



McADAMS

The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187
www.mcadamsco.com

THE COLLECTION

614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA, 27545

PUD - MASTER PLAN
McADAMS PROJECT NUMBER: MFD-19000
KNIGHTDALE PROJECT NUMBER: ZMA-6-19
DATE: OCTOBER 14, 2019

SHEET INDEX

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WATER ALLOCATION REQUEST

POINTS REQUIRED: 50	
POINTS PROVIDED: 50	
- MAJOR SUBDIVISION (5 OR MORE LOTS):	15
- HOUSES AND TOWNHOUSES:	15
- OUTDOOR DISPLAY OF PUBLIC ART:	4
- IREMA CERTIFIED PLAYGROUND EQUIPMENT:	4
- STORMWATER WETLAND:	5
- PROVISION OF ON STREET PARKING:	4
- 10' WIDE MULTI-USE PATH (2000'):	2
- SIGNAGE OR STRIPING IMPROVEMENTS:	1

SITE DATA TABLE

TOTAL SITE ACREAGE:	26.88
COUNTY:	WAKE
TOWNSHIP:	ST. MATTHEWS
PIN:	1754537747, 1754539814, 1754539404, 1754635524
CURRENT LAND USE:	VACANT / AGRICULTURE
PROPOSED LAND USE:	MIXED DENSITY LAND USE
CURRENT ZONING:	RT
PROPOSED ZONING:	PUD
WATERSHED:	LOWER NEUSE RIVER
PROPOSED DENSITY:	3.27 DU/AC

TREE SAVE AREA	
REQUIRED TREE SAVE (SITE AREA = 26.88 AC.)	
SITE PERIMETER X 20' (10% OF SITE 2.69 AC. MAX.) =	4,483.44 LF X 20' = 89,668.85 SF (2.05 AC.)

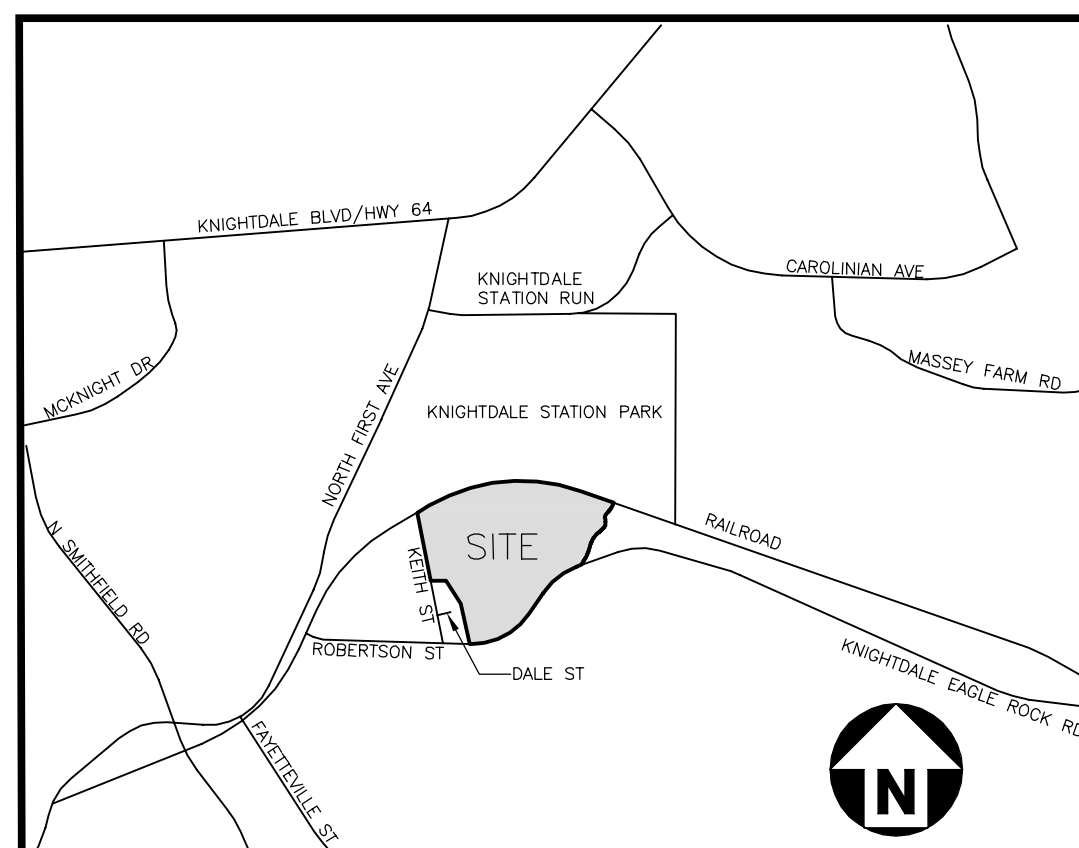
PROVIDED TREE SAVE AREA	
AREA 1 =	11,136 SF / 0.26 AC.
AREA 2 =	15,538 SF / 0.36 AC.
AREA 3 =	30,443 SF / 0.70 AC.
AREA 4 =	10,781 SF / 0.25 AC.
AREA 5 =	25,946 SF / 0.60 AC.
TOTAL AREA =	93,844 SF / 2.15 AC.

CONNECTIVITY INDEX:	17 LINKS / 12 NODES = 1.42
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SETBACKS:	
FRONT LOADED SINGLE FAMILY	
MINIMUM LOT SIZE	7,500 SF
LOT WIDTH	60'
FRONT SETBACK	10'
MINIMUM DRIVEWAY LENGTH	18'
SIDE SETBACK	6' (12' AGGREGATE)
REAR SETBACK	25'
MAXIMUM BUILDING HEIGHT	3 STORIES
REAR LOADED SINGLE FAMILY	
MINIMUM LOT SIZE	7,500 SF
LOT WIDTH	35'
FRONT SETBACK	10'
SIDE SETBACK	3.5' (7' AGGREGATE)
REAR SETBACK	20' (FROM CENTER OF ALLEY)
MAXIMUM BUILDING HEIGHT	3 STORIES
TOWNHOMES	
MINIMUM FRONT SETBACK	0'
MAXIMUM FRONT SETBACK	25'
MINIMUM BUILDING SEPARATION	10'
REAR SETBACK	15' (FROM CENTER OF ALLEY)
MAXIMUM BUILDING HEIGHT	3 STORIES

OPEN SPACE TABLE

OPEN SPACE CALCS:	
TOTAL # OF SINGLE-FAMILY BEDROOMS:	3.5 * 57 = 199.5 BEDROOMS
TOTAL # OF TOWNHOME BEDROOMS:	2.5 * 35 = 87.5 BEDROOMS
TOTAL # OF BEDROOMS:	287
TOTAL RECREATION OPEN SPACE REQUIRED:	287 * 260 = 74,620 SF (1.71 ACRES)
ACTIVE RECREATION SPACE REQUIRED:	74,620 SF * .5 = 37,310 (85 ACRES)
ACTIVE RECREATION SPACE PROVIDED:	49,228 SF (1.13 ACRES)
PASSIVE RECREATION SPACE REQUIRED:	74,620 SF * .5 = 37,310 (85 ACRES)
PASSIVE RECREATION SPACE PROVIDED:	407,716 SF (9.35 ACRES)



VICINITY MAP

CLIENT

MF DEVELOPMENT LLC
5448 APEX PEAKWAY
APEX, NORTH CAROLINA 27502
PHONE: 919. 251. 5501

PROJECT DIRECTORY

PROPERTY OWNER
HARPER, WAYNE L
HARPER, EUGENE J
4113 BREWSTER DR
RALEIGH NC 27606-1711
PHONE: 000. 000. 0000



REVISIONS

NO.	DATE	REVISIONS
1	11.06.2019	REVISED PER TOWN COMMENTS

PUD - MASTER PLAN FOR:

THE COLLECTION
614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA, 27545
PROJECT NUMBER: MFD-19000

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

GENERAL NOTES:

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE OWNER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. THERE MAY BE WETLANDS WITHIN THIS SITE. IT IS THE OWNER'S RESPONSIBILITY FOR WETLANDS JURISDICTION AND PERMIT DISTURBANCE PRIOR TO ANY GRADING ACTIVITY.

DEMOLITION NOTES:

1. IN ACCORDANCE WITH 40 CFR, PART 61, SUBPART M, A THOROUGH INSPECTION SHALL BE CONDUCTED FOR ASBESTOS-CONTAINING MATERIALS, PRIOR TO CONDUCTING A RENOVATION OR DEMOLITION ACTIVITY OF AN EXISTING STRUCTURE. THE ASBESTOS INSPECTION MUST BE CONDUCTED BY A NORTH CAROLINA ACCREDITED ASBESTOS INSPECTOR. ALL REGULATED AND/OR FRIABLE ASBESTOS-CONTAINING MATERIALS IDENTIFIED DURING THE SURVEY, WHICH WILL BE DISTURBED, MUST BE PROPERLY REMOVED BY ACCREDITED INDIVIDUALS BEFORE BEGINNING THE RENOVATION OR DEMOLITION ACTIVITY. IF REGULATED AND/OR FRIABLE ASBESTOS CONTAINING MATERIALS TO BE REMOVED EXCEED 160 SQUARE FEET, 240 LINEAR FEET OR 35 CUBIC FEET, A PERMIT SHALL BE APPLIED FOR THROUGH THE NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES.
2. ALL MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A PERMITTED SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

STORM DRAINAGE NOTES:

1. ALL STORM DRAINAGE PIPES SHOWN SHALL BE REINFORCED CONCRETE (RCP) (MINIMUM CLASS III) UNLESS NOTED OTHERWISE. CONTRACTOR TO COORDINATE WITH THE GEOTECH TO VERIFY TYPE OF BEDDING REQUIRED BASED ON SOIL CONDITIONS. CONTRACTOR TO SELECT REQUIRED CLASS OF PIPE BASED ON DEPTH OF PIPE AND BEDDING PROVIDED PER THE AMERICAN CONCRETE PIPE ASSOCIATION GUIDELINES.
2. ALL STORM DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST TOWN OF KNIGHTDALE STANDARDS.
3. ALL CONCRETE SHALL MEET A MINIMUM 3000 PSI COMPRESSIVE STRENGTH.
4. ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
5. ALL PIPE JOINTS SHALL BE MADE WITH PREFORMED JOINT SEALER, WHICH CONFORMS TO AASHTO SPECIFICATION M-198 FOR TYPE B FLEXIBLE PLASTIC GASKETS UNLESS OTHERWISE NOTED.
6. THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
7. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
8. MATERIALS DEEMED BY THE OWNER'S REPRESENTATIVE AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
9. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100 PERCENT STANDARD PROCTOR.
10. UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.

RETAINING WALL NOTES

1. THE RETAINING WALL ALIGNMENT SHOWN ON THESE PLANS DEPICTS THE LOCATION OF THE FRONT FACE OF THE RETAINING WALL AT THE TOP OF THE WALL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING RETAINING WALLS ARE NOT LOCATED IN ANY STREAM BUFFERS, AND THEIR CONSTRUCTION DOES NOT ENCRoACH INTO ANY ADJACENT PROPERTIES DUE TO ANY BATTER INCORPORATED IN THE DESIGN OF THE WALLS.
2. RETAINING WALLS ARE TO BE DESIGN-BUILD PROJECTS BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FINAL CONSTRUCTION DRAWINGS FROM A REGISTERED ENGINEER AND GAIN ALL REQUIRED PERMITS NECESSARY FOR THE CONSTRUCTION OF THE RETAINING WALLS.
3. RETAINING WALLS SHALL BE ASSUMED TO BE BACKFILLED WITH OFF-SITE BORROW MATERIAL OR PROCESSED FILL, UNLESS THE CONTRACTOR CAN PROVIDE TO THE OWNER WITH CONFIRMATION FROM THE GEOTECHNICAL ENGINEER AND THE RETAINING WALL DESIGNER, THAT READILY AVAILABLE ON-SITE SOILS CAN BE USED.
4. THE TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON THESE PLANS IDENTIFY FINISHED GRADE ELEVATIONS ONLY. THE EXTENT THAT THE RETAINING WALL WILL BE EXTENDED BELOW GRADE TO THE FOOTING OR ABOVE GRADE TO THE TOP OF THE CAP BLOCK COURSE SHALL BE IDENTIFIED ON THE RETAINING WALL CONSTRUCTION DRAWINGS.
5. ALL RETAINING WALLS OVER 30" HIGH SHALL HAVE A SAFETY FENCE (DESIGN BY OTHERS).
6. ANY PART OF ANY RETAINING WALL THAT EXTENDS INTO THE RIGHT-OF-WAY WILL REQUIRE AN ENCROACHMENT AGREEMENT. ENCROACHMENT AGREEMENTS FOR RETAINING WALLS SHALL BE APPROVED PRIOR TO CONSTRUCTION DRAWING APPROVAL.
7. ANY TIEBACK SYSTEMS FOR THE RETAINING WALLS SHALL NOT BE ALLOWED WITHIN PUBLIC RIGHT-OF-WAY.
8. STORMWATER RUN-OFF SHALL BE DIRECTED AWAY FROM RETAINING WALLS. ANY RUN-OFF FLOWING TO AND OVER A RETAINING WALL SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND BROUGHT TO THE ATTENTION OF THE WALL DESIGNER PRIOR TO THEIR DESIGN.
9. FENCES AND WALLS ARE LIMITED TO BETWEEN 3 AND 6 FEET IN HEIGHT, EXCEPT WHEN ENGINEERED RETAINING WALLS NECESSITATED BY SEVER TOPOGRAPHY (SLOPES) ARE NOT SUBJECT TO THE HEIGHT LIMITATIONS.

**CITY OF RALEIGH PUBLIC UTILITIES
STANDARD UTILITY NOTES (AS APPLICABLE)**

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
2. UTILITY SEPARATION REQUIREMENTS:
 - a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
 - b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
 - c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
 - d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
 - e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-4T & S-49).
 - f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
6. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
7. INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
8. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
24. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI, WHERE SANITARY SERVICES ARE SERVING A BUILDING INSTALLED ON A FLOOR WITH A FINISHED FLOOR ELEVATION BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER. SUCH FIXTURES SHALL BE PROTECTED BY A BACKWATER VALVE INSTALLED IN THE SERVICE LINE. SANITARY SERVICES SERVING A BUILDING WITH A FINISHED FLOOR ELEVATION ABOVE THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER SHALL NOT DISCHARGE THROUGH A BACKWATER VALVE.
25. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
26. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
27. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT STEPHEN CALVERLEY AT (919) 996-2334 OR STEPHEN.CALVERLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
28. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

ADDITIONAL UTILITY NOTES

1. ALL WATER MAINS, SERVICES AND FIRE SERVICES GREATER THAN 2" DIAMETER ARE TO BE DUCTILE IRON PIPE. 2" & SMALLER DOMESTIC SERVICES MUST BE TYPE K SOFT COPPER (WITHOUT FITTINGS) TO THE WATER METER.
2. ALL SEWER MAINS SHALL BE EITHER PVC OR DUCTILE IRON PIPE AS SHOWN ON THE PLANS. ALL PIPE MATERIAL SHALL MEET CITY OF RALEIGH STANDARDS AND SPECIFICATIONS AS DEFINED IN THE LATEST ISSUE OF THE PUBLIC UTILITIES HANDBOOK AND/OR UNIFIED DEVELOPMENT ORDINANCE (UDO).
3. ALL FIRE HYDRANTS ALONG PUBLIC R/W LINES SHALL HAVE A 5' Wx5' L CITY OF RALEIGH WATERLINE EASEMENT ONTO ADJACENT PROPERTY.
4. ALL SANITARY SEWER INTERCEPTOR LINES (12" AND LARGER), AS WELL AS MANHOLES AND FITTINGS ASSOCIATED WITH THE INTERCEPTOR LINE, SHALL BE INTERNALLY LINED WITH PROTECTO 401 OR APPROVED EQUAL TO PREVENT HYDROGEN SULFIDE CORROSION. SEE THE CURRENT CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT HANDBOOK FOR APPROVED COATINGS AND APPLICATION METHODS.
5. IN ACCORDANCE WITH GENERAL STATUTE 87-121(G), ALL UNDERGROUND UTILITIES INSTALLED AFTER OCTOBER 1, 2014 SHALL BE ELECTRONICALLY LOCATABLE. CONTRACTOR SHALL COORDINATE DIRECTLY WITH THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT FOR DETAILS AND SPECIFICATIONS FOR MEETING THESE REQUIREMENTS.
6. EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
7. ALL WATER AND SEWER MAINS WITHIN PUBLIC EASEMENTS OR RIGHTS-OF-WAY TO BE OWNED, OPERATED, AND MAINTAINED BY THE CITY OF RALEIGH.
8. ALL WATER AND SEWER MAINS NOT WITHIN PUBLIC EASEMENTS OR RIGHTS-OF-WAY TO BE PRIVATELY OWNED, OPERATED, AND MAINTAINED BY THE PROPERTY OWNER.
9. CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
10. ALL UTILITY SLEEVES SHALL BE SCHEDULE 40 PVC AND INSTALLED WITH 2' MINIMUM COVER. BOTH ENDS SHALL BE CAPPED AND MARKED.



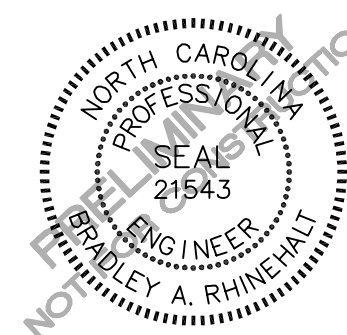
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**Know what's below.
Call before you dig.**

CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

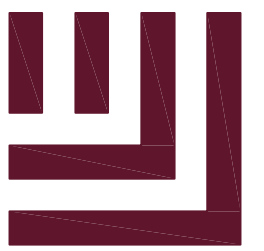
REVISIONS

NO.	DATE	REVISION
1	11.06.2019	REVISED PER TOWN COMMENTS

PLAN INFORMATION

PROJECT NO.	MFD-19000
FILENAME	MFD19000-N1
CHECKED BY	DLP
DRAWN BY	SMB
SCALE	.
DATE	10.14.2019

SHEET
PROJECT NOTES
C0.01



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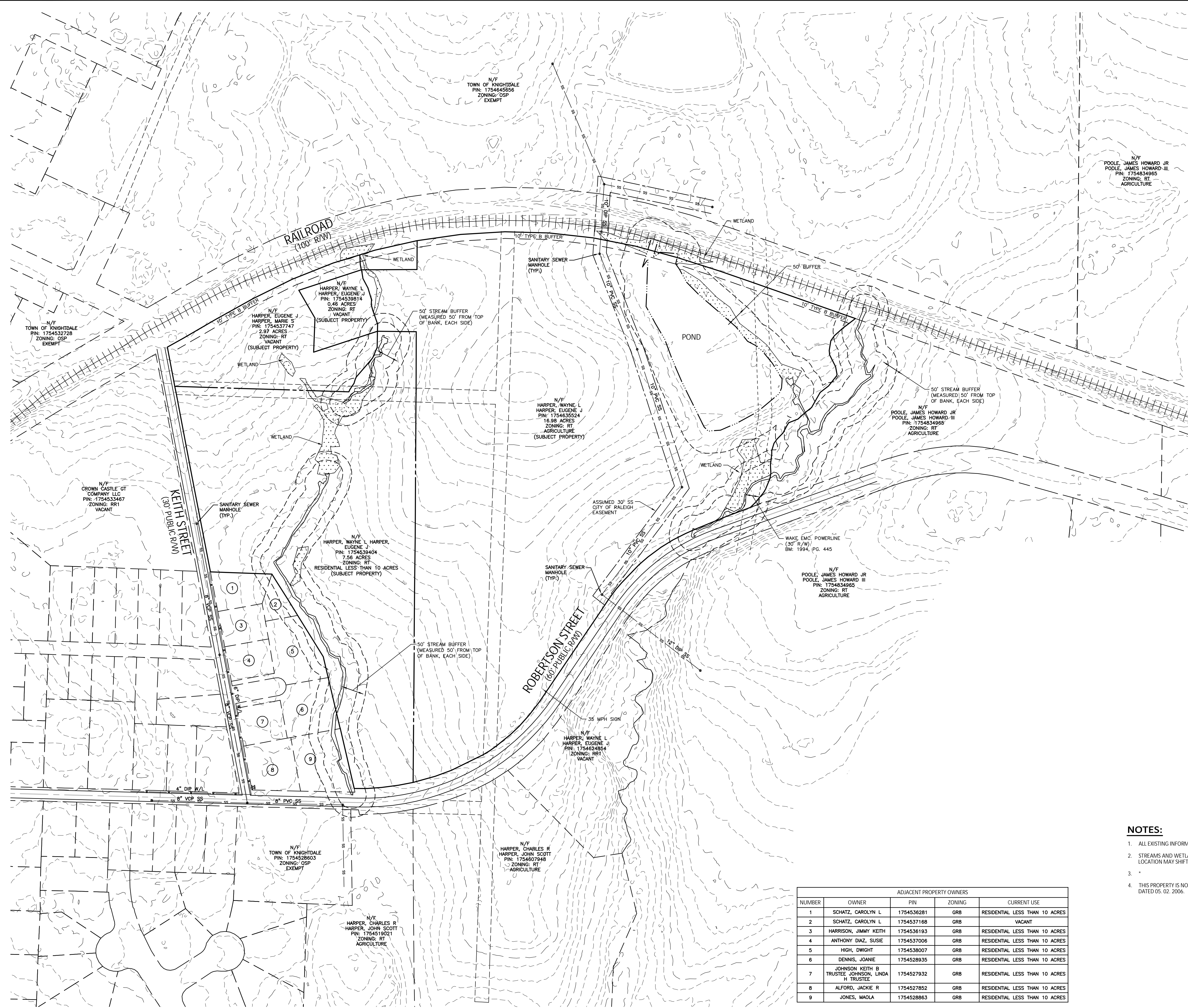
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REVISIONS

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NOTES:

- ALL EXISTING INFORMATION TAKEN FROM GIS AND SUBJECT TO CHANGE.
- STREAMS AND WETLANDS FROM SEAN CLARK AND ARE GPS LOCATED. LOCATION MAY SHIFT ONCE SURVEYED.
-
- THIS PROPERTY IS NOT WITHIN A FLOODPLAIN PER FEMA MAP 3720175400J, DATED 05.02.2006.

PLAN INFORMATION

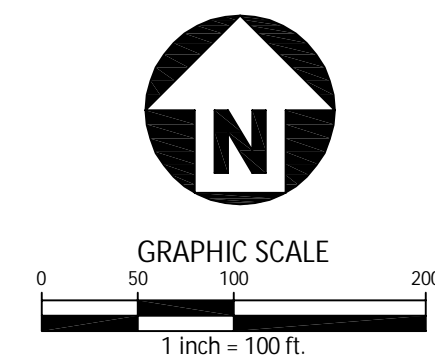
PROJECT NO. MFD-19000
 FILENAME MFD19000-XC1
 CHECKED BY DLP
 DRAWN BY SMB
 SCALE 1" = 100'
 DATE 10.14.2019

SHEET

EXISTING CONDITIONS

C1.00

ADJACENT PROPERTY OWNERS				
NUMBER	OWNER	PIN	ZONING	CURRENT USE
1	SCHATZ, CAROLYN L	1754536281	GRB	RESIDENTIAL LESS THAN 10 ACRES
2	SCHATZ, CAROLYN L	1754537168	GRB	VACANT
3	HARRISON, JIMMY KEITH	1754536193	GRB	RESIDENTIAL LESS THAN 10 ACRES
4	ANTHONY DIAZ, SUSIE	1754537006	GRB	RESIDENTIAL LESS THAN 10 ACRES
5	HIGH, DWIGHT	1754538007	GRB	RESIDENTIAL LESS THAN 10 ACRES
6	DENNIS, JOANIE	1754528935	GRB	RESIDENTIAL LESS THAN 10 ACRES
7	JOHNSON KEITH B TRUSTEE, JOHNSON, LINDA H TRUSTEE	1754527932	GRB	RESIDENTIAL LESS THAN 10 ACRES
8	ALFORD, JACKIE R	1754527852	GRB	RESIDENTIAL LESS THAN 10 ACRES
9	JONES, MAOLA	1754528863	GRB	RESIDENTIAL LESS THAN 10 ACRES



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

X:\Projects\MFD\MFD-19000\04-Production\Engineering\Master Plan\Current Drawings\MFD19000-XC1.dwg, 11/06/2019 12:51:11 PM, Spaulding, Luke



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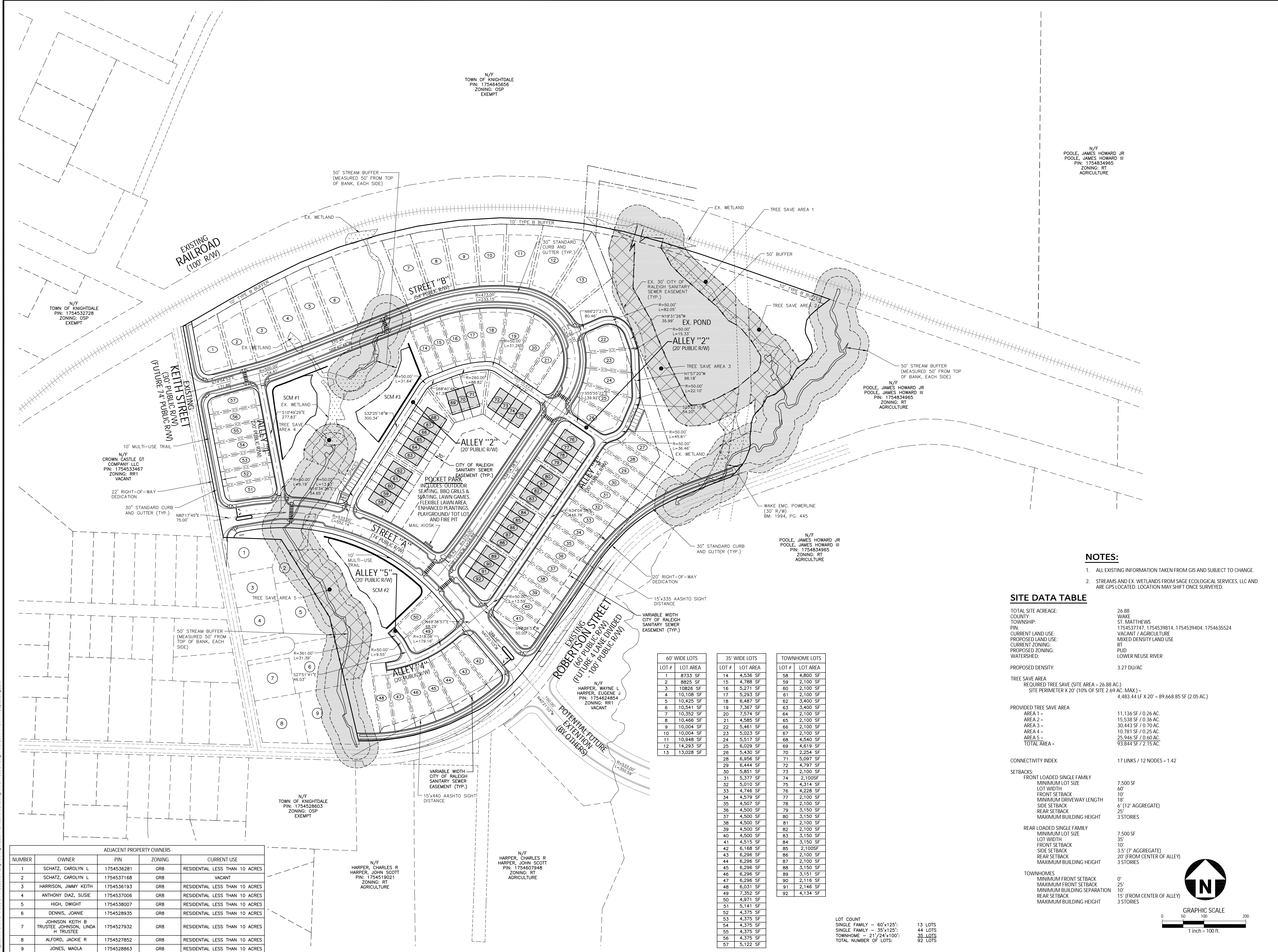
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1. ALL EXISTING INFORMATION TAKEN FROM GIS AND SUBJECT TO CHANGE.
2. STREAMS AND EX. WETLANDS FROM SAGE ECOLOGICAL SERVICES, LLC AND ARE GPS LOCATED. LOCATION MAY SHIFT ONCE SURVEYED.

SITE DATA TABLE

Table with 2 columns: Category and Value. Includes: TOTAL SITE ACREAGE: 26.88; COUNTY: WAKE; TOWNSHIP: ST. MATTHEWS; CURRENT LAND USE: VACANT / AGRICULTURE; PROPOSED LAND USE: MIXED DENSITY LAND USE; PROPOSED ZONING: RT; WATERSHED: LOWER NOISE RIVER; PROPOSED DENSITY: 3.27 DU/AC; TREE SAVE AREA: 26.88 AC; PROVIDED TREE SAVE AREA: 11.136 SF / 0.26 AC; CONNECTIVITY INDEX: 17 LINKS / 12 NODES = 1.42; SETBACKS: FRONT LOADED SINGLE FAMILY MINIMUM LOT SIZE 7,500 SF; REAR LOADED SINGLE FAMILY MINIMUM LOT SIZE 7,500 SF; TOWNHOMES MINIMUM FRONT SETBACK 0';

Table with 3 columns: Lot #, Lot Area, and Lot #, Lot Area. Lists lot numbers 1-57 and their corresponding areas in square feet.

Table with 5 columns: NUMBER, OWNER, PIN, ZONING, CURRENT USE. Lists adjacent property owners and their details.

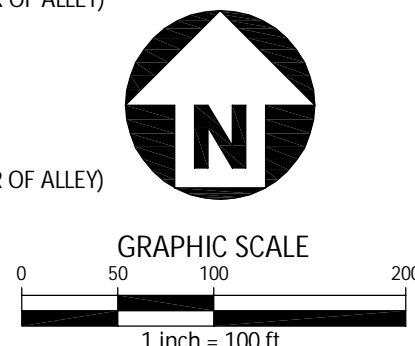


Table with 2 columns: NO. and DATE. Lists revision numbers and dates.

Table with 2 columns: FIELD NAME and VALUE. Lists project information like FILENAME, CHECKED BY, DRAWN BY, SCALE, DATE.

SITE PLAN
C2.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



McADAMS

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license number: C-0293, C-187

www.mcadamsco.com

CLIENT

MF DEVELOPMENT LLC
5448 APEX PEAKWAY
APEX, NORTH CAROLINA 27502
PHONE: 919. 251. 5501

THE COLLECTION
PUD - MASTER PLAN
614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA 27545



- NOTES:**
1. ALL EXISTING INFORMATION TAKEN FROM GIS AND SUBJECT TO CHANGE.
 2. STREAMS AND EX. WETLANDS FROM SAGE ECOLOGICAL SERVICES, LLC AND ARE GPS LOCATED. LOCATION MAY SHIFT ONCE SURVEYED.

OPEN SPACE TABLE

OPEN SPACE CALCS:
 TOTAL # OF SINGLE-FAMILY BEDROOMS: 315 * 57 = 1995 BEDROOMS
 TOTAL # OF TOWNHOME BEDROOMS: 25 * 35 = 875 BEDROOMS
 TOTAL # OF BEDROOMS: 2870
 TOTAL RECREATION OPEN SPACE REQUIRED: 287 * 260 = 74,620 SF (1.71 ACRES)
 ACTIVE RECREATION SPACE REQUIRED: 74,620 SF * 5 = 373,100 (8.5 ACRES)
 ACTIVE RECREATION SPACE PROVIDED: 49,228 SF (1.13 ACRES)
 PASSIVE RECREATION SPACE REQUIRED: 74,620 SF * 5 = 373,100 (8.5 ACRES)
 PASSIVE RECREATION SPACE PROVIDED: 407,718 SF (9.35 ACRES)

REVISIONS

NO.	DATE	REVISED PER TOWN COMMENTS
1	11.06.2019	REVISED PER TOWN COMMENTS

PLAN INFORMATION

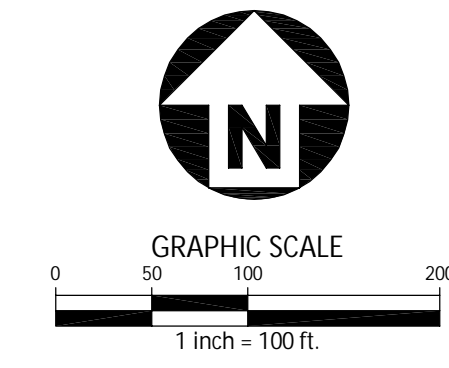
PROJECT NO. MFD-19000
FILENAME MFD19000-051
CHECKED BY DLP
DRAWN BY SMB
SCALE 1" = 100'
DATE 10.14.2019

SHEET

OPEN SPACE PLAN

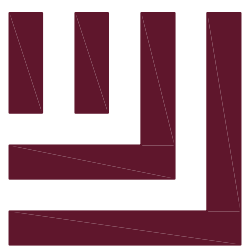
C2.01

ADJACENT PROPERTY OWNERS				
NUMBER	OWNER	PIN	ZONING	CURRENT USE
1	SCHATZ, CAROLYN L	1754536281	GR8	RESIDENTIAL LESS THAN 10 ACRES
2	SCHATZ, CAROLYN L	1754537168	GR8	VACANT
3	HARRISON, JIMMY KEITH	1754536193	GR8	RESIDENTIAL LESS THAN 10 ACRES
4	ANTHONY DIAZ, SUSIE	1754537006	GR8	RESIDENTIAL LESS THAN 10 ACRES
5	HIGH, DWIGHT	1754538007	GR8	RESIDENTIAL LESS THAN 10 ACRES
6	DENNIS, JOANIE	1754528935	GR8	RESIDENTIAL LESS THAN 10 ACRES
7	JOHNSON KEITH B TRUSTEE, JOHNSON, LINDA H TRUSTEE	1754527932	GR8	RESIDENTIAL LESS THAN 10 ACRES
8	ALFORD, JACKIE R	1754527852	GR8	RESIDENTIAL LESS THAN 10 ACRES
9	JONES, MAOLA	1754528863	GR8	RESIDENTIAL LESS THAN 10 ACRES



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

X:\Projects\MFD\MFD-19000-051-Production\Engineering\Master Plan\Current Drawings\MFD19000-051.dwg, 11/06/2019 12:51:44 PM, Spaulding, Luke



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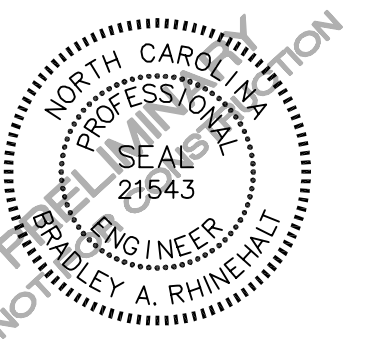
phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

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**THE COLLECTION
PUD - MASTER PLAN
614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA 27545**



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REVISIONS

NO.	DATE	REVISED PER TOWN COMMENTS
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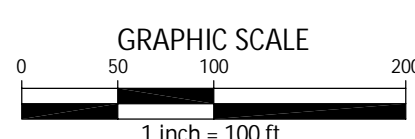
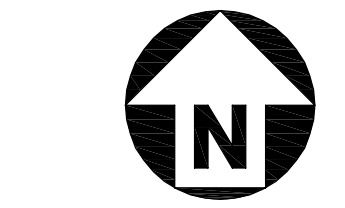
PLAN INFORMATION

PROJECT NO. MFD-19000
 FILENAME MFD19000-G1
 CHECKED BY DLP
 DRAWN BY SMB
 SCALE 1" = 100'
 DATE 10.14.2019

SHEET

**GRADING AND STORM
DRAINAGE PLAN**

C3.00



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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Durham, NC 27713

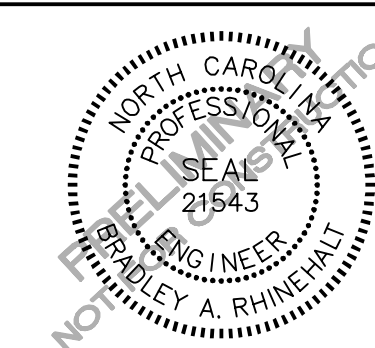
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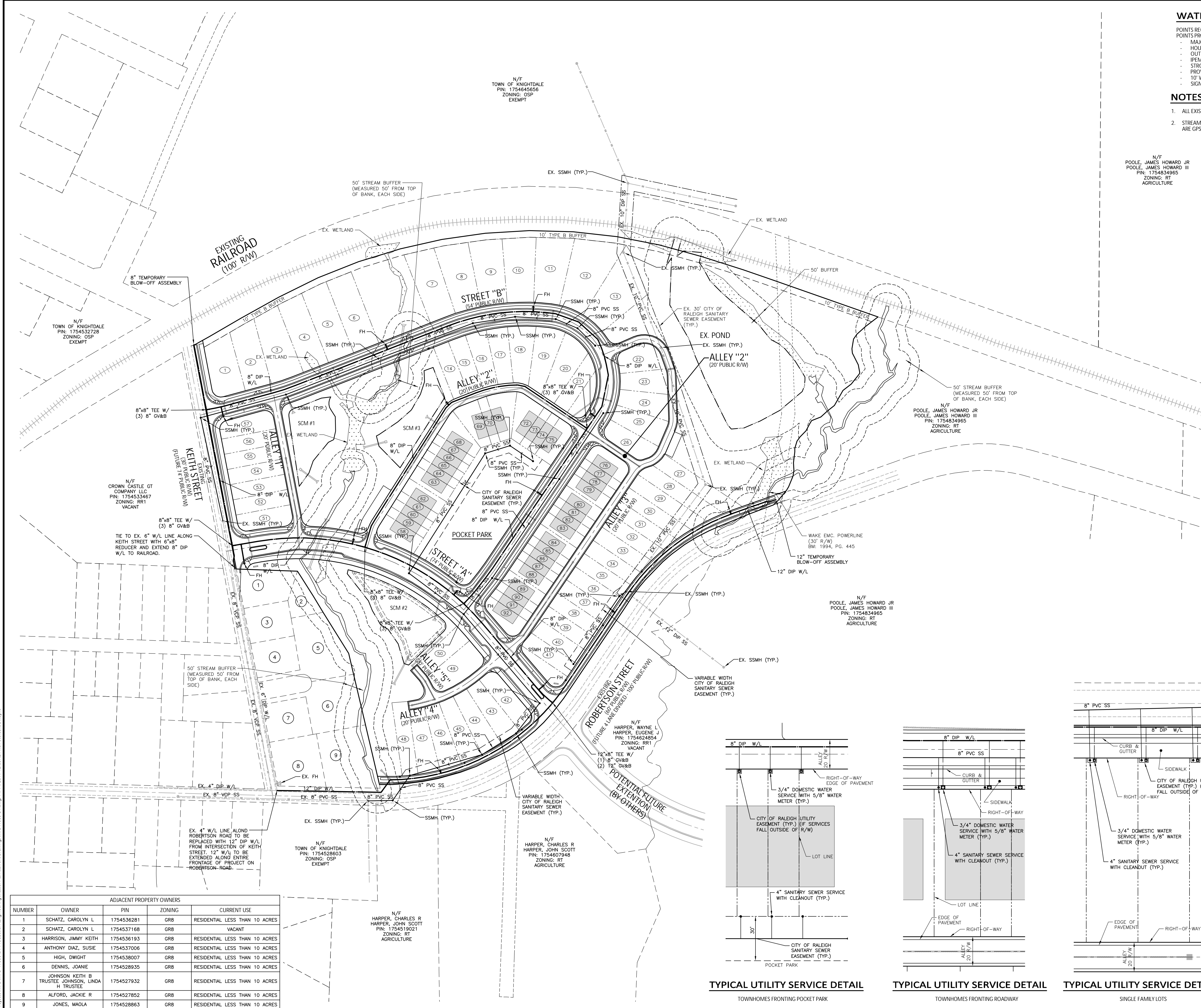
WATER ALLOCATION REQUEST

- POINTS REQUIRED: 50
- POINTS PROVIDED: 50
- MAJOR SUBDIVISION (5 OR MORE LOTS): 15
- HOUSES AND TOWNHOUSES: 15
- OUTDOOR DISPLAY OF PUBLIC ART: 4
- IPEMA CERTIFIED PLAYGROUND EQUIPMENT: 4
- STROMWATER/WETLAND: 5
- PROVISION OF ON STREET PARKING: 4
- 10' WIDE MULTI-USE PATH (2007): 2
- SIGNAGE OR STRIPING IMPROVEMENTS: 1

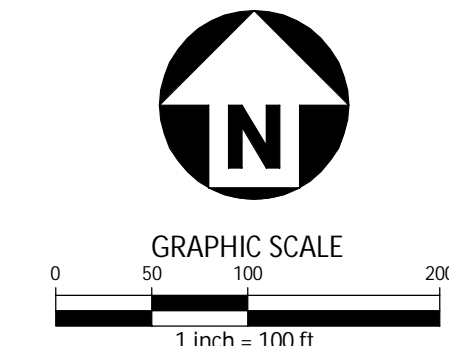
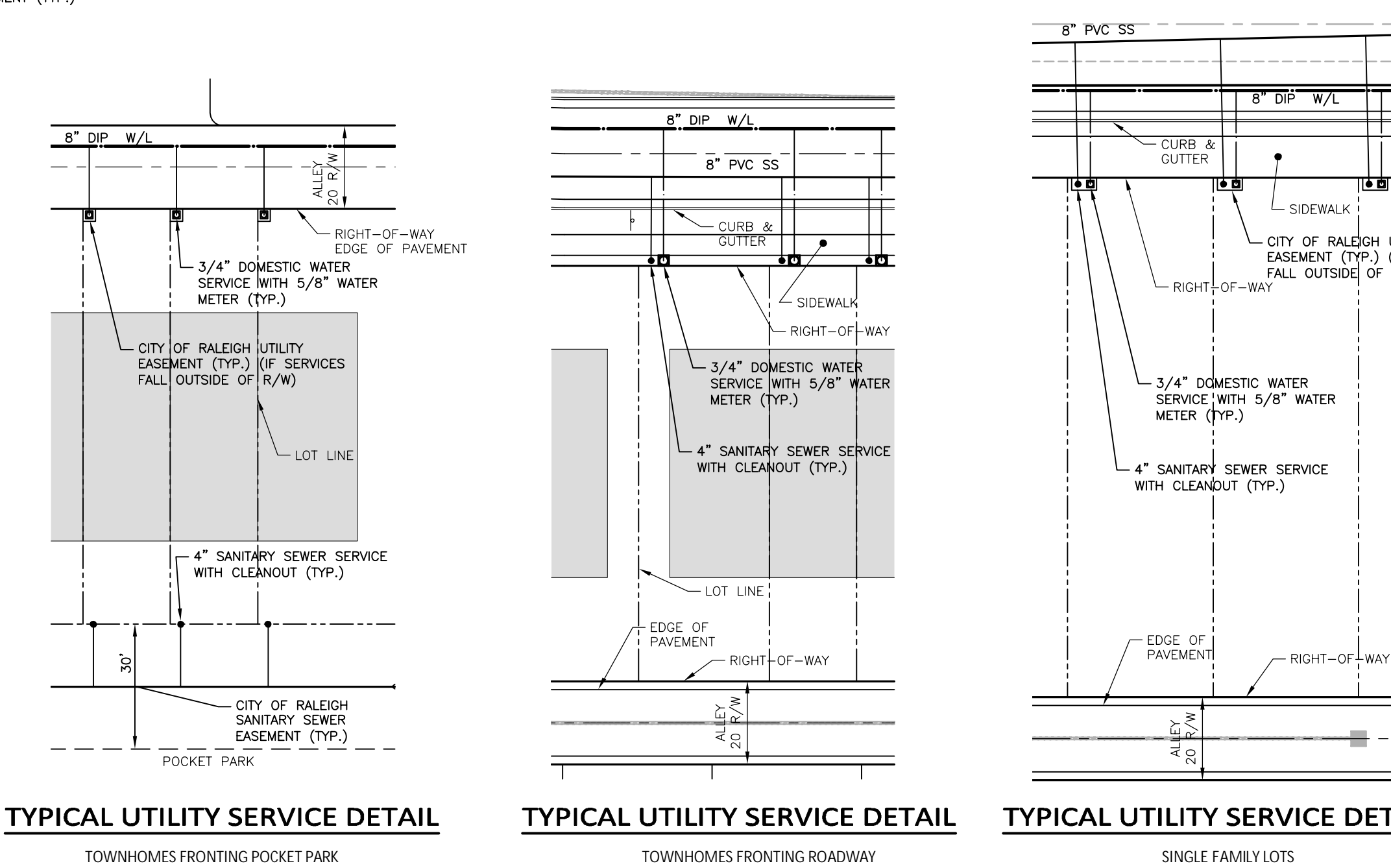
NOTES:

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N/F
POOLE, JAMES HOWARD JR
POOLE, JAMES HOWARD III
PIN: 1754834965
ZONING: RT
AGRICULTURE



ADJACENT PROPERTY OWNERS				
NUMBER	OWNER	PIN	ZONING	CURRENT USE
1	SCHATZ, CAROLYN L	1754536281	GR8	RESIDENTIAL LESS THAN 10 ACRES
2	SCHATZ, CAROLYN L	1754537168	GR8	VACANT
3	HARRISON, JIMMY KEITH	1754536193	GR8	RESIDENTIAL LESS THAN 10 ACRES
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5	HIGH, DWIGHT	1754538007	GR8	RESIDENTIAL LESS THAN 10 ACRES
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9	JONES, MAOLA	1754528863	GR8	RESIDENTIAL LESS THAN 10 ACRES



REVISIONS

NO	DATE	REVISED PER/TOWN COMMENTS
1	11.06.2019	REVISED PER TOWN COMMENTS

PLAN INFORMATION

PROJECT NO. MFD-19000
 FILENAME MFD19000-U1
 CHECKED BY DLP
 DRAWN BY SMB
 SCALE 1" = 100'
 DATE 10.14.2019

SHEET

UTILITY PLAN

C4.00



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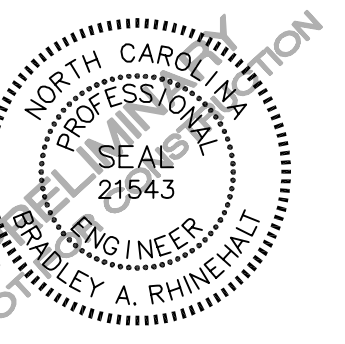
phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

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CLIENT

MF DEVELOPMENT LLC
5448 APEX PEAKWAY
APEX, NORTH CAROLINA 27502
PHONE: 919. 251. 5501

THE COLLECTION
PUD - MASTER PLAN
614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA 27545



N/F POOLE, JAMES HOWARD JR
POOLE, JAMES HOWARD III
PIN: 1754834965
ZONING: RT
AGRICULTURE

N/F TOWN OF KNIGHTDALE
PIN: 1754645656
ZONING: OSP
EXEMPT

N/F TOWN OF KNIGHTDALE
PIN: 1754532728
ZONING: OSP
EXEMPT

N/F CROWN CASTLE GT
COMPANY LLC
PIN: 1754533467
ZONING: RR1
VACANT

N/F POOLE, JAMES HOWARD JR
POOLE, JAMES HOWARD III
PIN: 1754834965
ZONING: RT
AGRICULTURE

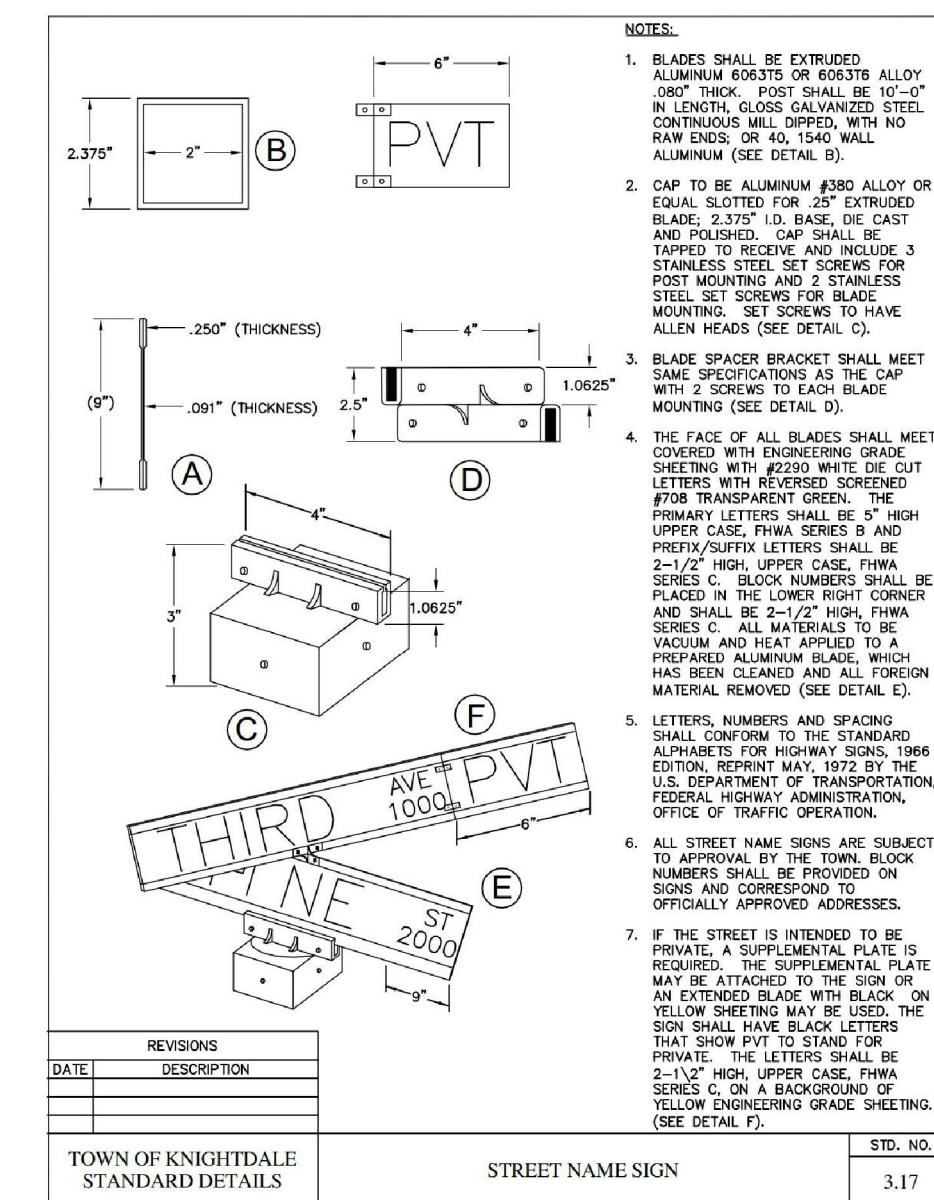
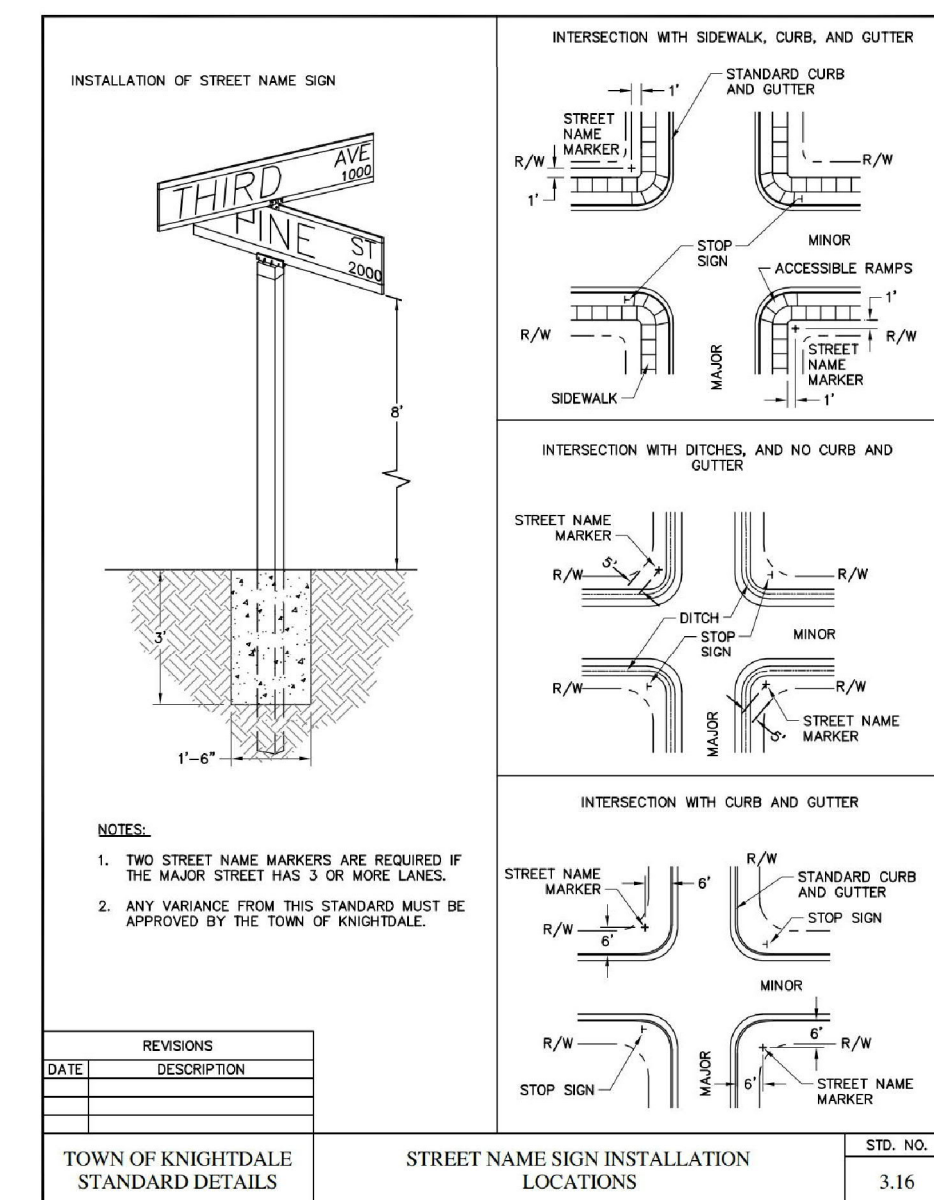
N/F HARPER, WAYNE L
HARPER, EUGENE J
PIN: 1754624854
ZONING: RR1
VACANT

N/F HARPER, CHARLES R
HARPER, JOHN SCOTT
PIN: 1754607948
ZONING: RT
AGRICULTURE

N/F HARPER, CHARLES R
HARPER, JOHN SCOTT
PIN: 1754528603
ZONING: OSP
EXEMPT

N/F HARPER, CHARLES R
HARPER, JOHN SCOTT
PIN: 1754519021
ZONING: RT
AGRICULTURE

Table with 5 columns: NUMBER, OWNER, PIN, ZONING, CURRENT USE. Lists adjacent property owners and their details.

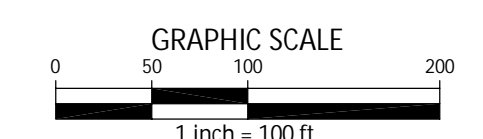
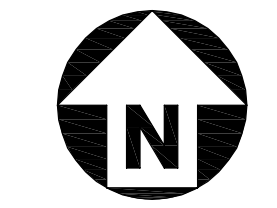


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LEGEND

- STREET LIGHT
LEFT TURN ARROW
RIGHT TURN ARROW



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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Durham, NC 27713

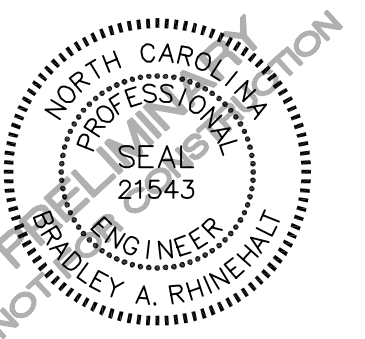
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THE COLLECTION
PUD - MASTER PLAN
614 KEITH STREET
KNIGHTDALE, NORTH CAROLINA 27545



REVISIONS

NO.	DATE	REVISION
1	11.06.2019	REVISED PER TOWN COMMENTS

PLAN INFORMATION

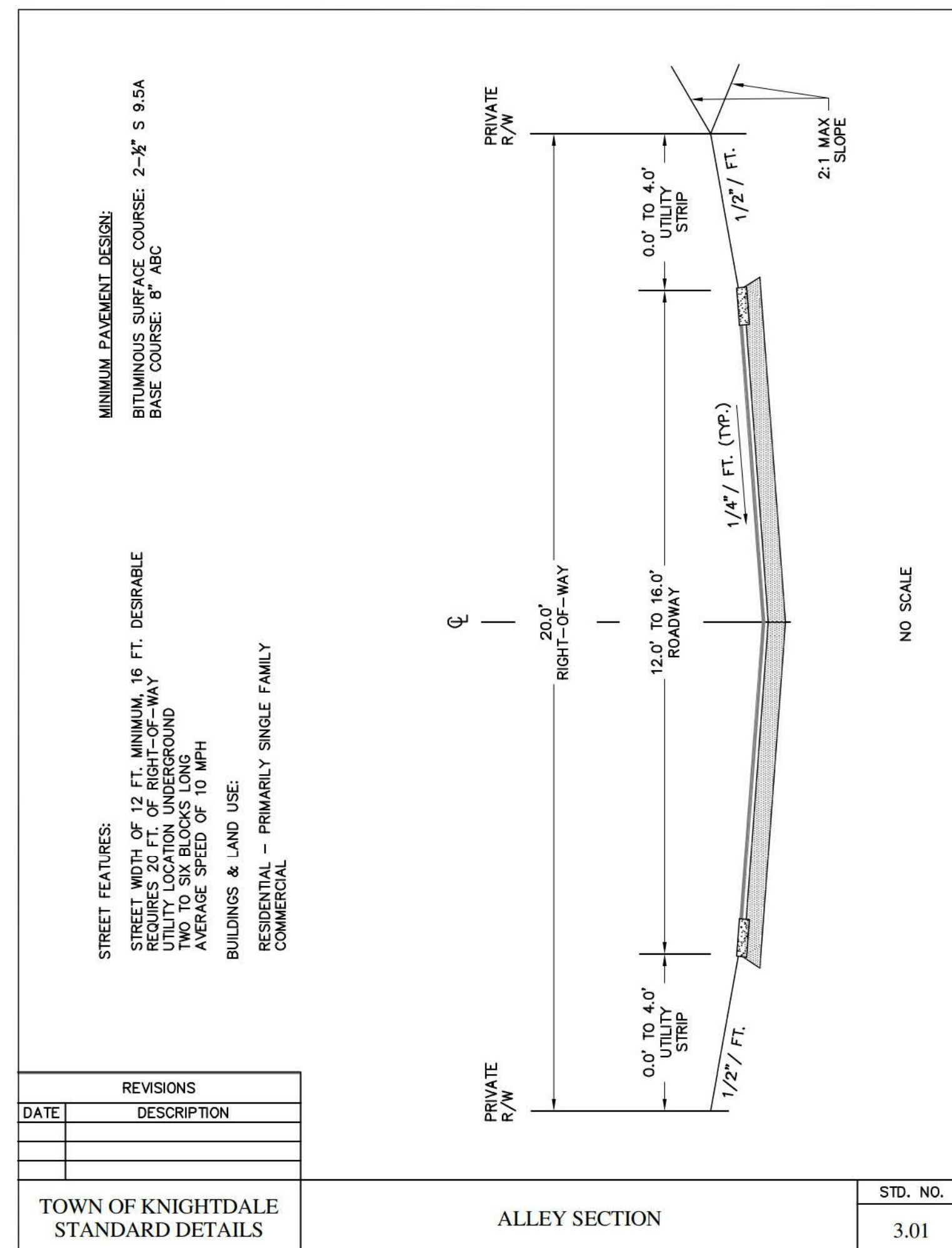
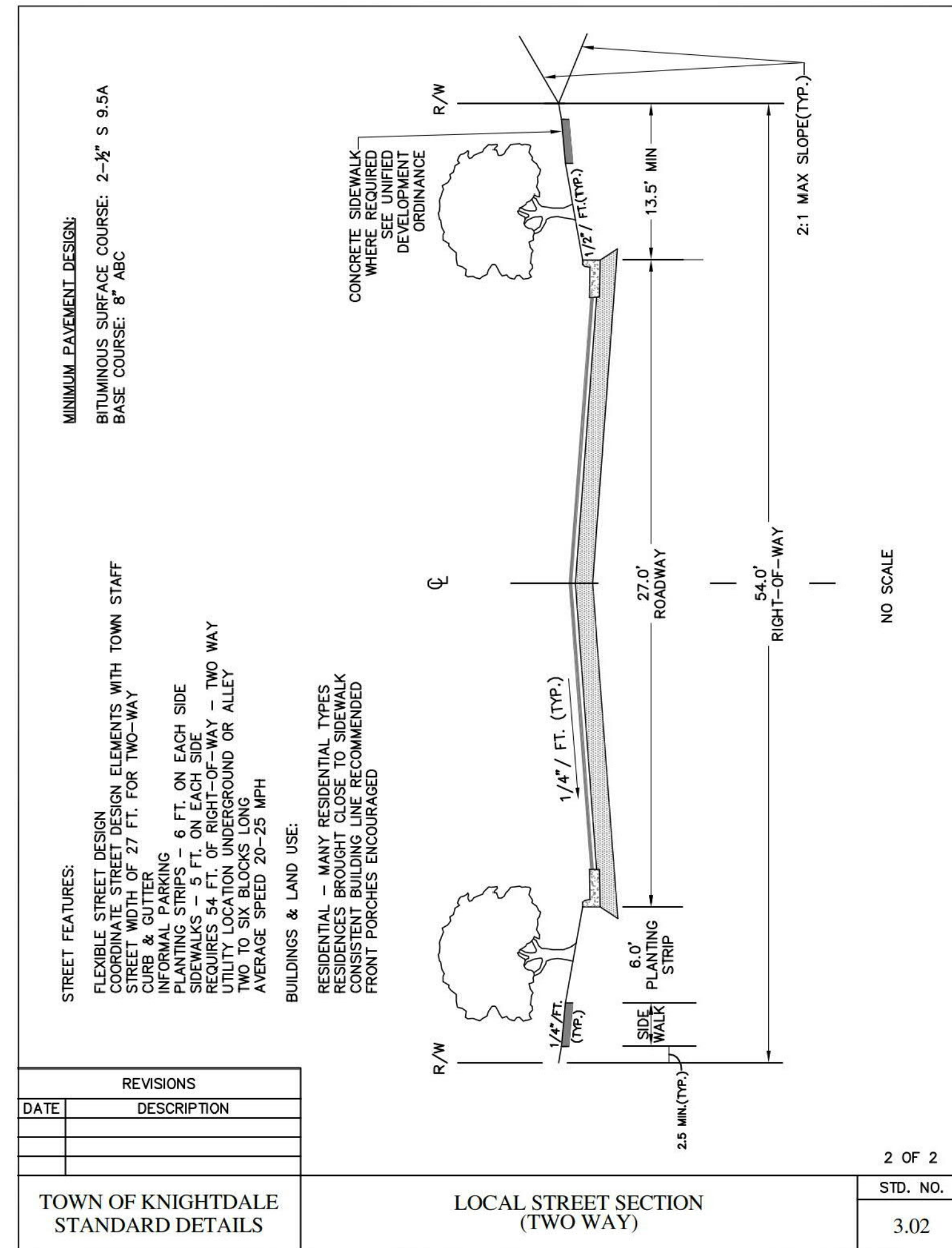
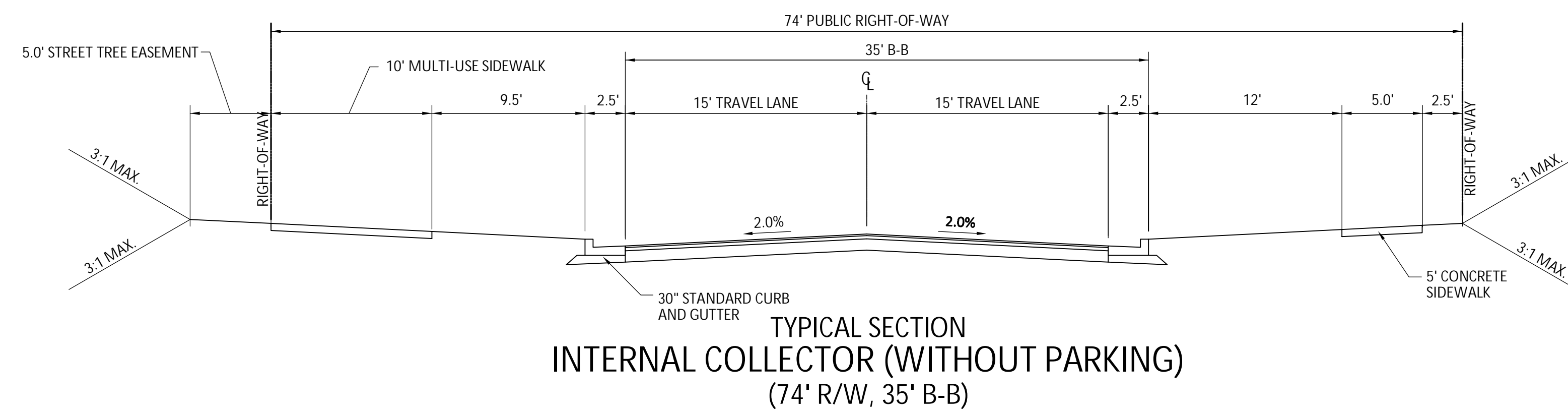
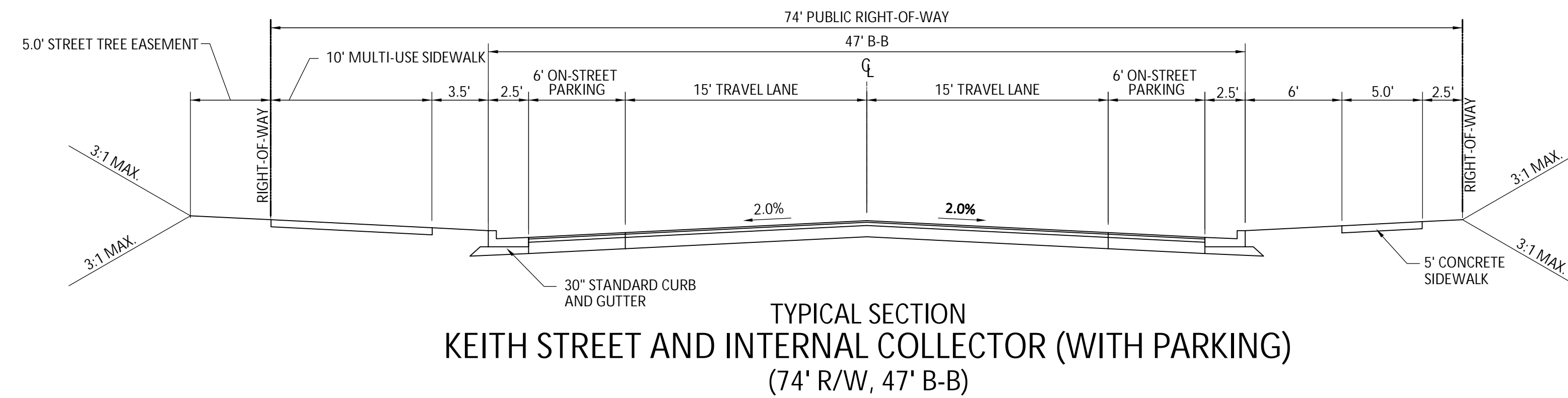
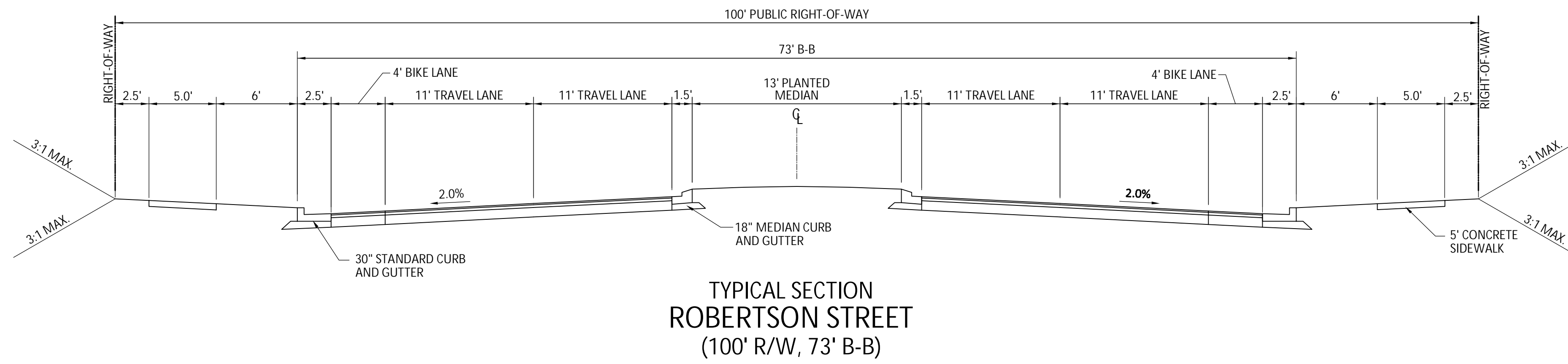
PROJECT NO. MFD-19000
FILENAME MFD19000-D1
CHECKED BY DLP
DRAWN BY SMB
SCALE 1"=60'
DATE 10.14.2019

SHEET

TYPICAL SECTIONS

C8.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

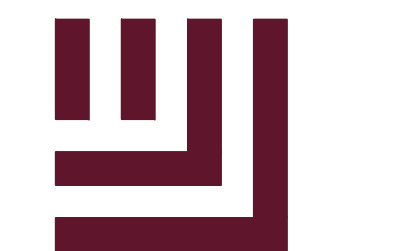


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS LOCAL STREET SECTION (TWO WAY) 2 OF 2 STD. NO. 3.02

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS ALLEY SECTION NO SCALE STD. NO. 3.01



McADAMS

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THE COLLECTION
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KNIGHTDALE, NORTH CAROLINA 27545

PLANT SCHEDULE

TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	REMARKS
	ABU	9	Trident Maple	Acer buergerianum 'Streetwise'™	2" min	8' min	
	LFF	28	Townhouse Crape Myrtle	Lagerstroemia lauriei 'Townhouse'	2" min	8' min	
	PSK	33	Kanzan Japanese Flowering Cherry	Prunus serrulata 'Kanzan'	2" min	8' min	
	QUL	27	Sawtooth Oak	Quercus acutissima	2" min	8' min	
	UAP	23	Bosque Elm	Ulmus parvifolia 'Bosque'	2" min	8' min	
	ZSV	22	Sawleaf Zelkova	Zelkova serrata 'Village Green'	2" min	8' min	

NOTES:

- STREET TREES SHALL BE PLACED AT LEAST 10 FEET FROM LIGHT POLES AND 12 FEET FROM ELECTRICAL TRANSFORMERS IN ORDER TO ALLOW THESE UTILITIES TO BE SAFELY SERVICED. UNDERSTORY TREES MAY BE PLACED WITHIN FIVE (5) FEET OF SUCH DEVICES.
- CONTRACTOR SHALL WARRANT ALL NEW PLANT MATERIAL FOR ONE (1) YEAR FROM TIME OF INSTALLATION.
- EXISTING VEGETATION WILL BE USED TO SATISFY BUFFER PLANTING REQUIREMENTS. ADDITIONAL PLANT MATERIAL MAY BE REQUIRED WITHIN THE BUFFER YARD IF SUFFICIENT EXISTING VEGETATION DOES NOT MEET OPACITY STANDARDS.
- AT THE TIME OF CONSTRUCTION DOCUMENTATION AN ENVIRONMENTAL SURVEY IN CONFORMANCE WITH CHAPTER 16.2.B OF THE TOWN OF KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE SHALL BE PERFORMED.

LANDSCAPE CALCULATIONS:

STREET TREES

ROBERTSON ST:
STREET TREES REQUIRED: 1,060 LF
27 TREES
STREET TREES PROVIDED: 27 TREES

KEITH ST:
STREET TREES REQUIRED: 330 LF
9 TREES
STREET TREES PROVIDED: 9 TREES

STREET A:
STREET TREES REQUIRED: 1,210 LF
31 TREES
STREET TREES PROVIDED: 33 TREES

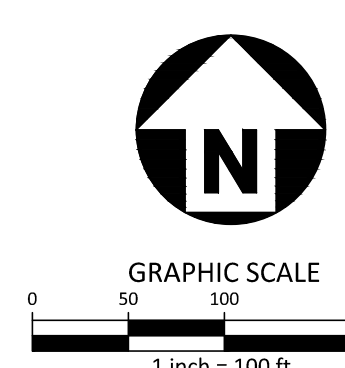
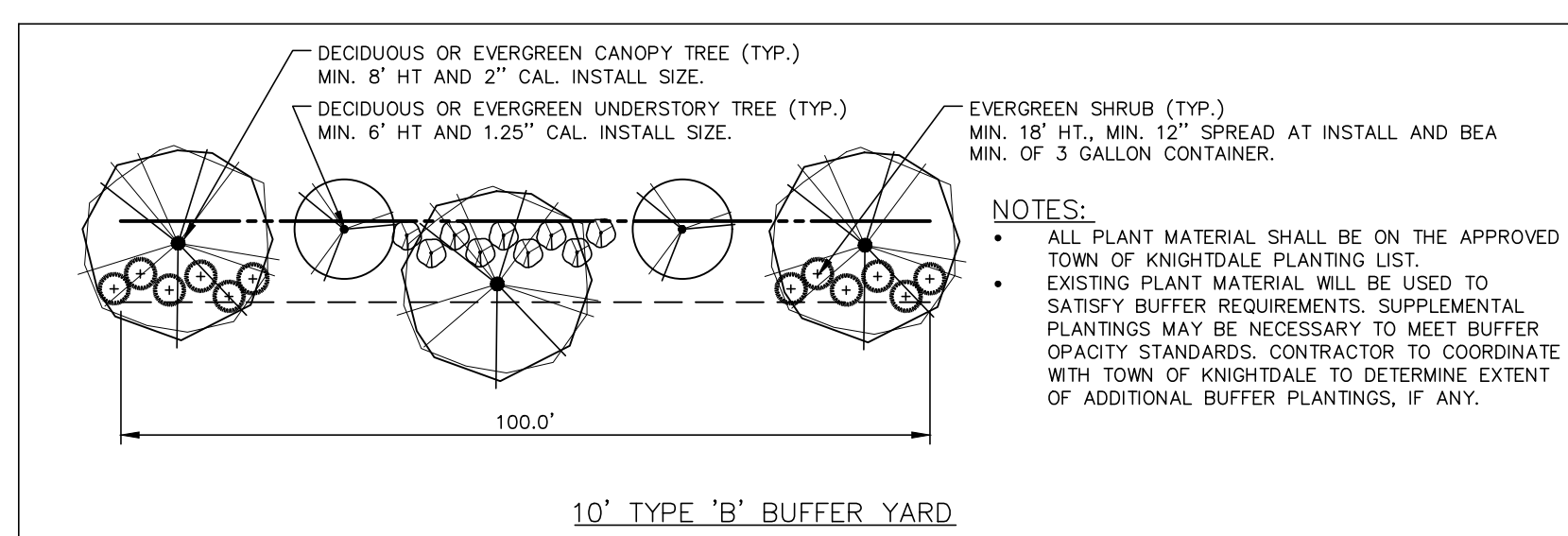
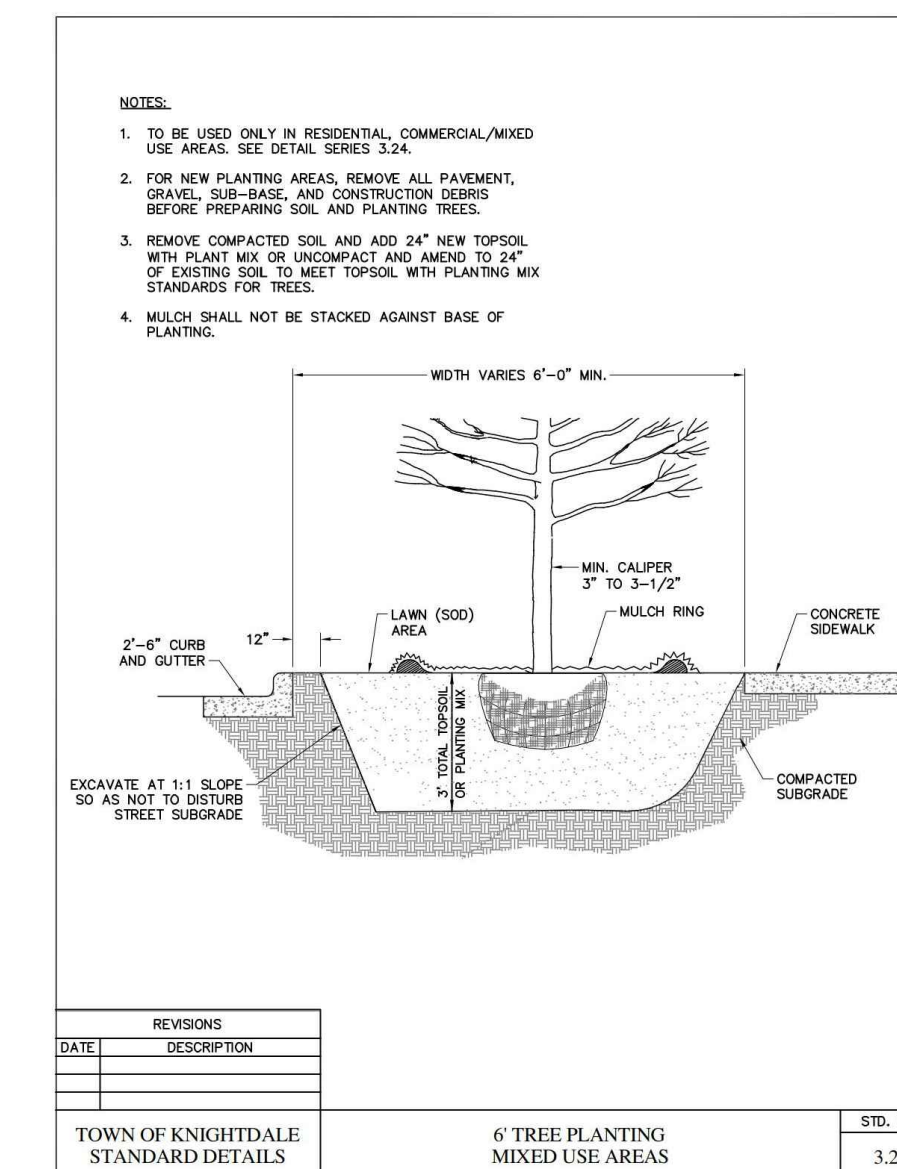
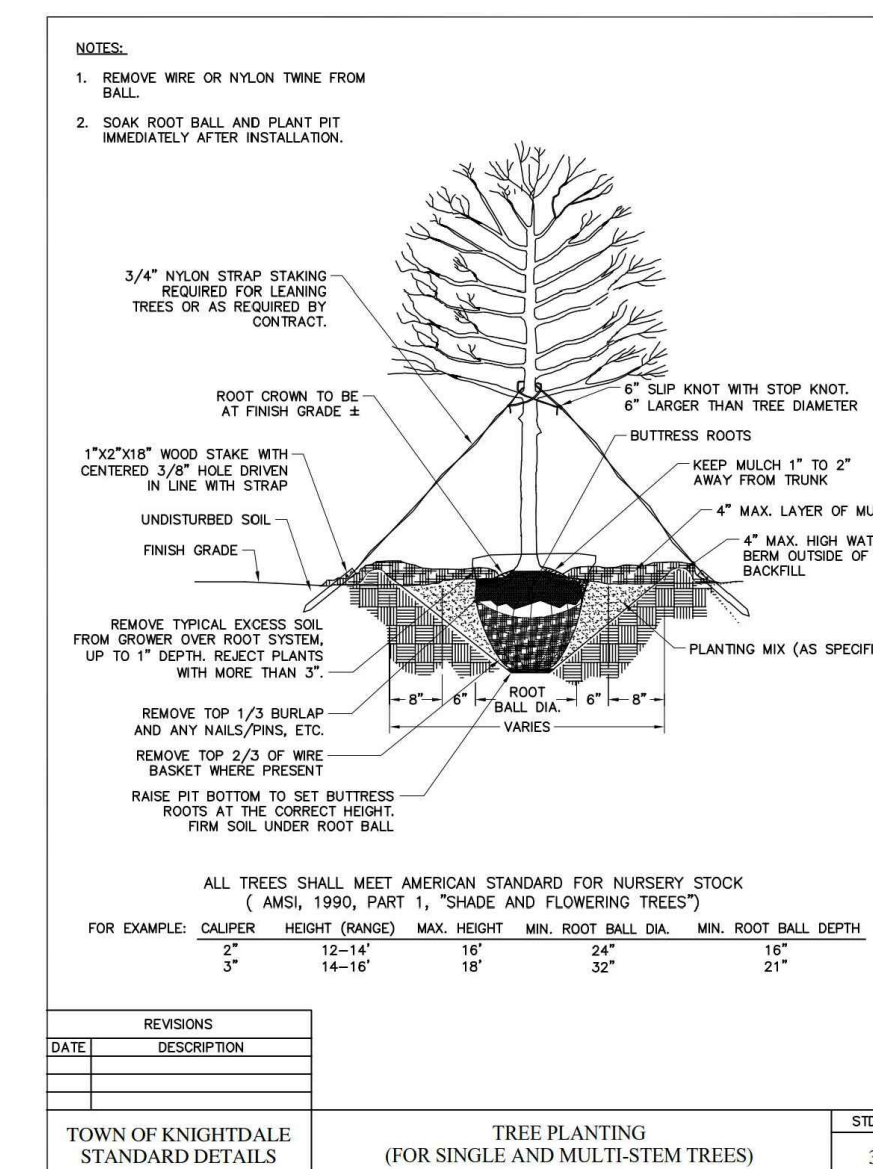
STREET B:
STREET TREES REQUIRED: 2,912 LF
73 TREES
STREET TREES PROVIDED: 73 TREES

PERIMETER BUFFER YARDS

10' TYPE 'B' BUFFER YARD:
CANOPY TREES REQUIRED: 1,630 LF
49 TREES (3/100 LF)
TO BE MET WITH EXISTING VEGETATION

UNDERSTORY TREES REQUIRED: 82 TREES (5/100 LF)
TO BE MET WITH EXISTING VEGETATION

SHRUBS REQUIRED: 326 SHRUBS (20/100 LF)
SHRUBS PROVIDED: TO BE MET WITH EXISTING VEGETATION



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

X:\Projects\MFD19000\MFD19000-04-Production\Engineering\Master Plan\Current Drawings\MFD19000-L5.dwg, 11/25/2019 4:25:07 PM, Vanapran, Michael

REVISIONS

NO.	DATE	REVISED PER TOWN COMMENTS
1	11.06.2019	

PLAN INFORMATION

PROJECT NO. MFD-19000
FILENAME MFD19000-L51
CHECKED BY
DRAWN BY
SCALE 1" = 100'
DATE 10.14.2019

LANDSCAPE PLAN

L5.00