



SITE PLAN REVIEW COMMITTEE MEETING ZEPHYRHILLS, FLORIDA

**Tuesday, August 15, 2023
9:30 AM**

5335 8th Street, Zephyrhills Fl 33542

**Zephyrhills
City Hall**

**Council
Chambers**

The city will maintain a quorum in the Council Chambers but will host a GoTo meeting to allow the public/applicants to attend virtually. Please use the following information to access the meeting.

Site Plan Review Committee

Aug 15, 2023, 9:30 AM – 12:00 PM (America/New_York)

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Call to Order –Todd Vandeberg

1. PLANNING ITEMS

1.1 SPR-66-23 - Brooke-Lyn Townhomes –

A review of a 4.5 Acre (mol) Parcel with 55 townhomes. The City recently annexed the parcel into the City with an R-4 zoning designation and an RU FLU in the fall of 2022.

1. Brooke-Lyn Townhomes (7-17-23)Full Set_SS
2. Stormwater Drainage Report - 07-06-23._SS

1.2 ANX-0020-23 Mister Carwash 6353 Gall Blvd

Annexation of property for proposed carwash. The property size is 1.09 acres. Currently

Zoned County C2 (general commercial).

1. Mister Car Wash Conceptual Plan
2. Site Plan

1.3 SPRC-0057-22 Cottages at Abbott Station

A review of Preliminary Plan for a Multi-Family project in "Area K" – Silver Oaks Village consisting of 176 units and a clubhouse / pool on 11.96 acres.

1. Cottages at Abbott Station - Preliminary Plan
2. Proposed Cottages Design
3. Concept Plan

1.4 PUD0014-22 Advent Health

Parcel#35-25-21-0010-06900-002- & 35-25-21-0010-08500-0010. The property size is 15.16 acres. Current Vacant lot is Zoned PUD (Planned Unit Development) proposing for RU (residential Urban).

1. Advent Zephyrhills Conceptual Site Plan 8-9-23

ADJOURN

*** PLEASE NOTE: This is a Public Meeting. Should any interested party seek to appeal any decision made by the Council with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be based. F.S. 286.0105. If you are a person with a disability which requires reasonable accommodation in order to participate in this meeting, please contact the City Clerk at 813/780-0000 at least 48 hours prior to the public hearing. A.D.A. and F.S. 286.26.**

STAFF REPORT

To:

From:

RE: SPR-66-23 - Brooke-Lyn Townhomes –
A review of a 4.5 Acre (mol) Parcel with 55 townhomes. The City recently annexed the parcel into the City with an R-4 zoning designation and an RU FLU in the fall of 2022.

Date: August 15, 2023

I. BACKGROUND & INFORMATION

- A. History | Application Summary
- B. Site Information
 - 1. Applicant/Owner:
 - 2. File #:
 - 3. Historic Designation:
 - 4. Acreage:
 - 5. Existing Land Use:
 - 6. Current FLU:
 - 7. Proposed FLU:
 - 8. Existing Zoning:
 - 9. Current Zoning:

II. DATA & ANALYSIS

- A. Character Analysis
- B. Compatibility Analysis
- C. Natural & Historic Resources Analysis
- D. Public Service Analysis & Impact
- E. Comprehensive Plan Consistency

III. RECOMMENDATION

- A. Staff / Site Plan Review Committee
- B. Historic Preservation Board
- C. Planning Commission
- D. Board of Adjustment

SITE DEVELOPMENT PLANS FOR BROOKE-LYN TOWNHOMES

WIRE ROAD AT DRIFTWOOD ROAD ZEPHYRHILLS, FL PASCO COUNTY

PARCEL ID# 02-26-21-0010-03600-0000 / 02-26-21-0010-03600-0010

PROJECT DATA

TOTAL PROJECT ACREAGE: 4.92 ACRES DEVELOPABLE AREA

BUILDING BREAKDOWN:

A UNITS 1,532 SF EACH: 16 UNITS (24,512 SF)

B UNITS 1,516 SF EACH: 16 UNITS (24,256 SF)

C UNITS 1,624 SF EACH: 23 UNITS (37,352 SF)

TOTAL UNITS SF: 55 UNITS (86,120 SF)

MAX. DENSITY ALLOWABLE: 20 DU/AC = 99 UNITS

PROPOSED PROVIDED BY PUD = 55 UNITS

JURISDICTION: CITY OF ZEPHYRHILLS

EXISTING USE: VACANT LAND/NO EXISTING STRUCTURES

ZONING: R-4 HIGH DENSITY RESIDENTIAL

TOTAL OF 55 UNITS PROVIDED FOR BY PUD DEED RESTRICTION

ABUTTING:

NORTH: AR

EAST: PUD - PLANNED UNIT DEVELOPMENT

WEST: M1 - MOBILE HOME SUBDIVISION

SOUTH: M3 - RECREATIONAL VEHICLE PARK

PROPOSED USE: TOWNHOME / RESIDENTIAL

BUILDING HEIGHT:

ALLOWED: 35 FT.

PROPOSED: 26.5 FT.

PROPOSED F.A.R. = 86,120/214,315=0.40

SETBACKS:

REQUIRED:

F - 30' (FROM EXISTING ROW)

S - 20' (FROM PROPERTY BOUNDARY)

F - 15' (INTERNAL)(LDC 2.01.03.06.01(K)(2)

S - 20' (INTERNAL)

R - 20' (INTERNAL)

PROVIDED:

F - 35'

S - 20'

F - 18' & 20'

S - 20'

R - 20'

REQUIRED LANDSCAPED OPEN SPACE: 30%

PROPOSED LANDSCAPE OPEN SPACE: 30%

REQUIRED/PROVIDED BUFFERS: (ROW OR PROPERTY BOUNDARY)

REQUIRED:

F - 10'

S - 10'

R - 10'

PROVIDED:

F - 10'

S - 10'

R - 10'

PARKING REQUIREMENTS FOR PROPOSED USE:

REQUIRED:

2 SPACES PER UNIT = 55 UNITS X 2 = 110

1 VISITOR SPACE PER 5 TOWNHOMES = 55 UNITS/5 = 11

PARKING SPACES PROVIDED:

UNIT PARKING = 110 (ONE GARAGE PARKING SPACE, ONE DRIVEWAY)

VISITOR PARKING = 12 SPACES

RECREATION AREA PARKING = 4 SPACES

TOTAL VISITOR/RECREATION SPACE = 16 SPACES (2 H/C INCLUDED)

AGENCY AND UTILITY CONTACTS

CITY PLANNING DEPARTMENT:
5335 8th STREET
ZEPHYRHILLS, FL 33542
PHONE: (813) 780-0006
CONTACT: TODD VANDE BERG, DIR.
EMAIL:

CITY UTILITIES DEPARTMENT:
39825 ALSTON AVENUE
ZEPHYRHILLS, FL 33542
CONTACT: JOHN BOSTIC
PHONE: (813) 780-0029
EMAIL:

GAS:
TECO PEOPLES GAS
1400 CHANNELSIDE DR
TAMPA, FL 33605
CONTACT: JACK EVERIDGE
PHONE: (813) 309-5966
EMAIL:

CITY BUILDING DEPARTMENT:
5335 8th STREET
ZEPHYRHILLS, FL 33542
PHONE: (813) 780-0020
CONTACT: BILL BURGESS
EMAIL:

CITY FIRE DEPARTMENT:
FIRE STATION No. 1
6907 DAIRY ROAD
ZEPHYRHILLS, FL 33542
CONTACT: DANIEL SPILLMAN
PHONE: (813) 780-0041
EMAIL:

POWER:
2501 25TH ST N
ST PETERSBURG, FL 33713
CONTACT: MEGAN VONSTETINA
PHONE: (717) 893-9394
EMAIL:



SECTION 02, TOWNSHIP 26 SOUTH, RANGE 21

GENERAL NOTES:

1. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD CONDITIONS WHEN POSSIBLE, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF THE CLEARANCES ARE LESS THAN SPECIFIED ON THE PLANS OR 12", WHICHEVER IS LESS, CONTACT COMMERCIAL SITE SOLUTIONS, INC. (885-813-2032) AND OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
2. THE CONTRACTOR SHALL INCLUDE IN HIS CONTRACT PRICE THE REMOVAL AND DISPOSAL OF ANY EXCESS TOPSOIL HE DETERMINES IS NOT REQUIRED TO PERFORM THE FINAL GRADING AND LANDSCAPING OPERATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL REQUIRED/NECESSARY SHEETINGS, SHORING, AND SPECIAL EXCAVATION MEASURES REQUIRED ON THE PROJECT TO MEET OSHA, FEDERAL, STATE AND LOCAL REGULATIONS PURSUANT TO THE INSTALLATION OF THE WORK INDICATED ON THE DRAWINGS. OWNER AND COMMERCIAL SITE SOLUTIONS, INC. ACCEPT NO RESPONSIBILITY FOR THE DESIGN TO INSTALL SAID ITEMS.
4. CALL FLORIDA ONE CALL: UTILITY LOCATOR SERVICE 72 HOURS IN ADVANCE OF DIGGING AT 1-800-432-4770.
5. ALL WORK SHALL CONFORM TO CITY OF ZEPHYRHILLS STANDARDS AND SPECIFICATIONS.
6. ALL CURB/HANDICAP RAMP DESIGNS SHALL CONFORM TO ADA OR CITY OF ZEPHYRHILLS STANDARDS, WHICHEVER IS MORE RESTRICTIVE.
7. PRE-CAST DRAINAGE AND SANITARY SEWER STRUCTURES HAVE BEEN SPECIFIED ON THE PLANS. OWNER AND COMMERCIAL SITE SOLUTIONS, INC., HOWEVER, ASSUME NO RESPONSIBILITY FOR THESE STRUCTURES AS FIELD CONDITIONS DURING CONSTRUCTION OFTEN DICTATE MINOR ELEVATION ADJUSTMENTS. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY AND EXPENSE FOR MODIFYING THESE STRUCTURES TO ACCOMMODATE THESE FIELD ADJUSTMENTS.
8. THE CONTRACTOR SHALL INCLUDE IN THE CONTRACT PRICE DAILY RECORD KEEPING OF THE AS-BUILT CONDITION OF ALL OF THE UNDERGROUND UTILITIES. CONSTRUCTION STAKEOUT ASSOCIATED WITH THE PROJECT, PREPARATION OF THE NECESSARY/REQUIRED AS-BUILT WATER AND SEWER PLANS TO BE SUBMITTED TO CITY OF ZEPHYRHILLS PUBLIC WORKS DEPARTMENT AND/OR FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND ALL OTHER INFORMATION REQUIRED IN CONNECTION WITH OBTAINING PERMITS TO OPERATE AND RELEASE OF BONDS.
9. ALL WATER LINE AND SEWER LINE INSTALLATION SHALL CONFORM TO THE STANDARDS AND DETAILS OF CITY OF ZEPHYRHILLS UTILITY DEPARTMENT, AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION CONSTRUCTION PERMIT.
10. A COPY OF THE FINANCIAL RESPONSIBILITY FORM AND THE STORM WATER POLLUTION PREVENTION PLAN MUST BE KEPT ON THE WORK SITE AND SHOWN UPON REQUEST.
11. THE CONTRACTOR SHALL INCLUDE IN THE CONTRACT PRICE ALL MATERIAL AND LABOR ASSOCIATED WITH THE TESTING OF THE WATER AND SEWER LINES REQUIRED BY CITY OF ZEPHYRHILLS UTILITIES AND CITY OF ZEPHYRHILLS BUILDING DEPARTMENT AND FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
12. THE CONTRACTOR SHALL INCLUDE IN THE CONTRACT PRICE ANY DE-WATERING NECESSARY TO CONSTRUCT THE PROJECT AS SHOWN ON THE PLANS.
13. SEDIMENT CONTROL MEASURES MUST BE INSPECTED AND MAINTAINED REGULARLY TO INSURE THAT THE INTENDED PURPOSES ARE ACCOMPLISHED.
14. ALL DRAINAGE STRUCTURES MUST MEET FDOT AND CITY OF ZEPHYRHILLS STANDARD SPECIFICATIONS.
15. ALL SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE PROVIDED SITE WORK SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL WITHIN RIGHT OF WAY. THIS IS TO BE DONE IN ACCORDANCE WITH M.U.T.C.D.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR RAZING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.
17. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
18. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
19. ALL CONSTRUCTION WITHIN STATE HIGHWAY DEPARTMENT RIGHT-OF-WAY SHALL BE COORDINATED WITH THE HIGHWAY DEPARTMENT RESIDENT MAINTENANCE ENGINEER.
20. ALL SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE RELEVANT UTILITY COMPANY OR REGULATORY AUTHORITY, AND THE SPECIFICATIONS FOR THE CONSTRUCTION OF THE EXISTING IMPROVEMENTS WHICH ARE BEING ALTERED OR REPLACED. CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIFICATION SECTIONS FOR ITEMS SUCH AS LANDSCAPING AND IRRIGATION THAT ARE AFFECTED BY THE WORK BUT NOT COMPLETELY DETAILED OR SPECIFIED ON THESE PLANS.

WARRANTY/DISCLAIMER:

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

SAFETY NOTICE TO CONTRACTOR:

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.

CONTACT LIST

OWNER/DEVELOPER: KTR Investment Group, LLC.
CONTACT: KEVIN RYMAN
6814 OAKCREST WAY
ZEPHYRHILLS, FL 22524
PHONE: (813) 782-0825
EMAIL: KEVIN@RYMANCONSTRUCTION.COM

ENGINEER: COMMERCIAL SITE SOLUTIONS, INC.
CONTACT: SCOTT STANNARD, P.E.
21764 STATE ROAD 54
LUTZ, FL 33549
PHONE: 813-885-2032
EMAIL: SSTANNARD@CSS-ENG.COM

SURVEYOR: TERRAMETRIX, LLC
CONTACT: CRAIG WARD, PLS
5353 GULF BOULEVARD
SAINT PETE BEACH, FL 33706
PHONE: 727-289-2113
EMAIL: WCWPLS4815@HOTMAIL.COM

DRAWING LIST

	SHEET NO.
COVER SHEET	C-0.0
GENERAL NOTES	C-1.0
TOPOGRAPHIC AND BOUNDARY SURVEY	C-2.0
SITE DEMOLITION PLAN	C-3.0
SITE PLAN	C-4.0
DIMENSIONING PLAN	C-4.1
SITE DETAILS	C-5.0
SITE DETAILS SIGNING & MARKING	C-5.1
GRADING PLAN	C-6.0
PLAN & PROFILES ROAD A	C-7.0
PLAN & PROFILE ROAD B	C-7.1
SECTIONS	C-7.2
DRAINAGE PROFILES	C-7.3
GRADING & DRAINAGE DETAILS	C-7.4
GRADING & DRAINAGE DETAILS	C-7.5
SWPPP & EROSION CONTROL PLAN PHASE 1	C-8.0
SWPPP & EROSION CONTROL PLAN PHASE 2	C-8.1
SWPPP & EROSION CONTROL DETAILS	C-9.0
SWPPP & EROSION CONTROL DETAILS	C-9.1
SWPPP & EROSION CONTROL DETAILS	C-9.2
SWPPP & EROSION CONTROL NOTES	C-9.3
UTILITY PLAN	C-10.0
UTILITY WATER DETAILS	C-11.0
UTILITY WATER DETAILS	C-11.1
UTILITY SANITARY SEWER DETAILS	C-11.2
LIFT STATION DETAILS	C-11.3
MOT FDOT STANDARD	C-12.0
LANDSCAPE PLAN	L-1.0
LANDSCAPE DETAILS	L-2.0
(29)	

ISSUE FOR:

CITY REVIEW FIRST SUBMITTAL	5-8-2023
CITY UTILITY REVISION	5-22-2023
SWFMD REVIEW FIRST SUBMITTAL	7-17-2023
PASCO COUNTY ROW USE FIRST SUBMITTAL	7-17-2023
CITY RESUBMITTAL SUBMITTAL	7-17-2023

ENGINEER:



COMMERCIAL SITE SOLUTIONS, INC.
SITE PLANNING • ENGINEERING • LANDSCAPE ARCHITECTS
21764 STATE ROAD 54
LUTZ, FL 33549
813-885-2032
402 EAST 1ST AVENUE
EASLEY, SC 29640
864-855-5200

Digitally signed by
Scott Stannard
Date: 2023.07.18 09:20:03 -04'00'

OWNER/DEVELOPER:

KTR Investment Group
Contact: KEVIN RYMAN
6814 OAKCREST WAY, ZEPHYRHILLS, FL 22542
PH: (813) 782-0825 (OFFICE)

UTILITY NOTES

1. ALL SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE STATE OF FLORIDA AND THE CITY OF ZEPHYRHILLS UTILITIES.

2. WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 36" OF COVER UNLESS OTHERWISE NOTED. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF ZEPHYRHILLS UTILITIES.

3. VALVES SHALL BE RESILIENT SEAT GATE VALVES, DIRECT BURY WITH A VALVE BOX (AWWA C509).

4. 6" WATER LINE ON-SITE SHALL BE C900 RATED PVC. ALL SERVICE LINES LESS THAN 3" IN DIAMETER SHALL BE PE.

5. SEWER LINES (INCLUDING LATERALS) SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 PER ASTM D-3034.

6. SEWER CLEANOUTS SHALL BE IN ACCORDANCE WITH THE CITY OF ZEPHYRHILLS UTILITIES DETAILS AND SPECIFICATIONS.

7. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT UTILITY EXIT POINTS, EXIT PORCHES, ETC.

8. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD LOCATIONS WHEN POSSIBLE, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED ON THE PLAN OR 12", WHICHEVER IS LESS, CONTACT THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

9. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND/OR FINAL CONNECTION OF SERVICES.

10. A MINIMUM OF 10 FEET HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN WATER AND SEWER LINES. THE VERTICAL SEPARATION IS TO BE A MINIMUM OF 18".

11. REFER TO THE PHOTOMETRIC AND ARCHITECTURAL PLANS FOR SITE LIGHTING ELECTRICAL DESIGN AND LAYOUT.

12. ALL SITEWORK SHALL MEET OR EXCEED THE CITY OF ZEPHYRHILLS STANDARDS AND THE SITEWORK SPECIFICATIONS.

13. CONTRACTOR TO PROVIDE ALL TRENCHING, BACKFILLING, & INSTALL ALL ELECTRICAL CONDUITS TO UTILITY COMPANY SPECIFICATIONS.

14. LOCATION OF SITE UTILITIES SHALL BE VERIFIED BY GENERAL CONTRACTOR & THE PROPER UTILITY COMPANY PROVIDING SERVICE.

15. GENERAL CONTRACTOR SHALL PROVIDE CONCRETE APRON AT ALL CLEANOUTS OUTSIDE OF BUILDING PER CITY OF ZEPHYRHILLS STANDARD DETAIL S-14.

16. GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR ALL TAP AND TIE ON FEES REQUIRED, AS WELL AS COST OF UNDERGROUND SERVICE CONNECTIONS TO THE BUILDING.

17. ELECTRICAL SERVICE TO PAD MOUNTED TRANSFORMER SHALL BE RUN UNDERGROUND, FROM ROAD RIGHT-OF-WAY TO BUILDING. ASSOCIATED MATERIALS AND COST BY GENERAL CONTRACTOR.

18. ALL ELECTRIC AND TELEPHONE EXTENSIONS INCLUDING SERVICE LINE SHALL BE CONSTRUCTED TO THE APPROPRIATE UTILITY COMPANY SPECIFICATIONS. ALL UTILITY DISCONNECTIONS SHALL BE COORDINATED WITH THE DESIGNATED UTILITY COMPANIES.

19. RESTRAINED JOINTS SHALL BE PROVIDED AT ALL BENDS, TEES, AND FIRE HYDRANTS.

20. DIMENSIONS SHOWN ARE TO CENTERLINE OF PIPE OR FITTING.

21. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.

22. GENERAL CONTRACTOR SHALL HAVE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THIS SYSTEM PRIOR TO INSTALLATION.

POTABLE WATER PIPING SPECIFICATIONS

DUCTILE IRON PIPE (DIP) (CL-50) & FITTINGS - ALL SIZES CEMENT MORTAR LINED

PVC WATER MAINS 4 INCHES THROUGH 12 INCHES SHALL BE IN ACCORDANCE WITH AWWA C-900 (DR18) STANDARDS.

PVC WATER MAINS 2 INCHES TO 3 INCHES SHALL BE CLASS 1120 OR 1220 (SDR 21) AND SHALL MEET REQUIREMENTS OF ASTM D-2241.

POLYETHYLENE PLASTIC PIPE 2 INCHES OR SMALLER SHALL MEET THE REQUIREMENTS OF ASTM D-3350 ANSI/AWWA C901, (SDR9)

HDPE 4 INCHES AND UP SHALL BE C-906 SDR 11

PVC FIRE LINE TO BE C-900 DR 14 OR AS SPECIFIED ON PLANS AND/OR IN STANDARD DETAILS.

WASTEWATER PIPING SPECIFICATIONS

ALL ON-SITE PVC WASTEWATER MAINS 4 INCHES THROUGH 12 INCHES SHALL BE IN ACCORDANCE WITH AWWA C-900 (SDR 35 AND/OR SDR 26 AS SPECIFIED ON PLAN)

WATER SYSTEM TESTING NOTES:

1. ALL COMPONENTS OF THE WATER SYSTEM, INCLUDING FITTINGS, HYDRANTS, CONNECTIONS, AND VALVES SHALL REMAIN UNCOVERED UNTIL PROPERLY PRESSURE TESTED AND ACCEPTED BY THE OWNER AND CITY OF ZEPHYRHILLS. PRESSURE TEST TO BE IN ACCORDANCE WITH CITY OF ZEPHYRHILLS SPECIFICATIONS. NOTIFY OWNER AND CITY OF ZEPHYRHILLS INSPECTORS 3 WORKING DAYS IN ADVANCE OR PERFORMING TEST.

2. CONTRACTOR SHALL PRESSURE TEST WATER MAINS AT 150 PSI FOR A PERIOD OF 2 HOURS IN ACCORDANCE WITH AWWA C600-87 STANDARDS. CONTRACTOR SHALL NOTIFY THE ENGINEER AND CITY OF ZEPHYRHILLS AT LEAST 72 HOURS PRIOR TO START OF ANY TEST. THE CONTRACTOR SHALL MAKE ALL NECESSARY APPLICATIONS AND ARRANGEMENTS.

3. CONTRACTOR TO PERFORM CHLORINATION AND COORDINATE BACTERIOLOGICAL SAMPLING WITH CITY OF ZEPHYRHILLS CONSTRUCTION INSPECTION SECTION IN ACCORDANCE WITH CITY OF ZEPHYRHILLS STANDARDS AND CONSTRUCTION SPECIFICATIONS AS WELL AS DEP SPECIFICATIONS FOR BACTERIOLOGICAL SAMPLING AND TESTING.

4. CONTRACTOR IS TO ASSURE THAT ALL AS-BUILT SURVEY DATA IS RECORDED AND TRANSFERRED TO THE EOR PRIOR TO COVERING OF ANY UTILITIES TO COMPLY WITH AS BUILT SURVEY REQUIREMENTS.

HAZARDOUS MATERIAL MANAGEMENT & SPILL REPORTING:

ANY HAZARDOUS OR POTENTIALLY HAZARDOUS MATERIAL THAT IS BROUGHT ONTO THE CONSTRUCTION SITE SHALL BE HANDLED PROPERLY TO REDUCE THE POTENTIAL FOR STORMWATER POLLUTION. ALL MATERIALS USED ON THIS CONSTRUCTION SITE SHALL BE PROPERLY STORED, HANDLED, DISPENSED, AND DISPOSED OF FOLLOWING ALL APPLICABLE LABEL DIRECTIONS. FLAMMABLE AND COMBUSTIBLE LIQUIDS SHALL BE STORED AND HANDLED ACCORDING TO APPLICABLE REGULATIONS AND, AT A MINIMUM, ACCORDING TO 29 CFR 1926.152. ONLY APPROVED CONTAINERS AND PORTABLE TANKS SHALL BE USED FOR STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.

MATERIALSAFETY DATA SHEET (MSDS) INFORMATION SHALL BE KEPT ON SITE FOR ANY AND ALL APPLICABLE MATERIALS. HOWEVER, MSDS MAY ALSO BE ACCESSED VIA TELEPHONE OR OTHER ELECTRONIC MEANS OR APPARATUS.

IN EVENT OF AN ACCIDENTAL SPILL, IMMEDIATE ACTION SHALL BE TAKEN BY THE GC TO CONTAIN AND REMOVE THE SPILLED MATERIAL. THE SPILL SHALL BE REPORTED TO THE APPROPRIATE AGENCIES IN THE REQUIRED TIME FRAMES, AS REQUIRED UNDER THE PROVISIONS OF THE CLEAN WATER ACT, ANY SPILL OR DISCHARGE ENTERING WATER OF THE UNITED STATES SHALL BE PROPERLY REPORTED.

ALL HAZARDOUS MATERIALS, INCLUDING CONTAMINATED SOIL AND LIQUID CONCRETE WASTE SHALL BE DISPOSED OF BY THE CONTRACTOR IN THE MANNER SPECIFIED BY FEDERAL, STATE, AND LOCAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS.

THE GC SHALL PREPARE A WRITTEN RECORD OF ANY SPILL AND ASSOCIATED CLEAN-UP ACTIVITIES OR PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS IN EXCESS OF REPORTABLE QUANTITIES AS DEFINED BY THE EPA OR THE STATE OR LOCAL AGENCY REGULATIONS, SHALL BE IMMEDIATELY REPORTED TO THE EPS NATIONAL RESPONSE CENTER (1-800-424-8802) AND TO THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) THROUGH THE STATE WATCH OFFICE AT 1-800-320-0519.

THE STATE REPORTABLE QUANTITY FOR PETROLEUM PRODUCTS IS: 25 GALLONS OR GREATER PER FDEP PETROLEUM CONTAMINATION SITE CLEANUP CRITERIA, HTTP://WWW.DEP.STATE.FL.US/OER/REPORTABLE_INCIDENT.HTM

THE DISCHARGE SHALL BE REPORTED WITHIN 1 WEEK OF DISCOVERY, HOWEVER, DISCHARGE OF REPORTABLE QUANTITIES ONTO SURFACE OF LANDS OR SURFACE OF WATERS SHALL BE REPORTED TO THE STATE WATCH OFFICE OR FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION WEBSITE, BUREAU OF EMERGENCY RESPONSE, AS SOON AS POSSIBLE BY NO LATER THAN 24 HOURS AFTER OCCURRENCE.

THE REPORTABLE QUANTITY FOR HAZARDOUS MATERIALS CAN BE FOUND IN 40 CFR 302 AND ON THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION WEBSITE AT HTTP://WWW.DEP.STATE.FL.US/WATERS/STORMWATER/NPDES/DOCS/INDGUIDE/APP_H_INDGUIDE.PDF

TO MINIMIZE THE POTENTIAL FOR A SPILL OF PETROLEUM PRODUCT OR HAZARDOUS MATERIALS TO COME IN CONTACT WITH STORMWATER, THE FOLLOWING STEPS SHALL BE IMPLEMENTED:

1) ALL MATERIAL WITH HAZARDOUS PROPERTIES, SUCH AS PESTICIDE, PETROLEUM PRODUCTS, FERTILIZERS, SOAPS, DETERGENTS, CONSTRUCTION CHEMICALS, ACIDS, BASES, PAINTS, PAINT SOLVENTS, ADDITIVE FOR SOIL STABILIZATION, CONCRETE, CURING COMPOUNDS, AND ADDITIVES, ETC., SHALL BE STORED IN A SECURE LOCATION, UNDER COVER, AND IN APPROPRIATE, TIGHTLY SEALED CONTAINERS WHEN NOT IN USE.

2) THE MINIMUM PRACTICAL QUANTITY OF ALL SUCH MATERIALS SHALL BE KEPT ON THE JOB SITE AND SCHEDULED FOR DELIVERY AS CLOSE TO TIME OF USE AS PRACTICAL.

3) A SPILL CONTROL AND CONTAINMENT KIT (CONTAINING FOR EXAMPLE, ABSORBENT MATERIAL SUCH AS KITTY LITTER OR SAWDUST, ACID, BASE, NEUTRALIZING AGENT, BROOM, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, PLASTIC AND METAL TRASH CONTAINERS, ETC.) SHALL BE PROVIDED AT THE CONSTRUCTION SITE AND ITS LOCATION(S) SHALL BE IDENTIFIED WITH LEGIBLE SIGNAGE AND SHOWN ON THE SITE MAPS.
A. THE SPILL CONTROL AND CONTAINMENT KIT SUPPLIES SHALL BE OF SUFFICIENT QUANTITIES AND APPROPRIATE CONTENT TO CONTAIN A SPILL FROM THE LARGEST PIECE OF EQUIPMENT AND FROM THE LARGEST ANTICIPATED QUANTITIES OF PRODUCTS STORED ON THE SITE AT ANY GIVEN TIME.
B. CONTENTS SHALL BE INSPECTED DAILY DURING THE DAILY STORMWATER INSPECTION.

4) ALL PRODUCTS SHALL BE STORED IN AND USED FROM THE ORIGINAL CONTAINER WITH THE ORIGINAL PRODUCT LABEL. CONTAINERS MUST BE STORED IN A MANNER TO PROTECT THEM FROM THE ELEMENTS AND INCIDENTAL DAMAGE.

5) ALL PRODUCTS SHALL BE USED IN STRICT ACCORDANCE WITH THE INSTRUCTIONS ON THE PRODUCT LABELS.

6) THE DISPOSAL OF EXCESS OR USED PRODUCTS SHALL BE IN STRICT COMPLIANCE WITH INSTRUCTIONS ON THE PRODUCT LABELS AND REGULATIONS.

1. WHENEVER A CONFLICT OCCURS BETWEEN ANY SPECIFICATION AND/OR REGULATORY REQUIREMENT, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

2. THE DRAWINGS ARE CURRENTLY UNDER REVIEW BY THE WATER MANAGEMENT DISTRICT AND OTHER REGULATORY AGENCIES. THE FINAL APPROVED PLANS MAY DEVIATE CONSIDERABLY FROM THESE DRAWINGS. THE CONTRACTOR MUST ASSURE CONSTRUCTION IS IN ACCORDANCE WITH THE APPROVED DRAWINGS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO VERIFY THE CORRECT VERSION OF THE PLANS ARE BEING UTILIZED. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO INSURE ALL SUB-CONTRACTORS ON THE PROJECT HAVE THE LATEST COPIES OF THE DRAWINGS. THE ENGINEER OF RECORD WILL SUPPLY ONLY THE OWNER THE FULLY APPROVED PLANS. THE GENERAL CONTRACTOR IS TO CONTACT THE OWNER TO OBTAIN THE PLANS.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HIRE A LICENSED SURVEYOR TO PROVIDE ALL STAKEOUT WORK. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THE SURVEYOR HAVE THE MOST CURRENT SET OF DRAWINGS. THE ENGINEER OF RECORD WILL NOT SEND PLANS DIRECTLY TO THE SURVEYOR.

4. THE ENGINEER OF RECORD IS NOT RESPONSIBLE, NOR LIABLE FOR ANY STAKEOUT WORK REQUIRED FOR THE PROJECT. ANY ELECTRONIC FILES UTILIZED DURING THE STAKE OUT OF THE PROJECT ARE USED AS THE SOLE DISCRETION OF THE CONTRACTOR AND SURVEYOR. CSS INC. DOES NOT WARRANT ANY STAKEOUT INFORMATION GENERATED BY ANY THIRD PARTY.

5. THE DRAWINGS SHALL NOT BE UTILIZED FOR CONSTRUCTION PRIOR TO OBTAINING REQUIRED PERMITS FROM ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THE WORK. THE CONTRACTOR SHALL OBTAIN COPIES OF ALL PERMITS FOR WORK WITHIN PUBLIC EASEMENTS AND RIGHTS-OF-WAY AND INSURE THAT ALL OTHER REQUIRED PERMITS ARE APPROVED PRIOR TO COMMENCING THE WORK.

6. CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION OF POTABLE WATER OR SANITARY SEWER COLLECTION SYSTEMS PRIOR TO ASSURING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) PERMITS HAVE BEEN ACQUIRED. CONTRACTOR IS RESPONSIBLE TO REVIEW AND IMPLEMENT ANY SPECIFIC CONDITIONS DEPICTED ON FDEP PERMITS, WHICH MAY OR MAY NOT BE SHOWN HEREON.

7. UNLESS NOTED OTHERWISE, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", LATEST EDITION.

8. CONTRACTOR IS TO COORDINATE ALL WORK WITH UTILITY COMPANIES IN ORDER TO PREVENT DAMAGE TO UTILITY LINES AND THE MAKING OF ADJUSTMENTS TO SAME. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE VARIOUS UTILITY OWNERS PRIOR TO CONSTRUCTION.

9. SURVEY INFORMATION AND LEGAL DESCRIPTIONS SHOWN HEREON WERE OBTAINED BY WILLIAMSON AND ASSOCIATED SURVEYING INC. ELEVATIONS, LOCATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL FIELD VERIFY THIS INFORMATION AND BE FAMILIAR WITH ALL SITE CONDITIONS (INCLUDING SUB-SURFACE CONDITIONS AND UTILITIES) PRIOR TO COMMENCING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR TAKING SUCH ACTION AS NECESSARY TO ESTABLISH LOCATIONS OF UNDERGROUND UTILITIES. DAMAGES TO ANY EXISTING FACILITIES (ABOVE GROUND OR UNDERGROUND) SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, WHETHER OR NOT SHOWN HEREON. THE CONTRACTOR SHALL NOTIFY THE UNDERGROUND UTILITY NOTIFICATION CENTER (CALL SUNSHINE STATE ONE CALL AT 1-800-432-4770) 48 HOURS PRIOR TO COMMENCING ANY WORK.

10. DEMOLITION WORK SHALL NOT BE LIMITED TO THESE DOCUMENTS TO COMPLETE THE PROJECT AS SHOWN. CONTRACTOR SHALL REMOVE ALL ITEMS NECESSARY TO ALLOW FOR NEW CONSTRUCTION.

11. ALL EXISTING WELLS ON SITE ARE TO BE PROPERLY ABANDONED BY A FLORIDA LICENSED WATER WELL CONTRACTOR IN ACCORDANCE WITH RULE 40D-3.531(2), F.A.C., UNLESS OTHERWISE SHOWN.

12. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY THE FEASIBILITY OF CONSTRUCTING GRAVITY SEWER SYSTEMS (I.E. VERIFY EXISTING INVERTS AT POINTS OF CONNECTION, EXIT INVERTS OF BUILDING PLUMBING, GREASE TRAP CONFIGURATION, MINIMUM SLOPES, ETC.)

13. REFERENCED INDEX NUMBERS REFER TO DETAILS DEPICTED IN THE F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS PLANS FY-2021-22.

14. CONSTRUCTION SHOWN ON THESE PLANS IS PERMITTED ONLY FOR THE WORK LOCATED WITHIN THE PRIVATE PROPERTY. ALL WORK WITHIN THE RIGHT-OF-WAY AND EASEMENTS WILL REQUIRE A SEPARATE PERMIT AND MAY REQUIRE AN ALTERATION TO THE CONSTRUCTION OR MATERIALS SHOWN ON THESE PLANS.

15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MAINTENANCE OF TRAFFIC AND PEDESTRIAN PER APPROPRIATE FDOT SPECIFICATION. SEE FDOT INDEX NUMBER 102-100 THROUGH 102-670.

16. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF F.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION AS SUPPLEMENTED.

17. CONTRACTOR SHALL LOCATE PROPERTY LINES AS REQUIRED TO AVOID ENCROACHMENT ONTO ADJACENT PROPERTY.

18. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENT BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS, AND WATERWAYS. BARRIERS ARE TO BE BUILT BEFORE LAND ALTERATION, MAINTAINED EFFECTIVELY DURING CONSTRUCTION, AND REMOVED AFTER FINAL SOIL STABILIZATION. IN ADDITION, CONTRACTOR SHALL PLACE TEMPORARY STONE CONSTRUCTION EXIT/ENTRANCE WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER OR EXIT THE SITE. THE STONE SHALL BE CLEANED OR REPLACED REGULARLY AS NEEDED TO INSURE PROPER FUNCTION PER THE DESIGN AND DETAIL. IF, IN THE OPINION OF THE ENGINEER OR STATE/LOCAL AUTHORITIES, EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL CAUSES OR VEHICULAR TRAFFIC, THE CONTRACTOR SHALL TAKE ADDITIONAL MEASURES TO CLEAN THE ADJOINING STREET AND PREVENT FUTURE TRACK OUT.

19. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TEMPORARY CONSTRUCTION TRAFFIC RELATED ACCESS POINTS TO THE PROJECT SITE AND/OR SPECIFIC AREAS OF WORK ON THE PROJECT SITE AS NECESSARY.

20. ALL TREES TO REMAIN MUST BE PROTECTED BY TREE PROTECTION BARRICADES MEETING THE MINIMUM STANDARDS SHOWN. PROTECTIVE BARRICADES SHALL REMAIN IN PLACE UNTIL LAND ALTERATION AND CONSTRUCTION ACTIVITIES ARE COMPLETED.

21. THE WETLAND PRESERVATION AREA SHALL BE RETAINED IN A NATURAL STATE, PER THE APPROVED PERMIT, PURSUANT TO PINELLAS COUNTY, FL, LAND DEVELOPMENT CODE AS AMENDED.

22. ALL FILL SHALL CONSIST OF SATISFACTORY SOIL MATERIALS, DEFINED AS THOSE COMPLYING WITH ASTM D2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, AND SP FREE OF RUBBLE ORGANICS, CLAY, DEBRIS AND OTHER SIMILAR UNSUITABLE MATERIALS. UNSATISFACTORY SOIL MATERIALS ARE DEFINED AS THOSE COMPLYING WITH ASTM D2487 SOIL CLASSIFICATION GROUPS GC, SM, SC, ML, MH, CL, CH, OL, OH, AND PT. UNLESS OTHERWISE NOTED, ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% ASSHTO T-180, METHOD D.

23. EXISTING TREES AND LANDSCAPING SHOWN THIS PLAN, SEE TREE REMOVAL PLAN FOR TREES TO BE REMOVED OR PROTECTED.

24. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION, EXCEPT BY HAND, BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF A TREE TO REMAIN ON THE SITE UNLESS OTHERWISE APPROVED BY THE COUNTY.

25. TREE LIMBS SHALL BE PRUNED AS REQUIRED FOR NEW CONSTRUCTION, WHEN TREE LIMBS OVERHANG EXISTING OR NEW VEHICULAR USE AREAS, THE CONTRACTOR SHALL PRUNE SUCH TREES TO PROVIDE CLEARANCE MEETING THE STANDARDS SET FORTH BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. PRUNING SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.

26. ALL TRIMMING UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LDC SHALL BE PRUNED IN ACCORDANCE WITH THE ANSI A-300 PRUNING STANDARDS

27. ALL PEDESTRIAN ROUTES, CROSSWALKS, SIDEWALKS, AND RAMPS, AS WELL AS ALL HANDICAP SIGNS, SYMBOLS, PARKING SPACES, ETC. SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL ADA REQUIREMENTS WHETHER OR NOT SHOWN HEREON. CONTRACTOR SHALL VERIFY REQUIREMENTS WITH LOCAL INSPECTORS PRIOR TO POURING SIDEWALKS AND RAMPS.

28. OPEN CUTS WITHIN ROADWAYS WILL TYPICALLY REQUIRE AN ASPHALT OVERLAY, FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT, A LENGTH OF 100 FEET FOR ROADWAYS WITH 35 MPH SPEED LIMIT AND LESS OR 200 FEET FOR ROADWAYS WITH A SPEED LIMIT GREATER THAN 35 MPH. REFER TO ORANGE COUNTY "UTILITY ACCOMMODATION GUIDE AND RIGHTS-OF-WAY USE PROCEDURES MANUAL FOR ADDITIONAL REQUIREMENTS.

29. IF UTILITY WORK WITHIN THE R.O.W. WILL BE REQUIRED, A RIGHT-OF-WAY USE PERMIT FROM PINELLAS COUNTY IS TO BE OBTAINED.

30. PORTIONS OF WORK AND/OR MATERIALS FOR THE UTILITY CONNECTIONS MAY BE PROVIDED BY THE GOVERNING MUNICIPALITY. CONTRACTOR TO VERIFY AND COORDINATE.

31. WATER AND SANITARY SEWER SYSTEMS SHALL NOT BE PLACED INTO SERVICE UNTIL INSPECTED AND APPROVED BY THE FDEP AND OTHER REQUIRED REGULATORY AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING AND OBTAINING THE FOLLOWING ITEMS:
* INSPECTION APPROVALS
* SCHEDULING AT LEAST 72 HOURS PRIOR TO TESTING, HAVING THE APPROPRIATE PARTIES ON SITE TO WITNESS TEST
* LIFT STATION START UP TESTS
* CURRENT BACTERIOLOGICAL TEST RESULTS
* PRESSURE, EXFILTRATION AND OTHER REQUIRED TESTS
* AS-BUILT SURVEYS, STAMPED AND SIGNED BY PROFESSIONAL SURVEYOR
ALL APPLICABLE ITEMS SHALL BE PROVIDED TO THE ENGINEER OF RECORD A MINIMUM OF 60 DAYS PRIOR TO FINAL ACCEPTANCE AND PLACEMENT INTO OPERATION

32. IF APPLICABLE ALL MECHANICAL EQUIPMENT MUST BE SCREENED IN ACCORDANCE WITH CURRENT OSHA REGULATIONS.

33. UNLESS NOTED OTHERWISE, ALL RCP SHALL BE CLASS III, WALL "B" PER ASTM C-76

34. PIPE LENGTHS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE LENGTHS REQUIRED TO COMPLETE CONSTRUCTION.

35. ALL DIMENSIONS ARE TO OUTSIDE FACE OF WALL, FACE OF CURB, CENTER OR STRUCTURE, UNLESS NOTED OTHERWISE.

36. PROVIDE PAVEMENT MARKINGS AS SHOWN PER FDOT INDEX 711-001.

37. THE CONTRACTOR SHALL REPLACE ALL SOD, PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, SIDEWALKS, ETC. WITH MATERIALS OF THE SAME TYPE OR BETTER THAN THAT REMOVED DURING CONSTRUCTION.

38. PRIOR TO PAVING, THE CONTRACTOR SHALL ENSURE ALL NEW UNDERGROUND UTILITIES, I.E. ELECTRIC, IRRIGATION, ETC., HAVE BEEN INSTALLED. IF PAVING IS TO OCCUR BEFORE THE INSTALLATION OF ANY UNDERGROUND UTILITIES, THE CONTRACTOR SHALL ENSURE THE NECESSARY CONDUITS ARE PROVIDED AND SHALL COORDINATE THE LOCATIONS WITH THE CONSTRUCTION PLANS.

39. CONTRACTOR SHALL SECURE ALL OPENINGS UNDER CONSTRUCTION AT THE END OF EACH WORKING DAY.

40. GRASS SOD AND SEED SHALL BE BAHIA, UNLESS OTHERWISE SHOWN ON THE PLANS. SEED AND MULCH ALL AREAS LEFT BARREN FROM CONSTRUCTION. SOD ALL SLOPES STEEPER THAN 6:1. WHETHER OR NOT SHOWN HEREON. ALL RETENTION POND BANKS SHALL BE SODDED, REGARDLESS OF SLOPE. TO THE POND BOTTOM FOR DESIGNED DRY PONDS OR THE WATER LINE AT THE TIME OF INSTALLATION FOR DESIGNED WET PONDS. STEEP SLOPES SODDED AS SOON AS POSSIBLE AFTER FINE GRADING TO PREVENT EROSION (WITHIN 14 DAYS OF COMPLETION OF GRADING OF THAT AREA).

41. THE CONTRACTOR SHALL PROVIDE THE ENGINEER OF RECORD WITH STAMPED AND SIGNED AS-BUILT SURVEYS OF ALL WATER, SANITARY SEWER, AND STORMWATER MANAGEMENT SYSTEMS (INCLUDING THE POND OUTLET STRUCTURE) AS REQUIRED BY THE FDEP AND SWFWMD.

42. ALL 6 INCH WATER MAIN FROM THE POINT OF CONNECTION TO THE METER ASSEMBLY SHALL BE D.I.P. (CLASS 50). THE METER ASSEMBLY SHALL BE LOCATED TO BE DIRECTLY ACCESSIBLE BY THE BOOM TRUCK FROM THE COUNTY RIGHT-OF-WAY OR BY AN INTERIOR ROAD THAT IS NOT BLOCKED BY A WALL OR GATE. THE ELEVATION OF THE CONCRETE SLAB WILL BE HIGHER THAN THE IMMEDIATE SURROUNDINGS AREA. DO NOT MULCH THE AREA AROUND THE SLAB. DO NOT PLANT ANY LANDSCAPE THAT WILL HINDER THE DIRECT ACCESS IN THE FUTURE TO THE METER ASSEMBLY.

Issued:

Date:

A

ISSUED FOR PERMITS

05-08-23

B

C

D

Revisions:

Date:

1

CITY UTILITY COMMENTS

05-22-23

2

CITY REV PER COM (05-19-23)

07-17-23

3

4

5

6

SCOTT K. STANNARD

FLORIDA

PROFESSIONAL ENGINEER

No. 50565

Scott K. Stannard, P.E.

FL P.E. No. 50565 SEAL

This item has been digitally signed and sealed by Scott K. Stannard, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

CSS

Site Engineering • Landscape Architects

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KTR

INVESTMENT

GROUP,

LLC.

6814 OAKCREST WAY

ZEPHYRHILLS, FL 33604

PH: (813) 782-0825 (OFFICE)

CONTACT: KEVIN RYMAN

Client Name:

BROOKE-LYN

TOWNHOMES

WIRE ROAD @ DRIFTWOOD RD

CITY OF ZEPHYRHILLS, FL

PASCO COUNTY

PH: (813) 782-0825

CONTACT: KEVIN RYMAN

Project Name & Location:

GENERAL NOTES

Drawing Name:

Date:

07/13/21

Revised:

XXX

Drawn:

sks

Checked:

SKS

Drawing No.

C-1.0

Page 5 of 135

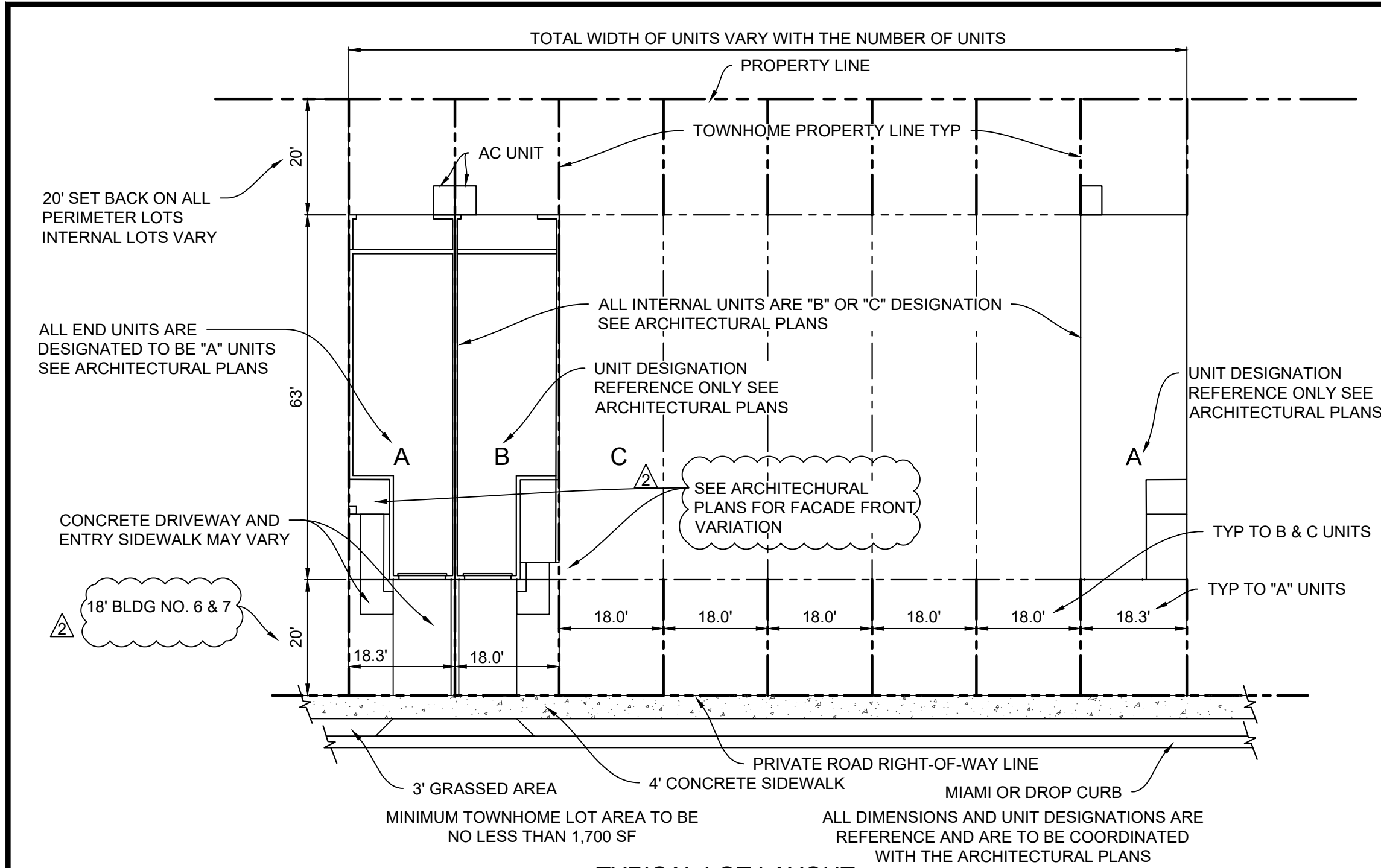
NO.	REVISION	DATE	BY



DRAWN BY:	AAW
CHECKED BY:	WCW
DATE:	9-16-21
JOB NUMBER:	21048
FILE: 21048-ALTA.dwg	

6718 WIRE ROAD
ZEPHYRHILLS, FLORIDA
PID:02-26-21-0010-03600-0000
AND 02-26-21-0010-03600-0010
ALTA/NSPS LAND TITLE SURVEY

SHEET NO.



TYPICAL LOT LAYOUT

- SITE DETAILS - SEE DETAIL SHEETS**
- 1A TYPE F CURB (FDOT INDEX 520-001)
 - 1B TRANSITION CURB TO VALLEY CURB, 5' TRANSITION
 - 1C MIAMI CURB OR DROP CURB PER FDOT D# 520-001
 - 1D TYPE D CURB PER FDOT DL# 520-001
 - 1E CURB RAMP TYPE CR-F PER FDOT STANDARD PLANS INDEX 522-002
 - 1F CURB RAMP TYPE CR-D PER FDOT STANDARD PLANS INDEX 522-002
 - 1G CURB RAMP TYPE CR-L PER FDOT STANDARD PLANS INDEX 522-002
 - 1H CURB RAMP TYPE CR-E PER FDOT STANDARD PLANS INDEX 522-002
 - 1I 4' WIDE CONCRETE SIDEWALK PER FDOT STANDARD PLANS INDEX 522-001
 - 2A 6" PARKING STALL STRIPE (WHITE PAINT)
 - 2B SPECIAL EMPHASIS CROSSWALK STRIPING PER FDOT STD. PLANS INDEX 711-001 (WHITE THERMOPLASTIC)
 - 2C STANDARD CROSSWALK 12" (WHIT PAINT) STRIPING PER FDOT D# 711-001
 - 2D 24" STOP BAR (WHT PAINT)(TYP.) PER FDOT STD
 - 2E 24" STOP BAR (WHT THERMOPLASTIC) PER FDOT STD
 - 2F HANDICAP PARKING SPACES SHALL BE SIGNED AND MARKED IN ACCORDANCE WITH FDOT STANDARDS PLANS INDEX 711-001. REFER TO SITE DETAIL C-14.0 STOP SIGN, 30" R1-1 PER MUTCD STANDARDS
 - 3A STOP SIGN, 36" R1-1 PER MUTCD STANDARDS & FDOT D# 700-010
 - 3C ACCESSIBLE PARKING SIGN IN BOLLARD (TYP)
 - 3D HANDICAP SIGN IN ACCORDANCE WITH FDOT DESIGN STANDARD PLANS 700-102, FTP20-06.
 - 3D OBJECT MARKER SIGN OM-11 (9 BUTTON YELLOW) THREE REOD
 - 3E YIELD HERE TO PEDESTRIAN R1-5
 - 4A MAIL KIOSK (RE: ARCH PLANS)
 - 4B CONCRETE WHEELSTOP
 - 4C N/A
 - 4D 6" HIGH PVC COATED CHAIN LINK FENCE WITH GATE FOR LIFT STATION & POND MAINTENANCE
 - 4E 6" HIGH PVC FENCE AROUND PERIMETER

GENERAL SITE NOTES

- A. ALL DIMENSIONS SHOWN ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- B. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON ALL CURBING ADJACENT TO CONCRETE PAVING SHALL BE 6" INTEGRAL CURBING. CURB AND GUTTER NEXT TO ASPHALT SHALL BE TYPE MIAMI OR DROP CURB AND GUTTER.
- C. DEMOLITION OF EXISTING PAVEMENT AND UTILITIES IS A PART OF THIS CONSTRUCTION PACKAGE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND STEPS TO INSURE THAT ALL ADJOINING PROPERTIES ARE PROTECTED FROM DAMAGE AND TO INSURE THAT ALL ADJOINING PROPERTIES RETAIN ALL UTILITY SERVICES DURING THE DURATION OF THE CONSTRUCTION.
- D. IF DEMOLITION OR CONSTRUCTION ON SITE WILL INTERFERE WITH THE ADJACENT PROPERTY OWNER'S TRAFFIC FLOW, THE CONTRACTOR SHALL COORDINATE WITH THE ADJACENT PROPERTY OWNER, TO MINIMIZE THE IMPACT ON TRAFFIC FLOW. TEMPORARY RE-ROUTING OF TRAFFIC IS TO BE ACCOMPLISHED BY USING DOT APPROVED TRAFFIC BARRICADES, BARRELS, AND/OR CONES. TEMPORARY SIGNAGE AND FLAGMEN MAY BE ALSO NECESSARY. CONTRACTOR TO PROTECT ALL EXISTING LANDSCAPE NOTED TO BE SAVED.
- E. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDDED/SODDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- F. THE PROPOSED ON-SITE STORMWATER POND WILL SERVE THE ENTIRE DEVELOPMENT PROPERTY.

- H. THE LOCATION OF THE CONSTRUCTION FENCE ON THE DRAWINGS IS FOR GRAPHICAL REPRESENTATION ONLY. THE CONTRACTOR IS TO ENSURE THAT THE CONSTRUCTION FENCE ENCOMPASSES THE ENTIRE WORK AREA.
- I. ALL DIMENSIONS, UNLESS OTHERWISE NOTED, ARE TO FACE OF CURB, OUTSIDE FACE OF BUILDING (BLOCK), OR CENTERLINE OF PARKING BAY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF ALL ENTRY/EXIT PORCHES AND PRECISE BUILDING DIMENSIONS.
- J. UNLESS OTHERWISE NOTED, ON-SITE PAVEMENT SHALL BE STANDARD DUTY ASPHALT SEE TYPICAL ROAD SECTION.
- K. ALL HANDICAP SPACES ARE TO RECEIVE A HANDICAP SIGN AND SYMBOL PAINTED ON THE ASPHALT. STALL(S) ADJACENT TO THE FIVE (5) FOOT STRIPED AISLES ARE TO RECEIVE A "HANDICAP PARKING" SIGN IN ADDITION TO THE ABOVE. STRIPING TO BE BLUE. STOP SIGNS SHALL MEET THE CRITERIA OF THE FLORIDA DEPARTMENT OF TRANSPORTATION AND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- L. THE EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
- M. THE GENERAL CONTRACTOR IS TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING DAMAGE TO ANY EXISTING ITEM DURING CONSTRUCTION SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
- N. THE GENERAL CONTRACTOR IS TO COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING DAMAGE TO ANY EXISTING ITEM DURING CONSTRUCTION SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
- O.



PROJECT DATA:
TOTAL PROJECT ACRES: 4.92 ACRES/DEVELOPABLE AREA
BUILDING BREAKDOWN:
A UNITS 1,532 SF EACH: 16 UNITS (24,512 SF)
B UNITS 1,516 SF EACH: 16 UNITS (24,256 SF)
C UNITS 1,624 SF EACH: 23 UNITS (37,352 SF)
TOTAL UNITS SF: 55 UNITS (86,120 SF)

MAX. DENSITY ALLOWABLE: 20 DU/AC = 99 UNITS
PROPOSED PROVIDED BY PUD = 55 UNITS

JURISDICTION: CITY OF ZEPHYRHILLS

EXISTING USE: VACANT LAND/NO EXISTING STRUCTURES
ZONING: R-4 HIGH DENSITY RESIDENTIAL
TOTAL OF 55 UNITS PROVIDED FOR BY PUD DEED RESTRICTION

ABUTTING:
NORTH: AR
EAST: PUD - PLANNED UNIT DEVELOPMENT
WEST: M1 - MOBILE HOME SUBDIVISION
SOUTH: M3 - RECREATIONAL VEHICLE PARK

PROPOSED USE: TOWNHOME / RESIDENTIAL
BUILDING HEIGHT:
ALLOWED: 35 FT.
PROPOSED: 26.5 FT.
PROPOSED F.A.R. = 86,120/214,315=0.40

SETBACKS:
REQUIRED:
F - 30' (FROM EXISTING ROW)
S - 20' (FROM PROPERTY BOUNDARY)
F - 15' (INTERNAL)LDC 2.01.03.06.01(K)(2)
S - 20' (INTERNAL)
R - 20' (INTERNAL)
PROVIDED:
F - 35'
S - 20'
F - 18' & 20'
S - 20'
R - 20'

REQUIRED LANDSCAPED OPEN SPACE: 30%
PROPOSED LANDSCAPE OPEN SPACE: 30%

REQUIRED/PROVIDED BUFFERS: (ROW OR PROPERTY BOUNDARY)
REQUIRED:
F - 10'
S - 10'
R - 10'
PROVIDED:
F - 10'
S - 10'
R - 10'

PARKING REQUIREMENTS FOR PROPOSED USE:
REQUIRED:
2 SPACES PER UNIT = 55 UNITS X 2 = 110
1 VISITOR SPACE PER 5 TOWNHOMES = 55 UNITS/5 = 11

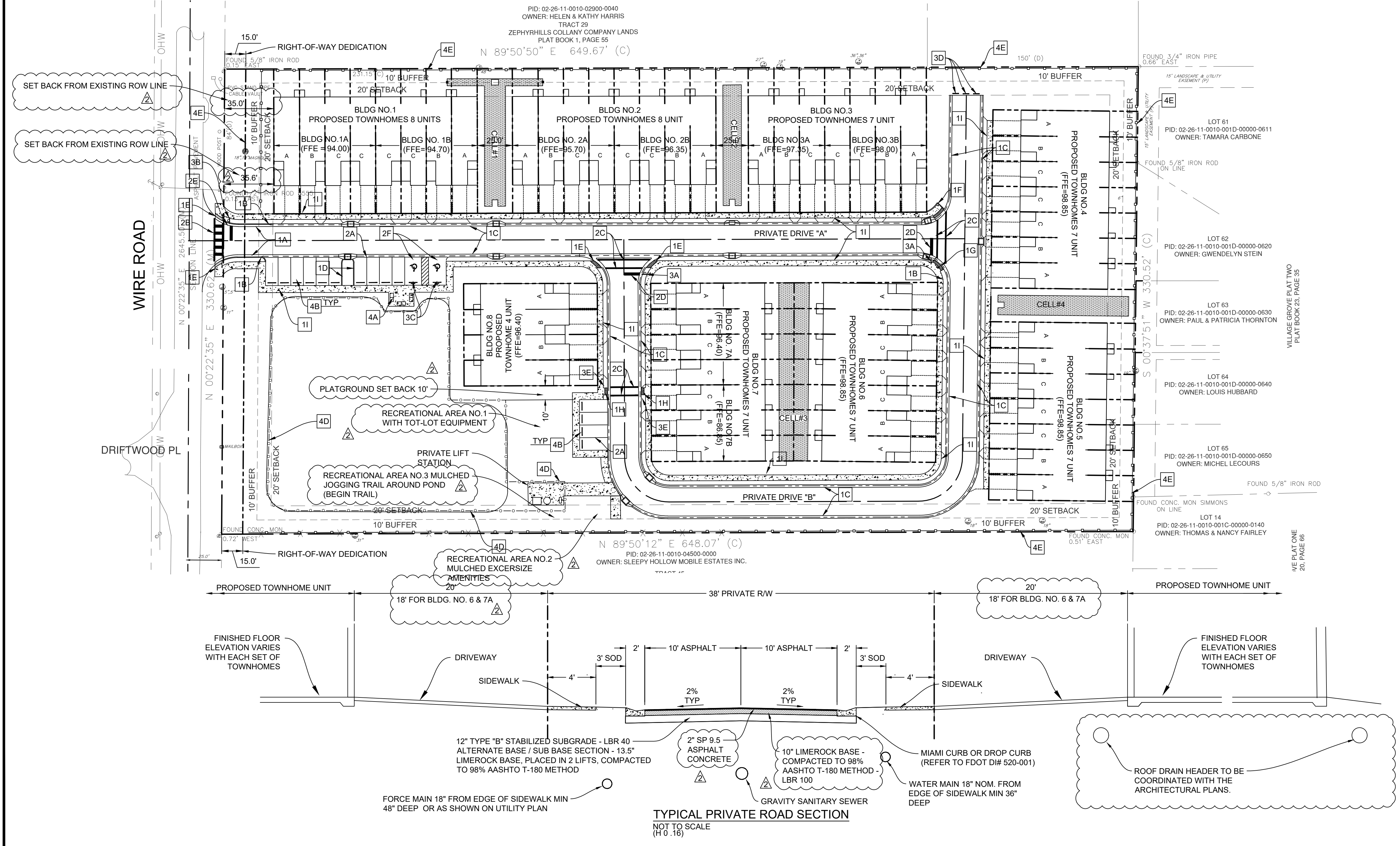
PARKING SPACES PROVIDED:
UNIT PARKING = 110 (ONE GARAGE PARKING SPACE, ONE DRIVEWAY)
VISITOR PARKING = 12 SPACES
RECREATION AREA PARKING = 4 SPACES
TOTAL VISITOR/RECREATION SPACE = 16 SPACES (2 H/C INCLUDED)

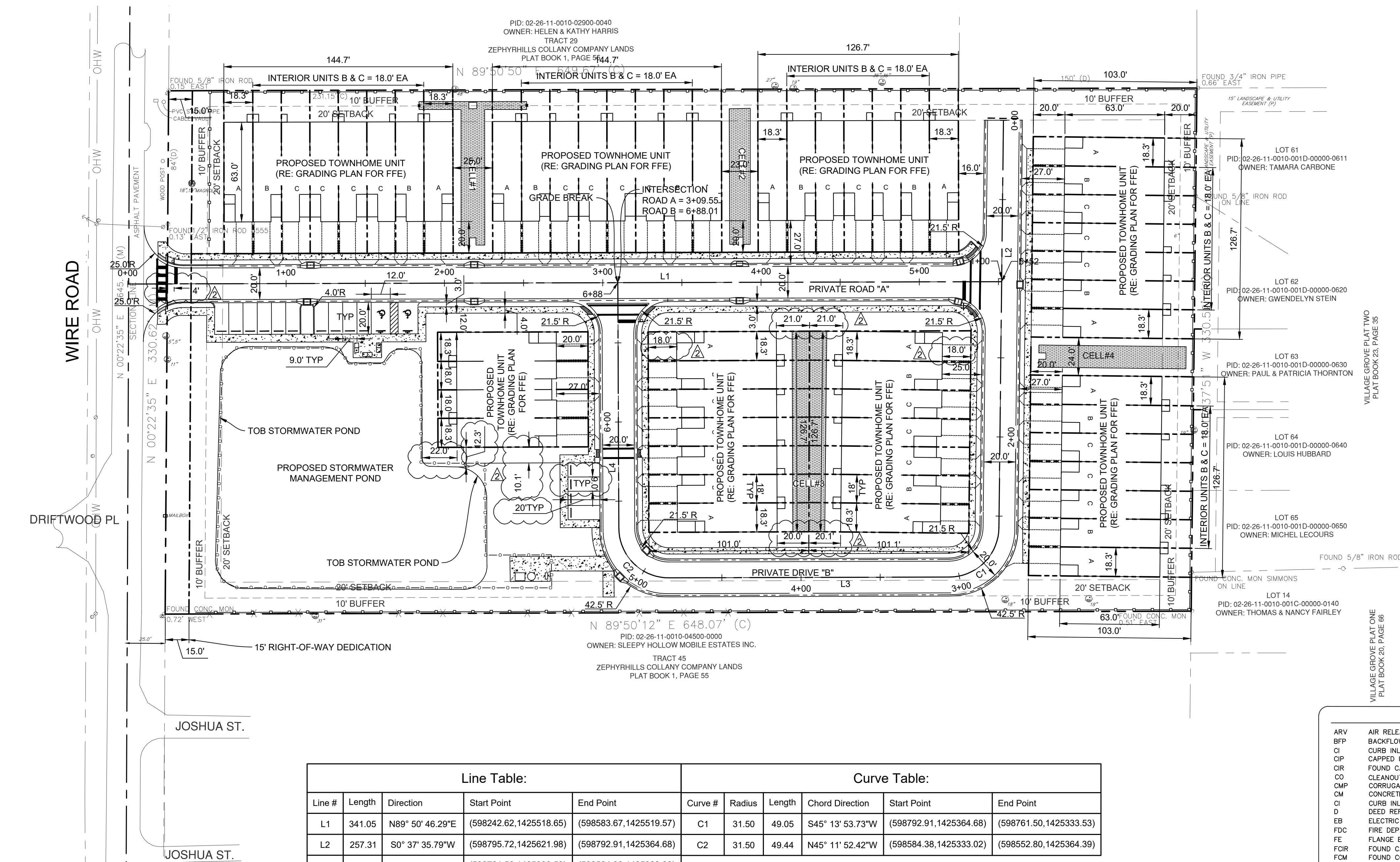
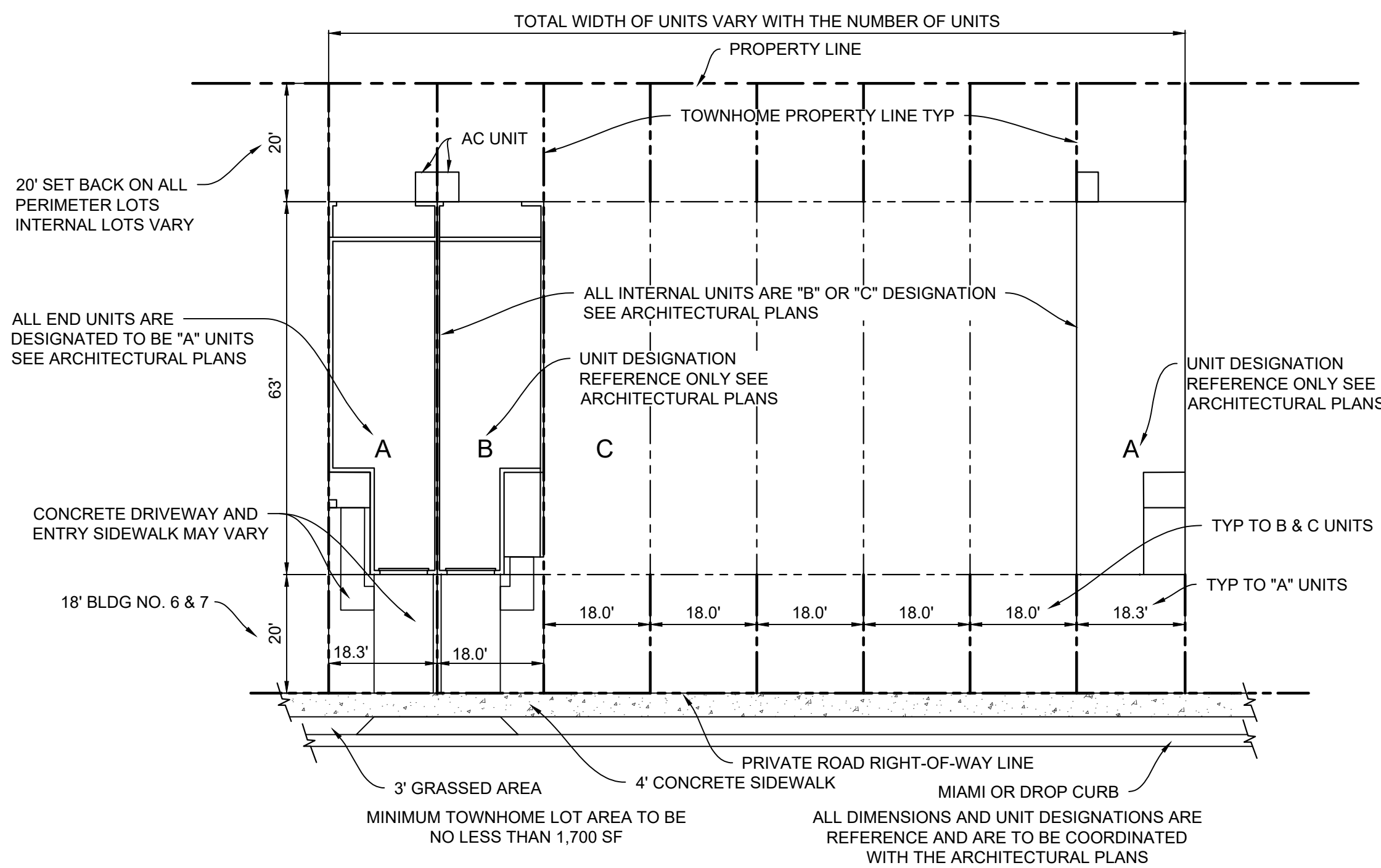
PLAN LEGEND

- PARCEL BOUNDARY
- LOT LINE
- PROPOSED ROAD CENTERLINE
- BUFFER LINE
- SET BACK LINE
- EDGE OF DRIVEWAY
- SIDEWALK
- PVC OPAQUE FENCING
- CHAIN LINK FENCING
- PROPOSED GRADE CONTOUR
- DRAINAGE FLOW
- STORMWATER PIPE
- ROOF DRAIN HEADER 8" CPP
- POTABLE WATER LINE
- PLAN VIEW
- PROFILE VIEW
- SANITARY SEWER LINE
- PLAN VIEW
- PROFILE VIEW
- SANITARY FORCEMAIN

NOTE: SIDEWALK AND DRIVEWAY LOCATION IN FRONT OF PROPOSED TOWNHOMES SUBJECT TO CHANGE DEPENDING ON PROPOSED FLOORPLAN AND DRIVEWAY LAYOUT.

NOTE: ALL REFUSE SERVICE TO BE CURB SIDE PICKUP.





LEGAL DESCRIPTION :

TRACT 36, ZEPHYRHILLS COLONY COMPANY LANDS, AS PER PLAT THEREOF RECORDED IN PLAT BOOK 1, PAGE 55, PUBLIC RECORDS OF PASCO COUNTY, FLORIDA.

CONTAINING 4.9234 ACRES MORE OR LESS

SURVEYOR'S NOTES:

- BEARINGS SHOWN HEREON ARE BASED ON THE WEST LIE OF SECTION 2, TOWNSHIP 26 SOUTH, RANGE 21 EAST HAVING A RECORD BEARING OF
- UNDERGROUND IMPROVEMENTS, UTILITIES AND ENCROACHMENTS, IF ANY, HAVE NOT BEEN LOCATED.
- REPRODUCTIONS OF THIS SURVEY ARE NOT VALID UNLESS EMBOSSED WITH THE UNDERSIGNED SURVEYOR'S SEAL.
- FIELD WORK COMPLETED SEPTEMBER 20, 2021.
- LEGAL DESCRIPTION SHOWN HEREON PER TITLE INSURANCE POLICY..
- BASED ON AN INSPECTION OF FEMA FLOOD INSURANCE RATE MAP (F.I.R.M.) COMMUNITY PANEL NO. 12101C0293F, DATED 09-20-14, THE PROPERTY SHOWN HEREON APPEARS TO LIE IN FLOOD ZONE X.
- THIS SURVEY HAS BEEN PREPARED IN CONJUNCTION WITH TITLE INSURANCE POLICY ISSUED BY ATTORNEY'S TITLE INSURANCE FUND INC., POLICY NO. OPM-7109603, DATED JUNE 24, 2005 AT 5:00 PM. SEE EXCEPTIONS LIST SHOWN HEREON FOR SCHEDULE B ITEMS AS CONTAINED THEREIN. .
- NO ZONING REPORT PROVIDED
- SUBJECT PROPERTY HAS DIRECT ACCESS TO WIRE ROAD, A PUBLIC RIGHT OF WAY..
- ELEVATIONS SHOWN HEREON REPRESENT NAVD88. SEE SURVEY DRAWING FOR BENCHMARK IDENTIFICATION.



PROJECT DATA
TOTAL PROJECT ACREAGE: 4.92 ACRES/DEVELOPABLE AREA
BUILDING BREAKDOWN:
A UNITS 1,532 SF EACH: 16 UNITS (24,512 SF)
B UNITS 1,516 SF EACH: 16 UNITS (24,256 SF)
C UNITS 1,624 SF EACH: 23 UNITS (37,352 SF)
TOTAL UNITS SF: 55 UNITS (86,120 SF)

MAX. DENSITY ALLOWABLE: 20 DU/AC = 99 UNITS
PROPOSED PROVIDED BY PUD = 55 UNITS

JURISDICTION: CITY OF ZEPHYRHILLS

EXISTING USE: VACANT LAND/NO EXISTING STRUCTURES

ZONING: R-4 HIGH DENSITY RESIDENTIAL
TOTAL OF 55 UNITS PROVIDED FOR BY PUD DEED RESTRICTION

ABUTTING:
NORTH: AR
EAST: PUD - PLANNED UNIT DEVELOPMENT
WEST: M1 - MOBILE HOME SUBDIVISION
SOUTH: M3 - RECREATIONAL VEHICLE PARK

PROPOSED USE: TOWNHOME / RESIDENTIAL
BUILDING HEIGHT:
ALLOWED: 35 FT.
PROPOSED: 26.5 FT.
PROPOSED F.A.R. = 86,120/214,315=0.40

SETBACKS:
REQUIRED:
F - 30' (FROM EXISTING ROW)
S - 20' (FROM PROPERTY BOUNDARY)
F - 15' (INTERNAL)/LDC 2.01.03.06.01(K)(2)
S - 20' (INTERNAL)
R - 20' (INTERNAL)
PROVIDED:
F - 35'
S - 20'
F - 18' & 20'
S - 20'
R - 20'

REQUIRED LANDSCAPED OPEN SPACE: 30%
PROPOSED LANDSCAPED OPEN SPACE: 30%

REQUIRED/PROVIDED BUFFERS: (ROW OR PROPERTY BOUNDARY)
REQUIRED:
F - 10'
S - 10'
R - 10'
PROVIDED:
F - 10'
S - 10'
R - 10'

PARKING REQUIREMENTS FOR PROPOSED USE:
REQUIRED:
2 SPACES PER UNIT = 55 UNITS X 2 = 110
1 VISITOR SPACE PER 5 TOWNHOMES = 55 UNITS/5 = 11

PARKING SPACES PROVIDED:
UNIT PARKING = 110 (ONE GARAGE PARKING SPACE, ONE DRIVEWAY)
VISITOR PARKING = 12 SPACES
RECREATION AREA PARKING = 4 SPACES
TOTAL VISITOR/RECREATION SPACE = 16 SPACES (2 H/C INCLUDED)

PLAN LEGEND

PARCEL BOUNDARY
LOT LINE
PROPOSED ROAD CENTERLINE
BUFFER LINE
SET BACK LINE
EDGE OF DRIVEWAY

SIDEWALK
PVC OPAQUE FENCING
CHAIN LINK FENCING
PROPOSED GRADE CONTOUR
DRAINAGE FLOW
STORMWATER PIPE
ROOF DRAIN HEADER 8" CPP

POTABLE WATER LINE
PLAN VIEW
PROFILE VIEW

SANITARY SEWER LINE
PLAN VIEW
PROFILE VIEW

SANITARY FORCEMAIN

SURVEY LEGEND:

SYMBOLS

POWER POLE (UP)
FIRE HYDRANT (FH)
GRATE INLET (GI)
GUY WIRE (GW)
HANDICAPPED (HC)
LIGHT POLE (LP)
MITERED END SECTION
SIGN TOW AWAY
WATER ASSEMBLY
WATER VALVE (WV)
IRRIGATION CONTROL VALVE (ICV)
WOOD FENCE
CHAIN LINK FENCE

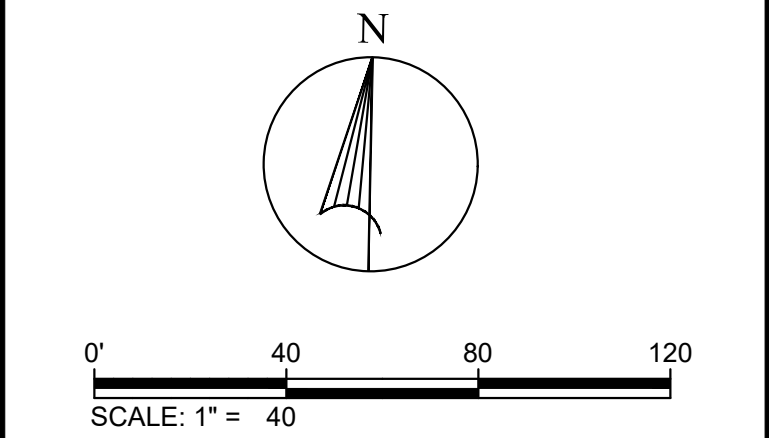
CABLE MARKER
FIRE HYDRANT (FH)
TELEPHONE
FIBER MARKER
ELECTRIC PEDESTAL
GAS
PEDESTRIAN POLE

MANHOLE
CLEAN OUT

OAK TREE
PALM TREE
PINE TREE
TREE AS NOTED

Line Table:					Curve Table:				
Line #	Length	Direction	Start Point	End Point	Curve #	Radius	Length	Chord Direction	Start Point
L1	341.05	N89° 50' 46.29"E	(598242.62,1425518.65)	(598583.67,1425519.57)	C1	31.50	49.05	S45° 13' 53.73"W	(598792.91,1425364.68)
L2	257.31	S0° 37' 35.79"W	(598795.72,1425621.98)	(598792.91,1425364.68)	C2	31.50	49.44	N45° 11' 52.42"W	(598584.38,1425333.02)
L3	177.12	S89° 50' 11.68"W	(598761.50,1425333.53)	(598584.38,1425333.02)					
L4	155.09	N0° 13' 56.52"W	(598552.80,1425364.39)	(598552.17,1425519.49)					

Issued:	Date:
A ISSUED FOR PERMITS	05-08-23
B	
C	
D	
Revisions:	Date:
1 CITY UTILITY COMMENTS	05-22-23
2 CITY REV PER COM (05-19-23)	07-17-23
3	
4	
5	
6	



Scott K. Stannard, P.E.
FL P.E. No. 50565 SEAL

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CONTACT: KEVIN RYMAN

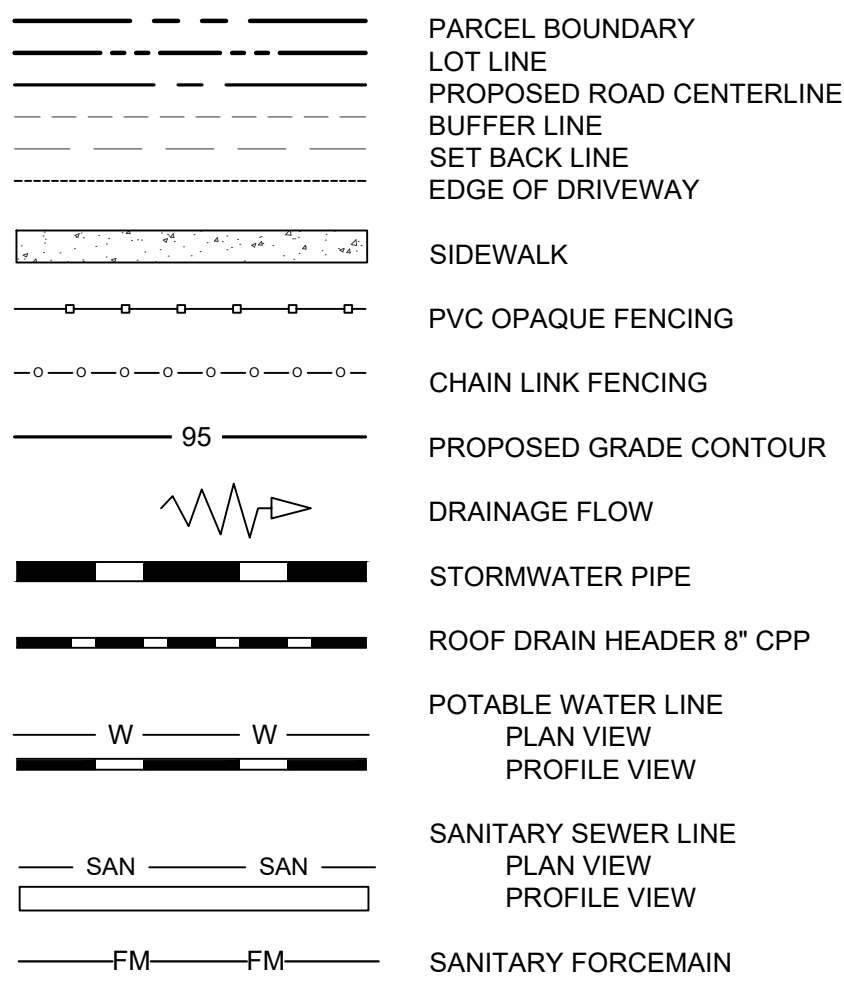
Client Name:
BROOKE-LYN TOWNHOMES
WIRE ROAD @ DRIFTWOOD RD
CITY OF ZEPHYRHILLS, FL
PASCO COUNTY
PH: (813) 782-0825
CONTACT: KEVIN RYMAN

Project Name & Location:
DIMENSION PLAN

Drawing Name:
Date: 07/13/21
Revised: XXX
Drawn: sks
Checked: SKS

Drawing No.
C-4.1

PLAN LEGEND



CAUTION

811: UTILITY LOCATOR SERVICE
3 DAYS BEFORE DIGGING CALL
TOLL FREE 1-800-432-4770
OR 811
A ONE CALL SYSTEM FOR COMMUNITY AND JOB SAFETY.

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND OTHER SOURCES. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN CORRELATE ALL EXISTING UTILITIES IN THE AREA. EVEN IN THE ABSENCE OF WARNING, THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE AT THE EXACT LOCATION INDICATED. ALTHOUGH IT DOES NOT GUARANTEE THE ACCURACY OF THE INFORMATION, THE SURVEYOR HAS NOT INTENTIONALLY LOCATED THE UNDERGROUND UTILITIES.

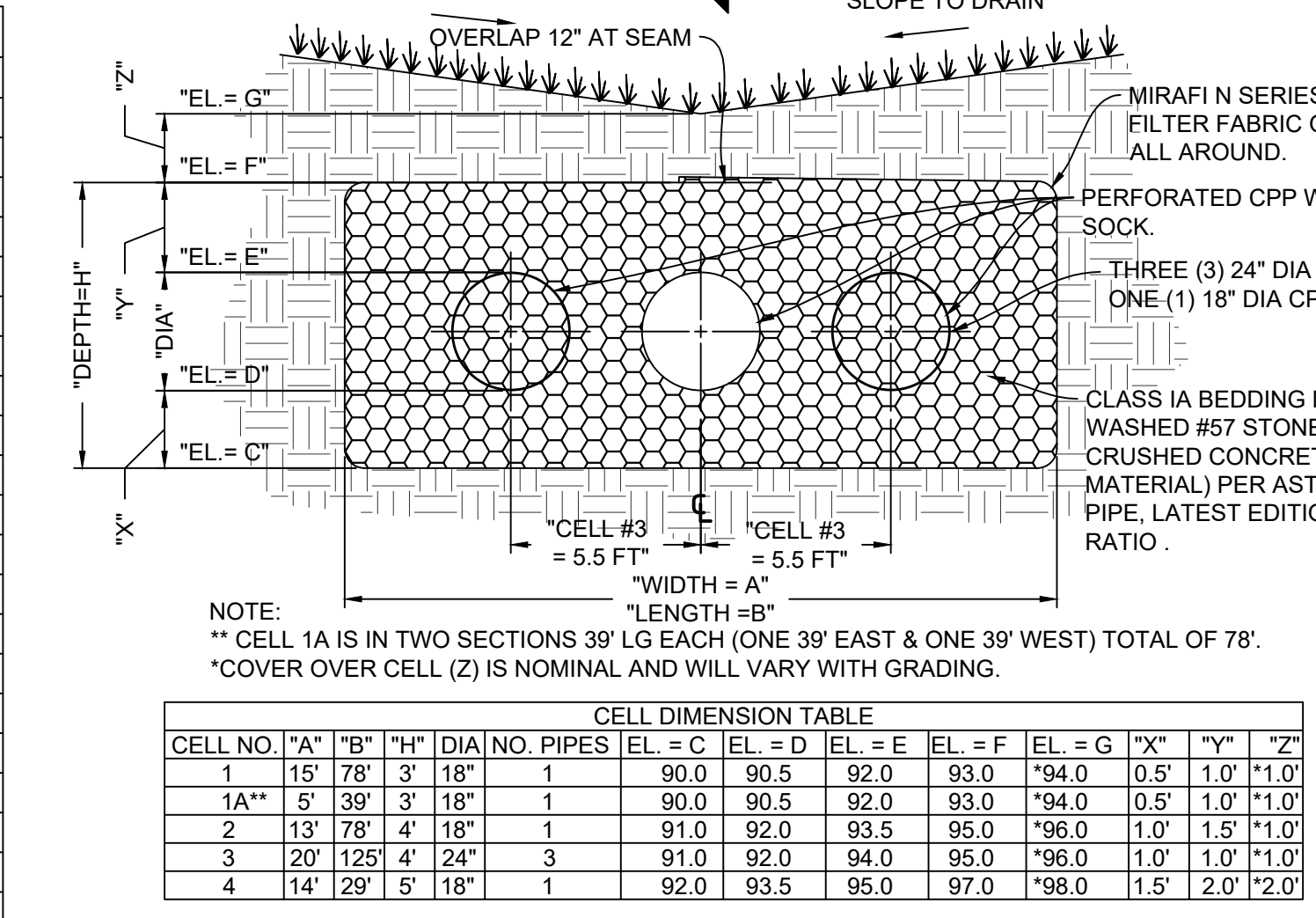
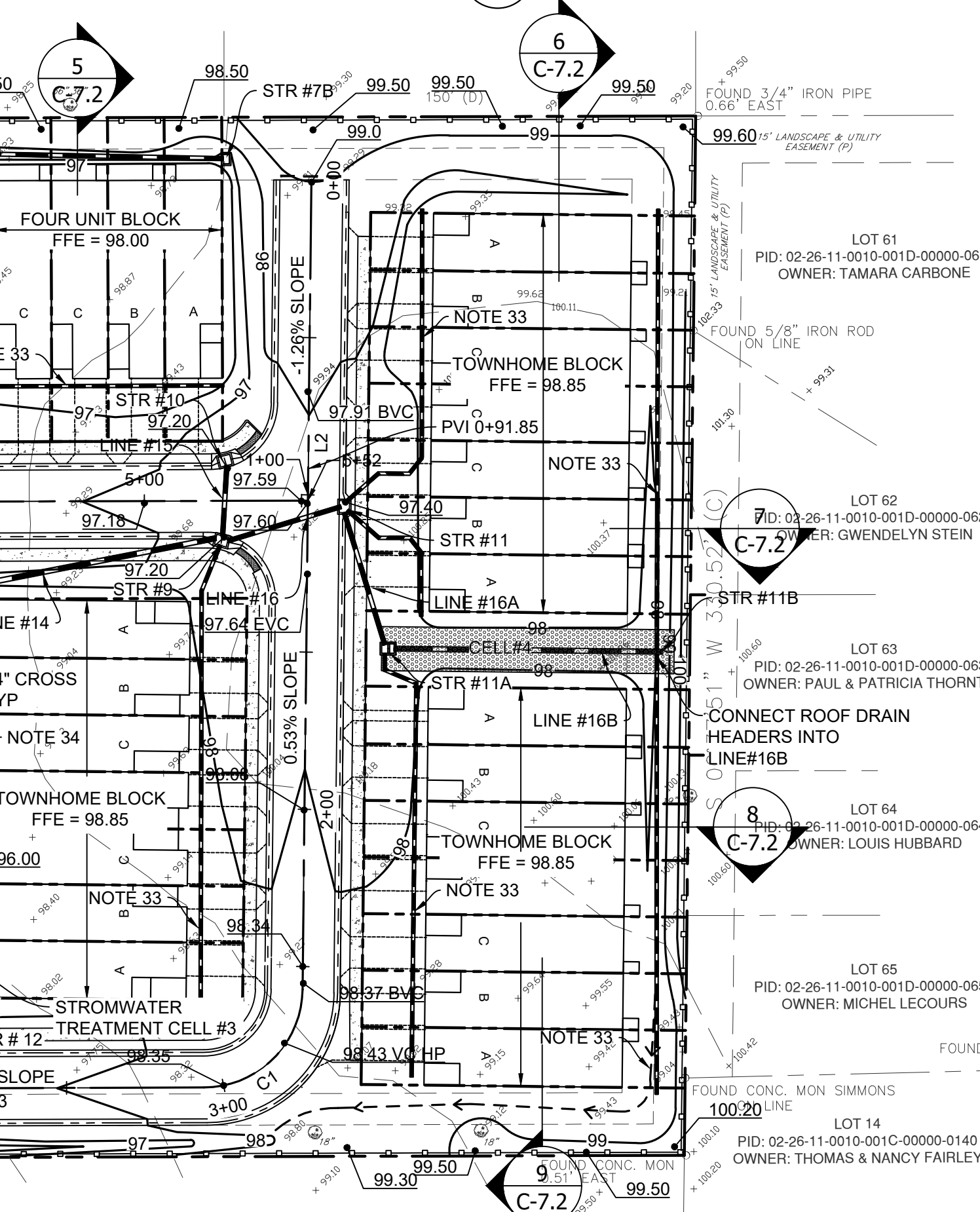
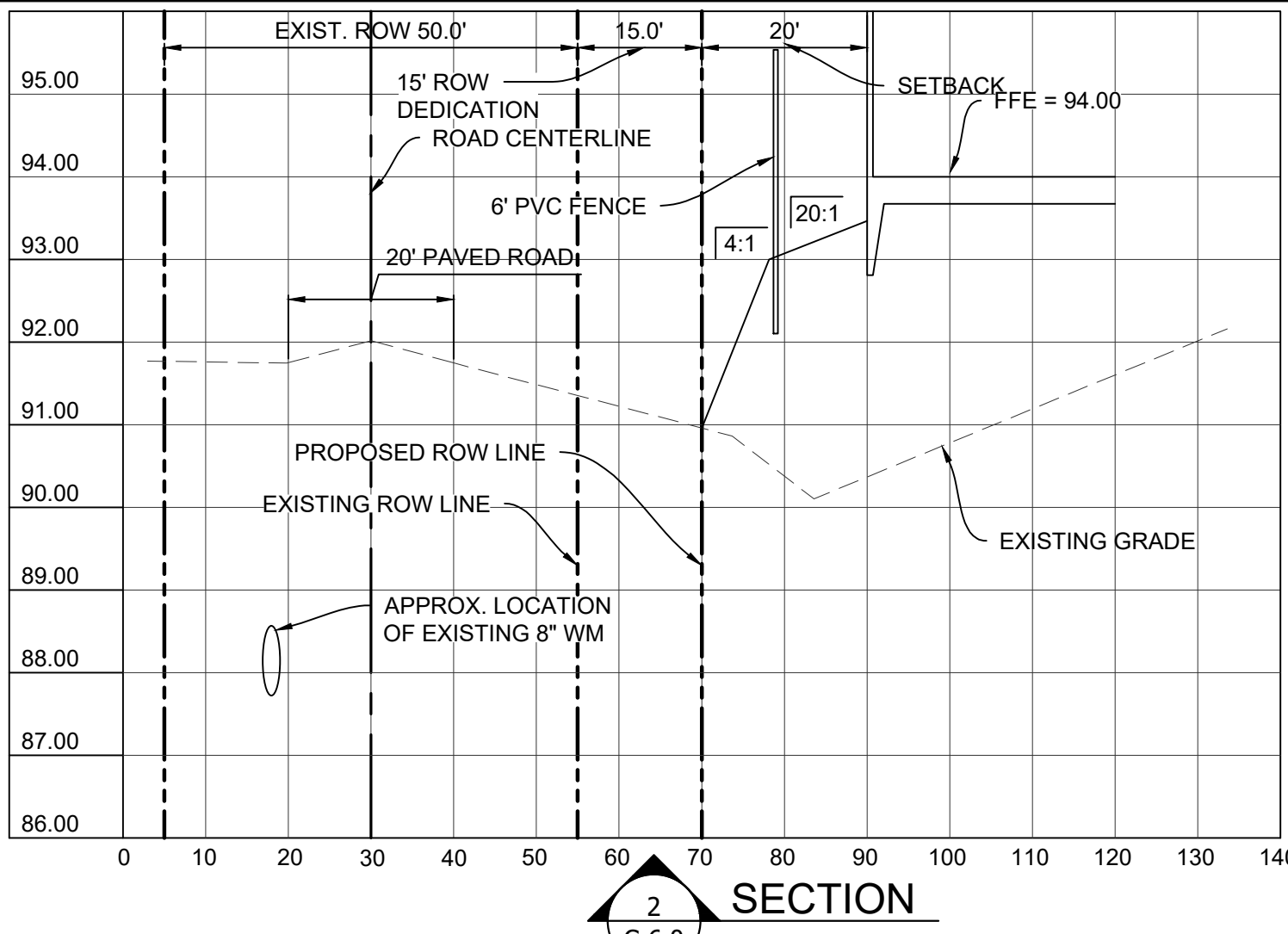
SEASONAL HIGH-WATER TABLE:
BASED ON THE GEOTECHNICAL EXPLORATION
REPORT BY UNIVERSAL ENGINEERING SCIENCES,
LLC., DATED DECEMBER 21, 2021, THE ESTIMATED
SHWT IS 3' TO 4' BELOW EXISTING GRADE.

STM LINE #	STR	SIZE	LG	TYPE	SLOPE	IE DOWN	IE UP	NOTE
1	1 TO 2	36"	40	CPP	1.25%	89.00	89.50	
2	2 TO 3	18"	25	CPP	2.00%	89.50	90.00	
3	2 TO 4	24"	106	CPP	0.23%	90.50	90.74	
4	4 TO 5	18"	25	CCP	2.00%	87.00	87.50	
4A	5 TO 5B	18"	15	CCP	2.00%	90.10	90.40	
5	5B TO 5A	18"	86	*CPP	0.23%	90.50	90.70	CELL #1
6	5E TO 5D	18"	113	CPP	0.35%	89.64	90.20	ROOF DRAIN COLLECTION
6A	5A TO 5E	18"	34	*CPP	0.29%	90.50	90.60	CELL #1A
7	5F TO 5C	18"	43	CPP	0.23%	90.50	90.60	ROOF DRAIN COLLECTION
7A	5A TO 5F	18"	34	*CPP	0.29%	90.50	90.60	CELL #1A
8	4 TO 6	24"	168	CPP	0.25%	90.74	91.16	
9	6 TO 7	18"	25	CPP	0.20%	88.68	89.18	
9A	7 TO 7C	18"	15	CPP	0.20%	91.60	91.90	
10	7C TO 7A	18"	86	*CPP	0.23%	92.00	92.20	CELL #2
11	7A TO 7B	18"	140	CPP	1.00%	92.20	93.60	ROOF DRAIN COLLECTION
12	7A TO 7D	18"	81	CPP	1.00%	92.20	93.00	ROOF DRAIN COLLECTION
13	6 TO 8	24"	44	CPP	1.91%	91.16	92.00	
14	8 TO 9	18"	100	CPP	0.76%	92.00	92.50	
15	9 TO 10	15"	25	CPP	0.80%	92.50	92.90	
16	9 TO 11	18"	40	CPP	0.50%	92.50	92.70	
16A	11 TO 11A	18"	48	CPP	0.20%	92.40	92.50	SUMP
16B	11A TO 11B	18"	88	*CPP	0.23%	92.50	92.70	CELL #4
17	12 TO 13	18"	104	CPP	0.48%	92.28	92.84	
17A	8 TO 12	24"	120	*CPP	0.23%	92.00	92.28	CELL #3
17B	8 TO 12	24"	120	*CPP	0.23%	92.00	92.28	CELL #3
17C	8 TO 12	24"	120	*CPP	0.23%	92.00	92.28	CELL #3
18	13 TO 14	15"	25	CPP	2.00%	92.84	92.94	
19	15 TO 16	15"	39	CPP	0.64%	87.00	87.25	

STR NO.	TYPE	RIM/THROAT ELEV	NOTE
1	FDOT MES 36" CPP 430-022	I.E. = 90.00	
2	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	93.30	
3	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	93.30	
4	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	94.37	
5	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	94.37	
5A	FDOT TYPE D INLET 425-052 (3X4) GI	94.50	
5B	FDOT TYPE D INLET 425-052 (3X4) GI	94.00	SEE DETAIL 5B ON C-7.4
5C	C.O./INSPEC 6" RISER X 18" PIPE CPP	95.00	
5D	C.O./INSPEC 6" RISER X 18" PIPE CPP	93.00	
5E	CPP COUPLING 18"x18"		CONNECT LINE #6 TO #6A
5F	CPP COUPLING 18"x18"		CONNECT LINE #7 TO #7A
6	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	96.04	
7	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	96.04	
7A	FDOT TYPE D INLET 425-052 (3X4) GI	96.50	
7B	FDOT TYPE C INLET 425-052 (2X3) GI	96.50	
7C	FDOT TYPE D INLET 425-052 (3X4) GI	96.00	SEE DETAIL 7C ON C-7.4
7D	C.O./INSPEC 6" RISER X 18" PIPE CPP	95.00	
8	FDOT J (4'x4') TOP D INLET 425-052 GI	96.00	SEE DETAIL 8 ON C-7.4
9	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	97.20	
10	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	97.20	
11	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	97.40	
11A	FDOT TYPE D INLET (3X4) 425-052 GI	97.50	SEE DETAIL 8 ON C-7.4
11B	C.O./INSPEC 6" RISER X 18" PIPE CPP	98.50	
12	FDOT TYPE D INLET (3X4) 425-052 GI	96.50	
13	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	96.59	
14	FDOT TYPE V 425-041 (3'-10"x3'-3") GI	96.59	
15	FDOT TYPE D INLET (3X4) W/ GRATE	90.00	SEE DETAIL C-7.4
16	FDOT TYPE D INLET (3X4) W/ GRATE	93.25	SEE DETAIL C-7.4

PERFORMANCE CONFIGURATIONS:
ALL PERFORMANCE PATTERNS SHALL MEET CLASS 2 REQUIREMENTS OF AASHTO M294 LATEST EDITION.
PERFORATED PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH TABLE BELOW.
NOM DIA AASHTO SPEC PERFORATION DIAMETER PERFORATION HOLE SPACING
18" M294 CIRCULAR 0.375 E 6" AT 60°
24" M294 CIRCULAR 0.375 F 8" AT 45°

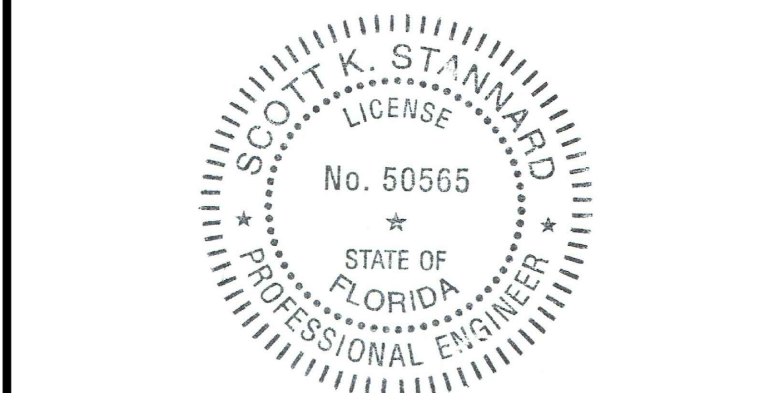
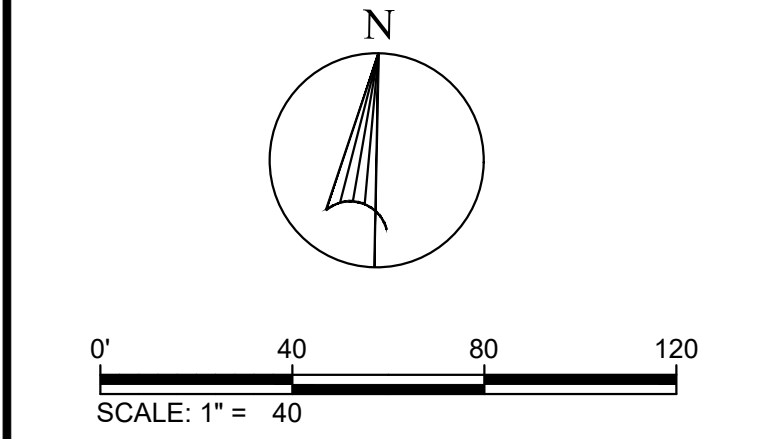
DETAIL OF STORMDRAIN/TREATMENT CELL



GENERAL SITE GRADING NOTES

- CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
- PRECAST STRUCTURES MAY BE USED AT CONTRACTORS OPTION. STORM PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED: TYPE 1: RCP, CLASS III PER ASTM C-76, WITH FLEXIBLE PLASTIC BITUMEN GASKETS AT JOINTS, UNLESS OTHERWISE NOTED.
- EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
- EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
- PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
- IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
- ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
- ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RINGS & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
- THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL ASSURE PROPER PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
- CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
- TOPOGRAPHIC INFORMATION TAKEN FROM A TOPOGRAPHIC SURVEY BY GEOPINT SURVEYING, INC. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
- ALL UNSATURATED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STAKED SOD TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH STATE SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED.
- CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
- ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
- CATCH BASINS, MANHOLES, FRAMES, GRATES, SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS FOR CONSTRUCTION AND THE CITY OF ZEPHYRHILLS REQUIREMENTS. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT NUMBER, SIZE AND LOCATION OF ANY ROOF DRAINS.
- INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD LOCATIONS WHEN POSSIBLE, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED ON THE PLAN OR TWELVE INCHES (12"), WHICHEVER IS LESS, CONTACT THE DESIGN ENGINEER AND THE OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SHEETING, SHORING, BRACING, AND SPECIAL EXCAVATION MEASURES REQUIRED TO MEET OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS PURSUANT TO THE INSTALLATION OF ALL WORK INDICATED ON THESE DRAWINGS. THE OWNER AND THE DESIGN ENGINEER ACCEPT NO RESPONSIBILITY FOR THE DESIGNS TO INSTALL SAID ITEMS.
- PRECAST DRAINAGE STRUCTURES HAVE BEEN SPECIFIED ON THE PLANS. THE OWNER AND THE ENGINEER, HOWEVER, ASSUME NO RESPONSIBILITY FOR THESE STRUCTURES, AS FIELD CONDITIONS OF EXISTING MAJOR ELEVATION ADJUSTMENTS. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY AND EXPENSE FOR MODIFYING THE PRECAST STRUCTURES TO ACCOMMODATE FIELD REVISIONS.
- ALL SLOPES 3:1 AND STEEPER ARE TO RECEIVE STAKED SOD.
- ALL GRADING/EXCAVATION OPERATIONS, FILL, EXCAVATION, TESTING AND BACKFILL SHALL BE OBSERVED AND TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE DESIGNATED BY AND PAID FOR BY THE OWNER. NO FILL SHALL BE PLACED PRIOR TO APPROVAL OF THE SUBGRADE BY THE GEOTECHNICAL ENGINEER.
- COMPACTION SHALL BE DONE IN ACCORDANCE WITH ALDI'S REQUIREMENTS AND THE ON-SITE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED FOR INSPECTION AND TESTING OF SOILS DUE TO FAILURE TO COMPLY WITH THE MINIMUM REQUIREMENTS OF THE SOILS REPORT.
- ALL GRADING OPERATIONS SHALL BE STAKED BY A LICENSED LAND SURVEYOR PROVIDED BY THE CONTRACTOR AND APPROVED BY THE OWNER.
- UPON COMPLETION OF THE GRADING, THE GEOTECHNICAL ENGINEER SHALL PROVIDE OWNER WITH A LETTER INDICATING THAT THE SITE AND BUILDING PAD WERE PREPARED IN DIRECT CONFORMANCE WITH THE RECOMMENDATIONS AND CONCLUSIONS OF THE SOILS REPORT.
- CROSS-SLOPE THROUGH STRIPED AREA LEADING TO PUBLIC SIDEWALK SHALL NOT EXCEED 2.0%.
- NO EXPOSED FOOTINGS SHALL BE ALLOWED.
- 8" ROOF DRAIN MANIFOLD SEE SHT C-7.4 FOR DETAIL
- BLDG 6 AND 7 DIRECT ROOF DRAIN TO CELL 3. SEE SHT C-7.4

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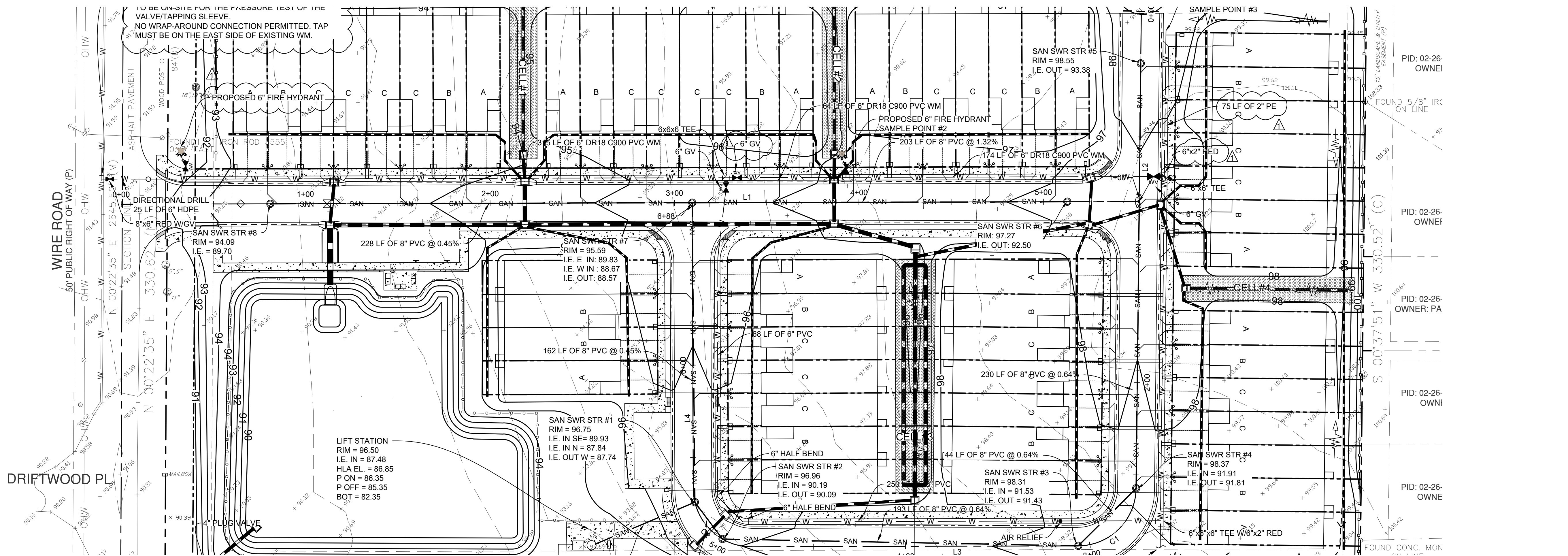
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CONTACT: KEVIN RYMAN

Project Name & Location:

GRADING PLAN

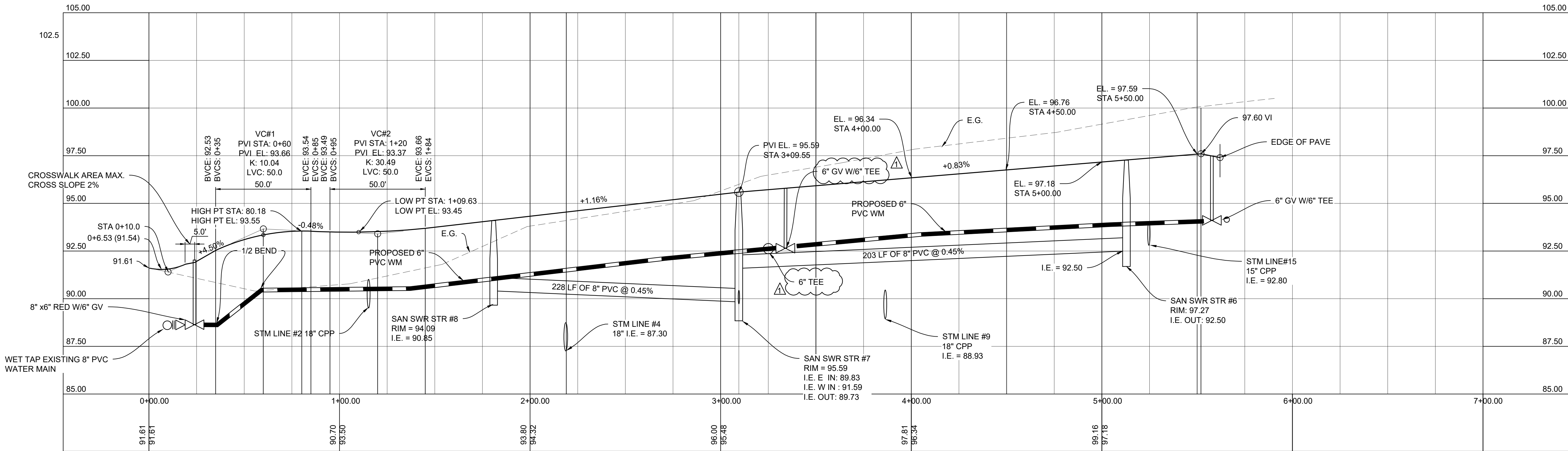
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Date: 07/13/21	
Revised: XXX	
Drawn: sks	
Checked: SKS	

C-6.0



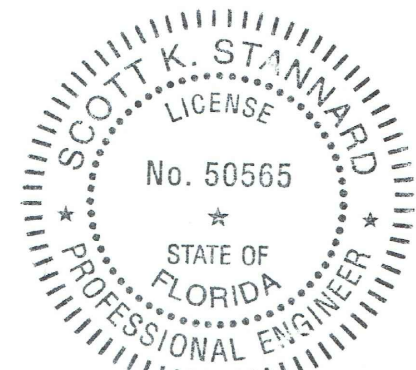
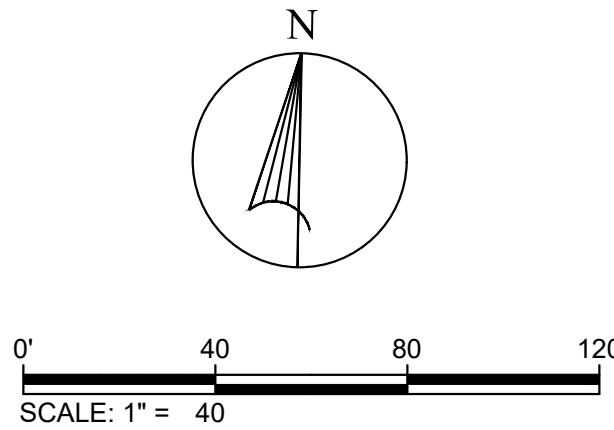
PLAN VIEW OF ROAD A STA 0+00 TO STA 5+52.00
NOTE SCALE: 1" = 30'

SEASONAL HIGH-WATER TABLE:
BASED ON THE GEOTECHNICAL EXPLORATION
REPORT BY UNIVERSAL ENGINEERING SCIENCES,
LLC., DATED DECEMBER 21, 2021, THE ESTIMATED
SHWT IS 3' TO 4' BELOW EXISTING GRADE.



PROFILE VIEW OF ROAD A STA 0+00 TO STA 5+52.00

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CONTACT: KEVIN RYMAN

Client Name:

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TOWNHOMES

WIRE ROAD @ DRIFTWOOD RD
CITY OF ZEPHYRHILLS, FL
PASCO COUNTY
PH: (813) 782-0825
CONTACT: KEVIN RYMAN

Project Name & Location:

PLAN & PROFILE
ROAD A

Drawing Name:

Date: 07/13/21

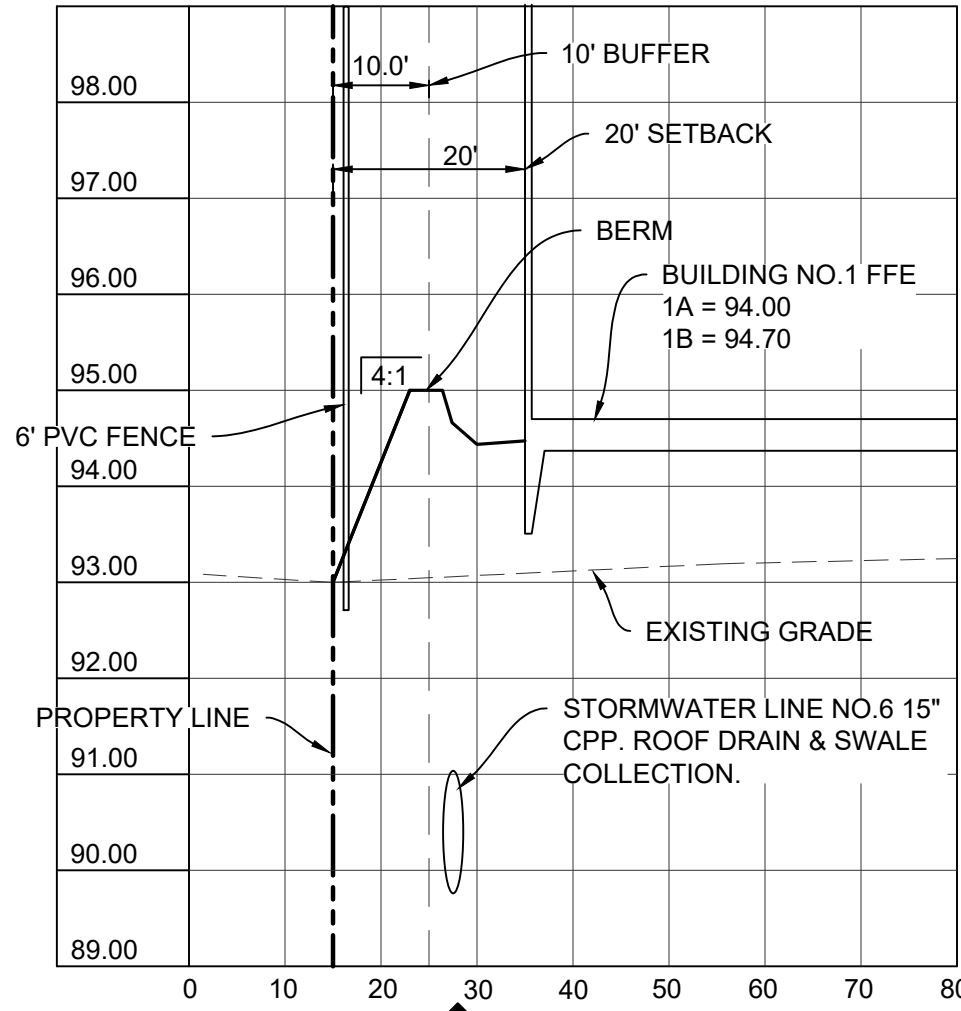
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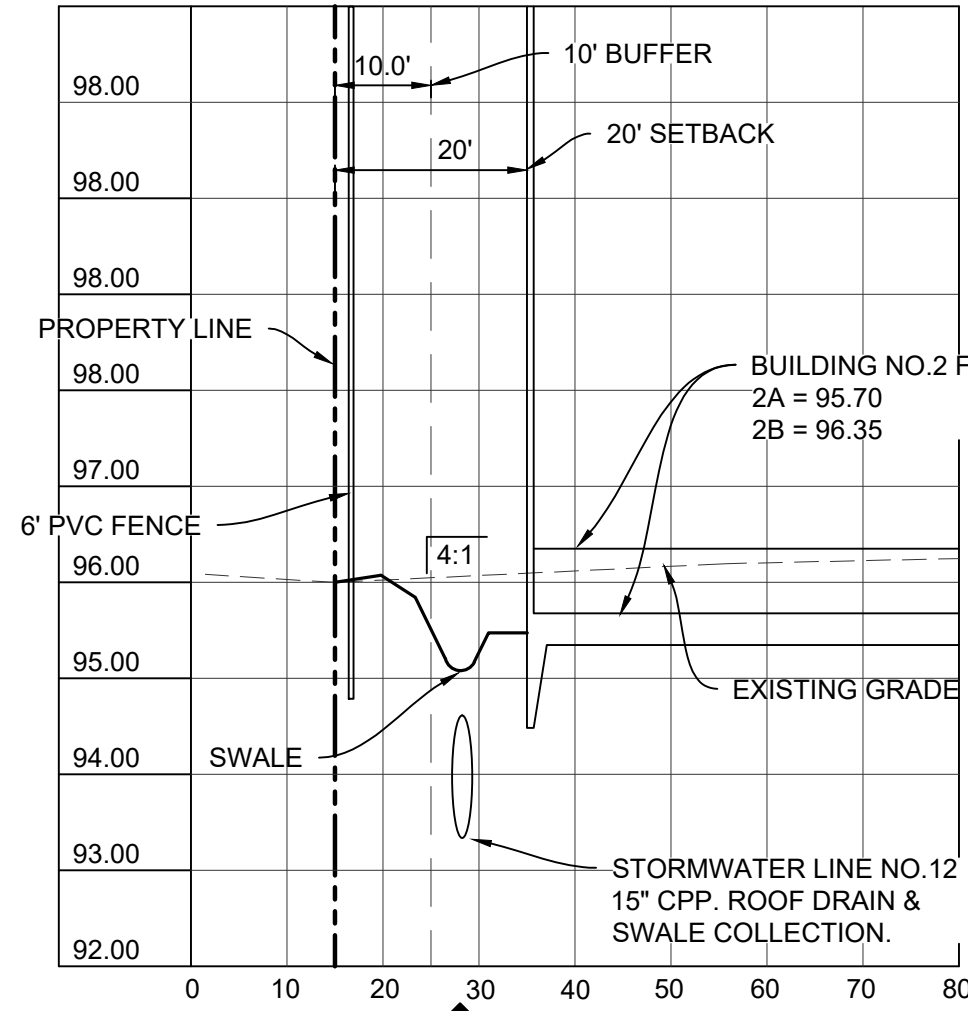
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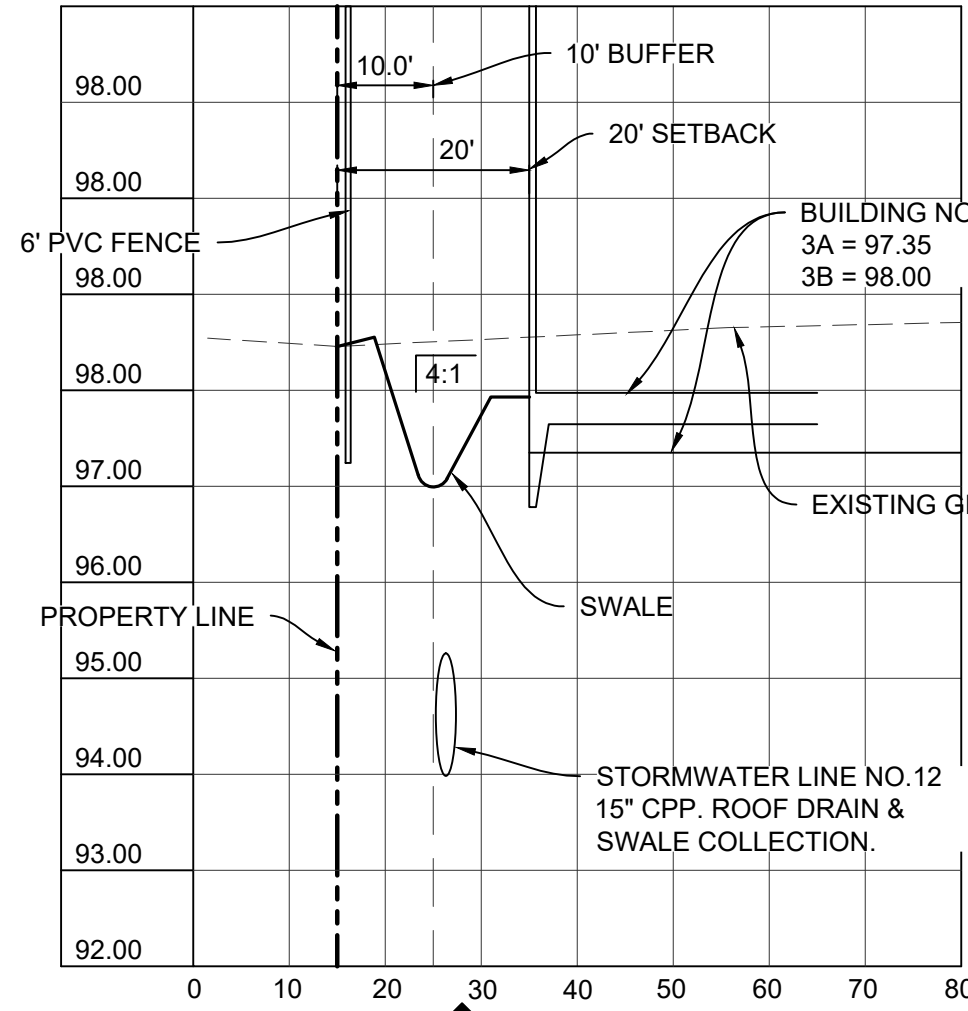
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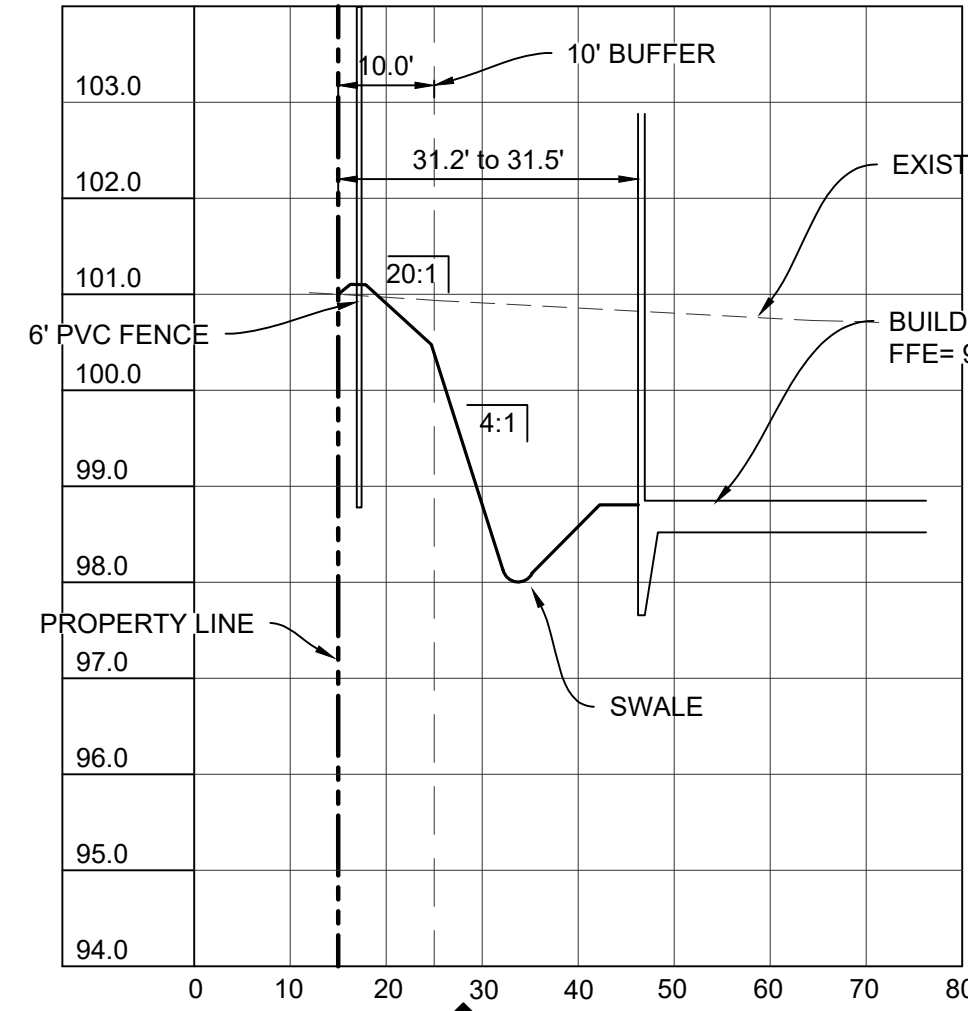
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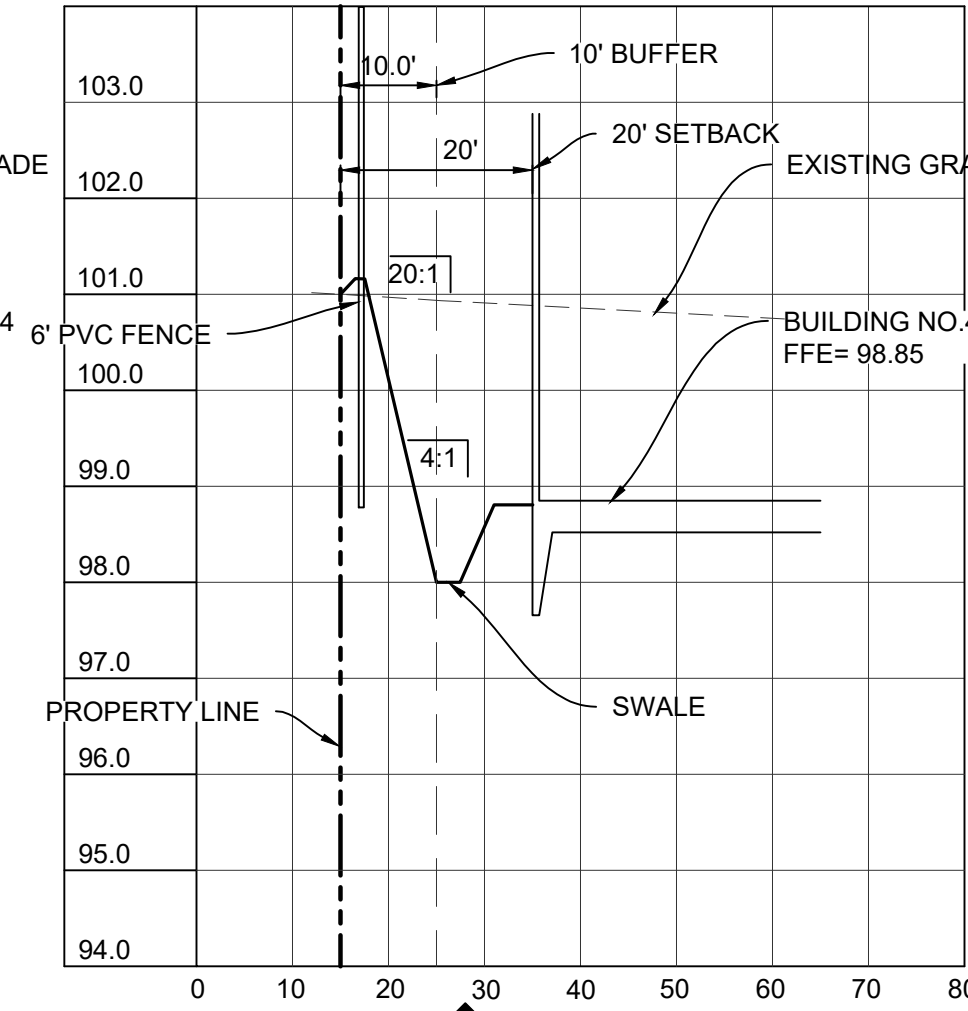
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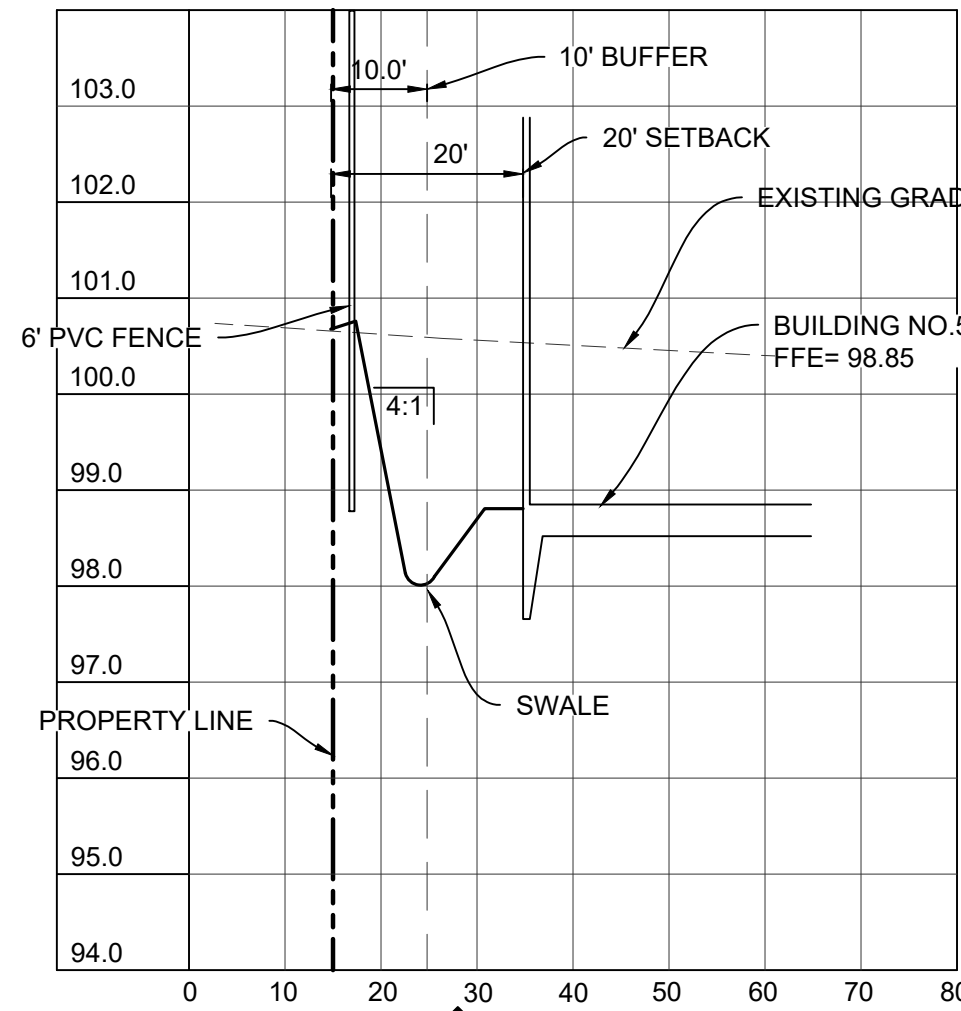
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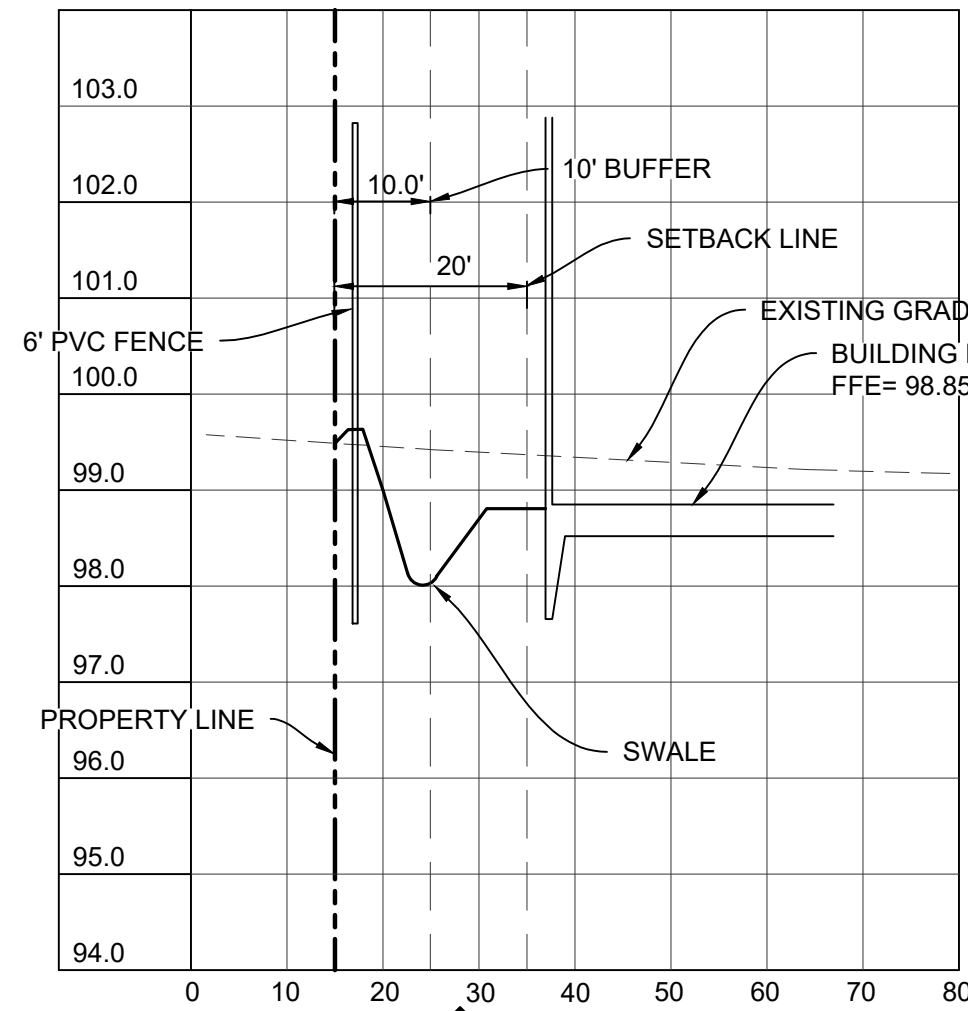
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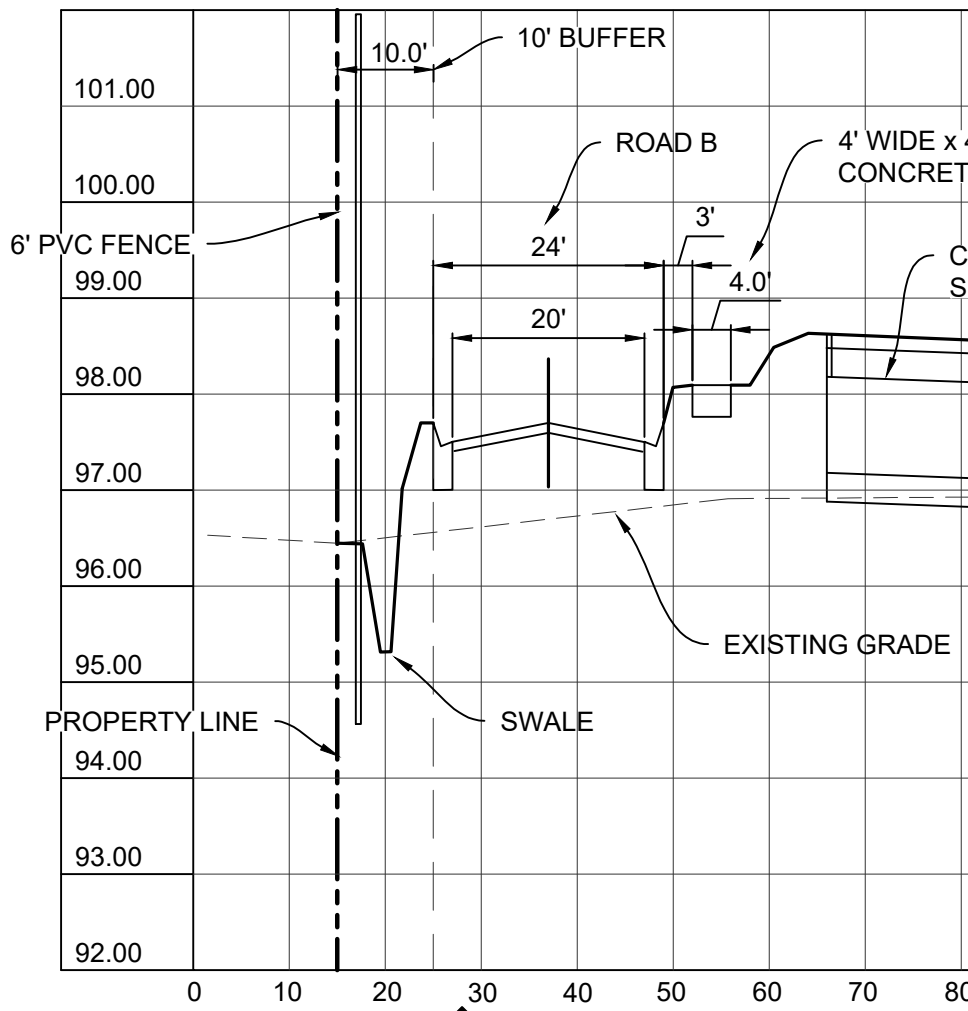
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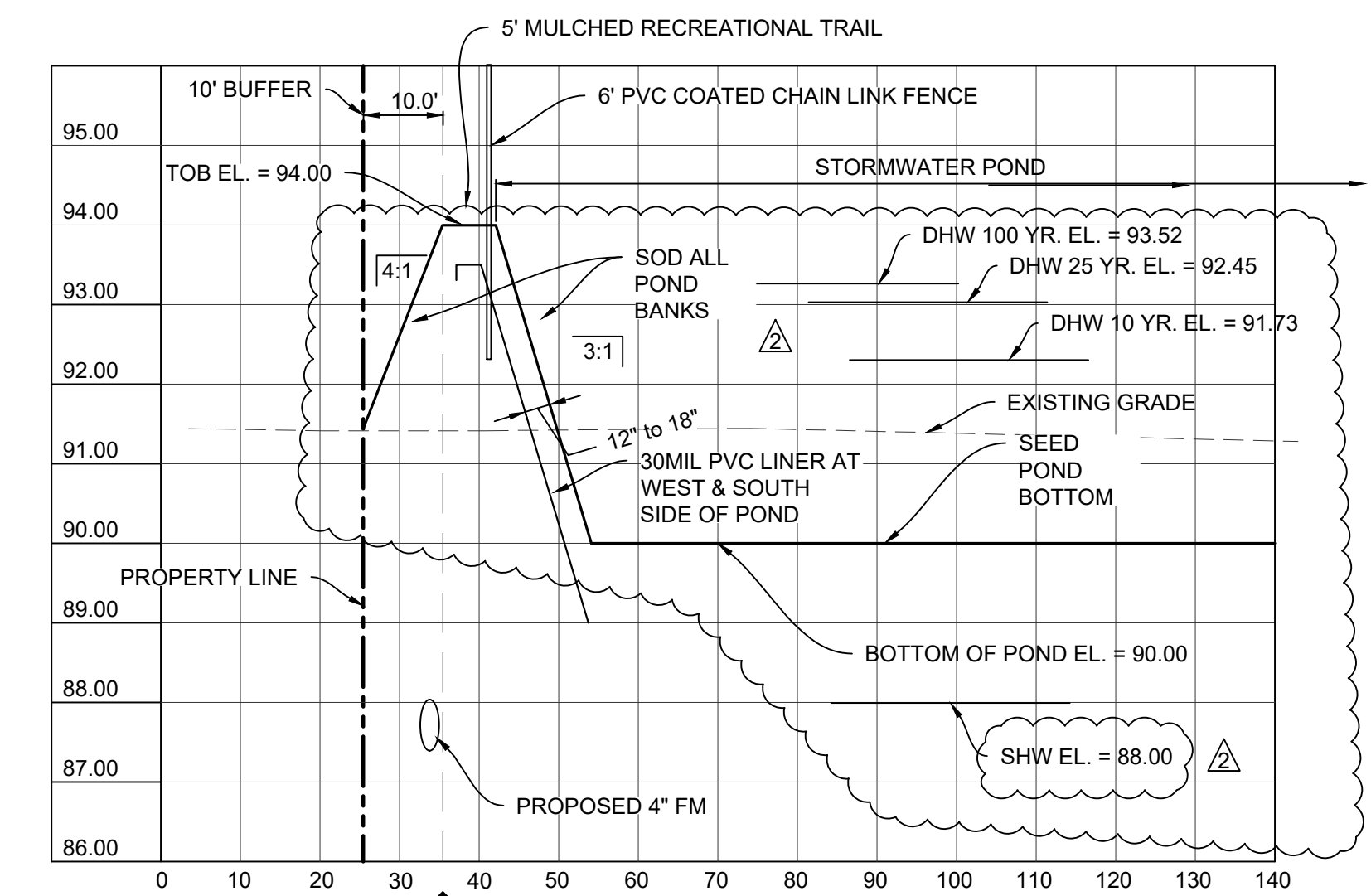
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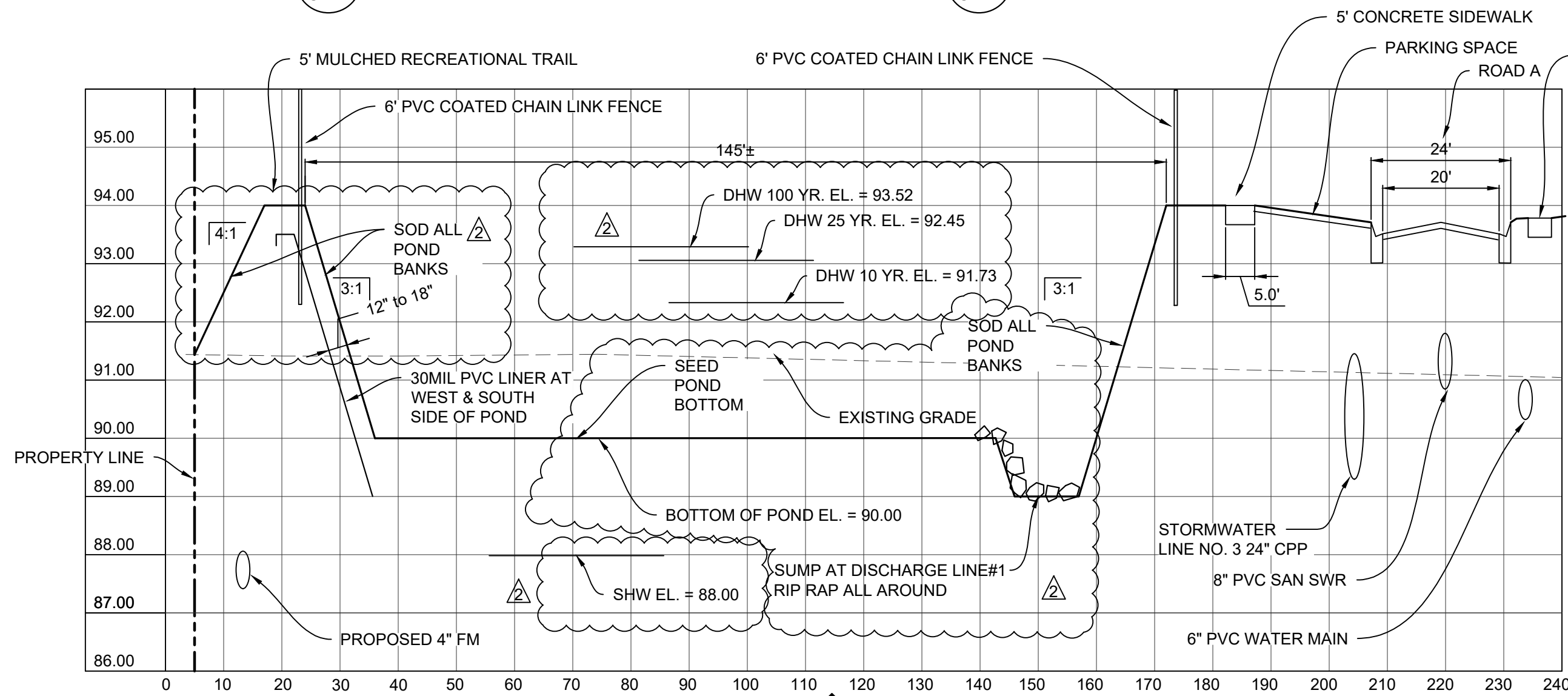
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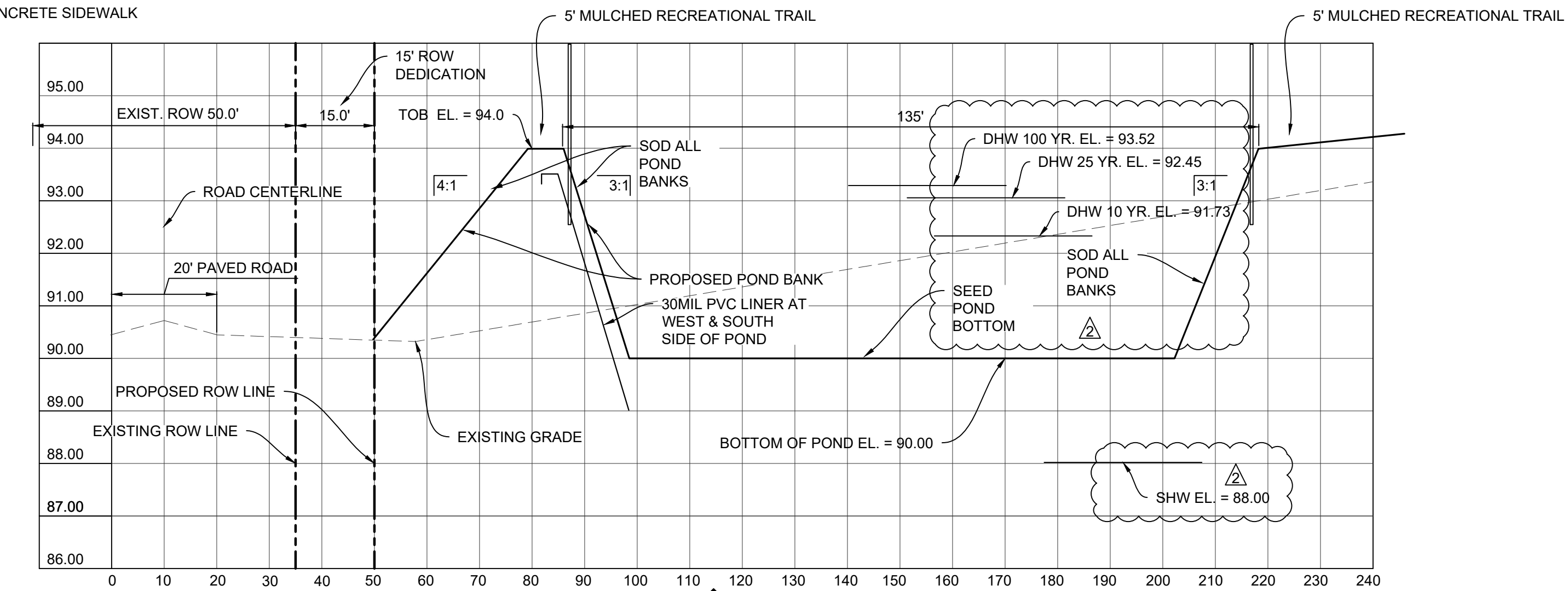
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SECTION 11
C-7.2

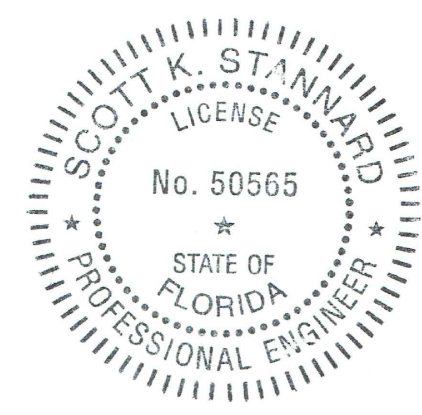
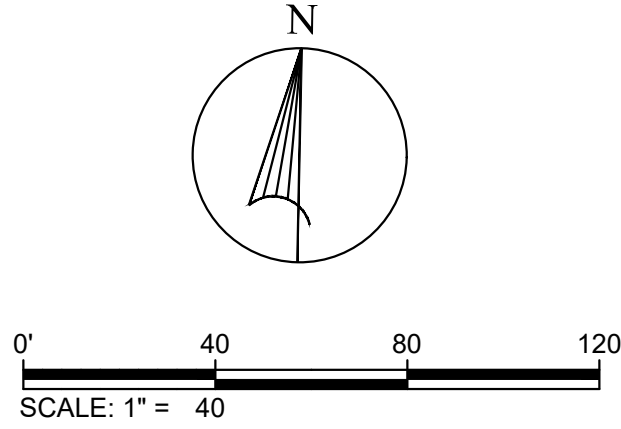


SECTION 12
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SECTION 13
C-7.2

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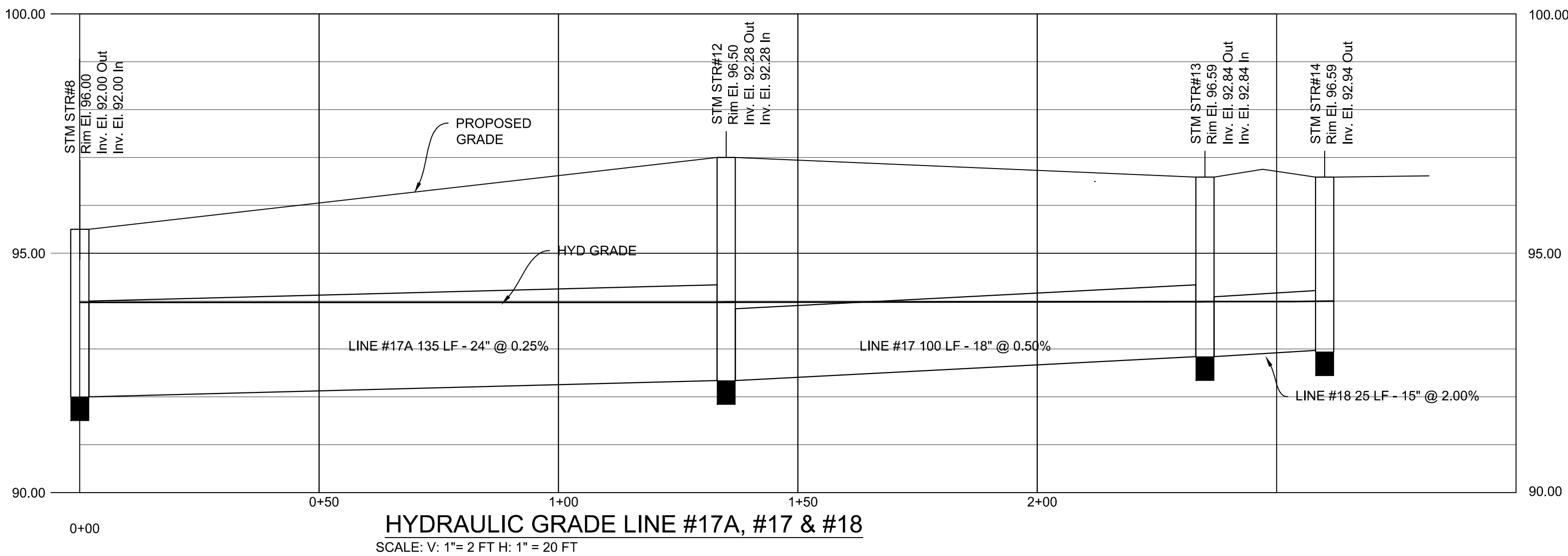
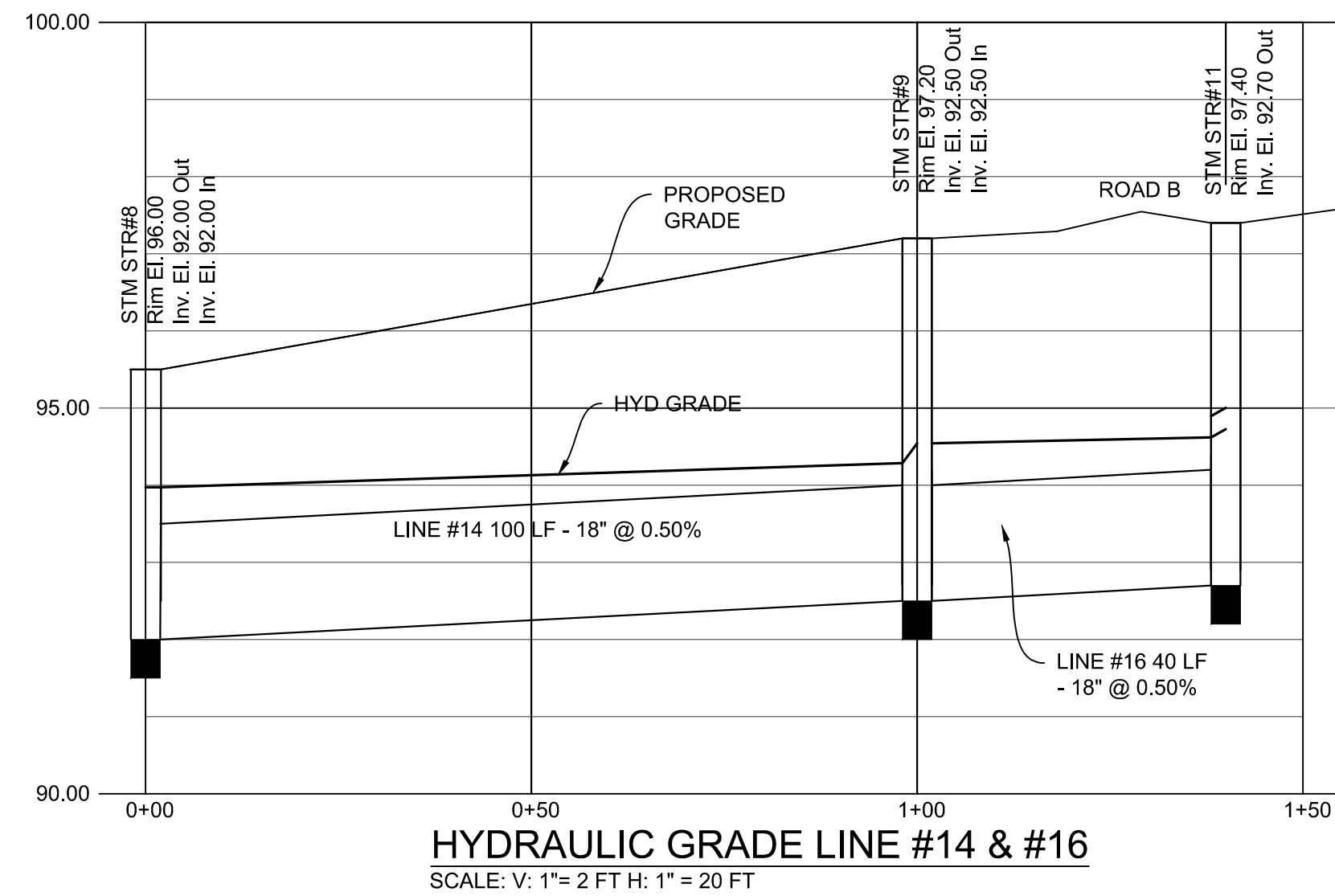
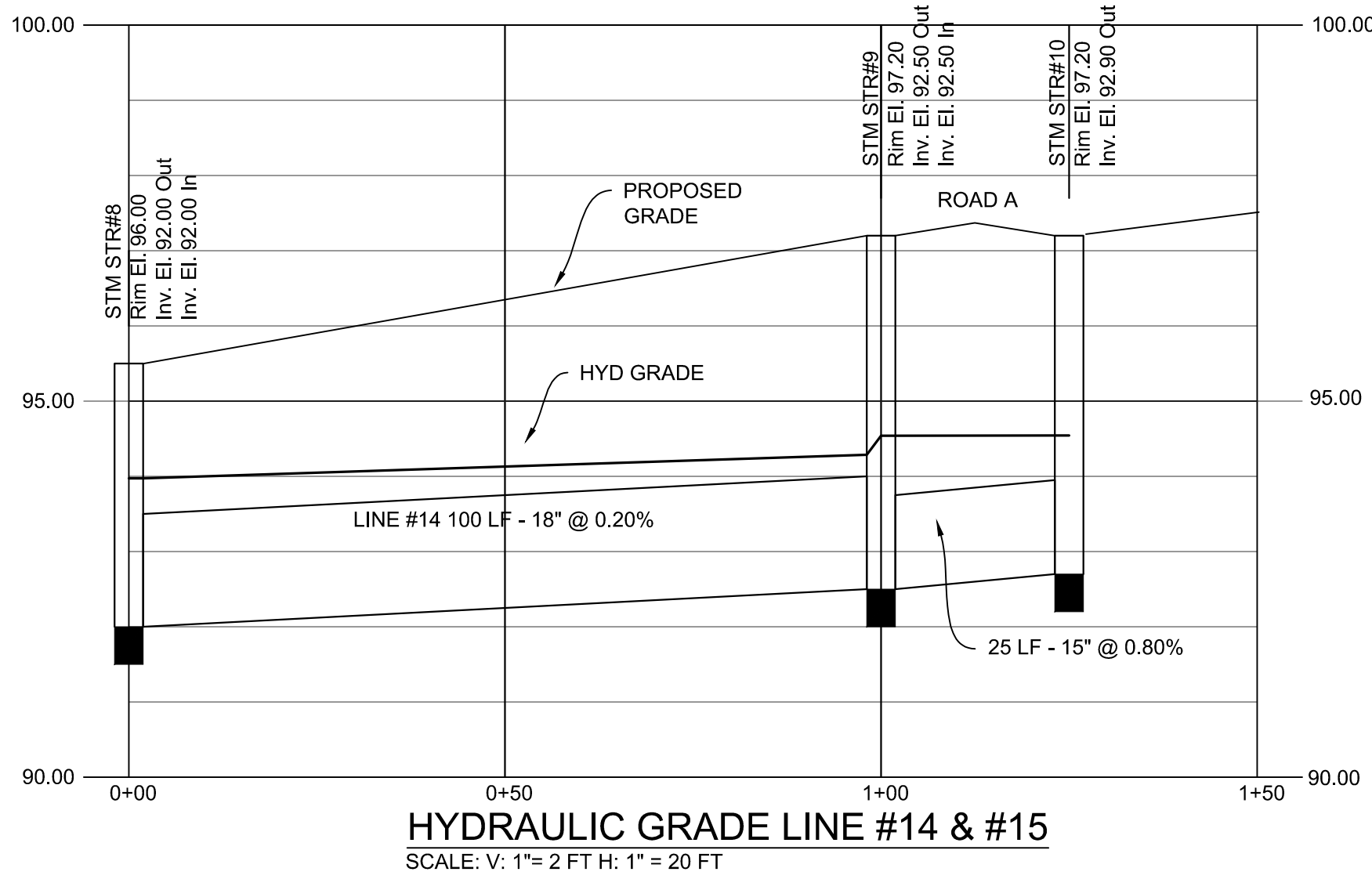
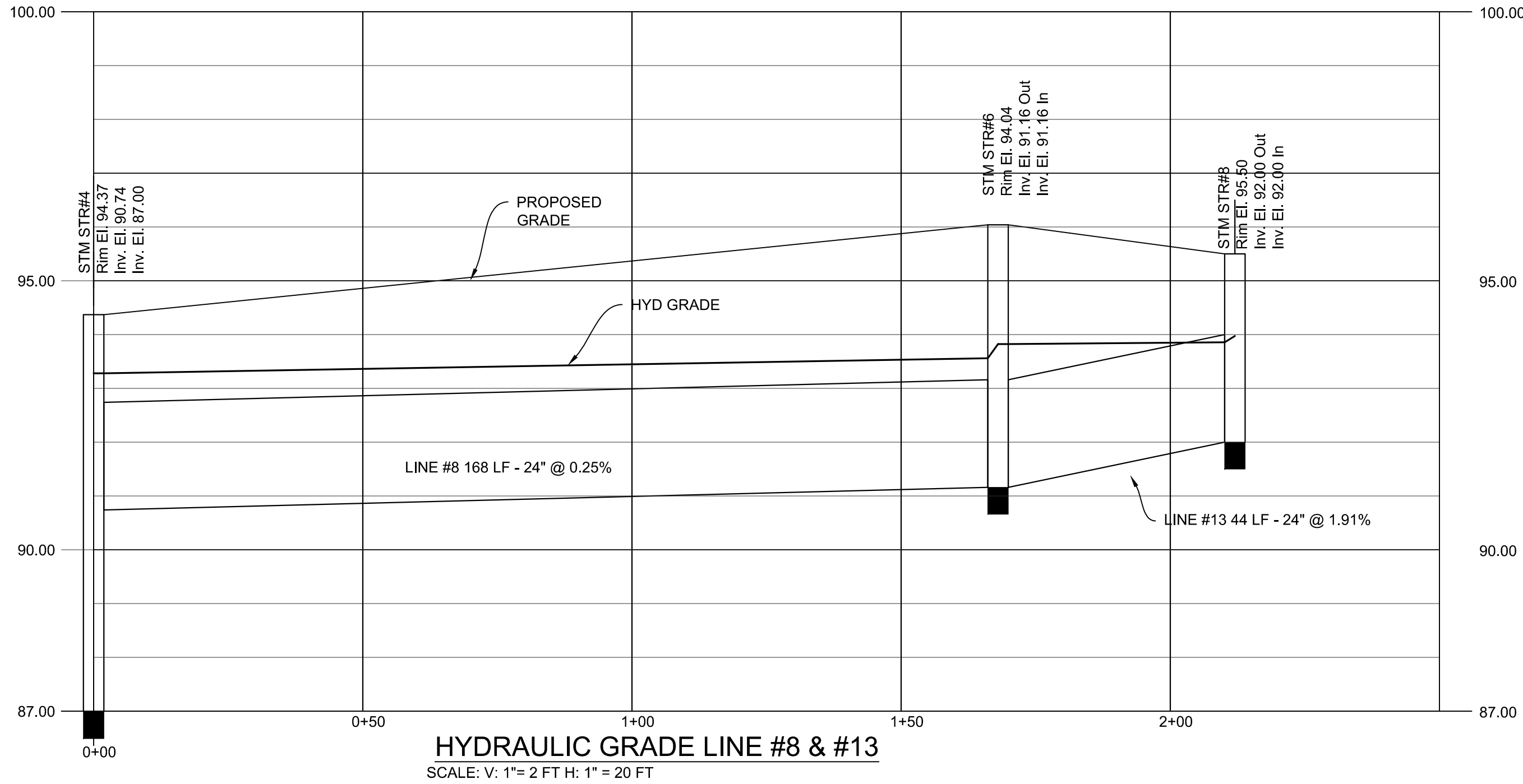
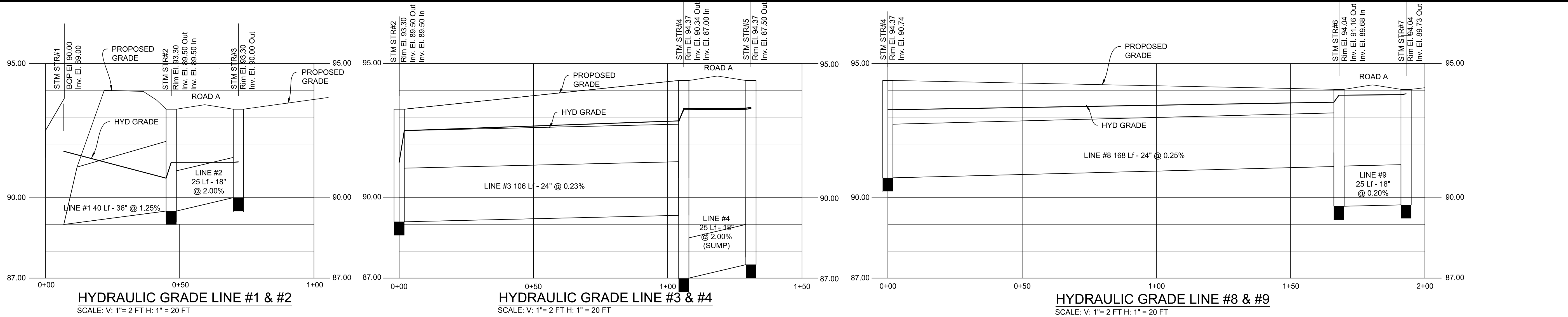
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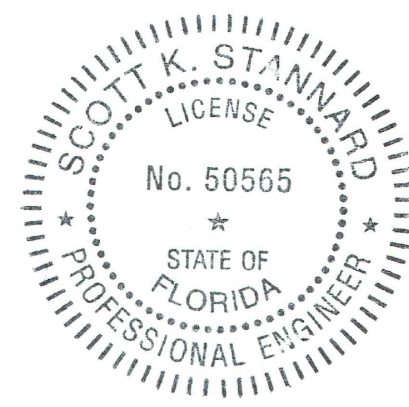
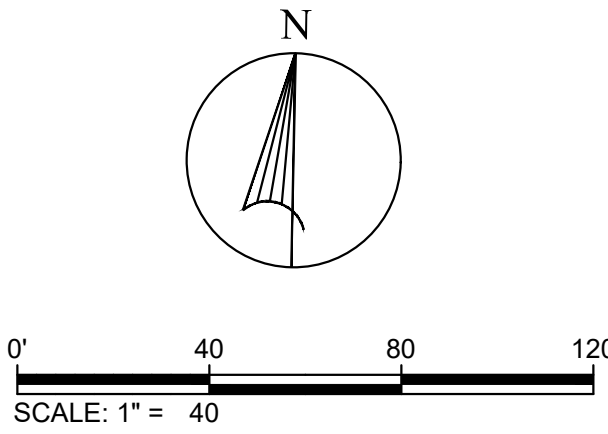
SECTIONS

Drawing Name:	Drawing No.
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Revised: XXX	
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HYDRAULIC GRADE CALCULATED AT A 10 YEAR 24 HOUR STORM EVENT

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**DRAINAGE
PROFILES**

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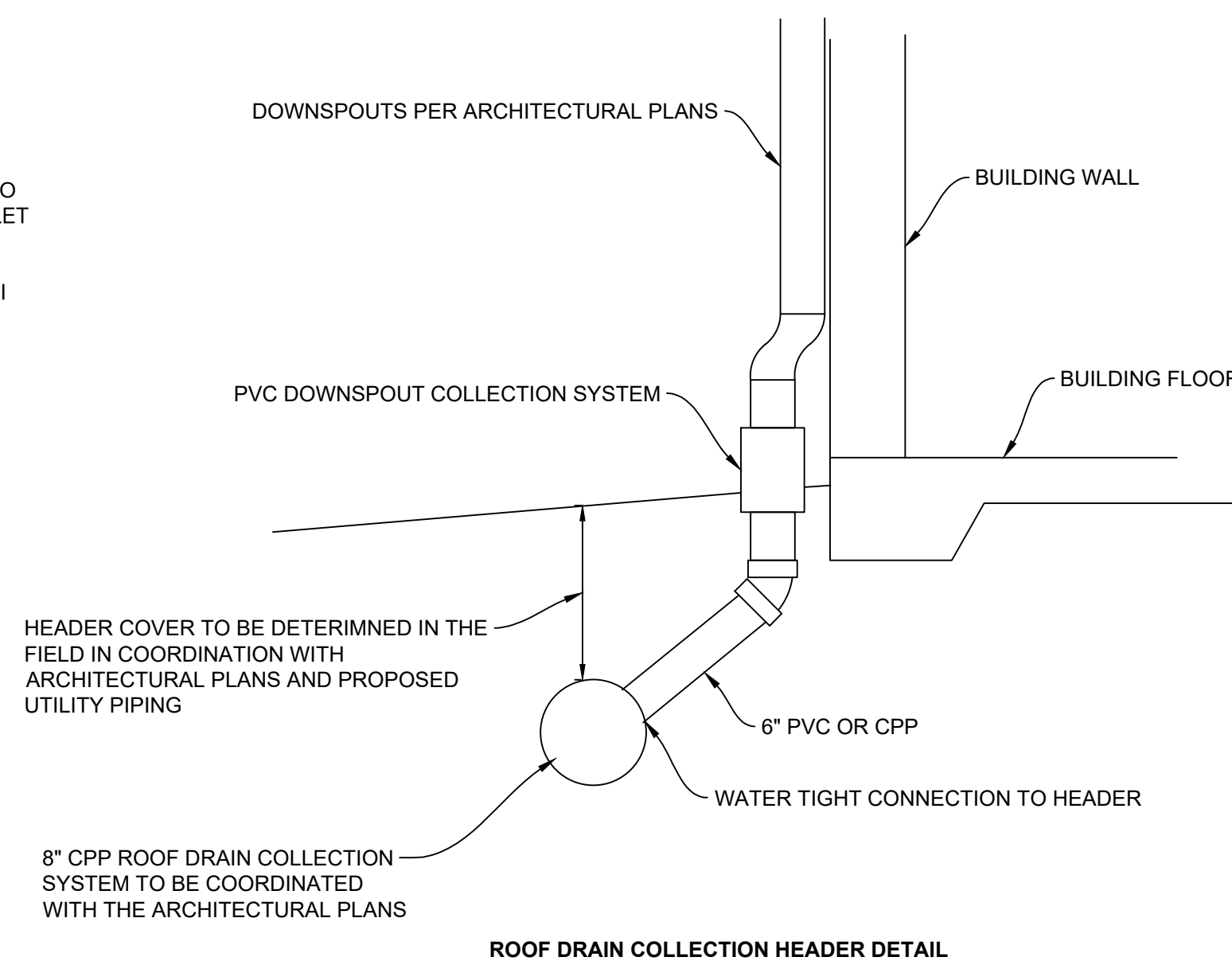
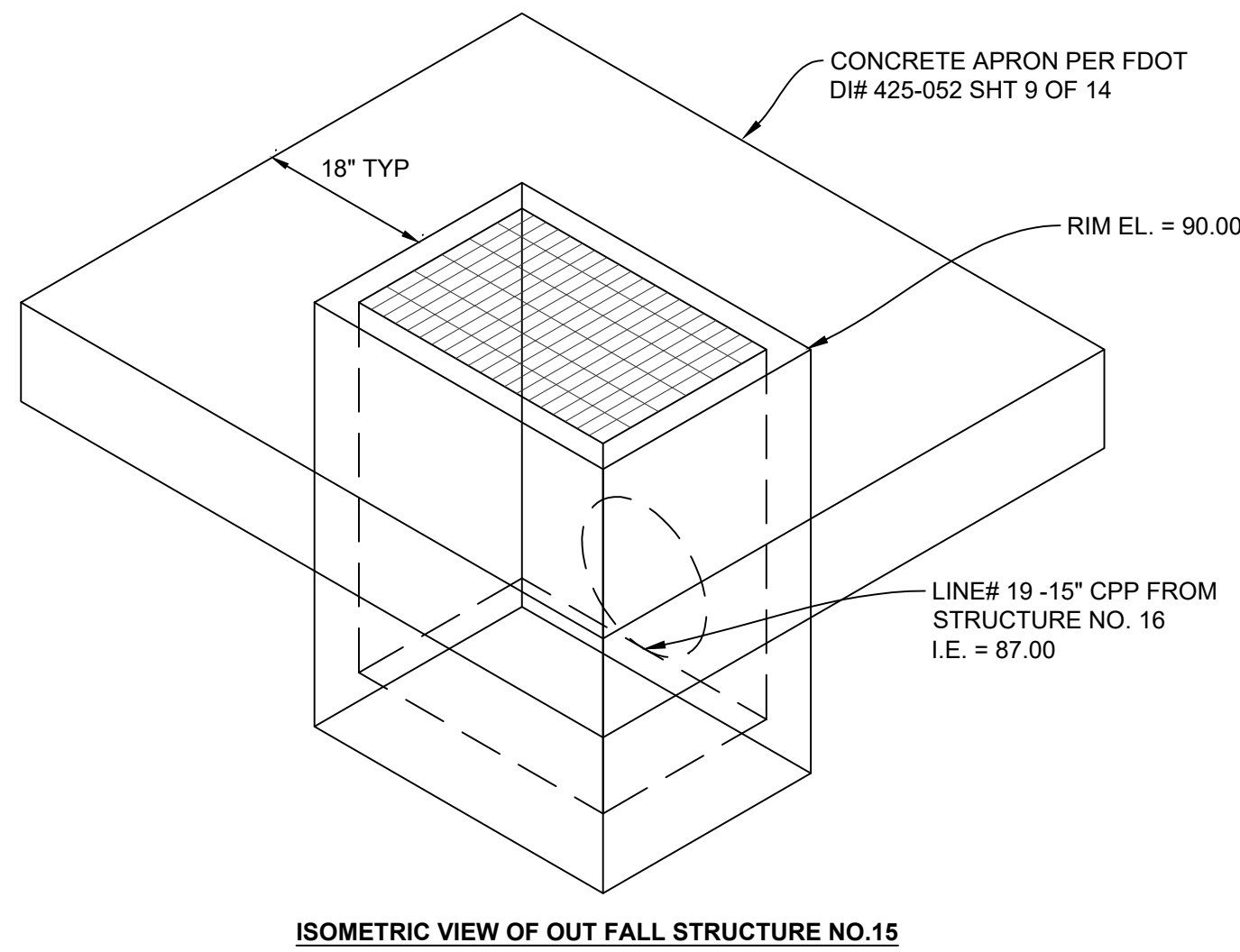
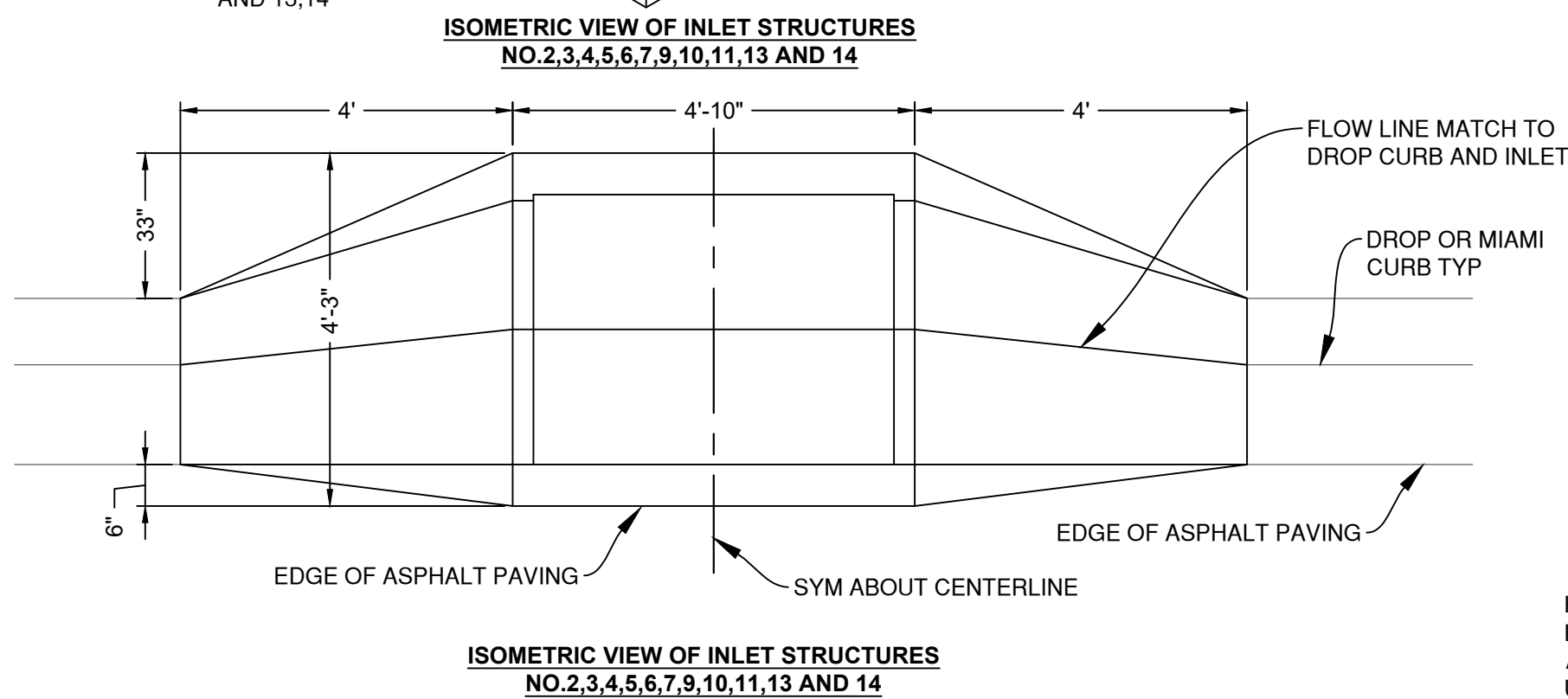
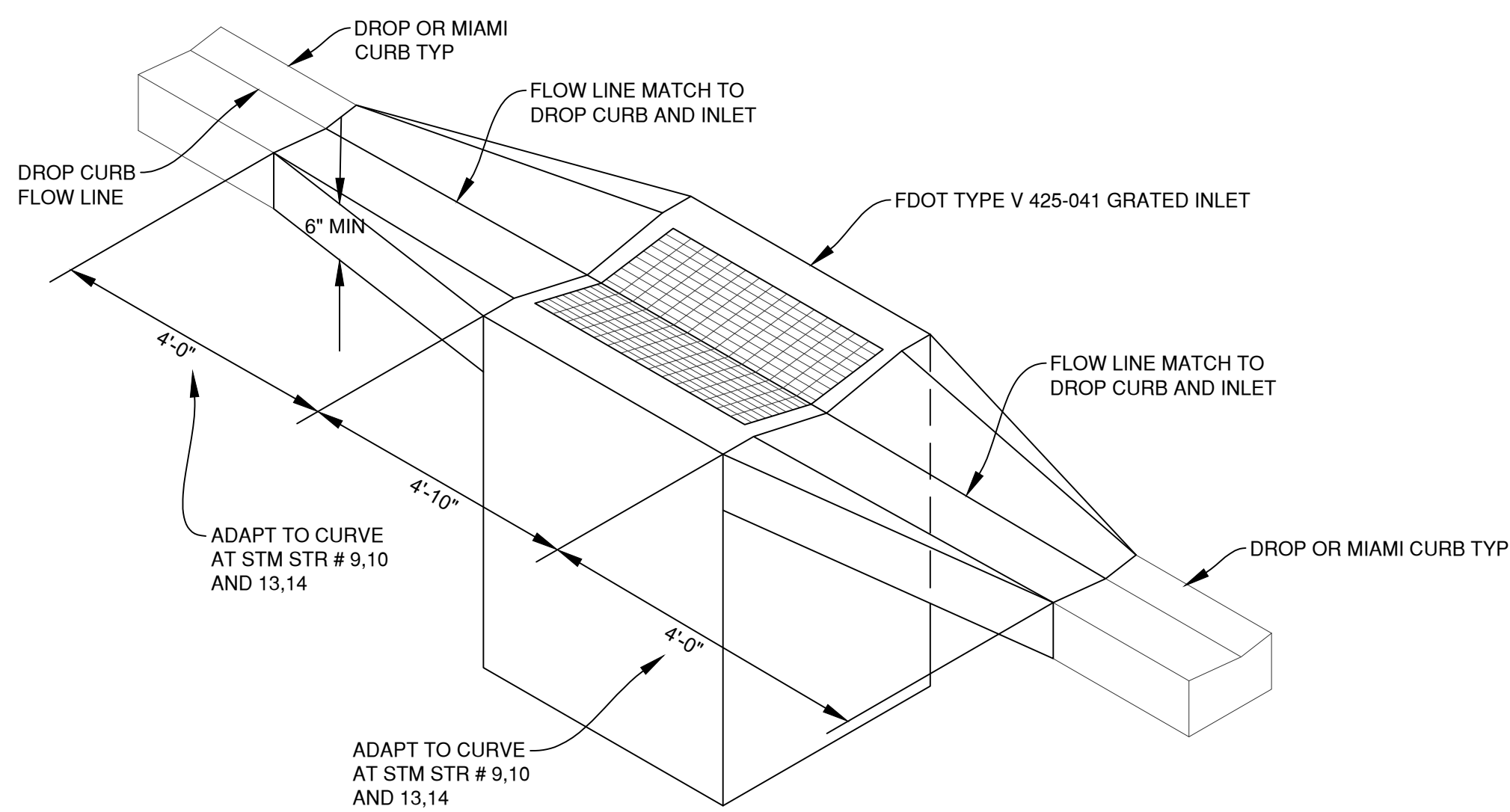
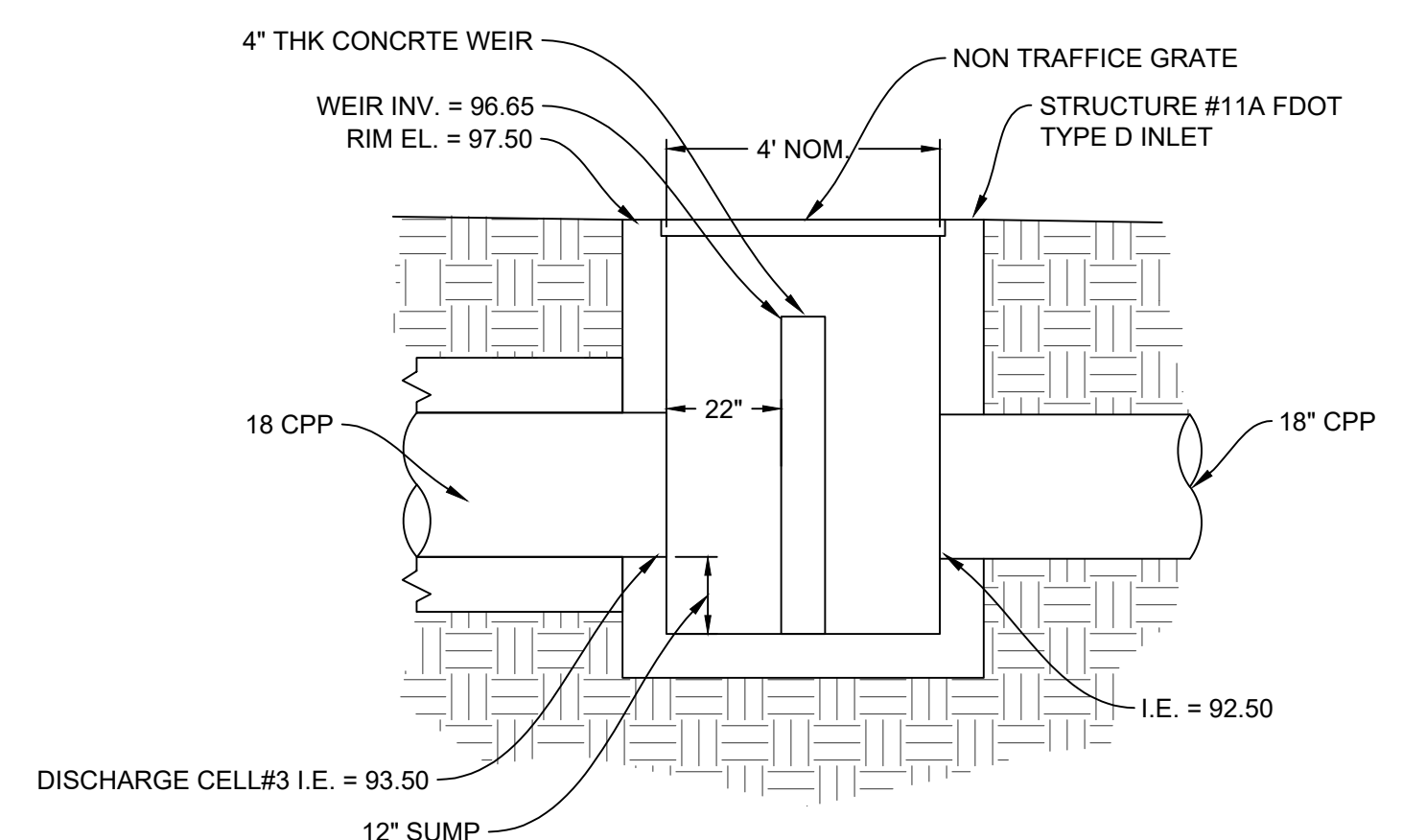
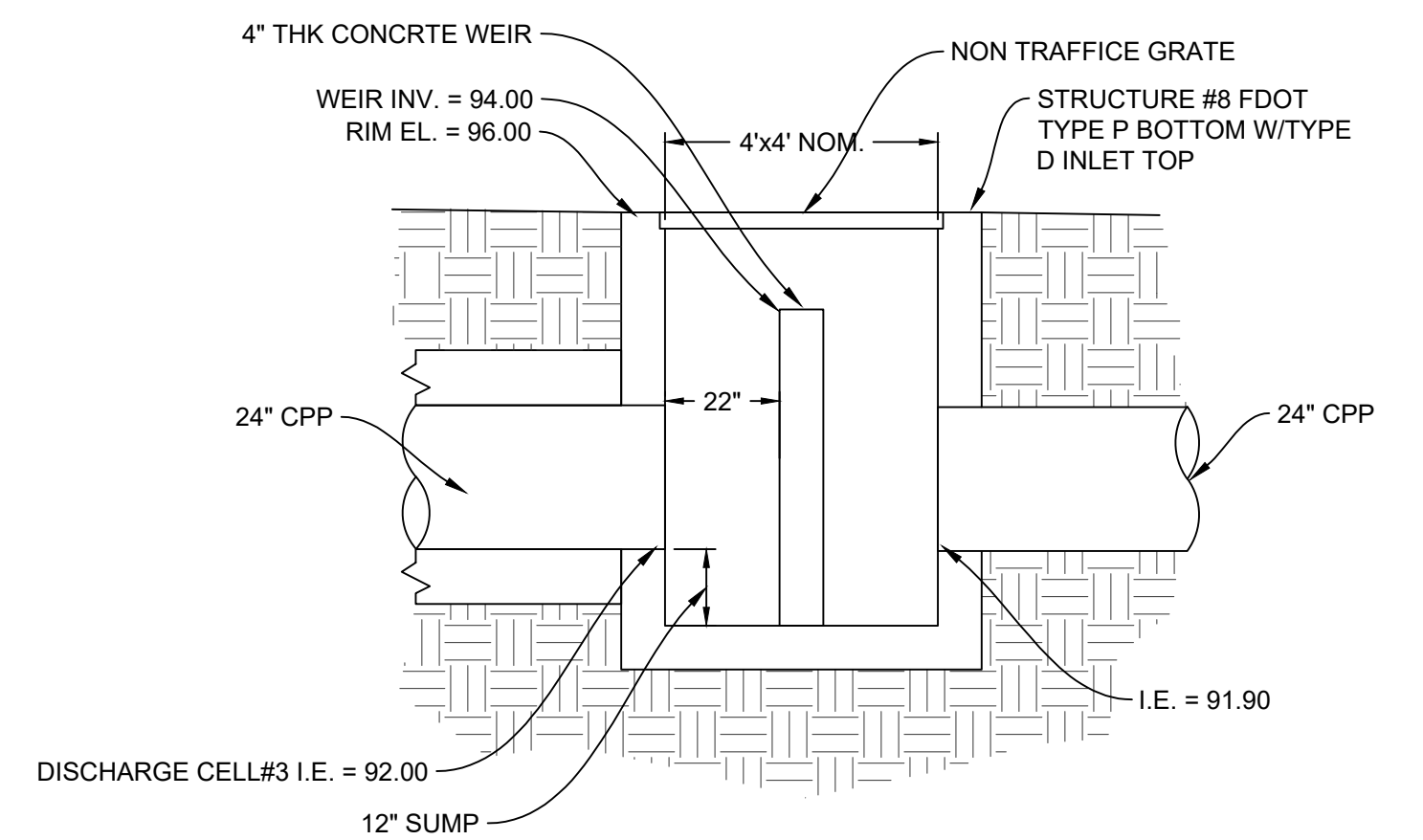
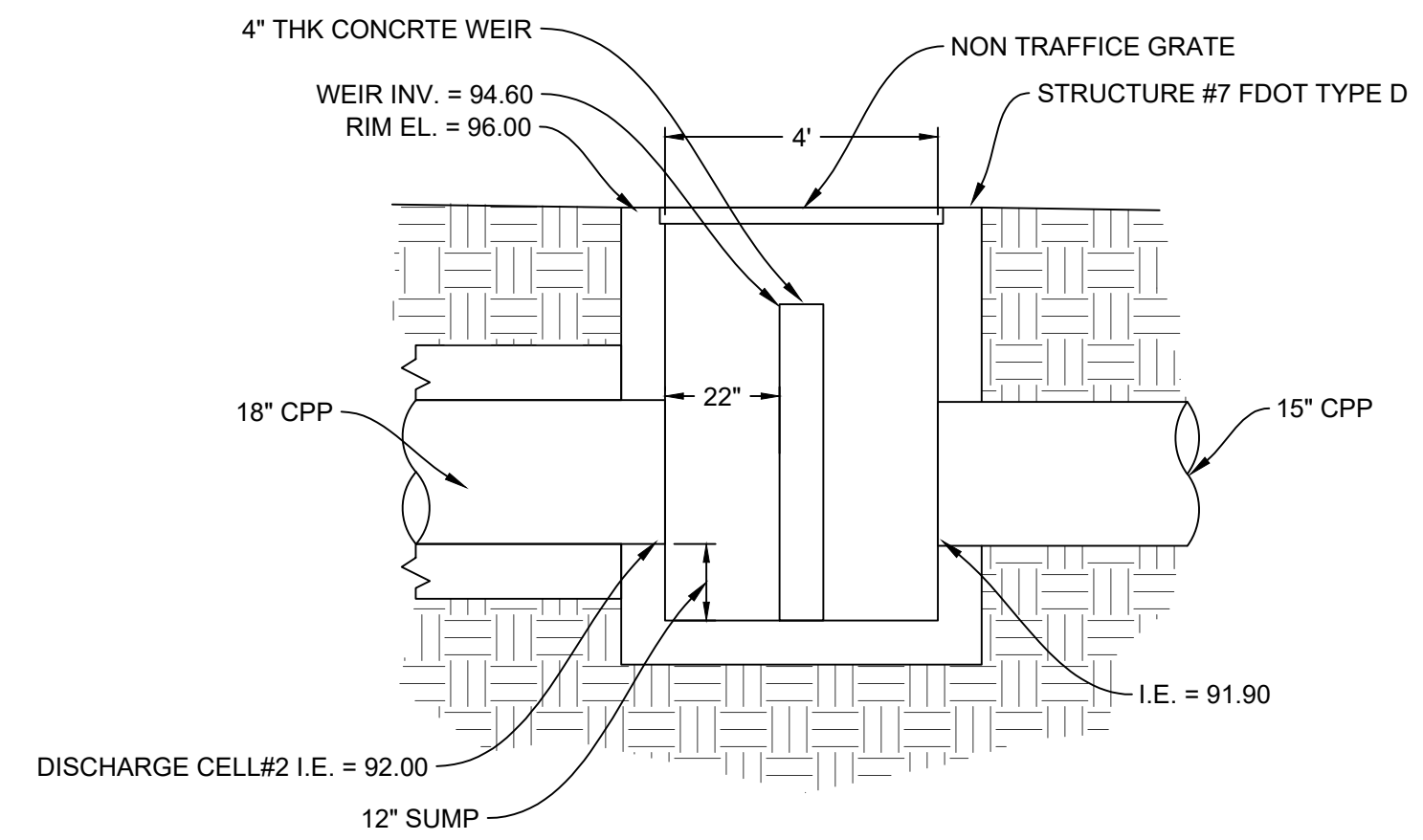
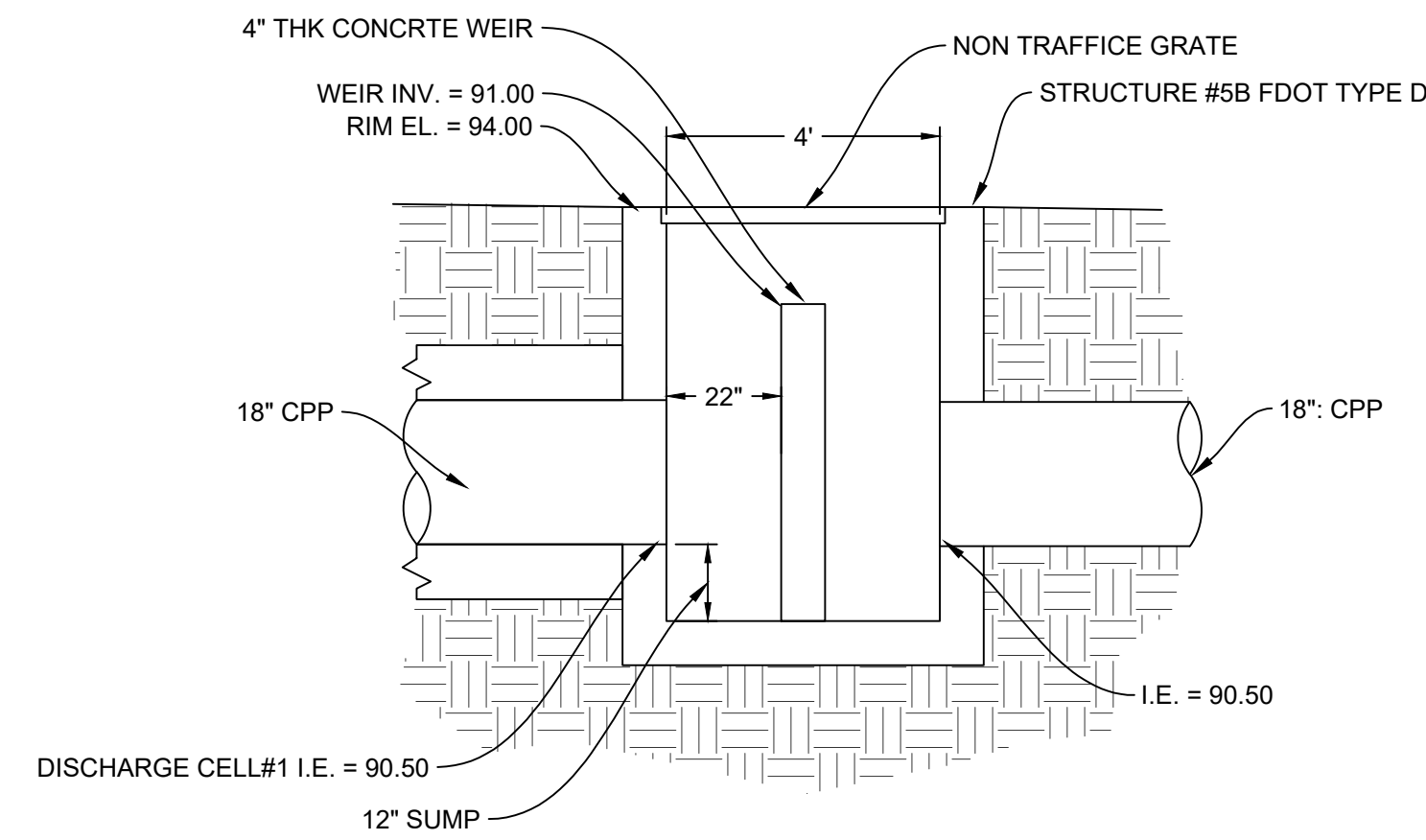
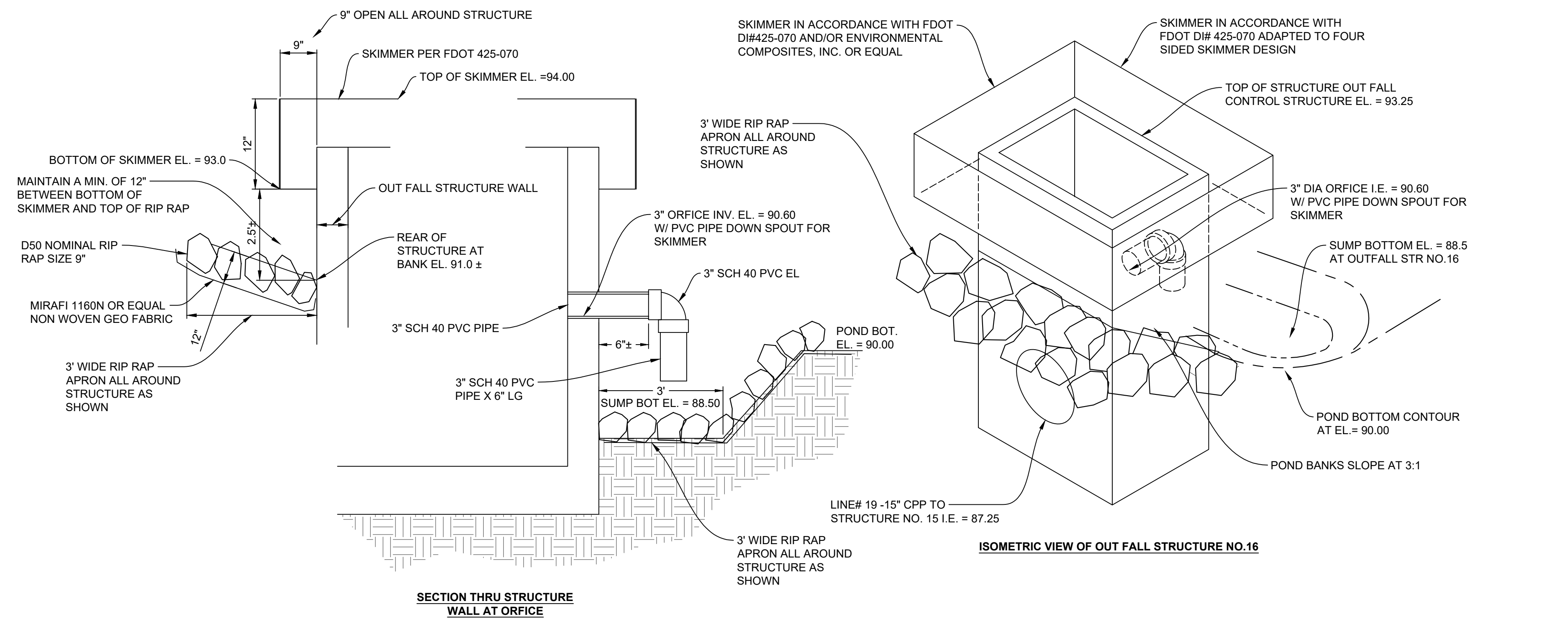
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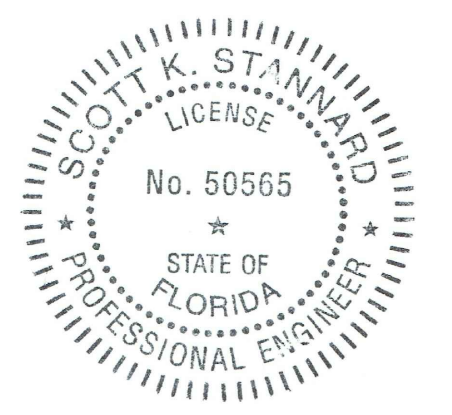
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Project Name & Location:

GRADING AND DRAINAGE DETAILS

Drawing Name:

Date: 07/13/21

Revised: XXX

Drawn: sks

Checked: SKS

Drawing No.

C-7.4

LEGEND

EROSION NOTES

- PS PERMANENT SEEDING
- TS TEMPORARY SEEDING
- TPS TEMPORARY PARKING AND STORAGE
- PROVIDE BARRICADE AT ALL ENTRANCE LOCATIONS W/IO TEMP STONE CONSTRUCTION EXIT

PROPOSED

- BOUNDARY LINE
- RIGHT OF WAY LINE
- LIMITS OF DISTURBANCE
- GRADE BREAK
- CONTOUR ELEVATIONS
- STORM DRAIN
- DIRECTION OF OVERLAND FLOW W/ GRADE
- LIMITS OF DRAINAGE SUB-BASIN

EROSION DETAILS

- TEMPORARY STONE CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TREE PROTECTION FENCE
- TEMPORARY SEDIMENT TRAP
- GRAVEL CURB INLET SEDIMENT FILTER
- GRAVEL CURB OPENING PROTECTION

NOTE: DISPOSAL OF SEDIMENT, SEDIMENT REMOVED FROM SILT FENCE, INLET PROTECTION, SEDIMENT PONDS AND TRAPS, ETC. DURING THE COURSE OF CONSTRUCTION, SHALL BE PLACED ON THE TOPSOIL STOCKPILE AND RESPREAD AT THE END OF THE PROJECT. SEDIMENT REMOVED FROM THESE ITEMS AFTER THE SITE HAS BEEN SEEDED, SHALL BE HAULED OF SITE AND DISPOSED OF AT AN APPROVED, LICENSED SPOIL AREA THAT IS IN FULL COMPLIANCE WITH THE NPDES REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY APPROVALS NECESSARY TO ALLOW FOR THE DISPOSAL OF THIS MATERIAL IF HAULED OFF-SITE.

NOTE: CONTRACTOR SHALL NOT TRACK MUD/SEDIMENT ONTO ANY PUBLIC OR PRIVATE ROAD. IF TRACKING OR SEDIMENT BUILD UP OCCURS, CONTRACTOR IS RESPONSIBLE FOR CLEAN UP AND CONTAINMENT TO RESTORE ROAD TO ITS ORIGINAL CONDITION.

ACREAGE SUMMARY	
in ACRES	
TOTAL AREA OF PAVEMENT	1.248 AC±
TOTAL AREA ROOFED	1.450 AC±
TOTAL AREA SEEDED	0.00 AC±
TOTAL AREA SODDED	2.222 AC±
TOTAL DISTURBED	4.92 AC±

DEVELOPER/OWNER:
KTR INVESTMENT GROUP LLC
6814 OAKCREST WAY
ZEPHYRHILLS, FL 22542
813 782 0825
KEVIN RYMAN

OWNER/AUTHORIZED AGENT:

ACME DEVELOPMENT CO.
813 782 0825

SITE OPERATOR/GENERAL CONTRACTOR:

SUPERINTENDENT:

MAINTENANCE:

ALL MEASURES STATED ON THIS EROSION AND SEDIMENTATION CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.

2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.

3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.

4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

6. OUTLET STRUCTURES IN THE SEDIMENTATION BASIN SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASIN OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

7. ALL SLOPES 3:1 AND STEEPER SHALL RECEIVE EROSION CONTROL BLANKET PER SPECS.

SEQUENCE OF CONSTRUCTION - PHASE 1:

1. INSTALL ALL TREE PROTECTION FENCING AND SILT FENCE
2. INSTALL TEMPORARY STONE CONSTRUCTION ENTRANCE. INSTALL INLET PROTECTION ON EXISTING STRUCTURES
3. DEMOLISH & REMOVE ALL EXISTING PAVEMENT, STRUCTURES, AND UTILITIES.
4. INSTALL TEMPORARY DIVERSION DITCHES TO DIRECT RUNOFF TO EXISTING LOWS.
5. BEGIN MASS GRADING



LOCATION MAP

EROSION & SEDIMENT CONTROL NOTES:

A. THE STORMWATER POLLUTION PREVENTION PLAN IS COMPRISED OF THIS DRAWING ("SITE MAP"), THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN SPECIFICATIONS SECTION 02370 ("SWPPP"), PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.

B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.

C. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.

D. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.

E. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.

F. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.

G. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.

H. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.

I. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLotation BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

J. DUST ON THE SITE SHALL BE CONTROLLED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

K. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

L. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.

M. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS OR AS REQUIRED BY THE PERMIT.

N. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.

O. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

P. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

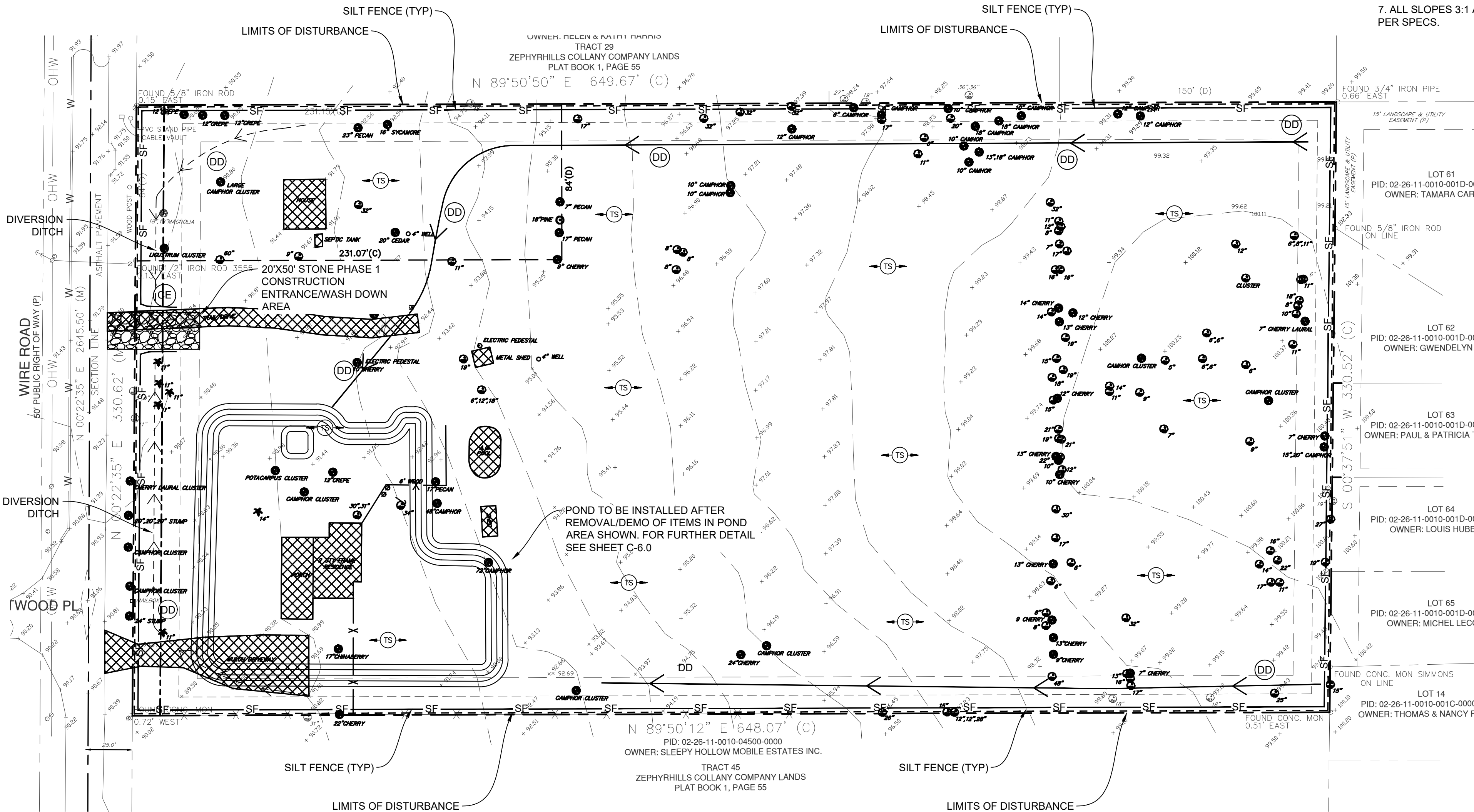
Q. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.

R. ON-SITE & OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE FIELD-LOCATED AND NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

S. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

T. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO PREVENT EROSION.

U. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.



NPDES NOTIFICATION (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM)

ATTENTION: THE EROSION / SEDIMENTATION LOCATIONS AND DETAILS SET FORTH IN THIS SITE PLAN HAVE BEEN DEVISED BY THE PROJECT ENGINEER TO MEET THE REQUIREMENTS OF THE FEDERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM. FAILURE TO MAINTAIN THESE CONTROLS, OR AN ILLICIT DISCHARGE RESULTING FROM THEIR FAILURE WILL LIKELY RESULT IN FINE CITATIONS.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION AS SPECIFIED ON THE FINAL APPROVED PLAN.

TREE BARRICADE PLACEMENT:

INSTALL TREE BARRICADES TO THE FULLEST EXTENT OF THE DRIP LINE OF ALL TREES AS POSSIBLE AND / OR TO THE MAXIMUM LIMIT OF IMPROVEMENT(S) AS POSSIBLE (OF COURSE REALIZING THAT THE TREE BARRICADES MAY HAVE TO BE "BACKED OFF" THE IMPROVEMENT(S) BY 1' TO 2' MAXIMUM TO INSTALL THE IMPROVEMENT(S)). DO NOT INSTALL TREE BARRICADES (SPECIFICALLY SILT FENCING MATERIAL) BY TRENCHING WITHIN THE DRIPLINE OF EXISTING TREES

THE LOCATION OF THE SILT FENCE AND CONSTRUCTION/TREE PROTECTION FENCING ON THE DRAWINGS IS FOR GRAPHICAL PURPOSES ONLY. THE CONTRACTOR IS TO ENSURE THAT THE SILT FENCE AND CONSTRUCTION/TREE PROTECTION FENCING ENCOMPASSES THE ENTIRE WORK AREA.

THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE CITY OF ZEPHYRHILLS AND FDEP INSPECTORS SO THAT PERIODIC INSPECTIONS CAN BE PERFORMED AT APPROPRIATE STAGES OF CONSTRUCTION. INSPECTION SCHEDULE MUST BE CARRIED OUT IN ACCORDANCE WITH JURISDICTIONAL REQUIREMENTS.

SITE SOIL IS COMPRISED OF:
• TAVARES SAND, 0 TO 5% SLOPES



NOTE: THE CONTRACTOR SHALL PROVIDE THE CITY OF ZEPHYRHILLS AND THE CONSULTING ENGINEER WITH A MINIMUM OF 72 HOURS ADVANCE NOTICE TO THE START OF CONSTRUCTION ACTIVITY. ACTIVITY IS DEFINED, BUT NOT NECESSARILY LIMITED TO INSTALLATION OF STONE CONSTRUCTION DRIVE, SILT FENCE, CLEARING AND GRUBBING, STRIPPING TOPSOIL, GRADING, AND INSTALLATION OF ANY UTILITY OR ROAD WORK. SITE INSPECTIONS BY THE CEC AS REQUIRED CAN THEN BE ARRANGED.

CAUTION

811: UTILITY LOCATOR SERVICE
3 DAYS BEFORE DIGGING CALL
TOLL FREE 1-(800) 432-4770
OR 811
A ONE CALL SYSTEM FOR COMMUNITY AND JOB SAFETY.

CAUTION
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SERVICE PROVIDER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN CORRESPOND TO ALL UTILITIES IN THE AREA. EXISTING UTILITIES MAY BE DEEPER OR SHALLER THAN SHOWN. THE EXACT LOCATION INDICATED, ALTHOUGH IT DOES CERTIFY THAT THEY ARE LOCATED AS CLOSELY AS POSSIBLE TO THE INFORMATION AVAILABLE, THE SERVICE PROVIDER DOES NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

Issued: Date:

A ISSUED FOR PERMITS 05-08-23

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Revisions: Date:

1 CITY UTILITY COMMENTS 05-22-23

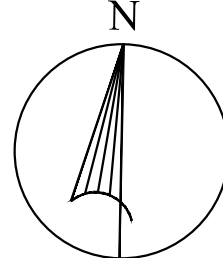
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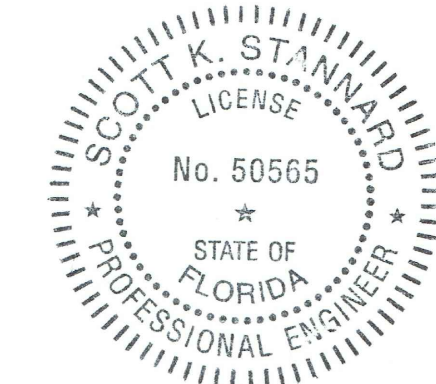
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0' 40' 80' 120'
SCALE: 1" = 40'



Scott K. Stannard, P.E.:

FL P.E. No. 50565 SEAL

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6814 OAKCREST WAY

ZEPHYRHILLS, FL 22542

PH: (813) 782-0825 (OFFICE)

CONTACT: KEVIN RYMAN

Client Name:

BROOKE-LYN TOWNHOMES

WIRE ROAD @ DRIFTWOOD RD

CITY OF ZEPHYRHILLS, FL

PASCO COUNTY

PH: (813) 782-0825

CONTACT: KEVIN RYMAN

Project Name & Location:

EROSION CONTROL PLAN PHASE 1

Drawing Name:

Date: 07/13/21

Revised: XXX

Drawn: sks

Checked: SKS

Drawing No.

C-8.0

LEGEND

EROSION NOTES

- PS PERMANENT SEEDING
- TS TEMPORARY SEEDING
- TPS TEMPORARY PARKING AND STORAGE
- PROVIDE BARRICADE AT ALL ENTRANCE LOCATIONS W/O TEMP STONE CONSTRUCTION EXIT

PROPOSED

- BOUNDARY LINE
- RIGHT OF WAY LINE
- LIMITS OF DISTURBANCE
- GRADE BREAK
- CONTOUR ELEVATIONS
- STORM DRAIN
- DIRECTION OF OVERLAND FLOW W/ GRADE
- LIMITS OF DRAINAGE SUB-BASIN

EROSION DETAILS

- TEMPORARY STONE CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TREE PROTECTION FENCE
- TEMPORARY SEDIMENT TRAP
- DRAIN BUDDY OR EQUAL INLET PROTECTION
- CURB OPENING PROTECTION

NOTE: DISPOSAL OF SEDIMENT. SEDIMENT REMOVED FROM SILT FENCE, INLET PROTECTION, SEDIMENT PONDS AND TRAPS, ETC. DURING THE COURSE OF CONSTRUCTION, SHALL BE PLACED ON THE TOPSOIL STOCKPILE AND RESPREAD AT THE END OF THE PROJECT. SEDIMENT REMOVED FROM THESE ITEMS AFTER THE SITE HAS BEEN SEEDED, SHALL BE HAULED OFF SITE AND DISPOSED OF AT AN APPROVED, LICENSED SPOIL AREA THAT IS IN FULL COMPLIANCE WITH THE NPDES REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY APPROVALS NECESSARY TO ALLOW FOR THE DISPOSAL OF THIS MATERIAL IF HAULED OFF-SITE.

NOTE: CONTRACTOR SHALL NOT TRACK MUD/SEDIMENT ONTO ANY PUBLIC OR PRIVATE ROAD. IF TRACKING OR SEDIMENT BUILD UP OCCURS, CONTRACTOR IS RESPONSIBLE FOR CLEAN UP AND CONTAINMENT TO RESTORE ROAD TO ITS ORIGINAL CONDITION.

SEQUENCE OF CONSTRUCTION - PHASE 2:

1. INSTALL ALL TREE PROTECTION FENCING AND SILT FENCE.
2. INSTALL TEMPORARY STONE CONSTRUCTION ENTRANCE. INSTALL INLET PROTECTION ON EXISTING STRUCTURES.
3. DEMOLISH & REMOVE ALL EXISTING PAVEMENT, STRUCTURES, AND UTILITIES.
4. INSTALL TEMPORARY DIVERSION DITCHES TO DIRECT RUNOFF TO EXISTING LOWS.
5. BEGIN MASS GRADING

ACREAGE SUMMARY	
in ACRES	
TOTAL AREA OF PAVEMENT	1.248 AC±
TOTAL AREA ROOFED	1.450 AC±
TOTAL AREA SEEDED	0.00 AC±
TOTAL AREA SODDED	2.222 AC±
TOTAL DISTURBED	4.92 AC±

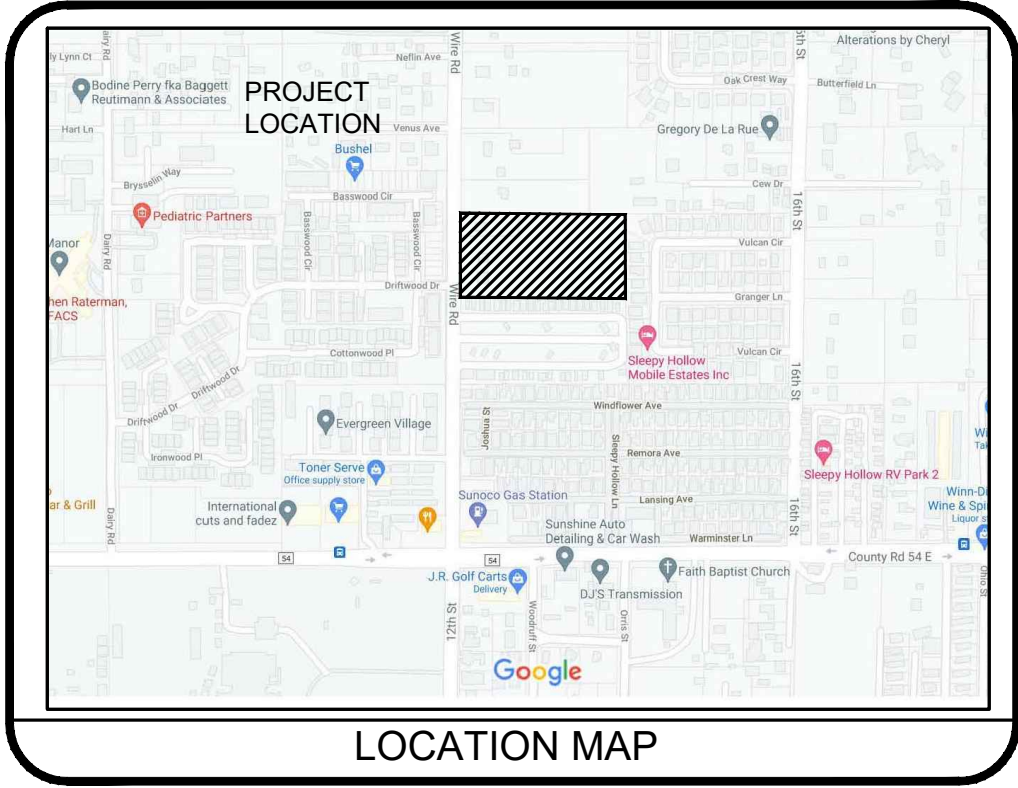
DEVELOPER/OWNER:
KTR INVESTMENT GROUP LLC
6814 OAKCREST WAY
ZEPHYRHILLS, FL 22542
813 782 0825
KEVIN RYMAN

OWNER/AUTHORIZED AGENT:

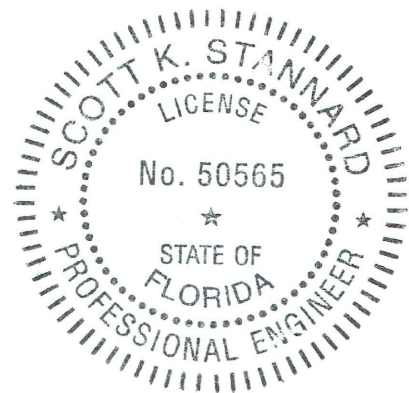
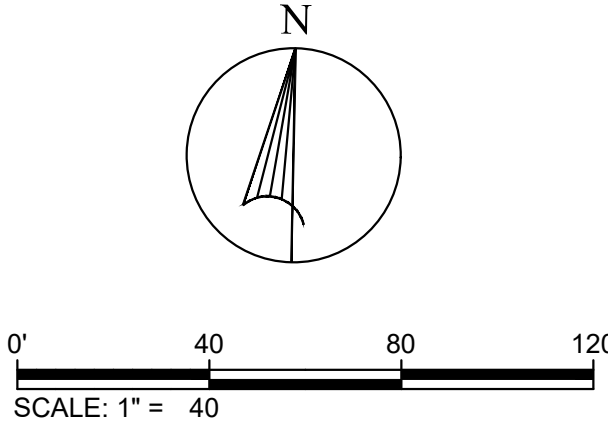
ACME DEVELOPMENT CO.
813 782 0825

SITE OPERATOR/GENERAL CONTRACTOR:

SUPERINTENDENT:



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PASCO COUNTY
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CONTACT: KEVIN RYMAN

Project Name & Location:

EROSION
CONTROL PLAN
PHASE 2

Drawing Name:

Date: 07/13/21

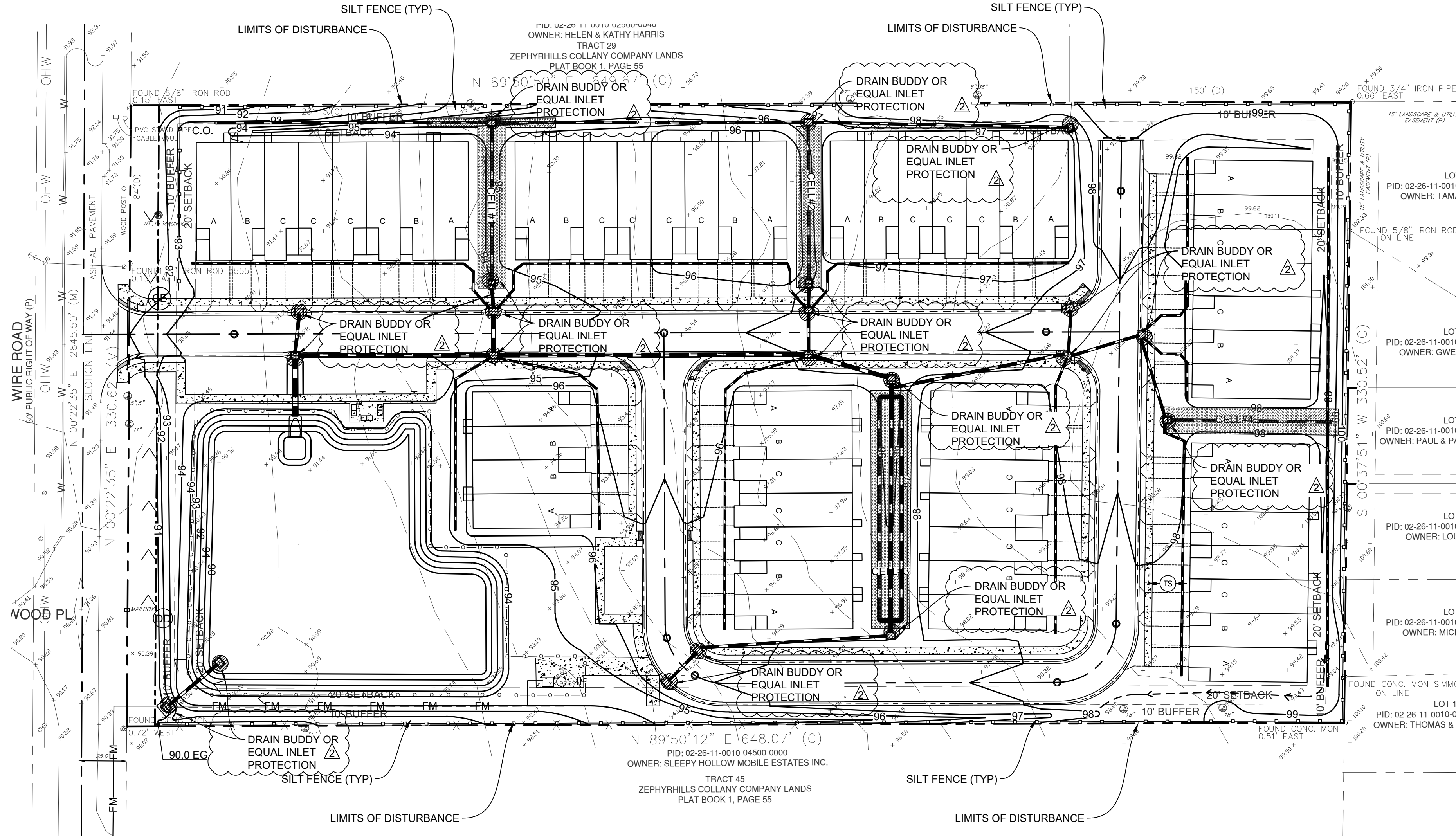
Revised: XXX

Drawn: sks

Checked: SKS

Drawing No.

C-8.1



NPDES NOTIFICATION
(NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM)

ATTENTION: THE EROSION / SEDIMENTATION LOCATIONS AND DETAILS SET FORTH IN THIS SITE PLAN HAVE BEEN DEVISED BY THE PROJECT ENGINEER TO MEET THE REQUIREMENTS OF THE FEDERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM. FAILURE TO MAINTAIN THESE CONTROLS, OR AN ILLICIT DISCHARGE RESULTING FROM THEIR FAILURE WILL LIKELY RESULT IN FINE CITATIONS.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION AS SPECIFIED ON THE FINAL APPROVED PLAN.

TREE BARRICADE PLACEMENT:

INSTALL TREE BARRICADES TO THE FULLEST EXTENT OF THE DRIP LINE OF ALL TREES AS POSSIBLE AND / OR TO THE MAXIMUM LIMIT OF IMPROVEMENT(S) AS POSSIBLE (OF COURSE REALIZING THAT THE TREE BARRICADES MAY HAVE TO BE "BACKED OFF" THE IMPROVEMENT(S) BY 1' TO 2' MAXIMUM TO INSTALL THE IMPROVEMENT(S). DO NOT INSTALL TREE BARRICADES (SPECIFICALLY SILT FENCING MATERIAL) BY TRENCHING WITHIN THE DRIPLINE OF EXISTING TREES

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4.3 Stabilized Construction Exit



Definition
A stabilized pad located at points where vehicles enter and leave a construction site.

Purpose
To reduce the amount of sediment transported onto public roads by motor vehicles or runoff.

Conditions Where Practice Applies
Wherever traffic will be leaving a construction site and moving directly onto a public road or other paved area.

Planning Considerations
Construction entrances provide an area where mud can be removed from construction vehicle tires before they enter a public road. If the action of the vehicle traveling over the stabilized pad is not sufficient to remove most of the mud, then the tires must be washed before the vehicle enters a public road. If the washing is provided, provisions must be made to intercept the wash water and trap the sediment before it is carried offsite. Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles.

Design Criteria

Aggregate Size
If stone is utilized, FDOT No. 1 Coarse Aggregate, 1 1/2 to 3 1/2 inch (4 to 9 cm) stone is suggested. Wood chips may be used for single-family residential construction, provided that they can be prevented from floating away during a storm event. Manufactured products also are available to prevent or reduce the amount of sediment tracked onto

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4.4.1 Silt Fence

Definition
A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. Some silt fence is wire reinforced for support.

Purpose
The purpose of a silt fence is to slow the velocity of water and retain sediment onsite.

Conditions Where Practice Applies
A silt fence should only be installed for sediment capture under sheetflow conditions. It should not be installed for channel flow conditions or in live streams or waterways.

Planning Considerations
Silt fences can trap a much higher percentage of suspended sediments than straw bales and are preferable to straw barriers in many cases. The most effective application is to install two parallel silt fences spaced a minimum of three feet apart. The installation and maintenance methods outlined here can improve performance.

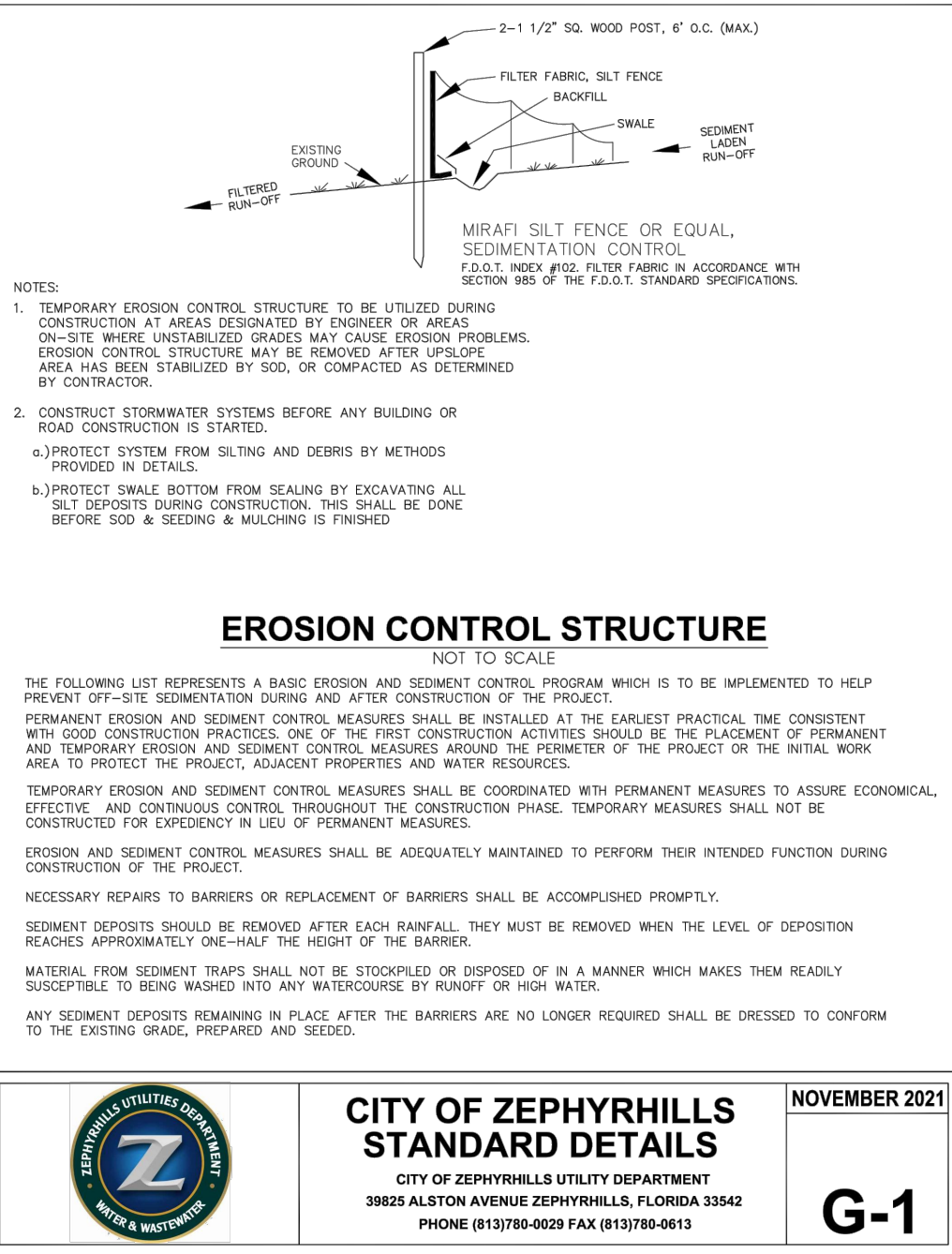


Silt fences composed of a wire support fence with attached synthetic filter fabric slow the flow rate significantly and have high filtering efficiency. Both woven and nonwoven synthetic fabrics are commercially available. The woven fabrics are generally stronger than the nonwoven fabrics. When tested under acid and alkaline water conditions, most of the woven fabrics increase in strength. There is a variety of reactions among the nonwoven fabrics. The same is true of testing under extensive ultraviolet radiation. Permeability rates vary regardless of fabric type. While all of the fabrics demonstrate high filtering efficiencies for sandy sediments, there is considerable variation among both woven and nonwoven fabrics when filtering finer silt and clay particles.

Design Criteria

1. No formal design is required for many small projects and for minor and incidental applications.
2. Silt fences shall have an expected usable life of six months. They are applicable around perimeters and stockpiles, and at temporary locations where continuous construction changes the earth contour and runoff characteristics.
3. Silt fences have limited applicability to situations in which only sheet or overland flows are expected. They normally cannot filter the volumes of water generated by channel flows, and many fabrics do not have sufficient structural strength to support the weight of water ponded behind the fence line.

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Construction Specifications

Materials

1. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester, or polyethylene yarn. It shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F. to 120°F. (17°C. to 49°C.).
2. The stakes for a silt fence shall be 1 x 2 inches (2.5 x 5 cm) wood (preferred), or equivalent metal with a minimum length of 3 feet (90 cm).
3. Wire fence reinforcement for silt fences using standard-strength filter cloth shall be a minimum of 36 inches (90 cm) in height, shall be a minimum of 14 gauge, and shall have a maximum mesh spacing of 6 inches (15 cm).

Sheetflow Application: Silt Fence
This sediment barrier uses standard-strength or extra-strength synthetic filter fabrics. It is designed for situations in which only sheet or overland flows are expected (see Figures 4.4a and 4.4b):

1. The height of a silt fence shall not exceed 36 inches (90 cm). Higher fences may impair volumes of water sufficient to cause failure of the structure.
2. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced as described in Item 8 below.
3. Posts shall be spaced a maximum of 10 feet (3 m) apart at the barrier location and driven securely into the ground a minimum of 12 inches (30 cm). When extra-strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet (1.8 m).
4. A trench shall be excavated approximately 4 inches (10 cm) wide and 4 inches (10 cm) deep along the line of posts and upslope from the barrier.
5. When standard-strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch (25 mm) long, 16 wires, or hog rings. The wire shall extend into the trench a minimum of 2 inches (5 cm) and shall not extend more than 36 inches (90 cm) above the original ground surface.
6. The standard-strength filter fabric shall be stapled or wired to the fence, and 8 inches (20 cm) of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches (90 cm) above the original ground surface.
7. When extra-strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In this case, the filter fabric is stapled or wired directly to the posts with all other provisions of Item 6 applying.

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7.4 Temporary Seeding

Definition
The establishment of temporary vegetative cover on disturbed areas by seeding with appropriate, rapidly growing annual plants.

Purposes

1. To reduce erosion and sedimentation by stabilizing disturbed areas that will not be brought to final grade within 7 days or more.
2. To reduce problems associated with mud and dust production from bare soil surfaces during construction.

Conditions Where Practice Applies
Where exposed soil surfaces are not to be fine graded for periods of 7 days or more. Such areas include denuded areas, soil stockpiles, berms, dams, the sides of sediment basins, and temporary road banks.

Specifications
Prior to seeding, install necessary erosion control practices such as berms, waterways, and basins.

Plant Selection
Select plants appropriate to the season, region, and site conditions. Consult with your local Agricultural Extension agent, county, FDEP, water management district, or FDOT office, or see Table 1.65a of the Florida Development Manual.

Seedbed Preparation
To control erosion on bare soil surfaces, plants must be able to germinate and grow. Seedbed preparation is essential. A soil test should be taken to determine liming and fertilization requirements. In the absence of a soil test, the following guidelines apply:

1. **Liming** – Where soils are known to be highly acid (pH 6.0 and lower), lime should be applied at the rate of 2 tons of pulverized agricultural limestone per acre.
2. **Fertilizer** – Shall be applied as 217.5 pounds per acre (5 pounds/1,000 square feet) (504 kg/ha) of 50% slow-release 10-20-20 or equivalent. Lime and fertilizer shall be incorporated into the top 2 to 4 inches (5 to 10 cm) of the soil. If quick-release nitrogen is used, apply 2 to 3 weeks after seed has sprouted.
3. **Surface Roughening** – If the area has been recently loosened or disturbed, no further roughening is required. When the area is compacted, crusted, or hardened, the soil surface shall be loosened by discing, raking, harrowing, or other acceptable means (see SURFACE ROUGHENING in this chapter).

229

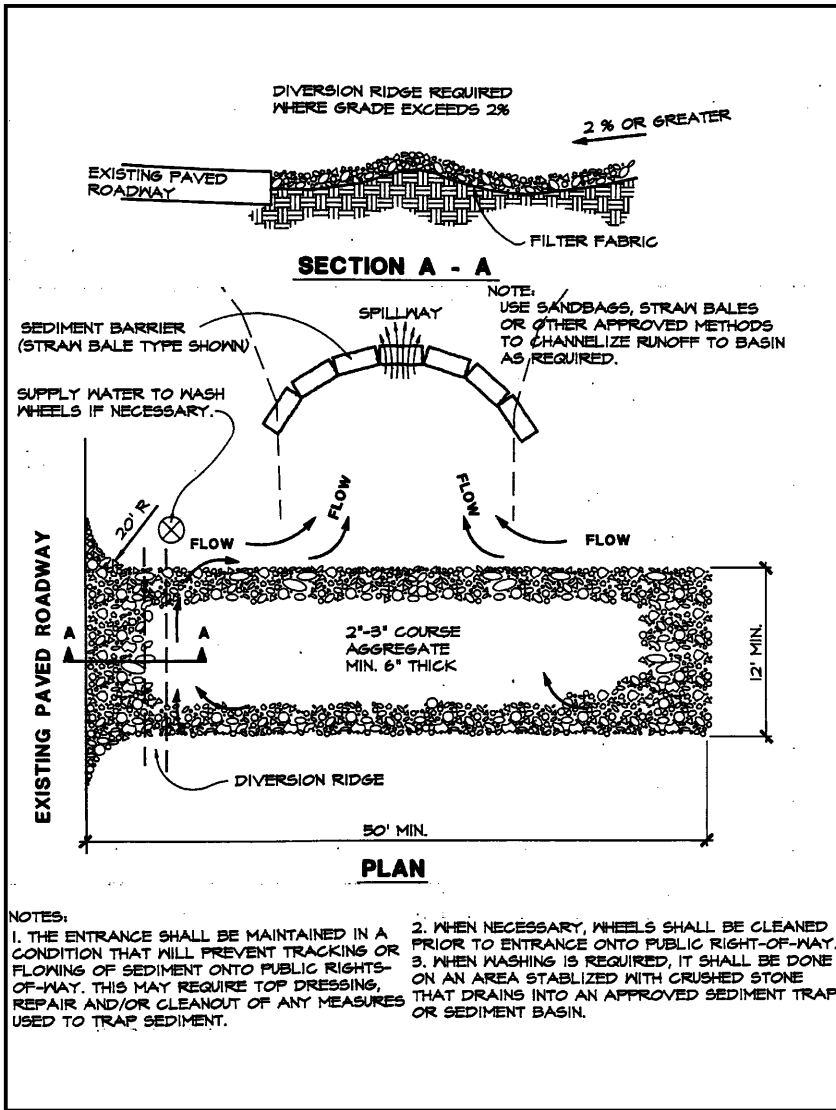


Figure 4.3a. Temporary Gravel Construction Entrance
Source: Erosion Draw

41

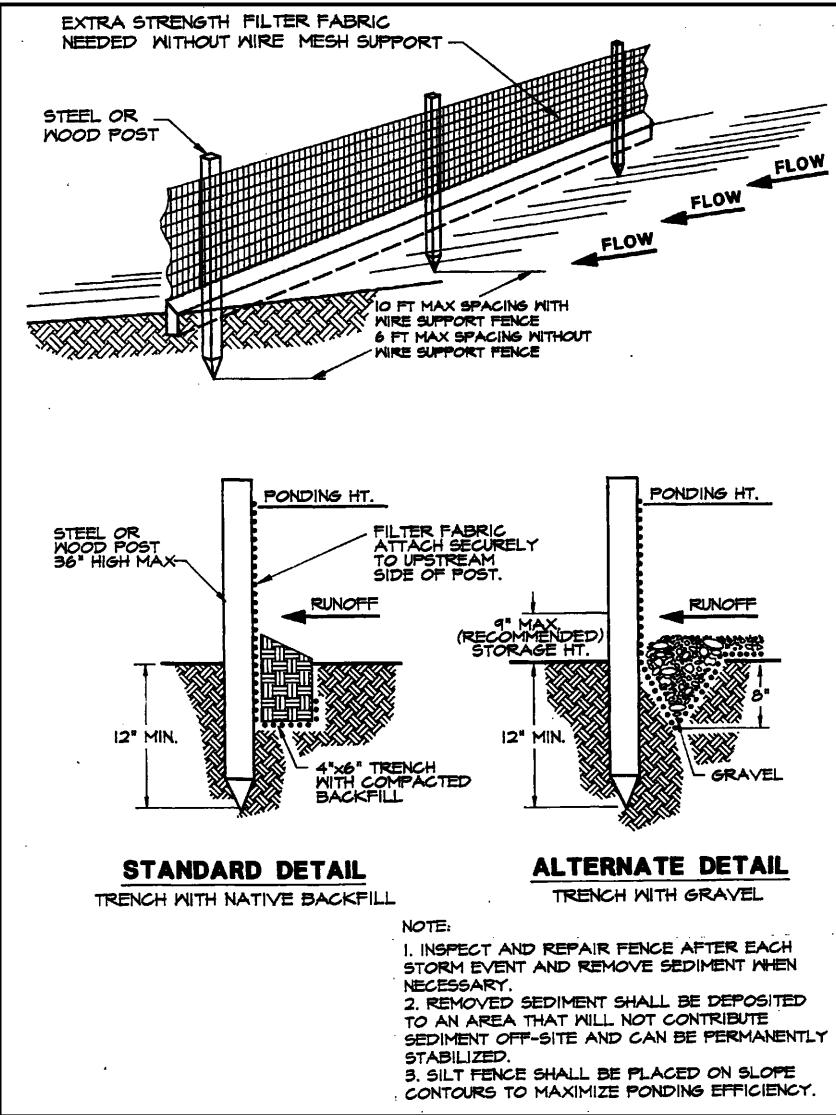


Figure 4.4a. Silt Fence
Source: Erosion Draw

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4. **Tracking** – Tracking with bulldozer cleats is most effective on sandy soils. This practice often causes the undue compaction of the soil surface, especially in clayey soils, and does not aid plant growth as effectively as other methods of surface roughening.

Seeding
Seed shall be evenly applied with a cyclone seeder, drill, cultipacker-seeder, or hydroseeder. Small grains shall be planted no more than 1 inch deep. Grasses and legumes shall be planted no more than 1/4 inch (6 mm) deep.

Mulching

1. Mulch should usually be applied to reduce damage from water runoff or wind erosion, and to improve moisture conditions for seedlings. Mulching without seeding should be considered for very short-term protection. The use of mulch is a judgment decision based on the time of seeding and conditions of individual sites. When used, mulch shall be applied according to MULCHING in this chapter).
2. Seedings made on slopes in excess of 3:1, or on adverse soil conditions, or during excessively hot or dry weather, shall be mulched according to MULCHING in this chapter).
3. Seedings made during optimum spring and summer seeding dates, with favorable soil and site conditions, may not require mulch.

Reeseeding
Areas that fail to establish enough vegetative cover to prevent soil erosion will be filled in with proper topsoil and reseeded as soon as they are identified.

Select plants appropriate to the season, region, and site conditions. Consult with your local Agricultural Extension agent, county, FDEP, water management district, or FDOT office, or see Table 1.65a of the Florida Development Manual.

1. **Liming** – Where soils are known to be highly acid (pH 6.0 and lower), lime should be applied at the rate of 2 tons of pulverized agricultural limestone per acre.
2. **Fertilizer** – Shall be applied as 217.5 pounds per acre (5 pounds/1,000 square feet) (504 kg/ha) of 50% slow-release 10-20-20 or equivalent. Lime and fertilizer shall be incorporated into the top 2 to 4 inches (5 to 10 cm) of the soil. If quick-release nitrogen is used, apply 2 to 3 weeks after seed has sprouted.
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230

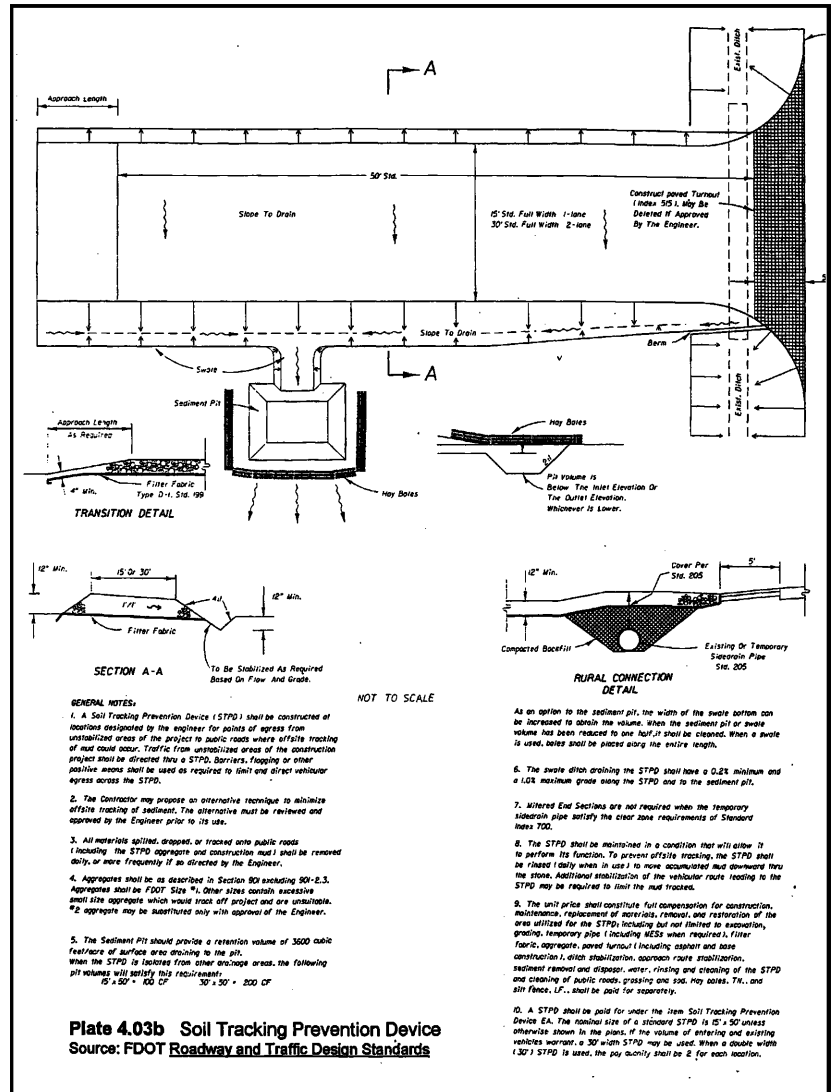


Figure 4.3b. Soil Tracking Prevention Device
Source: FDOT Roadway and Traffic Design Standards

42

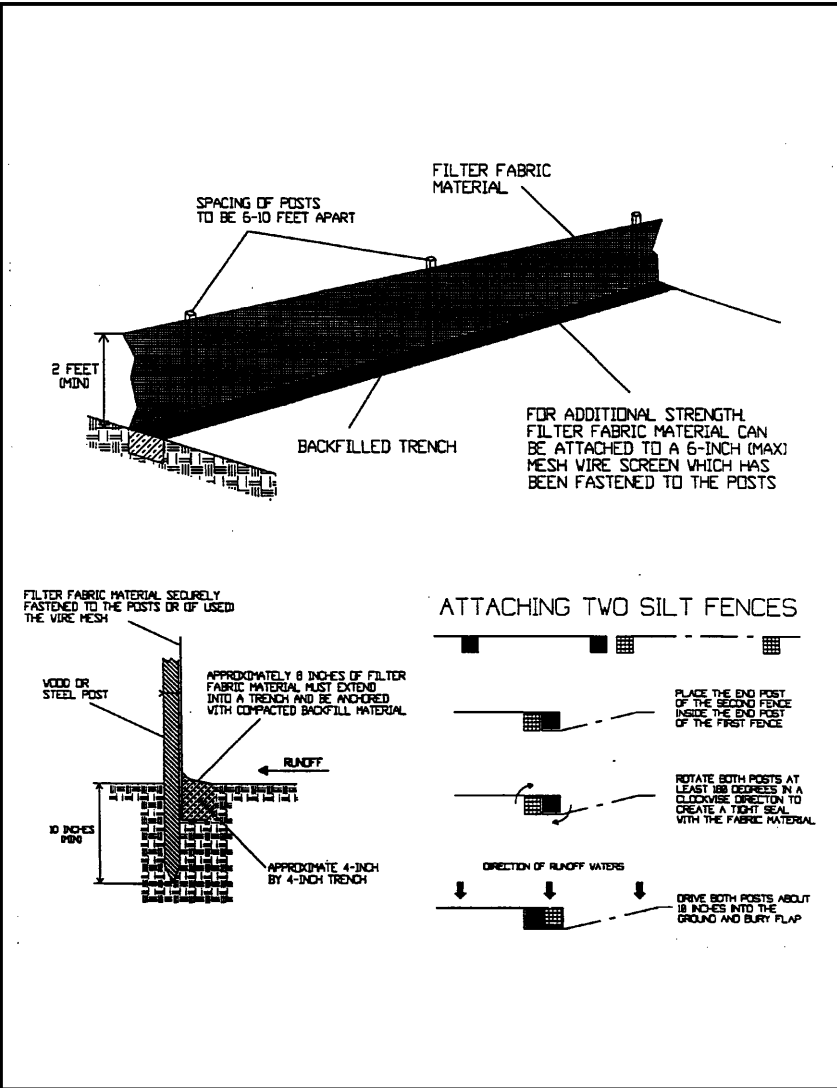


Figure 4.4b. Installing a Filter Fabric Silt Fence
Source: HydroDynamics, Inc.

48

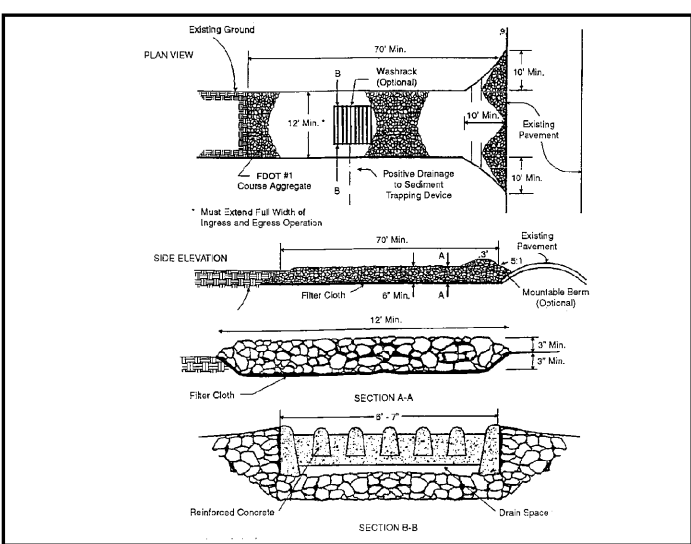


Figure 4.3c. Construction Entrance with Wash Rack
Source: 1983 Maryland Standards for Soil Erosion and Sediment Control

Location
The entrance should be located to provide for maximum utility by all construction vehicles.

Construction Specifications
The entrance area should be cleared of all vegetation, roots, and other objectionable material. A geotextile should be laid down to improve stability and simplify maintenance when gravel is used. The gravel shall then be placed over the geotextile to the specified dimensions.



Maintenance
The stabilized construction exit shall be maintained in a condition that will prevent the tracking or flow of mud onto public rights of way. This may require periodic maintenance as conditions demand, and the repair and/or cleanup of any structures used to trap sediments. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. Look for signs of trucks and trailered equipment "cutting corners" where the construction exit meets the roadway. Sweep the paved road as needed.

43

8. When attaching 2 silt fences together, place the end post of the second fence inside the end post of the first fence. Rotate both posts at least 180 degrees in a clockwise direction to create a tight seal with the filter fabric. Drive both posts into the ground and bury the flap (see Figure 4.4a).
9. The trench shall be backfilled and the soil compacted over the filter fabric.
10. The most effective application consists of a double row of silt fences spaced a minimum of 3 feet apart, so that if the first row collapses it will not fall on the second row. Wire or synthetic mesh may be used to reinforce the first row (see Figure 4.4a).
11. When used to control sediments from a steep slope, silt fences should be placed away from the toe of the slope for increased holding capacity (see Figure 4.4a).
12. Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

Maintenance

1. Silt fences shall be inspected within 24 hours after each 1/2-inch rainfall event and at least once a week. Any required repairs shall be made immediately.
2. Should the fabric on a silt fence decompose or become ineffective before the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
3. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier.
4. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with the existing grade, prepared, and seeded.

49

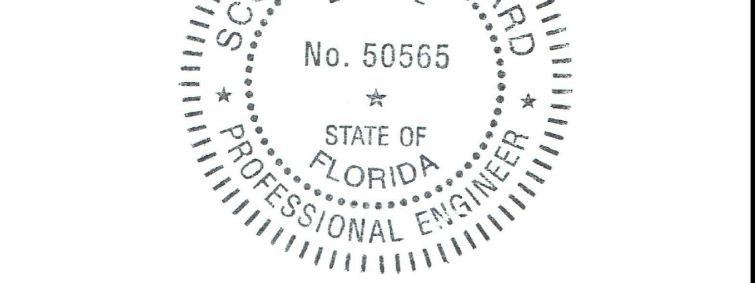
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CONTACT: KEVIN RYMAN

Project Name & Location:

SWPPP& EROSION CONTROL DETAILS

Drawing Name:	Drawing No.
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Revised: XXX	
Drawn: sks	
Checked: SKS	

4.5 Storm Drain Inlet Protection

Definition

A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet.

Purpose

To prevent sediment from entering stormwater conveyance systems prior to permanent stabilization of the disturbed area.

Condition Where Practice Applies

Where storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area. Different types of structures are applicable to different conditions (see Figures 4.5a through 4.5j).

Planning Considerations

Storm sewers that are made operational before their drainage area is stabilized can convey large amounts of sediment to receiving waters. In the case of extreme sediment loading, the storm sewer itself may clog and lose most of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

There are several types of inlet filters and traps, which have different applications depending on the site conditions and type of inlet. Other innovative techniques for accomplishing the same purpose are encouraged, but only after specific plans and details are submitted to and approved by the stormwater permitting agency.

Note that these various inlet protection devices are for drainage areas of **less than 1 acre (0.4 ha)**. Runoff from large, disturbed areas should be routed through a **TEMPORARY SEDIMENT TRAP** (Chapter 4).

Design Criteria

1. The drainage area shall be no greater than 1 acre (0.4 ha).
2. The inlet protection device shall be constructed to facilitate the cleanout and disposal of trapped sediment and to minimize interference with construction activities.
3. The inlet protection devices shall be constructed so that any resultant ponding or stormwater will not cause excessive inconvenience or damage to adjacent areas or structures.
4. Figures 4.5a through 4.5j provide specific design criteria for each particular inlet protection device.

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7.5 Permanent Seeding

Definition

The establishment of perennial vegetative cover on disturbed areas by planting seed.

Purposes

1. To reduce erosion and decrease sediment yield from disturbed areas.
2. To permanently stabilize disturbed areas in a manner that is economical and adaptable to site conditions, and that allows the selection of the most appropriate plant materials.

Conditions Where Practice Applies

1. Disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil.
2. Rough-graded areas that will not be brought to final grade for a year or more.

Specifications

Selection of Plant Materials

1. The selection of plant materials is based on climate, topography, soils, land use, and planting season. To determine which plant materials are best adapted to a specific site, see Tables 1.66a and 1.66c of the Florida Development Manual, which describe plant characteristics and list recommended varieties.
2. Table 1.66a of the Florida Development Manual lists appropriate seeding mixtures for various site conditions in Florida. These mixtures are designed for general use and are known to perform well on the sites described. Adhere to these mixtures whenever feasible. Check Tables 1.66a and 1.66c for recommended varieties.

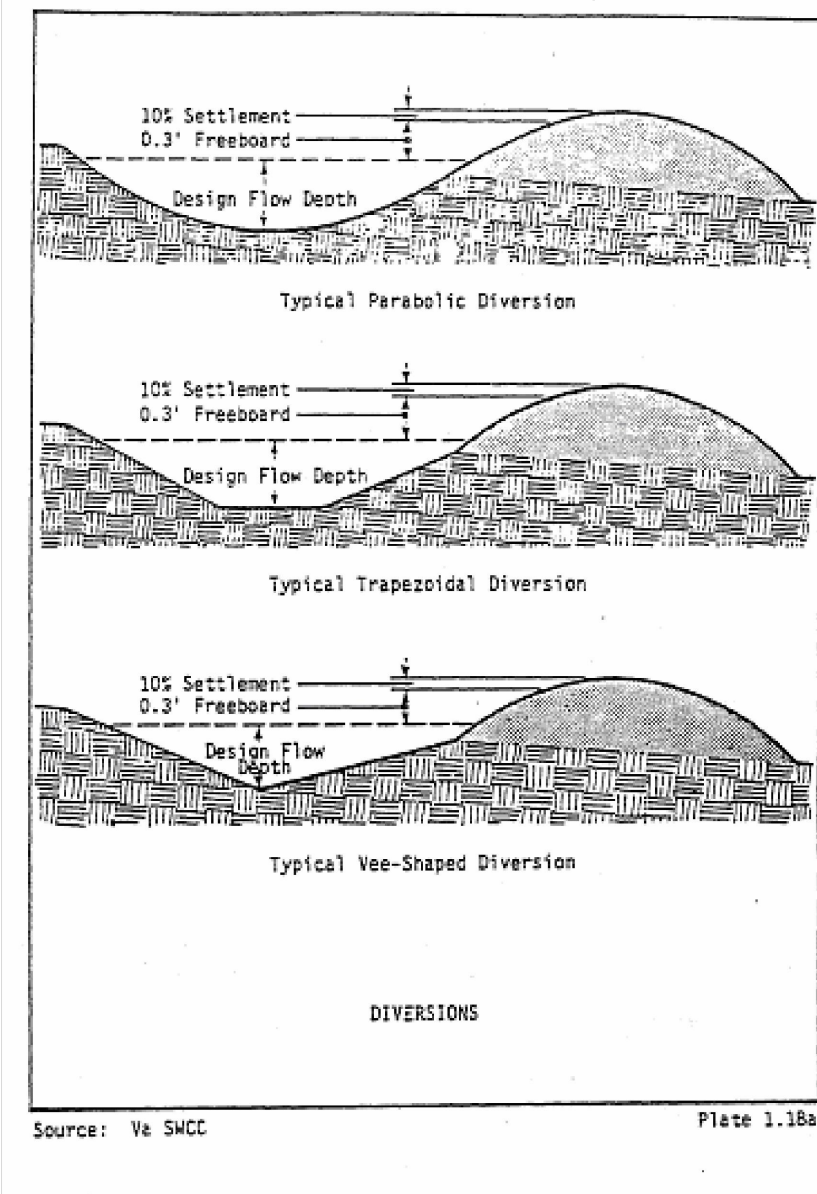
Seedbed Requirements

Vegetation should not be established on slopes that are unsuitable because of inappropriate soil texture, poor internal structure or internal drainage, a high volume of overland flow, or excessive steepness, until measures have been taken to correct these problems.

To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. The existing soil must meet the following criteria:

1. Enough fine-grained material to maintain adequate moisture and nutrient supply.

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Source: Ve SWCC

Plate 1.18a

Construction Specifications

Fabric Drop Inlet Sediment Filter

1. Fabric shall be cut from a continuous roll to avoid joints.
2. Stakes shall be 2 x 4 inches (5 x 10 cm) wood (preferred) or equivalent metal with a minimum length of 3 feet (90 cm) (see Figure 4.5a).
3. Staples shall be of heavy duty wire at least 1/8 inch (13 mm) long.
4. Stakes shall be spaced around the perimeter of the inlet a maximum of 3 feet (90 cm) apart and securely driven into the ground a minimum of 8 inches (20 cm). A frame of 2 x 4 inches (5 x 10 cm) of wood shall be constructed around the top of the stakes for proper stability.
5. A trench shall be excavated approximately 4 inches (10 cm) wide and 4 inches (10 cm) deep around the outside perimeter of the stakes (see Figure 4.5b).
6. The fabric shall be stapled to the wooden stakes, and 8 inches (20 cm) of the fabric shall be extended into the trench. The height of the filter barrier shall be a minimum of 15 inches (38 cm) and shall not exceed 18 inches (45 cm).
7. The trench shall be backfilled and the soil compacted over the fabric.



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2. Sufficient pore space to permit root penetration. A bulk density of 1.2 to 1.5 indicates that sufficient pore space is present. A fine granular or crumb-like structure is also favorable.
3. Sufficient depth to provide an adequate root zone. The depth to rock or impermeable layers such as hardpans shall be 12 inches (30 cm) or more, except on slopes steeper than 2:1, where the addition of soil is not feasible.
4. A favorable pH range for plant growth. If the soil is so acid that a pH range of 6.0 to 7.0 cannot be attained by the addition of pH-modifying materials, then the soil is unsuitable for plant roots.
6. Freedom from excessive quantities of roots, branches, large stones, large clods of earth, or trash of any kind. Clods and stones may be left on slopes steeper than 3:1 if they are to be hydroseeded.

If any of the above criteria cannot be met—i.e., if the existing soil is too coarse, dense, shallow, acid, or contaminated to foster vegetation—then topsoil should be applied in accordance with TOPSOILING (in this chapter). The necessary mechanical erosion and sediment control practices will be installed prior to seeding. Grading will be carried out according to the approved plan. Surfaces will be roughened in accordance with SURFACE ROUGHENING (in this chapter).

Soil Conditions

To modify the texture, structure, or drainage characteristics of a soil, the following materials may be added to the soil:

1. Peat shall be sphagnum moss peat, hynum moss peat, reed-sedge peat, or peat humus, from freshwater sources. Peat shall be shredded and conditioned in storage piles for at least 6 months after excavation.
2. Sand shall be clean and free of toxic materials.
3. Vermiculite shall be horizontal grade and free of toxic substances.
4. Composted manure shall be stable or cattle manure not containing undue amounts of straw or other bedding materials or toxic chemicals. Phosphorus shall be limited to soil test recommendations.
5. Thoroughly rotted sawdust shall be 6 pounds of nitrogen added to each cubic yard (3.5 kg/m³) and shall be free of stones, sticks, and toxic substances.
6. Where local ordinances permit, treated sewage sludge may be used in accordance with local, state, and federal regulations. The use of treated sewage sludge shall be limited to soil test recommendations.

Lime and Fertilizer

Lime and fertilizer needs should be determined by soil tests. Soil tests may be performed by the Cooperative Extension Service Soil Testing Laboratory at the University of Florida, or by a reputable commercial laboratory. Information on the state's

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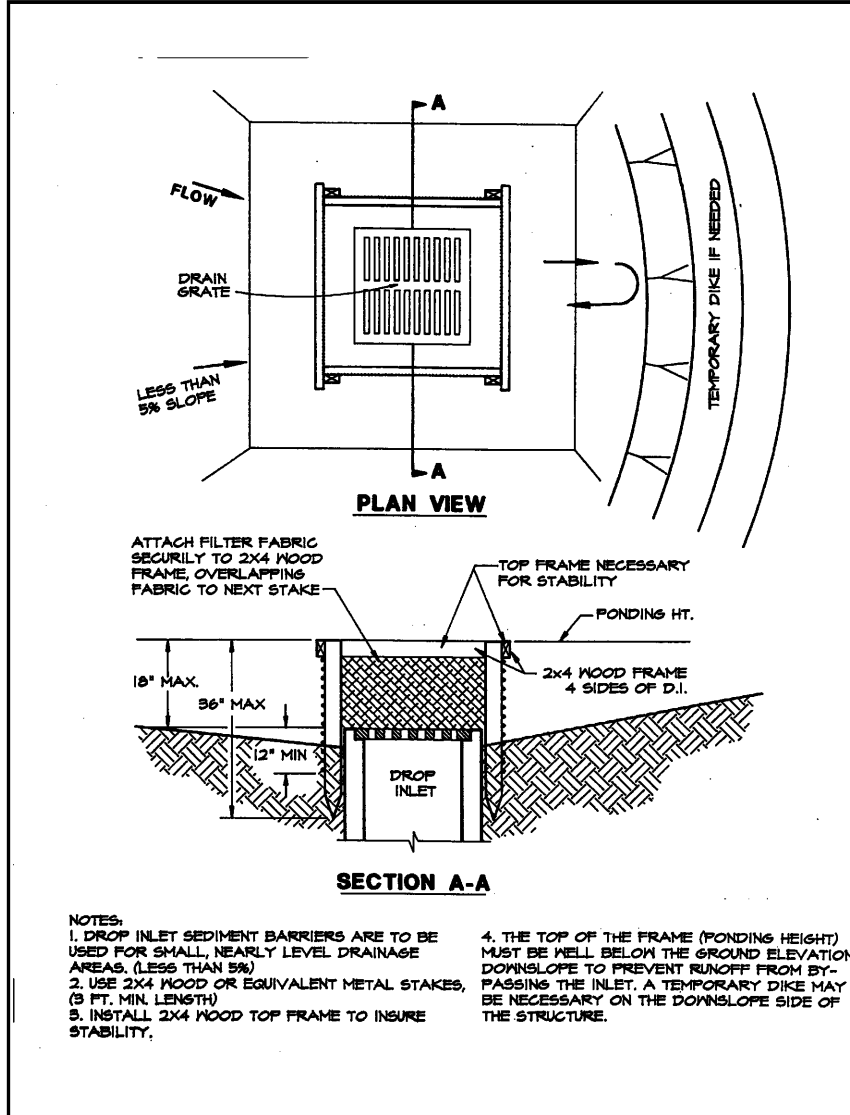


Figure 4.5a. Silt Fence Drop Inlet Sediment Barrier

Source: Erosion Draw

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Soil Testing Laboratory is available from county extension agents. Under unusual conditions where it is not possible to obtain a soil test, the following soil amendments will be applied:

- LIME: 2 tons per acre finely ground agricultural or dolomitic limestone (80 pounds per 1,000 square feet) (4.48 t/ha)
- FERTILIZER: Mixed grasses and legumes: 150 pounds per acre of 5-25-10 (3.5 pounds per 1,000 square feet)
- Legume stands only: 150 pounds per acre of 5-20-10 (3.5 pounds per 1,000 square feet)
- Grass stands only: 870 pounds per acre of 5-5-10 (1.12 t/ha) and 57 pounds of 38-0-0 in spring (1.3 pounds per 1,000 square feet)
- 220 pounds per acre of 10-5-10 and 57 pounds of 38-0-0 in fall (1.3 pounds per 1,000 square feet)

Other fertilizer formulations may be used, provided they supply the same amounts and proportions of plant nutrients.

Lime and fertilizer shall be incorporated into the top 4 to 6 inches (10 to 15 cm) of the soil by discing or other means. When applying lime and fertilizer with a hydroseeder, apply to a rough, loose surface.

Seeding

1. Certified seed should be used for all permanent seeding whenever possible.
2. Legume seed should be inoculated with the inoculant appropriate to the species. The seed of lespedezas, crown vetch, and clovers should be scarified to promote uniform germination.
3. Apply seed uniformly with a cyclone seeder, drill, cultipacker-seeder, or hydroseeder on a firm, friable seedbed. The maximum seeding depth should be 1/4 inch.
4. During hydroseeding, to avoid seed damage, it is recommended that if a machinery breakdown of 30 minutes to 2 hours occurs, 50% more seed be added to the tank, based on the proportion of the slurry remaining in the tank. Beyond 2 hours, a full rate of new seed may be necessary. Often hydroseeding contractors prefer not to apply lime in their rigs, as it is abrasive. In inaccessible areas, lime may have to be applied in pelletized or liquid form, separately. The rates of wood fiber should be at least 2,000 pounds per acre (2.24 t/ha). Surface roughening is particularly important when hydroseeding, as a roughened slope provides some natural coverage of lime, fertilizer, and seed.
5. Legume inoculants should be used by the date indicated on the container. When dry seeding, use 4 times the manufacturer's

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3. Peak rates of runoff used in determining the capacity requirements shall be as outlined in Chapter 5 of this manual or by other accepted methods.
- Channel Design
The diversion channel may be parabolic, trapezoidal or Vee-shaped and shall be designed and constructed according to ES BMP 1.35 (STORMWATER CONVEYANCE CHANNELS).
- Ridge Design
The supporting ridge cross-section shall meet the following criteria (Plate 1.18a).
 1. The side slopes shall be no steeper than 2:1 and shall be flat enough to insure ease of maintenance of the structure and its protective vegetative cover.
 2. The width at the design water elevation shall be a minimum of 4 feet.
 3. The minimum freeboard shall be 0.3 foot.
 4. The design shall include a 10 percent settlement factor. Outlet
Diversion shall be stabilized outlets which will convey concentrated runoff without erosion. Acceptable outlets include: STORMWATER CONVEYANCE CHANNELS (ES BMP 1.35); LEVEL SPREADERS (ES BMP 1.40); OUTLET PROTECTION (ES BMP 1.36); and PAVED FLUMES (ES BMP 1.31).

Outlets shall be constructed and stabilized prior to the operation of the diversion. Stabilization

1. Unless otherwise stabilized, the ridge and channel shall be seeded and mulched within 15 days of installation in accordance with ES BMP 1.66 (PERMANENT SEEDING).
2. Disturbed areas draining into the diversion shall be seeded and mulched prior to or at the time the diversion is constructed.
3. Permanent diversions should include a filter strip of close growing grass maintained above the channel. The width of the filter, measured from the center of the channel, shall be one-half the channel width plus 15 feet.

Construction Specifications

1. All trees, brush, stumps, debris, and other obstructions shall be removed and disposed of so as not to interfere with the proper

ES BMP 1.25 TEMPORARY SEDIMENT TRAP Definition

A small temporary ponding area formed by excavation and/or embankment across a drainageway.

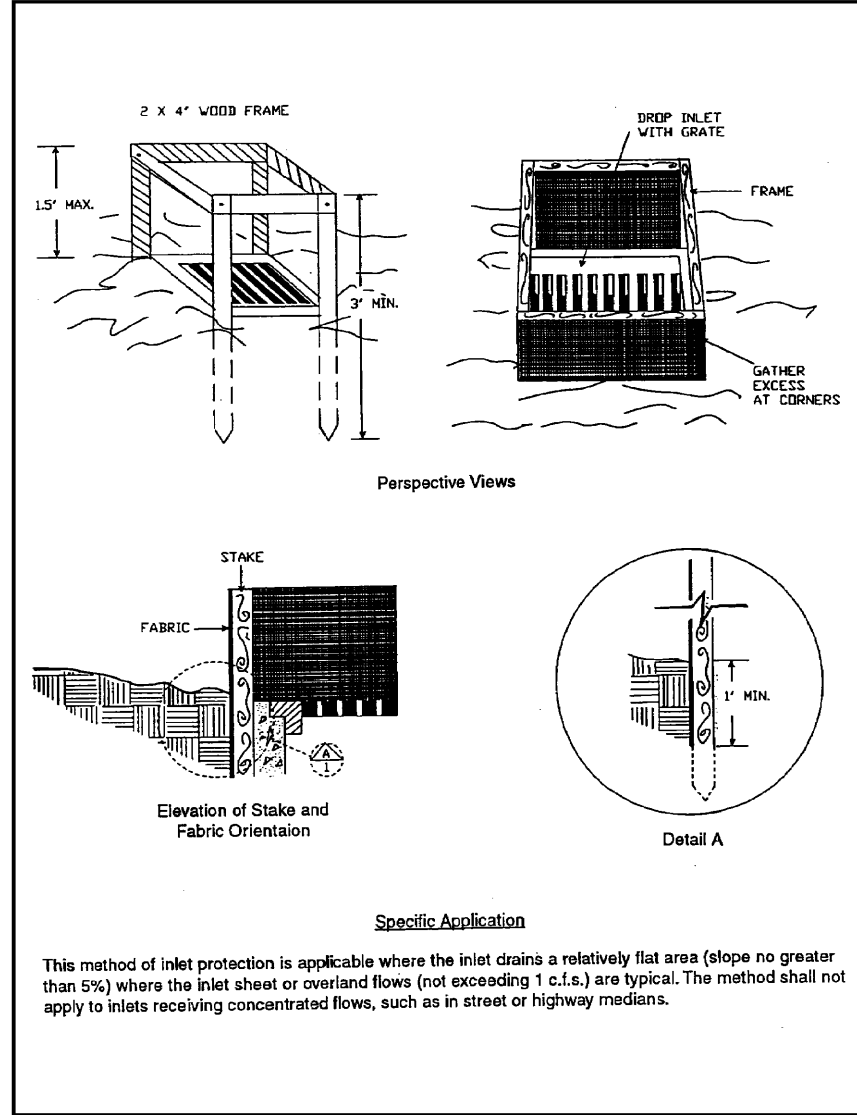


Figure 4.5b. Filter Fabric Drop Inlet Sediment Filter

Source: North Carolina Erosion and Sediment Control Manual

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recommended rate, and use 10 times the recommended rate of inoculant when hydroseeding.

Mulching

All permanent seeding must be mulched immediately upon the completion of seed application (refer to the extended discussion in MULCHING below).

Maintenance of New Seedlings

1. Irrigation – New seedlings should be supplied with adequate moisture. Supply water as needed, especially late in the season, in abnormally hot or dry weather, or on adverse sites. Water application rates should be controlled to prevent runoff. Inadequate amounts of water may be more harmful than no water.
2. Reseeding – Inspect seeded areas for failure and make necessary repairs and reseeding within the same season, if possible.
 - a. If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.
 - b. If a stand has less than 40% cover, re-evaluate the choice of plant materials and quantities of lime and fertilizer. Re-establish the stand following seedbed preparation and seeding recommendations, omitting lime and fertilizer in the absence of soil test results. NOTE: If vegetation has failed to grow, the soil must be tested to determine if acidity or nutrient imbalances are responsible.
3. Fertilization – Seedlings should be fertilized 1 year after planting to ensure proper stand density.
 - a. To established all-grass stands, apply 300 pounds per acre of 15-0-15 or 15-2-15 slow release (6.7 pounds per 1,000 square feet) between August 15 and November 15 (the first fall following seeding).
 - b. To legume-and-grass stands or pure legume stands, apply 150 pounds per acre of 0-20-20 (5.5 pounds per 1,000 square feet) in early May, or between August 15 and October 15.

GENERALLY, A STAND OF VEGETATION IS NOT DETERMINED TO BE FULLY ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR 1 FULL YEAR FROM PLANTING. DISTURBED AREAS THAT ARE TO BE STABILIZED WITH PERMANENT VEGETATION MUST BE SEEDED OR PLANTED WITHIN 15 DAYS AFTER FINAL GRADE IS REACHED, UNLESS TEMPORARY STABILIZATION IS APPLIED.

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Table 3
SEED APPLICATION RATES
(KILOGRAMS PER HECTARE)

SEED TYPES		ZONE 1 (NORTH OF INTERSTATE 4)			
		COASTAL		INLAND	
		MARCH TO OCTOBER	NOVEMBER TO MARCH	MARCH TO OCTOBER	NOVEMBER TO MARCH
Permanent Grasses	Unballed bermuda	6.8 kg	6.8 kg	4.5 kg	6.8 kg
	Argentine/Pennsola bahia	-	-	13.6 kg	13.6 kg
Temporary Grasses	Brown-top millet	9 kg	-	9 kg	-
	Annual ryegrass	-	9 kg	-	9 kg

Note: Bahia 1,814 kg - 3,628 kg per 93 sq m; bermuda 1,814 kg - 3,628 kg per 93 sq m. When seeding centipede grass, use approximately 5 kg of seed per hectare. Centipede may be seeded from April to September throughout Florida.

SEED TYPES		ZONE 2 (SOUTH OF INTERSTATE 4)			
		COASTAL		INLAND	
		MARCH TO OCTOBER	NOVEMBER TO MARCH	MARCH TO OCTOBER	NOVEMBER TO MARCH
Permanent Grasses	Unballed bermuda	6.8 kg	6.8 kg	4.5 kg	6.8 kg
	Argentine/Pennsola bahia	-	-	13.6 kg	13.6 kg
Temporary Grasses	Brown-top millet	9 kg	-	9 kg	-
	Annual ryegrass	-	9 kg	-	9 kg

Note: Bahia 1,814 kg - 3,628 kg per 93 sq m; bermuda 1,814 kg - 3,628 kg per 93 sq m. When seeding centipede grass, use approximately 5 kg of seed per hectare. Centipede may be seeded from April to September throughout Florida.

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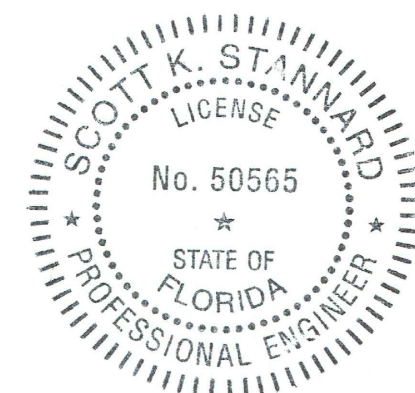
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DETAILS

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7.7 Mulching

Definition
The application of plant residues or other suitable materials to the soil surface.

Purposes

1. To prevent erosion by protecting the soil surface from raindrop impacts and reducing the velocity of overland flow.
2. To foster the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold.

Conditions Where Practice Applies

1. Areas that have been permanently seeded should be mulched immediately after seeding.
2. Areas that cannot be seeded because of the season should be mulched to temporarily protect the soil surface. An organic mulch (not wood fiber alone) shall be used, and the area should then be seeded as soon as feasible in spring.
3. Mulch shall be used together with plantings of trees, shrubs, or certain ground covers that do not provide adequate soil stabilization by themselves.
4. Mulch shall be used in conjunction with the temporary seeding operations specified in **TEMPORARY SEEDING** (in this chapter).
5. Mulches used in areas of concentrated flows or frequent inundation shall be properly anchored to prevent them from floating away.

Specifications

Types of Mulches

1. **Organic Mulches** – Organic mulches may be used in any area where mulch is required, subject to the restrictions noted in Table 7.1. Select mulch material based on site requirements, the availability of materials, and the availability of labor and equipment. The table lists the most commonly used organic mulches. Other materials, such as peanut hulls and cotton burs, may also be used.

Mulch materials shall be spread uniformly, by hand or machine. When spreading straw by hand, divide the area to be mulched into approximately 1,000-square-foot sections and place 70 to 90 pounds (15 to 2 bales) (30 to 40 kg) of straw in each section, to facilitate uniform distribution.
2. **Nets, Mats, and Blankets** – Nets may be used alone on level areas, or slopes no steeper than 3:1, and in waterways, as specified in **STORMWATER CONVEYANCE CHANNEL**, (in Chapter 6). When mulching is done in late fall or during June, July, or August, or where soil is highly erodible, net should only be used in conjunction with an organic

mulch such as straw. When net and organic mulch are used together, the net should be installed over the mulch, except when the mulch is wood fiber. Wood fiber may be sprayed on top of the installed net. Excelsior binders are protective mulches and may be used alone on erodible soils and during all times of year.

Jute net shall be heavy, uniform cloth woven of single jute yarn, which if 36 to 48 inches (90 to 120 cm) wide shall weigh an average of 1.2 pounds per linear yard (0.6 kg/m). Other products designed to control erosion shall conform to the manufacturer's specifications and should be applied in accordance with the manufacturer's instructions, provided those instructions are at least as stringent as this specification. Examples of these products include Erosoblen, Hologra, Weedchen, and Curlex. (NOTE: The use of trade names does not constitute a product endorsement by FDOT). In no case shall these products cover less than 30% of the soil surface.

Mulches	Rate Per Acre	Rate Per 1,000 Square Feet	Notes
Straw	1.5 – 2 tons	70 – 90 pounds	Free from weeds and coarse matter. Must be anchored. Topped with mulch blower or by hand.
Wood Fibers	0.5 – 1.0 tons	25 – 50 pounds	Fibers 1.5 inch minimum length. Do not use alone in winter or during ice. Or, whether apply as slurry?
Corn Stalks	4 – 6 tons	185 – 275 pounds	Cut or shredded to 6 to 8 inch lengths. Air dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 – 6 tons	185 – 275 pounds	Free of coarse matter. Air dried. Treat with 12 pounds nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower or by hand.
Shredded Bark Chips	50 – 70 cubic yards	1 – 2 cubic yards	Free of coarse matter. Air dried. Do not use in fine turf areas. Apply with mulch blower or by hand.

Source: Virginia DDC

3. **Chemical Mulches** – Chemical mulches may be used alone only in the following situations:
 - a. Where no other mulching material is available.
 - b. In conjunction with temporary seeding when mulch is not required for that practice.
 - c. From May 1 to June 15 and September 15 to October 15, provided that they are used on areas with slopes no steeper than 4:1 that have been roughened in accordance with **SURFACE ROUGHENING** (in this chapter).

Installation
Prior to mulching, the following activities should be carried out:

1. As required, shape and grade the waterway, channel, slope, or other area to be protected.
2. Remove all rocks, clogs, or debris larger than 2 inches in diameter that will prevent contact between the net and the soil surface.
3. Line and seedflow should be incorporated and the surface roughened as needed. Seed should be applied prior to mulching, except in the following cases:
 - a. Where seed is to be applied as part of a hydroseeder slurry containing wood fiber mulch.
 - b. Where seed is to be applied following a straw mulch spread during the winter months.
 - c. Where a hydroseeder slurry is applied over straw.

Mulch Anchoring
Straw mulch must be anchored immediately after spreading to prevent windblow. The other organic mulches listed in Table 7.1 do not require anchoring. The following methods of anchoring straw may be used:

1. **Mulch Anchoring Tool** – A tractor-drawn implement is used to punch mulch into the soil surface. This method provides maximum erosion control with straw. It is limited to use on slopes no steeper than 3:1, where equipment can operate safely. Machinery shall be operated on the contour.
2. **Liquid Mulch Binders** – The application of liquid mulch binders and fertilizers should be heaviest at the edges of areas and at the crests of ridges and banks, to prevent windblow. Binders should be applied uniformly over the rest of the area. They may be applied after mulch is spread or may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective method. Chemical binders such as PetcoSet, Tennateck, Road Oyl, and Aerospray may be used as recommended by the manufacturer to anchor mulch. These are expensive and therefore are usually used in small areas or in residential areas where asphalt may be a problem. (NOTE: The use of trade names does not constitute a product endorsement by FDOT).
3. **Mulch Nets** – Lightweight plastic, cotton, or paper nets may be stapled over the mulch. The nets shall be secured by stakes, staples, or pins according to the manufacturer's recommendations (see Figure 7.7a for details).

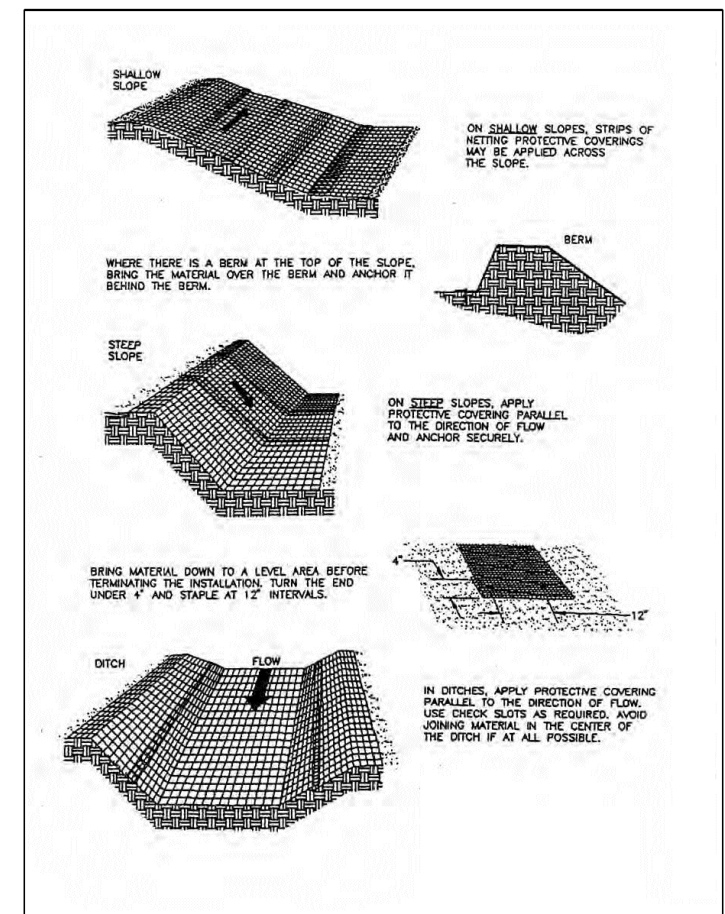


Figure 7.7a. Typical Orientation of Treatment 1 – Soil Stabilization Blanket
Source: Adapted from LubcoProducts Brochure

4. **Peg and Twine** – Because it is labor intensive, this method is feasible only in small areas where other methods cannot be used. Drive 8 to 10 inch (20 to 25 cm) wooden pegs to within 3 inches (8 cm) of the soil surface every 4 feet (1.2 m) in all directions. Stakes may be driven before or after straw is spread. Secure mulch by stretching twine between pegs in a criss-cross-within-a-square pattern. Turn twine 2 or more times around each peg.

Laying Nets, Mats, and Blankets
Nets, mats, and blankets should be installed according to the manufacturer's instructions, provided that these are at least as stringent as the following general recommendations (see Figure 7.7b):

1. Start laying the net from the top of the channel or the top of the slope and small downgrade.
2. Allow the net to lie loosely on the soil—DO NOT STRETCH.
3. To secure the net, the upslope ends should be buried in a slot or trench no less than 6 inches (15 cm) deep. Tamp earth firmly over the net. Staple the net every 12 inches (30 cm) across the top end. The edges shall be stapled every 3 feet (90 cm). Where 2 strips of net are laid side by side, the adjacent edges shall be overlapped 3 inches (8 cm) and stapled together. Staples shall be placed down the center of net strips at 3 foot (90 cm) intervals. DO NOT STRETCH the net when applying staples.

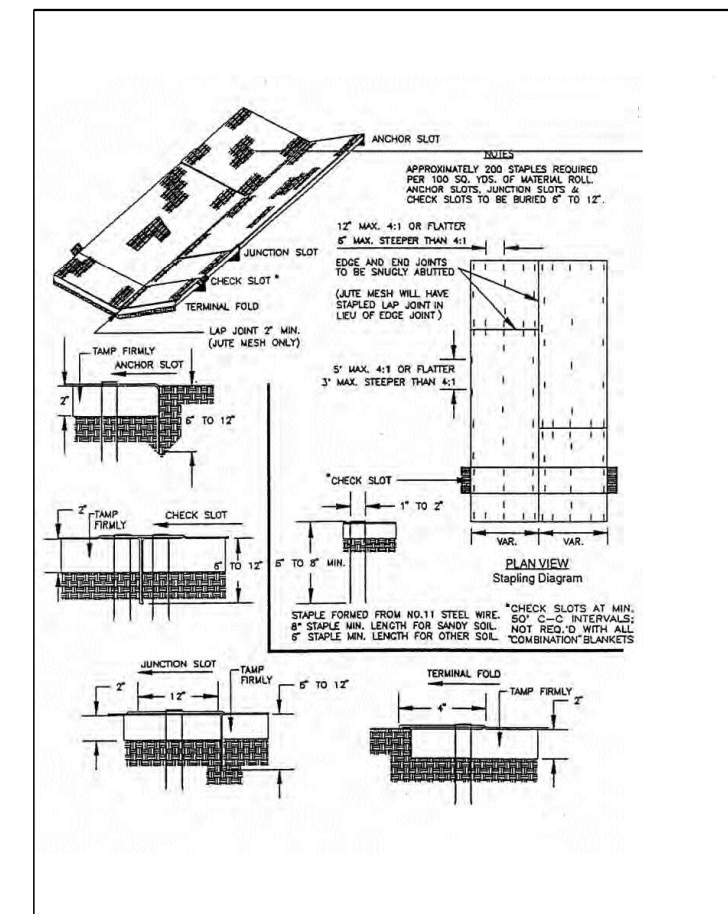


Figure 7.7b. Typical Treatment 1 – Soil Stabilization Blanket Installation Guide
Source: Virginia DOT

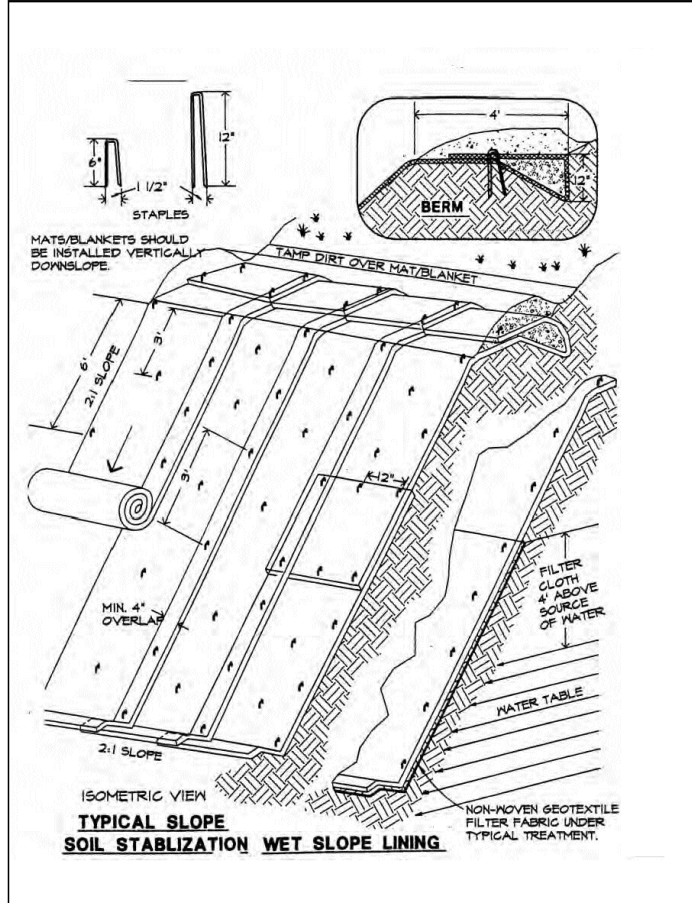


Figure 7.7c. Erosion Blankets and Turf Reinforcement Mats – Slope Installation
Source: ErosionControl

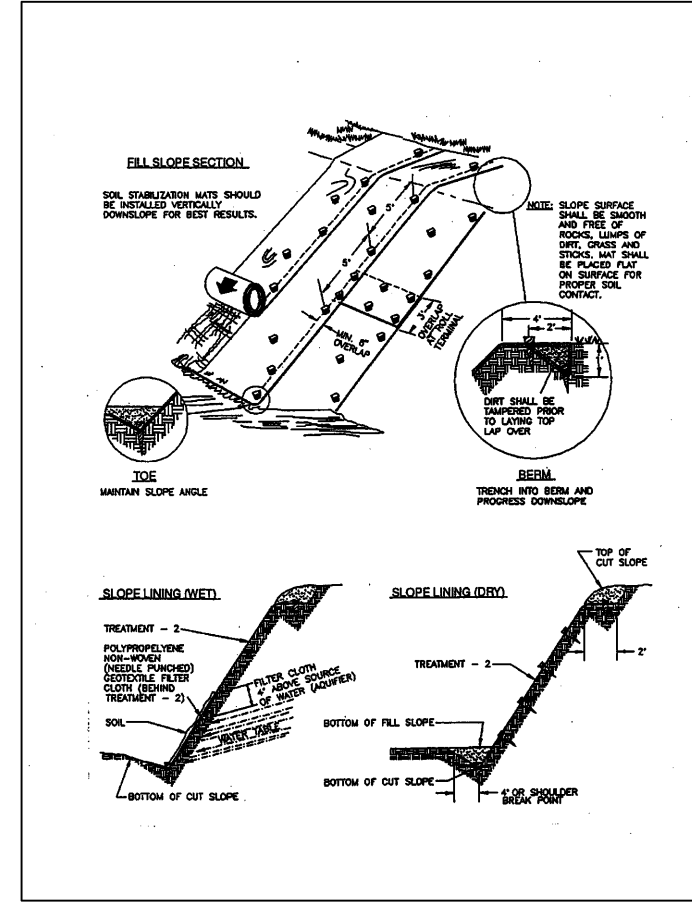


Figure 7.7d. Typical Treatment 2 – Soil Stabilization Matting Slope Installation
Source: Virginia DOT

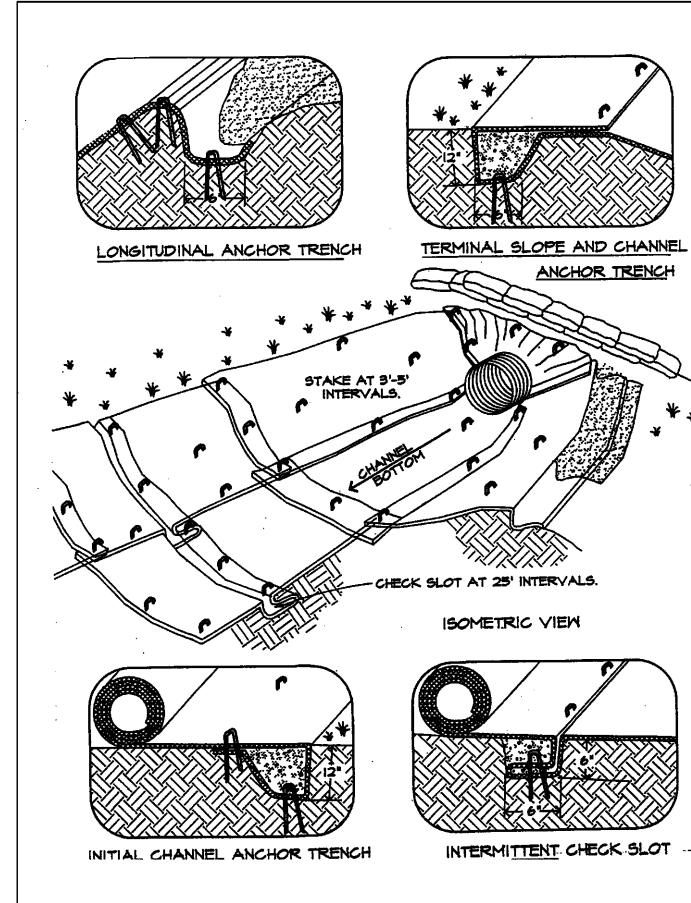


Figure 7.7e. Erosion Blankets and Turf Reinforcement Mats – Channel Installation
Source: ErosionControl

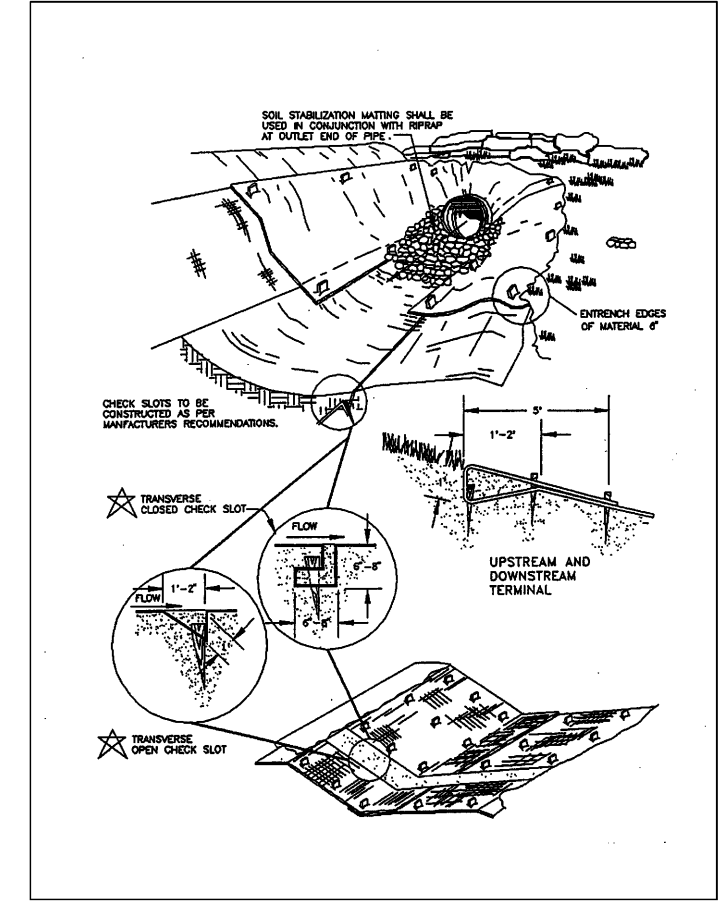


Figure 7.7f. Typical Treatment 2 – Soil Stabilization Matting Installation
Source: Virginia DOT

4. To join strips, insert a new roll of net in the trench, as with the upslope ends of the net. Overlap the end of the previous roll 18 inches (45 cm), turn under 6 inches (15 cm), and staple across the end of the roll just below the anchor slot and at the end of the turn under net every 12 inches (30 cm) (see Figures 7.7g and 7.7h).
5. At the bottom of slopes, lead the net out onto a level area before anchoring. Turn the ends under 6 inches (15 cm), and staple across the ends every 12 inches (30 cm).
6. On highly erodible soils and on slopes steeper than 4:1, erosion check slots should be made every 15 feet (4.5 m). Insert a 6d of net into a 6 inch (15 cm) trench and tamp firmly. Staple at 12 inch (30 cm) intervals across the downstream portion of the net.
7. After installation, stapling, and seeding, the net should be rolled to ensure firm contact between the net and soil.

Maintenance
All mulches should be inspected periodically, particularly after rainstorms, to check for rill erosion. Where erosion is observed, additional mulch should be applied. The net should be inspected after rainstorms for dislocation or failure. If washouts or breakage occur, install the net as necessary after repairing damage to the slope. Inspections should take place until the grass is firmly established. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

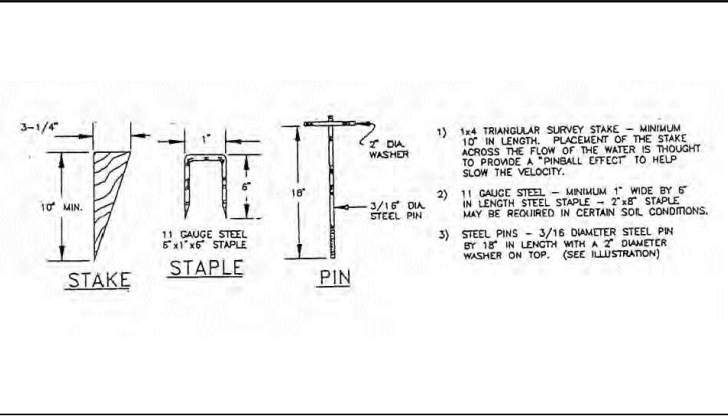


Figure 7.7g. Stakes, Staples, and Pins for the Installation of Soil Stabilization Matting
Source: Fibrosol Limited from Greenbank, Inc.

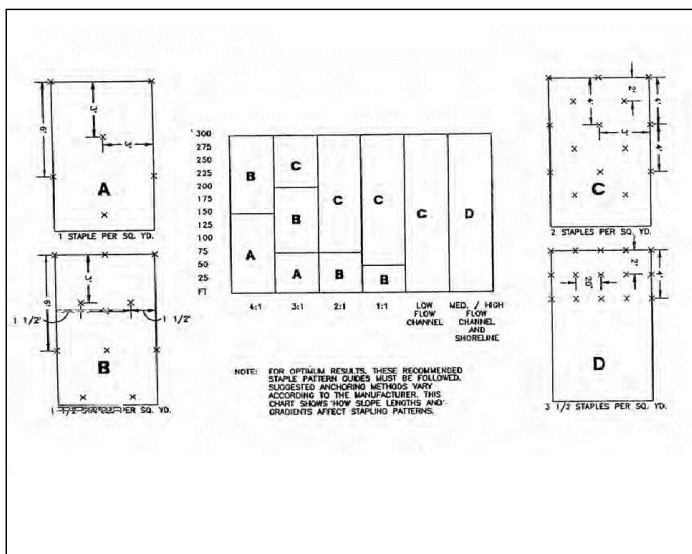


Figure 7.7h. General Staple Pattern Guide and Recommendation for Treatment 2 – Soil Stabilization Matting
Source: Product Literature from Greenbank, Inc.

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CONTACT: KEVIN RYMAN

Client Name:

BROOKE-LYN TOWNHOMES

WIRE ROAD @ DRIFTWOOD RD
CITY OF ZEPHYRHILLS, FL
PASCO COUNTY
PH: (813) 782-0825
CONTACT: KEVIN RYMAN

Project Name & Location:

SWPPP& EROSION CONTROL DETAILS

Drawing Name:

Date:	07/13/21	Drawing No. C-9.2
Revised:	XXX	
Drawn:	sks	
Checked:	SKS	

GENERAL NOTES:

A. PROJECT OFFICE WALL SWPPP POSTINGS: THE FOLLOWING ITEMS MUST BE POSTED TOGETHER IN A SINGLE, ORGANIZED LOCATION ON A WALL, INSIDE THE PROJECT OFFICE: 1) SWPPPSITE MAPS (ALL PHASES). 2) SWPPP DETAIL SHEETS. 3) MAP SHOWING LOCATION OF OFFSITE IMPORT OR EXPORT FACILITY (IF APPLICABLE) 4) REVISIONS TO DETAILS, SITE MAPS, OR SWPPP RELATED RFIS. 5) SITE SWPPP BINDER. 6) SWCT PLACARD. 7) CURRENT OWNER/OPERATOR STORMWATER COMPLIANCE TRAINING CERTIFICATES FOR SUPERINTENDENTS(S) AND COMPLIANCE POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.

B. PERMITTED PROJECT AREA: FOR PURPOSES OF THIS SWPPP AND ASSOCIATED STORMWATER PERMIT, PERMITTED PROJECT AREA IS DEFINED AS ANY AND ALL AREAS WITHIN THE PROJECT LIMITS OF DISTURBANCE, AS SHOWN ON THE SWPPP SITE MAPS AND IDENTIFIED IN THE NOTICE OF INTENT TO THE AGENCY. ALL GROUND-DISTURBING AND CONSTRUCTION RELATED ACTIVITIES (MATERIAL STORAGE, DUMPSTERS, PARKING AREA, PROJECT OFFICE TRAILER, ETC.) MUST BE INCLUDED WITHIN THE PERMITTED PROJECT AREA LIMITS OF DISTURBANCE.

OFF-SITE AREA(S) TO BE DISTURBED AS PART OF THIS PROJECT (NOT ON OWNER PROPERTY) INCLUDE THE CONSTRUCTION OF THE UTILITY LINE CONNECTIONS ON 6TH AVENUE, DRIVEWAY WORK ON 18TH, AND REPAIR OF ROAD, CURBING, AND DISTURBED AREAS WITHIN THE RIGHTS-OF-WAY IF THE THESE TWO ROADS.

ALL AREAS OUTSIDE THE PERMITTED PROJECT AREA (I.E. LIMITS OF DISTURBANCE)ACQUIRED FOR USE BY THE GC OR SUBCONTRACTOR OF THE GC (BORROW SOURCE, DISPOSAL AREAS, ETC.) MUST BE MANGED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAW UNDER THE STATE OF FLORIDA GENERAL NPDES PERMIT. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT ALL SUCH AREAS ARE CURRENTLY PERMITTED FOR THE INTENDED USE AND MAKING COPIES OF SAID PERMITS AVAILABLE TO THE AUTHORITY HAVING JURISDICTION UPON REQUEST.

C. SPECIAL PROJECT AREAS: THERE ARE NO SPECIAL PROJECTS LOCATED BEYOND THE OWNER PERMITTED PROJECT AREA REQUIRING INSPECTION AND MAINTENANCE ASSOCIATED WITH THIS CONSTRUCTION PROJECT.

D. NON-STORMWATER DISCHARGES: THE FLORIDA GENERAL PERMIT FOR STOMRWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITES PROHIBITS MOST NON-STORMWATER DISCHARGES DURING THE CONSTRUCTION PHASE. ALL OWABLE NON-STORMWATER DISCHARGES THAT OCCUR DURING CONSTRUCTION ON THIS PROJECT ARE INCLUDED IN THE PART IV.A.3 OF THE GENERAL PERMIT. HTTP://WWW.DEP.STATE.FL.US/WATER/STORMWATER/NPDES/DOCS/CGP.PDF

BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS MUST BE IMPLEMENTED FOR THE GENERAL PERIT ALLOWABLE DISCHARGES FOR THE DURATION OF THE PERMIT. THE TECHNIQUES DESCRIBED IN THIS SWPPP FOCUS ON PROVIDING CONTROL OF POLLUTANT DISCHARGES WITH PRACTICLE APPROACHES THAT UTILIZE READILY AVAILABLE EXPERTISE MATERAIL, AND EQUIPMENT.

NON-STORMWATER COMPONENTS OF THE SITE DISCHARGES MUST BE UNCONTAMINATED NON-TURBID WATER. ALL NON-STORMWATER DISCHARGES MUST BE ROUTED TO A STORMWATER CONTROL PRIOR TO DISCHARGE. WATER USED FOR CONSTRUCTION WHICH DISCHARGES FROM THE SITE MUST ORIGINATE FROM A PUBLIC WATER SUPPLY OR PRIVATE WELL APPROVED BY THE STATE HEALTH DEPARTMENT. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE. IT CAN BE RETAINED IN RETENTION PONDS UNTIL IT INFILTRATES OR EVAPORATES. WHEN NON-STORMWATER IS DISCHARGED FROM THE SITE, IT MUST BE DONE IN A MANNER SUCH THAT IT DOES NOT CAUSE EROSION OF THE SOIL DURING DISCHARGE.

E. POWER WASHING: PROCESS WATER SUCH AS POWER WASHING WATER AND CONCRETE CUTTING EFFLUENT AMONG OTHERS, MUST BE COLLECTED FOR TREATMENT AND DISPOSAL. IT MUST NOT BE FLUSHED INTO THE SITE STORM DRAIN SYSTEM OR DISCHARGED OFF-SITE.

F. DISCHARGE POINTS: ALL DISCHARGE POINTS MUST BE INSPECTED TO DETERMINE WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING DISCHARGE OR SEDIMENT FROM THE SITE AND/OR IMPACTS TO RECEIVING WATERS. SEDIMENT ACCUMULATION DOWNGRADIENT OF DISCHARGE LOCATIONS SHALL BE REPORTED AS A SEDIMENT DISCHARGE AND THE POTENTIAL UPSTREAM CASUE SHALL BE INVESTIGATED TO PREVENT FUTURE OCCURRENCE. CONTACT THE OWNER/OPERATYR AND AUTHORITY HAVING JURISDICTION TO DETERMINE APPROPRIATE ACTION FOR CLEANUP OF DISCHARGED SEDIMENT THAT MAY BE OUTSIDE OF THE LIMITS OF DISTURBANCE. SEE SAMPLING AND MONITORING PLAN IF APPLICABLE.
BUILDING 8
5-UNITS

MAINTENANCE:

ALL MEASURES STATED ON THIS EROSION AND SEDIMENTATION CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASIN SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASIN OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
7. ALL SLOPES 3:1 AND STEEPER SHALL RECEIVE EROSION CONTROL BLANKET PER SPECS.

EROSION & SEDIMENT CONTROL NOTES:

A. THE STORMWATER POLLUTION PREVENTION PLAN IS COMPRISED OF THIS DRAWING ("SITE MAP"), THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN SPECIFICATIONS SECTION 02370 ("SWPPP"), PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.

B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.

C. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.

D. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.

E. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.

F. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.

G. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.

H. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.

I. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READLY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

J. DUST ON THE SITE SHALL BE CONTROLLED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

K. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

L. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.

M. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS OR AS REQUIRED BY THE PERMIT.

N. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.

O. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

P. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

Q. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.

R. ON-SITE & OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE FIELD-LOCATED AND NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

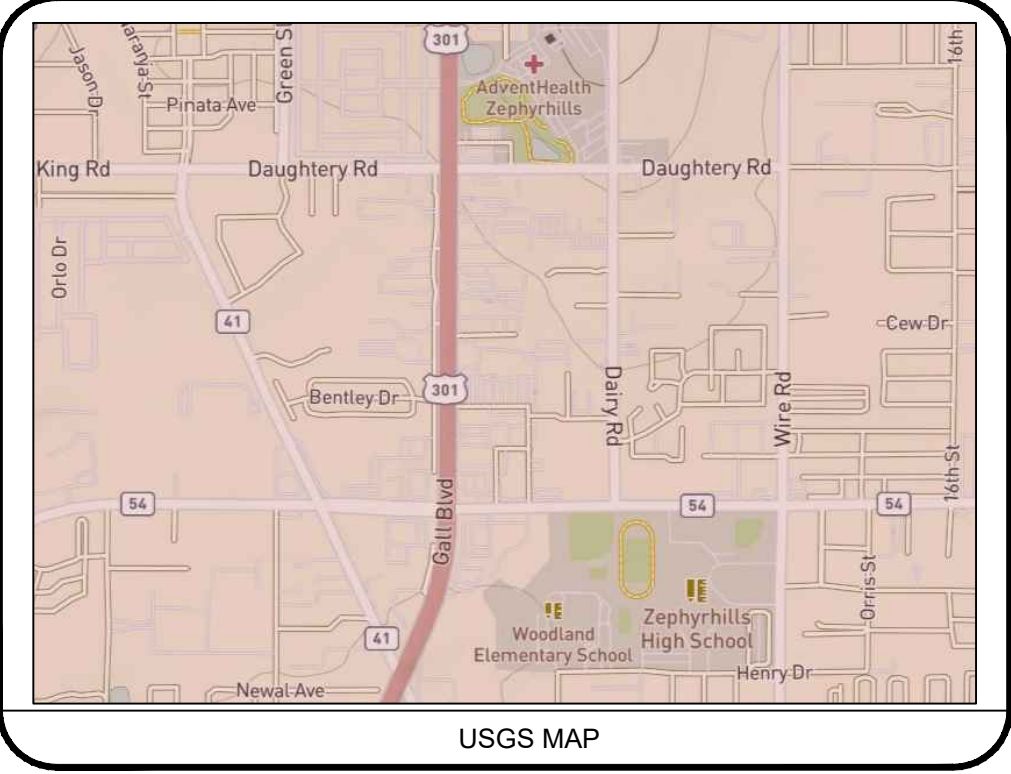
S. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

T. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO PREVENT EROSION.

U. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

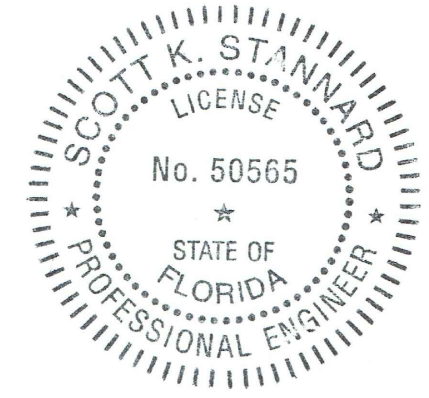
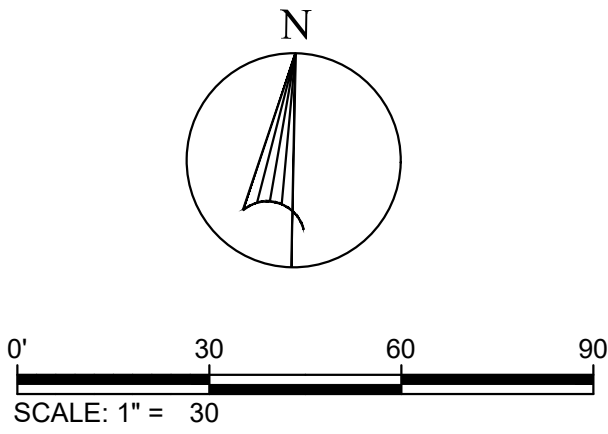


LOCATION MAP



USGS MAP

Issued:	Date:
A ISSUED FOR PERMITS	05-08-23
B	
C	
D	
Revisions:	Date:
1 CITY UTILITY COMMENTS	05-22-23
2 CITY REV PER COM (05-19-23)	07-17-23
3	
4	
5	
6	



Scott K. Stannard, P.E.:

FL P.E. No. 50565 SEAL

This item has been digitally signed and sealed by Scott K. Stannard, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



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Project Name & Location:

SWPPP &
EROSION
CONTROL NOTES

Drawing Name:

Date:	07/13/21	Drawing No. C-9.3
Revised:	XXX	
Drawn:	sk	
Checked:	SKS	

STORMWATER SUMMARY TOWNHOMES @ WIRE RD. PASCO COUNTY

**6712 Wire Road
Zephyrhills, FL
Pasco County**

**Parcel ID: 02-26-21-0010-03600-0000
Section 02 – Township 26S – Range 21E**

Original: February 16, 2023
Updated: July 6, 2023

Prepared by:



21764 State Road 54
Lutz, Florida 33549
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APPENDICES

APPENDIX A	SITE LOCATION MAP PROJECT AERIAL MAP USGS MAP NRCS SOILS MAP FIRM PANEL MAP (FEMA MAP) DEPTH TO ANY RESTRICTIVE LAYER EXHIBIT A PRE-DEVELOPMENT DRAINAGE MAP EXHIBIT B POST-DEVELOPMENT MAP EXHIBIT C PIPE AREA MAP
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APPENDIX C	STORMWATER ATTENUATION CALCULATIONS
APPENDIX D	GEOTECHNICAL EVALUATION

I. EXECUTIVE SUMMARY

The following is the stormwater drainage report for the proposed residential project to be located at 6712 Wire Road in Zephyrhills, Florida. The site is located in section 02 / township 26S / range 21E. The drainage calculations included herein pertain to the Pasco County, City of Zephyrhills, and SWFWMD Stormwater Ordinance. The proposed project of approximately 4.92 acres plans to remove all existing concrete structures, appurtenances, and pavement to accommodate the construction of the proposed residential project. The project is located within the East Pasco/Zephyrhills watershed, considered a closed drainage basin but not a Basin of Special Concern. The site does not discharge to Outstanding Florida Waters (OFW) or Impaired Waters. The proposed dry retention pond and the exfiltration trench cells will provide treatment and attenuation for the proposed project. The post-development peak runoff rate and runoff volume will be limited to the pre-development condition during the 100-year, 24-hour storm event.

The vast majority of the site is vacant and the land is covered by a combination of grass and woods in a fair condition. There is a single-family house on the west side of the property near Wire Rd that will be removed. The soil type is Tavares Sand with a Hydrologic Soil Group "A". Currently, there is no stormwater management system on-site and the storm runoff sheet flows overland to the southwest towards Wire Rd.

Per SWFWMD, stormwater quality treatment must be provided for the entire project and all contributing off-site runoff. The on-line retention pond shall treat the first 0.5 inch of runoff. The total treatment volume shall again be available within 72 hours. Post development runoff does shall not exceed the pre-development discharge rate during the 25yr-24hr storm event. Runoff volume shall be limited to the pre-development condition such that there shall be no increase in the volume of runoff resulting from development activity for the 100yr-24hr storm event. The retention pond must maintain at least 6" of freeboard.

Per Pasco County, stormwater management system shall be designed in accordance with SWFWMD requirements. The post-development runoff shall not exceed the pre-development discharge rate during the 100-year, 24-hour storm event. Runoff volume shall be limited to the pre-development condition such that there shall be no increase in the volume of runoff resulting from development activity for a 100yr-24 hour storm event. The detention pond must maintain at least 6" of freeboard.

Per the City of Zephyrhills, stormwater management system shall be designed in accordance with SWFWMD requirements. The post-development runoff shall not exceed the pre-development discharge rate during the 100-year, 24-hour storm event. The retention pond must maintain at least 6" of freeboard.

II. FLOOD PLAIN CONSIDERATIONS

According to FEMA Flood Insurance Rate Map 12101C0293F, effective September 26, 2014, the site lies within the minimal flood hazard Zone X.

There is no proposed encroachment within any flood plain associated with this project.

The proposed finished floor elevation for the each residential building will be set higher than 94.0 feet (NAVD88) and is well above the maximum water stage elevation in the retention pond during the 100-year storm event.

III. SITE SOILS INFORMATION and SEASONAL HIGH WATER TABLE (SHWT)

According to the NRCS Web Soil Survey, the predominant soil type for the site is Tavares Sand. This soil type is classified as Hydrologic Soil Group A and is characterized by sandy soils. The SPT boring and DRI testing performed by Universal Engineering Sciences encountered upper sandy soils generally consisted of very loose to medium dense poorly graded sand (SP) and sand with clay (SP-SC) extending to depths on the order of four (4) feet to 12 feet below existing site grades. The clayey soils encountered below the upper sandy soils, generally consisted of loose to dense clayey sand (SC) with some interbedded layers of sand with clay (SP-SC) extending to the termination of the borings. The SPT boring test were completed to depths of 15 to 20 feet below existing grades.

The groundwater table was not encountered within the top 10 feet, and drilling fluid was utilized in the boreholes below 10 feet. The presence of hydraulically restrictive clayey sands at some of the boring location may form a perched transient groundwater condition, especially after periods of heavy rainfall. Therefore, the Seasonal High Groundwater Table (SHWT) elevation was estimated to be one-foot above the encountered clayey sand layer or 3.5 feet below the existing grade elevation at test boring locations. The SHWT elevation will be set at 88.0 feet and the Surficial Aquifer base at the boring terminated depth or 85.0 feet.

The bottom of the proposed retention pond will be set at elevation 90.0 feet (NAVD88).

IV. EXISTING CONDITIONS

The parcel is currently undeveloped with the exemption of single-family home located on the west side of the property near Wire Rd. The land is covered with a combination of fair grass and woods. The soil type is Tavares Sand with a Hydrologic Soil Group "A".

The site is located within the East Pasco/Zephyrhills Basin which is classified as a Closed Drainage Basin. Therefore, the overall runoff volume shall be limited to the pre-development condition such that there shall be no increase in the volume of runoff resulting from development activity for a 100yr-24hr storm event.

The total site area is approximately 4.92 acres and the overall Weighted Curve Number (CN) for the undeveloped site is 51. The time of concentration for the pre-development condition is 24 minutes. The storm runoff sheet flows overland to the southwest towards the right-of-way next to Wire Road. There is currently no stormwater management system on-site.

V. PROPOSED CONDITIONS

The proposed development plans to build a small residential community in the 4.92 acres parcel that is located east of Wire Road in Pasco County. Some of the storm runoff will be collected by storm sewers and routed to the exfiltration trenches first before going into the retention pond, while the rest will be routed to the retention pond as soon as it is collected. The total impervious area will be 2.70 acres and the open space area will be 1.70 acres. The weighted Curve Number (CN) for Basin 1 is 83, for Basin #2 is 75, for Basin #3 is 74, for Basin #4 is 83, and for Basin #5 is 73. A time of concentration (Tc) of 10 minutes will be assigned to each drainage basin.

The dry retention pond and exfiltration trenches were sized and designed to hold the difference in pre-development vs. post development runoff volume produced during the 100yr-24hr storm event. The post development runoff will be limited to the pre-development allowable discharge rate during the 100yr-24hr storm event as required for sites within a Closed Drainage Basin.

The bottom for the proposed pond will be set at elevation 90.0 and the top of the berm will be set at elevation 94.0 (NAVD88). The dry retention pond and exfiltration trenches will provide quality treatment for the entire project. The treatment volume will be released via percolation during the first 72 hours. The results from the ICPR model shows that the pond will maintain at least 6 inches of freeboard during the 100-year storm event.

VI. WATER QUALITY

The water quality component of the stormwater management facility is designed as an online dry retention pond. The treatment storage depth was determined for the project and no runoff will be released until the treatment volume is provided. This design provides a “stacked condition” meaning the attenuation volume is stacked on top of the required treatment volume and no credit is claimed for the treatment volume in the routing. The required treatment volume per Section 5.2(c) of the SWFWMD Applicant’s Handbook is 0.5 inches of runoff over the contributions site area. Total treatment volume shall again be available within 72 hours, however, only that volume which can again be available within 36 hours may be counted as part of the volume required for water quantity storage.

Treatment Volume required	= 17,860 cubic-feet
Treatment Volume provided	= 18,517 cubic-feet
Pond Drawdown Time	= less than 72 hours

VII. WATER QUANTITY

The storm water quantity regulations are governed by the Southwest FL Water Management District (SWFWMD) and by the Pasco County.

SWFWMD:

- Post development runoff does not exceed the pre-development discharge rate for the 25yr-24hr storm event.
- Runoff volume shall be limited to pre-development condition such that there shall be no increase in the volume of runoff resulting from the development activity for a 100yr-24hr storm event.

- Retention pond must maintain 6 inches of freeboard.

PASCO COUNTY:

- Be designed in accordance with SWFWMD requirements.
- Post-development runoff does not exceed the pre-development discharge rate for the 25-yr – 24 hour storm event.
- Runoff volume shall be limited to pre-development condition such that there shall be no increase in volume of runoff resulting from development activity for a 100yr-24 hour storm event.
- Retention pond must maintain 6 inches of freeboard.

CITY OF ZEPHYRHILLS:

- Be designed in accordance with SWFWMD requirements.
- Post-development runoff does not exceed the pre-development discharge rate for the 100-yr, 24-hour storm event.
- Runoff volume shall be limited to pre-development condition such that there shall be no increase in volume of runoff resulting from development activity for a 100yr-24 hour storm event.
- Retention pond must maintain 6 inches of freeboard.

The post-developed peak discharge rates were compared to the pre-developed discharge rates using the pond routing software ICPR. This software uses the NRCS (TR-55 SCS) curve number method for calculating site runoff volume and while accounting for the effects of infiltration. The time-dependent runoff distribution is routed through the post-developed stormwater management system using a series of specified unit hydrographs. The corresponding rainfall amounts are provided by the SWFWMD Applicant's Handbook Vol. II and the FDOT Drainage Handbook and published Intensity-Duration-Frequency (IDF) curves for the Florida Zone 6.

The weighted post-developed curve number (CN) was calculated for the proposed development and CN calculations are shown in the Appendix. For Type C soils, a CN value of 49 for open space grassed areas, 98 for impervious areas, and 100 for open water.

A hydrograph peaking factor (K') of 256 was used for both the pre and post-developed conditions.

The stormwater attenuation and pond routing calculations are included in Appendix C. Rainfall amounts for the individual storm events are included in the calculations. Also, a basin summary showing the key parameters for the existing and proposed drainage basins is included in the Appendix.

The following table summarizes the results of the stormwater attenuation analysis. The critical duration corresponding to the peak runoff and peak discharge is highlighted:

OVERALL SITE RUNOFF

Storm Event	Pre-Development	Post-Development	
	Allowable Discharge Rate (cfs)	Total Site Runoff (cfs)	Pond Stage (feet)
25yr-24hr	5.59	0.31	92.45
100yr-24hr	9.21	4.93	93.52

As shown in the table above, the overall post-development runoff is lower than the pre-development allowable discharge rate during all storm events. The design high water elevation during the 100-year, 24-hour storm event is 93.52. The proposed pond will maintain at least 6 inches of freeboard.

OVERALL SITE RUNOFF VOLUME

STORM EVENT	TOTAL VOLUME RELEASED - PRE (ac-ft)	TOTAL VOLUME RELEASED – POST (ac-ft)
100yr-24hr	1.96	1.77

As shown in the table above, the overall post-development runoff volume is lower than the pre-development runoff volume released during 100 year, 24 hour storm event.

VIII. SEDIMENT AND EROSION CONTROL

Erosion and sediment runoff from the site will be controlled via silt fence, inlet and outlet protection, pipe inlet protection, and stone construction entrance. Temporary and permanent seeding will be utilized throughout construction in accordance with recommendations found in the *Florida Department of Environmental Protection Manual*. The erosion control measures will be implemented per the *Florida Department of Environmental Protection Manual and the FDEP Stormwater Best Management Practices Manual*. Erosion and Sedimentation Control Plans and Details, a generalized sequence of construction, and maintenance notes can be found in the Site Development Plans, prepared by Commercial Site Solutions, Inc.

The Erosion and Sediment Control plan will consist of the following: The stone construction entrance and concrete wash-out area will be installed to prevent any mud or sediment being tracked onto adjacent roadways. Silt fence will be placed as shown on the plan. Inlet protection will be installed on proposed and existing inlets prior to and during construction. The outlet structures in the ponds will be protected to prevent sediment from leaving the site through the ponds. All disturbed areas will be stabilized with permanent vegetative stabilization and/or landscaping as shown on plans.

IX. PIPE SIZING CALCULATIONS

Pipe sizing calculations are included in this report. The pipes are sized per Pasco County Code using the 10-year storm event. The tail water condition for the design shall be the 10-year storage elevation in the pond or the crown of the pipe, whichever is greater.

Pond 10-year high design water elevation = 91.73 feet.

Hydraulic grade line elevations are generated using the Intellisolve Software Program “*Hydraflow*”. Results of these calculations are shown.

Appendix A – Maps and Exhibits

SITE LOCATION MAP

PROJECT AERIAL MAP

USGS MAP

NRCS SOILS MAP

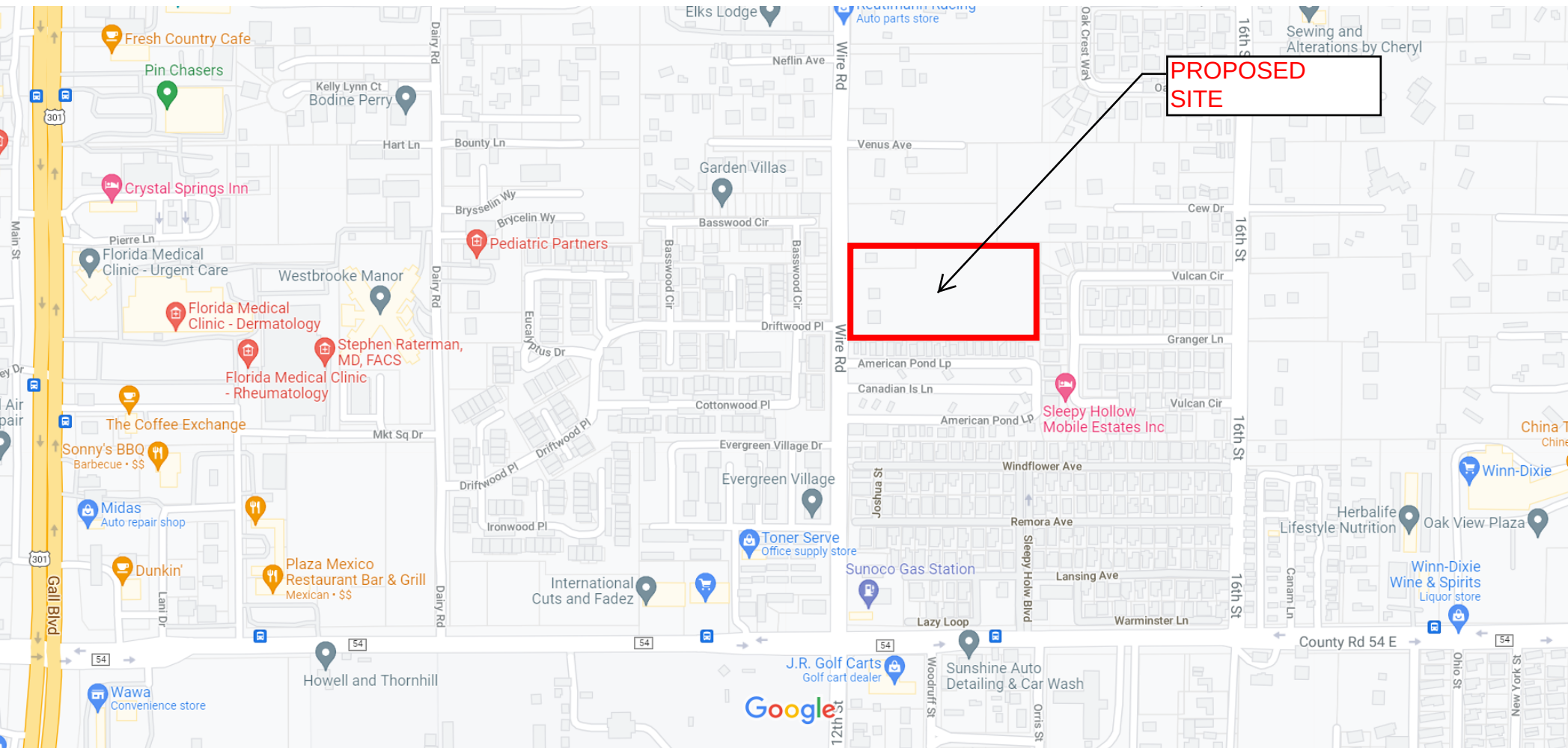
FIRM PANEL MAP (FEMA MAP)

EXHIBIT A PRE-DEVELOPMENT DRAINAGE MAP

EXHIBIT B POST-DEVELOPMENT DRAINAGE MAP

EXHIBIT C PIPE AREA MAP

PIPE STORM TABS



Map data ©2021 Google 200 ft



Imagery ©2021 Maxar Technologies, U.S. Geological Survey, Map data ©2021 100 ft

Soil Map—Pasco County, Florida (Soil Map)



Map Scale: 1:1,690 if printed on A landscape (11" x 8.5") sheet.

0 25 50 100 150 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

Soil Map—Pasco County, Florida
(Soil Map)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pasco County, Florida

Survey Area Data: Version 19, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

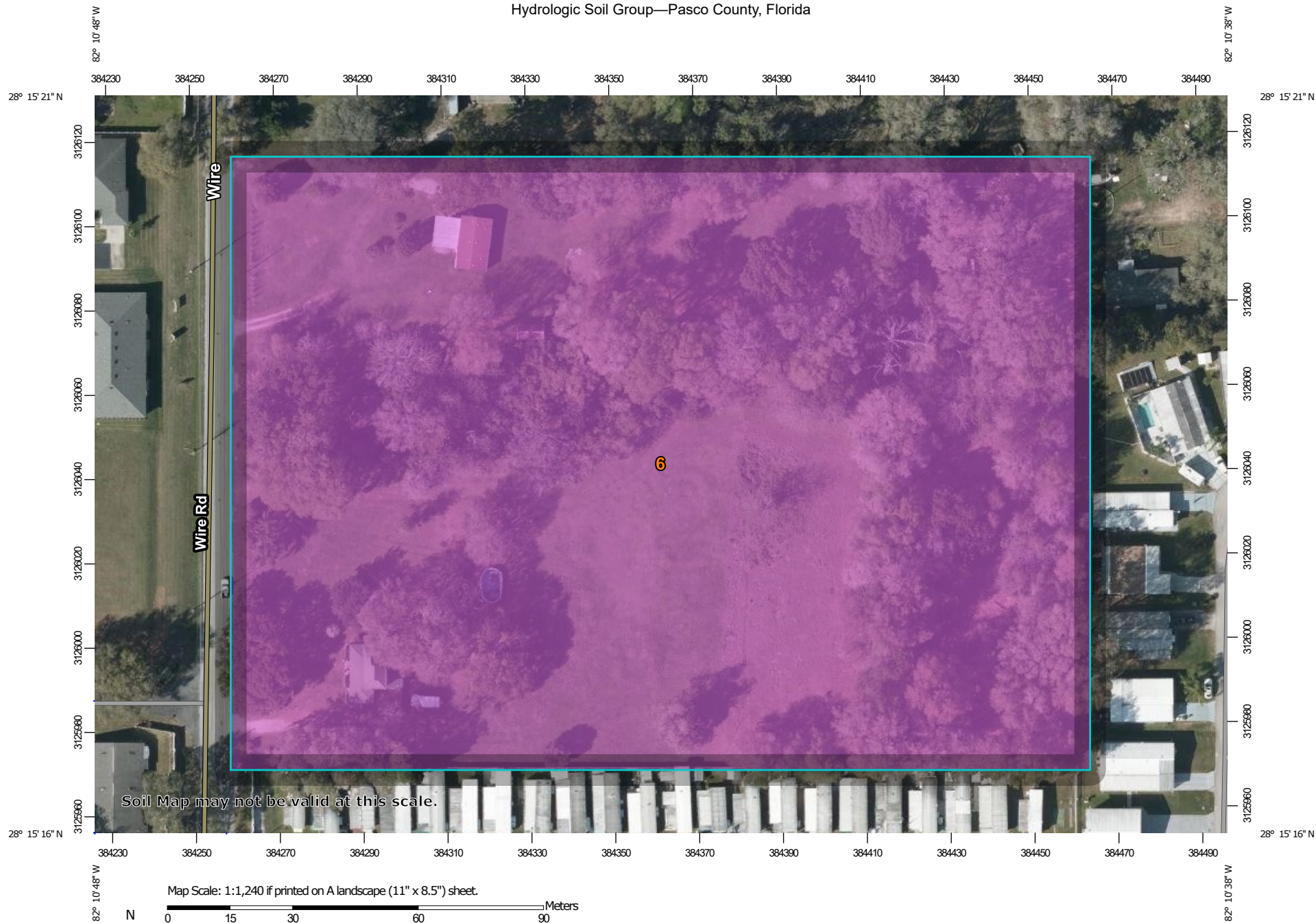
Date(s) aerial images were photographed: Feb 8, 2019—Feb 28, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

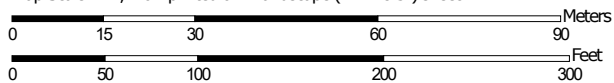
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Tavares sand, 0 to 5 percent slopes	13.3	91.0%
32	Lake fine sand, 0 to 5 percent slopes	1.3	9.0%
Totals for Area of Interest		14.6	100.0%

Hydrologic Soil Group—Pasco County, Florida



Soil Map may not be valid at this scale.

Map Scale: 1:1,240 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pasco County, Florida
 Survey Area Data: Version 20, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 8, 2019—Feb 28, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6	Tavares sand, 0 to 5 percent slopes	A	7.4	100.0%
Totals for Area of Interest			7.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

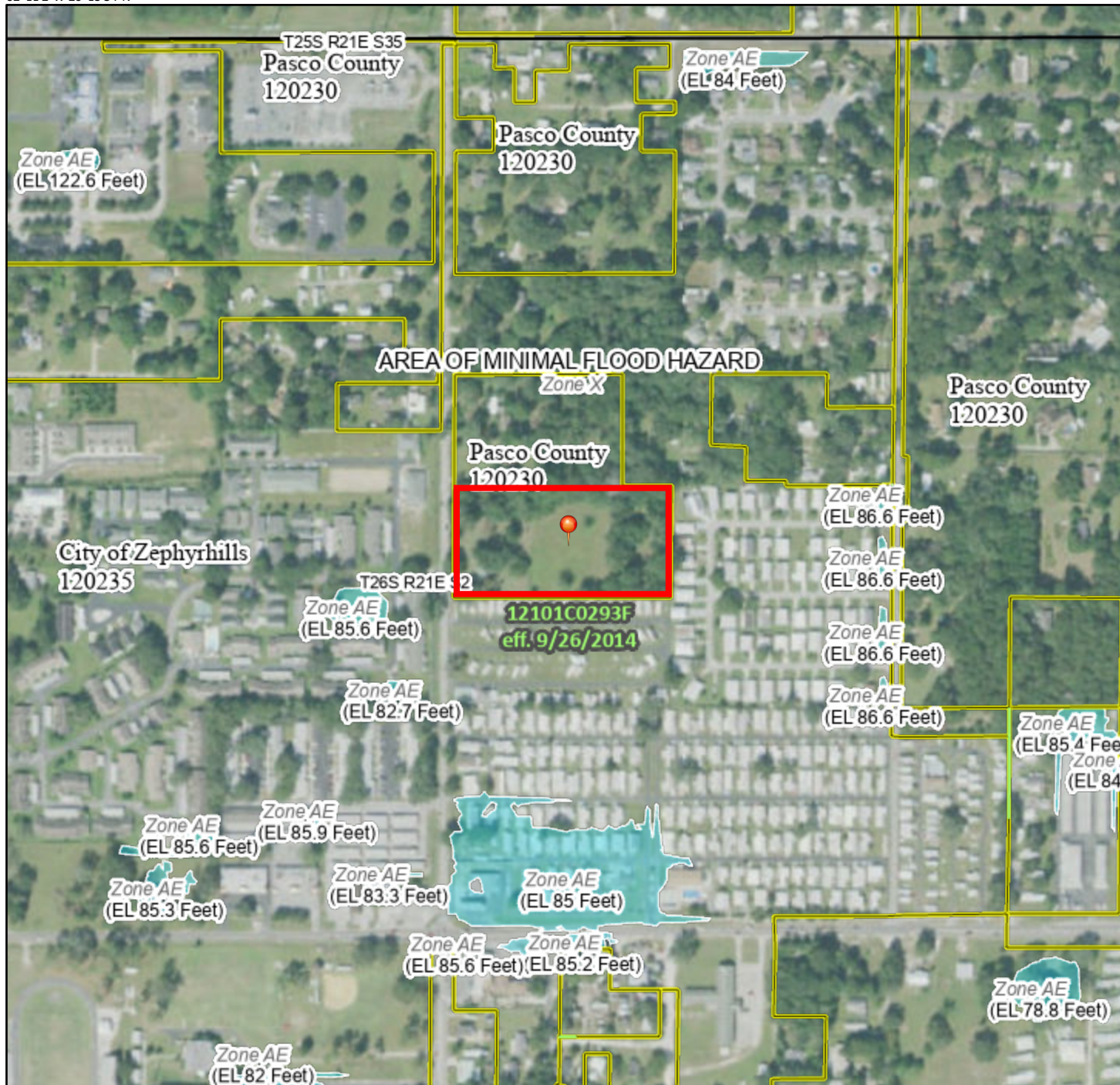
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

National Flood Hazard Layer FIRMette



82°11'2"W 28°15'34"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

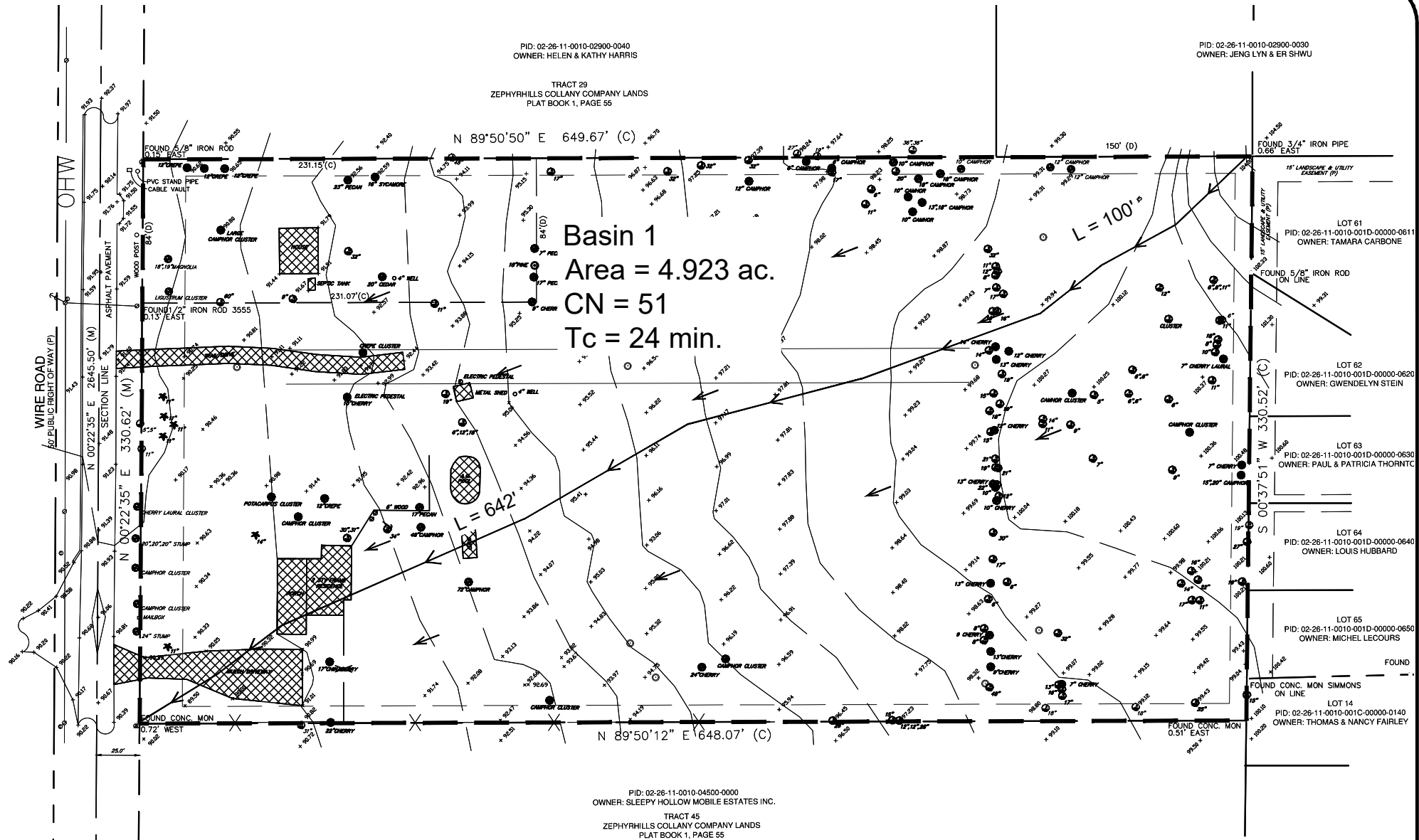
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/15/2021 at 10:41 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

PID: 02-26-11-0010-02900-0040
OWNER: HELEN & KATHY HARRIS

TRACT 29
ZEPHYRHILLS COLLANY COMPANY LANDS
PLAT BOOK 1, PAGE 55

PID: 02-26-11-0010-02900-0030
OWNER: JENG LYN & ER SHWU



Line Table:

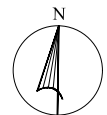
Curve Table:

EXHIBIT A - PRE-DEVELOPED DRAINAGE MAP
6712 Wire Road
Zephyrhills, FL



DATE: 11/16/2021

SCALE: 1:90



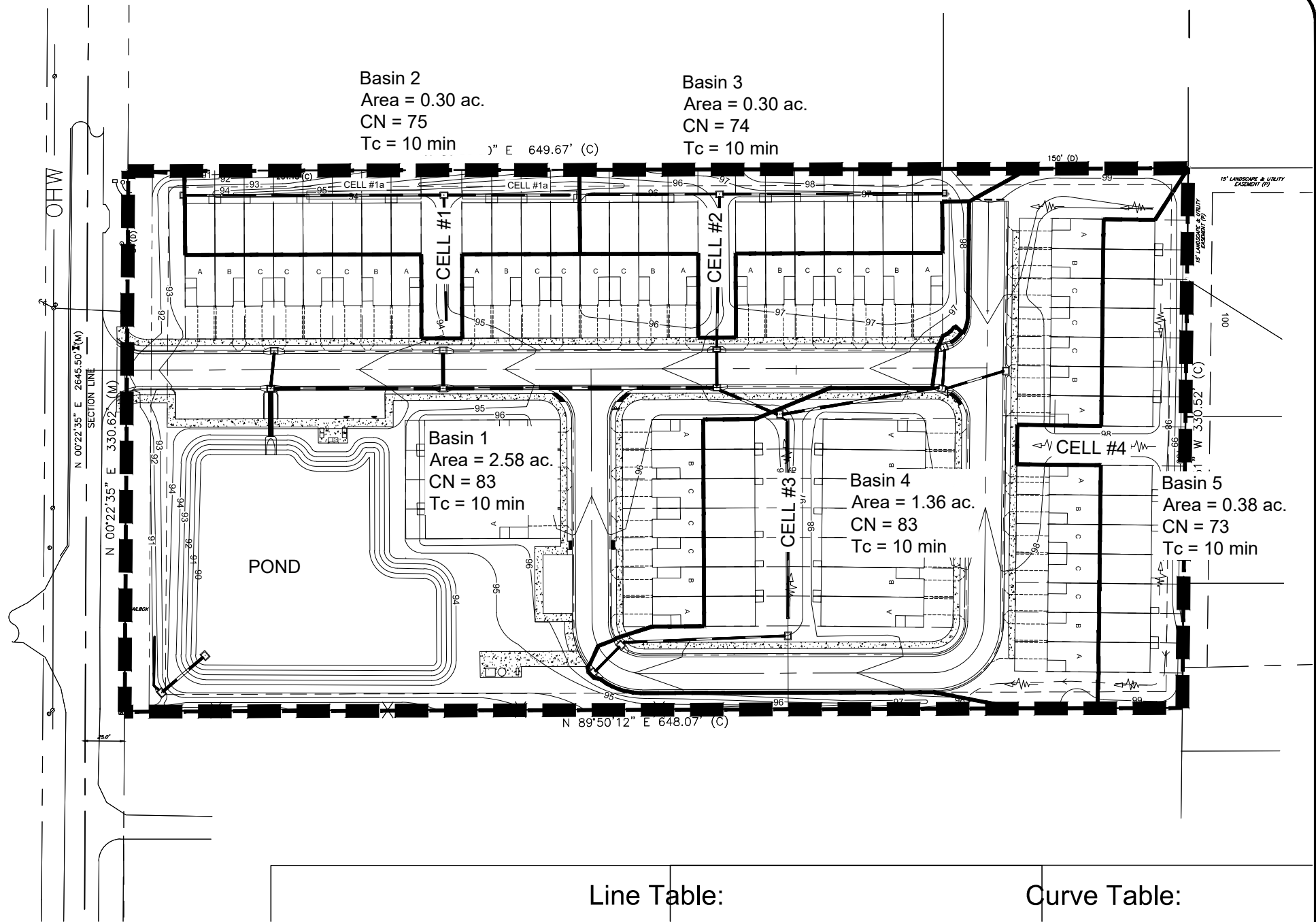
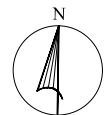


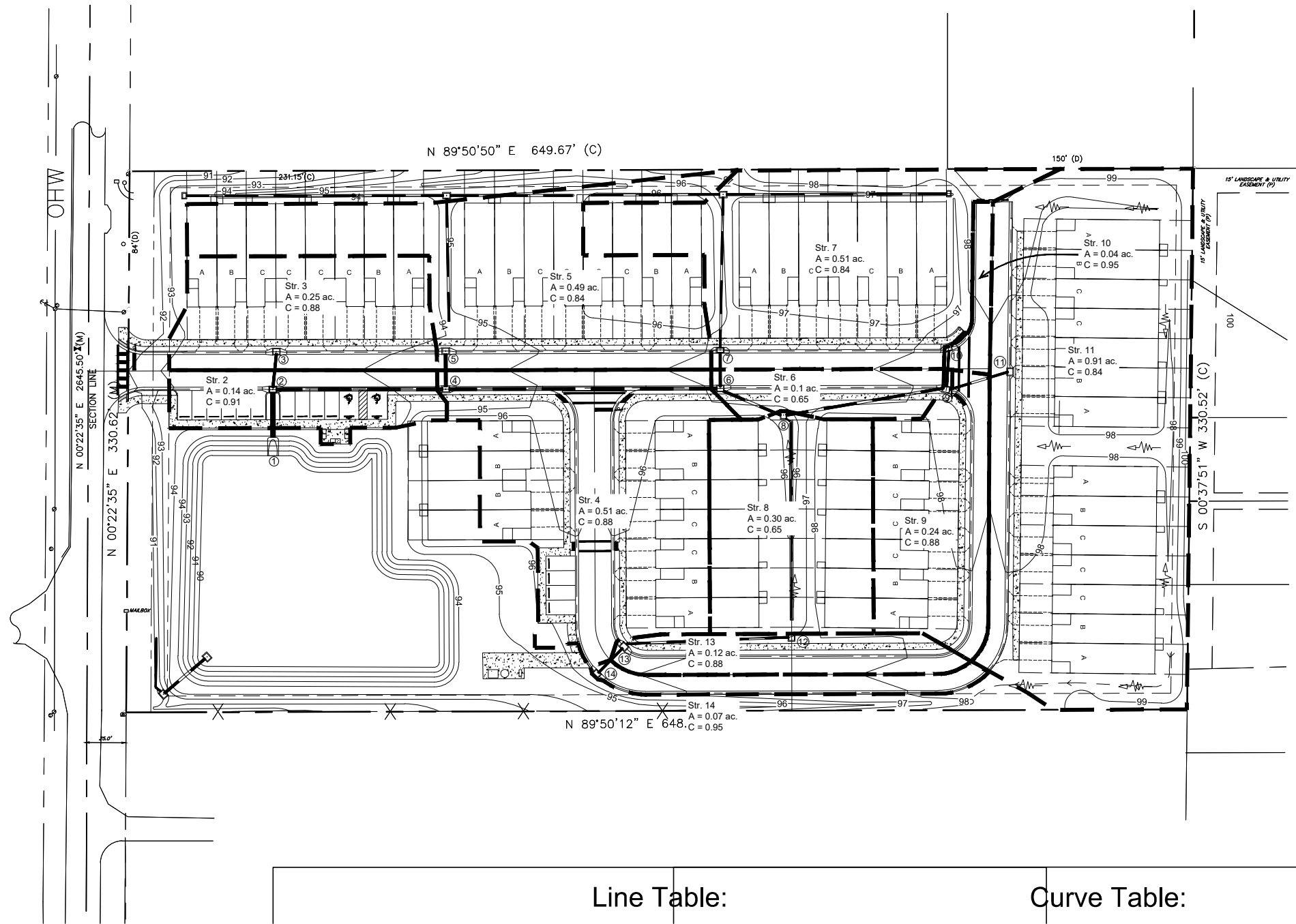
EXHIBIT B - POST-DEVELOPED DRAINAGE MAP
6712 Wire Road
Zephyrhills, FL



DATE: 07/06/2023

SCALE: 1" = 80'





Line Table:

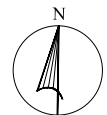
Curve Table:

EXHIBIT C - PIPE DRAINAGE AREA MAP
6712 Wire Road
Zephyrhills, FL



DATE: 11/16/2021

SCALE: 1" = 80'



Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	40.000	0.000	DrGrt	0.00	0.14	0.91	15.0	90.00	1.25	90.50	36	Cir	0.013	1.50	93.30	1 to 2
2	1	25.000	0.543	DrGrt	0.00	0.25	0.88	15.0	87.05	2.00	87.55	18	Cir	0.013	1.00	93.30	2 to 3
3	1	106.000	89.350	DrGrt	0.00	0.51	0.88	15.0	90.50	0.23	90.74	24	Cir	0.013	1.50	94.37	2 to 4
4	3	25.000	-90.253	DrGrt	0.00	0.49	0.84	15.0	86.00	2.00	86.50	18	Cir	0.013	1.00	94.37	4 to 5
5	3	168.000	-0.390	DrGrt	0.00	0.10	0.65	15.0	90.74	0.25	91.16	24	Cir	0.013	1.97	96.04	4 to 6
6	5	25.000	-92.460	DrGrt	0.00	0.51	0.84	15.0	89.68	0.20	89.73	18	Cir	0.013	1.00	96.04	6 to 7
7	5	44.000	12.526	DrGrt	0.00	0.30	0.65	15.0	91.16	1.91	92.00	24	Cir	0.013	1.47	95.50	6 to 8
8	7	100.000	-17.375	DrGrt	0.00	0.24	0.88	15.0	92.00	0.50	92.50	18	Cir	0.013	1.48	97.20	8 to 9
9	8	25.000	-80.973	DrGrt	0.00	0.04	0.95	15.0	92.50	0.80	92.70	15	Cir	0.013	1.00	97.20	9 to 10
10	8	40.000	-0.336	DrGrt	0.00	0.91	0.84	15.0	92.50	0.50	92.70	18	Cir	0.013	1.00	97.40	9 to 11
11	7	135.000	78.218	MH	0.00	0.00	0.00	15.0	92.00	0.25	92.34	24	Cir	0.013	0.99	97.00	8 to 12
12	11	100.000	82.043	DrGrt	0.00	0.12	0.88	15.0	92.34	0.50	92.84	18	Cir	0.013	0.54	96.59	12 to 13
13	12	20.000	-17.861	DrGrt	0.00	0.07	0.95	15.0	92.84	0.50	92.94	15	Cir	0.013	1.00	96.59	13 to 14
Wire Rd - Pipe Calcs												Number of lines: 13				Date: 7/6/2023	

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	1	DropGrate	93.30	Rect	3.80	3.25	36	Cir	90.50	18 24	Cir Cir	87.05 90.50
2	2	DropGrate	93.30	Rect	3.80	3.25	18	Cir	87.55			
3	4	DropGrate	94.37	Rect	3.80	3.25	24	Cir	90.74	18 24	Cir Cir	86.00 90.74
4	5	DropGrate	94.37	Rect	3.80	3.25	18	Cir	86.50			
5	6	DropGrate	96.04	Rect	3.80	3.25	24	Cir	91.16	18 24	Cir Cir	89.68 91.16
6	7	DropGrate	96.04	Rect	3.80	3.25	18	Cir	89.73			
7	8	DropGrate	95.50	Rect	3.80	3.25	24	Cir	92.00	18 24	Cir Cir	92.00 92.00
8	9	DropGrate	97.20	Rect	3.80	3.25	18	Cir	92.50	15 18	Cir Cir	92.50 92.50
9	10	DropGrate	97.20	Rect	3.80	3.25	15	Cir	92.70			
10	11	DropGrate	97.40	Rect	3.80	3.25	18	Cir	92.70			
11		Manhole	97.00	Cir	3.80	3.80	24	Cir	92.34	18	Cir	92.34
12		DropGrate	96.59	Rect	3.80	3.25	18	Cir	92.84	15	Cir	92.84
13		DropGrate	96.59	Rect	3.80	3.25	15	Cir	92.94			
Wire Rd - Pipe Calcs							Number of Structures: 13			Run Date: 7/6/2023		

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	1	0.77	0.93	1.71	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.12	15.01	0.12	15.01	0.0	Off
2	2	1.34	1.16	2.50	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.15	18.41	0.15	18.41	0.0	Off
3	4	2.73	0.10	1.90	0.93	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.16	18.10	0.16	18.10	0.0	1
4	5	2.50	0.80	2.14	1.16	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.17	19.10	0.17	19.10	0.0	2
5	6	0.40	0.28	0.57	0.10	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.09	11.10	0.09	11.10	0.0	3
6	7	2.60	0.01	1.82	0.80	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.16	18.10	0.16	18.10	0.0	4
7	8	1.19	0.00	1.19	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.09	12.47	0.09	12.47	0.0	Off
8	9	1.28	0.00	1.01	0.28	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.12	14.10	0.12	14.10	0.0	5
9	10	0.23	0.00	0.22	0.01	DrGrt	0.0	0.00	0.00	3.80	3.25	0.010	2.00	0.020	0.020	0.016	0.06	8.10	0.06	8.10	0.0	6
10	11	4.65	0.00	4.65	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.23	26.17	0.23	26.17	0.0	Off
11		0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
12		0.64	0.00	0.64	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.06	9.37	0.06	9.37	0.0	Off
13		0.40	0.00	0.40	0.00	DrGrt	0.0	0.00	8.65	3.80	3.25	Sag	2.00	0.020	0.020	0.000	0.04	7.75	0.04	7.75	0.0	Off

Wire Rd - Pipe Calcs

Number of lines: 13

Run Date: 7/6/2023

NOTES: Inlet N-Values = 0.016; Intensity = 260.04 / (Inlet time + 30.70) ^ 0.98; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 7/6/2023	
					Total Flow	C1 = 0.2 C2 = 0.5 C3 = 0.95						Elev of Crown			Span	Pipe	Full Flow		Frequency: 10 yrs			
												Elev of Invert							Proj: pipe calcs 3.stm			
						Q	Up					Down		Fall	Size	Slope	Vel	Cap	Line description			
				(ft)	Incre- ment (ac)	Sub- Total (ac)	Sum CA	(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)			
1	End	DrGrt	0.013	40.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	27.12	0.27	4.83	3.08	0.00 14.87	93.30	91.73 93.50 90.50	91.73 93.00 90.00	0.00 0.50	36 36 Cir	0.00 1.25	4.49 10.55	14.87 74.57	1 to 2	
2	1	DrGrt	0.013	25.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	0.55	6.08	0.22	0.00 1.34	93.30	92.32 89.05 87.55	92.32 88.55 87.05	0.00 0.50	18 18 Cir	0.02 2.00	0.76 8.40	1.34 14.85	2 to 3	
3	1	DrGrt	0.013	106.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	26.77	0.35	4.85	2.73	0.00 13.27	94.37	92.87 92.74 90.74	92.50 92.50 90.50	0.37 0.24	24 24 Cir	0.34 0.23	4.23 3.43	13.27 10.76	2 to 4	
4	3	DrGrt	0.013	25.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	0.29	6.08	0.41	0.00 2.50	94.37	93.30 88.00 86.50	93.28 87.50 86.00	0.01 0.50	18 18 Cir	0.06 2.00	1.42 8.40	2.50 14.85	4 to 5	
5	3	DrGrt	0.013	168.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	25.97	0.80	4.92	1.87	0.00 9.22	96.04	93.56 93.16 91.16	93.28 92.74 90.74	0.28 0.42	24 24 Cir	0.17 0.25	2.94 3.60	9.22 11.31	4 to 6	
6	5	DrGrt	0.013	25.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	0.28	6.08	0.43	0.00 2.60	96.04	93.84 91.23 89.73	93.83 91.18 89.68	0.02 0.05	18 18 Cir	0.06 0.20	1.47 2.66	2.60 4.70	6 to 7	
7	5	DrGrt	0.013	44.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	25.69	0.28	4.95	1.38	0.00 6.83	95.50	93.86 94.00 92.00	93.83 93.16 91.16	0.03 0.84	24 24 Cir	0.07 1.91	2.21 9.95	6.83 31.25	6 to 8	
8	7	DrGrt	0.013	100.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	17.21	0.48	5.80	1.01	0.00 5.88	97.20	94.29 94.00 92.50	93.97 93.50 92.00	0.31 0.50	18 18 Cir	0.31 0.50	3.33 4.20	5.88 7.43	8 to 9	
9	8	DrGrt	0.013	25.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	2.21	6.08	0.04	0.00 0.23	97.20	94.54 93.95 92.70	94.54 93.75 92.50	0.00 0.20	15 15 Cir	0.00 0.80	0.19 4.71	0.23 5.78	9 to 10	
10	8	DrGrt	0.013	40.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	0.25	6.08	0.76	0.00 4.65	97.40	94.62 94.20 92.70	94.54 94.00 92.50	0.08 0.20	18 18 Cir	0.20 0.50	2.63 4.20	4.65 7.43	9 to 11	

NOTES: Intensity = 260.04 / (Inlet time + 30.70) ^ 0.98 (in/hr) ; Time of flow in section is based on full flow.

Wire Rd - Pipe Calcs

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 7/6/2023	
					C1 = 0.2 C2 = 0.5 C3 = 0.95							Total Flow		Elev of Crown			Span	Pipe	Full Flow	Frequency: 10 yrs		
														Elev of Invert						Proj: pipe calcs 3.stm		
				Increment (ac)	Sub-Total (ac)	Sum CA	Up (ft)	Down (ft)	Fall (ft)	Size (in)	Slope (%)	Vel (ft/s)	Cap (cfs)	Line description								
11	7	MH	0.013	135.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	18.83	6.85	5.62	0.17	0.00 0.97	97.00	93.97 94.34 92.34	93.97 94.00 92.00	0.00 0.34	24 24 Cir	0.00 0.25	0.33 3.61	0.97 11.35	8 to 12	
12	11	DrGrt	0.013	100.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	16.01	2.82	5.95	0.17	0.00 1.02	96.59	93.99 94.34 92.84	93.98 93.84 92.34	0.01 0.50	18 18 Cir	0.01 0.50	0.64 4.20	1.02 7.43	12 to 13	
13	12	DrGrt	0.013	20.000	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	15.00	1.01	6.08	0.07	0.00 0.40	96.59	93.99 94.19 92.94	93.99 94.09 92.84	0.00 0.10	15 15 Cir	0.00 0.50	0.36 3.72	0.40 4.57	13 to 14	

NOTES: Intensity = 260.04 / (Inlet time + 30.70) ^ 0.98 (in/hr) ; Time of flow in section is based on full flow.

Wire Rd - Pipe Calcs

Appendix B – Water Quality Calculations



Project Name : Wire Rd Townhomes
Project Number :
Revised : October 27, 2021
Designed by : DAG
Checked by : SKS

Pre-Developed CN Calculations - Existing conditions

Basin 1 - Flows to Wire Road

<u>Description</u>	<u>Area (SF)</u>	<u>Area (A)</u>	<u>Curve No.</u> <u>(CN)</u>	<u>CN x A</u>	<u>Cover Type & Hydrologic Cond.</u>
Impevious	7000 SF	0.161 ac	98	15.75	Soil Group A, Impervious
Grass	207463 SF	4.763 ac	49	233.37	Soil Group A, Fair condition
Total Area	214463 SF	4.923 ac		249.12	51 = Weighted CN



Project Name : Wire Rd. Townhomes
 Project Number :
 Revised : October 27, 2021
 Designed by : DAG
 Checked by : SKS

Time of Concentration (Tc) or Travel Time (Tt)

Basin

PRE-1		
-------	--	--

Sheet Flow (Applicable to Tc only)

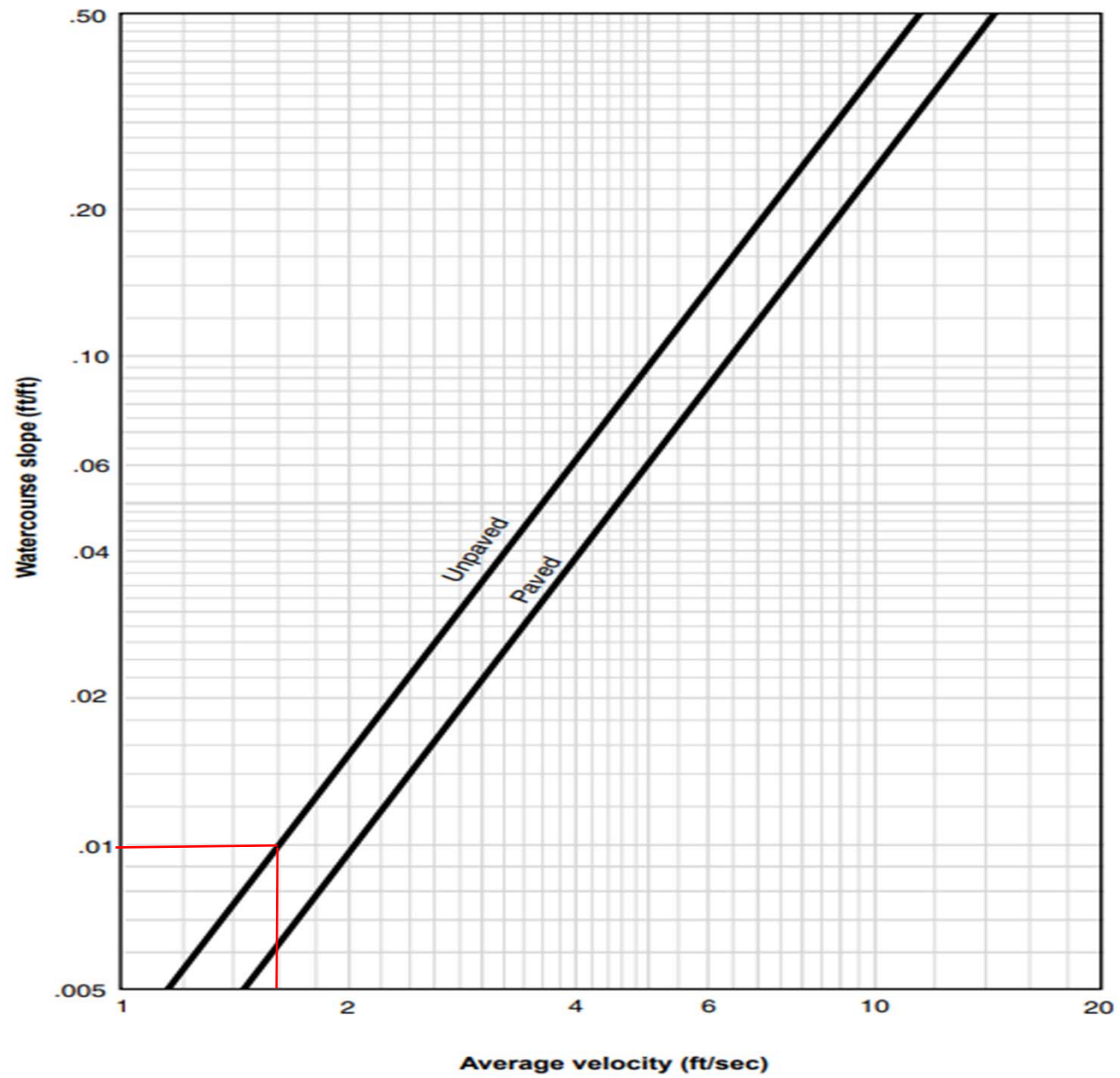
1	Surface Description (Table 3-1)	Segment ID	1		
2	Manning's Roughness coeff., n (Table 3-1)		Woods Light		
3	Flow Length, L (total L ≤ 300 ft)	ft	0.4		
4	2-Yr 24-Hr rainfall, P ₂	in	100		
5	Land slope, s	ft/ft	4.75		
6	T = 0.007 (nL) ^{0.8} / P ₂ ^{0.5} s ^{0.4}	hr	0.02		
			0.294		

Shallow Concentrated Flow

7	Surface Description (Paved or Unpaved)	Segment ID	1		
8	Flow Length, L	ft	Unpaved		
9	Watercourse slope, s	ft/ft	642		
10	Average Velocity, V (figure 3-1)	ft/s	0.01		
11	T = L / 3600V	hr	1.6		
			0.111		

Channel Flow

12	Cross sectional flow area, a	Segment ID	1		
13	Wetted perimeter, pw	ft ²			
14	Hydraulic Radius, r = a / pw	ft			
15	Channel Slope, s	ft/ft	0		
16	Manning Roughness coeff., n				
17	V = 1.49 r ^{2/3} s ^{1/2} / n	ft/s			
18	Flow Length, L	ft/s			
19	T = L / 3600V	hr			
20	Watershed or subarea Tc or Tt (adding Tt in steps 6, 11, and 19)	hr	0.405		
	or	min	24		





Project Name : Wire Rd Townhomes
 Project Number :
 Revised : July 6, 2023
 Designed by : DAG
 Checked by : SKS

Post-Developed CN Calculations

Basin 1 -Flows to Pond

Description	Area (SF)	Area (A)	Curve No. (CN)	CN x A	Cover Type & Hydrologic Cond.
Paved	55065 SF	1.264 ac	98	123.88	Soil Group A, Impervious
Pond	22573 SF	0.518 ac	100	51.82	Soil Group A, water
Open Space	34867 SF	0.800 ac	49	39.22	Soil Group A, fair condition
Total Area	112505 SF	2.583 ac		214.93	83 = Weighted CN

Basin 2 -Flows to Cell #1

Description	Area (SF)	Area (A)	Curve No. (CN)	CN x A	Cover Type & Hydrologic Cond.
Paved	7050 SF	0.162 ac	98	15.86	Soil Group A, Impervious
Pond	0 SF	0.000 ac	100	0.00	Soil Group A, water
Open Space	6194 SF	0.142 ac	49	6.97	Soil Group A, fair condition
Total Area	13244 SF	0.304 ac		22.83	75 = Weighted CN

Basin 3 -Flows to Cell #2

Description	Area (SF)	Area (A)	Curve No. (CN)	CN x A	Cover Type & Hydrologic Cond.
Paved	6474 SF	0.149 ac	98	14.57	Soil Group A, Impervious
Pond	0 SF	0.000 ac	100	0.00	Soil Group A, water
Open Space	6387 SF	0.147 ac	49	7.18	Soil Group A, fair condition
Total Area	12861 SF	0.295 ac		21.75	74 = Weighted CN

Basin 4 -Flows to Cell #3

Description	Area (SF)	Area (A)	Curve No. (CN)	CN x A	Cover Type & Hydrologic Cond.
Paved	41120 SF	0.944 ac	98	92.51	Soil Group A, Impervious
Pond	0 SF	0.000 ac	100	0.00	Soil Group A, water
Open Space	18236 SF	0.419 ac	49	20.51	Soil Group A, fair condition
Total Area	59356 SF	1.363 ac		113.02	83 = Weighted CN

Basin 5 -Flows to Cell #4

Description	Area (SF)	Area (A)	Curve No. (CN)	CN x A	Cover Type & Hydrologic Cond.
Paved	7980 SF	0.183 ac	98	17.95	Soil Group A, Impervious
Pond	0 SF	0.000 ac	100	0.00	Soil Group A, water
Open Space	8525 SF	0.196 ac	49	9.59	Soil Group A, fair condition
Total Area	16505 SF	0.379 ac		27.54	73 = Weighted CN



Project Name : Wire Rd. Townhomes
Project Number : _____
Revised : June 28, 2023
Designed by : DAG
Checked by : SKS

Treatment Volume - Dry Pond

SWFWMD - Open Drainage Basin - Min. 1/2"	City of Zephyrhills - Open Drainage Basin - Min. 1"
Quality Treatment Depth = 0.5 Inches Drainage Area = 2.580 Ac. Offsite = 0.000 Ac. Total Contributing Area = 2.580 Ac Drawdown Volume = 4683 Cu-Ft	Quality Treatment Depth = 1 Inches Site = 2.580 Ac Offsite = 0.000 Ac Total Contributing Area = 2.580 Ac Drawdown Volume = 9365 Cu-Ft
Drawdown Volume required = 9365 cf 0.215 ac-ft	

Proposed Dry Pond

Elevation	Area (sf)	Area (ac)	Incremental Volume (cf)	Sum of Volume (cf)	Sum of Volume (acre-feet)
90.00	15377	0.353	0	0	0.000
91.00	17054	0.392	16216	16216	0.372
92.00	18845	0.433	17950	34165	0.784
93.00	20681	0.475	19763	53928	1.238
94.00	22573	0.518	21627	75555	1.735

Drawdown Volume Peak Elevation

Elevation	Volume (ac-ft)
90.00	0.000
90.29	0.205
90.58	0.215
91.00	0.372

1/2" Retention Volume
1" Retention Volume

Treatment Volume - Cell #1

SWFWMD - Open Drainage Basin - Min. 1/2"	City of Zephyrhills - Open Drainage Basin - Min. 1"
Quality Treatment Depth = 0.5 Inches Drainage Area = 0.300 Ac. Drawdown Volume = 545 Cu-Ft	Quality Treatment Depth = 1.5 Inches Site = 0.300 Ac Drawdown Volume = 1634 Cu-Ft
Drawdown Volume required = 1634 cf 0.038 ac-ft	

Perforated pipe diameter 1.5 ft.
 # of pipes 1
 Fillable porosity of aggregate 0.4
 Trench length 1 78 ft.
 Trench length 1a 140 ft.
 Exfiltration Trench width 1 15 ft.
 Exfiltration Trench width 1a 5 ft.

Proposed Cell #1

	Elevation	Area Pipe (ft²)	Area Trench (ft²)	Total Area (ft²)	Volume (ft³)	Volume (ac-ft)
Bottom of Cell	90.00	0	0.000	0.000	0	0.000
	90.50	0	10.000	10.000	872	0.020
	91.25	0.884	24.116	25.000	2172	0.050
Top of pipe	92.00	1.767	38.233	40.000	3472	0.080
Top of Cell 1	93.00	0	60.000	60.000	5232	0.120

Drawdown Volume Peak Elevation

Elevation	Volume (ac-ft)
90.50	872
90.63	1089
90.94	1634
91.25	2172

1" Retention Volume
1.5" Retention Volume

Treatment Volume - Cell #2

SWFWMD - Open Drainage Basin - Min. 1/2"			City of Zephyrhills - Open Drainage Basin - Min. 1"		
Quality Treatment Depth =	0.5	Inches	Quality Treatment Depth =	1.35	Inches
Drainage Area =	0.300	Ac.	Site =	0.300	Ac
Drawdown Volume =	545	Cu-Ft	Drawdown Volume =	1470	Cu-Ft
Drawdown Volume required =					1470 cf
					0.034 ac-ft
Perforated pipe diameter	1.5	ft.			
# of pipes	1				
Fillable porosity of aggregate	0.4				
Trench length	78	ft.			
Exfiltration Trench width	13	ft.			

Proposed Cell #2

	Elevation	Area Pipe (ft²)	Area Trench (ft²)	Total Area (ft²)	Volume (ft³)	Volume (ac-ft)
Bottom of Cell	91.00	0	0.000	0.000	0	0.000
Pipe Invert	92.00	0	13.000	13.000	406	0.009
	92.75	0.884	21.866	22.750	751	0.017
Top of pipe	93.50	1.767	30.733	32.500	1097	0.025
Top of Cell	95.00	0	52.000	52.000	1622	0.037

Drawdown Volume Peak Elevation

	Elevation	Volume (ac-ft)
	93.50	1097
1" Retention Volume	93.48	1089
1.35" Retention Volume	94.57	1470
	95.00	1622

Treatment Volume - Cell #3

SWFWMD - Open Drainage Basin - Min. 1/2"			City of Zephyrhills - Open Drainage Basin - Min. 1"		
Quality Treatment Depth =	0.5	Inches	Quality Treatment Depth =	0.75	Inches
Drainage Area =	1.360	Ac.	Site =	1.360	Ac
Drawdown Volume =	2468	Cu-Ft	Drawdown Volume =	3703	Cu-Ft
Drawdown Volume required =					3703 cf
					0.085 ac-ft
Perforated pipe diameter	2	ft.			
# of pipes	3				
Fillable porosity of aggregate	0.4				
Trench length	125	ft.			
Exfiltration Trench width	20	ft.			

Proposed Cell #3

	Elevation	Area Pipe (ft²)	Area Trench (ft²)	Total Area (ft²)	Volume (ft³)	Volume (ac-ft)
Bottom of Cell	91.00	0	0.000	0.000	0	0.000
Pipe Invert	92.00	0	20.000	20.000	1000	0.023
	93.00	4.712	35.288	40.000	2353	0.054
Top of pipe	94.00	9.425	50.575	60.000	3707	0.085
Bottom of Cell	95.00	0	80.000	80.000	4000	0.092

Drawdown Volume Peak Elevation

	Elevation	Volume (ac-ft)
	93.00	2353
3/4" Retention Volume	94.00	3703
	94.00	3707

Treatment Volume - Cell #4

SWFWMD - Open Drainage Basin - Min. 1/2"		City of Zephyrhills - Open Drainage Basin - Min. 1"	
Quality Treatment Depth =	0.5 Inches	Quality Treatment Depth =	1.7 Inches
Drainage Area =	0.380 Ac.	Site =	0.380 Ac
Drawdown Volume =	690 Cu-Ft	Drawdown Volume =	2345 Cu-Ft
		Drawdown Volume required =	
		2345 cf	
Perforated pipe diameter	1.5 ft.		
# of pipes	1		
Fillable porosity of aggregate	0.4		
Trench length	90 ft.		
Exfiltration Trench width	14 ft.		
		0.054 ac-ft	

Proposed Cell #4						
	Elevation	Area Pipe (ft²)	Area Trench (ft²)	Total Area (ft²)	Volume (ft³)	Volume (ac-ft)
Bottom of Cell	92.00	0	0.000	0.000	0	0.000
	Pipe Invert 93.50	0.000	21.000	21.000	756	0.017
	94.00	0.884	27.116	28.000	1056	0.024
Top of pipe	95.00	1.767	40.233	42.000	1607	0.037
	96.00	0.000	56.000	56.000	2016	0.046
Bottom of Cell	97.00	0	70.000	70.000	2520	0.058

Drawdown Volume Peak Elevation		
	Elevation	Volume (ac-ft)
1" Retention Volume	96.00	2016
	94.59	1379
1.7" Retention Volume	96.65	2345
	97.00	2520



Project Name :	Wire Rd. Townhomes
Project Number :	
Revised :	July 6, 2023
Designed by :	DAG
Checked by :	SKS

Allowable Pond Discharge Rates

Pre-Development discharge to Wire Rd.	5.59	CFS	25yr/24 hr
Pre-Development discharge to Wire Rd.	9.21	CFS	100yr/24 hr
Pre-Development Runoff Volume to Wire Rd.	1.96	ac-ft	100yr/24 hr



Wire Road Townhomes Pasco County

ALLOWABLE DISCHARGE:

TOTAL SITE AREA **4.92** acres

Post-development peak rate of runoff shall not exceed the pre-development peak rate of runoff during the 100yr-24hr storm event.
Post-development peak runoff volume shall not exceed the pre-development peak runoff volume during the 100yr-24hr storm event.

Allowable Pre-Development Peak Rate of Runoff **9.21** cfs
Allowable Pre-Development Peak Runoff Volume **1.96** ac-ft

CONTROL STRUCTURE DESIGN

Structure CS-Pond

Orifice Information

Invert El. **90.60** ft.
Orifice Dia. **3.00** in.

Discharge Weir

Invert El. **93.25** ft.
Width **37.00** in.
Rise **24.00** in.

Top of Structure:

Top of Box **93.25** ft.

Structure CS-1

Discharge Weir

Invert El. **91.00** ft.
Width **36.00** in.
Rise **99.00** in.

Structure CS-2

Discharge Weir

Invert El. **94.60** ft.
Width **36.00** in.
Rise **99.00** in.

Structure CS-3

Discharge Weir

Invert El. **94.00** ft.
Width **48.00** in.
Rise **99.00** in.

Structure CS-4

Discharge Weir

Invert El. **96.65** ft.
Width **36.00** in.
Rise **99.00** in.

Bubble up Box @ Right-of-Way

Discharge Weir

Invert El. **90.00** ft.
Width **37.00** in.
Rise **24.00** in.

Top of Structure:

Top of Box **90.00** ft.

POND ROUTING RESULTS

From the attached Hydrograph Routing Results:

Rainfall Event	Pond Peak Stage	Pre Runoff Vol.	Post Runoff Vol.	Pre Peak Runoff	Post Peak Runoff
10yr - 24hr	91.73 ft.	- ac-ft	- ac-ft	3.40 cfs	0.24 cfs
25yr - 24 hr	92.45 ft.	- ac-ft	- ac-ft	5.59 cfs	0.31 cfs
100yr - 24 hr	93.52 ft.	1.96 ac-ft	1.77 ac-ft	9.21 cfs	4.93 cfs

Appendix C – Water Quantity Attenuation Calculations



Project Name : Wire Rd. Townhomes
Project Number : _____
Revised : October 27, 2021
Designed by : DAG
Checked by : SKS

Florida Modified SCS Type II Hydrograph Rainfall Amounts

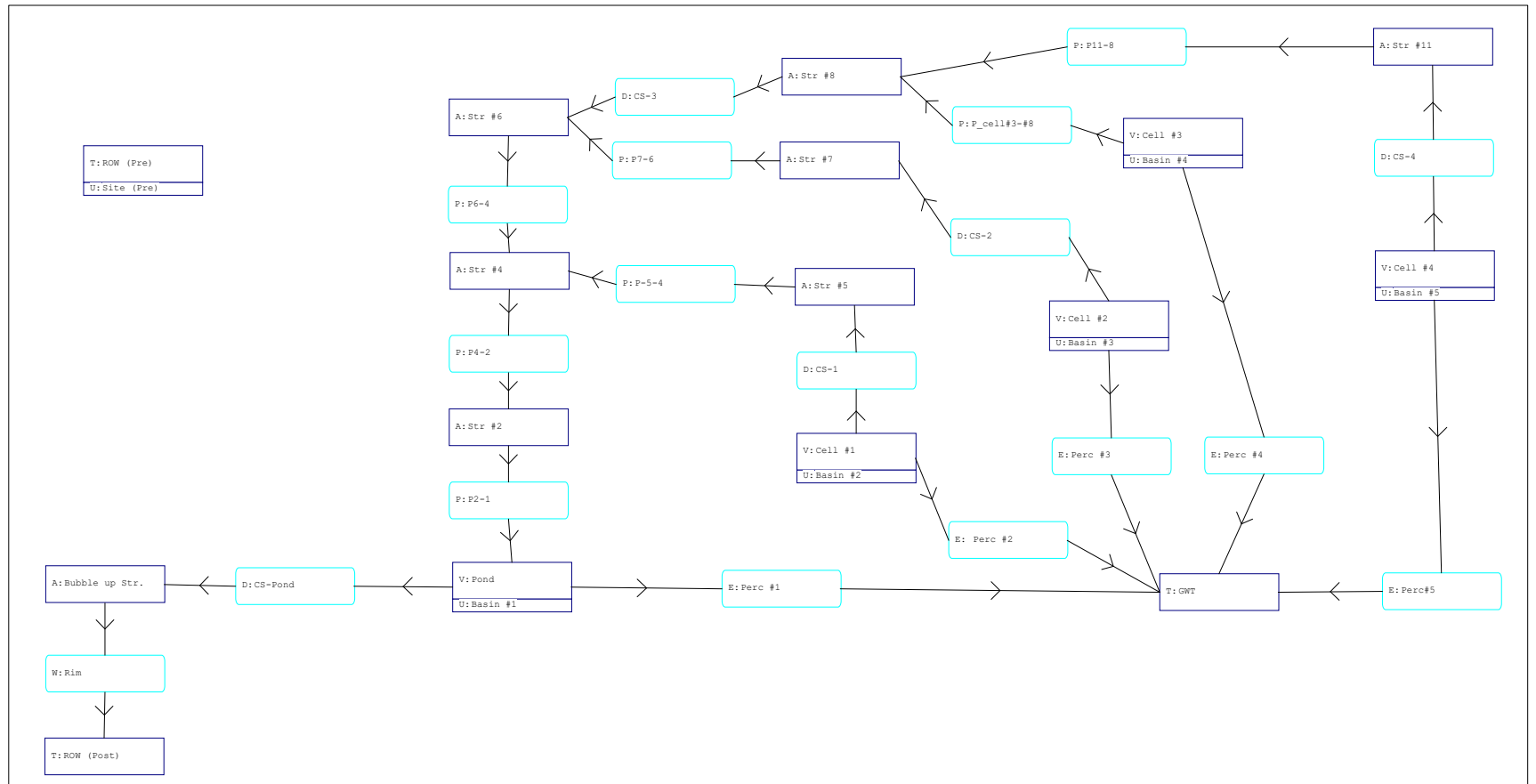
Frequency or Return Period (Years)	Duration (hr)	Rainfall (in)
10	24	7.0
25	24	8.5
100	24	11.5

FL Modified SCS Type II distribution used with Shape Factor of 256

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



PRE VS. POST

=====

==== Basins =====

=====

Name: Basin #1 Node: Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 2.583 Time Shift(hrs): 0.00
Curve Number: 83.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin #2 Node: Cell #1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.300 Time Shift(hrs): 0.00
Curve Number: 75.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin #3 Node: Cell #2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.300 Time Shift(hrs): 0.00
Curve Number: 74.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin #4 Node: Cell #3 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 1.360 Time Shift(hrs): 0.00
Curve Number: 83.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin #5 Node: Cell #4 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.379 Time Shift(hrs): 0.00
Curve Number: 73.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Site (Pre) Node: ROW (Pre) Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000 Time of Conc(min): 24.00
Area(ac): 4.923 Time Shift(hrs): 0.00
Curve Number: 51.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

=====

==== Nodes =====

=====

Name: Bubble up Str. Base Flow(cfs): 0.000 Init Stage(ft): 87.000
Group: BASE Warn Stage(ft): 999.000
Type: Stage/Area

Stage(ft)	Area(ac)
87.000	0.0010
90.000	0.0010

Name: Cell #1	Base Flow(cfs): 0.000	Init Stage(ft): 90.000
Group: BASE		Warn Stage(ft): 99.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
90.000	0.0000
90.500	0.0200
91.250	0.0500
92.000	0.0800
93.000	0.1200

Name: Cell #2	Base Flow(cfs): 0.000	Init Stage(ft): 91.000
Group: BASE		Warn Stage(ft): 99.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
91.000	0.0000
92.000	0.0090
93.000	0.0170
94.000	0.0250
95.000	0.0370

Name: Cell #3	Base Flow(cfs): 0.000	Init Stage(ft): 91.000
Group: BASE		Warn Stage(ft): 99.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
91.000	0.0000
92.000	0.0230
93.000	0.0540
94.000	0.0850
95.000	0.0920

Name: Cell #4	Base Flow(cfs): 0.000	Init Stage(ft): 92.000
Group: BASE		Warn Stage(ft): 99.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
92.000	0.0000
93.500	0.0170
94.000	0.0240
95.000	0.0370
96.000	0.0460
97.000	0.0580

Name: GWT	Base Flow(cfs): 0.000	Init Stage(ft): 88.000
Group: BASE		Warn Stage(ft): 99.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	88.000
168.00	88.000

Name: Pond	Base Flow(cfs): 0.000	Init Stage(ft): 90.140
Group: BASE		Warn Stage(ft): 94.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
90.000	0.0000

91.000	0.3720
92.000	0.7840
93.000	1.2380
94.000	1.7350

Name: ROW (Post)	Base Flow(cfs): 0.000	Init Stage(ft): 90.000
Group: BASE		Warn Stage(ft): 999.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	90.000
168.00	90.000

Name: ROW (Pre)	Base Flow(cfs): 0.000	Init Stage(ft): 90.000
Group: BASE		Warn Stage(ft): 999.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	90.000
168.00	90.000

Name: Str #11	Base Flow(cfs): 0.000	Init Stage(ft): 92.700
Group: BASE		Warn Stage(ft): 97.400
Type: Stage/Area		

Stage(ft)	Area(ac)
92.700	0.0001
97.400	0.0001

Name: Str #2	Base Flow(cfs): 0.000	Init Stage(ft): 90.500
Group: BASE		Warn Stage(ft): 93.300
Type: Stage/Area		

Stage(ft)	Area(ac)
90.500	0.0001
93.300	0.0001

Name: Str #4	Base Flow(cfs): 0.000	Init Stage(ft): 87.720
Group: BASE		Warn Stage(ft): 94.370
Type: Stage/Area		

Stage(ft)	Area(ac)
87.720	0.0001
94.370	0.0001

Name: Str #5	Base Flow(cfs): 0.000	Init Stage(ft): 87.770
Group: BASE		Warn Stage(ft): 94.370
Type: Stage/Area		

Stage(ft)	Area(ac)
87.770	0.0001
94.370	0.0001

Name: Str #6	Base Flow(cfs): 0.000	Init Stage(ft): 91.160
Group: BASE		Warn Stage(ft): 96.040
Type: Stage/Area		

Stage(ft)	Area(ac)
91.160	0.0001
96.040	0.0001

Name: Str #7 Base Flow(cfs): 0.000 Init Stage(ft): 91.250
Group: BASE Warn Stage(ft): 96.040
Type: Stage/Area

Stage(ft)	Area(ac)
91.250	0.0001
96.040	0.0001

Name: Str #8 Base Flow(cfs): 0.000 Init Stage(ft): 92.000
Group: BASE Warn Stage(ft): 95.500
Type: Stage/Area

Stage(ft)	Area(ac)
92.000	0.0001
95.500	0.0001

==== Pipes =====

Name: P-5-4	From Node: Str #5	Length(ft): 18.00
Group: BASE	To Node: Str #4	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.50
Invert(ft): 87.770	87.720	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

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

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

Name: P11-8	From Node: Str #11	Length(ft): 140.00
Group: BASE	To Node: Str #8	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.50
Invert(ft): 92.700	92.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

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

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

Name: P2-1	From Node: Str #2	Length(ft): 46.00
Group: BASE	To Node: Pond	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 36.00	36.00	Flow: Both
Rise(in): 36.00	36.00	Entrance Loss Coef: 0.50
Invert(ft): 90.500	90.000	Exit Loss Coef: 1.00
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

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

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

```
-----
Name: P4-2                      From Node: Str #4          Length(ft): 106.00
Group: BASE                      To Node: Str #2          Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                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): 90.740    90.500
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: P6-4                      From Node: Str #6          Length(ft): 168.00
Group: BASE                      To Node: Str #4          Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                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): 91.160    90.740
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: P7-6                      From Node: Str #7          Length(ft): 18.00
Group: BASE                      To Node: Str #6          Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                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): 91.250    91.160
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: P_cell#3-#8              From Node: Cell #3        Length(ft): 5.00
Group: BASE                      To Node: Str #8          Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                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): 92.000    92.000
Manning's N: 0.013000 0.013000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
```

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

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

==== Drop Structures =====

Name: CS-1	From Node: Cell #1	Length(ft): 5.00
Group: BASE	To Node: Str #5	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.500
Invert(ft): 90.500	90.500	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 CS-1 ***

Count: 1	Bottom Clip(in): 0.000	TABLE
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): 91.000	
Rise(in): 99.00	Control Elev(ft): 91.000	

Name: CS-2	From Node: Cell #2	Length(ft): 5.00
Group: BASE	To Node: Str #7	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.500
Invert(ft): 92.000	92.000	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 CS-2 ***

Count: 1	Bottom Clip(in): 0.000	TABLE
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): 94.600	
Rise(in): 99.00	Control Elev(ft): 94.600	

Name: CS-3	From Node: Str #8	Length(ft): 45.00
Group: BASE	To Node: Str #6	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.500
Invert(ft): 92.000	91.160	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 CS-3 ***

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): 48.00	Invert(ft): 94.000
Rise(in): 99.00	Control Elev(ft): 94.000

TABLE

Name: CS-4	From Node: Cell #4	Length(ft): 45.00
Group: BASE	To Node: Str #11	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.500
Invert(ft): 91.000	90.700	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 CS-4 ***

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): 96.650
Rise(in): 99.00	Control Elev(ft): 96.650

TABLE

Name: CS-Pond	From Node: Pond	Length(ft): 50.50
Group: BASE	To Node: Bubble up Str.	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.500
Invert(ft): 87.250	87.000	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 2 for Drop Structure CS-Pond ***

Count: 1	Bottom Clip(in): 0.000
Type: Vertical: Mavis	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Circular	Orifice Disc Coef: 0.600
Span(in): 3.00	Invert(ft): 90.600
Rise(in): 3.00	Control Elev(ft): 90.600

TABLE

*** Weir 2 of 2 for Drop Structure CS-Pond ***

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 37.00	Invert(ft): 93.250
Rise(in): 24.00	Control Elev(ft): 93.250

TABLE

```

=====
==== Weirs =====
=====

Name: Rim                From Node: Bubble up Str.
Group: BASE              To Node: ROW (Post)
Flow: Both               Count: 1
Type: Horizontal         Geometry: Rectangular

Span(in): 37.00
Rise(in): 24.00
Invert(ft): 90.000
Control Elevation(ft): 90.000

                                TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

=====
==== Percolation Links =====
=====

Name: Perc #2            From Node: Cell #1            Flow: Both
Group: BASE              To Node: GWT                Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 90.000                Surface Area(ac): 0.043
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000          Perimeter 1(ft): 484.000
Water Table Elev(ft): 88.000          Perimeter 2(ft): 594.000
*****0.000                          Perimeter 3(ft): 629.000
Horiz Conductivity(ft/day): 14.900     Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800       Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250         Num Cells 1 to 2: 2
Suction Head(in): 4.200               Num Cells 2 to 3: 4
Layer Thickness(ft): 2.000

-----
Name: Perc #1            From Node: Pond                Flow: Both
Group: BASE              To Node: GWT                Count: 1

Surface Area Option: Use 1st Point in Stage/Area Table
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000          Perimeter 1(ft): 510.000
Water Table Elev(ft): 88.000          Perimeter 2(ft): 910.000
*****0.000                          Perimeter 3(ft): 1710.000
Horiz Conductivity(ft/day): 14.900     Distance 1 to 2(ft): 50.000
Vert Conductivity(ft/day): 9.800       Distance 2 to 3(ft): 100.000
Effective Porosity(dec): 0.250         Num Cells 1 to 2: 10
Suction Head(in): 4.200               Num Cells 2 to 3: 20
Layer Thickness(ft): 2.000

-----
Name: Perc #3            From Node: Cell #2            Flow: Both
Group: BASE              To Node: GWT                Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 91.000                Surface Area(ac): 0.023
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000          Perimeter 1(ft): 182.000
Water Table Elev(ft): 88.000          Perimeter 2(ft): 262.000
*****0.000                          Perimeter 3(ft): 422.000
Horiz Conductivity(ft/day): 14.900     Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800       Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250         Num Cells 1 to 2: 2
Suction Head(in): 4.200               Num Cells 2 to 3: 4
Layer Thickness(ft): 3.000

-----
Name: Perc #4            From Node: Cell #3            Flow: Both
Group: BASE              To Node: GWT                Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 91.000                Surface Area(ac): 0.057
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000          Perimeter 1(ft): 290.000
Water Table Elev(ft): 88.000          Perimeter 2(ft): 415.000
*****0.000                          Perimeter 3(ft): 655.000

```


Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 15.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 30.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 3
Suction Head(in): 4.200 Num Cells 2 to 3: 6
Layer Thickness(ft): 3.000

Name: Perc#5 From Node: Cell #4 Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 92.000 Surface Area(ac): 0.029
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 208.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 294.000
*****0.000 Perimeter 3(ft): 454.000
Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 2
Suction Head(in): 4.200 Num Cells 2 to 3: 4
Layer Thickness(ft): 4.000

==== Hydrology Simulations =====

Name: 100yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\100yr-24hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 11.50

Time(hrs) Print Inc(min)

168.000 30.00

Name: 10yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\10yr-24hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.00

Time(hrs) Print Inc(min)

36.000 15.00

Name: 25yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\25yr-24hr.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 8.50

Time(hrs) Print Inc(min)

36.000 15.00

==== Routing Simulations =====

Name: 100yr-24hr Hydrology Sim: 100yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\100yr-24hr.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): 168.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

999.000 30.000

Group Run

BASE Yes

Name: 10yr-24hr Hydrology Sim: 10yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\10yr-24hr.I32

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

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

999.000 15.000

Group Run

BASE Yes

Name: 25yr-24hr Hydrology Sim: 25yr-24hr
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\25yr-24hr.I32

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

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 36.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

999.000 15.000

Group Run

BASE Yes

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
Bubble up Str.	BASE	100yr-24hr	12.90	90.28	999.00	0.0033	113	12.90	4.93	12.90	4.93
Bubble up Str.	BASE	10yr-24hr	16.25	90.04	999.00	0.0022	113	16.24	0.24	16.25	0.24
Bubble up Str.	BASE	25yr-24hr	16.63	90.04	999.00	0.0031	113	16.63	0.31	16.63	0.31
Cell #1	BASE	100yr-24hr	12.85	93.54	99.00	0.0022	1742	12.00	1.67	12.97	0.41
Cell #1	BASE	10yr-24hr	16.30	91.72	99.00	0.0018	1742	12.00	0.84	11.66	0.28
Cell #1	BASE	25yr-24hr	16.64	92.44	99.00	0.0022	1742	12.00	1.11	12.38	0.27
Cell #2	BASE	100yr-24hr	12.08	94.86	99.00	0.0030	585	12.00	1.65	12.08	1.52
Cell #2	BASE	10yr-24hr	12.74	94.36	99.00	0.0023	499	12.00	0.82	12.74	0.24
Cell #2	BASE	25yr-24hr	12.35	94.74	99.00	0.0028	564	12.00	1.09	12.35	0.73
Cell #3	BASE	100yr-24hr	12.00	94.88	99.00	0.0050	113	12.00	8.37	12.00	8.39
Cell #3	BASE	10yr-24hr	12.07	94.47	99.00	0.0050	335	12.00	4.60	12.06	4.34
Cell #3	BASE	25yr-24hr	12.01	94.62	99.00	0.0050	179	12.00	5.86	12.00	5.82
Cell #4	BASE	100yr-24hr	12.16	96.92	99.00	0.0037	578	12.00	2.05	12.16	1.70
Cell #4	BASE	10yr-24hr	12.83	95.18	99.00	0.0022	475	12.00	1.00	12.40	0.26
Cell #4	BASE	25yr-24hr	12.65	96.72	99.00	0.0027	551	12.00	1.35	12.65	0.49
GWT	BASE	100yr-24hr	0.00	88.00	99.00	0.0000	0	0.00	37.58	0.00	0.00
GWT	BASE	10yr-24hr	0.00	88.00	99.00	0.0000	0	0.00	37.58	0.00	0.00
GWT	BASE	25yr-24hr	0.00	88.00	99.00	0.0000	0	0.00	37.58	0.00	0.00
Pond	BASE	100yr-24hr	12.90	93.52	94.00	-0.0048	21688	12.07	21.60	0.00	37.58
Pond	BASE	10yr-24hr	16.24	91.73	94.00	-0.0048	18441	12.20	8.89	0.00	37.58
Pond	BASE	25yr-24hr	16.63	92.45	94.00	-0.0048	19743	12.12	13.63	0.00	37.58
ROW (Post)	BASE	100yr-24hr	0.00	90.00	999.00	0.0000	0	12.90	4.93	0.00	0.00
ROW (Post)	BASE	10yr-24hr	0.00	90.00	999.00	0.0000	0	16.25	0.24	0.00	0.00
ROW (Post)	BASE	25yr-24hr	0.00	90.00	999.00	0.0000	0	16.63	0.31	0.00	0.00
ROW (Pre)	BASE	100yr-24hr	0.00	90.00	999.00	0.0000	0	12.50	9.21	0.00	0.00
ROW (Pre)	BASE	10yr-24hr	0.00	90.00	999.00	0.0000	0	12.25	3.40	0.00	0.00
ROW (Pre)	BASE	25yr-24hr	0.00	90.00	999.00	0.0000	0	12.25	5.59	0.00	0.00
Str #11	BASE	100yr-24hr	12.14	94.75	97.40	0.0037	120	12.16	1.38	12.17	1.39
Str #11	BASE	10yr-24hr	12.07	94.44	97.40	0.0050	186	0.00	0.00	12.82	1.18
Str #11	BASE	25yr-24hr	12.01	94.55	97.40	0.0050	169	12.65	0.17	12.90	1.10
Str #2	BASE	100yr-24hr	12.95	93.52	93.30	-0.0075	122	12.16	8.09	12.17	7.85
Str #2	BASE	10yr-24hr	16.24	91.73	93.30	-0.0039	285	12.20	1.86	12.33	2.67
Str #2	BASE	25yr-24hr	16.63	92.44	93.30	-0.0048	221	12.34	3.75	12.12	3.75
Str #4	BASE	100yr-24hr	12.85	93.54	94.37	0.0050	127	12.15	8.31	12.16	8.09
Str #4	BASE	10yr-24hr	16.24	91.73	94.37	0.0044	383	12.14	2.77	12.20	1.86
Str #4	BASE	25yr-24hr	16.62	92.45	94.37	0.0058	308	12.37	4.29	12.34	3.75
Str #5	BASE	100yr-24hr	12.85	93.54	94.37	0.0050	114	0.00	0.00	75.02	0.74
Str #5	BASE	10yr-24hr	16.24	91.73	94.37	0.0061	114	0.00	0.00	32.12	0.68
Str #5	BASE	25yr-24hr	16.62	92.44	94.37	0.0065	114	27.90	0.15	12.37	0.36
Str #6	BASE	100yr-24hr	12.79	93.59	96.04	0.0036	122	12.14	9.19	12.14	9.05
Str #6	BASE	10yr-24hr	12.12	92.14	96.04	0.0050	297	12.09	3.62	12.12	3.60
Str #6	BASE	25yr-24hr	16.61	92.44	96.04	0.0050	281	12.01	5.08	12.05	5.25
Str #7	BASE	100yr-24hr	12.78	93.58	96.04	0.0050	114	12.08	1.26	12.08	1.24
Str #7	BASE	10yr-24hr	12.12	92.14	96.04	0.0050	131	0.00	0.00	19.54	0.02
Str #7	BASE	25yr-24hr	16.61	92.45	96.04	0.0050	131	12.35	0.48	14.31	0.50
Str #8	BASE	100yr-24hr	12.14	94.74	95.50	0.0050	120	12.00	8.80	12.14	8.10
Str #8	BASE	10yr-24hr	12.07	94.44	95.50	0.0059	142	12.21	4.53	12.07	3.70
Str #8	BASE	25yr-24hr	12.01	94.55	95.50	0.0050	137	12.04	6.14	12.01	5.26

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr-24hr	Pond	BASE	0.00	90.14	94.00	15600	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	0.51	90.00	94.00	15337	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	1.02	90.00	94.00	15337	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	1.52	90.00	94.00	15337	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	2.02	90.00	94.00	15337	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	2.52	90.00	94.00	15334	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	3.02	90.00	94.00	15334	0.00	0.00	0.00	0.00
100yr-24hr	Pond	BASE	3.52	90.00	94.00	15334	0.03	0.03	0.00	0.00
100yr-24hr	Pond	BASE	4.02	90.00	94.00	15334	0.07	0.07	0.00	0.00
100yr-24hr	Pond	BASE	4.52	90.00	94.00	15334	0.11	0.11	0.01	0.01
100yr-24hr	Pond	BASE	5.02	90.00	94.00	15335	0.14	0.14	0.01	0.01
100yr-24hr	Pond	BASE	5.52	90.00	94.00	15335	0.18	0.18	0.02	0.02
100yr-24hr	Pond	BASE	6.02	90.00	94.00	15335	0.21	0.21	0.03	0.03
100yr-24hr	Pond	BASE	6.52	90.00	94.00	15335	0.27	0.27	0.04	0.04
100yr-24hr	Pond	BASE	7.02	90.00	94.00	15335	0.30	0.30	0.05	0.05
100yr-24hr	Pond	BASE	7.52	90.00	94.00	15335	0.37	0.37	0.06	0.06
100yr-24hr	Pond	BASE	8.02	90.00	94.00	15336	0.41	0.41	0.08	0.08
100yr-24hr	Pond	BASE	8.51	90.00	94.00	15336	0.50	0.50	0.10	0.10
100yr-24hr	Pond	BASE	9.01	90.00	94.00	15335	0.61	0.61	0.12	0.12
100yr-24hr	Pond	BASE	9.50	90.02	94.00	15385	0.69	0.23	0.15	0.14
100yr-24hr	Pond	BASE	10.00	90.09	94.00	15509	0.84	0.17	0.18	0.14
100yr-24hr	Pond	BASE	10.50	90.18	94.00	15679	1.09	0.15	0.22	0.15
100yr-24hr	Pond	BASE	11.00	90.31	94.00	15910	1.46	0.14	0.27	0.16
100yr-24hr	Pond	BASE	11.50	90.52	94.00	16288	2.64	0.15	0.35	0.16
100yr-24hr	Pond	BASE	12.00	91.60	94.00	18218	20.79	0.58	0.84	0.18
100yr-24hr	Pond	BASE	12.50	93.18	94.00	21067	11.76	0.98	1.51	0.21
100yr-24hr	Pond	BASE	13.00	93.51	94.00	21667	3.90	5.13	1.83	0.34
100yr-24hr	Pond	BASE	13.50	93.42	94.00	21509	4.40	3.04	2.01	0.51
100yr-24hr	Pond	BASE	14.00	93.37	94.00	21424	3.98	2.12	2.18	0.61
100yr-24hr	Pond	BASE	14.50	93.35	94.00	21376	3.71	1.66	2.34	0.69
100yr-24hr	Pond	BASE	15.00	93.33	94.00	21342	3.46	1.37	2.49	0.75
100yr-24hr	Pond	BASE	15.50	93.32	94.00	21318	3.35	1.18	2.63	0.81
100yr-24hr	Pond	BASE	16.00	93.31	94.00	21299	3.20	1.04	2.76	0.85
100yr-24hr	Pond	BASE	16.50	93.30	94.00	21281	3.10	0.92	2.89	0.89
100yr-24hr	Pond	BASE	17.00	93.29	94.00	21266	3.01	0.83	3.02	0.93
100yr-24hr	Pond	BASE	17.50	93.28	94.00	21256	2.99	0.77	3.14	0.96
100yr-24hr	Pond	BASE	18.00	93.28	94.00	21243	2.85	0.70	3.26	0.99
100yr-24hr	Pond	BASE	18.50	93.27	94.00	21233	2.89	0.66	3.38	1.02
100yr-24hr	Pond	BASE	19.00	93.27	94.00	21224	2.77	0.62	3.50	1.05
100yr-24hr	Pond	BASE	19.50	93.26	94.00	21215	2.80	0.58	3.61	1.07
100yr-24hr	Pond	BASE	20.00	93.26	94.00	21209	2.75	0.56	3.73	1.09
100yr-24hr	Pond	BASE	20.50	93.25	94.00	21197	2.66	0.53	3.84	1.12
100yr-24hr	Pond	BASE	21.00	93.24	94.00	21180	2.64	0.52	3.95	1.14
100yr-24hr	Pond	BASE	21.50	93.23	94.00	21164	2.64	0.52	4.06	1.16
100yr-24hr	Pond	BASE	22.00	93.23	94.00	21150	2.64	0.52	4.17	1.18
100yr-24hr	Pond	BASE	22.50	93.22	94.00	21137	2.63	0.51	4.28	1.20
100yr-24hr	Pond	BASE	23.00	93.21	94.00	21120	2.56	0.51	4.38	1.22
100yr-24hr	Pond	BASE	23.50	93.20	94.00	21097	2.53	0.50	4.49	1.24
100yr-24hr	Pond	BASE	24.00	93.18	94.00	21069	2.45	0.50	4.59	1.26
100yr-24hr	Pond	BASE	24.50	93.15	94.00	21012	2.10	0.49	4.69	1.29
100yr-24hr	Pond	BASE	25.00	93.11	94.00	20929	2.00	0.48	4.77	1.30
100yr-24hr	Pond	BASE	25.50	93.06	94.00	20845	1.95	0.47	4.85	1.32
100yr-24hr	Pond	BASE	26.00	93.02	94.00	20764	1.91	0.46	4.93	1.34
100yr-24hr	Pond	BASE	26.50	92.98	94.00	20690	1.85	0.45	5.01	1.36
100yr-24hr	Pond	BASE	27.00	92.93	94.00	20619	1.79	0.44	5.09	1.38
100yr-24hr	Pond	BASE	27.50	92.89	94.00	20547	1.73	0.44	5.16	1.40
100yr-24hr	Pond	BASE	28.00	92.85	94.00	20475	1.68	0.43	5.23	1.42
100yr-24hr	Pond	BASE	28.50	92.81	94.00	20404	1.63	0.42	5.30	1.43
100yr-24hr	Pond	BASE	29.00	92.77	94.00	20334	1.58	0.42	5.36	1.45
100yr-24hr	Pond	BASE	29.50	92.73	94.00	20264	1.52	0.41	5.43	1.47
100yr-24hr	Pond	BASE	30.00	92.70	94.00	20196	1.77	0.41	5.50	1.49
100yr-24hr	Pond	BASE	30.50	92.66	94.00	20128	1.69	0.40	5.57	1.50
100yr-24hr	Pond	BASE	31.00	92.62	94.00	20061	1.61	0.39	5.63	1.52
100yr-24hr	Pond	BASE	31.50	92.58	94.00	19995	1.54	0.39	5.70	1.54
100yr-24hr	Pond	BASE	32.00	92.55	94.00	19930	1.47	0.38	5.76	1.55
100yr-24hr	Pond	BASE	32.50	92.51	94.00	19866	1.42	0.38	5.82	1.57
100yr-24hr	Pond	BASE	33.00	92.48	94.00	19803	1.62	0.37	5.88	1.58
100yr-24hr	Pond	BASE	33.50	92.44	94.00	19740	1.49	0.37	5.95	1.60
100yr-24hr	Pond	BASE	34.00	92.41	94.00	19678	1.39	0.36	6.01	1.61
100yr-24hr	Pond	BASE	34.50	92.38	94.00	19617	1.31	0.36	6.06	1.63
100yr-24hr	Pond	BASE	35.00	92.34	94.00	19557	1.24	0.35	6.12	1.64
100yr-24hr	Pond	BASE	35.50	92.31	94.00	19497	1.47	0.35	6.17	1.66
100yr-24hr	Pond	BASE	36.00	92.28	94.00	19438	1.39	0.34	6.23	1.67
100yr-24hr	Pond	BASE	36.50	92.25	94.00	19380	1.32	0.34	6.29	1.69
100yr-24hr	Pond	BASE	37.00	92.22	94.00	19322	1.69	0.34	6.35	1.70
100yr-24hr	Pond	BASE	37.50	92.18	94.00	19265	1.19	0.33	6.41	1.71
100yr-24hr	Pond	BASE	38.00	92.15	94.00	19209	1.54	0.33	6.47	1.73
100yr-24hr	Pond	BASE	38.50	92.12	94.00	19153	1.07	0.32	6.52	1.74
100yr-24hr	Pond	BASE	39.00	92.09	94.00	19099	1.28	0.32	6.57	1.75
100yr-24hr	Pond	BASE	39.50	92.06	94.00	19044	1.22	0.31	6.62	1.77
100yr-24hr	Pond	BASE	40.00	92.03	94.00	18990	1.16	0.31	6.67	1.78
100yr-24hr	Pond	BASE	40.50	92.01	94.00	18937	1.15	0.31	6.72	1.79
100yr-24hr	Pond	BASE	41.00	91.98	94.00	18886	1.04	0.30	6.76	1.80
100yr-24hr	Pond	BASE	41.50	91.95	94.00	18836	0.99	0.30	6.80	1.82
100yr-24hr	Pond	BASE	42.00	91.92	94.00	18786	0.88	0.29	6.84	1.83
100yr-24hr	Pond	BASE	42.50	91.89	94.00	18737	0.89	0.29	6.88	1.84
100yr-24hr	Pond	BASE	43.00	91.87	94.00	18688	0.85	0.29	6.92	1.85

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr-24hr	Pond	BASE	43.50	91.84	94.00	18640	0.80	0.28	6.95	1.86
100yr-24hr	Pond	BASE	44.00	91.81	94.00	18593	0.77	0.28	6.98	1.88
100yr-24hr	Pond	BASE	44.50	91.79	94.00	18546	0.73	0.27	7.01	1.89
100yr-24hr	Pond	BASE	45.00	91.76	94.00	18499	0.68	0.27	7.04	1.90
100yr-24hr	Pond	BASE	45.50	91.73	94.00	18454	0.66	0.27	7.07	1.91
100yr-24hr	Pond	BASE	46.00	91.71	94.00	18408	0.90	0.26	7.10	1.92
100yr-24hr	Pond	BASE	46.50	91.68	94.00	18363	0.59	0.26	7.13	1.93
100yr-24hr	Pond	BASE	47.00	91.66	94.00	18319	0.56	0.26	7.16	1.94
100yr-24hr	Pond	BASE	47.50	91.63	94.00	18275	0.51	0.25	7.18	1.95
100yr-24hr	Pond	BASE	48.00	91.61	94.00	18232	0.63	0.25	7.20	1.96
100yr-24hr	Pond	BASE	48.50	91.59	94.00	18189	0.59	0.24	7.23	1.97
100yr-24hr	Pond	BASE	49.00	91.56	94.00	18147	0.56	0.24	7.25	1.98
100yr-24hr	Pond	BASE	49.50	91.54	94.00	18105	0.53	0.24	7.27	1.99
100yr-24hr	Pond	BASE	50.00	91.52	94.00	18064	0.50	0.23	7.29	2.00
100yr-24hr	Pond	BASE	50.50	91.49	94.00	18023	0.47	0.23	7.31	2.01
100yr-24hr	Pond	BASE	51.00	91.47	94.00	17983	0.44	0.23	7.33	2.02
100yr-24hr	Pond	BASE	51.50	91.45	94.00	17943	0.42	0.22	7.35	2.03
100yr-24hr	Pond	BASE	52.00	91.43	94.00	17904	0.39	0.22	7.37	2.04
100yr-24hr	Pond	BASE	52.50	91.40	94.00	17865	0.37	0.22	7.38	2.05
100yr-24hr	Pond	BASE	53.00	91.38	94.00	17827	0.35	0.21	7.40	2.06
100yr-24hr	Pond	BASE	53.50	91.36	94.00	17789	0.32	0.21	7.41	2.07
100yr-24hr	Pond	BASE	54.00	91.34	94.00	17752	0.30	0.20	7.43	2.08
100yr-24hr	Pond	BASE	54.50	91.32	94.00	17715	0.28	0.20	7.44	2.08
100yr-24hr	Pond	BASE	55.00	91.30	94.00	17679	0.27	0.20	7.45	2.09
100yr-24hr	Pond	BASE	55.50	91.28	94.00	17643	0.25	0.19	7.46	2.10
100yr-24hr	Pond	BASE	56.00	91.26	94.00	17608	0.23	0.19	7.47	2.11
100yr-24hr	Pond	BASE	56.50	91.24	94.00	17573	0.21	0.19	7.48	2.12
100yr-24hr	Pond	BASE	57.00	91.22	94.00	17538	0.20	0.18	7.49	2.12
100yr-24hr	Pond	BASE	57.50	91.20	94.00	17504	0.18	0.18	7.49	2.13
100yr-24hr	Pond	BASE	58.00	91.18	94.00	17471	0.17	0.18	7.50	2.14
100yr-24hr	Pond	BASE	58.50	91.17	94.00	17438	0.15	0.17	7.51	2.15
100yr-24hr	Pond	BASE	59.00	91.15	94.00	17405	0.17	0.17	7.52	2.15
100yr-24hr	Pond	BASE	59.50	91.13	94.00	17373	0.00	0.17	7.52	2.16
100yr-24hr	Pond	BASE	60.00	91.11	94.00	17342	0.22	0.16	7.52	2.17
100yr-24hr	Pond	BASE	60.50	91.10	94.00	17311	0.27	0.16	7.53	2.17
100yr-24hr	Pond	BASE	61.00	91.08	94.00	17280	-0.03	0.15	7.54	2.18
100yr-24hr	Pond	BASE	61.50	91.06	94.00	17250	-0.03	0.15	7.54	2.19
100yr-24hr	Pond	BASE	62.00	91.05	94.00	17221	0.16	0.15	7.54	2.19
100yr-24hr	Pond	BASE	62.50	91.03	94.00	17192	0.15	0.14	7.55	2.20
100yr-24hr	Pond	BASE	63.00	91.01	94.00	17164	-0.03	0.14	7.55	2.20
100yr-24hr	Pond	BASE	63.50	91.00	94.00	17138	0.00	0.14	7.55	2.21
100yr-24hr	Pond	BASE	64.00	90.99	94.00	17114	0.17	0.13	7.55	2.21
100yr-24hr	Pond	BASE	64.50	90.97	94.00	17090	0.12	0.13	7.56	2.22
100yr-24hr	Pond	BASE	65.00	90.96	94.00	17067	0.11	0.13	7.56	2.23
100yr-24hr	Pond	BASE	65.50	90.95	94.00	17044	0.00	0.12	7.57	2.23
100yr-24hr	Pond	BASE	66.00	90.93	94.00	17022	0.03	0.12	7.57	2.24
100yr-24hr	Pond	BASE	66.50	90.92	94.00	17000	0.06	0.12	7.57	2.24
100yr-24hr	Pond	BASE	67.00	90.91	94.00	16979	0.05	0.11	7.57	2.25
100yr-24hr	Pond	BASE	67.50	90.90	94.00	16959	0.00	0.11	7.57	2.25
100yr-24hr	Pond	BASE	68.00	90.89	94.00	16939	0.04	0.11	7.57	2.25
100yr-24hr	Pond	BASE	68.50	90.88	94.00	16920	0.04	0.10	7.57	2.26
100yr-24hr	Pond	BASE	69.00	90.87	94.00	16903	0.05	0.10	7.58	2.26
100yr-24hr	Pond	BASE	69.50	90.86	94.00	16885	0.03	0.09	7.58	2.27
100yr-24hr	Pond	BASE	70.00	90.85	94.00	16869	0.03	0.09	7.58	2.27
100yr-24hr	Pond	BASE	70.50	90.84	94.00	16853	0.03	0.08	7.58	2.27
100yr-24hr	Pond	BASE	71.00	90.83	94.00	16838	0.03	0.08	7.58	2.28
100yr-24hr	Pond	BASE	71.50	90.82	94.00	16823	0.02	0.08	7.58	2.28
100yr-24hr	Pond	BASE	72.00	90.81	94.00	16809	0.02	0.08	7.58	2.28
100yr-24hr	Pond	BASE	72.50	90.81	94.00	16796	0.00	0.07	7.58	2.29
100yr-24hr	Pond	BASE	73.00	90.80	94.00	16782	-0.01	0.07	7.58	2.29
100yr-24hr	Pond	BASE	73.50	90.79	94.00	16770	-0.01	0.07	7.58	2.29
100yr-24hr	Pond	BASE	74.00	90.79	94.00	16758	-0.01	0.06	7.58	2.30
100yr-24hr	Pond	BASE	74.50	90.78	94.00	16746	-0.01	0.06	7.58	2.30
100yr-24hr	Pond	BASE	75.00	90.77	94.00	16735	0.01	0.06	7.58	2.30
100yr-24hr	Pond	BASE	75.50	90.77	94.00	16725	0.01	0.06	7.58	2.30
100yr-24hr	Pond	BASE	76.00	90.76	94.00	16714	0.01	0.05	7.58	2.31
100yr-24hr	Pond	BASE	76.50	90.76	94.00	16705	0.01	0.05	7.58	2.31
100yr-24hr	Pond	BASE	77.00	90.75	94.00	16695	0.01	0.05	7.58	2.31
100yr-24hr	Pond	BASE	77.50	90.75	94.00	16686	0.01	0.05	7.58	2.31
100yr-24hr	Pond	BASE	78.00	90.74	94.00	16678	0.00	0.05	7.58	2.31
100yr-24hr	Pond	BASE	78.50	90.74	94.00	16669	-0.01	0.04	7.58	2.32
100yr-24hr	Pond	BASE	79.00	90.73	94.00	16661	-0.01	0.04	7.58	2.32
100yr-24hr	Pond	BASE	79.50	90.73	94.00	16653	0.01	0.04	7.58	2.32
100yr-24hr	Pond	BASE	80.00	90.72	94.00	16646	0.00	0.04	7.58	2.32
100yr-24hr	Pond	BASE	80.50	90.72	94.00	16639	0.00	0.04	7.58	2.32
100yr-24hr	Pond	BASE	81.00	90.71	94.00	16632	0.00	0.04	7.58	2.32
100yr-24hr	Pond	BASE	81.50	90.71	94.00	16625	0.00	0.03	7.58	2.32
100yr-24hr	Pond	BASE	82.00	90.71	94.00	16618	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	82.50	90.70	94.00	16612	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	83.00	90.70	94.00	16606	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	83.50	90.70	94.00	16600	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	84.00	90.69	94.00	16594	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	84.50	90.69	94.00	16589	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	85.00	90.69	94.00	16583	0.00	0.03	7.58	2.33
100yr-24hr	Pond	BASE	85.50	90.68	94.00	16578	0.00	0.03	7.58	2.34
100yr-24hr	Pond	BASE	86.00	90.68	94.00	16573	0.00	0.03	7.58	2.34
100yr-24hr	Pond	BASE	86.50	90.68	94.00	16568	0.00	0.03	7.58	2.34

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr-24hr	Pond	BASE	87.00	90.68	94.00	16563	0.00	0.03	7.58	2.34
100yr-24hr	Pond	BASE	87.50	90.67	94.00	16558	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	88.00	90.67	94.00	16553	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	88.50	90.67	94.00	16549	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	89.00	90.67	94.00	16544	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	89.50	90.66	94.00	16540	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	90.00	90.66	94.00	16536	0.00	0.02	7.58	2.34
100yr-24hr	Pond	BASE	90.50	90.66	94.00	16531	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	91.00	90.66	94.00	16527	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	91.50	90.65	94.00	16523	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	92.00	90.65	94.00	16519	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	92.50	90.65	94.00	16515	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	93.00	90.65	94.00	16511	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	93.50	90.65	94.00	16508	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	94.00	90.64	94.00	16504	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	94.50	90.64	94.00	16500	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	95.00	90.64	94.00	16496	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	95.50	90.64	94.00	16493	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	96.00	90.64	94.00	16489	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	96.50	90.63	94.00	16486	0.00	0.02	7.58	2.35
100yr-24hr	Pond	BASE	97.00	90.63	94.00	16482	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	97.50	90.63	94.00	16479	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	98.00	90.63	94.00	16476	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	98.50	90.63	94.00	16472	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	99.00	90.62	94.00	16469	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	99.50	90.62	94.00	16466	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	100.00	90.62	94.00	16462	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	100.50	90.62	94.00	16459	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	101.00	90.62	94.00	16456	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	101.50	90.61	94.00	16452	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	102.00	90.61	94.00	16449	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	102.50	90.61	94.00	16446	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	103.00	90.61	94.00	16443	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	103.50	90.61	94.00	16440	0.00	0.02	7.58	2.36
100yr-24hr	Pond	BASE	104.00	90.61	94.00	16436	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	104.50	90.60	94.00	16433	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	105.00	90.60	94.00	16430	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	105.50	90.60	94.00	16427	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	106.00	90.60	94.00	16424	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	106.50	90.60	94.00	16421	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	107.00	90.60	94.00	16417	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	107.50	90.59	94.00	16414	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	108.00	90.59	94.00	16411	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	108.50	90.59	94.00	16408	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	109.00	90.59	94.00	16405	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	109.50	90.59	94.00	16402	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	110.00	90.58	94.00	16398	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	110.50	90.58	94.00	16395	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	111.00	90.58	94.00	16392	0.00	0.02	7.58	2.37
100yr-24hr	Pond	BASE	111.50	90.58	94.00	16389	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	112.00	90.58	94.00	16386	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	112.50	90.58	94.00	16383	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	113.00	90.57	94.00	16379	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	113.50	90.57	94.00	16376	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	114.00	90.57	94.00	16373	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	114.50	90.57	94.00	16370	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	115.00	90.57	94.00	16367	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	115.50	90.57	94.00	16364	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	116.00	90.56	94.00	16361	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	116.50	90.56	94.00	16357	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	117.00	90.56	94.00	16354	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	117.50	90.56	94.00	16351	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	118.00	90.56	94.00	16348	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	118.50	90.55	94.00	16345	0.00	0.02	7.58	2.38
100yr-24hr	Pond	BASE	119.00	90.55	94.00	16342	0.00	0.02	7.58	2.39
100yr-24hr	Pond	BASE	119.50	90.55	94.00	16339	0.00	0.02	7.58	2.39
100yr-24hr	ROW (Post)	BASE	0.00	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	0.51	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	1.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	1.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	2.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	2.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	3.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	3.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	4.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	4.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	5.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	5.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	6.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	6.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	7.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	7.52	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	8.02	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	8.51	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	9.01	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	9.50	90.00	999.00	0	0.00	0.00	0.00	0.00

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr-24hr	ROW (Post)	BASE	10.00	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	10.50	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	11.00	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	11.50	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	12.00	90.00	999.00	0	0.00	0.00	0.00	0.00
100yr-24hr	ROW (Post)	BASE	12.50	90.00	999.00	0	0.37	0.00	0.01	0.00
100yr-24hr	ROW (Post)	BASE	13.00	90.00	999.00	0	4.65	0.00	0.11	0.00
100yr-24hr	ROW (Post)	BASE	13.50	90.00	999.00	0	2.68	0.00	0.26	0.00
100yr-24hr	ROW (Post)	BASE	14.00	90.00	999.00	0	1.82	0.00	0.36	0.00
100yr-24hr	ROW (Post)	BASE	14.50	90.00	999.00	0	1.39	0.00	0.42	0.00
100yr-24hr	ROW (Post)	BASE	15.00	90.00	999.00	0	1.12	0.00	0.47	0.00
100yr-24hr	ROW (Post)	BASE	15.50	90.00	999.00	0	0.95	0.00	0.52	0.00
100yr-24hr	ROW (Post)	BASE	16.00	90.00	999.00	0	0.82	0.00	0.55	0.00
100yr-24hr	ROW (Post)	BASE	16.50	90.00	999.00	0	0.71	0.00	0.59	0.00
100yr-24hr	ROW (Post)	BASE	17.00	90.00	999.00	0	0.63	0.00	0.61	0.00
100yr-24hr	ROW (Post)	BASE	17.50	90.00	999.00	0	0.58	0.00	0.64	0.00
100yr-24hr	ROW (Post)	BASE	18.00	90.00	999.00	0	0.52	0.00	0.66	0.00
100yr-24hr	ROW (Post)	BASE	18.50	90.00	999.00	0	0.48	0.00	0.68	0.00
100yr-24hr	ROW (Post)	BASE	19.00	90.00	999.00	0	0.45	0.00	0.70	0.00
100yr-24hr	ROW (Post)	BASE	19.50	90.00	999.00	0	0.42	0.00	0.72	0.00
100yr-24hr	ROW (Post)	BASE	20.00	90.00	999.00	0	0.40	0.00	0.74	0.00
100yr-24hr	ROW (Post)	BASE	20.50	90.00	999.00	0	0.38	0.00	0.75	0.00
100yr-24hr	ROW (Post)	BASE	21.00	90.00	999.00	0	0.37	0.00	0.77	0.00
100yr-24hr	ROW (Post)	BASE	21.50	90.00	999.00	0	0.37	0.00	0.78	0.00
100yr-24hr	ROW (Post)	BASE	22.00	90.00	999.00	0	0.37	0.00	0.80	0.00
100yr-24hr	ROW (Post)	BASE	22.50	90.00	999.00	0	0.37	0.00	0.81	0.00
100yr-24hr	ROW (Post)	BASE	23.00	90.00	999.00	0	0.37	0.00	0.83	0.00
100yr-24hr	ROW (Post)	BASE	23.50	90.00	999.00	0	0.37	0.00	0.84	0.00
100yr-24hr	ROW (Post)	BASE	24.00	90.00	999.00	0	0.37	0.00	0.86	0.00
100yr-24hr	ROW (Post)	BASE	24.50	90.00	999.00	0	0.37	0.00	0.88	0.00
100yr-24hr	ROW (Post)	BASE	25.00	90.00	999.00	0	0.36	0.00	0.89	0.00
100yr-24hr	ROW (Post)	BASE	25.50	90.00	999.00	0	0.36	0.00	0.91	0.00
100yr-24hr	ROW (Post)	BASE	26.00	90.00	999.00	0	0.36	0.00	0.92	0.00
100yr-24hr	ROW (Post)	BASE	26.50	90.00	999.00	0	0.35	0.00	0.94	0.00
100yr-24hr	ROW (Post)	BASE	27.00	90.00	999.00	0	0.35	0.00	0.95	0.00
100yr-24hr	ROW (Post)	BASE	27.50	90.00	999.00	0	0.35	0.00	0.96	0.00
100yr-24hr	ROW (Post)	BASE	28.00	90.00	999.00	0	0.34	0.00	0.98	0.00
100yr-24hr	ROW (Post)	BASE	28.50	90.00	999.00	0	0.34	0.00	0.99	0.00
100yr-24hr	ROW (Post)	BASE	29.00	90.00	999.00	0	0.34	0.00	1.01	0.00
100yr-24hr	ROW (Post)	BASE	29.50	90.00	999.00	0	0.33	0.00	1.02	0.00
100yr-24hr	ROW (Post)	BASE	30.00	90.00	999.00	0	0.33	0.00	1.03	0.00
100yr-24hr	ROW (Post)	BASE	30.50	90.00	999.00	0	0.33	0.00	1.05	0.00
100yr-24hr	ROW (Post)	BASE	31.00	90.00	999.00	0	0.33	0.00	1.06	0.00
100yr-24hr	ROW (Post)	BASE	31.50	90.00	999.00	0	0.32	0.00	1.07	0.00
100yr-24hr	ROW (Post)	BASE	32.00	90.00	999.00	0	0.32	0.00	1.09	0.00
100yr-24hr	ROW (Post)	BASE	32.50	90.00	999.00	0	0.32	0.00	1.10	0.00
100yr-24hr	ROW (Post)	BASE	33.00	90.00	999.00	0	0.31	0.00	1.11	0.00
100yr-24hr	ROW (Post)	BASE	33.50	90.00	999.00	0	0.31	0.00	1.13	0.00
100yr-24hr	ROW (Post)	BASE	34.00	90.00	999.00	0	0.31	0.00	1.14	0.00
100yr-24hr	ROW (Post)	BASE	34.50	90.00	999.00	0	0.30	0.00	1.15	0.00
100yr-24hr	ROW (Post)	BASE	35.00	90.00	999.00	0	0.30	0.00	1.16	0.00
100yr-24hr	ROW (Post)	BASE	35.50	90.00	999.00	0	0.30	0.00	1.18	0.00
100yr-24hr	ROW (Post)	BASE	36.00	90.00	999.00	0	0.29	0.00	1.19	0.00
100yr-24hr	ROW (Post)	BASE	36.50	90.00	999.00	0	0.29	0.00	1.20	0.00
100yr-24hr	ROW (Post)	BASE	37.00	90.00	999.00	0	0.29	0.00	1.21	0.00
100yr-24hr	ROW (Post)	BASE	37.50	90.00	999.00	0	0.29	0.00	1.23	0.00
100yr-24hr	ROW (Post)	BASE	38.00	90.00	999.00	0	0.28	0.00	1.24	0.00
100yr-24hr	ROW (Post)	BASE	38.50	90.00	999.00	0	0.28	0.00	1.25	0.00
100yr-24hr	ROW (Post)	BASE	39.00	90.00	999.00	0	0.28	0.00	1.26	0.00
100yr-24hr	ROW (Post)	BASE	39.50	90.00	999.00	0	0.27	0.00	1.27	0.00
100yr-24hr	ROW (Post)	BASE	40.00	90.00	999.00	0	0.27	0.00	1.28	0.00
100yr-24hr	ROW (Post)	BASE	40.50	90.00	999.00	0	0.27	0.00	1.29	0.00
100yr-24hr	ROW (Post)	BASE	41.00	90.00	999.00	0	0.26	0.00	1.30	0.00
100yr-24hr	ROW (Post)	BASE	41.50	90.00	999.00	0	0.26	0.00	1.32	0.00
100yr-24hr	ROW (Post)	BASE	42.00	90.00	999.00	0	0.26	0.00	1.33	0.00
100yr-24hr	ROW (Post)	BASE	42.50	90.00	999.00	0	0.26	0.00	1.34	0.00
100yr-24hr	ROW (Post)	BASE	43.00	90.00	999.00	0	0.25	0.00	1.35	0.00
100yr-24hr	ROW (Post)	BASE	43.50	90.00	999.00	0	0.25	0.00	1.36	0.00
100yr-24hr	ROW (Post)	BASE	44.00	90.00	999.00	0	0.25	0.00	1.37	0.00
100yr-24hr	ROW (Post)	BASE	44.50	90.00	999.00	0	0.24	0.00	1.38	0.00
100yr-24hr	ROW (Post)	BASE	45.00	90.00	999.00	0	0.24	0.00	1.39	0.00
100yr-24hr	ROW (Post)	BASE	45.50	90.00	999.00	0	0.24	0.00	1.40	0.00
100yr-24hr	ROW (Post)	BASE	46.00	90.00	999.00	0	0.23	0.00	1.41	0.00
100yr-24hr	ROW (Post)	BASE	46.50	90.00	999.00	0	0.23	0.00	1.42	0.00
100yr-24hr	ROW (Post)	BASE	47.00	90.00	999.00	0	0.23	0.00	1.43	0.00
100yr-24hr	ROW (Post)	BASE	47.50	90.00	999.00	0	0.23	0.00	1.44	0.00
100yr-24hr	ROW (Post)	BASE	48.00	90.00	999.00	0	0.22	0.00	1.45	0.00
100yr-24hr	ROW (Post)	BASE	48.50	90.00	999.00	0	0.22	0.00	1.45	0.00
100yr-24hr	ROW (Post)	BASE	49.00	90.00	999.00	0	0.22	0.00	1.46	0.00
100yr-24hr	ROW (Post)	BASE	49.50	90.00	999.00	0	0.21	0.00	1.47	0.00
100yr-24hr	ROW (Post)	BASE	50.00	90.00	999.00	0	0.21	0.00	1.48	0.00
100yr-24hr	ROW (Post)	BASE	50.50	90.00	999.00	0	0.21	0.00	1.49	0.00
100yr-24hr	ROW (Post)	BASE	51.00	90.00	999.00	0	0.20	0.00	1.50	0.00
100yr-24hr	ROW (Post)	BASE	51.50	90.00	999.00	0	0.20	0.00	1.51	0.00
100yr-24hr	ROW (Post)	BASE	52.00	90.00	999.00	0	0.20	0.00	1.51	0.00
100yr-24hr	ROW (Post)	BASE	52.50	90.00	999.00	0	0.19	0.00	1.52	0.00
100yr-24hr	ROW (Post)	BASE	53.00	90.00	999.00	0	0.19	0.00	1.53	0.00

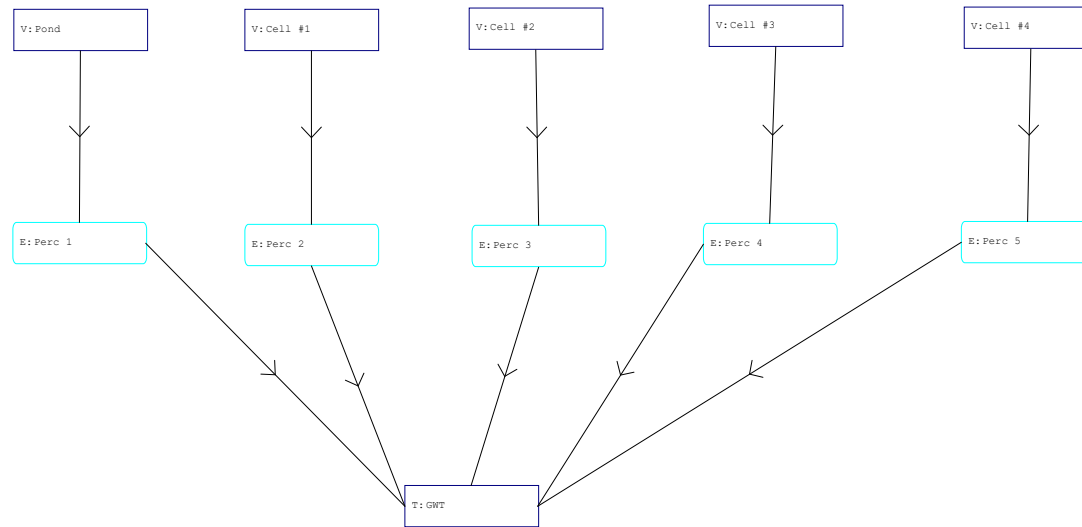
Simulation	Node	Group	Time	Stage	Warning	Surface	Total	Total	Total	Total
			hrs	ft	Stage	Area	Inflow	Outflow	Vol In	Vol Out
					ft	ft2	cfs	cfs	af	af
100yr-24hr	ROW (Pre)	BASE	63.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	64.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	64.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	65.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	65.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	66.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	66.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	67.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	67.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	68.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	68.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	69.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	69.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	70.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	70.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	71.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	71.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	72.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	72.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	73.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	73.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	74.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	74.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	75.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	75.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	76.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	76.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	77.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	77.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	78.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	78.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	79.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	79.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	80.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	80.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	81.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	81.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	82.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	82.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	83.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	83.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	84.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	84.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	85.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	85.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	86.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	86.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	87.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	87.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	88.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	88.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	89.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	89.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	90.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	90.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	91.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	91.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	92.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	92.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	93.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	93.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	94.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	94.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	95.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	95.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	96.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	96.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	97.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	97.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	98.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	98.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	99.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	99.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	100.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	100.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	101.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	101.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	102.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	102.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	103.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	103.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	104.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	104.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	105.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	105.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	106.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	106.50	90.00	999.00	0	0.00	0.00	1.96	0.00

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100yr-24hr	ROW (Pre)	BASE	107.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	107.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	108.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	108.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	109.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	109.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	110.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	110.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	111.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	111.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	112.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	112.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	113.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	113.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	114.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	114.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	115.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	115.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	116.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	116.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	117.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	117.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	118.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	118.50	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	119.00	90.00	999.00	0	0.00	0.00	1.96	0.00
100yr-24hr	ROW (Pre)	BASE	119.50	90.00	999.00	0	0.00	0.00	1.96	0.00

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



TREATMENT DRAWDOWN


```

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

Name: Cell #1          Base Flow(cfs): 0.000          Init Stage(ft): 91.000
Group: BASE            Warn Stage(ft): 93.000
Type: Stage/Volume

Stage(ft)      Volume(af)
-----
90.000         0.0000
90.500         0.0200
91.250         0.0500
92.000         0.0800
93.000         0.1200

-----

Name: Cell #2          Base Flow(cfs): 0.000          Init Stage(ft): 94.600
Group: BASE            Warn Stage(ft): 95.000
Type: Stage/Volume

Stage(ft)      Volume(af)
-----
91.000         0.0000
92.000         0.0090
93.000         0.0170
94.000         0.0250
95.000         0.0370

-----

Name: Cell #3          Base Flow(cfs): 0.000          Init Stage(ft): 94.000
Group: BASE            Warn Stage(ft): 95.000
Type: Stage/Volume

Stage(ft)      Volume(af)
-----
91.000         0.0000
92.000         0.0230
93.000         0.0540
94.000         0.0850
95.000         0.0920

-----

Name: Cell #4          Base Flow(cfs): 0.000          Init Stage(ft): 96.650
Group: BASE            Warn Stage(ft): 97.000
Type: Stage/Volume

Stage(ft)      Volume(af)
-----
92.000         0.0000
93.500         0.0170
94.000         0.0240
95.000         0.0370
96.000         0.0460
97.000         0.0580

-----

Name: GWT              Base Flow(cfs): 0.000          Init Stage(ft): 88.000
Group: BASE            Warn Stage(ft): 999.000
Type: Time/Stage

Time(hrs)      Stage(ft)
-----
0.00           88.000
75.00          88.000

-----

Name: Pond              Base Flow(cfs): 0.000          Init Stage(ft): 90.600
Group: BASE            Warn Stage(ft): 94.000
Type: Stage/Volume

Stage(ft)      Volume(af)
-----
90.000         0.0000
91.000         0.3720
92.000         0.7840
93.000         1.2380

```

94.000 1.7350

=====
==== Percolation Links =====
=====

Name: Perc 1 From Node: Pond Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: Use 1st Point in Stage/Area Table
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 510.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 910.000
*****0.000 Perimeter 3(ft): 1710.000
Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 50.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 100.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 10
Suction Head(in): 4.200 Num Cells 2 to 3: 20
Layer Thickness(ft): 0.000

Name: Perc 2 From Node: Cell #1 Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 90.000 Surface Area(ac): 0.043
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 484.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 594.000
*****0.000 Perimeter 3(ft): 629.000
Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 2
Suction Head(in): 4.200 Num Cells 2 to 3: 4
Layer Thickness(ft): 0.000

Name: Perc 3 From Node: Cell #2 Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 91.000 Surface Area(ac): 0.023
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 182.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 262.000
*****0.000 Perimeter 3(ft): 422.000
Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 2
Suction Head(in): 4.200 Num Cells 2 to 3: 4
Layer Thickness(ft): 0.000

Name: Perc 4 From Node: Cell #3 Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 91.000 Surface Area(ac): 0.057
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 290.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 415.000
*****0.000 Perimeter 3(ft): 655.000
Horiz Conductivity(ft/day): 14.900 Distance 1 to 2(ft): 15.000
Vert Conductivity(ft/day): 9.800 Distance 2 to 3(ft): 30.000
Effective Porosity(dec): 0.250 Num Cells 1 to 2: 3
Suction Head(in): 4.200 Num Cells 2 to 3: 6
Layer Thickness(ft): 0.000

Name: Perc 5 From Node: Cell #4 Flow: Both
Group: BASE To Node: GWT Count: 1

Surface Area Option: User Specified
Bottom Elev(ft): 92.000 Surface Area(ac): 0.029
Vertical Flow Termination: Horizontal Flow Algorithm
Aquifer Base Elev(ft): 85.000 Perimeter 1(ft): 208.000
Water Table Elev(ft): 88.000 Perimeter 2(ft): 294.000
*****0.000 Perimeter 3(ft): 454.000

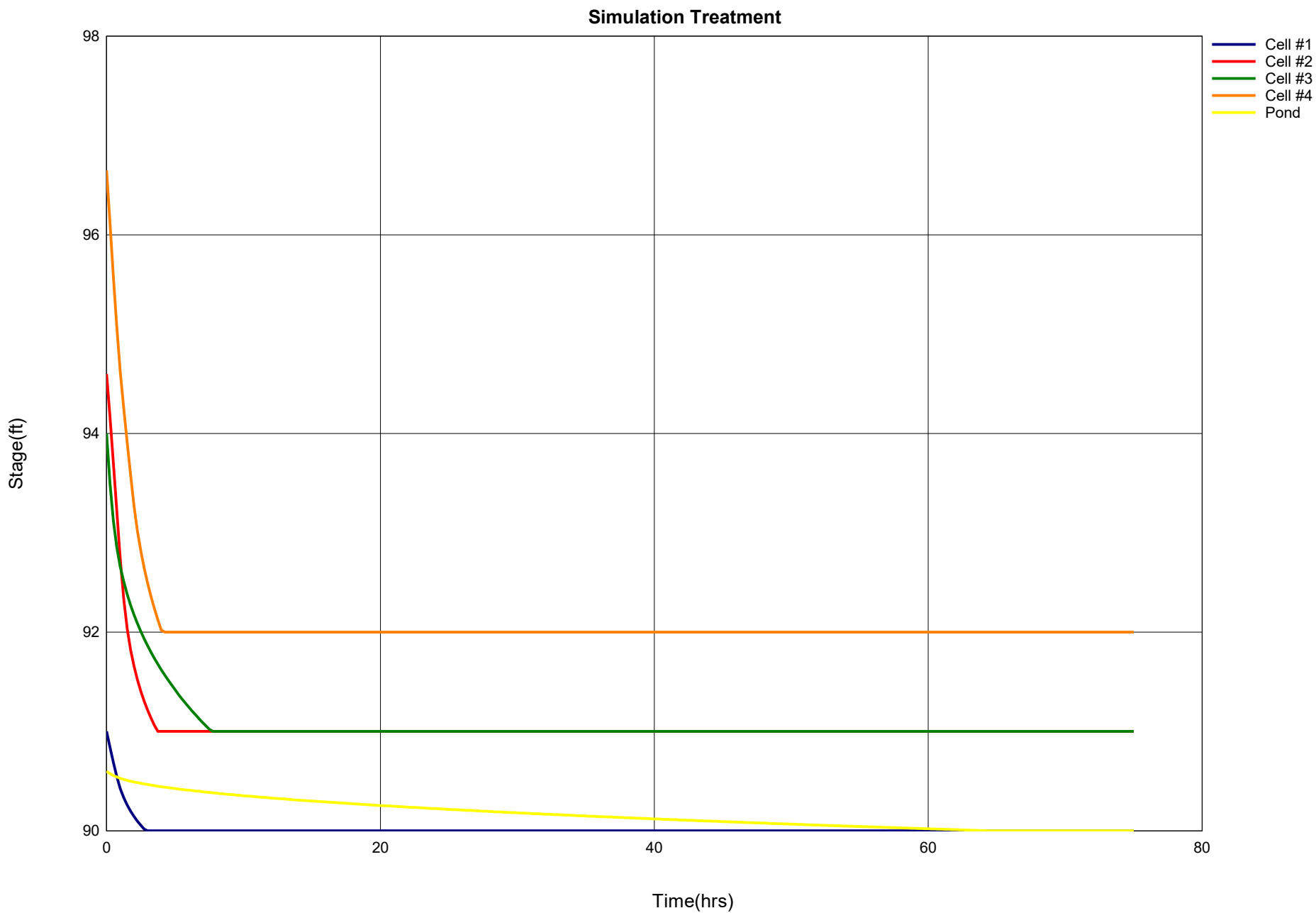
Horiz Conductivity(ft/day): 14.900	Distance 1 to 2(ft): 10.000
Vert Conductivity(ft/day): 9.800	Distance 2 to 3(ft): 20.000
Effective Porosity(dec): 0.250	Num Cells 1 to 2: 2
Suction Head(in): 4.200	Num Cells 2 to 3: 4
Layer Thickness(ft): 0.000	

=====
===== Routing Simulations =====
=====

Name: Treatment	Hydrology Sim:
Filename: T:\Kevin Ryman\Wire Road\Documents\Stormwater\ICPR\Treatment.I32	
Execute: Yes	Restart: No
Alternative: No	Patch: 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): 75.00
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



Appendix D – Geotechnical Report



UNIVERSAL ENGINEERING SCIENCES

GEOTECHNICAL EXPLORATION

**Wire Road at Driftwood
6700-6718 Wire Road,
Zephyrhills, Florida**

UES Project No. 0830.2100149.0000

PREPARED FOR:

ACME Development Corporation
36413 SR 54
Zephyrhills, Florida 33541

PREPARED BY:

Universal Engineering Sciences
9802 Palm River Road
Tampa, Florida 33619
(813) 740-8506

December 21, 2021

Consultants in: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing • Threshold Inspection
Offices in: Orlando • Daytona Beach • Fort Myers • Gainesville • Jacksonville • Ocala • Palm Coast • Rockledge • Sarasota • Tallahassee
St. Augustine • Panama City • Fort Pierce • Leesburg • Tampa • West Palm Beach • Atlanta, GA





UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

December 21, 2021

ACME Development Corporation
36413 SR 54
Zephyrhills, Florida 33541

Attention: Mr. Kevin L. Ryman
President

Reference: Geotechnical Exploration
Wire Road at Driftwood
6700-6718 Wire Road,
Zephyrhills, Florida
UES Project No. 0830.2100149.0000
UES Report No. 1920721

Dear Mr. Ryman:

Universal Engineering Sciences, LLC (UES) has completed a geotechnical exploration on the above-referenced site in Brandon, Florida. Our scope of services was in general accordance with UES Proposal No. 0830.0921.00030, dated October 26, 2021, and authorized by you on October 27, 2021.

This report contains the results of our study, an engineering interpretation of the subsurface data obtained with respect to the project characteristics described to us, geotechnical design recommendations, and general construction and site preparation considerations.

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

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES, LLC

Certificate of Authorization No. 549


Veronica De Freitas,
Department Manager
Professional Engineer No. 84939
Date: 12/21/2021

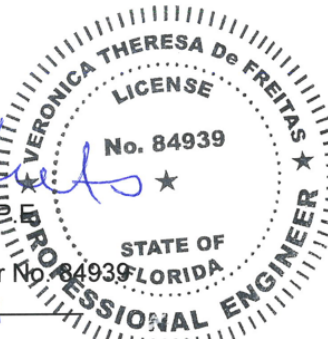


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1.0 INTRODUCTION

1.1 GENERAL

Universal Engineering Sciences (UES) has completed a geotechnical evaluation of the site for the proposed residential development, located along Wire Road in Zephyrhills, Pasco County, Florida. This report contains the results of our study, an engineering interpretation of the subsurface data obtained with respect to the project characteristics described to us, and our recommendations for geotechnical design and general site preparation. Our scope of services was in general accordance with UES Proposal No. 0830.0921.00030, dated October 26, 2021, and authorized by you on October 27, 2021.

1.2 PROJECT DESCRIPTION

We understand that the proposed project consists of the development of a proposed residential community that will include a stormwater pond and paved driveways. We understand that the subject property currently consists of two adjoining undeveloped parcels totaling approximately 4.97 acres on Wire Road in Zephyrhills, Pasco County, Florida (PCPA Parcel IDs 02-26-21-0010-03600-0010 and 02-26-21-0010-03600-0000).

Preliminary grading plans or anticipated structural loads were not available for our evaluation. We have assumed that construction will proceed on existing grade. Further, we have assumed that loads on continuous footings will be three (3) kips per lineal foot or less, and loads on individual column footings will be 30 kips or less.

Our geotechnical recommendations are based upon the above assumptions and considerations. If any of this information is incorrect or if you anticipate any changes, please inform UES so that we may review our recommendations, and make revisions as needed.

A general location map of the project area appears in Appendix A: Site Location Map. Also included in Appendix A for your reference are a Site Aerial Photograph, USGS Site Topographic Map and Soil Survey Map.

2.0 PURPOSE AND METHODOLOGIES

2.1 PURPOSE

The purpose of our services was:

- to explore the general subsurface conditions at the site using Standard Penetration Test (SPT) borings, auger borings and Double Ring Infiltrometer (DRI) testing;
- to interpret and review the subsurface conditions with respect to the proposed construction as it was described to us; and
- to provide geotechnical engineering design information and recommendations, and general recommendations for site preparation.



This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards.

Our study was confined to the zone of soil likely to be influenced by the proposed structural foundation and pavement systems. Our scope of services did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity.

2.2 FIELD EXPLORATION

The subsurface conditions across the site were explored with a total of nine (9) borings.

In the proposed building and pond areas, a total of six (6) SPT borings were completed, to depths on the order of 15 to 20 feet below existing site grades.. These borings were advanced using the rotary wash method, and samples were collected while performing the SPT at regular intervals.

In the proposed pavement areas, three (3) auger borings were advanced, each to a depth of 5 feet. Soil samples were collected from the auger cuttings wherever a visible change in stratigraphy was apparent.

We performed the SPT test in general accordance with ASTM D1586. However, at depths of 10 feet or less we sampled continuously in order to detect slight variations in the soil profile. In general, a standard split-barrel sampler (split-spoon) is driven into the soil using a 140-pound hammer free-falling 30 inches. The number of hammer blows required to drive the sampler 12 inches, after first seating it 6 inches, is designated the penetration resistance, or N value. This value is used as an index to soil strength and consistency.

Consider the indicated locations, elevations and depths to be approximate. Our drilling crew located the borings based upon estimated distances and taped measurements from existing site features or GPS Coordinates using a hand held GPS device. Top-of-boring elevations, if listed, were estimated from the site survey. If more precise location and elevation data are desired, a registered professional land surveyor should be retained to locate the borings and determine their ground surface elevations. The Boring Location Plan is presented in Appendix B.

Unless other arrangements are agreed upon in writing, UES will store recovered soil samples for no more than 60 calendar days from the date of the report. After that date, UES will dispose of all samples.

2.3 LABORATORY TESTING

The soil samples recovered from the test borings were returned to our laboratory and visually classified by our technical staff.

In order to further classify the soils at the site, we selected representative samples from our soil borings for laboratory analyses. In all, we performed the following tests:



- Three (3) Moisture Content tests.
- Three (3) Wash 200 Analyses.

The laboratory test results are presented on the Boring Logs in Appendix B, next to the soil samples tested.

3.0 **FINDINGS**

3.1 **SURFACE CONDITIONS**

UES reviewed readily available aerial photographs, United States Geological Survey (USGS) topographic quadrangle maps, and the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Soil Survey of Pasco County for relevant information about the site. According to USGS topographic information, the elevation across the property is on the order of +/-95 feet (National Geodetic Vertical Datu, (NGVD). The site is moderately wooded vacant property.

3.2 **SUBSURFACE CONDITIONS**

3.2.1 **SOIL SURVEY**

According to SCS, there is one native, surficial soil group underlying this site. A summary of selected properties for the identified soil group on the site is included below in Table 1. The location of this group can be observed on the SCS Soil Survey Map provided in Appendix A.

TABLE 1						
SUMMARY OF SOIL INFORMATION						
Soil Map Unit & Name	Hydrologic Soil Group	Water Table Type	SHWT Depth	Shrink-Swell Potential	Corrosion Risk	
					Steel	Concrete
6—Tavares sand, 0 to 5 percent slopes	A	Apparent	About 42 to 72 inches	Low	High	Low

3.2.2 **SOIL BORINGS**

The boring locations and detailed subsurface conditions are illustrated in Appendix~B: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are based upon visual characterizations of the recovered soil samples. Refer to Appendix B: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs. The general subsurface soil profile on the site, based on the soil boring information, is described below. For more detailed information, please refer to the boring logs.

The borings generally encountered 6 inches of topsoil, an upper layer of sandy soils followed by clayey soils to the boring's termination depths.



The upper sandy soils generally consisted of very loose to medium dense poorly graded sand (SP) and sand with clay (SP-SC) extending to depths on the order of four (4) feet to 12 feet below existing site grades. The clayey soils encountered below the upper sandy soils, generally consisted of loose to dense clayey sand (SC) with some interbedded layers of sand with clay (SP-SC) extending to the termination of the borings

The groundwater table was not encountered within the top 10 feet, and drilling fluid was utilized in the boreholes below 10 feet. Therefore a groundwater reading below 10 feet was not measured at the time of reading. Due to the clayey soils, the site is subjected to perched groundwater conditions. Further, groundwater is anticipated to be subject to fluctuation.

The boring logs and related information included in this report are indicators of subsurface conditions only at the specific locations and times noted. Subsurface conditions, including groundwater levels and the presence of deleterious materials, at other locations on the site may differ significantly from conditions which, in the opinion of UES, exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

4.0 RECOMMENDATIONS

4.1 GENERAL

In this section of the report, we present our geotechnical design recommendations, general site preparation recommendations and information pertaining to the construction related services UES can provide. Our recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction as it was described to us, and our stated assumptions. If the structural loads or site layout differ from those assumed or described to us, we should be retained to review the new or updated information and amend our recommendations with respect to those changes. Additionally, if subsurface conditions are encountered during construction that were not encountered in the test borings, report those conditions immediately to us for observation and recommendations.

4.2 GROUNDWATER

Based on historical data, the rainy season in Florida is between June and October of the year. In order to estimate the seasonal high water level at the boring locations, many factors are examined, including the following:

- Measured groundwater level
- Drainage characteristics of existing soil types
- Current & historical rainfall data
- Natural relief points (such as lakes, rivers, wetlands, etc.)
- Man-made drainage systems (ditches, canals, retention basins, etc.)
- On-site types of vegetation
- Review of available data (soil surveys, USGS maps, etc.)
- Redoximorphic features (mottling, stripping, etc.)



The presence of hydraulically restrictive clayey sands at some of the boring location may form a transient perched groundwater condition, especially after periods of heavy rainfall and/or irrigation. Perched groundwater levels can generally be expected to occur about 6 inches to two (2) feet above the top of hydraulically restrictive soils, where present, if the groundwater table is unable to drain and/or percolate into a more pervious layer. It should be noted that undercutting of the hydraulically restrictive materials will impact the depth of the perched water table. The potential for groundwater to perch will be directly related to rainfall and irrigation amounts, as well as site grading. The potential for transient perched groundwater levels should be considered during the design of the site grades and during construction.

Based upon our visual inspection of the recovered soil samples, review of information obtained from Southwest Florida Water Management District (SWFWMD) and the USDA-NRCS Soil Survey of Hillsborough County, and our knowledge of local and regional hydrogeology, our best estimate is that the seasonal high groundwater table (SHWT) is estimated to be one-foot above the encountered clayey sand (SC) layer or four (4) feet below the existing grade at the test boring locations. A summary of the SHWT is presented in Table 2, below:

TABLE 2
SUMMARY OF SEASONAL HIGH WATER TABLE

Boring ID	Depth of Confining Layer/Unsuitable Soils (SC) (ft)	Estimates SHWT (ft)
A-1	>5	3
A-2	>5	3
A-3	>5	3
B-1	4	3
B-2	12	4
B-3	4	3
B-4	4	3
P-1	6	4
P-2	4	3

It should be noted that the estimated SHWT does not provide any assurance that groundwater levels will not exceed this level in the future. Should impediments to surface water drainage exist on the site, or should rainfall intensity and duration exceed the normally anticipated amounts, groundwater levels may exceed our seasonal high estimate. Also, future development around the site could alter surface runoff and drainage characteristics, and cause our seasonal high estimate to be exceeded. We, therefore, recommend positive drainage be established and maintained on the site during construction. Further, we recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project. Finally, we recommend all foundation and pavement grades account for the seasonal high groundwater conditions.



4.3 BUILDING FOUNDATION AND FLOOR SLAB

4.3.1 GENERAL

The soil encountered at foundation and slab elevations are considered suitable to support the proposed structures and loading, provided subgrades are prepared as recommended. However, if the actual building loads will exceed those we have previously stated, our foundation recommendations presented herein may not be applicable, and UES should be retained to review the updated information and revise our recommendations as needed.

4.3.2 BEARING CAPACITY

Provided the surficial soils to a depth of 2 feet are densified to at least 95% of the modified Proctor maximum dry density (MPMDD) per ASTM D-1557 prior to foundation construction, UES recommends supporting the proposed structures using shallow strip or spread foundations, or a thickened edge monolithic slab, sized to exert a maximum soil bearing pressure of 2,500 pounds per square foot (psf).

4.3.3 BEARING MATERIAL

Bearing level soils must be suitable structural fill or existing, granular soils compacted to at least 95% MPMDD. This degree of compaction must be verified to a depth of 2 feet below the base of footing elevation immediately prior to placing foundation concrete.

4.3.4 FOOTING SIZE AND BEARING DEPTH

Foundations should be embedded at least 18 inches below exterior grade. Maintain minimum foundation widths of 24 inches for continuous strip footings, and 36 inches for isolated column footings, even though the maximum allowable soil bearing stress may not be developed in all cases.

If a monolithic slab with integrated foundations (thickened edge floor slab) is used the foundation width can be reduced to 16 inches and embedment of a minimum 12 inches is recommended.

4.3.5 STANDARD FLOOR SLAB

Earth-supported slabs should be constructed over compacted native soils or compacted structural fill. A fibermesh additive or welded wire mesh should be used to resist cracking. If welded wire is used, we recommend using flat wire instead of rolled. Normal weight concrete having a 28-day compressive strength (f_c) of at least 2500 pounds per square inch (psi) should be used. A modulus of subgrade reaction of 150 pounds per cubic inch (pci) can be used beneath the proposed floor slab, provided subgrades are prepared as recommended.

4.3.6 POST-TENSIONED FLOOR SLAB

As an alternative, the proposed residential buildings may be supported on a post-tensioned floor slab system on this project. Said system could be integrated with the structural foundations or could float on-grade, and should be designed for an allowable, soil bearing stress of 2,500



pounds per square foot, and a maximum unsupported span of 20 feet occurring at any point beneath the slab. These values are not a geotechnical expression of the soil bearing capacity, rather, they are a basis for determining the required flexural rigidity of the slab.

4.3.7 FLOOR SLAB MOISTURE CONTROL

Per the Florida Building Code, we recommend installing polyethylene vapor barrier between the bottom of the floor slab and the top of the compacted subgrade. We recommend installing a minimum 10-mil, polyethylene vapor barrier between the bottom of the floor slab and the top of the compacted subgrade. This will help to minimize floor dampness and moisture intrusion into the structure through the slab. Assume a coefficient of friction of 0.2 at the soil-slab interface if a vapor barrier is used. If no vapor barrier is used, assume a coefficient of friction of 0.35 at the interface.

4.3.8 ESTIMATED STRUCTURAL SETTLEMENT

For foundations designed as recommended and site earthwork accomplished according to the recommendations provided later in this report, we estimate total foundation settlement of less than one inch, and differential settlement of less than one half inch.

4.4 PAVEMENT SECTIONS

4.4.1 ASSUMPTIONS

We assume that a combination of flexible asphaltic and rigid concrete pavement sections will be used on this project. Our recommendations for both pavement types are listed in the following sections.

At the time of this exploration, specific traffic loading information was not provided to us. We have assumed the following conditions for our recommended minimum pavement design.

- the subgrade soils prepared as recommended
- resilient modulus of 7,500 psi (LBR = 20)
- a twenty (20) year design life
- terminal serviceability index (P_t) of 2.5
- reliability of 85 percent
- total equivalent 18 kip single axle loads (ESAL) up to 35,000 for light duty pavements - car and pickup truck traffic
- total ESAL up to 150,000 for heavy duty pavements – occasional heavy truck traffic (delivery, trash collection, service lanes, etc.)

4.4.2 LAYER COMPONENTS

For preliminary pavement designs, we recommend using a three-layer pavement section Based on the results of our soil borings, the assumed traffic loading information and review of the 2008 Florida Department of Transportation (FDOT) Flexible Pavement Design Manual, our minimum recommended pavement component thicknesses are presented in Table 3.



TABLE 3 MINIMUM ASPHALTIC PAVEMENT COMPONENT THICKNESSES				
Service Level	Maximum Traffic Loading	Layer Component		
		Surface Course (inches)	Base Course (inches)	Stabilized Subgrade (inches)
Light Duty	up to 35,000 E ₁₈ SAL	1½	6	12
Heavy Duty	up to 150,000 E ₁₈ SAL	2	8	12
Roadways	up to 750,000 E ₁₈ SAL	2	10	12

4.4.3 STABILIZED SUBGRADE

We recommend that the stabilized subgrade materials immediately beneath the base course exhibit a minimum Limerock Bearing Ratio (LBR) of 40 as specified by FDOT, or a minimum Florida Bearing Value (FBV) of 75 psi, compacted to at least 98 percent of the MPMDD per ASTM D1557.

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

Compaction testing of the stabilized subgrade should be performed to full depth at a frequency of at least one (1) test per 10,000 square feet, or a minimum of three (3) tests, whichever is greater.

4.4.4 BASE COURSE

We recommend using either limerock* or a crushed concrete base course material. Crushed concrete generally provides a cost-effective alternative material in lieu of limerock and is particularly resistant to adverse effects from high groundwater conditions. With either option, at least 12 inches of free-draining subgrade must exist below the base course to prevent moisture-induced base failure.

The base utilized should have a minimum LBR of 100, and should meet current FDOT requirements for graded aggregate base. Place the base in maximum 6-inch lifts and compact each lift to at least 98% MPMDD per ASTM D1557.

Perform compliance base density testing to a depth of 1-foot at a frequency of one test per 10,000~square feet, or at a minimum of three test locations, whichever is greater.

***Note:** If limerock base material is to be used, adequate separation between groundwater and the base must be maintained (see Section 4.4.7). Limerock is highly moisture sensitive and



becomes unstable when saturated. Therefore, if the guidelines discussed in Section 4.4.7 cannot be met, the use of limerock base on this project is not recommended.

4.4.5 FLEXIBLE SURFACE COURSE

In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend that the surfacing consist of FDOT SuperPave (SP) asphaltic concrete. The surface course should consist of FDOT SP-9.5 fine mix for light-duty areas and FDOT SP-12.5 and/or SP-9.5 fine mix for heavy duty areas. The asphaltic concrete should be compacted to an average field density of 93 percent of the laboratory maximum density determined from specific gravity (G_{mm}) methods, with an individual test tolerance of ± 2 percent. Specific requirements for the SuperPave asphaltic concrete structural course are outlined in the latest edition of FDOT, Standard Specifications for Road and Bridge Construction.

After placement and field compaction, the surfacing should be cored to evaluate material thickness and density. Cores should be obtained at frequencies of at least one (1) core per 10,000 square feet of placed pavement or a minimum of two (2) cores per day's production.

4.4.6 RIGID PAVEMENT OPTION

In heavily loaded and/or high traffic areas such as garbage corrals we recommend using a rigid pavement system for increased strength and durability and for longer life. Portland cement concrete pavement is a rigid system that distributes wheel loads to the subgrade soils over a larger area than a flexible asphalt pavement. This results in reduced localized stress to the subgrade soil. We recommend using a compacted subgrade below concrete pavement with the following stipulations:

1. Subgrade soils must be densified to at least 98% MPMDD to a depth of at least 1-foot directly below the bottom of concrete slab.
2. The surface of the subgrade soils must be smooth, and any disturbances or wheel rutting corrected prior to placement of concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with exception to the thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated seasonal high groundwater level by at least 12 inches.

Our recommendations on slab thickness for standard duty concrete pavements are based on (1) the subgrade soils densified to at least 98% MPMDD, (2) modulus of subgrade reaction (k) equal to 150 pci, (3) a 30-year design life, and (4) total equivalent 18 kip single axle loads (ESAL) of 45,000. We recommend using the design shown in the following table for standard duty concrete pavements.



TABLE 4 RIGID PAVEMENT COMPONENT RECOMMENDATIONS - LIGHT DUTY		
Minimum Pavement Thickness	Maximum Control Joint Spacing	Minimum Sawcut Depth
5 Inches	10 Feet x 10 Feet	1.25 Inches

Our recommendations on slab thickness for heavy duty concrete pavements are based on the same factors as above with the exception of the total ESAL increased to 300,000. Our recommended design for heavy duty concrete pavement is shown in Table 5 below.

TABLE 5 RIGID PAVEMENT COMPONENT RECOMMENDATIONS - HEAVY DUTY		
Minimum Pavement Thickness	Maximum Control Joint Spacing	Minimum Sawcut Depth
6 Inches	14 Feet x 14 Feet	1.5 Inches

For both standard duty and heavy duty rigid pavement sections, we recommend using normal weight concrete having a 28 day compressive strength (f'_c) of 4,000 psi, and a minimum 28-day flexural strength (modulus of rupture) of at least 600 psi (based on the 3 point flexural test of concrete beam samples). Layout of the sawcut control joints should form square panels, and the depth of sawcut joints should be at least $\frac{1}{4}$ of the concrete slab thickness.

We recommend allowing Universal Engineering Sciences 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 of Non-Reinforced Concrete Pavements" published by the Florida Concrete and Products Association, Inc., and "Building Quality Concrete Parking Areas," published by the Portland Cement Association.

4.4.7 EFFECTS OF GROUNDWATER

One of the most critical influences on pavement performance in Florida is the relationship between the pavement subgrade and the seasonal high groundwater level.

It has been our experience that many roadways and parking areas have been damaged as a result of deterioration of the base and the base/surface course bond due to moisture intrusion. Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least 18-inches.



At this site pavement constructed on or above existing grade should meet the minimum required separation.

4.4.8 CURBING

Most pavement curbing is currently extruded curb which lies directly atop of the final asphaltic concrete surface course. Use of extruded curb or elimination of curb entirely, can allow lateral migration of irrigation water from the abutting landscape areas into the base and/or interface between the asphaltic concrete and base. This migration of water may cause base saturation and failure, and/or separation of the asphaltic concrete wearing surface from the base with subsequent rippling and pavement deterioration. For extruded curbing, we recommend that underdrain be installed behind the curb wherever anticipated storm, surface or irrigation waters may collect. In addition, landscape islands should be drained of excess water buildup using an underdrain system. Alternatively, we recommend that curbing around the landscape sections adjacent to the parking lots be constructed using full depth curb sections.

4.4.9 UNDERDRAINS

When necessary underdrains should consist of 6-inch perforated plastic pipe wrapped in a drain sock. The pipe should be surrounded by filter material meeting FDOT requirement Section 902.2. The pipe should be encased within filter material with at least 6 inches below, 6 inches above, and 6 inches around each side. The invert of the drain pipe should be located at least 36 inches below the bottom of the pavement base course. For parallel underdrains, the center to center spacing of the pipes should be no greater than 15 feet.

Additional underdrain action can be achieved by bedding any stormwater pipe trenches with coarse gravel, such as FDOT #57 stone, beneath the pipes for at least 6 inches and for at least 6 inches up the sides of the pipes.

4.4.10 CONSTRUCTION TRAFFIC

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

4.5 **STORMWATER PONDS**

4.5.1 DESIGN SOIL PARAMETERS

We understand that the proposed project will include a stormwater pond area. Two (2) SPT borings, designated P-1 and P-2, were performed within the proposed stormwater pond area. In addition, two (2) Double Ring Infiltrometer (DRI) test, designated DRI-1 and DRI-2, were performed at an approximate depth of 12 inches below existing ground surface. Approximate SPT boring and DRI test locations are shown in the attached Boring Location Plan. Our recommended stormwater management design parameters are summarized in Table 6.



TABLE 6 STORMWATER POND DESIGN PARAMETERS		
Design Parameter	Estimated Values P-1 and DRI-1	Estimated Values P-2 and DRI-2
Relevant Boring Logs	P-1	P-2
Estimated Depth to Base of Surficial Aquifer (feet)	6	4
Estimated Fillable Porosity of Surficial in-situ sands (percent)	25	25
Estimated Seasonal High Groundwater Level (feet)	4	3
Estimated Horizontal Saturated Hydraulic Conductivity of Surficial Aquifer (inches per hour)	17	12.75
Estimated Vertical Unsaturated Hydraulic Conductivity of Surficial Aquifer (inches per hour)	11	8.5

4.5.2 DRI TESTING

Two (2) DRI tests, designated as DRI-1 and DRI-2, were completed within the proposed stormwater pond area in general accordance with ASTM D-3385 guidelines, at the location shown on the Boring Location Plan presented in Appendix B. The test was completed at an approximate depth of 12 inches below the existing ground surface, using a fluid head of 3 inches. The duration of the test was approximately 2.0 hours.

The resulting infiltration rate at the DRI-1 location was recorded at 11 inches per hour (in/hour) and DRI-2 was recorded at 8.5 in/hour under the above-stated conditions.

It should be noted that the coefficients of saturated horizontal and vertical permeability are not equivalent to the short-term infiltration rate obtained from a DRI test. The DRI value is sometimes considered an unsaturated vertical permeability value and is sometimes estimated from relationships established by research conducted by various Florida Water Management Districts or from published USDA NRCS soil survey data. The unsaturated infiltration rate is applicable during the early stages of a storm event when water is infiltrating vertically until soil saturation occurs, creating a mounding effect after which time horizontal flow dominates the infiltration process.

4.5.3 FILL SOIL SUITABILITY

The recovered soil samples were classified using visual and textural means, and limited laboratory testing. We offer below preliminary guidelines for the use of on-site soils, such as those excavated from the proposed stormwater ponds, as fill material for the project.

Soil materials excavated or imported and classified as fine sands to slightly silty fine sands (SP, SP-SM), with typically 12% fines or less (silt/clay fraction), may be considered suitable for use as utility trench backfill, as well as building pad and pavement subgrade structural fill, provided said materials are properly dried, placed, and compacted.



Soil materials excavated or imported and classified as silty to slightly clayey fine sands (SM, SP-SC), with typically 12% to 25% fines, may also be considered suitable for use as utility trench backfill, as well as building pad and pavement subgrade structural fill, after significant drying and some mixing with the fine sand material described above. Proper placement and compaction must also be ensured.

Soil materials excavated and classified as silt or clay (ML, MH, CL, CH), high plasticity clayey sands (SC) and any organic-laden soils (5% or greater organics by weight) should not be reused as fill beneath buildings or pavement sections. These materials could be used in green areas, if applicable, and in non-structural applications where excessive ground subsidence will not create functional or aesthetic problems.

4.6 SITE PREPARATION

We recommend normal, good-practice site preparation procedures. These procedures include clearing and grubbing the site, proof-rolling and proof-compacting the subgrade, and filling to grade with engineered fill as needed.

A more detailed synopsis of this work is as follows:

1. If required, perform remedial dewatering prior to any earthwork operations. We recommend temporary dewatering to reduce the likelihood of pumping of the shallow subgrade soils during normal construction operations. Maintain groundwater levels at least 24 inches below the lowest anticipated cut and/or all compaction surfaces.
2. Strip the proposed construction limits of all existing pavement sections (including base material, where present), grass, roots, topsoil, construction debris, and other deleterious materials within and 5 feet beyond the perimeter of the proposed building and in all paved areas. Expect clearing and grubbing to depths of 6 inches, on average. Deeper clearing and grubbing depths may be required where major root systems are encountered.
3. Proof-roll the subgrade with a heavily loaded, rubber-tired vehicle under the observation of a UES geotechnical engineer or his representative. We recommend that the equipment used for proof-rolling have a minimum 20-ton axel load. A minimum of 10 passes in each direction should be performed. Proof-rolling will help locate any zones of especially loose or soft soils not encountered in the soil test borings. Then undercut, or otherwise treat these zones as recommended by the engineer.
4. Prior to any filling of the site, proof-compact the subgrade from the surface using suitable compaction equipment, until you obtain a minimum density of 95% MPMDD to a depth of 2 feet below stripped grade. In order to achieve the required degree of compaction, the soils may need to be moisture conditioned until the in-situ water content is within +/- 2% of the optimum moisture content (OMC).
5. Test the subgrade for compaction at a frequency of not less than one test per 2,500 square feet per foot of depth improvement in the building areas. In paved areas, perform compliance tests on the stabilized subgrade for full depth at a frequency of one test per 10,000 square feet, or at a minimum of two test locations, whichever is greater.



6. Place fill material, as required. The fill should consist of fine to medium sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 and 12 percent, but strict moisture control may be required. Place fill in uniform 10 to 12 inch loose lifts and compact each lift to a minimum density of 95% MPMDD at a moisture content of +/- 2% of OMC.
7. Perform compliance tests within the fill at a frequency of not less than one test per 2,500 square feet per lift in the building areas, or at a minimum of two test locations, whichever is greater. In paved areas, perform compliance tests at a frequency of not less than one test per 10,000 square feet per lift, or at a minimum of two test locations, whichever is greater.
8. Test all final footing cuts for compaction to a depth of 2 feet. Additionally, we recommend you test one out of every four column footings, and that you complete at least one test per every 50 lineal feet of wall footing.

Using vibratory compaction equipment at this site may disturb adjacent structures. We recommend you monitor nearby structures before and during proof-compaction. If disturbance is noted, halt vibratory compaction and inform Universal Engineering Sciences immediately. We will review the compaction procedures and evaluate if the compactive effort results in a satisfactory subgrade complying with our original design assumptions.

4.7 CONSTRUCTION RELATED SERVICES

UES operates and maintains an in-house, FDOT certified Construction Materials Testing laboratory. Our technicians are highly trained and experienced, and our engineering staff is already familiar with the details of your project. Therefore, we recommend the owner retain UES to perform construction materials testing and field observations on this project. This includes monitoring all stripping and grading, observation of foundation excavation and construction, verification of pavement subgrade and all other construction testing and inspection services that may be needed on this project.

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

5.0 LIMITATIONS

This report has been prepared for the exclusive use of **ACME Development Corporation** and other designated members of their design/construction team associated with the proposed construction for the specific project discussed in this report. No other site or project facilities should be designed using the soil information contained in this report. As such, UES will not be responsible for the performance of any other site improvement designed using the data in this report.

This report should not be relied upon for final design recommendations or professional opinions by unauthorized third parties without the expressed written consent of Universal Engineering Sciences. Unauthorized third parties that rely upon the information contained herein without the expressed written consent of Universal Engineering Sciences, Inc. assume all risk and liability for such reliance.



The recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the Boring Location Plan and from other information as referenced. This report does not reflect any variations which may occur between the boring locations. The nature and extent of such variations may not become evident until the course of construction. If variations become evident, it will then be necessary for a re-evaluation of the recommendations of this report after performing on-site observations during the construction period and noting the characteristics of the variations.

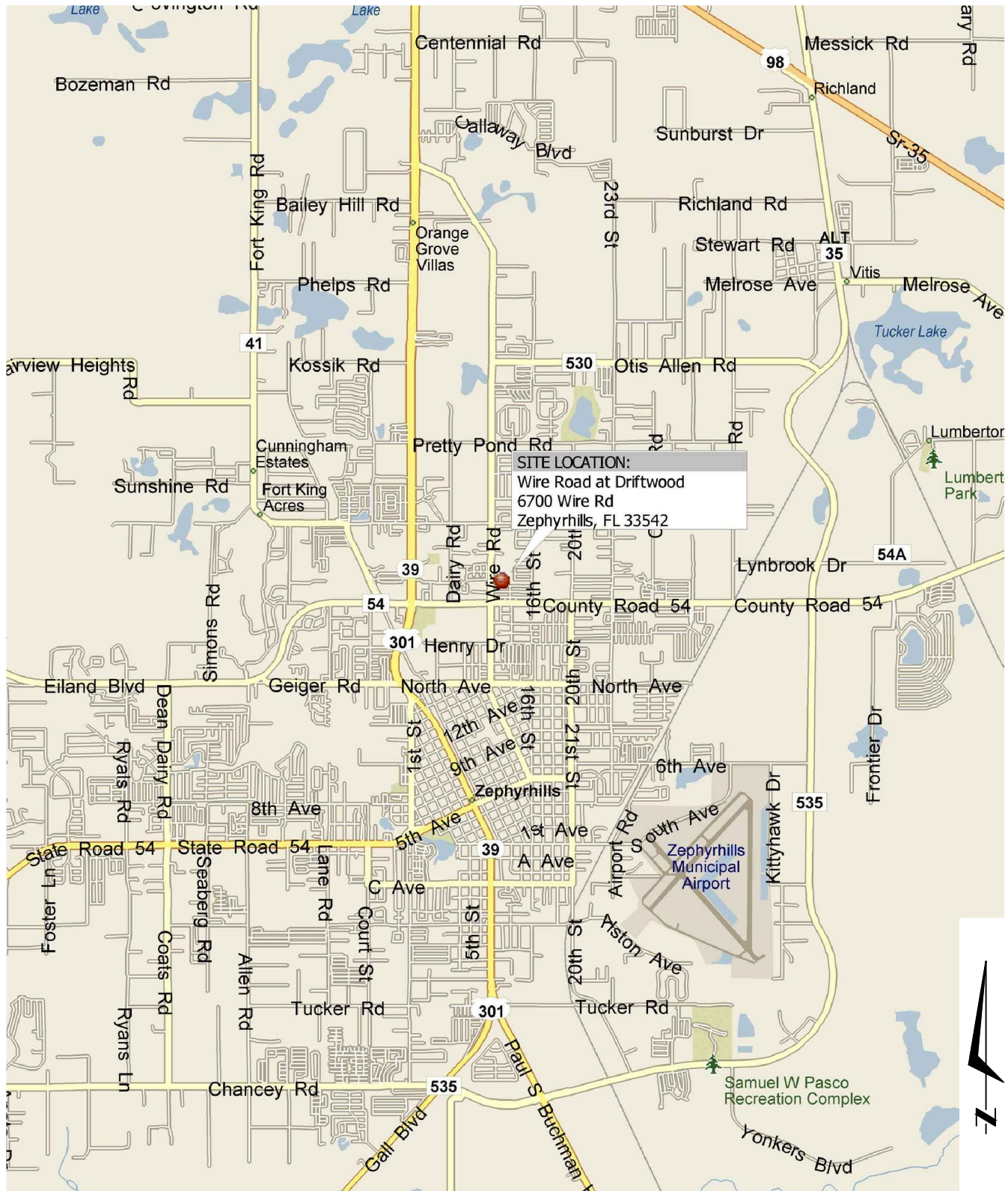
Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information for estimation of material quantities unless our contracted services specifically include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore, no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. Geotechnical Business Council of the Geoprofessional Business Association (GBA) publication, "Important Information about This Geotechnical-Engineering Report" appears in Appendix C, and will help explain the nature of geotechnical issues.

* * * * *





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ENGINEERING SCIENCES

**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE LOCATION MAP**

CLIENT: ACME DEVELOPMENT CORP

DRAWN BY: SC

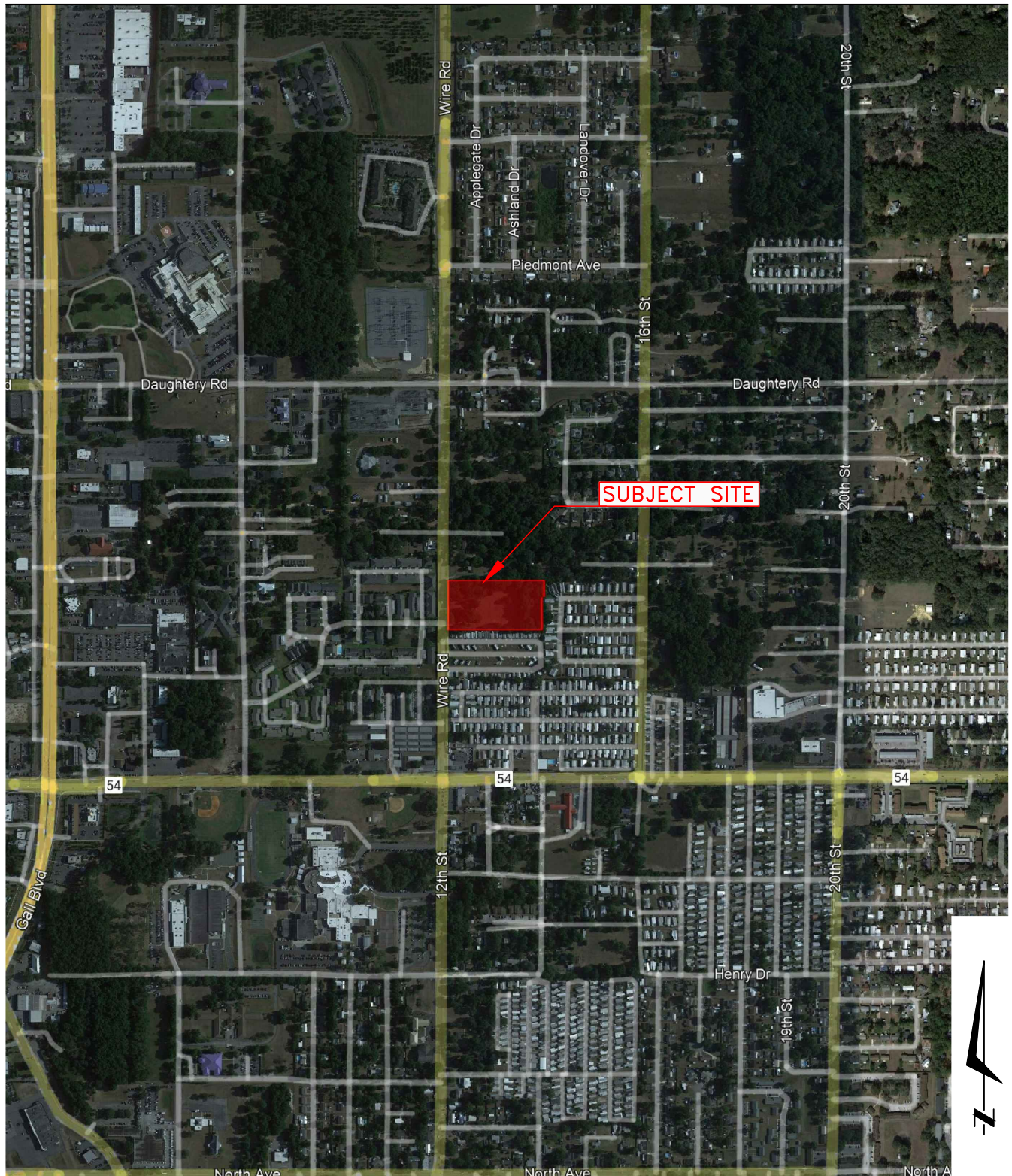
DATE: DEC. 1, 2021

SCALE:

PROJECT NO: 0830.2100149

REVIEWED BY: VD

APPENDIX: A



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**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE AERIAL PHOTOGRAPH**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

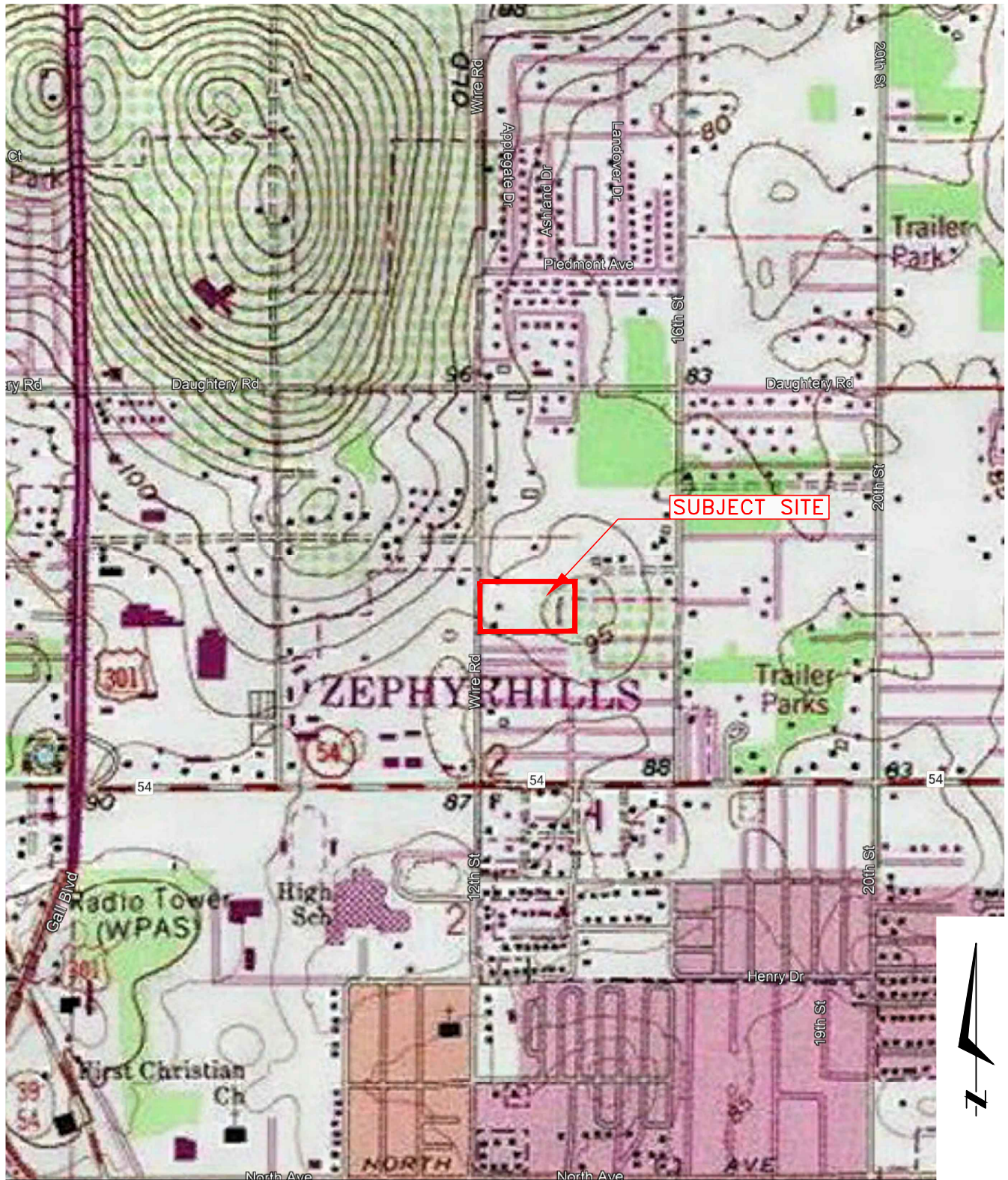
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



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**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE TOPOGRAPHIC MAP**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

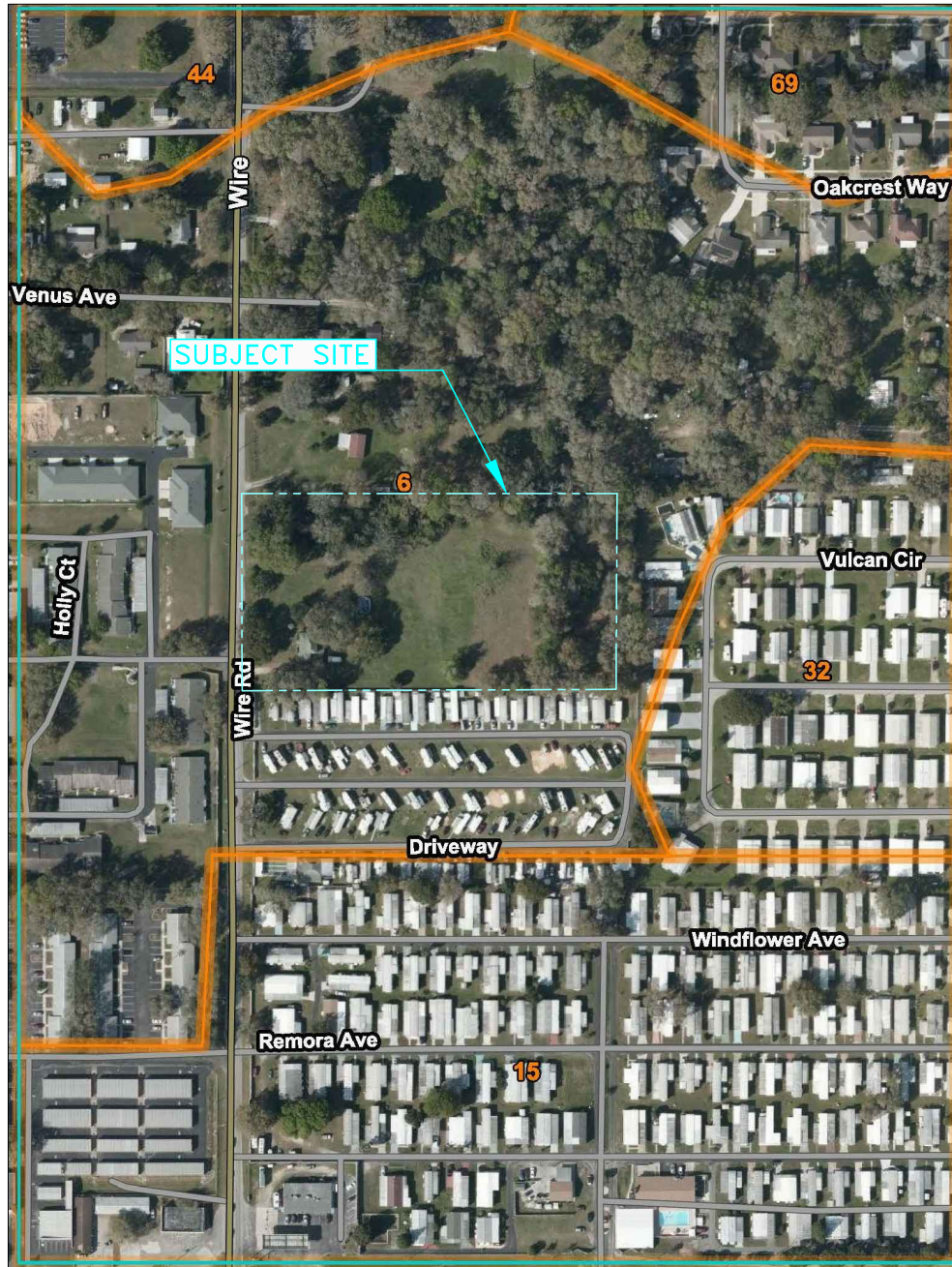
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Tavares sand, 0 to 5 percent slopes	39.6	52.1%
15	Tavares fine sand-Urban land complex, 0 to 5 percent slopes	22.4	29.4%
32	Lake fine sand, 0 to 5 percent slopes	7.1	9.4%
44	Arredondo fine sand, 5 to 8 percent slopes	3.3	4.4%
69	Millhopper fine sand, 0 to 5 percent slopes	3.6	4.8%
Totals for Area of Interest		76.0	100.0%



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**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SOIL SURVEY MAP**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

PROJECT NO: 0830.2100149

DRAWN BY: SC

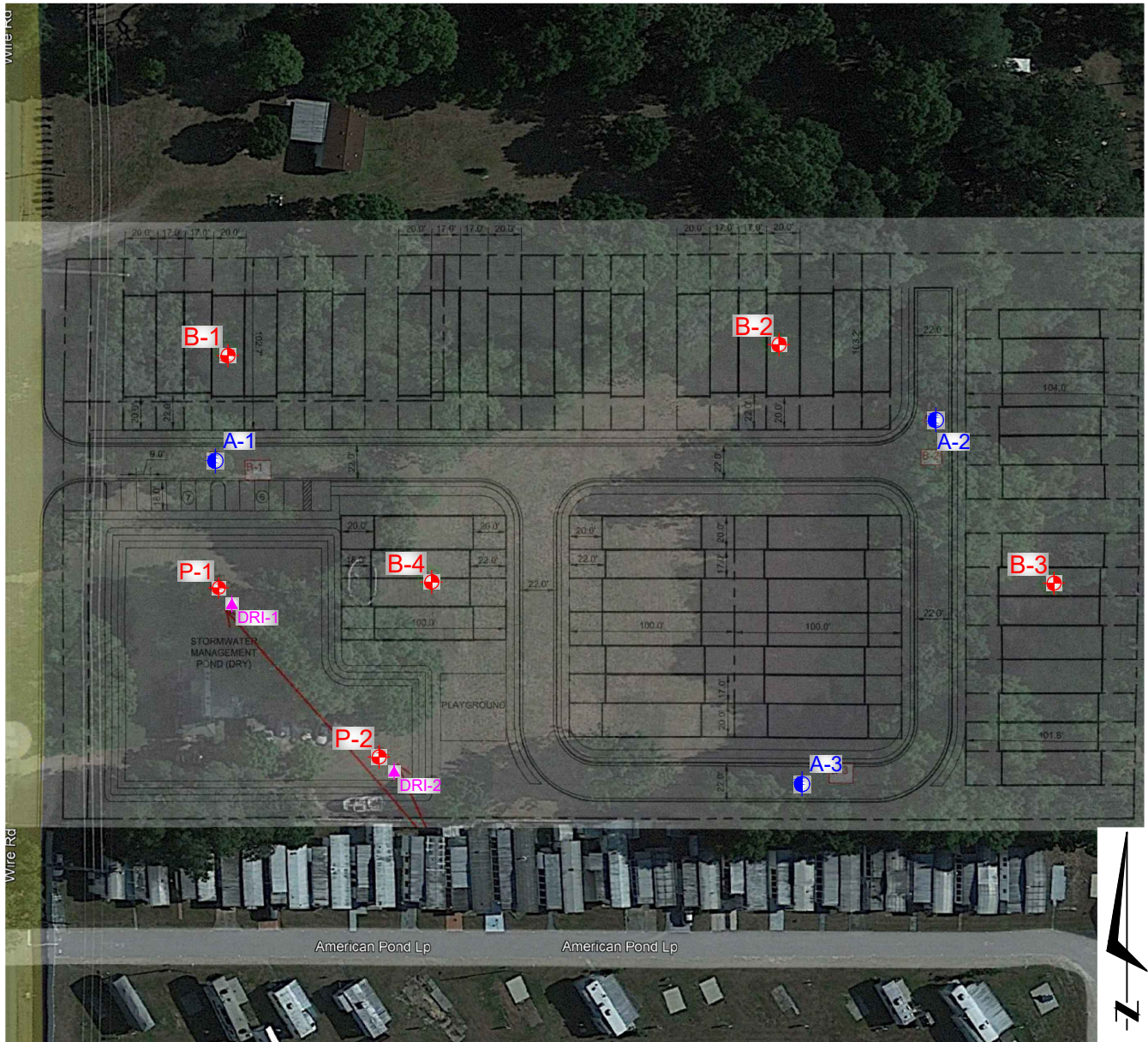
REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A

APPENDIX B





LEGEND

- ✱ B-1 Approximate SPT boring location
- ⬢ A-1 Approximate HAND AUGER boring location
- ▲ DRI-1 Approximate DRI test location



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WIRE ROAD AT DRIFTWOOD 6700 WIRE ROAD ZEPHYRHILLS, PASCO COUNTY, FLORIDA

BORING LOCATION PLAN

CLIENT: ACME DEVELOPMENT CORP

DRAWN BY: SC

DATE: DEC. 1, 2021

SCALE:

PROJECT NO: 0830.2100149

REVIEWED BY: VD

APPENDIX: B



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9802 Palm River Road
Tampa, Florida 33619
(813) 740-8506

BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 1

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

A-1
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/16/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >5.0

DATE FINISHED: 11/16/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/16/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: AUGER

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)			G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
				0	25	50						LL	PL	PI	
0									Brown sand (SP)						
1															
2									Light brown sand (SP)						
3															
4															
5									Boring terminated at 5 ft.						



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BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 2

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

A-2
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/16/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >5.0

DATE FINISHED: 11/16/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/16/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: AUGER

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)			G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
				0	25	50						LL	PL	PI	
0									Brown sand (SP)						
1															
2									Light brown sand (SP)						
3															
4															
5									Boring terminated at 5 ft.						



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BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 3

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

A-3
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/16/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >5.0

DATE FINISHED: 11/16/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/16/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: AUGER

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)			G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
				0	25	50						LL	PL	PI	
0									Brownish gray sand (SP)						
1															
2									Brown sand (SP)						
3															
4									Light brown sand (SP)						
5									Boring terminated at 5 ft.						



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PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 4

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

B-1
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/18/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >10.0

DATE FINISHED: 11/18/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/18/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: SPT

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)	G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
										LL	PL	PI	
0							Dark brown sand (SP)						
2-1/2"-1		1					Orange brown sand (SP)						
1-1-1-2		2					Orange brown clayey sand (SC)						
2-2-4-12		6											
12-13-20-25		33											
9-10-13-14		23											
7-11-13		24											
15							Boring terminated at 15 ft.						

ALT UES BORING LOG 0830.2100149 WIRE ROAD AT DRIFTWOOD.GPJ UES NEW.GDT 12/20/21



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BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 5

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

ENGINEER: Veronica De Freitas, P.E.

CLIENT: ACME Development Corp

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION:
SECTION:

B-2
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ELEVATION:

DATE STARTED: 11/18/2021

WATER TABLE (ft): >10.0

DATE FINISHED: 11/18/2021

DATE OF READING: 11/18/2021

DRILLED BY: UNIVERSAL

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: SPT

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)			G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
				0	25	50						LL	PL	PI	
0									Brown sand (SP)						
		2-2-1-1	3						Brown sand with clay (SP-SC)						
		1-1-2-2	3												
5		2-2-2-2	4												
		2-3-3-4	6												
10		4-5-6-6	11												
									Orange brown clayey sand (SC)						
15		4-7-5	12						Boring terminated at 15 ft.						

ALT UES BORING LOG 0830.2100149 WIRE ROAD AT DRIFTWOOD.GPJ UES NEW.GDT 12/20/21



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BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 6

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

B-3
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/18/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >10.0

DATE FINISHED: 11/18/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/18/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: SPT

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)	G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
										LL	PL	PI	
0							Grayish brown sand (SP)						
1-2-3-3		5					Orange brown sand with clay (SP-SC)						
1-1-1-2		3					Orange brown clayey sand (SC)						
6-7-7-7		14											
6-8-9-11		17											
10-10-10-13		20											
8-8-10		18					Boring terminated at 15 ft.						

ALT UES BORING LOG 0830.2100149 WIRE ROAD AT DRIFTWOOD.GPJ UES NEW.GDT 12/20/21



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9802 Palm River Road
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BORING LOG

PROJECT NO.: 0830.2000098

APPENDIX:

PAGE: 7

PROJECT: Wire Road at Driftwood
6700 Wire Road
Zephyrhills, Florida

BORING DESIGNATION:
SECTION:

B-4
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

ENGINEER: Veronica De Freitas, P.E.

ELEVATION:

DATE STARTED: 11/18/2021

CLIENT: ACME Development Corp

WATER TABLE (ft): >10.0

DATE FINISHED: 11/18/2021

LOCATION: SEE BORING LOCATION PLAN

DATE OF READING: 11/18/2021

DRILLED BY: UNIVERSAL

REMARKS:

EST. W.S.W.T. (ft):

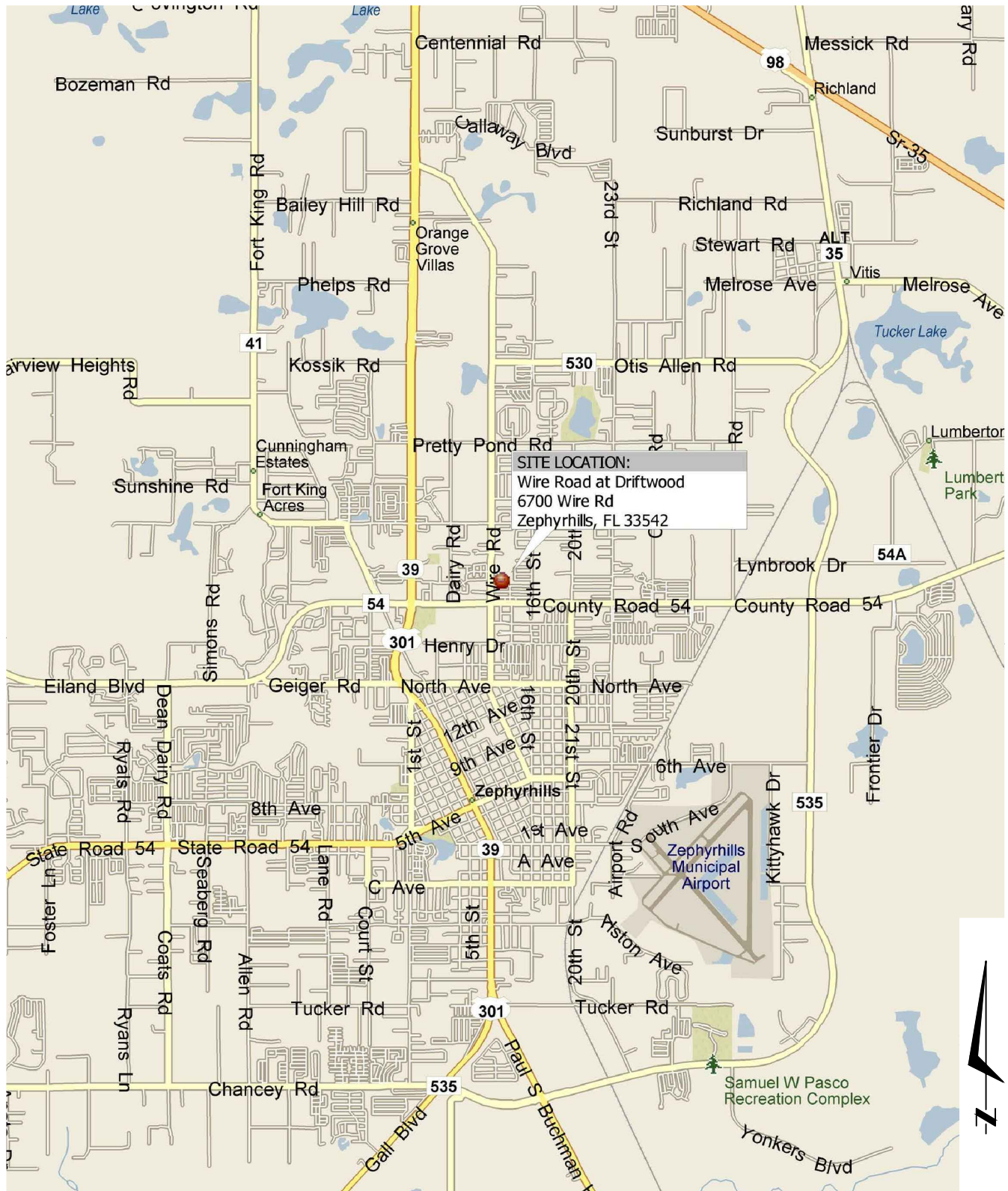
TYPE OF SAMPLING: SPT

DEPTH (ft)	S A M P L E	BLOWS PER 6"	N (bpf)	SPT-N vs DEPTH (bpf)	G W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS			ORG (%)
										LL	PL	PI	
0							Grayish brown sand (SP)						
		2-2-2-2	4				Orange brown sand (SP)						
		2-1-2-2	3				Orange brown clayey sand (SC)						
5													
		2-3-5-5	8										
		8-13-15-19	28										
10													
		6-7-11-10	18										
							Orange brown sand with clay (SP-SC)						
15													
		6-9-9	18				Boring terminated at 15 ft.						

ALT UES BORING LOG 0830.2100149 WIRE ROAD AT DRIFTWOOD.GPJ UES NEW.GDT 12/20/21

APPENDIX A





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ENGINEERING SCIENCES

**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE LOCATION MAP**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

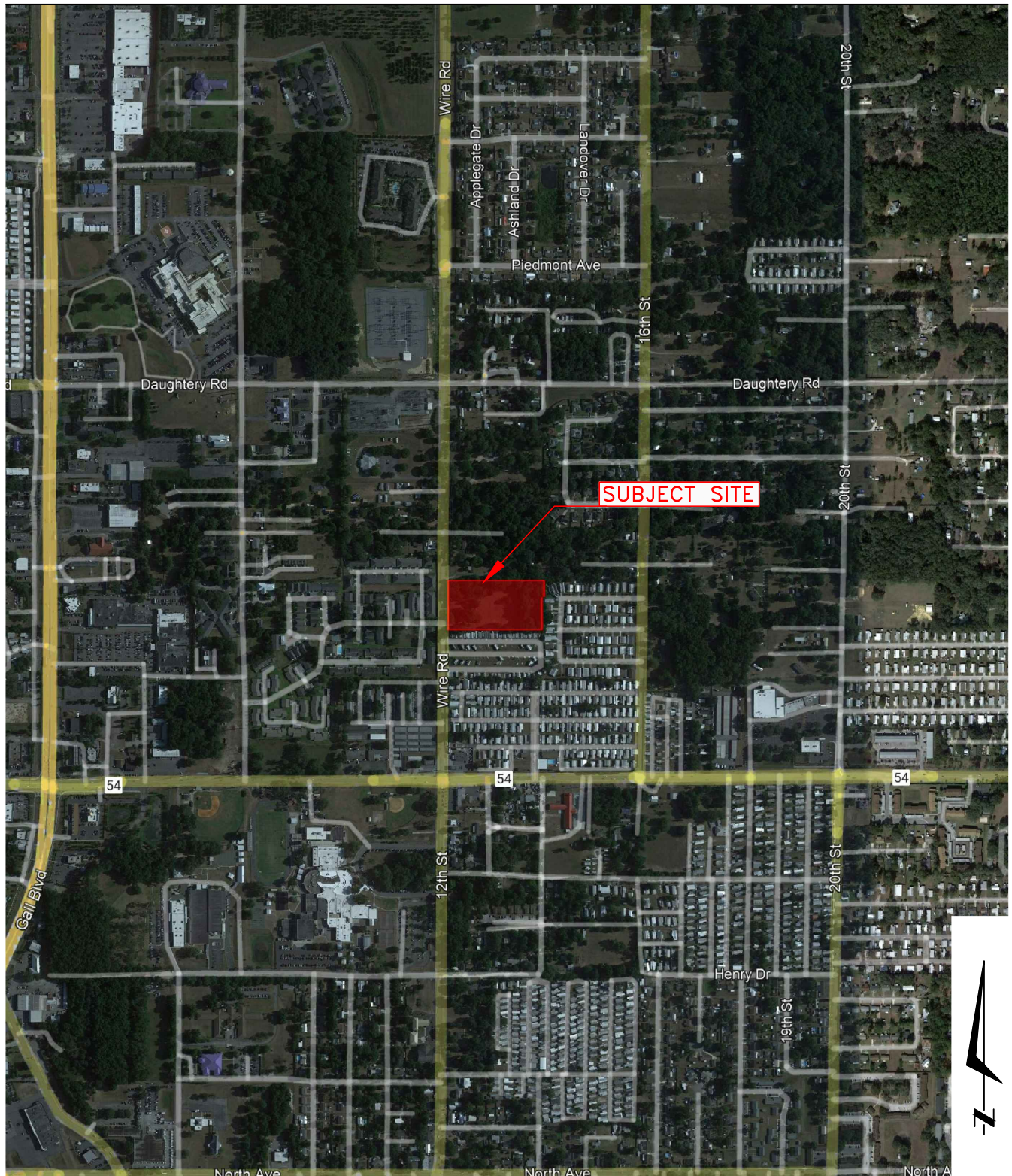
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



UNIVERSAL
ENGINEERING SCIENCES

**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE AERIAL PHOTOGRAPH**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

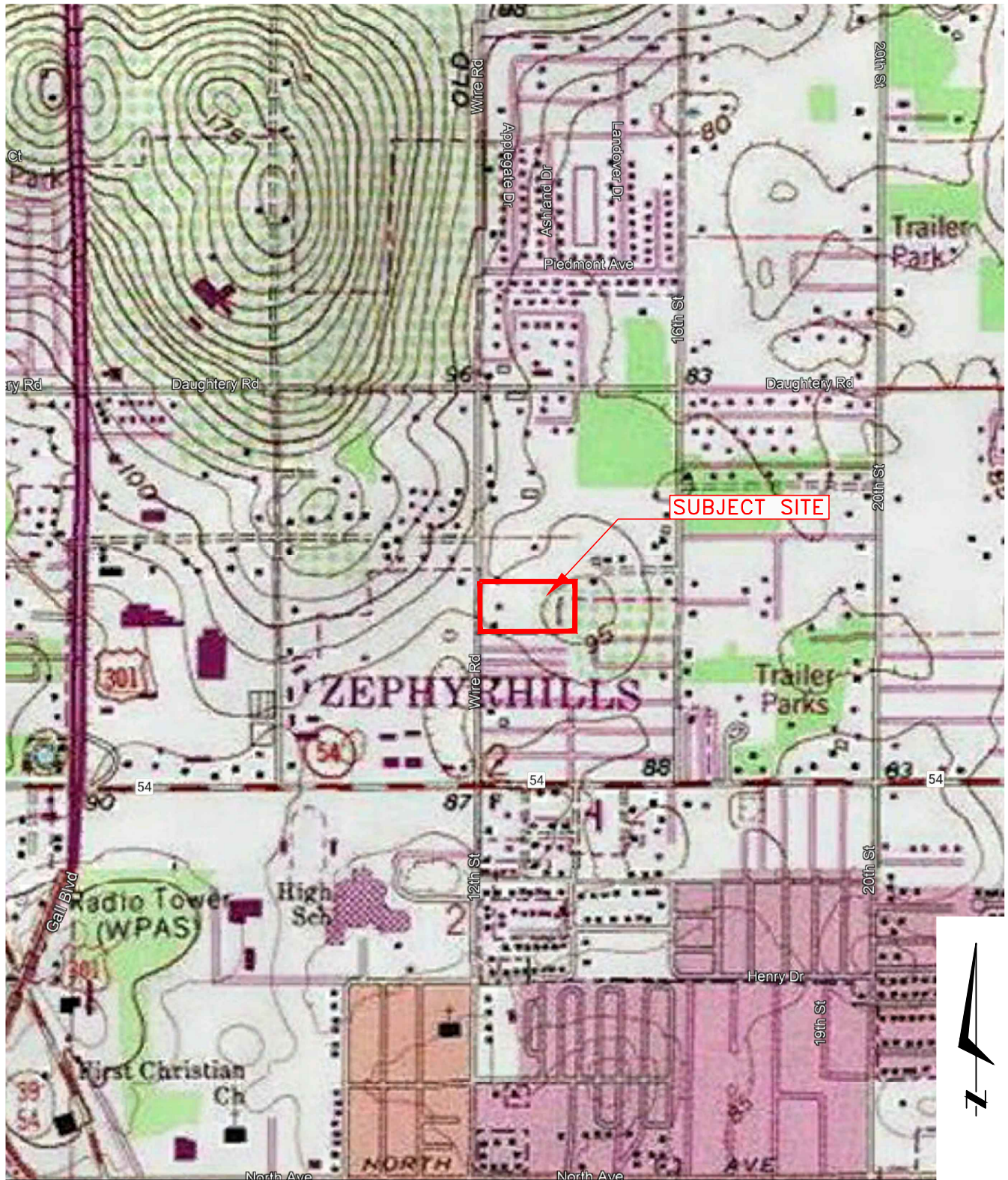
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



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**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SITE TOPOGRAPHIC MAP**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

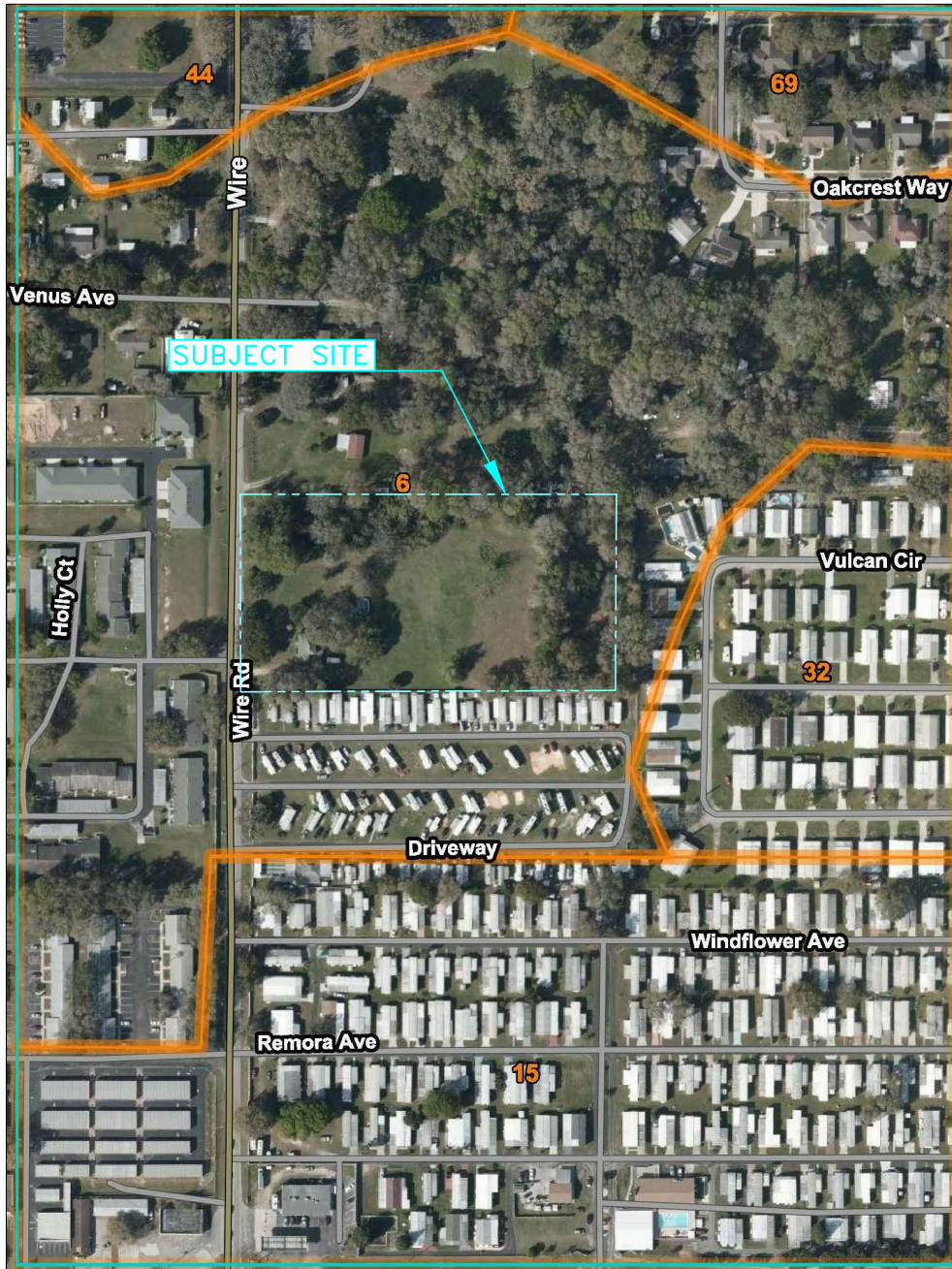
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Tavares sand, 0 to 5 percent slopes	39.6	52.1%
15	Tavares fine sand-Urban land complex, 0 to 5 percent slopes	22.4	29.4%
32	Lake fine sand, 0 to 5 percent slopes	7.1	9.4%
44	Arredondo fine sand, 5 to 8 percent slopes	3.3	4.4%
69	Millhopper fine sand, 0 to 5 percent slopes	3.6	4.8%
Totals for Area of Interest		76.0	100.0%



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**WIRE ROAD AT DRIFTWOOD
6700 WIRE ROAD
ZEPHYRHILLS, PASCO COUNTY, FLORIDA
SOIL SURVEY MAP**

CLIENT: ACME DEVELOPMENT CORP

SCALE:

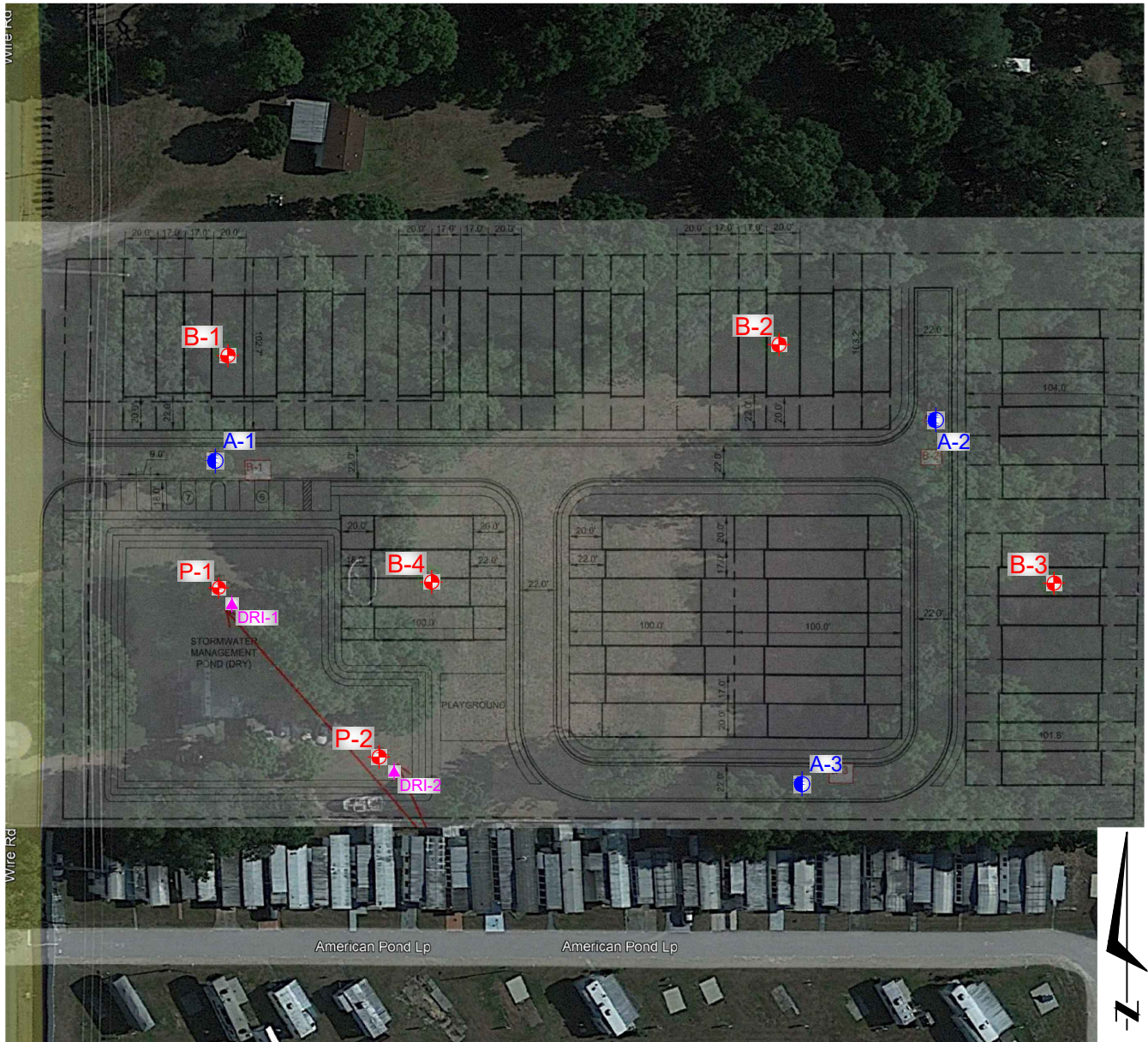
PROJECT NO: 0830.2100149

DRAWN BY: SC

REVIEWED BY: VD

DATE: DEC. 1, 2021

APPENDIX: A



LEGEND

- ✕ B-1 Approximate SPT boring location
- A-1 Approximate HAND AUGER boring location
- ▲ DRI-1 Approximate DRI test location



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WIRE ROAD AT DRIFTWOOD 6700 WIRE ROAD ZEPHYRHILLS, PASCO COUNTY, FLORIDA

BORING LOCATION PLAN

CLIENT: ACME DEVELOPMENT CORP

DRAWN BY: SC

DATE: DEC. 1, 2021

SCALE:

PROJECT NO: 0830.2100149

REVIEWED BY: VD

APPENDIX: B

STAFF REPORT

To: Planning Director-Todd Vandeberg
From:
RE: ANX-0020-23 Mister Carwash 6353 Gall Blvd
Annexation of property for proposed carwash. The property size is 1.09 acres. Currently
Zoned County C2 (general commercial).
Date: August 15, 2023

I. BACKGROUND & INFORMATION

II. DATA & ANALYSIS

- A. Character Analysis
- B. Compatibility Analysis
- C. Natural & Historic Resources Analysis
- D. Public Service Analysis & Impact
- E. Comprehensive Plan Consistency

III. RECOMMENDATION

- A. Staff / Site Plan Review Committee
- B. Historic Preservation Board
- C. Planning Commission
- D. Board of Adjustment

SITE DATA

TOTAL SITE AREA: 47,613 SF / ±1.09 AC

BUILDING AREA: 5,381- SF
PARKING REQUIRED: TBD

PARKING PROVIDED: 17 VACUUM SPACES + 2 EMPLOYEE SPACES

BUILDING SETBACKS:	REQUIRED	PROVIDED
FRONT (EAST, FRONTAGE ROAD)	30 FT	123.0 FT
SIDE (NORTH)	0 FT	99.3 FT
SIDE (SOUTH)	0 FT	5.3 FT
REAR (WEST)	20 FT	43.8 FT

LANDSCAPE BUFFERS:		
FRONT (EAST, FRONTAGE ROAD)	10 FT	10.5 FT MIN. (VARIES)
SIDE (NORTH)	10 FT	10.5 FT MIN. (VARIES)
SIDE (SOUTH)	10 FT	10.5 FT MIN. (VARIES)
REAR (WEST)	10 FT	10.5 FT MIN. (VARIES)

IMPERVIOUS / PERVIOUS: 80% IMPERVIOUS MAX.
PERVIOUS AREA = 11,722.65 SF (24.7%)
IMPERVIOUS AREA = 35,890.35 SF (75.3%)

LEGEND

	PROPERTY LINE
	BUILDING SETBACK LINE (B.S.L.)
	LANDSCAPE BUFFER (L.S.B.)

SITE RISK

- 1) VERIFY EXISTING BUILDING ENCROACHMENT ON SURVEY
- 2) VERIFY MINIMUM PARKING REQUIREMENTS WITH CITY

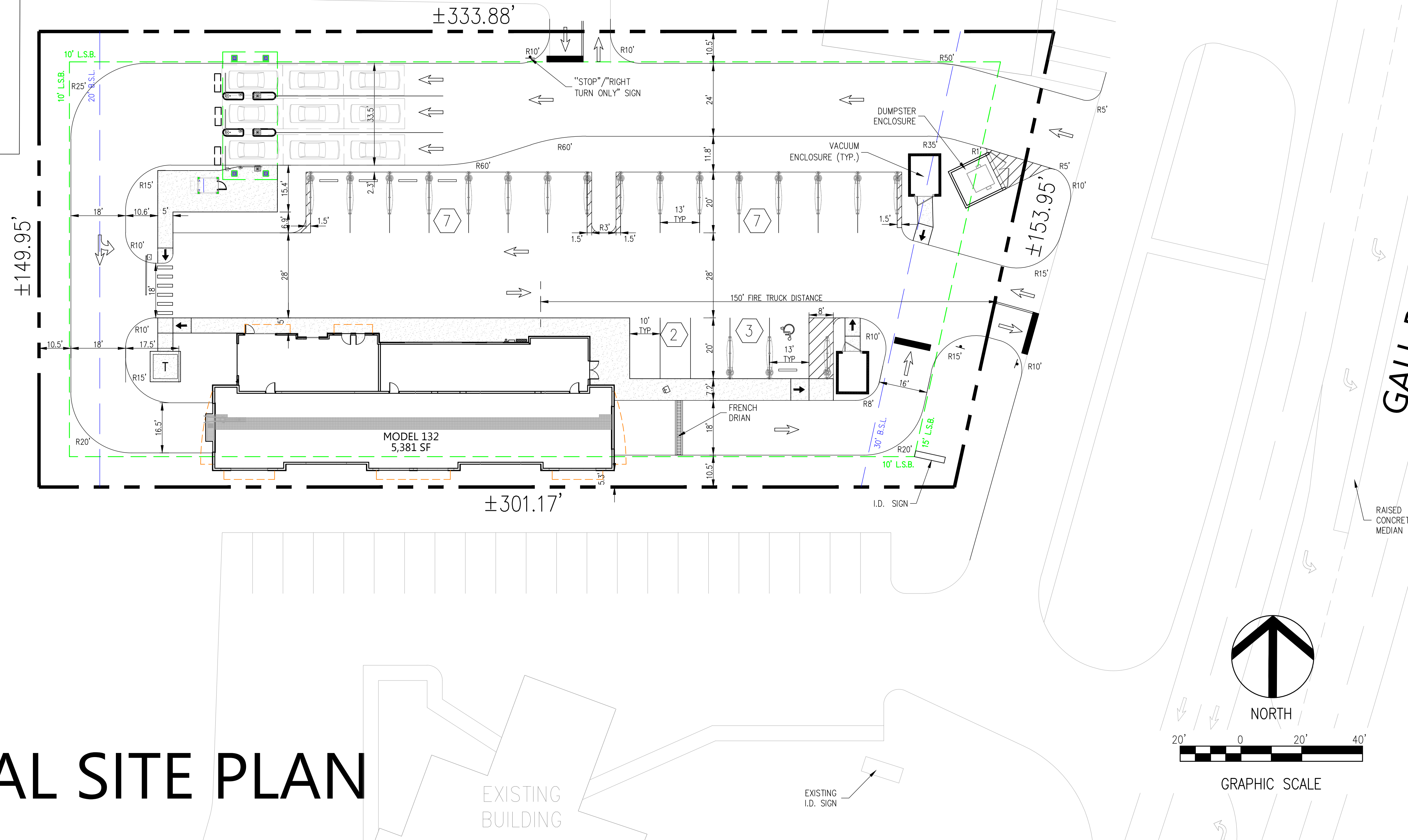
HOVER STREET

CALM LANE

FRONTAGE ROAD

GALL BOULEVARD

CONCEPTUAL SITE PLAN



REVISION	DATE	REVISION	DATE

MISTER CAR WASH
6353 GALL BOULEVARD
ZEPHYRHILLS, FLORIDA

DATE: 04-17-23
DRAWN: DH
CHECKED: RZ

QL1

PROJECT NO.: 2023.131

TOTAL SITE AREA: 47,820 SF / ±1.09 AC

BUILDING AREA: 5,381 SF

PARKING REQUIRED: TBD

PARKING PROVIDED: 17 SPACES (14 VACUUM SPACES + 3 EMPLOYEE SPACES)

BUILDING SETBACKS:	<u>REQUIRED</u>	<u>PROVIDED</u>
FRONT (EAST, FRONTAGE ROAD)	30 FT	53.5 FT
SIDE (NORTH)	0 FT	99.3 FT
SIDE (SOUTH)	0 FT	5.3 FT
REAR (WEST)	20 FT	114.8 FT
LANDSCAPE BUFFERS:		
FRONT (EAST, FRONTAGE ROAD)	15 FT	15.5 FT MIN. (VARIES)
SIDE (NORTH)	10 FT	10.5 FT MIN. (VARIES)
SIDE (SOUTH)	10 FT	10.5 FT MIN. (VARIES)
REAR (WEST)	10 FT	10.5 FT MIN. (VARIES)

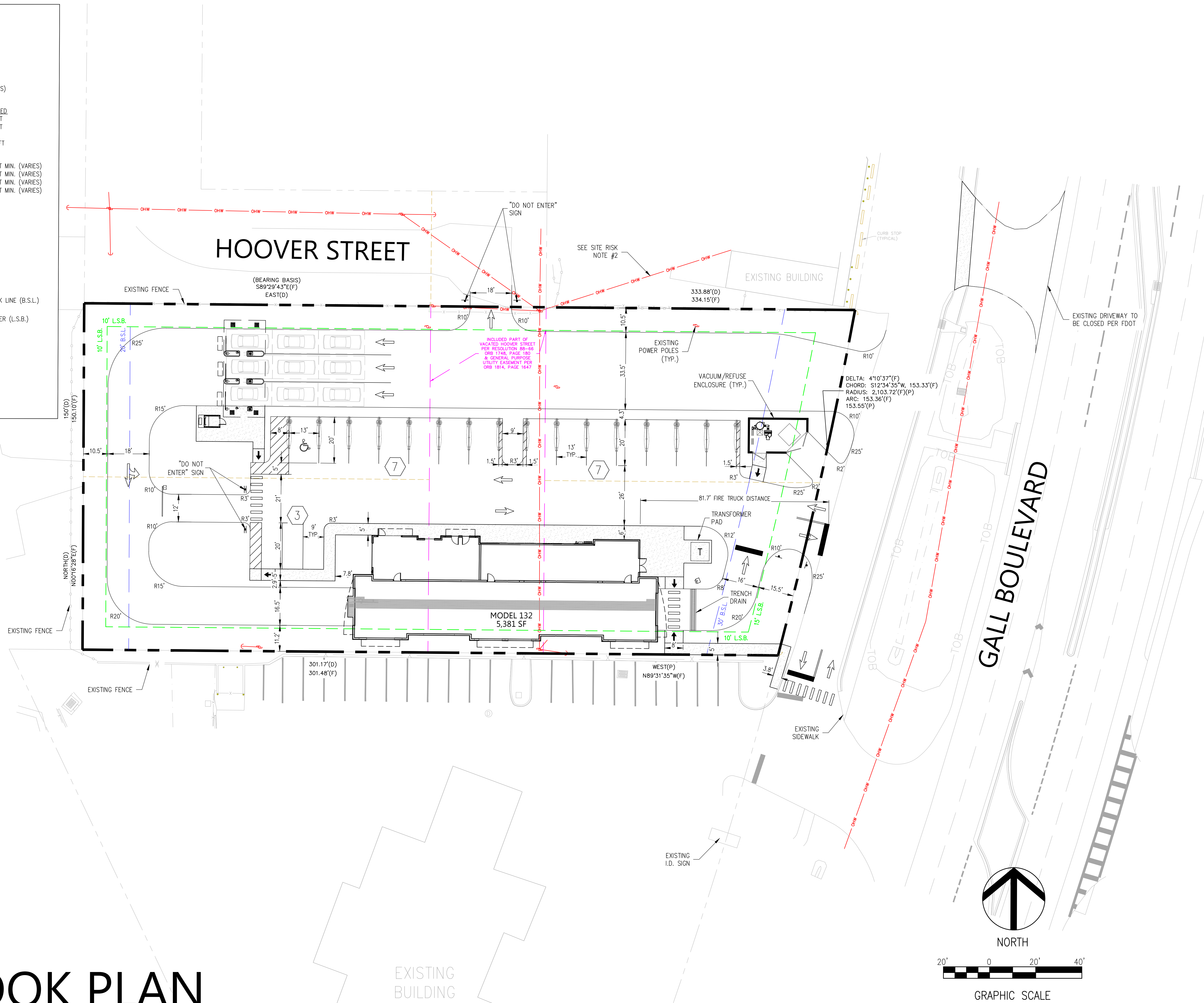
IMPERVIOUS / PERVIOUS: 80% IMPERVIOUS MAX.
PERVIOUS AREA = 12,750 SF (26.6%)
IMPERVIOUS AREA = 35,070 SF (73.4%)

The diagram illustrates the spatial relationship between three key boundaries for a building footprint:

- PROPERTY LINE:** Represented by a thick black line, it defines the outermost boundary of the property.
- BUILDING SETBACK LINE (B.S.L.):** Represented by a blue line, it indicates the minimum distance the building must be set back from the property line.
- LANDSCAPE BUFFER (L.S.B.):** Represented by a green line, it shows the required vegetative buffer between the building and the property line.

The building footprint is shown as a black rectangle. The setbacks are indicated by the gaps between the building footprint and the respective lines. The L.S.B. is the outermost line, followed by the B.S.L., and then the Property Line.

1 VERIFY MINIMUM PARKING REQUIREMENTS WITH CITY.
2 COORDINATE WITH POWER COMPANY TO
REMOVE/RELOCATE EXISTING UTILITY POLES AND
OVERHEAD WIRES.



QUICK LOOK PLAN

[illegible]

MISTER CAR WASH
6353 GALL BOULEVARD
ZEPHYRHILLS, FLORIDA

DATE: 07-19-23
DRAWN: DH
CHECKED: RZ

QL5

PROJECT NO.:2023.131

STAFF REPORT

To:

From:

RE: SPRC-0057-22 Cottages at Abbott Station

A review of Preliminary Plan for a Multi-Family project in "Area K" – Silver Oaks Village consisting of 176 units and a clubhouse / pool on 11.96 acres.

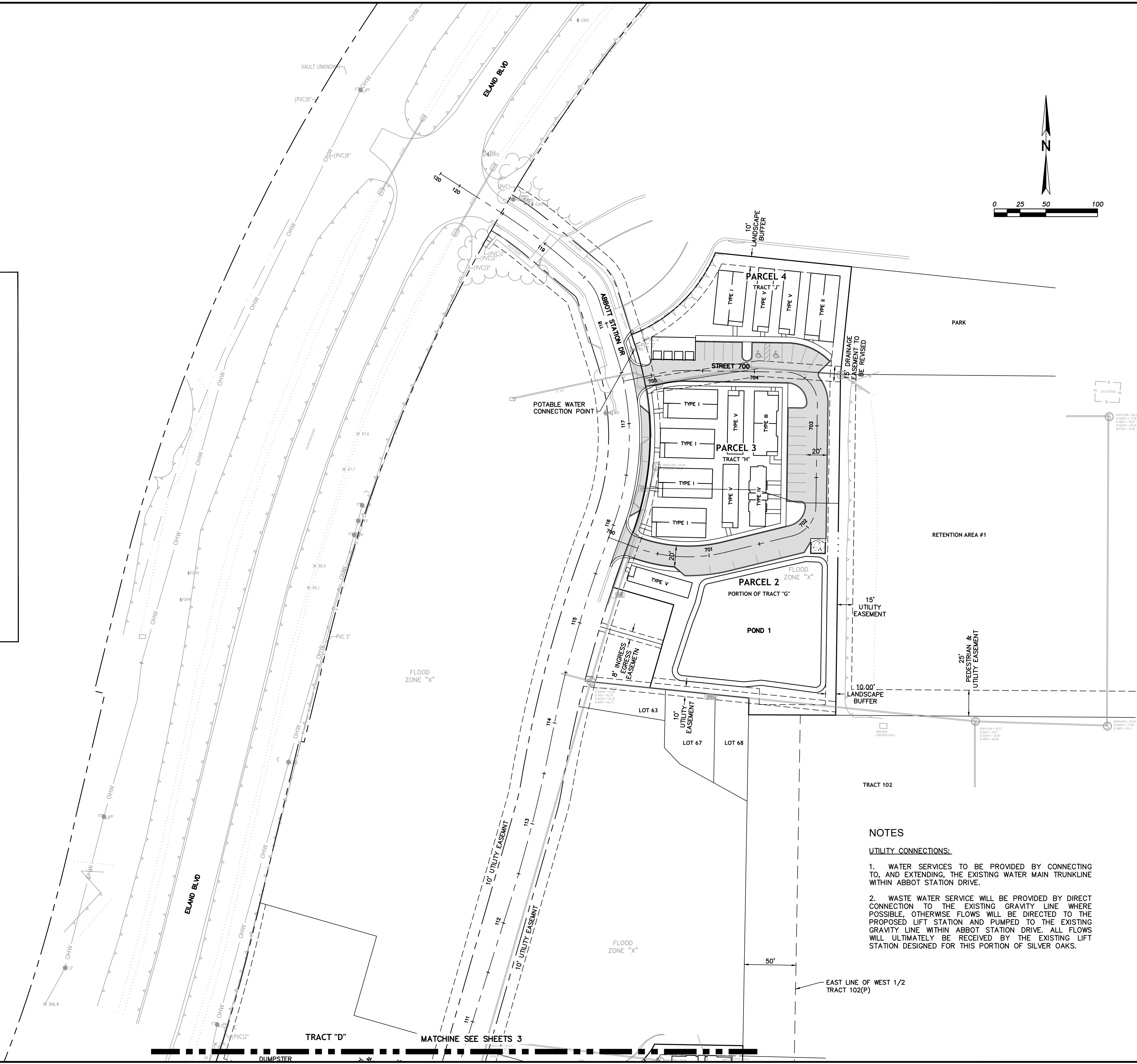
Date: August 15, 2023

I. BACKGROUND & INFORMATION

II. DATA & ANALYSIS

III. RECOMMENDATION

- A. Staff / Site Plan Review Committee
- B. Historic Preservation Board
- C. Planning Commission
- D. Board of Adjustment



2. WASTE WATER SERVICE WILL BE PROVIDED BY DIRECT CONNECTION TO THE EXISTING GRAVITY LINE WHERE POSSIBLE, OTHERWISE FLOWS WILL BE DIRECTED TO THE PROPOSED LIFT STATION AND PUMPED TO THE EXISTING GRAVITY LINE WITHIN ABBOT STATION DRIVE. ALL FLOWS WILL ULTIMATELY BE RECEIVED BY THE EXISTING LIFT STATION DESIGNED FOR THIS PORTION OF SILVER OAKS.

— EAST LINE OF WEST 1/2
TRACT 102(P)

PROJECT ID	1089		
PROJECT NO	2023-1089		
DESIGNED	DJA	CHECKED	RDF
DRAWN	AVS	QC	EM
DATE	MAY 30, 2023		
SHEET	2	OF	3

COTTAGES AT ABBOTT STATION

Studio Prototype

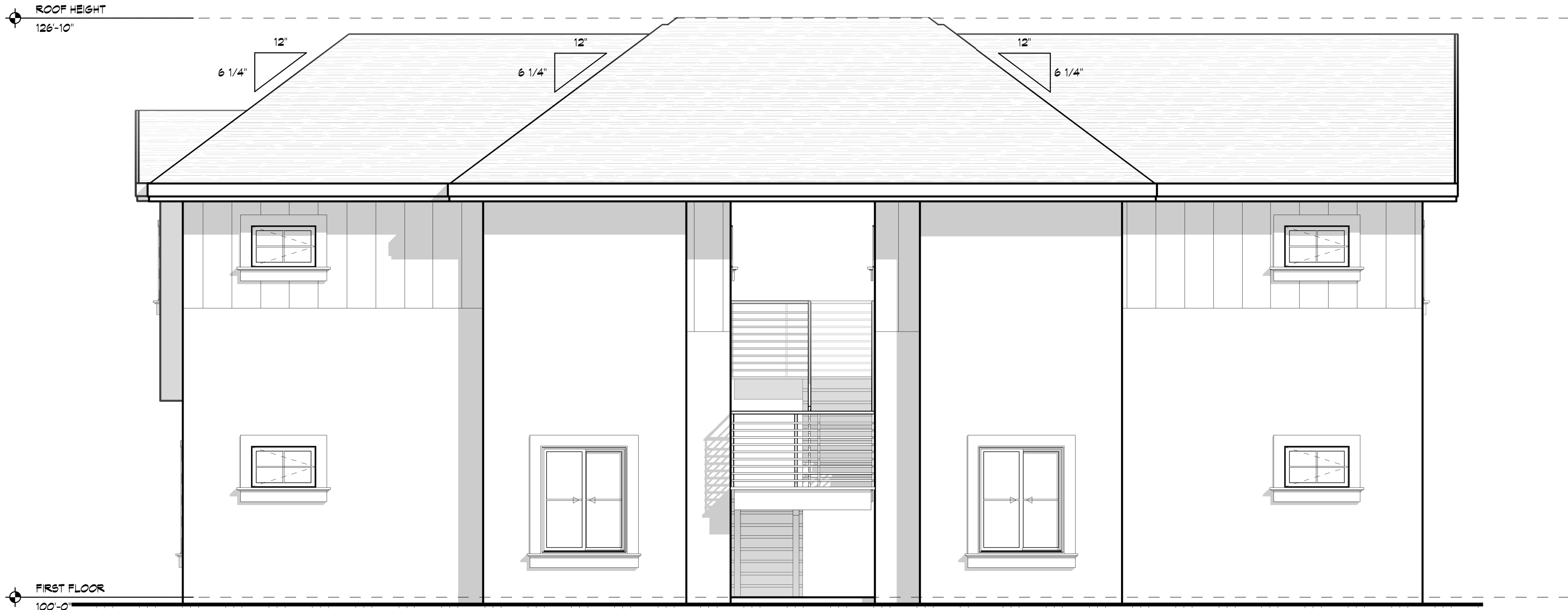
PROJECT NO.	22168
DATE	--/--
DRAWN BY	Author
CHECKED	Checker
REVISED:	

PRELIMINARY
DESIGN

SHEET TITLE
ELEVATIONS

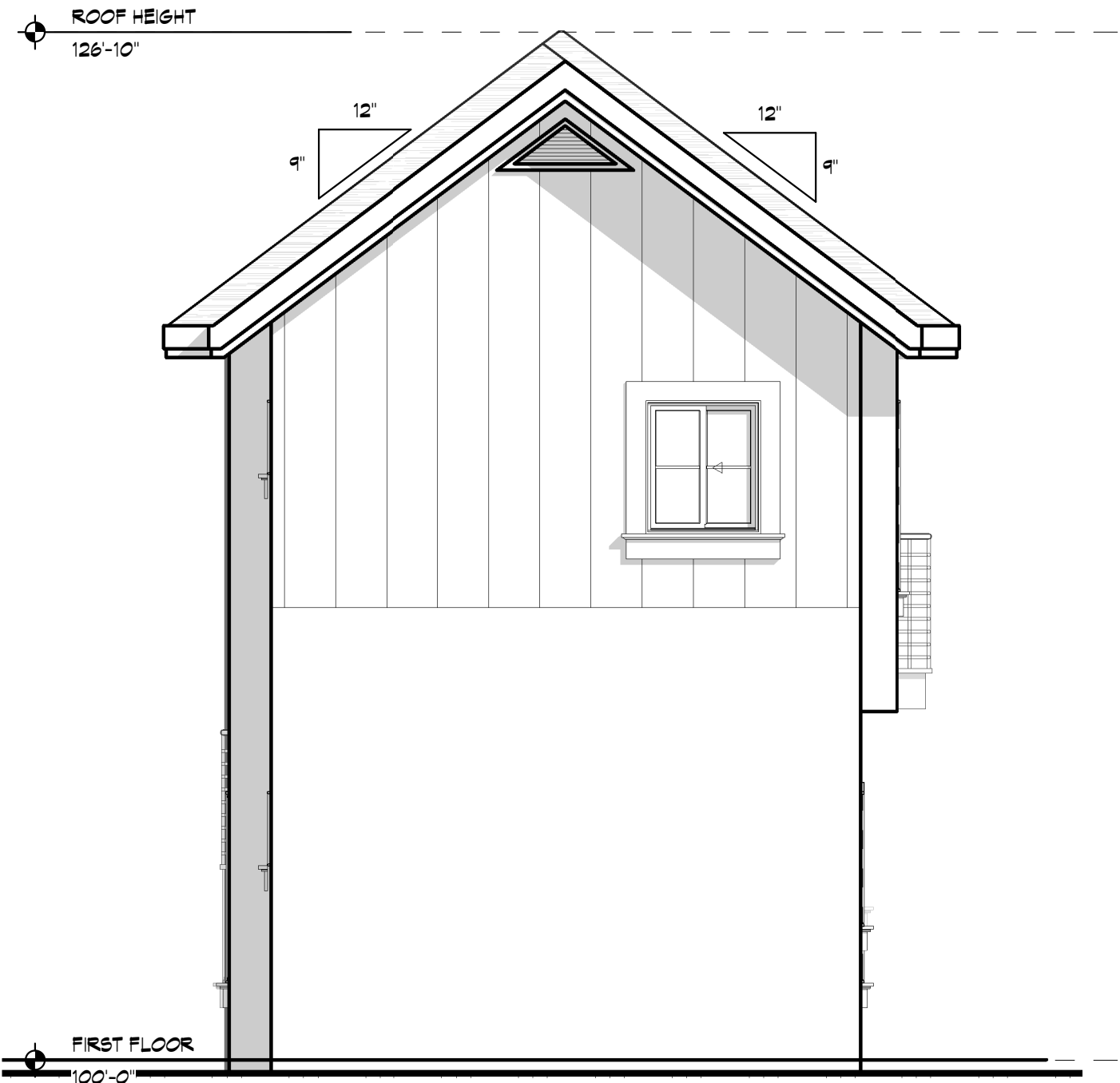
SHEET

A2.1



1 SIDE ELEVATION

1/4" = 1'-0"



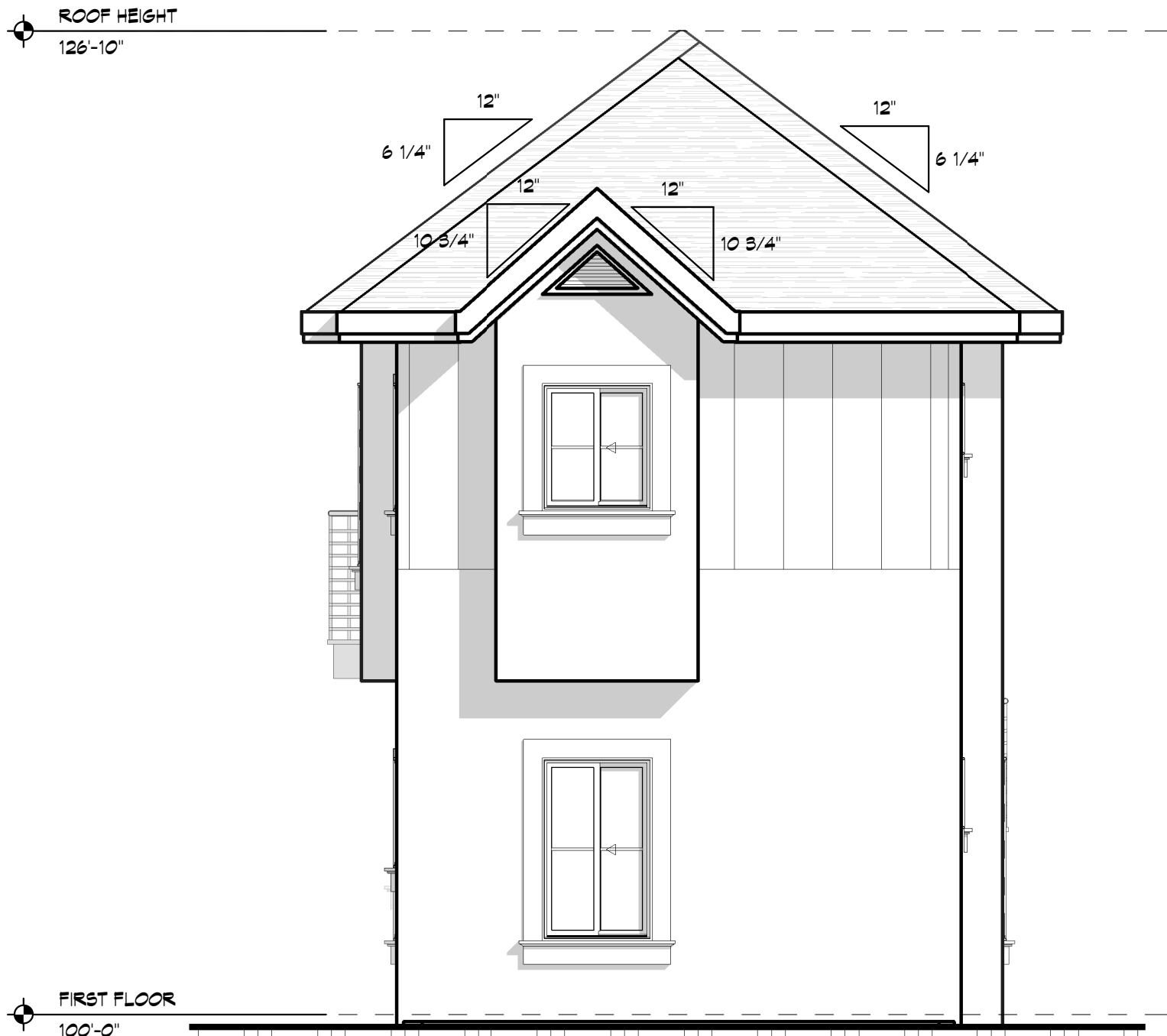
2 END ELEVATION

1/4" = 1'-0"



3 SIDE ELEVATION

1/4" = 1'-0"

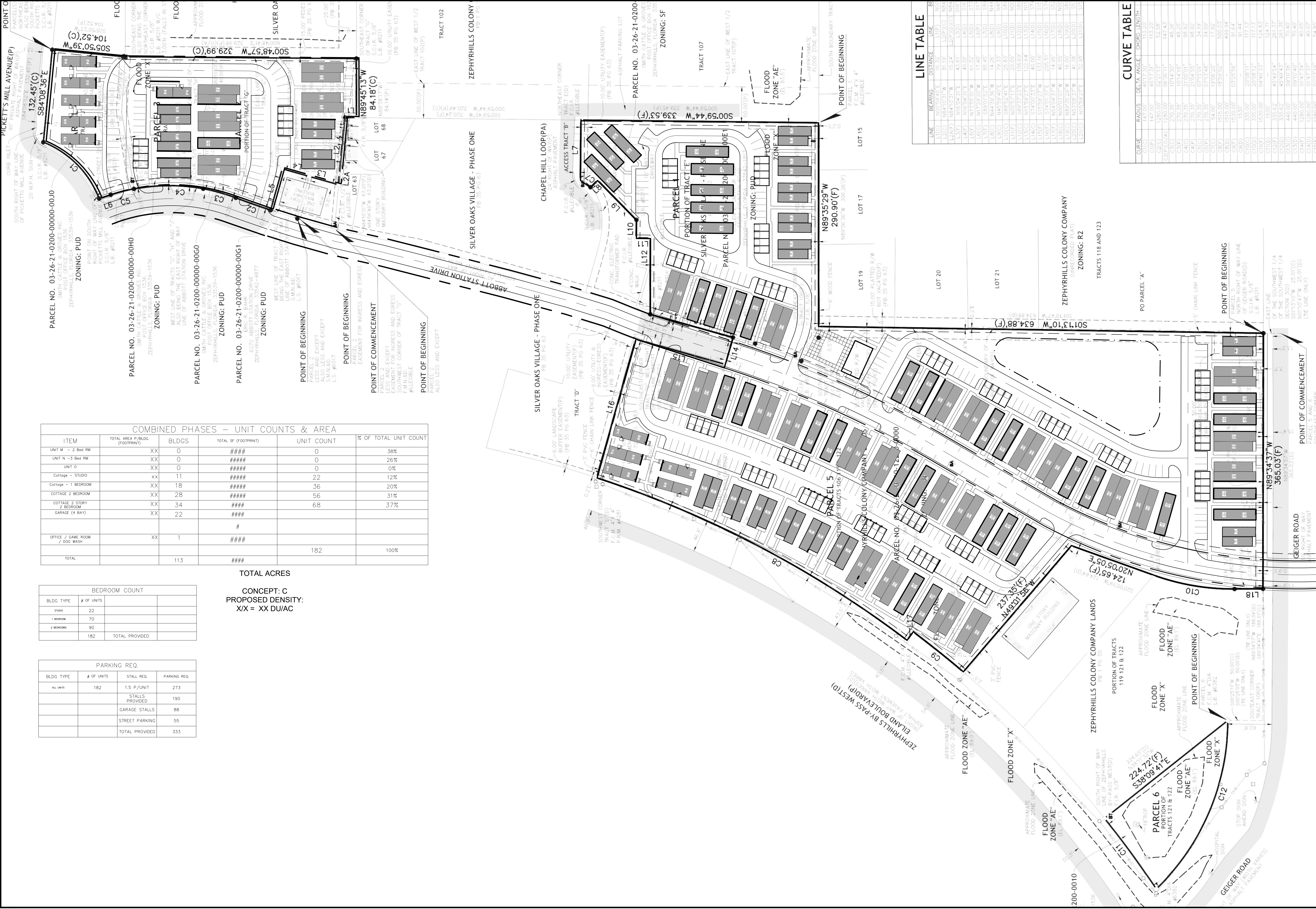


4 END ELEVATION

BUILDING -1- NORTH

1/4" = 1'-0"

COTTAGES:
PAINTED SIDING
FASCIA BOARDS
WINDOW AND DOOR TRIM BOARDS



COMBINED PHASES – UNIT COUNTS & AREA					
ITEM	TOTAL AREA P/BLDG. (FOOTPRINT)	BLDGs	TOTAL SF (FOOTPRINT)	UNIT COUNT	% OF TOTAL UNIT COUNT
UNIT M – 2 Bed RM	XX	0	#####	0	38%
UNIT N – 3 Bed RM	XX	0	#####	0	26%
UNIT O	XX	0	#####	0	0%
Cottage – STUDIO	XX	11	#####	22	12%
Cottage – 1 BEDROOM	XX	18	#####	36	20%
COTTAGE 2 BEDROOM	XX	28	#####	56	31%
COTTAGE 2 STORY 2 BEDROOM	XX	34	#####	68	37%
GARAGE (4 BAY)	XX	22	#####		
OFFICE / GAME ROOM / DOG WASH	XX	1	#####		
TOTAL		113	#####	182	100%

BEDROOM COUNT		
BLDG TYPE	# OF UNITS	
STUDIO	22	
1 BEDROOM	70	
2 BEDROOMS	90	
182	TOTAL PROVIDED	

PARKING REQ.			
BLDG TYPE	# OF UNITS	STALL REQ.	PARKING REQ.
ALL UNITS	182	1.5 P/UNIT	273
		STALLS PROVIDED	190
		GARAGE STALLS	88
		STREET PARKING	55
		TOTAL PROVIDED	333

TOTAL ACRES

CONCEPT: C
PROPOSED DENSITY:
XX = XX DU/AC

LINE TABLE		
LINE	BEARING	DISTANCE
L1(C)	N052542°E	16.32'
L2(C)	N841031°W	81.19'
L3(C)	N841031°W	12.24'
L4(F)	N102431°E	43.61'
L5(F)	N102431°E	43.61'
L6(C)	N172920°W	17.40'
L7(F)	S890152°E	86.45'
L8(C)	N442926°W	14.26'
L9(C)	N452940°E	79.33'
L10(C)	S885241°E	25.53'
L11(F)	N035717°E	100.00'
L12(C)	N155922°E	122.44'
L13(C)	N1400233°E	40.00'
L14(C)	S7400233°E	40.00'
L15(F)	S155922°W	133.16'
L16(F)	S740137°E	205.81'
L17(F)	N540437°W	14.95'
L18(C)	N030207°W	40.00'
L19(C)	N510833°W	41.38'
L20(C)	N152922°E	32.95'
L21(C)	N152922°E	32.95'

CURVE TABLE		
CURVE	RADIUS	CHORD LENGTH
C1(C)	142.00'	113.20'
C1(P)	142.00'	113.20'
C2(C)	1280.00'	52.58'
C2(P)	1280.00'	52.58'
C3(C)	1014.30'	48.26'
C4(C)	270.35'	98.92'
C5(C)	270.35'	98.92'
C6(C)	270.35'	98.92'
C7(C)	54.00'	17.92'
C8(F)	1515.00'	500.03'
C9(F)	1515.00'	500.03'
C10(C)	1530.00'	91.44'
C11(C)	335.00'	117.13'
C12(C)	335.00'	117.13'
C13(C)	1530.00'	91.44'
C14(C)	335.00'	117.13'
C15(C)	1530.00'	91.44'
C16(C)	335.00'	117.13'
C17(C)	1530.00'	91.44'
C18(C)	335.00'	117.13'
C19(C)	1530.00'	91.44'
C20(C)	335.00'	117.13'
C21(C)	1530.00'	91.44'
C22(C)	335.00'	117.13'
C23(C)	1530.00'	91.44'
C24(C)	335.00'	117.13'
C25(C)	1530.00'	91.44'
C26(C)	335.00'	117.13'
C27(C)	1530.00'	91.44'
C28(C)	335.00'	117.13'
C29(C)	1530.00'	91.44'
C30(C)	335.00'	117.13'
C31(C)	1530.00'	91.44'
C32(C)	335.00'	117.13'
C33(C)	1530.00'	91.44'
C34(C)	335.00'	117.13'
C35(C)	1530.00'	91.44'
C36(C)	335.00'	117.13'
C37(C)	1530.00'	91.44'
C38(C)	335.00'	117.13'
C39(C)	1530.00'	91.44'
C40(C)	335.00'	117.13'
C41(C)	1530.00'	91.44'
C42(C)	335.00'	117.13'
C43(C)	1530.00'	91.44'
C44(C)	335.00'	117.13'
C45(C)	1530.00'	91.44'
C46(C)	335.00'	117.13'
C47(C)	1530.00'	91.44'
C48(C)	335.00'	117.13'
C49(C)	1530.00'	91.44'
C50(C)	335.00'	117.13'
C51(C)	1530.00'	91.44'
C52(C)	335.00'	117.13'
C53(C)	1530.00'	91.44'
C54(C)	335.00'	117.13'
C55(C)	1530.00'	91.44'
C56(C)	335.00'	117.13'
C57(C)	1530.00'	91.44'
C58(C)	335.00'	117.13'
C59(C)	1530.00'	91.44'
C60(C)	335.00'	117.13'
C61(C)	1530.00'	91.44'
C62(C)	335.00'	117.13'
C63(C)	1530.00'	91.44'
C64(C)	335.00'	117.13'
C65(C)	1530.00'	91.44'
C66(C)	335.00'	117.13'
C67(C)	1530.00'	91.44'
C68(C)	335.00'	117.13'
C69(C)	1530.00'	91.44'
C70(C)	335.00'	117.13'
C71(C)	1530.00'	91.44'
C72(C)	335.00'	117.13'
C73(C)	1530.00'	91.44'
C74(C)	335.00'	117.13'
C75(C)	1530.00'	91.44'
C76(C)	335.00'	117.13'
C77(C)	1530.00'	91.44'
C78(C)	335.00'	117.13'
C79(C)	1530.00'	91.44'
C80(C)	335.00'	117.13'
C81(C)	1530.00'	91.44'
C82(C)	335.00'	117.13'
C83(C)	1530.00'	91.44'
C84(C)	335.00'	117.13'
C85(C)	1530.00'	91.44'
C86(C)	335.00'	117.13'
C87(C)	1530.00'	91.44'
C88(C)	335.00'	117.13'
C89(C)	1530.00'	91.44'
C90(C)	335.00'	117.13'
C91(C)	1530.00'	91.44'
C92(C)	335.00'	117.13'
C93(C)	1530.00'	91.44'
C94(C)	335.00'	117.13'
C95(C)	1530.00'	91.44'
C96(C)	335.00'	117.13'
C97(C)	1530.00'	91.44'
C98(C)	335.00'	117.13'
C99(C)	1530.00'	91.44'
C100(C)	335.00'	117.13'

DISCLAIMER:
THE INFORMATION, IDEAS,
DESIGNS, AND DETAILS
SHOWN ON THIS SHEET ARE
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EXPRESSLY FORBIDDEN.
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GOODWIN KNIGHT, LLC
8605 EXPLORER DRIVE, SUITE 250
COLORADO SPRINGS, CO 80920
719.598.1970

PROJECT NAME
ZEPHYRHILLS, FLORIDA

STAMPS/ENDORSEMENTS

DRAWN BY:
RN

DATE:
03-22-22

SUBMITTALS / REVISIONS	DATE	TYPE	BY	DATE	TYPE	BY
	10/1/2015	IF CITY REVIEW	JBS			

SHEET NUMBER
1
1 OF 1 SHEETS
CITY FILE NUMBER:

Page 133 of 135

STAFF REPORT

To:

From:

RE: PUD0014-22 Advent Health
Parcel#35-25-21-0010-06900-002- & 35-25-21-0010-08500-0010. The property size is 15.16 acres. Current Vacant lot is Zoned PUD (Planned Unit Development) proposing for RU (residential Urban).

Date: August 15, 2023

I. BACKGROUND & INFORMATION

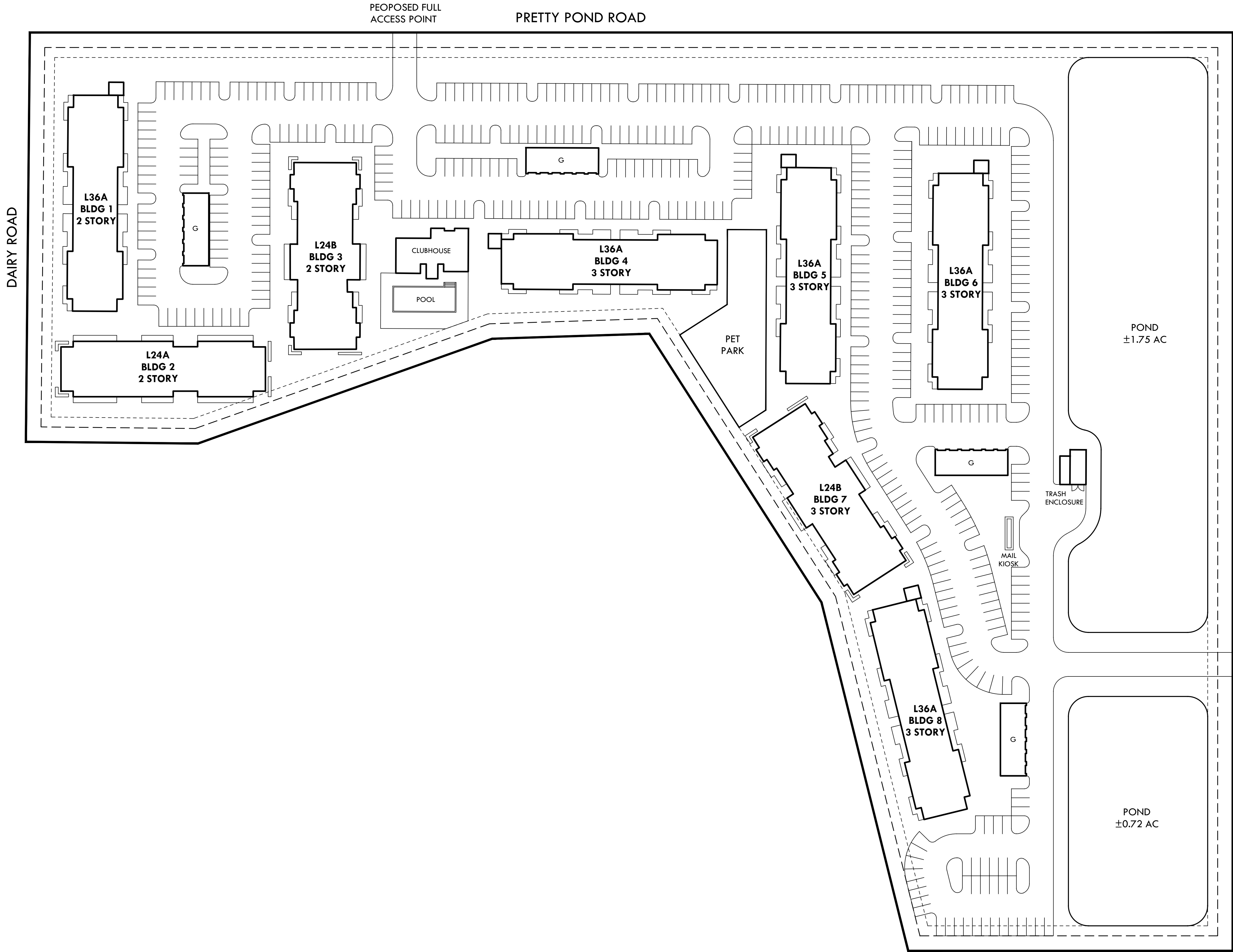
- A. History | Application Summary
- B. Site Information
 - 1. Applicant/Owner:
 - 2. File #:
 - 3. Historic Designation:
 - 4. Acreage:
 - 5. Existing Land Use:
 - 6. Current FLU:
 - 7. Proposed FLU:
 - 8. Existing Zoning:
 - 9. Current Zoning:

II. DATA & ANALYSIS

- A. Character Analysis
- B. Compatibility Analysis
- C. Natural & Historic Resources Analysis
- D. Public Service Analysis & Impact
- E. Comprehensive Plan Consistency

III. RECOMMENDATION

- A. Staff / Site Plan Review Committee
- B. Historic Preservation Board
- C. Planning Commission
- D. Board of Adjustment



050'100'N

SCALE: 1" = 50'

This is a conceptual site plan and is subject to rezoning, final design, survey, environmental analysis, engineering, permitting and governmental approval. Site layout, product type and density are subject to change.

08/09/2023

07/20/2023

Date

Revised Site Plan

Conceptual Site Plan

Revision

TOTAL RESIDENT BUILDINGS	8	
TOTAL UNITS	252 UNITS	
PARKING REQUIRED		
(2 SPACES PER UNIT)	504 SPACES	
PARKING PROVIDED		
DEATCHED GARAGES (G)	24 SPACES	
SURFACE PARKING	440 SPACES * (1.74 spaces per unit)	
TOTAL PARKING PROVIDED	464 SPACES	

* INCLUDES 10 HANDICAP SPACES

BUILDING INFORMATION / COUNTS			
BUILDING #	# OF STORIES	HEIGHT	# OF UNITS
BUILDING 1	2	35'	24
BUILDING 2	2	35'	24
BUILDING 3	2	35'	24
BUILDING 4	3	45'	36
BUILDING 5	3	45'	36
BUILDING 6	3	45'	36
BUILDING 7	3	45'	36
BUILDING 8	3	45'	36
TOTAL			252 UNITS

PRETTY POND

CONCEPTUAL SITE PLAN "E"