



Administrative Approval Action

Case File / Name: ASR-0010-2024
Lake Haven Affordable Housing Development - ASR

City of Raleigh
Development Services Department
One Exchange Plaza
Raleigh, NC 27602
(919) 996-2492
currentplanning@raleighnc.gov
www.raleighnc.gov

LOCATION:

Located at 3700 Lake Woodard Drive, this vacant 3.48 acre parcel is located north of New Bern Avenue, east of Trawick Road, west of Terminal Drive and south of Bond Street. It is adjacent to Tower Shopping Center and is zoned CX-7 and Transit Overlay District (-TOD). It is also located in a Frequent Transit Area.

REQUEST:

The plan proposes a senior affordable housing project with associated infrastructure and site improvements. Fifty-six (56) apartment units will be located in a 64,639 square foot 3-story building accessible from Lake Woodard Drive and Trawick Road via two existing access easements. Eighty-one (81) vehicular parking spaces are proposed along with 16 bicycle parking spaces (4 short-term and 12 long-term). The project is utilizing the base standards for mixed-use district and not the frequent transit development option.

DESIGN ADJUSTMENT(S)/ ALTERNATES, ETC:

FINDINGS:

City Administration finds that this request, with the below conditions of approval being met, conforms to the Unified Development Ordinance. This approval is based on a preliminary plan dated June 6, 2024 by EVERGREEN CONSTRUCTION - TIM MORGAN.

CONDITIONS OF APPROVAL and NEXT STEPS:

This document must be applied to the second sheet of all future submittals except for final plats. This is a preliminary plan and as such no permits have been issued with this approval. To obtain permits and/or completion of the project, the following steps are required:

SITE PERMITTING REVIEW - For land disturbance of 12,000 square feet or greater, public or private infrastructure, shared stormwater devices, etc. Site Permitting Review may be submitted upon receipt of this signed approval document.

The following items are required prior to approval of Site Permitting Review plans:

General

1. Prior to Site Permit Review (SPR) approval, permits for the retaining walls shall be issued. Walls less than 5 feet in height will be issued zoning permits and walls greater than 5 feet in height will be issued building permits.
2. Prior to approval, plan shall show compliance with Section 7.4, Lighting. Specifically, on Sheet C5.1, you need to identify all applicable components of the proposed fixtures not selected on the cut sheets, especially for fixtures Type A and Type B. These include mounting height, pole, wattage, etc. and even color.
3. Prior to approval, plan shall show compliance with UDO Section 7.4, Lighting. Specifically, per Section 7.4.4, the maximum light level of any fixture cannot exceed 2.0 footcandles measured at the right-of-way line of a street. The light array should show the light levels to the property lines, and along Lake Woodard, to the right-of-way line to show compliance with this section.

Stormwater



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4. A surety equal to of the cost of clearing, grubbing and reseeding a site, shall be paid to the City (UDO 9.4.4).
5. A nitrogen offset payment must be made to a qualifying mitigation bank (UDO 9.2.2.B).
6. A stormwater control plan with a stormwater operations and maintenance manual and budget shall be approved (UDO 9.2).

LEGAL DOCUMENTS - Email to legaldocumentreview@raleighnc.gov. Legal documents must be approved, executed, and recorded prior to or in conjunction with the recorded plat on which the associated easements are shown. Copies of recorded documents must be returned to the City within one business day of recording to avoid withholding of further permit issuance.

<input checked="" type="checkbox"/>	Slope Easement Deed of Easement Required
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<input checked="" type="checkbox"/>	Utility Placement Deed of Easement Required
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RECORDED MAP(S) - Submit plat to record new property lines, easements, tree conservation areas, etc.). Plats may be submitted for review when the Site Permitting Review plans, if required, have been deemed ready for mylar signature.

The following items must be approved prior to recording the plat:

Engineering

1. A cross access easement shall be approved by the Development Services Department for recording in the Wake County Registry, and a copy of the recorded offer of cross access easement shall be returned to the Development Services Department within one day of plat recordation. If a recorded copy of the document is not provided within this time, further recordings and building permit issuance will be withheld.
2. A 5' utility placement easement deed of easement, in addition to a plat showing the location of the easement, shall be submitted to the Planning and Development Services Department for review, and if acceptable, approved for recordation. Approved plats must be recorded at the Wake County Register of Deeds Office on or before the 14th day following approval by the City. The 14-day expiration date shall be clearly indicated on the plat. By the end of the next business day following recordation of the plat, all required legal instruments (including deeds of easement) shall be recorded, and recorded copies of the plat and all legal instruments required by the City in association with development approval shall be provided to the City. (Reference: UDO 8.1.7.A; 10.2.5.F.4.d)
3. A public infrastructure surety shall be provided to City of Raleigh Transportation – Development Engineering Division (UDO 8.1.3) in the amount of 100% of the improvement cost for the NCDOT portion and 125% of the improvement cost for the City of Raleigh infrastructure.
4. A fee-in-lieu for 5' bike lane is paid to the City of Raleigh (UDO 8.1.10).



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Stormwater

6. All stormwater control measures and means of transporting stormwater runoff to and from any nitrogen and stormwater runoff control measures shall be shown on all plats for recording as private drainage easements (UDO 9.2).

BUILDING PERMITS - For buildings and structures shown on the approved plans. Commercial building permit plans must include the signed, approved Site Permitting Review plans attached, if applicable. Permit sets may be reviewed prior to the recordation of required plats, but cannot be approved.

The following items must be approved prior to the issuance of building permits:

Stormwater

1. A surety equal to 125% of the cost of the construction of a stormwater device shall be paid to the Engineering Services Department (UDO 9.2.2.D.1.d).
2. All stormwater control measures and means of transporting stormwater runoff to and from any nitrogen and stormwater runoff control measures shall be shown on all plats for recording as private drainage easements (UDO 9.2).

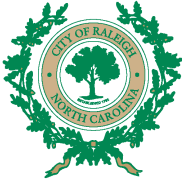
Urban Forestry

3. A public infrastructure surety for 7 street trees shall be provided to City of Raleigh Transportation – Development Engineering Division (UDO 8.1.3) in the amount of 125% of the improvement cost for the City of Raleigh infrastructure.
4. A tree impact permit must be obtained for the approved streetscape tree installations in the right-of-way. This development proposes 7 street trees along Lake Woodard Drive.

The following are required prior to issuance of building occupancy permit:

General

1. Final inspection of all right-of-way street trees by Urban Forestry Staff.



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Stormwater

2. As-built impervious survey is accepted by the Engineering Services Department (UDO 9.2).
3. As-built drawings and associated forms for all Stormwater devices are accepted by the Engineering Services Department (UDO 9.2.2.D.3).

EXPIRATION DATES: The expiration provisions of UDO Section 10.2.8 E, including the ability to request extensions in the expiration date, apply to this site plan. If significant construction has not taken place on a project after administrative site review approval, that approval may expire and be declared void, requiring re-approval before permits may be issued. To avoid allowing this plan approval to expire the following must take place by the following dates:

3-Year Expiration Date: August 6, 2027

Obtain a valid building permit for the total area of the project, or a phase of the project.

4-Year Completion Date:

Within four years after issuance of the first building permit for the site plan, the construction of the entire site plan must be completed unless an applicant has been granted vested rights. Failure to complete construction within this specified time frame shall automatically void the approved site plan for which no building permits have been issued.

I hereby certify this administrative decision.

Signed: _____  _____ Date: 08/06/2024
Development Services Dir/Designee

Staff Coordinator: Jessica Gladwin

Administrative Site Review Application

Planning and Development Customer Service Center - One Exchange Plaza, Suite 400 | Raleigh, NC 27601 | 919-966-2000

This form is required when submitting site plans as referenced in Unified Development Ordinance (UDO) Section 10.2.8. Please check the appropriate building types and include the plan checklist document when submitting.

Office Use Only: Case # _____ Planner (print): _____

Please review UDO Section 10.2.8 to determine the site plan tier. If assistance determining a Site Plan Tier is needed, a Site Plan Tier Verification request can be submitted online via the [Plan and Development Tools](#). (Note: There is a fee for this verification service.)

Site Plan Tier: Tier Two Site Plan Tier Three Site Plan

Building and Development Type (Check all that apply)		Site Transaction History
<input type="checkbox"/> Detached	<input type="checkbox"/> General	Subdivision case # _____
<input type="checkbox"/> Attached	<input type="checkbox"/> Mixed use	Scoping/sketch plan case # _____
<input type="checkbox"/> Townhouse	<input type="checkbox"/> Civic	Certificate of Appropriateness # _____
<input checked="" type="checkbox"/> Apartment	<input type="checkbox"/> Cottage Court	Board of Adjustment # _____
<input type="checkbox"/> Tiny house	<input type="checkbox"/> Frequent Transit Development Option	Zoning Case # _____
<input type="checkbox"/> Open lot		Design Alternates # _____

GENERAL INFORMATION

Development name: Lake Haven
 Inside City limits? Yes No
 Property address(es): 3700 Lake Woodard Drive
 Site P.I.N.(s): 1724-46-7740
 Please describe the scope of work. Include any additions, expansions, and uses (UDO 6.1.4).
 56-unit senior affordable housing project with associated infrastructure.

Current Property Owner(s): Lake Haven Associates LLC
 Company: Lake Haven Associates LLC Title: Land Owner
 Address: 10501 Chambers Way, Raleigh, NC 27615
 Phone #: 919-848-2041 Email: tim@eccmgt.com
Applicant Name (if different from owner. See "who can apply" in instructions):
 Relationship to owner: Lessee or contract purchaser Owner's authorized agent Easement holder
 Company: Lake Haven Associates LLC Address: _____
 Page 1 of 3 revision: 1.03.20 raleighnc.gov

Phone #: _____ Email: _____
NOTE: please attach purchase agreement or contract, lease or easement when submitting this form.
Developer Contact: Tim Morgan
 Company: EVERGREEN CONSTRUCTION COMPANY Title: Manager
 Address: 5711 SIX FORKS RD, SUITE 300, RALEIGH, NC 27609
 Phone #: 919-848-2041 Email: tim@eccmgt.com
Applicant Name: Lake Haven Associates LLC
 Company: Lake Haven Associates LLC Address: 10501 Chambers Way, Raleigh, NC 27615
 Phone #: 919-848-2041 Email: tim@eccmgt.com

DEVELOPMENT TYPE - SITE DATA TABLE
 (Applicable to all developments)

SITE DATA	BUILDING DATA
Zoning district(s) (please provide the average of each): CX-3	Existing gross floor area (not to be demolished): 0
Gross site acreage: 3.46 Acres	Existing gross floor area to be demolished: 0
# of parking spaces proposed: 81	New gross floor area: 64,639 SF
Max # parking permitted (7.1.2.C) 105	Total # of gross (to remain and new): 0
Overlay District (if applicable): None	Proposed # of buildings: 1
Existing use (UDO 6.1.4): Vacant	Proposed # of stories for each: 3
Proposed use (UDO 6.1.4): Affordable Apartments	Proposed # of basement levels (UDO 1.5.7.A.6): 0

STORMWATER INFORMATION

Impervious Area on Parcel(s): Existing (sf) 0.42 Proposed total (sf) 2.05	Impervious Area for Compliance (includes ROW): Existing (sf) 0 Proposed total (sf) 1705
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RESIDENTIAL & OVERNIGHT LODGING DEVELOPMENTS

Total # of dwelling units: 56	Total # of hotel bedrooms: 0
# of bedroom units: 1br_28_ 2br_28_ 3br_	4br or more: _____
# of lots: 1	Is your project a cottage court? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	A frequent transit development? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Continue to Applicant Signature Block on Page Three.

Page 2 of 3 revision: 1.03.20 raleighnc.gov

APPLICANT SIGNATURE BLOCK

Pursuant to state law (N.C. Gen. Stat. § 160D-403(b)), applications for development approvals may be made by the landowner, a lessee or person holding an option to contract, a purchase or lease agent, or an authorized agent of the landowner. An easement holder may also apply for development approval for such development as is authorized by the easement.

By submitting this application, the undersigned applicant acknowledges that only one of the property owner or one of the persons authorized by state law (N.C. Gen. Stat. § 160D-403(b)) to make such application, as specified in the application. The undersigned also acknowledges that the undersigned understands that the undersigned is the owner and the undersigned understands that developments approvals are subject to revocation for false statements or misrepresentations made in obtaining the development approval, pursuant to N.C. Gen. Stat. § 160D-403(b).

The undersigned declares that the property owner(s) is aware of this application and that the proposed project described in this application will be maintained in full respect to the plans and specifications submitted herewith, and in accordance with the provisions and regulations of the City of Raleigh Unified Development Ordinance.

The undersigned hereby acknowledges that, pursuant to state law (N.C.G.S. 163-750(b)), if this permit application is based on the request of the applicant for a period of all consecutive months or more, or if the applicant fails to respond to comments or possible additional information requested by the City for a period of six consecutive months or more, then the application will be considered a new application and the applicant is required to proceed and the development regulations in effect at the time permit processing is resumed shall apply to the new application.

Signature: *[Signature]* Date: *5/15/24*
 Printed Name: *Tim Morgan*

ASR SUBMITTAL LAKE HAVEN

AFFORDABLE HOUSING DEVELOPMENT TIER 3 SITE PLAN 3700 LAKE WOODARD DR RALEIGH, NC 27604 WAKE COUNTY

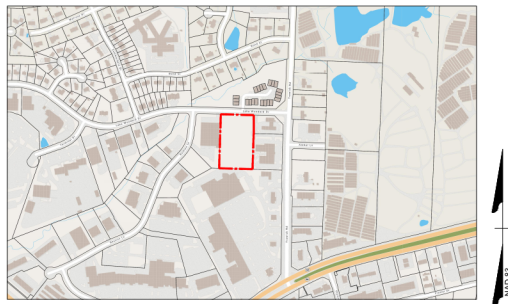
ARCHITECT:
TIGHTLINES DESIGN
19 W HARGETT STREET, SUITE 501
RALEIGH, NC 27601
GABI PURDUE
(919) 834-3600
GABI@TIGHTLINESDESIGNS.COM

CIVIL ENGINEER:
TIMMONS GROUP
4100 TRINITY ROAD, SUITE 102
RALEIGH, NC 27607
PATRICK BARBEAU, PE
(919) 866-4512
PATRICK.BARBEAU@TIMMONS.COM

DEVELOPER:
EVERGREEN CONSTRUCTION COMPANY
5711 SIX FORKS RD; SUITE 300
RALEIGH, NC 27609
TIMOTHY G. MORGAN
(919) 848-2041
TIM@ECCMGT.COM

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	EXISTING CONDITIONS AND DEMOLITION PLAN
C2.0	SITE PLAN
C2.1	PAVEMENT PLAN
C2.2	FIRE APPARATUS ROUTING
C2.3	WASTE SERVICE ROUTING
C2.4	EASEMENT PLAN
C3.0	GRAZING AND DRAINAGE PLAN
C3.1	SOIL DETAILS
C3.2	SOIL DETAILS
C3.3	SOIL DETAILS
C3.4	SPOT GRADING PLAN
C5.0	UTILITY PLAN
C5.1	LIGHTING PLAN
C5.2	LIGHTING PLAN
C6.0	LANDSCAPE PLAN
C6.1	LANDSCAPE DETAIL
C7.0	NOTES AND DETAILS
C7.1	NOTES AND DETAILS
C7.2	NOTES AND DETAILS
C7.3	NOTES AND DETAILS
C7.4	NOTES AND DETAILS
C7.5	NOTES AND DETAILS
C7.6	NOTES AND DETAILS
C7.7	NOTES AND DETAILS
C7.8	NOTES AND DETAILS
C7.9	NOTES AND DETAILS
A1.0	ARCHITECTURAL ELEVATIONS



VICINITY MAP
NTS

GENERAL NOTE
ALL CONTRACTORS SHALL VISIT THE PROJECT TO FAMILIARIZE THEMSELVES WITH SITE CONDITIONS PRIOR TO BIDDING OR CONSTRUCTION. BY SUBMITTING A BID, THE CONTRACTOR AND HIS SUBCONTRACTORS ARE CONFIRMING THAT THEY HAVE VISITED THE SITE AND HAVE INCLUDED IN THEIR BID ANY ADDITIONAL ITEMS OF CONSTRUCTION THAT MAY BE REQUIRED DUE TO EXISTING SITE CONDITIONS.

- EXEMPTIONS**
BLOCK PERIMETER 8.3.2.A.2.b
- REQUIRED IN CX-3 ZONING ON SITES OVER 5 AC
 - PROPOSED SITE AREA < 5 AC
- TREE CONSERVATION AREAS UDO 9.1.3.A.3
- NOT PROVIDING TCA BECAUSE SITE IS LOCATED IN A TRANSIT OVERLAY DISTRICT AND IS LESS THAN 5 ACRES

- PER SKETCH PLAN MEETING NOTES 10/03/2023**
- WOODARD DRIVE IS AN AVENUE 2-LANE DIVIDED ROAD WITH A 66 FOOT REQUIRED ROW.
 - AT SKETCH PLAN IT WAS SUGGESTED THAT A FEE-IN-LIEU FOR THE BIKE LANE WOULD BE AN OPTION, SINCE THERE ARE NO BIKE LANES IN THIS AREA OF RALEIGH.
 - THE HALF ROW DESIGN WOULD BE A 6' PLANTED SECTION AND A 6' SIDEWALK WITH NO BIKE LANE.
 - PROVIDE A 20' SLOPE EASEMENT FOR A FUTURE BIKE LANE

SITE DATA TABLE

PROJECT NAME:	LAKE HAVEN
PROPERTY OWNER:	LAKE HAVEN ASSOCIATES LLC 10501 CHARMFORD WAY RALEIGH, NC 27615-4569
APPLICANT:	LAKE HAVEN ASSOCIATES LLC 10501 CHARMFORD WAY RALEIGH, NC 27615-4569
PIN(S):	1724-46-7740
DEED REFERENCE:	DB 19008 PG 2248
PROPERTY ADDRESS:	3700 LAKE WOODARD DR RALEIGH, NC 27604
TOWNSHIP:	ST. MATTHEWS
EXISTING ZONING:	COMMERCIAL MIXED USE (CX-3)
PROPOSED ZONING:	COMMERCIAL MIXED USE (CX-3)
EXISTING USE:	VACANT
PROPOSED USE:	MULTI-UNIT LIVING (SENIORS)
EXISTING SITE AREA:	151,312 SF (3.47 AC)
RIGHT-OF-WAY DEDICATION:	789 SF (0.018 AC)
PROPOSED SITE AREA:	150,523 SF (3.46 AC)
EXISTING IMPERVIOUS:	6,857 SF (0.42 AC)
PROPOSED IMPERVIOUS:	63,499 SF (1.52 AC) INCLUDES 4,356 SF (0.10 AC) OF FUTURE IMPERVIOUS AREA
TREE CONSERVATION AREA:	
MINIMUM AREA:	CITY OF RALEIGH: 10% OF NET SITE AREA TOTAL: 10% X 3.48 AC = 0.35 AC
OUTDOOR AMENITY AREA:	REQUIRED: 0.35 ACRES = 10% PROVIDED: 0.35 ACRES = 10%
SETBACKS AND BUFFERS SUMMARY:	
FRONT STREET:	BUILDING = 5 FT PAVE = 10 FT
SIDE STREET:	BUILDING = 5 FT PARKING = 10 FT
REAR:	BUILDING = 6 FT
PROPOSED BUILDING INFORMATION:	
TOTAL GROSS S.F.:	64,639 SF
PROPOSED BUILDING HEIGHT:	49'-10" (3 STORY)
TOTAL UNITS:	56 LIVING UNITS (28 1-BEDROOM & 28 2-BEDROOM)
PARKING SUMMARY:	
MINIMUM REQUIRED PARKING SPACES:	CITY OF RALEIGH: N/A EVERGREEN: 1 SPACE PER UNIT X 56 UNITS = 56 SPACES
MAXIMUM ALLOWED PARKING SPACES:	CITY OF RALEIGH: 1.5 SPACES PER UNIT X 28 UNITS = 42 SPACES 2.25 SPACES PER UNIT X 28 UNITS = 63 SPACES TOTAL: 42 SPACES = 63 SPACES = 105 SPACES
PROVIDED PARKING SPACES:	76 SPACES
MINIMUM REQUIRED HANDICAP SPACES:	EVERGREEN: TYPE A: 1 SPACE PER TYPE A UNIT X 6 TYPE A UNITS = 6 SPACES TYPE B: 1 SPACE PER 2% OF TOTAL TYPE B UNITS X 50 TYPE B UNITS = 1 SPACE TOTAL: 6 SPACES + 1 SPACE = 7 SPACES
PROVIDED HANDICAP SPACES:	8 SPACES (INCLUDING 4 VAN ACCESSIBLE SPACES)
TOTAL PROVIDED PARKING:	81 SPACES (INCLUDING 8 ADA SPACES)
BICYCLE PARKING REQUIRED:	SHORT-TERM: 1 SPACE PER 20 UNITS (4 MIN) X 56 UNITS = 3 SPACES (4 MIN) LONG-TERM: 1 SPACE PER 7 BEDROOMS * 84 BEDROOMS = 12 SPACES TOTAL: 4 SPACES + 12 SPACES = 16 SPACES
BICYCLE PARKING PROVIDED:	4 SPACES LONG-TERM: 12 SPACES TOTAL: 4 SPACES + 12 SPACES = 16 SPACES

PRELIMINARY NOT FOR CONSTRUCTION

06/05/17

THIS DRAWING PREPARED AT THE RALEIGH OFFICE
5401 Six Forks Road, Raleigh, NC 27607
TEL: 919.866.4921 FAX: 919.832.4124 www.timmons.com

REVISION DESCRIPTION
DATE
1. ASR SUBMITTAL
2. ASR SUBMITTAL

YOUR VISION ACHIEVED THROUGH OURS.

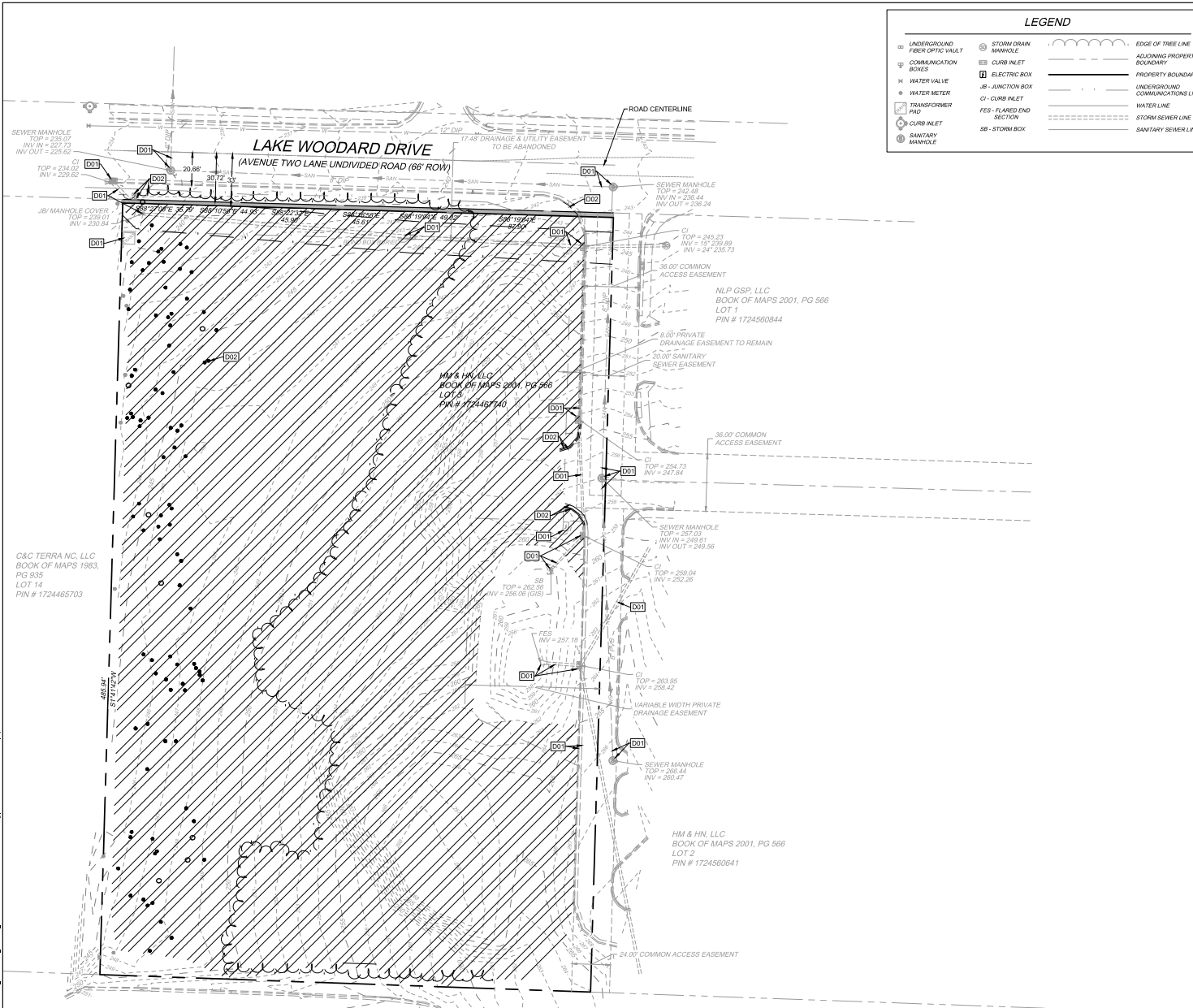
DATE: 02/02/2024
DRAWN BY: 332
DESIGNED BY: P. BARBEAU
CHECKED BY: R. BAKER
SCALE: AS SHOWN

TIMMONS GROUP
LAKE HAVEN - WAKE COUNTY, NORTH CAROLINA
NORTH CAROLINA LICENSE NO. C-1652
COVER SHEET

JOB NO. 42601.01
SHEET NO. C.0

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**KNOW WHAT'S BELOW.
CALL 811 BEFORE YOU DIG.**



LEGEND

○ UNDERGROUND FIBER OPTIC VAULT	○ STORM DRAIN MANHOLE	⋯ EDGE OF TREE LINE
□ COMMUNICATION BOXES	⊞ CURB INLET	⋯ ADJOINING PROPERTY BOUNDARY
⊞ WATER VALVE	⊞ ELECTRIC BOX	⋯ PROPERTY BOUNDARY
⊞ WATER METER	⊞ JUNCTION BOX	⋯ UNDERGROUND COMMUNICATIONS LINE
⊞ TRANSFORMER PAD	⊞ CURB INLET	⋯ WATER LINE
⊞ CURB INLET	⊞ FLARED END SECTION	⋯ STORM SEWER LINE
⊞ SANITARY MANHOLE	⊞ STORM BOX	⋯ SANITARY SEWER LINE

DEMOLITION KEYNOTES

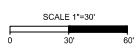
NUMBER	DESCRIPTION
D01	EXISTING FEATURE TO REMAIN.
D02	REMOVE EXISTING FEATURE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTOR TO COORDINATE AS NEEDED WITH LOCAL MUNICIPALITY, INSPECTORS, AND/OR UTILITY COMPANIES.
	FREE DEMOLITION AREA

- SURVEY NOTES**
- ON SITE BOUNDARY, TOPOGRAPHY AND PLANIMETRIC INFORMATION IS TAKEN FROM A SURVEY BY ATANSON LAND SURVEYOR, PLLC DATED 10/31/2023. OFFSET TOPOGRAPHY AND PLANIMETRIC INFORMATION FROM OTHER SOURCES AND HAS NOT BEEN FIELD VERIFIED BY TIMMONS GROUP.
 - ALL DISTANCES SHOWN ON SURVEY ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.
 - THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY THIS FIRM.
 - BASE OF BEARING SHOWN HEREON IS NC GRID NAD 83 (2011).
 - VERTICAL DATUM SHOWN HEREON IS NAVD83.
 - NOT LOCATED IN FLOOD HAZARD AREA PER FEMA MAP #3720172400K (REVISED 10-19-2022).
 - RECORDED PROPERTY DATA, BOOK OF MAPS 2001, PG 566
 - EXISTING IMPERVIOUS AREA = 0.16 ACRES
 - THE UTILITIES ON THESE PLANS ARE APPROXIMATE ONLY, AND ARE NOT ACCURATE FOR CONSTRUCTION PURPOSES. FOR FIELD MARKS CALL 1-800-433-4949.

- DEMOLITION NOTES**
- ALL UTILITIES OR STRUCTURES NOT INDICATED FOR REMOVAL OR MODIFICATION ARE TO REMAIN AND BE PROTECTED FROM DAMAGE. CONTRACTOR TO OBTAIN, REFERENCE, AND UTILIZE ALL AVAILABLE ENVIRONMENTAL REPORTS (PHASE 1 ESA, ASBESTOS, ETC.) FROM DEVELOPER.
 - ALL WASTE MATERIAL GENERATED FROM CLEARING AND DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS.
 - REMOVE/DEMOLISH/ABANDON AFTER EROSION CONTROL MEASURES ARE IN PLACE AN APPROVAL OF THE INSPECTOR. REFER TO EROSION CONTROL PLAN.
 - REMOVE TOPSOIL AND STOCKPILE APPROPRIATELY ON-SITE. ON-SITE TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN CONSTRUCTION LIMITS.
 - DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS EXCEPT WHEN PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE ACCEPTABLE TEMPORARY UTILITY SERVICES: (1) NOTIFY OWNER NOT LESS THAN ONE WEEK IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS. (2) DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT RECEIVING OWNER WRITTEN PERMISSION. (3) COORDINATE ALL UTILITY RELOCATION WITH APPROPRIATE UTILITY PROVIDER.
 - ALL PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAW CUT TO PROVIDE A STRAIGHT AND UNIFORM JOINT WITH NEW CONSTRUCTION. ANY EXISTING PAVEMENT, SIDEWALK, CURB & GUTTER, ETC. THAT MUST BE REMOVED TO ALLOW NEW CONSTRUCTION SHALL BE REMOVED TO ALLOW NEW CONSTRUCTION SHALL BE REMOVED AND REPAIRED PER THE SPECIFICATIONS AND DETAILS OR TO MATCH EXISTING CONDITIONS (WHETHER OR NOT SHOWN ON THE DRAWINGS TO BE REMOVED). UTILITY INSTALLATIONS MAY UTILIZE OPEN CUT OF PAVEMENTS UNLESS INDICATED OTHERWISE. TRENCH IN EXISTING ASPHALT SHALL BE PATCHED PER PAVEMENT REPAIR DETAIL.
 - PROTECT ALL ADJACENT PROPERTIES. THE GENERAL PUBLIC AND ALL OF THE OWNER'S FACILITIES, SHOULD DAMAGE OCCUR, NOTIFY ARCHITECT IMMEDIATELY.
 - SUBSURFACE FEATURES ARE SHOWN IN APPROXIMATE LOCATION. CONTRACTOR IS RESPONSIBLE FOR SUBSURFACE UTILITY EXPLORATION TO DETERMINE UTILITY LOCATIONS AND DEPTHS.
 - CONTRACTOR SHALL USE NC ONE CALL (811) TO LOCATE ALL UNDERGROUND UTILITIES.
 - CONTRACTOR TO VERIFY LOCATIONS AND SIZES OF ALL EXISTING FEATURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. REPAIR AND REPLACE ANY DAMAGES TO EXISTING UTILITIES RESULTING FROM CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE FOR REMOVING OR ABANDONING ALL EXISTING UTILITIES AND STRUCTURES REQUIRED TO COMPLETE SITE CONSTRUCTION, EITHER ON-SITE OR IN PUBLIC ROW, IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
 - WATER AND SEWER ABANDONMENT SHALL BE DONE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS INCLUDING DISCONNECT FROM THE MAIN AND REMOVAL OF SERVICES FROM THE REEFER-FEEDWAY.
 - ANY EXISTING UNIDENTIFIED SEPTIC SYSTEMS AND WELLS FOUND ON SITE SHALL BE REMOVED OR ABANDONED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AT NO CHARGE TO THE OWNER.
 - VERIFY ALL ILLUSTRATED KNOWN UNDERGROUND ELEMENTS. EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. NOTIFY THE ARCHITECT IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE PROPOSED DESIGN.
 - CONTRACTOR SHALL COORDINATE ALL CONNECTIONS, RELOCATION AND DEMOLITION WORK WITH THE APPROPRIATE COMPANY OR JURISDICTION HAVING AUTHORITY AND SHALL OBTAIN ANY PERMITS AS REQUIRED.
 - ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND OSHA REGULATIONS.
 - EXISTING MANHOLES, VALVE BOXES, VAULTS, CLEANOUTS, UTILITY POLES ETC. TO REMAIN WITHIN THE GRADING LIMITS SHALL BE ADJUSTED AS NEEDED TO FUNCTION PROPERLY WITH THE PROPOSED FINISHED GRADES (WHETHER OR NOT INDICATED TO BE MODIFIED).
 - GENERAL CONTRACTOR TO COORDINATE ALL PEDESTRIAN ACCESS PATHS, LOCATIONS, LIGHTING ETC. WITH THE DEVELOPER.
 - CONTRACTOR SHALL NOTIFY APPROPRIATE DEPARTMENTS PRIOR TO BEGINNING ANY WORK WITHIN PUBLIC RIGHT-OF-WAY.

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ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH, NCDEQ, AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



TOWER IMPROVEMENTS, LLC
DEED BOOK 10643, PAGE 1749
PIN # 1724458973

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06/05/17

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5408 W. HIGHWAY 55, SUITE 200
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REVISION DESCRIPTION

NO.	DATE	DESCRIPTION
1	02/02/2024	AS PER SUBMITTAL
2		302 AS PER SUBMITTAL

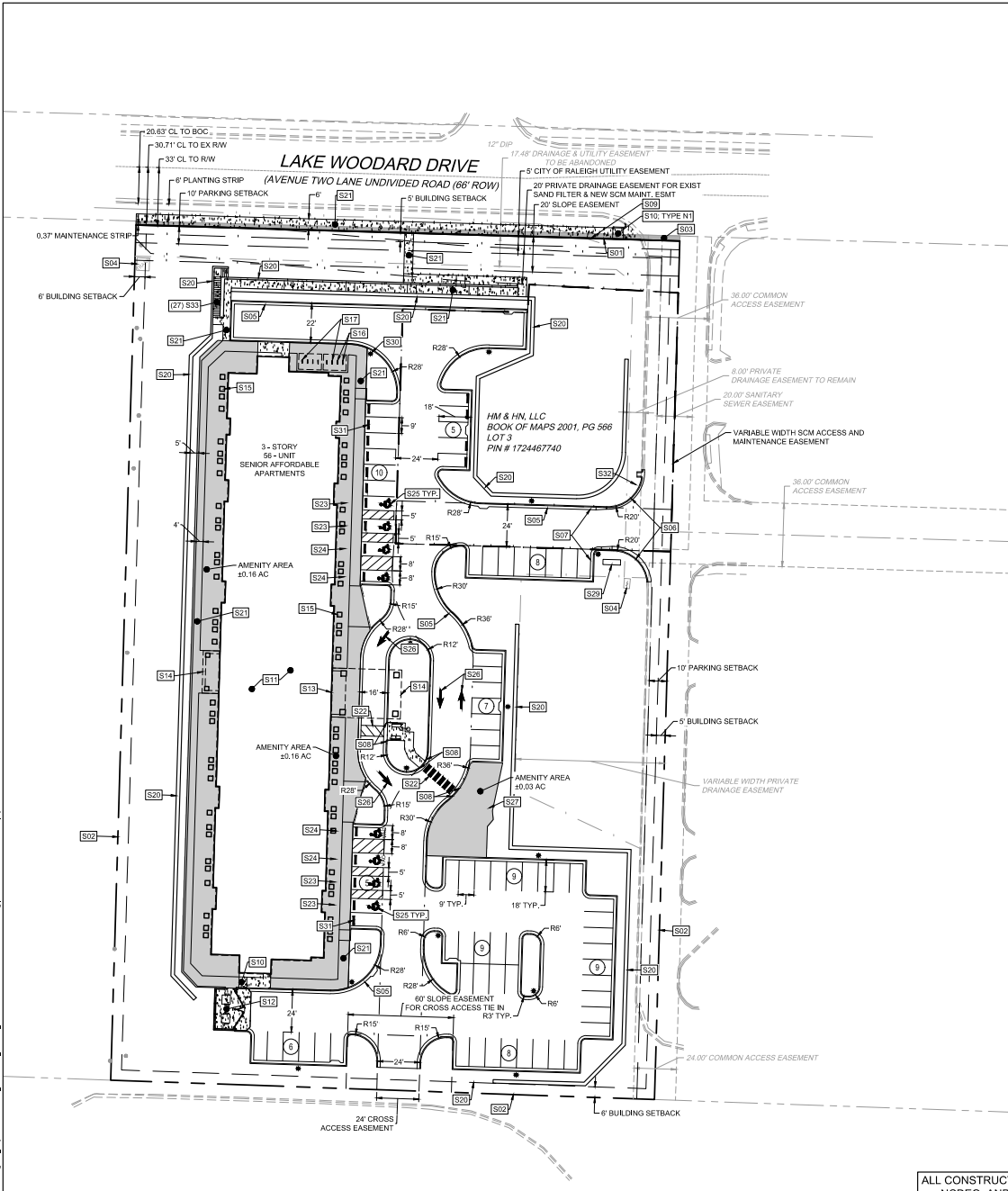
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DATE: 02/02/2024
DRAWN BY: 332
DESIGNED BY: P. BARBEAU
CHECKED BY: R. BAKER
SCALE: AS SHOWN

TIMMONS GROUP
LAKE HAVEN
RALEIGH - WAKE COUNTY - NORTH CAROLINA
EXISTING CONDITIONS AND DEMOLITION PLAN

JOB NO. 42601.01
SHEET NO. C1.0

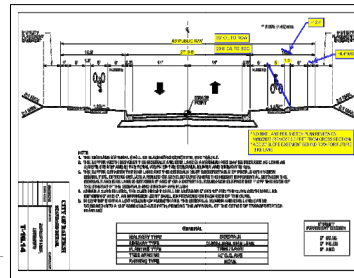
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SITE DATA TABLE	
PROJECT NAME:	LAKE HAVEN
PROPERTY OWNER:	LAKE HAVEN ASSOCIATES LLC 10501 CHARMFORD WAY RALEIGH, NC 27615-4569
APPLICANT:	LAKE HAVEN ASSOCIATES LLC 10501 CHARMFORD WAY RALEIGH, NC 27615-4569 17246740
PIN(S):	ST. MATTHEWS
DEED REFERENCE:	D8 19068 PG 2248
PROPERTY ADDRESS:	3700 LAKE WOODARD DR RALEIGH, NC 27604
TOWNSHIP:	ST. MATTHEWS
EXISTING ZONING:	COMMERCIAL MIXED USE (CX-3)
PROPOSED ZONING:	COMMERCIAL MIXED USE (CX-3)
EXISTING USE:	VACANT
PROPOSED USE:	MULTI-UNIT LIVING (SENIORS)
EXISTING SITE AREA:	151,312 SF (3.47 AC)
RIGHT-OF-WAY DEDICATION:	789 SF (0.018 AC)
PROPOSED SITE AREA:	150,523 SF (3.46 AC)
EXISTING IMPERVIOUS:	6,857 SF (0.42 AC)
PROPOSED IMPERVIOUS:	63,489 SF (1.52 AC) INCLUDES 4,356 SF (0.10 AC) OF UTILITY IMPERVIOUS AREA
TREE CONSERVATION AREA:	
MINIMUM AREA:	CITY OF RALEIGH: 10% OF NET SITE AREA TOTAL: 10% X 3.48 AC = 0.35 AC
PROPOSED AREA:	0.35 AC
OUTDOOR AMENITY AREA:	
REQUIRED:	0.35 ACRES = 10%
PROVIDED:	0.35 ACRES = 10%
SETBACKS AND BUFFERS SUMMARY:	
FRONT STREET:	BUILDING = 5 FT PARKING = 10 FT
SIDE STREET:	BUILDING = 5 FT PARKING = 10 FT
REAR:	BUILDING = 6 FT
PROPOSED BUILDING INFORMATION:	
TOTAL GROSS S.F.:	64,639 SF
PROPOSED BUILDING HEIGHT:	49'-10" (3 STORY)
TOTAL UNITS:	56 LIVING UNITS (28 1-BEDROOM & 28 2-BEDROOM)
PARKING SUMMARY:	
MINIMUM REQUIRED PARKING SPACES:	CITY OF RALEIGH: N/A EVERGREEN: 1 SPACE PER UNIT X 56 UNITS = 56 SPACES
MAXIMUM ALLOWED PARKING SPACES:	CITY OF RALEIGH: 9:1 BEDROOM: 1.5 SPACES PER UNIT X 28 UNITS = 42 SPACES 2:25 BEDROOMS: 2.25 SPACES PER UNIT X 28 UNITS = 63 SPACES TOTAL: 12 SPACES + 63 SPACES = 105 SPACES
PROVIDED PARKING SPACES:	76 SPACES EVERGREEN: TYPE A: 1 SPACE PER TYPE A UNIT X 6 TYPE A UNITS = 6 SPACES TYPE B: 1 SPACE PER 2% OF TOTAL TYPE B UNITS X 50 TYPE B UNITS = 1 SPACE TOTAL: 6 SPACES + 1 SPACE = 7 SPACES
MINIMUM REQUIRED HANDICAP SPACES:	5 SPACES (INCLUDING 4 VAN ACCESSIBLE SPACES)
PROVIDED HANDICAP SPACES:	81 SPACES (INCLUDING 8 ADA SPACES)
TOTAL PROVIDED PARKING:	81 SPACES (INCLUDING 8 ADA SPACES)
BICYCLE PARKING REQUIRED:	SHORT-TERM: 1 SPACE PER 20 UNITS (4 MIN) X 56 UNITS = 3 SPACES (4 MIN) LONG-TERM: 1 SPACE PER 7 BEDROOMS / 84 BEDROOMS = 12 SPACES TOTAL: 4 SPACES + 12 SPACES = 16 SPACES
BICYCLE PARKING PROVIDED:	SHORT-TERM: 4 SPACES LONG-TERM: 12 SPACES TOTAL: 4 SPACES + 12 SPACES = 16 SPACES

SITE LAYOUT KEYNOTES	
NUMBER	DESCRIPTION
S01	RIGHT-OF-WAY (TYP.)
S02	PROPERTY BOUNDARY (TYP.)
S03	RIGHT-OF-WAY DEDICATION (VARIABLE WIDTH)
S04	EXISTING TRANSFORMER
S05	24" CONCRETE CURB & GUTTER (REFER TO DETAIL)
S06	30" CONCRETE CURB & GUTTER (REFER TO NCDOT 846.01)
S07	TAPER 30" CURB TO 24" CURB
S08	FLUSH CURB
S09	FOR FUTURE BIKE LANE; TO BE FIELD-LEU
S10	SIDEWALK RAMP @ 8.33% MAXIMUM (TYPICAL - PER ADA AND LOCAL CODES)
S11	BUILDING (REFER TO ARCHITECTURAL PLANS)
S12	DUMPSTER ENCLOSURE (REFER TO DETAIL AND ARCH PLANS)
S13	BUILDING PRIMARY ENTRANCE
S14	OVERHEAD CANOPY (DESIGNED BY OTHERS)
S15	HVAC CONCRETE PAD (TYP.)
S16	SHORT-TERM BICYCLE PARKING (100' MAXIMUM FROM BUILDING ENTRANCE PER U.O.C. SECTION 7.1.8.9.2 BICYCLE RACKS TO BE SPACED 3' O.C.)
S17	COVERED LONG-TERM BICYCLE PARKING (300' MAXIMUM FROM BUILDING ENTRANCE PER U.O.C. SECTION 7.1.8.8.2 BICYCLE RACKS TO BE SPACED 3' O.C.)
S20	RETAINING WALL (DESIGNED BY OTHERS) WITH 42" MINIMUM SAFETY RAILING AT ALL AREAS TALLER THAN 30" (DESIGNED BY OTHERS)
S21	CONCRETE SIDEWALK (REFER TO PLANS FOR WIDTH DIMENSIONS)
S22	PEDESTRIAN CROSSWALK STRIPING (PER CITY OF RALEIGH)
S23	ACCESSIBLE PARKING SIGN (TYPICAL - PER ADA AND LOCAL CODES); R7-8A (MUTCD)
S24	VAN ACCESSIBLE PARKING SIGN (TYPICAL - PER ADA AND LOCAL REQUIREMENTS); R7-8A (MUTCD)
S25	ADA ACCESSIBLE PARKING SPACE STRIPING AND SYMBOL OF ACCESSIBILITY (TYPICAL - PER ADA AND LOCAL CODES)
S26	DIRECTIONAL TRAFFIC ARROW (PER LOCAL CODES)
S27	GAZEBO (DESIGNED BY OTHERS)
S29	MONUMENT SIGN (DESIGNED BY OTHERS)
S30	LIGHT POLE AND BASE (TYPICAL - REFER TO LIGHTING AND ARCHITECTURAL PLANS)
S31	CURB STOP (TYP.)
S32	CONCRETE FLUME
S33	6"x12" CONCRETE STEPS (TYP.)

- SITE LAYOUT NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH AND NCDOT STANDARDS AND SPECIFICATIONS.
 - ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVING, BUILDING WALL FACE OR PROPERTY LINE UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, UTILITIES AND GRADES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY EXISTING DISCREPANCIES PRIOR TO COMMENCING ANY RELATED CONSTRUCTION.
 - AT LEAST 72 HOURS PRIOR TO CONSTRUCTION OR EXCAVATION THE CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-432-4949) TO HAVE EXISTING UTILITIES LOCATED.
 - PARKING SPACES ARE 9' WIDE X 18' LONG MINIMUM EXCEPT HANDICAP SPACES WHICH ARE 8'0" WIDE MINIMUM WITH 6'0" VAN ACCESS AND 6'0" STANDARD ACCESS AISLES.
 - REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF THE BUILDING.
 - CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DIMENSIONAL CONFLICTS PRIOR TO THE BEGINNING OF CONSTRUCTION.
 - ALL CURB AND GUTTER ON-SITE SHALL BE 24" WIDE. ALL CURB AND GUTTER IN THE PUBLIC RIGHT OF WAY SHALL BE 30" WIDE.
 - TRANSITION FROM 30" TO 24" CURB AND GUTTER IS TO OCCUR ON-SITE. THIS TRANSITION SHALL BE 10' LONG IMMEDIATELY ADJACENT TO PUBLIC RIGHT OF WAY OR AS DIRECTED IN THE PLAN.
 - ALL DISTURBED CURB & GUTTER AND ASPHALT SHALL BE REPLACED PER CITY OF RALEIGH OR NCDOT STANDARDS AND SPECIFICATIONS.
 - ALL DRIVEWAY DESIGN AND CONSTRUCTION MUST COMPLY WITH CITY OF RALEIGH. DRIVEWAYS SHALL BE PERMITTED SEPARATELY.
 - NO SIGHT OBSTRUCTING OR PARTIALLY OBSTRUCTING WALL FENCE, FOLIAGE, BERMING, PARKED VEHICLES OR SIGN BETWEEN THE HEIGHTS OF TWENTY-FOUR (24) INCHES AND EIGHT (8) FEET ABOVE THE CURB LINE ELEVATION, OR THE NEAREST TRAVELED WAY IF NO CURBING EXISTS. SHALL BE PLACED WITHIN A SIGHT TRIANGLE OF A PUBLIC STREET, PRIVATE STREET OR DRIVEWAY CONTAINED EITHER ON THE PROPERTY OR ON AN ADJOINING PROPERTY.



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ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH, NCDEQ, AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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5407 TAYLOR ROAD, SUITE 100, RALEIGH, NC 27607
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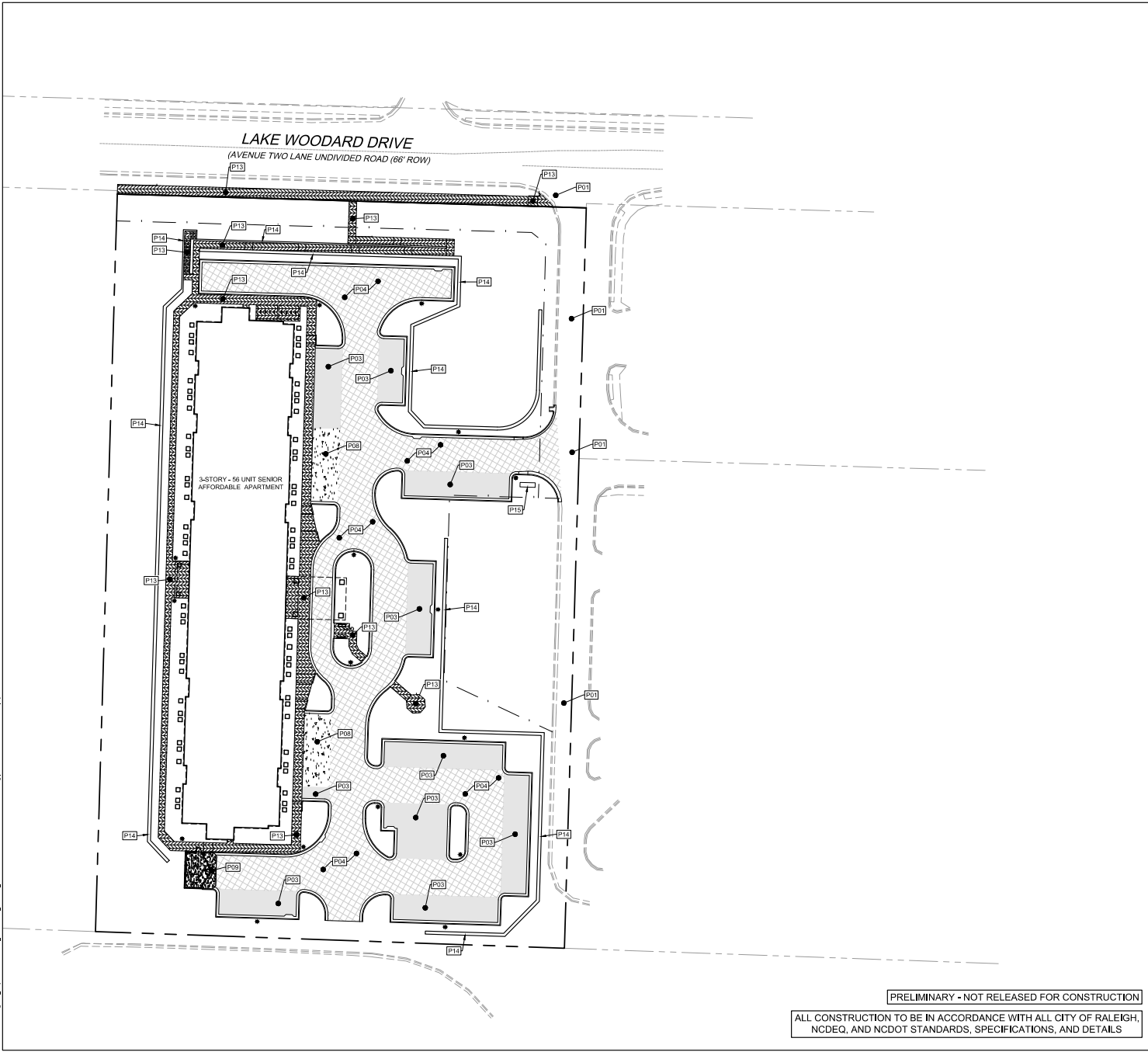
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DESIGNED BY
P. BARBEAU
CHECKED BY
R. BAKER
SCALE
AS SHOWN

TIMMONS GROUP
LAKE HAVEN
RALEIGH - WAKE COUNTY - NORTH CAROLINA
SITE PLAN
JOB NO.
42601.01
SHEET NO.
C2.0

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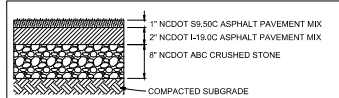


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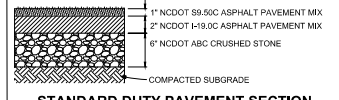
PAVING KEYNOTES		
NUMBER	HATCH	DESCRIPTION
P01		EXISTING PAVEMENT TO REMAIN UNDISTURBED
P03		STANDARD DUTY ASPHALT PAVING (REFER TO PAVEMENT SECTIONS DETAIL)
P04		HEAVY DUTY ASPHALT PAVING (REFER TO PAVEMENT SECTIONS DETAIL)
P08		STANDARD DUTY CONCRETE PAVING (REFER TO PAVEMENT SECTIONS DETAIL)
P09		HEAVY DUTY CONCRETE PAVING (REFER TO PAVEMENT SECTIONS DETAIL)
P12		EXISTING SIDEWALK TO REMAIN UNDISTURBED
P13		CONCRETE SIDEWALK (REFER TO PAVEMENT SECTIONS DETAIL)
P14		RETAINING WALL, (DESIGNED BY OTHERS)
P15		MONUMENT SIGN PAD (DESIGNED BY OTHERS)
P18		TRANSFORMER PAD PER UTILITY PROVIDER SPECIFICATIONS

NOTE: CURBS & GUTTER NOT HATCHED. REFER TO SITE LAYOUT PLAN FOR ADDITIONAL INFORMATION.



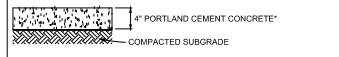
HEAVY DUTY PAVEMENT SECTION

NO SCALE
NOTE: FINAL PAVEMENT SECTIONS SHALL BE BASED ON RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER.



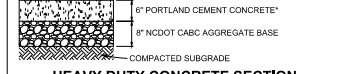
STANDARD DUTY PAVEMENT SECTION

NO SCALE
NOTE: FINAL PAVEMENT SECTIONS SHALL BE BASED ON RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER.



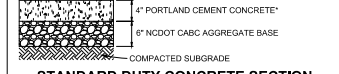
CONCRETE SIDEWALK SECTION

NO SCALE
* PROVIDE 4,000 PSI 28-DAY COMPRESSIVE STRENGTH, AIR ENTRAINED CONCRETE.
NOTE: FINAL PAVEMENT SECTIONS SHALL BE BASED ON RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER.



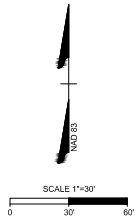
HEAVY DUTY CONCRETE SECTION

NO SCALE
* PROVIDE 4,000 PSI 28-DAY COMPRESSIVE STRENGTH, AIR ENTRAINED CONCRETE.
NOTE: FINAL PAVEMENT SECTIONS SHALL BE BASED ON RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER.



STANDARD DUTY CONCRETE SECTION

NO SCALE
* PROVIDE 4,000 PSI 28-DAY COMPRESSIVE STRENGTH, AIR ENTRAINED CONCRETE.
NOTE: FINAL PAVEMENT SECTIONS SHALL BE BASED ON RECOMMENDATIONS MADE BY THE GEOTECHNICAL ENGINEER.



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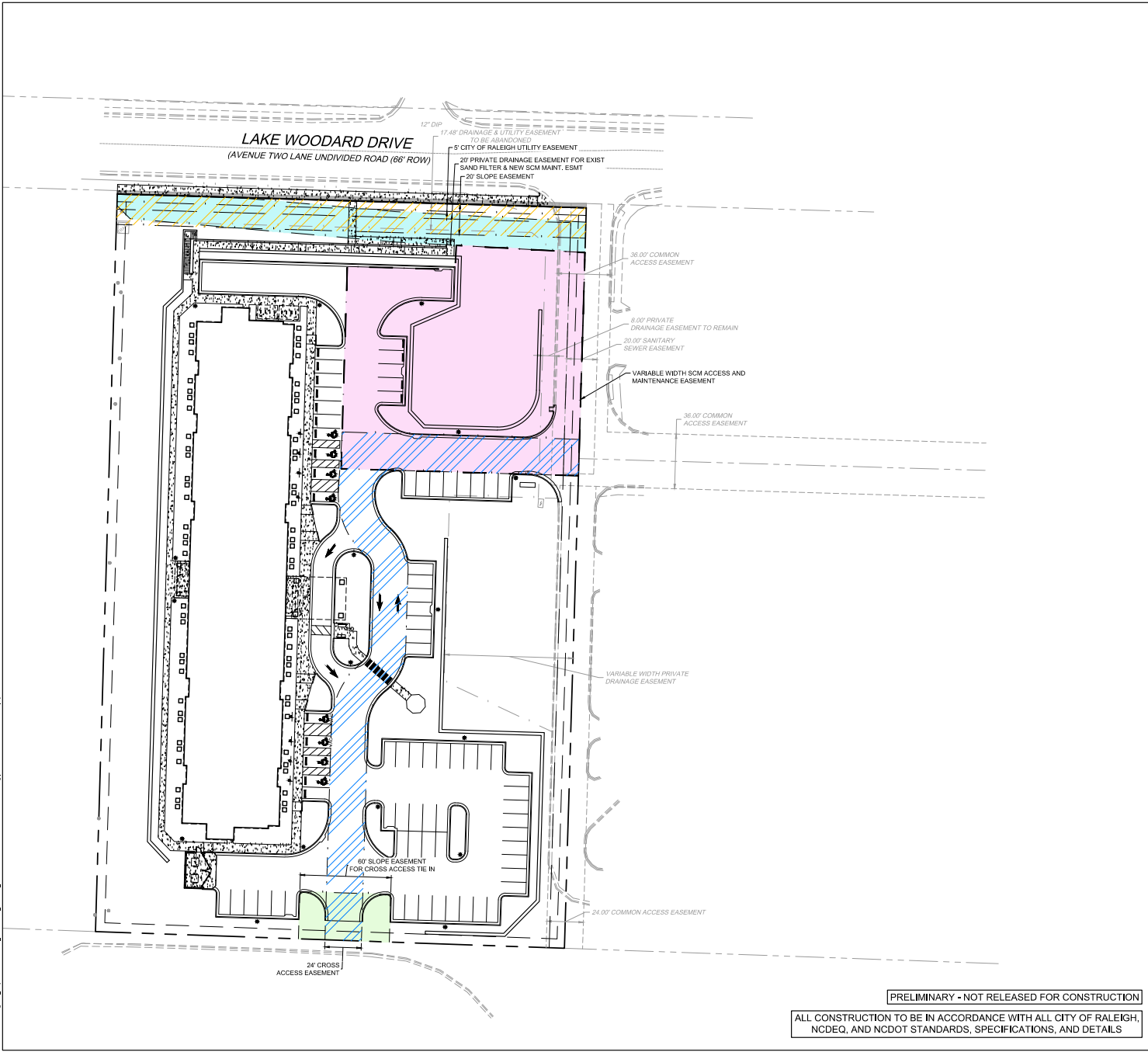
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 DESIGNED BY
 P. BARBEAU
 CHECKED BY
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 SCALE
 AS SHOWN

TIMMONS GROUP
 LAKE HAVEN
 NORTH CAROLINA LICENSE NO. C-1652
 RALEIGH - WAKE COUNTY - NORTH CAROLINA
PAVEMENT PLAN
 JOB NO.
42601.01
 SHEET NO.
C2.1

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EASEMENT KEYNOTES		
NUMBER	HATCH	DESCRIPTION
E01		2' SLOPE EASEMENT
E02		20' PRIVATE DRAINAGE EASEMENT FOR EXISTING SAND FILTER & NEW SCM MAINTENANCE EASEMENT
E03		VARIABLE WIDTH SCM ACCESS AND MAINTENANCE EASEMENT
E04		24' CROSS ACCESS EASEMENT
E05		60' SLOPE EASEMENT FOR CROSS ACCESS TIE IN

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06/05/17

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 5400 Tenthon Road, Raleigh, NC 27607
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DESIGNED BY: P. BARBEAU

CHECKED BY: R. BAKER

SCALE: AS SHOWN

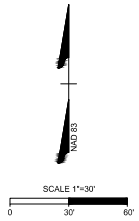
TIMMONS GROUP

LAKE HAVEN
 NORTH CAROLINA LICENSE NO. C-1652

RALEIGH - WAKE COUNTY - NORTH CAROLINA
EASEMENT PLAN

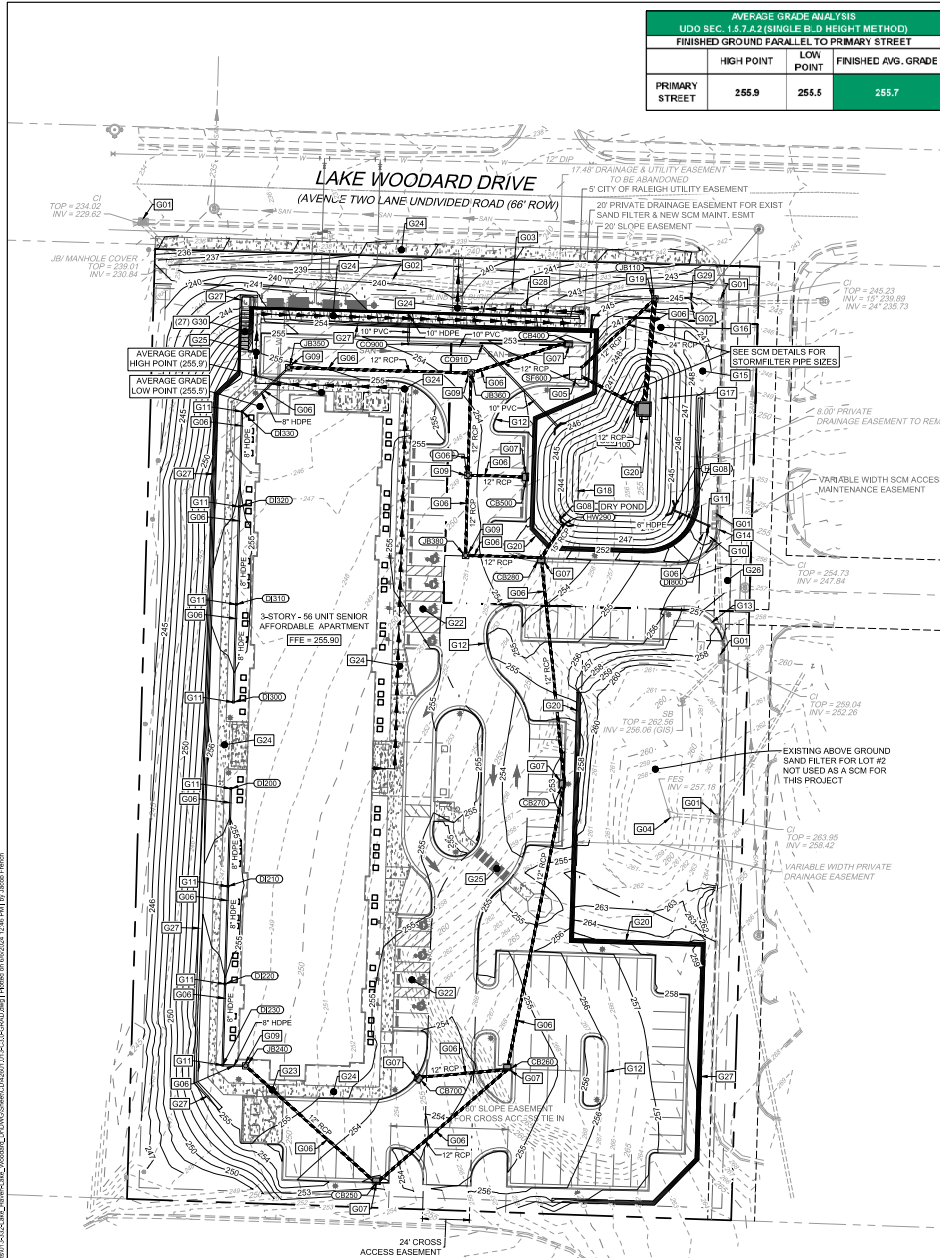
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AVERAGE GRADE ANALYSIS UDO SEC. 15.7.A.2 (SINGLE B.D. HEIGHT METHOD)			
FINISHED GROUND PARALLEL TO PRIMARY STREET			
	HIGH POINT	LOW POINT	FINISHED AVG. GRADE
PRIMARY STREET	255.9	255.5	255.7

STORM STRUCTURE TABLE				
STR.#	TOP	INV. IN	INV. OUT	DESCRIPTION
41	249.22	248.06 (10" HDPE FROM J8240)	248.06 (10" PVC TO CO900)	Null Structure
CB250	253.28	249.30 (12" RCP FROM J8240)	249.10 (12" RCP TO CB260)	NCDOT 840.02 CONCRETE CATCH BASIN
CB290	254.56	248.37 (12" RCP FROM CB250)	248.17 (12" RCP TO CB270)	NCDOT 840.02 CONCRETE CATCH BASIN
CB270	253.17	246.68 (12" RCP FROM CB260)	246.48 (12" RCP TO CB290)	NCDOT 840.02 CONCRETE CATCH BASIN
CB290	253.48	245.32 (12" RCP FROM CB270)	245.12 (15" RCP TO HW290)	NCDOT 840.02 CONCRETE CATCH BASIN
CB400	253.48	245.32 (12" RCP FROM CB270)	250.81 (12" RCP TO J8360)	NCDOT 840.02 CONCRETE CATCH BASIN
CB500	253.56	248.82 (12" RCP TO J8370)	248.82 (12" RCP TO J8370)	NCDOT 840.02 CONCRETE CATCH BASIN
CB700	250.64	249.28 (12" RCP TO CB260)	249.28 (12" RCP TO CB260)	NCDOT 840.02 CONCRETE CATCH BASIN
CO900	253.77	247.95 (10" PVC FROM 41)	247.95 (10" PVC TO CO910)	NCDOT 8" Cleanout
CO910	253.13	247.57 (10" PVC FROM CO900)	247.57 (10" PVC TO HW920)	NCDOT 8" Cleanout
DI200	255.30	252.91 (8" HDPE FROM DI200)	253.33 (8" HDPE TO DI210)	12" Basin - Square Grate
DI210	254.30	252.91 (8" HDPE FROM DI200)	252.91 (8" HDPE TO DI220)	12" Basin - Square Grate
DI220	255.05	252.41 (8" HDPE FROM DI210)	252.41 (8" HDPE TO DI230)	12" Basin - Square Grate
DI230	255.55	251.91 (8" HDPE FROM DI200)	251.91 (8" HDPE TO J8240)	12" Basin - Square Grate
DI300	255.30	253.00 (8" HDPE TO DI310)	253.00 (8" HDPE TO DI310)	12" Basin - Square Grate
DI310	254.30	252.50 (8" HDPE FROM DI300)	252.50 (8" HDPE TO DI320)	12" Basin - Square Grate
DI320	254.30	252.00 (8" HDPE FROM DI310)	252.00 (8" HDPE TO DI330)	12" Basin - Square Grate
DI330	255.39	251.57 (8" HDPE FROM DI320)	251.57 (8" HDPE TO J8350)	12" Basin - Square Grate
DI800	255.65	249.46 (8" HDPE TO HW810)	249.46 (8" HDPE TO HW810)	12" Basin - Square Grate
HW290	246.43	244.91 (15" RCP FROM CB280)		NCDOT 838.80 CONCRETE ENDWALL
HW810	249.12	248.50 (8" HDPE FROM DI800)		NCDOT 838.80 CONCRETE ENDWALL
HW920	248.11	247.00 (10" PVC FROM CO910)		NCDOT 838.80 CONCRETE ENDWALL
JB110	245.01	235.50 (12" RCP FROM SF600)	235.50 (24" RCP FROM RS100)	DOGHOUSE MANHOLE
JB240	255.78	251.80 (8" HDPE FROM DI230)	251.80 (12" RCP TO CB250)	NCDOT 840.34 TRAFFIC BEARING JUNCTION BOX
JB350	255.09	251.06 (8" HDPE FROM DI330)	250.80 (12" RCP TO J8360)	NCDOT 840.34 TRAFFIC BEARING JUNCTION BOX
JB360	253.63	249.80 (12" RCP FROM CB400)	249.80 (12" RCP TO J8370)	NCDOT 840.34 TRAFFIC BEARING JUNCTION BOX
JB370	254.13	249.21 (12" RCP FROM CB500)	249.01 (12" RCP TO J8380)	NCDOT 840.34 TRAFFIC BEARING JUNCTION BOX
JB380	254.19	248.60 (12" RCP FROM J8370)	248.40 (12" RCP TO CB290)	NCDOT 840.34 TRAFFIC BEARING JUNCTION BOX
RS100	246.50	240.00 (24" RCP TO JB110)	240.00 (12" RCP TO SF600)	60 x 60 inch Rectangular Structure
SF600	252.87	237.92 (12" RCP FROM RS100)	237.72 (12" RCP TO JB110)	CONTECH STORMPILTER

STORM PIPE TABLE							
FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DA.	MATERIAL	DESCRIPTION
-41	248.10	248.06	1.00%	4.50 LF	10"	HDPE	10" HDPE
41 - CO900	248.06	247.95	1.00%	11.00 LF	10"	PVC	10" PVC
CB250 - CB260	249.10	248.37	0.82%	88.82 LF	12"	RCP	12 inch RCP
CB260 - CB270	248.17	246.68	1.00%	149.03 LF	12"	RCP	12 inch RCP
CB270 - CB280	246.48	245.32	1.00%	116.29 LF	12"	RCP	12 inch RCP
CB280 - HW290	245.12	244.91	1.00%	21.10 LF	15"	RCP	15 inch RCP
CB400 - J8360	250.81	249.80	1.93%	52.50 LF	12"	RCP	12 inch RCP
CB500 - J8370	248.82	248.21	2.00%	30.50 LF	12"	RCP	12 inch RCP
CB700 - CB260	249.28	248.37	2.00%	46.24 LF	12"	RCP	12 inch RCP
CO900 - CO910	247.95	247.57	1.00%	37.66 LF	10"	PVC	10" PVC
CO910 - HW920	247.57	247.00	1.00%	56.89 LF	10"	PVC	10" PVC
DI200 - DI210	253.33	252.91	0.84%	50.00 LF	8"	HDPE	8" HDPE
DI210 - DI220	252.91	252.41	1.00%	50.00 LF	8"	HDPE	8" HDPE
DI220 - DI230	252.41	251.91	1.20%	41.54 LF	8"	HDPE	8" HDPE
DI300 - J8240	251.91	251.80	0.95%	11.74 LF	8"	HDPE	8" HDPE
DI300 - DI310	253.00	252.50	1.00%	50.00 LF	8"	HDPE	8" HDPE
DI310 - DI320	252.50	252.00	1.00%	50.00 LF	8"	HDPE	8" HDPE
DI320 - DI330	252.00	251.57	0.88%	48.62 LF	8"	HDPE	8" HDPE
DI330 - J8350	251.57	251.06	1.57%	32.75 LF	8"	HDPE	8" HDPE
DI800 - HW810	249.46	248.50	4.70%	20.45 LF	8"	HDPE	8" HDPE
J8240 - CB250	251.80	249.30	2.57%	89.75 LF	12"	RCP	12 inch RCP
JB350 - J8360	250.80	250.00	0.92%	93.26 LF	12"	RCP	12 inch RCP
JB360 - J8370	249.80	249.21	1.13%	52.28 LF	12"	RCP	12 inch RCP
JB370 - J8380	249.01	248.60	1.00%	41.00 LF	12"	RCP	12 inch RCP
JB380 - CB290	248.40	248.01	1.00%	38.72 LF	12"	RCP	12 inch RCP
RS100 - JB110	240.00	235.50	7.94%	56.66 LF	24"	RCP	24 inch RCP
RS100 - SF600	240.00	237.92	5.28%	39.41 LF	12"	RCP	12 inch RCP
SF600 - JB110	237.72	235.50	4.00%	55.93 LF	12"	RCP	12 inch RCP

GRADING & STORMWATER KEYNOTES	
NUMBER	DESCRIPTION
G01	EXISTING CURB INLET
G02	EXISTING RCP PIPE
G03	EXISTING STORM STRUCTURE
G04	EXISTING FLARED END SECTION
G05	CONTECH STORMPILTER SYSTEM FOR WATER QUALITY
G06	STORM PIPE (TYP.)
G07	CATCH BASIN (TYP.)
G08	FLARED END SECTION (TYP.)
G09	JUNCTION BOX (TYP.)
G10	FLUME
G11	NYOPLAST YARD INLET (TYP.)
G12	24" CURB & GUTTER
G13	30" CURB & GUTTER
G14	18" CURB & GUTTER
G15	10' WIDE MAINTENANCE BEAM (REFER TO STORMWATER CONTROL MEASURE DESIGN)
G16	30' TOP WIDTH 20' CREST WIDTH SPILLWAY
G17	TEMPORARY FLOODING DEPTH (REFER TO STORMWATER CONTROL MEASURE DESIGN)
G18	BOTTOM OF DETENTION BASIN (REFER TO STORMWATER CONTROL MEASURE DESIGN)
G19	DOORHOUSE JUNCTION BOX
G20	CONTROL RISER STRUCTURE
G21	ADA STAIRS (MAX SLOPE = 1:50)
G22	CONCRETE STAIRS
G23	SIDEWALK (ADA ACCESS ROUTE MAX CROSS SLOPE 1:50; MAX LONG. SLOPE 1:20)
G24	ADA ACCESS ROUTE (MAXIMUM GROSS SLOPE = 1:50; MAX LONGITUDINAL SLOPE = 1:20)
G26	MATCH EXISTING PAVEMENT ELEVATION
G27	RETAINING WALL (DESIGNED BY OTHERS) WITH 42" MINIMUM SAFETY RAILING AT ALL AREAS TALLER THAN 30" (DESIGNED BY OTHERS)
G28	SIDEWALK FLUSH WITH PROPOSED GRADE WITHIN DRAINAGE EASEMENT
G29	CONTRACTOR TO CONFIRM PIPE INVERTS; NOTIFY ENGINEER IF PIPE INVERTS DO NOT HAVE ENOUGH COVER WITH PROPOSED GRADES
G30	8"x12" STEPS (TYP.)

GRADING AND STORM DRAINAGE NOTES

- CONTRACTOR SHALL CALL NORTH CAROLINA ONE CALL (811) AT LEAST 3-2 BUSINESS DAYS PRIOR TO DIGGING TO HAVE EXISTING UTILITIES LOCATED. REPORT ANY DISCREPANCIES TO THE ENGINEER.
- CONTRACTOR TO COORDINATE ACTIVITIES WITH UTILITY COMPANIES INVOLVED IN ANY RELATED RELOCATION (I.E. POWER POLES, TELEPHONE PEDESTALS, WATER METERS, ETC.).
- 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.
- THE CATCH BASINS AND YARD INLETS SHALL BE CONSTRUCTED IN THE LOCATIONS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR REPORTING ANY DISCREPANCIES IN THE CATCH BASIN ELEVATIONS OR THE PROPOSED PIPE SLOPES TO THE ENGINEER. THE CONTRACTOR IS ALSO RESPONSIBLE TO REPORT ANY CONFLICTS BETWEEN ANY UTILITY, STORM DRAIN LINE, WATER LINE, SEWER LINE OR ANY OTHER PROPOSED OR EXISTING STRUCTURE TO THE ENGINEER.
- A LAND DISTURBING PERMIT WILL BE REQUIRED PRIOR TO THE COMMENCEMENT OF ANY LAND-DISTURBING ACTIVITIES.
- ALL EXISTING VALVES, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
- ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE OWNER'S INDEPENDENT TESTING LABORATORY.
- ALL SPOT ELEVATIONS INDICATED ARE AT TOP OF CURB UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE BASED ON VERTICAL DATUM NAVD83.
- A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED PRIOR TO ANY WORK. GRADING OR INSTALLATION OF EROSION CONTROL MEASURES.
- ALL HANDICAP PARKING SPACES AND STRIPED ACCESSIBILITY AREAS ARE TO HAVE NO MORE THAN A 1:50 (2.0%) SLOPE IN ALL DIRECTIONS. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK.
- CONTRACTOR TO IDENTIFY ALL NECESSARY SPILL CURB SECTION LOCATIONS AND INSTALL TO ENSURE POSITIVE DRAINAGE TO STORM STRUCTURES.
- IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SECTION REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER PRIOR TO POURING ANY CONCRETE SO THAT A SOLUTION CAN BE FOUND.
- SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN DUE TO SPACE LIMITATIONS. THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
- EXISTING VEGETATION WITHIN TREE PROTECTIVE AREAS SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE. ANY AND ALL LANDSCAPING AND EXISTING TREES AND SHRUBS TO REMAIN WHICH WERE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- THE GRADING CONTRACTOR SHALL COMPLY WITH ALL STATE CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF-SITE. THE GRADING CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR OR THE ENGINEER.
- THE GRADING CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL CLEARING AND GRADING DEBRIS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND WASTE AREAS.
- ALL CATCH BASINS MUST BE MARKED "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT.

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 ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH, NCDEQ, AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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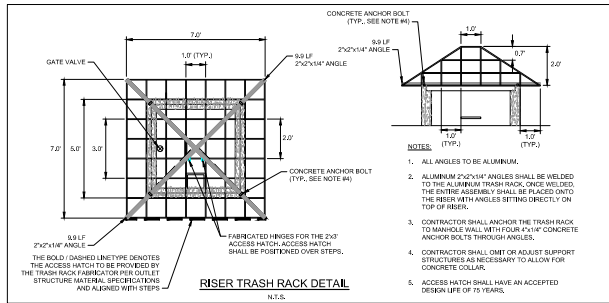
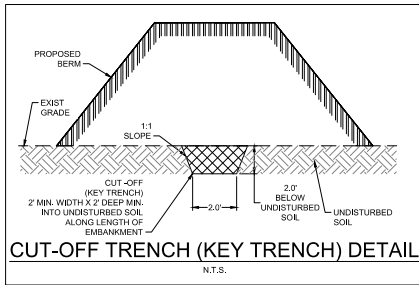
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TIMMONS GROUP

LAKE HAVEN
 RALEIGH - WAKE COUNTY - NORTH CAROLINA
 GRADING AND DRAINAGE PLAN

North Carolina License No. C-1652

JOB NO. 42601.01
 SHEET NO. C3.0



KEY TRENCH & CLAY LINER NOTES

1. THE ON-SITE GEOTECHNICAL ENGINEER SHALL INSPECT THE KEY TRENCH EXCAVATION PRIOR TO PLACEMENT OF ANY BACKFILL WITHIN THE KEY TRENCH.
2. THE CONTRACTOR WILL NEED TO INSTALL A CLAY LINER A MINIMUM OF 1 FOOT BELOW THE LOWEST GRADE. THE CLAY LINER SHALL BE AT LEAST 12" THICK AND MEET THE FOLLOWING SPECIFICATIONS:
 - 2.1. UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML
 - 2.2. MINIMUM LIQUIDITY LIMIT OF 40%
 - 2.3. MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE COMPLETED BY THE CONTRACTOR ON THE LINER MATERIAL AND PRESENTED TO THE ON-SITE GEOTECHNICAL ENGINEER FOR APPROVAL. SHOULD THESE TESTS NOT MEET THE ABOVE REQUIREMENTS, THE ON-SITE GEOTECHNICAL ENGINEER MAY PROVIDE ALTERNATIVE TESTING DEMONSTRATING AN INFILTRATION RATE OF NO MORE THAN 0.01 INHR.
 - 2.4. CONSTRUCTION TO A MINIMUM OF 90% PER ASTM D688 AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT (1 COMPACTION DENSITY TEST PER 2500 SQ. FT.)
 - 2.5. MAXIMUM INFILTRATION RATE OF 0.01 INHR.
3. IF IT IS DETERMINED BY THE ON-SITE GEOTECHNICAL ENGINEER THAT A LINER IS NOT NEEDED, THEN A LETTER TO THE DESIGN ENGINEER CERTIFYING THE INFILTRATION RATE SHALL BE PROVIDED, WHICH WILL BE USED DURING THE AS-BUILT CERTIFICATION PROCESS.
4. THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES AND INCLUDE THE CLAY LINER.

DRY POND CONSTRUCTION SEQUENCE:

1. DO NOT BEGIN CONSTRUCTION OF DRY POND AREAS UNTIL SITE CONSTRUCTION IS COMPLETE. ALL PARKING SURFACES ARE PAVED, AND THE ENTIRE SITE HAS AN ESTABLISHED WITH A GOOD STAND OF GRASS.
2. ALL EROSION SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAWING TO THE DRY POND AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE DRY POND BEGINS.
3. INSTALL TEMPORARY 3/4" FENCE AROUND THE DRY POND AREA AS NEEDED.
4. EROSION CONTROL PRACTICES FOR THE GRADES AND DETAIL ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS.
5. CONTACT ENGINEER SO AN AS-BUILT SURVEY CAN BE PERFORMED OF THE DRY POND.
6. INSTALL ANY REMAINING STORM DRAINAGE PIPES AND DETAILS.
7. FINE GRADE THE SIDE SLOPES OF THE DRY POND AREA. DRESS UP VELOCITY DISSIPATER AS NEEDED PER THE PLANS.
8. INSTALL GRASS PER GRASS SPECIFICATIONS.
9. FINE GRADE, SEED AND STABILIZE ANY REMAINING DISTURBED AREAS AROUND THE OUTSIDE OF THE DRY POND AREA. REMOVE 3/4" FENCE.
10. UPON COMPLETION OF WORK, CONTACT THE PROJECT ENGINEER AND LANDSCAPE ARCHITECT FOR AN INSPECTION AND TO BEGIN THE AS-BUILT CERTIFICATION PROCESS. AN AS-BUILT SURVEY OF ALL ASPECTS OF THIS FACILITY WILL BE PERFORMED BY THE ENGINEER. CERTIFICATIONS WILL NOT BE ISSUED IF THE SCM DOES NOT MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CONSTRUCTION DOCUMENTS. SHOULD REMEDIAL WORK BE REQUIRED, ALL COSTS ASSOCIATED WITH THE REMEDIAL WORK INCLUDING RESURVEY AND REDIRECTIONS WILL BE BORNE BY THE CONTRACTOR.

DAM EMBANKMENT AND SOIL COMPACTION SPECIFICATIONS

1. CONTROLLED FILL AS SPECIFIED BY THE GEOTECHNICAL ENGINEER. IN THE DAM EMBANKMENT KEY TRENCH SHALL BE PLACED IN A LOOSE LAYER (SANDY LOOSE LAYERS WITHIN 1 FEET OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 3 FEET OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 90% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF 1% OR TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D688.
2. ALL VIBRILE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO CONSTRUCTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 1/4" IN ANY DIMENSION SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
3. FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
4. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARRIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
5. SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSATURATED SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH COARSE STONE.
7. TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING AND ROCK FOUNDATION PREPARATION I.E., TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER.
8. FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
9. EARTHWORK COMPACTION WITHIN 4 FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY OPERATED POWER TAMPERS OR PLATE COMPACTORS OR MINATURE SELF-PROPELLED ROLLERS.
10. COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
11. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES (INCLUDING THE GRADES) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
12. TO RE-ESTABLISH VEGETATION AFTER CONSTRUCTION, A 1/4" LAYER OF TOPSOIL SHALL BE PLACED ON THE RESTORED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED.

- TESTING, OBSERVATION, AND CERTIFICATION
1. TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM KEY TRENCH SHALL BE PERFORMED AS A PART OF THE PRIVATE TESTING QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.
 2. CONSTRUCTION OF CLASS A, B, AND C DAM EMBANKMENTS SHALL BE DONE UNDER THE OBSERVATION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE GEOTECHNICAL ENGINEER MUST HAVE EXPERIENCE IN THE DESIGN AND CONSTRUCTION AND INSPECTION OF DAMS OF THE SIZE AND SCOPE COVERED BY THESE STANDARDS AND GUIDELINES.
 3. ON CLASS A, B, AND C DAMS WITH THE EXCEPTION OF DETENTION ONLY CLASS C DAMS THAT COLLECT DRAINAGE FROM AN AREA OF 50 ACRES OR LESS, THE GEOTECHNICAL ENGINEER, AS DEFINED ABOVE, SHALL OBSERVE ALL ASPECTS OF THE CONSTRUCTION OF THE DAM I.E., PREPARATION OF THE FOUNDATION, INSTALLATION OF THE CUT-OFF TRENCH, INSTALLATION OF THE PRINCIPAL SPILLWAY PIPE, INSTALLATION OF THE INTERNAL DRAINAGE, INSTALLATION OF COARSE FILL, ETC.). THE FREQUENCY OF OBSERVATION AND TESTING MUST BE SUFFICIENT FOR THE GEOTECHNICAL ENGINEER OR THE DESIGN ENGINEER ON CLASS A DAMS AND CLASS C DETENTION ONLY (DAMS) TO STATE, IN HIS/HER PROFESSIONAL OPINION, THAT THE SPECIFIC TESTS OBSERVED AND TESTED WERE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS. REFERENCE IS MADE TO THE CITY OF DURHAM REFERENCE GUIDE FOR DEVELOPMENT" SECTIONS 4.1 TO 4.5 REGARDING GEOTECHNICAL CERTIFICATION OF DAM EMBANKMENTS.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DURHAM, NCDOT AND NCDOT STANDARDS, SPECIFICATIONS AND DETAILS.
2. SEE GRADING PLAN FOR MORE INFORMATION ON ENTIRE SITE GRADING.

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NO. 1	AS-BUILT SUBMITTAL
NO. 2	AS-BUILT SUBMITTAL
NO. 3	AS-BUILT SUBMITTAL

DATE	DATE
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332	332
DESIGNED BY P. BARBEAU	DESIGNED BY P. BARBEAU
CHECKED BY R. BAKER	CHECKED BY R. BAKER
SCALE AS SHOWN	SCALE AS SHOWN

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 NORTH CAROLINA LICENSE NO. C-1552

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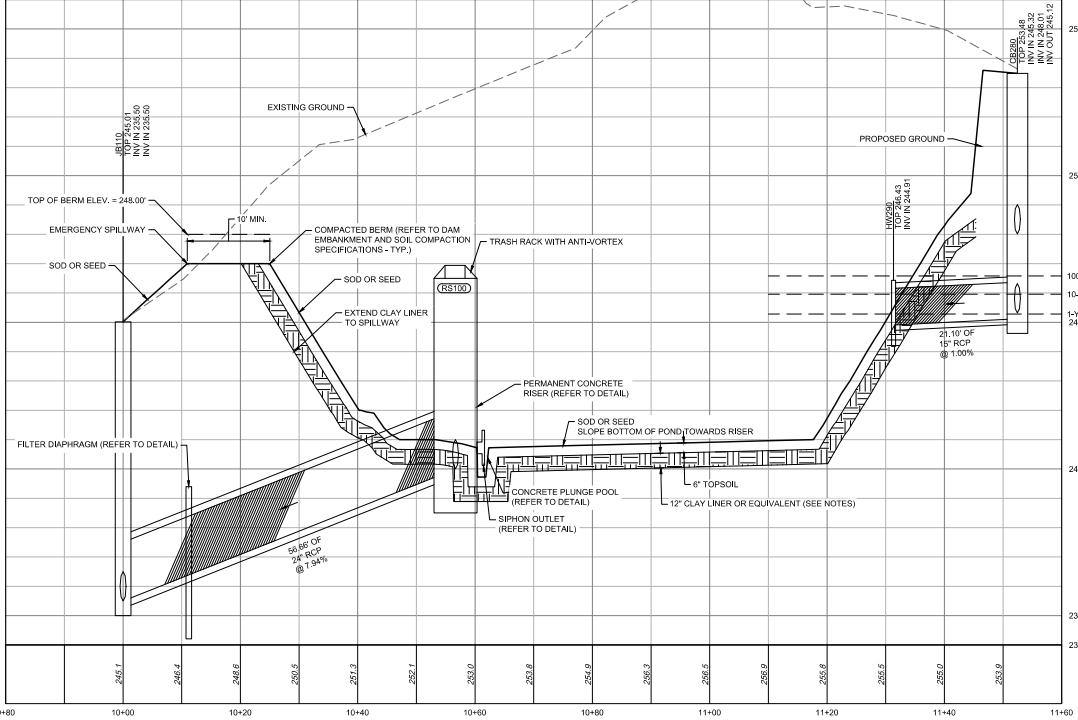
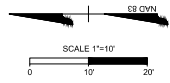
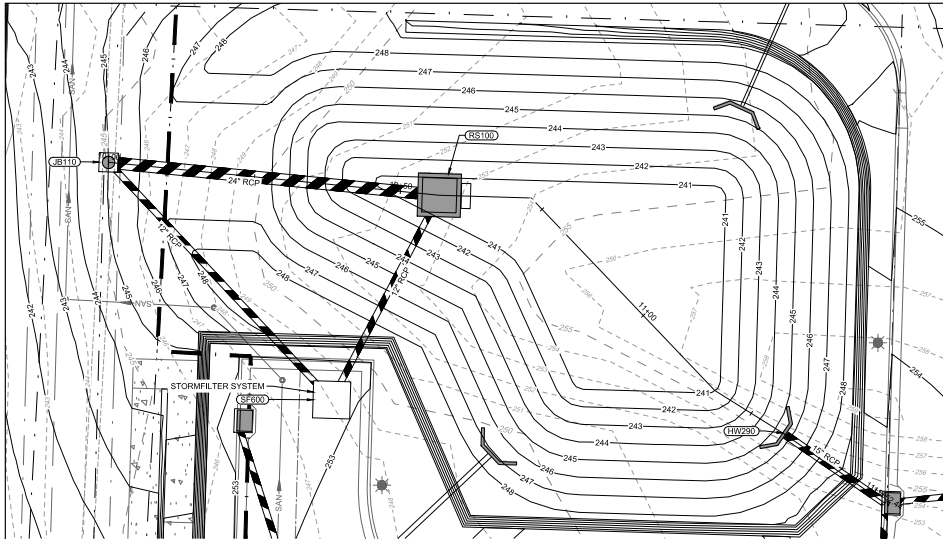
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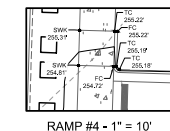
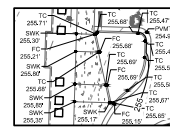
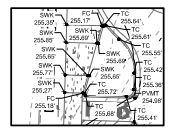
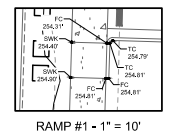
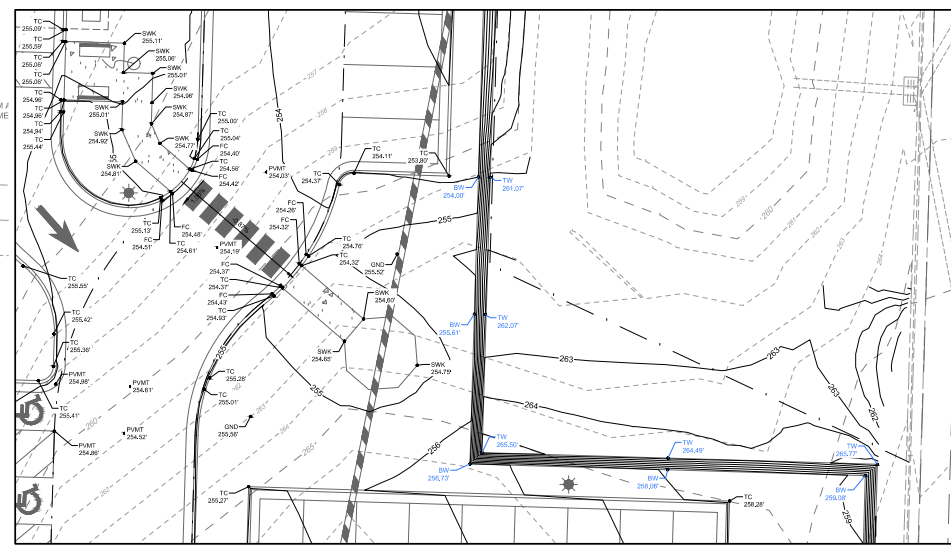
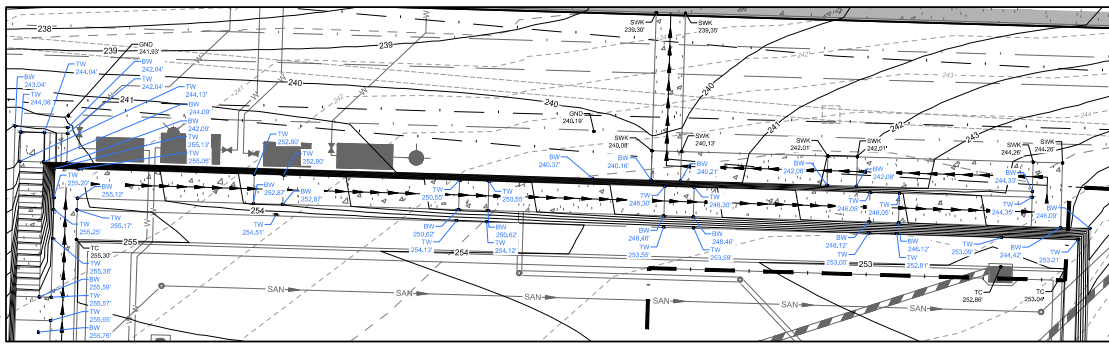
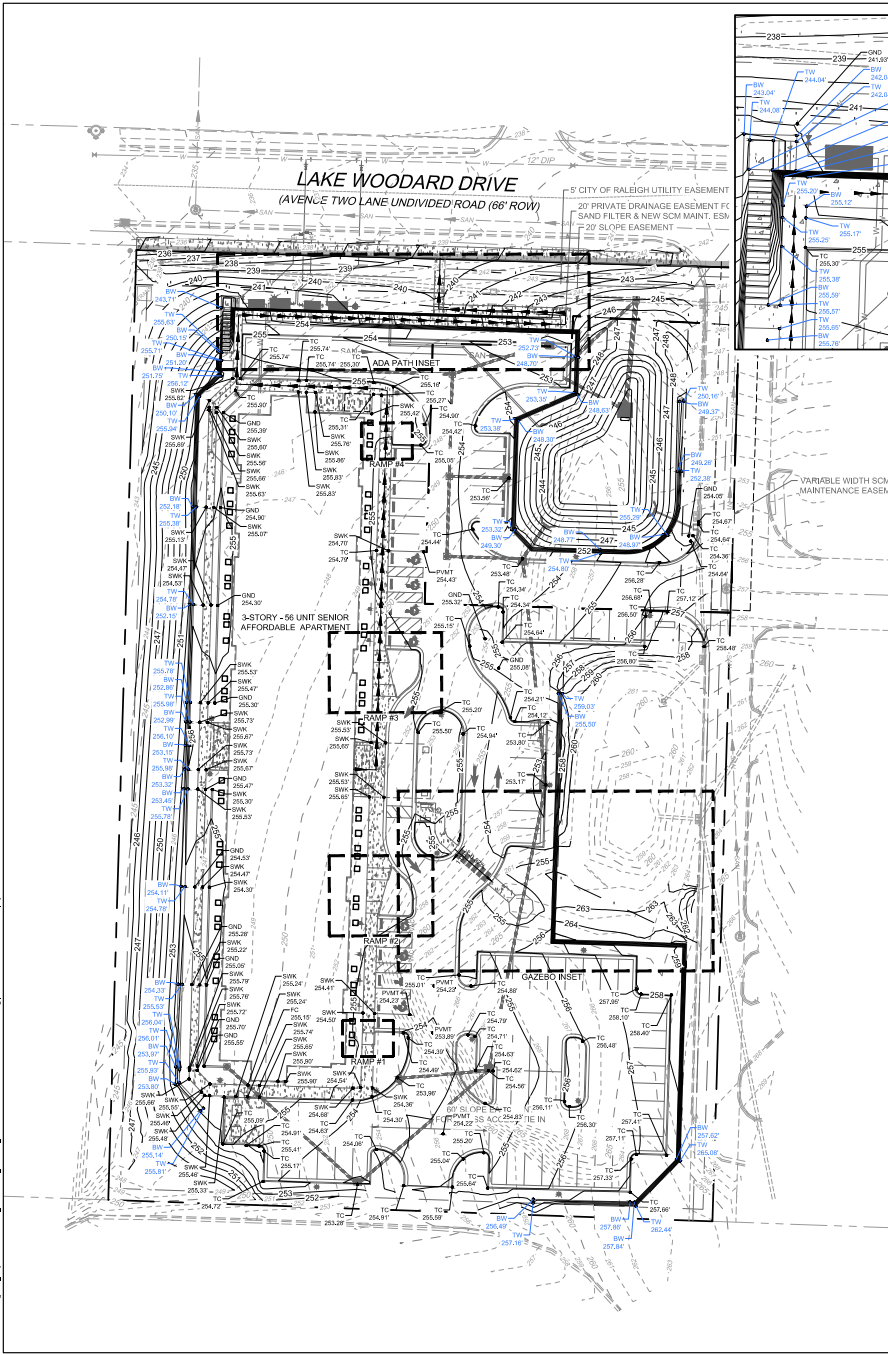
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LAKE HAVEN
NORTH CAROLINA LICENSE NO. C-1652
RALEIGH - WAKE COUNTY - NORTH CAROLINA
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GAZEBO INSET - 1" = 10"

SPOT ELEVATION LEGEND

- TC = TOP OF CURB
- ME = MATCH EXISTING
- GND = GROUND
- SNW = SIDEWALK
- TW = TOP OF WALL
- BW = BOTTOM OF WALL
- HP = HIGH POINT
- FC = FLUSH CURB
- EP = EDGE OF PAVEMENT
- PVMT = PAVEMENT

- NOTES:
1. TOP REFERS TO:
 - 1.1. CATCH BASIN TOP OF CURB
 - 1.2. YARD INLET SILL
 2. 50' - SEE RISER DETAIL.



SCALE 1"=30'
0 30' 60'

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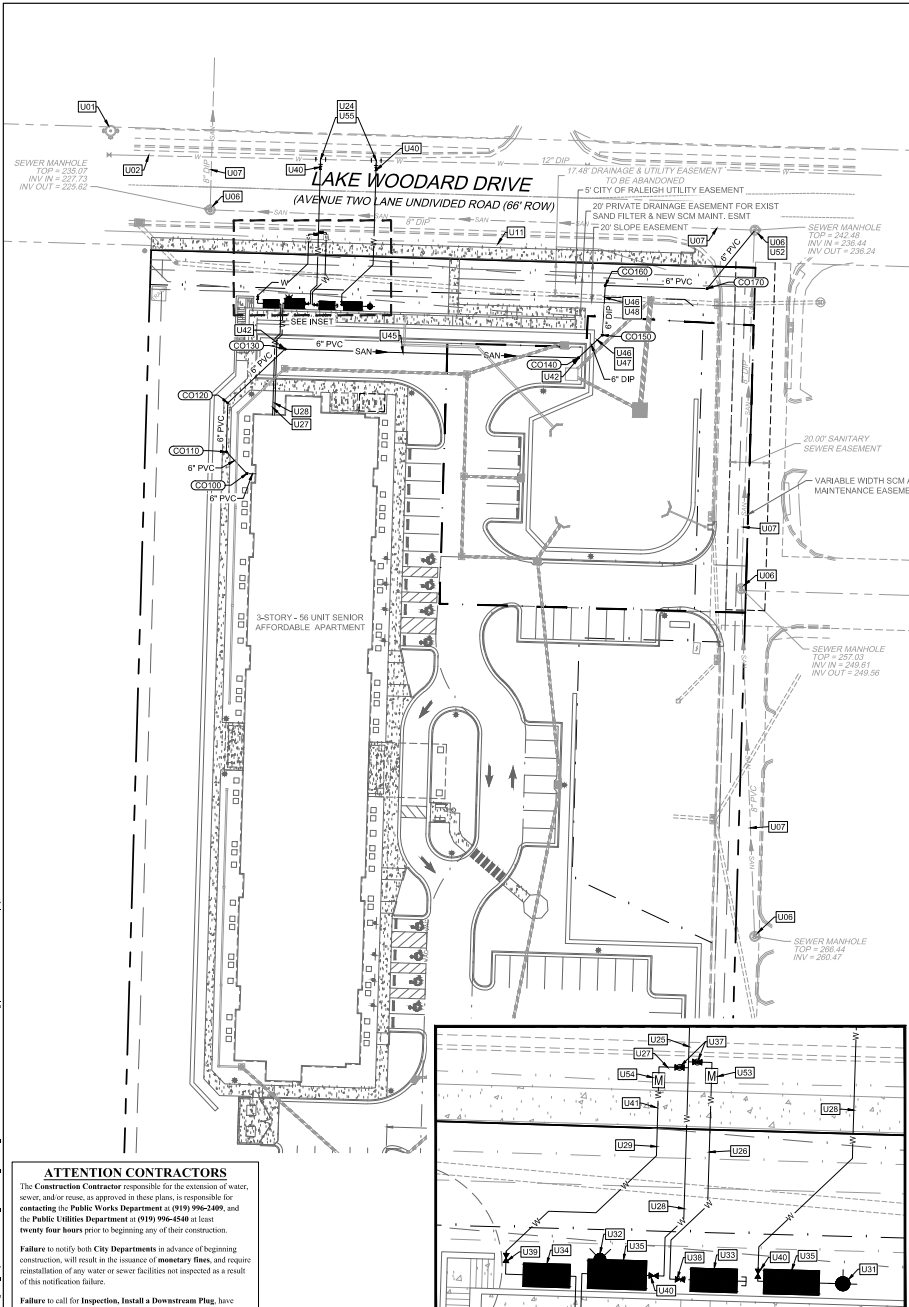
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LAKE HAVEN
RALEIGH - WAKE COUNTY - NORTH CAROLINA
NORTH CAROLINA LICENSE NO. C-1652
SPOT GRADING PLAN

JOB NO. 42601.01
SHEET NO. C3.4

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SANITARY SEWER STRUCTURE TABLE				
STR. #	TOP	INV. IN	INV. OUT	DESCRIPTION
CO100	255.29'	249.50' (6" PVC FROM J)	249.50' (6" PVC TO CO110)	6" Cleanout
CO110	255.38'	249.14' (6" PVC FROM CO100)	249.14' (6" PVC TO CO120)	6" Cleanout
CO120	255.67'	247.74' (6" PVC FROM CO110)	247.74' (6" PVC TO CO130)	6" Cleanout
CO130	254.79'	246.42' (6" PVC FROM CO120)	246.42' (6" PVC TO CO140)	6" Cleanout
CO140	252.63'	241.17' (6" DIP FROM CO130)	241.17' (6" DIP TO CO150)	6" Cleanout
CO150	247.46'	240.17' (6" DIP FROM CO140)	240.17' (6" DIP TO CO160)	6" Cleanout
CO160	243.07'	239.44' (6" DIP FROM CO150)	239.44' (6" PVC TO CO170)	6" Cleanout
CO170	244.15'	237.85' (6" PVC FROM CO160)	237.85' (6" PVC TO EXMH100)	6" Cleanout
EXMH100	242.48'	236.69' (6" PVC FROM CO170)		Existing Manhole

SANITARY SEWER PIPE TABLE						
FROM-TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	ØIA.	MATERIAL
-CO100	249.55'	249.50'	1.00%	4.62 LF	6"	PVC
CO100-CO110	249.50'	249.14'	2.40%	15.30 LF	6"	PVC
CO110-CO120	249.14'	247.74'	5.57%	24.98 LF	6"	PVC
CO120-CO130	247.74'	246.42'	3.30%	40.21 LF	6"	PVC
CO130-CO140	246.42'	241.17'	3.50%	150.00 LF	6"	PVC
CO140-CO150	241.17'	240.17'	5.88%	17.00 LF	6"	DIP
CO150-CO160	240.17'	239.44'	2.86%	25.33 LF	6"	DIP
CO160-CO170	239.44'	237.85'	3.06%	92.15 LF	6"	PVC
CO170-EXMH100	237.85'	236.69'	3.00%	38.99 LF	6"	PVC

CITY OF RALEIGH UTILITY NOTES (AS APPLICABLE):

- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
- UTILITY SEPARATION REQUIREMENTS:
 - A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN UNPOLLUTED 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.
 - WHEN INSTALLING WATER & SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, 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.
 - WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER PREPARATION 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.
 - 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
 - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS. MAINTAIN 18" 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-41 & S-49).
 - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
- ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN WORK PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
- DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVELING PRIVATE PROPERTY.
- 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.
- ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED. PRIOR TO PUMPING OPERATIONS FOR APPROVAL, THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
- 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
- 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.
- INSTALL 1/2" 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.
- INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
- PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUNG DRAINS LOWER THAN 12" ABOVE THE NEXT UPSTREAM MANHOLE.
- 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.
- NCDDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW TO BE CONSTRUCTED.
- GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UO AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
- CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
- THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
- THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
- THE DEVICES SHALL BE INSTALLED AND TESTED (BOI, INITIAL, AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
- NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN \$250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS.

UTILITY KEYNOTES	
NUMBER	DESCRIPTION
U01	EXISTING FIRE HYDRANT
U02	EXISTING WATER LINE, CONFIRM PRIOR TO CONSTRUCTION
U06	EXISTING SANITARY SEWER MANHOLE (TYP.)
U07	EXISTING SANITARY SEWER MAIN (TYP.)
U11	EXISTING UNDERGROUND TELEPHONE (TYP.)
U24	6" TAPPING SLEEVE & VALVE
U25	6" DIP WATERLINE
U26	1" TYPE 'C' COPPER WATER IRRIGATION LINE, COORDINATE IRRIGATION DESIGN
U27	2" TYPE 'C' COPPER DOMESTIC WATER SERVICE (TYP.)
U28	6" DIP FIRE WATERLINE
U29	3" SDR-21 WATERLINE
U31	PRIVATE FIRE HYDRANT ASSEMBLY (TYP.)
U32	6" PRIVATE FIRE DEPARTMENT CONNECTION (TYP.), REFER TO DETAIL FP-16.
U33	1" RPE IRRIGATION BACK FLOW PREVENTION ASSEMBLY IN ABOVE GRADE AND INSULATED ENCLOSURE (WILKINS PPKL OR AS APPROVED BY CITY OF RALEIGH).
U34	3" RPE DOMESTIC BFP IN ABOVE GRADE AND INSULATED ENCLOSURE (WILKINS 375A OR AS APPROVED BY CITY OF RALEIGH). BACKFLOW PREVENTER (REFER TO DETAIL W-36)
U35	6" RCPA FIRE BFP IN ABOVE GRADE AND INSULATED ENCLOSURE (WILKINS 375DA OR AS APPROVED BY CITY OF RALEIGH).
U37	CURB STOP
U38	1" GATE VALVE (TYP.)
U39	3" GATE VALVE (TYP.)
U40	6" GATE VALVE (TYP.)
U41	2" TO 3" ENLARGER COUPLING (TYP.)
U42	CLEANOUT (TYP.) THROFFS RATED IF LOCATED WITHIN PAVEMENT (REFER TO DETAIL)
U45	6" PVC SANITARY SEWER SERVICE (TYP.)
U46	MINIMUM 24" CLEARANCE BETWEEN RETAINING WALL FOOTING 1' BELOW FINISHED GRADE ON LOWER SIDE OF THE WALL AND TOP OF SANITARY SEWER SERVICE
U48	MINIMUM 24" CLEARANCE BETWEEN OUTER DIAMETER OF EXISTING STORM PIPE AND OUTER DIAMETER OF SANITARY SEWER SERVICE
U52	CONNECT TO EXISTING SANITARY SEWER MANHOLE, CORE DRILL AND INSTALL FLEXIBLE RUBBER BOOT (CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION)
U53	1" IRRIGATION METER
U54	2" DOMESTIC WATER
U55	COORDINATE WITH WATER DEPARTMENT TO ENSURE THAT SERVICE IS NOT INTERRUPTED AT ANY TIME

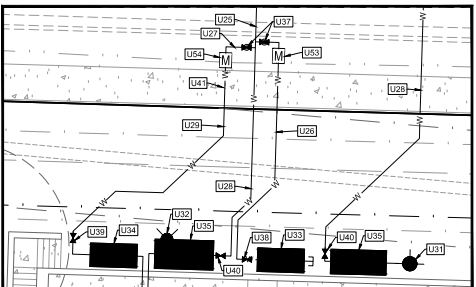
UTILITY NOTES

- CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
- ALL UNDERGROUND FEATURES INDICATED ON THE PLANS SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND SHOULD BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES ARE NOTED.
- CONTRACTOR SHALL COORDINATE THE LOCATION OR RELOCATION OF ALL OVERHEAD AND UNDERGROUND COMMUNICATION LINES, ELECTRIC AND GAS SERVICE WITH THE APPROPRIATE UTILITY COMPANY AND/OR THE CITY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR ALL UTILITIES UNDER PAVED AREAS.
- ALL ILLUSTRATED UTILITY INFRASTRUCTURE IS DIAGRAMMATIC AND MAY NOT REPRESENT THE ACTUAL SIZE OF INFRASTRUCTURE. NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES ARE NOTED.
- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
- CURB STOPS ARE REQUIRED AND SHALL BE INSTALLED 1' FOOT FROM THE METER BOX. CURB STOPS SHALL BE LOCATED IN A CURB STOP BOX AS MANUFACTURED BY FORD, A.Y. McDONALD, OR TRUMBULL.
- SERVICE SADDLES SHALL BE ALL BRONZE WITH DOUBLE BRONZE STRAPS WITH A NEOPRENE 'O' RING GASKET ATTACHED TO THE BODY.
- ALL WATER METERS SHALL BE PROVIDED AND INSTALLED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT METERS DIVISION.
- METERS WILL BE THE SAME SIZE IN DIAMETER AS THE SERVICE.
- A 3' CLEAR SPACE SHALL BE MAINTAINED AROUND ALL WATER METERS.
- ALL OF SANITARY SEWER SERVICES CONNECTIONS SHALL BE MADE INTO MANHOLES ONLY.
- UTILITY TRENCHES SHALL BE CUT AND PAVEMENT REPAIRED TO CITY OF RALEIGH STANDARDS.
- ALL DISTURBED HARDSHIPS AND LANDSCAPING (CONCRETE, ASPHALT, BRICK, TREES, SHRUBS, ETC) SHALL BE REPLACED ACCORDING TO CITY OF RALEIGH AND NCDOT STANDARDS AND SPECIFICATIONS.
- BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A SURVEY BY SURVEYOR INFO.

ATTENTION CONTRACTORS
 The Contractor responsible for the extension of water, sewer, and/or gas, as approved in these plans, is responsible for contacting the Public Works Department at (919) 996-2499, and the Public Utilities Department at (919) 996-4500 at least twenty four hours prior to beginning any of their construction.

Failure to notify both City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require resatiation of any water or sewer facilities not inspected as a result of this notification failure.

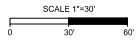
Failure to call for inspection, install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.



WATER SERVICE INSET - 1" = 10'

PRELIMINARY - NOT RELEASED FOR CONSTRUCTION

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH, NCDCE, AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



PRELIMINARY NOT FOR CONSTRUCTION
 06/05/17

THIS DRAWING PREPARED AT THE RALEIGH OFFICE
 5001 TAYLOR ROAD, SUITE 200, RALEIGH, NC 27607
 TEL: 919.996.4501 FAX: 919.933.4124 WWW.TIMMONSGROUP.COM

REVISION DESCRIPTION
 1. ASH SUBMITTAL
 2. ASH SUBMITTAL
 3. ASH SUBMITTAL

DATE: 02/02/2024
 DRAWN BY: 332
 DESIGNED BY: P. BARBEAU
 CHECKED BY: R. BAKER
 SCALE: AS SHOWN

TIMMONS GROUP
 LAKE HAVEN
 RALEIGH - WAKE COUNTY - NORTH CAROLINA
 UTILITY PLAN
 NORTH CAROLINA LICENSE NO. C-1652

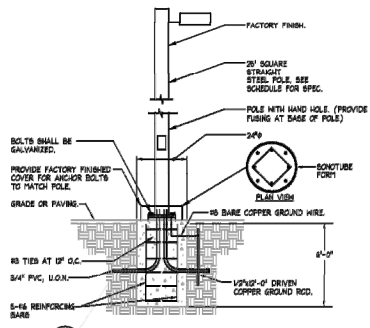
JOB NO. 42601.01
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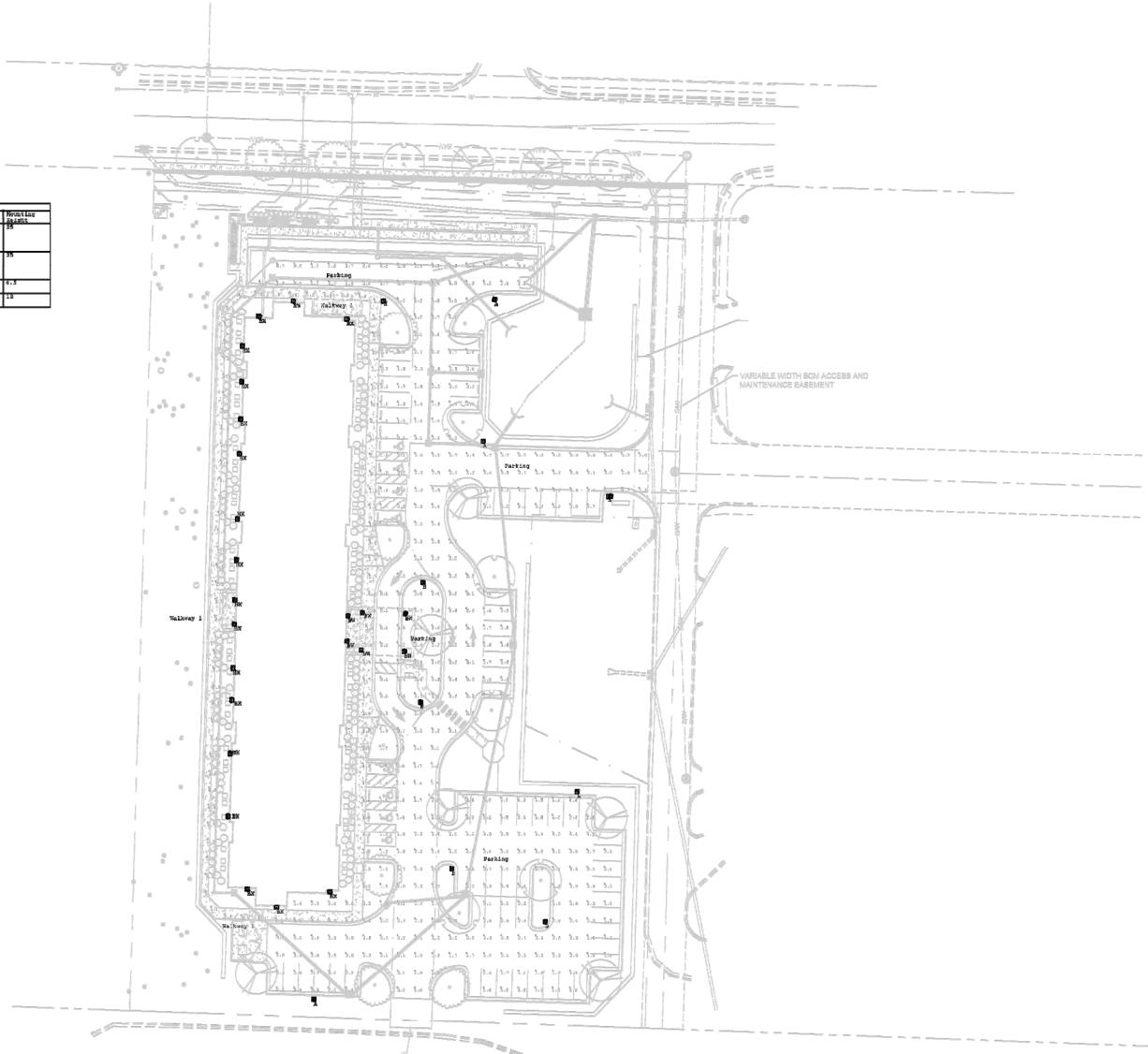
BEARING AREA - V. W. WILK

ITEM	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	20' SQUARE STRAIGHT STEEL POLE, SEE SCHEDULE FOR SPEC.	1	EA	1,200.00	1,200.00
2	24" DIA. CONCRETE FOOTING	1	EA	1,500.00	1,500.00
3	1/2" DIA. DRIVEN COPPER GROUND ROD	10	EA	100.00	1,000.00
4	5-#6 REINFORCING BARS	10	EA	100.00	1,000.00
5	3/4" PVC, U.G.R.	10	EA	100.00	1,000.00
6	10 BAR COPPER GROUND WIRE	10	EA	100.00	1,000.00
7	24" DIA. CONCRETE FOOTING	1	EA	1,500.00	1,500.00
8	1/2" DIA. DRIVEN COPPER GROUND ROD	10	EA	100.00	1,000.00
9	5-#6 REINFORCING BARS	10	EA	100.00	1,000.00
10	3/4" PVC, U.G.R.	10	EA	100.00	1,000.00
11	10 BAR COPPER GROUND WIRE	10	EA	100.00	1,000.00

CONTRACTOR	DATE	REVISION
WILK	05/24/2024	1
WILK	05/24/2024	2
WILK	05/24/2024	3



2 POLE BASE DETAIL
NTS
NOTE:
CONTRACTOR SHALL COORDINATE POLE BOLT TEMPLATE PRIOR TO FORMING BASE.



1 SITE PLAN
1/32"=1'-0"

date	05.24.2024
checked by	
project number	T-22010.1
revisions	date

LIGHTING PLAN

C5.1

TightLines Designs
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19 W. Hopwell St., Suite 501 • Raleigh, NC 27601
919.834.3200 • www.tightlinesdesign.com

LIGHTHOUSE ENGINEERING

MECHANICAL ELECTRICAL PLUMBING

LAKE HAVEN
Lake Woodard Drive
RALEIGH, NC

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This drawing is an illustration. We warrant that the drawing is a true and correct representation of the work to be performed.

PLANT SCHEDULE						
TREE	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE
AFA	8	QUERCUS LYRATE	OVERCUP OAK	3" CAL., 10 HT. MIN.	B&B	SHADE TREE
BND	8	BETULA NIGRA 'BNMTF' TM	DURA HEAT RIVER BIRCH	3" CAL., 10 HT. MIN.	B&B	SHADE TREE
NSW	9	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE BLACK GUM	3" CAL., 10 HT. MIN.	B&B	SHADE TREE
IVN	16	ILEX CORNUTA	DWARF BURFORD HOLLY	18" HT./SPRD.	CONTAINER	EVERGREEN

LANDSCAPE NOTES

PRE-CONSTRUCTION

- PRIOR TO CONSTRUCTION LOCATE ALL UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE WORK AREA. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. PROTECT ALL UTILITIES. REPAIR ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF CONSTRUCTION.
- CONTRACTOR ENGAGED IN LANDSCAPE IMPLEMENTATION SHALL BE A LANDSCAPE CONTRACTOR REGISTERED IN THE STATE OF NORTH CAROLINA.
- VERIFY ALL PLANT MATERIAL QUANTITIES ON PLANS PRIOR TO BIDDING. PLANT LIST TOTALS ARE FOR CONVENIENCE ONLY AND MUST BE VERIFIED.
- PLANT MATERIAL SUBSTITUTIONS CAN ONLY OCCUR WITH PRIOR WRITTEN APPROVAL BY LANDSCAPE ARCHITECT.

PRELIMINARY NOT FOR CONSTRUCTION
 06/05/17

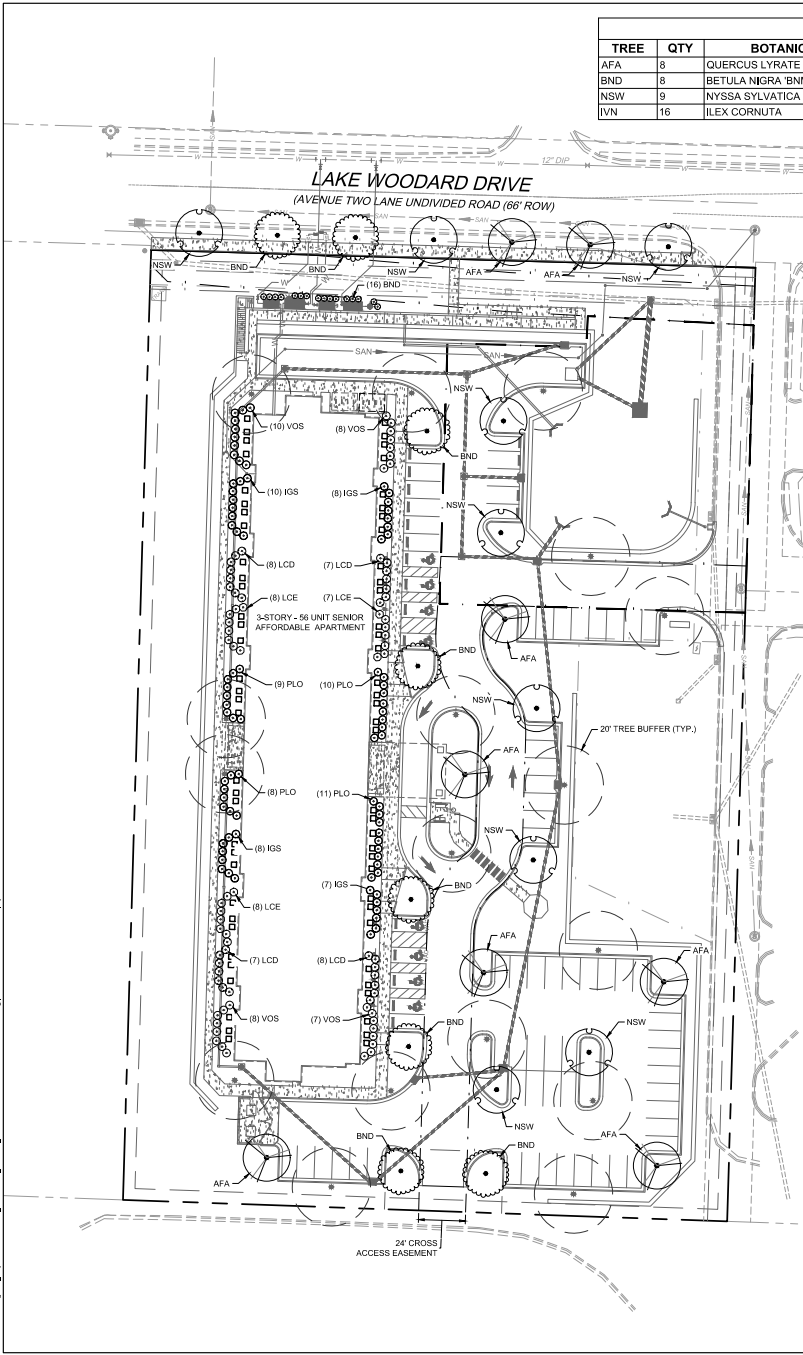
THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
 5401 TWIN LAKES DRIVE, SUITE 100, RALEIGH, NC 27607
 TEL: 919.486.4941 FAX: 919.433.4124 WWW.TIMMONSGROUP.COM

REVISION DESCRIPTION	DATE
AS PER SUBMITTAL	
AS PER SUBMITTAL	
AS PER SUBMITTAL	

YOUR VISION ACHIEVED THROUGH OURS.
 DATE: 02/02/2024
 DRAWN BY: 332
 DESIGNED BY: P. BARBEAU
 CHECKED BY: R. BAKER
 SCALE: AS SHOWN

TIMMONS GROUP
 LAKE HAVEN
 RALEIGH - WAKE COUNTY - NORTH CAROLINA
 LANDSCAPE PLAN
 NORTH CAROLINA LICENSE NO. C-1652

JOB NO. 42601.01
 SHEET NO. C6.0



VEHICULAR PARKING LOT LANDSCAPING (UDO - SECTION 7.1.7)

- LANDSCAPED INTERIOR ISLAND REQUIRED EVERY 10 PARKING SPACES. 8' MIN. WIDTH, 300 SF MIN.
- EACH INTERIOR ISLAND MUST HAVE 1 SHADE TREE.
- ALL ROWS OF PARKING MUST TERMINATE AT A LANDSCAPED INTERIOR TERMINAL ISLAND. NO MORE THAN 30 PARKING SPACES ALLOWED BETWEEN TERMINAL ISLANDS.
- LIGHT POLES NOT ALLOWED WITHIN 20' FROM A TREE.

TREE COVERAGE

- 1 TREE / INTERIOR ISLAND
- 1 TREE / 2,000 SF OF PARKING AREA (IMPERVIOUS)

PARKING AREA: 31,604 SF (INCLUDING DRIVES)
16 TREES REQUIRED
18 TREES PROVIDED

STREETS TREES (STREET DESIGN MANUAL)

NEIGHBORHOOD STREET (3.2.2.)

- MINIMUM PLANTING AREA: 4'
- TREE SPACING: 40' O.C. AVG.

LAKE WOODARD DR -

- LINEAR FEET OF FRONTAGE / 40' = # OF SHADE TREES
- 276 LF / 40' = 7 SHADE TREES

FRONTAGE SEGMENT: 276 LF
7 TREES REQUIRED
7 TREES PROVIDED

SCREENING (UDO - SECTION 7.2.5)

SERVICE AREAS:

- LOADING AREAS, TRASH AREAS, AND SERVICE AREAS MUST BE SCREENED. MECHANICAL & HVAC MUST BE SCREENED.

MECHANICAL & HVAC EQUIPMENT:

- GROUND MOUNTED EQUIPMENT SCREENING SHALL BE AS HIGH AS THE HIGHEST POINT OF THE EQUIPMENT BEING SCREENED.

CONSTRUCTION/INSTALLATION

- CONTRACTOR IS ENCOURAGED TO COMPLETE TEMPORARY OR PERMANENT SEEDING IN STAGES FOR SOIL STABILIZATION AS AREAS ARE COMPLETED AFTER GRADING. THIS PLAN DOES NOT PRESENT ANY TEMPORARY STABILIZATION REQUIRED AS PART OF SWPPP PLAN.
- CONTRACTOR SHALL TAKE 3 REPRESENTATIVE SOIL SAMPLES OF EACH PROPOSED PLANT BED AND SUBMIT COPIES OF THE RESULTS TO THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING WORK.
- STUMPS LABELED FOR REMOVAL SHALL BE EXCAVATED, NOT GROUND, REMOVE ALL DEBRIS FROM THE HOLE, FILL WITH TOP SOIL, COMPACT, AND RAKE SMOOTH PRIOR TO INSTALLING NEW PLANT MATERIAL.
- CONTRACTOR IS RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING TO MAINTAIN HEALTHY PLANT CONDITIONS.
- ALL LANDSCAPED AND LAWN AREAS ARE TO RECEIVE A MINIMUM 4" OF TOPSOIL.
- ALL LANDSCAPE ISLANDS SHALL BE GRADED FOR POSITIVE DRAINAGE WITH NO LOW SPOTS ALLOWING WATER TO BE TRAPPED.
- INSTALL LANDSCAPE PLANTINGS AT ENTRANCES/EXITS AND PARKING AREAS ACCORDING TO PLANS SO MATERIAL WILL NOT INTERFERE WITH SIGHT DISTANCES.
- THE SIZE OF THE PLANTING AREA AND SIZE OF PLANT MATERIAL AT MATURITY SHALL ALLOW FOR A 2" BUFFER OVERHANG FROM THE BACK CURB.
- ALL TREES MUST BE GUYED OR STAKED AS DETAILED.
- AREAS DAMAGED FROM PLANT RELOCATION OR OTHER ACTIVITIES OF LANDSCAPE CONTRACTOR TO BE RESEEDED AND ESTIMATED AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR IS RESPONSIBLE FOR WEEDING ALL PLANT MATERIAL DURING INSTALLATION AND UNTIL FINAL INSPECTION AND ACCEPTANCE BY OWNER. CONTRACTOR SHALL NOTIFY OWNER OF CONDITIONS WHICH AFFECTS THE GUARANTEE. IT MAY BE NECESSARY TO TRUCK IN FERTILITY WATER TO MEET PLANT NEEDS.
- USE HERBICIDES, PESTICIDES, AND FERTILIZER IN A MANNER CONSISTENT WITH THE GENERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT AND IN ACCORDANCE WITH LABEL RESTRICTIONS.
- ALL LAWN AREAS TO BE SEEDDED SHALL USE A LOCALLY GROWN COMMERCIAL MIX MEETING LATEST STATE OF NORTH CAROLINA AGRICULTURE STANDARDS FOR SEED AND PLANT CERTIFICATION.
- SEEDING AND STRAW NOTES FOR LAWN AREAS:
 - o RIP THE ENTIRE AREA TO DEPTH OF NOT LESS THAN 4".
 - o REMOVE ALL LOOSE ROCKS, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE SMOOTH AND UNIFORM. DISPOSE OF WASTE MATERIAL OFF-SITE.
 - o CHISEL COMPACTED AREAS AND SPRING TOPSOIL TO SPECIFIED DEPTH.
 - o APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL. APPLY SOIL AMENDMENTS PER REQUIRED SOIL ANALYSIS RECOMMENDATIONS.
 - o CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FINELY REASONABLY UNIFORM SEEDBED IS PREPARED.
 - o SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULT TRUCK AFTER SEEDING.
 - o MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
 - o INSPECT ALL SEEDBED AREAS AND IF POSSIBLE, MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON. IF GRASS STANDING SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, AND SEEDING RATES.
 - o ANCHOR TACK WITH LIQUID ASPHALT AT 400 GAL/ACRE OR EMULSIFIED ASPHALT AT 300 GAL/ACRE.
- BIODEGRADABLE WEED MATTING (ALL-PRO WEED MAT OR APPROVED EQUAL) SHALL BE REQUIRED IN SHRUB BEDS ADJACENT TO BUILDING FACADE.
- PLANTING BEDS TO BE COMPLETELY COVERED WITH A MINIMUM 4" DEPTH OF MATERIAL FROM A LOCAL SOURCE HARVESTED IN A SUSTAINABLE MANNER. REFER TO LANDSCAPE SCHEME FOR MATERIAL SPECIFICATIONS.
- MULCH ALL PLANT BEDS AND TREE ROWS WITH FRESH, CLEAN MATERIAL, PER SPECIFICATIONS. ALL MULCH EDGES SHALL BE NEATLY TUCKED. ALL STRIPS AND/OR BALEMS MUST BE REMOVED. DUST SHRUBS AND GROUND COVER AFTER MULCHING TO REMOVE LOOSE MATERIAL FROM PLANTS. DO NOT PLACE MULCH IN CONTACT WITH THE TREE TRUNK. KEEP A MINIMUM OF 4" AWAY FROM TREE TRUNK OR BASE OF PLANT.
- MULCH AND NAKAWIMES SHALL BE REPLENISHED AS NEEDED, ESPECIALLY AFTER HEAVY RAIN EVENTS. IF NAKAWIMES GERMINATES AT A RATE OF LESS THAN 50%, THEN REMOVE OTHER SPECIES AND RESEED.

TEMPORARY IRRIGATION

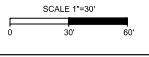
- CONTRACTOR TO PROVIDE AND MAINTAIN TEMPORARY IRRIGATION FOR SOO WITHIN THE STORMWATER CONTROL MEASURE UNTIL SOO BECOMES ESTABLISHED.

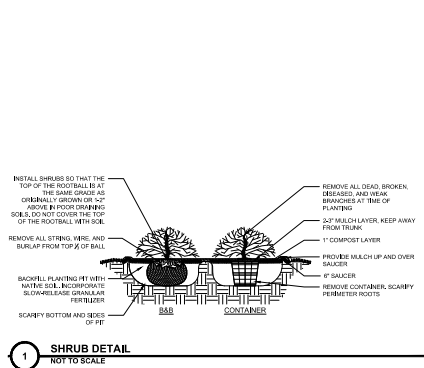
INSPECTIONS/GUARANTEES

- LANDSCAPE CONTRACTOR SHALL NOTIFY GENERAL CONTRACTOR UPON COMPLETION OF LANDSCAPE INSTALLATION. CONTRACTOR WILL VERIFY COMPLETENESS INCLUDING THE REPLACEMENT OF ALL DEAD PLANT MATERIAL. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A FINAL INSPECTION BY LANDSCAPE ARCHITECT.
- PLANT MATERIAL QUANTITIES AND SIZES WILL BE INSPECTED FOR COMPLIANCE WITH APPROVED PLANS BY A SITE PLAN REVIEWER PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY.
- CONTRACTOR TO GUARANTEE ALL PLANT MATERIALS FOR ONE FULL YEAR AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. REPLACEMENT OF DEAD PLANT BEDS UPON CERTIFICATE OF OCCUPANCY OR WHEN THE OWNER TAKES OVER MAINTENANCE, WHICHEVER COMES FIRST.

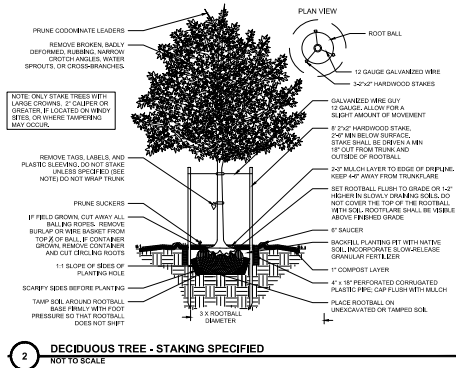
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE
IGS	33	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERY HOLLY	18" HT./SPRD.	CONTAINER	EVERGREEN
LCD	30	LOROPETALUM CHINENSIS 'DARUMA'	DARUMA DWARF LOROPETALUM	18" HT./SPRD.	CONTAINER	EVERGREEN
LCE	23	LOROPETALUM CHINENSIS 'EMERALD SNOW'	EMERALD SNOW LOROPETALUM	18" HT./SPRD.	CONTAINER	EVERGREEN
PLO	98	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL	18" HT./SPRD.	CONTAINER	EVERGREEN
VOS	33	VIBURNUM OBOVATUM 'MRS. SCHILLERS DELIGHT'	MRS. SCHILLERS DELIGHT WALTER'S VIBURNUM	18" HT./SPRD.	CONTAINER	EVERGREEN

PRELIMINARY - NOT RELEASED FOR CONSTRUCTION
 ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL CITY OF RALEIGH, NCDEQ, AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

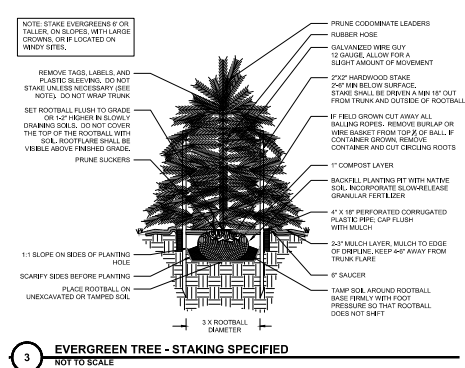




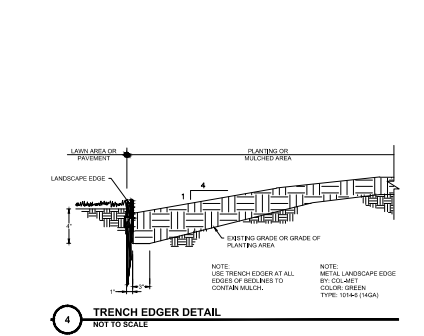
1 SHRUB DETAIL NOT TO SCALE



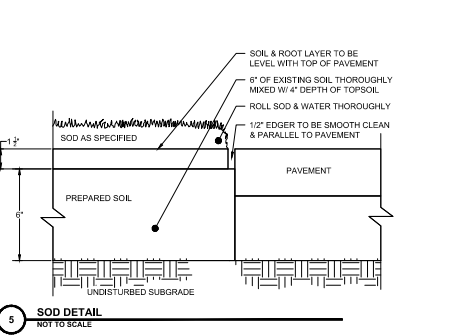
2 DECIDUOUS TREE - STAKING SPECIFIED NOT TO SCALE



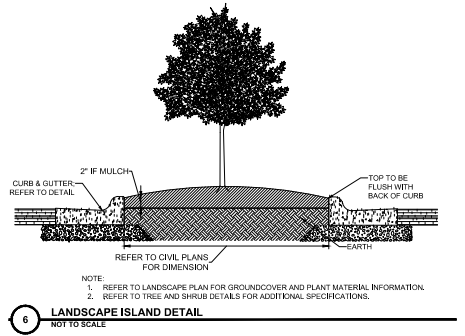
3 EVERGREEN TREE - STAKING SPECIFIED NOT TO SCALE



4 TRENCH EDGER DETAIL NOT TO SCALE



5 SOD DETAIL NOT TO SCALE



6 LANDSCAPE ISLAND DETAIL NOT TO SCALE

PRELIMINARY NOT FOR CONSTRUCTION

06/05/17

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DATE	DATE
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DESIGNED BY P. BARBEAU	
CHECKED BY R. BAKER	
SCALE AS SHOWN	

TIMMONS GROUP

LAKE HAVEN
 NORTH CAROLINA LICENSE NO. C-1652

RALEIGH - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE DETAIL

JOB NO.
42601.01

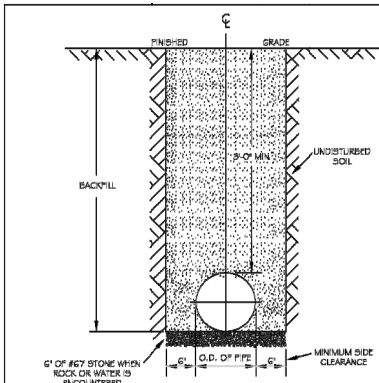
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C6.1

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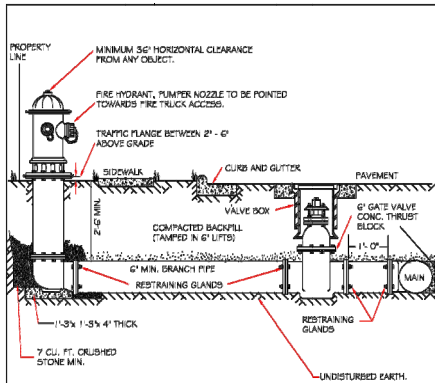
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- NOTES:
- TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR EQUIVALENTS 4" OR LARGER TO BE USED IN BACKFILL.
 - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 - ACHIEVE 95% COMPACTION IN BACKFILL.

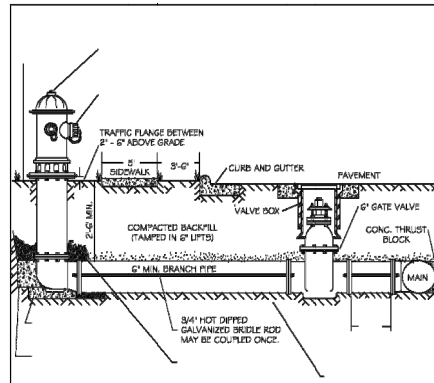
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3				
D.W.C.		3-2-99	ABB	2-15-03
RSH		3-31-00	J.S.	10-29-10



- NOTES:
- FIRE HYDRANT SHALL BE AS MANUFACTURED: MULLER, AMERICAN DARLING, KENNEDY, MH, WATERLOO, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 - BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-B6.
 - 6" GATE VALVE SHALL BE AWWA C500-B6 OPEN LEFT.
 - SIZE, RODS AND BOLTS SHALL BE 2" HOT DIPPED GALVANIZED.
 - FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
 - RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 50 FEET A MECHANICAL RESTRAINING GLEND WITH A RESAM CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
 - FIRE HYDRANTS TO BE LOCATED IN ROW OR 2' FOOT SETBACK ADJACENT TO ROW.

ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

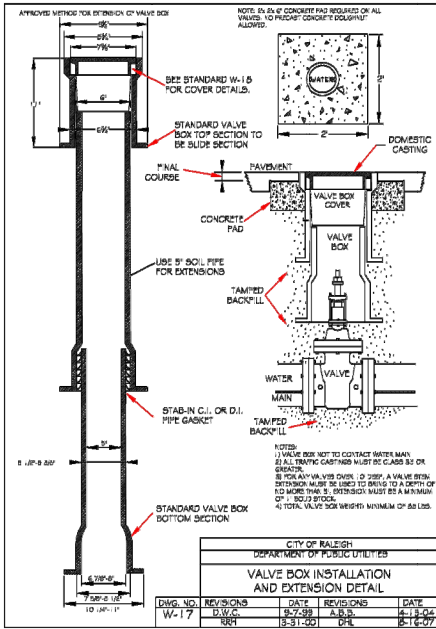
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4				
ABB		2-15-03	ABB	10-7-08
RSH		3-31-00	J.S.	10-29-10



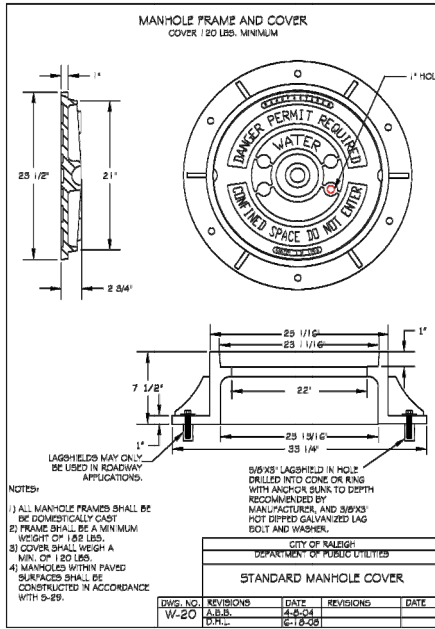
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CITY OF RALEIGH				
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STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
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ABB		4-4-04		

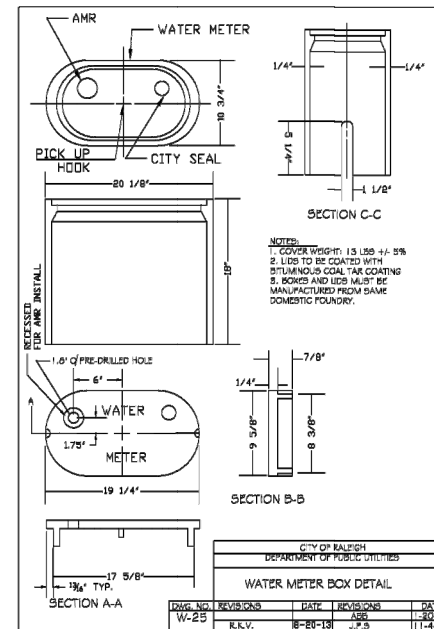


CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
VALVE BOX INSTALLATION AND EXTENSION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17				
D.W.C.		3-7-99	A.B.S.	4-13-04
RSH		3-31-00	DR	01-10-07



- NOTES:
- ALL MANHOLE FRAMES SHALL BE BE DOMESTICALLY CAST.
 - FRAME SHALL BE A MINIMUM WEIGHT OF 165 LBS.
 - COVER SHALL WEIGH A MIN. OF 120 LBS.
 - MANHOLES WITH PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH 9-29.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20				
A.B.S.		4-4-04	ABB	6-12-05
DR		3-31-00	J.S.	10-29-10



- NOTES:
- COVER WEIGHT: 13 LBS +/- 5%
 - BOX TO BE COATED WITH STUMPS-COAL TAR COATING.
 - BOXES AND LIDS MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
WATER METER BOX DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25				
K.V.		8-28-19	J.S.	11-4-10

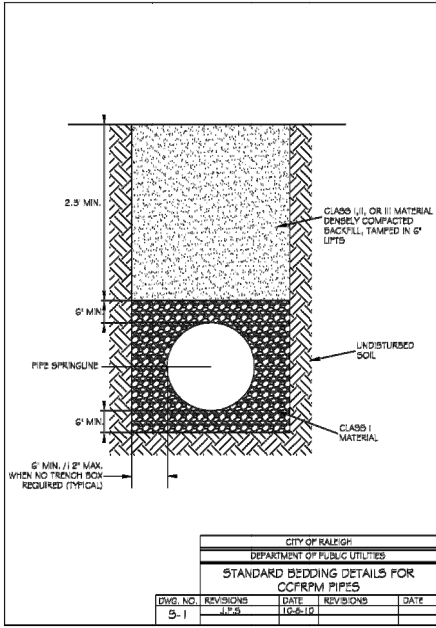
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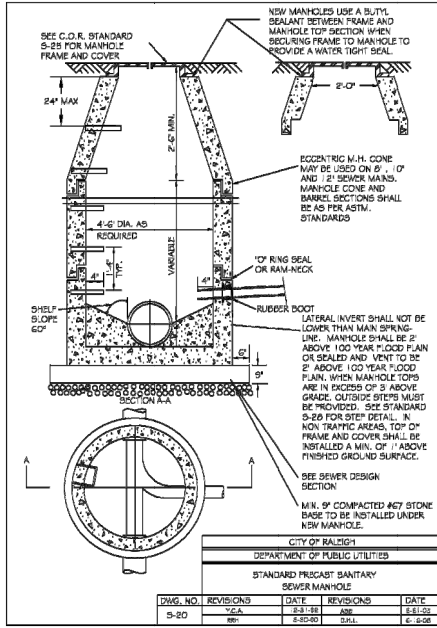
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RALEIGH - WAKE COUNTY - NORTH CAROLINA
NORTH CAROLINA LICENSE NO. C-1652

NOTES AND DETAILS

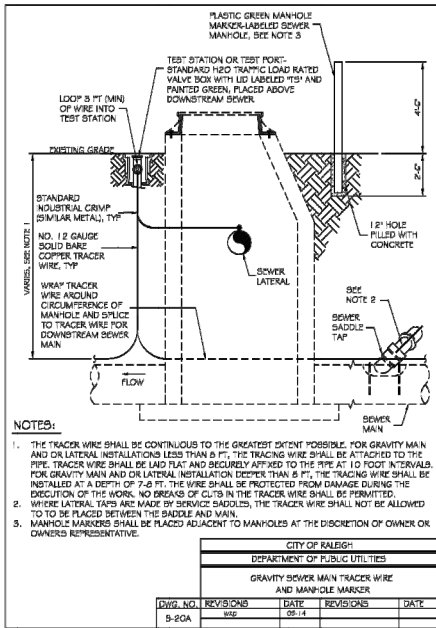
JOB NO. 42601.01
SHEET NO. C7.0



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD BEDDING DETAILS FOR CCFRPM PIPES					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-1		11-2-20		10-6-19	



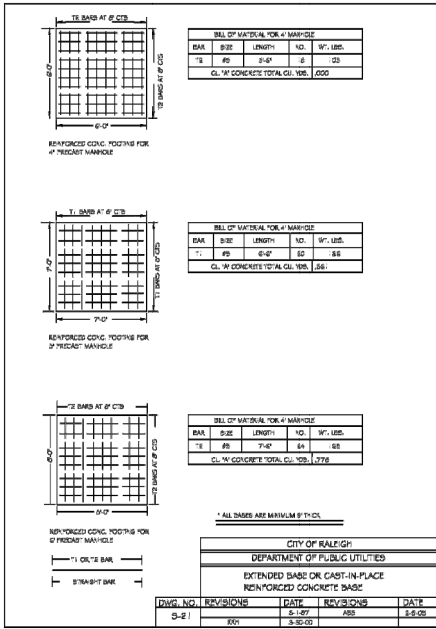
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD PRECAST SANITARY SEWER MANHOLES					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20		7-6-18		8-1-18	
		8-1-18		8-1-18	



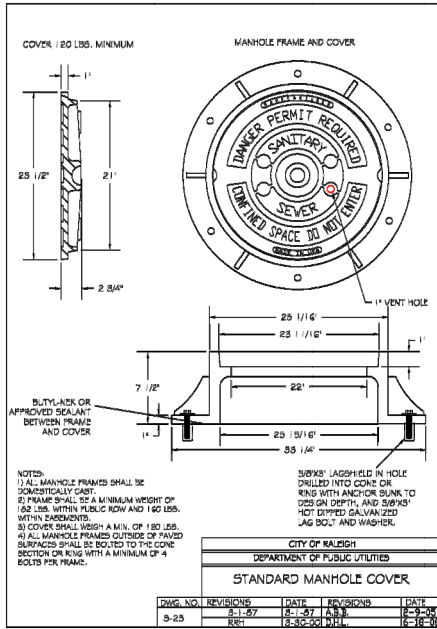
NOTES:

1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 5 FT., THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 5 FT., THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORKS. NO BREAKS OF GUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNERS REPRESENTATIVE.

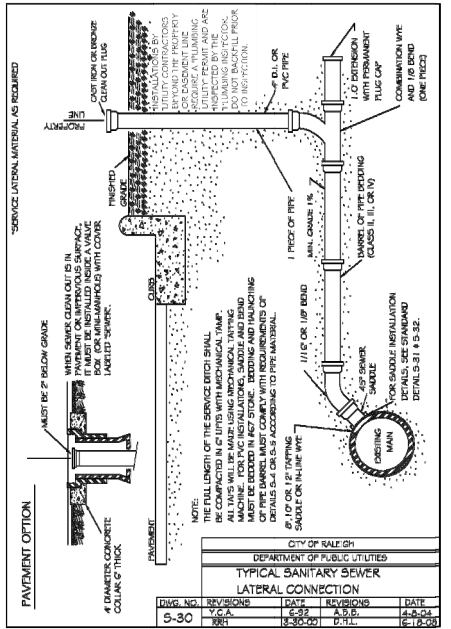
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20A		08-14		08-14	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
EXTENDED BASE OR CAST-IN-PLACE REINFORCED CONCRETE BASE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-2-1		5-18-17		8-8-09	
		8-8-09		8-8-09	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-23		8-1-97		8-1-97	
		8-1-97		8-1-97	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30		8-2-09		4-5-09	
		8-2-09		8-1-11	

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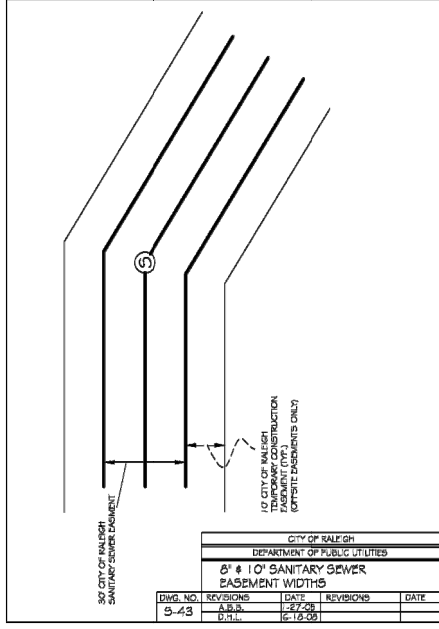
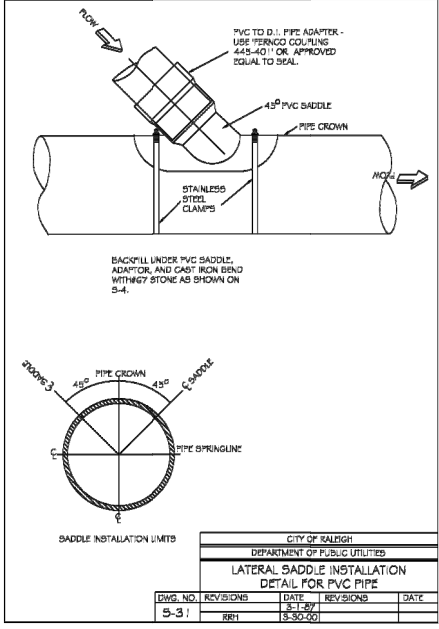
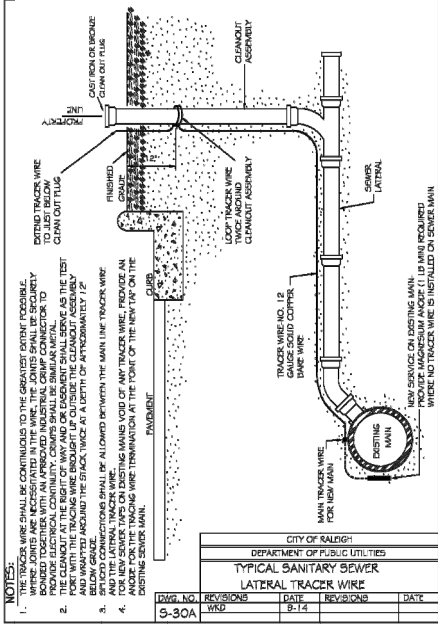
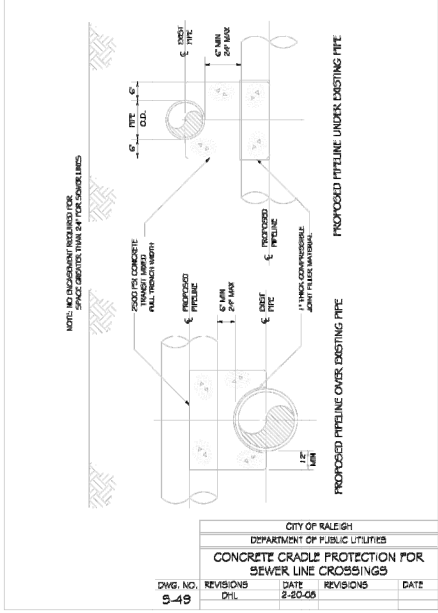
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NORTH CAROLINA LICENSE NO. C-1652

NOTES AND DETAILS

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42601.01

SHEET NO.
C7.2

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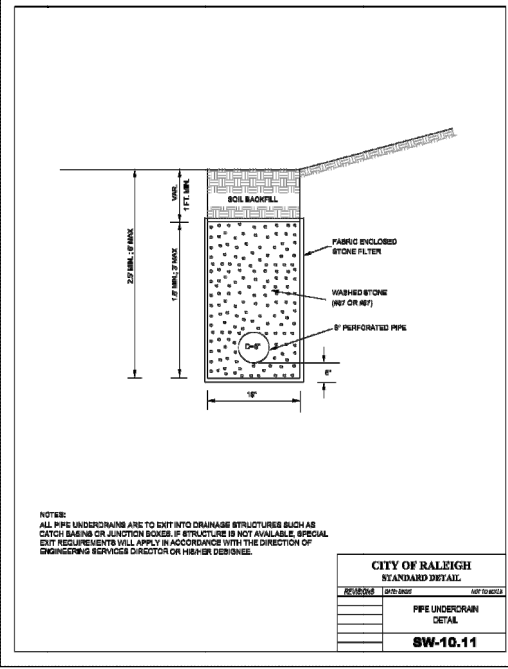
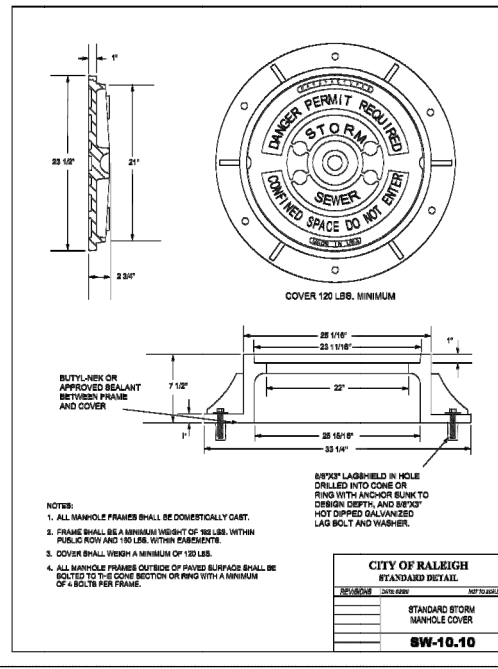
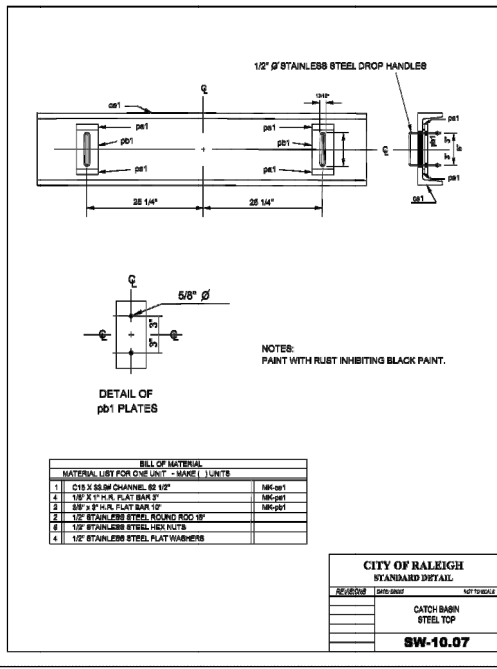
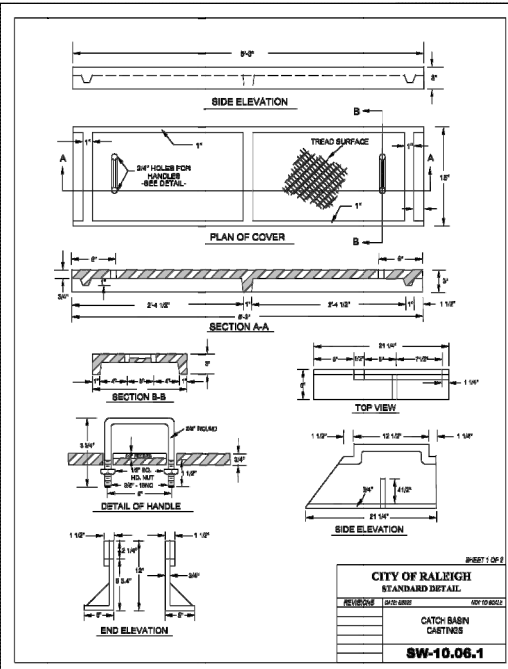
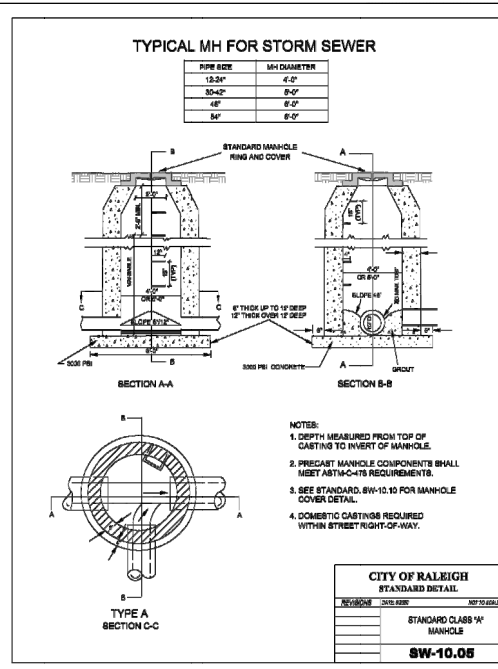
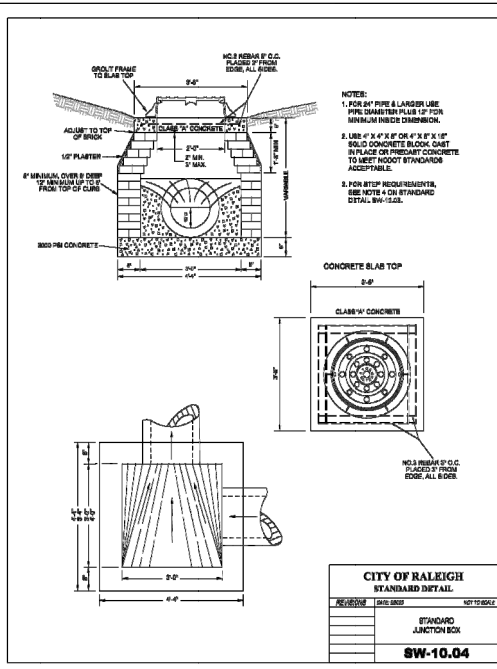
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 DESIGNED BY P. BARBEAU
 CHECKED BY R. BAKER
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 ASSE SUBMITTAL
 06/06/2016
 302 ASSE SUBMITTAL

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CHECKED BY: R. BAKER
SCALE: AS SHOWN

TIMMONS GROUP
LAKE HAVEN
RALEIGH - WAKE COUNTY - NORTH CAROLINA
NORTH CAROLINA LICENSE NO. C-1652

JOB NO.
42601.01
SHEET NO.
C7.4

NOTES:

1. CURB AND GUTTER SECTION SHALL BE REMOVED IN ACCORDANCE WITH DRIVEWAY WIDTH APPROVED BY THE CITY.
2. IF PERPENDICULAR CUT IS LESS THAN 4" FROM JOINT, THEN THE PARALLEL CUT SHALL BE MADE TO THAT JOINT.
3. THIS METHOD IS NOT ALLOWED IN NEW ROADWAY CONSTRUCTION.

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

STANDARD METHOD OF REMOVING EXISTING CURB (FOR A DRIVEWAY APRON INSTALLATION)

T-10.24

NOTES:

1. 10' MAXIMUM BETWEEN CURRY JOINTS.
- 10' MAXIMUM BETWEEN CURRY JOINTS ON BACKSIDE FACING.
- 1/2" EXPANSION JOINT BARRY 807.
- 3000 PSI CONCRETE MINIMUM 4" SLUMP MAXIMUM.
4. 1/2" MINIMUM CURVE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 108.6 OF NCDDOT STANDARD & SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. ALL CONTRACTION JOINTS SHALL BE FILLED WITH JOINT FILLER AND SHALL BE IN ACCORDANCE WITH NCDDOT ROADWAY STANDARD DETAIL 848.01. THE JOINT MATERIAL SHALL CONFORM TO SECTION 108.6 OF NCDDOT STANDARD & SPECIFICATIONS FOR ROADS AND STRUCTURES.
8. REFER TO NCDDOT DETAIL 848.01 FOR CURB AND GUTTER SURFELEVATION RATES.

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

CURB AND GUTTER

T-10.26.1

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

STANDARD METHOD OF ENDING CURB AND GUTTER

T-10.25

TYPE N-1 (CURB TYPE)

1. 2% MIN. (1/4\"/>

TYPE N-1A (FLARE TYPE)

NOTE: SEE BIDDING DOCUMENTS FOR CURB DETAIL. (INDICATES VERTICAL CURB MOVEMENTS)

TYPE N-2 (RADIUS)

TYPE N-2 (TEE INTERSECTION)

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

CURB RAMPS (NEW DEVELOPMENT)

T-20.01.2

TYPE N-4

1. 2% MIN. (1/4\"/>

TYPE N-4A

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

CURB RAMPS (NEW DEVELOPMENT)

T-20.01.4

TYPE N-1 (SLOPED)

TYPE N-2 (FLARE)

TYPE N-3 (PARALLEL CURB RAMP)

TYPE N-4 (CURB RAMP AT ISLAND)

**CITY OF RALEIGH
STANDARD DETAIL**

REVISION	DATE	BY	APP'D

DETECTABLE WARNING SURFACE PLACEMENT

T-20.01.1

TIMMONS GROUP

LAKE HAVEN
RALEIGH - WAKE COUNTY - NORTH CAROLINA

NOTES AND DETAILS

PRELIMINARY
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CONSTRUCTION

06/05/17

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REVISION DESCRIPTION
DATE SUBMITTED
DATE SUBMITTED

DATE
02/02/2024

DRAWN BY
332

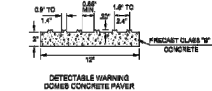
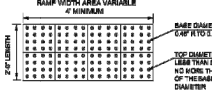
DESIGNED BY
P. BARBEAU

CHECKED BY
R. BAKER

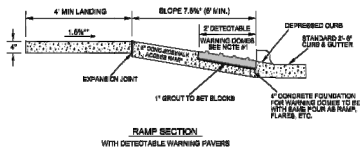
SCALE
AS SHOWN

JOB NO.
42601.01

SHEET NO.
C7.7



* 8.00% (1-1/2) min
 ** 2.00% (1-4/8) max



- NOTES:
1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON DETAIL. SIZE OF PAVES SHALL BE 1' X 1'.
 2. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE YELLOW FOR CONTRAST.

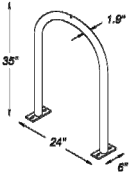
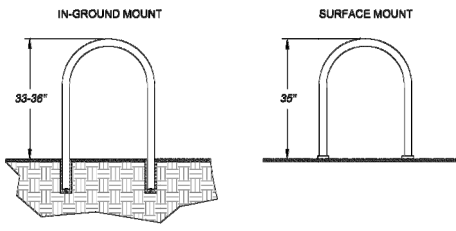
SHEET 2 OF 4

CITY OF RALEIGH
STANDARD DETAIL

REVISION	DATE	BY	NO. TO BE SET

DETECTABLE WARNING SURFACE PAVERS

T-20.04.2



BIKE RACK INSTALLATION:
SURFACE MOUNT - WHEN INSTALLED ON CONCRETE SURFACE, USE 3/8" ANCHORS TO PLATE MOUNT. BHM AS NECESSARY TO ENSURE VERTICAL PLACEMENT.
IN-GROUND MOUNT - WHEN INSTALLED ON PAVEMENT OR OTHER NON-STABLE SURFACES, EMBED INTO BASE. CORE HOLES NO LESS THAN 3" IN DIAMETER AND 10" DEEP.

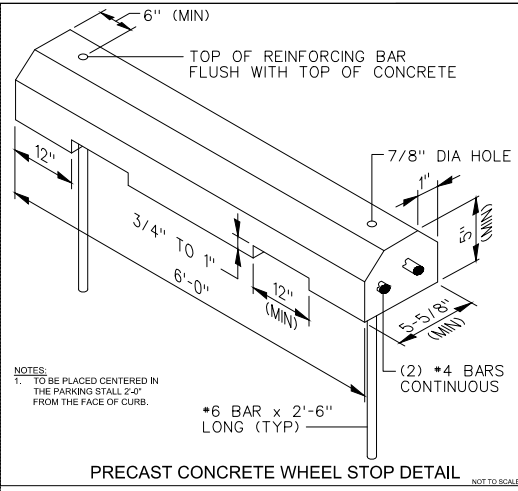
STANDARD BIKE RACK

CITY OF RALEIGH
STANDARD DETAIL

REVISION	DATE	BY	NO. TO BE SET

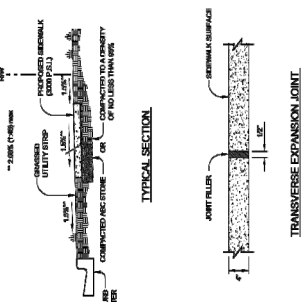
DETECTABLE WARNING SURFACE PAVERS

B-20.03

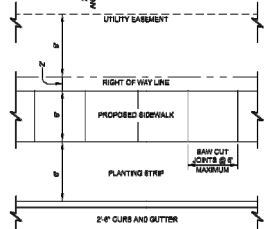


- NOTES:
1. TO BE PLACED CENTERED IN THE PARKING STALL 2'-0" FROM THE FACE OF CURB.

PRECAST CONCRETE WHEEL STOP DETAIL



TRANSVERSE EXPANSION JOINT



PLAN VIEW

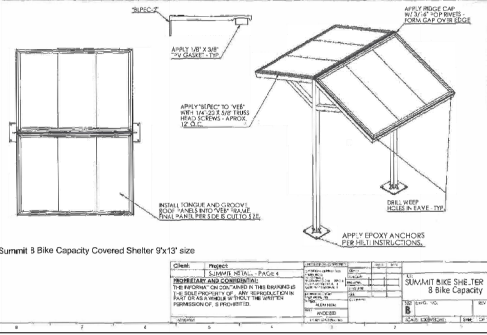
- NOTES:
1. MINIMUM CURB HEIGHT SHALL BE 2' MINUS FINISH GRADE TO TOP OF CURB.
 2. MINIMUM CURB LENGTH SHALL BE 10' MINUS FINISH GRADE TO END OF CURB.
 3. A 1' X 1' CURB SHALL BE PROVIDED AT ALL CORNERS OF PROPERTY OR DRIVEWAY.
 4. CURB SHALL BE CONSTRUCTED WITH 2\"/>

CITY OF RALEIGH
STANDARD DETAIL

REVISION	DATE	BY	NO. TO BE SET

CONCRETE SIDEWALK

T-30.01.1



Summit 9 Bike Capacity Covered Shelter 9'x15' size

NO.	DESCRIPTION	DATE	BY	NO. TO BE SET

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DATE	DESIGNED BY	CHECKED BY	SCALE
02/02/2024	P. BARBEAU	R. BAKER	AS SHOWN

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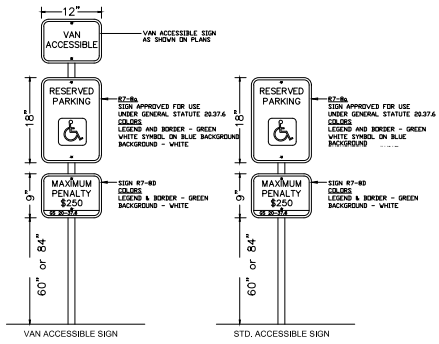
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RALEIGH - WAKE COUNTY - NORTH CAROLINA

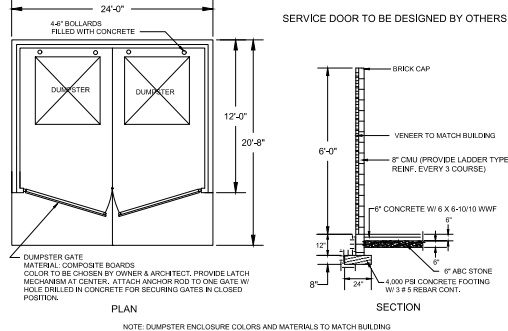
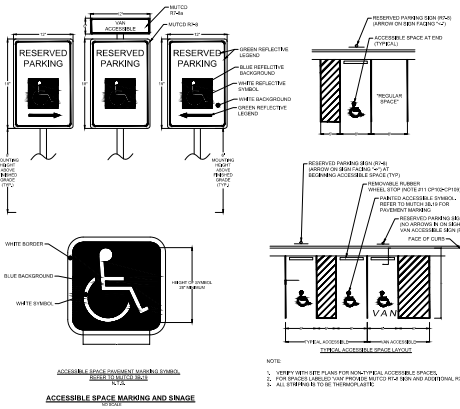
NOTES AND DETAILS

JOB NO. 42601.01
 SHEET NO. C7.8

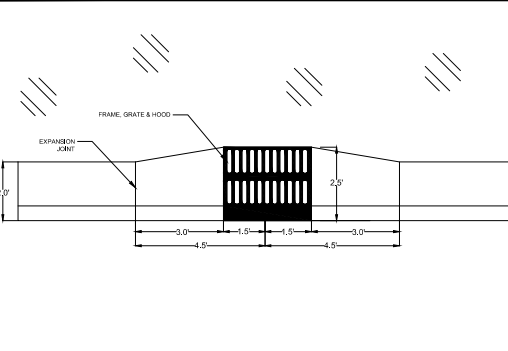
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- NOTES:** HANDICAP ACCESSIBILITY SIGNS
- ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.
 - ALL SIGNS SHALL BE MOUNTED WITH 5-FT MIN. VERTICAL CLEARANCE TO THE BOTTOM OF THE SIGN ON BLACK ROUND POST SET IN 18-IN DEEP x 8-IN DIA. CONCRETE FOOTING. SIGNS MOUNTED ADJACENT TO SIDEWALKS MUST BE MOUNTED WITH 7-FT MIN. VERTICAL CLEARANCE TO THE BOTTOM OF SIGN.
 - ALL SIGN POSTS TO BE INSTALLED ARE TO BE ROUND POSTS PAINTED BLACK AND APPROVED BY FLOWERS.



- DUMPSTER NOTES:**
- ENCLOSURE TO BE CONSTRUCTED WITH SIMILAR BRICK TO BUILDING.
 - HOLOM WHITE MORTAR
 - WHITE SAND (SUPPLIED BY CAUDLE SAND IN RALEIGH, NC)
 - SLOPPY JOINT
 - DUMPSTER GATE DOORS, POSTS AND COPING TO BE BLACK METAL COPING
- WASTE/RECYCLING DUMPSTER DETAIL**
NOT TO SCALE



PLACEMENT OF CURB INLET DETAIL
24" CURB & GUTTER
N.T.S.

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DATE: 02/02/2024
DRAWN BY: 332
DESIGNED BY: P. BARBEAU
CHECKED BY: R. BAKER
SCALE: AS SHOWN

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LAKE HAVEN
LAKE HAVEN
NORTH CAROLINA LICENSE NO. C-1652

RALEIGH - WAKE COUNTY - NORTH CAROLINA
NOTES AND DETAILS

JOB NO. 42601.01
SHEET NO. C7.9

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ALL WORK TO COMPLY WITH THE NCMAA'S 2022 DESIGN STANDARDS & FIELD GUIDE, AND THE ENERGY STAR MULTIFAMILY FOR NEW CONSTRUCTION PROGRAM

AVERAGE GRADE ANALYSIS		
UDO SEC. 1.5.7.A.2 (SINGLE BLD HEIGHT METHOD)		
FINISHED GROUND PARALLEL TO PRIMARY STREET		
	HIGH POINT	LOW POINT
PRIMARY STREET	255.9	255.5
		FINISHED AVG. GRADE
		255.7

ELEVATION NOTES

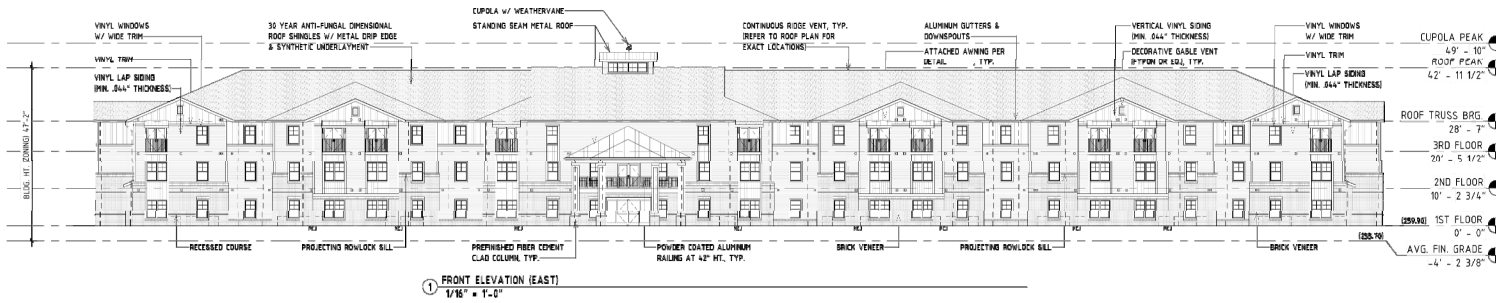
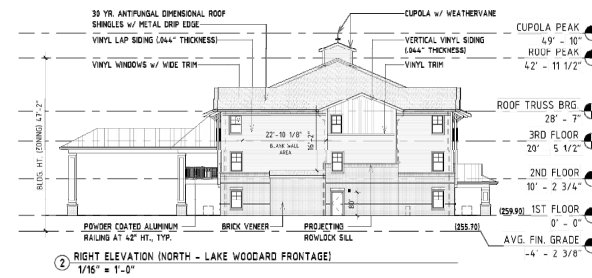
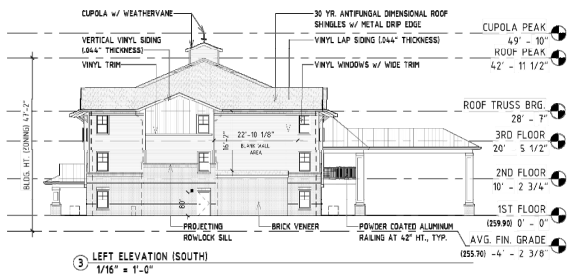
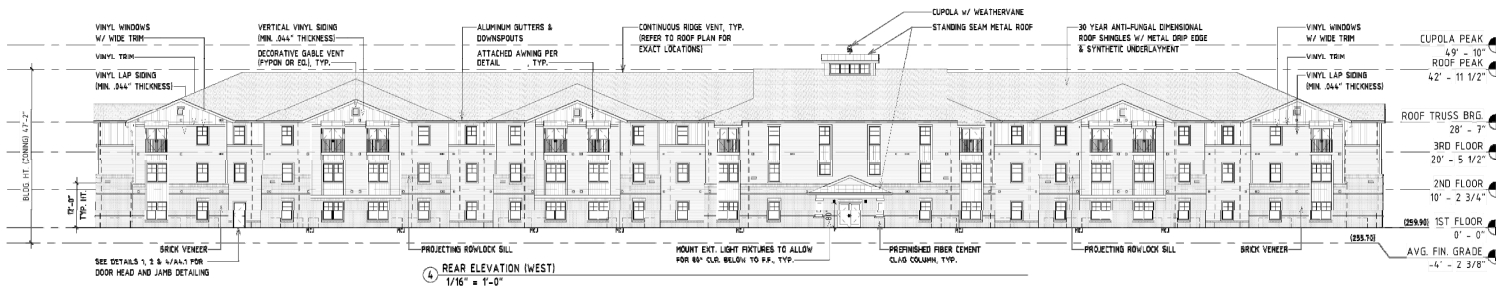
- MASONRY CONTROL JOINTS TO BE PROVIDED AT ALL INSIDE CORNERS AS WELL AS WHERE INDICATED ON ELEVATIONS (MAX 35' APART).
- INSTALL MOUNTING BLOCK FOR BUILDING SIGNAGE AND EXTERIOR LIGHTING FIXTURES, E.G. TO VERIFY EXACT LOCATION IN THE FIELD.
- SEE ROOF PLAN FOR DOWNSPOUT LOCATIONS.
- MINIMUM THICKNESS OF ALL VINYL SIDING TO BE .044".
- ALL VINYL SIDING TO HAVE A FLAME SPREAD OF 25 OR LESS.
- ALL TRIM TO BE WHITE. ALL CORNER TRIM TO BE VINYL WITH INTEGRAL J. ALL OTHER TRIM TO BE PVC FIBER CEMENT OR IMITATE CAN BE USED AS AN ALTERNATIVE TO PVC. SEE AA.1 FOR JAMB DETAILS.
- J-CAMMELS AT THE BOTTOM HORIZONTAL EDGE OF AN AREA OF VINYL SIDING SHALL BE PERFORATED, JOINTLESS AND SHALL HAVE ALUMINUM P-LASHING INSTALLED BEHIND/BELOW AS SHOWN IN DETAILS ON SHEET AA.1.
- ALL PVC VENT COVERS TO BE PRE-FINISHED. PROVIDE OWNER AND ARCHITECT SAMPLES OF FULL RANGE OF COVER COLOR OPTIONS FROM MANUFACTURER.
- STREET NUMBERS SHALL BE POSTED ON THE BUILDING AND VISIBLE FROM THE ROADWAY. NUMBERS SHALL CONTRAST WITH THEIR BACKGROUNDS. NUMBERS SHALL BE A MINIMUM STROKE WIDTH OF 4.75 INCHES. COMPLY REQUIREMENTS WITH LOCAL A.R.J.
- GABLE VENTS TO BE DECORATIVE (PYRON OR E.G.) U.A.G.
- OUTLETS TO BE MIN. 1" SEAMLESS ALUMINUM OUTLETS, AND DOWNSPOUTS TO BE MIN. 3/4" ALUMINUM.
- ALL EXTERIOR LINE SET PENETRATIONS SHALL BE HOODED.

NOTATION LEGEND

- = MECHANICAL DUCT COVER
- = OUTDOOR CONDENSING UNIT
- ☐ = LED WALL PACK/EXTERIOR BLDG MOUNTED LIGHT FIXTURE
- M/J = MASONRY CONTROL JOINT

BUILDING MATERIALS

- ROOF SHINGLES: 30 YEAR ANTI-FUNGAL DIMENSIONAL ROOF SHINGLES (TYP.)
COLOR: T80
- GUTTERS & DOWNSPOUTS: ALUMINUM
COLOR: WHITE
- SIDING: VINYL LAP SIDING (TYP.)
COLOR: T80
- ACCENT SIDING: VERTICAL VINYL SIDING
COLOR: T80
- TRIM: PVC TRIM & VINYL CORNER TRIM
COLOR: WHITE
- WINDOWS: VINYL, W/ WIDE TRIM
COLOR: WHITE
- MASONRY: BRICK VENEER W/ CONTINUOUS ROWLOCK CAP
COLOR: T80
- CLADDING: FIBER CEMENT BOARD & TRIM OVER BRICK
COLOR: WHITE (PC BOARD & TRIM, T80 (BRICK))



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LAKE HAVEN
3700 Lake Woodard Drive, Raleigh

ELEVATIONS FOR ASR

date	05/28/2024
drafter	G.P.L.
checked by	R.L.M.
project number	T-22010.1
# Revision	Date

ELEVATIONS
A1.0