
1. INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING SHALL BE COMPACTED TO 95% (MIN) OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. BEDDING ROCK CAN BE USED FOR BEDDING IF SUBGRADE SOILS ARE TOO WET TO COMPACT, OR AS DIRECTED BY THE ENGINEER.
4. 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES.

1 TRENCH DETAIL
N.T.S.



NOTE:
1. IN UNPAVED AREAS TOP OF FRAME SHALL BE 2" ABOVE FINISHED GRADE
2. ALL INPAVEMENT STRUCTURES MUST CONFORM TO H20 LOADING STANDARDS
3. 12 INCHES OF STONE BEDDING (FDOT #57 STONE, NON-CALCAREOUS) CAN BE USED FOR BEDDING IF SUBGRADE SOILS ARE TOO WET TO COMPACT.

2 MANHOLE
N.T.S.

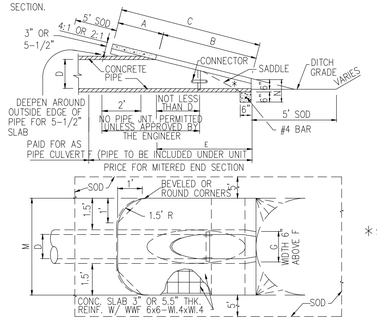


ALL STRUCTURES IN PAVEMENT AREAS SHALL CONFORM TO H20 LOADING STANDARDS.
FOR REBAR LAYOUT, REFER TO FDOT INDEX 232.

*NOTES:
1. FOR ALL USES, USE STEEL GRATE.
2. SUBGRADE SHALL BE COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3 TYPE "C" INLET
N.T.S.

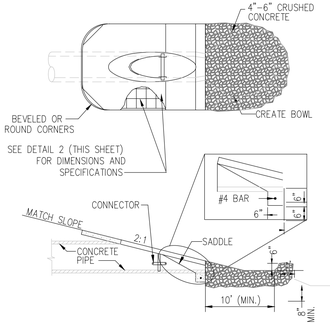
STORM SEWER PIPE LENGTHS NOTED IN THE DRAWINGS REFLECT ONLY THE PIPE ITSELF. WHERE A MITERED END SECTION IS INSTALLED ON SAID PIPE, ITS ADDITIONAL PIPE LENGTH SHALL BE INCLUDED IN THE COST OF THE MITERED END SECTION.



	D	A	B	C	E	F	G	M SINGLE PIPE	M DOUBLE PIPE	M TRIPLE PIPE	M QUAD. PIPE
2:1 SLOPE	15"	1.92'	2.18'	4.10'	2.06'	5'	1.22'	4.63'	7.21'	9.79'	12.37'
	18"	1.97'	2.74'	4.71'	2.56'	6'	1.41'	4.92'	7.75'	10.58'	13.42'
	24"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	5.50'	8.92'	12.33'	15.75'
	30"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	6.08'	10.33'	14.58'	18.83'
	36"	2.25'	6.08'	8.33'	5.56'	9'	2.24'	6.67'	11.75'	16.83'	21.92'
	42"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	7.25'	13.25'	19.25'	25.25'
	48"	2.43'	8.33'	10.76'	7.56'	11'	2.65'	7.83'	14.58'	21.33'	28.08'
	54"	2.52'	9.44'	11.96'	8.56'	12'	2.83'	8.42'	16.08'	23.75'	31.42'
	60"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	9.00'	17.50'	26.00'	34.50'
	66"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	9.58'	18.75'	27.92'	37.08'
	72"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	10.16'	20.16'	30.16'	40.16'
4:1 SLOPE	15"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.63'	7.21'	9.79'	12.37'
	18"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.92'	7.75'	10.58'	13.42'
	24"	2.53'	7.18'	9.71'	7.03'	11'	1.73'	5.50'	8.92'	12.33'	15.75'
	30"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	6.08'	10.33'	14.58'	18.83'
	36"	2.87'	11.31'	14.18'	11.03'	15'	2.24'	6.67'	11.75'	16.83'	21.92'
	42"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	7.25'	13.25'	19.25'	25.25'
	48"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	7.83'	14.58'	21.33'	28.08'
	54"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	8.42'	16.08'	23.75'	31.42'
	60"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	9.00'	17.50'	26.00'	34.50'
	66"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	9.58'	18.75'	27.92'	37.08'
	72"	3.91'	22.68'	26.59'	23.03'	27'	3.30'	10.16'	20.16'	30.16'	40.16'

4 MITERED END SECTION (RCP)
FDOT STD. INDEX 430-021 N.T.S.

* SLOPE- 4:1 MITER - TO C PIPE FOR PIPES 18" AND SMALLER
2:1 FOR PIPES 24" AND LARGER
2:1 MITER - TO C PIPE FOR PIPES 18" AND SMALLER
1:1 FOR PIPES 24" AND LARGER



5 MITERED END SECTION WITH SUMP
N.T.S.

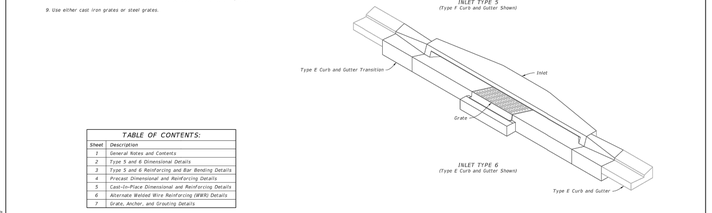
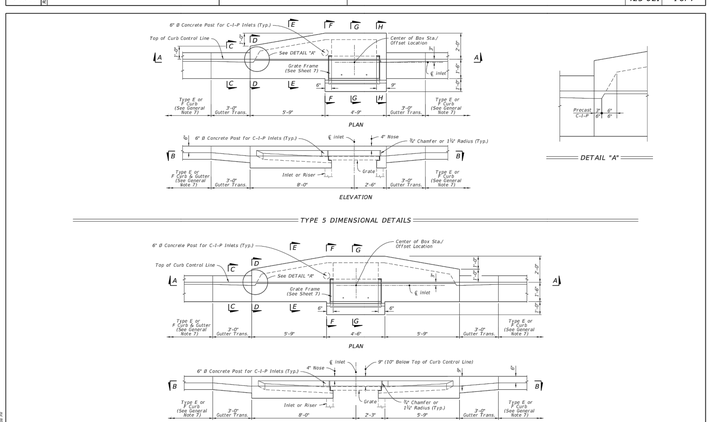


TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Type 5 and 6 Dimensional Details
3	Type 5 and 6 Reinforcing and Bar Bending Details
4	Precast Dimensional and Reinforcing Details
5	Cast-In-Place Dimensional and Reinforcing Details
6	Alternate Welded Wire Reinforcing (WWR) Details
7	Grate, Anchor, and Grouting Details

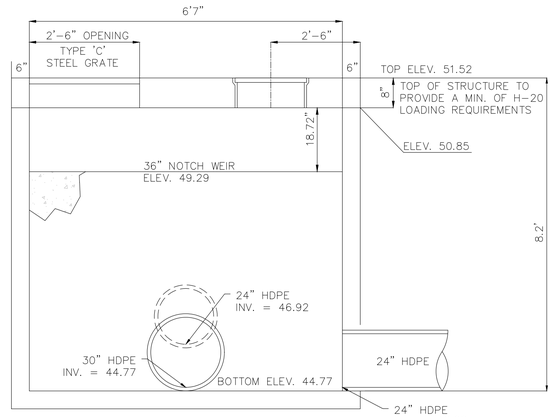
LAST REVISION 11/01/20	DESCRIPTION:	FY 2023-24 STANDARD PLANS	CURB INLET TOP TYPES 5 AND 6	INDEX 425-021	SHEET 1 of 7



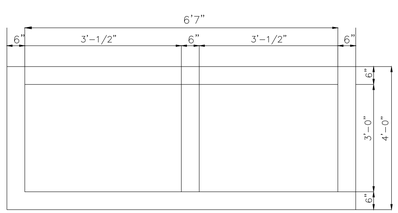
TYPE 5 AND 6 DIMENSIONAL DETAILS

LAST REVISION 11/01/20	DESCRIPTION:	FY 2023-24 STANDARD PLANS	CURB INLET TOP TYPES 5 AND 6	INDEX 425-021	SHEET 2 of 7

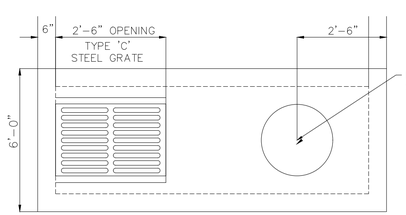
8 TYPE 5 AND 6 INLETS
N.T.S.



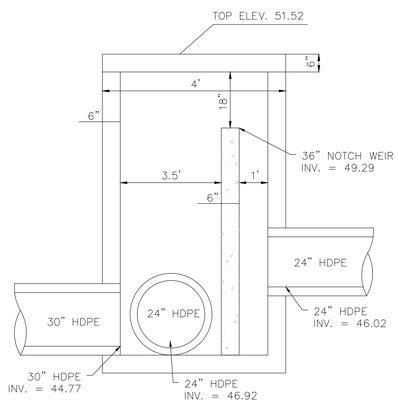
SECTION VIEW



PLAN VIEW



PLAN VIEW (TOP SLAB)



FRONT VIEW

10 A-7 SMART BOX (TYPE H INLET)
CUSTOM TOP N.T.S.
BOTTOM WITH 10" THK. TRAFFIC BEARING TOP (H-20 LOADING)

BY	DESCRIPTION	REV.	DATE

CIVIL ENGINEERING | LAND PLANNING
APPIAN ENGINEERING LLC.
APPIANFL.COM • 407.960.5868
2231 Lee Road, Suite 27, Winter Park, Florida, 32789
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

DRAINAGE DETAILS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 5/15/2023
SCALE: N.T.S.	PROJECT: SSS-005	SHEET: C8.0	

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\DRAINAGE DETAILS.dwg Modified:5/15/2023 By:tmoore

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\DRAINAGE DETAILS.dwg Modified:5/15/2023 By:tmoore

CULTEC RECHARGER® 280HD SPECIFICATIONS

GENERAL

CULTEC RECHARGER 280HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 280HD SHALL BE 26.5 INCHES (673 mm) TALL, 47 INCHES (1194 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 280HD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 18 INCHES (450 mm) HDPE.
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. NOMINAL INSIDE DIMENSIONS OF THE SIDE PORTAL SHALL HAVE A WIDTH OF 11.25" [286 mm] AND HEIGHT OF 11.5" [292 mm]. THE SIDE PORTAL CAN ACCEPT A MAXIMUM OUTER DIAMETER (O.D.) PIPE SIZE OF 12.25 INCHES [311 mm].
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 280HD CHAMBER WILL BE 6.079 FT3 / FT (0.565 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 280HD SHALL BE 42.553 FT³ / UNIT (1.205 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 280HD CHAMBER WILL SEVENTY-TWO DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 280HD CHAMBER SHALL HAVE 15 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 280HD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 280SHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
17. THE RECHARGER 280IHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
18. THE RECHARGER 280HD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 280HD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN IN AN ISO 9001:2015 CERTIFIED FACILITY
24. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S INSTALLATION INSTRUCTIONS.
25. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF APMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 280HD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS

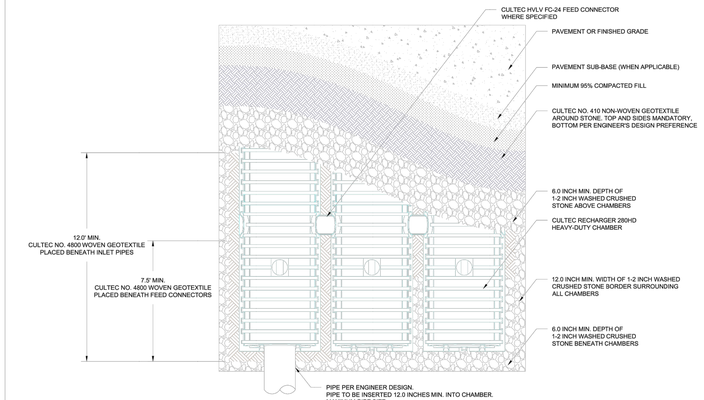
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

CULTEC NO. 4800™ WOVEN GEOTEXTILE

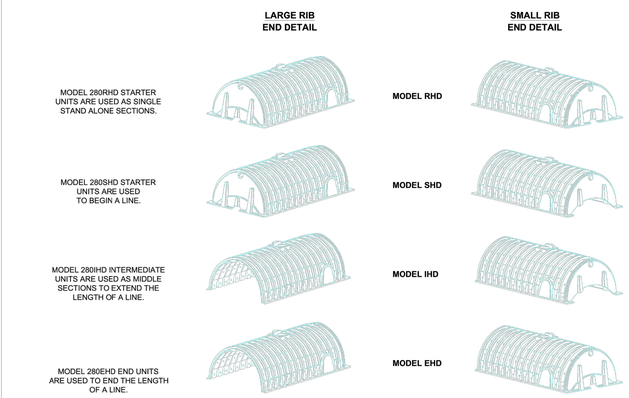
CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

GEOTEXTILE PARAMETERS

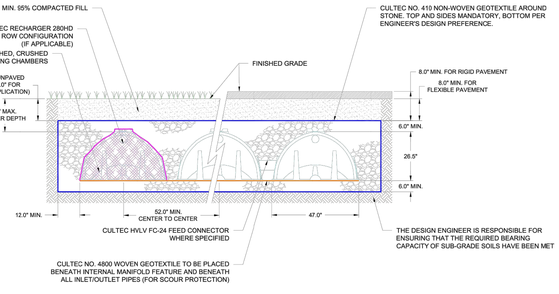
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2,740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.



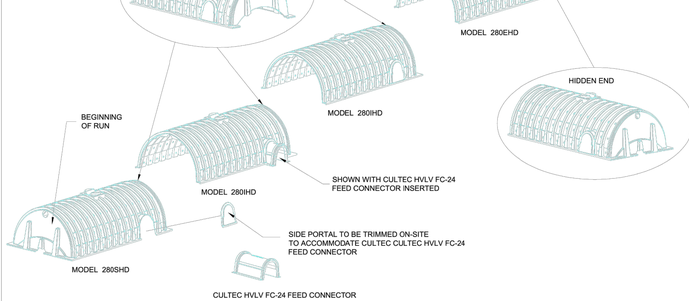
280HD 2.0 **CULTEC RECHARGER 280HD HEAVY DUTY PLAN VIEW**



280HD 3.0 **CULTEC RECHARGER 280HD HEAVY DUTY END DETAIL INFORMATION**

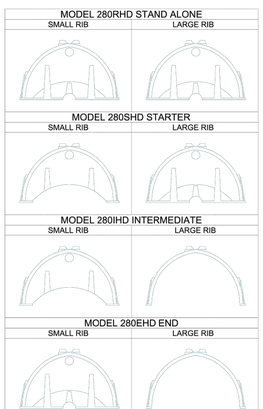


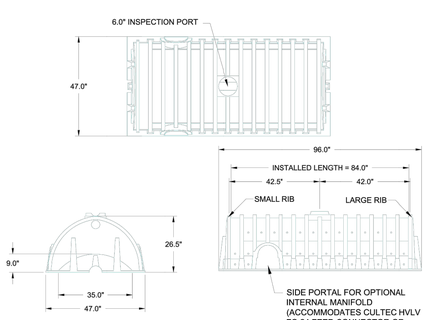
280HD 4.0 **CULTEC RECHARGER 280HD HEAVY DUTY CROSS SECTION**



280HD 5.0 **CULTEC RECHARGER 280HD HEAVY DUTY TYPICAL INTERLOCK**

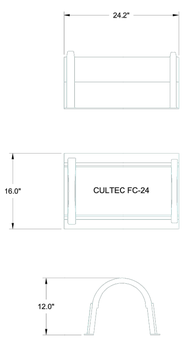
GENERAL NOTES



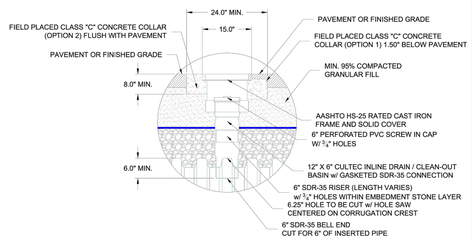


CULTEC RECHARGER 280HD CHAMBER STORAGE = 6.079 CF/FT [0.565 m³/m]
INSTALLED LENGTH ADJUSTMENT = 1.0' [0.3048 m]
ALL CULTEC RECHARGER 280HD HEAVY DUTY UNITS ARE MARKED WITH A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
SIDE PORTAL ACCEPTS CULTEC HVLV FC-24 FEED CONNECTOR.

6.0 **CULTEC RECHARGER 280HD HEAVY DUTY THREE VIEW**



7.0 **CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW**



8.0 **CULTEC INSPECTION PORT - ZOOM DETAIL**

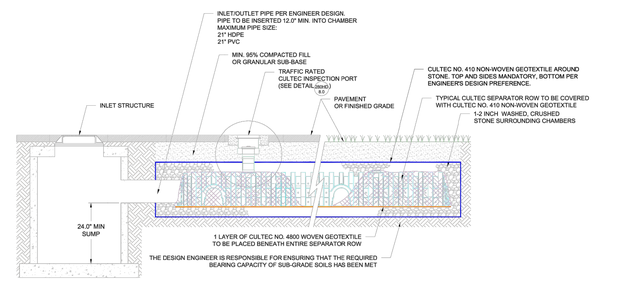


FIGURE 1

ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.

9.0 **CULTEC SEPARATOR ROW - CULTEC INSPECTION PORT DETAIL (IF APPLICABLE)**

CULTEC HVLV FC-24 FEED CONNECTOR

PROJECT NO:	23-0621.00
DESIGNED BY:	SRJ
SCALE:	N.T.S.
DATE:	05/09/2023
CHECKED BY:	AES
SHEET NO:	5 OF 5

REV.	DATE	DESCRIPTION	BY

CULTEC STORMWATER CHAMBER

CIVIL ENGINEERING I LAND PLANNING

APPIAN ENGINEERING LLC.

APPIANFL.COM • 407.960.5868

2221 Lee Road, Suite 27, Winter Park, Florida, 32789

STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

LIFE STORAGE DEBARY STORE LS 012

DEBARY, FL

SYSTEM DETAIL SHEET

CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: (203) 775-4416
PH: (800) 4-CULTEC
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tech@cultec.com

DRAWN:	T.MOORE
DESIGNED:	J.PALM
CHECKED:	M. STACY
DATE:	5/15/2023
SCALE	N.T.S.
PROJECT	SSS-005
SHEET	C8.1

DRAINAGE DETAILS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012 IMPROVEMENTS
DEBARY, FLORIDA

5/15/23

PROPOSED STORMWATER MANAGEMENT SYSTEM ELEVATIONS (TO BE APPROVED BY ENGINEER) *ENGINEER TO CONFIRM MINIMUM AND MAXIMUM BURIAL REQUIREMENTS ARE MET)	
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT OR UNPAVED)	62.17
MINIMUM ALLOWABLE GRADE (UNPAVED TRAFFIC)	51.50
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)	51.34
MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)	51.34
TOP OF STONE ELEVATION	50.67
TOP OF CHAMBER ELEVATION	50.17
12" HIGH-FLOW BYPASS PIPE INVERT	48.86
INLET PIPE INVERT	47.96
BOTTOM OF CHAMBER ELEVATION	47.96
BOTTOM OF STONE ELEVATION	47.46
CULTEC STORMWATER MANAGEMENT SYSTEM SUMMARY	
TOTAL STORAGE PROVIDED (CF)	5,156
% STONE POROSITY	40
SYSTEM AREA (SF)	2,511
DEPTH OF EMBEDMENT STONE (IN)	6
DEPTH OF BEDDING STONE (IN)	6
STONE PERIMETER (IN)	12
SPACING BETWEEN CHAMBER ROWS (IN)	5

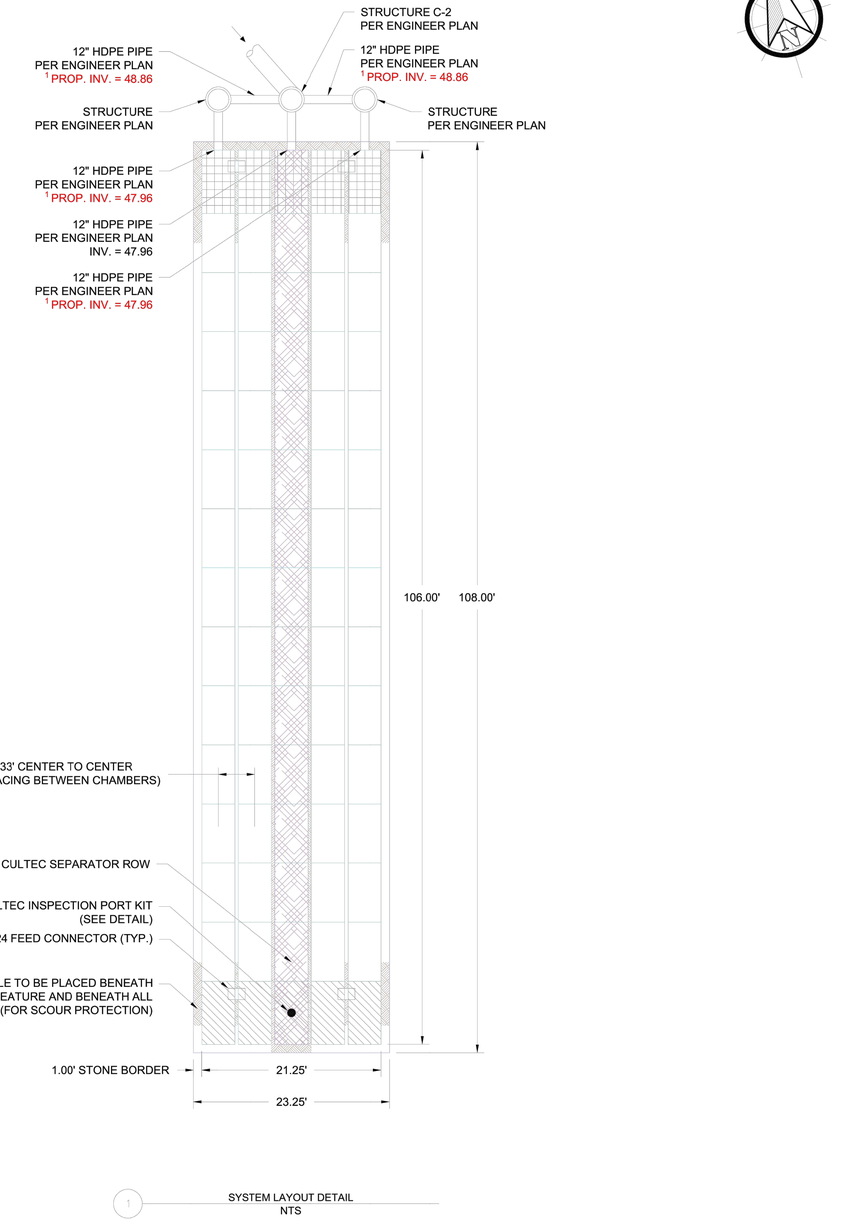
CULTEC RECHARGER®
280HD LEGEND

- CULTEC RECHARGER 280SHD STARTER
- CULTEC RECHARGER 280IHD INTERMEDIATE
- CULTEC RECHARGER 280EHD END
- CULTEC HVLV FC-24 FEED CONNECTORS
- CULTEC SEPARATOR ROW
- CULTEC NO. 4800 WOVEN GEOTEXTILE
- STONE BORDER

PROPOSED SYSTEM ALTERATION TABLE	
1	PROPOSED PIPE INVERT

NOTE: ALL EXTERNAL SYSTEM STRUCTURES, INLET/OUTLET PIPES AND PROPOSED ELEVATIONS MUST BE DESIGNED AND APPROVED BY THE ENGINEER OF RECORD. ALL PROPOSED SYSTEM ELEVATIONS PROVIDED MUST BE VERIFIED BY THE ENGINEER OF RECORD AND THE ENGINEER OF RECORD MUST ENSURE CHAMBER BURIAL REQUIREMENTS ARE MET

MATERIALS LIST SUPPLIED BY CULTEC		
CULTEC RECHARGER 280SHD STARTER	5	PIECES
CULTEC RECHARGER 280IHD INTERMEDIATE	65	PIECES
CULTEC RECHARGER 280EHD END	5	PIECES
CULTEC HVLV FC-24 FEED CONNECTORS	4	PIECES
CULTEC NO. 410 NON-WOVEN GEOTEXTILE	920	SQ. YARDS
CULTEC NO. 4800 WOVEN GEOTEXTILE	174	LINEAL FEET
CULTEC INSPECTION PORT KIT	1	PIECES
MATERIALS LIST NOT SUPPLIED BY CULTEC		
1-2 INCH WASHED, CRUSHED STONE	179	CUBIC YARDS
8 OZ. NON-WOVEN GEOTEXTILE	N/A	SQ. YARDS
30 MIL. PVC THERMOPLASTIC LINER	N/A	SQ. YARDS



1 SYSTEM LAYOUT DETAIL
NTS

CULTEC, Inc.
Subsurface Stormwater Management Systems
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878 Federal Road
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tech@cultec.com

THIS DRAWING HAS BEEN PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS SIGNED AND SEALED BY THE PROJECT ENGINEER OF RECORD. CULTEC, INC. RELIES ON OTHER PROJECT REPRESENTATIVES TO DETERMINE IF THIS SYSTEM IS APPROPRIATE FOR THE SITE. IT IS THE PROJECT ENGINEER OF RECORD'S RESPONSIBILITY TO DETERMINE THAT THE CULTEC SYSTEM DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND MANUFACTURER REQUIREMENTS.

1.02

CULTEC STORMWATER CHAMBER

PROJECT NO:	23-0621.00	DATE:	05/09/2023
DESIGNED BY:	SRJ	CHECKED BY:	AES
SCALE:	N.T.S.	SHEET NO:	2 OF 5

LIFE STORAGE DEBARY STORE
DEBARY, FL
SYSTEM LAYOUT SHEET

REV.	DATE	DESCRIPTION	BY

CIVIL ENGINEERING | LAND PLANNING
APPIAN ENGINEERING LLC.
APPIANFL.COM • 407.960.5868
2221 Lee Road, Suite 27, Winter Park, Florida, 32789
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

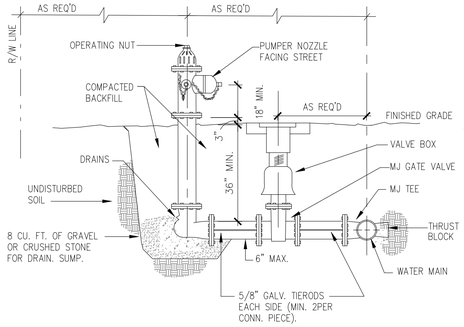
DRAINAGE DETAILS
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

SCALE	N.T.S.	DRAWN:	T.MOORE
PROJECT	SSS-005	DESIGNED:	J.PALM
SHEET	C8.2	CHECKED:	M. STACY
		DATE:	5/15/2023

5/15/23

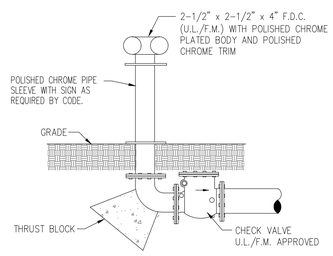
P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\DRAINAGE DETAILS.dwg Modified:5/15/2023 By:tmoore



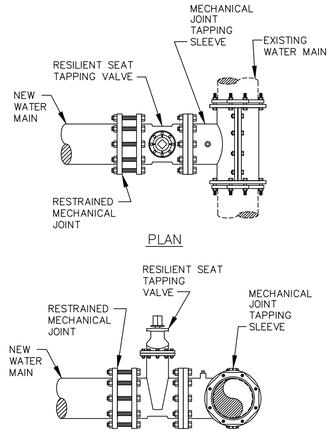
NOTES :

1. VALVE BOX SHALL BE SCREW TYPE ADJUSTABLE AND COVER SHALL BE MARKED "WATER".
2. FIRE HYDRANTS CANNOT BE LOCATED WITHIN THE RADIUS OF STREET CORNERS.
3. HYDRANT SHALL BE LOCATED 4' TO 8' FROM EDGE OF PAVEMENT, IN BETWEEN CURB AND SIDEWALK.
4. HYDRANT SHALL BE PAINTED W/ DUPONT 7744A OR EQUAL.

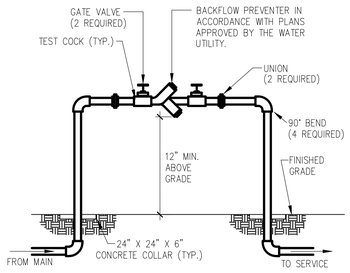
1 FIRE HYDRANT DETAIL



2 FIRE DEPARTMENT CONNECTION

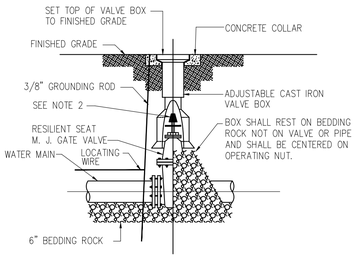


3 STANDARD WATER MAIN WET TAP



NOTE: ALL PIPE AND FITTINGS 2" AND SMALLER SHALL BE THREADED SCHEDULE 40 GALV. STEEL OR BRASS.

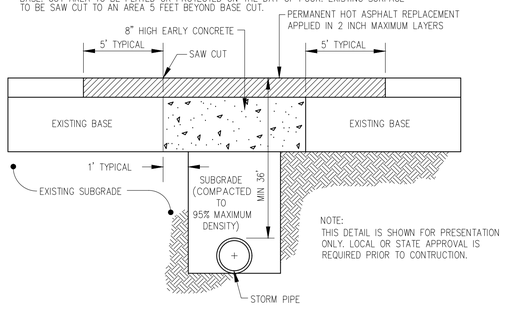
4 BACKFLOW PREVENTER



NOTES:
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

5 GATE VALVE & BOX

NOTE:
SUB-GRADE CUT TO BE COMPACTED TO 95% MAX DENSITY AS DETERMINED BY AASHTO T-180. CUT TO BE REPLACED WITH AN 8" 3000 PSI HIGH EARLY CONCRETE TO TOP OF EXISTING BASE. CUT AREA TO BE PLATED OR PROTECTED ON THE DAY OF POUR. EXISTING SURFACE TO BE SAW CUT TO AN AREA 5 FEET BEYOND BASE CUT.



NOTE:
THIS DETAIL IS SHOWN FOR PRESENTATION ONLY. LOCAL OR STATE APPROVAL IS REQUIRED PRIOR TO CONTRUCTION.

CONCRETE REPLACEMENT

HOT ASPHALT

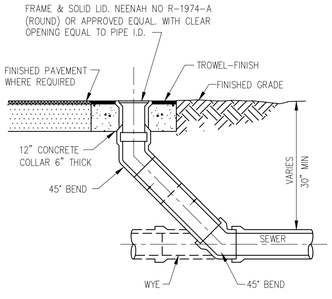
GENERAL NOTES:

1. BASE REPLACEMENT SHALL BE 3000 PSI, HIGH EARLY STRENGTH CONCRETE.
2. ASPHALTIC CONCRETE SURFACE MATERIAL SHALL BE REPLACED WITH THE SAME TYPE OF MATERIAL THAT EXISTED AT THE TIME OF REMOVAL, OR AS APPROVED BY FDOT ENGINEER.
3. MINIMUM ASPHALTIC CONCRETE SURFACE OVERLAY THICKNESS SHALL BE ONE (1") INCH, OR AS APPROVED BY FDOT ENGINEER.
4. ALL JOINT CUTS SHALL BE MECHANICALLY SAW CUT.

PAVEMENT RESTORATION

1. LONGITUDINAL CUTS MAY REQUIRE OVERLAY/RESURFACING OF THE COMPLETE WIDTH OF THE TRAVELLED WAY.
2. CUTS AT INTERSECTIONS OF STREETS GENERALLY MAY REQUIRE A COMPLETE OVERLAY/RESURFACING TO THE END OF ALL RETURN RADII, AND ALSO TO A POINT TEN (10') FEET BEYOND THE CUT, WHICHEVER IS GREATER.
3. ACTUAL REQUIREMENTS WILL BE AS STATED ON THE APPROVED PERMIT.

6 OPEN CUT & REPAIR DETAIL

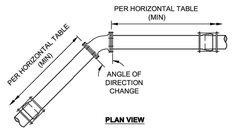


8 CLEANOUT

NOTES:

1. INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO MIN 95% (98% UNDER PAVEMENT OR FUTURE PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO MIN 95% (98% UNDER PAVEMENT OR FUTURE PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL IN ACCORDANCE WITH "TYPE B" BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY UTILITIES.
4. 15-IN MAX. (12-IN MIN.) FOR PIPE DIAMETER LESS THAN 24-IN AND 24-IN MAX (12-IN MIN) FOR PIPE DIAMETER 24-IN AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION. DEWATERING AS REQUIRED.
6. ALL PIPE SHALL BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF R/W UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.
8. FOR GRAVITY SEWER, THE FIRST LIFT SHALL BE PLACED TO THE SPRING LINE OF THE PIPE AND COMPACTED BY HAND TAMP.
9. BEDDING DEPTH SHALL BE 4-IN MINIMUM FOR PIPE DIAMETER UP TO 12-IN AND 6-IN MINIMUM FOR PIPE DIAMETER 16-IN AND LARGER.
10. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF REQUIRED BEDDING MATERIAL BELOW THE PIPE. UTILITIES SHALL DETERMINE REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION IN THE FIELD.

9 BEDDING & TRENCHING DETAIL



PLAN VIEW

	TYPE	PVC AND DUCTILE IRON PIPE SIZE (IN)													
		4	6	8	12	16	20	24	30	36	42	48	54	60	64
HORIZONTAL	90° BEND	21	29	37	52	65	78	104	122	143	154	167	180	188	195
	45° BEND	9	12	16	22	27	33	43	51	60	64	70	75	78	81
	22-1/2° BEND	5	6	8	11	13	16	21	25	29	31	34	36	38	39
	11-1/4° BEND	2	3	4	6	7	8	11	12	15	16	17	18	19	20
	5 5/8° BEND OR MJ SLEEVE	1	2	2	3	4	4	6	6	8	8	9	9	10	10
	PLUG OR BRANCH OF TEE OR DEAD END	43	59	78	109	139	167	277	330	415	424	465	506	529	551
	VALVE OR LINE STOP	22	30	39	55	70	84	139	165	208	212	233	253	265	276
	HDPE CONNECTION	19	26	34	49	62	75	125	151	174	203	223			

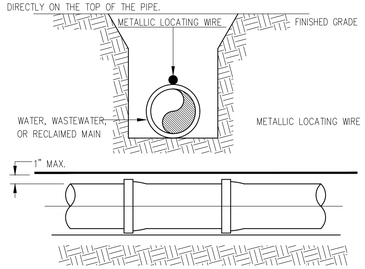
NOTES:

1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
4. ALL INLINE VALVES SHALL BE RESTRAINED.
5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
6. LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:
   - WORKING PRESSURE: 150 PSI
   - SOIL DESIGNATION: SM (SAND SILT)
   - LAYING CONDITIONS: 3
   - DEPTH OF COVER: 3 FT
   - SAFETY FACTOR: 1.5

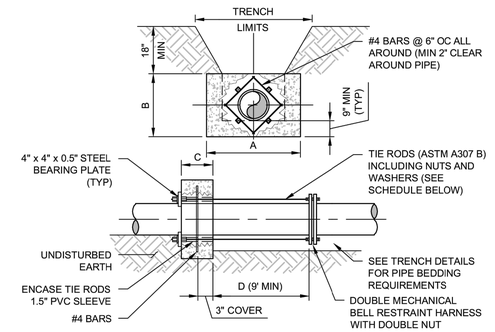
   THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.
7. 90° BENDS ON VERTICAL PIPE ARE SUBJECT TO REVIEW AND APPROVAL OF UTILITIES.
8. IF 4-IN THRU 20-IN PIPE IS POLYETHYLENE ENCASED, USE 1.25 MULTIPLIER ON RESTRAINT LENGTH.
9. RESTRAINING REQUIREMENTS APPLY TO BOTH EXISTING AND PROPOSED MAINS.

7 RESTRAINED PIPE TABLE

NOTES:
1. ALL PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (14 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE TAPED TO TOP CENTERLINE OF THE PIPE.
2. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE.



10 LOCATING WIRE



NOTES:

1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3,000 PSI.
3. BEDDING, BACKFILL AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
6. DESIGN PRESSURE: 150 PSI.
7. REQUIRED FOR LINE STOPS IF RESTRAINT TABLE REQUIREMENTS CANNOT BE MET.

SCHEDULE OF DIMENSIONS AND MATERIALS							
PIPE SIZE (IN)	PIPE SIZE						
	DIMENSIONS (FT)				TIE RODS REQ'D		
	A	B	C	D	DIA	NO.
6	2.0	2.0	1.0		0.75	2
8	2.5	2.5	1.0		0.75	2
10	3.5	3.0	1.0		0.75	4
12	5.0	3.0	1.0		0.75	4
16	6.0	4.0	1.5		0.75	4
20	8.0	5.0	1.5		0.75	6
24	9.0	6.0	1.5		0.75	10
30	12.0	7.0	1.5		1.0	10
36	15.0	8.0	1.5		1.0	14
42	16.0	9.0	2		1.0	16
48	19.0	10.0	2		1.0	20
54	22.0	10.0	3		1.0	24
60	27.0	10.0	3		1.125	24
64	31.0	10.0	3		1.25	20

NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

11 THRUST COLLAR

Sunshine811

Call 811 or visit sunshine811.com two full business days before digging to have buried facilities located and marked.

Check positive response codes before you dig!

BY	DESCRIPTION	REV.	DATE

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APPIAN ENGINEERING LLC.
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2221 Lee Road, Suite 27, Winter Park, Florida 32789
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

UTILITY DETAILS
FINAL SITE PLAN

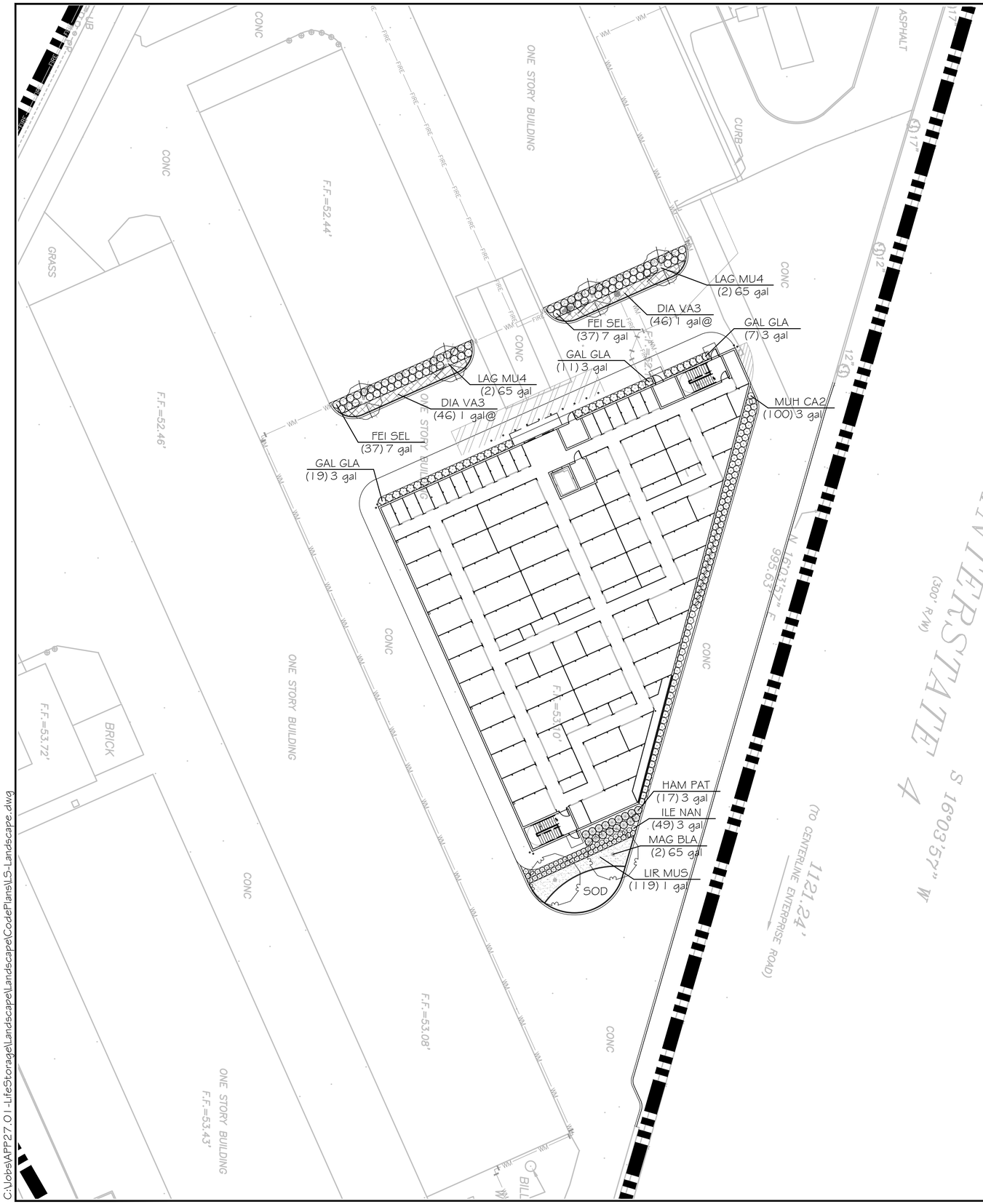
LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN:	DESIGNED:	CHECKED:	DATE:
T.MOORE	J.P.ALM	M. STACY	5/15/2023

SCALE	PROJECT	SHEET
N.T.S.	SSS-005	C9.0

5/15/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\UTILITY DETAILS.dwg Modified:5/1/2023 By:tmoore



PLANT SCHEDULE

FLOWERING TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
LAG MU4	4	Lagerstroemia indica `Muskogee`	Multi-Trunked Muskogee Crape Myrtle	65 gal	3.5"Cal	12` HT.	
MAG BLA	2	Magnolia grandiflora `D.D. Blanchard` TM	Southern Magnolia	65 gal	3"Cal	10`-12`	4' Min. Spr.

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	FIELD2	FIELD3	REMARKS
FEI SEL	74	Feijoa sellowiana	Pineapple Guava	7 gal			36" ht.x 24"-30" spd., 36" O.C.
GAL GLA	37	Galphimia glauca	Thryalis	3 gal			24"-30" ht. x 24"-30" spd., 36" O.C.
HAM PAT	17	Hamelia patens	Firebush	3 gal			30" ht.x 24"-30" spd., 30" O.C.
ILE NAN	49	Ilex vomitoria `Nana`	Dwarf Yaupon	3 gal			18"-24" ht.x 18"-24" spd., 24" O.C.

GRASSES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	FIELD2	FIELD3	REMARKS
MUH CA2	100	Muhlenbergia capillaris	Pink Muhly Grass	3 gal			18"-24" ht. x 24"-30" spd., 30" O.C.

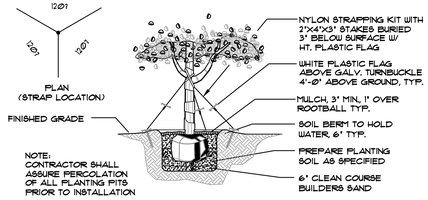
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	FIELD2	FIELD3	REMARKS
DIA VA3	92	Dianella revoluta `Variegated`	Variegated Flax Lily	1 gal			12"-15" ht., 5-6 ppp, 24" O.C.
LIR MUS	119	Liriope muscari `Emerald Goddess`	Lily Turfs	1 gal			12"-15" ht., 5-6 ppp, 18" O.C.

SOD & MISCELLANEOUS ITEMS

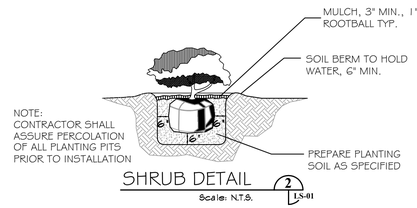
MULCH	Mini Pine Bark Nuggets
SOD	Paspalum notatum-Bahia Sod

LANDSCAPE NOTES:

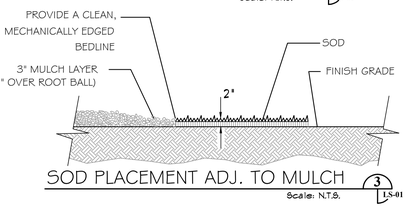
1. ALL PLANT MATERIAL SHALL BE FLORIDA GRADE NO. 1 OR BETTER AS SPECIFIED IN 'GRADES AND STANDARDS FOR NURSERY PLANTS', 'PARTS 1 AND 2, BY DIVISION OF PLANT INDUSTRY, FLORIDA', DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, AND SHALL CONFORM TO CURRENT AMERICAN ASSOCIATION OF NURSERYMEN 'STANDARDS FOR NURSERY STOCK', LATEST EDITION.
2. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR OR OWNER'S REPRESENTATIVE, NOT THE LANDSCAPE ARCHITECT, FOR THE NURSERY SELECTION OF PLANT MATERIAL AND TO ENSURE THE HEALTH AND SAFETY OF ALL PLANTS SELECTED.
3. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE BUILDING CODES, ORDINANCES AND LOCAL REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS TO PERFORM THE WORK.
4. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR INSPECTION OF EXISTING CONDITIONS AND PROMPTLY REPORTING ALL DISCREPANCIES AND IMPROPER CONDITIONS (WETNESS, MUCK, DEBRIS, ETC) TO LANDSCAPE ARCHITECT PRIOR TO BIDDING. CONTRACTOR IS RESPONSIBLE FOR SOIL ANALYSIS PRIOR TO INSTALLATION OF PLANTINGS, AND IS RESPONSIBLE FOR ALL SOIL AMENDMENTS TO CONFORM TO SPECIFICATIONS.
5. ALL TREES ON SITE SHOULD BE INSPECTED ANNUALLY AND AFTER ALL STORM EVENTS TO ENSURE THE HEALTH AND SAFETY OF ALL TREES.
6. THE LANDSCAPE CONTRACTOR SHALL ACQUAINT HIMSELF WITH ALL CIVIL DRAWING AS THEY RELATE TO PAVING SITE GRADING, AND ALL UTILITIES, (INCLUDING WATER, SEWER AND ELECTRICAL SUPPLY) TO PRECLUDE ANY MISUNDERSTANDING AND ENSURE TROUBLE FREE INSTALLATION. THE EXACT LOCATION OF ALL EXISTING STRUCTURES, UNDERGROUND UTILITIES, EXISTING UNDERGROUND SPRINKLERS AND PIPE MAY NOT BE INDICATED ON DRAWINGS. THE CONTRACTOR SHALL CONDUCT HIS WORK IN A MANNER TO PREVENT INTERRUPTION OR DAMAGE TO EXISTING SYSTEMS WHICH MUST REMAIN OPERATIONAL. THE CONTRACTOR SHALL PROTECT UTILITY SERVICES WHICH MUST REMAIN OPERATIONAL AND SHALL BE RESPONSIBLE FOR THERE REPLACEMENT IF DAMAGED BY HIM.
7. ALL PLANTING BEDS SHALL RECEIVE A 3" LAYER (1" OVER ROOTBALL) OF MINNIE PINE BARK NUGGET MULCH.
8. THE OWNER MAY ADJUST THE EXISTING IRRIGATION SYSTEM AS NEEDED TO MEET THE NEEDS OF THE PROPOSED LANDSCAPING.
9. IN THE EVENT OF A CONFLICT BETWEEN QUANTITIES ON THE PLANT LIST AND THE PLANS, THE PLAN SHALL TAKE PRECEDENT.



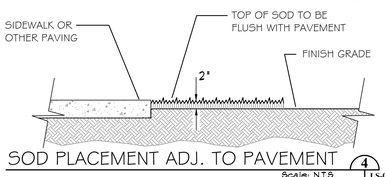
LARGE TREE DETAIL (1 LS-01) Scale: N.T.S.



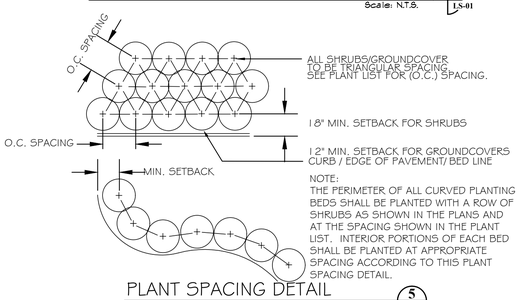
SHRUB DETAIL (2 LS-01) Scale: N.T.S.



SOD PLACEMENT ADJ. TO MULCH (3 LS-01) Scale: N.T.S.



SOD PLACEMENT ADJ. TO PAVEMENT (4 LS-01) Scale: N.T.S.



PLANT SPACING DETAIL (5 LS-01) Scale: N.T.S.

Landscape Designs, LLC
- Landscape Architecture
- Site Planning

4663 Tiffany Woods Cir
Oviedo, FL 32765
PH: (407) 484-3414

PROJECT AND OWNER
LIFE STORAGE

City of Debary
Florida

Appian Engineering
2221 Lee Road
Suite 17
Winter Park, FL 32789
(407) 960-5868

CONSULTANTS

LANDSCAPE ARCHITECT
CARL J. KELLY JR., RLA

DocuSigned by:
D96C07E49FDC41C...

REG.#: 0001764

PROJECT NO.	APP27.01
DESIGNED BY	CJK
DRAWN BY	CJK
CHECKED BY	CJK
DATE	04/21/23

ISSUED FOR:
05/25/23

DRAWING SCALE
0 FT 10' 20' North
SCALE: 1"=20'-0"

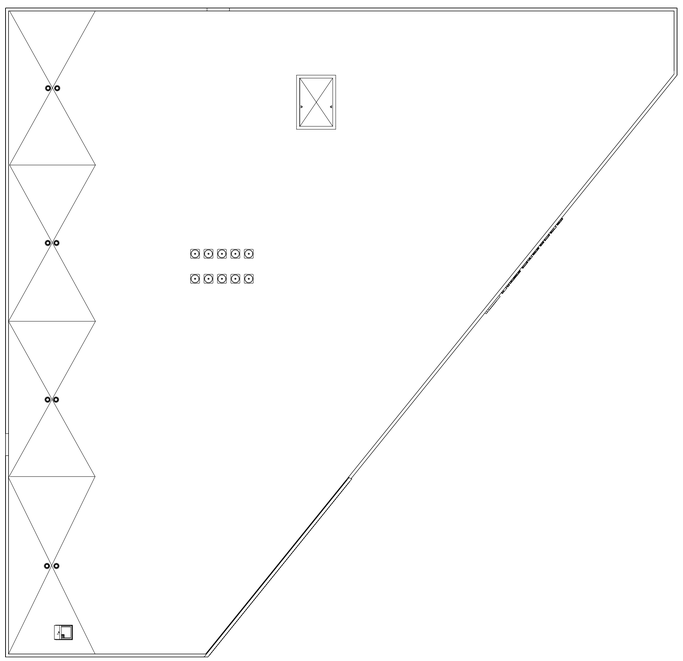
DRAWING TITLE
LANDSCAPE SITE PLAN

DRAWING NUMBER
LS-01

SHEET 01 OF 01

C:\Jobs\APP27.01-LifeStorage\Landscape\Landscape\CodePlans\LS-Landscape.dwg

3 LEVEL 3 UNIT LAYOUT PLAN
1/16" = 1'-0"



4 ROOF PLAN
1/16" = 1'-0"

2 LEVEL 2 UNIT LAYOUT PLAN
1/16" = 1'-0"

1 LEVEL 1 UNIT LAYOUT PLAN
1/16" = 1'-0"

HEAL
ARCHITECT, LLC
2350 N 930 E
PROVO, UT 84640
469-920-0123
lance@healarchitect.com

Proffesional Certification. I certify that these documents were prepared or approved by me, and that I am a duly licensed architect under the laws of the State of Florida.

FL LIC # AR99521

LIC EXP DATE: 2/28/2025

PLEASE BE ADVISED: THESE DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNLESS THEY HAVE BEEN SIGNED AND SEALED BY
STANLEY LANCE HEAL, ARCHITECT.

Project Information

NEW STORAGE BUILDING

012
LIFE STORAGE
DEBARY, FL

Client

LifeStorage

6467 Main St.
Buffalo, NY 14221

No.	Description	Date
	ISSUE DATE	5/5/2023

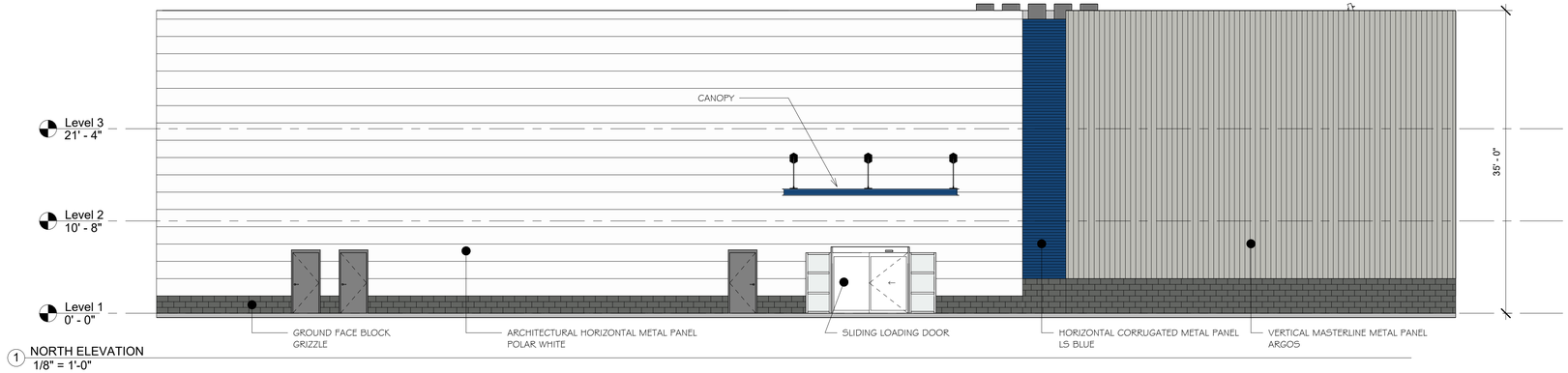
Sheet Title

FLOOR PLANS

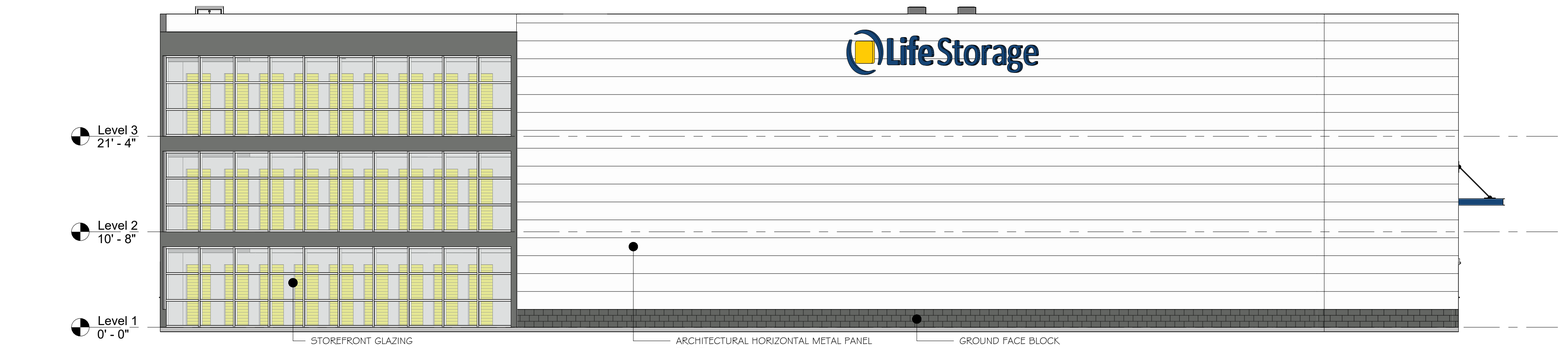
DWG BY:
CHK BY:
DATE: 5/5/2023
PROJECT NO:

DWG NO.

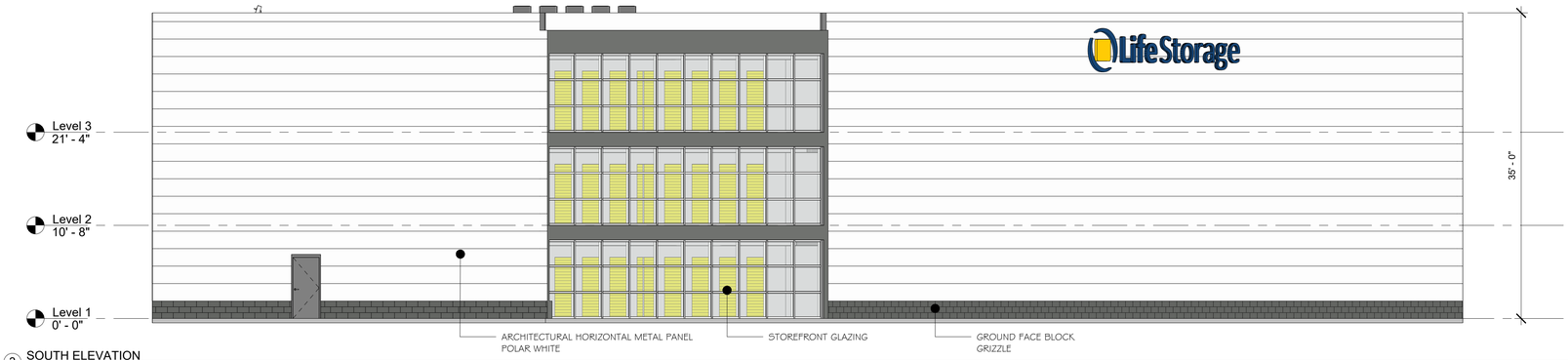
A1.0



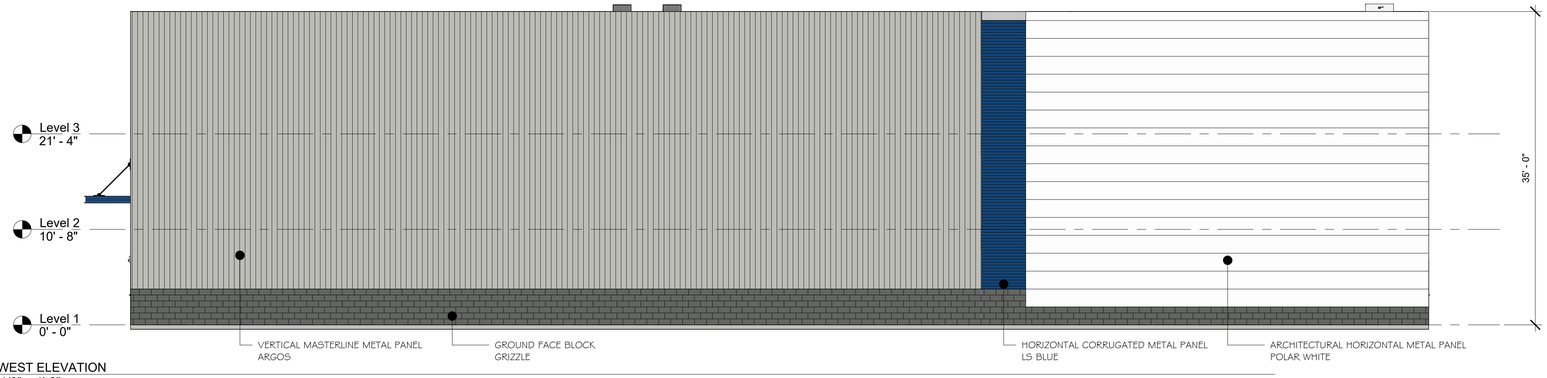
1 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"



4 WEST ELEVATION
1/8" = 1'-0"

HEAL
ARCHITECT, LLC
2350 N 930 E
PROVO, UT 84640
469-920-0123
lance@healarchitect.com

Proffesional Certification. I certify that these documents were prepared or approved by me, and that I am a duly licensed architect under the laws of the State of Florida.

FL LIC # AR99521

LIC EXP DATE: 2/28/2025

PLEASE BE ADVISED: THESE DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNLESS THEY HAVE BEEN SIGNED AND SEALED BY
STANLEY LANCE HEAL, ARCHITECT.

Project Information

NEW STORAGE BUILDING

012
LIFE STORAGE
DEBARY, FL

Client

LifeStorage

6467 Main St.
Buffalo, NY 14221

No.	Description	Date
	ISSUE DATE	5/5/2023

Sheet Title

EXTERIOR ELEVATIONS

STATE OF FLORIDA
STANLEY LANCE HEAL
AR99521
REGISTERED ARCHITECT

DWG BY:
CHK BY:
DATE: 5/5/2023
PROJECT NO:

DWG NO.

A2.1

FIRE FLOW

ANALYSIS REPORT FOR:

LIFE STORAGE DEBARY IMPROVEMENTS

Prepared for:

Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

&

City of Debary
Planning and Zoning Department
16 Columba Rd.
Debary, FL 32177

Prepared by:
Appian Engineering, LLC
2221 Lee Road Suite 17
Winter Park, FL 32789

James Palm, P.E.
Florida Registration No. 88559
Date: April 24, 2023

FIRE FLOW ANALYSIS REPORT
LIFE STORAGE DEBARY IMPROVEMENTS

PROJECT:	*Life Storage Debary Improvements* *City of Debary, Florida*
P.N.:	*SSS-005*
PREPARED BY:	*TJ Moore, E.I.*
CHECKED BY:	*John M. Wohlfarth, P.E.*
DATE:	*April 24, 2023*

INTRODUCTION:

The existing Life Storage project site is ±8.53 acres. The proposed project improvements include demolition of a portion of two existing single-story storage building and construction of a three story climate controlled storage building in its place with associated sidewalk and right-of-way configuration. The water distribution system for the site will be provided via connections to an existing private on site well via a 2" potable water line. The fire protection distribution system for the site will be provided via connection to an existing 8" fire line that is currently existing on the project site. This existing fire line ultimately connects to the City of Debary 8-inch water main that currently runs on the north-east side of Enterprise Road. The 8-inch fire line with double detector check valve and FDC will extend south-east and connect to the proposed storage building.

LOCATION:

The project site is generally located on the west side of Interstate Four, north-east of Enterprise road. The site is just north of the intersection between Interstate Four and Enterprise Road, within Section 36, Township 18 S, Range 30 E in the City of Debary. Refer to **Appendix A** for a location map depicting the limits of the subject project area.

PROPOSED SYSTEM IMPROVEMENTS:

Off-Site: There are no proposed improvements to the offsite conditions of the site. Refer to **Appendix B** for an Existing Utilities Map provided by Central Florida Locating, Inc. depicting the limits of the existing utilities located within, and adjacent to the project limits.

On-Site: Improvements will consist primarily of a stub out of an 8-inch fire line from existing on site 8-inch fire line, and a stub out of a 2-inch potable water main from an existing on

site private well. Both lines will navigate through the site and make connections to the building at the north-western corner of the building, as instructed by the architect. For the 8-inch fire line, there will be an FDC installed prior to the connection at the proposed building. This distribution system will serve the proposed building for both fire flow and potable demands. Since the potable water is being provided via a separate line from the fire line, the ADD, MDD, and PHF calculations have been excluded from this report. Refer to **Appendix C** for the Utility Improvements Plan sheet from the proposed construction plans.

REQUIRED FIRE PROTECTION:

Based on National Fire Protection Association (NFPA 1 – Fire Code 2012 Edition), the minimum required needed fire flow (NFF) to support the proposed development is determined to be 1,000 gpm for 2 hours. A copy of NFPA 1 – Fire Code 2012 Edition - Table 18.4.5.1.2 is provided within **Appendix D** of this report. Ultimately, final approval of the fire flow calculations and demands will be required to be provided by the City of Debary prior to development.

> *Per NFPA 1 – 18.4.5.2 Buildings Other Than One- and Two-Family Dwellings. The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be specified in Table 18.4.5.1.2.*
>
> *Per NFPA 1 – 18.4.5.2.1 for buildings other than one- and two-family dwellings the required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system. The resulting fire flow shall not be less than 1000 gpm.*

COMPUTER MODELING:

The enclosed model results were accomplished using a computer program entitled "WaterCAD V8i (Select Series 2)" developed by Bentley Systems, Inc.

The design friction losses through the mains were designed using the Hazen-Williams formula, utilizing a "C" value for friction loss of 120 for Ductile Iron pipe and 130 for PVC pipe. Minor losses at all hydrant locations were considered for the system however other minor losses were excluded.

The existing pressures used for the model are based on the field flow test performed by Wayne Automatic Fire Sprinklers, Inc. on February 22, 2023. A copy of the water flow test data sheet is provided in **Appendix E** of this report.

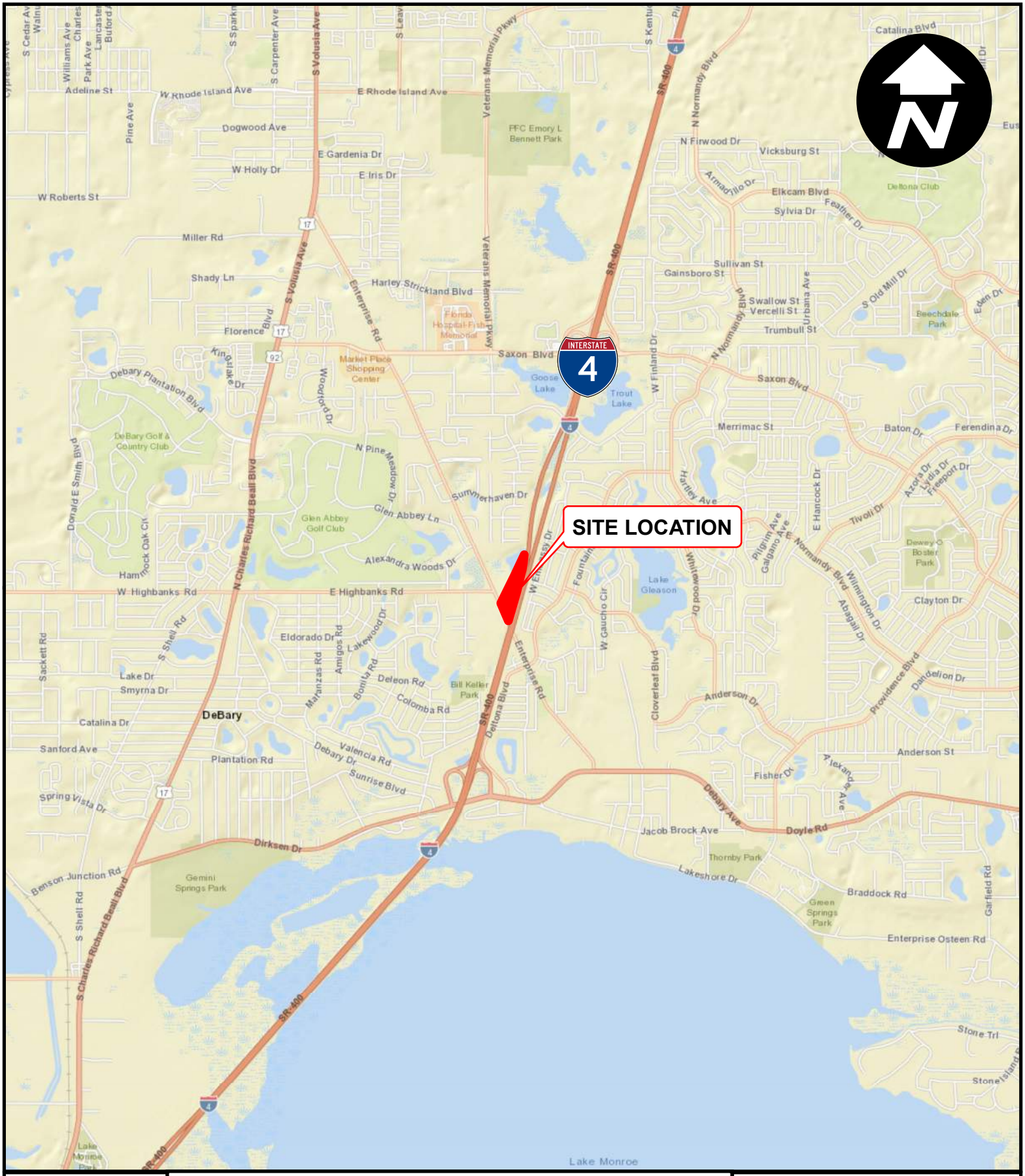
POTABLE WATER AND FIRE FLOW ANALYSIS REPORT
THE GODDARD SCHOOL OVIEDO

	Wayne Automatic Fire Sprinklers, Inc. Fire Hydrant Flow Test Results
Static Pressure	70 PSI
Flow	1,230 GPM
Residual Pressure	60 PSI

The modeling results of this analysis, for the water distribution system with needed fire flow (NFF) and the peak hourly flow, is included within **Appendix F & G** of this report. A node Exhibit, referencing the Water CAD model layout, is provided in **Appendix H** of this report.

As shown, all residual pressures for the proposed system are more than **20 psi**.

APPENDIX A
LOCATION MAP



APPIAN ENGINEERING

CIVIL ENGINEERING I LAND PLANNING

APPIANFL.COM • 407.960.5868

2221 Lee Road, Suite 27, Winter Park, Florida 32789

Location Map

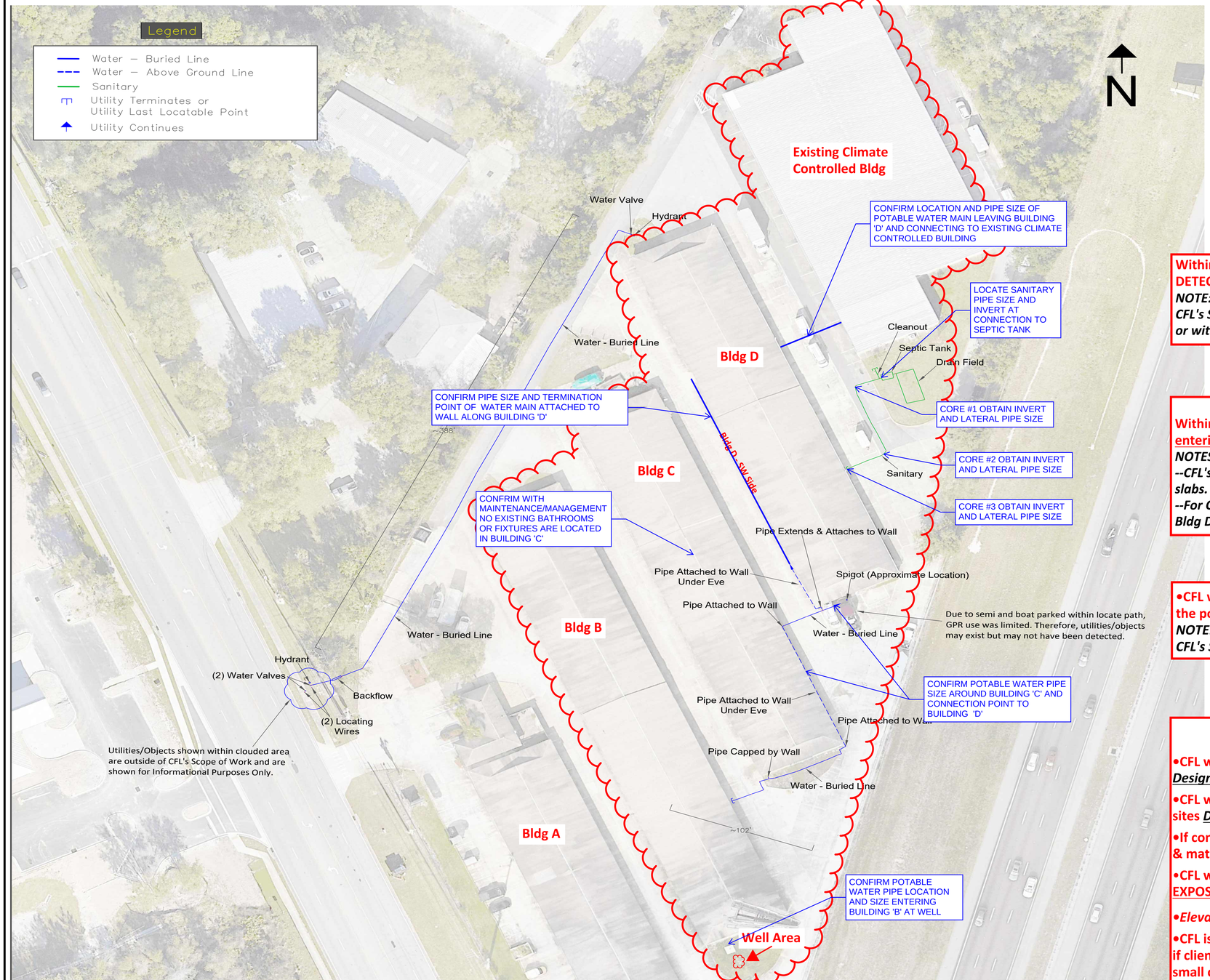
Debary, Florida

SSS-05 | 1 " = 4,000 '

Date: 12/16/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\LOCATION MAP.mxd

APPENDIX B
EXISTING UTILITIES MAP



CFL Project Site:
Life Storage Facility
3075 Enterprise Road
DeBary, FL 32713

See CFL's Services Proposal for Scope of Services.

Within the red clouded area, CFL will horizontally locate underground SANITARY SEWER Lines, IF DETECTABLE, exiting Buildings B, C, & D and Existing Climate Controlled Building.
NOTE:
CFL's Scope of Work does not include the horizontal locating of SANITARY SEWER LINES under buildings or within slabs.

Within the red clouded area, CFL will horizontally locate underground WATER Lines, IF DETECTABLE, entering/exiting Buildings B, C, & D and Existing Climate Controlled Building.
NOTES:
--CFL's Scope of Work does not include the horizontal locating of WATER Lines under buildings or within slabs.
--For CFL to continue horizontally locating the WATER LINE, IF DETECTABLE, at the SE End of Bldg D, the owner will need to have the path cleared of vehicles, etc.

•CFL will VISUALLY follow the direction of a WATER PIPE under the eve on the SW side of Bldg D to the point where the WATER PIPE enters Bldg D.
NOTE:
CFL's Scope of Work DOES NOT include collecting of Northing & Easting Coordinates within buildings.

VERTICAL EXCAVATIONS – Dirt Soft Digs and Asphalt/Concrete Core Bores

•CFL will vertically expose horizontally located WATER & SEWER lines within grassed/dirt sites *Designated by Appian Engineering*.

•CFL will vertically expose horizontally located WATER & SEWER lines within asphalt and/or concrete sites *Designated by Appian Engineering*.

•If conditions allow, CFL will provide the tape measurement depth, approximate outside diameter size, & material type for each exposed utility.

•CFL will provide the elevation of each Horizontally Located WATER & SEWER line that is VERTICALLY EXPOSED within the Geophysical Utility Mapping CAD file.

•*Elevations to Pipe Inverts along with Pipe Slopes* ARE NOT *included in CFL's Scope of Work.*

•CFL is not responsible for damage to landscaping, etc. within designated vertical excavation sites, and if client requires repair work of asphalt or concrete core bore sites that exceeds the normal patching of small core bore holes, the client will need to contract with a licensed contractor for the specified work.

Central Florida Locating, Inc.
DBA CFL Geological Solutions
114 N Jumper Drive
Bushnell, FL 33513
Office: (352) 793-4246
Fax: (352) 793-8675
"Innovative and Reliable Subsurface Solutions"

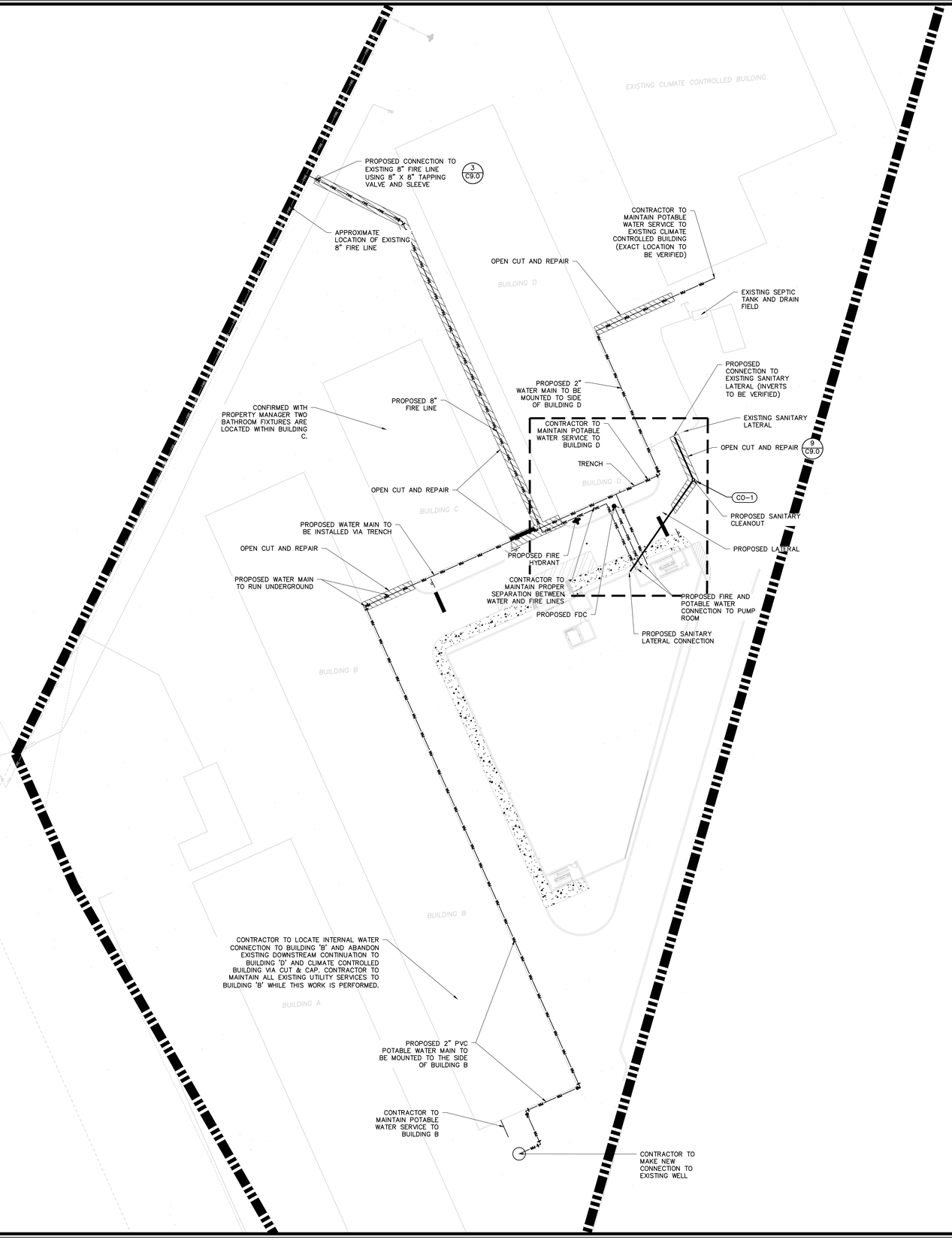
Client: Appian Engineering, LLC	Date: 4/12/23
Project: Life Storage, DeBary, FL	Proposal
Methods: Utility Locating Services	Sheet: 1 of 1

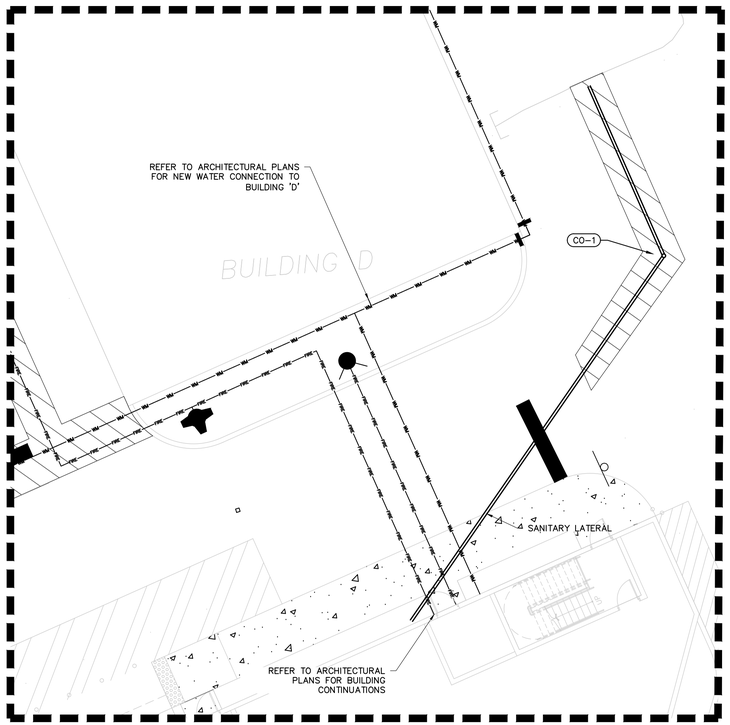
Additional Notes:

Central Florida Locating, Inc. (CFL), is an Associate Member of the Florida Sunshine State One Call System.

Central Florida Locating, Inc. (DBA) CFL Geological Solutions is a Florida licensed Geology Business (GB 801).

APPENDIX C
PROPOSED UTILITY IMPROVEMENTS





UTILITY CONNECTIONS DETAIL

SCALE: 1" = 10'

N
W E
S

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

- PROPOSED WATER MAIN
- PROPOSED FIRE LINE
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED SANITARY SERVICE LINE
- OPEN CUT/REPAIR

BY	DESCRIPTION	REV.	DATE

CIVIL ENGINEERING | LAND PLANNING

APPIAN ENGINEERING LLC.

APPIANFL.COM • 407.960.5868

2221 Lee Road, Suite 27, Winter Park, Florida, 32789

STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32374

UTILITY PLAN
FINAL SITE PLAN

LIFE STORAGE DEBARY STORE LS 012
IMPROVEMENTS
DEBARY, FLORIDA

DRAWN: T.MOORE	DESIGNED: J.PALM	CHECKED: M. STACY	DATE: 4/21/2023
SCALE: 1" = 30'	PROJECT: SSS-005	SHEET: C4.2	

APPIAN ENGINEERING

4/21/23

Sunshine811

Call 811 or visit sunshine811.com two full business days before digging to have buried facilities located and marked.

Check positive response codes before you dig!

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\03 Final Engineering\UTILITY PLAN.dwg Modified:4/21/2023 By:tmoore

APPENDIX D

NFPA 18.4.5.2.1

18.4.5.1.4.4 Where multiple buildings are located on a single lot and abut a lot line, the building separation distance for determining fire flow reduction shall be the smallest of the two distances.

18.4.5.1.5* The reductions in 18.4.5.1.2, 18.4.5.1.3, and 18.4.5.1.4 shall not reduce the required fire flow to less than 500 gpm (1900 L/min).

18.4.5.2 One- and Two-Family Dwellings Exceeding 5000 ft² (464.5 m²).

18.4.5.2.1 Fire flow and flow duration for dwellings having a fire flow area in excess of 5000 ft² (464.5 m²) shall not be less than that specified in Table 18.4.5.2.1.

18.4.5.2.2 Required fire flow shall be reduced by 75 percent and the duration reduced to 1 hour where the one- and two-family dwelling is provided with an approved automatic sprinkler system.

18.4.5.2.3 A reduction in the required fire flow shall be permitted where a one- and two-family dwelling is separated from all lot lines in accordance with Table 18.4.5.1.4.

18.4.5.2.4 Required fire flow for one- and two-family dwellings protected by an approved automatic sprinkler system shall not exceed 2000 gpm (7571 L/min) for 1 hour.

Table 18.4.5.2.1 Minimum Required Fire Flow and Flow Duration for Buildings

Fire Flow Area ft² (× 0.0929 for m²)					Fire Flow gpm† (× 3.785 for L/min)	Flow Duration (hours)
I(443), I(332), II(222)*	II(111), III(211)*	IV(2HH), V(111)*	II(000), III(200)*	V(000)*		
0–22,700	0–12,700	0–8200	0–5900	0–3600	1500	2
22,701–30,200	12,701–17,000	8201–10,900	5901–7900	3601–4800	1750	
30,201–38,700	17,001–21,800	10,901–12,900	7901–9800	4801–6200	2000	
38,701–48,300	21,801–24,200	12,901–17,400	9801–12,600	6201–7700	2250	
48,301–59,000	24,201–33,200	17,401–21,300	12,601–15,400	7701–9400	2500	
59,001–70,900	33,201–39,700	21,301–25,500	15,401–18,400	9401–11,300	2750	
70,901–83,700	39,701–47,100	25,501–30,100	18,401–21,800	11,301–13,400	3000	3
83,701–97,700	47,101–54,900	30,101–35,200	21,801–25,900	13,401–15,600	3250	
97,701–112,700	54,901–63,400	35,201–40,600	25,901–29,300	15,601–18,000	3500	
112,701–128,700	63,401–72,400	40,601–46,400	29,301–33,500	18,001–20,600	3750	
128,701–145,900	72,401–82,100	46,401–52,500	33,501–37,900	20,601–23,300	4000	4
145,901–164,200	82,101–92,400	52,501–59,100	37,901–42,700	23,301–26,300	4250	
164,201–183,400	92,401–103,100	59,101–66,000	42,701–47,700	26,301–29,300	4500	
183,401–203,700	103,101–114,600	66,001–73,300	47,701–53,000	29,301–32,600	4750	
203,701–225,200	114,601–126,700	73,301–81,100	53,001–58,600	32,601–36,000	5000	
225,201–247,700	126,701–139,400	81,101–89,200	58,601–65,400	36,001–39,600	5250	
247,701–271,200	139,401–152,600	89,201–97,700	65,401–70,600	39,601–43,400	5500	
271,201–295,900	152,601–166,500	97,701–106,500	70,601–77,000	43,401–47,400	5750	
Greater than 295,900	Greater than 166,500	106,501–115,800	77,001–83,700	47,401–51,500	6000	
		115,801–125,500	83,701–90,600	51,501–55,700	6250	
		125,501–135,500	90,601–97,900	55,701–60,200	6500	
		135,501–145,800	97,901–106,800	60,201–64,800	6750	
		145,801–156,700	106,801–113,200	64,801–69,600	7000	
		156,701–167,900	113,201–121,300	69,601–74,600	7250	
		167,901–179,400	121,301–129,600	74,601–79,800	7500	
		179,401–191,400	129,601–138,300	79,801–85,100	7750	
		Greater than 191,400	Greater than 138,300	Greater than 85,100	8000	

*Types of construction are based on NFPA 220.
†Measured at 20 psi (139.9 kPa).

APPENDIX E

HYDRANT FLOW TEST FROM WAYNE FIRE DATED FEBRUARY 22, 2023

613 N.W. MERCANTILE PLACE
PORT ST. LUCIE, FL 34986
772-878-3350 • FAX: 772-878-5967

11326 DISTRIBUTION AVENUE WEST
JACKSONVILLE, FLORIDA 32256-2745
904-268-3030 - FAX: 904-268-0724

4370 MOTORSPORT DRIVE
CONCORD, NORTH CAROLINA 28027
704-782-3032 - FAX: 704-795-6838

WAYNE
Automatic Fire Sprinklers, Inc.

222 CAPITOL CT.
OCOEE, FL 34761-3033
407-656-3030 - 407-656-8026

3226 CHERRY PALM DRIVE
TAMPA, FL 33619
81 3-630-0303 • FAX: 81 3 -630-0312

4683 LAREDO AVENUE
FORT MYERS, FLORIDA 33905
239-433-3030 - FAX: 239-433-3263

3121 NW 16TH TERRACE
POMPANO BEACH, FLORIDA 33064
954-917-3030 - FAX: 954-917-9424

FIRE HYDRANT FLOW TEST

Owner: Appian Engineering ISC# or JOB#: 669206

Owner's Address: 2221 Lee Road Suite 27

Property:: Life Storage

Date: Feb 22, 2023 Time: 4:30 Inspector: Kash Frank

BLD#	LOCATION	STATIC	RESIDUAL	PITOT	DISCHARGE SIZE	GPM
	Hydrant #1			54	2.5	1230
	Hydrant #2	70	60		2.5	

NO.	REV.	DATE	DESCRIPTION	BY
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CIVIL ENGINEERING | LAND PLANNING
APPIAN ENGINEERING LLC.
APPIANFL.COM • 407.960.5668
2221 Lee Road, Suite 27, Winter Park, Florida 32789
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

HYDRANT LOCATION EXHIBIT

LIFE STORAGE DEBARY

SCALE	DRAWN: T.MOORE		
1" = 60'	DESIGNED: T.MOORE		
PROJECT	CHECKED: J.PALM		
SSS-005	DATE: 1/19/2023		
SHEET	EXHIBIT		

APPIAN ENGINEERING

NOT FOR CONSTRUCTION
1/19/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\CAD Civil3D\Layouts\01 Exhibits\2023-01-19 - Hyrant Test Exhibit\HYDRANT LOCATION EXHIBIT.dwg Modified:1/19/2023 By:tmoore Plotted By:tj moore

APPENDIX F

MDD & NFF HYDRAULIC MODEL RESULTS – HYDRANT 1

FlexTable: Reservoir Table

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	214.02	1,000	214.02

FlexTable: Hydrant Table

Current Time: 0.000 hours

Label	Hydrant Status	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	Open	49.39	1,000	204.30	67
H-2	Closed	52.85	0	206.63	67

FlexTable: Junction Table

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	52.59	0	213.58	70
J-2	49.66	0	206.63	68
J-3	48.94	0	204.81	67
J-4	50.51	0	206.63	68
J-5	51.73	0	206.63	67
J-6	51.37	0	206.63	67
J-7	52.24	0	206.63	67

FlexTable: Pipe Table

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	24	R-1	J-1	8.0	PVC	130.0	1,000	6.38
P-2	381	J-1	J-2	8.0	PVC	130.0	1,000	6.38
P-3	99	J-2	J-3	8.0	PVC	130.0	1,000	6.38
P-4	28	J-3	H-1	8.0	PVC	130.0	1,000	6.38
P-5	60	J-2	J-4	8.0	PVC	130.0	0	0.00
P-6	189	J-4	J-5	8.0	PVC	130.0	0	0.00
P-7	21	J-5	H-2	8.0	PVC	130.0	0	0.00
P-8	22	H-2	J-6	8.0	PVC	130.0	0	0.00
P-9	40	J-6	J-7	8.0	PVC	130.0	0	0.00

APPENDIX G

MDD & NFF HYDRAULIC MODEL RESULTS – HYDRANT 2

FlexTable: Reservoir Table

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	214.02	1,000	214.02

FlexTable: Hydrant Table

Current Time: 0.000 hours

Label	Hydrant Status	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	Closed	49.39	0	206.63	68
H-2	Open	52.85	1,000	201.70	64

FlexTable: Junction Table

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	52.59	0	213.58	70
J-2	49.66	0	206.63	68
J-3	48.94	0	206.63	68
J-4	50.51	0	205.54	67
J-5	51.73	0	202.08	65
J-6	51.37	0	201.70	65
J-7	52.24	0	201.70	65

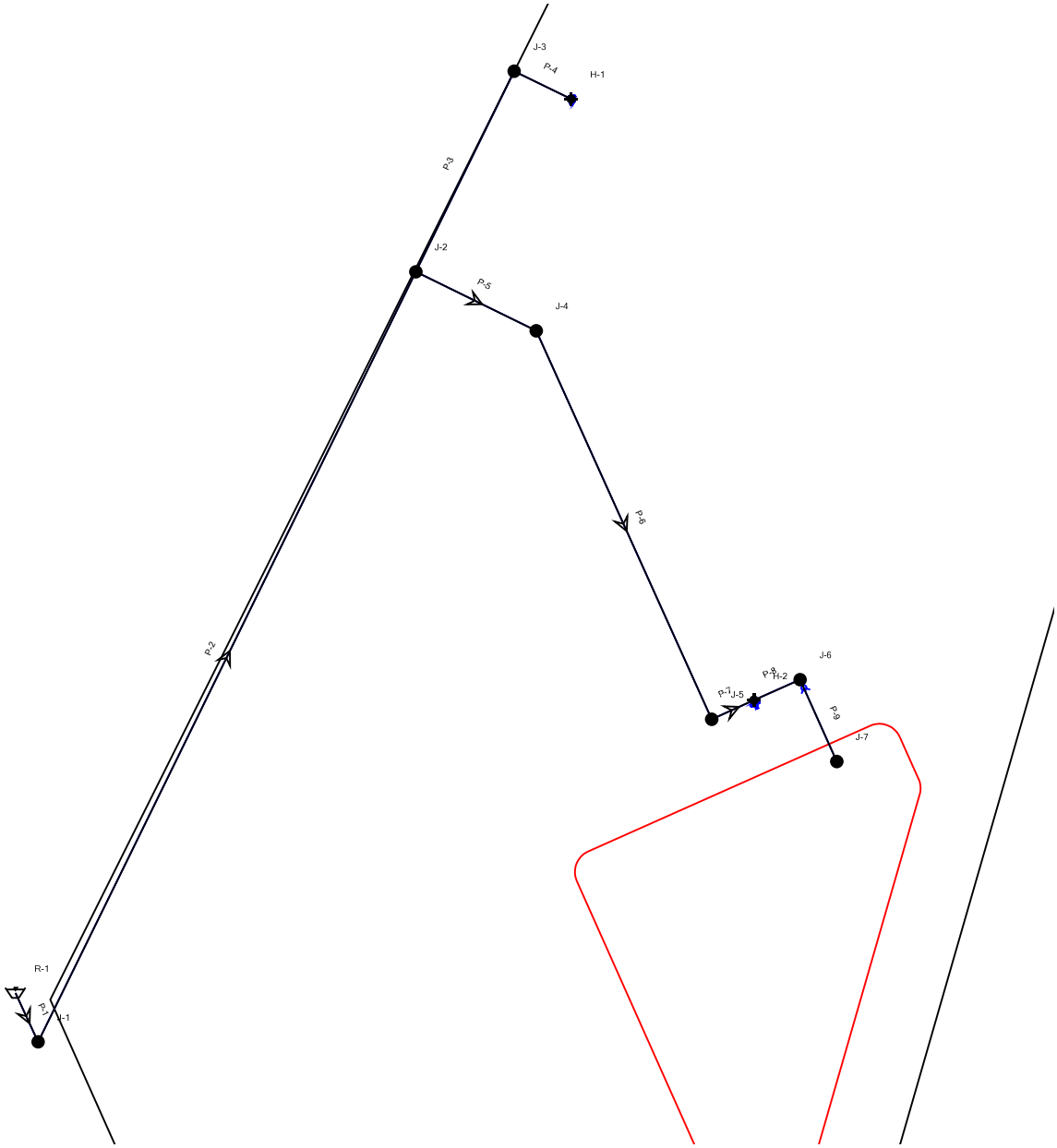
FlexTable: Pipe Table

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	24	R-1	J-1	8.0	PVC	130.0	1,000	6.38
P-2	381	J-1	J-2	8.0	PVC	130.0	1,000	6.38
P-3	99	J-2	J-3	8.0	PVC	130.0	0	0.00
P-4	28	J-3	H-1	8.0	PVC	130.0	0	0.00
P-5	60	J-2	J-4	8.0	PVC	130.0	1,000	6.38
P-6	189	J-4	J-5	8.0	PVC	130.0	1,000	6.38
P-7	21	J-5	H-2	8.0	PVC	130.0	1,000	6.38
P-8	22	H-2	J-6	8.0	PVC	130.0	0	0.00
P-9	40	J-6	J-7	8.0	PVC	130.0	0	0.00

APPENDIX H
NODE EXHIBIT

Scenario: Hydrant 2



STORMWATER MANAGEMENT REPORT FOR:

LIFE STORAGE DEBARY IMPROVEMENTS

Prepared for:

City of Debary
Planning and Zoning Department
16 Columba Rd
Debary, FL 32713

&

St. Johns River Water Management District
District Headquarters
4049 Reid Street,
Palatka, FL 32177
(386) 329-4500

Prepared by:

Appian Engineering, LLC
2221 Lee Road, Suite 17
Winter Park, FL 32789
(407) 960-5868

_____

James Palm, P.E.
Florida Registration No. 88559
Date: May 5, 2023

TABLE OF CONTENTS

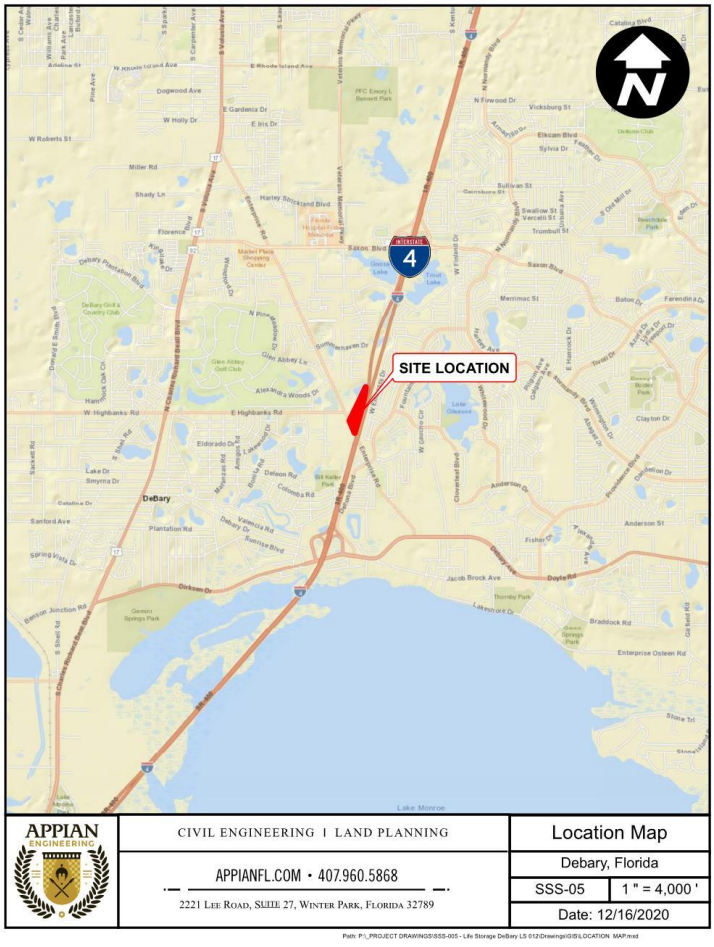
ATTACHMENTS

1.0 Introduction & Location:

The purpose of this report is to show that the proposed project meets or exceed all of the City of Debary and St Johns River Water Management District Stormwater requirements.

The Life Storage project site is ± 8.53 acres and is generally located on the west side of Interstate Four, northeast of Enterprise Road. The site is just north of the intersection between Interstate Four and Enterprise Road, in the City of Debary. The existing site consists of five one-story storage container buildings, as well as a front office, and associated roadways and infrastructure.

The proposed improvements include retrofitting the south-eastern portion of two existing storage units (designated as buildings C and D) and constructing a three-story climate-controlled storage building with associated drive aisles, sidewalks, storm, and utility improvements.



Project Address:

3075 Enterprise Road
Debary, FL 32713

Volusia County Parcel Identification Number:

802500000052

Figure 1 - Project Location

2.0 Soils – Floodplain Management:

SOILS

According to the Soil Survey of Orange County, Florida, prepared by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), three (3) soil types occur within the subject property boundaries. These soil types include the following:

- **Cassie Fine Sand (#13)**
- **Orsino Fine Sand (#37)**
- **Paola Fine Sand (#42)**

*Refer to the geotechnical report by ECS Florida, LLC for additional information (**Attachment I**).*

FEMA – FLOODPLAIN MANAGEMENT

According to the FEMA Flood Insurance Rate Map for Volusia County, FL, Panel No. 12127C0620K, dated September 29, 2017, the proposed project is located within Zone X (areas determined to be outside the 500-year floodplain) & Zone A. Zone A is defined by FEMA as areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. It should be noted that all the proposed improvements are located outside of the mapped flood zone.

3.0 Drainage Conditions:

PRE-IMPROVEMENTS

In the Pre-Development condition, the subject property consists of one (1) on-site basins. The basin flows from south to north and east to west to the north-west corner of the property into the existing wetland area.

*Refer to **Attachment D** of this report for the Pre-Improvement Basin Map.*

POST-IMPROVEMENTS

In the Post-Development condition, the site was split into two (2) on-site basins. The larger basin denoted by the blue hatch and boundary was analyzed for attenuation purposes only. The smaller basin denoted by the green hatch and boundary is used for treatment and attenuation purposes. The basins flow to proposed storm inlets, which route into the proposed underground storm vaults. The underground storm vaults will discharge via a smartbox to the wetlands in the north-west corner of the property to the existing wetland area.

*Refer to **Attachment E** of this report for the Post-Improvements Basin Map.*

4.0 STORMWATER MANAGEMENT DESIGN CRITERIA:

PROPOSED CONDITIONS

Per coordination with St. Johns River Water Management District staff, the post development peak rate need to be less than or equal to pre development peak rate for the Mean Annual and 25 year 24-hour storm events. Below is a table of the post rates. Please see section 8.0 and 9.0 of this report for the ICPR modeling results. Since the total impervious area was reduced in the post condition, a pre-post rate analysis was not conducted as the rates will be lower in the post than the pre condition.

	Post Development
Mean Annual	3.10 cfs
25 year/ 24 hour	8.93 cfs

COMPUTER MODELING

The enclosed stormwater pond routing calculations for post-development conditions were accomplished using a computer program entitled "Interconnected Channel and Pond Routing Model (ICPR, Version 3.10)" developed by Streamline Technologies, Inc. The hydrograph generation module within this program utilized the SCS Unit Hydrograph Method with the 323 shape peaking factor model to compute the runoff hydrographs.

TREATMENT VOLUME

Below is a summary of the three different treatment volume calculations required for this site, whichever one is largest is the required treatment volume for the basin area of the development

- 1.25" times the impervious area
- 0.5" times the basin area of the development.

The table below is the sub basin treatment volume summary:

	Treatment Volume	
Basin	1.25" x Impervious Area	0.5" x Basin Area
Post	0.06 Ac-ft	0.03 Ac-ft

Details of the treatment volume calculations are shown in Section 7.0 of this stormwater management report.

DESIGN STORMS

The designed storms used in the analyses include the following:

Strom Event	Rainfall (Inches)	Distribution
Mean Annual	4.50	Type II Modified
25 Year/24 Hour	8.60	Type II Modified

EROSION CONTROL

Silt fence, and a concrete washout will be used as required to control erosion (refer to the construction plan set for the Erosion Control Plan). In addition, the contractor will be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and submit a NOI (Notice of Intent) NPDES to the FDEP (Florida Department of Environmental Protection).

MAITENANCE

The onsite stormwater management facilities will be privately owned and maintained.

5.0 PRE-DEVELOPMENT CURVE NUMBER CALCULATIONS:

APPIAN ENGINEERING, LLC.
2221 Lee Road, Suite 17, Winter Park, FL 32789
(407) 960-5868 - FAX (866) 571-8179

SSS-005 - LIFE STORAGE DEBARY

Basin Designation: PRE Development

SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

Total Project Area		0.67	acres
Rainfall Depth	=	4.50	inches, (Mean Annual)
		8.60	inches, (25 year/24 hour)
		10.60	inches, (100 year/24 hour)

Determine Basin Runoff Curve Number: CN

BASIN 1

Cover Type	Hydrologic Soil	CN	Acres	Product
Impervious Area	N/A	98	0.65	63.86
Open Space (Good Cond.)	A	39	0.02	0.88
		SUB-TOTAL	0.67	64.74

Weighted CN = (Product Sum) / (Total Area) = 64.74 / 0.67 ≈ 96

6.0 POST DEVELOPMENT CURVE NUMBER CALCULATIONS:

APPIAN ENGINEERING, LLC.
2221 Lee Road, Suite 17, Winter Park, FL 32789
(407) 960-5868 - FAX (866) 571-8179

SSS-005 - LIFE STORAGE DEBARY

Basin Designation: POST Development for Basin

SUB-BASIN ANALYSIS & CURVE NUMBER DETERMINATION

BASIN 1 Area	=	0.67	acres
BASIN 2 Area	=	1.93	acres
Rainfall Depth	=	4.50	inches, (Mean Annual)
		8.60	inches, (25 year/24 hour)
		10.60	inches, (100 year/24 hour)

Determine Basin Runoff Curve Number: CN

BASIN 1:

Cover Type	Hydrologic Soil	CN	Acres	Product
Impervious Area	N/A	98	0.63	61.65
Open Soace (Good Cond.)	A	39	0.05	1.76
		SUB-TOTAL	0.67	63.41

Weighted CN = (Product Sum) / (Total Area) = 63.41 / 0.67 ≈ 94

BASIN 2:

Cover Type	Hydrologic Soil	CN	Acres	Product
Impervious Area	N/A	98	0.80	78.33
Open Soace (Good Cond.)	A	39	0.46	17.97
		SUB-TOTAL	1.26	96.29

Weighted CN = (Product Sum) / (Total Area) = 96.29 / 1.26 ≈ 76

7.0 POST DEVELOPMENT STAGE STORAGE AND TREATMENT VOLUME CALCULATIONS:

APPIAN ENGINEERING, LLC.
2221 Lee Road, Suite 17, Winter Park, FL 32789
(407) 960-5868 - FAX (866) 571-8179

SSS-005 - LIFE STORAGE DEBARY

Stage Storage

POST Development - Underground chambers

Elevation (ft)	∑ Volume (ac-ft)
47.46	0.00000
47.54	0.00167
47.63	0.00334
47.71	0.00502
47.79	0.00669
47.88	0.00836
47.96	0.01003
48.04	0.01377
48.13	0.01742
48.21	0.02106
48.29	0.02468
48.38	0.02829
48.46	0.03190
48.54	0.03543
48.63	0.03895
48.71	0.04244
48.79	0.04588
48.88	0.04930
48.96	0.05269
49.04	0.05605
49.13	0.05939
49.21	0.06264
49.29	0.06584
49.38	0.06898
49.46	0.07205
49.54	0.07505
49.63	0.07796
49.71	0.08076
49.79	0.08344
49.88	0.08596
49.96	0.08827
50.04	0.09024
50.13	0.09203
50.17	0.09286
50.25	0.09454
50.34	0.09621
50.42	0.09788
50.50	0.09955
50.59	0.10122
50.67	0.10290

Treatment Volume SJRWMD (Dry Detention Off-Line)

1) 1.25" X Impervious Area =	2,854.49 ft³	or	0.066 ac-ft
2) 0.5" X Basin Area =	1,223.79 ft³	or	0.028 ac-ft
Minimum Weir Elevation		=	**49.29 ft**
Provided Weir Elevation		=	**49.29 ft**

8.0 ICPR Post-Development Input and Basin Summary:

==========
==== Basins ====
==========

Name: Basin 1 Node: A-4 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.670 Time Shift(hrs): 0.00
Curve Number: 94.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: BASIN 2 Node: A-1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 1.260 Time Shift(hrs): 0.00
Curve Number: 76.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

==========
==== Nodes ====
==========

Name: A-1 Base Flow(cfs): 0.000 Init Stage(ft): 45.563
Group: BASE Warn Stage(ft): 51.960
Type: Stage/Area

Stage(ft)	Area(ac)
45.563	0.0003
51.960	0.0003

Name: A-4 Base Flow(cfs): 0.000 Init Stage(ft): 45.130
Group: BASE Warn Stage(ft): 51.720
Type: Stage/Area

Stage(ft)	Area(ac)

Name: A-6 Base Flow(cfs): 0.000 Init Stage(ft): 45.030
Group: BASE Warn Stage(ft): 51.660
Type: Stage/Area

Stage(ft)	Area(ac)

```
--------------------------------------------------------------------------------------------
      Name: A-7                Base Flow(cfs): 0.000         Init Stage(ft): 44.770
     Group: BASE                                            Warn Stage(ft): 51.520
      Type: Stage/Area


      Stage(ft)        Area(ac)
--------------- ---------------

--------------------------------------------------------------------------------------------
      Name: CULTECH CHAMBER    Base Flow(cfs): 0.000         Init Stage(ft): 47.460
     Group: BASE                                            Warn Stage(ft): 50.670
      Type: Stage/Volume


      Stage(ft)      Volume(af)
--------------- ---------------
         47.460          0.0000
         47.540          0.0017
         47.630          0.0033
         47.710          0.0050
         47.790          0.0067
         47.880          0.0084
         47.960          0.0100
         48.040          0.0138
         48.130          0.0174
         48.210          0.0211
         48.290          0.0247
         48.380          0.0283
         48.460          0.0319
         48.540          0.0354
         48.630          0.0389
         48.710          0.0424
         48.790          0.0459
         48.880          0.0493
         48.960          0.0527
         49.040          0.0561
         49.130          0.0594
         49.210          0.0626
         49.290          0.0658
         49.380          0.0690
         49.460          0.0721
         49.540          0.0751
         49.630          0.0780
         49.710          0.0808
         49.790          0.0834
         49.880          0.0860
         49.960          0.0883
         50.040          0.0902
         50.130          0.0920
         50.170          0.0929
         50.250          0.0945
         50.340          0.0962
         50.420          0.0979
         50.500          0.0996
         50.590          0.1012
         50.670          0.1029

--------------------------------------------------------------------------------------------
      Name: OUTFALL            Base Flow(cfs): 0.000         Init Stage(ft): 47.768
     Group: BASE                                            Warn Stage(ft): 0.000
      Type: Time/Stage
```

Time(hrs)	Stage(ft)
0.00	47.768
999.00	47.768

==========
==== Pipes ====
==========

Name: A1-A4 From Node: A-1 Length(ft): 217.00
Group: BASE To Node: A-4 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	45.560	45.130
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: A4-A6 From Node: A-4 Length(ft): 51.00
Group: BASE To Node: A-6 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	45.130	45.030
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: A6-A7 From Node: A-6 Length(ft): 133.00
Group: BASE To Node: A-7 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	45.030	44.770

```
  Manning's N: 0.013000       0.013000                  Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                      Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                    Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


-----------------------------------------------------------------------------------------------
         Name: CULTECH TO A-7      From Node: CULTECH CHAMBER    Length(ft): 52.00
        Group: BASE                  To Node: A-7                    Count: 1
                                                              Friction Equation: Automatic
               UPSTREAM       DOWNSTREAM                    Solution Algorithm: Most Restrictive
     Geometry: Circular       Circular                            Flow: Both
     Span(in): 24.00          24.00                       Entrance Loss Coef: 0.00
     Rise(in): 24.00          24.00                           Exit Loss Coef: 1.00
   Invert(ft): 47.960         46.920                          Bend Loss Coef: 0.00
  Manning's N: 0.013000       0.013000                  Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                      Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                    Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


===============================================================================================
==== Drop Structures ==========================================================================
===============================================================================================

         Name: DS-1                From Node: A-7                Length(ft): 511.00
        Group: BASE                  To Node: OUTFALL                 Count: 1

               UPSTREAM       DOWNSTREAM                    Friction Equation: Automatic
     Geometry: Circular       Circular                      Solution Algorithm: Most Restrictive
     Span(in): 24.00          24.00                               Flow: Both
     Rise(in): 24.00          24.00                         Entrance Loss Coef: 0.000
   Invert(ft): 46.020         45.000                            Exit Loss Coef: 1.000
  Manning's N: 0.013000       0.013000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 1 for Drop Structure DS-1 ***
                                                                                TABLE
                  Count: 1                        Bottom Clip(in): 0.000
                   Type: Vertical: Mavis             Top Clip(in): 0.000
```

```
                Flow: Both                    Weir Disc Coef: 3.200
            Geometry: Rectangular           Orifice Disc Coef: 0.600

            Span(in): 36.00                       Invert(ft): 49.290
            Rise(in): 12.00                  Control Elev(ft): 49.290


================================================================================
==== Hydrology Simulations =====================================================
================================================================================

         Name: 10 Year 24 Hour
     Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\10 Year 24 Hour.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 7.50

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------
         Name: 100 Year 24 Hou
     Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\100 Year 24 Hour.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 11.00

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------
         Name: 25 Year 24 Hour
     Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\25 Year 24 Hour.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 8.60

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

--------------------------------------------------------------------------------------------------
         Name: Mean Annual
     Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\Mean Annual.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 4.50

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

================================================================================
==== Routing Simulations =======================================================
================================================================================
```

```
        Name: 10 Year 24 Hour     Hydrology Sim: 10 Year 24 Hour
    Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\10 Year 24 Hour.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 30.00
    Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
999.000         15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
        Name: 100 Year 24 Hou     Hydrology Sim: 100 Year 24 Hou
    Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\100 Year 24 Hour.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 30.00
    Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
999.000         15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------
        Name: 25 Year 24 Hour     Hydrology Sim: 25 Year 24 Hour
    Filename: P:\_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\25 Year 24 Hour.I32

     Execute: Yes         Restart: No            Patch: No
 Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
   Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 30.00
    Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
       Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
```

999.000	15.000

Group	Run
BASE	Yes

Name: Mean Annual Hydrology Sim: Mean Annual
Filename: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Pond Routing - ICPR\Mean Annual.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
999.000	15.000

Group	Run
BASE	Yes

```
            Basin Name: Basin 1
            Group Name: BASE
            Simulation: 10 Year 24 Hour
             Node Name: A-4
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
  Spec Time Inc (min): 1.33
  Comp Time Inc (min): 1.33
        Rainfall File: Flmod
 Rainfall Amount (in): 7.500
 Storm Duration (hrs): 24.00
               Status: Onsite
   Time of Conc (min): 10.00
     Time Shift (hrs): 0.00
           Area (ac): 0.670
 Vol of Unit Hyd (in): 1.001
        Curve Number: 94.000
            DCIA (%): 0.000

      Time Max (hrs): 12.02
      Flow Max (cfs): 3.22
  Runoff Volume (in): 6.788
 Runoff Volume (ft3): 16509


--------------------------------------------------------------------------------

            Basin Name: BASIN 2
            Group Name: BASE
            Simulation: 10 Year 24 Hour
             Node Name: A-1
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
  Spec Time Inc (min): 1.33
  Comp Time Inc (min): 1.33
        Rainfall File: Flmod
 Rainfall Amount (in): 7.500
 Storm Duration (hrs): 24.00
               Status: Onsite
   Time of Conc (min): 10.00
     Time Shift (hrs): 0.00
           Area (ac): 1.260
 Vol of Unit Hyd (in): 1.000
        Curve Number: 76.000
            DCIA (%): 0.000

      Time Max (hrs): 12.04
      Flow Max (cfs): 4.62
  Runoff Volume (in): 4.707
 Runoff Volume (ft3): 21529


--------------------------------------------------------------------------------

            Basin Name: Basin 1
            Group Name: BASE
            Simulation: 100 Year 24 Hou
             Node Name: A-4
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
```

```
         Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 11.000
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 0.670
   Vol of Unit Hyd (in): 1.001
          Curve Number: 94.000
              DCIA (%): 0.000

        Time Max (hrs): 12.02
        Flow Max (cfs): 4.78
     Runoff Volume (in): 10.274
    Runoff Volume (ft3): 24987


--------------------------------------------------------------------------------

            Basin Name: BASIN 2
            Group Name: BASE
            Simulation: 100 Year 24 Hou
             Node Name: A-1
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 11.000
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.260
   Vol of Unit Hyd (in): 1.000
          Curve Number: 76.000
              DCIA (%): 0.000

        Time Max (hrs): 12.04
        Flow Max (cfs): 7.66
     Runoff Volume (in): 7.951
    Runoff Volume (ft3): 36367


--------------------------------------------------------------------------------

            Basin Name: Basin 1
            Group Name: BASE
            Simulation: 25 Year 24 Hour
             Node Name: A-4
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 8.600
   Storm Duration (hrs): 24.00
                 Status: Onsite
```

```
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
             Area (ac): 0.670
   Vol of Unit Hyd (in): 1.001
          Curve Number: 94.000
              DCIA (%): 0.000

         Time Max (hrs): 12.02
         Flow Max (cfs): 3.71
     Runoff Volume (in): 7.882
    Runoff Volume (ft3): 19170


--------------------------------------------------------------------------------

             Basin Name: BASIN 2
             Group Name: BASE
             Simulation: 25 Year 24 Hour
              Node Name: A-1
             Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
         Rainfall File: Flmod
   Rainfall Amount (in): 8.600
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
             Area (ac): 1.260
   Vol of Unit Hyd (in): 1.000
          Curve Number: 76.000
              DCIA (%): 0.000

         Time Max (hrs): 12.04
         Flow Max (cfs): 5.57
     Runoff Volume (in): 5.709
    Runoff Volume (ft3): 26113


--------------------------------------------------------------------------------

             Basin Name: Basin 1
             Group Name: BASE
             Simulation: Mean Annual
              Node Name: A-4
             Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
         Rainfall File: Flmod
   Rainfall Amount (in): 4.500
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
             Area (ac): 0.670
   Vol of Unit Hyd (in): 1.001
          Curve Number: 94.000
              DCIA (%): 0.000
```

```
         Time Max (hrs): 12.02
        Flow Max (cfs): 1.87
     Runoff Volume (in): 3.817
    Runoff Volume (ft3): 9283


--------------------------------------------------------------------------------

            Basin Name: BASIN 2
            Group Name: BASE
            Simulation: Mean Annual
             Node Name: A-1
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
         Rainfall File: Flmod
   Rainfall Amount (in): 4.500
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.260
   Vol of Unit Hyd (in): 1.000
          Curve Number: 76.000
              DCIA (%): 0.000

         Time Max (hrs): 12.04
        Flow Max (cfs): 2.10
     Runoff Volume (in): 2.131
    Runoff Volume (ft3): 9745
```

9.0 ICPR Post-Development Peak Stages, Runoff Rates, and Node Map:

SSS-005 DEBARY LIFE STORAGE NODE MIIN-MAX

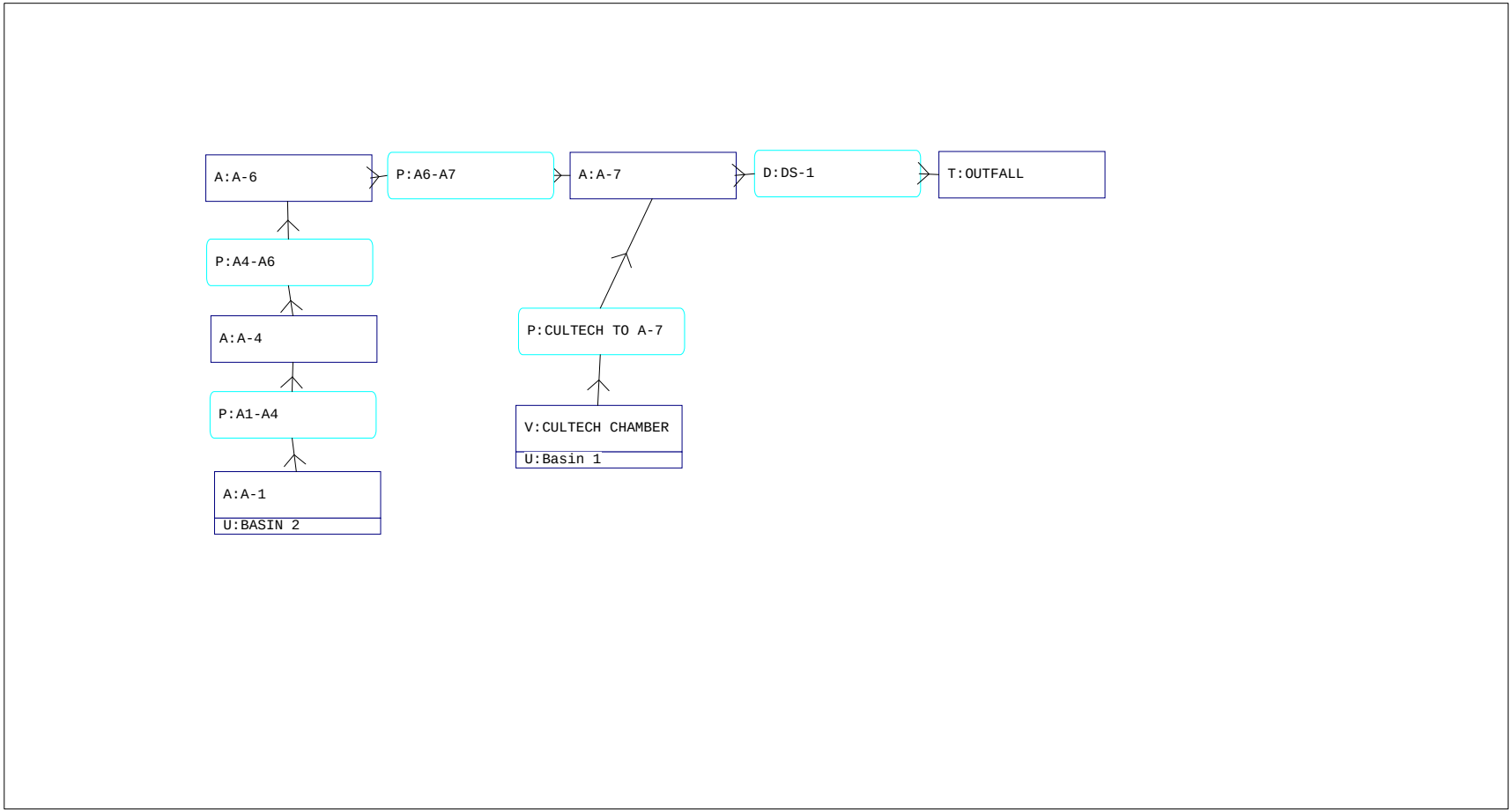
Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
A-1	BASE10	Year 24 Hour	12.04	50.63	51.96	0.0048	124	12.00	4.49	12.02	4.44
A-4	BASE10	Year 24 Hour	12.05	50.52	51.72	0.0069	126	12.01	7.58	12.02	7.55
A-6	BASE10	Year 24 Hour	12.05	50.37	51.66	-0.0051	122	12.02	7.55	12.03	7.58
A-7	BASE10	Year 24 Hour	12.07	50.14	51.52	0.0049	122	12.06	8.70	12.07	7.46
CULTECH CHAMBER	BASE10	Year 24 Hour	12.06	50.14	50.67	0.0024	892	0.00	0.00	13.20	1.62
OUTFALL	BASE10	Year 24 Hour	0.00	47.77	0.00	0.0000	0	12.07	7.46	0.00	0.00
A-1	BASE100	Year 24 Hou	12.04	51.75	51.96	0.0030	124	12.00	7.49	12.02	7.38
A-4	BASE100	Year 24 Hou	12.04	51.43	51.72	-0.0050	126	12.01	12.05	12.02	11.99
A-6	BASE100	Year 24 Hou	12.05	51.07	51.66	0.0064	122	12.02	11.99	12.03	11.98
A-7	BASE100	Year 24 Hou	12.06	50.47	51.52	0.0064	122	12.06	13.06	12.06	11.85
CULTECH CHAMBER	BASE100	Year 24 Hou	12.07	50.48	50.67	0.0016	877	0.00	0.00	9.91	4.91
OUTFALL	BASE100	Year 24 Hou	0.00	47.77	0.00	0.0000	0	12.06	11.85	0.00	0.00
A-1	BASE25	Year 24 Hour	12.04	50.94	51.96	0.0031	124	12.00	5.43	12.02	5.36
A-4	BASE25	Year 24 Hour	12.04	50.77	51.72	0.0046	126	12.01	8.99	12.02	8.95
A-6	BASE25	Year 24 Hour	12.05	50.57	51.66	0.0047	122	12.02	8.95	12.03	8.97
A-7	BASE25	Year 24 Hour	12.06	50.24	51.52	0.0058	122	12.05	10.09	12.06	8.86
CULTECH CHAMBER	BASE25	Year 24 Hour	12.06	50.24	50.67	0.0012	870	0.00	0.00	10.95	3.87
OUTFALL	BASE25	Year 24 Hour	0.00	47.77	0.00	0.0000	0	12.06	8.86	0.00	0.00
A-1	BASE	Mean Annual	12.19	49.81	51.96	0.0047	124	12.00	2.00	12.08	1.87
A-4	BASE	Mean Annual	12.19	49.80	51.72	0.0059	126	12.00	3.67	12.11	3.50
A-6	BASE	Mean Annual	12.19	49.78	51.66	0.0059	122	12.11	3.50	11.95	3.37
A-7	BASE	Mean Annual	12.20	49.74	51.52	0.0050	130	12.72	3.45	12.20	2.93
CULTECH CHAMBER	BASE	Mean Annual	12.21	49.74	50.67	0.0044	1460	0.00	0.00	12.72	1.67
OUTFALL	BASE	Mean Annual	0.00	47.77	0.00	0.0000	0	12.20	2.93	0.00	0.00

SSS-005 DEBARY LIFE STORAGE NODE MAP

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

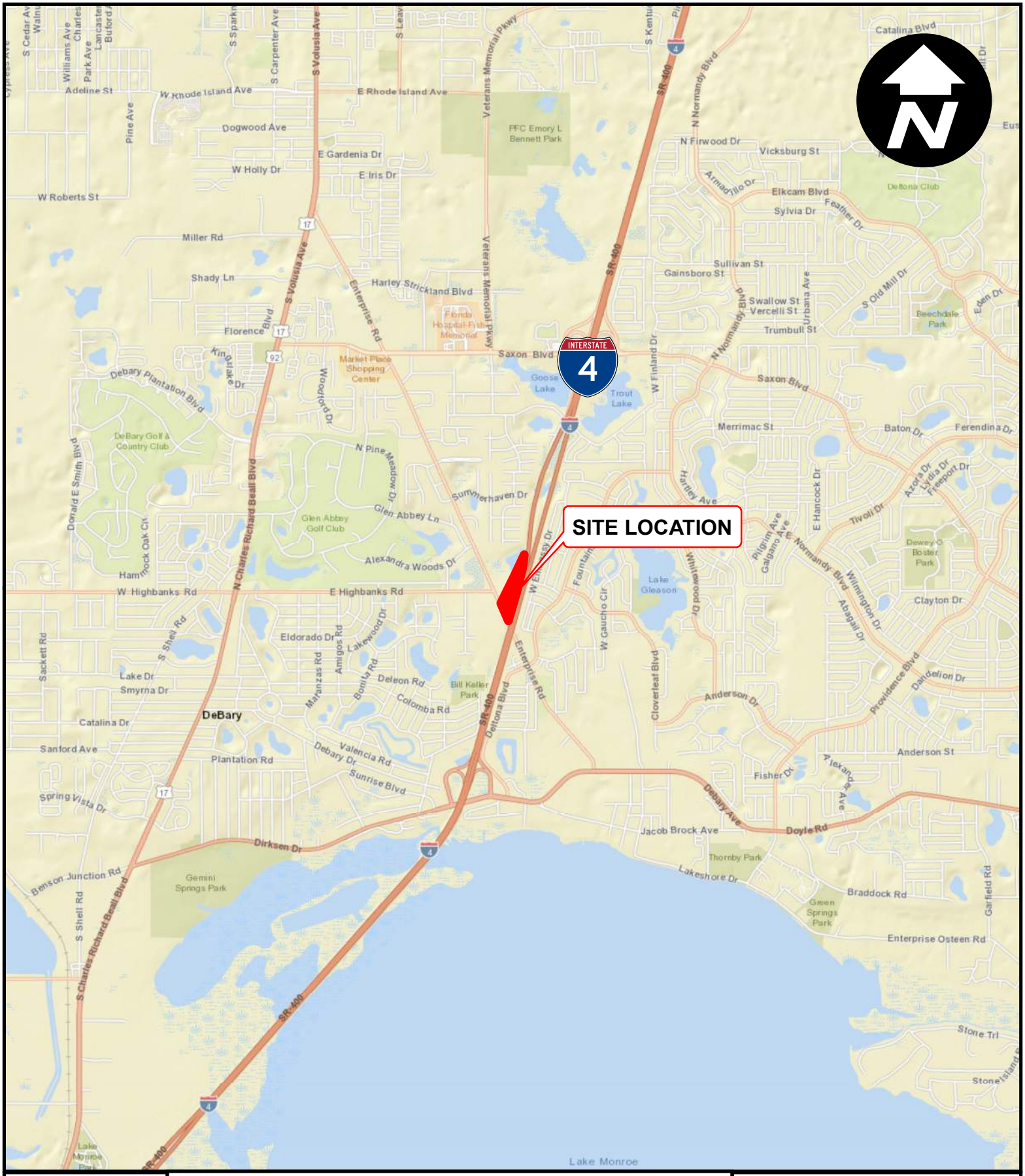
Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



ATTACHMENTS

ATTACHMENT A – LOCATION MAP



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Location Map

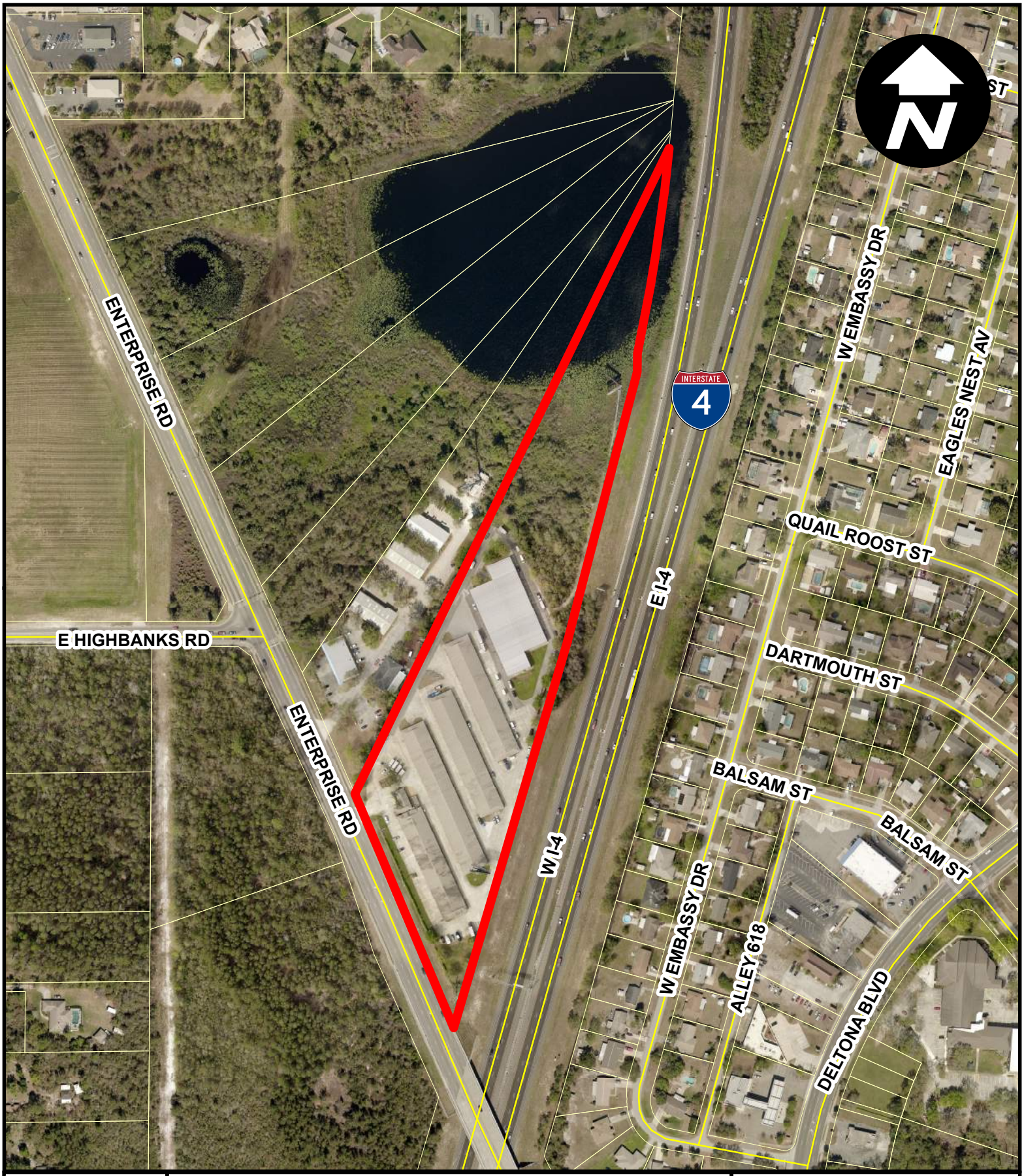
Debary, Florida

SSS-05 | 1 " = 4,000 '

Date: 12/16/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\LOCATION MAP.mxd

ATTACHMENT B – AERIAL MAP



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Aerial Map

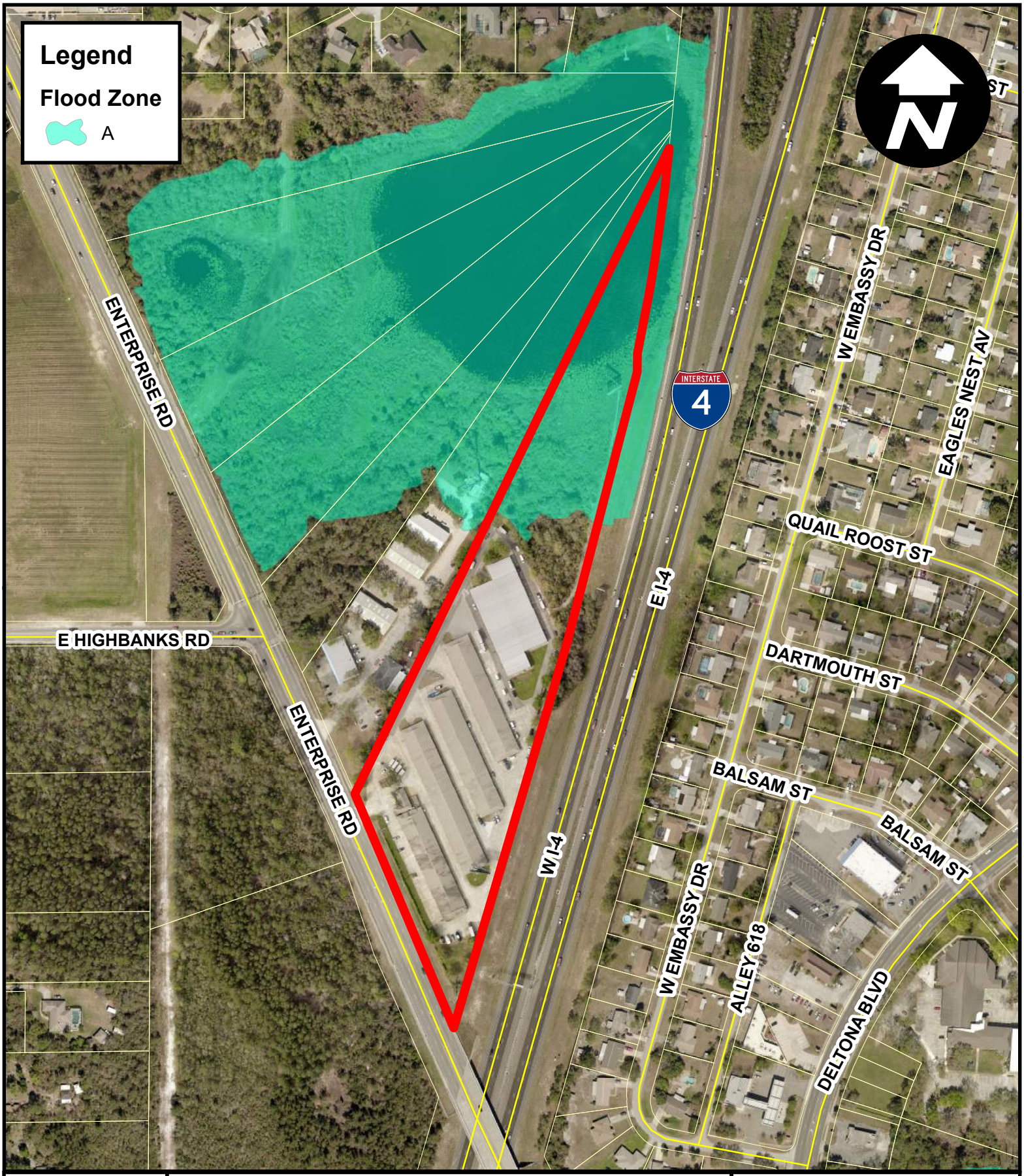
Debary, Florida

SSS-05 | 1 " = 300 '

Date: 12/15/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\AERIAL MAP.mxd

ATTACHMENT C – FLOOD MAP



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Flood Map

Debary, Florida

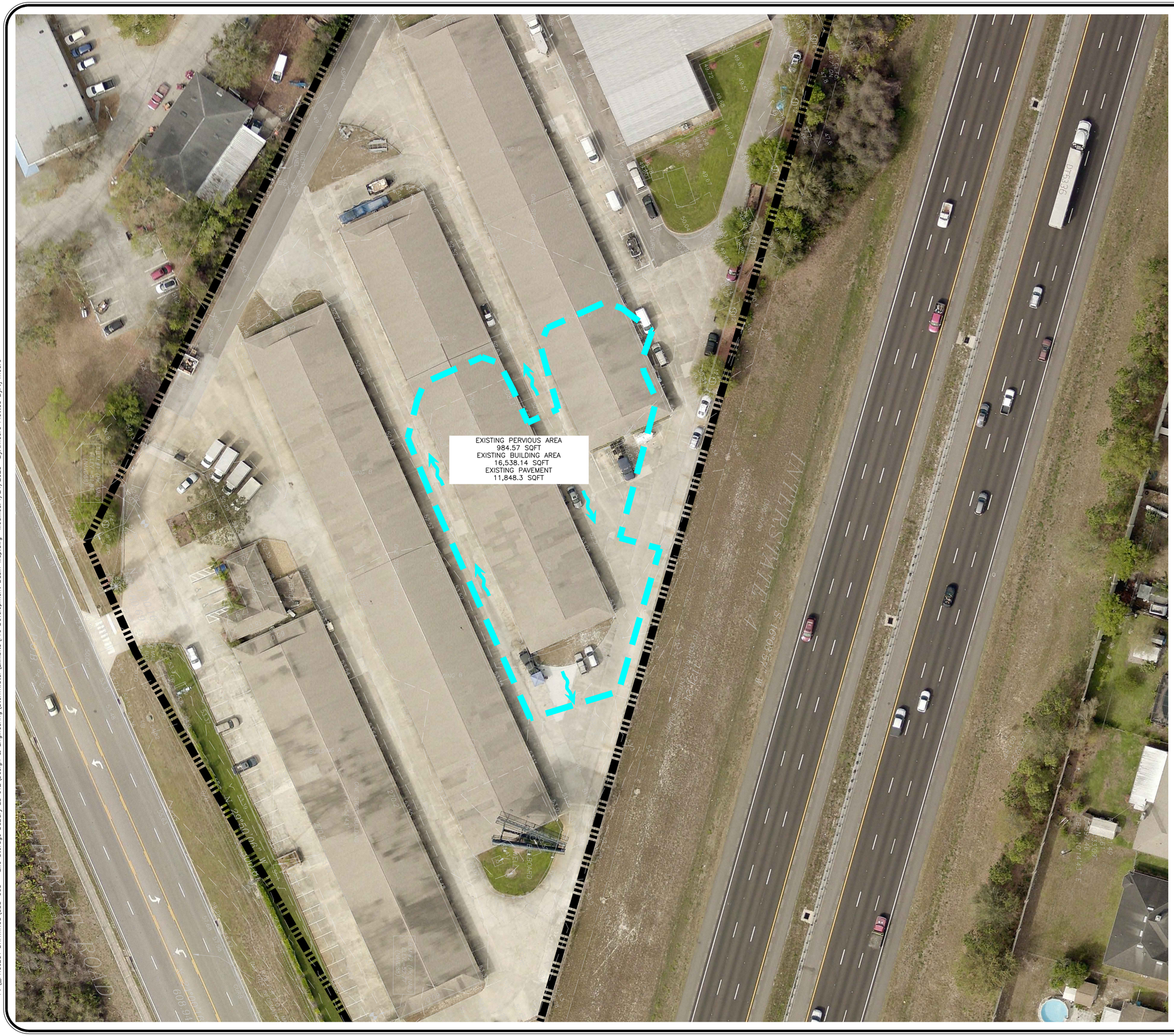
SSS-05 | 1 " = 300 '

Date: 12/15/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\FLOOD MAP.mxd

ATTACHMENT D – PRE-DEVELOPMENT BASIN MAP

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Exhibits\Pre Development Basin Map.dwg Modified:4/24/2023 By:tmoore Plotted By:tj moore



N

W E

S

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

BASIN DELINEATION

DRAINAGE FLOW DIRECTION

REV.	DATE	DESCRIPTION	BY
1	5/5/23		

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32274

PRE-DEVELOPMENT BASIN MAP

LIFE STORAGE DEBARY

SCALE	1" = 30'
PROJECT	SSS-005
SHEET	EXHIBIT
DRAWN:	T.MOORE
DESIGNED:	T.MOORE
CHECKED:	J. PALM
DATE:	3/8/2023

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NOT FOR CONSTRUCTION

5/5/23

ATTACHMENT E – POST DEVELOPMENT BASIN MAP

N

W E

S

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

- BASIN 1 (TREATMENT & ATTENUATION)
- BASIN 1 (TREATMENT & ATTENUATION)
- BASIN 2 (ATTENUATION)
- BASIN 2 (ATTENUATION)
- DRAINAGE FLOW DIRECTION

REV.	DATE	DESCRIPTION	BY

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STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NO. 32574

POST-DEVELOPMENT BASIN MAP

LIFE STORAGE DEBARY

DRAWN: T.MOORE	DESIGNED: T.MOORE	CHECKED: J. PALM	DATE: 5/3/2023
SCALE 1" = 30'	PROJECT SSS-005	SHEET EXHIBIT	

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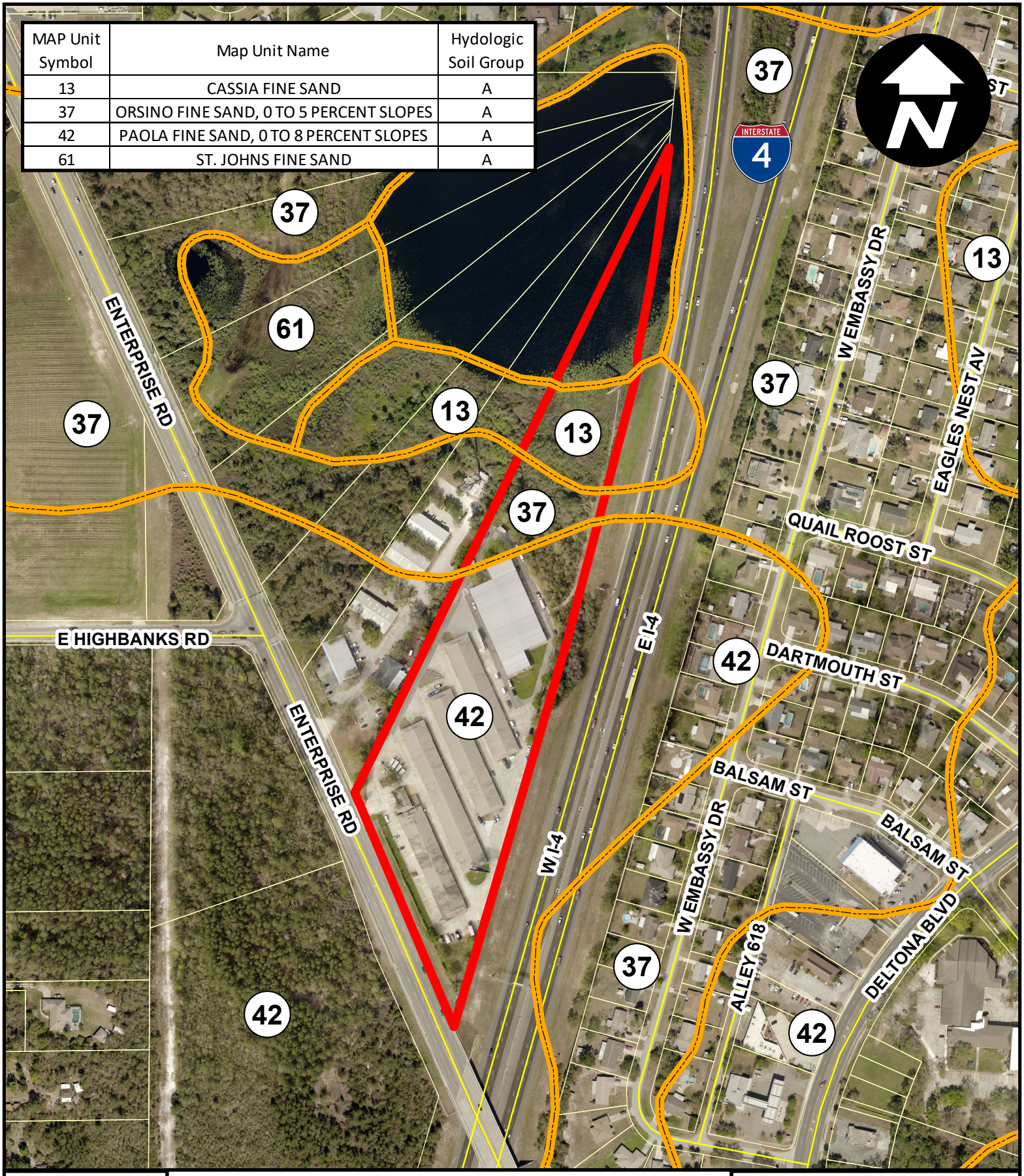
5/5/23

P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Design & Engineering\Stormwater\Exhibits\Post Development Basin Map.dwg Modified:5/3/2023 By:tmoore Plotted By:tj moore

ATTACHMENT F – SOILS MAP



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Soils Map

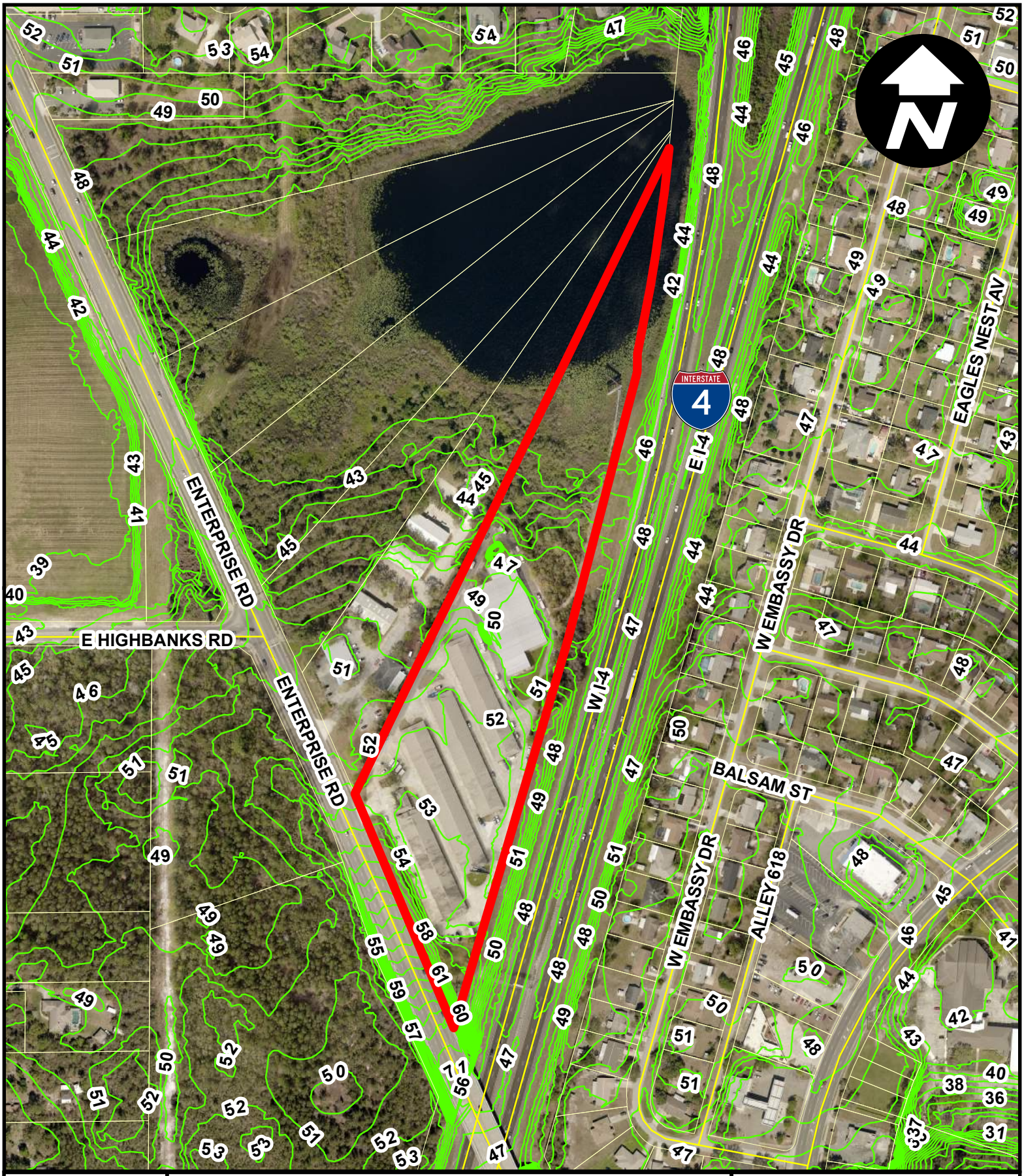
Debary, Florida

SSS-05 | 1 " = 300 '

Date: 12/16/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\SOILS MAP.mxd

ATTACHMENT G – TOPOGRAPHIC MAP



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Topographic Map

Debary, Florida

SSS-05 | 1 " = 300 '

Date: 12/15/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\TOPOGRAPHIC MAP.mxd

ATTACHMENT H – USGS MAP

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USGS Map

Debary, Florida

SSS-05	1 " = 500 '

Date: 12/16/2020

Path: P:_PROJECT DRAWINGS\SSS-005 - Life Storage DeBary LS 012\Drawings\GIS\USGS MAP.mxd

ATTACHMENT I – GEOTECHNICAL REPORT

ECS Florida, LLC

Geotechnical Engineering Report

Life Storage – Debary

3075 Enterprise Road
Debary, Volusia County, FL

ECS Project Number 56:1394

July 08, 2021

July 08, 2021

Mr. Richard Pasternak
Sr. Project Manager
Life Storage LP
6467 Main Street
Williamsville, NY 14221

ECS Project No. 56:1394

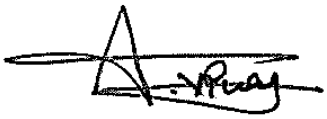
Reference: Geotechnical Engineering Report
Life Storage – Debary
3075 Enterprise Road
Debary, FL

Dear Mr. Pasternak:

ECS Florida, LLC. (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted, and our foundation design and earthwork construction recommendations.

It has been our pleasure to be of service to Life Storage LP during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,
ECS Florida, LLC.



Vinay Kumar Arebelli
Geotechnical Staff Project Manager
VArebelli@ecslimited.com

Nemer (Nick) Y. Oweis, P.E.
Senior Principal Engineer
Registered, FL PE. No. 44755
noweis@ecslimited.com

TABLE OF CONTENTS

APPENDICES

Appendix A – Drawings & Reports

- Figure 1 - Site Location Diagram
- Figure 2 - Field Exploration Diagram

Appendix B – Field Operations

- Reference Notes for Boring Logs
- Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
- Boring Logs

Appendix C – Laboratory Results

- Laboratory Summary

EXECUTIVE SUMMARY

This Executive Summary is intended as a very brief overview of the primary geotechnical conditions that are expected to affect design and construction. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- We understand a proposed 3-story high, 44,775-square feet climate controlled self-storage building will be constructed in place of portions of the existing Life Storage facility. We assumed the loading would be around 100 kips for column and 7 kips per foot for wall footings. Exfiltration systems will be used for stormwater treatment.

- Based on the results of our exploration, very loose to medium dense fine SAND (SP), fine Sand with Clay (SP-SC) and Clayey fine Sand (SC) was encountered below the near surface topsoil to the termination depths of the borings at 15 to 25 feet below ground surface. The borings encountered groundwater at depths varying from 9 to 9.5 feet below the existing ground surface at the time of our exploration.

- We consider the subsurface conditions at the site adaptable for support of the proposed structure on a properly designed conventional shallow foundation system with a maximum allowable bearing pressure of 2,500 psf. Provided the site preparation and earthwork construction recommendations outlined in Section 5.0 of this report are performed, the parameters presented in Section 4.1 of this report may be used for foundation design.

- We consider the subsurface conditions at the site favorable for support of a flexible and/or rigid pavement section when constructed on properly prepared subgrade soils as outlined in Section 5.0 of this report.

- The fine sands (SP) and fine sands with clay (SP-SC) encountered from existing ground surface to depths ranging between 10 and 25 feet at Borings B1, B2 and B-3 locations and to depths of 15 feet at Borings B-4 to B-6 locations are considered suitable for use as structural fill soil. The Double Ring Infiltrometer test results are included in Section 4.4.

- We recommend that ECS be provided the opportunity to review the foundation plans and earthwork specifications to verify that our recommendations have been properly interpreted and implemented. ECS should also be retained to perform the construction material testing and observations required for this project, to verify that our recommendations have been satisfied.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of foundations and pavements for the proposed climate-controlled storage building. The recommendations developed for this report are based on project information supplied by you.

Our services were provided in accordance with our Proposal No. 56:0958, dated March 24, 2021, as authorized by you on March 30, 2021, which includes our Terms and Conditions of Service.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the foundation design and earthwork construction of the project.

The report includes the following items:

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of area and site geologic conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our soil boring logs.
- Recommendations for foundation design.
- General recommendations for pavement design.
- Evaluation of suitability of the explored soils for use as structural fill.
- Recommendations for site preparation and construction of compacted fills.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE

The project site is located on the east side of the developed Life Storage property at 3075 Enterprise Road in Debary, Volusia County, Florida. The site is bordered to the north by undeveloped parcel and east by Interstate 4, to the west by developed buildings and to the south by Enterprise Road. The general site location is shown on below.

Site Location

At the time of our exploration, the site was developed with the existing life storage facility. We understand portions of 3rd and 4th buildings from the south will be demolished to facilitate the construction of the proposed 3-story climate controlled building. A site survey was not available to our office at the time of this report preparation. However, based on publicly available information, site specific topography was interpreted from Google Earth and based on our review and site visit, the site appears to be relatively flat.

2.2 PROPOSED CONSTRUCTION

The following information explains our understanding of the planned development including proposed building and related infrastructure.

SUBJECT	DESIGN INFORMATION / ASSUMPTIONS
Usage	3-Story Climate Controlled Storage
Framing	Cast-in-place concrete with minor reinforced masonry
Column Loads(1)	100 kips (Full Dead and Factored Live) (Assumed)
Wall Loads(1)	7 kips per linear foot (klf) maximum (Assumed)
Floor Loads(1)	300 pounds per square foot (psf) maximum
Fill and Cut Heights	Assumed a maximum of 2 feet of fill and only minor cuts, from existing site grades

(1) If actual structural loads differ from these assumed loads ECS must be contacted immediately in order to revise building foundation recommendations and settlement calculations, as needed.

If actual project information varies from these conditions, then the recommendations in this report may need to be re-evaluated. We should be contacted if any of the above project information is incorrect so that we may re-evaluate our recommendations.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedures. Our scope of work included drilling six (6) Standard Penetration Test (SPT) borings to depths ranging from 15 to 25 feet below the existing ground surface. Our borings were located with a handheld GPS unit. and their approximate locations are shown on the Field Exploration Diagram (Figure 2) in Appendix A.

Double Ring Infiltrometer Testing

We have also performed a Double-Ring Infiltrometer (DRI) test within the proposed exfiltration system areas (near boring B-1 location). The test was performed in general accordance with the procedures outlined in the latest revision of ASTMD 3385, "Infiltration Rate of Soils in Field using Double Ring Infiltrometers." The test locations were initially cleared of all surface vegetation and topsoil, excavated to the desired test depth, and then leveled. The outer ring, approximately 24 inches in diameter, was driven to a depth of 6 inches below the test depth. The inner ring, approximately 12 inches in diameter, was inserted inside the outer ring, centered, and driven to a depth of approximately 2 inches below the test depth. A thin layer of gravel was placed on the exposed soils inside the rings at the test level. The 2 rings were filled simultaneously with 4 inches of water.

The water level was maintained throughout the test period, with the required amount of water added to maintain this level in both rings recorded at time intervals of 10 minutes. After reaching a stabilized inflow volume of water, the test was continued for approximately 30 minutes. The DRI test location is shown on the Boring Location Diagram.

3.1 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil strata. Please refer to the boring logs in Appendix B.

Subsurface Stratigraphy of Standard Penetration Test Borings (SPT)

Approximate Depth Range (ft)	Stratum	Description	Ranges of SPT[(1)] N-values (bpf)
0 - 0.25 to 0.5	N/A	Topsoil and Concrete	---
0.25 to 0.5 - 10 to 25*	I	Very Loose to Medium Dense Fine Sand (SP) and Fine Sand with Clay (SP-SC)	3 to 22
10 to 20 - 15 to 25	II	Medium Dense Clayey Fine Sand (SC)	11 to 16

Notes: (1) Standard Penetration Test.

* Termination depth of Boring B-3

3.2 GROUNDWATER OBSERVATIONS

3.2.1 Encountered Groundwater

Groundwater levels were measured during our field exploration and are presented in our boring logs in Appendix B. Groundwater depths measured at the time of drilling ranged from 9 to 9.5 feet below the ground surface. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

3.2.2 Estimated Seasonal High Groundwater

The normal seasonal high groundwater level (NSHGWL) is affected by a number of factors. The drainage characteristics of the soils, land surface elevation, relief points such as drainage ditches, lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high groundwater level.

Based on our interpretation of the site conditions, including the boring logs and Web Soil Survey, we estimate the NSHGWL at the boring locations to be at the depths shown on the boring logs. It is possible that groundwater levels may exceed the estimated normal seasonal high groundwater level as a result of significant or prolonged rains.

3.3 LABORATORY TESTING

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples. Laboratory tests performed on selected samples included fine percent tests (ASTM D1140) and moisture content tests (ASTM D2216).

We conducted a laboratory falling head permeability test in accordance with ASTM D5084-16a. The results of the permeability test are included in section 4.4. Note the permeability test was performed with a remolded sample from our soil boring samples.

4.0 DESIGN RECOMMENDATIONS

4.1 FOUNDATIONS

Provided subgrades and structural fills are prepared as recommended in this report, the proposed structure can be supported by shallow foundations including column footings and continuous wall footings. We recommend the foundation design use the following parameters:

Design Parameter	Column Footing	Wall Footing
Minimum Width	24 inches	18 inches
Minimum Footing Embedment Depth (below slab or finished grade)	12 inches	12 inches
Estimated Maximum Total Settlement[1]	1 inch	1 inch
Estimated Maximum Differential Settlement[2]	Less than ½ inches between columns	Less than ½ inches over 50 feet
Net Allowable Bearing Pressure[3]	2,500 psf	
Acceptable Bearing Soil Material	Compacted Fine Sand (SP) – Stratum I or Compacted Fill	

1. Based on assumed structural loads. If final loads are different, ECS must be contacted to update foundation recommendations and settlement calculations.
2. Based on maximum column/wall loads and variability in borings. Differential settlement can be re-evaluated once the foundation plans are more complete.
3. Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.

Depending on the final floor elevations of the building, we anticipate most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed structure, after prepared in accordance with Section 5.0 of this report. The bearing level soils, after compaction, should exhibit densities equivalent to 95 percent of the modified Proctor maximum dry density (ASTM D 1557) to a depth of at least one foot below foundation bearing levels.

For turn down slabs and interior wall footings the minimum width should also be 18 inches, however the sloped transition portion of the turn-down may be included when determining the footing width. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2 SLABS ON GRADE

The floor slab can be constructed as a slab-on-ground, provided the site is prepared as outlined in Section 5.0. It is recommended the floor slab bearing soils be covered with an impervious membrane to reduce moisture entry and floor dampness. A 6-mil thick plastic membrane is commonly used for this purpose. Care should be exercised not to tear large sections of the membrane during placement of reinforcing steel and concrete. In addition, we recommend that a minimum separation of two feet be maintained between the finished floor levels and the estimated normal seasonal high groundwater level.

Subgrade Modulus: Provided the placement of structural fill per the recommendations discussed herein, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 150 pci (lbs/cu. inch). The modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test basis.

4.3 PAVEMENTS

Based on the results of our exploration, we consider the subsurface conditions at the site favorable for support of a flexible or rigid pavement section when constructed on properly prepared subgrade soils as outlined in Section 5.0 of this report. Typical pavement sections used in east-central Florida are presented in the following sections. If requested, we can prepare a project-specific pavement design if specific traffic data is provided.

In general, heavy duty sections are areas that will be subjected to trucks, buses, or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for vehicular traffic and parking areas.

4.3.1 Flexible Pavement Recommendations

TYPICAL PAVEMENT SECTIONS		
MATERIAL	**LIGHT DUTY**	**HEAVY DUTY**
Asphaltic Concrete Surface Course (SP-9.5 or Type S)	1.5 inches	2 inches
Limerock Base	6 inches	8 inches
Stabilized Subgrade	12 inches	12 inches

Base and Subgrade: The limerock base course should have a minimum Limerock Bearing Ratio (LBR) of 100 and should be compacted to 98 percent of the modified Proctor maximum dry density (ASTM D 1557) value.

The subgrade material should have a minimum LBR of 40 and be compacted to 98 percent of the modified Proctor maximum dry density (ASTM D 1557) value.

4.3.2 Rigid Pavement Recommendations

Our recommendations for slab thickness for standard duty and heavy-duty concrete pavements are based on a) subgrade soils densified to 98 percent of the modified Proctor maximum dry density (ASTM D 1557) b) modulus of subgrade reaction (k) equal to 200 pounds per cubic inch, c) a 20-year design life.

TYPICAL PAVEMENT SECTIONS		
	LIGHT DUTY	**HEAVY DUTY**
Minimum Concrete Thickness	5 inches	6 inches
Maximum Control Joint Spacing	10 feet x 10 feet	12 feet x 12 feet
Recommended Sawcut Depth	1 ¼ inches	1 ½ inches

We recommend using concrete with a minimum 28-day compressive strength of 4,000 psi and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch, based on 3rd point loading of concrete beam test samples. Layout of the sawcut control joints should form square panels. The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment. We recommend allowing ECS to review and comment on the final concrete pavement design,

including section and joint details (type of joints, joint spacing, etc.), prior to the start of construction.

For further details on concrete pavement construction, please reference the "Guide to Jointing on Non-Reinforced Concrete Pavements" published by the Florida Concrete and Products Associates, Inc., and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

4.4 STORMWATER MANAGEMENT FACILITIES

4.4.1 Soil Permeability/Infiltration Rate

Based on the Double Ring Infiltration (DRI) and laboratory permeability tests performed, the unsaturated vertical infiltration rate and horizontal permeability are presented in the following tables below:

Double Ring Infiltration Test Results

Borings Location	Test Depth (feet)	Vertical Infiltration Rate (ft/day)
DRI-1/B-1	1 to 2	14.9

Laboratory Permeability Results

Boring Location	Test Depth (feet)	Horizontal Permeability (ft/day)
B-1	6 to 8	31

The measured permeability/vertical infiltration rates should not be construed to represent the actual pond exfiltration rates. For pond design calculations, we recommend an appropriate factor of safety be applied to the above permeability/vertical infiltration rate values.

4.4.2 Borrow Suitability

Based on the boring results and classification of the soil samples, the fine sands (SP) and fine sands with clay (SP-SC) encountered in the borings are considered suitable for use as fill soil. The soils containing surficial organic material will require removal and are unsuitable as structural fill. The organic soils could be used in landscape berms.

The clayey fine sand (SC) and as encountered at the boring locations may also be used as structural fill however, we recommend this material to have a fines content of less than 30 percent and a Plastic Index (PI) of less than 6. We note that these soils will be more difficult to compact due to their tendency to retain soil moisture and will require drying. Depending on the anticipated time for completing the site work portion of the project and the drying time required to reduce the potential for pumping and yielding of these soils during placement and compaction operations, these soils may not be feasible for use as fill material.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

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

The "footprint" of the proposed building plus a minimum additional margin of 5 feet, and of the hardscape areas (parking/driveway) plus a minimum additional margin of 3 feet, should be stripped of all surface vegetation, construction debris from the demolition of the existing structures and pavements, stumps, debris, organic topsoil, asphalt, concrete or other deleterious materials. During grubbing operations, roots with a diameter greater than 0.5-inch, stumps, or small roots in a concentrated state, should be grubbed and completely removed.

The actual depths of unsuitable soils and materials should be determined by ECS using visual observation and judgment during earthwork operations. Any topsoil removed from the building and parking/drive areas can be stockpiled and used subsequently in non-structural areas.

5.1.2 Subgrade Evaluation

After removing all unsuitable surface materials, cutting to the proposed grade, and prior to the placement of any structural fill or other construction materials, the exposed subgrade should be evaluated by the Geotechnical Engineer or authorized representative. In the event that unstable or “pumping” subgrade is identified by the engineer, those areas should be marked for repair prior to the placement of any subsequent structural fill or other construction materials. Methods of repair of unstable subgrade, such as undercutting or moisture conditioning, should be discussed with the Geotechnical Engineer to determine the appropriate procedure with regard to the existing conditions causing the instability.

5.1.3 Subgrade Compaction

After completing the clearing and stripping operations and installing the temporary groundwater control measures (if required), the exposed surface should be compacted with a vibratory drum roller having a minimum static, at-drum weight, on the order of 4 to 6 tons. Typically, the material should exhibit moisture contents within ±2 percentage points of the modified Proctor optimum moisture content (ASTM D 1557) during the compaction operations. Compaction should continue until densities of at least 95 percent of the modified Proctor maximum dry density (ASTM D 1557) have been achieved within the upper 2 feet of the compacted natural soils at the site.

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

Care should be exercised to avoid damaging any nearby structures while the compaction operation is underway. Prior to commencing compaction, occupants of adjacent structures should be notified, and the existing conditions of the structures should be documented with photographs and survey (if deemed necessary). Compaction should cease if deemed detrimental to adjacent structures, and ECS should be contacted immediately. We recommend the vibratory roller remain

a minimum of 50 feet from existing structures. Within this zone, use of a track-mounted bulldozer, or a vibratory roller operating in the static mode, is recommended.

5.2 EARTHWORK OPERATIONS

5.2.1 Structural Backfill and Fill Soils

Structural fill is defined as a non-plastic, inorganic, granular soil having less than 10 percent material passing the No. 200 mesh sieve and containing less than 4 percent organic material. The fine sand and fine sand with silt or fine sand with clay, without roots, as encountered in the borings, are suitable as fill materials and, with proper moisture control, should densify using conventional compaction methods. Soils with more than 10 to 12 percent passing the No. 200 sieve will be more difficult to compact, due to their nature to retain soil moisture, and may require drying.

Structural Fill Compaction Requirements: Materials satisfactory for use as structural fill should consist of soils with the following compaction requirements.

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Modified Proctor, ASTM D1557
Required Compaction	95% of Max. Dry Density (general structural fill) 98% of Max. Dry Density (upper one foot below the proposed pavement base course)
Loose Thickness prior to compaction	12 inches if vibratory drum roller compaction equipment is used 8 inches if vibratory drum roller is used in static mode 8 inches if track-mounted compaction equipment is used 6 inches if hand-held compaction equipment is used

Fill materials should not be placed on excessively wet soils. Excessively wet soils should be scarified, aerated, and moisture conditioned. Proper drainage should be maintained during the earthwork phases of construction to prevent ponding of water which has a tendency to degrade subgrade soils. The contractor should minimize dusting or implement dust control measures, as required.

We recommend that the grading contractor have equipment on site during earthwork for both drying and wetting fill soils. Moisture control may be difficult during extended periods of rain. The control of moisture content of soils containing more than 10% fines may be difficult when these soils become wet. Further, such soils are easily degraded by construction traffic when the moisture content is elevated.

5.2.2 Foundation Areas

After satisfactory placement and compaction of the required structural fill, the foundation areas may be excavated to the planned bearing levels. The foundation bearing level soils, after compaction, should exhibit densities equivalent to 95 percent of the modified Proctor maximum dry density (ASTM D 1557) to a depth of one foot below the bearing level. For confined areas, such as the footing excavations, any compactive effort should be provided by a lightweight vibratory sled or roller having a total weight on the order of 500 to 2,000 pounds.

5.2.3 Flexible Pavement Areas

After completing the clearing/stripping operations in the pavement areas, any underlying clayey sands and sandy clays that are within 2 feet of the bottom of the pavement base should be over-

excavated from within the pavement areas. Structural backfill and fill required to achieve the finish pavement grades then can be placed and compacted as described in Sections 5.2.1.

5.3 UTILITY INSTALLATIONS

Utility Subgrades: The soil borings encountered fine sands (SP). It is our opinion that the fine sands (SP) soils will be suitable bedding soils for pipelines and utility structures.

Utility Backfilling: Backfill placed around the pipe, and to a height of 2 feet above the top of pipe, should be placed in 6-inch lifts. Each lift should be compacted with hand-held equipment to 95 percent of the soil's Modified Proctor (ASTM D 1557) maximum dry density. Backfill placed above the 2-foot zone above the top of pipe elevation may be placed in 12-inch lifts and compacted with heavier equipment. Typically, the backfill soil should exhibit moisture contents within ±2 percent of the soil's optimum moisture content as determined from the Proctor test. Care should be taken to avoid damaging the pipe during compaction operations.

Backfill placed around utility structures should be placed in 6-inch-thick lifts, and compacted with hand-held equipment to the same in-place soil density stated above. Heavy equipment should not be used within 5 feet of the structures to prevent overstressing of the structure walls.

Utility Excavation Dewatering: Based on the groundwater depths encountered in our borings, groundwater will likely be encountered by utility excavations which extend below 8 feet below existing grades. It is expected that removal of groundwater will be required, especially for deeper utility excavations. The contractor should submit a dewatering plan prior to installing the site utilities.

Excavation Safety: All excavations and slopes should be made and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing and constructing stable, temporary excavations and slopes and should shore, slope, or bench the sides of the excavations and slopes as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

Erosion Control: The surface soils may be erodible. Therefore, the Contractor should provide and maintain good site drainage during earthwork operations to maintain the integrity of the surface soils. All erosion and sedimentation controls should be in accordance with sound engineering practices and local requirements.

6.0 CLOSING

Our geotechnical exploration has been performed, our findings obtained, and our recommendations prepared, in accordance with generally accepted geotechnical engineering principles and practices. ECS is not responsible for any independent conclusions, interpretation, opinions, or recommendations made by others based on the data contained in this report.

Our scope of services was intended to evaluate the soil conditions within the zone of soil influenced by the foundation system. Our scope of services does not address geologic conditions, such as sinkholes or soil conditions existing below the depth of the soil borings.

If any of the project description information discussed in this report is inaccurate, either due to our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted immediately in order that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed construction.

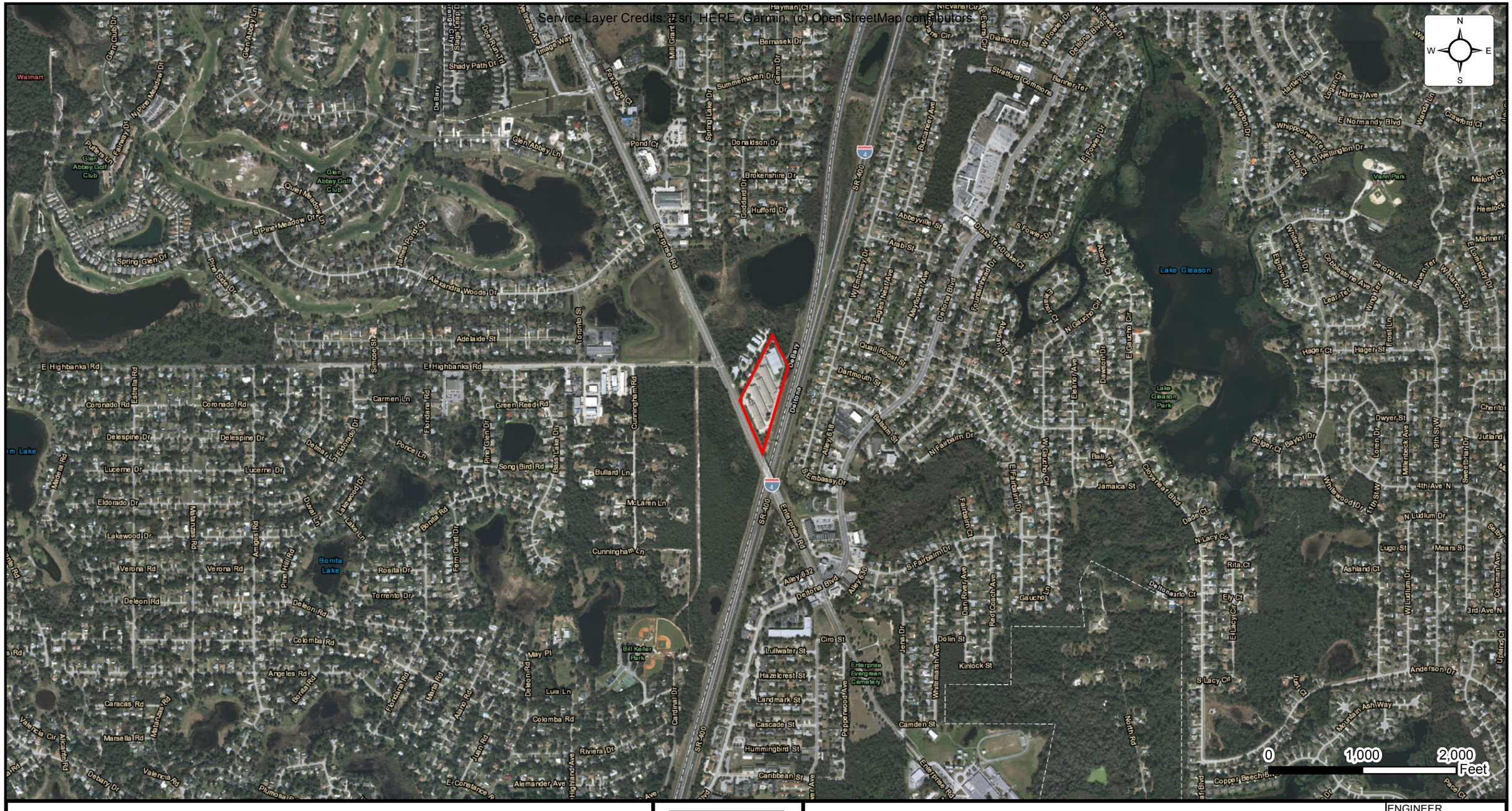
We recommend that ECS be allowed to review the project's plans and specifications pertaining to our work so that we may ascertain consistency of those plans/specifications with the intent of the geotechnical report.

Field observations, monitoring, and quality assurance testing during earthwork and foundation installation are an extension of and integral to the geotechnical design recommendation. We recommend that the owner retain these quality assurance services and that ECS be allowed to continue our involvement throughout these critical phases of construction to provide general consultation as issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Diagrams & Reports

Figure 1 - Site Location Diagram
Figure 2 - Field Exploration Diagram



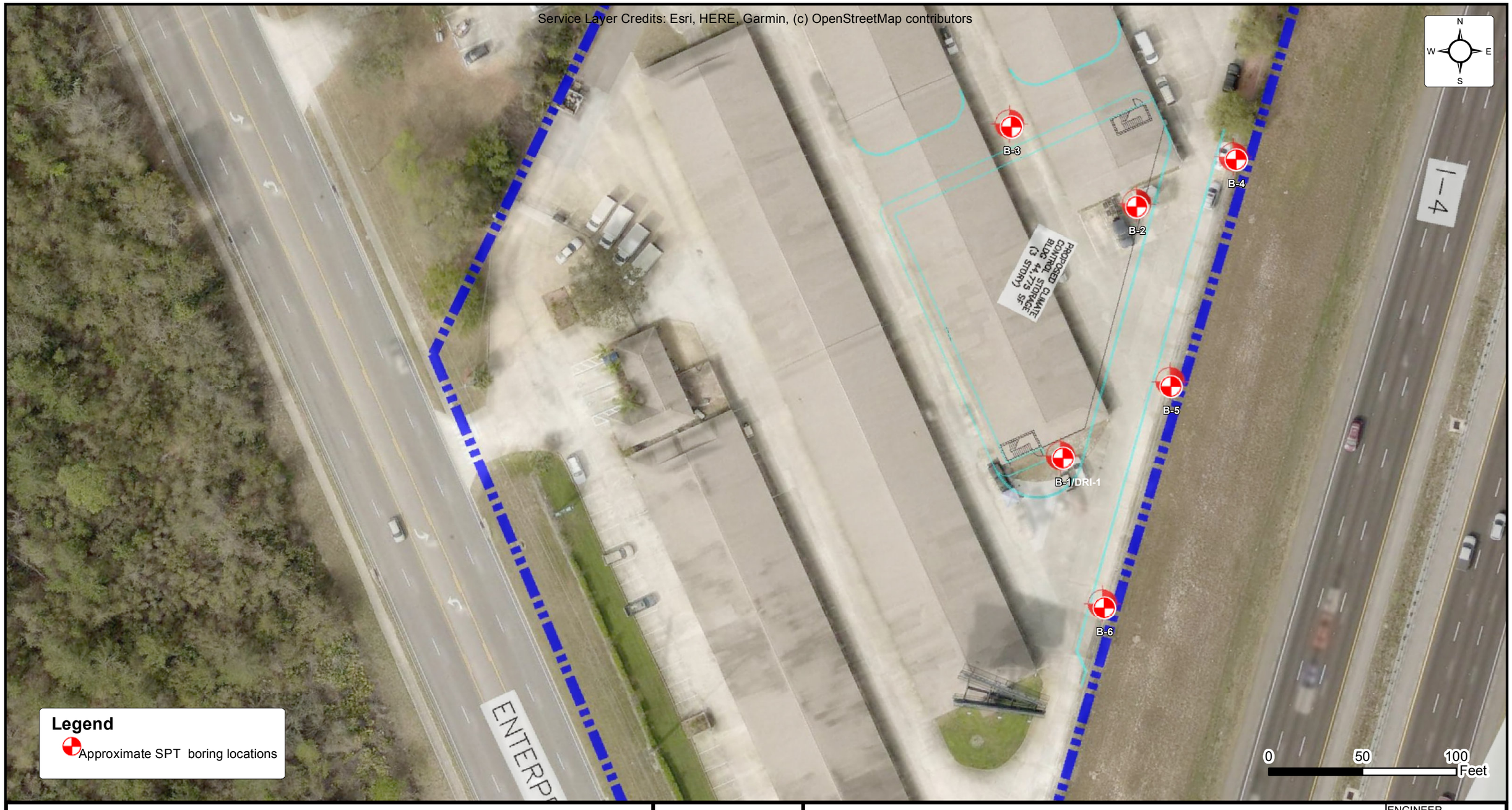
SITE LOCATION DIAGRAM

LIFE STORAGE

LIFE STORAGE - DEBARY

3075 ENTERPRISE ROAD, DEBARY, FLORIDA

ENGINEER	DS05
SCALE	AS NOTED
PROJECT NO.	56:1394
SHEET	1 OF 1
DATE	7/6/2021



BORING LOCATION DIAGRAM

LIFE STORAGE

LIFE STORAGE - DEBARY

3075 ENTERPRISE ROAD, DEBARY, FLORIDA

ENGINEER	DS05
SCALE	AS NOTED
PROJECT NO.	56:1394
SHEET	1 OF 1
DATE	7/6/2021

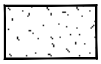
APPENDIX B – Field Operations

Reference Notes for Boring Logs
Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
Boring Logs B-1 through B-6

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]


ASPHALT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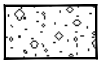
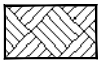
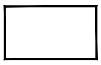
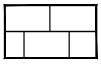

GRAVEL

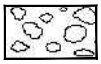

TOPSOIL

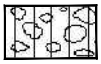

VOID


BRICK

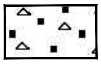

AGGREGATE BASE COURSE

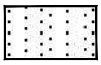

GW **WELL-GRADED GRAVEL**
gravel-sand mixtures, little or no fines

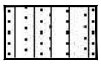

GP **POORLY-GRADED GRAVEL**
gravel-sand mixtures, little or no fines


GM **SILTY GRAVEL**
gravel-sand-silt mixtures

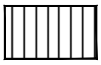

GC **CLAYEY GRAVEL**
gravel-sand-clay mixtures

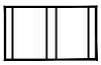

SW **WELL-GRADED SAND**
gravelly sand, little or no fines

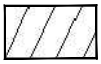

SP **POORLY-GRADED SAND**
gravelly sand, little or no fines


SM **SILTY SAND**
sand-silt mixtures

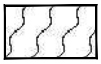

SC **CLAYEY SAND**
sand-clay mixtures

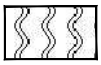

ML **SILT**
non-plastic to medium plasticity

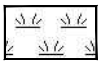

MH **ELASTIC SILT**
high plasticity


CL **LEAN CLAY**
low to medium plasticity


CH **FAT CLAY**
high plasticity


OL **ORGANIC SILT or CLAY**
non-plastic to low plasticity


OH **ORGANIC SILT or CLAY**
high plasticity


PT **PEAT**
highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	3 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

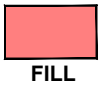

WL (First Encountered)


WL (Completion)


WL (Seasonal High Water)


WL (Stabilized)

FILL AND ROCK


FILL


POSSIBLE FILL


PROBABLE FILL


ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 12 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT test is typically performed for every two to five feet

- Obtain two-inch diameter soil sample

**Drilling Methods May Vary—* The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-1**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Life Storage - Debary	**Renegade Drilling, LLC**

SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**

LOSS OF CIRCULATION

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
-25756.8	**2999242.0**		

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Topsoil Thickness[6.00"] (SP) FINE SAND, brown, gray and tan, moist, loose		0	2-2-3-6 (5)
	S-2	SS	24	24				3-3-3-3 (6)
5	S-3	SS	24	24			-5	2-2-2-2 (4)
	S-4	SS	24	24				2-2-2-2 (4)
	S-5	SS	24	24				3-3-3-3 (6)
10					(SC) CLAYEY FINE SAND, light tan, saturated, medium dense		-10	
	S-6	SS	18	18				6-7-8 (15)
15							-15	
	S-7	SS	18	18				6-6-10 (16)
20							-20	
	S-8	SS	18	18				4-5-6 (11)
25					**END OF DRILLING AT 25.0 FT**		-25	
30							-30	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

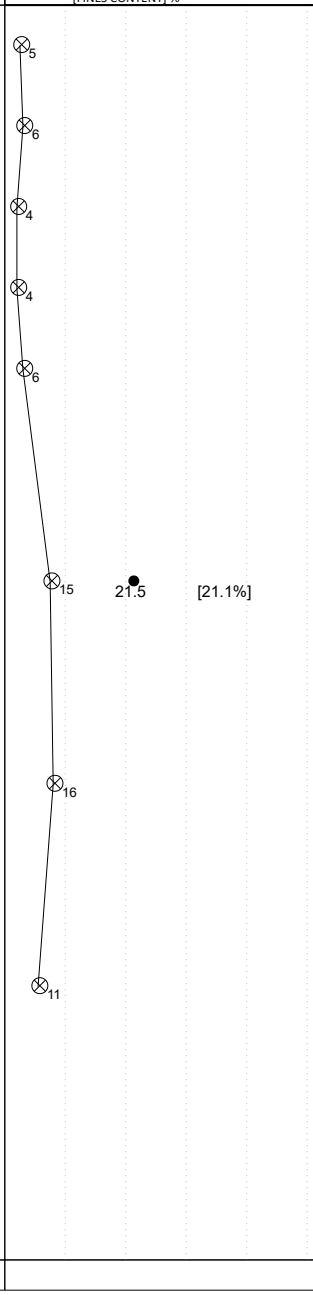
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Jun 18 2021**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **Jun 18 2021**		HAMMER TYPE: **Auto**
WL (Seasonal High Water)	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Mud-Rotary**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-2**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Life Storage - Debary	**Renegade Drilling, LLC**		
SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**			LOSS OF CIRCULATION
NORTHING: **-25621.6**	EASTING: **2999277.3**	STATION:	SURFACE ELEVATION: / BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Concrete Thickness[3.00"] (SP) FINE SAND, orange, brown and tan, moist to saturated, loose		0	3-4-2-2 (6)
	S-2	SS	24	24				1-2-2-2 (4)
5	S-3	SS	24	24			-5	2-1-2-2 (3)
	S-4	SS	24	24				3-2-2-3 (4)
	S-5	SS	24	24		▼ ▽		2-3-3-4 (6)
10							-10	
	S-6	SS	18	18				3-3-3 (6)
15					(SP-SC) FINE SAND WITH CLAY, light tan gray, saturated, loose		-15	
	S-7	SS	18	18				3-2-4 (6)
20					(SC) CLAYEY FINE SAND, light tan, saturated, medium dense		-20	
	S-8	SS	18	18				10-7-7 (14)
25					**END OF DRILLING AT 25.0 FT**		-25	
30							-30	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

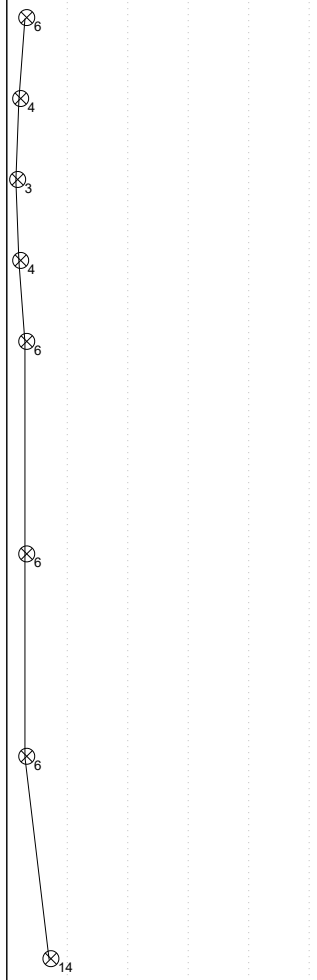
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **9.50**	BORING STARTED: **Jun 18 2021**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jun 18 2021**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water) **8.00**	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Mud-Rotary**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-3**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Life Storage - Debary	**Renegade Drilling, LLC**

SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**

LOSS OF CIRCULATION

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
-25581.3	**2999209.2**		

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Concrete Thickness[3.00"] (SP) FINE SAND, orange, brown and tan, moist to saturated, loose to medium dense		0	4-4-4-8 (8)
	S-2	SS	24	24				6-5-5-4 (10)
5	S-3	SS	24	24			-5	2-3-3-3 (6)
	S-4	SS	24	24				3-3-4-8 (7)
	S-5	SS	24	24				3-2-2-3 (4)
10							-10	
	S-6	SS	18	18				3-2-2 (4)
15					(SP-SC) FINE SAND WITH CLAY, light tan gray, saturated, medium dense		-15	
	S-7	SS	18	18				9-11-11 (22)
20							-20	
	S-8	SS	18	18				5-7-7 (14)
25					**END OF DRILLING AT 25.0 FT**		-25	
30							-30	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

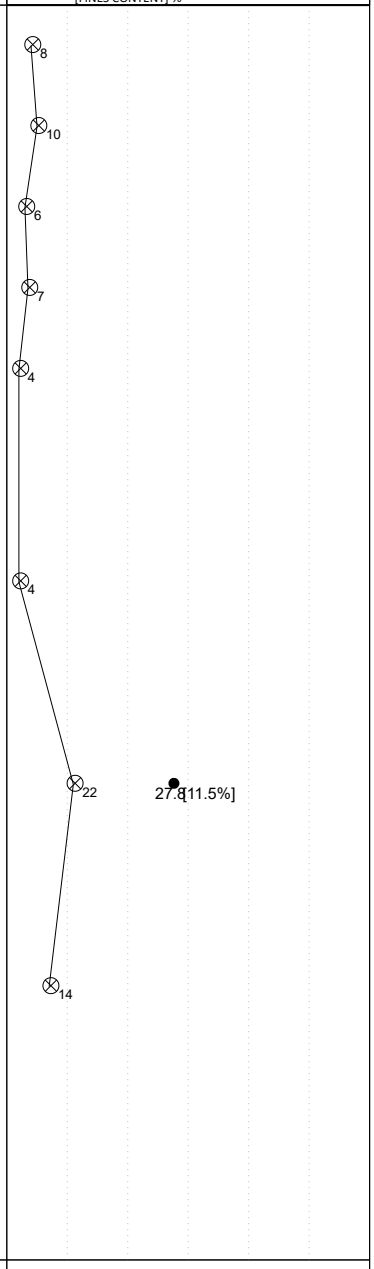
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Jun 18 2021**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **Jun 18 2021**		HAMMER TYPE: **Auto**
WL (Seasonal High Water)	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Mud-Rotary**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-4**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Life Storage - Debary	**Renegade Drilling, LLC**

SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**

LOSS OF CIRCULATION

BOTTOM OF CASING

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
-25594.9	**2999329.4**		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Concrete Thickness[3.00"] (SP) FINE SAND, orange, brown and tan, moist to saturated, loose to medium dense		0	5-3-3-3 (6)
	S-2	SS	24	24				2-2-2-2 (4)
5	S-3	SS	24	24			-5	3-3-3-5 (6)
	S-4	SS	24	24				3-4-4-6 (8)
	S-5	SS	24	24		▼ ▽		3-4-4-4 (8)
10							-10	
	S-6	SS	18	18				3-4-5 (9)
15					**END OF DRILLING AT 15.0 FT**		-15	
20							-20	
25							-25	
30							-30	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

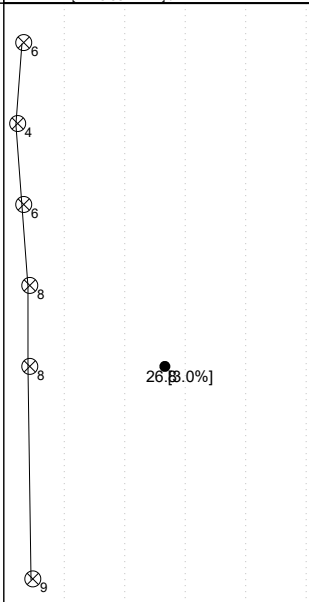
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	**9.50**	BORING STARTED: **Jun 17 2021**		CAVE IN DEPTH:
▼ WL (Completion)		BORING COMPLETED: **Jun 17 2021**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	**8.00**	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Mud-Rotary**
▽ WL (Stabilized)				

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-5**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Life Storage - Debary	**Renegade Drilling, LLC**		
SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**			LOSS OF CIRCULATION
NORTHING: **-25716.7**	EASTING: **2999298.5**	STATION:	SURFACE ELEVATION: / BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Concrete Thickness[4.00"] (SP) FINE SAND, orange, brown and tan, moist to saturated, loose		0	3-2-2-3 (4)
	S-2	SS	24	24				2-1-2-2 (3)
5	S-3	SS	24	24			-5	2-2-2-3 (4)
	S-4	SS	24	24		▼		3-3-3-4 (6)
	S-5	SS	24	24		▽		2-3-3-3 (6)
10					(SC) CLAYEY FINE SAND, light tan, saturated, medium dense		-10	
	S-6	SS	18	18				4-5-5 (10)
15					**END OF DRILLING AT 15.0 FT**		-15	
20							-20	
25							-25	
30							-30	

Plastic Limit Water Content Liquid Limit
X———●———△
⊗ STANDARD PENETRATION BLOWS/FT
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
○ CALIBRATED PENETROMETER TON/SF
[FINES CONTENT] %

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **9.00**	BORING STARTED: **Jun 17 2021**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jun 17 2021**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water) **7.50**	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Mud-Rotary**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Life Storage	**56:1394**	**B-6**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Life Storage - Debary	**Renegade Drilling, LLC**

SITE LOCATION: **3075 Enterprise Road, DeBary, Florida 32713**

LOSS OF CIRCULATION

BOTTOM OF CASING

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
-25836.0	**2999266.6**		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	SS	24	24	Concrete Thickness[4.00"] (SP) FINE SAND, brown, gray and tan, moist to saturated, loose to medium dense		0	4-4-5-5 (9)
	S-2	SS	24	24				3-3-3-4 (6)
5	S-3	SS	24	24			-5	2-2-2-3 (4)
	S-4	SS	24	24				3-4-5-3 (9)
	S-5	SS	24	24		▽		3-3-4-6 (7)
10						▽	-10	
	S-6	SS	18	18				4-5-5 (10)
15					**END OF DRILLING AT 15.0 FT**		-15	
20							-20	
25							-25	
30							-30	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

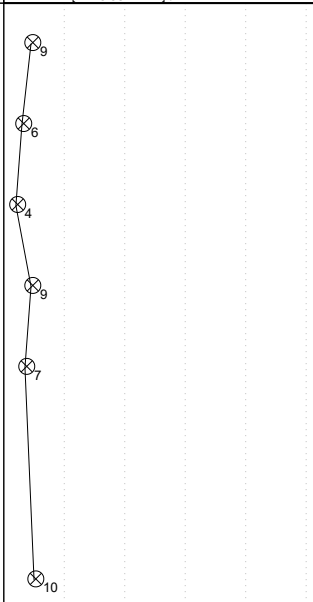
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered)	**9.50**	BORING STARTED: **Jun 17 2021**	CAVE IN DEPTH:
▼ WL (Completion)		BORING COMPLETED: **Jun 17 2021**	HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	**8.00**	EQUIPMENT: **Track**	LOGGED BY: DRILLING METHOD: **Mud-Rotary**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

Appendix C – Laboratory Testing Results

Laboratory Summary

Laboratory Testing Summary

Sample Source	Sample Number	Start Depth (feet)	End Depth (feet)	Sample Distance (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Organic Content
							LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
B-1	S-6	13.5	15.0	1.5	21.5	SC				21.1				
B-3	S-7	18.5	20.0	1.5	27.8	SP-SC				11.5				
B-4	S-5	8.0	10.0	2.0	26.8	SP				3.0				

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ration, OC: Organic Content (ASTM D 2974)

Project No. 56:1394
Project Name: Life Storage - Debary
PM: Vinay Kumar Arebelli
PE: David Spangler
Printed On: July 6, 2021

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