CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD - ROAD WIDENING

OSCEOLA COUNTY, FLORIDA

LANDSCAPE ARCHITECTURAL DRAWINGS

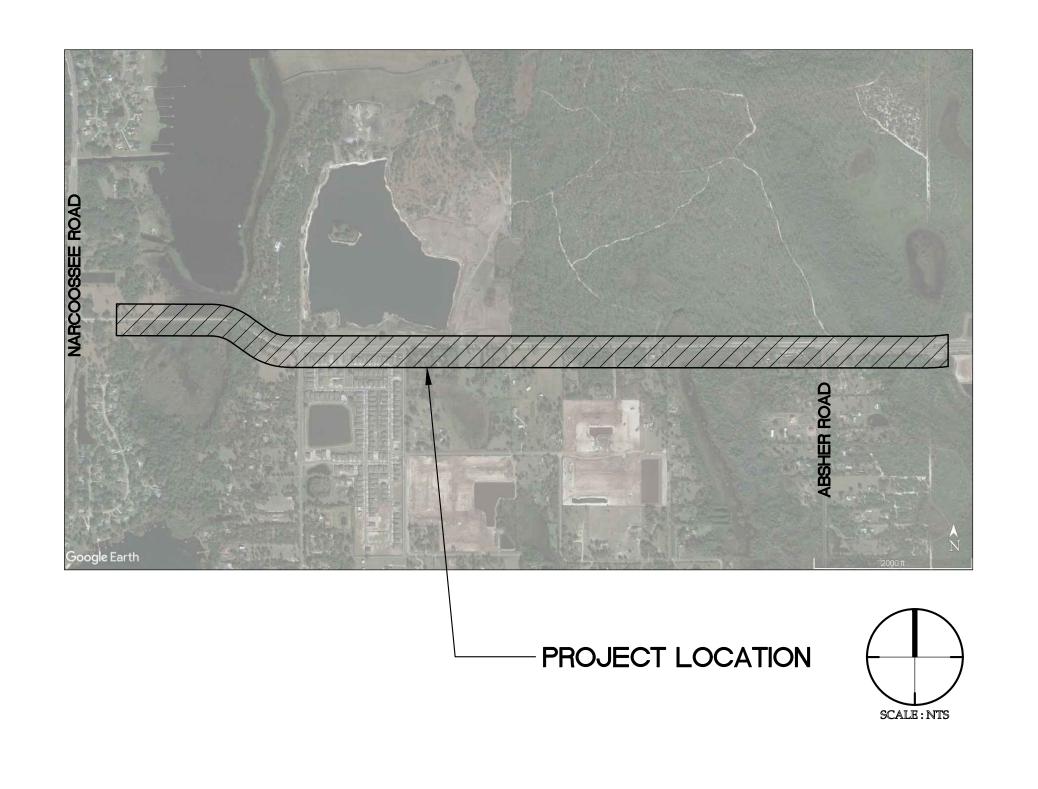
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VICINITY MAP

December 9, 2022

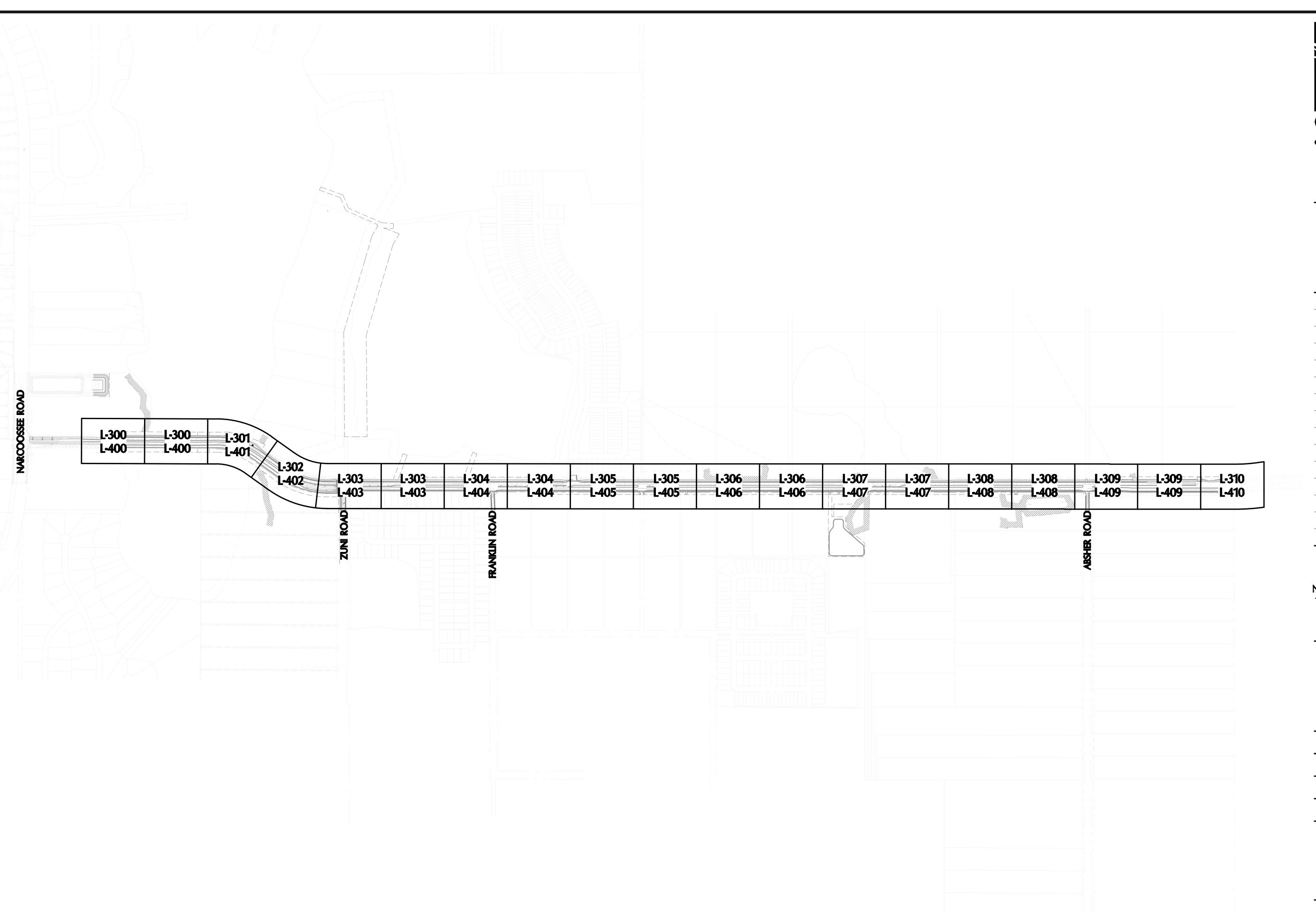
INDEX OF DRAWINGS





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| SHT. NO. | ISSUE DATE | REV. NO. | REV. DATE | SHEET TITLE |
| | | | | |
| L-001 | 12/09/2022 | | | KEY SHEET |
| | | | | |
| L-300 | 12/09/2022 | | | LANDSCAPE PLAN |
| L-301 | 12/09/2022 | | | LANDSCAPE PLAN |
| L-302 | 12/09/2022 | | | LANDSCAPE PLAN |
| L-303 | 12/09/2022 | | | LANDSCAPE PLAN |
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NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION. ORIGINAL SHEET SIZE 22" X 34"



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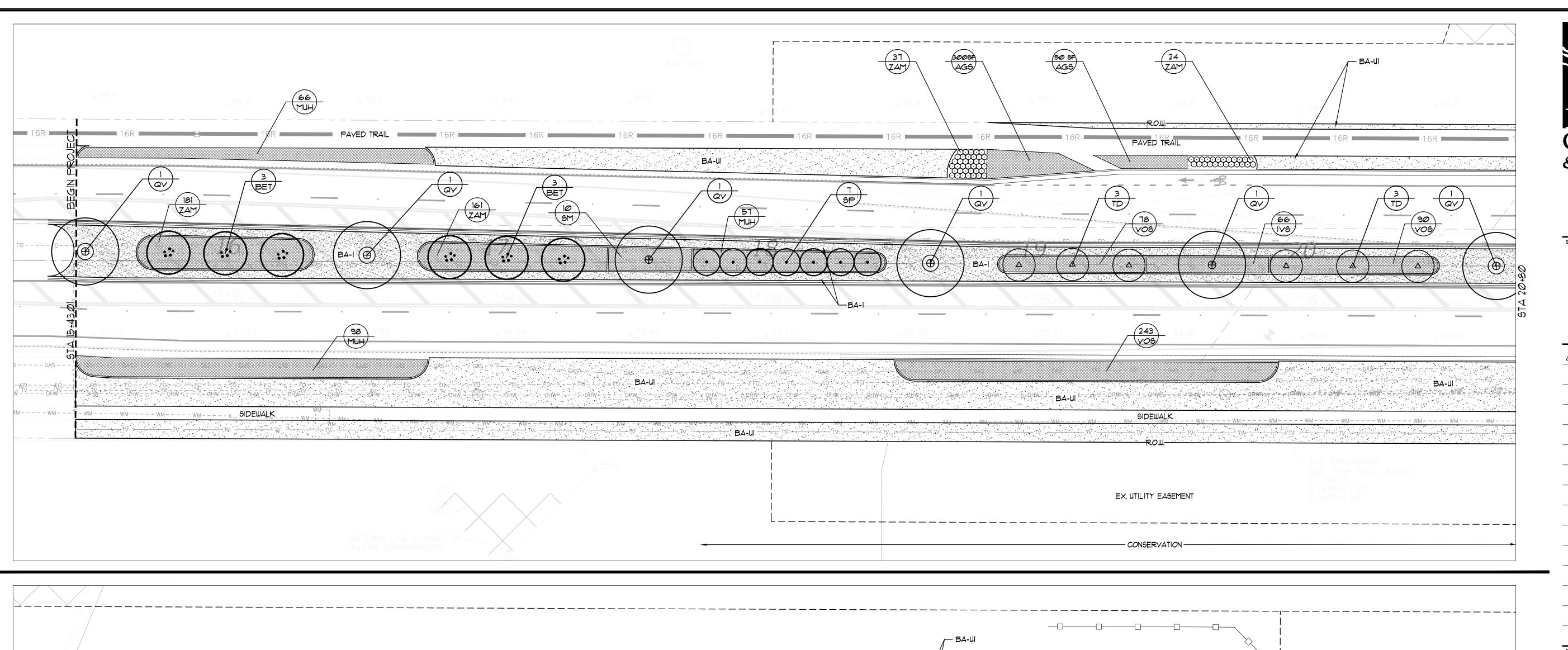
Ø3/13/2Ø23 95% CD

CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -**ROAD WIDENING**

OSCEOLA COUNTY, FL

KEY PLAN

Ø4/18/2Ø22





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CYRILS DRIVE /
NARCOOSSEE ROAD
TO ABSHER ROAD ROAD WIDENING

OSCEOLA COUNTY, FL

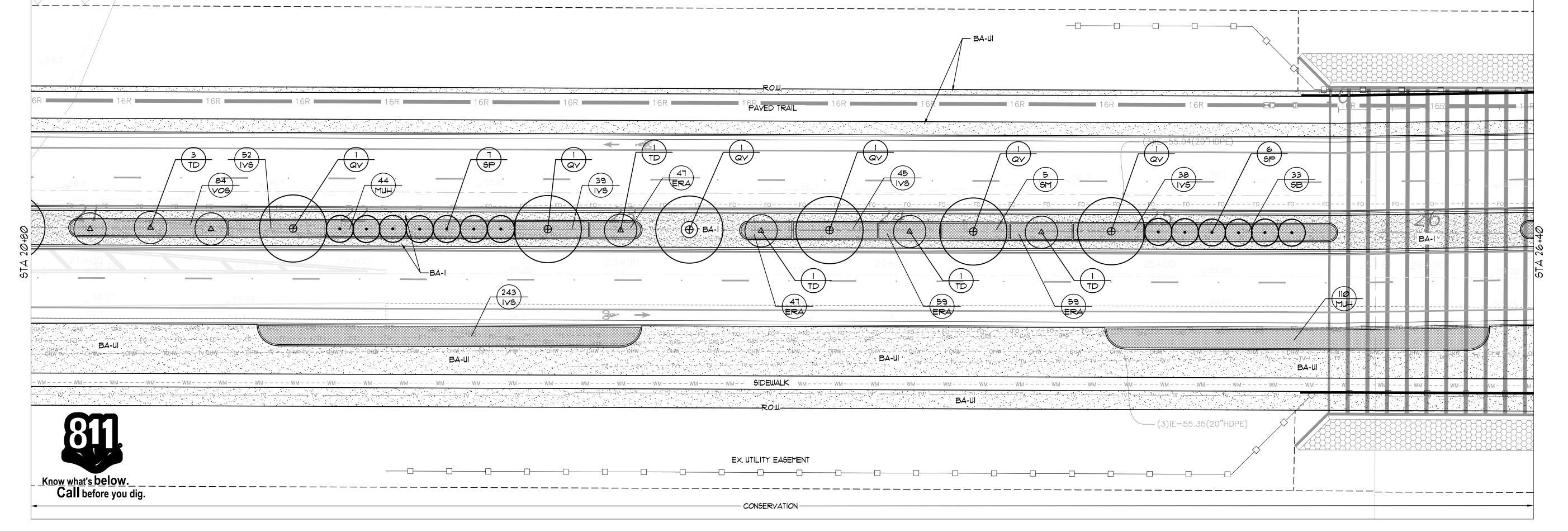
LANDSCAPE PLAN

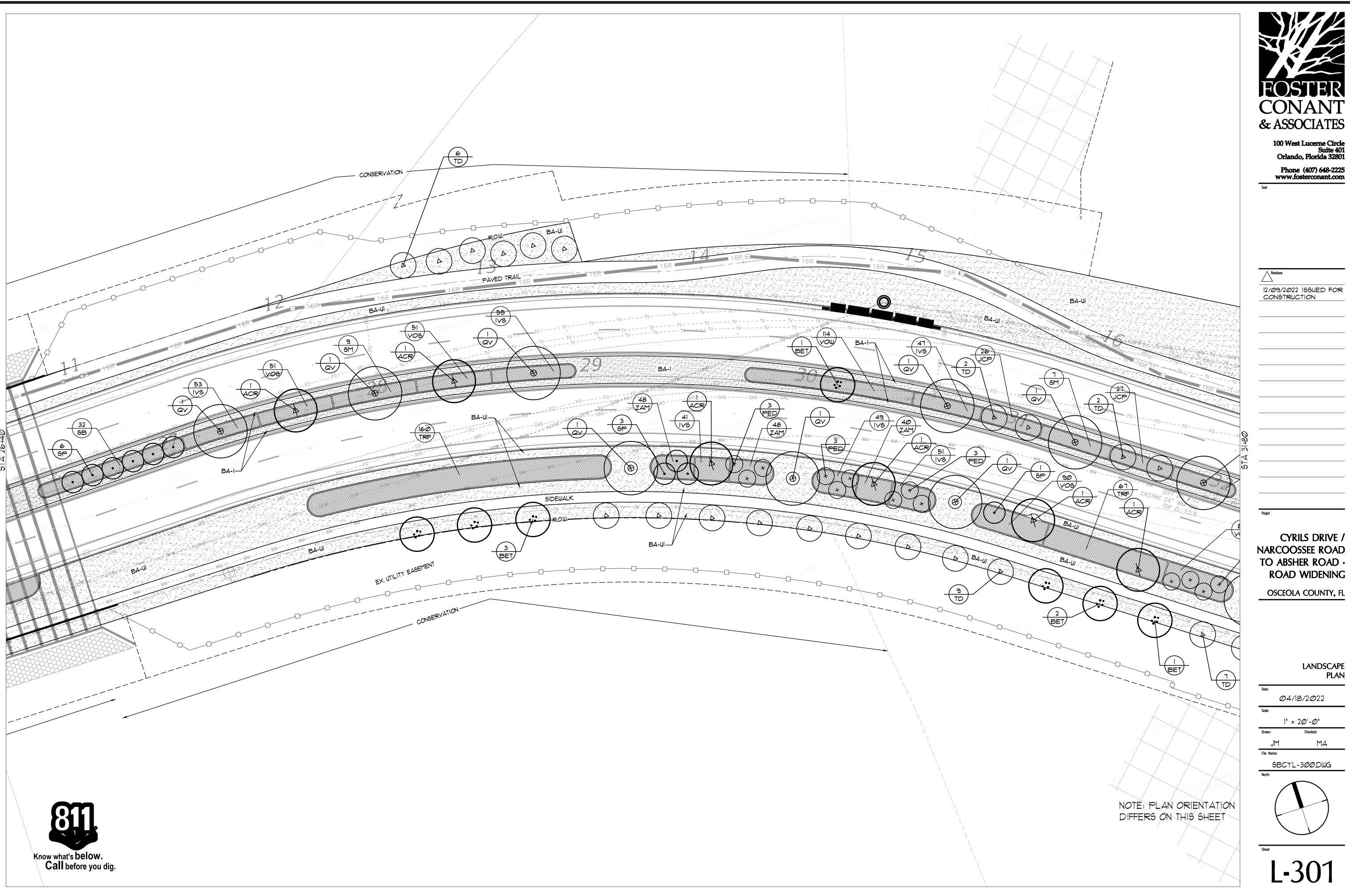
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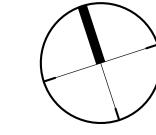


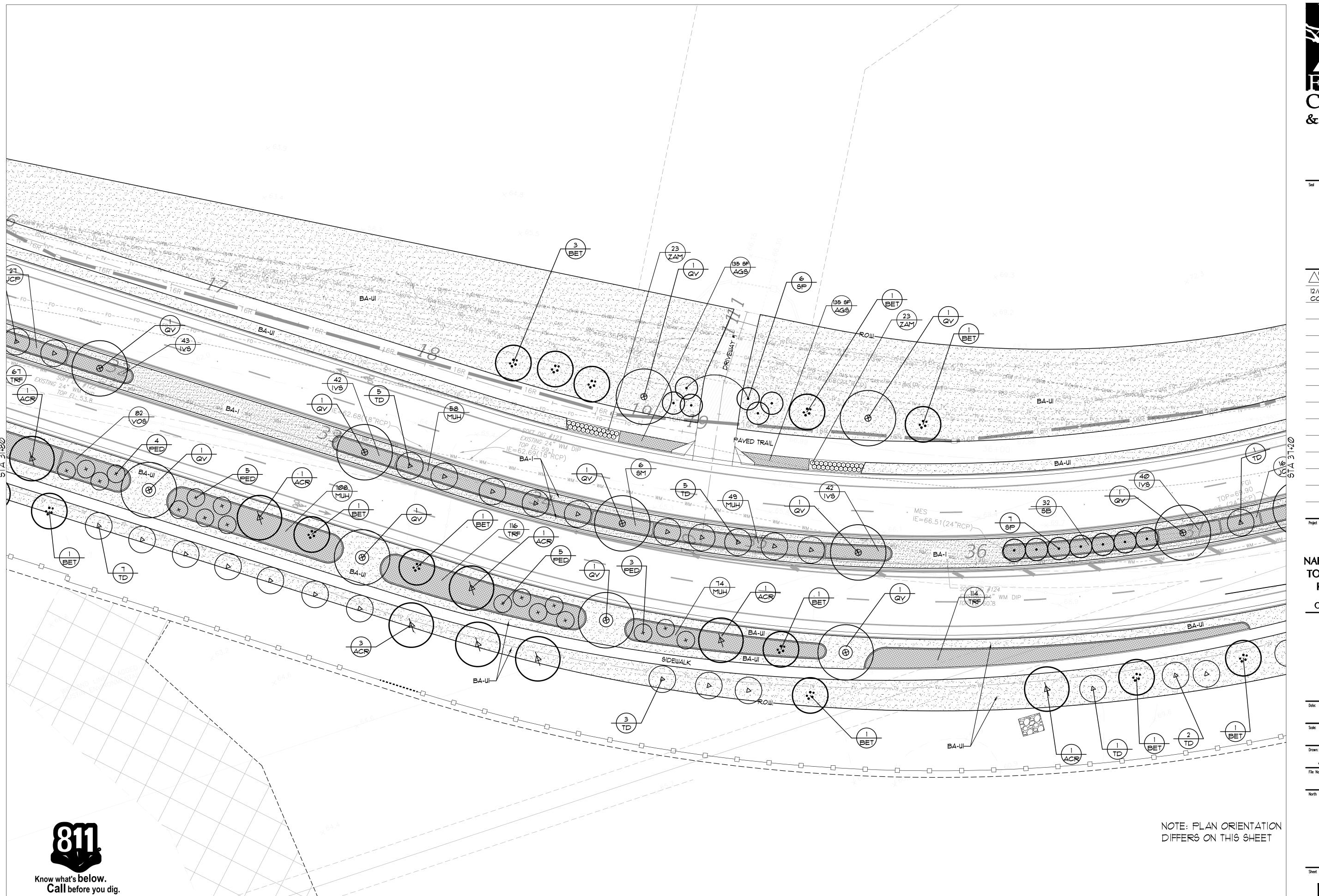
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CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -**ROAD WIDENING**

LANDSCAPE PLAN







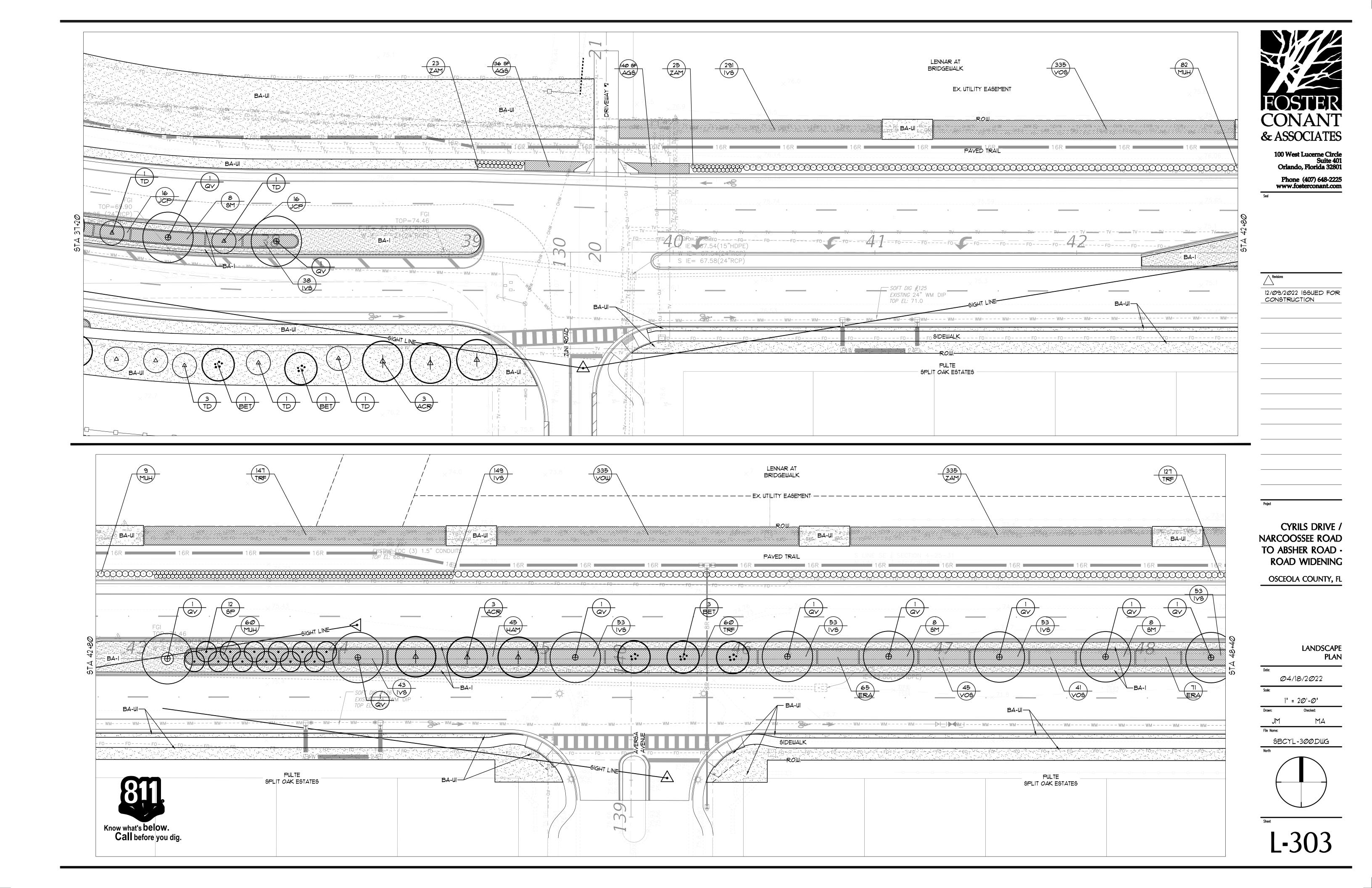
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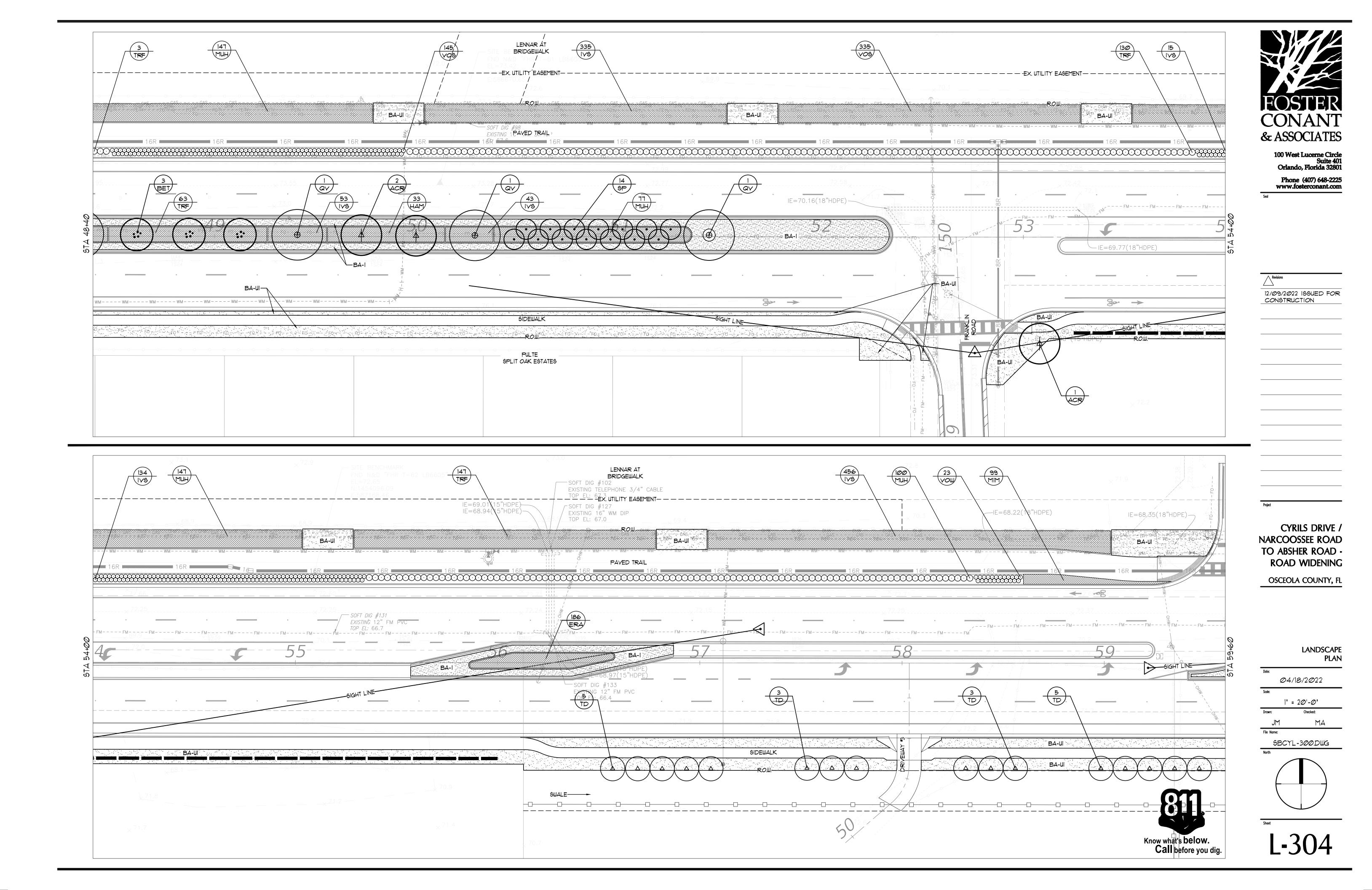
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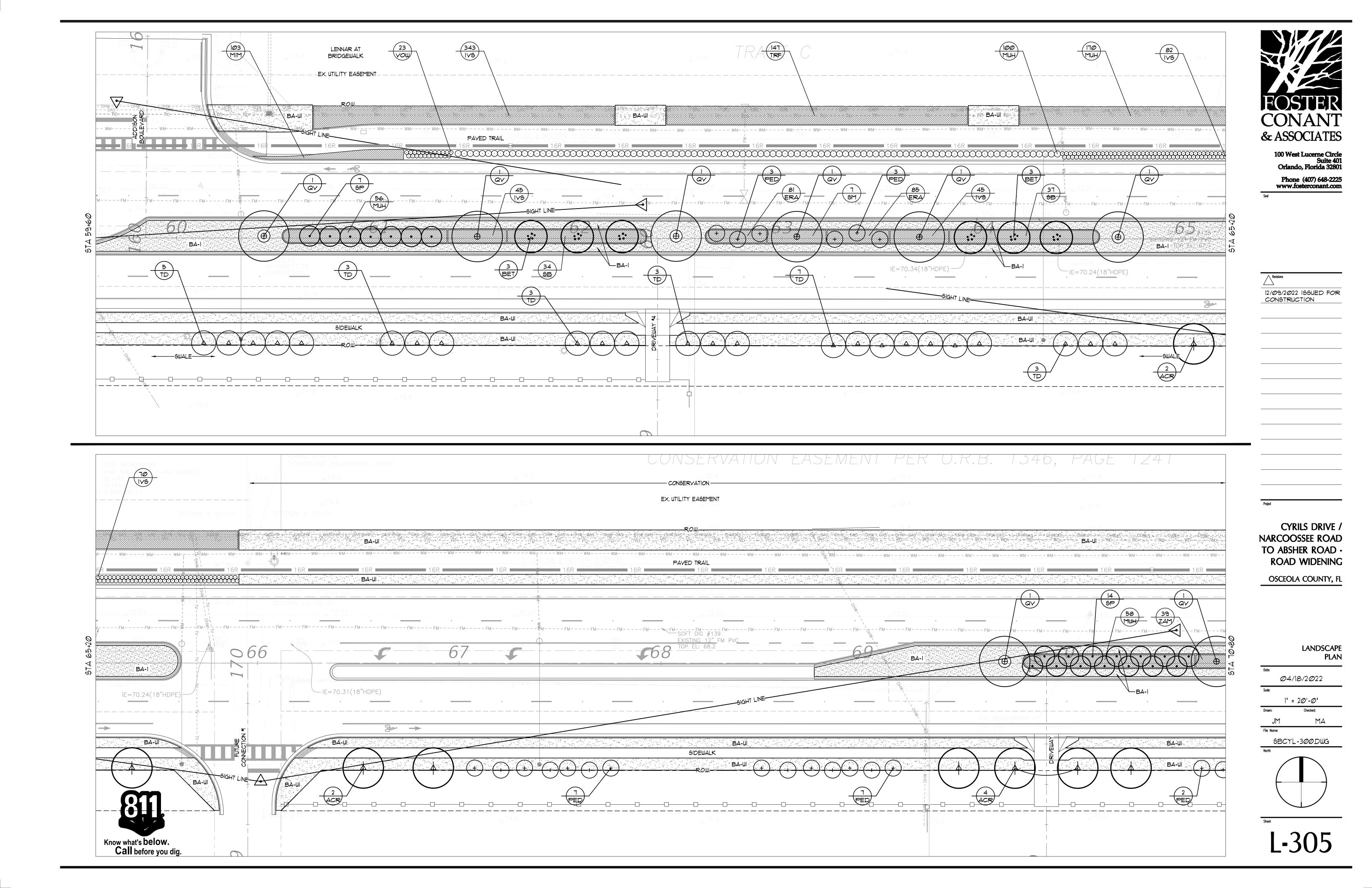
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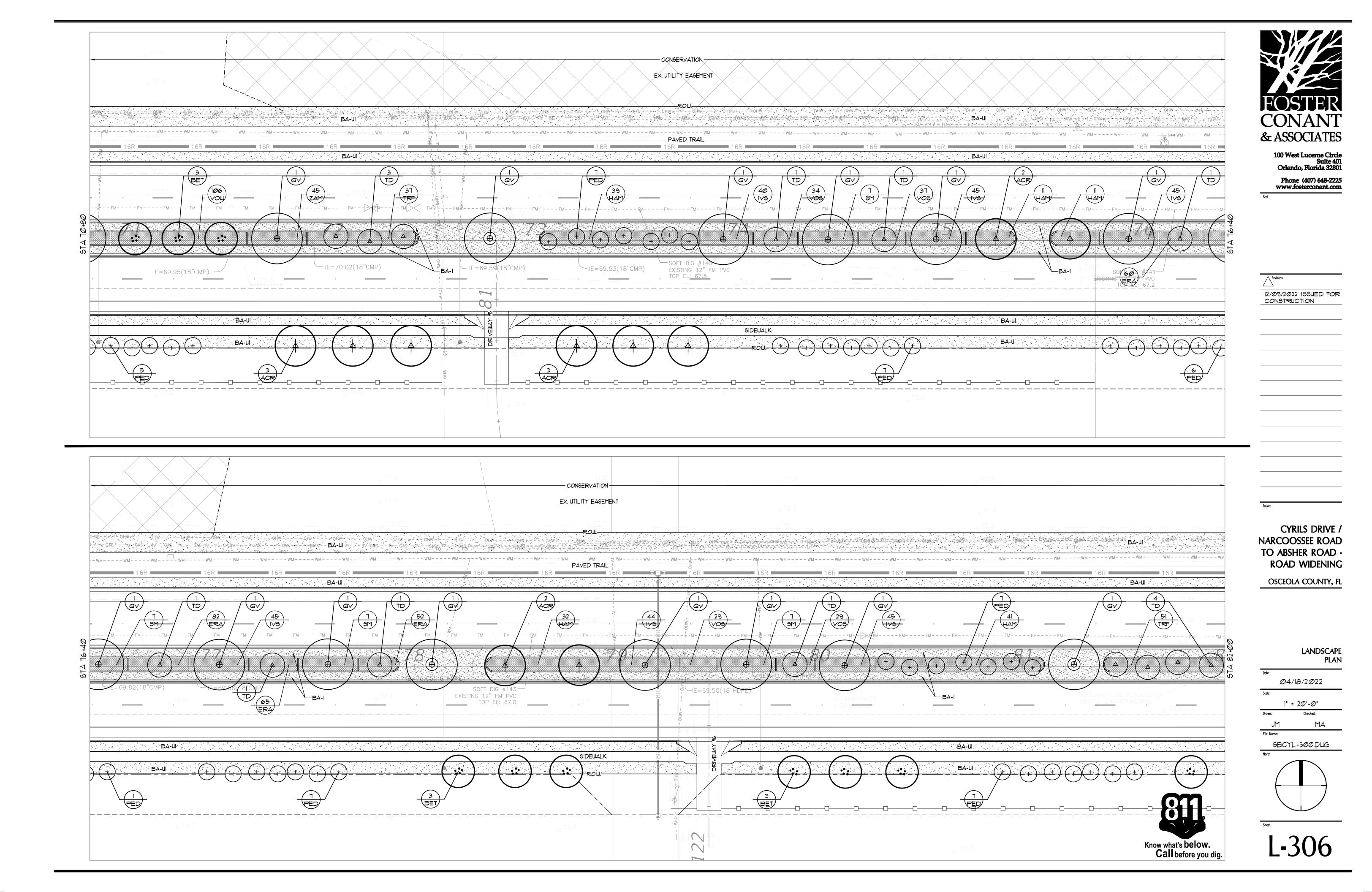
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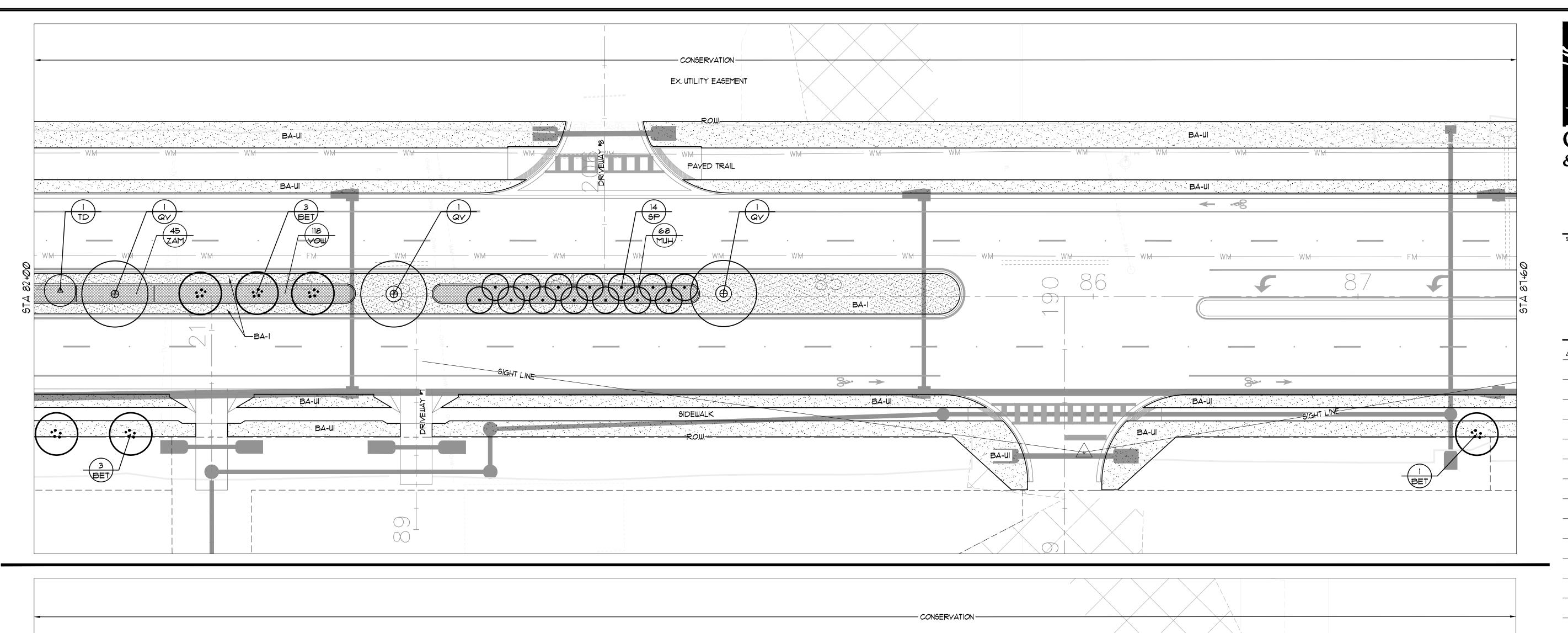
LANDSCAPE PLAN

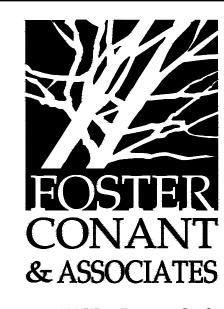






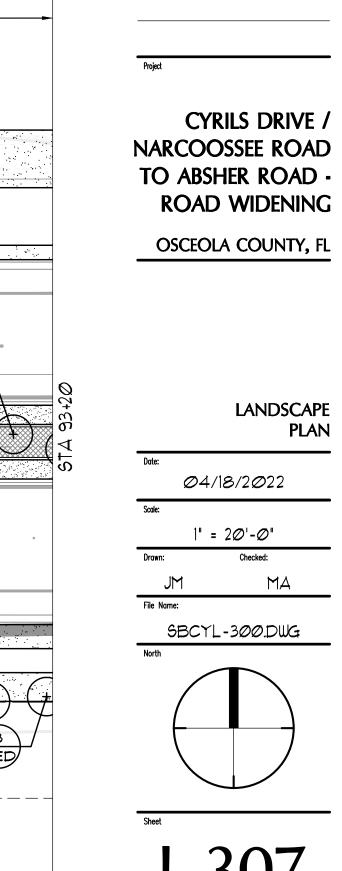




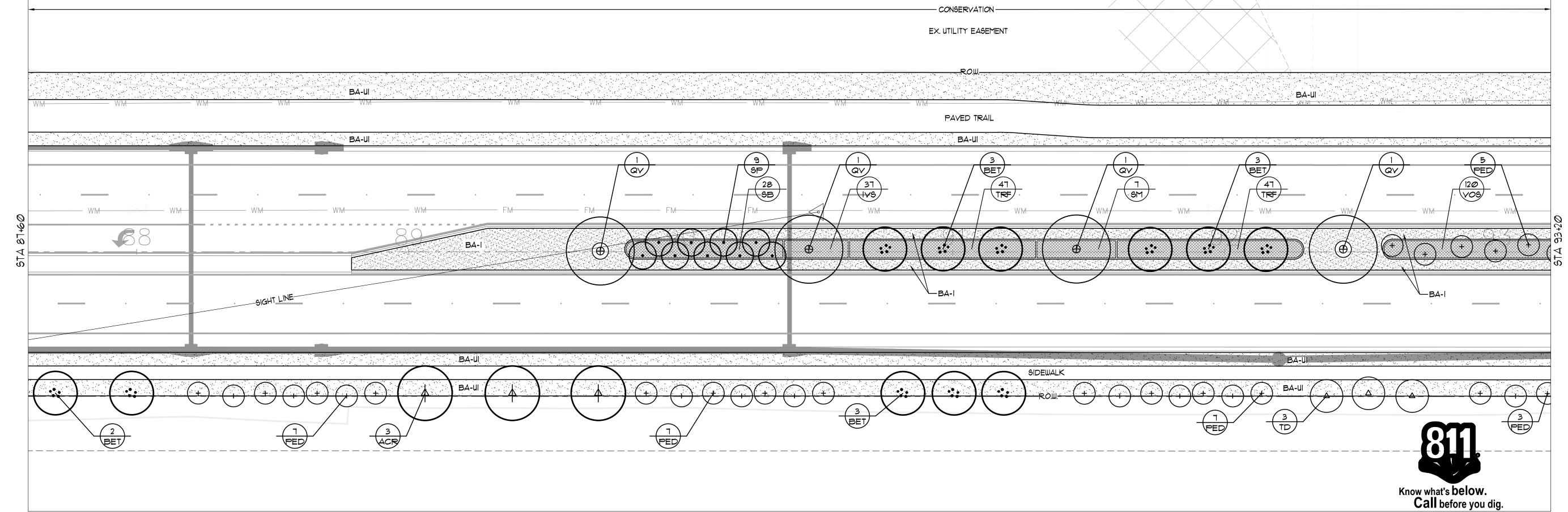


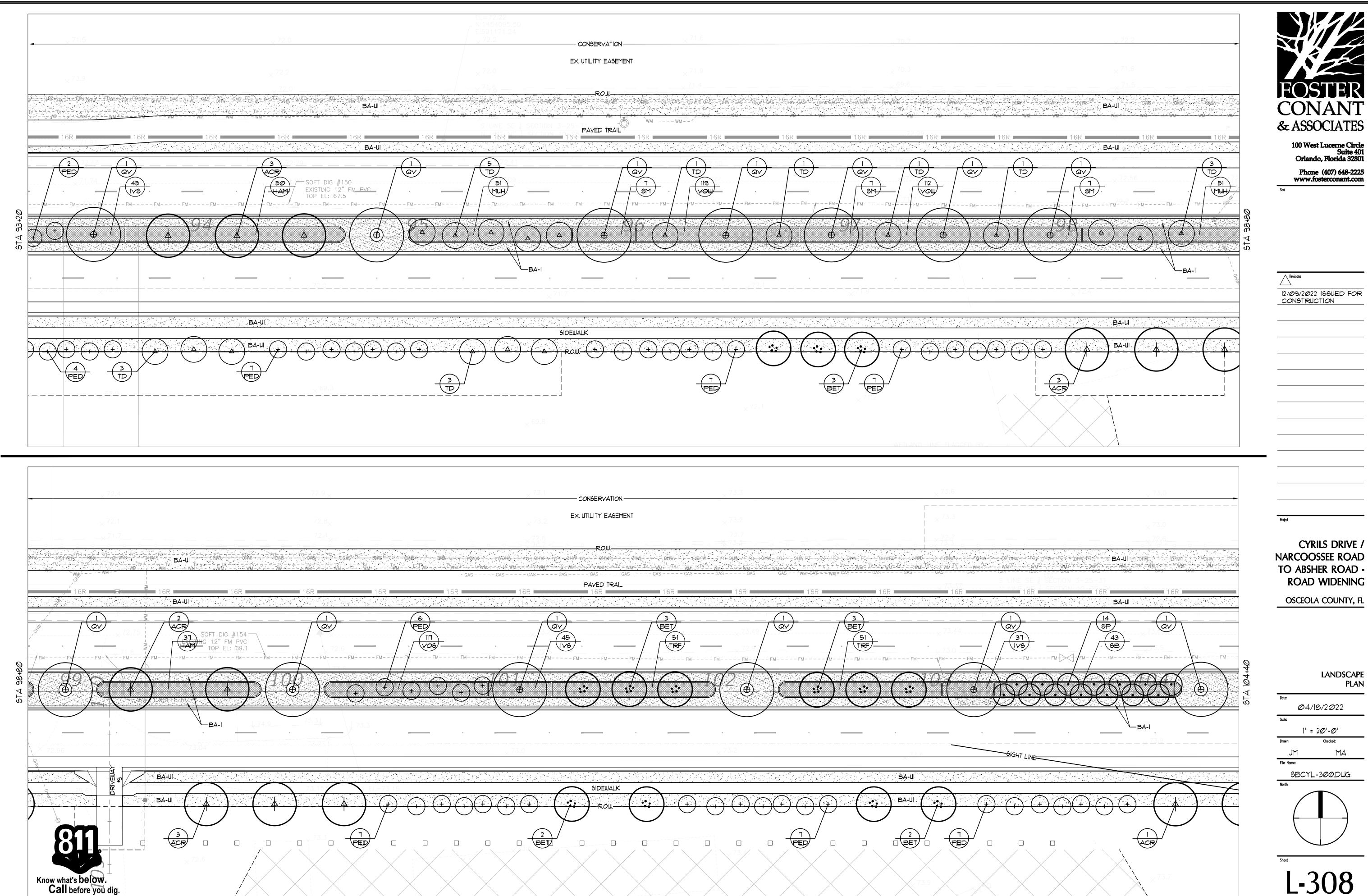
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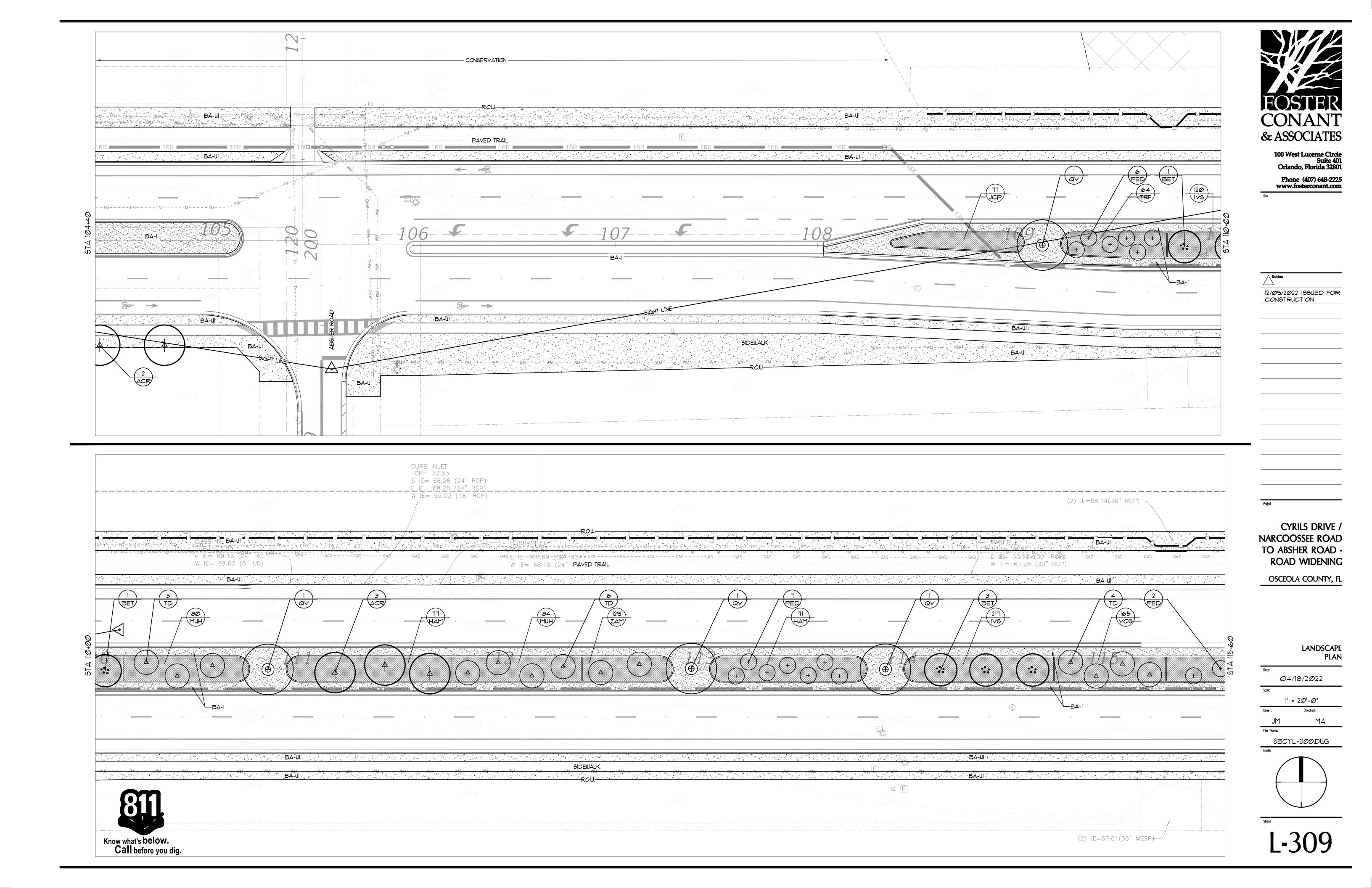
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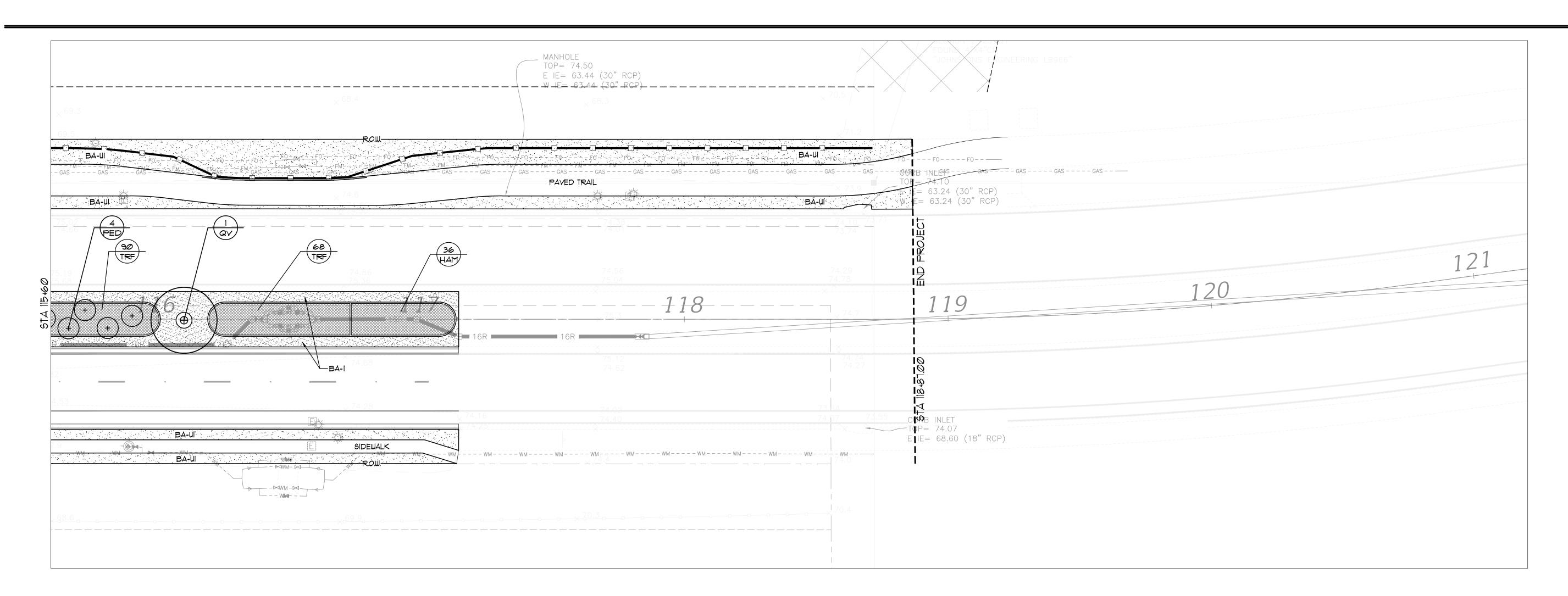


LANDSCAPE PLAN











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TO ABSHER ROAD ROAD WIDENING

OSCEOLA COUNTY, FL

LANDSCAPE PLAN

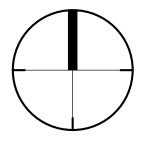
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Tile Name:

SBCYL-300.DWG





GENERAL LANDSCAPE NOTES

- 1. THE CONTRACTOR SHALL VERIFY ALL PLANT MATERIAL QUANTITIES PRIOR TO BIDDING. IN THE EVENT OF A VARIATION BETWEEN THE PLANT LIST AND THE ACTUAL NUMBERS OF PLANTS SHOWN ON THE PLANS, THE PLANS SHALL CONTROL. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING A QUANTITY COUNT AS A CHECK FOR DISCREPANCIES. THE CONTRACTOR SHALL MAINTAIN A QUALIFIED SUPERVISOR ON THE SITE DURING CONSTRUCTION OF ALL PHASES OF THE WORK THROUGH FINAL OWNER ACCEPTANCE.
- 2. THE CONTRACTOR SHALL SUBMIT UNIT PRICES FOR ALL BID ITEMS.
- 3. THE CONTRACTOR SHALL PROVIDE AND PAY FOR ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR TO COMPLETE LANDSCAPING OF THE SITE AS INDICATED IN THE CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO: PLANTING OF ALL PLANT MATERIALS, THE STAKING OF TREES AND THE CONTINUOUS MAINTENANCE AND PROTECTION OF ALL PLANT MATERIALS UPON THEIR ARRIVAL AT THE SITE THROUGH FINAL OWNER ACCEPTANCE. THE CONTRACTOR SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE LOCATION OF UNDERGROUND UTILITIES, LAYOUT OF THE WORK, AND SOIL TESTING AS OUTLINED IN THE TECHNICAL SPECIFICATIONS
- 4. SUCCESSFUL BIDDER SHALL LOOK UP ALL MATERIALS IMMEDIATELY AFTER CONTRACT ASSIGNMENT. PLANTS SHALL BE HELD DURING THE PERIOD FROM CONTRACT TO INSTALLATION TO ALLOW FOR ADDITIONAL GROWTH. ALL PLANTS WILL BE REQUIRED TO BE FULL AND HEALTHY. CONTRACTOR SHALL ARRANGE FOR PLANT APPROVAL PRIOR TO DELIVERY EITHER BY SAMPLES, PHOTOS OR NURSERY VISITS. ALL TREES 4" CALIPER OR GREATER SHALL BE SELECTED AND LOCATED UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT/OWNER'S REPRESENTATIVE.
- 5. ALL PLANT MATERIAL SHALL MEET OR EXCEED THE GRADE STANDARDS OF FLORIDA NO. 1 AS PROVIDED IN "GRADES AND STANDARDS FOR NURSERY PLANTS" (LATEST EDITION), STATE OF FLORIDA, DEPARTMENT OF AGRICULTURE, TALLAHASSEE, AND ANY AMENDMENTS THERETO.
- 6. ALL MATERIAL SHALL BE SOUND AND VIGOROUS, FREE FROM DISEASE, INSECT PESTS, AND/OR THEIR EGGS, AND SHALL HAVE A HEALTHY, NORMAL AND FULLY DEVELOPED ROOT SYSTEM. THE HEIGHT AND SPREAD OF PLANT MATERIAL SHALL BE THE DETERMINING FACTOR FOR THE PLANT MATERIAL, NOT THE GALLONAGE SPECIFIED. THE OWNER/LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ALL PLANT MATERIAL(S) THAT DO NOT MEET THE SPECIFICATIONS SET FORTH.
- 1. ALL TREES WITH THE EXCEPTION OF PALMS SHALL BE EITHER CONTAINER GROWN OR FIELD GROWN. NO GROW BAGS WILL BE ACCEPTED.
- 8. ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER / LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
 THE LANDSCAPE ARCHITECT MAY REJECT ANY PLANT MATERIAL BROUGHT TO THE SITE WHICH HE DEEMS TO BE OF INFERIOR
 QUALITY, INFERIOR APPEARANCE, DOES NOT MEET FLORIDA NO. I GRADE OR THAT DOES NOT MEET SPECIFIED SIZE.
- 9. NO SUBSTITUTIONS WILL BE ALLOWED. IF NECESSARY, THE CONTRACTOR MUST OBTAIN WRITTEN APPROVAL FROM THE OWNER / LANDSCAPE ARCHITECT.
- 10. CALIPER OF TREES SHALL BE MEASURED IN ACCORDANCE WITH AAN STANDARDS OF 6" ABOVE TOP OF ROOTBALL FOR TREES 4" OR LESS IN CALIPER AND 12" ABOVE TOP OF ROOTBALL FOR TREES GREATER THAN 4" IN CALIPER.
- II. ALL PLANT MATERIAL SHALL BE PLANTED PER THE PLANTING DEPTH CHART DETAIL ON THE LANDSCAPE DETAILS SHEET.

 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLANT HEALTH IN ON-SITE SOILS.
- 12. ALL TREES SHALL HAVE ALL SYNTHETIC BURLAP REMOVED FROM THE ENTIRE ROOT BALL. BURLAP SHALL BE REMOVED FROM THE TOP ONE-THIRD OF THE ROOT BALL. THE TOP THREE ROWS OF SQUARES ON ALL CAGES AROUND THE ROOT BALLS SHALL BE CLIPPED OFF AND REMOVED.
- 13. ALL PLANT MATERIAL SHALL BE GUARANTEED AND WARRANTEED PER SECTION 3.13 GUARANTEED PROVING PERIOD OF THE LANDSCAPE SPECIFICATIONS.
- 14. ALL AREAS DESIGNATED AS SOD ON THE PLANS SHALL BE COVERED WITH ARGENTINE BAHIA SOLID SOD.
- 15. ALL PLANT BEDS AND DESIGNATED "MULCH" AREAS SHALL BE TOP-DRESSED WITH MULCH, INCLUDING WITHIN A 2' RADIUS AROUND THE TRUNK OF A TREE. MULCH SHALL BE PINE BARK "MINI NUGGETS" INSTALLED TO A MINIMUM DEPTH OF 3" AND PER THE LANDSCAPE DETAILS AND SPECIFICATIONS.
- 16. THE CONTRACTOR SHALL REVIEW THE SOILS REPORT ON FILE WITH THE OWNER.
- 17. THE CONTRACTOR SHALL PROVIDE SOIL TESTING PER SECTION 2.01 SOIL BACKFILL OF THE LANDSCAPE SPECIFICATIONS.
 IMPROPER SOIL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL RECTIFY ALL INCURRED DAMAGES AT NO ADDITIONAL COST TO THE OWNER.
- 18. THE CONTRACTOR SHALL VISUALLY INSPECT THE SOILS CONDITION OF THE SITE AND SHALL PERFORM PERCOLATION TESTS PER THE GUIDELINES OUTLINED IN SECTION 3.03 PREPARATION BEFORE PLANTING OF THE LANDSCAPE SPECIFICATIONS. THE CONTRACTOR SHALL RECOMMEND SUBSTITUTIONS OF PLANT MATERIAL AND PLANTING INSTALLATION TO ACCOMMODATE POOR DRAINING SOILS.
- WITH ALL SURFACE AND SUBSURFACE UTILITIES. THE CONTRACTOR SHALL FIELD VERIFY ALL BASE INFORMATION, INCLUDING GRADES, DIMENSIONING, AND EXISTING CONDITIONS PRIOR TO INSTALLATION OF THE WORK, THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO LANDSCAPE INSTALLATION.

19. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL ARCHITECTURAL AND ENGINEERING PLANS TO BECOME FAMILIAR

- 20. THE CONTRACTOR SHALL PROVIDE TO THE LANDSCAPE ARCHITECT A WRITTEN LETTER OF ACCEPTABILITY OF GRADES.
 FAILURE TO DO SO WILL BE VIEWED AS AN ACCEPTANCE OF EXISTING GRADES BY THE CONTRACTOR. THE INSTALLATION OF PLANT MATERIAL SHALL BE VIEWED AS ACCEPTANCE BY THE CONTRACTOR OF EXISTING GRADES AS GIVEN TO HIM.
- 21. CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING THE LANDSCAPE ARCHITECT'S APPROVAL OF ALL PLANT BED LAYOUTS AND TREE LOCATIONS PRIOR TO INSTALLATION. IF PLANT MATERIAL IS INSTALLED PRIOR TO LANDSCAPE ARCHITECT'S APPROVAL, CONTRACTOR WILL BE SUBJECT TO RELOCATING THE MATERIAL AT THE LANDSCAPE ARCHITECT'S REQUEST AND AT THE CONTRACTOR'S OWN EXPENSE.
- 22. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE NORMAL HIGH WATER ELEVATION OF THE RETENTION POND(S) WITH THE CIVIL ENGINEER PRIOR TO PLANTING ANY SPECIFIED TREES OR LITTORAL PLANTINGS IN THE IMMEDIATE POND VICINITY. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IF THE NORMAL HIGH WATER ELEVATION IS NOT AS SHOWN ON THE LANDSCAPE PLANS SO THAT PROPER REVISIONS CAN BE MADE.
- 23. CONTRACTOR SHALL ANTICIPATE THAT THE FIRST 5 FEET AROUND THE BUILDING PERIMETER WILL BE COMPACTED. THESE AREAS SHALL BE TILLED AND IMPROVED IN ORDER TO SUSTAIN VIGOROUS, HEALTHY PLANT GROWTH.
- 24. WHERE LIGHT POLES OR STREET SIGNS OCCUR IN PROXIMITY TO TREES MINIMUM SEPARATION SHALL BE MAINTAINED PER THE TREE PLACEMENT DETAIL ON THE LANDSCAPE DETAILS SHEET.
- 25. IF APPLICABLE, PRIOR TO THE REMOVAL OF ANY TREES, THE TREES TO BE RETAINED SHALL HAVE PROTECTIVE TREE BARRIERS PER THE TREE PROTECTION DETAIL.
- 26. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF THE SITE INCLUDING ALL MOWING, EDGING, TRIMMING, PRUNING & SPRAYING OF PESTICIDES & FUNGICIDES UNTIL THE TIME OF FINAL ACCEPTANCE BY THE OWNER IF PROJECT IS INSTALLED IN PHASES, OWNER WILL PROVIDE PHASING INFORMATION AT TIME OF BIDDING PROCESS.
- 27. THE CONTRACTOR SHALL READ AND ADHERE TO ALL WRITTEN SPECIFICATIONS. THESE PLANS ARE NOT VALID WITHOUT THE ACCOMPANYING TECHNICAL SPECIFICATIONS.
- 28. CONTRACTOR IS EXPECTED TO CARRY OUT ALL RESPONSIBILITIES AS SET FORTH IN THESE LANDSCAPE NOTES AND IN THE LANDSCAPE SPECIFICATIONS. THEY WILL BE STRICTLY ENFORCED BY THE OWNER/LANDSCAPE ARCHITECT.

PLANT LIST

TREES

| IKEES | | | | |
|-----------|-----|-----------------------------|-------------------------|--|
| SYM | QTY | BOTANICAL NAME | COMMON NAME | SPECIFICATION |
| ACR | 60 | ACER RUBRUM 'FLORIDA FLAME' | FLORIDA FLAME RED MAPLE | MIN. 3" CAL., 14'-16' HT. X 5'-6' SPRD., RPG |
| BET | 83 | BETULA NIGRA 'DURA HEAT' | DURA HEAT RIVER BIRCH | MIN. 3" AGG. CAL., 10'-12' HT. X 5'-6' SPRD., 3-TRUNK FULL, RPG |
| PED | 197 | PINUS ELLIOTTI DENSA | DENSA SLASH PINE | MIN. 3" CAL., 10'-12' HT. X 4' SPRD., RPG |
| QV | 91 | QUERCUS VIRGINIANA | LIVE OAK | MIN. 3" CAL., 14'-16' HT. X 5'-6' SPRD., SINGLE STRAIGHT LEADER, RPG |
| SP | 127 | SABAL PALMETTO | CABBAGE PALM | 16' SLICK CLEAR TRUNK, MATCHED, REGENERATED ROOTS, STRAIGHT |
| TD | 151 | TAXODIUM DISTICHUM | BALD CYPRESS | MIN. 3" CAL., 12'-14' HT. X 5'-6' SPRD., SINGLE STRAIGHT LEADER, RPG |

SHRUBS & GROUNDCOVERS

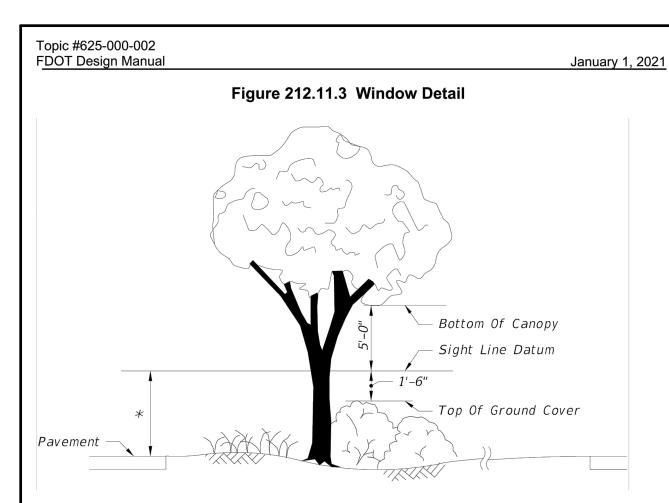
| SHRUBS & GROUNDCOVERS | | | | | | | | |
|-----------------------|------|---|------------------------|--|--|--|--|--|
| SYM | QTY | BOTANICAL NAME | COMMON NAME | SPECIFICATION | | | | |
| ERA | 959 | ERAGROSTIS ELLIOTTII | ELLIOTS LOVEGRASS | 1 GAL., FULL, 18" O.C. | | | | |
| HAM | 483 | HAMELIA PATENS 'COMPACTA' | DWARF FIREBUSH | 3 GAL., 12"-14" HT. X 14"-16" SPRD., 42" O.C. | | | | |
| IVS | 4065 | ILEX VOMITORIA 'STOKES DWARF' | DWF. YAUPON HOLLY | 3 GAL., 10"-12" HT. X 12"-14" SPRD., 24" O.C. | | | | |
| JCP | 162 | JUNIPERUS CHINENSIS PARSONII | PARSONS JUNIPER | 3 GAL., 10"-12" HT. X 14"-16" SPRD., 30" O.C. | | | | |
| MIM | 202 | MIMOSA STRIGILLOSA | SUNSHINE POWDERPUFF | 1 GAL., FULL, 18" O.C. | | | | |
| MUH | 2004 | MUHLENBERGIA CAPILLARIS | PINK MUHLY GRASS | 3 GAL., FULL, 36" O.C. | | | | |
| SM | 124 | SABAL MINOR | DWARF PALMETTO | 3 GAL., FULL, 60" O.C. | | | | |
| SB | 239 | SPARTINA BAKERI | CORDGRASS | 3 GAL., FULL, 36" O.C. | | | | |
| TRF | 1787 | TRIPSACUM FLORIDANUM | DWARF FAKAHATCHEE | 3 GAL., FULL, 42" O.C. | | | | |
| VOS | 2201 | VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT' | DWF. WALTER'S VIBURNUM | 3 GAL., 12-"-14" HT. X 14"-16" SPRD., 24" O.C. | | | | |
| VOW | 950 | VIBURNUM OBOVATUM 'WHORLED CLASS' | DWF. WALTER'S VIBURNUM | 3 GAL., 12-"-14" HT. X 14"-16" SPRD., 24" O.C. | | | | |
| ZAM | 1226 | ZAMIA PUMILA | COONTIE | 3 GAL., 14"-16" HT. X 12"-14" SPRD., 24" O.C. | | | | |

GROUNDCOVER SOD

| SYM | SQ. FT. | BOTANICAL NAME | COMMON NAME | SPECIFICATION |
|-----|---------|----------------------------|-------------|---|
| AGS | 996 | ARACHIS GLABRATA 'ECOTURF' | | SOLID SOD. PEST AND DISEASE FREE. WEED FREE |

| FGRASS | SO |
|---------------|----|
| | |

| SYM | SQ. FT. | BOTANICAL NAME | COMMON NAME | SPECIFICATION | | | |
|-----|---------|------------------------------|---------------------|---|--|--|--|
| SOD | 331669 | PASPALUM NOTATUM 'ARGENTINE' | ARGENTINE BAHIA SOD | SOLID SOD, PEST AND DISEASE FREE, WEED FREE AND FLUSHED | | | |



* Since observations are made in both directions, the line of sight datum between roadways is 3.5 feet above both pavements.

The horizontal limits of the window are defined by clear sight triangles. Within the limits of clear sight triangles, the following restrictions apply:

- Canopy of trees and trunked plants must be at least 5 feet above the sight line datum.
- The top of the ground cover plants must be at least 1.5 feet below the sight line



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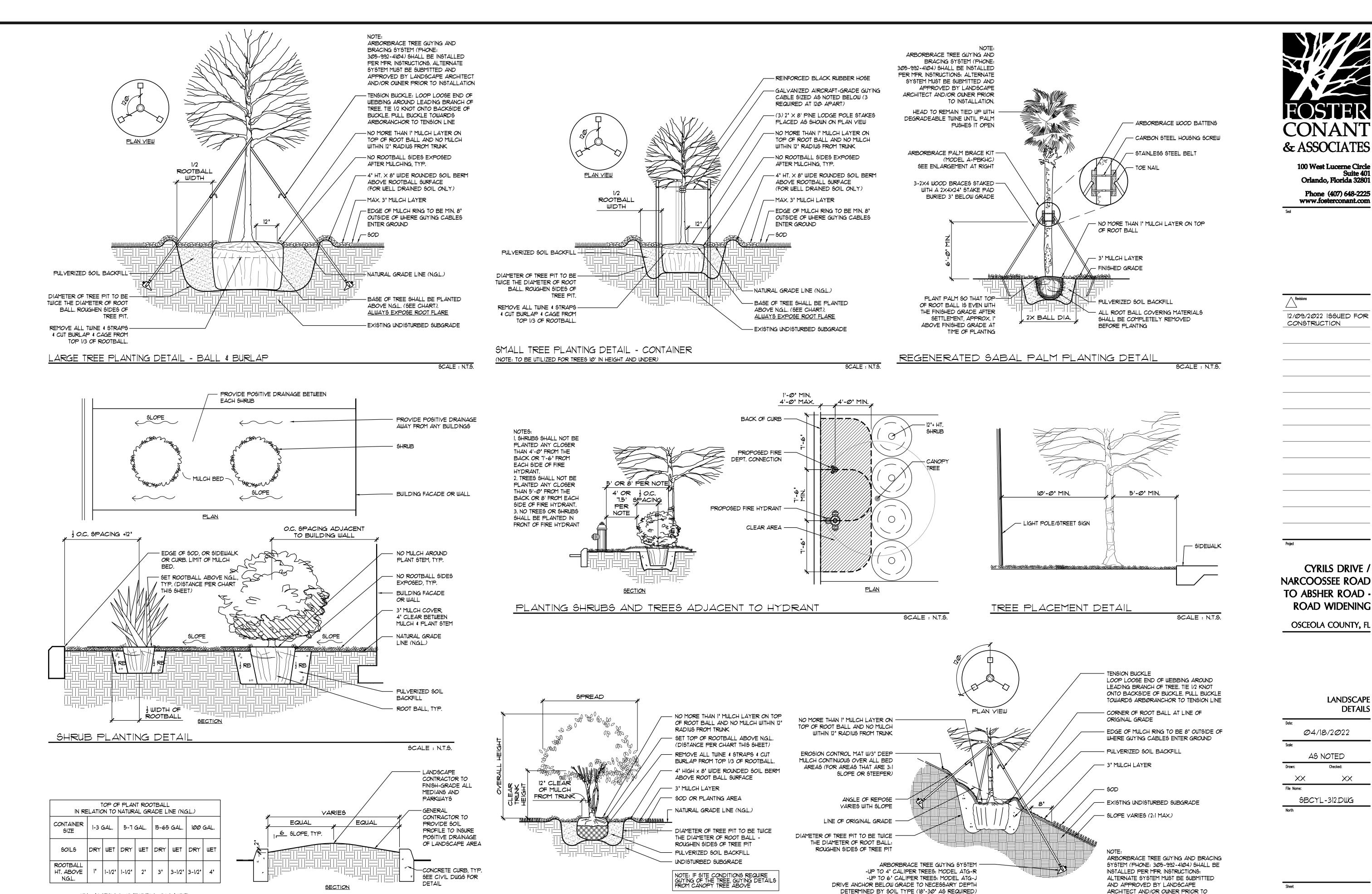
PLANT LIST & LANDSCAPE NOTES

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MULTI-TRUNK PLANTING DETAIL

SCALE : N.T.S.

PLANTING DEPTH CHART

FOR TREES AND SHRUBS

TYPICAL LANDSCAPE ISLAND DETAIL

INSTALLATION

SCALE: N.T.S.

TREE PLANTING ON SLOPE DETAIL

SCALE: N.T.S.

LANDSCAPE

DETAILS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A.This Section shall govern the furnishing of all sod, labor, materials, equipment and services necessary for the complete installation of all sodding and other items necessary to complete the work as shown on the Drawings and as specified herein.

1.02 GENERAL REQUIREMENTS

A.See Drawings for area to be sodded.

 B. Labor crews shall be directed by a landscape foreman experienced in plant materials, planting, reading blueprints, and coordination between job and nursery.

C.Coordinate work with other related work in order to expedite installation of work

1.03 APPLICABLE DOCUMENTS

A.The following publications of the issues listed below form a part of this Specification. 1. <u>American Joint Committee on Horticultural Nomenclature</u> AJCHN) Standard Plant Names, Second

2. <u>American National Standards Institute</u> (ANSI)-Z60.1-2004 Nursery Stock (sponsored by the American Association of Nurserymen, Inc.)

3. Grades and Standards for Nursery Plants, Parts I and II, State Plant Board of Florida.

PART 2 - MATERIALS

2.01 TOPSOIL

Alf the quantity of existing stored or excavated topsoil is inadequate for sodding, sufficient additional topsoil shall be furnished. Topsoil furnished shall be a natural, fertile, friable soil, possessing characteristics of representative productive soils in the vicinity. It shall be obtained from naturally well-drained areas. Topsoil shall be without a mixture of subsoil and free from Johnson grass (Sorghum halepense), nut grass (Cyperus rotundas) and objectionable weeds and toxic substances.

2.**0**2 LIME

A.Shall be ground limestone (Dolomite) containing not less than 85% of total carbonates, and shall be ground to such a fineness that 50% will pass a 100-mesh sieve and 90% will pass a 20-mesh

2.03 FERTILIZER

A.Commercial, fertilizer shall be 8-8-8 formulation, of which 60% of the nitrogen is in the urea-formaldehyde form and shall conform to the applicable State Fertilizer laws. It shall be granulated so that 80% is held on a 16-mesh screen, uniform in composition, dry and free-flowing.

2.04 SOD

A.Sod shall be as noted on the Drawings. Sod shall be fresh, healthy, living stems and attached roots. Sod shall be obtained from approved sources where the sod is heavy and thickly matted and free from ground pearl and fairy ring. The soil depth shall be uniform and 1'-1 1/2' thick. Sod shall be free of nut grass (Cyperus rotundas), Johnson grass (Sorghum halepense), and other objectionable weeds, and shall not contain material which might be detrimental to the development of the turf.

2.05 REQUIREMENTS

A.All areas within the limits of work indicated for sodding and all areas disturbed by the Contractor's operations, shall be grassed (sodded).

PART 3 - EXECUTION

3.01 INSTALLATION

A.Grading: Areas to be grassed shall be graded to remove depressions, undulations, and irregularities in the surface before grassing

B. Tillage: When it is determined by a Landscape Architect that the soil conditions warrant special attention, the area to be grassed shall be thoroughly tilled to a depth of 3" using a plow and disc harrow or rotary tilling machinery until a suitable seed bed has been prepared and no clods or clumps remain larger than 1'-1 1/2' in diameter. C.Applying Lime: The pH of the soil shall be determined. If the pH is below 5.0, sufficient

lime shall be added to provide a pH between 6.5 and 7.0. The lime shall be thoroughly incorporated into the top three to four inches of the soil. Lime and fertilizer may be applied in one operation.

D.Applying Fertilizer: Fertilizer shall be applied at the rate of 10 pounds per 1,000 sq. ft. and shall be broadcast over the surface after the sod has been placed.

E.Sodding: Sod shall be placed within 48 hours of harvesting. In addition sod shall not be left stacked for longer than 24 hours.

F.Placing Sod: The soil shall be soaked just prior to placing sod. Each block or strip of sod shall be butted firmly against the last. Gaps shall be filled with pieces of sod and topsoil. The sod shall not be stretched while placing. Immediately after placing sod, roll to provide firm contact with soil.

G. Watering: Sodding will not be authorized unless the planting soil has a moisture content level sufficient to prevent the immediate drying out of newly placed sod. Water shall be applied prior to sodding operations. At least one-half inch of water shall be applied uniformly to all areas to be sodded. In addition, watering will be required over all areas on which sodding has been completed. This application shall be made not later than 30 minutes after sodding has been completed and shall amount to at least one-half inch of water over the entire area sodded. Watering shall be done in a manner which will prevent erosion due to the application of excessive quantities in a concentrated area. Water source shall be provided by the Owner.

H.Winter Cover: All areas to be grassed shall be protected against erosion at all times. For protection during winter months, Italian rye grass shall be planted at the rate of four pounds per 1000 sq. ft. on all areas which are not protected by permanent grass.

I.Clean-Up: All excess soil, excess grass materials, stones, and other waste shall be removed from the site daily and not allowed to accumulate. All paved areas shall be kept clean at all times.

JMaintenance shall begin immediately following the last operation of sodding and continue until final acceptance. Maintenance shall include watering, mowing, replanting, and all other work necessary to produce a uniform stand of grass. Grassing will be considered for final acceptance when the permanent grass is healthy and growing on 100% of area to be sodded.

3.02 QUALITY CONTROL

A.Contractor quality control shall apply to all work in this Section in accordance with the provisions of Division I, General Requirements. Except where specifically testing, and approval shall be performed by the Contractor's quality control representative or a member of his staff. Where it is specified that a submission be made to others for approval, the CQC representative shall check the submission and satisfy himself that it complies with contract requirements prior to

submission to others for approval.

3.03 CONTRACTOR'S RECORD OF CERTIFICATION

1. <u>Certificate of Conformance</u> will be required for the following:

A.Contractor's records of certification will be required for the following, and three copies each of all documentation shall be furnished the Owner for record purposes:

b. Fertilizer

c. Topsoil

d. Lime

2. <u>Test Reports</u>: The results of laboratory tests performed on the topsoil material shall be submitted. The reports shall include the pH level, the amount of organic matter, and available phosphoric acid and potash of the soil intended for use in the work

3.04 REQUEST FOR FINAL ACCEPTANCE

A.The Contractor shall submit to the Owner or his Representative two copies of a written request for final acceptance of the grassing work. The request shall be submitted at least ten days prior to the anticipated date of acceptance. The condition of the grass will be noted, and the Contractor will be notified if maintenance is to continue.

3.05 GUARANTEE AND REPLACEMENT

A.All sod shall be guaranteed for a period of thirty (30) days from the time of job acceptance.

B. Replacement of sod necessary during the maintenance period shall be the responsibility of the Contractor, except for possible replacements of sod due to theft, vandalism, neglect by Owner or acts of negligence on the part of others.

C.At the end of the quaranty period, and at any time during the period, any sod that dies or is not in satisfactory condition, as determined by the Owner and the Landscape Architect, shall be removed and replaced with new, healthy material of the original. The new material shall be quaranteed as outlined above. The Landscape Contractor shall be responsible for the cost of the material and labor.

D.The time limit may be extended by agreement for any material in questionable condition at the end of the quaranty period.

END OF SECTION 32 92 00

SECTION 32 93 00 - LANDSCAPE

PART I- GENERAL

1.01 SCOPE OF WORK

A.This section covers furnishing and installing all landscape plants and non-plant materials covered by the drawings and these specifications. The work shall include materials, labor, equipment and services as described herein and indicated on the drawings. Also, the work shall include the maintenance of all plants and planting areas until acceptance by the Owner, and the fulfillment of all quarantee provisions as herein specified.

1.02 PLANTING LAYOUT

A.Before beginning work, the Contractor shall investigate and verify, in the field, the existence and location of all underground utilities and irrigation piping, and take precautions to prevent their disturbance. It shall be the responsibility of the Contractor to obtain all such information as it is made available. Plans and specifications of related work may be obtained from the Owner.

B. The Contractor shall locate all general reference points take precautions to prevent their disturbance perform the layout work be responsible for all lines, elevations and measurements of work executed under the contract exercise proper precaution to verify figures on drawings before laying out workt and be responsible for any error resulting from failure to exercise such precaution. The Contractor shall make field measurements for his own work and be responsible for its accuracy.

C.Discrepancies between conditions existing on the site and conditions indicated on the drawings shall be called to the attention of the Owner before or at the time plant locations are staked out. 2.10 SOIL SEPARATION MATS/FILTER FABRIC

D.In the event of a variation between the plant list and the actual number of plants shown on the plans, the plans shall control.

1.03 HORTICULTURAL STANDARDS

A.Unless otherwise noted, plant material, including collected materials, shall be grade FLORIDA NO. 1 or better as outlined under Grades and Standards for Nursery Plants, Parts I and II, State Plant Board of Floridat and shall also conform to American Standard for Nursery Stock, ANSI (American National Standards Institute, Inc.) Z60.1-2004 as approved by the American Association of

B. All plant names shall conform to the names given in Standardized Plant Names, 1942 Edition, prepared by the American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein shall conform generally with names accepted in the nursery trade. All plant materials shall be true to botanical, common and variety name. Botanical name shall have precedence over common name.

C.The Landscape Architect shall have the right, at any stage of the operations, to reject any and all work and materials that, in his opinion, do not meet with the requirements of these Specifications. Such rejected material shall be removed from the site and acceptable material substituted in its

1.04 CERTIFICATES OF INSPECTION

A.All plant material shall be inspected by the Florida Department of Agriculture, as required by state law. Plants of a grade less than that specified in the article titled HORTICULTURAL STANDARDS will not be accepted.

PART 2 - MATERIALS

2.01 SOIL BACKFILL

A.Soil for backfilling planting areas and plant pits shall be the existing surface soil, free from subsoil, objectionable weeds, litter, sods, stiff clay, stones, stumps, roots, trash, toxic substances, mortar, cement, limerock, asphalt, or any other material that may be harmful to plant growth or hinder planting operations. Poorly drained soil shall not be used.

B. Soil amendments shall be added to the soil in the amount and manner prescribed by soil analysis to obtain a pH of 6.5 to 7.0. Results from soil analysis and a list of the prescribed amendments shall be presented to the Owner and verified by the Landscape Architect prior to being incorporated into the soil.

C.If additional soil is required, it shall be furnished by the Contractor and shall be a natural, friable soil representative of productive, well-drained soils in the vicinity. It shall be obtained from well drained areas which have never been stripped before and shall be free of admixture of subsoil and foreign matter, stones, toxic substances, and any material or substance that may be harmful to plant growth.

- D. The Contractor shall provide the following information on imported topsoil:
- Specific location from which topsoil will be (or was) stripped.
- 2. Present Owner of that property.

3. Approximate amount of topsoil available.

4. Test results showing topsoil composition and analysis.

E.After mass grading of the site has been executed and before plants are installed, soil tests of the existing soils shall be performed by a qualified soils laboratory, in accordance with "Methods of Soils Analysis - Agronomy #3" as published by the American Society of Agronomy, and shall be performed at the Contractor's expense. Soil tests of the existing soils shall be performed at a minimum of four (4) tests per acre, or an adequate quantity to properly and completely test the proposed planting areas based on a plan provided by the Contractor for approval by the Landscape Architect. Soil testing of any imported backfill shall also be performed by a qualified laboratory as stated above.

F.Planting soil backfill for raised architectural planters, if applicable, shall consist of 40% potting soil, 40% coarse washed builders sand and 20% horticultural perlite.

G.Areas designated to be planted with flowering annuals, if applicable, shall be excavated to a depth of 8" and backfilled with a mixture consisting of 40% peat, 40% D.O.T. (coarse) sand, 10% pine bark (decomposed) and 10% cypress chips.

H.Planting soil backfill for tree wells, if applicable, shall be 2/3 approved topsoil and 1/3 coarse washed builder's sand.

2.002 FERTILIZER

A.Commercial fertilizer shall be LESCO 8-2-12 or as indicated by the project Horticulturalist. Fertilizer shall be uniform in composition, dry and free flowing.

2.03 DOLOMITIC LIMESTONE

A.Dolomitic limestone shall be a natural limestone, designated for agricultural use, shall contain not less than 85 percent of total carbonates, and shall be ground so that 50 percent will pass a 100 mesh sieve and 90 percent will pass a 20 mesh sieve.

2.04 PRE-EMERGENCE WEED CONTROL

A. Weed control shall be Ronstar 2G as manufactured by Bayer Environmental Science, Canada, Telephone 888,283,6847, www.bayeres.ca or Pendulum Aqua Cap as manufactured by BASF - The Chemical Company, Florida USA, <u>www.vmanswers.com</u> or contact product representative at ChrisKey@basf.com, Telephone 813.758.2344, or an approved equal.

2.05 WATER

A. Water will be available for use on site during the landscape installation at no cost to the Contractor. Care shall be exercised to assure that water is kept free of harmful chemicals, acids, alkalies, or any substance that might be harmful to plant growth.

2.06 BORICIDE

A.Boricide shall be Onyx manufactured by FMC Corporation, Memphis, TN USA, <u>www.pestsolutions.fmc.com</u> Telephone 800.321.1362, or 901.565.0301, or an approved equal.

A.All mulch shall be pine bark mini nuquets, 100 percent organic, Grade "B", or better. Alternative mulch types, if so identified on the drawings, shall be used.

2.08 GUYING AND STAKING MATERIAL

A. Stakes for supporting trees shall be Arbor Brace Tree Guying System.

2.09 DRAINAGE GRAVEL

A. Where indicated on the drawings, or where soil conditions deem it necessary, the Contractor shall install gravel subdrains beneath trees and/or planting areas to aid in soil drainage and percolation. The subdrain shall be constructed as detailed on the drawings, or as directed by the Landscape Architect. Drainage gravel shall consist of washed, clean gravel 3/4 inch to 2 inches in size.

A.Soil separation mats, if indicated on the drawings, shall be Mirafi 140N, as manufactured by Mirafi, 3500 Parkway Lane, Suite 500, Norcross, GA 30092 (phone 800234.0484) or approved equal. Mats shall be installed as indicated on the drawings, and edges overlapped a minimum of 4 inches. Care shall be taken to prevent tearing or excessive crushing during the installation process.

2.11 QUALITY OF PLANT MATERIAL

A.During inspection, as set forth hereinafter, all plant material will be judged, and rejections shall be based upon these standards. All plants shall comply with federal and state law requiring inspection for plant diseases and infestations. Inspection certificates required by law shall be made available to the Owner or Owner's Representative at his/her request.

- In determining the quality of plant material, the following elements will be valued:
- Root condition . Plant size (above ground)
- 3. Insect and disease free condition
- 4. General appearance (color, shape, pruning)

A deficiency in one or more of these areas will be sufficient reason to reject selectively or by

C.The Landscape Architect shall have the right, at any stage of the operations, to reject any and all work and materials which, in his opinion, do not meet with the requirements of these Specifications. Such rejected material shall be removed from the site and acceptable material substituted in its place.

2.12 SIZE AND MEASUREMENTS

A.Plants shall be measured when branches are in their normal position. Heights and spread dimensions specified refer to the main body of the plant and not to extreme branch tip to tip. The measurements specified are the minimum size acceptable and where pruning is required, these are measurements after pruning. When sizes are indicated as a range, the plant shall have the proper proportion as outlined in Florida Department of Agriculture, Grades and Standards for Nursery Plants Part I and II. Trunk caliper (trunk diameter) to be measured six (6) inches from the ground on trees up to and including four inches in caliper, and twelve (12) inches above the ground for tree calipers greater than four inches

B. Plants that have been headed back to conform to the size specified will not be acceptable. Plants larger than specified may be used if approved by the Ownert however, the use of such plants shall not increase the contract price.

2.13 LABEL

A.Plant materials shall have durable, legible labels stating, in weather resistant ink, the correct botanical and common names and size as indicated in the Plant List. Each plant, or sufficient representative samples of each delivered shipment, shall have labels securely attached in a fashion that will not interfere with normal plant growth. Plant materials that have (or will have) a seasonal bloom shall be tagged with labels indicating the specific variety of that species' botanical and common name.

2.14 BALLED & BURLAPPED & WIRE BALLED & BURLAPPED PLANTS

A.All ball sizes shall be of a diameter and depth to encompass the fibrous and feeding root system

necessary for full recovery of the plant after planting. All balls shall be firm, shall not be broken or cracked, and shall be wrapped and securely tied with heavy twine or wire. All trees shall be root pruned a minimum of 6 weeks before delivery.

When the tree is root pruned, the tree crown shall be selectively thinned to reduce the volume of the crown. This shall consist of thinning and shaping only. Care shall be taken to assure that the plant form will not be distorted and will remain typical of the species growth

Plants designated B&B or WB&B in the Plant List shall be adequately balled with firm, natural balls of soil in sizes at least equal to those set forth in ANSI Z60.1-2004. Balls shall be firmly wrapped with jute burlap or equivalent cloth capable of rotting in the ground.

No balled plant shall be planted if the ball is cracked, mushroomed, or broken either before or during the process of planting. Trees grown in grow bags shall not be acceptable. Synthetic strings, straps, and burlap material shall be properly removed from the root ball. Synthetic burlap is to be totally removed from the root ball.

2.15 COLLECTED PLANTS

A.All plant material (except Wax Myrtles and Sabal Palms) shall be nursery grown. Collected plants shall have been grown under climatic conditions similar to those in the locality of the project. All collected plants shall meet the requirements as specified and shall meet all specified grades and standards, unless otherwise qualified in the Plant List or these specifications. Root balls shall be increased in size one third greater than nursery grown plants.

2.16 CONTAINERIZED PLANTS

A.All container grown plants shall be well rooted and established in the container in which they are delivered to the site. The plants shall have been in that container sufficiently long for the fibrous roots to hold the soil together when the plant is removed from the container. Container grown plants found to be root-bound during planting will not be acceptable. Containerized trees have a tendency to dry out quickly. The Contractor shall be responsible for hand watering the trees at time of delivery through the time of final acceptance at a rate consistent with the nursery watering schedule to assure that the tree does not go into shock

2.17 SPECIMEN PLANTS

A.After receiving the Notice to Proceed, the Contractor shall locate all plants specified as specimen. The Contractor shall notify the Owner so they may agree on a time to mutually inspect the selected plants. The Owner will inspect and tag those plants that are acceptable for use. Expenses incurred by the Owner for any subsequent inspection of specimen plants, at any time, in addition to the mutually agreed time, shall be the responsibility of the Contractor.

2.18 PALMS (If Required)

A.Palms, except cabbage palms and unless otherwise indicated, shall be burlapped. Buds of palms shall be tied and supported in an upright position in accordance with the quidelines of Florida Department of Agriculture, Grades and Standards for Nursery Plants, Part II, Palms and Trees.

B. Special care shall be applied to the handling and planting of palms. Unless otherwise indicated, palms shall have heavy straight trunks with full heads. Sabal palm root balls shall be dug with a minimum of 3' diameter ball 3' deep. The head shall be tied and supported during transport with a 2x4 tied parallel to the trunk extending up to the foliage. Avoid excessive pressure on the petioles when tying the head. Canary Island Date palm heads shall be tied using a 4x4 wood pole.

C.Phoenix dactylifera 'Medjool' shall require a Certification of Variety certifying the genus, species and sub-variety of the material, signed by the material supplier and notarized.

D. All palms to be inspected by the Landscape Contractor prior to installation.

1. Eliminating factors for all Palms: a.Evidence of palm weevils or symptoms of lethal diseases such as Fusarium Wilt, Ganoderma butt rot, phytoplasma diseases, Thielaviopsis trunk rot, or Phytophthora bud rot.

b. Wood boring insect damage. c.Failure to meet the minimum requirements for rootball measurement or Florida No. 2 leaf count in Table I of Grades and Standards for Palms 2015.

d. Damage to the vascular tissue greater than $\frac{1}{2}$ " deep and more than 1" wide or 3" long. e. Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 20%. f. Palms improperly staked causing vascular tissue injury.

h. Naturally occurring vertical fissures exceeding one-inch in depth.

2. Eliminating factors for Regenerated Sabal Palms:

a. Evidence of palm weevils or symptoms of lethal diseases such as Fusarium Wilt, Ganoderma butt rot, phytoplasma diseases, Thielaviopsis trunk rot, or Phytophthora bud rot. b. Wood boring insect damage. c.Failure to meet the minimum requirements for rootball measurement or Florida No. 2 leaf count in

Table 1 of Grades and Standards for Palms 2015. d. Damage to the vascular tissue greater than 3/4" deep and more than 1" wide or 3" long. e. Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 15%. f. Rootball vertical surface has less than 50% covered by visible roots, excluding top six inches.

h. Extreme succulence. i. Naturally occurring vertical fissures exceeding one-inch in depth.

q. Palms improperly staked causing vascular tissue injury.

3. Eliminating factors for Cropped Sabal Palms: a. Evidence of palm weevils or symptoms of lethal diseases such as Fusarium Wilt, Ganoderma butt rot, phytoplasma diseases, Thielaviopsis trunk rot, or Phytophthora bud rot.

c.Failure to meet the minimum requirements for rootball measurement in Table 1 of Grades and Standards for Palms 2015. d. Damage to the vascular tissue greater than 3/4" deep and more than 1" wide or 3" long. e. Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 15%.

f. Palms improperly staked causing vascular tissue injury. . Extreme succulence. E.h. Naturally occurring vertical fissures exceeding one-inch in depth.

2.19 FLOWERING ANNUALS

b. Wood boring insect damage.

A.Landscape Contractor to submit "Flowering Annuals" selections to Owner's Representative and/or Landscape Architect for approval prior to purchasing. Flowering annual selections to be based on availability, quality, and growing season. Locations and spacing as indicated on drawings.

2.20 SUBSTITUTIONS

A.The use of materials differing in kind, quality or size from those specified will be allowed only after the Owner is convinced that all means of obtaining the specified materials have been

B. Where it is indicated that the Contractor may furnish or use a substitute that is equal to the material or equipment specified and if the Contractor is to furnish or use a proposed substitute, he shall, after the award of the contract, make written application to the Owner for acceptance of such a substitute. The substituted product or method shall be equal or superior in all respects to the specified product or method, shall perform adequately the duties imposed by the general design, shall be compatible with all other elements of the job, and shall be sufficient to complete the job. The substitution shall not add cost to the contract. Should it be necessary to accept a substitute of a quality less than specified, the unit price shall be used to adjust the contract price downward accordingly. No substitution shall be ordered or installed without the written permission of the Owner.

& ASSOCIATES

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12/09/2022 ISSUED FOR

CONSTRUCTION

CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -

> LANDSCAPE **SPECIFICATIONS**

Ø4/18/2Ø22

ROAD WIDENING

OSCEOLA COUNTY, FL

SBCYL-313.DWG

- PART 3 EXECUTION
- 3.01 DELIVERY, STORAGE AND HANDLING OF PLANT MATERIAL

specifically for use in tree handling may be used.

- A.The Contractor shall exercise care in handling, loading and unloading, storage and transporting all plant material and allied materials to prevent damage. The Contractor shall assume full responsibility for protection and safekeeping of products stored on the job.
- B. The Contractor shall dig and prepare B&B and WB&B plant material for shipment in a manner that will not damage roots, branches, shape and future development after planting.
- C.Trees indicated on the plans as WB\$B and those where size, soil conditions and distance of transport to the site would warrant, shall be wireballed. Bottom wired baskets manufactured
- D. The Contractor shall handle all plants so that roots and branches are protected at all times from drying out, heating and from other injury. All plants shall be handled by the ball or container.
- E. When transporting plants to and at the site, the Contractor shall make provisions to protect plants from wind damage by avoiding high-speed highways, transporting in enclosed or partially enclosed vehicles, or covering the plants with burlap or other suitable material. Plants severely damaged by wind will be rejected.
- F.Any plant with signs of insects, their eggs or larvae, or disease will be rejected and shall be removed from the project site.
- G.Only the nursery stock intended for planting on a particular day shall be delivered and stored on the site during the day unless otherwise acceptable to the Owner. All plants shall be stored in one location as designated by the Owner, protected from wind and kept moist. The roots of all plants that cannot be planted immediately in soil shall be covered with mulch and other suitable material. No plants shall be taken from the temporary storage area for planting on the project until after the tree pits or holes for the plants in the section to be planted have been properly excavated and prepared ready to receive the trees and shrubs.
- H.Trees moved by winch or crane shall be thoroughly protected from chain marks, girdling, or other bark slippage by means of burlap, wood battens or other acceptable method.
- 3.02 NONPLANT MATERIALS
- A.Fertilizer shall be delivered to the site in original, unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to state law. In lieu of containers and provided that it is to be applied at the time of delivery, fertilizer may be furnished in bulk, and a certificate indicating the above information shall accompany each delivery.
- B. Pesticide and herbicide materials shall be delivered to the site in the original, unopened containers. Containers that do not have a legible label that identifies the Environmental Protection Agency registration number and the manufacturer's registered uses will be rejected.
- C.Storage of materials shall be in the area designated for use by the Owner. All materials shall be kept in dry storage and away from contaminants.
- 3.03 PREPARATION BEFORE PLANTING
- A.The Contractor shall verify that final grades have been established prior to beginning planting operations. All unsatisfactory grading shall be reported to the Owner, and the Contractor shall not proceed with the work until the unsatisfactory conditions have been corrected. When conditions detrimental to plant growth are encountered, such as rubble, fill or adverse drainage conditions, the Contractor shall notify the Owner for directions.
- B.Should undesirable existing vegetation be present on the site at the time of installation, the Contractor shall prepare the site for planting by use of chemicals, when used as recommended by the manufacturer, and/or mechanical means acceptable to the Owner.
 - Care shall be exercised to avoid any misuse of chemicals that would create detrimental residual conditions. Care must also be used not to alter final grades that have been established or cause damage to previously established turf areas.
- C.All planting bed areas shall be treated with a pre-emergent herbicide before planting operations.
- D.The Landscape Contractor shall be responsible for conducting percolation tests throughout the site where new plantings will be placed. The percolation test locations shall be of sufficient number (minimum of twelve (12) tests per one (1) acre) to test dissimilar soils used on site, low areas, areas that may be isolated by sidewalks and buildings and areas that are observed during the construction process that hold water.
- 1. Percolation test shall consist of digging a 12" diameter hole with vertical sides to a depth of 12". Fill the hole with water and measure the rate of absorption based on inches per hour. An ideal percolation rate would be 1"-3" per hour.
- 2. If the percolation is less than I' per hour, the soils should be amended or replaced to allow proper drainage. If the percolation is greater then 4' per hour, the soils should be amended with peat or other organic matter to retain moisture.

3.04 SITE PREPARATION

- Alf so called for by the Owner, all plant locations and the areas of all planting beds shall be staked out on the ground, for acceptance by the Owner, before planting operations begin. The Contractor shall stake the location of the center of each tree and paint the outline of each shrub and groundcover bed. The stakes shall be oriented in a vertical manner so that they can be viewed and read from one direction. The Contractor shall give the Owner notice 24 hours prior to the completion of staking described herein.
- B. The Contractor shall verify the location of underground utilities, and irrigation heads and valves, and provide markers or other suitable protection, where necessary, to prevent damage.
- 3.05 EXCAVATION OF PLANTING AREAS
- A.No tree or shrub pit shall be dug or prepared until their location is acceptable to the Owner and percolation tests and soils analysis have been completed and approved. Reasonable care shall be exercised to have pits dug and soil prepared prior to moving plants to their respective locations for planting to ensure that they will not be unnecessarily exposed to drying elements or to physical damage.
- B. Circular pits with vertical sides shall be excavated for all plants. The depth of all plant pits shall be enough to accommodate the ball or roots and the prepared soil in the bottom of the pit. Diameter of pits for trees shall be at least two (2) times the diameter of the ball.
- C.Plant beds and pits shall be tested for proper percolation per 3.03. Conditions which are not suitable per 3.03 shall be brought to the attention of the Owner. A written proposal and cost estimate for correction of such conditions shall be submitted to the Owner for acceptance, before proceeding with the work.
- D. All tree pits in curbed planting islands, tree wells, or in areas in which the soil has been compacted to an undesirable density, shall be excavated to a depth at least two feet greater than the measured depth & diameter of the ball. The minimum depth & diameter of an excavation shall be four feet. Soil backfill in areas of densely compacted soil must meet specification 2.01-C. It is the Contractor's responsibility to dispose of the unsuitable soil to an approved location.
- E.In shrub and groundcover beds where soils have been compacted to a density that is detrimental to plant growth, the Contractor shall loosen soils to a depth of 18" minimum to allow root penetration beyond the planting pit.
- F.If acceptable for use, existing topsoil in shrub and groundcover beds shall be treated with the specified soil amendments, at rates determined by soil tests. Amendments shall be incorporated into the soil to a depth of 12 inches. Where soil is not acceptable as determined by soil tests, the

soil in the entire area shall be removed to a depth of 8 inches and replaced with the specified planting soil.

3.06 PLANTING

A.All plants, except as otherwise specified, shall be centered in their pits, faced for best effect and set plumb for backfilling.

- B. Burlap on B&B and WB&B plants shall be removed from top one third of the ball. Burlap shall not be removed from under balls. If the ball is cracked or broken before or during planting process, the plant shall not be planted and shall be removed from the site. All synthetic strings, straps, and wire cages shall be removed from the top third of the root ball. Synthetic burlap shall be removed completely.
- C.Plants shall be removed from cans by cutting two sides of a container with an acceptable can cutter. Sides shall not be cut with a spade. Sides of knockout cans shall not be cut. Plastic containers with slanted sides shall not require cutting. Plants shall be removed from the container carefully, without injury or damage to the plant and root system.
- D. Bottom of plant boxes shall be removed before planting. Sides of the box shall be removed, without damage to the root ball, after positioning the plant and partially backfilling around it. The Contractor shall hand water containerized trees from the time of delivery until the time of final acceptance at a rate consistent with the nursery conditions from which the trees were obtained. Trees which go into shock due to insufficient water may be rejected.
- E.Plants shall be set in the center of pits and shall be plumb and straight and at such a level that after settlement the root crown will be level with the surrounding grade.
- F.Plant holes shall be backfilled with the specified planting mixture placed in layers around the roots or ball. Each layer shall be carefully tamped in place in a manner to avoid injury to the roots or ball or disturbing the position of the plant. When approximately two thirds of the plant hole has been backfilled, the hole shall be filled with water and the soil allowed to settle around the roots. Balled and burlapped plants shall have the burlap cut away or folded back from the top of the ball before applying the water. After the water has been absorbed, the plant hole shall be filled and tamped lightly to grade. Any subsequent settlement shall be brought to grade.
- G.Immediately after each tree pit is backfilled, a shallow basin slightly larger than the pit shall be formed with a ridge of topsoil to facilitate watering. This soil saucer shall be formed in a circle and tamped around each tree so that the saucer will retain water. Where curbing occurs around plant pits, the saucer shall be omitted.
- H.Should the site consist of well draining, sandy soils, the Contractor shall incorporate the use of water retentive additive Terra-Sorb AG for all shrubs, groundcovers, annuals, and trees at the manufacturers suggested rates.

3.07 FERTILIZING

A.Each tree and shrub shall be fertilized by placing the manufacturer's recommended amount around the base of the ball before backfilling.

3.08 STAKING, GUYING AND WRAPPING

- A.Staking or guying and wrapping of trees shall be done immediately after they are planted. Each plant shall stand plumb after staking or guying has been completed. It shall be the Contractor's responsibility to ensure that all trees are plumb and secure after planting. Staking of trees of a 10 foot height or less shall be at the discretion of the Owner. All other trees shall be staked.
- B. Immediately after planting, trees shall be staked and guyed for support with ArborBrace Tree Guying System per manufacturer's instructions.
 I. ATG-R for up to 4" caliper trees: (3) Polypropylene guylines ¾"x12'=800 lb test, olive drab, UV
- resistant± (3) nickel plated spring cam-lock tensioning clips± (3) arrowhead nylon anchors (4"x3-3/4").
- 2. ATG-J for up to 6" caliper trees: (3) Polypropylene guylines 1"x12'=1000 lb test, olive drab, UV resistant± (3) 1-1/4" nickel plated, non-rusting, spring cam-lock tensioning clips (1500 lb break strength± (3) arrowhead nylon anchors (5-1/2"x4-1/2").
- 3. Care shall be taken when driving anchors to avoid damaging the tree roots.
- C.If planted while void of foliage, the trunks of all deciduous trees shall be wrapped spirally from bottom to top, and shall be securely tied with cord at top and bottom and at 2 foot intervals along the trunk. The wrapping shall overlap and entirely cover the trunk from the ground to the height of the second branches and shall be neat and snug. Overlap of wrapping material shall be approximately 2 inches. Trees shall be inspected for injury to trunks, evidence of insect infestation and improper pruning before wrapping.

3.09 MULCHING

Almmediately after planting operations are completed, all tree and shrub saucers, and shrub and groundcover beds shall be covered with a min. 3 inch layer of pine bark mini nuggets, unless an alternate mulch is specified on the plans. Limits of the mulch shall be as indicated on the drawings.

3.10 PRUNING

- A.Each tree and shrub shall be pruned in accordance with standard horticultural practice to preserve the natural character of the plant and in the manner fitting its use in the landscape design. Pruning shall be done with clean, sharp tools and as indicated on the drawings.
- B. Approximately one third of the growth of large deciduous trees (those with 2 inch caliper or larger) shall be pruned by removal of superfluous branches. Main leaders of trees shall not be cut back. Branches shall be thinned out and not merely cut back. Long side branches may be shortened. Shrubbery with extremely heavy tops shall have one fourth to one third of the weaker growth removed by thinning.

3.11 CLEANUP

- A.During the course of planting, excess and waste materials shall be continuously and promptly removed daily, lawns kept clear, and all reasonable precautions taken to avoid damage to existing structures, plants and grass. After completion of the work, the entire site shall be cleared of excess soils, waste material, debris and all objects that may hinder maintenance and affect the visual appearance of the site.
 - The Contractor shall clean all roads and walks of dirt film and soil clods. The Contractor shall also pressure clean and broom sweep all asphalt pavement prior to the final lift of asphalt to be laid.

3.12 DISTURBED AREAS

- A.All areas outside of the limits of work that are disturbed by the Contractor's construction activities shall be repaired and replanted to its original condition.
- 3.13 GUARANTEED PROVING PERIOD
- A.There shall be a guarantee period of I year for trees and specimen material and 3 months for shrubs. This guarantee period shall start at the final acceptance date. Contractor shall replace any and all plant material that die during this guarantee proving period. Replacement of plants necessary during the guarantee period shall be the responsibility of the Contractor, except for possible replacements of plants resulting from removal, vandalism, acts of neglect on the part of others, or acts of God. All replacement material shall have the same guarantee time (I year from installation of replacement for trees and specimen material and 3 months for shrubs).
- B. Planting maintenance shall include all necessary watering, cultivation, weeding, pruning and spraying the wrapping and mulching the straightening of plants which lean or sag and which develop more than a normal amount of settlement the such adjustments to include excavating around and leveling or raising the ball when so directed the and all other incidental work necessary for proper

maintenance as directed by the Owner until substantial completion and written release.

C.Transplanted material (if applicable) shall not be guaranteed, however, good horticultural practices should be used before, during and after the material is transplanted. Good horticultural practices should include but not be limited to, all necessary watering, pruning and spraying± wrapping and mulching± fertilizing± moving± maintaining the same orientation and grade level from the original location± and all other incidental work necessary for proper transplanting.

3.14 FINAL INSPECTION AND ACCEPTANCE

A.The Contractor shall notify the Owner in writing when the work has been completed in accordance with this Contract and request an inspection. The Owner will make the inspection of the work and report findings as to acceptability and completeness. Any work remaining to be done shall be subject to re-inspection before final acceptance. The Contractor will be notified in writing by the Owner of the final acceptance of the work.

3.15 CONTRACTOR'S RESPONSIBILITY AFTER ACCEPTANCE

A.The Owner may elect to assume maintenance of all work, at the time of acceptance, or may elect to contract for maintenance by others for a specified period. Should maintenance after final acceptance be the responsibility of those other than the Contractor, the Contractor shall monitor all work for which he is responsible by guarantee, to assure that maintenance being performed will not jeopardize the condition and quality of the work and materials guaranteed by the Contractor. Any inadequate or damaging maintenance practices shall be reported immediately in writing to the Owner so that appropriate measures may be taken to correct the condition. Failure to so notify the Owner will invalidate any later claim of negligence or malpractice in maintenance.

3.16 ACCEPTANCE AND REPLACEMENT OF PLANT MATERIAL

A.At the expiration of the proving period, an inspection of the plantings will be made by the Owner Only those plants that are alive and normally healthy will be accepted. Unaccepted material shall be removed and replaced by the Contractor at his own expense, during the next planting season. Material and method of replacement planting shall be the same as specified for the original planting unless otherwise directed. The Contractor shall continue to make replacements until a plant shows vigorous and healthy growth for a period of I year from the date of acceptance by the Owner. All such replacements will be inspected for acceptance at the end of the proving period by the Owner.

END OF SECTION 32 93 00



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Revisions

12/09/2022 ISSUED FOR CONSTRUCTION

CYRILS DRIVE /
NARCOOSSEE ROAD
TO ABSHER ROAD ROAD WIDENING

OSCEOLA COUNTY, FL

LANDSCAPE SPECIFICATIONS

Date: Ø4/18/2Ø22

Drawn: Checked:

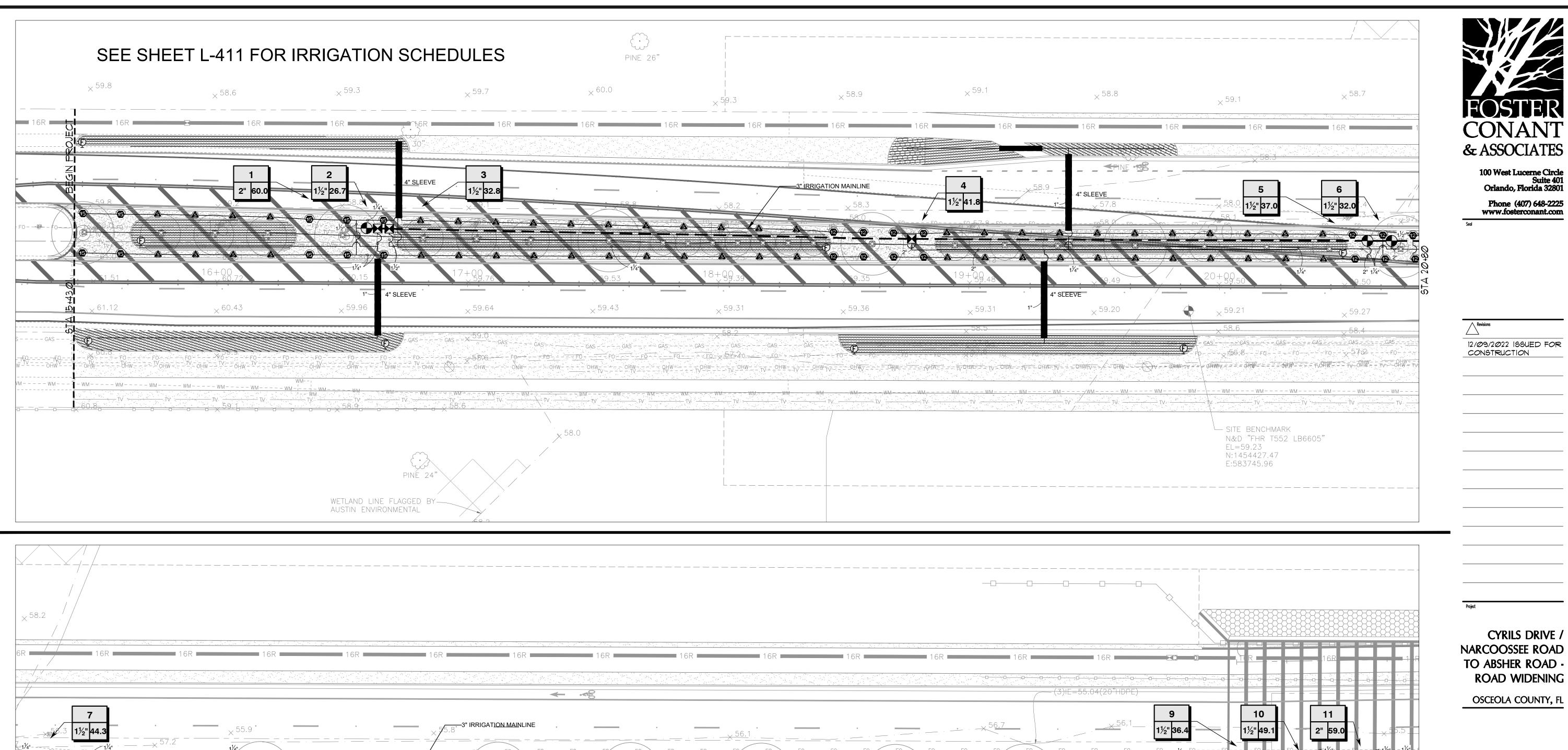
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File Name:

SBCYL-314.DWG

Sheet

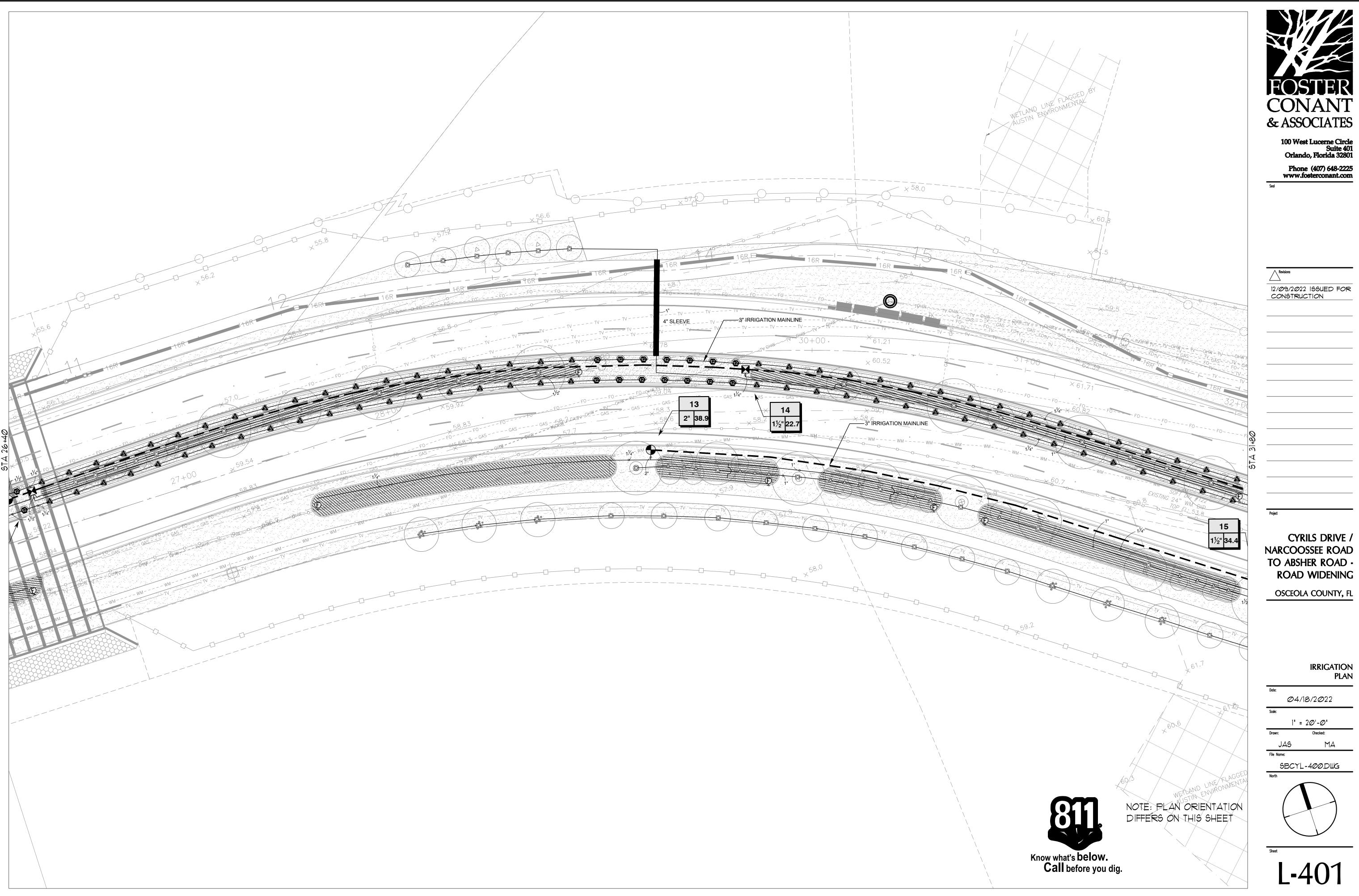
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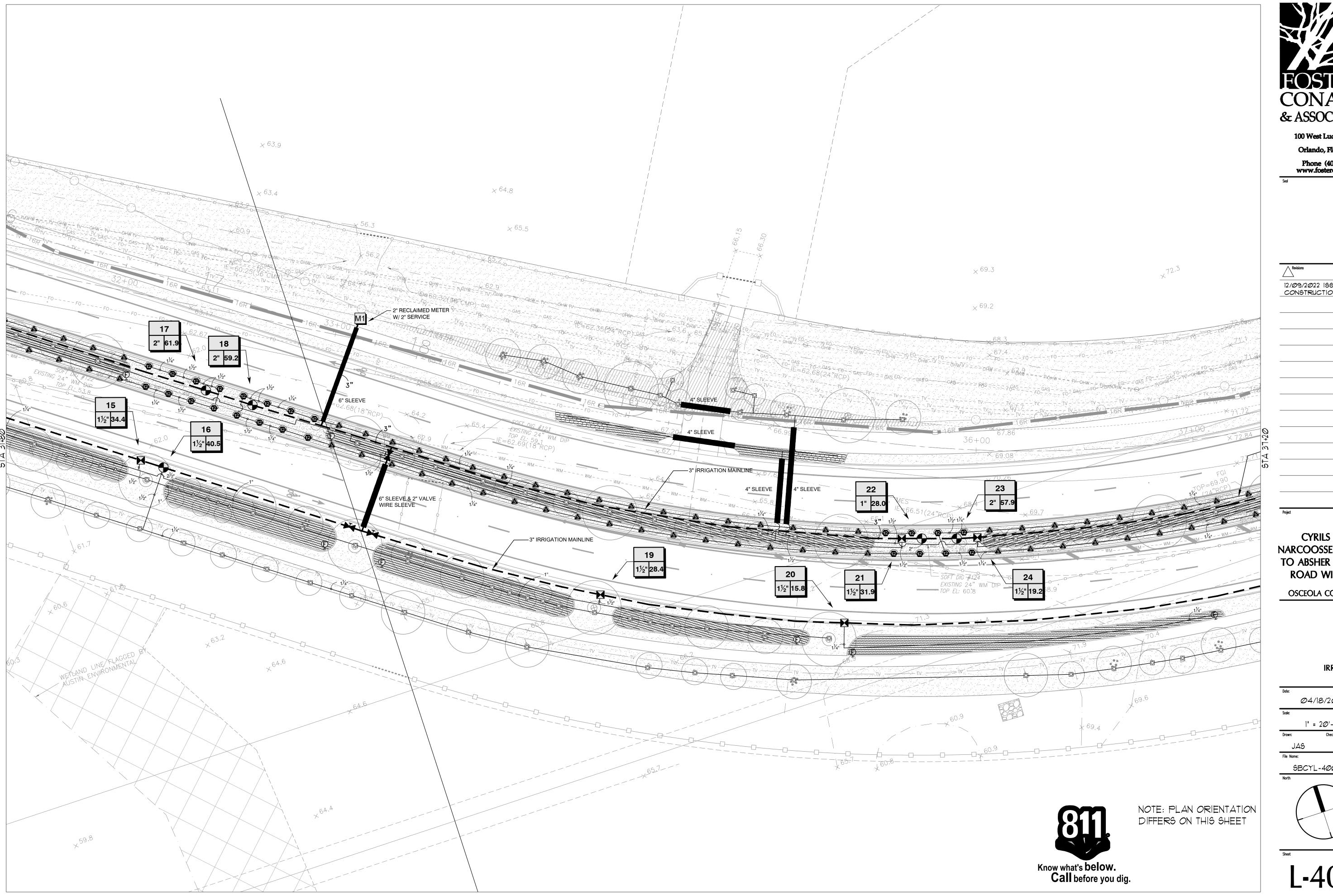
CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -

IRRIGATION

(3)IE=55.35(20"HDPE)









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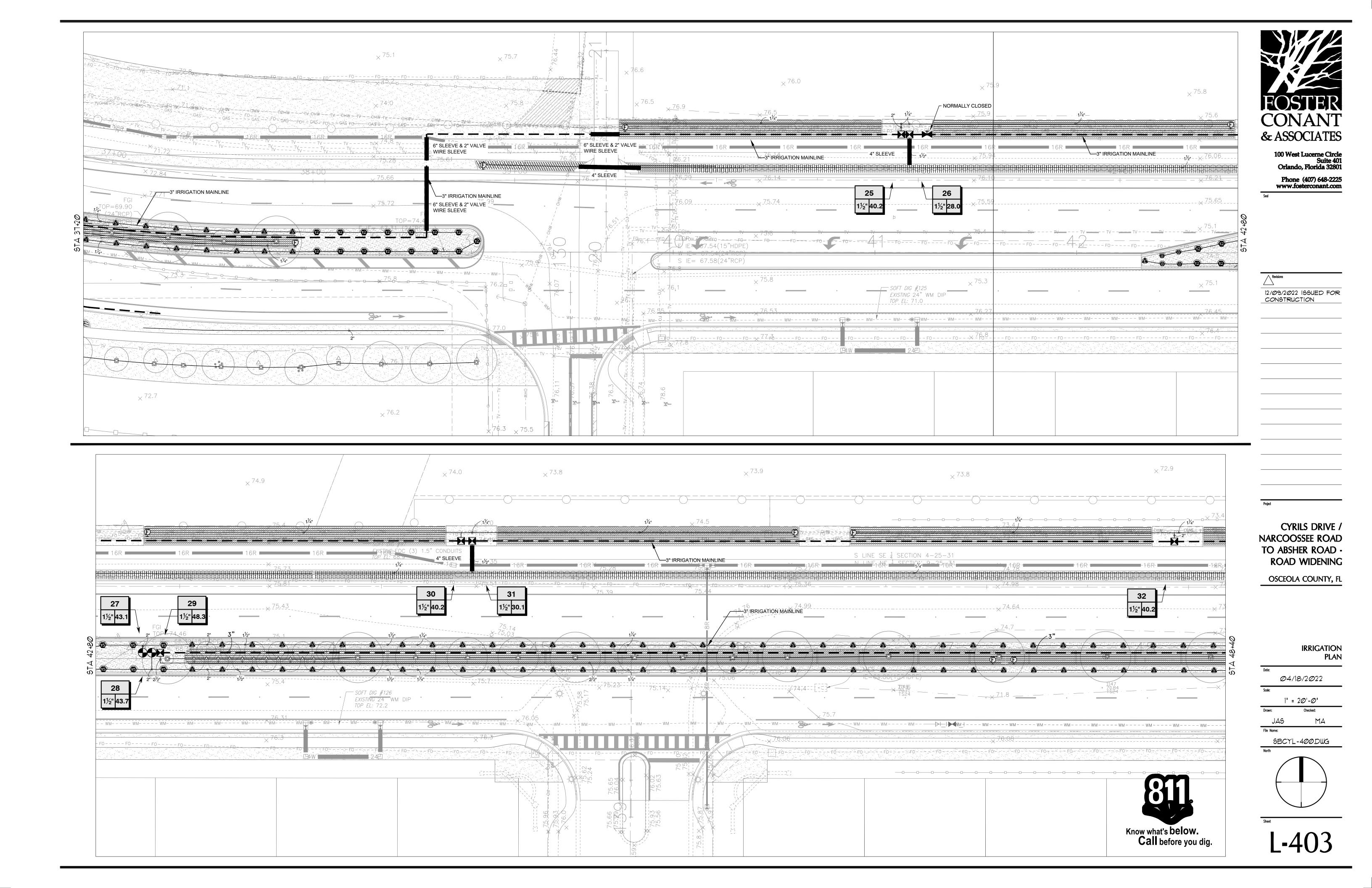
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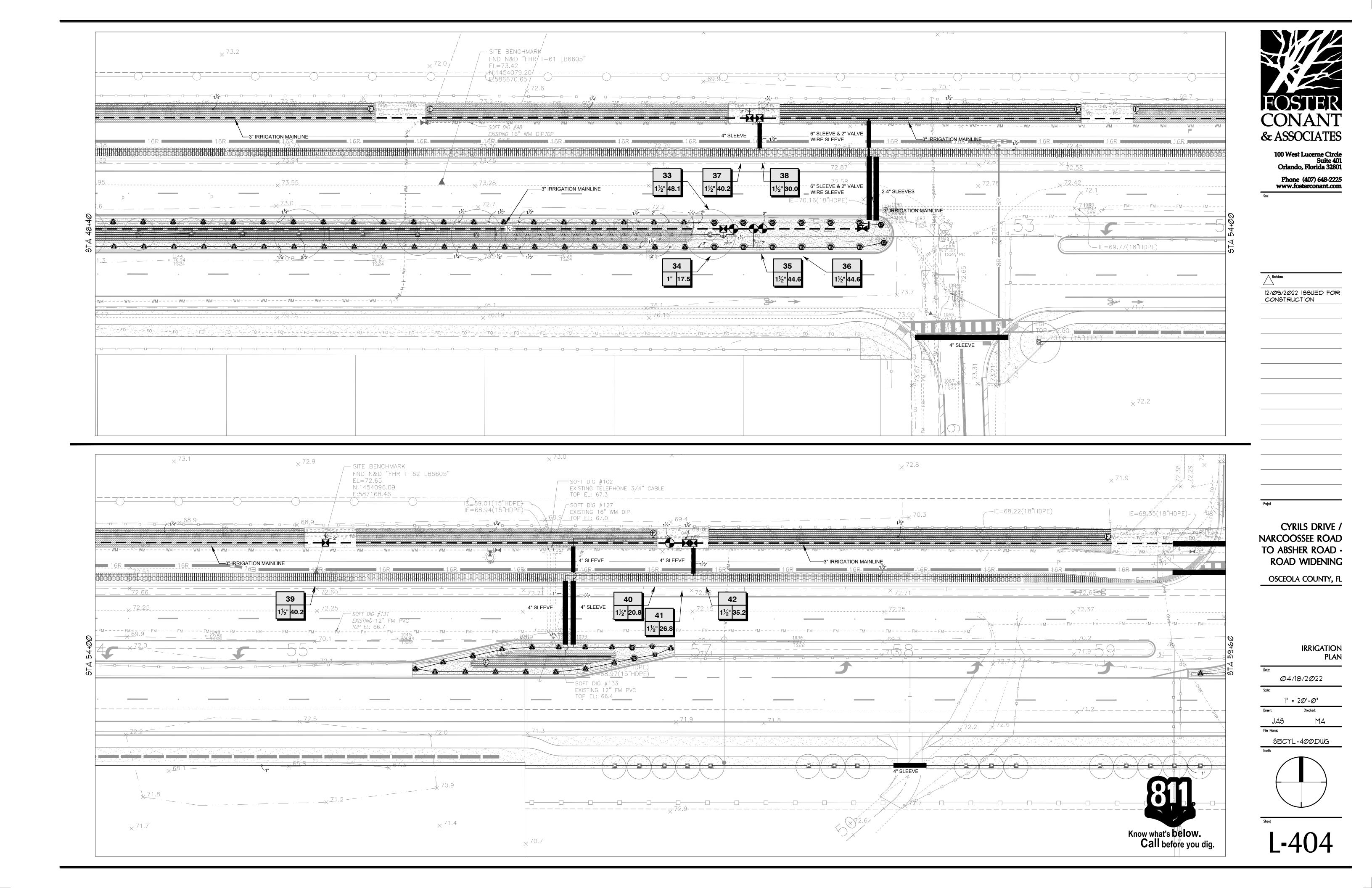
12/09/2022 ISSUED FOR CONSTRUCTION

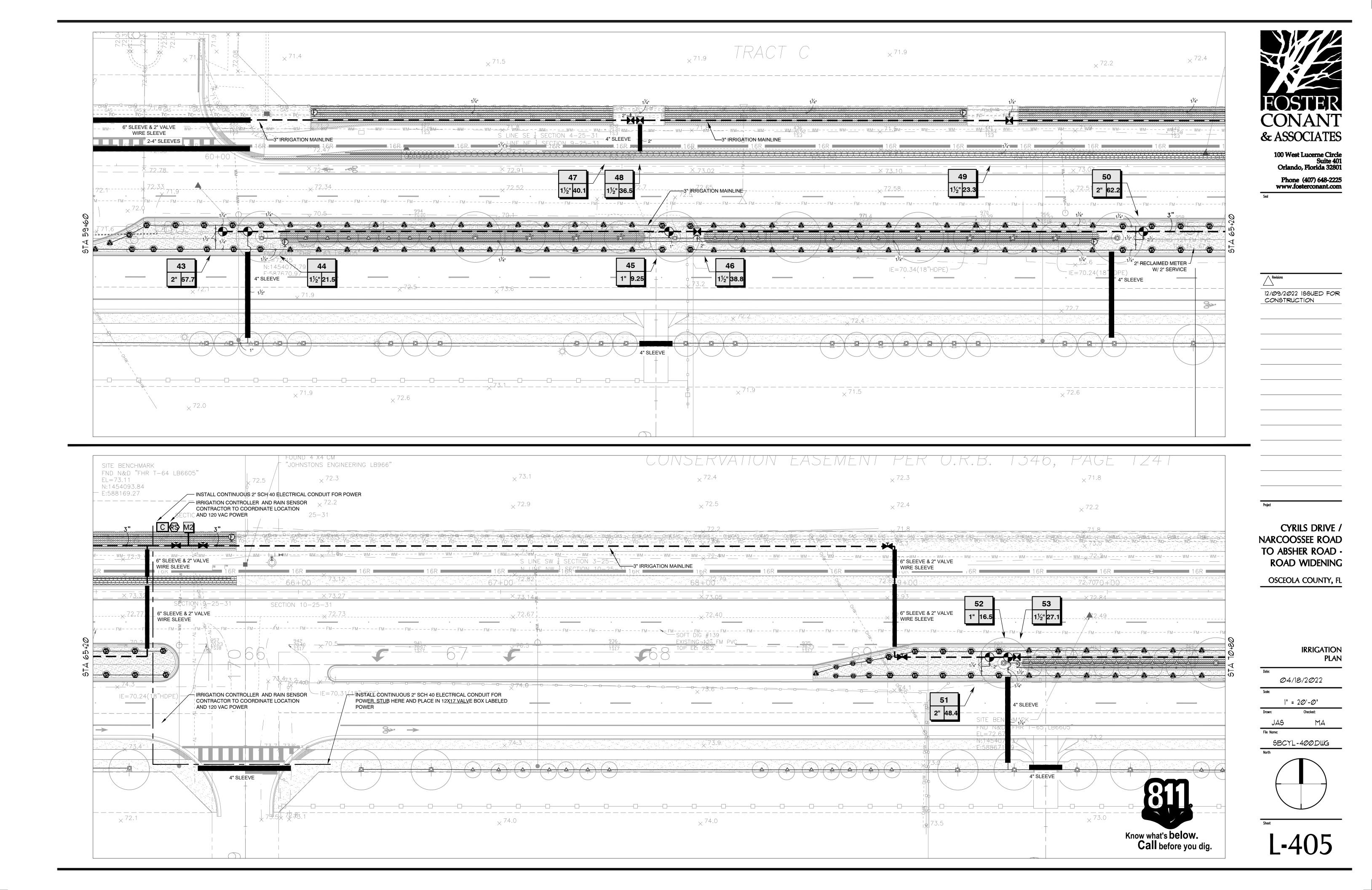
CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -**ROAD WIDENING**

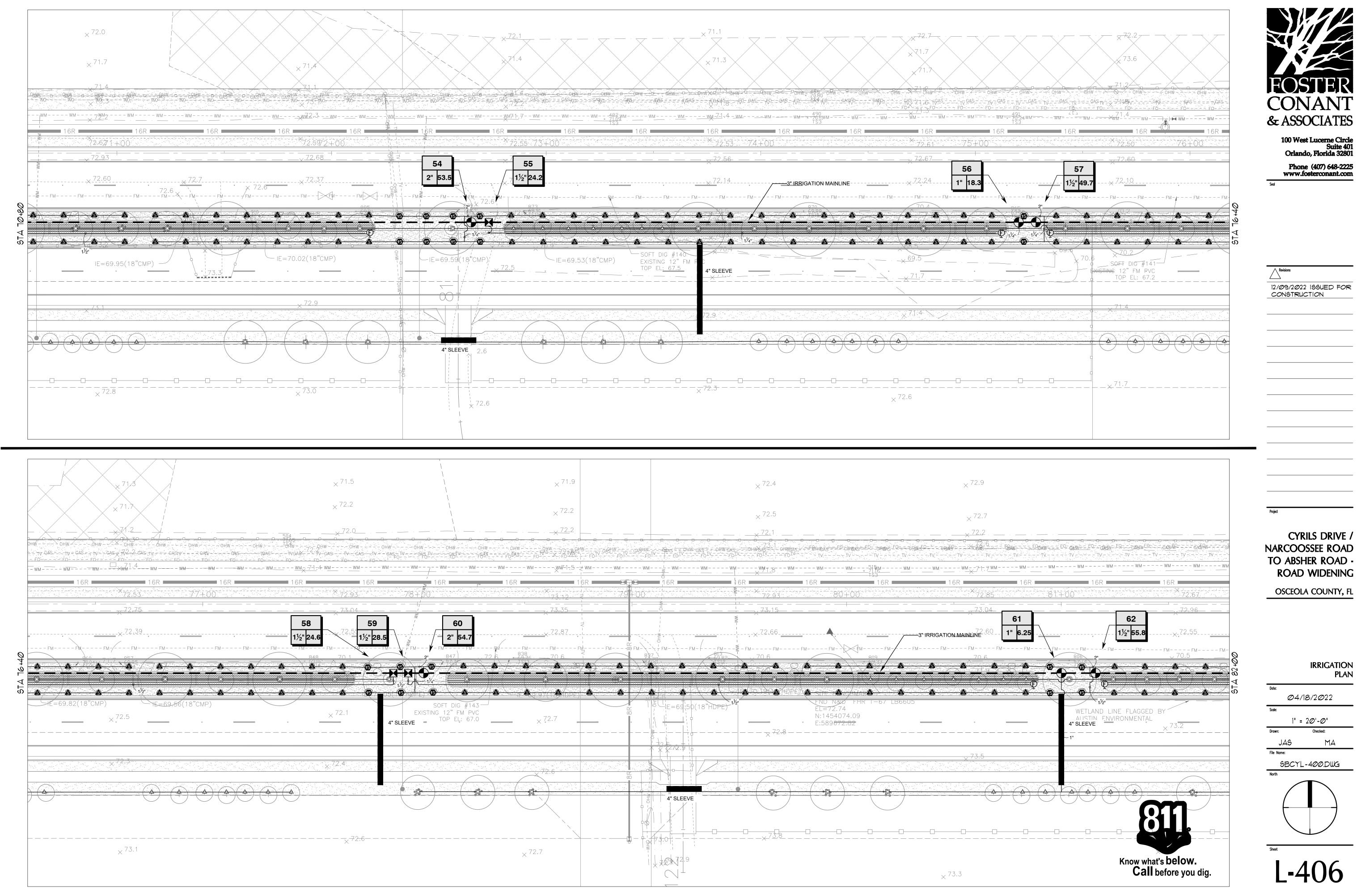
OSCEOLA COUNTY, FL

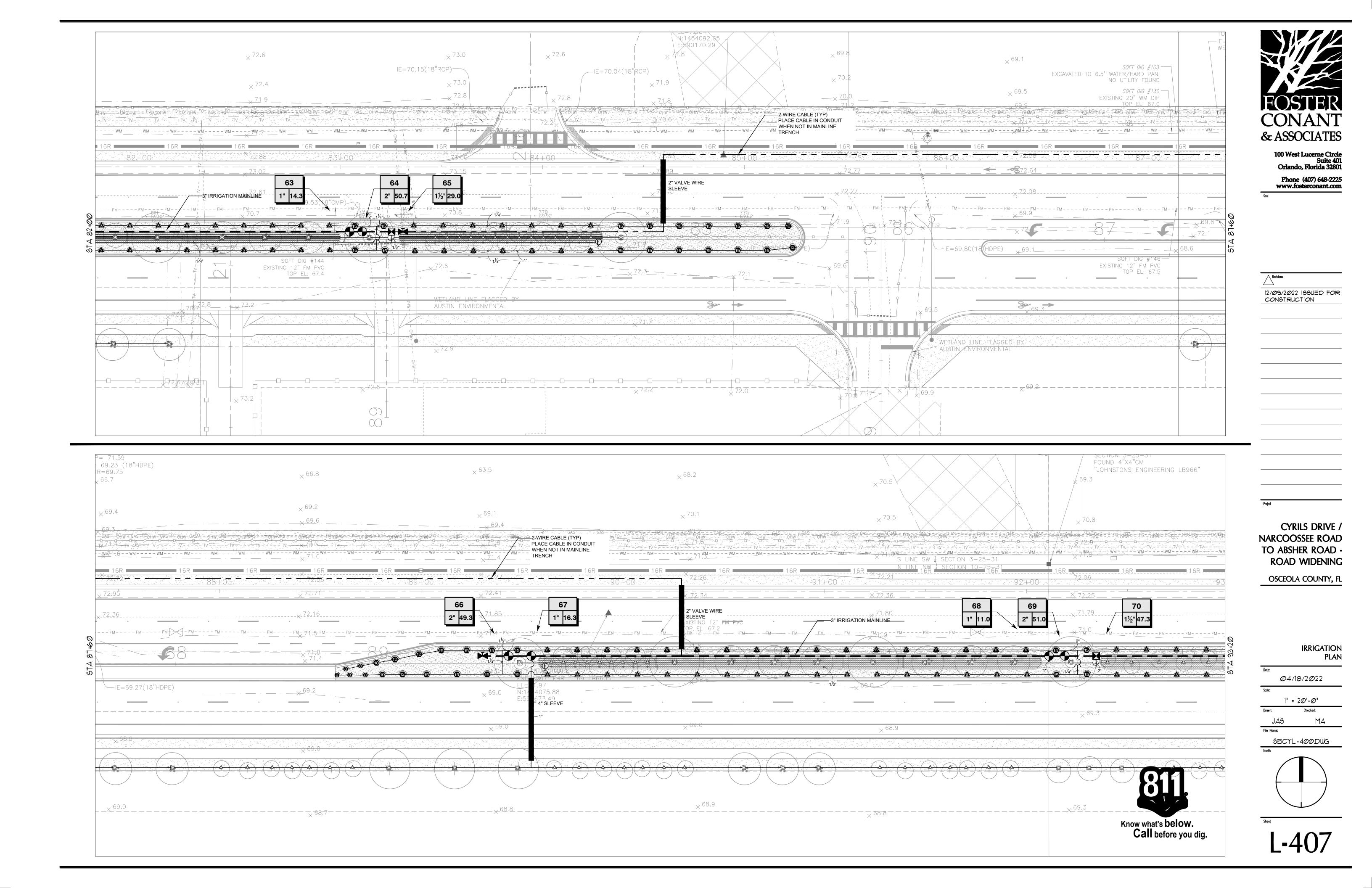
IRRIGATION PLAN

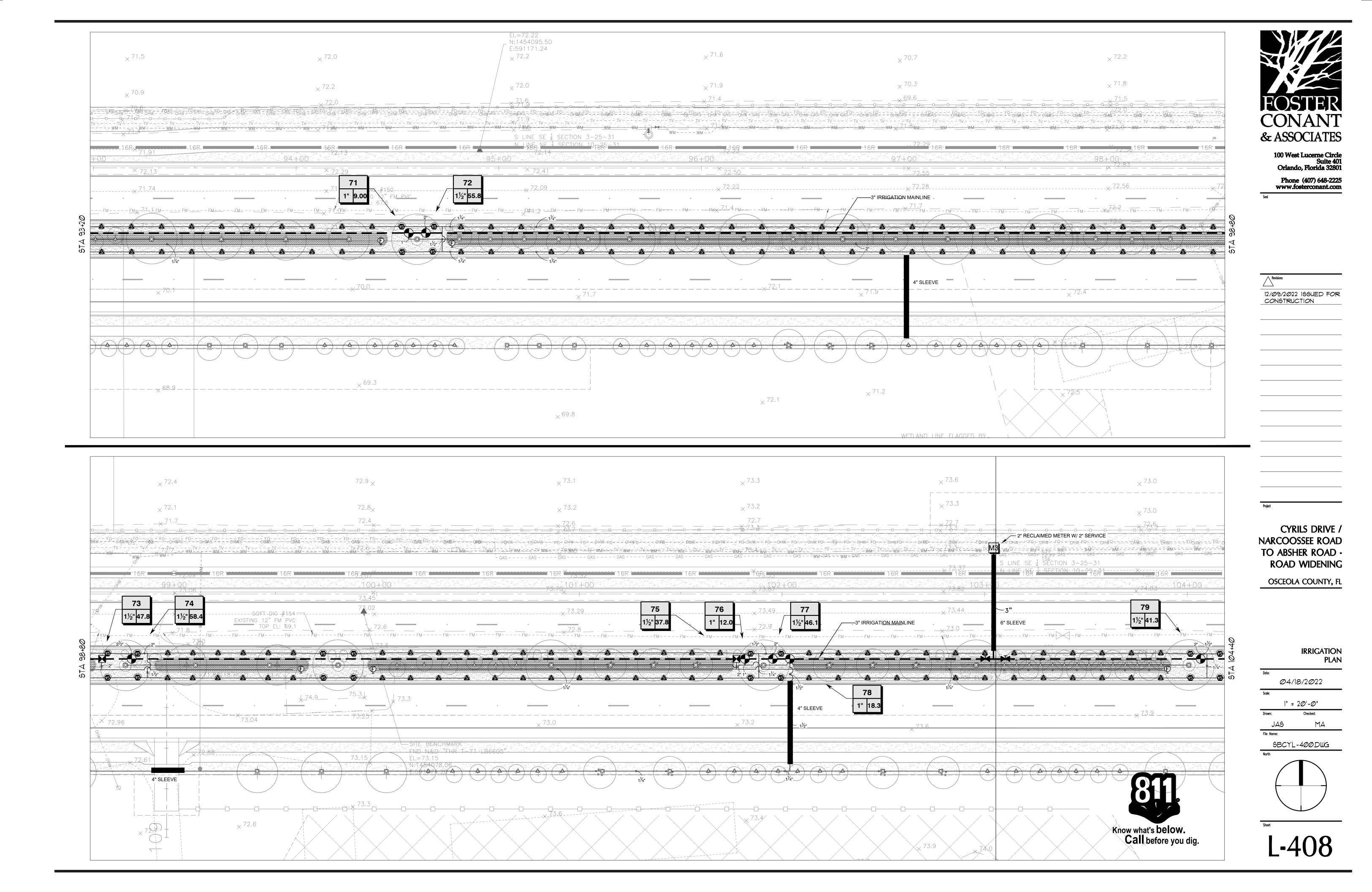


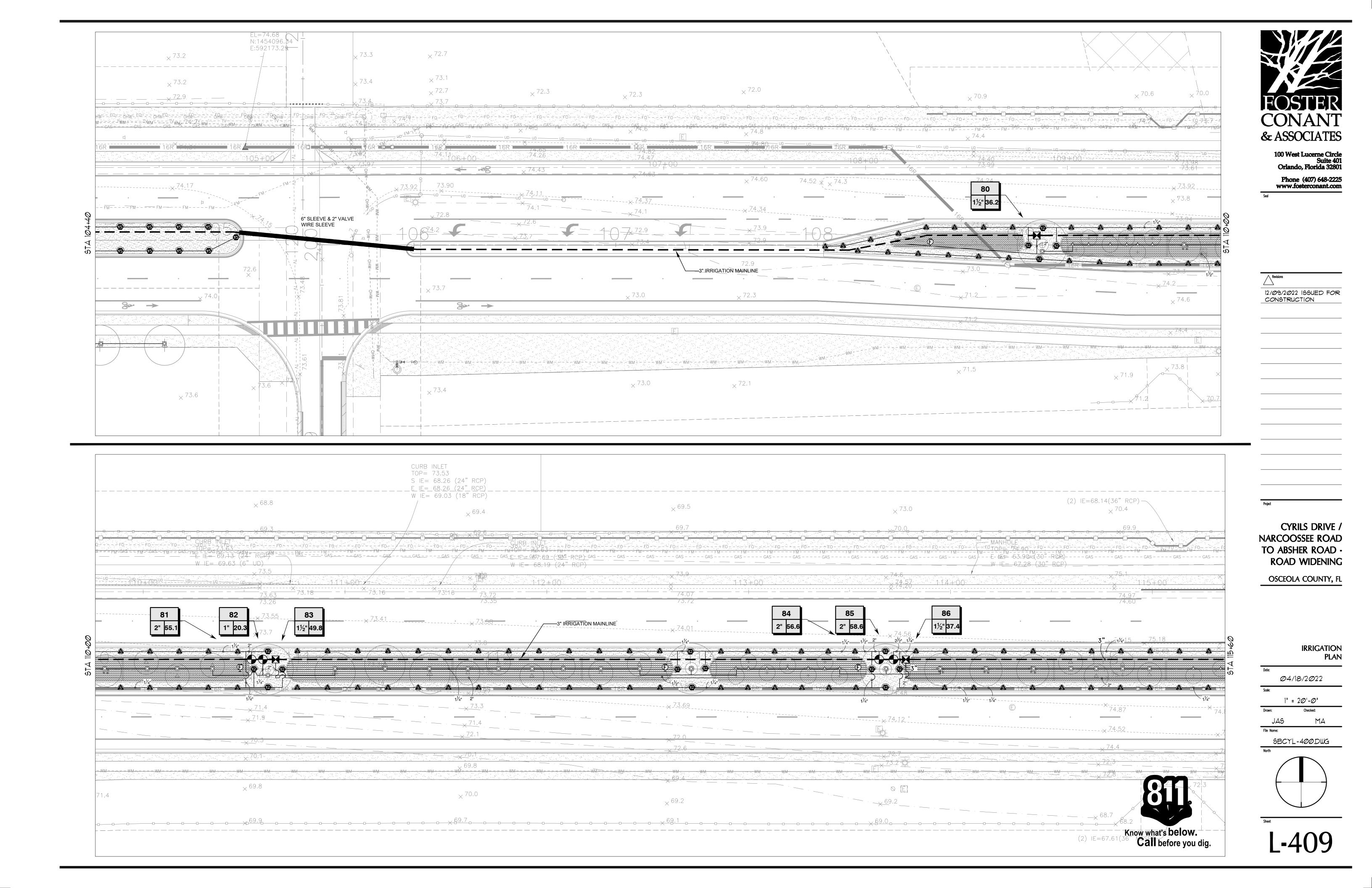


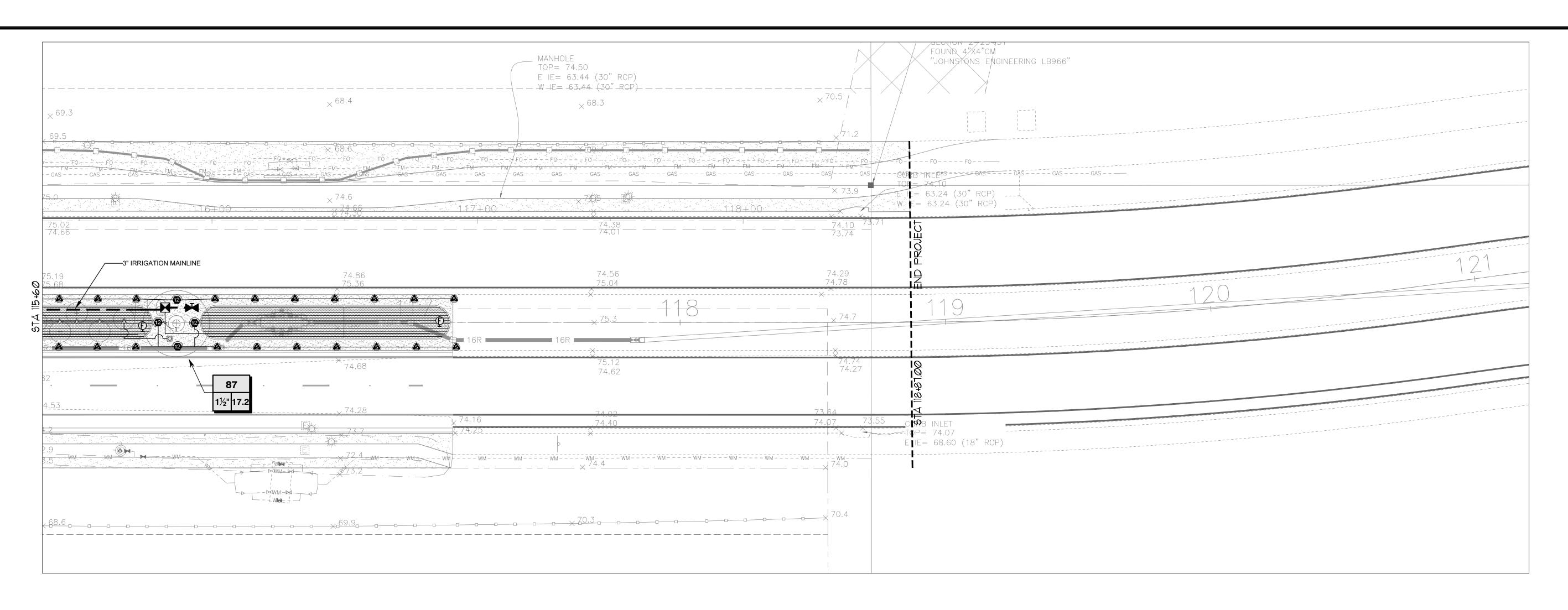












TEP LANDSCAPE / IRRIGATION CALCULATIONS

| TOTAL LANDSCAPE AREA | 433,292 SF | 100.00% |
|--|------------|---------|
| TOTAL UNIRRIGATED SOD AREA | 258,479 SF | 59.65% |
| TOTAL IRRIGATED SOD AREA | 73,190 SF | 16.89% |
| TOTAL IRRIGATED SHRUB/GROUNDCOVER AREA | 101,623 SF | 23.45% |
| TOTAL LENGTH OF ROADWAY CENTERLINE | 10,344 LF | |

NOTE:

- 1. Per Toho Efficiency Program Requirements: "Trees will provide shade to 30% of the total landscape area at maturity."

 2. All plant material to meet TEP guidelines.

CRITICAL ANALYSIS

Generated: 2022-04-17 22:40

P.O.C. NUMBER: 01 Water Source Information: 2" POC W/2" SERVICE

FLOW AVAILABLE Water Meter Size: 2" Flow Available 78.01 GPM

PRESSURE AVAILABLE

Static Pressure at POC: 70 PSI Elevation Change: 5.00 ft Service Line Size: 2" Length of Service Line: 20 ft Pressure Available:67 PSI

DESIGN ANALYSIS Maximum Station Flow: 61.94 GPM Flow Available at POC: 78.01 GPM
Residual Flow Available: 16.07 GPM

Pressure Req. at Critical Station: 43.1 PSI Loss for Fittings: 0.27 PSI Loss for Main Line: 2.72 PSI Loss for POC to Valve Elevation: 0 PSI Loss for Backflow: 0 PSI Loss for Water Meter: 1.41 PSI Critical Station Pressure at POC: 47.5 PSI Pressure Available:67 PSI Residual Pressure Available: 19.5 PSI

CRITICAL ANALYSIS

Generated: 2022-04-17 22:40

P.O.C. NUMBER: 01 Water Source Information: 2" POC W/2" SERVICE

FLOW AVAILABLE

Water Meter Size: 2" Flow Available 78.01 GPM

PRESSURE AVAILABLE Static Pressure at POC: 70 PSI Elevation Change: 5.00 ft

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DESIGN ANALYSIS Maximum Station Flow: 61.94 GPM Flow Available at POC: 78.01 GPM Residual Flow Available: 16.07 GPM

Residual Pressure Available: 19.5 PSI

Pressure Req. at Critical Station: 43.1 PSI Loss for Fittings: 0.27 PSI Loss for Main Line: 2.72 PSI Loss for POC to Valve Elevation: 0 PSI Loss for Backflow: 0 PSI Loss for Water Meter: 1.41 PSI Critical Station Pressure at POC: 47.5 PSI Pressure Available:67 PSI

CRITICAL ANALYSIS

Generated: 2022-04-17 22:40

P.O.C. NUMBER: 01 Water Source Information: 2" POC W/2" SERVICE

FLOW AVAILABLE Water Meter Size: 2"

Flow Available 78.01 GPM

PRESSURE AVAILABLE Static Pressure at POC: 70 PSI Elevation Change: 5.00 ft Service Line Size: 2" Length of Service Line: 20 ft Pressure Available:67 PSI

DESIGN ANALYSIS Maximum Station Flow: 61.94 GPM Flow Available at POC: 78.01 GPM Residual Flow Available: 16.07 GPM

Pressure Req. at Critical Station: 43.1 PSI Loss for Fittings: 0.27 PSI Loss for Main Line: 2.72 PSI Loss for POC to Valve Elevation: 0 PSI Loss for Backflow: 0 PSI Loss for Water Meter: 1.41 PSI Critical Station Pressure at POC: 47.5 PSI Pressure Available:67 PSI Residual Pressure Available: 19.5 PSI



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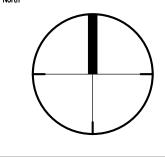
CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -**ROAD WIDENING**

OSCEOLA COUNTY, FL

IRRIGATION PLAN

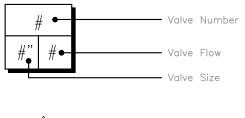
Ø4/18/2Ø22 1" = 20'-0"

SBCYL-400.DWG

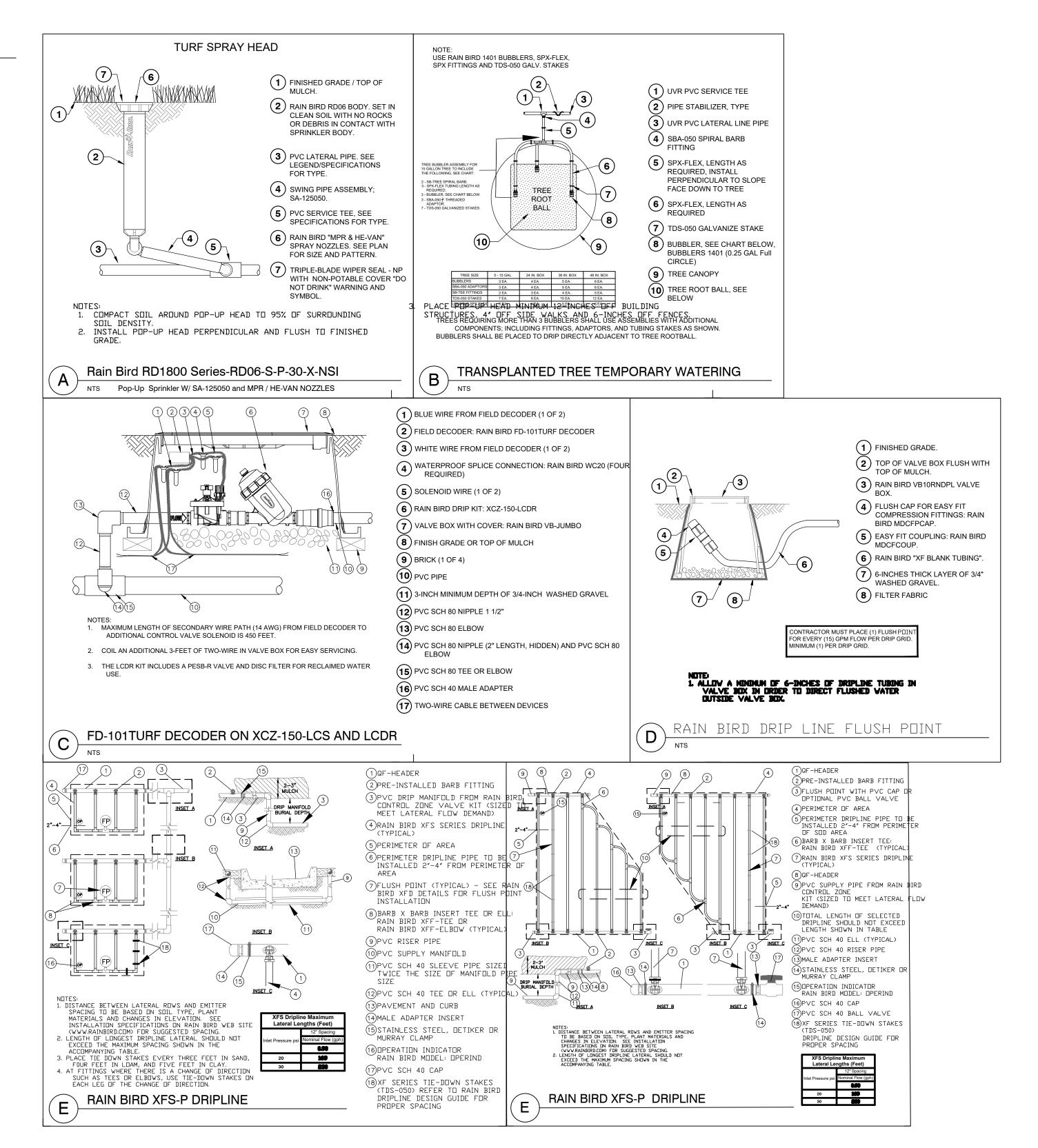


IRRIGATION SCHEDULE

| IRRIGATION | SCHEDULE | | | |
|--|--|-------------|------------|---------------|
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION Rain Bird RD06-S-P-30-NP-NSI 15 Strip Series | QTY | <u>PSI</u> | DETAIL |
| EST LCS RCS CST SST | Turf Spray, 6.0" Pop-Up, with 30 psi in-stem pressure regulation, Seal-A-Matic check valve, Flow-Shield Technology, and Non-Potable Cover (purple cap). 1/2" NPT female threaded inlet. | 911 | 30 | Α |
| (3) (3) (3) (8) Q T H F | Rain Bird RD06-S-P-30-NP-NSI U8 Series Turf Spray, 6.0" Pop-Up, with 30 psi in-stem pressure regulation, Seal-A-Matic check valve, Flow-Shield Technology, and Non-Potable Cover (purple cap). 1/2" NPT female threaded inlet. | 15 | 30 | Α |
| (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) | Rain Bird RD06-S-P-30-NP-NSI U10 Series Turf Spray, 6.0" Pop-Up, with 30 psi in-stem pressure regulation, Seal-A-Matic check valve, Flow-Shield Technology, and Non-Potable Cover (purple cap). 1/2" NPT female threaded inlet. | 8 | 30 | Α |
| 12 12 12 12 12 12 12 12 12 12 12 12 12 12 | Rain Bird RD06-S-P-30-NP-NSI U12 Series Turf Spray, 6.0" Pop-Up, with 30 psi in-stem pressure regulation, Seal-A-Matic check valve, Flow-Shield Technology, and Non-Potable Cover (purple cap). 1/2" NPT female threaded inlet. | 118 | 30 | Α |
| (a) (b) (b) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d | Rain Bird RD06-S-P-30-NP-NSI U15 Series Turf Spray, 6.0" Pop-Up, with 30 psi in-stem pressure regulation, Seal-A-Matic check valve, Flow-Shield Technology, and Non-Potable Cover (purple cap). 1/2" NPT female threaded in | 141 | 30 | Α |
| △ ○ △ □ 1401 1402 1404 1408 | Rain Bird 1800-1400 Flood 1401 Transplanted Tree Temporary Watering - Fixed flow rate (0.25-2.0GPM), full circle bubbler, 1/2" FIPT. | 709 | 30 | В |
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | <u>QTY</u> | | DETAIL |
| | Rain Bird XCZ-150-LCDR High Flow Control Zone Kit, for Large Commercial Drip Zones. 1-1/2" PESB-R Scrubber Globe Valve with single 1-1/2" Pressure Regulating (40psi) Quick-Check Basket Filters. Flow range: 15-62gpm. | 40 | | С |
| © | Rain Bird MDCFPCAP Dripline Flush Valve purple cap in compression fitting coupler. For non-potable water use. | 65 | | D |
| | Area to Receive Dripline Rain Bird XFS-09-12-NP XFS Non potable Sub-Surface Pressure Compensating Dripline w/Copper Shield Technology. 0.9 GPH emitters at 12" O.C. Laterals spaced at 12" apart, with emitters offset for triangular pattern. UV Resistant. Specify XF insert fittings. | 91,830 l.f. | | E |
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION Rain Bird PESBR-PRS-D | QTY | | <u>DETAIL</u> |
| • | 1", 1-1/2", and 2" Durable Chlorine-Resistant Valves for Reclaimed Water Applications. With Scrubber Mechanism Technology, Purple Flow Control Handle, T-113 Gate Valve and Pressure Regulator Module. | 47 | | F |
| × | Leemco LMV-22BB 2.5" x 2.5" LMV-BB Series Mainline Gate Valve. The Bell x Bell version provides in-line isolation where the location is not near a mainline ductile iron fitting. | 11 | | G |
| С | Rain Bird ESP-LXD-LXMM with (1) ESPLXD-SM75 Flow sensing Two-Wire Decoder Commercial Controller. 125 Stations. UV-Resistant, Outdoor-Rated, in Strong Box | 1 | | Н |
| ₹S> | Rain Bird RSD-BEx Rain Sensor, with metal latching bracket, extension wire. | 1 | | I |
| M1 | 2" RECLAIMED METER W/2" SERVICE | 1 | | 1 |
| м2 | 2" RECLAIMED METER W/2" SERVICE | 1 | | I |
| М3 | 2" RECLAIMED METER W/2" SERVICE | 1 | | I |
| | - Irrigation Lateral Line: PVC Class 200 SDR 21-NP | 45,602 l.f. | | J |
| | - Irrigation Mainline: PVC Schedule 40-NP | 11,896 l.f. | | K |
| | 2" Electrical Conduit | 205.8 l.f. | | |
| | - Decoder wire in 1-1/2" Conduit | | | |
| | Pipe Sleeve: PVC Schedule 40 Pipe Sleeve: PVC Schedule 40 Sleeve sizes 1.5-inch thru 4-inch shall be Sch-40 pipe, Sleeves 6-inch and larger shall be Class 200 pipe. See details and specifications for additional installation instructions. | 1,683 l.f. | | L |
| | Valve Callout | | | |
| # • | Valve Number | | | |









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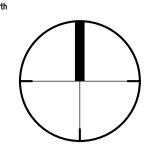
CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -ROAD WIDENING

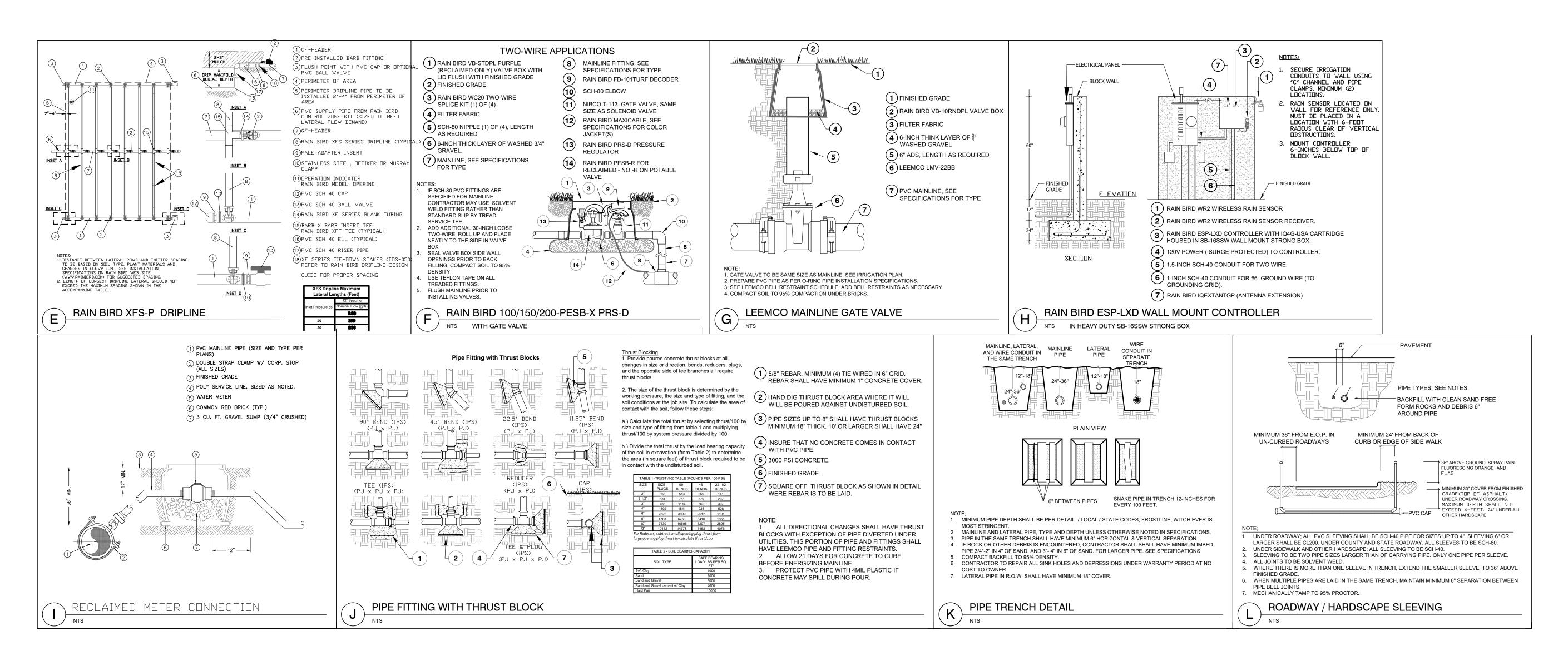
OSCEOLA COUNTY, FL

IRRIGATION **SCHEDULES**

Ø4/18/2*Ø*22

SBCYL-411.DWG





VALVE SCHEDULE

Rain Bird PESBR-PRS-D 1-1/2" Turf Spray

YALYE SCHEDULE

Rain Bird XCZ-150-LCDR 1-1/2" Area for Dripline 36.23 1.44 in/h

| VALVE SCHEDGEE | | | | | | | | | | | |
|----------------|------------------------|----------|-------------------|------------|-------------|--------|------------------------|----------|-------------------|------------|-----------|
| NUMBER | MODEL | SIZE | TYPE | <u>GPM</u> | PRECIP | NUMBER | MODEL | SIZE | TYPE | <u>GPM</u> | PRECIP |
| 1 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 60 | 1.46 in/h | 41 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 26.84 | 1.44 in/h |
| 2 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 26.72 | 1.44 in/h | 42 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 6.98 | 1.45 in/h |
| 3 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 32.78 | 1.44 in/h | 43 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 57.71 | 1.75 in/h |
| 4 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 41.78 | 1.44 in/h | 44 | Rain Bird PESBR-PRS-D | 1-1/2" | Bubbler | 21.5 | 1.7 in/h |
| 5 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 37.02 | 1.68 in/h | 45 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 9.25 | 1.26 in/h |
| 6 | Rain Bird PESBR-PRS-D | 1-1/2" | Bubbler | 32 | 1.7 in/h | 46 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 38.79 | 1.44 in/h |
| 7 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 44.28 | 1.67 in/h | 47 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.07 | 1.44 in/h |
| 8 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 36.38 | 1.44 in/h | 48 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 41.4 | 1.44 in/h |
| 9 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 36.39 | 1.44 in/h | 49 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 23.3 | 1.44 in/h |
| 10 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 49.12 | 1.74 in/h | 50 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 62.24 | 1.7 in/h |
| 11 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 58.98 | 1.81 in/h | 51 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 48.35 | 1.76 in/h |
| 12 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 24.87 | 1.44 in/h | 52 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 16.5 | 1.04 in/h |
| 13 | Rain Bird PESBR-PRS-D | 2" | Area for Dripline | 38.9 | 1.44 in/h | 53 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 27.14 | 1.44 in/h |
| 14 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 22.71 | 1.44 in/h | 54 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 53.52 | 1.8 in/h |
| 15 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 34.37 | 1.44 in/h | 55 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 24.24 | 1.44 in/h |
| 16 | Rain Bird PESBR-PRS-D | 1-1/2" | Bubbler | 47.5 | 1.53 in/h | 56 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 18.25 | 1.32 in/h |
| 17 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 61.94 | 1.77 in/h | 57 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 49.68 | 1.87 in/h |
| 18 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 59.16 | 1.74 in/h | 58 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 24.63 | 1.44 in/h |
| 19 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 28.35 | 1.44 in/h | 59 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 28.49 | 1.44 in/h |
| 20 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 39.92 | 1.44 in/h | 60 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 54.66 | 1.78 in/h |
| 21 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 31.89 | 1.44 in/h | 61 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 6.25 | 1.33 in/h |
| 22 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 28 | 1.7 in/h | 62 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 55.8 | 1.82 in/h |
| 23 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 57.93 | 1.71 in/h | 63 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 14.25 | 1.25 in/h |
| 24 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 19.25 | 1.44 in/h | 64 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 50.7 | 1.6 in/h |
| 25 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.23 | 1.44 in/h | 65 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 29.0 | 1.44 in/h |
| 26 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 27.98 | 1.44 in/h | 66 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 49.3 | 1.74 in/h |
| 27 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 43.07 | 1.43 in/h | 67 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 16.25 | 1.11 in/h |
| 28 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 43.68 | 1.45 in/h | 68 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 11 | 1.25 in/h |
| 29 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 48.32 | 1.44 in/h | 69 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 50.96 | 1.74 in/h |
| 30 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.23 | 1.44 in/h | 70 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 47.3 | 1.44 in/h |
| 31 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 30.08 | 1.44 in/h | 71 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 9 | 1.7 in/h |
| 32 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.23 | 1.44 in/h | 72 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 55.8 | 1.76 in/h |
| 33 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 48.12 | 1.44 in/h | 73 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 47.82 | 1.44 in/h |
| 34 | Rain Bird PESBR-PRS-D | 2" | Bubbler | 14.5 | 1.37 in/h | 74 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 58.36 | 1.74 in/h |
| 35 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 44.64 | 1.37 in/h | 75 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 37.85 | 1.44 in/h |
| 36 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 44.64 | 1.38 in/h | 76 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 12 | 1.2 in/h |
| 37 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.23 | 1.44 in/h | 77 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 46.12 | 1.78 in/h |
| 38 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 30 | 1.44 in/h | 78 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 18.25 | 1.15 in/h |
| 39 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 40.23 | 1.44 in/h | 79 | Rain Bird PESBR-PRS-D | 1-1/2" | Turf Spray | 41.34 | 1.6 in/h |
| 40 | D : D: :DECDD DDC D | 4 4 /011 | T O | 00.04 | 4 77 '. //. | | D : D: 1707 450 1000 | 4 4 /011 | Auga fau Dubalbaa | 00.00 | 4 44 ! // |

20.84 1.77 in/h

YALYE SCHEDULE

| NUMBER | MODEL | SIZE | <u>TYPE</u> | <u>GPM</u> | PRECIP |
|--------|------------------------|--------|-------------------|------------|-----------|
| 81 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 55.12 | 1.72 in/h |
| 82 | Rain Bird PESBR-PRS-D | 1" | Bubbler | 20.25 | 1.3 in/h |
| 83 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 49.82 | 1.44 in/h |
| 84 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 56.61 | 1.71 in/h |
| 85 | Rain Bird PESBR-PRS-D | 2" | Turf Spray | 58.64 | 1.74 in/h |
| 86 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 37.35 | 1.44 in/h |
| 87 | Rain Bird XCZ-150-LCDR | 1-1/2" | Area for Dripline | 17.19 | 1.44 in/h |
| | | | | | |

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12/09/2022 ISSUED FOR CONSTRUCTION

CYRILS DRIVE / NARCOOSSEE ROAD TO ABSHER ROAD -

OSCEOLA COUNTY, FL

ROAD WIDENING

IRRIGATION NOTES AND DETAILS

Ø4/18/2*Ø*22 AS NOTED

SBCYL-411.DWG

SECTION 32 84 00 - IRRIGATION SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section shall govern the furnishing of all labor, materials, and equipment for a complete operating system for lawn irrigation as specified herein and shown on the applicable drawings.
- B. The Irrigation Contractor shall be responsible for participating in coordination meetings as required prior to commencement of construction.
- C. The Irrigation Contractor shall examine the plans and specifications related to the project for completeness, accuracy and clarity, including but not limited to current site survey, utility plans and any other plans necessary to complete the installation of the irrigation system. Any conflicts, errors or needed clarifications shall be brought immediately to the attention of the Landscape Architect in
- D. Any additions, changes or alterations must have written authorization by the Owner's Representative befor a claim for increased compensation can be requested by the contractor.
- E. The Irrigation Contractor is responsible for obtaining all permits for installation of this work

1.02 QUALITY ASSURANCE

- A. The irrigation system shall be installed by a licensed Irrigation Contractor acceptable to the Owner's Representative. The Irrigation Contractor and the installation crew must be experienced in the installation procedures of all the equipment recommended by the
- B. The irrigation installation must comply with all applicable federal, state, and local governing agency requirements and industry standards. The Landscape Architect shall be notified immediately of any discrepancies, inconsistencies, or contradictory requirements. C. The number of heads, valves and all irrigation equipment shall not be less than that indicated on the plans without written approval of
- Irrigation zones for turf and planting beds are to be separate as indicated on plans.
- E. Spacing of all heads and drip irrigation shall not exceed the manufacturer's recommendations. 100% irrigation coverage or head to
- head coverage is required in all turf areas. F. Substitutions of irrigation equipment or other materials as called for on the plans shall not be permitted without written approval of
- the Owner's Representative prior to bid acceptance. G. All materials shall be obtained from authorized irrigation distributors for the products specified.

1.03 SUBMITTALS

- A. Material List: Submit a clearly legible list of all materials and equipment for irrigation system to Landscape Architect/Owner for approval prior to beginning construction. Delivered material shall match approved submittals.
- B. Maintenance Items: Provide the following:
- Two sets of sprinkler wrenches for adjusting, cleaning or disassembling each type of sprinkler.
- Two service manuals for all equipment installed. Manuals shall be loose leaf and show drawings or exploded views of equipment and catalog numbers and current prices.
- 3. Operating instructions for all equipment installed, including care and recommended scheduled maintenance of a system.
- Provide a color-coded zone map of the system.
- 5. Provided an irrigation water schedule showing the length of time each valve is to be operated to provide the determined anount of water shown on the plan Watering Schedule.
- C. Project Record Documents: Contractor shall correct irrigation plans daily to indicate changes from Contract Documents.
- The following items shall be located on the as-built plans horizontally at 90 degree angles. The contractor shall dimension the location of the following items from two permanent points of reference, i.e. curb junctures, light standards, building corners, survey hub points, or coordinates with a tolerance of 12 inch maximum.
 - Sprinkler main lines routing. Connections to the existing water supply lines.
 - Sprinkler control valves.
 - Gate valves.
 - Electrical control wire path diagrammatically.
- 2. Vertical dimensions shall be given for mains when site conditions require installation deeper than 24 inches.

1.04 PRODUCT HANDLING

- A. Exercise care in handling, loading, unloading and storing irrigation system materials to avoid damage or decrease the life of the equipment. Store under cover and in a secure location.
- B. Handle pipe in accordance with manufacturer's recommendations.

1.05 PROJECT CONDITIONS

- Prior to construction the Contractor shall work with the Owner and General Contractor to locate all utilities, subsurface drainage, and underground construction so as to not disturb or damage underground structures. Damage to any of the above mentioned items or others shall be promptly repaired by the Irrigation Contractor at no additional costs to the Owner.
- Water service and electrical service for the purpose of the automatic irrigation system is the responsibility of the Irrigation Contractor unless otherwise noted on the irrigation plans. Coordinate the location of water and electrical service with the General Contractor.
- C. The contractor shall make all temporary repairs as necessary to keep any installed/existing portion of the irrigation system in operating B. Cathodic Protection: Provide in the piping systems where required by installing insulating couplings, flanges or unions between condition. This exercise shall not affect the requirements to be performed under the contract documents.
- D. Coordinate work with that of other trades, all underground improvements, the location and planting of specimen trees and all other
- E. The Irrigation Contractor shall verify that the water source(s) meet the design pressure and flow requirements of the irrigation plan prior to commencement of construction. Irrigation contractor shall report any deviations of field conditions from the system design to the Landscape Architect immediately
- F. The Irrigation Contractor shall perform a 24 hour pressure test and analyze the existing water pressure at the point of connection prior to commencement of construction.

1.06 INSPECTION

- A. The Irrigation Contractor shall Verify dimensions and grades at Job Site prior to commencement of construction.
- B. Contractor shall make himself/herself completely familiar with all site conditions, including all underground utilities.

PART 2 - MATERIALS

- A. All materials shall indicate the use of reclaim water ie. Purple pipe, valve covers, and signs etc. as required by industry standards and state/local codes and regulations. The contractor shall be responsible for determining which equipment and materials that must indicate the use of reclaim water.
- B. Plastic pipe: Extruded from 100% American made Virgin Polyvinyl Chloride (PVC).
- Mainline: (Pipe installed on pressure side of valves): IPS Class 200 SDR 21 PVC pipe, ASTM D-2241, D-1785. All mainline 1'-2.5" shall be solvent weld. All mainline 3" and larger shall be PVC gasketed type. All mainline pipe using a non-potable water source must be purple in color indicating the use of reclaim water.
- Laterals (Plastic pipe installed on non-pressure side of valves): (PVC) ASTM D2241 Class 160 SDR 21.
- 3. No "Bell" or "Slip" pipe, or any pipe that is designed to join without a fitting will be permitted on mainline or lateral line except 4" mainline shall be PVC (as noted above) ring joint type with ductile iron fittings.
- All pipes above finish grade shall be Schedule 80 PVC. Sleeves: Schedule 40 PVC, ASTM DI785 up to 4" pipe± CL 200 for 6" and above. Minimum pipe size shall be 2X the pipe size of

C. Plastic Fittings:

carrying pipe.

1. Mainline: All mainline fittings up to 2.5' shall be Sch. 80 ASTM D-2467

- 2. Laterals: All lateral fittings up to 2.5" shall be Sch. 80 ASTM D-2467
- 3. Pipe Fittings above grade shall be 5ch. 80 ASTM D-2467
- D. Solvent & Cleaner: As recommended by pipe manufacturer.
- E. Automatic Controller and Controller Components: Refer to Drawings.
- F. Sprinkler Heads: Refer to Drawings: All sprinkler heads shall have purple rubber caps as produced by the Manufacturer indicating the use of reclaim water.
- G. Drip Line: Refer to Drawings: All drip line shall be brown with a purple stripe as produced by the Manufacturer indicating the use of

G. Wire:

- Traditional Controller Wiring: Copper, UL approved direct burial 2-wire or as specified on the drawings. Minimum of 14AWG or as specified on the drawings. Color white shall be used for common wire and colored red for control wire.
- 2. Two-Wire: Wire for communication between the controller and decoders shall be double-jacketed 2-conductor cable designed by
- Paige Electric for use with two-wire control systems. The cable shall be suitable for direct burial, or for installation in conduits. 3. Wire Connectors shall be 3M-DBYR-6 connectors. All wire splices shall be placed in a 10' round valve box.
- H. Remote Control Valves: Refer to Drawings

- Remote Control Valve Boxes: Ametek 12"x18" Rectangular with purple locking lids. Box lids shall be marked "RC.Y.".
- Valve boxes for gate valves 3" and smaller: Ametek 10" round with locking lid, extensions as needed. Gate valve box lids shall be permanently marked "Irri. Gate" or "Reclaim Water".
- J. Conduit for Control Wires (if shown on drawings): (PVC) ASTM D1785, Schedule 40 in locations and size as indicated.
- K. Detectable Marking Tape: The contractor shall run a Detectable Purple Recycled/Reclaimed Water Marking Tape 12" above the mainline. The tape shall be 2" wide, purple color coded and permanently printed on both sides with a repeating warning message "Caution" Recycled/Reclaimed Water Line Below."
- L. Miscellaneous Materials: As hereinafter specified and as necessary to complete this work and as shown on Drawings.

PART 3 - EXECUTION

3.01 EXCAVATION AND BACKFILLING

A. Trenching - General:

- Dig trenches straight.
- Provide continuous support of the pipe by the bottom of trench. Lay pipe to even grade. Bottom of trench shall be free from rocks or other sharp edge objects.
- 3. Trenching shall follow layout indicated. 4. Minimum cover: Pressure Lines (up to 4"): 24 inches
 - Pressure Lines (6" and above) 30 inches
 - Non-pressure Lines: 18 inches
- Control wires: 6 inches below pressurized lines
- Maintain 6" minimum between lines that cross at angles of 45 degrees to 90 degrees. Exercise care in excavating, trenching and working near existing utilities. Contractor shall have all utilities located and marked prior
- 8. Contractor shall not use trencher under the dripline of existing trees. All trenches under the drip lines of existing trees must be hand
- dug. B. Backfilling:
- Compact to dry density equal to adjacent undisturbed soils.
- Conform to adjacent grades without dips, sunken areas, humps or other irregularities.
- Initial backfill on plastic lines shall be pulverized native soil no larger than 2 in diameter and free of foreign matter.
- 4. Restore grades and repair damage where settling occurs.

C. Routing of Piping:

- Pressure and non-pressure piping lines are routed diagrammatically on Drawings.
- All piping shall fall within the property boundaries of project and in landscape areas unless otherwise specified on plans. Coordinate specimen trees and shrubs with routing of lines. Planting shall take precedence over sprinkler and piping location. Report any major deviation from routing indicated to Landscape Architect or Owner.
- Install lines in such manner as to conform to the Drawings without offsetting the various assemblies from the pressure supply line.

3.02 INSTALLATION

A. Water Supply: Connect to water sources indicated.

copper or brass pipe or tubing and steel or cast iron pipe.

- planting. Location of all planting requiring excavations 24 inch in diameter and larger shall be verified with Owner prior to installation C. Plastic Pipe: Install plastic pipe in accord with manufacturer's recommendations. Install sprinkler head on plastic pipe as indicated. All welded joints shall be cleaned with manufacturer's cleaner prior to applying solvent. Welded joints shall be given at least 15 minutes set-up curing time before moving or handling.
 - Pipe shall be partially center loaded to prevent arching and shifting under pressure.
 - No water shall be permitted in pipe until a period of at least four hours has elapsed for solvent weld setting or curing, or as required by solvent manufacturer.
 - 2. Backfilling shall be done when pipe is not in expanded condition due to heat. a. Cooling of pipe can be accomplished by operating the system for a short time before backfill, or by backfilling in the early part of the morning before the heat of the day.
 - 3. Curing: When the temperature is above 80 F., soluble weld joints shall be given at least 24 hours curing time before water is introduced under pressure.
 - D. Automatic Controller:
 - Install controller in accord with the Drawings and the manufacturer's instructions, and place readily accessible. Install electrical wiring in accord with applicable code. 2. Include electrical connection as part of this Section. Contractor is to provide 120-volt electrical power to time clock per local
 - 3. An operating diagram or schedule clearly indicating the sequence of operation shall be posted in the controller to facilitate the
 - selection of the valve to be operated and setting of controller.
 - E. Remote Control Valves:
 - Install at sufficient depth to provide not more than 6" or less than 4" cover from the top of the valve to finish grade. Provide clearance for PRS-B device as needed. Install valves in a plumb position with 24" minimum clearance from other equipment for proper maintenance.
 - 3. All valves shall be installed in appropriate sized valve boxes with purple cover.
 - F. Wire Connections: All underground wire connections to electric remote control valves shall be made by using DBR/Y-6 as manufactures by 3M Corporation...

G. Gate Valves:

- Line size and install where indicated and sufficient clearance from other materials for proper maintenance.
- Equip valves, sizes 3" and smaller, with standard hand operating wheel for operation. Valve bonnet packing shall be checked and tightened before backfill. All valves shall be 150 psi rated.

All valves shall be installed in appropriate sized valve boxes with purple cover. 4. Gate Valves shall be manufactured in the USA of American made materials.

H. Sprinkler Heads:

- Install in a plumb position at intervals not to exceed the maximum spacing indicated. Heads in lawn or turf areas where grass has not been established shall be installed on temporary risers extending at least 2" above
- All heads in a road ROW tshall be 6" or 12" as indicated on plans.
- Where heads are installed along walks, roads, etc., they shall be permanently positioned Heads shall be installed a minimum of 4" away
- All heads (pop-ups and risers as indicated on plans) shall be installed a minimum of 24" away fro vertical elements, including buildings

I. Drip Irrigation:

Install all drip line and drip line equipment per the Manufacturer's recommendations.

- Keep all pipes and fittings clear of dirt and debris. Exposed ends shall be protected by taping or plugging while other components
- Flush drip line thoroughly prior to installation of last connections on every header.
- All inline drip products shall be installed at an even depth throughout each zone. Use loop-type 6' galvanized staples to keep drip line tubing in place. Install every 3'-5' on center (depending on soil type). Two
- staples shall be installed over every change-of-direction fitting. 6. Verify the location of each air/vacuum relief valve in the field, ensuring that one is installed at each localized high point on each
- 7. Verify the location of each automatic flush valve in the field, ensuring that one is installed at each localized low point on each drip 8. Install a minimum of one drip line system operation indicator at the beginning and/or end of each drip line zone. For zones longer than
- 300' in length install an indicator at both the beginning and the end of the zone. Indicators shall be located at the edge of the planting beds so as to be clearly visible and not hidden by ground covers or shrubs. 9. During and after installation care shall be taken to refrain from walking on already installed drip line tubing so as to prevent damage
- 10. Prior to covering with mulch or backfilling over subsurface tubing each zone shall be tested for leaks. Each zone shall be operated for 30 minutes and observed for leaks. The wetting pattern should be regularly sized and evenly spaced. Any leaks shall be repairs
- J. Thrust Blocks: Install thrust blocks on all main irrigation lines 4" or larger at all changes of direction, as detailed in manufacturer's recommendations on pipe installation or as shown on the drawings.
- K. Flushing of System:

prior to covering of tubing.

- Flush main and lateral systems to clean out all debris and sediment prior to installation of heads.
- This does not relieve requirements of future adjustments of system or re-flushing system. Any zone requiring repair from broken lateral lines shall be flushed prior to being returned to service.

3.03 ELECTRICAL

- A. Connect time clock to the 120-volt power source per manufacturer recommendations. The contractor is responsible for making electrical connections to the automatic controller and wire circuits from remote control valves to controllers. All wiring shall be in accord with applicable codes.
- 5. All lines shall have a 6" minimum clearance from each other and from lines of other crafts. Do not install lines directly over another line B. Plan ahead to minimize control wire splices. All wire splices must occur within splice boxes (Ametek 10" round box with green locking lid), using wire connectors as specified in Section 3.02 F above.
 - C. Provide for an earth ground per manufactures recommendations, but not more than 100hms to ground.

 - A. Test all pressure lines under hydrostatic pressure of 175 lbs. per square inch and all non-pressure lines shall be tested under the existing static pressure and both be proven watertight
 - B. Connect a calibrated pressure gauge to mainline. Pressure shall be sustained in the lines for not less than four hours. Should mainline lose pressure, the leak shall be found and repaired, or joints shall be replaced and the test repeated until the entire system is proven watertight.
 - C. Perform tests prior to backfill.

3.05 LOWERING OF HEADS

- A. All sprinklers installed in lawn areas unless otherwise noted shall be lowered to finish grade within ten days following notification by the Owner.
- B. At the time of lowering heads, completely check and adjust the entire system and make any repairs that are necessary to complete this

3.06 ADJUST AND CLEAN

- A. Installations and Operations: Make such adjustments and repairs as requested as necessary for acceptance at no additional cost to the Owner. Field conditions may require minor adjustments to design to achieve 100% coverage. 3.07 COMPLETION AND ACCEPTANCE
- A. Completion of work shall mean the full and exact compliance and conformity with provisions expressed or implied in the drawings and specifications.

the system is workable, clean, and efficient. This shall be a requirement for acceptance of the work

- B. All work under this contract shall not be finally accepted until expiration of the guarantee period. C. The Irrigation Contractor shall demonstrate and fully acquaint the Owner and/or Owner's Representative with the entire system, proving that all remote control valves are properly balanced, that all heads are properly adjusted for radius and arc of coverage, and that
- D. Contractor shall upon request for final payment, give Owner one set of sepias of as-built irrigation system with all valves, tees and heads indicated as installed.
- Irrigation Contractor shall provide a letter (on his letterhead) to the Owner, stating that there are no outstanding liens against the property that may have resulted from any aspect of his work. This includes, but is not limited to, construction liens, material liens, or labor liens.

3.08 GUARANTEE AND REPLACEMENT

- A. The Irrigation Contractor shall furnish warranties in writing certifying that the quality and workmanship of all materials and installation furnished is in accordance with these specifications and in accordance with original manufacturer's warranties. Irrigation Contractor shall further see to the fulfillment of all manufacturers' warranties. Irrigation Contractor shall warrant the installation workmanship for a period of one (1) year from date of completion or acceptance of the job, or any accepted portion of the job.
- Should the Irrigation Contractor be notified that work or replacements are warranted under these conditions, he shall provide the required service and/or replacements promptly within two (2) days.
- END OF SECTION 32 84 00





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ROAD WIDENING

OSCEOLA COUNTY, FL

NARCOOSSEE ROAD

TO ABSHER ROAD -

CYRILS DRIVE /

IRRIGATION **DETAILS**

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