

PUD MASTER PLAN

ATLAS STARK

KNIGHTDALE STATION

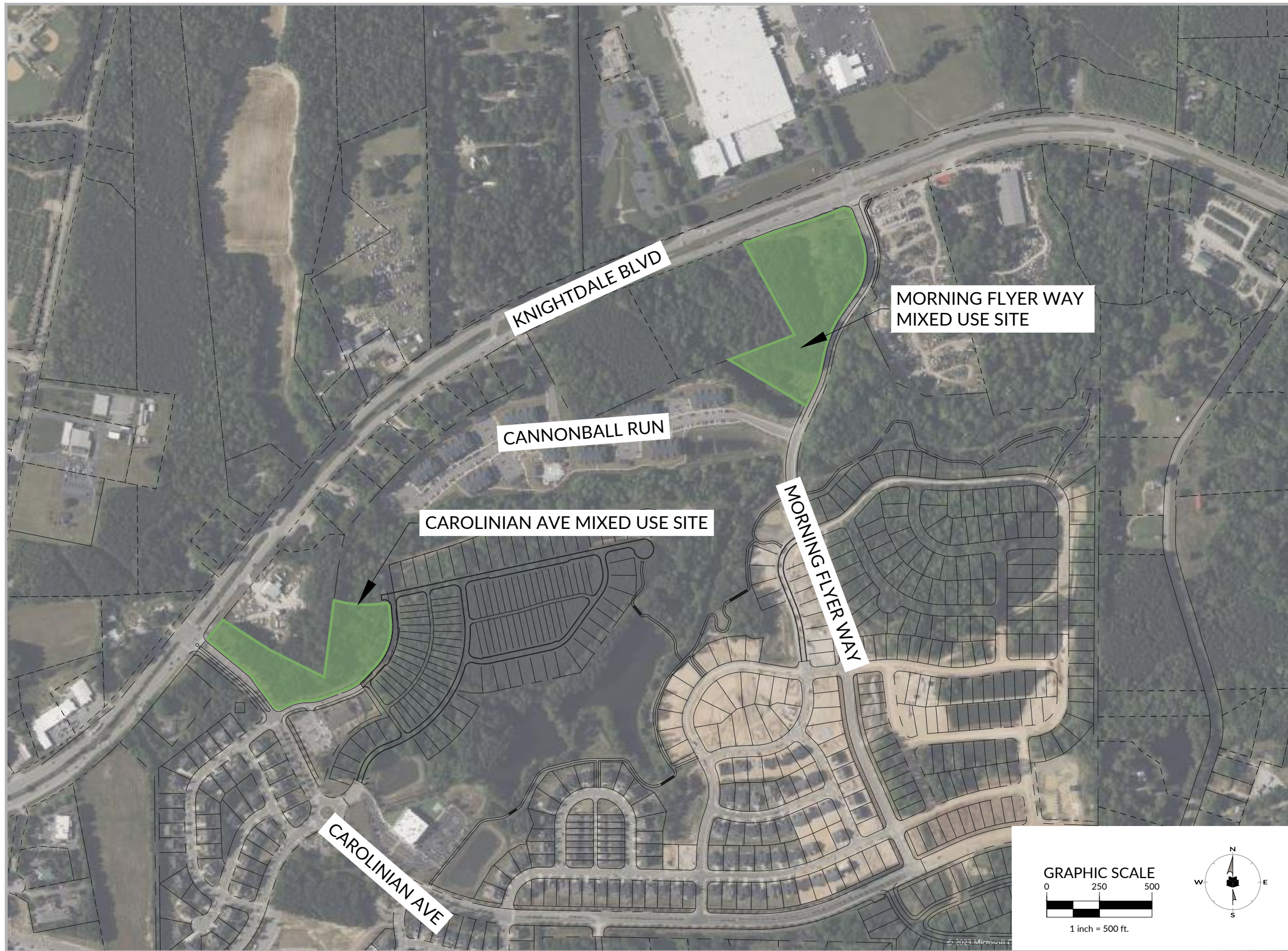
CAROLINIAN AVE. & MORNING FLYER WAY MIXED USE SITES

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

1ST SUBMITTAL: JULY 14, 2023
2ND SUBMITTAL: AUGUST 3, 2023
3RD SUBMITTAL: SEPTEMBER 1, 2023

SITE DATA TABLE

	MORNING FLYER WAY MIXED USE SITE	CAROLINIAN AVE MIXED USE SITE
ADDRESS:	0 KNIGHTDALE BLVD	7790 KNIGHTDALE BLVD
PARCEL PIN NO.	1754988657	1754764820
TOTAL PROJECT AREA:	6.87 A.C.	4.39 A.C.
TOTAL PROPOSED BUILDING SF:	31,500 SF	21,500 SF
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	MEDICAL OFFICE, PROFESSIONAL SERVICES, GENERAL RETAIL AND NEIGHBORHOOD RETAIL/RESTAURANT (UDO 6.8)	
SETBACKS:		
FRONT	40' MAX. (does not apply to 1,500 SF bldg)	60' MAX.
SIDE	10' MIN.	10' MIN.
REAR	0' MIN.	0' MIN.
CORNER	N/A	N/A
TREE PROTECTION REQUIRED:	10% - 0.69 AC.	10% - 0.44 AC.
TREE PROTECTION PROPOSED:	14% - 0.98 AC.	10.5% - 0.46 AC.
	0.98 AC/6.87 AC = 0.14	0.46 AC/4.39 AC = 0.105
PARKING CALCULATIONS:		
REQUIRED	87 SPACES MIN - 173 SPACES MAX	59 SPACES MIN - 118 SPACES MAX
PROPOSED	173 SPACES	118 SPACES
EV CHARGING STATIONS:		
REQUIRED	4 STATIONS	3 STATIONS
PROPOSED	4 STATIONS	4 STATIONS
BIKE PARKING SPACES:		
REQUIRED	17 SPACES	12 SPACES
PROPOSED	18 SPACES	18 SPACES
PUBLIC GATHERING SPACE:		
(1 SF PER 25 SF OF GROSS FLOOR AREA OR 500 SF, WHICHEVER IS LESS UDO 6.8)	REQUIRED	500 SF
	PROPOSED	38,826 SF
		4301 SF



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.

Sheet List Table

Sheet Number	Sheet Title
C0.00	COVER
C0.01	MORNING FLYER ILLUSTRATIVE SITE PLAN
C0.02	CAROLINIAN ILLUSTRATIVE SITE PLAN
C1.01	MORNING FLYER WAY EXISTING CONDITIONS
C1.02	CAROLINIAN AVE EXISTING CONDITIONS
C2.01	MORNING FLYER WAY SITE PLAN
C2.02	CAROLINIAN AVE SITE PLAN
C2.03	PHASING PLAN
C2.04	MORNING FLYER WAY FIRE PROTECTION PLAN
C2.05	CAROLINIAN AVE FIRE PROTECTION PLAN
C2.06	MORNING FLYER WAY SIGNAGE & PAVEMENT MARKING PLAN
C2.07	CAROLINIAN AVE SIGNAGE & PAVEMENT MARKING PLAN
C3.01	MORNING FLYER WAY UTILITY PLAN
C3.02	CAROLINIAN AVE UTILITY PLAN
L1.01	MORNING FLYER WAY LANDSCAPE PLAN
L1.02	CAROLINIAN AVE LANDSCAPE PLAN
L1.03	LANDSCAPE NOTES & SCHEDULE
SL1.01	MORNING FLYER WAY LIGHTING EXHIBIT
SL1.02	CAROLINIAN AVE LIGHTING EXHIBIT

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

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



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

PREPARED BY:

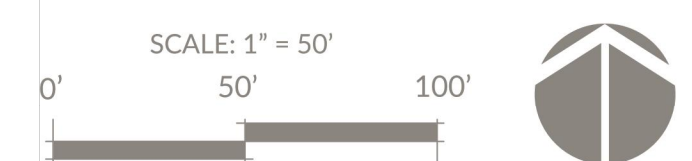
DEVELOPER:
ATLAS STARK
2020 PROGRESS CT, SUITE 130A
RALEIGH, NC 27608
919-289-1138
info@atlasstark.com

OWNER:
KNIGHTDALE COMMERCIAL, LLC
PO BOX 6309
RALEIGH, NC 27628
919-289-1138

PUD MASTER PLAN
ATLAS STARK
KNIGHTDALE STATION
CAROLINIAN AVE. & MORNING
FLYER WAY MIXED USE SITES
WR PROJECT NO.09221154
TOWN OF KNIGHTDALE
MUNI PRO NO.ZMA-3-23
07/14/2023

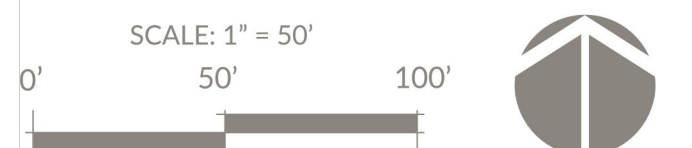


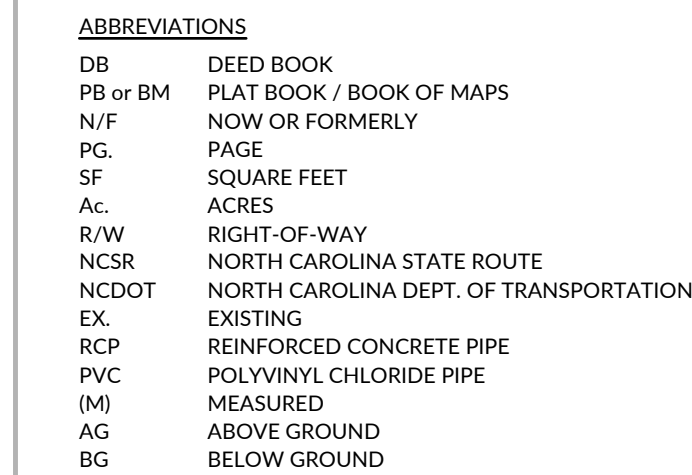
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TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023





APPROVED
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Gideon.Smith 10/19/2023





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

PUD MASTER PLAN

ATLAS STARK

KNIGHTDALE STATION

KNIGHTDALE BLVD | KNIGHTDALE, NC 27545
MATTHEWS TOWNSHIP | WAKE COUNTY

INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR
PER TOWN COMMENTS
2 - 09/01/2023 WR
PER TOWN COMMENTS

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

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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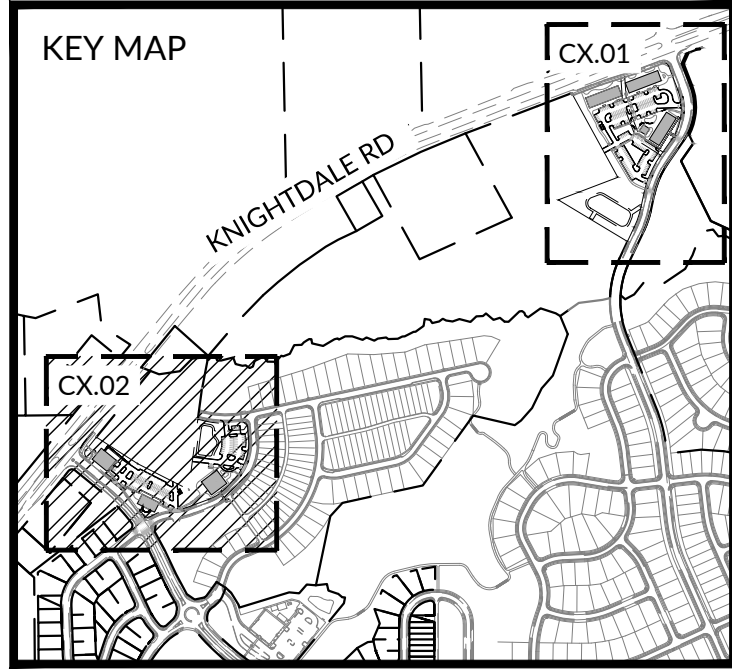
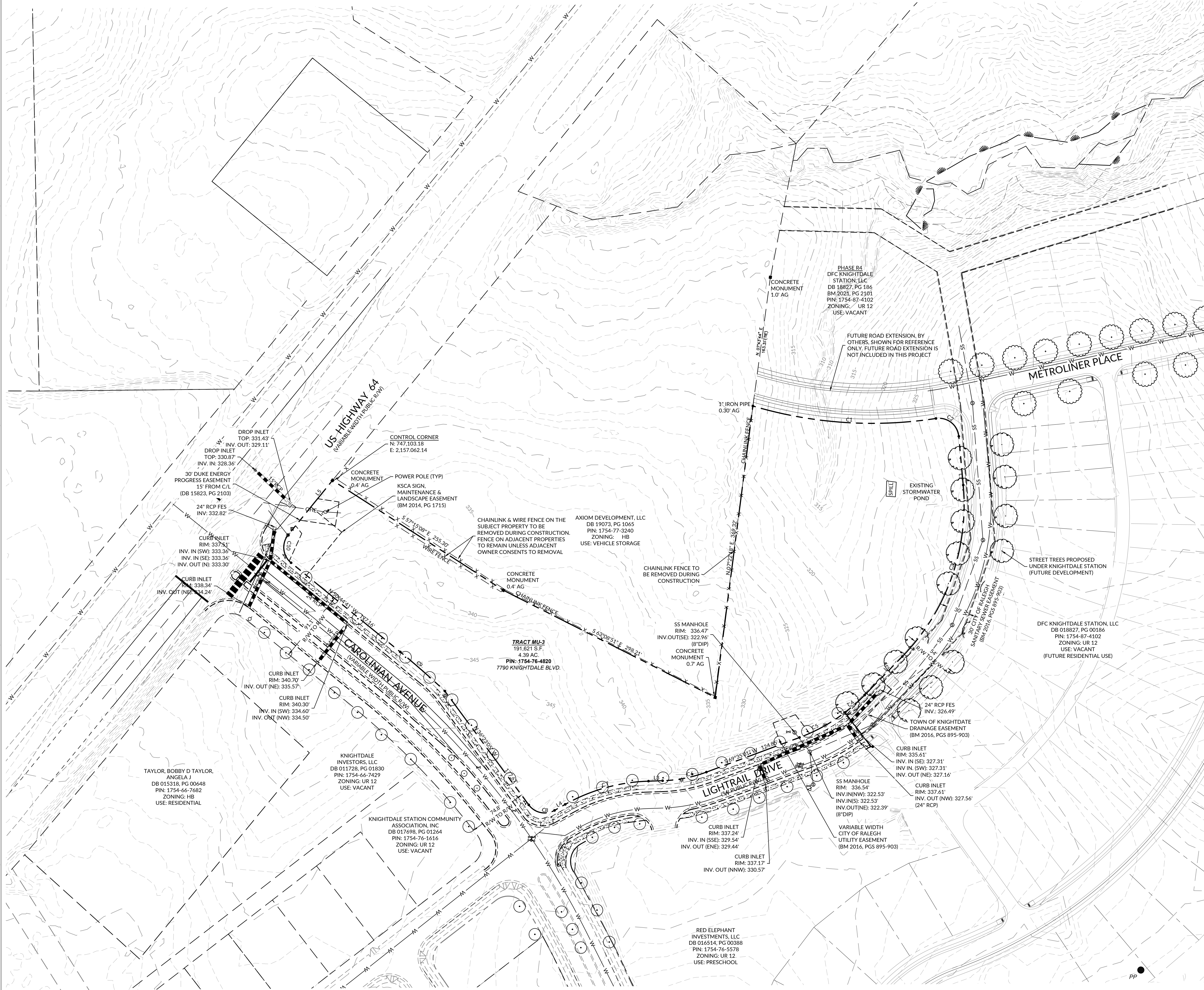
By: _____ Date: _____
Administrator

**MORNING FLYER
WAY EXISTING
CONDITIONS**

C1.01



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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
- OVERHEAD UTILITY
- 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

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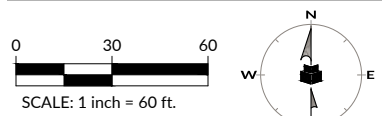
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PUD MASTER PLAN

ATLAS STARK KNIGHTDALE STATION

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

PRELIMINARY
NOT APPROVED
FOR CONSTRUCTION
ROBERT CAUDILL



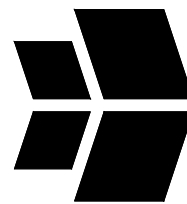
INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR PER TOWN COMMENTS
2 - 09/01/2023 WR PER TOWN COMMENTS

WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

**CAROLINIAN AVE
EXISTING
CONDITIONS**

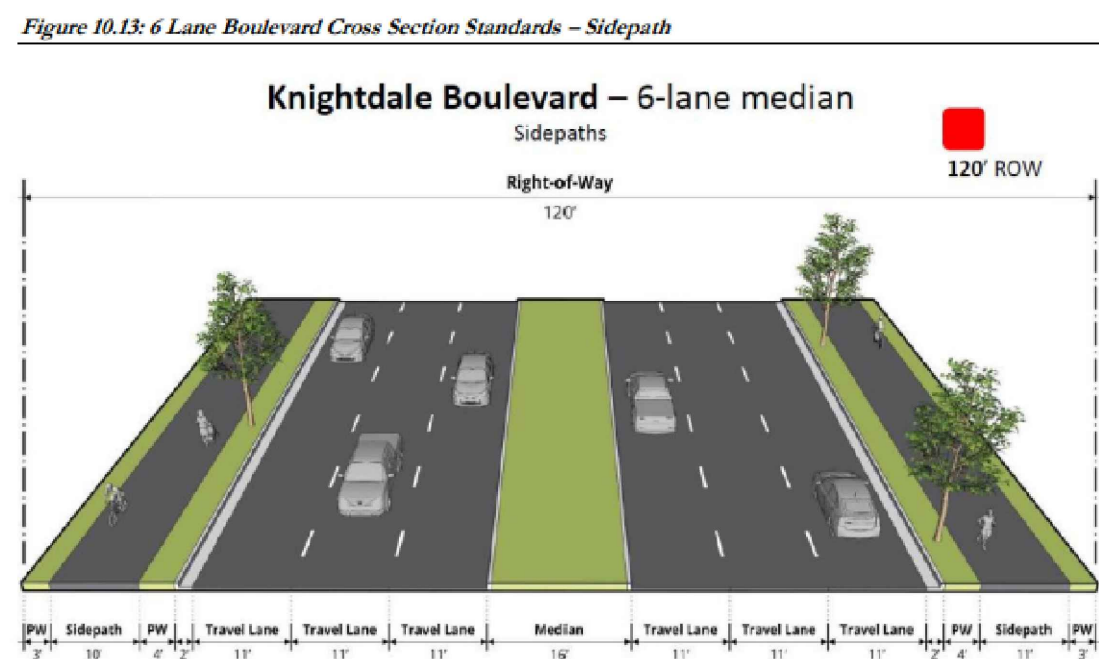
C1.02

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

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

VEHICLE

REQUIRED: 87 SPACES MIN. - 173 SPACES MAX.
5.5 SPACES PER 1,000 GFA
(31,500 SF/1,000) x 5.5 = 173.25 (USE 173 SPACES)

PROVIDED: 173 SPACES

ACCESSIBLE SPACES

REQUIRED: PER ADA, 151-200 TOTAL SPACES REQUIRES MIN 6 ADA SPACES AND 1 VAN ACCESSIBLE

PROVIDED: 11 ADA, 1 VAN

BICYCLE

REQUIRED: 17 SPACES
1 SPACE FOR EVERY 10 MOTORIZED VEHICLE SPACES
173 MOTORIZED SPACES/10 = 17.3 (USE 18 SPACES)

PROVIDED: 18 SPACES

EV SPACES

REQUIRED: 4 SPACES

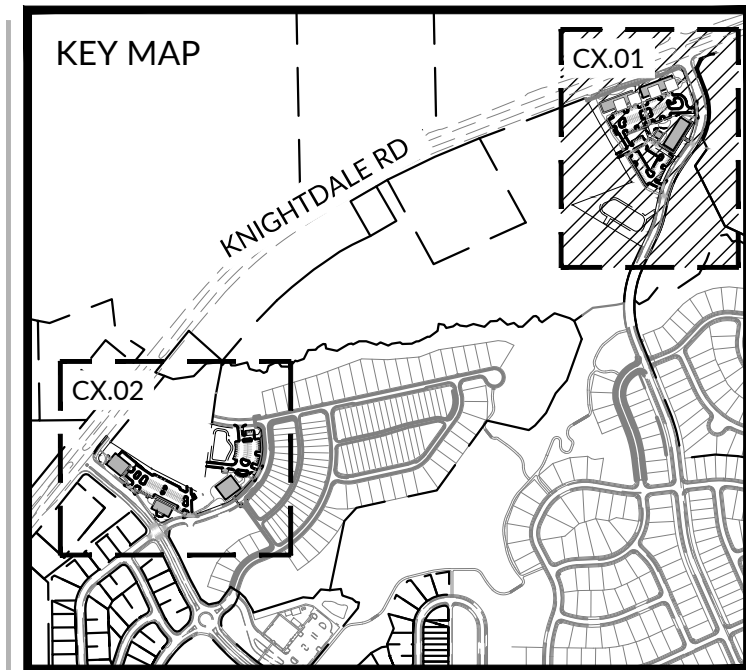
PROVIDED: 4 SPACES




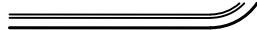
















PARK & RIDE SPACES

REQUIRED : 9 SPACES
5% OF VEHICLE SPACES
173*0.05 = 8.65 (USE 9 SPACES)

PROVIDED: 9 SPACES

TOTAL LOT AREA = 299,299 SF (6.87 AC)
TOTAL TREE SAVE AREA = 42,846 SF (0.98 AC)
0.98 AC/6.87 AC = 0.14 (14%)



SYMBOL	DESCRIPTION
	BOUNDARY
	BUFFER
	CENTER LINE
	CURB & GUTTER
	EASEMENT
	PROPOSED FENCING
	(CHAIN LINK FENCE NOT ALLOWED LIMIT OF DISTURBANCE
	LOT LINE
	PHASE LINE
	RIGHT OF WAY
	SETBACK
	BUILDING
	CONCRETE PAVING
	HEAVY DUTY ASPHALT PAVING
	BENCH
	BIKE RACK
	TABLE
	TREE WELL
	WASTE RECEPTACLE
	SITE WALL

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

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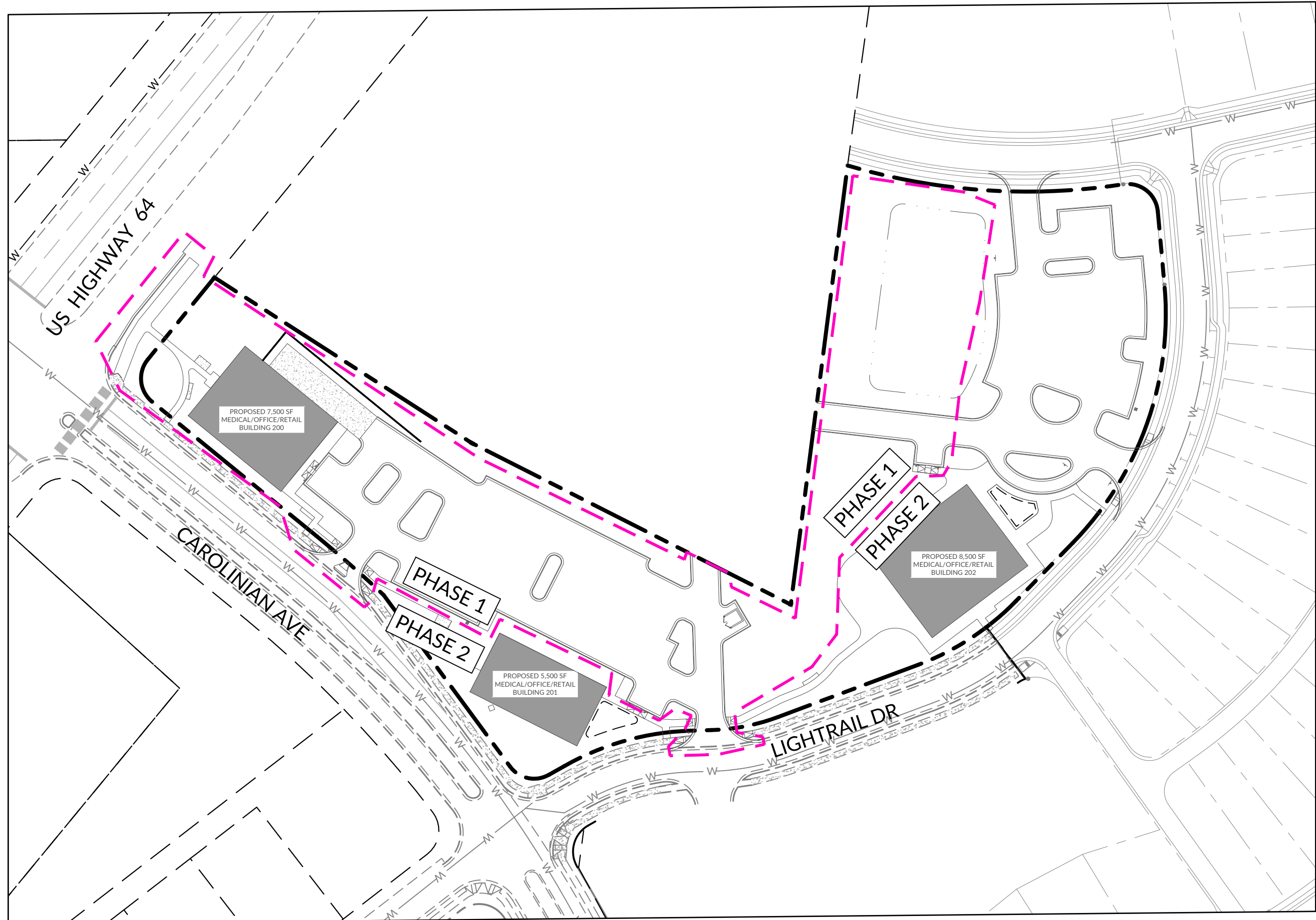
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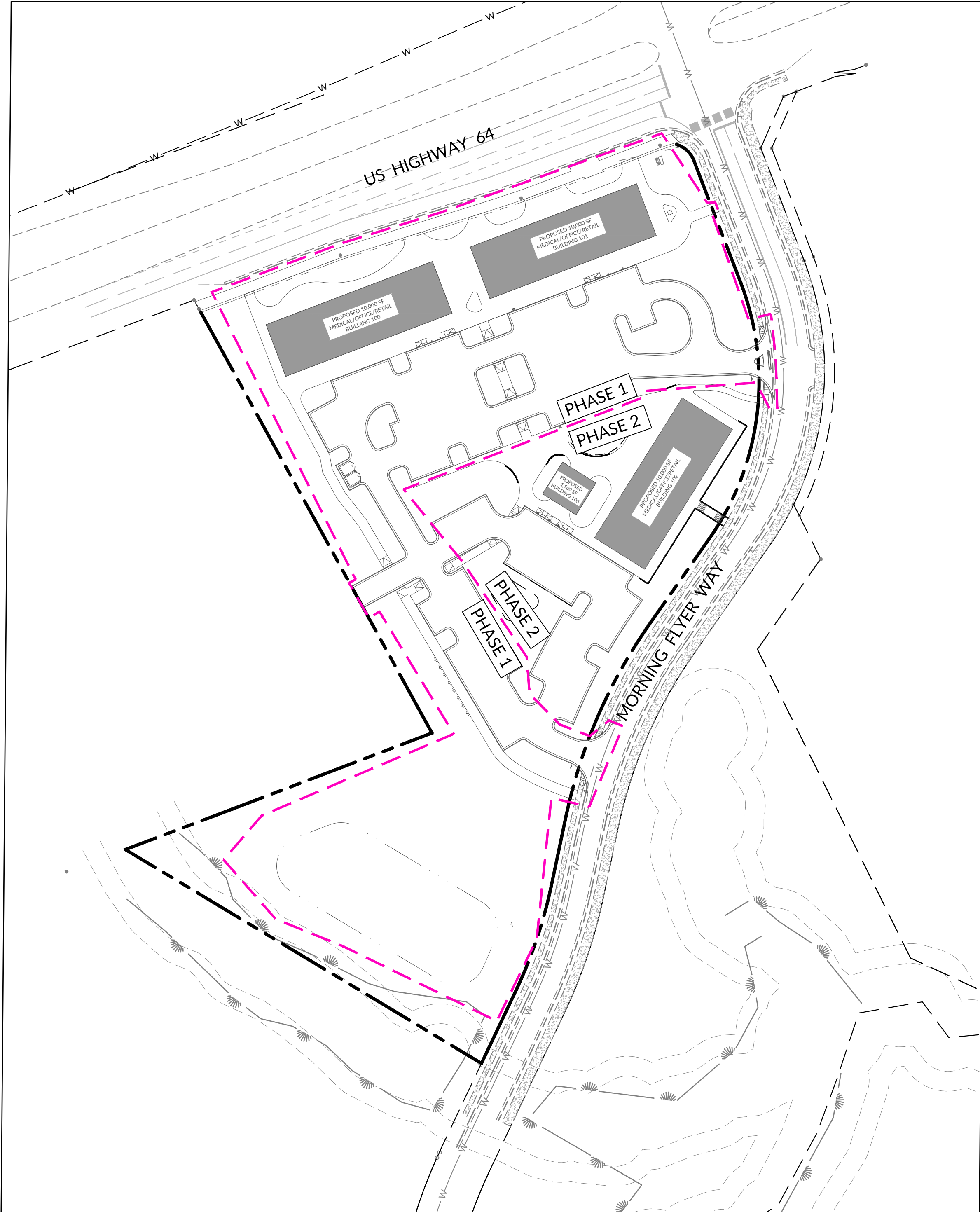
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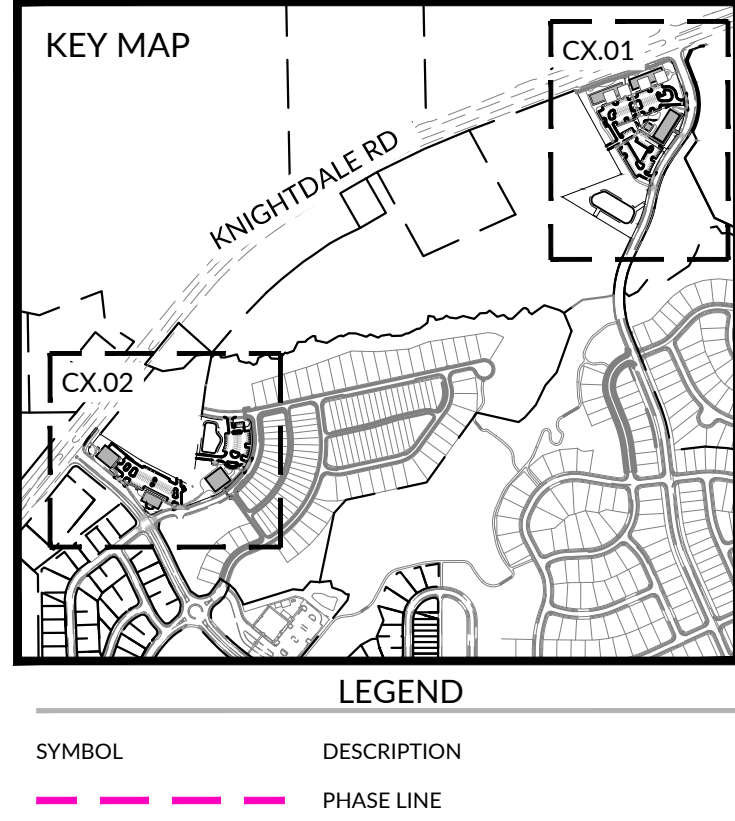




CAROLINIAN AVE MIXED USE SITE



MORNING FLYER WAY MIXED USE SITE



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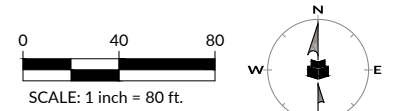
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INITIAL PLAN DATE: 07/14/2023
REVISIONS:
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2 - 09/01/2023 WR
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WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

PHASING PLAN

C2.03

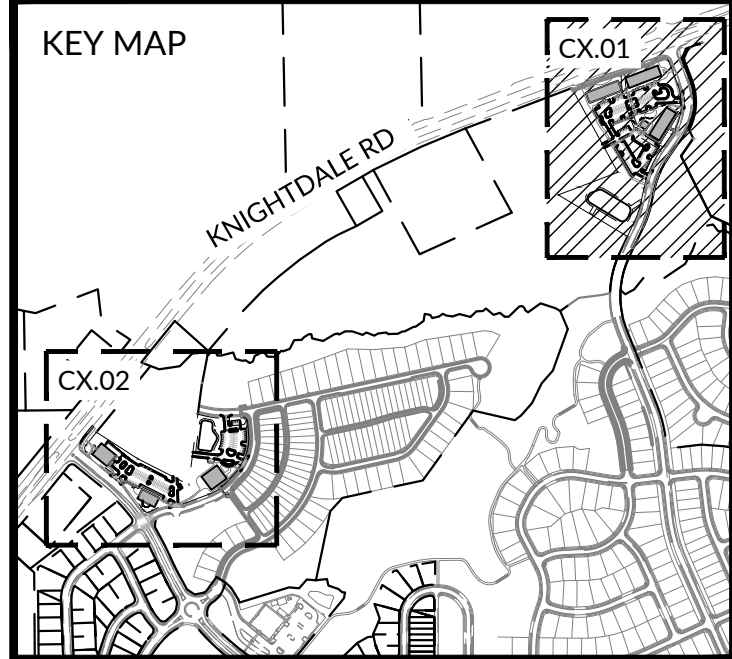
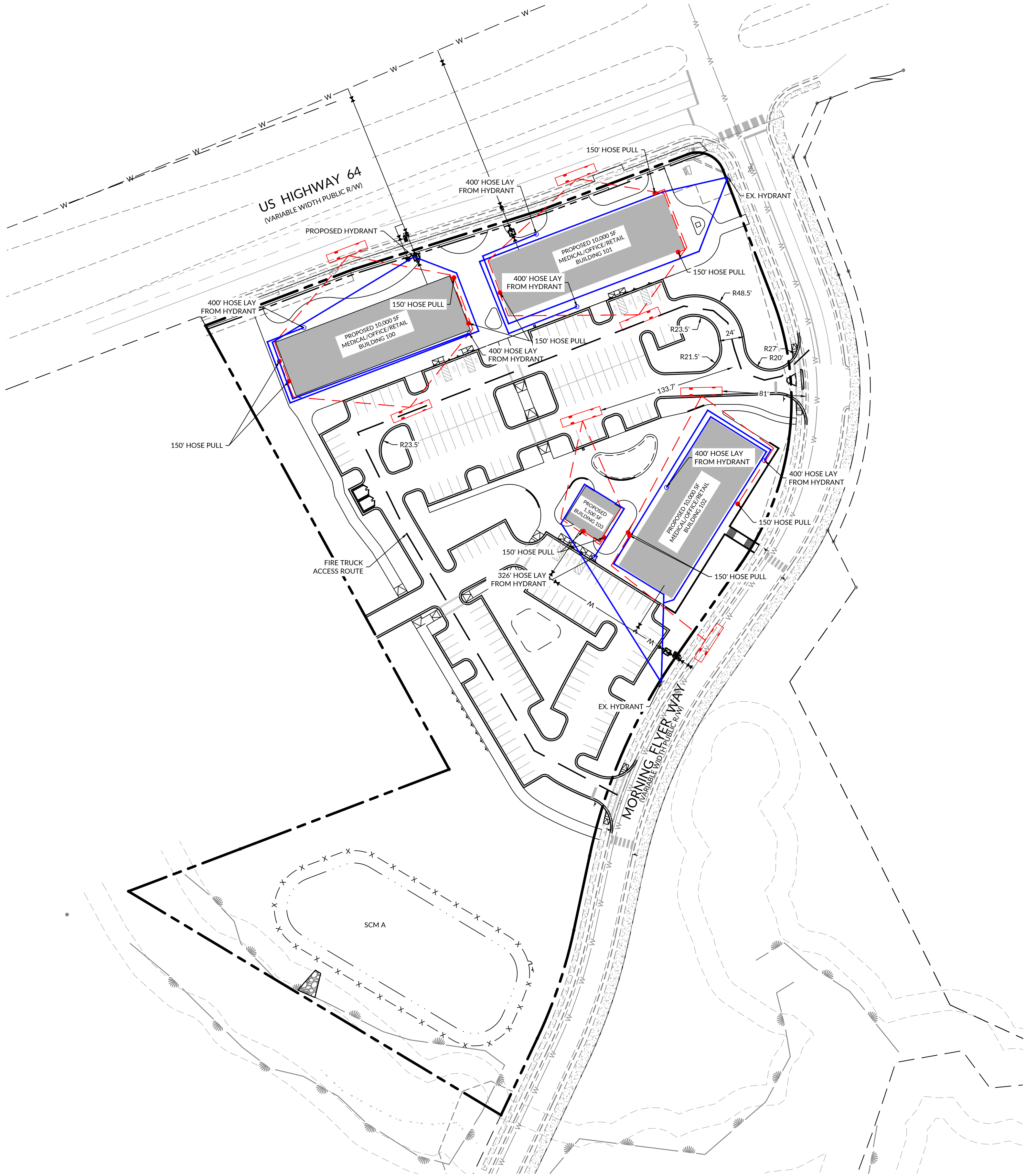
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PUD MASTER PLAN
ATLAS STARK
KNIGHTDALE STATION
7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | ST.
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u:\2022\1130\211154-atlas-stark-knightdale-station\cadd\drawing\c2.04 fire plan.dwg, Friday, September 1, 2023 2:27:31 PM - KCAULDE



LEGEND	
SYMBOL	DESCRIPTION
	HOSE LAY FROM FIRE TRUCK ACCESS
	HOSE LAY FROM HYDRANT
	FIRE TRUCK

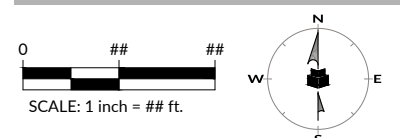
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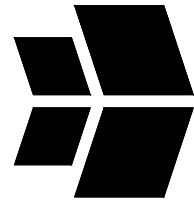
WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

MORNING FLYER WAY FIRE ACCESS PLAN

C2.04

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KNIGHTDALE STATION**
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MATTHEWS TOWNSHIP | WAKE COUNTY

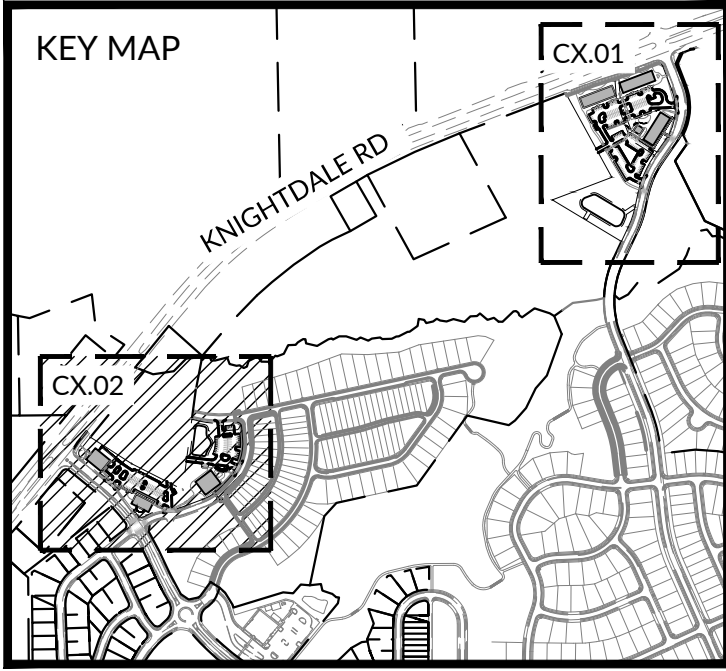
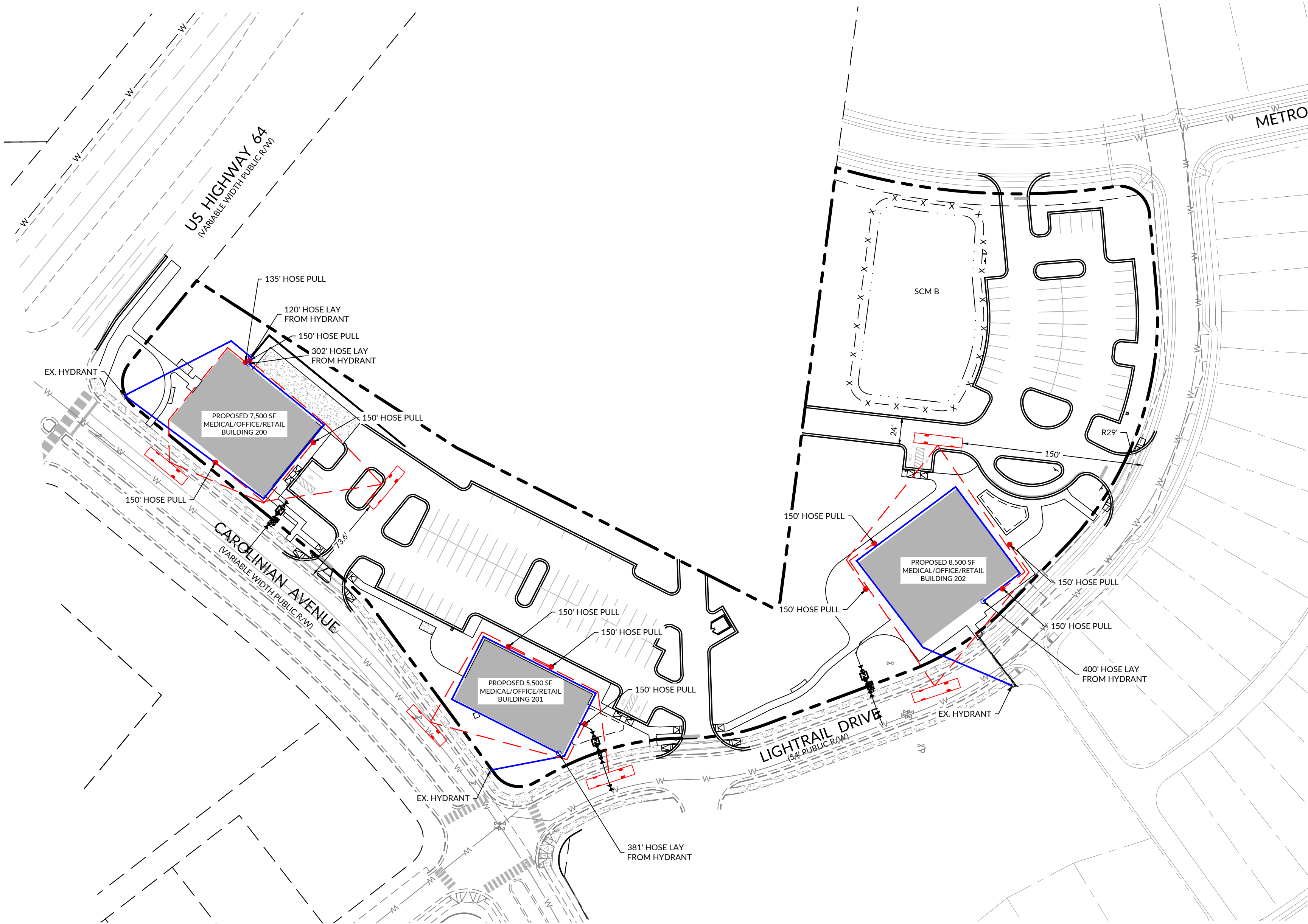
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u:\2022\1130621154-atlas-stark-knightdale-station\cadd\drawing\pud\masterplan\c2.05 fire plan.dwg, Friday, September 1, 2023 2:27:38 PM - R:CAUDE

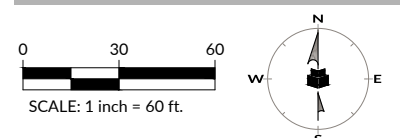


LEGEND	
SYMBOL	DESCRIPTION
	HOSE LAY FROM FIRE TRUCK ACCESS
	HOSE LAY FROM HYDRANT
	FIRE TRUCK

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

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**CAROLINA AVE.
FIRE ACCESS
PLAN**

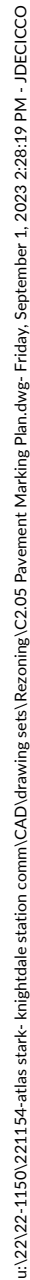
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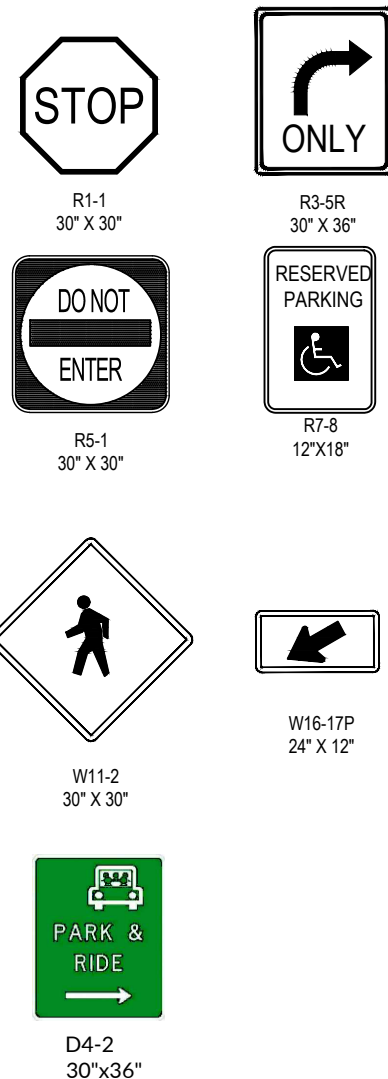
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1. ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
2. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
3. ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.



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WR JOB NUMBER		09221154
DRN: WR	DGN: WR	CKD: WR

C2.06



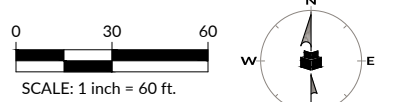
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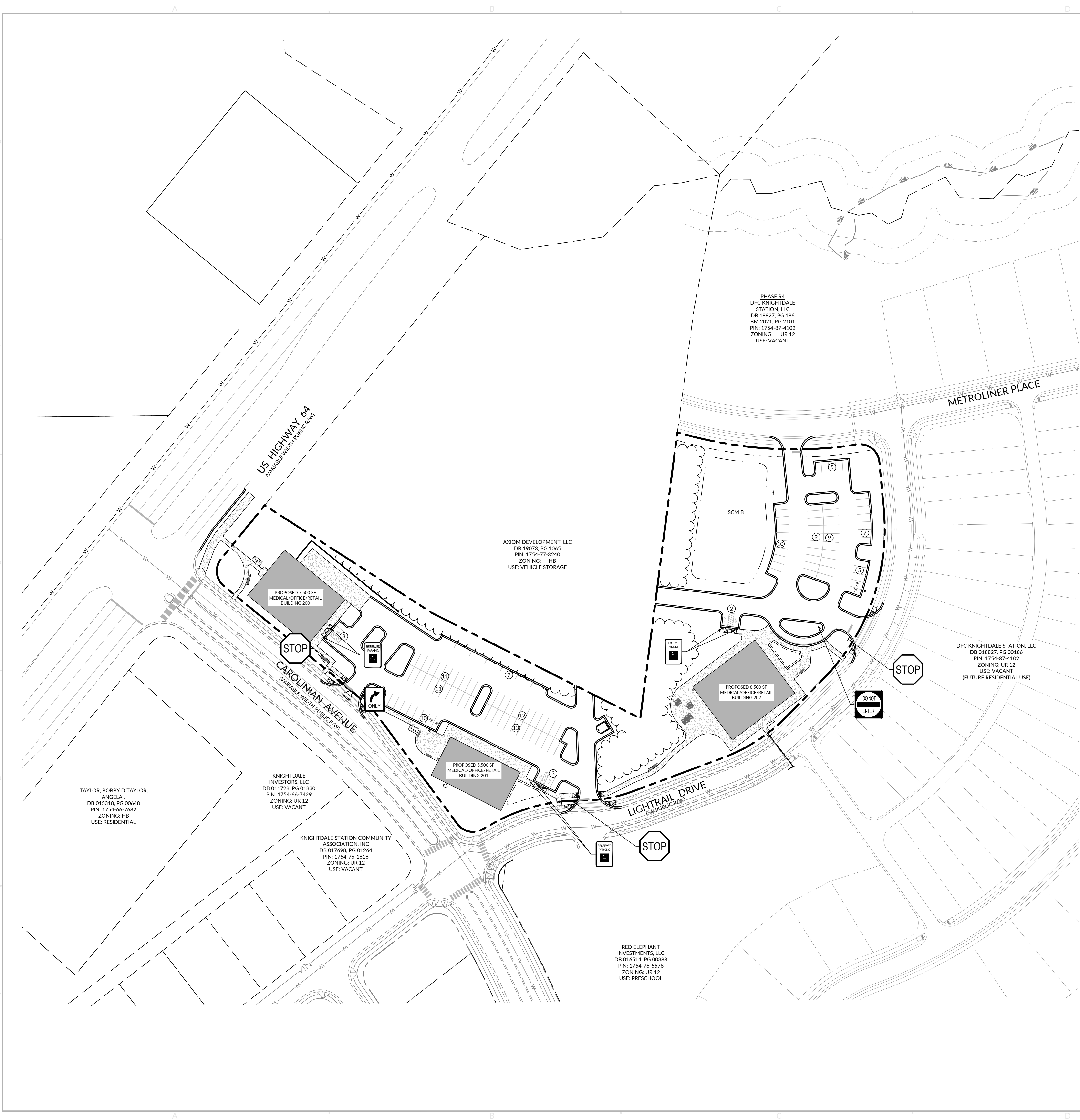
NORTH CAROLINA
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 ROBERT CAUDILL



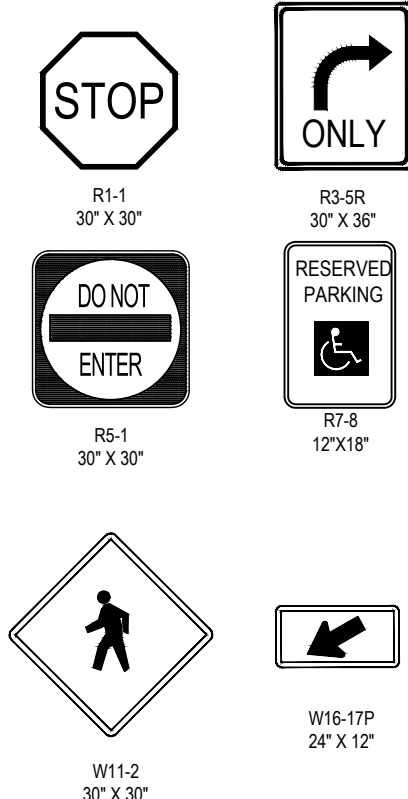
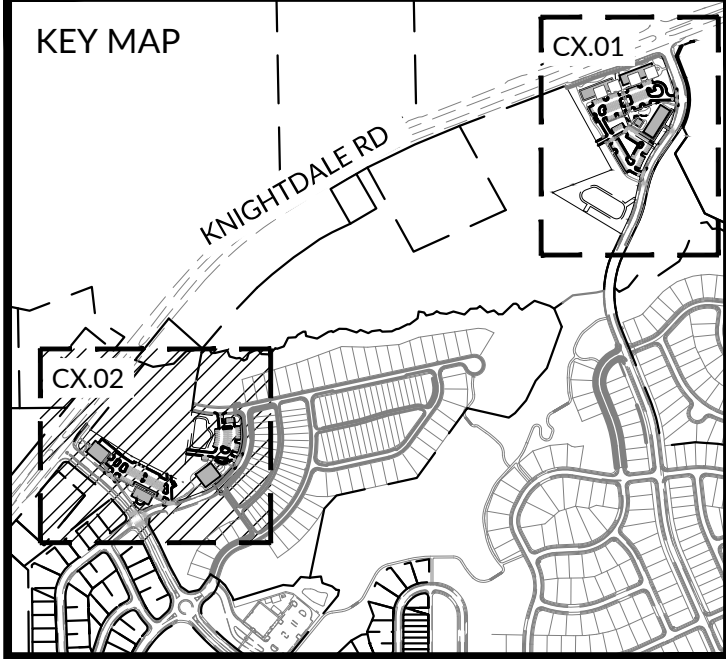
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WR JOB NUMBER		09221154
DRN: WR	DGN: WR	CKD: WR

u:\22\1190\21154-atlas-stark-knightdale-station\cadd\drawing\c205_Preliminary_Markings_Plan.dwg, September 1, 2023 2:26:18 PM - JBC/CCO



- STRIPING NOTES:**
1. ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAME SIGNS.
 2. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
 3. ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.



APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

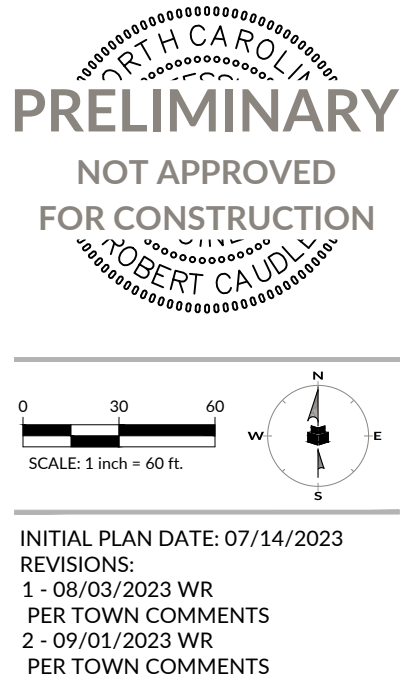
ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH ALL CITY OF RALEIGH & TOWN OF KNIGHTDALE DESIGN STANDARDS, DETAILS AND SPECIFICATIONS

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



INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR
PER TOWN COMMENTS
2 - 09/01/2023 WR
PER TOWN COMMENTS

WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

**CAROLINIAN AVE
SIGNAGE & PAVEMENT
MARKING PLAN**

C2.07

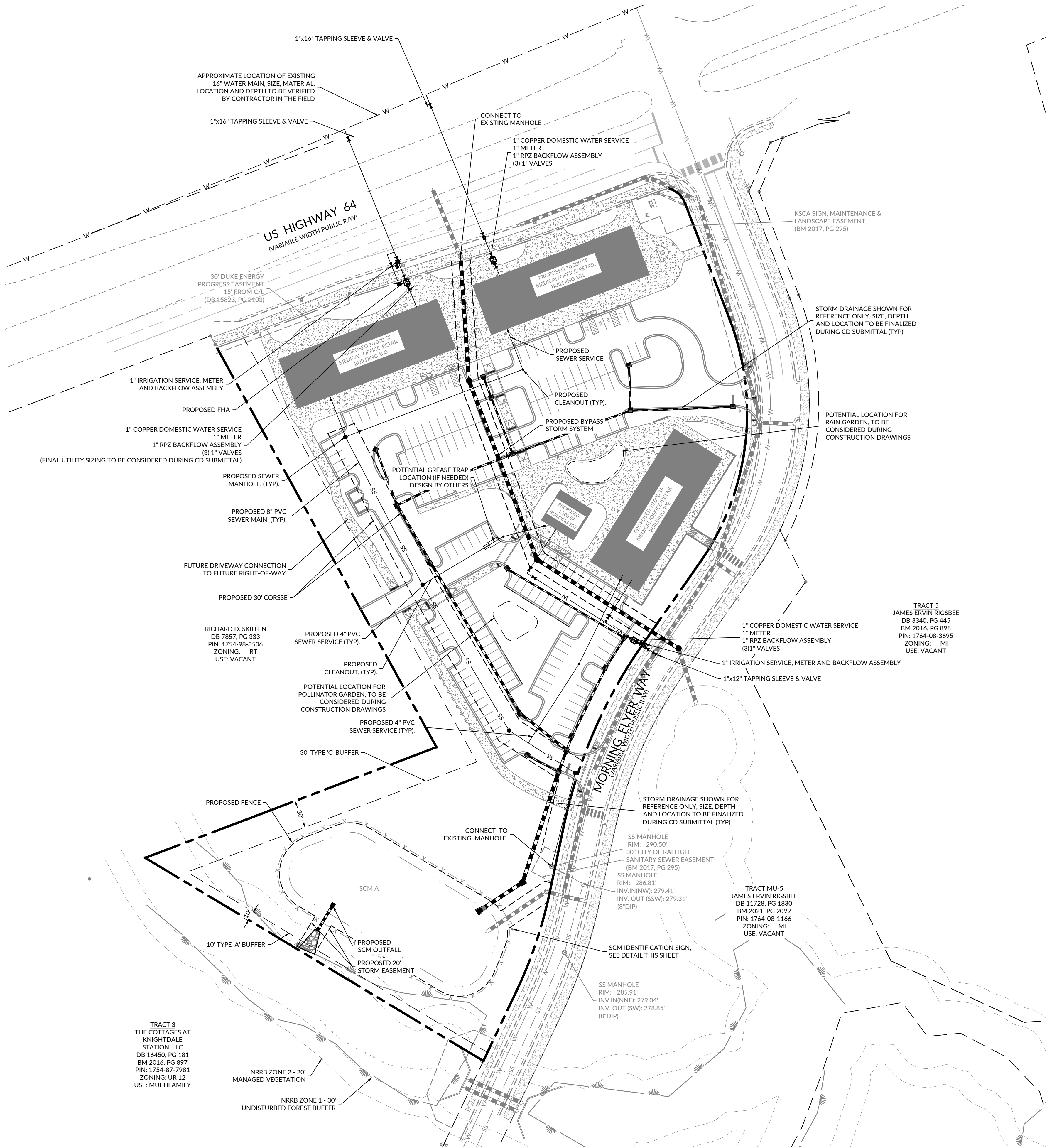
WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

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

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

our people • your success

u:\22\12\1150\1154\atlantis-stark-knightdale-station\cadd\drawing\scm\scm.dwg (Utility) Date: 1/14/2023 2:29:07 PM - KCAUDLE



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)

	0.51	0.43	0.37	0.30	0.27	0.25
10	0.51	0.43	0.37	0.30	0.27	0.25
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 A Preliminary SCM Sizing

	6.87	60	4.12
			0.00
			0.00
Totals	6.87		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.

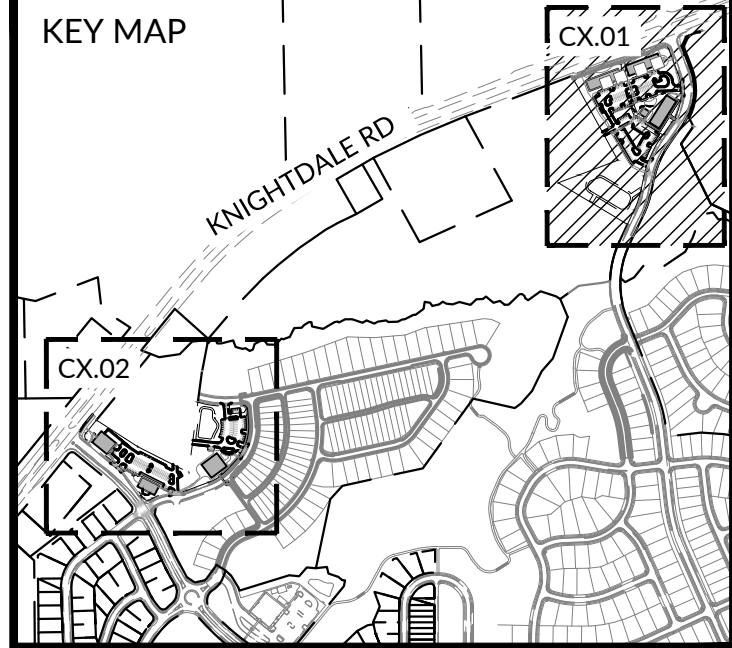
Normal pool elevation =	1.0	feet
Surface area provided =	8,700	sq. ft.
Surface area provided =	0.200	acres

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, $S = (\text{Design rainfall}) (R_v) (\text{Drainage Area})$
 $S = 0.338$ 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.

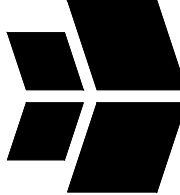
NOTE: BUILDINGS WILL NOT BE EQUIPPED WITH SPRINKLERS



PROPOSED UTILITIES LEGEND

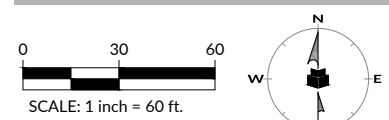
SYMBOL	DESCRIPTION
FL	FIRE LINE
FM	FORCEMAIN
SS	SANITARY SEWER PIPE
W	WATER MAIN
R	RECLAIMED WATER LINE
	FIRE LANE
	BACKFLOW PREVENTER
	BLOW OFF
	FIRE DEPARTMENT CONNECTION (FDC)
	FIRE HYDRANT ASSEMBLY
	SEWER CLEANOUT
	SEWER MANHOLE
	WATER METER
	WATER VALVE

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

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



INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR PER TOWN COMMENTS
2 - 09/01/2023 WR PER TOWN COMMENTS

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

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

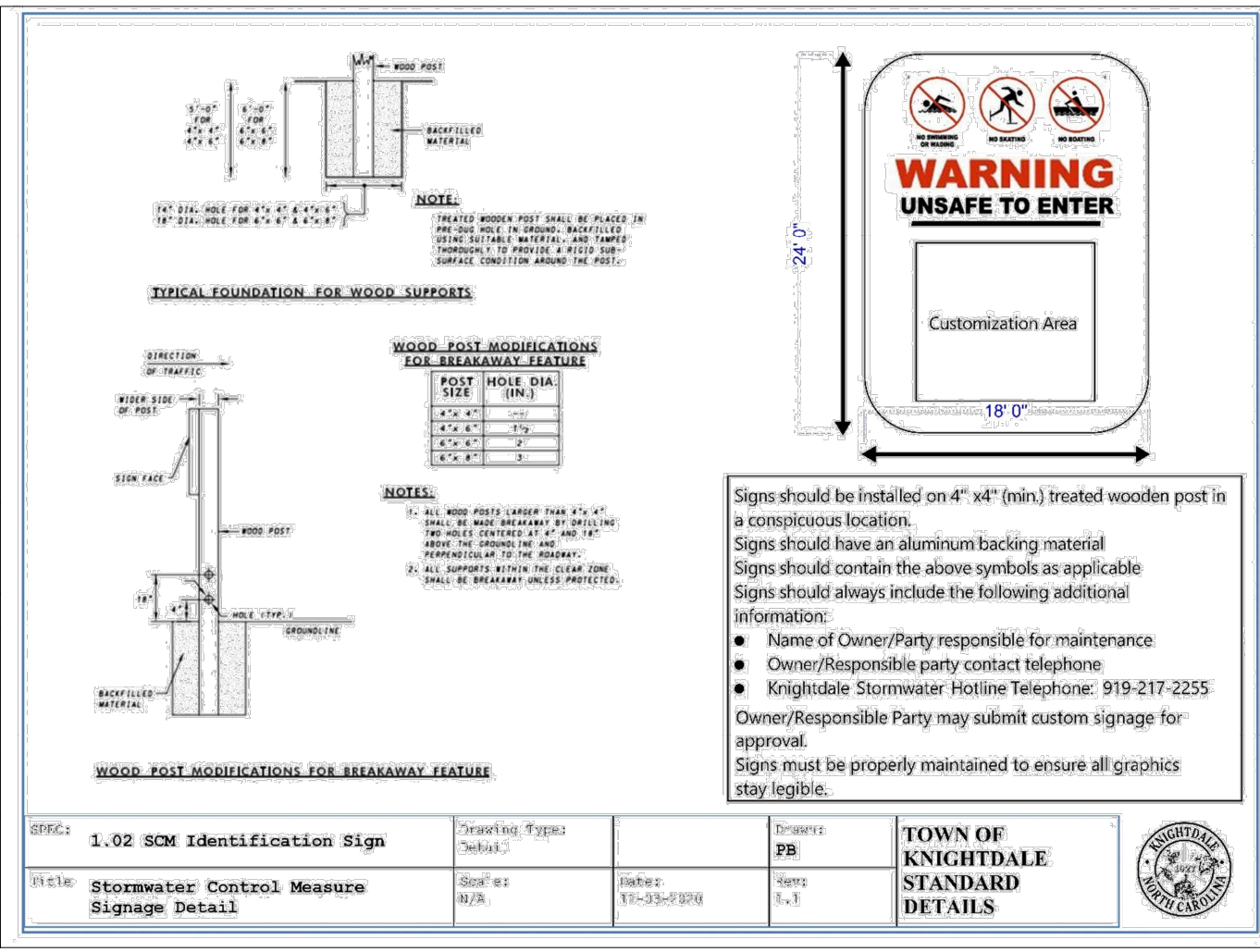
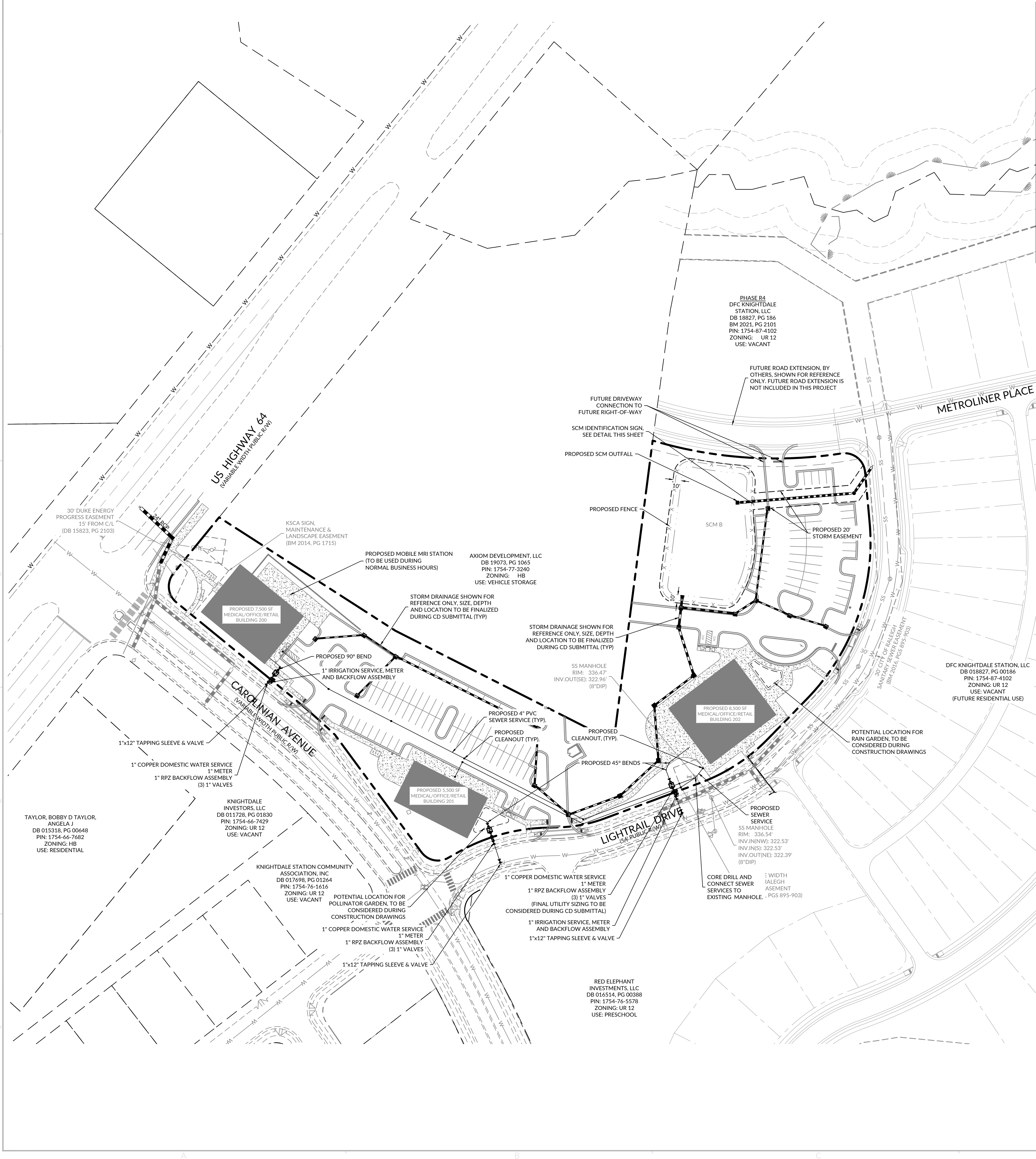
a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
By: _____ Date: _____
Town Engineer
These plans are approved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

WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

MORNING FLYER WAY
UTILITY PLAN

C3.01

u:\2212-1190\21154-atlas-stark-knightdale-station\cadd\drawing\c3.02 UTILITY.dwg, 11/09/2023 2:29:15 PM, KCAJOLE



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	0.51	0.43	0.37	0.30	0.27	0.25
10	0.51	0.43	0.37	0.30	0.27	0.25
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
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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

	4.39	57	2.50
			0.00
			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.

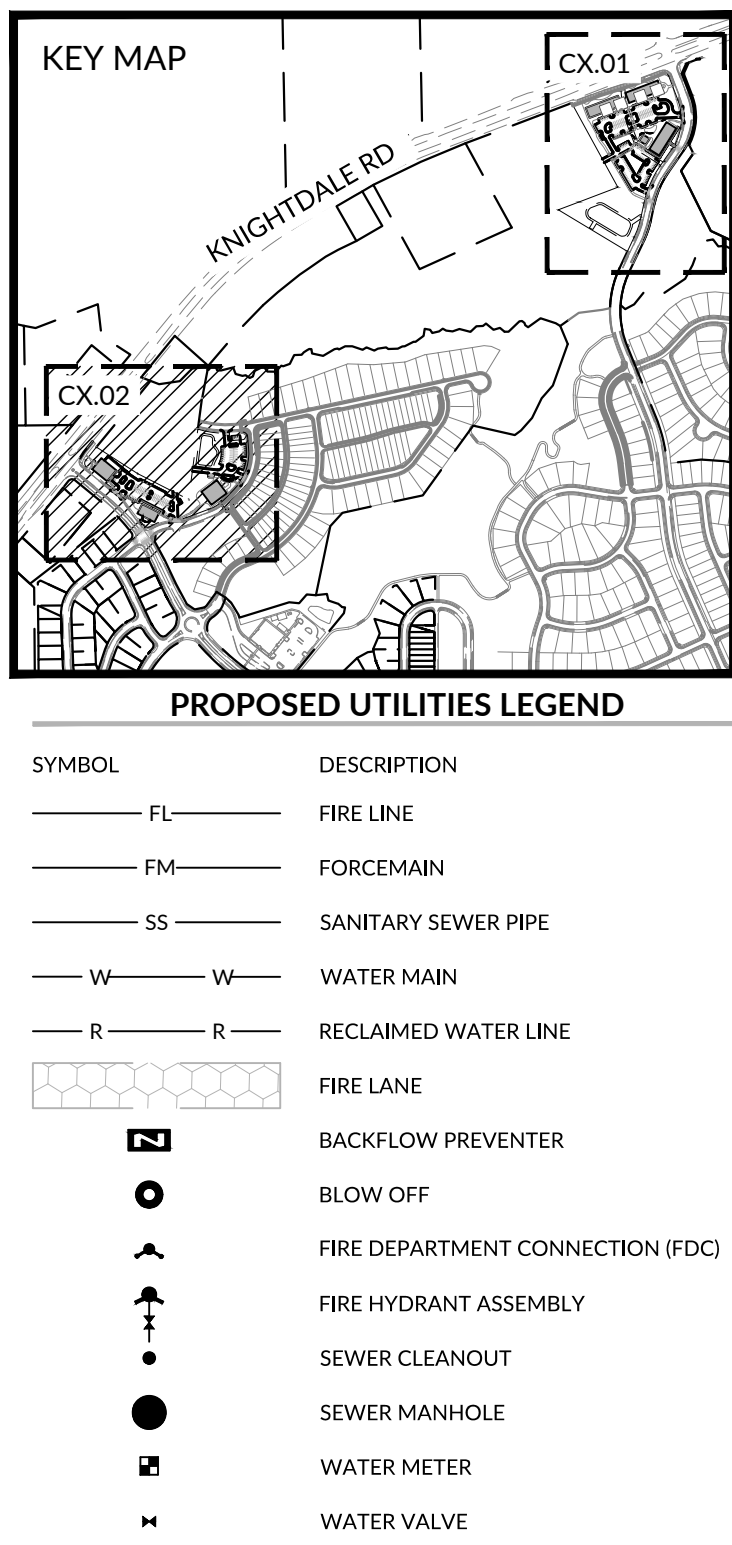
Normal pool elevation = 1.0 feet
Surface area provided = 7.100 sq. ft.
Surface area provided = 0.163 acres

Runoff Volume Calculation - FOR WETLANDS ONLY
Design Storm Depth = 1 inch
Using the runoff volume calculations in the "Simple Method" as described by Schueler (1987)
Rv = 0.05 + 0.9(I) where, Rv = Runoff coefficient, in./in.
I = Percent impervious
Rv = 0.56 in./in.

Total runoff volume
Runoff volume, S = (Design rainfall) (Rv) (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.

NOTE: BUILDINGS WILL NOT BE EQUIPPED WITH SPRINKLERS



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ATLAS STARK
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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
ROBERT CAUDILL

0 20 40
SCALE: 1 inch = 60 ft.

INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR
PER TOWN COMMENTS
2 - 09/01/2023 WR
PER TOWN COMMENTS

WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

CAROLINIAN AVE
UTILITY PLAN

C3.02

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

ALL MATERIALS & CONSTRUCTION METHODS
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ATLAS STARK
2020 PROGRESS CT, SUITE 130A
RALEIGH, NC 27608

PUD MASTER PLAN

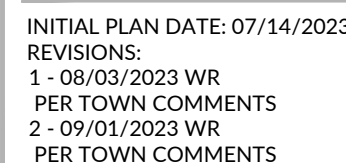
ATLAS STARK

KNIGHTDALE STATION

77790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545
MATTHEWS TOWNSHIP | WAKE COUNTY



NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 PRELIMINARY
 NOT APPROVED
 FOR CONSTRUCTION
 NCDOT
















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WR JOB NUMBER	09221154
DRN: WR	DGN: WR CKD: WR

**MORNING FLYER
WAY LANDSCAPE
PLAN**

L1.01



<u>POLLINATOR GARDEN TREES</u>	<u>CODE</u>	<u>BOTANICAL NAME</u>
	CER CAN	<i>Cercis canadensis</i>
<u>POLLINATOR GARDEN SHRUBS</u>	<u>CODE</u>	<u>BOTANICAL NAME</u>
	ASC TUB	<i>Asclepias tuberosa</i>
	CAL KAR	<i>Calamagrostis x acutiflora</i> KARL FOERSTER
	ECH PEP	<i>Echinacea x 'Purple Emperor'</i>
	MON BPM	<i>Monarda x 'Marje Pink'</i>
	VAC HIG	<i>Vaccinium corymbosum</i>
	VIB DEN	<i>Viburnum dentatum</i> 'Arrowwood'
<u>RAIN GARDEN TREES</u>	<u>CODE</u>	<u>BOTANICAL NAME</u>
	CER COV	<i>Cercis canadensis</i>
<u>RAIN GARDEN SHRUBS</u>	<u>CODE</u>	<u>BOTANICAL NAME</u>
	ASC AMR	<i>Asclepias tuberosa</i> 'Hello Orange'
	AST BBL	<i>Aster novae-angliae</i> 'Barr's Blue'
	CEP MAM	<i>Cephalanthus occidentalis</i> 'Kolkmoor'
	CLE ALN	<i>Clethra alnifolia</i>
	COR RES	<i>Cornus sericea</i>

BUFFER CALCULATIONS	
<u>MORNING FLYER WAY SITE:</u>	
TYPE 'A' VUA SCREENING:	709'
CANOPY TREES:	21'
UNDERSTORY TREES:	14'
SHRUBS:	140'
TYPE 'C' BUFFER YARD:	813 LF
CANOPY TREES:	32'
UNDERSTORY TREES:	40'
SHRUBS:	160'

HIGHWAY 64 FRONTAGE REPLACEMENT STREET TREES	511 LF
(1/40 LF)	
TREES REQUIRED:	13
TREES PROVIDED:	13

MINIMUM PLANTING REQUIREMENTS FOR VUA SCREENING

CANOPY TREES

- (3) TREES / 100 LF
- AT LEAST 40% BUT NO MORE THAN 60% OF CANOPY TREES SHALL BE EVERGREEN
- MIN. HEIGHT: 8'; MIN. SIZE: 2" CAL.

UNDERSTORY

- (2) UNDERSTORY / 100 LF
- MIN. HEIGHT: 6'; MIN. SIZE 1 1/2" CAL

SHRUBS

- (20) SHRUBS / 100 LF
- MIN. HEIGHT: 18"; MIN. SIZE: 3 GAL

MINIMUM PLANTING FOR TYPE 'C' BUFFER REQUIREMENTS

CANOPY TREES

- (5) TREES / 100 LF (MAX. 30' O.C.)
- AT LEAST 40% BUT NO MORE THAN 60% OF CANOPY TREES SHALL BE EVERGREEN
- INSTALLED SIZE: 8' HT. MIN., 2" CAL.

UNDERSTORY

- (5) UNDERSTORY / 100 LF (MAX. 10' O.C.)
- AT LEAST 40% BUT NO MORE THAN 60% OF UNDERSTORY TREES SHALL BE EVERGREEN
- INSTALLED SIZE: 6' HT. MIN., 1.5" CAL.

SHRUBS

- (25) SHRUBS / 100 LF
- AT LEAST 80% OF SHRUBS SHALL BE EVERGREEN
- INSTALLED SIZE: 18" HT. MIN., 3 GAL.



L1.02


















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.
- ALL VEGETATION AND SOILS IS TO REMAIN UNDISTURBED WITHIN REQUIRED BUFFER YARDS UNLESS OTHERWISE APPROVED BY THE LAND USE ADMINISTRATOR. (UDO, SEC. 7.4.H.1)
- 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 COMPLIMENT 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 PLANTING 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 PERVIOUS 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).
- GROUND COVER 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 GUVED 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 TIMEFRAME DURING WHICH THE 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 90 DAYS.
- WHERE SIGHT TRIANGLES FOR DRIVES OR STREETS OVERLAP SCREENING, GROUND COVER VEGETATION SHALL BE USED EXCLUSIVELY (EXCEPTION: SINGLE-FAMILY DWELLINGS & DUPLEXES).
- ALL SIDES 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.

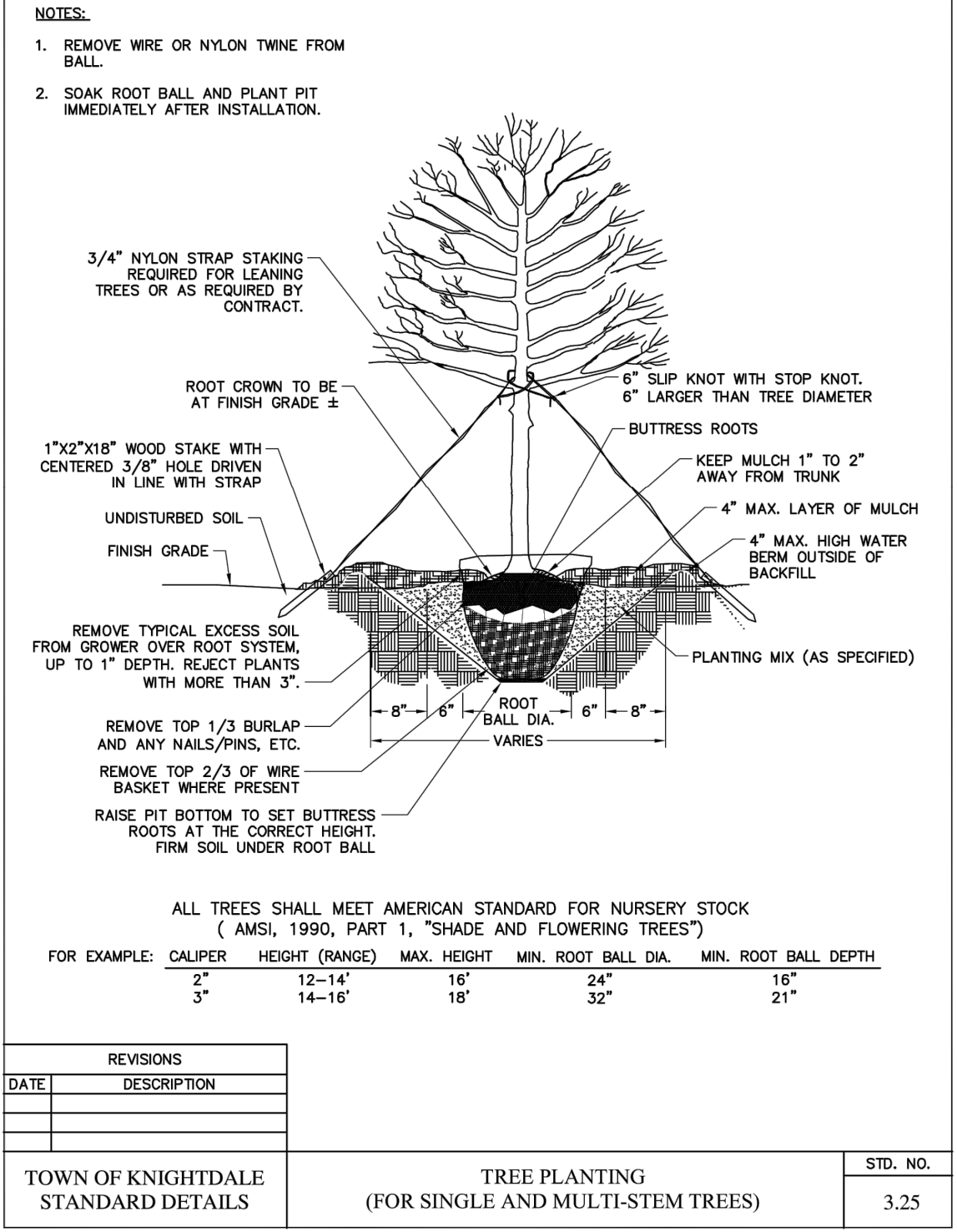
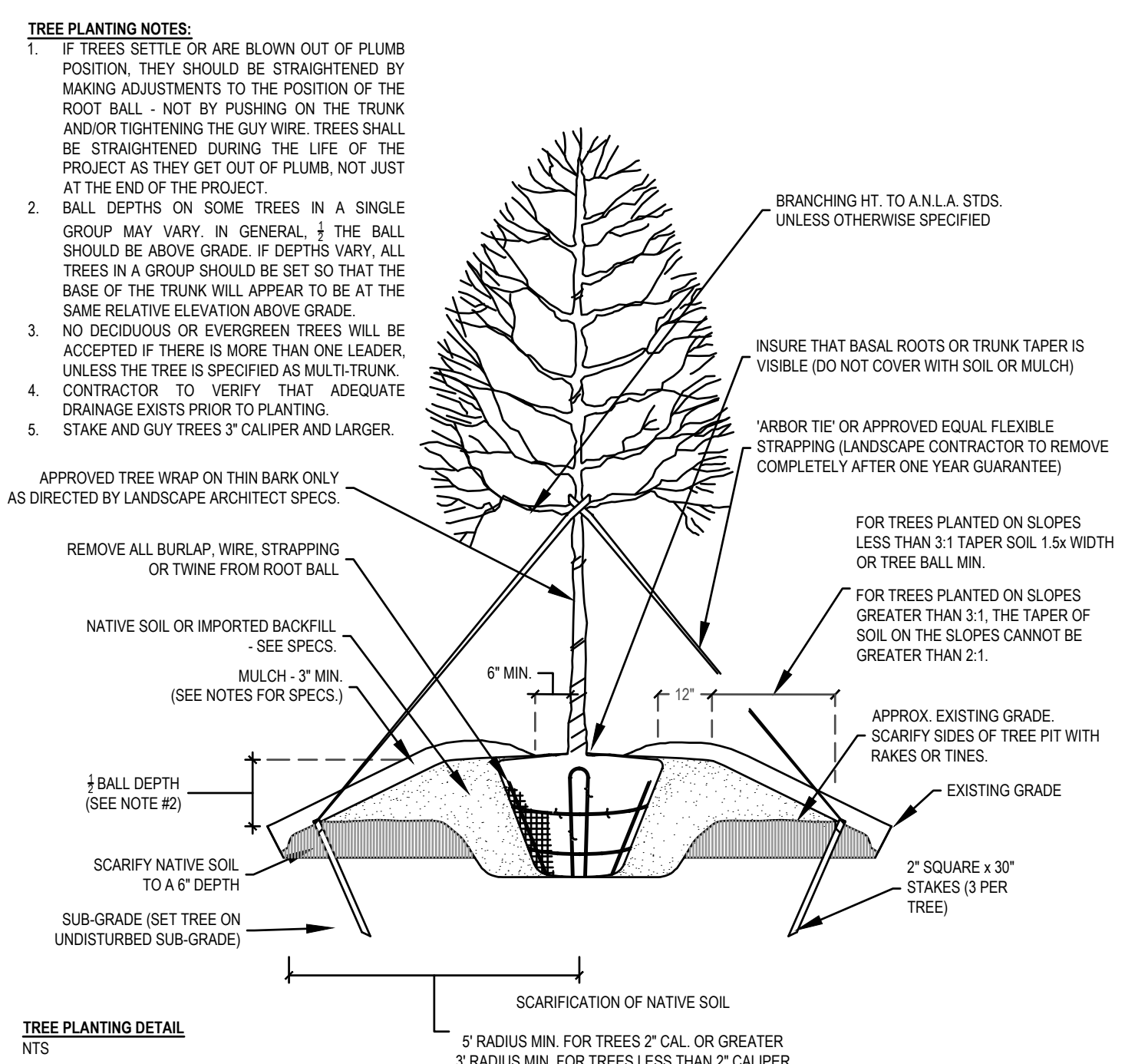
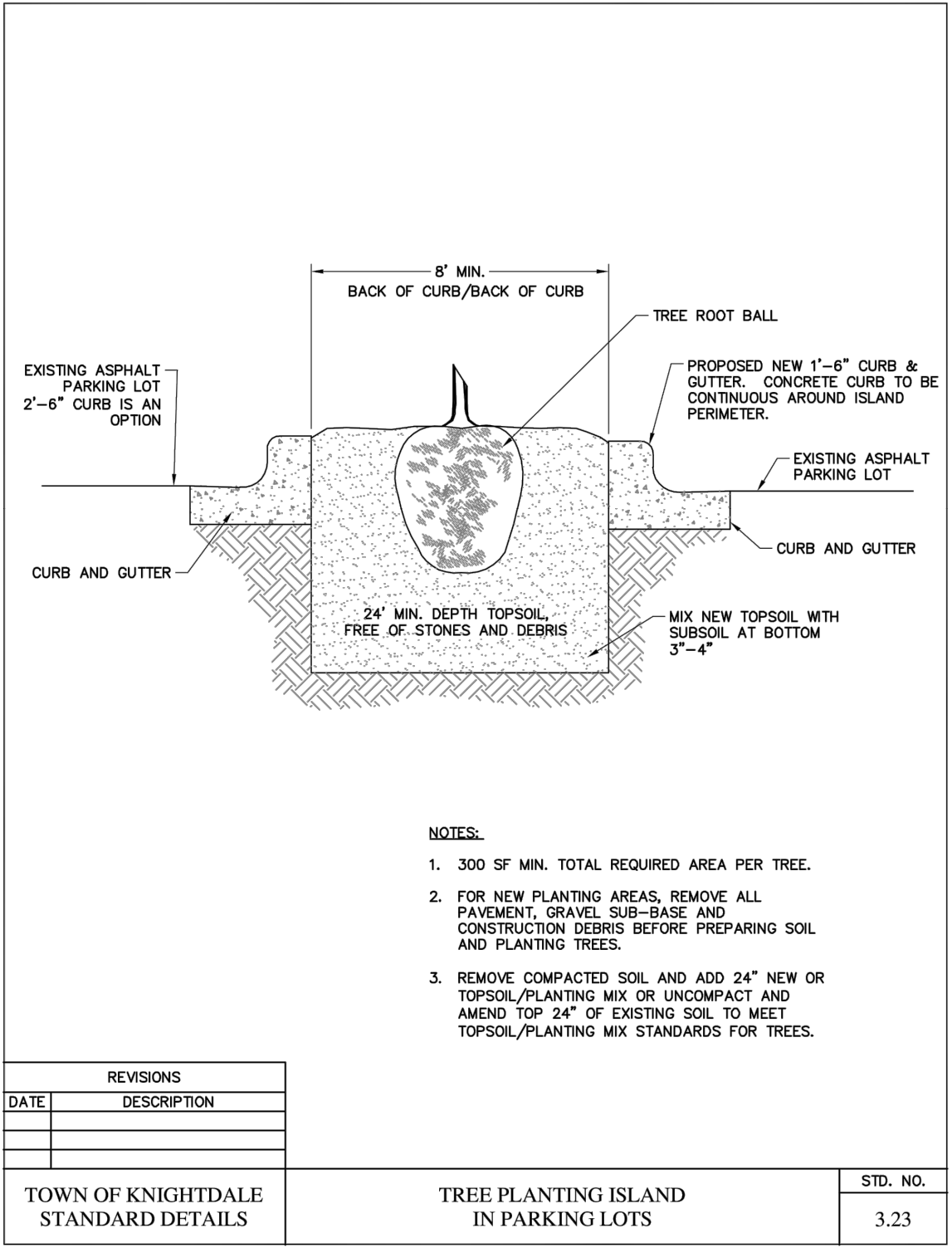
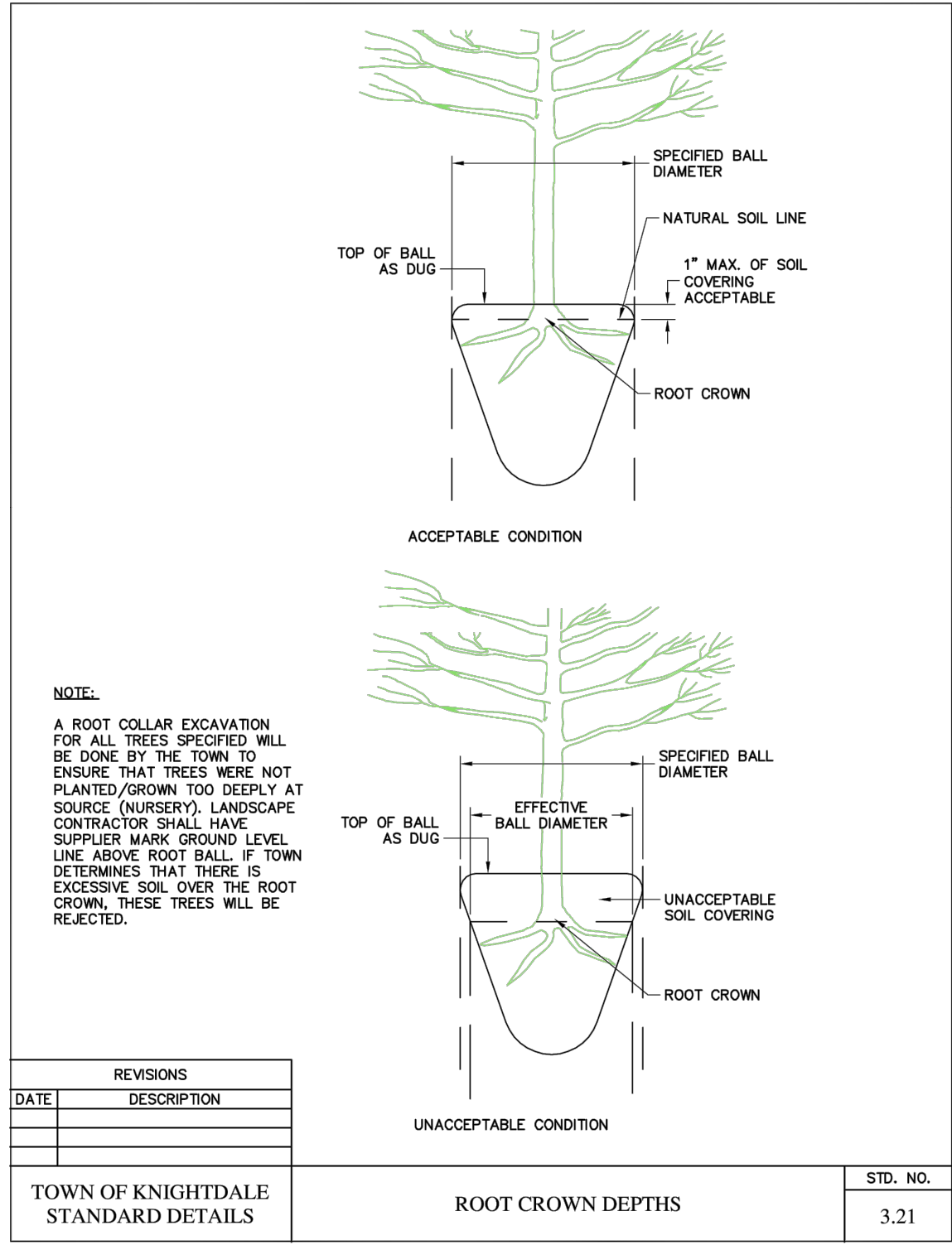
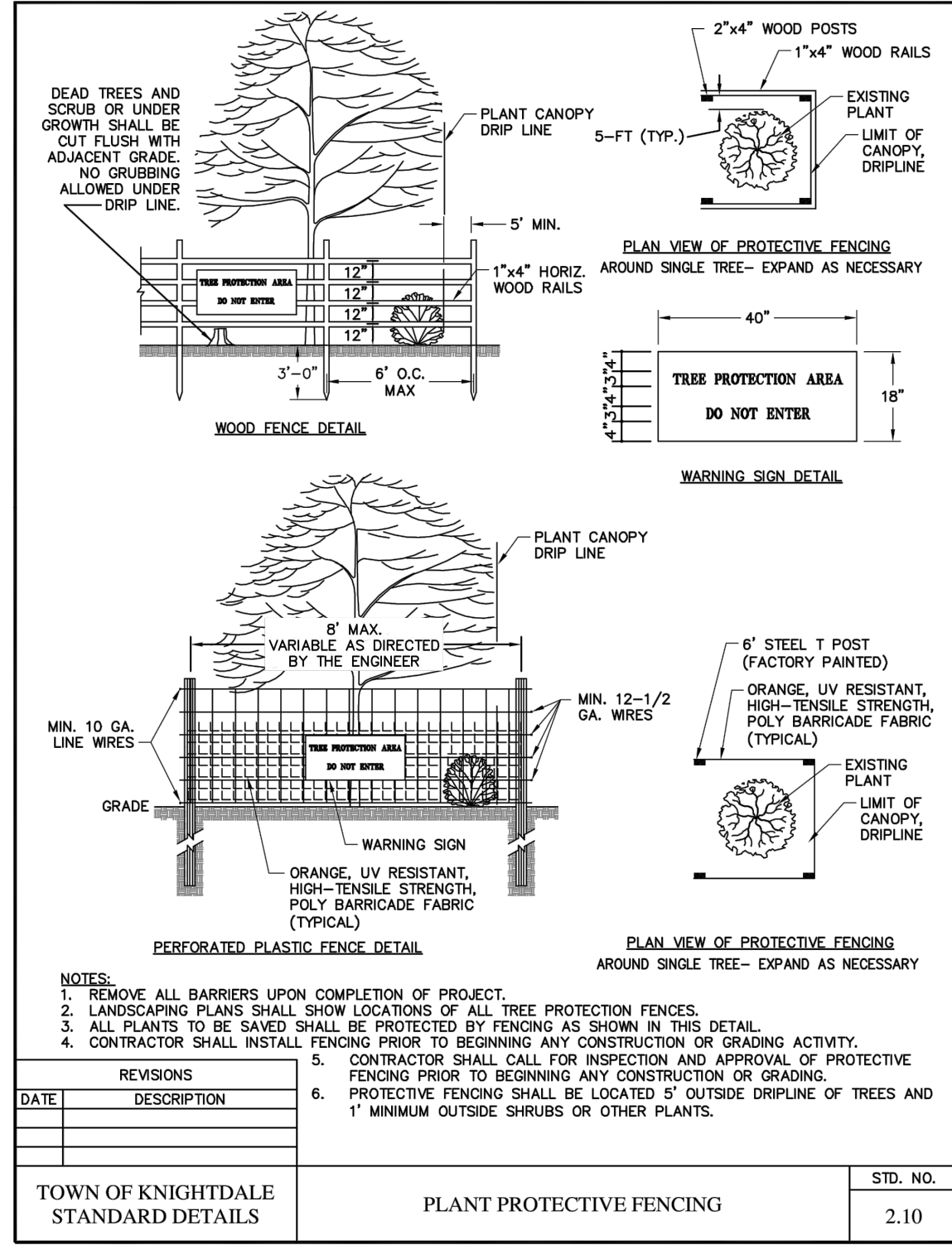
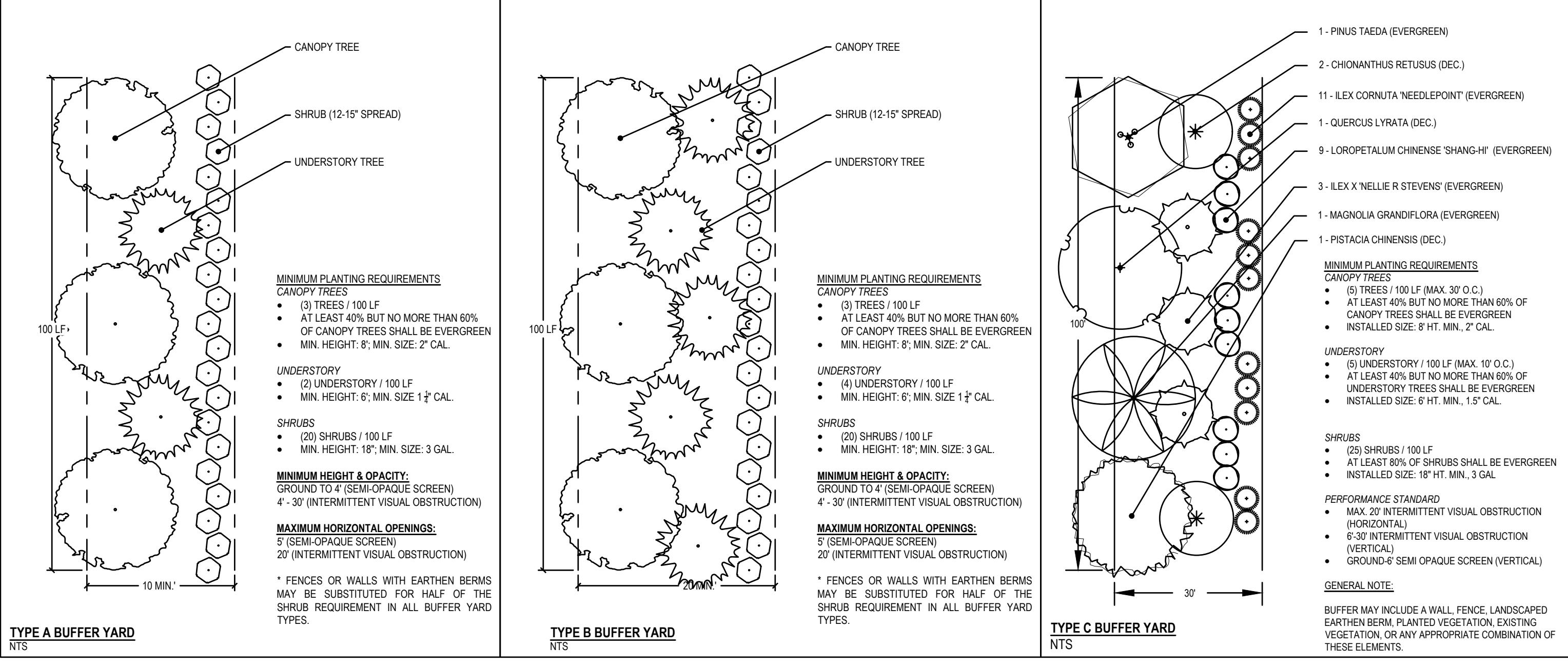
MAINTENANCE:

- 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. PUBLIC RIGHT-OF-WAY, 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 MENACE TO THE SAFETY OF THE PUBLIC. THE TOWN SHALL HAVE 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 OWNER(S) 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 OR 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 ADMINISTRATOR MAY ELECT TO 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.

NOTE: CAROLINIAN AVE, MORNING FLYER WAY AND LIGHTRAIL DRIVE HAVE EXISTING STREET TREES

PLANT SCHEDULE						
CANOPY TREES	CODE	QTY	BOTANICAL / COMMON NAME	HEIGHT	SIZE	CONTAINER
	CER CAN	16	CERCIS CANADENSIS 'FOREST PANSY' / FOREST PANSY EASTERN REDBUD	8' HT.	2" CAL. MIN.	B&B
	MAG LIT	25	MAGNOLIA GRANDIFLORA 'LITTLE GEM' / LITTLE GEM DWARF SOUTHERN MAGNOLIA	1" CAL.		B&B
	PIS CHI	11	PISTACIA CHINENSIS / CHINESE PISTACHE	8' HT.	2" CAL. MIN.	B&B
	QUE PHE	46	QUERCUS PHELLOS / WILLOW OAK	8' HT.	2" CAL. MIN.	B&B
	ULM PAR	22	ULMUS PARVIFOLIA / LACEBARK ELM	8' HT.	2" CAL. MIN.	B&B
	ZEL SER	17	ZELKOVA SERRATA / JAPANESE ZELKOVA	8' HT.	2" CAL. MIN.	B&B
UNDERSTORY TREES	CODE	QTY	BOTANICAL / COMMON NAME	HEIGHT	SIZE	CONTAINER
	ACE BUE	7	ACER BUERGERIANUM / TRIDENT MAPLE	6' HT.	1.25" CAL. MIN.	B&B
	LAG NAO	14	LAGERSTROEMIA INDICA X FAURIEI 'NATCHEZ' / NATCHEZ CRAPE MYRTLE (MULTI-STEMMED)	8' HT.	1.25" CAL. MIN.	B&B
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	HEIGHT	SIZE	CONTAINER
	ABE AWL	165	ABELIA X GRANDIFLORA 'CONFETTI' / DWARF 'CONFETTI' ABELIA	3 GAL.	18" MIN.	POT
	ILE SHA	230	ILEX GLABRA 'SHAMROCK' / SHAMROCK INKBERRY HOLLY	3 GAL.	18" MIN.	POT
	ILE NAN	187	ILEX VOMITORIA 'NANA' / DWARF YAUPOIN HOLLY	3 GAL.	18" MIN.	POT
	LOR HRG	237	LOROPETALUM CHINENSE RUBRUM 'BOBZ RED' / BOBZ RED DWARF FRINGE FLOWER	3 GAL.	18" MIN.	POT
	MIS SIN	120	MISCANTHUS SINENSIS 'ADAGIO' / ADAGIO EULALIA GRASS	1 GAL.	18" MIN.	POT
	MIS GMN	91	MISCANTHUS SINENSIS 'GRACILLIUM NANA' / DWARF EULALIA GRASS	1 GAL.	18" MIN.	POT
	PEN AII	95	PENNISTETUM ALOPECUROIDES 'CASSIAN' / CASSIAN FOUNTAIN GRASS	1 GAL.	18" MIN.	POT
	VIB XCH	52	VIBURNUM X 'CHINDO' / CHINDO VIBURNUM	4' HT.	FULL TO GROUND.	POT
GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	REMARKS	CONTAINER
	CYN MII	65,913 SF	CYNODON DACTYLON 'TIFTUF' / TIFTUF BERMUDAGRASS	SEED		

PLANT SCHEDULE					
POLLINATOR GARDEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER
	CER CAN	3	Cercis canadensis / Eastern Redbud	2" Cal.	B&B
POLLINATOR GARDEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER
	ASC TUB	4	Asclepias tuberosa / Butterfly Milkweed	1 gal.	CONT.
	CAL KAR	12	Calamagrostis x acutiflora 'Karl Foerster' / Karl Foerster Feather Reed Grass	1 gal.	CONT.
	ECH PEP	19	Echinacea x 'Purple Emperor' / Purple Emperor Conflower	1 gal.	CONT.
	MON BPM	14	Monarda x 'Marje Pink' / Marje Pink Bee Balm	1 gal.	CONT.
	VAC HIG	7	Vaccinium corymbosum / Highbush Blueberry	1 gal.	CONT.
	VIB DEN	14	Viburnum dentatum 'Arrowwood' / Arrowwood Viburnum	1 gal.	CONT.
RAIN GARDEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER
	CER CAN	5	Cercis canadensis / Eastern Redbud	2" Cal.	B&B
RAIN GARDEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER
	ASC AMR	11	Asclepias tuberosa 'Hello Orange' / Hello Orange Butterfly Milkweed	1 gal.	CONT.
	AST BBL	20	Aster novae-angliae 'Barr's Blue' / Barr's Blue New England Aster	1 gal.	CONT.
	CEP MAM	20	Cephalanthus occidentalis 'Kokonoo' / Magicalis Moonlight Butterflybush	3 gal.	CONT.
	CLE ALN	28	Clethra alnifolia / Summersweet	3 gal.	CONT.
	COR RES	15	Cornus sericea / Red Twig Dogwood	5 gal.	CONT.



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

ATLAS STARK
2020 PROGRESS CT SUITE 130A
RALEIGH NC 27608

KNIGHTDALE STATION

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

PRELIMINARY
NOT APPROVED
FOR CONSTRUCTION
WEL B. WHIT

INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR
PER TOWN COMMENTS
2 - 09/01/2023 WR
PER TOWN COMMENTS

LANDSCAPE NOTES & SCHEDULE

L1.03

WR JOB NUMBER 09221154
DRN: WR DGN: WR CKD: WR

LANDSCAPE NOTES & SCHEDULE

L1.03

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

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.


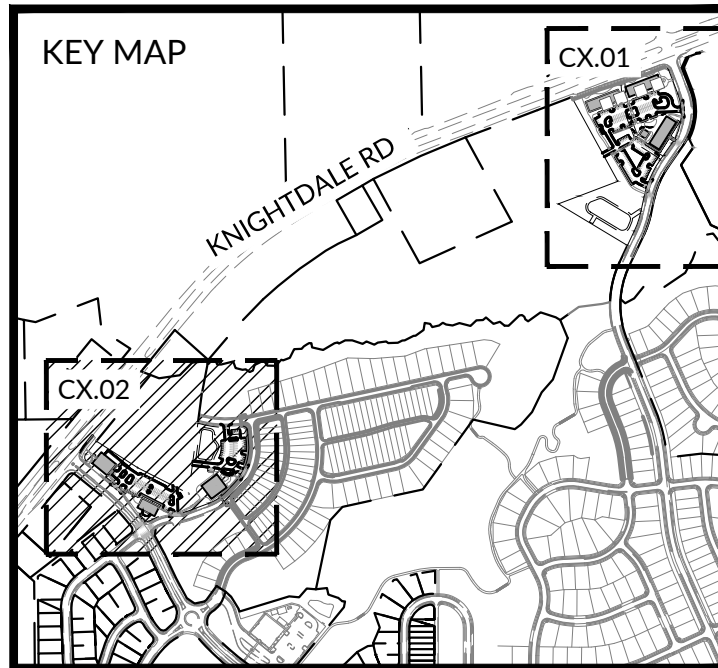
By: _____ Date: _____
 Town Engineer

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

By: _____ Date: _____
 Administrator

SL1.02

FCT 1002



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

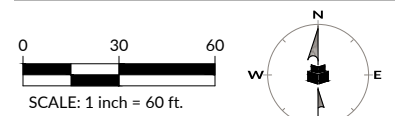
PUD MASTER PLAN

ATLAS STARK

KNIGHTDALE STATION

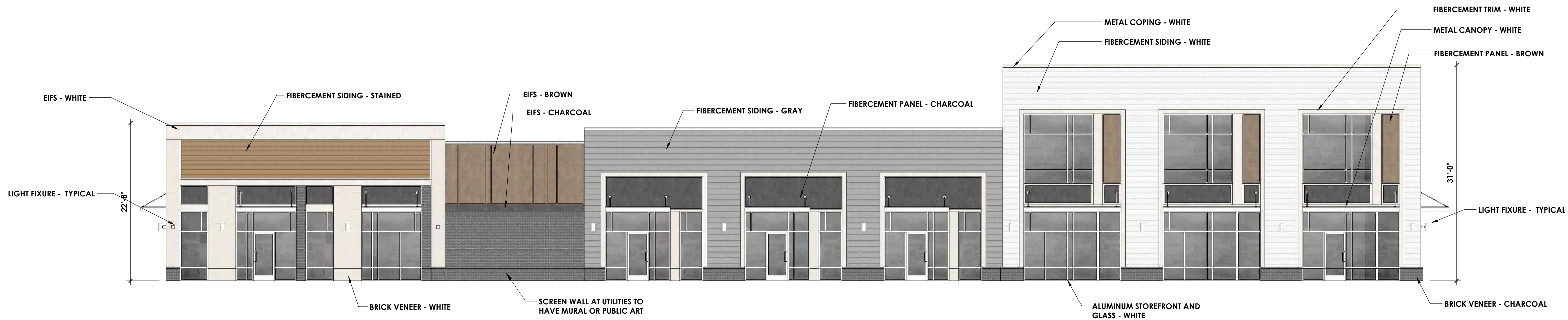
KNIGHTDALE BLVD | KNIGHTDALE, NC 27545
MATTHEWS TOWNSHIP | WAKE COUNTY

7790 KNIGHTDALE BLVD | KNIGHTDALE, NC 27545 | ST.



INITIAL PLAN DATE: 07/14/2023
REVISIONS:
1 - 08/03/2023 WR
PER TOWN COMMENTS
2 - 09/01/2023 WR
PER TOWN COMMENTS

WR JOB NUMBER	09221154	
DRN: WR	DGN: WR	CKD: WR



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

GLAZING CALCULATIONS:
(180' L X 14' H) = 2,520 SF X 0.4 = 1008 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,053 SF (41%)
ACTUAL EIFS PROVIDED: 962 SF (22%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
63' L X 14' H = 882 SF x 0.4 = 353 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 386 SF (44%)
ACTUAL EIFS PROVIDED: 330 SF (23%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
59' L X 14' H = 826 SF x 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 395 SF (48%)
ACTUAL EIFS PROVIDED: 320 SF (18%)



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

GLAZING CALCULATIONS:
(180' L X 14' H) = 2,520 SF X 0.4 = 1008 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,193 SF (47%)
ACTUAL EIFS PROVIDED: 974 SF (22%)

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE
SCREENED BY BUILDING PARAPETS FOR ALL
SIDES OF BUILDING



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919-493-8200

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KNIGHTDALE, NC

APPROVED
TOWN OF KNIGHTDALE
DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

REVISIONS

Project: 2263
Date: 9/01/23

Building Elevations:
Building 100

A3.0



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REVISIONS

Project: 2263
Date: 9/01/23

Building Elevations:
Building 101

A3.1



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

GLAZING CALCULATIONS:
(181'L X 14'H) = 2,534 SF X 0.4 = 1014 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,027 SF (41%)
ACTUAL EIFS PROVIDED: 1,062 SF (24%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
59'L X 14'H = 826 SF X 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 353 SF (43%)
ACTUAL EIFS PROVIDED: 241 SF (13%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

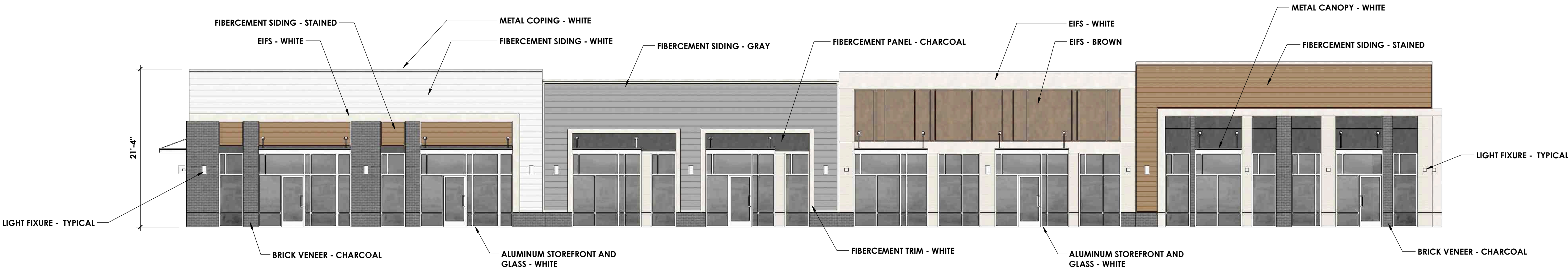
GLAZING CALCULATIONS:
59'L X 14'H = 826 SF X 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 347 SF (42%)
ACTUAL EIFS PROVIDED: 266 SF (20%)



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

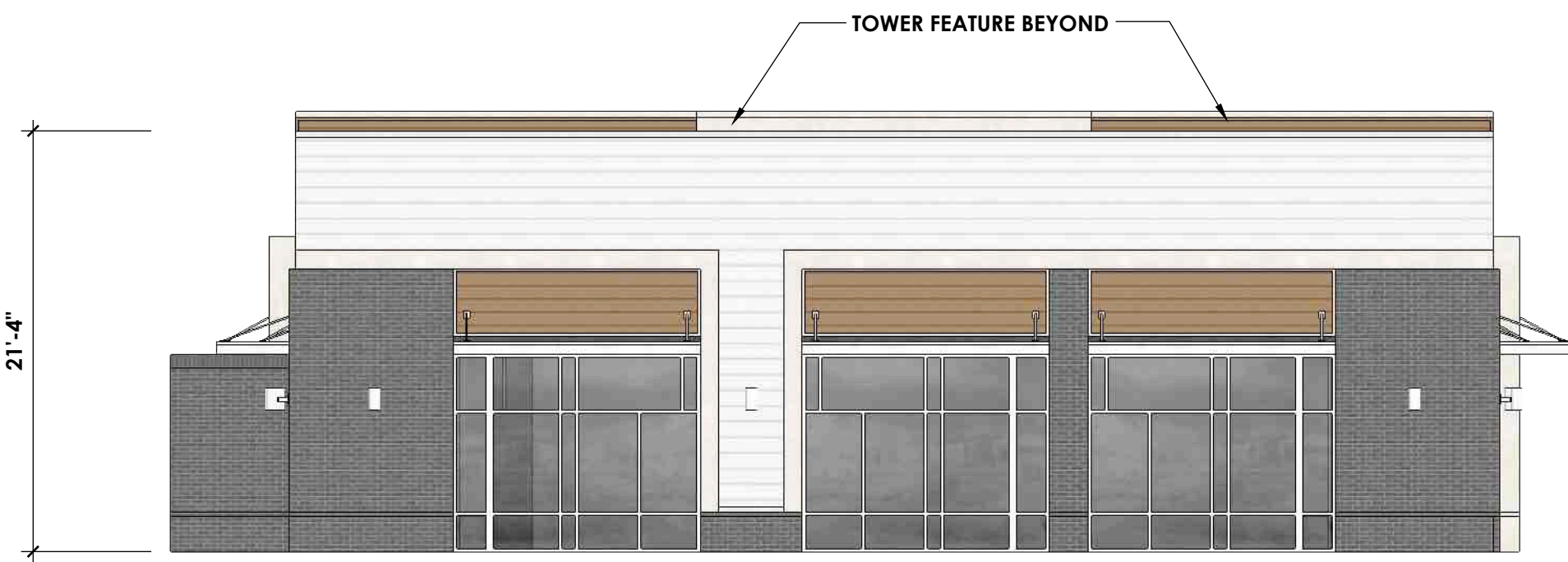
GLAZING CALCULATIONS:
(181'L X 14'H) = 2,534 SF X 0.4 = 1014 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,153 SF (46%)
ACTUAL EIFS PROVIDED: 1,062 SF (24%)

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SIDES OF BUILDING



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

GLAZING CALCULATIONS:
(169' L X 14' H) = 2,366 SF X 0.4 = 946 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,150 SF (49%)
ACTUAL EIFS PROVIDED: 861 SF (24%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
61' L X 14' H = 854 SF X 0.4 = 342 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 375 SF (44%)
ACTUAL EIFS PROVIDED: 95 SF (7%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
61' L X 14' H = 854 SF X 0.4 = 342 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 353 SF (41%)
ACTUAL EIFS PROVIDED: 256 SF (30%)



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

GLAZING CALCULATIONS:
(169' L X 14' H) = 2,366 SF X 0.4 = 946 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,023 SF (43%)
ACTUAL EIFS PROVIDED: 861 SF (24%)

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE
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Date: 9/01/23

Building Elevations:
Building 102

A3.2



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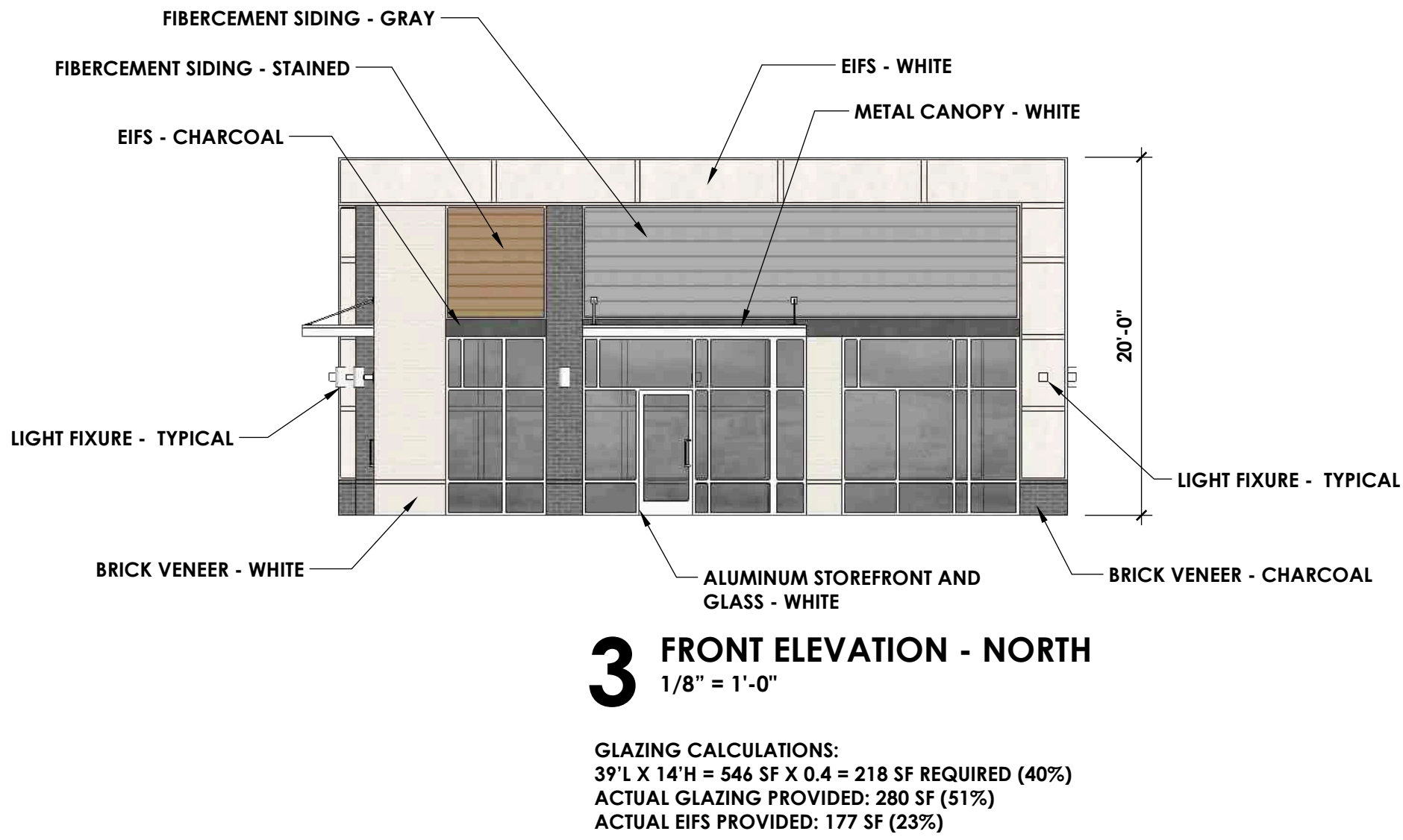
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Project: 2263
Date: 9/01/23
Building Elevations:
Building 103

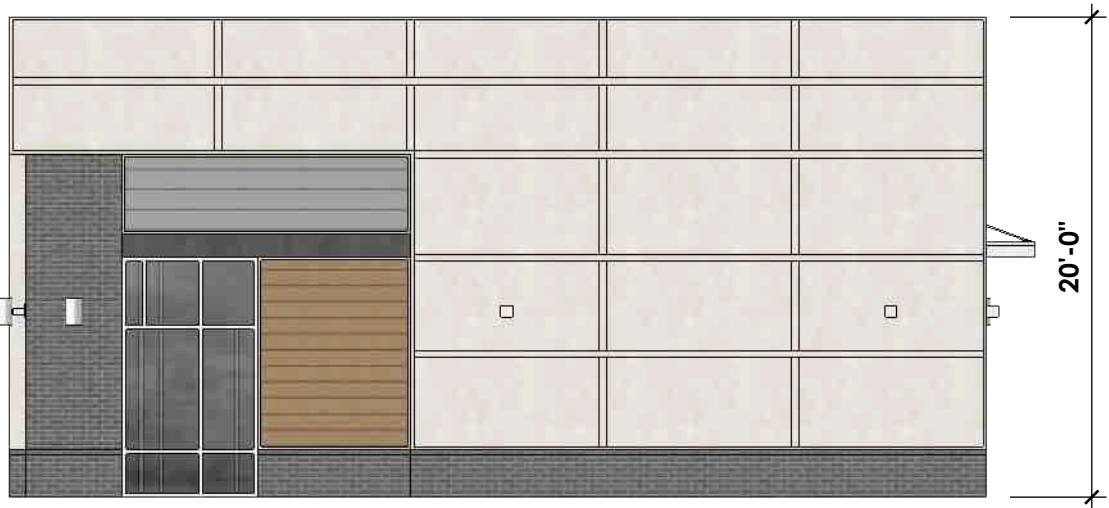
A3.3



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"



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



4 LEFT ELEVATION - EAST
1/8" = 1'-0"



GLAZING CALCULATIONS:
41'L X 14'H = 574 SF X 0.4 = 230 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 281 SF (49%)
ACTUAL EIFS PROVIDED: 188 SF (23%)

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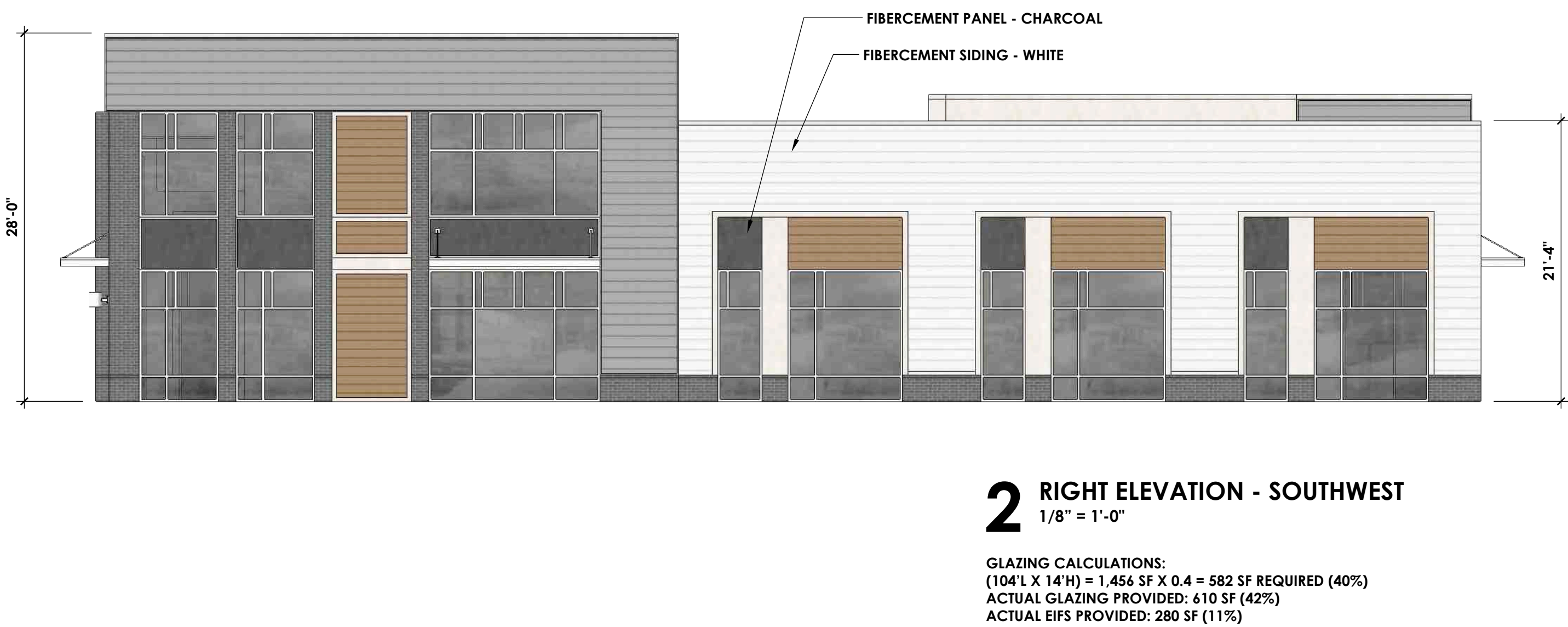
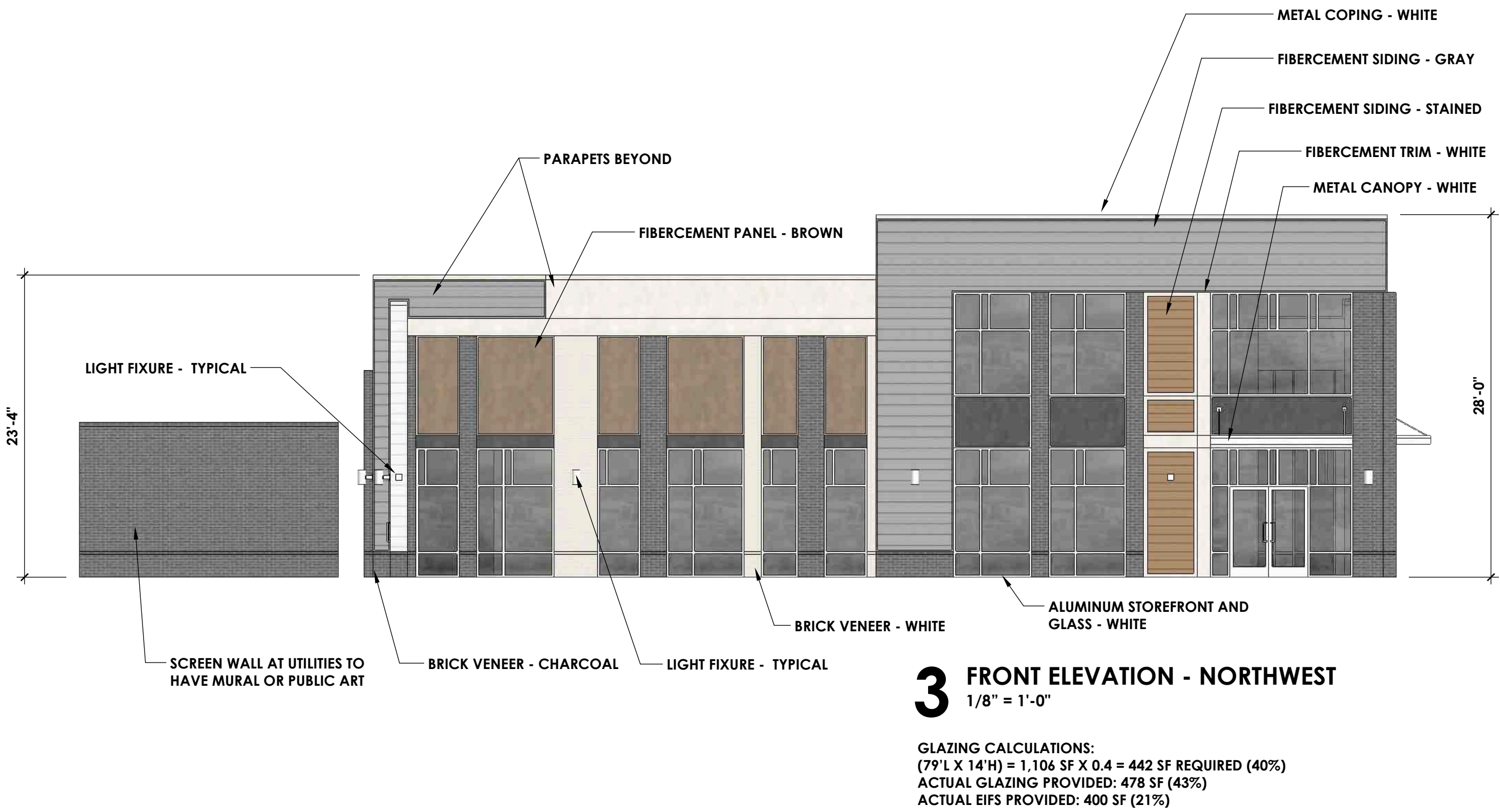
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Gideon.Smith 10/19/2023

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Project: 2263
Date: 9/01/23

Building Elevations:
Building 200

A3.4



NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE
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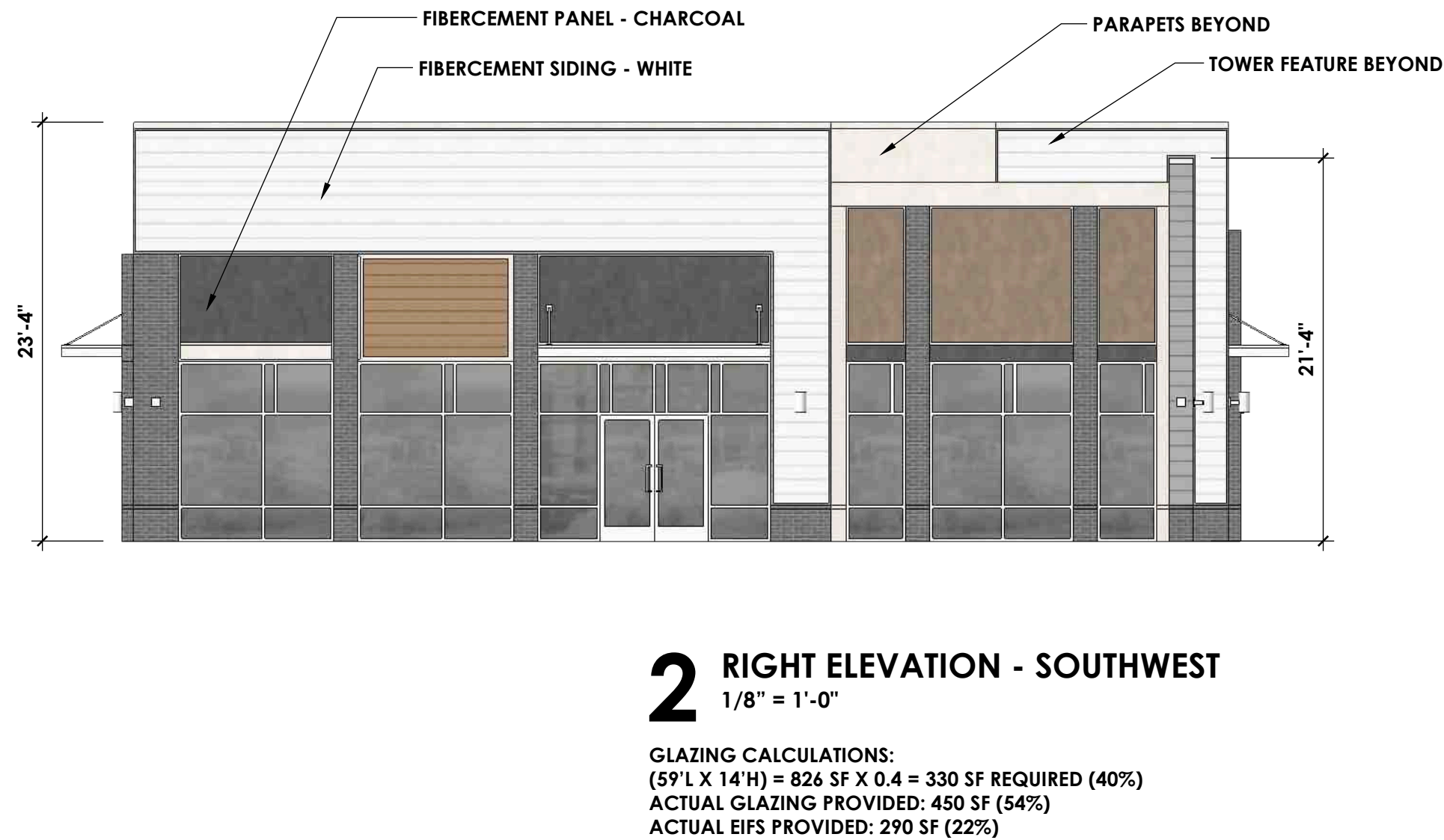
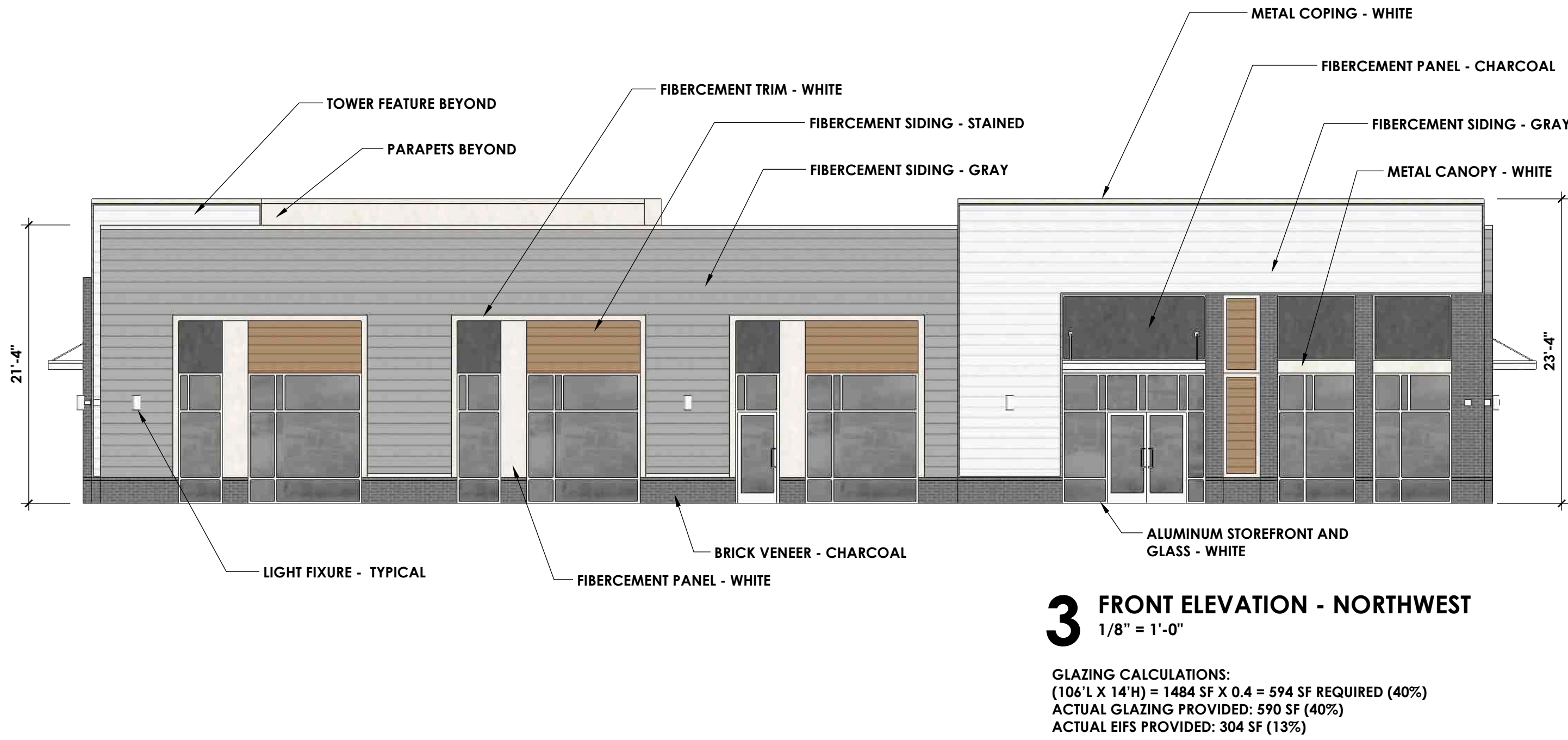
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DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

REVISIONS

Project: 2263
Date: 9/01/23
Building Elevations:
Building 201

A3.5



NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE
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SITE PLAN
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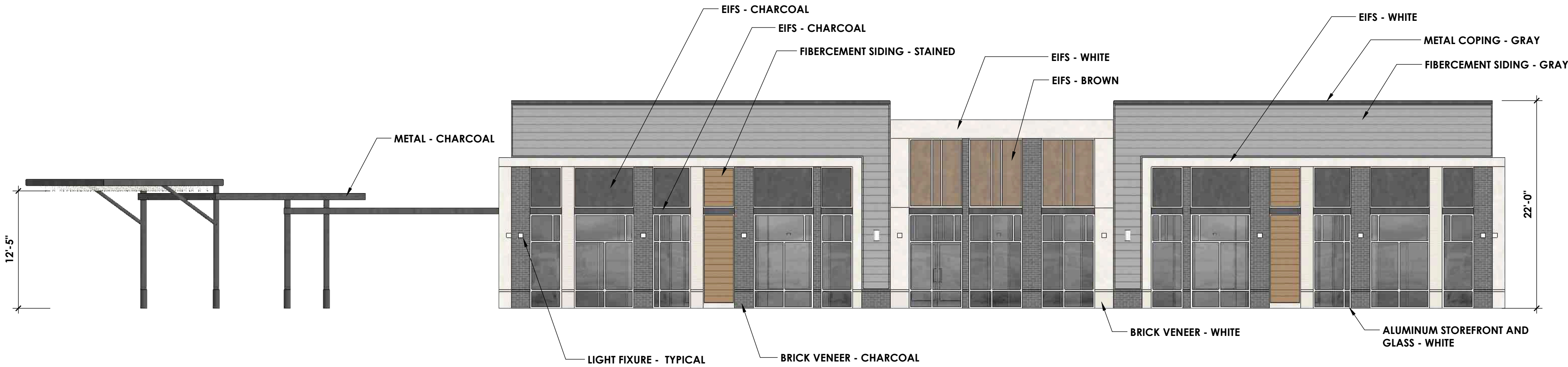
KNIGHTDALE STATION
KNIGHTDALE, NC

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DEVELOPMENT SERVICES
Gideon.Smith 10/19/2023

REVISIONS

Project: 2263
Date: 9/01/23
Building Elevations:
Building 202

A3.6



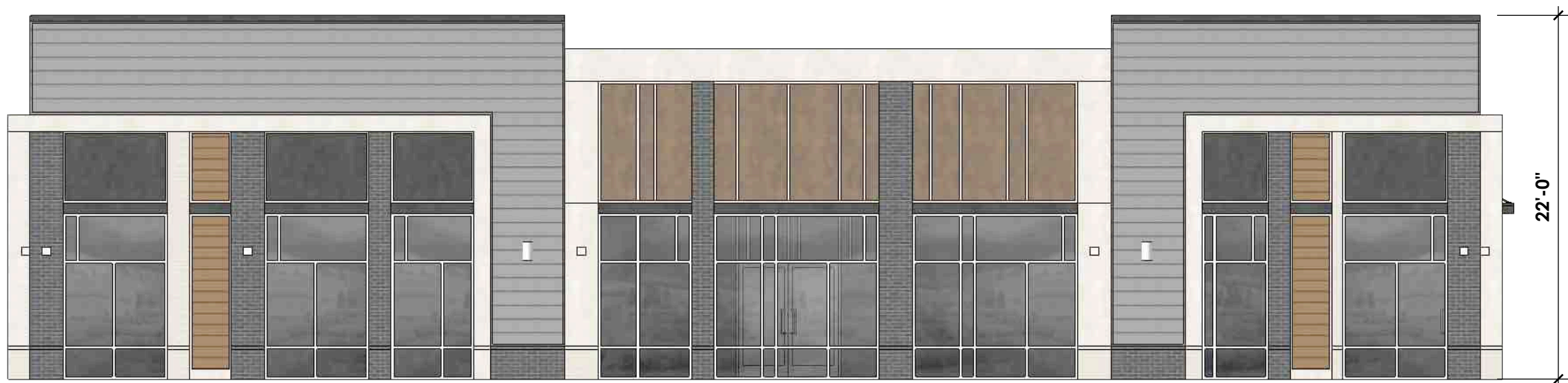
3 FRONT ELEVATION - NORTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(104'L X 14'H) = 1,456 SF X 0.4 = 582 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 637 SF (44%)
ACTUAL EIFS PROVIDED: 601 SF (27%)



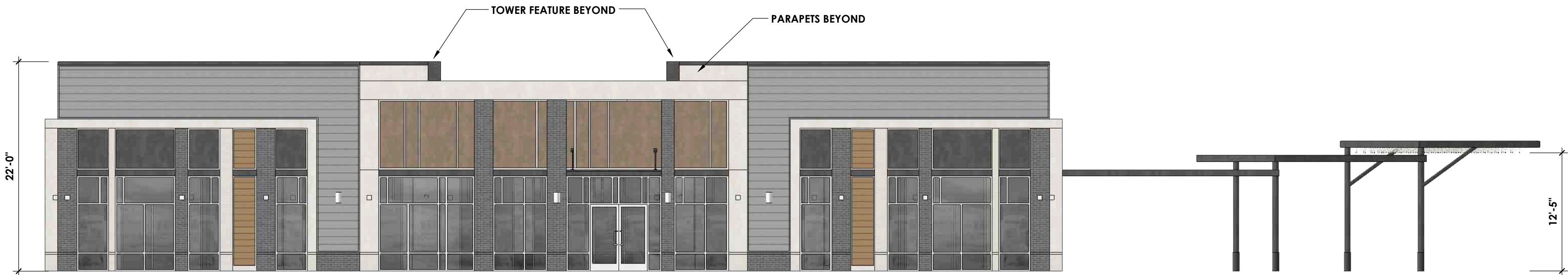
4 LEFT ELEVATION - NORTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(88'L X 14'H) = 1,232 SF X 0.4 = 493 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 537 SF (44%)
ACTUAL EIFS PROVIDED: 539 SF (29%)



2 RIGHT ELEVATION - SOUTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(88'L X 14'H) = 1,232 SF X 0.4 = 493 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 537 SF (44%)
ACTUAL EIFS PROVIDED: 539 SF (29%)



1 BACK ELEVATION - SOUTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(104'L X 14'H) = 1,456 SF X 0.4 = 582 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 640 SF (44%)
ACTUAL EIFS PROVIDED: 613 SF (28%)

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE
SCREENED BY BUILDING PARAPETS FOR ALL
SIDES OF BUILDING



FIBERCEMENT: WHITE
EIFS: WHITE
SHERWIN WILLIAMS
SW7008
"ALABASTER"

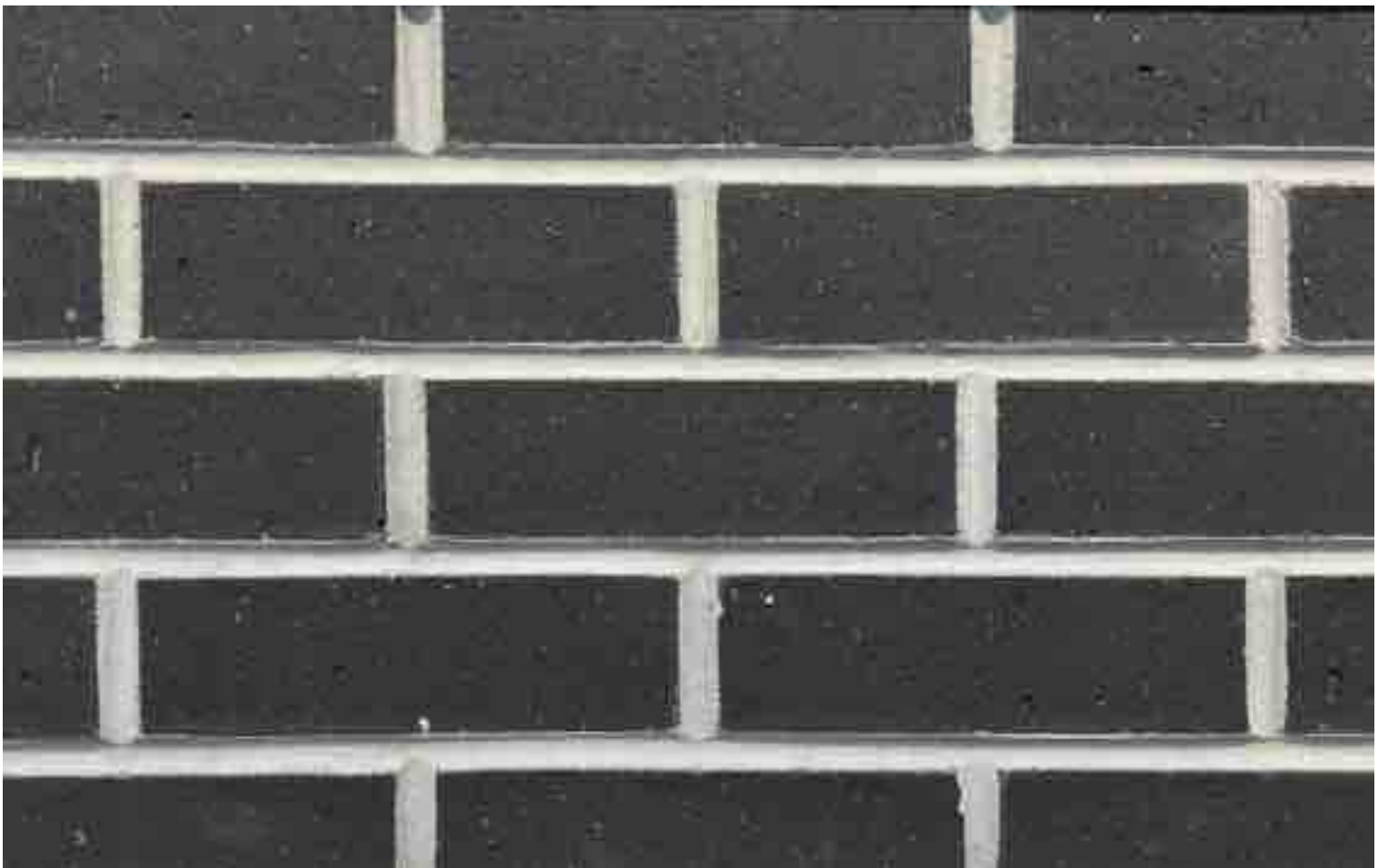
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EIFS: BROWN
SHERWIN WILLIAMS
SW6081
"DOWN HOME"

FIBERCEMENT: CHARCOAL
EIFS: CHARCOAL
SHERWIN WILLIAMS
SW7069
"IRON ORE"

ALUMINUM STOREFRONT
KYNAR "BONE WHITE"



BRICK VENEER: WHITE
PALMETTO BRICK
"WHITESTONE WIRECUT"



BRICK VENEER: CHARCOAL
PALMETTO BRICK
"BLACKSTONE WIRECUT"



FIBERCEMENT SIDING: STAINED
CAROLINA COLORTONES
"CHESTNUT"

