

PUD MASTER PLAN

ATLAS STARK

KNIGHTDALE STATION

CAROLINIAN AVE. & MORNING FLYER WAY MIXED USE SITES

0 KNIGHTDALE BLVD & 7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | ST. MATTHEWS TOWNSHIP | WAKE COUNTY

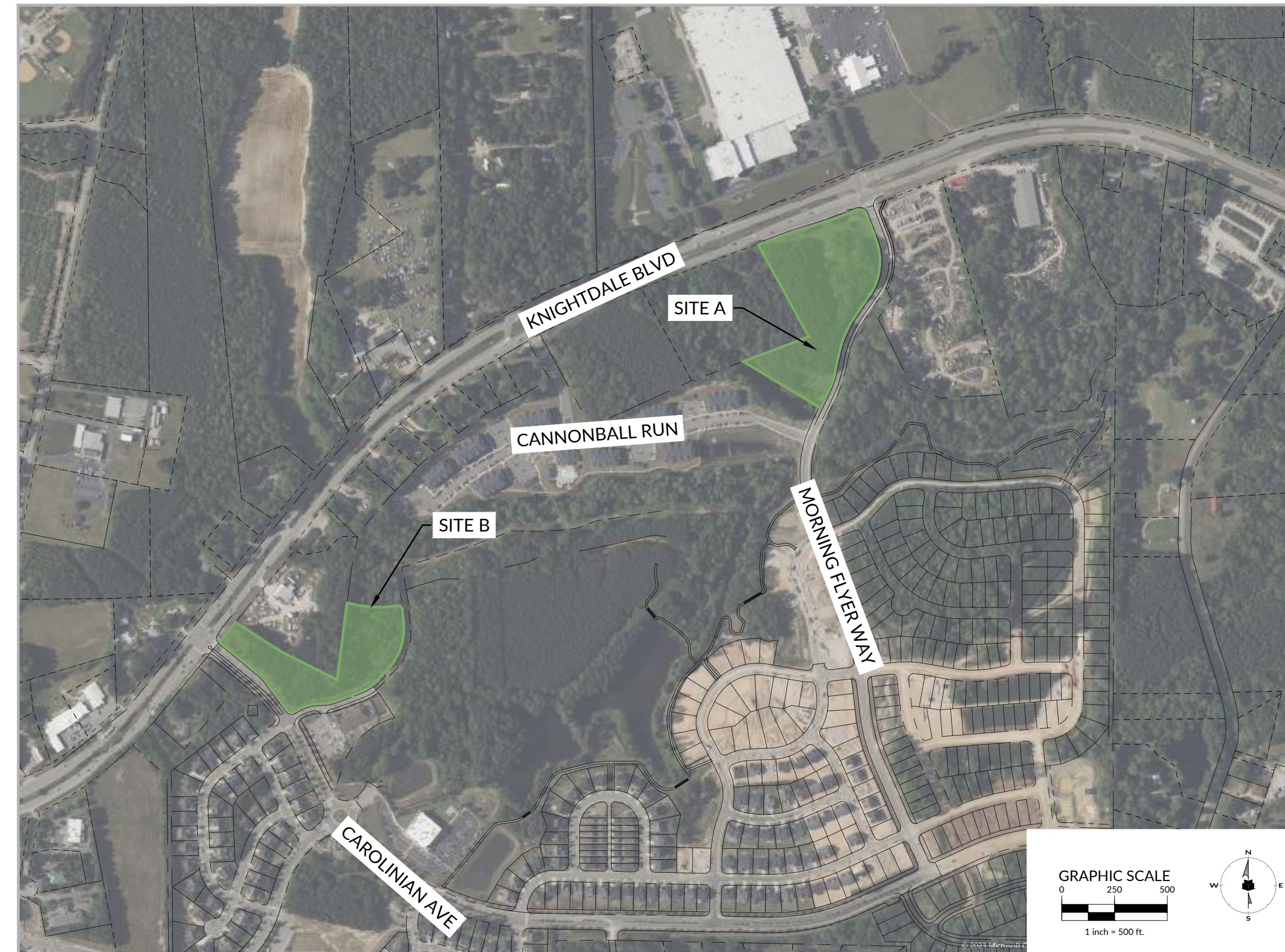
MAY 22, 2023

SITE DATA TABLE

	SITE A	SITE B
ADDRESS:	0 KNIGHTDALE BLVD	7790 KNIGHTDALE BLVD
PARCEL PIN NO.	1754988657	1754764820
TOTAL PROJECT AREA (ACRES)	6.98 ACRES	4.39 ACRES
WATERSHED	MARKS CREEK	MARKS CREEK
EXISTING ZONING	RT	HB / UR 12
PROPOSED ZONING	NMX-PUD	NMX-PUD
OVERLAY DISTRICT	N/A	N/A
FEMA DATA	3720175400K EFFECTIVE 7/19/2022	
PLACE TYPE	MIXED-USE CENTER	MIXED-USE CENTER & MIXED DENSITY NEIGHBORHOOD
EXISTING USE	VACANT	VACANT
PROPOSED USE	MIXED USE	MIXED USE
PROPOSED BUILDING TYPE	COMMERCIAL BLDG TYPE (UDO 6.9)	
SETBACKS:		
FRONT	0' MIN. - 10' MAX.	0' MIN. - 10' MAX.
SIDE	0' MIN. - 10' MAX.	0' MIN. - 10' MAX.
REAR	0' MIN.	0' MIN.
CORNER	N/A	N/A
TREE PROTECTION REQUIRED	10%	10%
PARKING CALCULATIONS:		
REQUIRED	174 SPACES (87 SPACES MIN.)	119 SPACES (60 SPACES MIN.)
PROPOSED	206 SPACES	148 SPACES
EV CHARGING STATIONS:		
REQUIRED	4 STATIONS	4 STATIONS
PROPOSED	4 STATIONS	4 STATIONS
BIKE PARKING SPACES:		
REQUIRED	18 SPACES	12 SPACES
PROPOSED	18 SPACES	17 SPACES

Sheet List Table

Sheet Number	Sheet Title
C0.00	COVER
C1.01	EXISTING CONDITIONS - SITE A
C1.02	EXISTING CONDITIONS - SITE B
C2.01	SITE PLAN - SITE A
C2.02	SITE PLAN - SITE B
C2.03	SITE A (ALTERNATIVE)
C3.01	UTILITY PLAN - SITE A
C3.02	UTILITY PLAN - SITE B
L1.01	LANDSCAPE PLAN - SITE A
L1.02	LANDSCAPE PLAN - SITE B
L1.03	LANDSCAPE NOTES & SCHEDULE
SL1.01	LIGHTING EXHIBIT - SITE A
SL1.02	LIGHTING EXHIBIT - SITE B



CONDITIONS OF APPROVAL

- CONSTRUCTION DRAWINGS MUST BE APPROVED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT FOR ALL PUBLIC WATER, PUBLIC SEWER AND/OR PRIVATE SEWER EXTENSIONS PRIOR TO MAP RECORDATION.
- A PLAT MUST BE RECORDED AT THE WAKE COUNTY REGISTER OF DEEDS OFFICE FOR ALL UTILITY EASEMENT DEDICATIONS.

NOTES

- EXISTING UAA ADDRESSES THE WATER ALLOCATION POLICY AND TIA AND THE PROPOSED DEVELOPMENT REMAINS CONSISTENT WITH THAT PRIOR APPROVAL.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF KNIGHTDALE, CITY OF RALEIGH PUBLIC UTILITIES, AND NCDOT (WHERE APPLICABLE) ENGINEERING DESIGN AND CONSTRUCTION STANDARDS.

CONTACT LIST:

Project Engineer
Rob Caudle
WithersRavenel
137 S Wilmington Street, Suite 200
Raleigh, NC 27601
919-535-5200
rcaudle@withersravenel.com

Landscape Architect
Daniel Whatley
WithersRavenel
137 S Wilmington Street, Suite 200
Raleigh, NC 27601
919-535-5200
dwhatley@withersravenel.com



PRELIMINARY
NOT APPROVED
FOR CONSTRUCTION



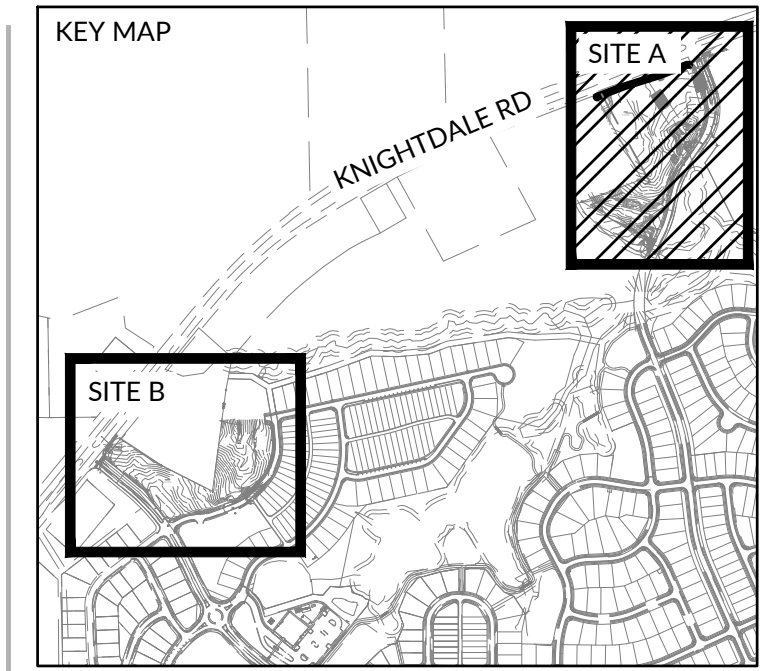
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

PREPARED BY:

DEVELOPER:
ATLAS STARK
2020 PROGRESS CT, SUITE 130A
RALEIGH, NC 27608
919-289-1138
info@atlasstark.com

OWNER:
KNIGHTDALE COMMERCIAL, LLC
PO BOX 6309
RALEIGH, NC 27628

PUD MASTER PLAN
ATLAS STARK
KNIGHTDALE STATION
CAROLINIAN AVE. & MORNING
FLYER WAY MIXED USE SITES
WR PROJECT NO.221154
MUNI PRO NO:----
05/22/2023



EXISTING CONDITIONS LEGEND

SYMBOLS

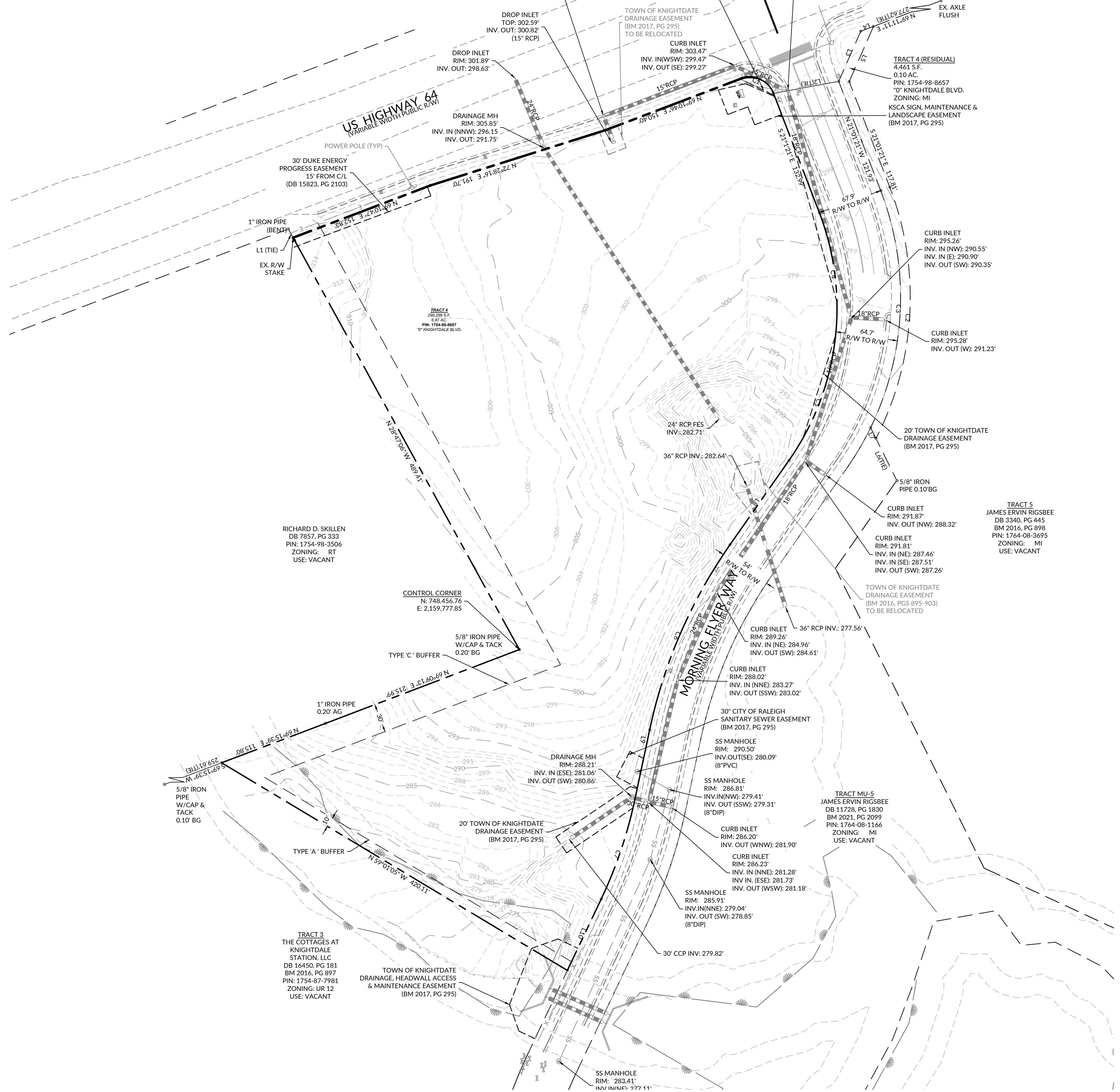
- EX. IRON PIPE/ROD OR NAIL
- EX. CONCRETE MONUMENT
- NEW IRON PIPE
- CALCULATED POINT
- CABLE PEDESTAL
- TELEPHONE PEDESTAL
- ELECTRIC PEDESTAL
- FIBER-OPTIC MARKER
- TRAFFIC SIGNAL BOX
- WATER METER
- FIRE HYDRANT
- VALVE (WATER OR GAS)
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- STORM CURB INLET
- DRAINAGE INLET (W/GRATE)
- STORM DRAIN MANHOLE
- UTILITY POLE
- LAMP POST
- SIGNAL POLE
- GUY WIRE
- SIGN POST

LINE TYPES

- X- FENCE
- OU- OVERHEAD UTILITY
- W- WATER
- SS- SANITARY SEWER
- SD- STORM DRAIN

ABBREVIATIONS

- DB DEED BOOK
- PB or BM PLAT BOOK / BOOK OF MAPS
- N/F NOW OR FORMERLY
- PG PAGE
- SF SQUARE FEET
- Ac ACRES
- R/W RIGHT-OF-WAY
- NCSR NORTH CAROLINA STATE ROUTE
- NCDOT NORTH CAROLINA DEPT. OF TRANSPORTATION
- EX EXISTING
- RCP REINFORCED CONCRETE PIPE
- PVC POLYVINYL CHLORIDE PIPE
- (M) MEASURED
- AG ABOVE GROUND
- BG BELOW GROUND



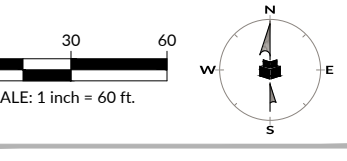
ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH ALL CITY OF RALEIGH & TOWN OF KNIGHTDALE DESIGN STANDARDS, DETAILS AND SPECIFICATIONS

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
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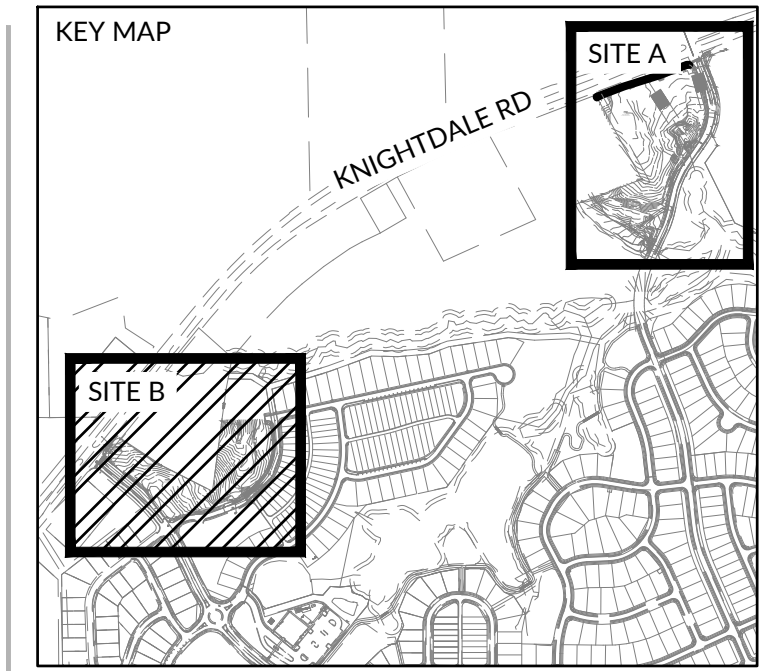
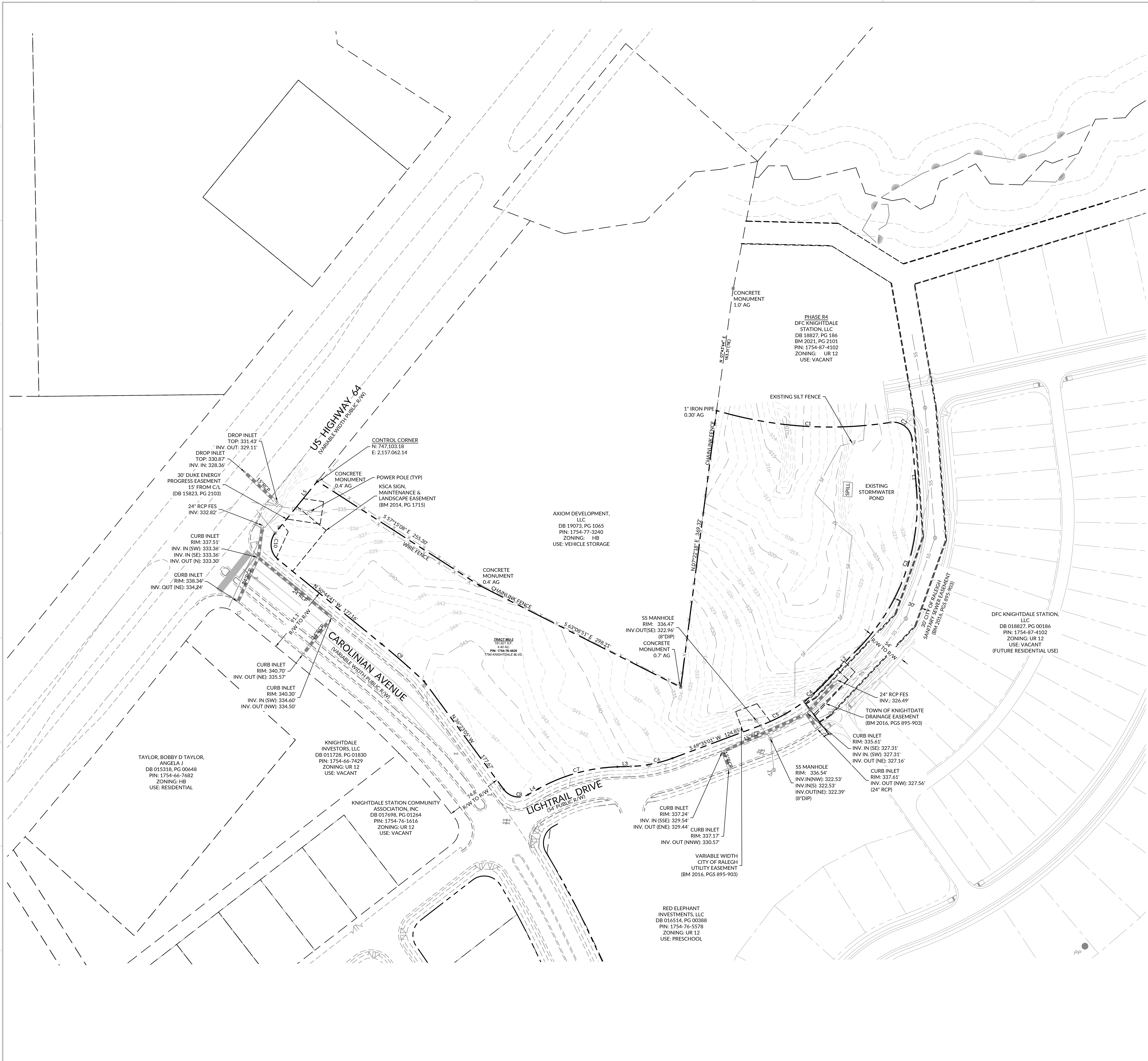


INITIAL PLAN DATE: 05/22/2023
REVISIONS:

WR JOB NUMBER: 221154
DRN: WR DGN: WR CKD: WR

EXISTING CONDITIONS - SITE A

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EXISTING CONDITIONS LEGEND

SYMBOLS

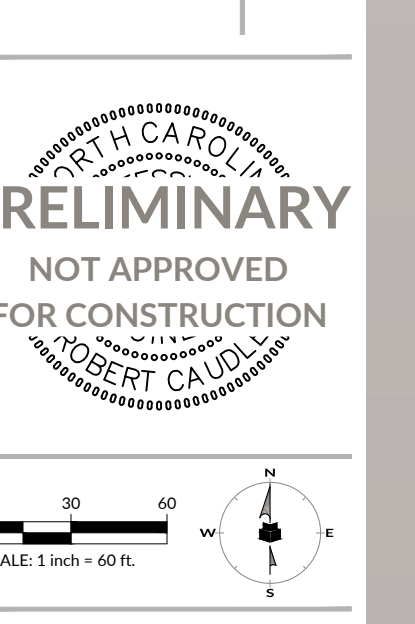
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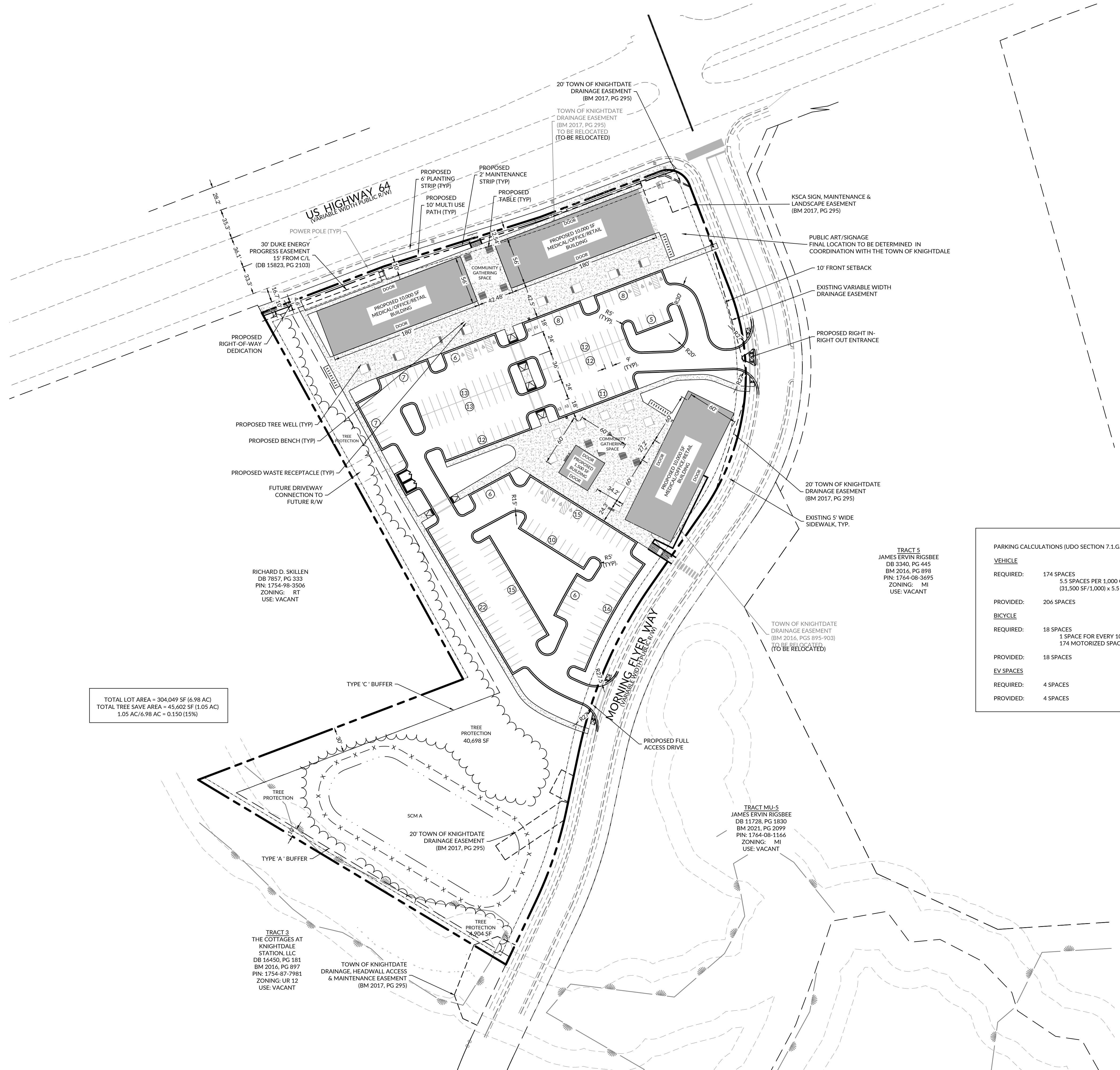
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By: _____ Date: _____
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WR JOB NUMBER 221154
 DRN: WR DGN: WR CKD: WR

EXISTING CONDITIONS - SITE B

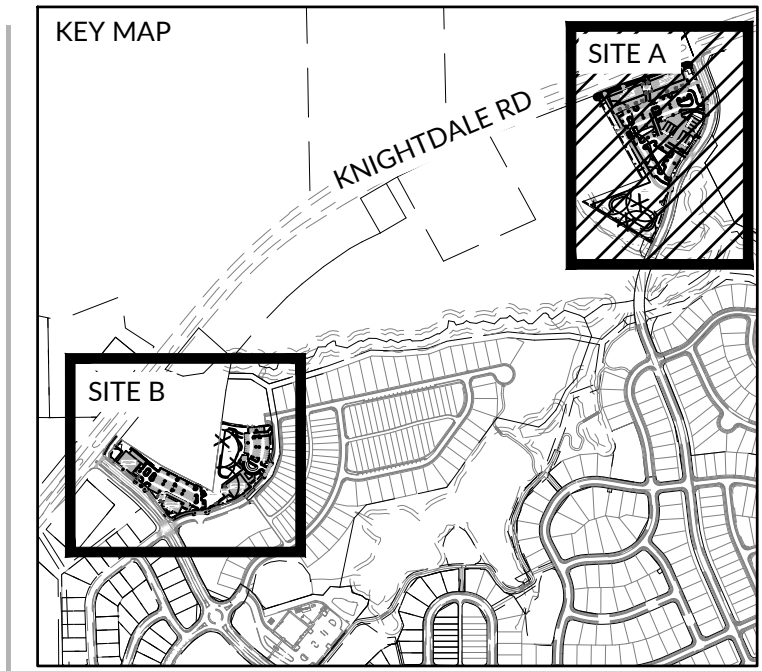
C1.02



TOTAL LOT AREA = 304,049 SF (6.98 AC)
 TOTAL TREE SAVE AREA = 45,602 SF (1.05 AC)
 1.05 AC/6.98 AC = 0.150 (15%)

PARKING CALCULATIONS (UDO SECTION 7.1.G.c.iii)

VEHICLE	REQUIRED:	PROVIDED:
VEHICLE	174 SPACES 5.5 SPACES PER 1,000 GFA (31,500 SF/1,000) x 5.5 = 173.25 (USE 174 SPACES)	206 SPACES
BICYCLE	18 SPACES 1 SPACE FOR EVERY 10 MOTORIZED VEHICLE SPACES 174 MOTORIZED SPACES/10 = 17.4 (USE 18 SPACES)	18 SPACES
EV SPACES	REQUIRED: 4 SPACES PROVIDED: 4 SPACES	4 SPACES



SITE LEGEND

SYMBOL	DESCRIPTION
—	BOUNDARY
- - -	BUFFER
- · - · -	CENTER LINE
— —	CURB & GUTTER
- · - · -	EASEMENT
— — —	LIMIT OF DISTURBANCE
- · - · -	LOT LINE
- · - · -	PHASE LINE
- · - · -	RIGHT OF WAY
- · - · -	SETBACK
■	BUILDING
■	CONCRETE PAVING

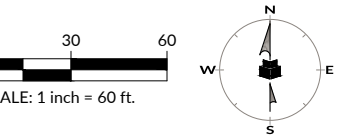
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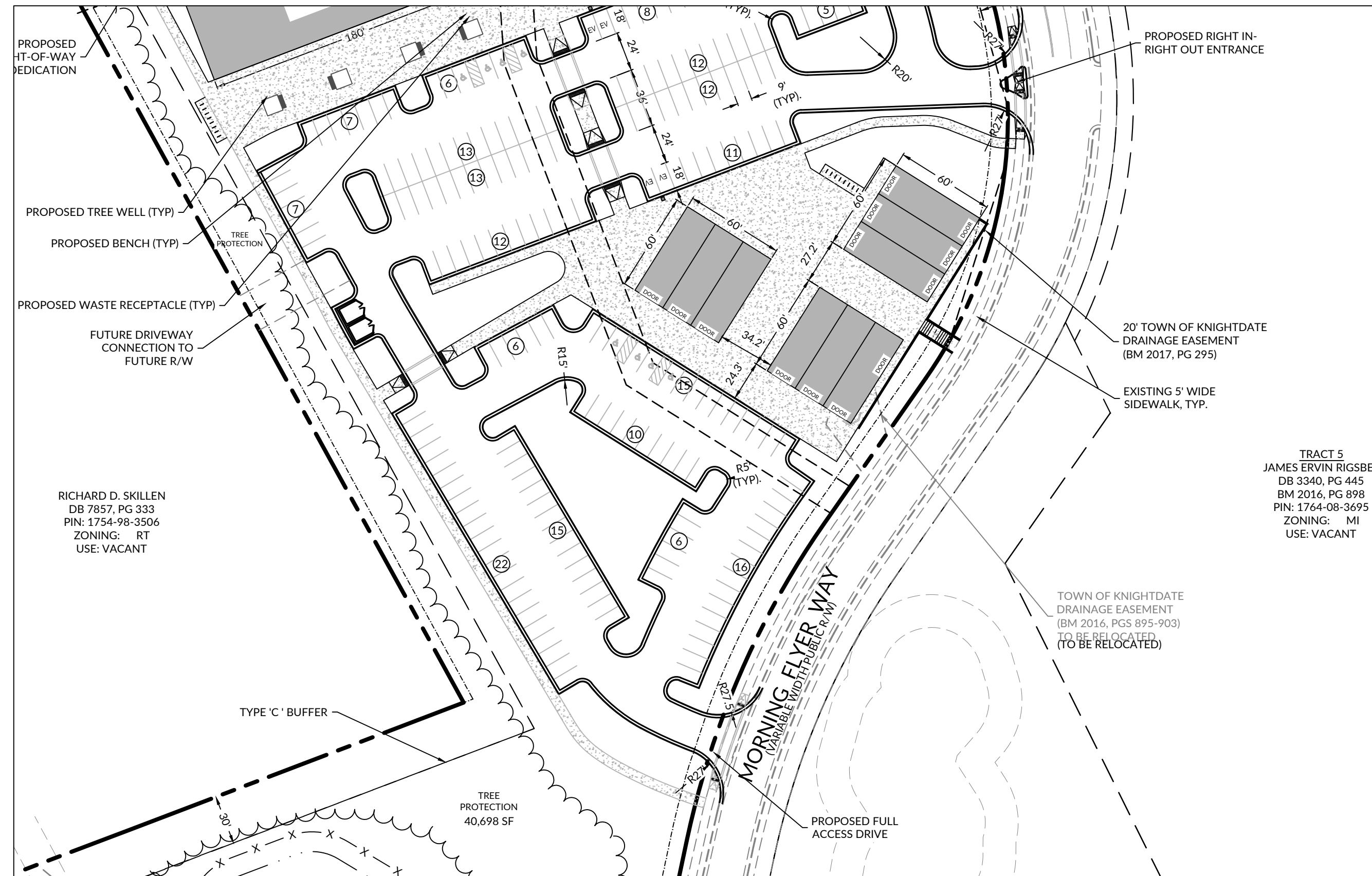
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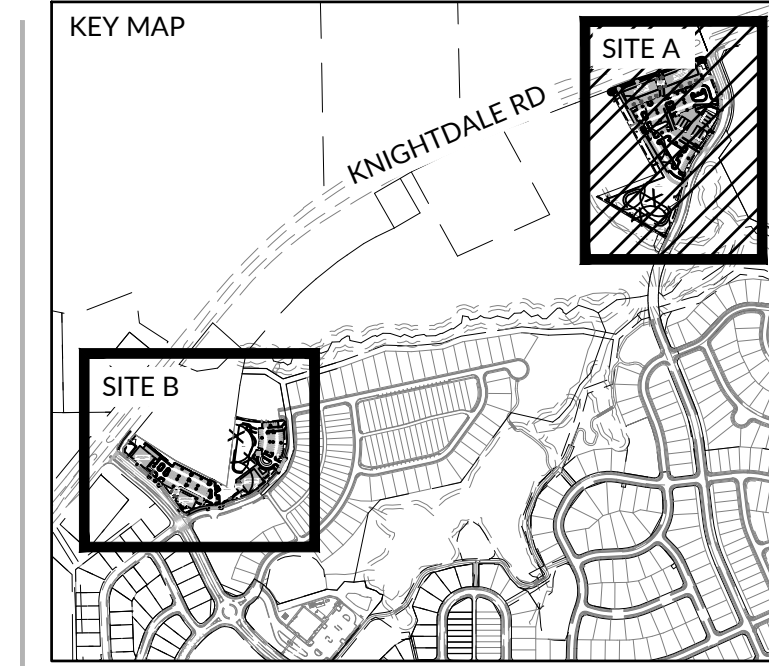


INITIAL PLAN DATE: 05/22/2023
 REVISIONS:



PARKING CALCULATIONS (UDO SECTION 7.1.G.c.iii)

VEHICLE	
REQUIRED:	174 SPACES 5.5 SPACES PER 1,000 GFA (31,500 SF/1,000) x 5.5 = 173.25 (USE 174 SPACES)
PROVIDED:	206 SPACES
BICYCLE	
REQUIRED:	18 SPACES 1 SPACE FOR EVERY 10 MOTORIZED VEHICLE SPACES 174 MOTORIZED SPACES/10 = 17.4 (USE 18 SPACES)
PROVIDED:	18 SPACES
EV SPACES	
REQUIRED:	4 SPACES
PROVIDED:	4 SPACES



SITE LEGEND

SYMBOL	DESCRIPTION
—	BOUNDARY
- - -	BUFFER
- · - · -	CENTER LINE
— —	CURB & GUTTER
- · - · -	EASEMENT
— — LOD — — LOD	LIMIT OF DISTURBANCE
- · - · -	LOT LINE
- · - · -	PHASE LINE
- · - · -	RIGHT OF WAY
- · - · -	SETBACK
■	BUILDING
■	CONCRETE PAVING

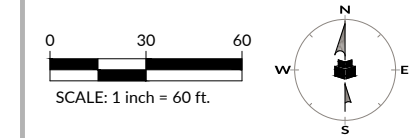
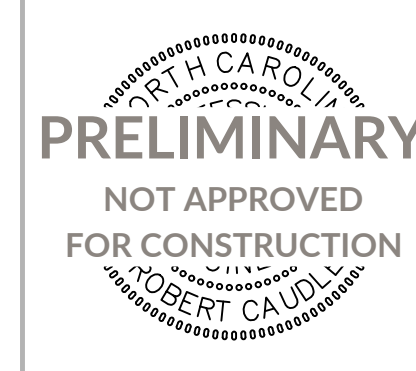
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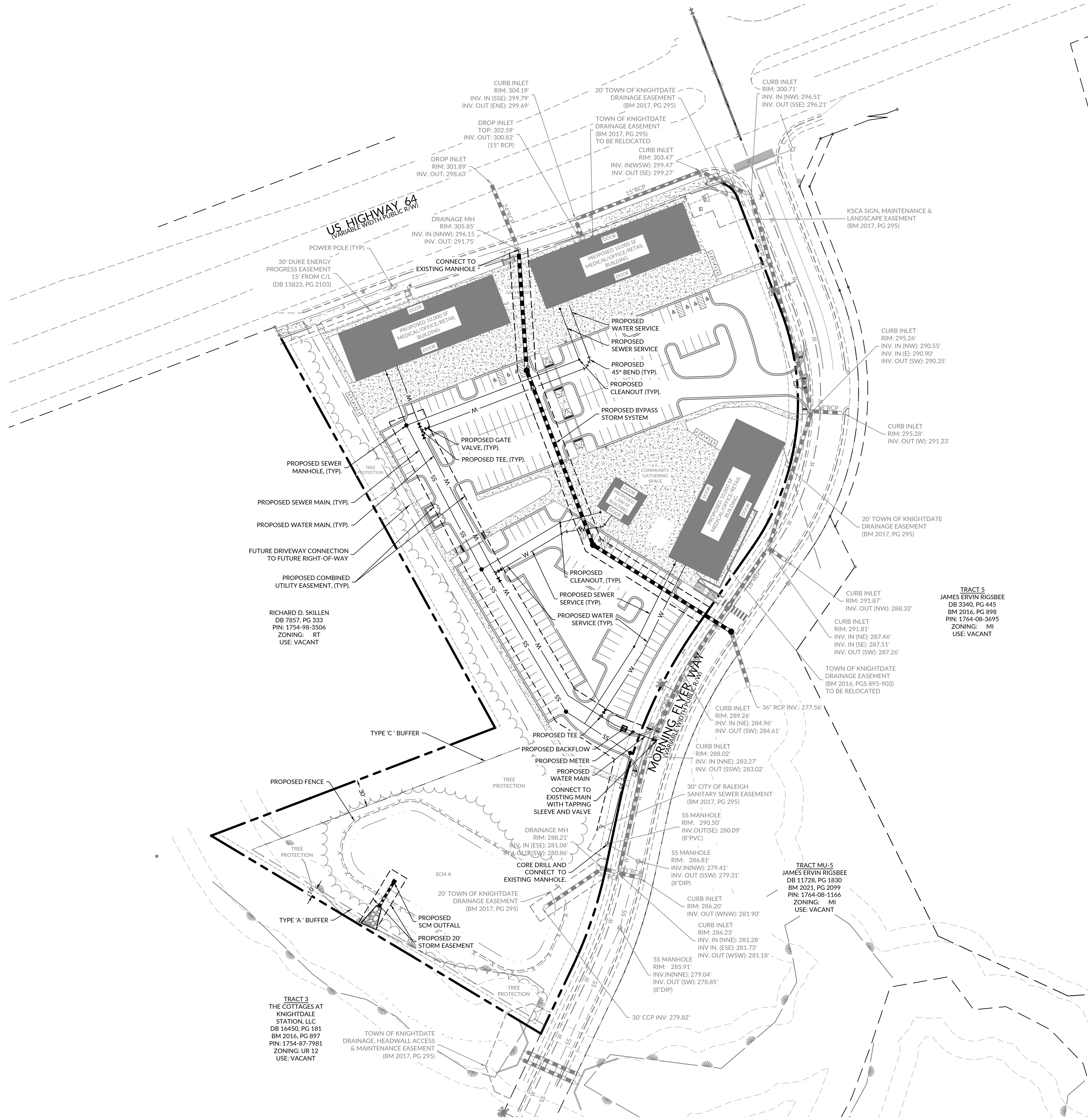
INITIAL PLAN DATE: 05/22/2023
REVISIONS:

WR JOB NUMBER 221154
DRN: WR DGN: WR CKD: WR

SITE A
(ALTERNATIVE)

C2.03

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Preliminary SCM Design Calculations

Per NCDEQ Stormwater Design Manual Minimum Design Criteria C-3 Wet Pond (11.23.2020)

Table 1 Surface Area to Drainage Area Ratio for Permanent Pool Sizing
Piedmont and Mountain SA/DA Table (Adapted from Driscoll, 1986)

SA/DA Ratio	0.43	0.37	0.30	0.27	0.25
10	0.51	0.43	0.37	0.30	0.25
20	0.84	0.69	0.61	0.51	0.40
30	1.17	0.94	0.84	0.72	0.56
40	1.51	1.24	1.09	0.91	0.78
50	1.79	1.51	1.31	1.13	0.95
60	2.09	1.77	1.49	1.31	1.12
70	2.51	2.09	1.80	1.56	1.34
80	2.92	2.41	2.07	1.82	1.62
90	3.25	2.64	2.31	2.04	1.59
100	3.55	2.79	2.52	2.34	1.75

Source: NCDEQ Stormwater Design Manual Minimum Design Criteria C-3 Wet Pond (11.23.2020)

STORMWATER WET POND - Site A Preliminary SCM Sizing

SA/DA Ratio	6.87	60	4.12
SA	0.144	6,254	1,251
DA	2.09	8,256	8,256
Totals	6.87	60	4.12

Total % Impervious Surface Area = 60.00%

Surface Area of Normal Pool:
Average depth = 3.00 ft
SA/DA ratio = 2.09 Interpolated From Table 1

Minimum Normal Pool surface area (SA) = (DA * SA/DA ratio)/100

SA = 0.144 acres
Normal Pool Area Required = 6,254 sq. ft.
Forebay Area Required = 1,251 sq. ft.
Total Surface Area Required = 8,256 sq. ft.

Normal pool elevation = 1.0 feet
Surface area provided = 8,700 sq. ft.
Surface area provided = 0.200 acres

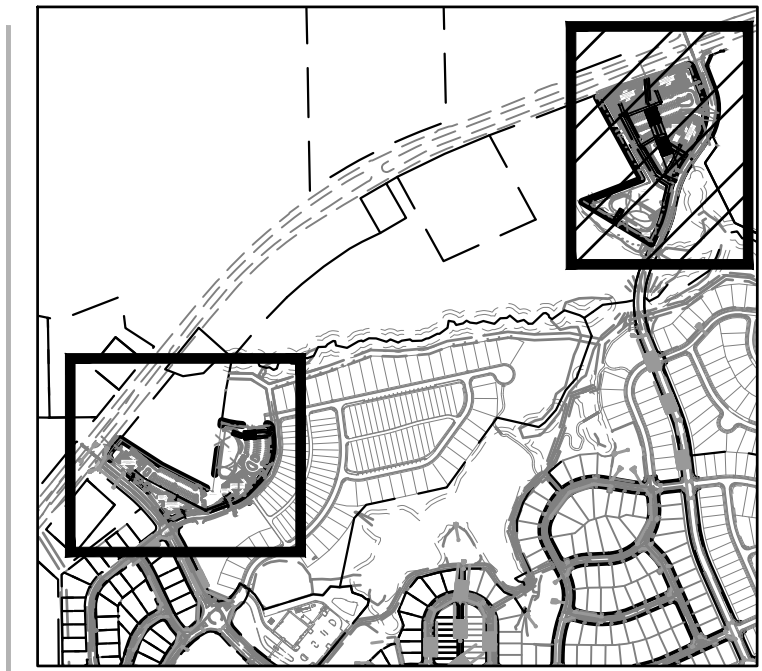
Runoff Volume Calculation - FOR WETLANDS ONLY

Design Storm Depth = 1 inch
Using the runoff volume calculations in the "Simple Method" as described by Schueler (1987)
 $R_v = 0.05 + 0.9(I)$ where, R_v = Runoff coefficient, in./in.
 I = Percent impervious

$R_v = 0.59$ in./in.

Total runoff volume
Runoff volume, S = (Design rainfall) (R_v) (Drainage Area)
S = 0.338 acre-ft
Storage Volume Required = 14,713 cu. ft.
10% Fluff Storage Volume = 16,185 cu. ft.

Water quality pool elevation = 1.0 feet
Overflow elevation = 3.0 feet
Storage volume provided = 17,400 cu. ft.



PROPOSED UTILITIES LEGEND

SYMBOL	DESCRIPTION
FL	FIRE LINE
FM	FORCEMAIN
SS	SANITARY SEWER PIPE
W	WATER MAIN
R	RECLAIMED WATER LINE
FL	FIRE LANE
BP	BACKFLOW PREVENTER
BO	BLOW OFF
FD	FIRE DEPARTMENT CONNECTION (FDC)
HA	FIRE HYDRANT ASSEMBLY
SC	SEWER CLEANOUT
SM	SEWER MANHOLE
WM	WATER METER
WV	WATER VALVE



SCALE: 1 inch = 60 ft.

INITIAL PLAN DATE: 05/22/2023
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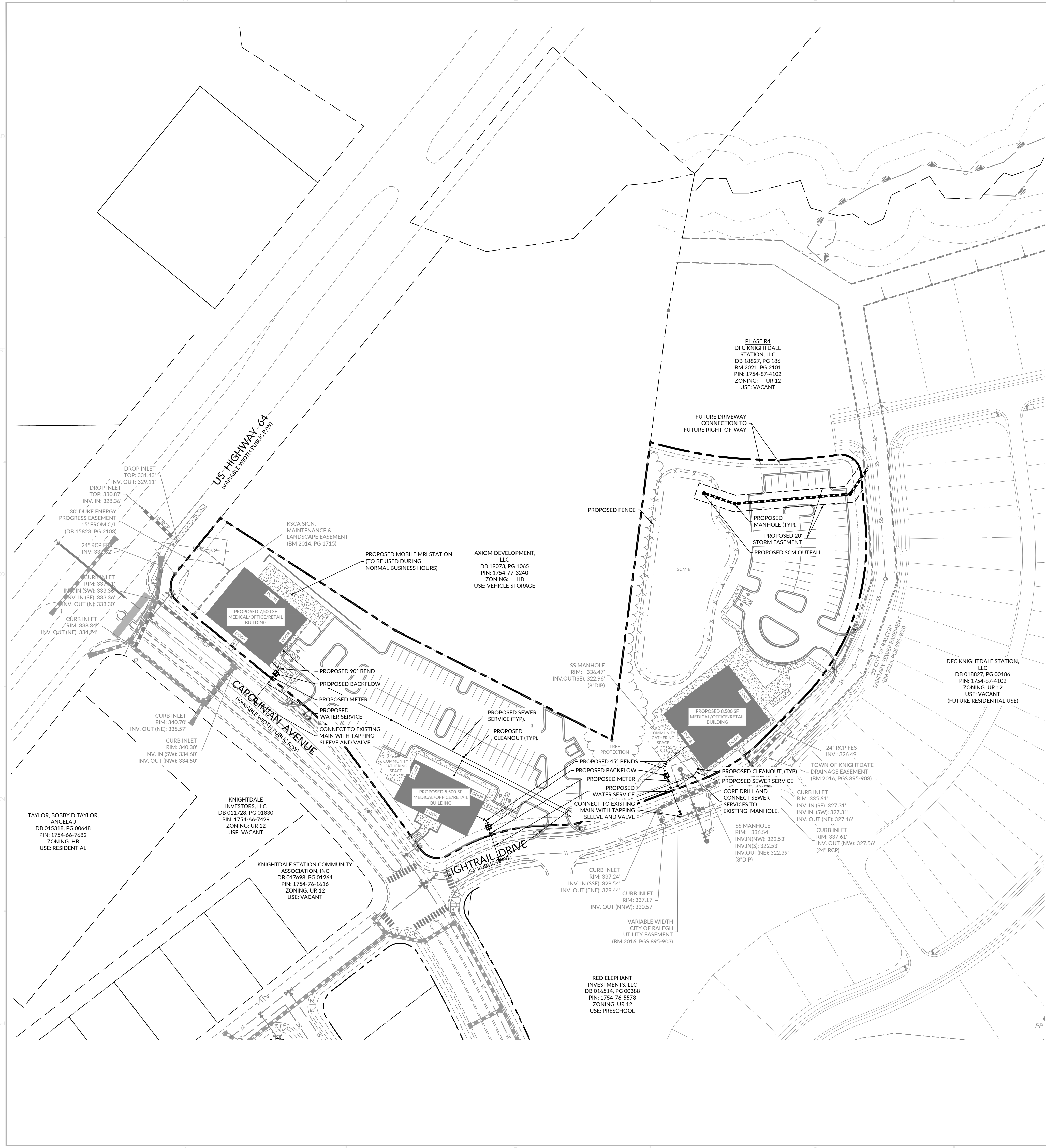
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DRN: WR DGN: WR CKD: WR

UTILITY PLAN - SITE A

C3.01

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PROPOSED UTILITIES LEGEND

SYMBOL	DESCRIPTION
FL	FIRE LINE
FM	FORCEMAIN
SS	SANITARY SEWER PIPE
W	WATER MAIN
R	RECLAIMED WATER LINE
(Circle with cross)	FIRE LANE
(Circle with X)	BACKFLOW PREVENTER
(Circle with arrow)	BLOW OFF
(Circle with T)	FIRE DEPARTMENT CONNECTION (FDC)
(Circle with H)	FIRE HYDRANT ASSEMBLY
(Circle with S)	SEWER CLEANOUT
(Circle with M)	SEWER MANHOLE
(Circle with V)	WATER METER
(Circle with V)	WATER VALVE

Preliminary SCM Design Calculations
Per NCDEQ Stormwater Design Manual Minimum Design Criteria C-3 Wet Pond (11.23.2020)

Table 1 Surface Area to Drainage Area Ratio for Permanent Pool Sizing
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20	0.84	0.69	0.61	0.51	0.44	0.40
30	1.17	0.94	0.84	0.72	0.61	0.56
40	1.51	1.24	1.09	0.91	0.78	0.71
50	1.79	1.51	1.31	1.13	0.95	0.87
60	2.09	1.77	1.49	1.31	1.12	1.03
70	2.51	2.09	1.80	1.56	1.34	1.17
80	2.92	2.41	2.07	1.82	1.62	1.40
90	3.25	2.64	2.31	2.04	1.84	1.59
100	3.55	2.79	2.52	2.34	2.04	1.75

Source: NCDEQ Stormwater Design Manual Minimum Design Criteria C-3 Wet Pond (11.23.2020)

STORMWATER WET POND - Site B Preliminary SCM Sizing

Category	Value	Value	Value
Normal Pool Area Required	4.39	57	2.50
Forebay Area Required			0.00
Total Surface Area Required			0.00
Totals	4.39		2.50

Total % Impervious Surface Area = 57.00%

Surface Area of Normal Pool:
Average depth = 3.00 ft
SA/DA ratio = 2.00 Interpolated From Table 1

Minimum Normal Pool surface area (SA) = (DA * SA/DA ratio)/100

SA = 0.088 acres
Normal Pool Area Required = 3.825 sq. ft.
Forebay Area Required = 765 sq. ft.
Total Surface Area Required = 5,048 sq. ft.
Normal pool elevation = 1.0 feet
Surface area provided = 7,100 sq. ft.
Surface area provided = 0.163 acres

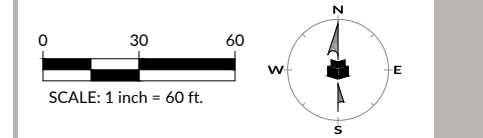
Runoff Volume Calculation - FOR WETLANDS ONLY

Design Storm Depth = 1 inch
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 $R_v = 0.05 + 0.9(I)$ where, R_v = Runoff coefficient, in./in.
 I = Percent impervious
 $R_v = 0.56$ in./in.

Total runoff volume
Runoff volume, $S = (\text{Design rainfall}) (R_v) (\text{Drainage Area})$
 $S = 0.206$ acre-ft
Storage Volume Required = 8,972 cu. ft.
10% Fluff Storage Volume = 9,869 cu. ft.
Water quality pool elevation = 1.0 feet
Overflow elevation = 3.0 feet
Storage volume provided = 14,200 cu. ft.

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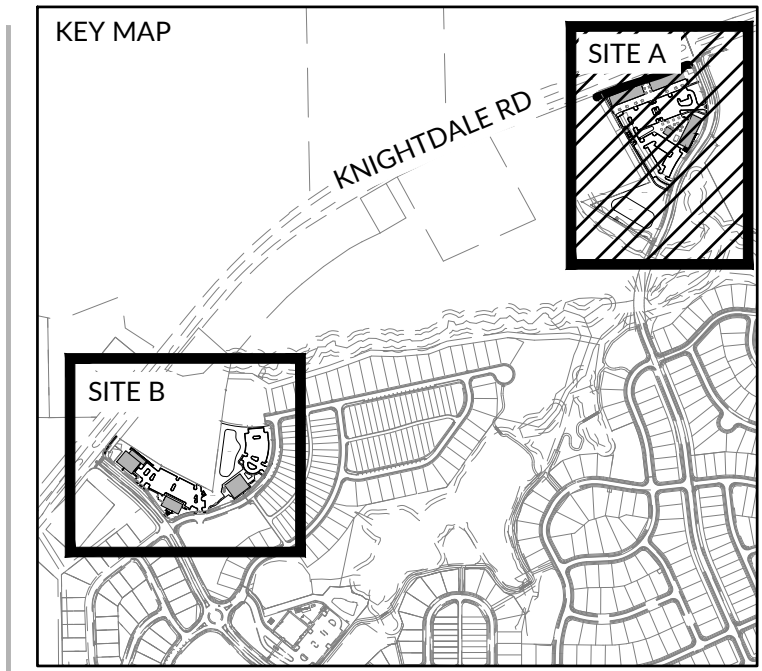
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REVISIONS:

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DRN: WR DGN: WR CKD: WR

UTILITY PLAN - SITE B

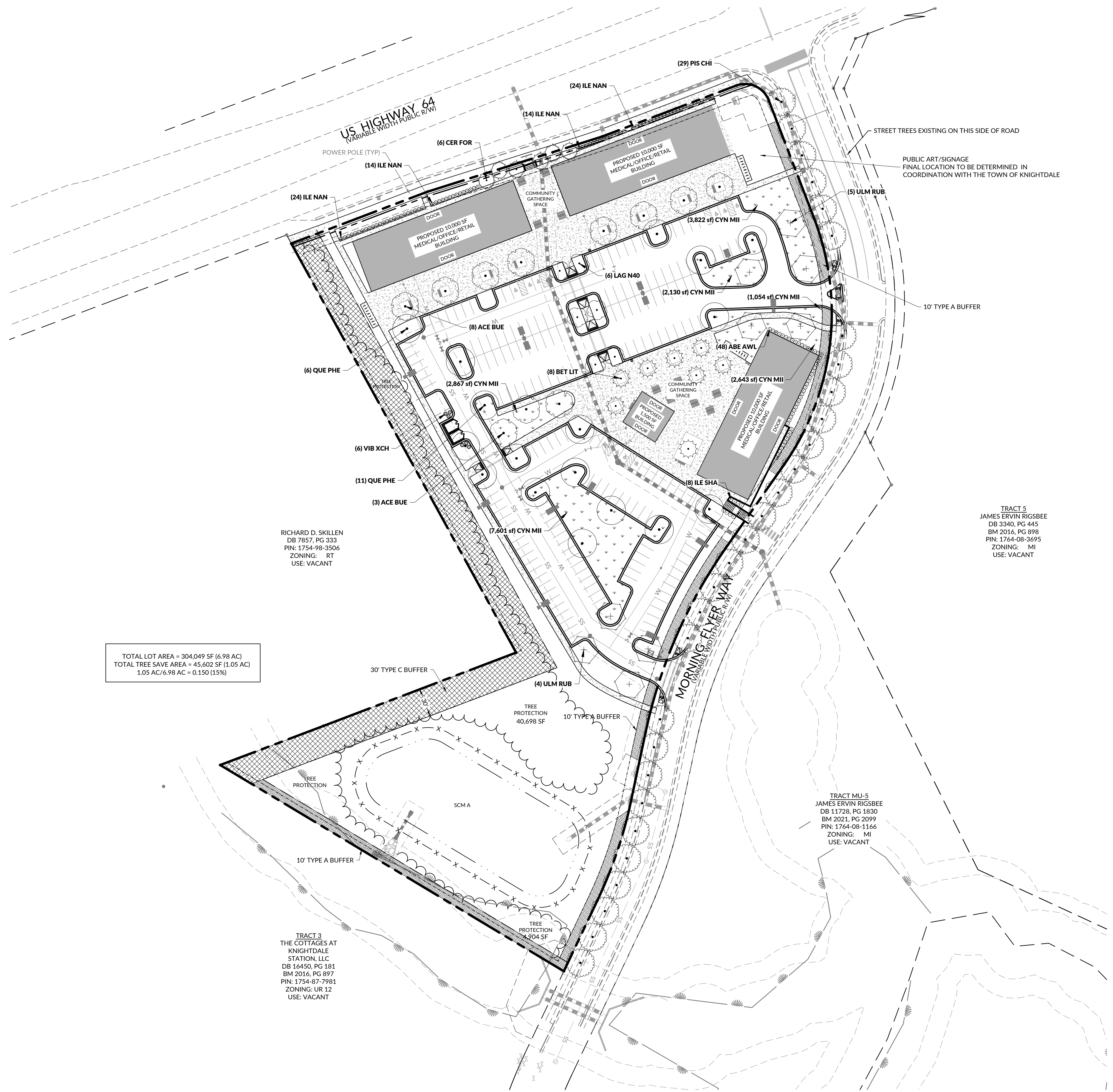


PLANT SCHEDULE

TREES	BOTANICAL NAME
	Acer buergerianum
	Betula nigra 'Little King'
	Cercis canadensis 'Forest Pansy'
	Lagerstroemia indica x fauriei 'Natchez'
	Pistacia chinensis
	Quercus phellos
	Ulmus rubra
	Zelkova serrata
SHRUBS	BOTANICAL NAME
	Abelia x grandiflora 'Confetti'
	Ilex glabra 'Shamrock'
	Ilex vomitoria 'Nana'
	Viburnum x 'Chindo'
GROUND COVERS	BOTANICAL NAME
	Cynodon dactylon 'TifTurf'

LEGEND:

	TYPE A BUFFER YARD
	TYPE C BUFFER YARD



TOTAL LOT AREA = 304,049 SF (6.98 AC)
 TOTAL TREE SAVE AREA = 45,602 SF (1.05 AC)
 1.05 AC/6.98 AC = 0.150 (15%)

RICHARD D. SKILLEN
 DB 7857, PG 333
 PIN: 1754-98-3506
 ZONING: RT
 USE: VACANT

TRACT 5
 JAMES ERVIN RIGSBEE
 DB 3340, PG 445
 BM 2016, PG 898
 PIN: 1764-08-3695
 ZONING: M1
 USE: VACANT

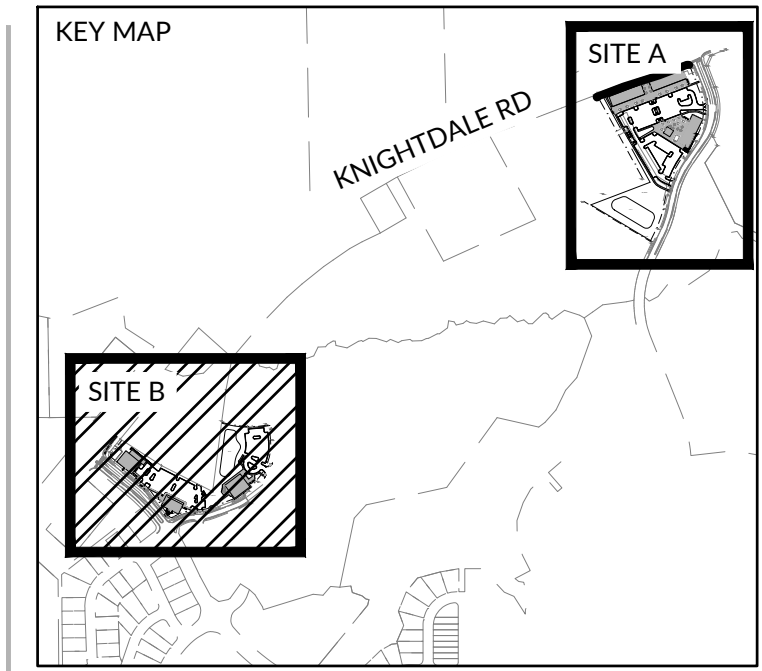
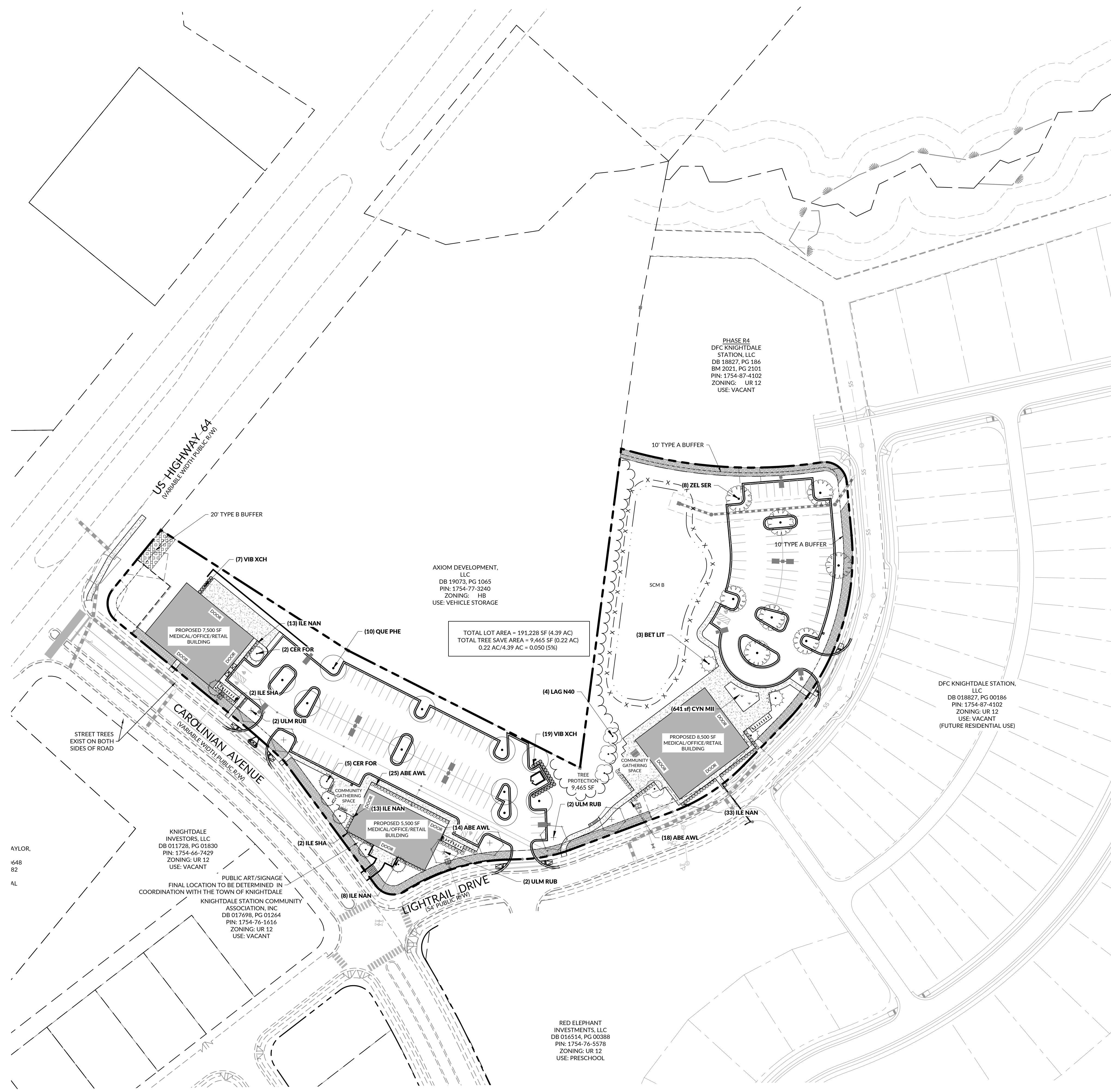
TRACT MU-5
 JAMES ERVIN RIGSBEE
 DB 11728, PG 1630
 BM 2021, PG 2099
 PIN: 1764-08-1166
 ZONING: M1
 USE: VACANT

TRACT 3
 THE COTTAGES AT
 KNIGHTDALE
 STATION, LLC
 DB 16450, PG 181
 BM 2016, PG 897
 PIN: 1754-67-7981
 ZONING: UR 12
 USE: VACANT

ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH ALL CITY OF RALEIGH & TOWN OF KNIGHTDALE DESIGN STANDARDS, DETAILS AND SPECIFICATIONS

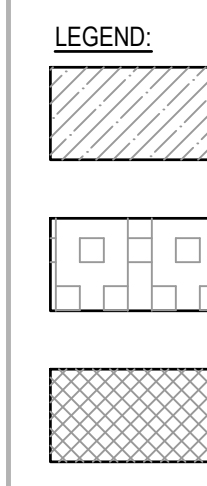
a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
 By: _____ Date: _____
 Town Engineer
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 By: _____ Date: _____
 Administrator

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PLANT SCHEDULE

TREES	BOTANICAL NAME
	Acer buergerianum
	Betula nigra 'Little King'
	Cercis canadensis 'Forest Pansy'
	Lagerstroemia indica x fauriei 'Natchez'
	Pistacia chinensis
	Quercus phellos
	Ulmus rubra
	Zelkova serrata
SHRUBS	BOTANICAL NAME
	Abelia x grandiflora 'Confetti'
	Ilex glabra 'Shamrock'
	Ilex vomitoria 'Nana'
	Viburnum x 'Chindo'
GROUND COVERS	BOTANICAL NAME
	Cynodon dactylon 'TifTurf'



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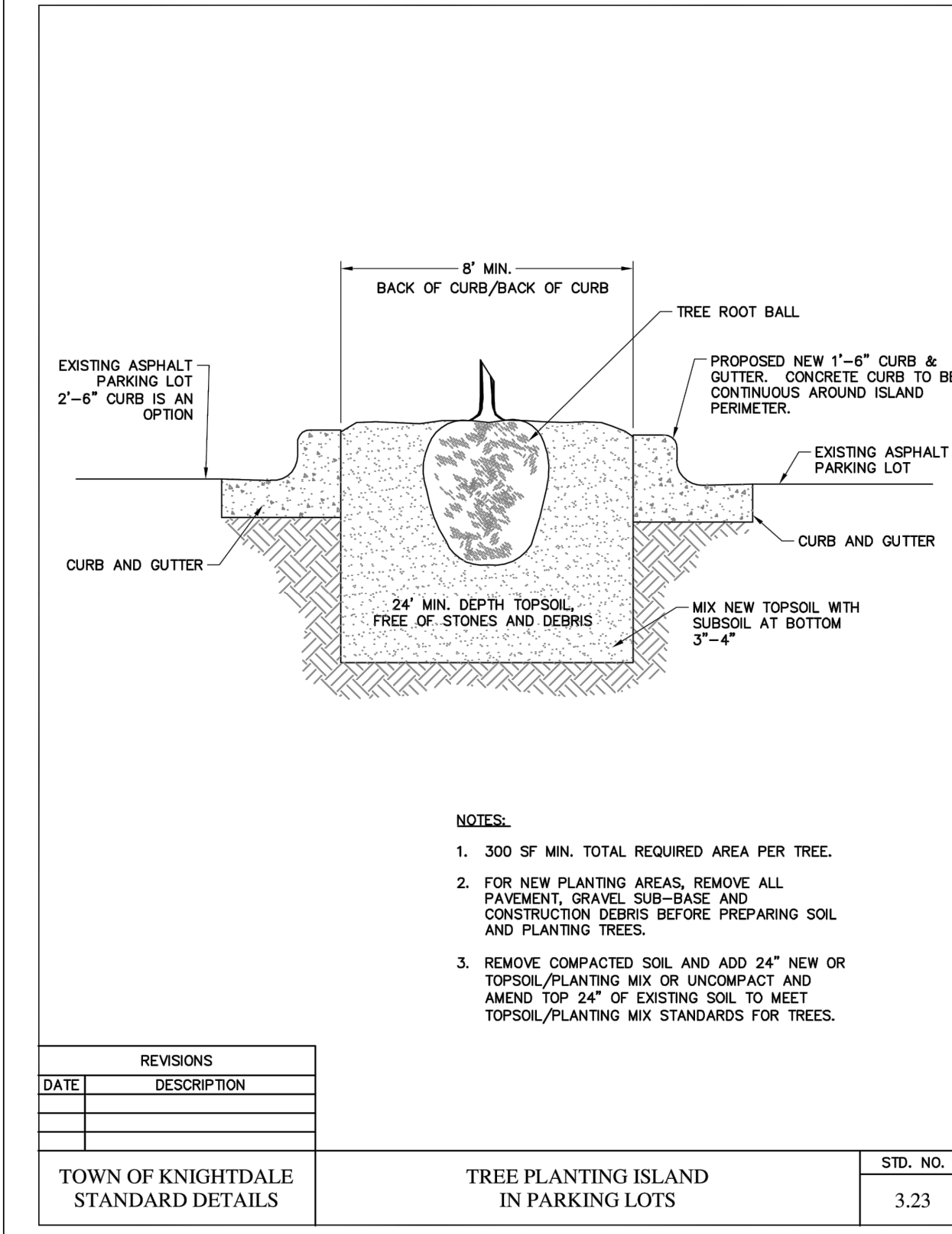
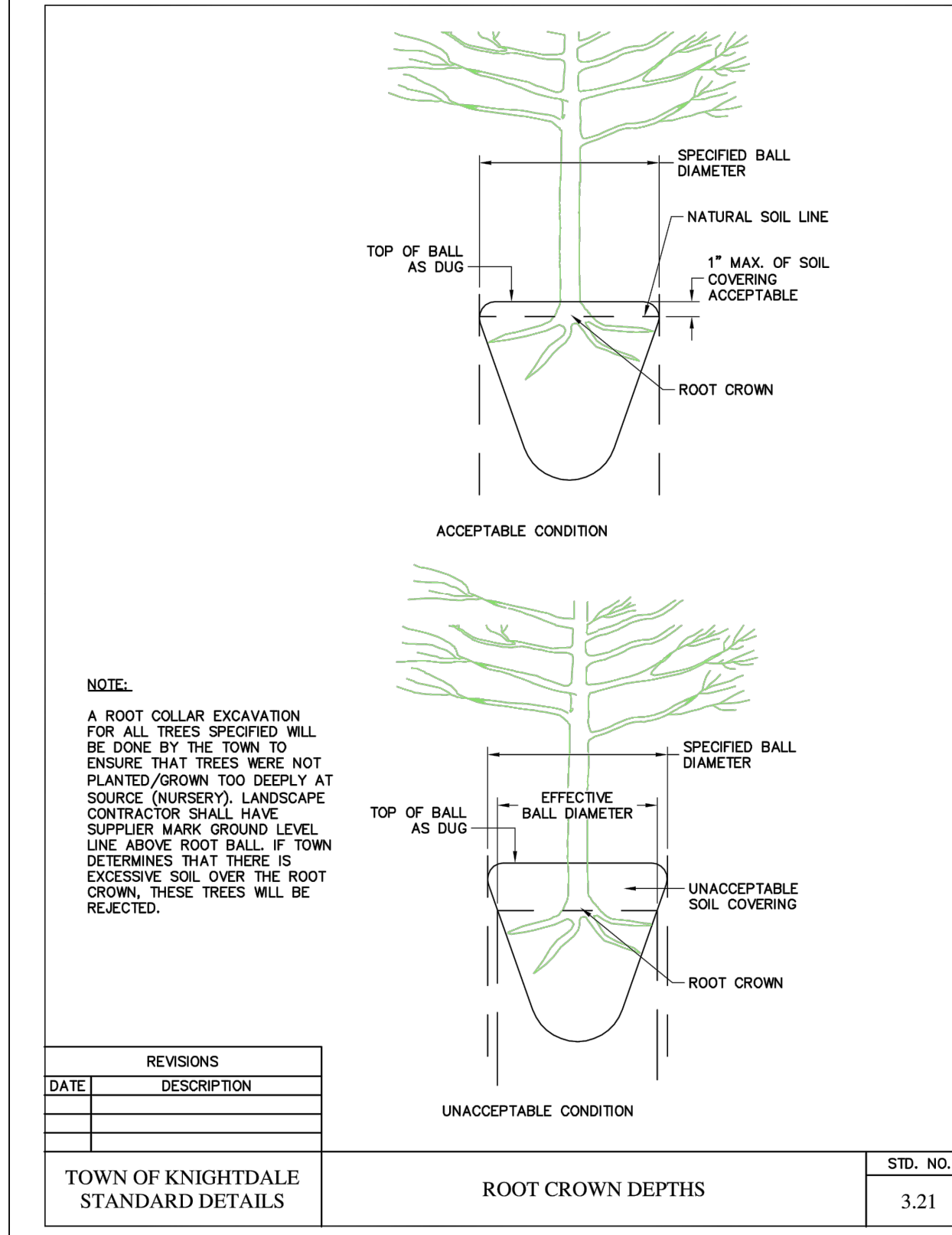
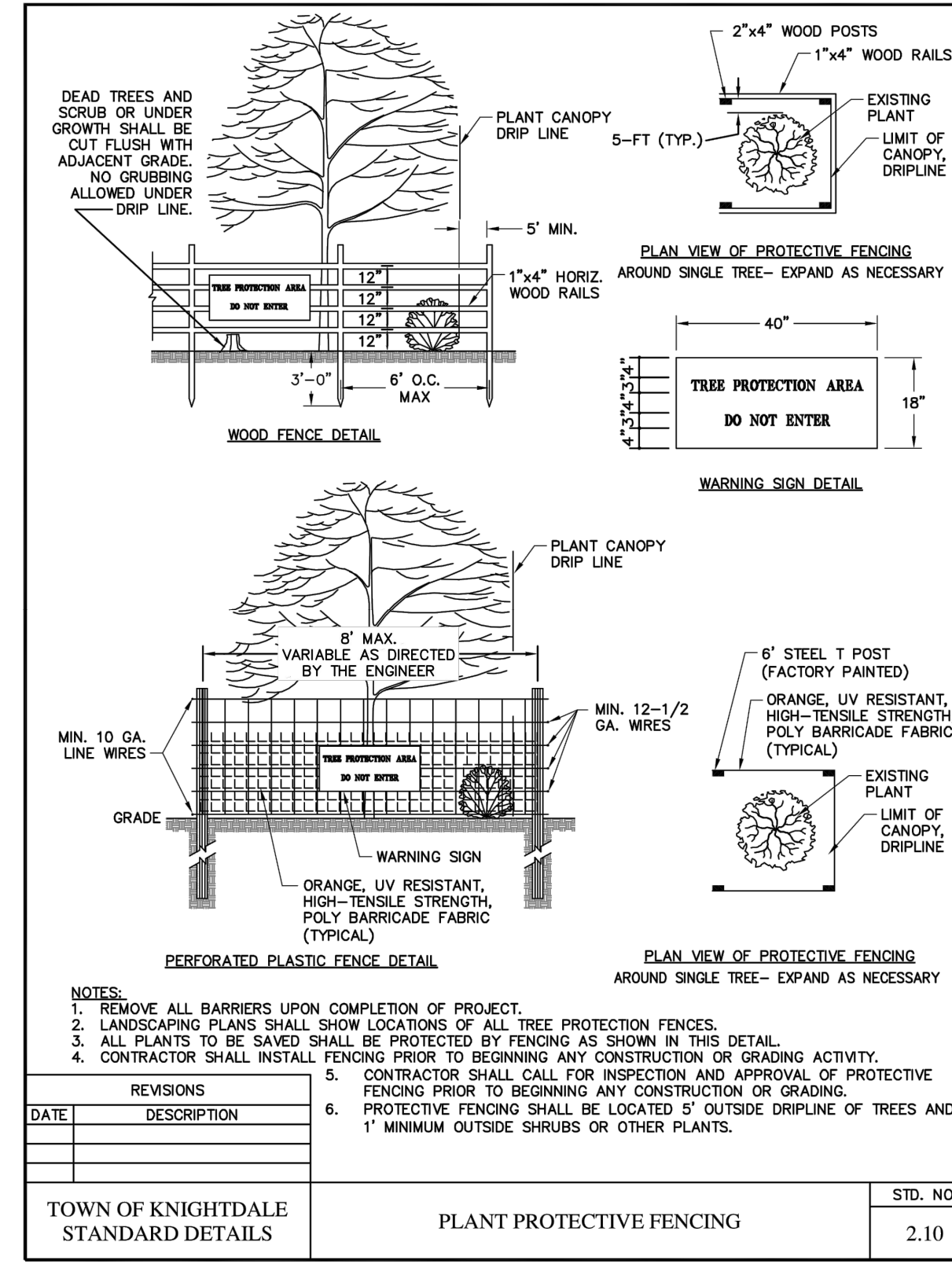
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GENERAL LANDSCAPE NOTES

- LANDSCAPED AREAS SHALL NOT CONTAIN ANY DEVELOPMENT, IMPERVIOUS SURFACES OR SITE FEATURES THAT DO NOT FUNCTION TO MEET THE APPLICABLE STANDARDS FOR THAT AREA OR THAT REQUIRE REMOVAL OF EXISTING SIGNIFICANT VEGETATION.
- NO GRADING, DEVELOPMENT OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN AREA BUFFER YARDS IF FOREST CANOPY, SPECIMEN TREES OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES 3:1 OR LESS ARE ENCOURAGED TO ENSURE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.
- PERMANENT OFF-SITE LANDSCAPE EASEMENTS MAY BE USED TO MEET REQUIRED BUFFER YARDS PROVIDED THAT THE SIZE OR SHAPE OF THE PARCEL SIGNIFICANTLY RESTRICTS THE ABILITY TO REASONABLY USE THE PROPERTY AND MEET THE BUFFER YARD REQUIREMENTS. THESE EASEMENTS MUST BE RECORDED PRIOR TO OR IN CONJUNCTION WITH THE APPROVAL OF THE SITE OR SUBDIVISION PLAN.
- NEW PLANT MATERIAL SHOULD COMPLEMENT EXISTING VEGETATION NATIVE TO THE SITE. THE USE OF DROUGHT TOLERANT, INDIGENOUS, NATIVE AND/OR REGIONALLY GROWN SPECIES OF TREES, SHRUBS AND GROUNDCOVERS ARE ENCOURAGED IN ORDER TO MAKE PLANTED AREAS COMPATIBLE WITH EXISTING NATIVE HABITATS AND TO REDUCE DEPENDENCY ON IRRIGATION.
- ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS & DETAIL MANUAL.
- LANDSCAPING SHOULD BE OF SUFFICIENT SIZE SO THAT MATURE APPEARANCE WILL BE ACHIEVED WITHIN (3) YEARS OF INSTALLATION FOR SHRUBS AND WITHIN (5) YEARS OF INSTALLATION FOR TREES, WHERE THE MINIMUM SIZE REQUIREMENTS OVERLAP, THE HIGHER STANDARD SHALL PREVAIL.
- EACH CANOPY TREE SHALL BE PROVIDED WITH A MINIMUM PEROVIOUS GROUND AREA OF 300 SF FOR ROOT GROWTH (EXCEPTION: STREET TREES) AND SHOULD BE PLANTED ON SLOPES NOT TO EXCEED 1:4 VERTICAL TO HORIZONTAL DISTANCE.
- GROUNDCOVER MUST BE PLANTED WITH ON-CENTER SPACING EQUIVALENT TO THE AVERAGE MATURE SPREAD FOR EACH PARTICULAR SPECIES.
- ALL NEW PLANT MATERIAL SHALL BE OF GOOD QUALITY, FREE FROM DISEASE, INSTALLED IN SOUND MANNER, MULCHED (3-4" LAYER) AND MEET STANDARDS SET FORTH IN THE AMERICAN STANDARD FOR NURSERY STOCK BY AMERICAN NURSERY & LANDSCAPE ASSOCIATION (ANLA). THE SELECTION OF PLANTS, PLANTING METHODS, MINIMUM HEIGHT, ROOT BALL AND CONTAINER SIZE, NUMBER OF BRANCHES AND WIDTH SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE ANLA FOR THAT TYPE OF TREE OR SHRUB AT THE TIME OF INSTALLATION.
- ALL NEW TREES SHALL ALSO BE PROPERLY GUYED AND STAKED AT THE TIME OF PLANTING.
- ADEQUATE DRAINAGE AND MULCHING SHALL BE PROVIDED IN ALL CASES, PARTICULARLY FOR MEDIANS AND ISLANDS.
- INSTALLATION PRACTICES SHALL BE UTILIZED WHICH PRESERVE AND REPLACE EXISTING TOPSOIL OR AMEND THE SOIL TO REDUCE COMPACTION.
- ALL PORTIONS OF A LANDSCAPED AREA NOT PLANTED WITH SHRUBS AND TREES OR COVERED BY A WALL OR OTHER SCREENING DEVICE SHALL BE PLANTED WITH GROUND COVER AND/OR GRASS, OR COVERED WITH NATURAL MULCH WITH A MINIMUM DEPTH OF 2".
- WHERE A CANOPY TREE IS REQUIRED AND OVERHEAD UTILITY LINES EXIST, (2) UNDERSTORY TREES SHALL BE SUBSTITUTED WITH THE APPROVAL OF THE ADMINISTRATOR.
- NOTHING SHALL BE PLANTED OR INSTALLED WITHIN AN UNDERGROUND OR OVERHEAD UTILITY EASEMENT OR DRAINAGE EASEMENT WITHOUT THE CONSENT OF THE TOWN AND THE EASEMENT HOLDER AT THE TIME OF MASTER PLAN APPROVAL.
- CONTRACTOR SHALL WARRANT ALL NEW PLANT MATERIAL FOR (1) YEAR FROM TIME OF INSTALLATION.
- ALL LANDSCAPING, MULCHING AND SEEDING SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED SITE PLAN AND THE STANDARDS OF THIS CHAPTER PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. REQUESTS FOR A DELAY IN COMPLYING WITH THIS REQUIREMENT WILL BE CONSIDERED FOLLOWING A WRITTEN REQUEST DIRECTED TO THE ADMINISTRATOR. SUCH REQUEST FOR A DELAY SHALL NOTE THE TIME PERIOD PLANTING SHALL BE COMPLETED. CERTIFICATES OF OCCUPANCY WILL BE ISSUED WITH THE APPROVAL OF A REQUEST FOR PLANTING DELAY, IF DEEMED REASONABLE.
- THE TOWN MAY ISSUE A TEMPORARY CERTIFICATE OF OCCUPANCY FOR A PERIOD OF 30-180 DAYS, RELATIVE TO THE NEXT PLANTING SEASON, WHILE THE TOWN OF KNIGHTDALE MAY ALSO ISSUE A TEMPORARY CERTIFICATE OF OCCUPANCY FOR A PERIOD NOT TO EXCEED 30 DAYS.
- WHERE SIGHT TRIANGLES FOR DRIVES OR STREETS OVERLAP SCREENING, GROUND COVER VEGETATION SHALL BE USED EXCLUSIVELY (EXCEPTION: SINGLE-FAMILY DWELLINGS & DUPLEXES).
- ALL SIZES OF PARKING LOTS SHALL BE SCREENED WITH A TYPE 'A' BUFFER YARD. SIDES ADJACENT TO AN ARTERIAL SHALL BE SCREENED WITH A TYPE 'B' BUFFER YARD. OTHER VEHICLE ACCOMMODATION AREAS SHALL BE SCREENED FROM OFF-SITE VIEW WITH A TYPE 'B' BUFFER YARD.
- ABOVE GROUND UTILITIES AND ENCLOSED CONTAINMENT AREAS FOR TRASH AND RECYCLABLES SHALL BE SCREENED BY ELEMENTS OF A TYPE 'B' BUFFER YARD THAT PERTAIN TO SEMI-OPAQUE SCREENS UP TO 6' IN HEIGHT OR THE HEIGHT OF THE UTILITY OR ENCLOSURE, WHICHEVER IS LESS.
- ELECTRIC TRANSFORMER WILL REQUIRE LANDSCAPE SCREENING.

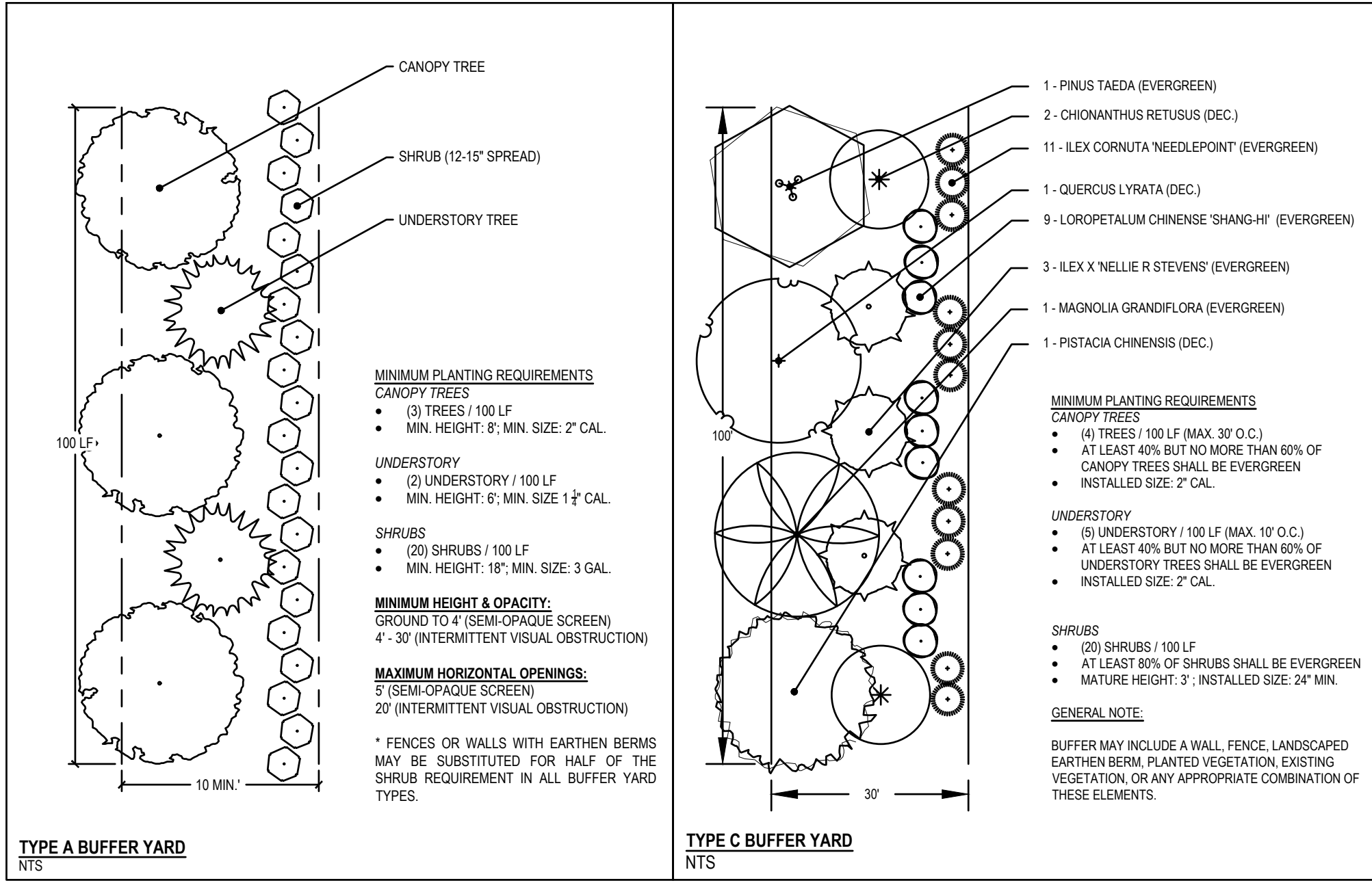
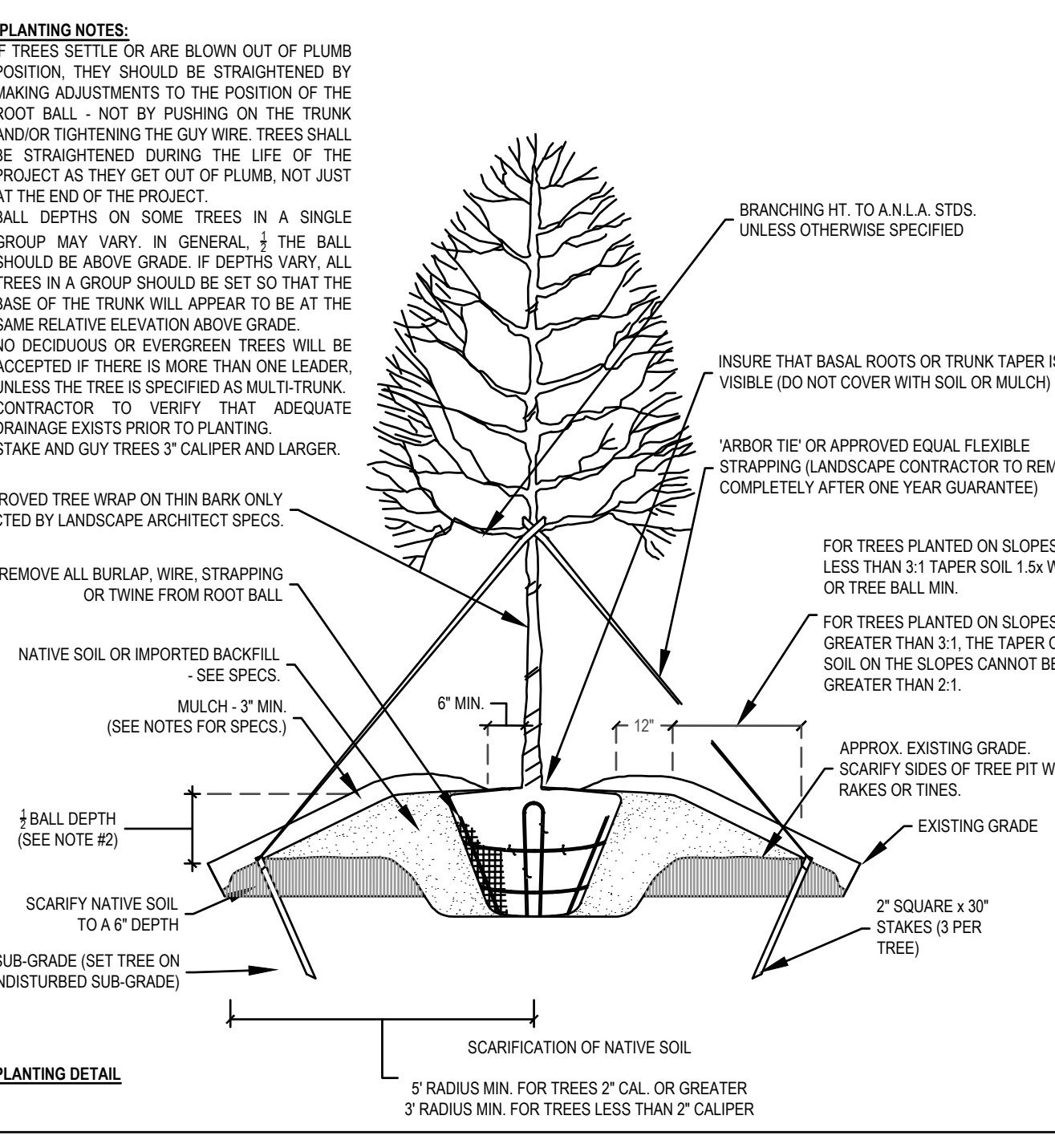
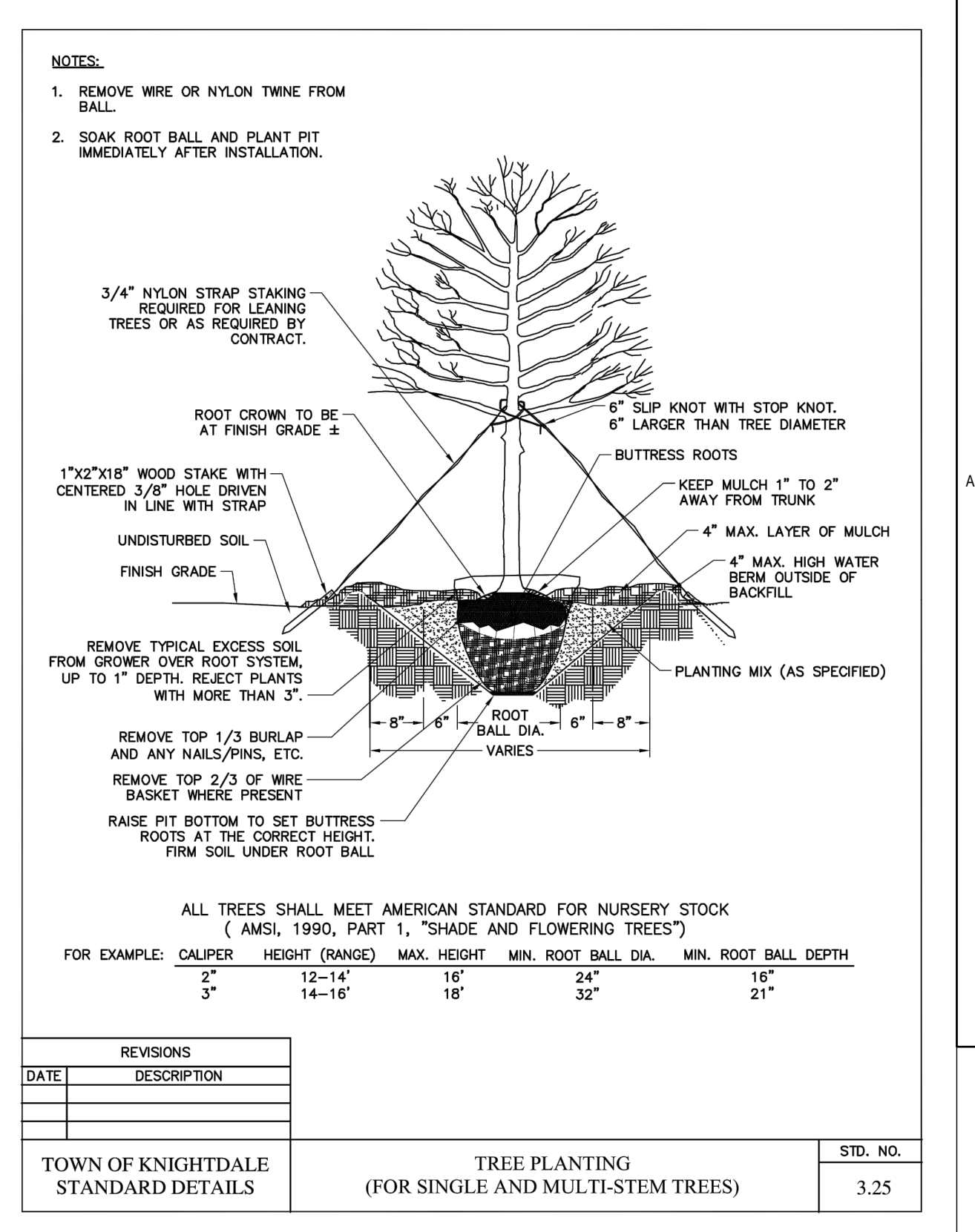
MAINTENANCE:

- THE OWNER(S) OF THE PROPERTY SHALL BE RESPONSIBLE FOR ALL NATURAL AND PHYSICAL FEATURES REQUIRED BY THE LANDSCAPE SECTION OF THE UDO AND SHALL PRESERVE AND MAINTAIN THESE FEATURES IN HEALTHY GROWING CONDITIONS, REPLACE THEM WHEN NECESSARY, AND KEEP THE AREAS AROUND THEM FREE OF REFUSE AND DEBRIS IN A MANNER THAT PREVENTS REFUSE AND DEBRIS FROM WASHING ONTO PUBLIC RIGHTS-OF-WAY.
- THE USE OF IRRIGATION IS PERMITTED IN ALL REQUIRED LANDSCAPING AREAS AS REQUIRED BY THE LANDSCAPING SECTION OF THE UDO AND MAY CONNECT TO THE PUBLIC WATER SYSTEM SUBJECT TO THE REQUIREMENTS OF THE TOWN'S STANDARDS SPECIFICATIONS AND DETAILS MANUAL AND OTHER APPLICABLE TOWN ORDINANCES OR POLICIES. THE USE OF MOISTURE METERING DEVICES AND AUTOMATIC TIMERS WITH ANY IRRIGATION SYSTEM IS REQUIRED. THE USE OF XERISCAPE PRACTICES AND DRIP IRRIGATION IS ALSO ENCOURAGED, UNLESS OTHERWISE REQUIRED.
- ALL VEGETATION SHOULD BE ALLOWED TO REACH AND BE MAINTAINED AT ITS MATURE SIZE.
- TREE TOPPING (THE REMOVAL OF MORE THAN 25% OF A TREE'S CANOPY) IS CONSIDERED TO BE DAMAGE AND MIS-CONFIGUREMENT AND SHALL BE PROHIBITED ON ALL TREES ON PUBLIC PROPERTY. REQUIRED TREE SAVE AREAS AND PARKING LOT LANDSCAPING AREAS UNLESS OTHERWISE APPROVED BY THE LAND USE REVIEW BOARD (LURB). TREES LOCATED WHERE PROPER PRUNING PRACTICES ARE IMPRACTICAL MAY BE EXEMPTED FROM THIS ARTICLE AT THE DETERMINATION OF THE ADMINISTRATOR.
- THE OWNER OF ANY TREE OR SHRUB ON PRIVATE PROPERTY THAT OVERHANGS ANY PUBLIC RIGHT-OF-WAY WITHIN THE TOWN SHALL PRUNE THE BRANCHES SO THAT SUCH BRANCHES SHALL NOT OBSTRUCT THE LIGHT FROM ANY STREET LAMP OR OBSTRUCT THE VIEW OF ANY STREET INTERSECTION AND SO THAT THERE SHALL BE A CLEAR SPACE OF 8' ABOVE THE SURFACE OF THE STREET OR SIDEWALK.
- THE TOWN OF KNIGHTDALE PUBLIC WORKS DIRECTOR IS AUTHORIZED TO PRUNE TREES AND SHRUBS FROM PUBLIC PROPERTIES AND PUBLIC RIGHTS-OF-WAY.
- THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) IS AUTHORIZED TO PRUNE TREES AND SHRUBS IN THE PUBLIC RIGHTS-OF-WAY OWNED BY THE STATE OF NORTH CAROLINA.
- THE REMOVAL BY ANY ENTITY OF A TREE OR SHRUB THAT IS DEAD, INFECTED BY DISEASE, OR DETERMINED TO BE A HAZARD TO PUBLIC SAFETY AND WELFARE AND SUBSEQUENT REPLACEMENT MAY BE APPROVED BY THE ADMINISTRATOR. TREES REMOVED MUST BE REPLACED IN ACCORDANCE WITH THE REPLACEMENT PROVISIONS OF THE UDO.
- OWNERS SHALL REMOVE ALL DEAD, DISEASED OR HAZARDOUS TREES AND SHRUBS AS WELL AS ANY BROKEN OR DECAYED LIMBS WHICH CONSTITUTE A HAZARD TO THE SAFETY OF THE TOWN. THE TOWN SHALL HAVE THE RIGHT TO CAUSE THE REMOVAL OF ANY DEAD OR DISEASED TREES AND SHRUBS ON PRIVATE PROPERTY WHEN SUCH TREE OR SHRUB CONSTITUTES A HAZARD TO LIFE AND PROPERTY, OR HARBOR INSECTS OR DISEASE WHICH CONSTITUTES A POTENTIAL THREAT TO OTHER VEGETATION IN THE TOWN. THE ADMINISTRATOR WILL NOTIFY PROPERTY OWNERS OF THE REQUIREMENT TO REMOVE SUCH TREES, SHRUBS OR LIMBS. REMOVAL SHALL BE DONE AT THE OWNER(S) EXPENSE WITHIN 60 DAYS AFTER THE DATE OF SERVICE OF THE WRITTEN NOTICE. FAILURE TO COMPLY WITH SUCH PROVISIONS SHALL CONSTITUTE A VIOLATION OF THE TOWN OF KNIGHTDALE ORDINANCE AND SHALL BE SUBJECT TO THE APPLICABLE PROCEDURES AND PENALTIES.
- WHEN REMOVING TREES AND SHRUBS STUMPS SHALL BE REMOVED OR GROUND TO A MINIMUM DEPTH OF 4".
- IN THE EVENT THAT ANY REQUIRED VEGETATION IS SEVERELY DAMAGED DUE TO AN UNUSUAL WEATHER OCCURRENCE OR NATURAL DISASTER, THE OWNER SHALL HAVE (1) GROWING SEASON TO REPLACE OR REPLANT FOLLOWING THE EVENT OR FOLLOWING THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR ANY EVENT-RELATED SITE RECONSTRUCTION, WHICHEVER IS LATER.
- VEGETATION WITHIN A REQUIRED TREE PROTECTION OR LANDSCAPED AREA THAT DIES WITHIN (1) YEAR OF CONSTRUCTION COMPLETION SHALL BE REMOVED AND REPLACED WITH NEW VEGETATION OF EQUAL OR GREATER SIZE BY THE CONTRACTOR PROVIDING THE WARRANTY. SHOULD ANY VEGETATION REQUIRED IN A TREE PROTECTION OR LANDSCAPED AREA DIE AFTER THE EXPIRATION OF THE WARRANTY, THE PROPERTY OWNER SHALL REPLACE IT WITHIN 180 DAYS WITH VEGETATION OF EQUAL OR GREATER SIZE.
- A PLAN DENOTING THE PROPOSED LOCATION AND SPECIES OF REPLACEMENTS SHALL BE SUBMITTED TO THE TOWN OF KNIGHTDALE FOR APPROVAL. THE ADMIN. WILL PRESENT THE PLAN TO THE LURB FOR FINAL APPROVAL.
- ALL VEGETATION SHALL BE REPLACED IN A MANNER THAT SATISFIES THE APPLICABLE TYPE, AMOUNT AND PERFORMANCE CRITERIA REQUIRED BY THE TOWN OF KNIGHTDALE UDO.
- THE ADMINISTRATOR MAY INSPECT THE SITE ONCE A YEAR AFTER THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY IN ORDER TO ENSURE COMPLIANCE WITH THE APPROVED SITE PLAN AND TO ENSURE THAT THE VEGETATION AND LANDSCAPING IS PROPERLY MAINTAINED. THE ADMINISTRATOR MAY ISSUE A NOTICE OF VIOLATION TO COMPLY WITH THE PROVISIONS OF THE KNIGHTDALE ORDINANCE IF WARRANTED UPON AN INSPECTION.



PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	HEIGHT	SIZE	CONTAINER	QTY
	ACE BUE	Acer buergerianum / Trident Maple	6' Ht.	1" CAL. MIN.	B&B	11
	BET LIT	Betula nigra 'Little King' / Fox Valley® Dwarf River Birch	6' Ht.	2" CAL. MIN.	B&B	11
	CER FOR	Cercis canadensis 'Forest Pansy' / Forest Pansy Eastern Redbud	6' Ht.	2" CAL. MIN.	B&B	13
	LAG N40	Lagerstroemia indica x lauriei 'Natchez' / Natchez Crape Myrtle	6' Ht.	1" CAL. MIN.	B&B	10
	PIS CHI	Pistacia chinensis / Chinese Pistache	6' Ht.	2" CAL. MIN.	B&B	29
	QUE PHE	Quercus phellos / Willow Oak	6' Ht.	2" CAL. MIN.	B&B	27
	ULM RUB	Ulmus rubra / Slippery Elm	6' Ht.	2" CAL. MIN.	B&B	15
	ZEL SER	Zelkova serrata / Japanese Zelkova	6' Ht.	2" CAL. MIN.	B&B	8
SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	HEIGHT	CONTAINER	QTY
	ABE AVL	Abelia x grandiflora 'Conletti' / Dwarf 'Conletti' Abelia	3 gal.	18" MIN.	Pot	105
	ILE SHA	Ilex glabra 'Shamrock' / Shamrock Inkberry Holly	3 gal.	18" MIN.	Pot	12
	ILE NAN	Ilex vomitoria 'Nana' / Dwarf Yaupon Holly	3 gal.	18" MIN.	Pot	143
	VIB XCH	Viburnum x 'Chindo' / Chindo Viburnum	3 gal.	18" MIN.	Pot	32
GROUND COVERS	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY	
	CYN MII	Cynodon dactylon 'TifTuf' / TifTuf Bermudagrass	seed			20,758 sf



LANDSCAPE CALCULATIONS

STREET TREES

MORNING FLYER WAY 1039 LF

CANOPY TREES REQUIRED: 26 (1/40 LF)
PROVIDED: 29

NOTE: CAROLINIAN ROAD AND LIGHT RAIL ROAD HAVE EXISTING STREET TREES

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WithersRavenel
 137 S. Wilmington Street, Suite 200 | Raleigh, NC 27601
 License #: F-1479 | T-919-469-3340 | www.withersravenel.com

ATLAS STARK
 2020 PROGRESS CT, SUITE 130A
 RALEIGH, NC 27608

ATLAS STARK
KNIGHTDALE STATION

PUD MASTER PLAN

7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | 1ST.
 MATTHEWS TOWNSHIP | WAKE COUNTY

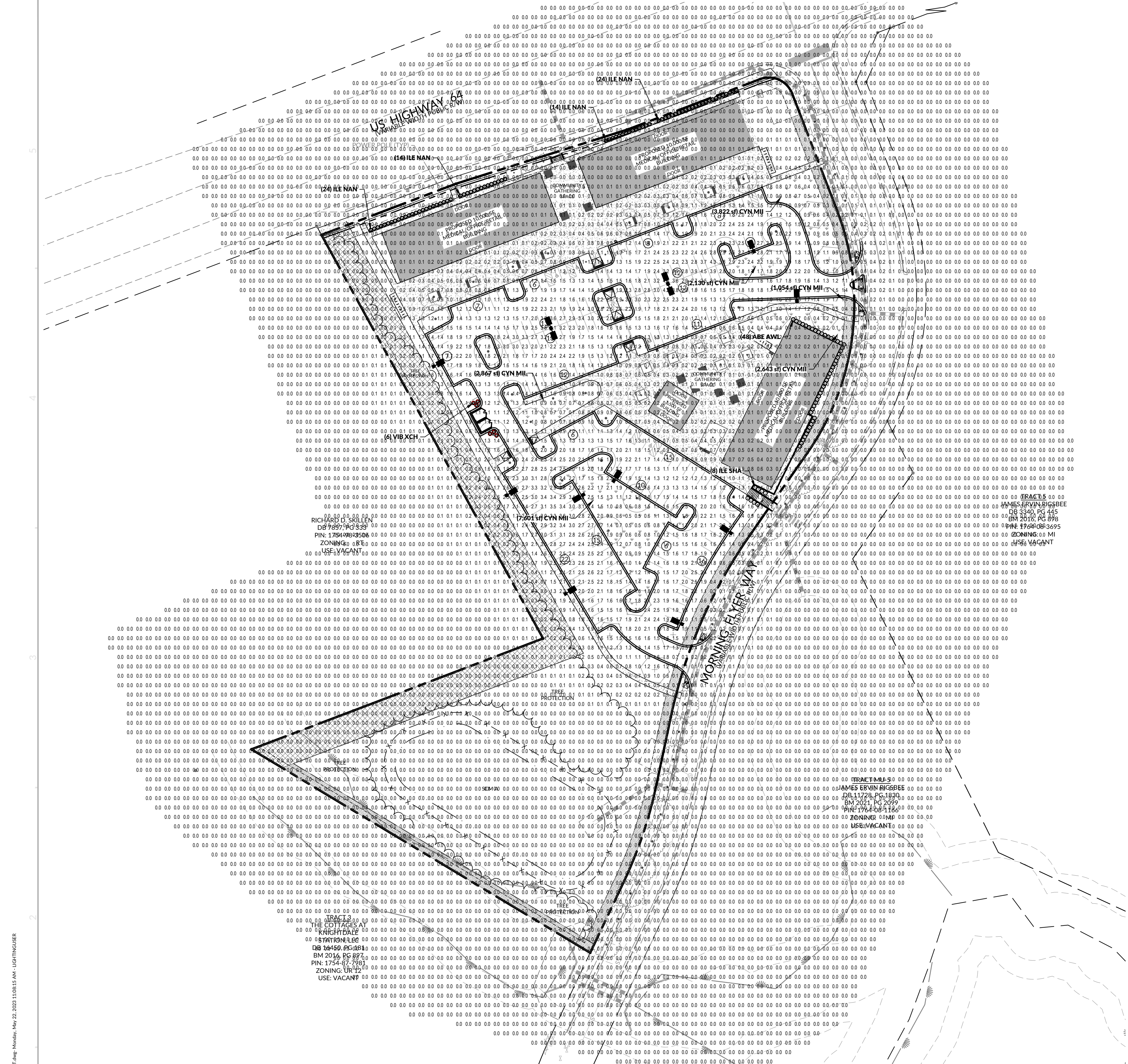
PRELIMINARY
 NOT APPROVED FOR CONSTRUCTION

INITIAL PLAN DATE: 05/22/2023
 REVISIONS:

WR JOB NUMBER 221154
 DRN: WR DGN: WR CKD: WR

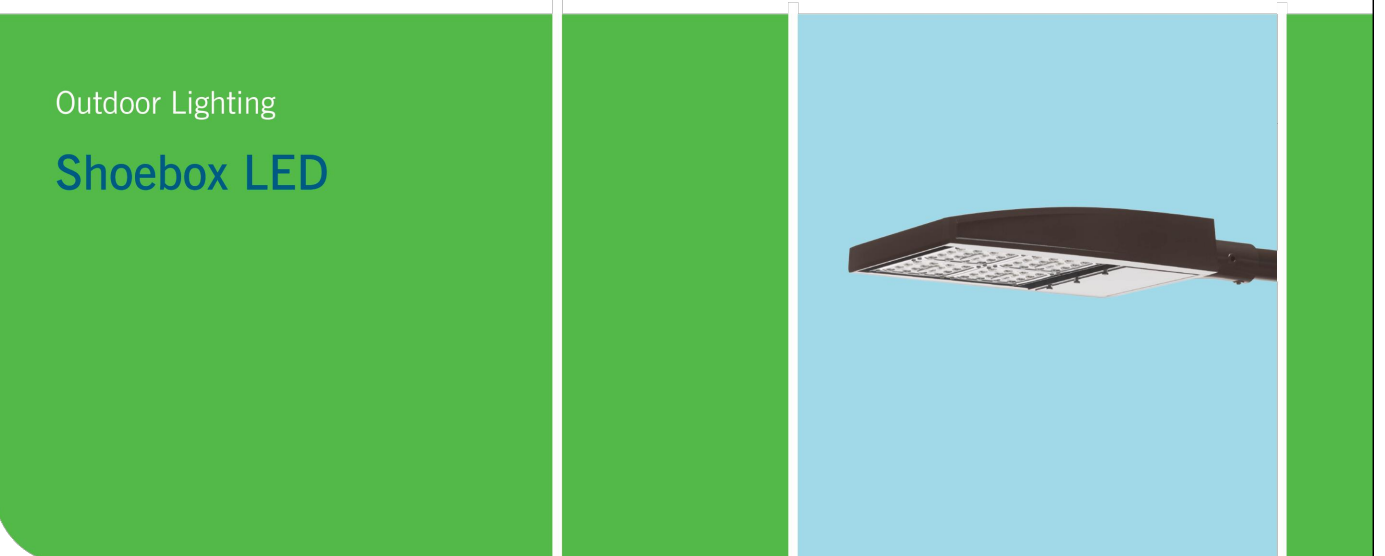
LANDSCAPE NOTES & SCHEDULE

L1.03



SITE PARKING AREA	
AVERAGE FOOT-CANDLES	1.83
MAXIMUM FOOT-CANDLES	4.6
MINIMUM FOOT-CANDLES	0.5
MINIMUM TO MAXIMUM FC RATIO	0.10
MAXIMUM TO MINIMUM FC RATIO	9.78
AVERAGE TO MINIMUM FC RATIO	3.91

LUMINAIRE SCHEDULE									
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	VOLTS	QUANTITY	
SHBX		(64) 205W	GALLEON LED AREA AND ROADWAY LUMINAIRE(4) 70 CRI, 4000K, 1A LIGHTSQUARES WITH 16 LEDES EACH AND TYPE IV WIDE OPTICS	ELECTRONIC	30' POLE	COOPER LIGHTING - STREETWORKS, GAN-AE-04-LED-U-T4W	120V 1P 2W	25	



The energy-efficient Shoebox LED combines a decorative, contemporary style with versatility and ample lighting effect that is perfect for streets, parking lots, commercial buildings and residential communities. The Shoebox LED provides excellent color rendition along with a controlled light pattern that reduces glare and keeps the light directed only where you want it. Available in black, dark bronze, gray or white with one to four fixtures per pole.

LED (Light Emitting Diode)	205 420, 530 watts
Mounting heights	30', 35'
Colors	Black Bronze Gray White
Poles	Fiberglass (205W only, 1 or 2 fixtures per pole) Decorative tapered metal Decorative square metal

Note: 35' pole available in black or bronze only.

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

Outdoor Lighting Shoebox LED

Light source: LED (white)
Replacement for* LED Wattage 205 - up to 400-watt metal halide; LED Wattage 420; LED Wattage 530 - 1,000-watt metal halide
Warm-up and restrike time: Instant on (no warm-up or restrike time)

Wattage	BUG Rating	Light Pattern	Lumens	Color Temp
LED 205	B5-U0-G3	IESNA Type V (circular)	21,803	
LED 205	B3-U0-G4	IESNA Type IV (forward throw)	20,555	
LED 420	B5-U0-G4	IESNA Type III (oval)	21,164	
LED 420	B5-U0-G5	IESNA Type V (circular)	43,317	4,000K
LED 420	B3-U0-G5	IESNA Type IV (forward throw)	39,078	
LED 530	B5-U0-G5	IESNA Type V (circular)	53,498	
LED 530	B3-U0-G5	IESNA Type IV (forward throw)	48,262	

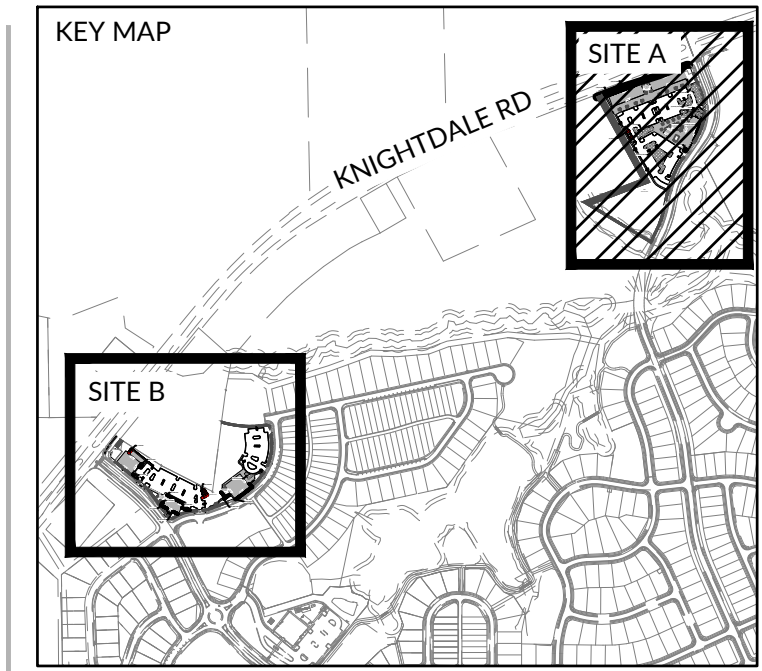


Poles available:		
Name	Mounting height	Color
Round tapered decorative metal*	35'	Black Bronze
Decorative square metal*	30'	Black Bronze Gray White
Fiberglass	30'	Black (205W only, 1 or 2 fixtures per pole) Gray (205W only, 1 or 2 fixtures per pole)

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

*2" raised foundation available when required on metal poles only.

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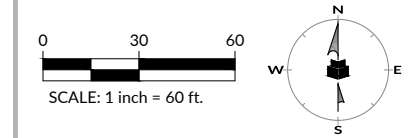
WithersRavenel
137 S Wilmington Street, Suite 200 | Raleigh, NC 27601
License #: F-1479 | T-919-469-3340 | www.withersravenel.com

ATLAS STARK
2020 PROGRESS CT, SUITE 130A
RALEIGH, NC 27608

PUD MASTER PLAN
ATLAS STARK
KNIGHTDALE STATION
7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | 1ST.
MATTHEWS TOWNSHIP | WAKE COUNTY



INITIAL PLAN DATE: 05/22/2023
REVISIONS:

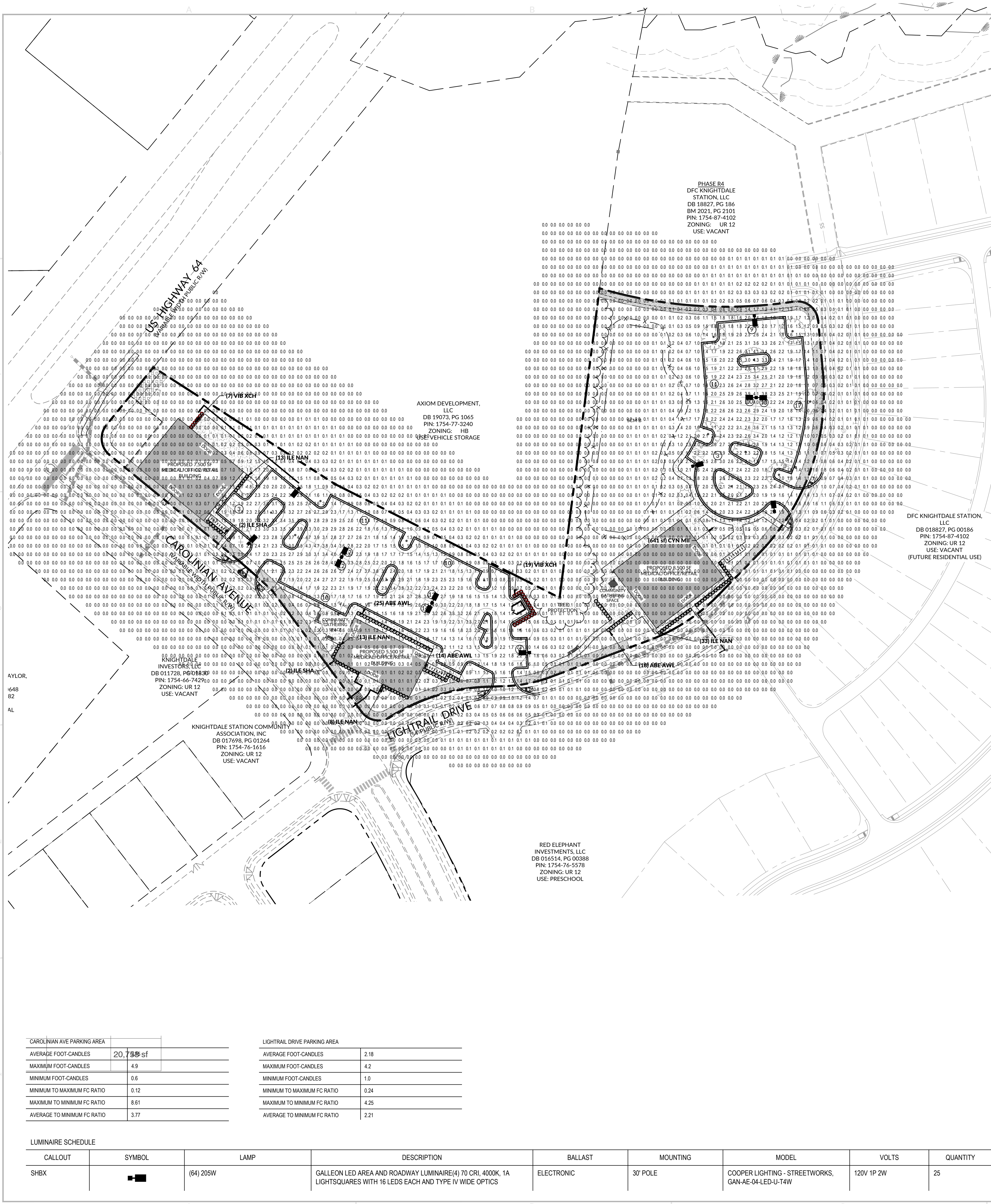


WR JOB NUMBER 221154
DRN: WR DGN: WR CKD: WR

SL1.01

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EST. 1983



PHASE 04
DFC KNIGHTDALE
STATION, LLC
DB 18827, PG 186
BM 2021, PG 2101
PIN: 1754-87-4102
ZONING: UR 12
USE: VACANT

AXIOM DEVELOPMENT,
LLC
DB 19078, PG 1045
PIN: 1754-77-3240
ZONING: HB
USE: VEHICLE STORAGE

DFC KNIGHTDALE STATION,
LLC
DB 018827, PG 00186
PIN: 1754-87-4102
ZONING: UR 12
USE: VACANT
(FUTURE RESIDENTIAL USE)

RED ELEPHANT
INVESTMENTS, LLC
DB 016514, PG 00388
PIN: 1754-76-5578
ZONING: UR 12
USE: PRESCHOOL

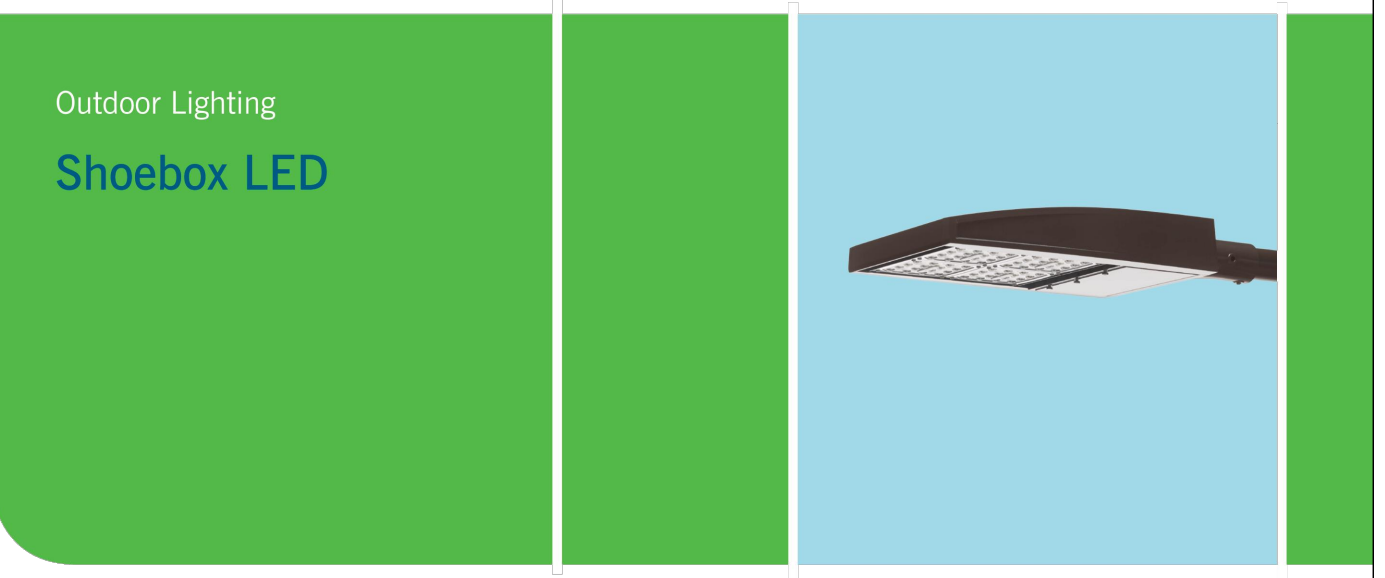
KNIGHTDALE
INVESTORS LLC
DB 011726, PG 001830
PIN: 1754-66-7427
ZONING: UR 12
USE: VACANT

KNIGHTDALE STATION COMMUNITY
ASSOCIATION, INC
DB 017490, PG 01264
PIN: 1754-76-1616
ZONING: UR 12
USE: VACANT

CAROLINIAN AVE PARKING AREA	
AVERAGE FOOT-CANDLES	20.785 sf
MAXIMUM FOOT-CANDLES	49
MINIMUM FOOT-CANDLES	0.6
MINIMUM TO MAXIMUM FC RATIO	0.12
MAXIMUM TO MINIMUM FC RATIO	8.61
AVERAGE TO MINIMUM FC RATIO	3.77

LIGHTRAIL DRIVE PARKING AREA	
AVERAGE FOOT-CANDLES	2.18
MAXIMUM FOOT-CANDLES	4.2
MINIMUM FOOT-CANDLES	1.0
MINIMUM TO MAXIMUM FC RATIO	0.24
MAXIMUM TO MINIMUM FC RATIO	4.25
AVERAGE TO MINIMUM FC RATIO	2.21

LUMINAIRE SCHEDULE									
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	VOLTS	QUANTITY	
SHBX		(64) 205W	GALLEON LED AREA AND ROADWAY LUMINAIRE(4) 70 CRI, 4000K, 1A LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS	ELECTRONIC	30' POLE	COOPER LIGHTING - STREETWORKS, GAN-AE-04-LED-U-T4W	120V 1P 2W	25	



The energy-efficient Shoebox LED combines a decorative, contemporary style with versatility and ample lighting effect that is perfect for streets, parking lots, commercial buildings and residential communities. The Shoebox LED provides excellent color rendition along with a controlled light pattern that reduces glare and keeps the light directed only where you want it. Available in black, dark bronze, gray or white with one to four fixtures per pole.

LED (Light Emitting Diode)	205 420, 530 watts
Mounting heights	30', 35'
Colors	Black Bronze Gray White
Poles	Fiberglass (205W only, 1 or 2 fixtures per pole) Decorative tapered metal Decorative square metal

Note: 35' pole available in black or bronze only.

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

Outdoor Lighting Shoebox LED

Light source: LED (white)
Replacement for* LED Wattage 205 – up to 400-watt metal halide; LED Wattage 420; LED Wattage 530 – 1,000-watt metal halide
Warm-up and restrike time: Instant on (no warm-up or restrike time)

Wattage	BUG Rating	Light Pattern	Lumens	Color Temp
LED 205	B5-U0-G3	IESNA Type V (circular)	21,803	
LED 205	B3-U0-G4	IESNA Type IV (forward throw)	20,555	
LED 205	B2-U0-G4	IESNA Type III (oval)	21,164	
LED 420	B5-U0-G5	IESNA Type V (circular)	43,317	4,000K
LED 420	B3-U0-G5	IESNA Type IV (forward throw)	39,078	
LED 530	B5-U0-G5	IESNA Type V (circular)	53,498	
LED 530	B3-U0-G5	IESNA Type IV (forward throw)	48,262	

* These are approximate replacement suggestions, actual conditions could be different.

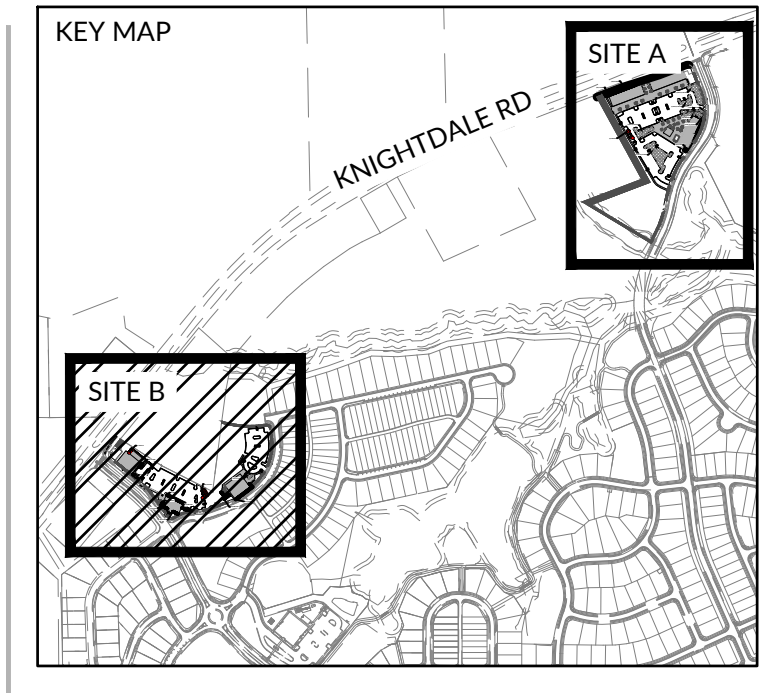
Poles available:

Name	Mounting height	Color
Round tapered decorative metal*	35'	Black Bronze
Decorative square metal*	30'	Black Bronze White
Fiberglass	30'	Black (205W only, 1 or 2 fixtures per pole) Gray (205W only, 1 or 2 fixtures per pole)

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

*2" raised foundation available when required on metal poles only.

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ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH ALL CITY OF RALEIGH & TOWN OF KNIGHTDALE DESIGN STANDARDS, DETAILS AND SPECIFICATIONS

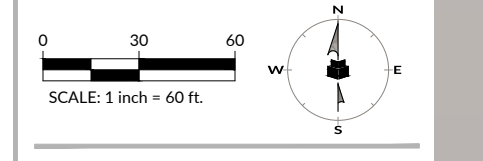
a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
By: _____ Date: _____
Town Engineer
These plans are approved by the Town of Knightdale and serve as construction plans for this project.
By: _____ Date: _____
Administrator

WithersRavenel
137 S. Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

ATLAS STARK
2020 PROGRESS CT, SUITE 130A
RALEIGH, NC 27608

PUD MASTER PLAN
**ATLAS STARK
KNIGHTDALE STATION**
7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | 1ST.
MATTHEWS TOWNSHIP | WAKE COUNTY

PRELIMINARY
NOT APPROVED
FOR CONSTRUCTION
WEL B. WHITT



INITIAL PLAN DATE: 05/22/2023
REVISIONS:

WR JOB NUMBER 221154
DRN: WR DGN: WR CKD: WR

LIGHTING EXHIBIT - SITE B

SL1.02

u:\22102-1100021154-Atlas Stark Knightdale Station\CD\Drawings\Site\SL102 Lighting Exhibit.dwg: A04 - 10/17/2023



Knightsdale Station Commercial Carolinian & Morning Flyer Way

NMX-PUD

Knightsdale

Prepared For:
Robert S. Adams III (Trey), Managing Partner
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(919) 469-3340
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WithersRavenel Project No. 09221154.00

May 22, 2023

Table of Contents

1	Vision & Intent.....	3
2	Statement of Consistency with Unified Development Ordinance	3
	2.1 Modifications to the Unified Development Ordinance.....	3
3	Statement of Consistency with Comprehensive Plan	4
	3.1 Comprehensive Plan Consistency Justification.....	4
4	Design Guidelines.....	6
	4.1 Building Type Standards:	6
5	Dimensional Standards.....	8
	5.1 Building Type Standards:	8
	5.2 Permitted Uses:.....	8
	5.3 Parking and Loading:.....	10
	Morning flyer Way –Parking Provided 206 parking spaces.....	10
	Carolinian –Parking Provided 148 parking spaces	10
	5.4 Landscaping and Tree Protection:	11
	5.5 Buffer Yards	11
	5.6 Street Trees.....	11
6	Transportation Impact Analysis.....	11
7	Dedicated Open Space Analysis	11
	7.1 Common Open Space Provided:.....	11
8	Public Facilities Infrastructure	11
	8.1 Water Allocation Policy Ordinance:.....	11
	8.2 Utilities:	12
9	Neighborhood Meeting Report.....	12

1 Vision & Intent

Per Knightsdale’s UDO Section 12.11(g), Approval of development through a Planned Unit Development Overlay District rezoning, including modifications to the requirements of the Town of Knightsdale UDO, is a privilege and will be considered by the Town only in direct response to the accrual of tangible benefits from the planned unit development to the Town or the neighborhood in which it would be located.

The Planned Unit Development of Knightsdale Station Morning Flyer Way and Knightsdale Station Carolinian encourages creativity and innovation in the building design and type standards, utilizing both the commercial building type standards and the mixed-use building type standards, as outlined in this document.

2 Statement of Consistency with Unified Development Ordinance

2.1 Modifications to the Unified Development Ordinance

The Knightsdale Station project has been designed to be consistent with the Knightsdale Unified Development Ordinance to its most practical extent. Requested modifications to the Unified Development Ordinance have been detailed in the Planned Unit Development Master Plan section but shall be summarized below. The proposed variations are intended to follow the spirit and intent of the UDO.

1. Per UDO 6.3 A: Subject to approval through the planned unit development process, innovative planning or design ideas for development may be approved in any district. In the spirit of avoiding a perception of monotony, the applicant proposes to enhance the overall building design with the addition of metal as a secondary element to add to the architectural vibrancy of the community.
2. Per UDO 6.9: The applicant proposes to deviate from the mixed-use building type standards and utilize the commercial building type standards for both properties, providing single story buildings with an average height of 20 feet, facades with variations of earth tone color schemes and articulated entry ways.
3. Public gathering spaces are incorporated into the overall site design, with direct access to a public sidewalk and internal pedestrian walkway network and will provide at least three of the following features: a. Moveable tables and chairs b. Raised landscape planters c. Shade trees lining the gathering space.
4. Setbacks are proposed to follow the commercial building type standards as follows:
Yard Setbacks:
Front Minimum 0 feet
Front Maximum 10 feet
Side Minimum 0 feet
Side Maximum 10 feet
Rear Minimum 0 feet
*Front yard setback may exceed 10 feet where conflicts with easements and encroachments exist.

5. Parking location permitted in the side and rear yard.
Side yard required setback 0 feet
Rear yard required setback 5 feet
6. Parking Calculations for Site A:
206 Parking spaces provided
174 Maximum parking spaces required
18 Bicycle Spaces
7. Parking calculations for Site B
148 Parking spaces provided
119 Maximum parking spaces required
17 Bicycle Spaces
8. The transparency requirement will meet the mixed use building type standard. The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary facade as well as the facades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first floor building elevation.
9. An additional Accessory Use will be permitted on Site B: An MRI Mobile Unit to be in operation during normal business hours may be stationed in a dedicated space.

3 Statement of Consistency with Comprehensive Plan

3.1 Comprehensive Plan Consistency Justification

The applicant is requesting a planned unit development overlay district zoning map amendment to Neighborhood Mixed Use (NMU), an allowed zoning district within the designate Mixed Use Center, for approximately 11.37 acres of undeveloped land comprised of two subject properties within the corporate limits of Knightsdale and located within Knightsdale Station, as referenced by Wake County PIN 1754988657 (6.98 acres), with a physical address of 0 Knightsdale Boulevard and Wake County PIN 1754764820 (4.39 acres), with a physical address of 7790 Knightsdale Boulevard. PIN: 1754988657 lies to the east and is hereby referred to as Knightsdale Station – Morning Flyer Way and PIN: 1754764820 lies to the west and is hereby referred to as Knightsdale Station – Carolinian. Knightsdale Station - Morning Flyer Way is currently zoned Rural Transition (RT) and is designated in Knightsdale Next 2035 and on the Growth Framework Map, which is comprised of areas organized into place types which are building blocks for identifying complete neighborhoods, activity centers and business corridors, as Mixed-Use Center and Knightsdale Station – Carolinian is currently zoned Urban Residential District 12 (UR 12) as well as Highway Business (HB) along Knightsdale Boulevard and is designated in Knightsdale Next 2035 as Mixed-Use Center as well as Mixed Density Neighborhood. Both properties are part of the original Knightsdale Station Master Plan and are designated as MU 3 and MU 4 with office and retail as the proposed use and R-4 with 5.32 du/ac sf and mf residential as the proposed use.

businesses contribute to the Town's character and sense of community and Knightdale Station - Morning Flyer Way and Carolinian will promote tree protection, shared access, and enhanced streetscapes and connection between sites.

Guiding Principle – Parks and Recreation: The developments are located in close proximity to Knightdale Station Park and the YMCA, as well as Knightdale Station Pre-school, increasing a network of connected sidewalks and pedestrian passages between recreation facilities and where people live, work and enjoy life. This builds upon Knightdale's growing reputation as an outdoor community.

Guiding Principle – Transportation: Land use and infrastructure improvements will provide a network of pedestrian and vehicle movement that emphasizes the surrounding development pattern while providing a safe and efficient system for moving people and transportation modalities. Morning Flyer Way is within a Growth Activity Center and Surrounding Priority Investment Area at the intersection of Knightdale Boulevard and Morning Flyer Way. Also, this area is identified as a Community-Focused Gateway and will be served by Future Bus Rapid Transit.

Guiding Principle – Community Design: Building scale, placement and materials will interact with the public realm creating an identity that enhances the reputation of Knightdale while also providing outstanding site design with public gathering spaces and 1500 sf of focused single tenant buildings, places for pedestrian and active public spaces, with smart nodes of connection to existing sidewalks and the provision of new walkways. Distinctiveness comes from streetscapes and architecture, both of which are proposed for these developments. Both sites are located along the existing State maintained arterial street, Knightdale Boulevard and Town maintained collectors, Carolinian Avenue and Morning Flyer Way. This connection to a major transportation corridor connects businesses to public transit and provides an ideal location that enhances the opportunities for small businesses and job creators.

4 Design Guidelines

4.1 Building Type Standards:

Building Type Standards for Knightdale Station Morning Flyer Way and Carolinian:

- The following building materials shall be permitted:

Masonry

- Brick
- Precast masonry
- Concrete block
- Coping

Stucco

- Synthetic stucco
- Cementitious stucco

Siding

- Fibercement siding, panels, or trim
- PVC siding, panels, or trim
- Painted, prefinished, or stained colors and finishes
- Stained wood siding
- Weathered or reclaimed wood siding

Awnings

- Fabric awnings
- Metal awnings
- Metal canopies
- Dimensional wood
- Painted, prefinished, or stained colors and finishes

Roofing

- Single play membrane
- Architectural synthetic shingles
- Architectural asphalt shingles
- Standing seam metal

Metal

- Flush metal panels
- Ribbed profile metal panels
- Metal copings
- Metal doors and frames
- Metal gates, railings, and screens

Windows

- Aluminum storefront in anodized or painted finish
- Vinyl windows

Glass

- Clear glass
- Tinted glass
- Opaque spandrel glass
- Translucent glass

Tile

- Ceramic tile
- Porcelain tile
- Masonry tile

5 Dimensional Standards

5.1 Building Type Standards:

The applicant proposes to deviate from the mixed-use building dimensional standards and utilize the **commercial building standards** for both properties, providing single story buildings with an average height of 20 feet, facades with variations of earth tone color schemes and articulated entry ways.

Setbacks are proposed to follow the commercial building type standards as follows:

Yard Setbacks:

Front Minimum	0 Minimum
Front Maximum	30 feet
Side Minimum	6 feet
Rear Minimum	0 feet

Parking location permitted in the side and rear yard:

Side yard required setback	0 feet
Rear yard required setback	5 feet

Table 3.4 Bulk and Dimensional Standards will adhere to the NMX standards:

Minimum lot width / DU -street loaded 80'

Building height maximum 56'

Building height stories maximum 4'

The transparency requirement will meet the **mixed use building type** standard, The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary facade as well as the facades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first-floor building elevation.

5.2 Permitted Uses:

Square footage is limited by existing UAA: 53,000 sf remaining for non-residential.

Added Use: Accessory Use – Medical Mobile Unit – Parcel B - Carolinian

Permitted Uses	Site A – Morning Flyer Way	Site B - Carolinian
Residential Uses:		
Dwelling-Duplex (CD)	YES	YES
Dwelling Multifamily above ground floor as part of mixed use (CD)	YES	YES
Dwelling Multifamily, 4 units / bldg. or less (CD)	YES	YES
Dwelling-Multifamily, more than 4 units / bldg. (CD)	YES	YES
Dwelling-Single Family (P)	YES	YES
Family Care Home (6 or Less residents) (P)	YES	YES

Knightsdale Station Master Plan

Housing Service for the Elderly (P)	YES	YES
Live-Work Units (P)	YES	YES
Townhouse, 4 units or less (CD)	YES	YES
Townhouse, more than 4 units (CD)	YES	YES
Lodging Uses:		
Bed and Breakfast Inns (P)	YES	YES
Hotels (CD)	YES	YES
Office / Service Uses:		
Animal Services, Boarding (SU)	YES	YES
Animal Services, Nonboarding (P)	YES	YES
Banks, Credit Unions, Financial Services (CD)	YES	YES
Business Support Services (P)	YES	YES
Child/Adult Day Care Home (Fewer than 6 people) (P)	YES	YES
Child/Adult Day Care Center (6 or more people) (P)	YES	YES
Community Service Organization (P)	YES	YES
Funeral Homes (P)	YES	YES
Government Services (P)	YES	YES
Medical Services (P)	YES	YES
Personal Services (P)	YES	YES
Post Office (P)	YES	YES
Professional Services (P)	YES	YES
Studio - Art, dance, martial arts, music (P)	YES	YES
Retail / Restaurant Uses:		
Auto Parts Sales (CD)	YES	YES
Bar/Tavern/Microbrewery (P)	YES	YES
Gas Station with Convenience Store (CD)	YES	YES
General Retail - 10,000 sf or less (P)	YES	YES
Neighborhood Retail/Restaurant - 2,000 sf or less (P)	YES	YES
Nightclub (CD)	NO	NO
Restaurant (P)	YES	YES
Tasting Room (P)	YES	YES
Entertainment / Recreation Uses:		
Amusements, Indoor - 5,000 sf or less (P)	YES	YES
Amusements, Indoor - 5,001 sf - 20,000 sf (SU)	YES	YES
Amusements, Outdoor (P)	YES	YES
Cultural or Community Facility (P)	YES	YES
Meeting Facilities (P)	YES	YES
Recreation Facilities, Indoor (P)	YES	YES
Recreation Facilities, Outdoor (P)	YES	YES
Theater, Live Performance (CD)	YES	YES
Theater, Movie (CD)	YES	YES
Manufacturing / Wholesaling / Storage Uses:		
Manufacturing, Neighborhood (P)	YES	YES
Civic / Institutional Uses:		
Cemeteries (P)	NO	NO
Colleges/Universities (CD)	YES	YES
Group Care Facility (More than 6 residents) (SU)	YES	YES

Knightsdale Station Master Plan

Public Safety Facility (P)	YES	YES
Religious Institutions (P)	YES	YES
Schools – Elementary & Secondary (CD)	YES	YES
Schools – Vocational/Technical (CD)	YES	YES
Infrastructure Uses:		
Wireless Telecommunication Facility-Stealth (P)	NO	NO
Wireless Telecommunication Facility – Small Wireless Facilities inside Right-of-Way (P)	NO	NO
Wireless Telecommunication Facility – Small Wireless Facilities outside Right-of-Way (P)	YES	YES
Utilities-Class 1 & 2 (P)	NO	NO
Accessory Uses:		
Accessory Building / Structure (P)	YES	YES
Cluster Mail Box Unit (P)	YES	YES
Drive-Thru Service (CD)	YES	YES
Drive-Thru Retail/Restaurants (CD)	YES	YES
Home Occupation (P)	NO	NO
Solar Energy Collection, Ground Mounted (P)	NO	NO
Solar Energy Collection, Roof/Building Mounted (P)	YES	YES

P = Permitted Use SU = Special Use CD = Conditional District Use

Proposed Uses for Knightsdale Station Morning Flyer Way and Carolinian:

Site A – Morning flyer Way

- Medical Office/ Professional Services/General Retail 1 = 10,000 sf
 - Medical Office/ Professional Services/General Retail 2 = 10,000 sf
 - Medical Office/ Professional Services/General Retail 3 = 10,000 sf
 - Neighborhood Retail/Restaurant = 1,500 sf
- Total 31,500 sf

Site B – Carolinian

- Medical Office/ Professional Services/General Retail 1 = 7500 sf
 - Medical Office/ Professional Services/General Retail 2 = 5500 sf
 - Medical Office/ Professional Services/General Retail 3 = 8,500 sf
- Total 21,500 sf

Accessory Use: MRI Mobile Unit to be in operation during normal business hours.

5.3 Parking and Loading:

Parking: maximum allowed/provided:

Morning flyer Way –Parking Provided 206 parking spaces

Carolinian –Parking Provided 148 parking spaces

Per UDO 7.1.G.1: This development involves two (2) or more uses on one parcel and the cumulative number of spaces required for each use shall determine the total number of spaces required.

Bicycle parking will be made available within 50 feet of the building's main entrance and will be distributed equally to serve all buildings and main entrances.

5.4 Landscaping and Tree Protection:

Site A – Morning flyer Way will provide 10% tree protection area.

Site B – Carolinian will provide 10% tree protection area.

5.5 Buffer Yards

Site A – Morning flyer Way has a base zoning district of NMX. Where Site A abuts the adjacent RT base district a TYPE C Buffer will be provided and where Site A abuts the adjacent UR12 base district a TYPE A Buffer will be provided.

Site B – Carolinian has a base zoning district of NMX. Where Site B abuts the adjacent UR12 base district a TYPE A Buffer will be provided.

5.6 Street Trees

Site A - Morning flyer Way will provide a pedestrian plaza along Knightsdale Boulevard. Street trees will be provided along Morning Flyer Way.

Site B – Carolinian will provide a pedestrian plaza along Knightsdale Boulevard. Street trees will be provided along Carolinian Avenue.

6 Transportation Impact Analysis

The project will meet the currently approved Transportation Impact Analysis. Improvements required in the TIA have been completed.

7 Dedicated Open Space Analysis

7.1 Common Open Space Provided:

Both Site A and Site B have provided community gathering spaces to fulfill Open Space requirements.

8 Public Facilities Infrastructure

8.1 Water Allocation Policy Ordinance:

The existing UAA addresses the Water Allocation Policy requirements, and the proposed development remains consistent with that prior approval.

8.2 Utilities:

The Knightsdale Station Morning Flyer Way and Carolinian Planned Unit Development are designed so that existing adequate utilities and road access are provided to serve it.

9 Neighborhood Meeting Report

A neighborhood meeting was held. Nobody attended the meeting, and no comments were received as a result of the mailed notice.

