

Engineering Design & Construction Standards Appendices

- A. Right of Way Encroachment Permit
- B. Utility Pavement Cut Policy
- C. Subdivision Inspection-Critical Items Checklist
- D. Policy for Street Improvements and Maintenance
- E. Street Lighting Policy
- F. TIA Memorandum of Understanding
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- H. Policy for Driveway Design & Construction
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- K. Erosion and Sedimentation Control Ordinance
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- M. Engineering Construction Document Review Checklist
- N. Petition for Addition of Public Streets



APPENDIX – A

Right of Way Encroachment Permit – General Requirements

Encroachment permits are required for any type of surface disturbing work on public roads or new aerial installation (e.g. signs) within the street rights-of-way. However, applying for a permit does not guarantee approval. The following are general requirements and vary based on the type of installation:

1. Developers, companies, and / or individuals working within the street rights-of-way initiate encroachment permit submittals.
2. The permit submittal shall include:
 - a. Three (3) copies of the approved plan showing detailed information as to the type and nature of the work being performed in the right-of-way. The lack of plan clarity is sufficient cause for rejection.
 - i. One plan for Town Engineer for approval
 - ii. One plan maintained on site
 - iii. One plan given to Waxhaw Public Services
 - b. Type of installation, owner, and method of installation are required.
 - c. Longitudinal installations should provide the following information in the location description:

Starting point referencing nearest intersecting roads, approximate lengths of segments, bearing direction, and side of road.
 - d. Individual crossings and single point installations (e.g. individual utility poles) should provide a distance of the installation from the nearest intersecting roads and side of the road.
 - e. Project description should include the following items:

Length of installation (feet), size (inch diameter) of utility and easement, material and utility type and installation method.
 - f. Any non-franchised or private installations in the right-of-way may require additional approval from the Town Engineer, other affected Town departments, and the Town Board of Commissioners prior to issuing any permit for this type of installation.
 - g. Signed Right-of-Way Encroachment Agreement Form, see Section C page 3. (Provide two (2) copies if an original is required to be returned to the applicant.)

3. Following the submittal process the Agreement will be reviewed by the Board through the consent process and will then be signed by the Town Manager.
4. Permit forms are located at the Town Hall Permit Technician desk. Upon application review, approval, and fee payment (if applicable), the permit will be issued to the applicant. Work cannot proceed until the permit is issued and onsite with your contractor.
5. Review time depends on the nature of the request and will vary based on the scope of work to be performed within the right-of-way. An onsite review is required in most cases, a minimum of a 48-hour turnaround is expected.
6. Encroachments for structures that also require a Building Permit will need to be reviewed concurrently and approval of Building Permit will not be granted if Encroachment is not permitted.
7. If there are any questions concerning *Town of Waxhaw Right of Way Encroachment Permits*, please contact the Town of Waxhaw, Engineering Division (704) 843-2195.
8. State Routes require North Carolina Department of Transportation Encroachment Permit.
9. For work involving temporary road closures, submit a *Temporary Road Closure Form* to Town Clerk a minimum of 48 hours prior to requested closure. Forms are located on Town of Waxhaw website at [Town of Waxhaw Temporary Road Closure Form](#).

AGREEMENT INSTRUCTIONS

(Duplicated on Agreement Form)

In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature. ***All blank spaces shall be filled in by Encroacher, except space for Town Manager signature, and the date of Agreement.***

GENERAL

1. Wherever possible, roadway crossing should be located within the prevailing right of way of intersecting roads, or within a related Utility Easement.
2. Crossings should be as near as possible perpendicular to the center line of the roadway.
3. Town of Waxhaw Public Services should be given notice by the applicant prior to actual starting of installations included in this agreement.
4. No advertising is permitted within the Town of Waxhaw public right of way, and an Encroachment for such purposes will not be granted.

For Overhead Wire Lines

1. Minimum vertical clearances of overhead wires above all roadways must conform to clearances set out in the National Electric Safety Code.

For Underground Utilities

1. Open-cut installation for crossings will be permitted only when a highway project is in rough grading stage prior to paving. Generally, on rough grading projects, open-cut will not be permitted in fills of over 10 feet in depth and back filled material must be compacted to maximum density meeting the Town of Waxhaw's requirements.
2. Encasements under an existing roadway must be installed by means of tunneling, jacking, or boring and any voids outside the encasement must be filled with lean concrete grout and the ends of encasements be satisfactorily closed.
3. In cut section, encasement must extend continuously from ditch line to ditch line and in fill section; encasement must extend continuously five feet beyond toe to slopes.
4. Vents for encasement should be extended to the right of way line or as otherwise required by the Town of Waxhaw. Manholes, meter and valve boxes, etc. shall be flush with final grade.
5. When trenching is carried down cut slopes, excavation must be backfilled to maximum density and the disturbed portion of the slope be stabilized and sodded to the satisfaction of the Town Engineer, Public Services Director or Assignee.

Plans

This Encroachment agreement must be accompanied, in the form of an attachment, by a plan showing the following:

1. All roadways and ramps
2. Right of way
3. Drainage structures or bridges if affected by encroachment
4. Location of the proposed encroachment
5. Length, size and type of encroachment
6. Dimensions, showing the distance from the encroachment to roadways, shoulders, structures, etc.
7. Location by roadway survey station number. If station number cannot be obtained, location should be shown by distance from some identifiable point, such as a bridge, road intersection, etc.

All encroachment agreements involving the crossing of the right of way, roadways and/or ramps of a roadway, must be accompanied, in the form of an attachment, by a profile showing the following information:

1. The profile should extend from right of way line to right of way line and show all slopes (cut or fill), ditches, shoulders, pavements, medians, etc.
2. A vertical dimension from bottom of road ditches and from surface of pavement to encroaching structures.
3. Length, size, and type of encasement where required.
4. Notation of portion to be installed by open-cut.
5. For underground encroachments involving encasements that must be vented, the location of vents must be shown.
6. Method of installation must be shown in detail on either the plan or profile.
7. Any attachment to a bridge or other drainage structure must be approved by Town Engineer, Public Services Director or Assignee.
8. Where profile is required, it should be on same sheet with the plan.

SPECIAL PROVISIONS OR SPECIFICATIONS

Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Town of Waxhaw must be shown on a separate sheet attached to encroachment, provided that such information cannot be shown on the plan and profile sheet.

State of: **North Carolina**
County of: **Union**

STREET
NAME: _____ PROJECT: _____

TOWN OF WAXHAW
-AND-

**RIGHT OF WAY
ENCROACHMENT
AGREEMENT
TOWN OF WAXHAW**

**Name and Address of Entity Requesting
Encroachment**

THIS ENCROACHMENT AGREEMENT made and entered into this the _____ day of _____, 20___, by and between the Town of Waxhaw (“Town”) and (“Encroacher”).

W I T N E S S E T H

THAT WHEREAS, Encroacher desires to encroach on the right of way of the public road designated as located approximately _____ with the construction and/or erection of: _____ as shown on the attached drawings; and

WHEREAS, it is to the material advantage of Encroacher to effect this encroachment, and Town in the exercise of authority conferred upon it by NCGS §160A-296 , is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement.

NOW, THEREFORE, IT IS AGREED that Town hereby grants to Encroacher the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

Encroacher binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse Town for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to the installation and existence of the facilities of Encroacher.

That Encroacher agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Town Engineer, Public Services Director or Assignee.

That Encroacher hereby agrees, to the extent permitted by applicable law, to indemnify and save harmless Town from all damages and claims for damage that may arise from the installation and maintenance of this encroachment; provided, however, that Encroacher shall not be obligated to indemnify and save harmless Town with respect to damages or claims for damage to the extent arising from the operation and maintenance of the public right of way. **No advertising shall be permitted within Town of Waxhaw public right of ways.**

That Encroacher agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Town Engineer, Public Services Director or Assignee. Encroacher agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, Encroacher agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Town Engineer, Public Services Director or Assignee.

That Encroacher agrees to assume the actual cost of any inspection of the work considered to be necessary by the Town Engineer, Public Services Director or assignee.

That Encroacher agrees to have available at the construction site, at all times during construction, a copy of this agreement showing evidence of approval by Town. Town reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed roadway open to traffic; Encroacher agrees to give written notice to the Town Engineer, Public Services Director or Assignee when all work contained herein has been completed. Unless specifically requested by Town, written notice of completion of work on roadway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by Encroacher, Town reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to Town.

In the event that Town decides, in its sole discretion, to close, relocate, widen or otherwise modify the street within such right-of-way that Encroacher has encroached upon, Encroacher agrees to relocate or remove the encroaching infrastructure at Encroacher's sole cost and expense. Town will attempt to accommodate relocation but may require removal if the street right of way is closed or relocation is impractical or conflicts with Town goals.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by Town unless written waiver is secured by Encroacher from Town.

That Encroacher agrees to be held responsible for contacting North Carolina 811 and locate all underground utility lines prior to digging.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

TOWN OF WAXHAW

Name of Encroaching Entity

BY:

Town Manager

Signature of Responsible Party

Printed Name and Title

Attest or Witness:

Signature

Printed Name and Title

Name and Contact # for Site Superintendent

INSTRUCTIONS

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 2. A vertical dimension from bottom of road ditches and from surface of pavement to encroaching structures.
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SPECIAL PROVISIONS OR SPECIFICATIONS

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APPENDIX-B

Utility Pavement Cut Policy

Revised March 25, 2024

Section A. General

The Town of Waxhaw is charged with regulating the public Right of Way (ROW) in the interest of its citizens. Multiple departments are responsible for exercising control and coordination over various utility companies and private contractors when working within the right-of-way. The objective is to ensure infrastructure integrity, provide public safety, and minimize any necessary inconveniences to the public. The Town of Waxhaw also acknowledges a definite need and obligation to accommodate utility companies in providing services to customers with the understanding that infrastructure is restored to its intended use in equal or better quality.

Utility companies and private contractors understand the primary purpose of the public roadways is to provide a means of travel so citizens may move from one location to another in a safe, timely and convenient manner. This purpose precedes any secondary right-of-way purpose.

Utility pavement cut is defined as any cutting of existing asphalt or concrete paved street and sidewalk for utility work. Utility work can be any work by a franchised utility company such as telephone carriers, power, cable television, natural gas, fiber optics, or any licensed contractors tying into County maintained water and sanitary sewer mains, or storm water systems.

Section B. Permit Process

A Town of Waxhaw *Right of Way Encroachment Permit* will be required for all utility pavement cuts and installations in the public right-of-way. The Engineering Division is responsible for issuing these permits.

Applicants must submit three copies of the plan or sketch showing detailed information (maximum size 11" x 17") of intent of proposed work, and evidence of approved construction plan. Photocopies of approved construction plans, are acceptable. Pavement cut dimensions must be indicated on the plan submitted and based on final repair dimensions. Lack of plan clarity is sufficient cause for rejection.

Approved permits must be available at job site at all times and shown to any representative of the Town of Waxhaw upon request. The name, address and phone number of company conducting work are required along with emergency phone number in case a hazardous situation should arise needing immediate response. A permit not on site may result in a stop work order being issued.

A separate Road Closing application may be required. These are obtained from Town of Waxhaw website at [Town of Waxhaw Temporary Road Closure Form](#).

Section C. Standards and Specifications





The following are procedures for repairing public streets after pavement has been cut.

Excavation perimeter must be saw cut to provide a clean, straight edge, and vertical sides. Cut and repair must be in accordance with Town standards including rectangular final repair with four (4) interior 90 degree angles, and flush with existing pavement. Additional requirements may be requested based on Town inspection.

1. Field work, including adequate trench shoring, is to be conducted in full compliance with all Occupational Health and Safety Administration (OSHA) safety standards. (osha.gov)
2. Street restoration must be saw cut after trench backfill and extend beyond the other edge of widest portion of section according to Town standard. If more than one excavation is involved, including existing pavement repair, and less than five (5) feet apart or within two (2) feet of concrete gutter line, restoration shall be continuous between excavations and/or concrete edge. Pavement structure shall be restored to ***Town Standard 290.1**** at a minimum.
3. If one particular project causes multiple excavations within a given stretch of a street, that street may be subject to a complete asphalt overlay of a minimum depth of 2 inches of asphalt. The overlay shall extend for a minimum length of 20 feet beyond the last cut at each end of the excavated area. A mill out and/or asphalt overlay may be required depending on condition of the road, magnitude of pavement cut, location of pavement cut, and other mitigating circumstances. This decision will generally be made during the Encroachment/Utility Cut approval process, unless field conditions do not match the plan submittal as approved and subsequently deemed necessary based on site inspection.
4. Notify the Town of Waxhaw Public Services at 704-843-7439, at least 24 hours prior to construction.
5. The Police and Fire Departments shall be notified 24 hours in advance of pavement open cutting by the contractor. For non-emergency work, contact the Police Department at (704) 843-0353, the Fire Department at (704) 843-4001, and Union County Communications at (704) 289-1591 to provide notice.

6. Pedestrian and/or vehicular traffic shall be maintained through the work area at all times. Only one lane may be closed at any given time unless otherwise approved per a *Temporary Road Closure Form*. See *Section D Work Hours* page 4 of this policy.
7. Proper traffic control devices, signs, etc. in accordance with the *Manual on Uniform Traffic Control Devices* (MUTCD) shall be installed to insure public safety. (mutcd.fhwa.dot.gov/)
8. Pavement is to be saw cut. Cuts shall be perpendicular to Edge of Pavement (EOP)
9. Contractor is responsible for providing adequate shoring in all trenches to prevent collapse during construction, in accordance with current OSHA requirements.
10. Typically, **no trenches are to be open overnight**. Patching is to be performed the same day the cut is made. Repair should match existing road elevation with no dips or raises.
11. **A minimum of 1-inch thick** metal plates shall be used **if work is to remain open overnight** on public right of ways. Plate must be positively secured and capable of withstanding traffic loads. Express written consent from Engineering Division is required so inspection can be made prior to leaving the job site. Notify Assistant Town Engineer at (704) 843-2195. Should the work necessitate temporary backfill, a temporary repair shall be in accordance with ***Town Standard 290.2****
12. New, clean fill material must be used to replace displaced material to achieve the required compaction of 95% standard proctor.
13. The Town Engineering Division reserves the right to require the contractor to employ the services of a geotechnical firm to run a density test and to certify the compaction of the backfill material, at the cost of the contractor. Each contractor is responsible for ensuring compaction requirements are met.
14. Engineering Division shall log all trench repairs into database stating the location, size of patch, contractor, date permit was issued and date accepted as complete. The involved utility company or private contractor will be held responsible for any pavement cut repairs that fail within six (6) months of date of completion.
15. All Utility cuts must be properly color coded with spray paint as specified by American Public Works Association uniform color code, as follow.

	Proposed excavation
	Temporary survey markings
	Electric power lines, cables, conduits and lighting cables
	Gas, oil, steam, petroleum, or gaseous materials

	Communication, alarm, or signal lines, cables or conduits
	Potable water
	Reclaimed water, irrigation, and slurry lines
	Sewers and drain lines

16. Contractors are responsible for contacting NC 811 for underground utility location.

Section D. Work Hours

1. Pedestrian and/or vehicular traffic must be maintained at all times. Verification of traffic control needs may be required as a condition of the Encroachment Agreement, and be approved by Town of Waxhaw Engineering Division. Traffic control devices must be in accordance with the *Manual on Uniform Traffic Control Devices* (MUTCD). Lane closure permits may include other stipulations. Equipment and material must not interfere with site distances.
2. Unless otherwise specifically permitted, work shall be done between the hours of 7:00 am and 9:00 p.m. Monday through Saturday except as deemed necessary, for the proper care and protection of work already performed.
3. If utility work is incomplete at end of workday, traffic lane must be reopened using temporary patch or road plate See *Section C: Standards and Specifications* per note 11, page 3.

Section E. Emergency Work

No permit is required prior to emergency work. Emergency situation are classified as immediate and clear danger to life or property. Involved utility company is expected to take appropriate action as necessary to address the situation. Contact Waxhaw Public Services at 704-843-7439 and provide notice of emergency work as soon as possible.

Section F. Inspection Procedures

The Town Engineer or his designee will conduct inspections of utility pavement cuts. A minimum of three inspections are required for each repair. One after preparation, prior to paving; one inspection after paving, and one six-month follow-up inspection.

A typical inspection will verify:

- The surface of the patch is level with, or no higher than, 0.25 inches above the grade of the original pavement surface.
- No apparent raveling, cracking, or flaw at sawcut line (1/16-inch maximum).
- No ponding or stormwater infiltration is apparent.

If a patch fails within six (6) months, and conditions permit, the contractor will be given seven (7) days to complete repairs, or will be billed the cost incurred for the Town to make repairs. Any contractor that fails to make proper repairs, or repay the Towns cost will not be approved for further Encroachments/Utility Cuts.

*References the Town of Waxhaw *Engineering Design & Construction Standards Procedures Manual*, Latest Edition



APPENDIX-C
Subdivision Inspection Checklist-Critical Items

September 9, 2022
Revised March 25, 2024

- Receipt of approved Grading/Subdivision Plans from the Town
- Schedule Pre-construction Meeting with the Town

CONDUCT INSPECTIONS FOR:

- Grading
 - Drainage areas
 - Slopes no greater than 3:1 unless per approved plan
 - Pavement at minimum 2% slope or if less than 2%, built per plan
- Storm Drainage
 - Density test have been performed on all trenches as directed by Inspector
 - All cracked/damaged pipes are to be replaced and not patched unless approved otherwise by Inspector
 - Catch basins are within a 6" tolerance of alignment and flush with face of grate in subgrade
 - Catch basins are grouted and set to grade
 - State ROW - All pre-cast catch basins and RCP pipe have NCDOT stamp. (Pink Brick)
 - All pre-cast catch basins are certified from manufacturer
 - Videos of all storm drainage, in both private and public easements, must be submitted and approved **BEFORE** the final lift of asphalt is placed.
 - Storm water as-builts have been approved **BEFORE** any final inspections are scheduled.

SUBGRADE APPROVAL:

- ___ All storm drainage and underground utilities are completed

- Structure tops are below sub grade.
- All catch basins have been bricked in except for weep holes.
- A minimum of 1-inch of asphalt **or** two inches of stone shall be used as a base for the curb within Ten feet of either side of a catch basin.
- All Manholes meet proper cross slope/grade
- Sub grade is graded within tolerances and is neat, clean, trimmed and rolled down
- Contractor or owner has submitted the following Subgrade Compaction Report:
Private Lab Soil Compaction Reports- Conduct random sub grade tests at 250 feet intervals along the roadway length or as directed by the Town Engineer. All subgrade shall be compacted to 100% of the maximum density obtainable with the Standard Proctor Test to a depth of eight (8) inches, and a density of 95% Standard Proctor for depths greater than eight (8) inches. All tests are performed by the developer at no cost to the Town.
- Proof-roll sub grade in accordance with NCDOT Specifications or as directed by the Town Engineer.

STONE BASE APPROVAL:

- Stone base is compacted and graded within tolerances.
- A minimum of 8 inches of stone aggregate **or** 4 inches of (binder) asphalt shall be used as the base of the roadway.
- All edges and manholes are trimmed to the proper depth, and any loose stone is removed.
- All manholes covers are adjusted to final pavement grade and slope.
- Contractor or owner has submitted the following Stone Base Compaction Report:
Private Lab Stone Base Compaction Report - Conduct random stone base tests at 250 feet intervals along the roadway length or as directed by the Town Engineer. The stone base shall be compacted to 100% of the maximum density obtainable with the Modified Proctor Test. Field Nuclear density testing may be used. All tests are performed by the developer at no cost to the Town.
- Additional stone and/or asphalt may be required at the discretion of the Town Engineer, based on geotechnical reports and/or field observations.
- Contractor has completed a self-proof roll and cut out any obviously bad areas BEFORE calling for inspection
- Proof-roll stone base in accordance as directed by the Town Engineer
- After approval of the stone base, coordinate the paving schedule with the Town Inspector

Curb and Gutter

- Catch basins are grouted and set to grade
- Ensure proper placement per plan
- Joints sealed and free of cracks
- Meet minimum 0.5% slope

Sidewalks and Handicap Ramps

- Cross slope does not exceed 1/4"/ft
- Ramps have ADA compliant truncated domes
- Confirm sidewalk is in right-of-way
- Confirm planter strip width
- Confirm sidewalk width
- Aggregate/gravel may be required as the subgrade for the sidewalks and handicap ramps, at the discretion of the engineer, based on geotechnical reports and/or field observations.

Signs

- All signs are 7' from ground to bottom of sign
- Signage text shall meet Town standards
- Signs are placed behind sidewalk within right of way

Roadway Widening/Turn Lanes on State Roads

- All inspections have been coordinated with NCDOT Inspector
- Traffic control installed per approved construction plans

PAVING REQUIREMENTS:

- Notify Town Inspector 48 hours prior to beginning any paving operation.
- Prior to final lift of asphalt, call Town Inspector to schedule inspection for curb and gutter and existing asphalt repair needs. Additionally, verification that Union County Public Works has inspected and approved their infrastructure is required.
- Density meets NCDOT requirements. The contractor shall perform quality control on asphalt by performing a minimum 5 random density tests per 2,000 LF. Superpave mixes are to be compacted 92.0% of the maximum specific gravity (90% for SF9.5A mixes) . Submit test results daily to the Town Inspector.
- The final lift of asphalt shall be minimum of 1.5 inches thick
- Weather temperatures during paving meet minimum requirements (Follow latest edition of NCDOT Super Pave Manual:

TABLE 610-5 PLACEMENT TEMPERATURES FOR ASPHALT	
Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0B, C	35°F
I19.0B, C, D	35°F
S4.75A, SF9.5A, S9.5B	40°F ^A
S9.5C, S12.5C	45°F ^A
S9.5D, S12.5D	50°F

A. For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50°F.

MISC. REQUIREMENTS:

- Streetlights – spacing for single family residential development not to exceed 200 feet
- Streetlights – spacing for townhome and multi-family developments not to exceed 120 feet
- Streetlights - not to be within 40 feet of intersections or 20 feet of street trees
- Fire hydrants- spacing not to exceed 1,000 feet (No residence shall be greater than 500' from a fire hydrant measured from Centerline of road.)
- Street trees - provided per landscaping plan

STREET ACCEPTANCE

- Final inspection has been scheduled with Construction Site Inspector.
- Punch list is voided after 60 calendar days (Final 1.5 inches of pavement will be on punch list.)
- Inspector has been notified of punch list completion.
- Appropriate speed limit signage has been installed at each entrance to the subdivision, and has been approved by the inspector.
- Final inspection approval received by Town Engineer

APPENDIX- D



POLICY FOR STREET IMPROVEMENTS AND MAINTENANCE

Adopted: May 9, 2006

Amended: March 25, 2024

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- Section 2. Definitions
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- Section 5. Minimum standards for accepting new streets for maintenance purposes
- Section 6. Procedure for requesting streets to be accepted for maintenance purposes
- Section 7. Street improvements – General
- Section 8. Funding for street improvements
- Section 9. Citizen participation in cost of improving streets proposed for acceptance by the Town to minimum standards
- Section 10. Unauthorized street modifications and improvements prohibited
- Section 11. Effective Date

POLICY FOR STREET IMPROVEMENTS AND MAINTENANCE

Section 1. Purpose

The purpose of this policy is to set forth regulations and standards for streets open to the public and maintained by the Town. Policy is herein established for:

- A. Additions within the Town street system
- B. Maintenance within the Town street system
- C. Improvements within the Town streets system

Section 2. Definitions

- A. Town Street means a street that has been accepted by the action of the Waxhaw Board of Commissioners for maintenance purposes.
- B. DOT Street means a street or highway that has been accepted for maintenance by resolution of the governing board of the NC Department of Transportation.
- C. DOT means the North Carolina Department of Transportation.
- D. Engineer means the Town Engineer, or his designated agent or inspector.
- E. Street shall mean roadway, shoulders, ditches, pipes, and structures lying within the right-of-way.
- F. Board shall mean the Waxhaw Town Board of Commissioners.

Section 3. Acceptance of Streets for Maintenance Purposes - General

- A. The Town will provide maintenance and improvements for Town Streets consistent with NCGS 160A-296 and 136-41.1 through 136-41.4 (the Powell Bill) and as described in this Policy as it deems proper. Maintenance may include but is not limited to patching and repaving, storm water, street shoulder, traffic signs and signals, and snow / ice removal.
- B. The Town will not provide routine maintenance for DOT Streets except as provided for by interagency agreement (contract for service to DOT) as approved by the Board. However, the Town may provide services such as street name signs and street lighting that are not provided by DOT and that are provided on the Town streets.
- C. The Town is not responsible for maintenance or improvements to any street that has not been formally accepted by the Town.

Section 4. Conditions for Accepting Streets for Maintenance Purposes

- A. The Town may accept streets for maintenance by the Town upon either of the following:
- i. Existing non-dedicated streets (no dedication from plat; not owned by a developer/builder): 1) a petition signed by the landowners holding title to one hundred percent (100%) of the property fronting the street and 2) a finding that the street meets standards for acceptance (each landowner must also execute proper documentation to dedicate a right of way as described in Section 6).
 - ii. Existing dedicated streets: (dedication from plat or other public dedication but no petition by the developer /owner): 1) a petition signed by the Town Engineer or a person with direct interest and 2) a finding that the street meets standards for acceptance.
 - iii. New streets: 1) a petition by the developer/owner of the streets and 2) a finding that the street meets standards for acceptance.

In the event a petition is insufficient, said petition may be presented to the Board for further consideration.

- B. The Town will not accept any street where the street does not connect to an existing public street maintained by the Town or DOT.

Section 5. Minimum Standards for Accepting Streets for Maintenance Purposes

- A. Streets made available for public shall comply with the requirements of the Town of Waxhaw Land Development Code prior to acceptance for maintenance by the Town.
- B. Methods and materials of construction shall be based on engineering analysis including the Town's Engineering Standards and Procedures Manual (when implemented). Streets shall generally meet or exceed the following:
- i. The sub-grade must contain a minimum twelve (12") inches compacted earth.
 - ii. The stone base must contain a minimum eight (8") inches compacted stone.
 - iii. The base course of asphalt must contain a minimum two (2") inches of SF9.5A asphalt.
 - iv. When each street has had seventy-five (75%) percent of the lots on that street with certificate of occupancies issued a minimum one and one-half (1-1/2") inches of SF9.5A final surface course shall be applied.
 - v. All streets shall pass a proof roll test on the sub-grade and the stone base and shall be conducted by the Town of Waxhaw Staff with all applicable fees paid.

- vi. Prior to the final surface course of asphalt the Town of Waxhaw Engineering Department shall conduct an inspection with the developer of the base course asphalt and repair any damages or failures to the streets.
- C. Design and construction standards shall be in accordance with the Town of Waxhaw Land Development Code and the Town's Engineering Standards and Procedures Manual.
- D. Procedures and requirements for application, plan submittal, recording and dedication of right-of-way, and petitions for acceptance shall be in compliance Town of Waxhaw Land Development Code and the Town's Engineering Standards and Procedures Manual.
- E. In those instances where existing development or improvements prohibit the dedication of the required right-of-way, the Town Board may accept a less than standard width upon the recommendation of the Engineer.
- F. In special circumstances involving existing streets, the Engineer may submit a petition to the Town Board to accept a street not meeting minimum standards.

Section 6. Procedure for Requesting Streets to be accepted for Maintenance Purposes

- A. The Engineer shall, upon receipt of a proper petition, perform inspections to determine compliance with minimum standards and will inform the petitioners of compliance or deficiencies that must be corrected to gain compliance.
- B. Upon inspection and verification of compliance with minimum standards, the Town will review recorded plats and/or surveys as necessary to define required right-of-way.
- C. The petitioner will submit any additional right-of-way plats or documents as necessary for the dedication.
- D. Upon confirmation of valid right-of-way documentation and upon compliance with minimum standards, the Engineer will submit the petition to the Board for approval.
- E. In special circumstances involving existing streets not meeting minimum standards, the Engineer may submit a petition to the Board. The Engineer must describe the special circumstances supporting acceptance, the deficiencies/condition of the street, and an estimate of any repair or upfit costs.

Section 7. Street Improvements - General

Improvements to Town streets will be considered in accordance with this Policy. Improvements to DOT streets will be in accordance with DOT regulations and policies and will not be accomplished by the Town. No improvements will be completed by the Town on streets not formally accepted for maintenance by the Town.

Section 8. Funding for Street Improvements

- A. The Board shall establish a street improvements revolving fund and will annually appropriate revenues for street improvements, including designated funds from the Powell Bill.
- B. The Board may approve projects to be completed with special funds such as through the Community Development Block Grant Program or through budgeted funds.

Section 9. Citizen Participation in Cost of Improving Streets Proposed for Acceptance by the Town to Minimum Standards

When requested by the Board, the Engineer shall prepare an estimate of the cost of planning, survey, design, and construction required to improve a segment of street to minimum standards for maintenance by the Town.

Upon receipt of the estimate, the Board of Commissioners may inform the petitioners of the amount to be paid by the petitioners. The amount will be a portion or percentage of the total estimate as established by the Board. Upon receipt of petitioners' payments, and any other required documentation for proper dedication, the Engineer will recommend acceptance of the street for the Town maintenance.

Section 10. Unauthorized Street Modification and Improvements Prohibited

No modifications to a Town street will be permitted except as approved in writing by the Board.

Improvements shall be constructed by the Town or by a qualified contractor approved by the Town.

Unauthorized improvements may be removed or modified by the Town and costs for removal or modification may be charged to the person making the unauthorized improvements.

Section 11. Effective Date

The effective date of this amended policy shall be the 14th day of July, 2022.

PETITION FOR STREET IMPROVEMENT
TOWN OF WAXHAW, NORTH CAROLINA

We, the undersigned hereby request that improvements to public streets, to be completed as described below. We hereby agree to pay fees to the Town for the improvements in accordance with the Town Policy for Street Improvements and Maintenance.

Improvement Requested:

Paving: _____

Street name – beginning and ending point

Driveway Pipe: _____

Street address, length desired

Storm water System: _____

Describe location of pipe desired

Curb and Gutter: _____

Describe location of curb and gutter desired

Petitioners Signature	Address	Date



PETITION FOR ADDITION OF PUBLIC STREETS TO THE SYSTEM OF
 THE TOWN OF WAXHAW, NORTH CAROLINA
 (Developers/Builders)

I hereby certify, as the owner, that to the best of my knowledge the improvements in _____ subdivision have been constructed in accordance with the preliminary plan and are shown on a record map filed in the Union County Register of Deeds Office. All work conforms to the construction standards of the Town of Waxhaw Land Development Code and the Town of Waxhaw Policy for Street Improvements and Maintenance. **I have attached a recorded copy of the plat for the Town's records along with \$450.00 per map for the Street Acceptance/Turnover Inspection fee.**

I, therefore, request that the Town of Waxhaw consider the following streets, sidewalks, street trees, streetlights, and storm water system in the public street right-of-way for maintenance purposes. This includes the maintenance of ____ (number) healthy street trees and ____ (number) streetlights. I understand that the acceptance of said streets, sidewalks, street trees, streetlights, and storm water systems shall be made only by the Town of Waxhaw Board of Commissioners in accordance with the Town's policy for Street Improvements and Maintenance.

<u>Street Name</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>#Streetlights</u>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

 Owner Name

 Date

 Address

 Phone Number

 Email

Accepted by motion of the Town of Waxhaw Board of Commissioners on the ____ day of _____, 20__.

 Mayor

 Date



APPENDIX-E

STREET LIGHTING POLICY

September 9, 2022

Revised March 25, 2024

Section 1. Purpose

The purpose of this Policy is to establish standards for the installation and maintenance of street lighting within the Town of Waxhaw, North Carolina. All street lighting will be installed and maintained by Duke Power Company or Union Power Cooperative.

Adequate lighting levels referenced throughout this document but not specifically defined shall not be less than 0.2 foot candles.

Prior to any installation or acceptance of a streetlight located within the corporate town limits of Waxhaw, the following criteria in the Street Lighting Policy must be met:

Section 2. Installation Standards for Street Lighting of Existing Streets

- A. Residential streetlight fixtures shall be of the LED type.
- B. Fixtures shall be full cutoff type. - Maximum mounted outdoor fixture height for residential streetlights shall be 20 feet.
- C. A streetlight should be placed on the outside of residential road curves. Specific attention should be paid to the lighting at locations of public assembly, such as at amenity areas (open spaces and playgrounds), at community clubhouses, trail heads, and at postal CBU's.
- D. Street lighting for residential and collector streets will be, as required by the Director of Public Services, either decorative in nature or consistent with existing lighting fixtures within the area, all sidewalks shall be illuminated to a level of at minimum 0.5 foot-candles with a - Maximum lumens per fixture shall be 9500 lumens or 100W LED. – Illumination. All light levels shall be measured at ground level. Foot-candle radius shall be provided on lighting plan.

- E.** Single Family Residential Lighting fixtures shall be located at all intersections, at the end of each cul-de-sac and at mid-block locations with spacing of fixtures not to exceed 200 feet.
- F.** Fixtures for town home and multi-family developments shall be located at all intersections, at the end of each cul-de-sac and at mid-block locations with spacing of fixtures not to exceed 120 feet.
- G.** Light fixtures on public right-of-way for the purpose of illuminating the roadway ordered by private citizens will not be permitted.
- H.** A letter of recommendation for the installation of additional lights on existing streets must be made to the Town Manager by the Public Services Director.

Section 3. Individual Requests for Street Lighting of Existing Streets

- A.** Any requests for street lighting may be submitted to the office of the Director of Public Services. Each request will be considered in accordance with approved standards and any special conditions of merit such as pedestrian activity, traffic values, accident history, crime rate, vertical and horizontal street alignment and hazardous traffic conditions. ***All costs associated with the installation of streetlights (including installation and materials) will be the responsibility of the residents and/or the homeowners association.*** Once lights are installed and accepted by the Town of Waxhaw, the monthly service costs will be paid by the Town.
- B.** The Town of Waxhaw will not be responsible for any lighting fixtures that have been installed for the purpose of illuminating private property.
- C.** The Town of Waxhaw will not accept lighting fixtures for dedication until all street lighting is installed and paid for in full to allow lighting at the lowest municipal rate. A letter of certification from the service provider noting full payment by the property owner, developer and/or the homeowner's association will be required prior to acceptance consideration.

Section 4. Requirements for Installation Approval and Town Acceptance of New Residential Subdivisions

Prior to any installation or acceptance of a streetlight located within a subdivision in the corporate town limits of Waxhaw, the following criteria must be met:

- A.** A Request for Streetlight Installation Form must be submitted to the Waxhaw Town Hall for distribution to and review by a committee consisting of the Public Services Director, the Director of Planning, Zoning and Engineering and any other staff deemed by the Town Manager. This form must be accompanied by the following documents:
1. Copies of any and all contracts entered into by the property developer and the appropriate power service provider (Duke Energy and/or Union Power). This contract must include the description of the lights to be installed with all specifications of the proposed lights; (i.e.: style of light; lumens and the wattages associated with the same) installation and materials costs per light and the monthly service cost per light. The Town of Waxhaw will not consider acceptance of any lights that will be billed at any rate other than the standard municipal rate. In addition, the Town of Waxhaw will not consider any dedication acceptance request until all costs associated with the lights and their installation has been paid in full by the developer and/or the HOA.
 2. A lighting plan for the noted subdivision shall be prepared by a qualified lighting designer at the expense of the property developer and submitted to the Town of Waxhaw Planning, Zoning and Engineering Department. **The lighting plan shall clearly identify each light and the foot-candle radius for each light.**
 3. Request package must include a detailed map of the subdivision noting the location of each streetlight within the subdivision. In addition, all data must be submitted in electronic format to be compatible with **ARC-GIS 10.8** or greater to include shape files or geodata base.
 4. Proposed street light installation project must meet all standards for residential subdivision lighting as described in Section 5 of the document.

Section 5. Installation Standards for Residential Subdivision Lighting

For approval of any residential subdivision, all public streets, sidewalks, greenways and other common areas or facilities in subdivisions shall be sufficiently illuminated to ensure the security of property and the safety of persons using such streets, sidewalks, and other common areas or facilities. Standards for residential subdivision lighting for the purposes of this article shall be follows:

- A.** Streetlights shall be rated a maximum of 9500 lumen and shall not exceed a maximum of 100 watt for LED fixtures. **All sidewalks shall be illuminated to a level of at minimum 0.5 foot-candles**
- B.** Lights for single family residential homes shall be located at all intersections, the end of cul-de-sacs and stubs, and mid-block locations with spacing of fixtures not to exceed 200 feet. (As measured along the street centerline)
- C.** Fixtures for town home and multi-family developments shall be located at all intersections, at the end of each cul-de-sac and at mid-block locations with spacing of fixtures not to exceed 120 feet. (As measured along the street centerline)
- D.** All roads, driveways, sidewalks, parking lots, greenways and other common areas and facilities in un-subdivided developments shall be sufficiently illuminated to ensure the security of property and the safety of persons using such roads, driveways, sidewalks, parking lots, and other common areas and facilities. **Developer shall provide a lighting plan which provides a foot candle radius for 0.5 foot candles.**
- E.** All entrances and exits of substantial buildings used for non-residential purposes and in multi-family residential dwellings containing more than four dwelling units shall be adequately lighted to ensure the safety of persons and the security of the building.
- F.** Streetlights, poles and brackets are to be decorative and shall be subject to approval in the preliminary plat. Street light fixtures shall be the same throughout the subdivision or individual phases of the subdivision.

- G.** All streetlights shall be placed at least two (2) feet inward (i.e., away from the street).
- H.** Upon the approval of plans and prior to construction, the developer shall pay the electric provider for all costs associated with the installation of the streetlights. The Town will not accept streets for dedication until all street lighting is installed and paid for in full to allow lighting at the lowest municipal rate. A letter of certification from the service provider noting full payment by the property developer and/or the homeowner's association will be required prior to acceptance consideration.

Section 6. Acceptance of Dedication

Upon completion of the installation of approved streetlight, the property developer shall submit to the Town of Waxhaw a letter requesting that the town consider the dedication acceptance of the streetlights. This letter must detail the names of each street, its length and the number of streetlights on the noted street. This request must be submitted in conjunction with the request to accept the streets and sidewalks located in the subdivision. (Guidelines for the acceptance of streets and sidewalks are contained within the Town of Waxhaw Ordinances related to each.) Acceptance of these assets must be done in one action and are not subject to review until all three are eligible for acceptance. This letter of request shall be reviewed by town staff and a recommendation to the Town Manager and Board of Commissioners shall be issued.



**APPENDIX-F
Traffic Impact Analysis (TIA) Request Form**

Development Name:

Date:

POTENTIAL USES		UNITS/FOOTAGE
Single Family Residential, Apartments, Condos/Townhouses		Number of Units
Shopping Center, Fast Food Restaurant (GFA), Bank w/Drive-in, General Office, Medical Office, Light Industrial, Manufacturing		Square Footage
Hotel/Motel		Number of Rooms
Convenience Store w/Gas		Vehicle Fueling Positions
PROPOSED USES (TO BE COMPLETED BY DEVELOPER)		
Use 1		
Use 2		
Use 3		
Use 4		

If the proposed development generates traffic requiring a TIA, the developer is required to provide a \$5,000.00 TIA Scoping Fee payable to the Town of Waxhaw. Any remaining funds after the TIA is scoped will either be applied to the cost of the TIA Report or refunded to the applicant if a TIA Report is not pursued beyond scoping.

Following scoping, a TIA Study cost estimate will be provided along with a Memorandum of Understanding (MOU) outlining each party's responsibility. The TIA Study will commence, and traffic counts will be scheduled once the MOU is signed and payment for TIA is received. Traffic counts can only be obtained during the school year after Labor Day.

Developer Contact:

Email:

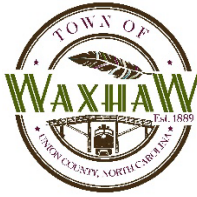
Phone:

Lead Planner Assigned:



APPENDIX-F Traffic Impact Analysis (TIA) Process

1. Developer to submit *TIA Request Form*, *Site Plan* and \$5,000.00 scoping check to begin the TIA Scoping process.
 - a. TIA requests must be received by April 30th to ensure traffic counts reflect counts during the school year.
 - i. TIA requests may be submitted after April 30th and Scoping Meetings may be held, but counts cannot begin until September 15th to capture accurate traffic counts during the school year.
2. Waxhaw creates PO for the project using *TIA Request Form* as documentation.
3. Scoping meeting held within two weeks of receipt of the TIA with Developer, Waxhaw, Kimley-Horn, and NCDOT to determine TIA Scope and cost of the TIA.
4. The Developer and Town will execute the Scoping Document after NCDOT approval. The Developer will submit a check for the additional funds to complete the TIA. Once Scoping Document is executed and funds received, Kimley-Horn can begin work on the TIA
 - a. Additional funds will be invoiced to the Developer and once funds are received, an additional PO will be created.
5. Kimley-Horn develops the TIA and NCDOT review. 2-3 months
6. Waxhaw develops a Traffic Mitigation Agreement between the Town and the Developer
 - a. Draft TMA will be established upon TIA approval, and approved TMA must be in place prior to construction plan approval.
7. Once the TIA is finalized, the PO is closed
 - b. Any remaining funds will be refunded to the Developer.



APPENDIX-G

TIA Ordinance

Adopted January 12, 2016

Reviewed September 9, 2022

1. Definition and Purpose – A Traffic Impact Analysis (TIA) is a tool used to evaluate the incremental impacts that development, redevelopment and/or change of development use may have on the surrounding transportation system which helps local decision makers evaluate whether a development is appropriate for a site or identify certain mitigation measures that are necessary to maintain the integrity of the transportation network.
2. Responsibility for TIA – After a completed development application has been filed, and upon initial submittal of a site or sketch plan, the Town shall determine the need for a TIA. If warranted, the transportation consultant assigned by the Town shall prepare the TIA. At the discretion of the North Carolina Department of Transportation (NCDOT) and the Town, a Transportation Technical Memorandum (TTM), in lieu of a full TIA report, may be allowed for some developments. If proposed street connections are not consistent with adopted plans, Town policies, or professional standards, then an explanation or proposed transportation mitigation alternative that is equal or better should be discussed in the study. The North Carolina Department of Transportation (NCDOT) and the Town will be responsible for determining whether the alternative mitigation plan meets and/or exceeds the performance standards of the proposed street connections in the adopted plans and policies. The TIA review schedule will be determined as agreed to on the Town's TIA scoping requirements, generally based on the number of study intersections.
3. Minimum Thresholds for TIAs – A TIA will be **required** to accompany a site/sketch plan when expected gross trip generation is ***1,000 total trips or more both entering and exiting the site in a 24-hour period, and/or 100 total trips both entering and exiting the site during either the AM or PM peak (prior to any trip reductions are applied). The gross trip generation will be calculated by the Town based on information provided by the applicant and the final determination for requiring the TIA will be by the Town.*** In the event that a site does not generate 1,000 total trips both entering and exiting a site in a 24 hour period, and/or 100 total trips both entering and exiting the site during the AM or PM peak, a TIA may still be required for any site or sketch plan if the subject development reduces an intersection's level-of-service (LOS), and/or poses a potential safety challenge to the public or as otherwise set forth herein. The latest version of the Institute of Transportation Engineers (ITE) Trip Generation Manual shall be used to determine the expected gross traffic volumes a specific site and/or a specific use will generate. The Town may also determine the need for a TIA based on special circumstances associated with the development, and may determine that a TIA is still necessary even if the gross trips fall below this threshold. This may

be due to public safety concerns, sight distance, existing congestion issues within the vicinity of the site, or the nature of the use. The Town may also require a TIA and/or Transportation Technical Memorandum (TTM) in any of the following scenarios:

- a. Traffic generated from a non-residential development that could potentially significantly impact adjacent residential neighborhoods
 - b. Traffic operation problems for current and/or future years on nearby streets are expected to be significantly aggravated by traffic generated from the proposed new development
 - c. Major and minor thoroughfares near the site are experiencing noticeable delays
 - d. Traffic safety issues exist at the intersection or street that would serve the proposed new development
 - e. The proposed land use differs significantly from the adopted Land Use Plan for the Town
 - f. The internal street or access system is not anticipated to accommodate the expected traffic generation
 - g. The proposed development project includes a drive through facility, or other uses such as schools that require significant on-site circulation that may have an off-site impact to adjoining roads and/or intersections
 - h. The amount and/or character of traffic is significantly different from a previously approved TIA, or more than 24 months have passed since completion of the previous TIA.
4. Scoping Meeting – A mandatory scoping meeting is required prior to beginning the TIA to discuss the requirements and strategies for a TIA specific to the site and the proposed development. Background information shall be submitted by the applicant five or more business days prior to the scoping meeting and shall include a conceptual site plan showing proposed access points, proposed land use and densities, structure and parking envelopes. The Town, the transportation consultant assigned by the Town, and the applicant(s) are required to attend the mandatory scoping meeting and the NCDOT district staff will be invited and encouraged to attend if access to a state road is involved. The applicant may invite members of his/her development team as needed.
 5. Memorandum of Understanding (MOU) – An MOU shall be prepared by the transportation consultant assigned by the Town documenting the understood scope of the project. The MOU shall be signed by the applicant, the Town, and the NCDOT District Engineer if access to a state road is involved before the consultant can begin work on the TIA. Failure by the applicant to provide accurate information or failure by the assigned transportation consultant to follow the MOU shall result in disapproval of the TIA. If significant changes are made to the scoping parameters documented in the MOU, a revised MOU will be required.
 6. Fees – After the scoping meeting, the transportation consultant assigned by the Town shall submit a summary of consultant fees for preparing the TIA to the Town. Per the

MOU, the applicant(s) shall agree to provide payment in full to the Town for preparation of the TIA so that the Town can release the work to the consultant. The Town may require all or a portion of the estimated fees to be paid to the Town prior to commencement of the work. Any additional services incurred by the transportation consultant in addition to the MOU must be approved by the Town, and agreed to and paid for by the applicant, prior to performance of the additional work.

7. Transportation Mitigation Agreement (TMA) – Upon completion of the TIA, certain on or off-site transportation mitigation measures may be required as recommended by the TIA. If so, the transportation consultant assigned by the Town shall prepare a Transportation Mitigation Agreement (TMA) which will summarize the following:
 - a. Development plan
 - b. Phasing and timing of development (if applicable)
 - c. Site access and points of ingress/egress
 - d. On and off-site improvements required to adequately mitigate the project impacts to the Town’s transportation system, including vehicular, pedestrian, and bicycle improvements.
 - e. Trigger points and deadlines for construction of any improvements.

The TMA must be signed by the applicant, Town and the NCDOT District or Division Engineer if the mitigation involves a state roadway. All required mitigation measures must be implemented prior to final Certificate of Occupancy (CO), or the applicant(s) shall provide a cost estimate to the Town for review, and provide a payment in lieu for said measures prior to CO.

8. TIA Outline and Contents – The outline and contents of what is required to be included in the TIA will be discussed at the scoping meeting and included in the Memorandum of Understanding (MOU). A detailed summary of the expected content and methodologies to be used in the TIA are discussed below.
 - a. Cover/Signature page – Includes the project name, location, name of the applicant, contact information for the applicant, and date of the study. The name, contact information, registration number, signature, and seal of a duly qualified and registered professional engineer in the State of North Carolina are also required to appear on this page.
 - b. Table of Contents – Includes a list of all section headings, figures, tables, and appendices included in the TIA report. Page numbers shall denote the location of all information, excluding appendices, in the TIA report.
 - c. Executive Summary – Includes a description of the study findings, a general description of the project scope, study horizon years, probable transportation impacts of the project, and mitigation measure recommendations. Technical publications, calculations, documentation, data reporting, and detailed design should not be included in this section.

- d. Project Description – Includes a detailed description of the development, including the size of the parcel, development size, existing and proposed uses for the site, anticipated completion dates (including phasing). Should also include the square footage of each use and/or the number and size of dwelling units proposed, and should also include a map and copy of the site plan provided by the applicant(s).
- e. Site Description – Includes a description of the project location within the Town and region, existing zoning and use (and proposed use if applicable), and key physical characteristics of the site, including general terrain and environmentally sensitive or protected areas.
- f. Site Access – Includes a complete description of the ingress/egress of the site should be explained and depicted. It should include number of driveways, their locations, distances between driveways and intersections, access control (full-movement, leftover, right-in/right-out, etc.) types of driveways (two-way, one-way, etc.), traffic controls, etc. Internal streets (lanes, flow, and queuing), parking lots, sidewalks and bicycle lanes, and designated loading/unloading areas should also be described. Similar information for adjacent properties, including topographic grade relationship, should be provided to evaluate opportunities for internal connections. The design, number, and location of access points to collector and arterial roadways immediately adjacent to the site must be fully analyzed. The number of access points should be kept to a minimum and designed to be consistent with the type of roadway facility. Driveways serving the site from state roads should be designed in accordance with the NCDOT’s Policy on Street and Driveway Access, and/or the Town standards, as applicable.
- g. Study Area – The limits of the study area shall be based on the location, size and extent of the proposed project, and an understanding of existing and future land uses and traffic conditions surrounding the site. The limits of the study area for the TIA shall be reviewed and approved by the Town and NCDOT staff at the mandatory scoping meeting. At a minimum, the study area should include all streets and signalized intersections within a 1-mile radius of the proposed site and/or where site traffic estimated for build-out of the project will constitute 10% or more of any signalized intersection approach during the peak hour. Unsignalized intersections between the required signalized intersections will be added to the scope as directed by the Town. To initially determine the impacts, the Town will maintain a database of recent peak-hour intersection turning-movement counts. The applicable intersection counts will be equated to current year baseline volumes. Based on the proposed development program submitted by the applicant, a preliminary trip generation analysis, distribution and assignment will be performed within the area surrounding the site and compared to the current year base volumes. Due to related impacts or current operational problems, town staff and/or NCDOT staff may require other intersections be included in the study area. A narrative describing the study area should identify the location of the proposed project in relation to the existing transportation system and list the specific study intersections and/or segments. Any unique transportation plans or policies applicable to the area (e.g., CATS bus service and future plans) should be mentioned. A site location map shall

be provided and should identify natural features, major and minor roadways within the study area, study intersections, and a boundary of the site under consideration.

- h. Existing Conditions – Shall include a narrative and map that represents AM and PM peak-hour turning-movement volumes for all intersections within the study area. Traffic volumes shall be 15-minute interval weekday turning-movement counts (Tuesday through Thursday) and no more than twelve months old. The required count timeframes are from 6:30-8:30 a.m. and 4:30-7:00 p.m.; however, site-specific conditions may necessitate additional or different traffic counting hours and/or days depending on the development program and location within the Town (these unique circumstances will be determined and directed by the Town). For example, 12-hour turning movement counts shall be required to complete the analysis if a traffic signal warrant analysis is required as part of the TIA. The Town will determine if additional peak hours or weekend analyses shall be included in the TIA at the mandatory scoping meeting. For example, if the development is nearby a school that significantly alters traffic volumes at times other than the peak hours described above, additional study hours will be required. Traffic volumes should also represent weeks that have no observed federal, state, or local holidays and periods of the year when local schools are in session. The source of existing traffic volume information should be explicitly stated (e.g., Town counts, new counts collected by the applicant, NCDOT counts, etc.). If previous counts were obtained, only counts collected within the one year of the Scoping Meeting will be deemed acceptable. Summary sheets for existing turning movement counts should be included in the appendix of the TIA report. A separate narrative and map shall be prepared to describe the characteristics of surrounding major roadways, including functional classification, number of lanes, posted speed limit, existing average daily traffic volumes, typical cross section, intersection control, and lineal distance between major roadways. Field notes for the existing conditions investigation may be included in the appendix of the TIA report.
- i. Future Year Conditions – Unless otherwise approved by the Town, future year conditions for a single-phase development shall be analyzed for the year the development is expected to be at full occupancy (build-out year) and five years after the build-out year (build-out + 5). For multiple-phased development, the scenarios should be completed in order, with any improvements specified by development included in the subsequent build scenarios, including five years after the full build-out year (build-out + 5). Specific analysis periods to include in the study shall depend greatly upon the development program, proposed project phasing plan, and significant improvements programmed for the surrounding transportation system. The approved offsite developments and transportation projects to be included in the base future-year background conditions for the transportation system within the study area shall be determined during the scoping meeting. Transportation improvements assumed in the future-year background conditions analysis may include those with an expected completion date concurrent with that of the development and funded through either by the Town of Waxhaw, State of North Carolina Transportation Improvement Program, or indicated as a required condition of approval from another nearby development application. Only projects approved by the Town at the scoping meeting may be included in the

analysis as future existing infrastructure. Those improvements committed by other projects must be clearly identified in the report as approved offsite development road improvements. Adjacent development traffic information used in the development of the future year background traffic volumes should be included in the appendix of the TIA report. Unfunded, planned infrastructure projects may be mentioned in the TIA, but the description should specifically identify that these projects are not included in the background condition. Future year background traffic volumes shall be forecasted using historical growth rate information, regional models, and/or TIA reports for development approved by the Town but not yet built. A narrative and map shall be prepared that presents turning movement volumes for each peak hour for all intersections identified within the study area. Future year base traffic volumes, other development volumes, and site traffic volumes should be clearly separated, and combined in the map.

- j. Trip Generation – Base trip generation for the proposed land use(s) should be calculated using data published in the latest version of the Institute of Transportation Engineers’ (ITE) Trip Generation Manual. Data limitations, data age, choice of peak hour of adjacent street traffic, choice of independent variable, and choice of average rate versus equation shall be discussed at the mandatory scoping meeting. Local trip generation rates may be acceptable if appropriate validation is provided by the applicant to support them. Any deviation from ITE trip generation rates shall be discussed in the mandatory scoping meeting and documented in the MOU if approved by the Town and NCDOT. The NCDOT Municipal School Transportation Assistance (MSTA) calculator should be used to calculate projected trip generations for school sites.
 - Internal Capture – Base trip generation may be reduced by rate of internal capture when two or more land uses are proposed using methodology recommended in the most current Trip Generation Handbook published by the Institute of Transportation Engineers. Reductions for internal capture should be applied to multi- or mixed-use sites only, and reductions greater than 10% in any peak hour require consultation and acceptance by the Town and NCDOT. The internal capture reduction should be applied before pass-by trips are calculated.
 - Pass-by Trips – Pass-by trips are those made as intermediate trips between an origin and primary destination (i.e., home to work, home to shopping, etc.). However, pass-by trips are not diverted from another roadway. Base trip generation may be reduced by rate of pass-by capture using methodology recommended in the most current Trip Generation Handbook published by the Institute of Transportation Engineers. Pass-by trips associated with the development program may not exceed 10% of the existing peak-hour volume reported for the adjacent public street network. This network shall include the streets that provide primary access to/from the site. For example, a site access drive that connects to a low-volume local street, which its primary access is to a major collector road, the traffic on the major collector shall be used as the adjacent street for pass-by calculation purposes. Evaluation of diverted trips

may apply depending on the specifics of each site. A trip generation table shall summarize all trip generation calculations for the project.

- k. Trip Distribution – External trip distribution shall be determined on a project-by-project basis using one of several sources of information available to transportation and land planning professionals. Potential sources for determining project trip distribution may include the regional travel demand model, market analysis, existing traffic patterns, or professional judgment. At the Town’s direction, multiple trip distributions may be required for differing land use types. Regardless of methodology, the procedures followed and logic for estimating trip distribution percentages must be well-documented in the TIA. Trip distribution percentages proposed for the surrounding transportation network should be discussed during the scoping meeting and shall be approved by the Town and NCDOT before proceeding with the TIA. A map showing the percentage of site traffic on each street included in the study area should be included in the TIA.
- l. Trip Assignment – Project traffic shall be distributed to the surrounding transportation system based on the site’s trip generation estimates and trip distribution percentages. Future year build-out traffic forecasts (i.e., future year background traffic plus project traffic) shall be represented in graphic formats for AM and PM peak-hour conditions at all intersections included in the study area. If the project will be built in phases, traffic assignments shall be reported for each phase. Pass-by traffic shall be included at the driveways and access points for evaluating driveway volumes. Multiple assignment analyses may be required if the traffic control at the access drives varies (i.e., right-in/right-out vs. stop controlled vs. signalized).
- m. Capacity Analysis – Level-of-Service (LOS) and delay are the primary measures of effectiveness for impacts to the transportation system, and is defined by the most current edition of the Highway Capacity Manual (HCM). Unless otherwise noted, Synchro LOS and delay shall be reported for all signalized intersections and approaches identified in the study area. Based on HCM, LOS for unsignalized intersections is not defined as a whole; instead, only the individual stop-controlled or yield approaches should be reported based on the HCM reports determined through the Synchro analysis. Existing signalized intersections shall be modeled based on existing signal timing plans provided by either the Town or NCDOT. Existing signal timing plans should be included in the appendix of the TIA report. If a traffic signal is part of a coordinated system it must be analyzed as such under all conditions. Other standard practices and default input values for evaluating signalized intersections should be consistent with the most recent guidelines published by the NCDOT, Traffic Engineering and Safety Systems Branch, Congestion Management Unit (“Capacity Analysis Guidelines”). The Town may also require safety, traffic simulation, gap and/or other analyses appropriate for evaluating a development application. Additional analyses and/or traffic capacity or simulation tools (such as VISSIM) required for the TIA shall be identified during the scoping meeting. Capacity calculations should be included for the existing and all future year scenarios, as described in Section 7.i. Impacts from the proposed project shall be measured by comparing the future year background conditions to

the future year build-out conditions. Requirements for mitigation are described in Section 7.q. All TIA reports submitted to the Town shall use SYNCHRO, SimTraffic or VISSIM analysis software for signalized and unsignalized intersections, or Sidra Software, for roundabouts, consistent with policies released by the NCDOT. A narrative, table, and map shall be prepared that summarizes the methodology and measured conditions at the intersections reported in LOS (LOS A – F), intersection and approach signal delay for signalized intersections, approach delay for unsignalized intersections, and 95th percentile queue lengths for all movements. Capacity analysis worksheets and auxiliary turn lane warrants for unsignalized intersections should be included in the appendix of the TIA report.

- n. Queuing Analysis – 95th percentile and simulation analysis of future year queues shall be consistent with NCDOT’s Traffic Engineering and Safety Systems Branch, Congestion Management Unit current practices and published Capacity Analysis Guidelines. Turn lanes and storage lengths for the major street (uncontrolled) approaches at unsignalized intersections shall be identified using volume thresholds published in the NCDOT’s Policy on Street and Driveway Access to North Carolina Highways (see Warrant for Left- and Right-Turn Lanes Nomograph, pg. 80). Recommendations for left and right turn lanes serving the site shall be designed to both account for the NCDOT warrants described above and to meet future year capacity needs identified in the TIA report. For projects that include drive-through facilities, pick-up/drop-off areas or entrance gates, a queuing analysis may be required by the Town to ensure that vehicle stacking will not adversely impact the public transportation system. The queuing analysis must be performed using accepted transportation engineering procedures approved by the Town. If a TIA is required for a new school site, the internal circulation and ingress/egress of the site should be modeled using a “dummy signal” in the SYNCHRO software as prescribed by NCDOT Municipal School Transportation Assistance (MSTA) department.
- o. Crash Analysis – A summary of crash data (type, number, and severity) for the most recent 3-year period at each study location is required. Traffic Engineering Accident Analysis System reports will be provided by the Town and/or NCDOT and should be included in the appendix of the TIA report. For locations with prevalent crash types and/or frequency, a discussion shall be included describing factors that may be contributing to the incidents. At a minimum, the proposed development features shall not contribute to factors potentially involved in collision rates. If contributing factors are identified, recommendations to eliminate or mitigate these features shall be included.
- p. Traffic Signal Warrants – Town staff and NCDOT may consider potential signal locations at the scoping meeting. However, traffic flow progression is of paramount importance when considering a new traffic signal location. A new traffic signal should not cause an undesirable delay to the surrounding transportation system. Installation of a traffic signal at a new location shall be based on the application of warrants criteria contained in the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD) and engineering judgment. Traffic signal warrants should be included in the appendix of the TIA report. Additionally,

spacing of traffic signals within the Town must adhere to NCDOT requirements. Pedestrian movements must be considered in the evaluation and adequate pedestrian clearance provided in the signal cycle split assumptions. If a signal warrant analysis is recommended in the TIA, the Town and/or NCDOT may decide to defer a signal warrant analysis until after the development has opened in order to use actual turning movement counts at an intersection. The TIA recommendations must clearly state that this analysis shall occur at a specified date following the opening of the development. The applicant must issue a bond or letter of credit in the name of the Town for the estimated cost of the signal warrant analysis and resulting signal prior to final approval of the TIA. The cost shall be established based on an engineer's estimate provided by the engineer of record for the applicant; however, final approval of the dollar amount rests with the Town.

- q. Mitigation Measure Recommendations – This section of the TIA report shall provide a description of the study's findings regarding impacts of the proposed project on the existing and future transportation system and describe the location, nature, and extent of all mitigation measures recommended to the applicant to improve and/or maintain the future year background conditions level-of-service (LOS) conditions through phasing and ultimate build-out of the project. This mitigation will be based on the build-out year scenario. The applicant is only required to mitigate transportation deficiencies caused by the projected impact of their proposed development, and not unacceptable background conditions or other deficiencies caused by offsite development within the defined study area.

The applicant shall be required to identify mitigation improvements to the roadway network if at least one of the following conditions exists when comparing future year background conditions to future year build-out conditions:

- the total average delay at an intersection or individual approach increases by 25% or greater, while maintaining the same LOS,
- the LOS degrades by at least one level,
- or the LOS is "D" or worse in background conditions and the proposed project shows a negative impact on the intersection or approach

If the background LOS (intersection or approach) is inadequate (i.e., "D", "E" or "F", the applicant will be expected to mitigate only the impact caused by the proposed project. For example if the background LOS of an approach is LOS F with 85 seconds of delay, and the project traffic increases the delay to 95 seconds (LOS F), the applicant will be required to mitigate the added 10 seconds of delay on the approach, not required to mitigate the inadequate background delay. Town staff and NCDOT will review the recommendations in the final version of the TIA and will have the ultimate determination in the scope of the required mitigation measures.

For multi-phase developments, the capacity analyses scenarios shall address the phasing of improvements for each phase of development. The build-out + 5

scenario will only require the analysis of five years beyond the full build-out year, but not used for mitigation purposes.

A narrative and table shall be prepared that summarizes the methodology and measured conditions at the intersections reported in LOS (LOS A–F) and average control delay for each intersection and approach.

A narrative and map shall also be prepared that describes and illustrates recommended improvements, by development phase if necessary, for mitigating the projected impact of the proposed development.

- r. Compliance with Adopted Transportation Plans – All TIA reports must include a statement of compliance with plans, programs, and policies adopted by the Town of Waxhaw for maintaining a safe and efficient multi-modal transportation system.

APPENDIX-H

POLICY FOR DRIVEWAY DESIGN & CONSTRUCTION



August 2019

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1 – INTRODUCTION

1.1 Purpose & Applicability

The primary purpose of the Town of Waxhaw’s Driveway Design & Construction Policy is to provide minimum driveway design standards to individuals that are engaged in the design, permitting, and construction of private land development projects. Town staff will use this policy as the primary guidance document to support a property owner’s rights of reasonable access to their site.

The driveway policy is intended to be used for, but not limited to; residential, industrial, mixed-use, and commercial site access to the public right-of-way. This document is also intended to be used in concert with other regulatory documents that have an influence for site access such as *The North Carolina Department of Transportation’s Policy on Access & Design*, the *Town of Waxhaw’s Land Development Code, Subdivision Regulations*, and the *Town of Waxhaw’s Engineering Design & Construction Standards Procedures Manual*.

From a procedural perspective, Town Staff will administer the regulations and guidance set forth in this policy document for all of the land development activities occurring within the Town Limits of Waxhaw that include, but may not be limited to:

- Commercial Site Plan Review
- Subdivision Plan Review
- Residential Improvements Review
- Conditional Rezoning Process

1.2 Objectives of this Manual

The objectives of the Driveway Manual are identified below;

1. Provide minimum driveway design and access management requirements and guidance to private landowners and/or developers that seek access to the public street
2. Create a tool that allows for the consistent administration of the driveway requirements and policies that govern access to the public street system

2 – PROCESS, PROCEDURES, APPROVALS

2.1 General Requirements

A property owner, developer, and/or public entity that seeks access to the public right-of-way can do so via Town Development Services commercial and subdivision commercial permitting processes. It is important to note that the approval of the development plan (commercial or subdivision) provides approval of each of the driveways/street connections proposed as a part of the subject development plan. This means that no separate driveway permit approval document will be issued as a part of the aforementioned land development plan approval(s) with the following exceptions. Individuals seeking new driveways to existing properties that are not being

developed will need to follow the procedures for obtaining a driveway permit as outlined in the Driveway Permit application in Appendix I. Additionally, the developer/design professional will need to obtain a physical driveway permit from the North Carolina Department of Transportation's District 3 Office (704-218-5100) when any of the previously mentioned access points connect to a public street maintained by the North Carolina Department of Transportation (NCDOT).

2.2 Town Requirements for Driveways

Expiration of Permit

Construction of a driveway must be completed within one year after the issuance of a driveway permit. An extension may be granted upon showing that valid reasons exist for the delay. A request for an extension must be submitted to the Town Engineer and/or designee in writing at least thirty (30) days prior to the permit expiration date to avoid full plan review requirements.

Permit Revocation

A driveway permit may be revoked for failure to comply with the Town's driveway design and construction policies and regulations, the Land Development Code (LDC), and/or the terms and conditions of the NCDOT driveway permit. If a driveway permit is revoked, the Town may require the permittee or property owner to physically eliminate the driveway and replace or repair any existing sidewalk, curb & gutter, and associated storm drainage. If the permittee or property owner does not physically eliminate the driveway and replace or repair the sidewalk, curb & gutter, and associated storm drainage within thirty days (30), the Town may do so and charge the expense to the permittee or property owner.

Driveway Abandonment

If a driveway connection is abandoned, the Town may require the permittee and/or property owner to physically eliminate the driveway and replace or repair any existing sidewalk, curb and gutter, and storm drainage. If the permittee and/or property owner does not physically eliminate the driveway and replace or repair the sidewalk within **60 days**, the Town may do so and charge the expense to the permittee or property owner.

Driveway Bond

The Town may, at its sole discretion, authorize the issuance of a certificate of occupancy or authorize the use of a driveway connection prior to completion of all work required in a driveway permit by requiring the permittee to post a bond to ensure the completion of required work.

Driveway Variance

The Town may, at its sole discretion, grant a variance from the driveway policy in order to preserve a tree within a public right-of-way and the granting of such a variance would not be inconsistent with the objectives and intent of the driveway policy.

Driveway Inspection

Each proposed driveway must be inspected by a representative of the Town's Development Services Staff and/or designee after concrete forms are set to final grade, but before any concrete or asphalt has been poured placed. The contractor is required to call the Engineering Department (704-843-2195) to schedule this inspection. Next day inspections are available and same-day inspections are possible if the Engineering Department receives

the telephone request between 8:00 a.m. and 9:00 a.m. Monday through Friday. No inspections will be scheduled if the proper approval has not been issued. In case of failure of the contractor or property owner constructing the driveway to conform to the requirements of this Policy, the inspector or other official of the Engineering Department exercising supervision over the work shall have the authority to stop the work immediately and cause the driveway to be barricaded. That official shall have authority to and shall require the removal or alteration of any driveway which does not conform to the requirements documented in this Policy. Both the property owner and the contractor shall be financially responsible for the removal or alteration and/or cost of removal or alteration of such defective driveway.

Driveway Construction

Additionally, the contractor shall obtain a temporary street closure permit from the Development Services Department prior to the closure, blockage, or construction activities in any public travel lanes or sidewalks. Any closure or blockage of any public travel lane shall be performed according to the standards set forth in the Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD)*, and the latest revision of *The North Carolina Department of Transportations' Roadway Standard Drawings Manual*.

Driveway Maintenance

Maintenance of driveways and culvert piping under driveways are the responsibility of the property owner to repair and or maintain. CMP pipes deflect, clog and corrode over time unless caused by town owned street trees each property owner is responsible to maintain access to his or her property.

2.3 Submittal Requirements

For proposed driveways to existing properties, no driveway approval will be granted until two copies of the approved plans showing the location and dimensions of all proposed improvements are filed with the Engineering Department. Plans should identify the site by:

- address,
- adjacent properties,
- and the approximate distance to the nearest intersecting street or driveway.

Information required on the plans submitted shall include:

- A complete plan view of the site showing existing and proposed buildings with interior parking layout and traffic circulation patterns;
- Existing and proposed driveway locations and dimensions, including but not limited to:
 - a. Distance from other streets and driveways on both sides of the roadway
 - b. Width at the public right-of-way
 - c. Curb radii
- Profile of estimated entrance and exit grades when grades exceed 5%
- Proposed pavement markings
- Maintenance of traffic plans for proposed roadway improvement construction that requires overnight closures or lane shifts;
- Horizontal and vertical sight distance information;
- Existing and/or proposed sidewalks, bicycle paths, or other multi-modal features;

- Street names, primary or secondary road numbers (when applicable), right-of-way and pavement widths and location of street return on corner lots;
- Proposed location of off-street loading and unloading facilities; and
- **Proposed Culvert Size and length and Existing ditch if applicable**
- Retaining walls, drainage structures, utility poles, fire hydrants, traffic control cabinets, and other physical features which affect the driveway location and sight distance.

Non – Residential Change of Use

A new driveway permit will be required for non-residential change of use development plans if they meet either of the following criteria.

1. Current driveway is in disrepair and does not meet the Town’s minimum design criteria
2. Where the existing driveway does not meet ADA accessibility requirements

3– DRIVEWAY DESIGN CRITERIA

3.1 General Criteria

The final decisions regarding the appropriate driveway type, placement, and quantity of driveways per site are based on various factors including but not limited to the proposed land-use, traffic characteristics of the adjacent public street, existing site conditions, proposed density, and other environmental factors and considerations. In general, the Engineering Department will follow national design criteria identified in the latest version of the AASHTO Policy on Geometric Design when regulating the minimum requirements for driveway design and driveway placement.

To that end, the Town of Waxhaw has published a series of standard driveway designs provided in the *Engineering Design & Construction Standards Procedures Manual* that have a proven record of meeting the traffic demands for most land development projects seeking residential and commercial driveway access to the public street system. In cases where the standard driveway designs do not meet the development’s site-specific needs, the site designer can provide a non-standard driveway design to the Engineering Department for review and consideration.

The site designer is encouraged to do as much advanced coordination of such design as is practical before the construction documents are officially submitted for review to prevent the official permitting schedule for the site from being negatively impacted.

The following section of this document entitled “Standard Driveway Types” will provide a brief definition of each driveway type, its general applicability, and specific design considerations for each respective standard driveway type. The subsequent design considerations in each subsection should not be considered a comprehensive analysis of every aspect of the respective driveway type, but key considerations that should be noted during the site design. The Town Engineer or designee reserves the right to require a different driveway type than what a designer proposes based on safety, proper alignment of the specific driveway type to its appropriate geographic/land-use context, coordination with the public street that the driveway accesses and the influence of the specific driveway on site design.

3.2 Standard Driveway Types

Driveway Type

- **Type I (111.1, 113.1, & 118.1)**

Definition:

Any driveway that provides access to a single-family residence, duplex, or triplex. This driveway has no radius returns and is either constructed as a drop-curb concrete ramp where standard 2'6" vertical curb-and-gutter is present, or constructed to the back of existing curb where valley curb is present. Sidewalks (unless located at back-of-curb) do not change grade when crossing a Type I driveway.

Applicability:

This driveway type should be used for all single-family, duplex, and tri-plex residential driveways.

Design Considerations:

Type I driveways must be designed with sufficient length to accommodate the anticipated number of vehicles such that no parked vehicles will overhang the sidewalk. The design must include at least 20 feet of pavement between the right-of-way and any structure. The minimum driveway width is 10 feet on a local or collector street and 15 feet on a thoroughfare. The maximum width for a Type I driveway is 30 feet.

Where multiple drives access the same lot, total driveway width shall not exceed 32 feet and drives shall not be less than 20 feet apart measured along the edge of pavement.

Type I driveways shall be offset a minimum of 5 feet from the property line.

Where a concrete drive is installed, 6-inch of concrete depth shall be provided within the Town Right of way per standard details.

- **Type II (108.1, 109.1, 110.1, 112.1, 114.1)**

Definition: A drop-curb concrete ramp driveway that provides access to small office, multi-family, retail, recreational, industrial, or institutional buildings. This driveway does not have radius returns. Sidewalks (unless located at back-of-curb) do not change grade when crossing a Type II driveway.

Applicability:

This driveway should be used for any facilities that generate a low to moderate number of vehicle trips (20 – 100 trips/day). Type II driveways are also preferred for urban or highly commercialized areas where high numbers of pedestrians can be expected to travel along the intersecting sidewalk and where too many driveways are present to allow for the spacing necessary to accommodate Type III driveways. Type II driveways are also appropriate for sites with un-channelized vehicular circulation or where it is otherwise important that entering vehicles decelerate significantly to maneuver on site.

Design Considerations:

Type II driveways should always be designed to the minimum width that effectively accommodates the vehicles entering and exiting the site. Typically Type II driveways are designed to accommodate the single unit design vehicle (SU-30). Where larger vehicles are anticipated, the driveway apron should be designed to accommodate the actual wheel paths of the turning vehicle, rather than providing a uniform width, which is often unnecessarily large. Wherever possible, planting strips should be provided to separate the sidewalk from the driveway apron, thereby allowing a constant grade for the sidewalk. The minimum driveway width is 20 feet for one-way Type II Driveways. The maximum width for one-way Type II driveways is 30 feet. The minimum driveway width is 26 feet for two-way Type II Driveways. The maximum width for two-way Type II driveway is 50 feet.

Type II driveways shall be offset a minimum of 5 feet from the property line.

- **Type II - Modified (115.1)**

Definition:

A drop-curb concrete ramp driveway that serves land uses in urban zoning districts. This driveway has small radius returns. Sidewalks do not change grade when crossing a Type II driveway.

Applicability:

Type II-modified driveways can also be used where sufficient planting strips are present and there is an operational need to provide radius returns to accommodate larger turning vehicles while still using a drop-curb style driveway.

Design Considerations:

This driveway should be designed to the smallest width that will accommodate all anticipated turning vehicles. The radius should be equal to or no greater than the width of the planting strip.

- **Type III (120.1)**

Definition:

A street-type driveway with radius returns. Through sidewalks are interrupted across Type III driveways, but wheelchair-accessible ramps are present to provide continuous passage across the driveway. All proposed public street connections will be considered Type III driveways.

Applicability:

This driveway is suitable for facilities with a moderate to high number of vehicle turning movements, or where a substantial number of truck movements are expected to occur. Because type III driveways allow for higher capacity, they are ideal for consolidating access to multiple land uses. This is desirable as a means of increasing the efficiency of vehicles entering and exiting the roadway, and reducing the total number of driveways along a roadway. Type III driveways must be used wherever dedicated left-turn lanes are required in order to facilitate the turns.

Because of the higher vehicle entry and exit speeds and the interruptions they cause to pedestrians, proper spacing is critical for Type III driveways. Type III driveways are generally inappropriate in locations with high pedestrian activity.

Design Considerations:

Type III driveways should always be designed to the minimum width that effectively accommodates the vehicles entering and exiting the site. The overall driveway width and the radius returns should be designed to accommodate the actual wheel paths of the turning vehicle. Since larger radius returns increase the distance required for a pedestrian to cross, they should be designed to the smallest radius which still accommodates the anticipated entering and exiting traffic and which still allows for a reasonable turning speed. Type III driveways should be located on the site where the highest vehicular utilization can occur and where proper channelization can be provided. Since Type III driveways tend to serve higher volumes of entering and exiting traffic, the driveway stem must also be designed to provide an adequate amount of internal channelization, thereby reducing the potential for entering traffic to back-up into the public right-of-way.

See Section 4.1 below for property line offset requirements.

4 – DRIVEWAY LOCATION & SEPARATION REQUIREMENTS

Separation from Signalized Intersection

Traffic signals are a critical component of the transportation system, as they aide in alleviating congestion, metering traffic, and organizing the various transportation demands that motorists and pedestrians place on the public street system. Introducing driveways in close proximity to a signalized intersection can degrade the intersection’s capacity, safety, and operations. Therefore, special consideration will be given to driveways that are proposed in a location that could affect an existing or proposed traffic signal. 150ft from signalized intersections (approach and departure side) will be the minimum distance required permit a commercial driveway access. **Driveway placement will be evaluated on a site-specific basis when a site is adjacent to a traffic signal and its property frontage is less than 200’ or it is otherwise not possible to provide the minimum separation.**

4.1 Driveway Placement

Separation from Un-Signalized Intersection (Corner Clearance)

In general, 100’ is the minimum separation a commercial driveway should have from an un-signalized intersection. Engineering staff will evaluate the site specific conditions when the site property frontage is less than 100’ or if a spacing greater than 100’ creates safety and/or operational problems within the public street.

Where dual left turns are present at signalized intersections, any new driveway proposed within the functional area of the intersection will be restricted to right turn-in, and right turn-out (commonly referred to as “right-in/right-out”) vehicular movements. This will be accomplished via the installation of a raised concrete median island.

Separation from Adjacent Driveways

Driveways too closely spaced to one another have the ability to create sight distance problems, and introduce unnecessary conflicts within the public street network. In circumstances where access is proposed to a non-median divided public street that is classified as a Collector Street or higher, the

minimum driveway separation will be 50 ft. This dimension can be reduced to 20 ft when access is proposed to a median-divided public street classified as a Collector Street or higher. ***Note that the previously mentioned driveway spacing will not accommodate every situation, and Engineering staff reserves the right to modified/adjust these dimensions based on the existing/proposed site and roadway conditions. Whenever possible adjacent properties should make an effort to share an access drive.***

Separation from Property Line

In general, 10ft or the proposed driveway radius (whichever is greater) shall be the minimum driveway separation from a site's property line. This distance is measured from the property line to the radius point of the driveway. In cases where there is no radius for the driveway (Type II, and Type IV), the ten foot measurement will be taken from the tie-in location of the taper to the existing roadway pavement. The application of the ten foot property line separation requirement should ensure a minimum of 20ft between driveways. In cases where an existing driveway is located closer to the property line than ten feet, Town staff may require additional separation from the property line for the proposed driveway to ensure a minimum of twenty feet of driveway separation is provided.

Sight Distance

One of the most important criteria that is necessary to provide safe access to the public street system is the presence of adequate available Sight Distance. As such, all existing and proposed driveway entrances must conform to the latest version of "AASHTO'S POLICY OF GEOMETRIC DESIGN". To provide and maintain an adequate "window of visibility" for the motorist, no object, planting, structure, or sign shall be placed within this triangle at a height between 2.5 feet and 10 feet above the finished grade of the proposed driveway.

Figure 1 should be used as guidance information to assist developers and site designers in properly ensuring adequate approach and departure sight distance for the most common scenarios in Waxhaw. Please note additional sight distances cases are identified in the latest revision of "AASHTO'S POLICY OF GEOMETRIC DESIGN".

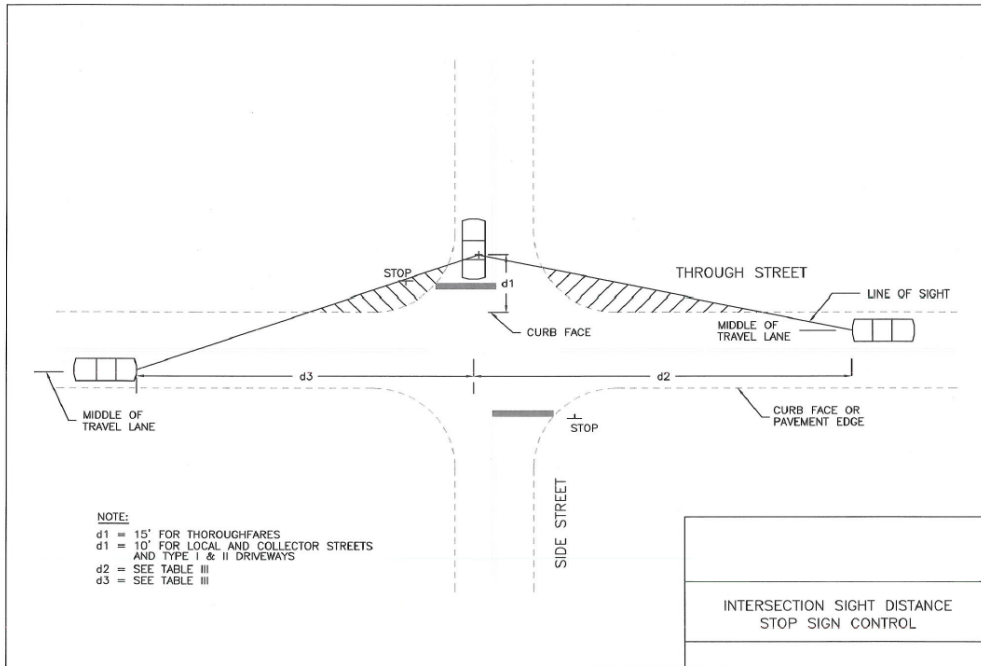


Figure 1: Intersection Sight Distance Stop Sign Control

Design Speed (MPH)	Minimum Intersection Sight Distance for left-turn from stop (ft)	Minimum Intersection Sight Distance for Right Turn from Stop (ft)
15	170	145
20	225	195
25	280	240
30	335	290
35	390	335
40	445	385

Table 1: Intersection Sight Distance for stop-sign and signal-controlled intersections for passenger cars (Tables 9-6 & 9-7, 2011 AASHTO Policy on Geometric Design)

5 –TURN LANE WARRANTS & DESIGN

In general, Figure 2 will be used as the criteria to determine if/when either a left or right turn lane will be required to support the traffic generated by the proposed development. Figures 3, 4, and 5 should serve as design guidelines and criteria to assist project engineers when design left and right turn lanes on and/or for public streets within the Town limits.

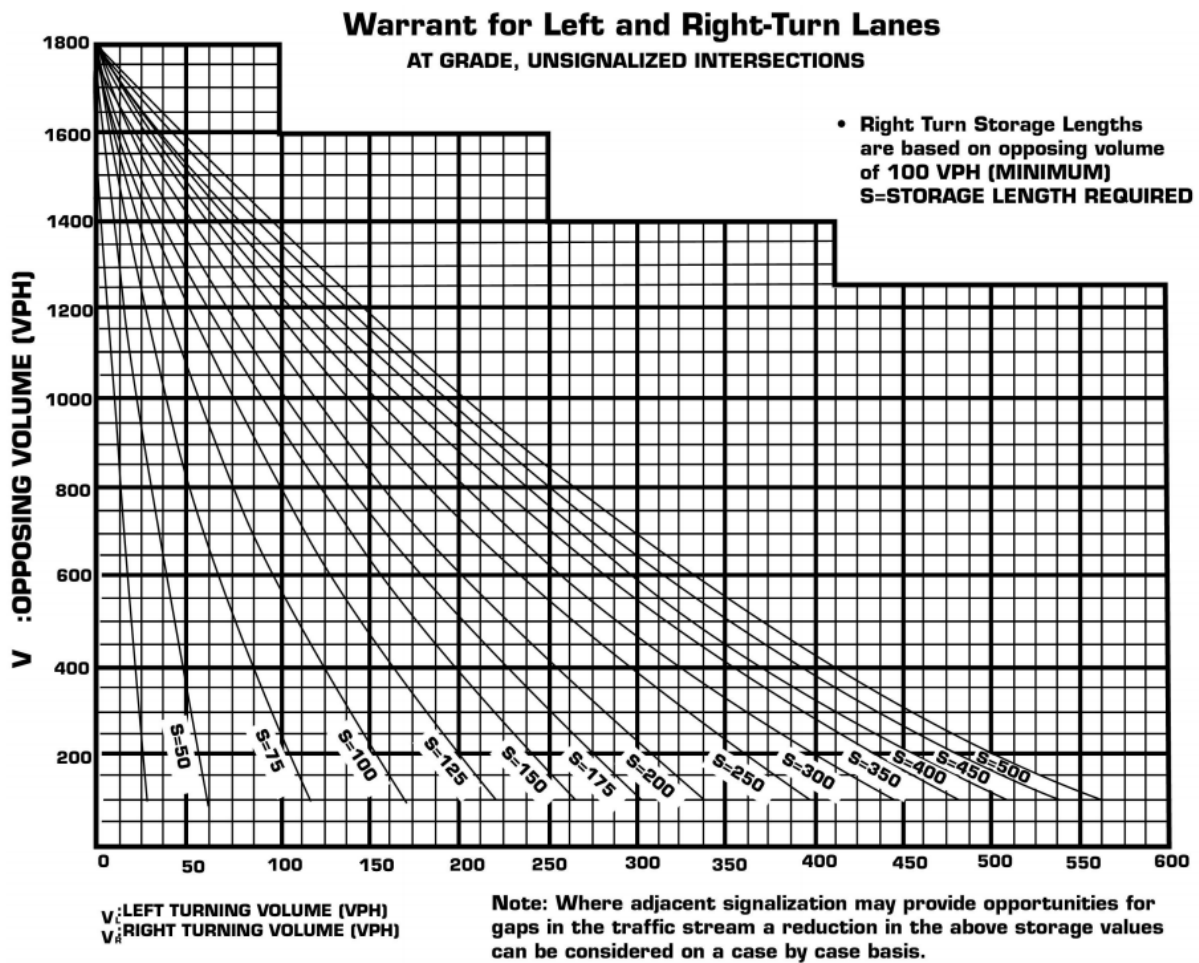


Figure 2: Left and Right Turn Lane Warrants (2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways)

Recommended Treatment for Turn Lanes

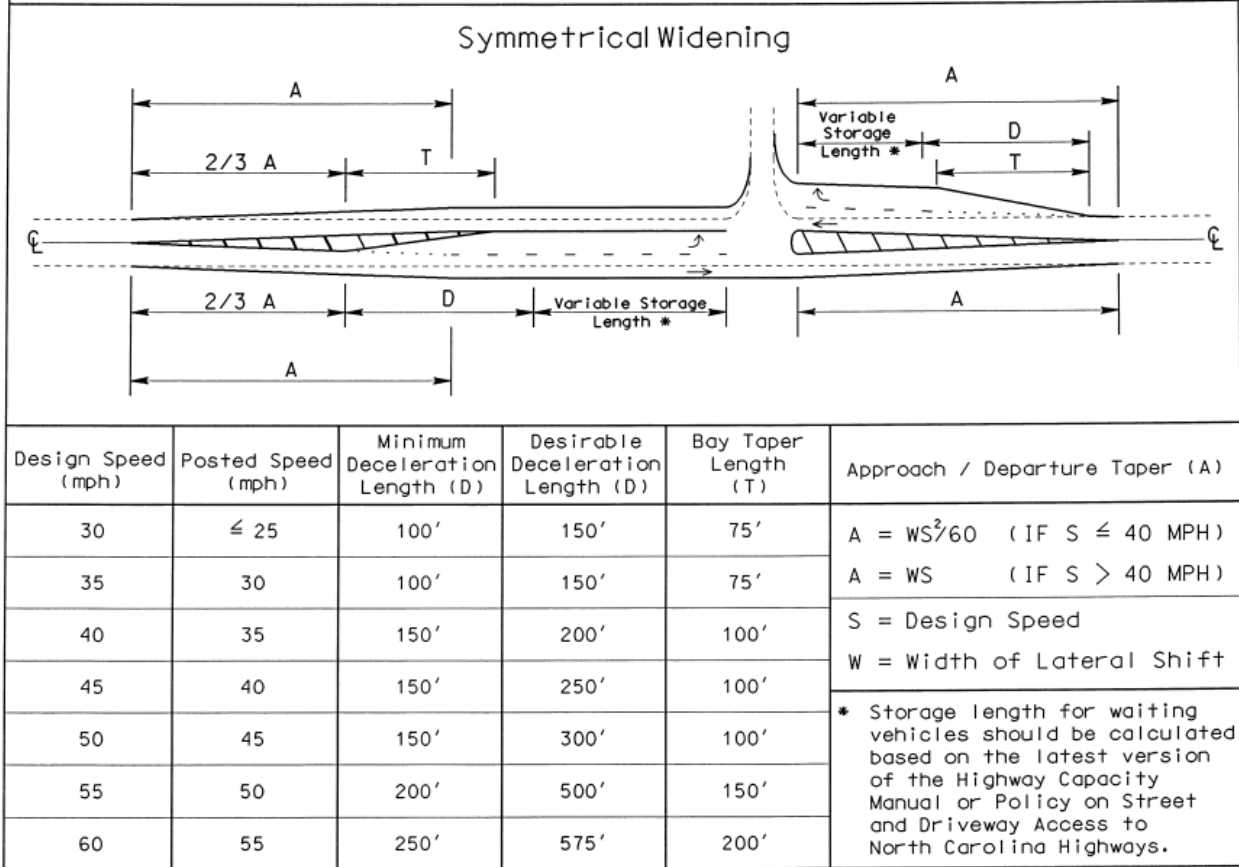


Figure 3: Recommended Treatment for Turn Lanes (2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways)

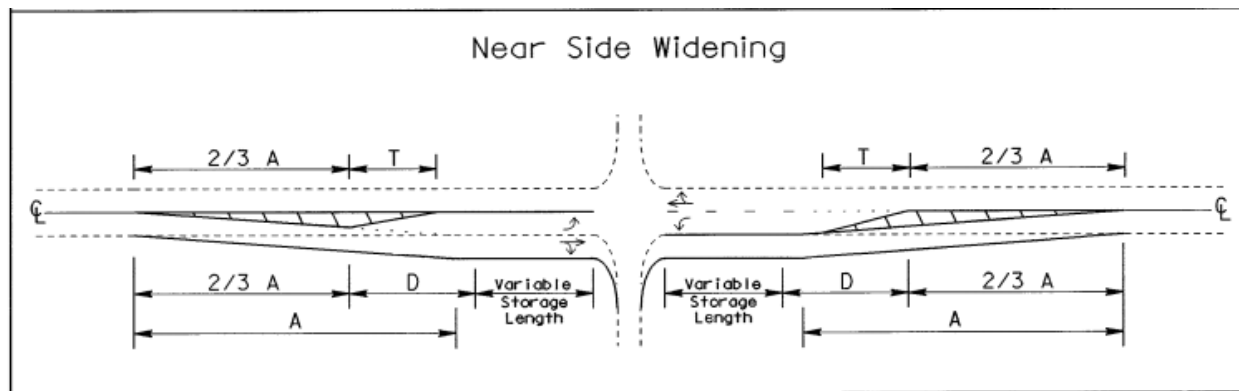


Figure 4: Near Side Widening (2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways)

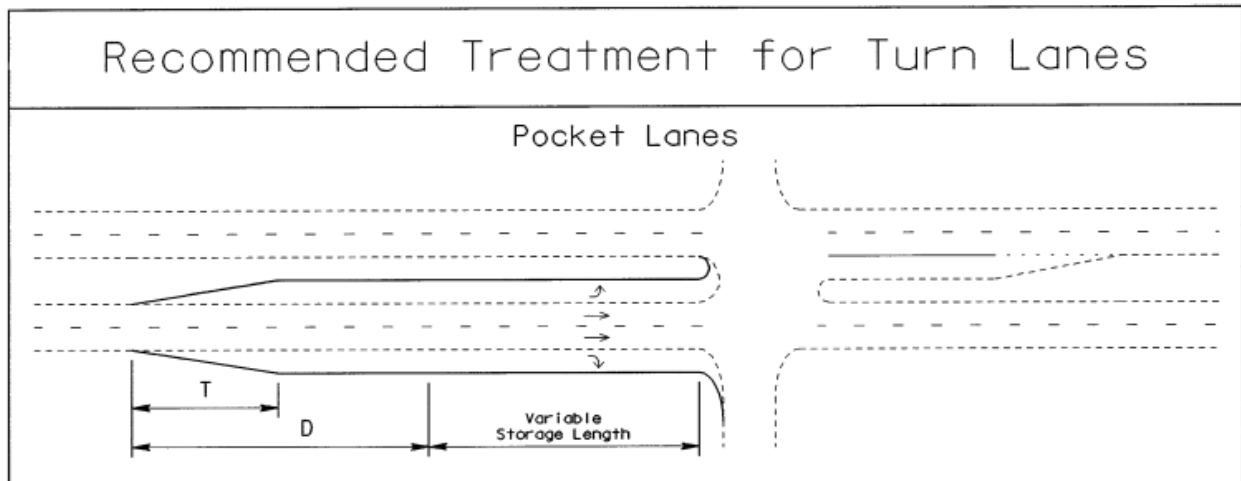


Figure 5: Right-turn Lane (2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways)

Access Restrictions

While providing adequate public safety and ensuring efficient street operations will be the overarching criteria in determining whether or not the Town restricts site access, there are a few specific criteria where a property owner and/or private developer should expect for their respective site access to be restricted to vehicular movements less than full-movement.

1. When the site proposes access to an existing public street cross-section is four lanes or greater
2. Within 150ft (approach or departure) of a signalized intersection
3. Whenever site access is proposed where dual-left turns turn lanes are present
4. At locations where a known accident and/or street operations problems exists
5. Where available sight distance isn't present

The criteria above are not intended to represent a comprehensive list of every situation where Engineering staff will restrict site access; however, it provides a general framework of the most common situations where property owners and/or private developers should expect limited site access.

6 – TRAFFIC IMPACT ANALYSIS (TIA)

A Traffic Impact Analysis (TIA) may be required for developments that have the potential to create a significant impact to the adjacent or surrounding public street system. These include but are not limited to large or very intense developments that generate 1,000 daily trips and/or 100 peak hour total peak hour trips as specified in the [Town of Waxhaw's Traffic Impact \(TIA\) Policy](#). A TIA, and corresponding signal warrant analysis will be required for proposed developments that contemplate the need for a new traffic signal(s) or modifications to existing traffic signals.

A memorandum of understanding (MOU) may be required to identify proposed repairs for frontage road(s) damaged during construction. It shall be the developer's responsibility to replace roadway

damaged as a result of the development of a proposed site. Providing the MOU prior to construction operations is important to expedite project completion.

7 – PAVEMENT MARKINGS & SIGNAGE

All roadway signs and pavement markings placed on driveway entrances and within the public right-of-way must conform to the latest edition or revision of both the “Manual on Uniform Traffic Control Devices (MUTCD),” and NCDOT’s latest version of the “Roadway Standard Drawings Manual” and shall be located and maintained in accordance with the approved construction plan(s).

8 – TRAFFIC CONTROL DEVICES

All traffic control devices placed on driveway entrances, and within the public right-of-way must conform to the latest edition or revision of the “Manual on Uniform Traffic Control Devices (MUTCD),” and NCDOT’s latest version of the “[Roadway Standard Drawings Manual](#)” and shall be located and maintained in accordance with the approved construction plan(s).

9 – PUBLIC, PRIVATE, & CHARTER SCHOOLS

The regulations and design criteria provided within this document will be used by Waxhaw staff during the review of new school construction plans. In cases where a new public school is proposed, the Union County Public School System will be subject to the Traffic Impact Analysis (TIA) Policy, along with submitting a completed NCDOT [Municipal School Transportation Assistance \(MSTA\)](#) vehicular queue calculator.

Private and Charter Schools will be evaluated on a case-by-case basis to identify that on-site vehicular storage exists. These sites may be required to submit a Transportation Technical Memorandum (TTM) based on the number of students, adequacy of the existing public infrastructure to accommodate the increase in traffic volume, proposed bell times, and future student population growth potential. The TTM will be used to help identify changes in traffic patterns associated with the proposed school and to properly identify any required mitigations necessary to alleviate the increase in traffic caused by the new school construction. Additionally, each proposed school will be required to submit a completed NCDOT [Municipal School Transportation Assistance \(MSTA\)](#) vehicular queue calculator to insure adequate on-site vehicular stacking exists, and vehicular queuing does not spill onto the public right-of-way.

APPENDIX-I



DRIVEWAY PERMIT APPLICATION

This application is required for all new connections to Town maintained streets including an individual single family residence in accordance with the latest Town of Waxhaw *Policy for Driveway Design & Construction*.

If the new driveway is to be located on a state maintained road, contact the North Carolina Department of Transportation at 704-218-5100.

Location of Property Requesting New or Modification of Access: _____

Nearest Public Street Intersection: _____

Development Name: _____

Proposed Location and Type of Driveway(s):

Driveway #1 (circle all that apply) New Existing Residential Commercial/Other
Exact Distance and Direction to Nearest Public Street Intersection: _____

Driveway #2 (circle all that apply) New Existing Residential Commercial/Other
Exact Distance and Direction to Nearest Public Street Intersection: _____

Show proposed driveway(s) on attached sketch or site plan. This plan **must show** details of proposed driveways including proposed width and radius, pipe length and size, adjacent property lines, driveways on adjacent property, existing and proposed buildings, and parking areas and roadway features.

-
- I, the undersigned property owner, request access and permission to construct driveway(s) or street(s) on public right-of-way at the above location.
 - I agree that no signs or objects will be placed on or over the public right-of-way other than those approved by the Town.
 - I agree that the driveway(s) or street(s) will be constructed as shown on the attached plans.
 - I agree that the driveway(s) or street(s) as used in this agreement include any approach tapers, storage lanes or speed change lanes as deemed necessary by the Town Engineer.
 - I agree that this permit becomes void if construction of driveway(s) or street(s) is not completed within 12 months.
 - I agree to construct and maintain the driveway(s) or street(s) in a safe manner so as not to interfere with or endanger the public travel.
 - I agree to provide during construction proper signs, signal lights, flaggers and other warning devices for the protection of traffic in conformance with the current "Manual on Uniform Traffic Control Devices for Streets and Highways" and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Town Engineer.
 - I agree that the Town of Waxhaw will assume no responsibility for any damages that may be caused to such facilities, within the highway right-of-way limits, in carrying out its construction.

- I AGREE TO NOTIFY THE TOWN ENGINEER IN WRITING WHEN THE PROPOSED WORK BEGINS AND WHEN IT IS COMPLETED.

I agree that the driveway(s) described in this permit application will be constructed according to the approved driveway permit.

Property Owner Name: _____ **Phone:** (____) _____ - _____

Property Owner Mailing Address: _____

Applicant's Signature: _____ **Date:** _____

Application Approved by Town Engineer: _____ **Date:** _____
(Signature)

Instructions: Town of Waxhaw Driveway Permit Applications Must Include:

- 1. Two original signed Driveway Application Forms.**
- 2. Two sets of site plans (or detailed sketch on separate page).**
- 3. Mail or hand deliver application forms and site plans to Town Engineer's attention to: 1150 North Broome Street Waxhaw, NC 28173.**

(For Official Use Only)

Date Application Received: _____ Application Received by: _____

APPENDIX - J



TRAFFIC CALMING POLICY

Town of Waxhaw
1150 N. Broome Street
Waxhaw, NC 28173
(704) 843-2195
www.waxhaw.com

Revised August 17, 2021

Reviewed September 9, 2022

TRAFFIC CALMING MISSION

The Town of Waxhaw’s goal is to provide safe and pedestrian friendly streets for all residents of the Town while balancing the need for an efficient transportation network. As part of that goal, the Town understands that traffic must be able to flow freely but do so as safely as possible. This policy is meant to provide an avenue for citizens to report unsafe conditions, establish a process for review, and develop solutions for unsafe areas on existing roads.

Program Tools

The Town of Waxhaw’s Traffic Calming Program relies on the “**Five E**” process; Education, Enforcement, Evaluation, Economics, and Engineering to address problems of excessive traffic speed or volume. These strategies will be implemented using a phased approach, beginning with the least restrictive and least expensive methods (Phase I) and proceeding to more complex solutions (Phase II). **Where appropriate, Phase I approaches will be used first. These include targeted enforcement, education, and the use of signs.** If these strategies are ineffective, Phase II solutions may be considered. In some cases, based on Town staff evaluation, Phase I may be bypassed in favor of the Phase II approach. In some instances, a Phase I approach may be implemented as a temporary mitigation while the Phase II planning process is underway. In either phase, different strategies may be used in combination.

What Roads are covered in this Program?

The control measures provided in this document are intended to be applied to local streets serving predominantly single-family residential neighborhoods. Collector streets that run through neighborhood areas may also be considered for less restrictive traffic calming measures. Streets that are designated as thoroughfares or which are classified as State or Private are not eligible for this program.

All new developments will be reviewed for potential location where excessive traffic and speed may be a concern. The Engineering Division in coordination with the developer will use these strategies in an effort to mitigate future traffic problems.

TRAFFIC CALMING PROCESS FOR EXISTING STREETS

The process consists of two phases. **Phase 1** includes the property owners’ request and Town evaluation. **Phase 2** includes a property owner petition process and Town implementation of appropriate traffic calming measures.

Phase 1: Traffic Calming Process

Property Owner Request

A property owner along a street or residential area must submit a written request to the Town to perform a traffic evaluation on neighborhood/subdivision roadways when the property owner has a traffic concern of vehicle speed that affects pedestrian safety or excessive volumes of through traffic in a residential neighborhood/subdivision. If the neighborhood has a Home Owners’ Association (HOA), the Town will coordinate the Traffic Calming Process through the HOA. The Town of Waxhaw Engineer will provide an official request form or the form can be found online at www.waxhaw.com. Additionally, any member on the Board of Commissioners, the Town Manager, The Chief of Police, or a Town Staff Engineer may initiate a traffic calming evaluation at any time.

Evaluation

The purpose of the evaluation is to determine whether or not the street qualifies for one or more traffic calming measures. The traffic data collection will occur over a 72-hour period and the evaluation, in its entirety, may take approximately 4 to 6 weeks to complete from the time the completed official request is received. The Town of Waxhaw conducts the evaluation based upon the following criteria:

1. Street must be classified as a two-lane, local residential street.
2. Street must not be a Major or Minor thoroughfare or proposed to be a thoroughfare in the future.
3. Street must have an average annual daily traffic (AADT) volume that is greater than 250 vehicles per day (VPD) and less than 5,000 vehicles per day (VPD).
4. Speed of at least 15% of the traffic on the street exceeds the posted speed limit by at least 7 mph.
5. Street must not operate at a posted speed of 35 mph or greater to reduce speeds to 25 mph. (25 mph is the lowest speed limit that will be posted).
6. Application must not have been denied or become void within the last 12 months.

Phase I approaches include targeted enforcement, education, and the use of signs. Law enforcement is a factor for maintaining traffic safety and targeted times of enforcement can be a Phase I approach. Education includes a neighborhood outreach to raise awareness of the issue and request for drivers to modify their behavior. Advisory signs such as curve signs may be installed in accordance with the Manual of Uniform Traffic Control Devices.

Once the evaluation is completed by the Town Engineer, the applicants will be notified in writing of the outcome. If the street does not qualify, the specific reasons will be included in the notification. If the Phase 1 measures are ineffective, Phase 2 of the Traffic Calming Process will begin.

Phase 2: Traffic Calming Process

Property Owner Petition

If a street meets the requirements for traffic calming, Phase 2 of the Traffic Calming Process will begin. The Town will provide the applicant or HOA an official petition form which will include the proposed traffic calming measures.

The petition will identify the type and location of the traffic calming device. It is the applicant's responsibility to complete the petition by obtaining all necessary signatures and returning it to the Town Engineer. A qualifying petition must be returned to the Town within 90 calendar days of the start of Phase 2 or the petition becomes void. The installation of traffic calming measures on local residential streets requires the submittal of a petition meeting the following criteria:

1. Traffic Calming Petition must be on forms provided by the Town of Waxhaw. The Town will only provide forms where the qualifying criteria under Phase 1 have been met.
2. The Town Engineer will define the area that must be petitioned. Generally, the entire length of the street must be petitioned. The only exception is when a street changes character or is bisected by a major or minor thoroughfare.

3. The Traffic Calming Petition must have a minimum of 70% of the properties, within the area defined in Step 2, signing in favor of the petition. These signatures are required in order to continue with the process.

Once a completed petition is received, the Town will review the petition and signatures for accuracy. If the petition is returned to the Town with insufficient signatures, then the Town will notify the applicant or HOA in writing to this fact.

Notice of Public Information Meeting

Based on the nature of the location of the study area, a Public Information Meeting may be warranted. Residents within the affected area of a proposed traffic control measure will be given notice of a Public Information Meeting and an opportunity to provide written comments so their views and opinions may be expressed regarding the traffic control measures being proposed. The notification method selected may include the following:

1. Letters sent to the residents/property owners
2. Notifications on the Town of Waxhaw website and other electronic outlets but not limited to Facebook, Twitter, etc.
3. Work with the local HOA or other groups of residents to communicate to the residents of the upcoming meeting and requesting participation
4. Flyer/notification placed in the Town Newsletter

Prior to the Phase 2 measures being installed, the measures will be placed on the Board of Commissioners' Agenda for the authorization of expenditures.

TYPES OF TRAFFIC CALMING MEASURES

The Town of Waxhaw may utilize several types of traffic calming measures when a residential street qualifies for traffic calming: electronic radar notifying signage, chicanes, chokers, speed limit reduction, multi-way stops, speed cushions (humps), and/or mini-roundabout. **All traffic calming measures must be approved by Fire, Police, and EMS Departments.**

Chicanes, chokers, and mini roundabouts are horizontal traffic calming measures that are designed to limit or narrow the travel lanes. These horizontal measures diminish the linearity of traffic flow, forcing vehicles to slow as the travel lanes narrow and/or curve. **Temporary installation of these horizontal traffic calming measures may be implemented and tested before permanent action is taken. A public input period, which conforms to Phase 2's public information meeting parameters, will be held to determine if these horizontal measures will be permanently installed.**

Definitions:

- ❖ **Chicane** – Curb extensions that alternate from one side of the street to the other, forming S-shaped curves.
- ❖ **Choker** – Curb extensions at midblock locations that narrow a street by widening the sidewalk or planting strip.
- ❖ **Mini-Roundabout** – A circular junction requiring traffic to circulate counterclockwise around a center island typically used for large volumes of traffic.

- ❖ Speed Cushion – Raised area placed across the roadway.
- ❖ Neckdown – Curb extensions at intersections that reduce the roadway width from curb to curb. Work best for intersections with substantial pedestrian activity.

Other criteria, in addition to the standards previously listed in this policy, may be required for each measure to qualify for implementation. Additional criteria for certain measures are listed below:

Multi-way Stops

An economical traffic calming measure is the installation of the 3-way or 4-way stop signs. **Multi-way stops are limited in effectiveness and will be limited in application.**

Speed Cushions and Humps

Speed cushions are a speed control device generally constructed of asphalt and designed to cause a driver to slow to approximately 25 MPH. Greater speeds could cause the driver to feel discomfort as the car hits the cushion. Roads that have these devices typically see a 5% to 10% reduction in speeds. These devices are used on residential streets intended for use by local residents. They are not used on collector types of roads. **Speed Cushions/Humps have decided disadvantages. Horizontal control will be the preferred method of calming over vertical control.** The following criteria must be met for speed cushions to be considered:

1. Grade of the street shall not exceed 8% for vertical traffic calming measures.
2. Speed cushion location shall be located at least 300 ft. from a curve with a horizontal radius of less than 300 ft.
3. Speed limit must be posted at 25 mph or lower.

Electronic Radar Notifying Sign

Electronic radar notifying signage are designed to be installed in line with normal speed limit signs. These electronic radar signs are meant to notify the vehicle operator of their speed and adjust their speed as needed.

Paying for Traffic Calming Measures

The cost of the installation, maintenance, and signage/markings for the traffic calming devices will be the responsibility of the Town. If the subdivision has decorative sign supports, the HOA or homeowners will be responsible for the cost of installation and maintenance of the decorative sign supports.

Removal of a Traffic Calming Device

If an applicant desires to have a traffic calming device removed, they must follow the same procedures outlined above for the installation of a device. Traffic calming devices cannot be petitioned for removal until a minimum of one year after installation. There is no cost to the property owners for the removal of speed limit or multi-way stop signs. If horizontal or vertical measures are approved for removal, the property owners will be required to pay the Town the upfront cost of removal if the measures have been in place for less than five years. If any traffic calming device is petitioned and removed, requests for a device new device will not be considered for Engineering review for five years from the date of the received removal petition.

TOWN OF WAXHAW, NORTH CAROLINA
EROSION AND SEDIMENTATION CONTROL ORDINANCE



Revised **December** 2021

(Revisions were those that were mandated by the Sedimentation Control Commission.)

The Sedimentation Control Commission meets annually to discuss modifications to statewide erosion and sedimentation control ordinances. Rules mandated by the Commission shall take precedent and be followed despite any potential delays to updates to this Appendix.

PREAMBLE

The sedimentation of streams, lakes and other waters of this State constitute a major pollution problem. Sedimentation occurs from the erosion or depositing of soil and other materials into the waters, principally from construction sites and road maintenance. The continued development of this Town will result in an intensification of pollution through sedimentation unless timely and appropriate action is taken. Control of erosion and sedimentation is deemed vital to the public interest and necessary to the public health and welfare, and expenditures of funds for erosion and sedimentation control programs shall be deemed for a public purpose. It is the purpose of this Ordinance to provide for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards which will permit development of this Town to continue with the least detrimental effects from pollution by sedimentation.

Section 1 Title

This ordinance may be cited as the Town of Waxhaw, NC Soil Erosion and Sedimentation Control Ordinance.

Section 2 Purpose

This ordinance is adopted for the purposes of:

- (a) regulating certain land-disturbing activity to control accelerated erosion and sedimentation in order to prevent the pollution of water and other damage to lakes, watercourses, and other public and private property by sedimentation; and
- (b) establishing procedures through which these purposes can be fulfilled.

Section 3 Definitions

The words and phrases used in this Ordinance shall have the meaning assigned in this Section provided, unless the context clearly indicates otherwise. These definitions are derived from the North Carolina Sedimentation Control regulations, 15A NCAC § 4A.0105 and the Sedimentation Pollution Control Act of 1973, NCGS § 113A-52.:

- (a) Accelerated Erosion - means any increase over the rate of natural erosion as a result of land-disturbing activity.
- (b) Act - means the North Carolina Sedimentation Pollution Control Act of 1973 and all rules and orders adopted pursuant to it.
- (c) Adequate Erosion Control Measure, Structure, or Device - means one which

controls the soil material within the land area under responsible control of the person conducting the land-disturbing activity.

- (d) Affiliate – means a person that directly, or indirectly through one or more intermediaries, controls, is controlled by, or is under common control of another person.
- (e) Approving Authority – means the Division or other State or a local government agency that has been delegated erosion and sedimentation plan review responsibilities in accordance with the provisions of the Act.
- (f) Being Conducted - means a land-disturbing activity has been initiated and not deemed complete by the Approving Authority.
- (g) Borrow - means fill material that is required for on-site construction that is obtained from other locations.
- (h) Buffer Zone - means the strip of land adjacent to a lake or natural watercourse.
- (i) Coastal Counties - means the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell and Washington.
- (j) Commission - means the North Carolina Sedimentation Control Commission.
- (k) Completion of Construction or Development - means that no further land-disturbing activity is required on a phase of a project except that which is necessary for establishing a permanent ground cover.
- (l) Department - means the North Carolina Department of Environmental Quality.
- (m) Development services Department – means the Town of Waxhaw Development Services Department.
- (n) Director - means the Director of the Division of Energy Mineral and Land Resources of the Department of Environmental Quality.
- (o) Discharge Point or Point of Discharge - means that point where runoff leaves a tract of land where a land-disturbing activity has occurred or enters a lake or natural watercourse.
- (p) District - means the Union County Soil and Water Conservation District created pursuant to Chapter 139, North Carolina General Statutes.
- (q) Energy Dissipator - means a structure or a shaped channel section with mechanical

armoring placed at the outlet of pipes or conduits to receive and break down the energy from high velocity flow.

- (r) Erosion - means the wearing away of land surfaces by the action of wind, water, gravity, or any combination thereof.
- (s) Ground Cover - means any natural vegetative growth or other material which renders the soil surface stable against accelerated erosion.
- (t) High Quality Waters - means those classified as such in 15A NCAC 02B .0224, which is herein incorporated by reference including subsequent amendments and additions.
- (u) High Quality Water (HQW) Zones –means, for the Coastal Counties, areas within 575 feet of High Quality Waters; and for the remainder of the state, areas within one mile and draining to HQW’s.
- (v) Lake or Natural Watercourse – means any stream, river, brook, swamp, sound, bay, creek, run, branch, canal, waterway, estuary, and any reservoir, lake or pond.
- (w) Land-disturbing Activity - means any use of the land by any person in residential, industrial, educational, institutional, or commercial development, highway and road construction and maintenance that results in a change in the natural cover or topography and that may cause or contribute to sedimentation.
- (x) Local Government - means any county, incorporated village, town or city, or any combination of counties, incorporated villages, towns, and cities, acting through a joint program pursuant to the provisions of the Act.
- (y) Natural Erosion - means the wearing away of the earth’s surface by water, wind, or other natural agents under natural environmental conditions undisturbed by man.
- (z) NCSCC – means the North Carolina Sedimentation Control Commission.
- (aa) Parent – means an affiliate that directly, or indirectly through one or more intermediaries, controls another person.
- (bb) Person - means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, interstate body, or other legal entity.
- (cc) Person Conducting the Land-Disturbing Activity - means any person who may be held responsible for violation unless expressly provided otherwise by this Ordinance, the Act, or any order adopted pursuant to this Ordinance or the Act.
- (dd) Person Who Violates or Violator, as used in G.S. 113A-64, means: any landowner

or other person who has financial or operational control over the land-disturbing activity; or who has directly or indirectly allowed the activity, and who has failed to comply with any provision of the Act, the rules of this Chapter or any order or local ordinance adopted pursuant to the Act as it imposes a duty upon that person.

- (ee) Plan - means an erosion and sedimentation control plan.
- (ff) Sediment - means solid particulate matter, both mineral and organic, that has been or is being transported by water, air, gravity, or ice from its site of origin.
- (gg) Sedimentation - means the process by which sediment resulting from accelerated erosion has been or is being transported off the site of the land-disturbing activity or into a lake or natural watercourse.
- (hh) Siltation - means sediment resulting from accelerated erosion which is settleable or removable by properly designed, constructed, and maintained control measures; and which has been transported from its point of origin within the site of a land-disturbing activity; and which has been deposited, or is in suspension in water.
- (ii) Storm Drainage Facilities - means the system of inlets, conduits, channels, ditches and appurtenances which serve to collect and convey storm water through and from a given drainage area.
- (jj) Stormwater Runoff - means the runoff of water resulting from precipitation in any form.
- (kk) Subsidiary – means an affiliate that is directly, or indirectly through one or more intermediaries, controlled by another person.
- (ll) Ten-Year Storm - means a rainfall of an intensity that, based on historical data, is predicted by a method acceptable to the Approving Authority to be equaled or exceeded, on the average, once in ten years, and of a duration that will produce the maximum peak rate of runoff for the watershed of interest under average antecedent wetness conditions.
- (mm) Town – means Town of Waxhaw
- (nn) Town of Waxhaw Erosion Control Specialist/ Erosion Control Specialist – includes the Town of Waxhaw Development Services Director, who is principally responsible for the administration of this Section, or his duly authorized designee. This term shall also include any persons, agents or other representatives of the town as authorized by the Development Services Director.
- (oo) Tract - means all contiguous land and bodies of water being disturbed or to be disturbed as a unit, regardless of ownership.

- (pp) Twenty-five Year Storm - means a rainfall of an intensity that, based on historical data, is predicted by a method acceptable to the Approving Authority to be equaled or exceeded, on the average, once in 25 years, and of a duration that will produce the maximum peak rate of runoff for the watershed of interest under average antecedent wetness conditions.
- (qq) Two-Year storm – means the surface runoff resulting from a rainfall of an intensity expected to be equaled or exceeded, on the average, once in 2 years, and of a duration which will produce the maximum peak rate of runoff, from the Watershed of interest under average antecedent wetness conditions.
- (rr) Uncovered - means the removal of ground cover from, on, or above the soil surface.
- (ss) Undertaken - means the initiating of any activity, or phase of activity, which results or will result in a change in the ground cover or topography of a tract of land.
- (tt) Velocity - means the speed of flow through a cross section perpendicular to the direction of the main channel at the peak flow of the storm of interest but not exceeding bank full flows.
- (uu) Waste - means surplus materials resulting from on-site land-disturbing activities and being disposed of at other locations.
- (vv) Watershed - means the region drained by or contributing water to a stream, lake or other body of water.

Section 4 Scope and Exclusions

- (a) Geographical Scope of Regulated Land-Disturbing Activity. This ordinance shall apply to land-disturbing activity within the territorial jurisdiction of the Town of Waxhaw, NC.
- (b) Exclusions from Regulated Land-Disturbing Activity. Notwithstanding the general applicability of this ordinance to all land-disturbing activity, this ordinance shall not apply to the following types of land-disturbing activity:
 - (1) Activities, including the production and activities relating or incidental to the production of crops, grains, fruits, vegetables, ornamental and flowering plants, dairy, livestock, poultry, and all other forms of agriculture undertaken on agricultural land for the production of plants and animals useful to man, including, but not limited to:
 - (i) forage and sod crops, grain and feed crops, tobacco, cotton, and peanuts.
 - (ii) dairy animals and dairy products.
 - (iii) poultry and poultry products.

- (iv) livestock, including beef cattle, llamas, sheep, swine, horses, ponies, mules, and goats.
 - (v) bees and apiary products.
 - (vi) fur producing animals.
 - (vii) mulch, ornamental plants, and other horticultural products. For purposes of this section, "mulch" means substances composed primarily of plant remains or mixtures of such substances.
- (2) An Activity undertaken on forestland for the production and harvesting of timber and timber products and conducted in accordance with standards defined by the Forest Practice Guidelines Related to Water Quality (Best Management Practices), as adopted by the North Carolina Department of Agriculture and Consumer Services. If land-disturbing activity undertaken on forestland for the production and harvesting of timber and timber products is not conducted in accordance with standards defined by the Forest Practice Guidelines Related to Water Quality, the provisions of this ordinance shall apply to such activity and any related land-disturbing activity on the tract.
- (3) An activity for which a permit is required under the Mining Act of 1971, Article 7 of Chapter 74 of the General Statutes.
- (4) A land-disturbing activity over which the State has exclusive regulatory jurisdiction as provided in G.S. 113A-56(a).
- (5) An activity which is essential to protect human life during an emergency.
- (6) Activities undertaken to restore the wetland functions of converted wetlands to provide compensatory mitigation to offset impacts permitted under Section 404 of the Clean Water Act.
- (7) Activities undertaken pursuant to Natural Resources Conservation Service standards to restore the wetlands functions of converted wetlands as defined in Title 7 Code of Federal Regulations § 12.2
- (c) Plan Approval Requirement for Land-Disturbing Activity. No Person shall initiate any land-disturbing activity which uncovers more than twelve thousand (12,000) square feet of land for commercial, industrial, or subdivision development without having a plan approved by the Town of Waxhaw Erosion Control Specialist. Land-disturbing activities resulting from single-family residential development on an individual lot which disturbs one (1) acre of land or less are excluded from plan submittal and approval, provided that erosion control devices are installed in accordance with the details for residential lot development found in the Town of Waxhaw Engineering, Standards and Procedures Manual. Single-family residential development exceeding one (1) acre of land disturbed will be required to submit for plan approval. Land-disturbing activities resulting from

single-family residential development on multiple contiguous lots which disturb a total of one (1) acre of land or less may conduct such activity with a single approved plan encompassing all the lots or with separate approved ESC Installation and Maintenance Agreements for each lot.

- (d) ESC Installation and Maintenance Agreement Required. No person shall initiate any Land-Disturbing Activity for the purpose of new single-family residential development on an individual lot to a maximum of one (1) acre, without having an ESC Installation and Maintenance Agreement approved by the Town of Waxhaw Erosion Control Specialist.
- (e) Protection of Property - Persons conducting land-disturbing activity shall take all reasonable measures to protect all public and private property from damage caused by such activity.
- (f) More Restrictive Rules Shall Apply - Whenever conflicts exist between federal, state, or local laws, ordinance, or rules, the more restrictive provision shall apply.
- (g) Plan Approval Exceptions. Notwithstanding the general requirement to obtain a Plan approval prior to undertaking land-disturbing activity, a Plan approval shall not be required for land-disturbing activity that does not exceed 12000 square feet in surface area. In determining the area, lands under one or diverse ownership being developed as a unit will be aggregated.

Section 5 Mandatory Standards for Land-Disturbing Activity

No land-disturbing activity subject to the control of this ordinance shall be undertaken except in accordance with the following mandatory standards:

- (a) Buffer zone
 - (1) Standard Buffer. No land-disturbing activity during periods of construction or improvement to land shall be permitted in proximity to a lake or natural watercourse unless a buffer zone is provided along the margin of the watercourse of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity.
 - (i) Projects On, Over or Under Water. This subdivision shall not apply to a land-disturbing activity in connection with the construction of facilities to be located on, over, or under a lake or natural watercourse.
 - (ii) Buffer Measurement. Unless otherwise provided, the width of a buffer zone is measured horizontally from the edge of the water to the nearest edge of the disturbed area, with the 25 percent of the strip

nearer the land-disturbing activity containing natural or artificial means of confining visible siltation.

- (2) Trout Buffer. Waters that have been classified as trout waters by the Environmental Management Commission shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity, whichever is greater. Provided, however, that the Commission may approve plans which include land-disturbing activity along trout waters when the duration of said disturbance would be temporary and the extent of said disturbance would be minimal.
- (i) Projects On, Over or Under Water. This subdivision shall not apply to a land-disturbing activity in connection with the construction of facilities to be located on, over, or under a lake or natural watercourse.
 - (ii) Trout Buffer Measurement. The 25-foot minimum width for an undisturbed buffer zone adjacent to designated trout waters shall be measured horizontally from the top of the bank to the nearest edge of the disturbed area.
 - (iii) Limit on Land Disturbance. Where a temporary and minimal disturbance has been permitted as an exception to the trout buffer, land-disturbing activities in the buffer zone adjacent to designated trout waters shall be limited to a maximum of ten percent (10%) of the total length of the buffer zone within the tract to be disturbed such that there is not more than 100 linear feet of disturbance in each 1000 linear feet of buffer zone. Larger areas may be disturbed with the written approval of the Director.
 - (iv) Limit on Temperature Fluctuations. No land-disturbing activity shall be undertaken within a buffer zone adjacent to designated trout waters that will cause adverse temperature fluctuations in the trout waters, as set forth in 15 NCAC 2B.0211 "Fresh surface Water Classification and Standards."
- (b) Graded Slopes and Fills. The angle for graded slopes and fills shall be no greater than the angle that can be retained by vegetative cover or other adequate erosion control devices or structures. In any event, slopes left exposed will, within 21 calendar days of completion of any phase of grading, be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion. The angle for graded slopes and fills must be demonstrated to be stable. Stable is the condition where the soil remains in its original configuration, with or without mechanical constraints.
- (c) Fill Material. Materials being used as fill shall be consistent with those described in 15A NCAC 13B .0562 unless the site is permitted by the Department's Division of Waste Management to operate as a landfill. Not all materials described in Section .0562 may be suitable to meet geotechnical considerations of the fill

activity and should be evaluated accordingly.

- (d) Ground Cover. Whenever land-disturbing activity that will disturb more than 12000 square feet is undertaken on a tract, the person conducting the land-disturbing activity shall install erosion and sedimentation control devices and practices that are sufficient to retain the sediment generated by the land disturbing activity within the boundaries of the tract during construction upon and development of said tract, and shall plant or otherwise provide a permanent ground cover sufficient to restrain erosion after completion of construction or development. Except as provided in Section 8(c)(4), provisions for a permanent ground cover sufficient to restrain erosion must be accomplished within 90 calendar days following completion of construction or development.

- (e) Prior Plan Approval. No person shall initiate any land-disturbing activity that will disturb more than 12000 square feet on a tract unless, thirty (30) or more days prior to initiating the activity, a Plan for the activity is filed with and approved by the Town of Waxhaw. An erosion and sedimentation control plan may be filed less than 30 days prior to initiation of a land-disturbing activity if the plan is submitted under an approved express permit program. The land-disturbing activity may be initiated and conducted in accordance with the plan once the plan has been approved.

The Town of Waxhaw shall forward to the Director of the Division of Water Resources a copy of each Plan for a land-disturbing activity that involves the utilization of ditches for the purpose of de-watering or lowering the water table of the tract.

- (f) The land-disturbing activity shall be conducted in accordance with the approved erosion and sedimentation control plan.

Section 6 Erosion and Sedimentation Control Plans

- (a) Plan Submission. A Plan shall be prepared for all land-disturbing activities subject to this ordinance whenever the proposed activity will disturb more than 12000 square feet on a tract. The Plan shall be filed with the Town of Waxhaw; a copy shall be simultaneously submitted to the Soil and Water Conservation District at least 30 days prior to the commencement of the proposed activity.

- (b) Financial Responsibility and Ownership. Plans may be disapproved unless accompanied by an authorized statement of financial responsibility and **documentation of property** ownership. This statement shall be signed by the person financially responsible for the land-disturbing activity or his attorney in fact. The statement shall include the mailing and street addresses of the principal place of business of (1) the person financially responsible, (2) the owner of the land, and (3)

any registered agents. If the person financially responsible is not a resident of North Carolina, a North Carolina agent must be designated in the statement for the purpose of receiving notice of compliance or non-compliance with the Plan, the Act, this ordinance, or rules or orders adopted or issued pursuant to this ordinance. Except as provided in subsections (c) or (k) of this section, if the applicant is not the owner of the land to be disturbed, the draft erosion and sedimentation control plan must include the owner's written consent for the applicant to submit a draft erosion and sedimentation control plan and to conduct the anticipated land-disturbing activity.

- (c) If the applicant is not the owner of the land to be disturbed and the anticipated land-disturbing activity involves the construction of utility lines for the provision of water, sewer, gas, telecommunications, or electrical service, the draft erosion and sedimentation control plan may be submitted without the written consent of the owner of the land, so long as the owner of the land has been provided prior notice of the project.
- (d) Environmental Policy Act Document. Any Plan submitted for a land-disturbing activity for which an environmental document is required by the North Carolina Environment Policy Act (G.S. 113A-1, et seq.) shall be deemed incomplete until a complete environmental document is available for review. The Town of Waxhaw shall promptly notify the person submitting the Plan that the 30-day time limit for review of the Plan pursuant to this ordinance shall not begin until a complete environmental document is available for review.
- (e) Content. The Plan required by this section shall contain architectural or engineering drawings, maps, assumptions, calculations, and narrative statements as needed to adequately describe the proposed development of the tract and the measures planned to comply with the requirements of this ordinance. Plan content may vary to meet the needs of specific site requirements. Detailed guidelines for Plan preparation may be obtained from the Town of Waxhaw on request.
- (f) Soil and Water Conservation District Comments. The District shall review the Plan and submit any comments and recommendations to the Town of Waxhaw within 20 days after the District received the Plan, or within any shorter period of time as may be agreed upon by the District and the Town of Waxhaw. Failure of the District to submit its comments and recommendations within 20 days or within any agreed-upon shorter period of time shall not delay final action on the Plan.
- (g) Timeline for Decisions on Plans. The Town of Waxhaw will review each complete Plan submitted to them and within 30 days of receipt thereof will notify the person submitting the Plan that it has been approved, approved with modifications, or disapproved. Failure to approve, approve with modifications, or disapprove a complete Plan within 30 days of receipt shall be deemed approval. The Town of Waxhaw will review each revised Plan submitted to them and within 15 days of receipt thereof will notify the person submitting the Plan that it has been approved,

approved with modifications, or disapproved. Failure to approve, approve with modifications, or disapprove a revised Plan within 15 days of receipt shall be deemed approval.

- (h) Approval. The Town of Waxhaw shall only approve a Plan upon determining that it complies with all applicable State and local regulations for erosion and sedimentation control. Approval assumes the applicant's compliance with the federal and state water quality laws, regulations and rules. The Town of Waxhaw shall condition approval of Plans upon the applicant's compliance with federal and state water quality laws, regulations and rules. The Town of Waxhaw may establish an expiration date, not to exceed three (3) years, for Plans approved under this ordinance whereby no land-disturbing activity has been undertaken.
- (i) Disapproval for Content. The Town of Waxhaw may disapprove a Plan or draft Plan based on its content. A disapproval based upon a Plan's content must specifically state in writing the reasons for disapproval.
- (j) Other Disapprovals. The Town of Waxhaw shall disapprove an erosion and sedimentation control plan if implementation of the plan would result in a violation of rules adopted by the Environmental Management Commission to protect riparian buffers along surface waters. The Town of Waxhaw may disapprove an erosion and sedimentation control plan or disapprove a transfer of a plan under subsection (k) of this section upon finding that an applicant or a parent, subsidiary, or other affiliate of the applicant:
 - (1) Is conducting or has conducted land-disturbing activity without an approved plan, or has received notice of violation of a plan previously approved by the Commission or a local government pursuant to this Article and has not complied with the notice within the time specified in the notice.
 - (2) Has failed to pay a civil penalty assessed pursuant to this Article or a local ordinance adopted pursuant to this Article by the time the payment is due.
 - (3) Has been convicted of a misdemeanor pursuant to G.S. 113A-64(b) or any criminal provision of a local ordinance adopted pursuant to this Article.
 - (4) Has failed to substantially comply with State rules or local ordinances and regulations adopted pursuant to this Article.

In the event that an erosion and sedimentation control plan or a transfer of a plan is disapproved by the Town of Waxhaw pursuant to subsection (j) of this section, the local government shall so notify the Director of the Division of Energy, Mineral, and Land Resources within 10 days of the disapproval. The Town of Waxhaw shall advise the applicant or the proposed transferee and the Director in writing as to the specific reasons that the plan was disapproved. Notwithstanding the provisions of Section 16(a), the applicant may appeal the local government's disapproval of the plan directly to the Commission.

For purposes of this subsection, an applicant's record or the proposed transferee's record may be considered for only the two years prior to the application date.

- (k) Transfer of Plans. The Town of Waxhaw administering an erosion and sedimentation control program may transfer an erosion and sedimentation control plan approved pursuant to this section without the consent of the plan holder to a successor-owner of the property on which the permitted activity is occurring or will occur as provided in this subsection.
- (1) The Town of Waxhaw may transfer a plan if all of the following conditions are met:
 - (i) The successor-owner of the property submits to the local government a written request for the transfer of the plan and an authorized statement of financial responsibility and **documentation of property** ownership.
 - (ii) The Town of Waxhaw finds all of the following:
 - a. The plan holder is one of the following:
 1. A natural person who is deceased.
 2. A partnership, limited liability corporation, corporation, or any other business association that has been dissolved.
 3. A person who has been lawfully and finally divested of title to the property on which the permitted activity is occurring or will occur.
 4. A person who has sold the property on which the permitted activity is occurring or will occur.
 - b. The successor-owner holds title to the property on which the permitted activity is occurring or will occur.
 - c. The successor-owner is the sole claimant of the right to engage in the permitted activity.
 - d. There will be no substantial change in the permitted activity.
 - (2) The plan holder shall comply with all terms and conditions of the plan until such time as the plan is transferred.
 - (3) The successor-owner shall comply with all terms and conditions of the plan once the plan has been transferred.
 - (4) Notwithstanding changes to law made after the original issuance of the plan, the Town of Waxhaw may not impose new or different terms and conditions in the plan without the prior express consent of the successor-owner. Nothing in this subsection shall prevent the Town of Waxhaw from requiring a revised plan pursuant to G.S. 113A-54.1(b).
- (l) Notice of Activity Initiation. No person may initiate a land-disturbing activity before notifying the agency that issued the Plan approval of the date that land-disturbing activity will begin.
- (m) Preconstruction Conference. When deemed necessary by the Approving Authority,

a preconstruction conference may be required and noted on the approved plan.

- (n) Display of Plan Approval. A Plan approval issued under this Article shall be prominently displayed until all construction is complete, all temporary measures have been removed, all permanent sedimentation and erosion control measures are installed, and the site has been stabilized. A copy of the approved plan shall be kept on file at the job site.
- (o) Required Revisions. After approving a Plan, if the Town of Waxhaw, either upon review of such Plan or on inspection of the job site, determines that a significant risk of accelerated erosion or off-site sedimentation exists, the Town of Waxhaw shall require a revised Plan. Pending the preparation of the revised Plan, work shall cease or shall continue under conditions outlined by the appropriate authority. If following commencement of a land-disturbing activity pursuant to an approved Plan, the Town of Waxhaw determines that the Plan is inadequate to meet the requirements of this ordinance, the Town of Waxhaw may require any revision of the Plan that is necessary to comply with this ordinance.
- (p) Amendment to a Plan. Applications for amendment of a Plan in written and/or graphic form may be made at any time under the same conditions as the original application. Until such time as said amendment is approved by the Town of Waxhaw, the land-disturbing activity shall not proceed except in accordance with the Plan as originally approved.
- (q) Failure to File a Plan. Any person engaged in land-disturbing activity who fails to file a Plan in accordance with this ordinance, or who conducts a land-disturbing activity except in accordance with provisions of an approved Plan shall be deemed in violation of this ordinance.
- (r) Self-Inspections. The landowner, the financially responsible party, or the landowner's or the financially responsible party's agent shall perform an inspection of the area covered by the plan after each phase of the plan has been completed and after establishment of temporary ground cover in accordance with G.S. 113A-57(2). In addition, weekly and rain-event self-inspections are required by federal regulations that are implemented through the NPDES Construction General Permit No. NCG010000. The person who performs the inspection shall maintain and make available a record of the inspection at the site of the land-disturbing activity. The record shall set out any significant deviation from the approved erosion control plan, identify any measures that may be required to correct the deviation, and document the completion of those measures. The record shall be maintained until permanent ground cover has been established as required by the approved erosion and sedimentation control plan. The inspections required by this subsection shall be in addition to inspections required by G.S. 113A-61.1.

Where inspections are required by Section 6(r) of this Ordinance or G.S. 113A-54.1(e), the following apply:

- (1) The inspection shall be performed during or after each of the following phases of the plan;
 - (i) initial installation of erosion and sediment control measures;
 - (ii) clearing and grubbing of existing ground cover;
 - (iii) completion of any grading that requires ground cover;
 - (iv) completion of all land-disturbing activity, construction, or development, including permanent ground cover establishment and removal of all temporary measures; and
 - (v) transfer of ownership or control of the tract of land where the erosion and sedimentation control plan has been approved and work has begun. The new owner or person in control shall conduct and document inspections until the project is permanently stabilized as set forth in Sub-Item (iii) of this Item.
 - (vi) On any tract on which five (5) or more acres are disturbed, the person conducting land- disturbing activity will be responsible for self-inspection of erosion and sedimentation control facilities at least once every seven (7) days or within 24 hours of a storm event of greater than 0.5 inches of rain per 24-hour period.
- (1) Documentation of self-inspections performed under Item (1) of this Rule shall include:
 - (i) Visual verification of ground stabilization and other erosion control measures and practices as called for in the approved plan;
 - (ii) Verification by measurement of settling basins, temporary construction entrances, energy dissipators, and traps.
 - (iii) The name, address, organization affiliation, telephone number, and signature of the person conducting the inspection and the date of the inspection shall be included, whether on a copy of the approved erosion and sedimentation control plan or an inspection report. A template for an example of an inspection and monitoring report is provided on the DEMLR website at: <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>. Any relevant licenses and certifications may also be included. Any documentation of inspections that occur on a copy of the approved erosion and sedimentation control plan shall occur on a single copy of the plan and that plan shall be made available on the site.
 - (iv) A record of any significant deviation from any erosion or sedimentation control measure from that on the approved plan. For the purpose of this Rule, a "significant deviation" means an omission, alternation, or relocation of an erosion or sedimentation control measure that prevents it from performing as intended. The record shall include measures required to correct the significant deviation, along with documentation of when those measures were taken. Deviations from the approved plan may also be recommended to enhance the intended performance of the sedimentation and

erosion control measures.

Except as may be required under federal law, rule or regulation, no periodic self-inspections or rain gauge installation is required on individual residential lots where less than one acre is being disturbed on each lot.

Section 7 Basic Control Objectives

An erosion and sedimentation control Plan may be disapproved if the Plan fails to address the following control objectives:

- (a) Identify Critical Areas - On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, are to be identified and receive special attention.
- (b) Limit Time of Exposure - All land-disturbing activities are to be planned and conducted to limit exposure to the shortest time specified in G.S. 113A-57, the rules of this Chapter, or as directed by the Approving Authority.
- (c) Limit Exposed Areas - All land-disturbing activity is to be planned and conducted to minimize the size of the area to be exposed at any one time.
- (d) Control Surface Water - Surface water runoff originating upgrate of exposed areas should be controlled to reduce erosion and sediment loss during the period of exposure.
- (e) Control Sedimentation - All land-disturbing activity is to be planned and conducted to prevent off-site sedimentation damage.
- (f) Manage Stormwater Runoff - Plans shall be designed so that any increase in velocity of stormwater runoff resulting from a land-disturbing activity will not result in accelerated erosion of the receiving stormwater conveyance or at the point of discharge. Plans shall include measures to prevent accelerated erosion within the project boundary and at the point of discharge.

Section 8 Design and Performance Standards

- (a) Except as provided in Section 8(b)(2) and Section 8(c)(1) of this ordinance, erosion and sedimentation control measures, structures, and devices shall be planned, designed, and constructed to provide protection from the calculated maximum peak rate of runoff from the ten-year storm. Runoff rates shall be calculated using the procedures in the latest edition of the ~~USDA~~ **United States Department of Agriculture (USDA)**, Natural Resources Conservation Service's "National Engineering Field Handbook", or other acceptable calculation procedures.

(b) HQW Zones. In High Quality Water (HQW) zones the following design standards shall apply:

- (1) Limit on Uncovered Area. Uncovered areas in HQW zones shall be limited at any time to a maximum total area of twenty acres within the boundaries of the tract. Only the portion of the land-disturbing activity within a HQW zone shall be governed by this section. Larger areas may be uncovered within the boundaries of the tract with the written approval of the Director upon providing engineering justification with a construction sequence that considers phasing, limiting exposure, weekly submitted self-inspection reports, and a more conservative design than the Twenty-five Year Storm.
- (2) Maximum Peak Rate of Runoff Protection. Erosion and sedimentation control measures, structures, and devices within HQW zones shall be planned, designed and constructed to provide protection from the runoff of the twenty-five year storm which produces the maximum peak rate of runoff as calculated according to procedures in the latest edition of the United States Department of Agriculture Natural Resources Conservation Service's "National Engineering Field Handbook" or according to procedures adopted by any other agency of this state or the United States or any generally recognized organization or association.
- (3) Sediment Basin Design. Sediment basins within HQW zones shall be designed and constructed according to the following criteria:
 - (i) use a surface withdrawal mechanism, except when the basin drainage area is less than 1.0 acre;
 - (ii) have a minimum of 1800 cubic feet of storage area per acre of disturbed area;
 - (iii) have a minimum surface area of 325 square feet per cfs of the Twenty-five Year Storm (Q25) peak flow;
 - (iv) have a minimum dewatering time of 48 hours;
 - (v) incorporate 3 baffles, unless the basin is less than 20 feet in length, in which case 2 baffles shall be sufficient.

Upon a written request of the applicant, the Director may allow alternative design and control measures in lieu of meeting the conditions required in subparagraphs (3)(ii) through (3)(v) of this sub-section if the applicant demonstrates that meeting all of those conditions will result in design or operational hardships and that the alternative measures will provide an equal or more effective level of erosion and sediment control on the site. Alternative measures may include quicker application of ground cover, use of sediment flocculants, and use of enhanced ground cover practices.

- (4) Grade. Newly constructed open channels in HQW zones shall be designed and constructed with side slopes no steeper than two horizontal to one

vertical if a vegetative cover is used for stabilization unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices, structural devices or other forms of ditch liners proven as being effective in restraining accelerated erosion. In any event, the angle for side slopes shall be sufficient to restrain accelerated erosion.

Section 9 Storm Water Outlet Protection

- (a) Intent. Stream banks and channels downstream from any land disturbing activity shall be protected from increased degradation by accelerated erosion caused by increased velocity of runoff from the land disturbing activity.
- (b) Performance standard. Persons shall conduct land-disturbing activity so that the post construction velocity of the 10-year storm runoff in the receiving watercourse to the discharge point does not exceed the greater of:
 - (1) the velocity established by the Maximum Permissible Velocities Table set out within this subsection; or
 - (2) the velocity of the ten-year storm runoff in the receiving watercourse prior to development.

If condition (1) or (2) of this Paragraph cannot be met, then the receiving watercourse to and including the discharge point shall be designed and constructed to withstand the expected velocity anywhere the velocity exceeds the “prior to development” velocity by 10%.

Maximum Permissible Velocities Table

The following is a table for maximum permissible velocity for storm water discharges in feet per second (F.P.S.) and meters per second (M.P.S.):

<u>Material</u>	F.P.S.	M.P.S.
Fine sand (noncolloidal)	2.5	0.8
Sandy loam (noncolloidal)	2.5	0.8
Silt loam (noncolloidal)	3.0	0.9
Ordinary firm loam	3.5	1.1
Fine gravel	5.0	1.5
Stiff clay (very colloidal)	5.0	1.5
Graded, loam to cobbles (noncolloidal)	5.0	1.5
Graded, silt to cobbles (Colloidal)	5.5	1.7

Alluvial silts (noncolloidal)	3.5	1.1
Alluvial silts (colloidal)	5.0	1.5
Coarse gravel (noncolloidal)	6.0	1.8
Cobbles and shingles	5.5	1.7
Shales and hard pans	6.0	1.8

Source - Adapted from recommendations by Special Committee on Irrigation Research, American Society of Civil Engineers, 1926, for channels with straight alignment. For sinuous channels, multiply allowable velocity by 0.95 for slightly sinuous, by 0.9 for moderately sinuous channels, and by 0.8 for highly sinuous channels.

- (c) Acceptable Management Measures - Measures applied alone or in combination to satisfy the intent of this section are acceptable if there are no objectionable secondary consequences. The (city)(town)(county) recognizes that the management of storm water runoff to minimize or control downstream channel and bank erosion is a developing technology. Innovative techniques and ideas will be considered and may be used when shown to have the potential to produce successful results. Some alternatives, while not exhaustive, are to:
- (1) Avoid increases in surface runoff volume and velocity by including measures to promote infiltration to compensate for increased runoff from areas rendered impervious;
 - (2) Avoid increases in storm water discharge velocities by using vegetated or roughened swales and waterways in place of closed drains and high velocity paved sections;
 - (3) Provide energy dissipators at outlets of storm drainage facilities to reduce flow velocities to the point of discharge;
 - (4) Protect watercourses subject to accelerated erosion by improving cross sections and/or providing erosion-resistant lining; and
 - (5) Upgrade or replace the receiving device structure, or watercourse such that it will receive and conduct the flow to a point where it is no longer subject to degradation from the increased rate of flow or increased velocity.
- (d) Exceptions - This rule shall not apply where it can be demonstrated to the (city), (town), (county) that storm water discharge velocities will not create an erosion problem in the receiving watercourse.

If the same person conducts the land-disturbing activity and any related borrow or waste activity, the related borrow or waste activity shall constitute part of the land-disturbing activity, unless the borrow or waste activity is regulated under the Mining Act of 1971, G.S. 74, Article 7, or is a landfill regulated by the Division of Waste Management. If the land-disturbing activity and any related borrow or waste activity are not conducted by the same person, they shall be considered by the Approving Authority as separate land-disturbing activities.

Section 11 Access and Haul Roads

Temporary access and haul roads, other than public roads, constructed or used in connection with any land-disturbing activity shall be considered a part of such activity.

Section 12 Operations in Lakes or Natural Watercourses

Land disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse shall minimize the extent and duration of disruption of the stream channel. Where relocation of a stream forms an essential part of the proposed activity, the relocation shall minimize changes in the stream flow characteristics.

Section 13 Responsibility for Maintenance

During the development of a site, the person conducting the land-disturbing activity shall install and maintain all temporary and permanent erosion and sedimentation control measures as required by the approved plan or any provision of this Ordinance, the Act, or any order adopted pursuant to this ordinance or the Act. After site development, the landowner or person in possession or control of the land shall install and/or maintain all necessary permanent erosion and sediment control measures, except those measures installed within a road or street right-of-way or easement accepted for maintenance by a governmental agency.

Section 14 Additional Measures

Whenever the Town of Waxhaw, determines that accelerated erosion and sedimentation continues despite the installation of protective practices, they shall direct the person conducting the land-disturbing activity to take additional protective action necessary to achieve compliance with the conditions specified in the Act or its rules.

Section 15 Fees

The Town of Waxhaw, may establish a fee schedule for the review and approval of Plans.

Section 16 Plan Appeals

The appeal of an approval, approval with modifications or disapproval of a plan made by the Town of Waxhaw Erosion Control Specialist with regard to this Ordinance shall be governed by the following provisions:

- (a) The order of approval, disapproval, or modification of any proposed Plan made by the Town of Waxhaw Erosion Control Specialist shall entitle the Person challenging such decision to a public hearing before the Town of Waxhaw Board of Adjustment if such Person submits written demand for a hearing and completes the necessary forms and pays the required appeals fee within fifteen (15) days following the date the decision was filed in the Town of Waxhaw Development Services Department office or mailed to the applicant, whichever date is later. Such written request and completed forms shall be submitted to the Clerk of the Board of Adjustment or his designee. Forms shall be available at the Town of Waxhaw Town Hall, or as directed by the Town of Waxhaw Erosion Control Specialist. A fee for such public hearing shall be in accordance with a fee schedule adopted by the Town of Waxhaw Board of Commissioners. No request shall be considered complete unless accompanied by such fee.
- (b) Notice of the Board of Adjustment public hearing shall be sent by first class mail to the applicant at least ten (10) days prior to the public hearing and to any person who has submitted written request to receive such notice at least ten (10) days prior to the date of the public hearing. The hearing shall be held no later than thirty (30) days after the date of receipt of said written request.
- (c) A hearing shall be conducted by the Board of Adjustment. A concurring vote per the Board of Adjustment's officially adopted by-laws will be necessary to reverse any order, requirement, decision, or determination of any official charged with the enforcement of this Ordinance, or to decide in favor of an appellant any matter upon which is required to pass or to grant variance from the provisions of this Ordinance. The Town shall keep minutes of the proceedings, showing the votes of each member upon each question and the attendance of each member at such hearings. The final disposition of the Town shall be based on findings of fact.
- (d) A party dissatisfied with the decision of the Board of Adjustment following the public hearing shall appeal such decision to the NCSCC pursuant to Title 15, Chapter 4B, Section .0018(d) of the North Carolina Administrative Code and as provided by NC GS 133A-61(c).
- (e) In the event that a Plan is disapproved pursuant to Section 6(j) of this ordinance, the

applicant may appeal the Town of Waxhaw's disapproval of the Plan directly to the Commission.

Section 17 Inspections and Investigations

- (a) Inspection. Agents, officials, or other qualified persons authorized by the Town of Waxhaw, will periodically inspect land-disturbing activities to ensure compliance with the Act, this ordinance, or rules or orders adopted or issued pursuant to this ordinance, and to determine whether the measures required in the Plan are effective in controlling erosion and sedimentation resulting from land-disturbing activity. Notice of the right to inspect shall be included in the certificate of approval of each Plan.
- (b) Willful Resistance, Delay or Obstruction. No person shall willfully resist, delay, or obstruct an authorized representative, employee, or agent of the Town of Waxhaw, while that person is inspecting or attempting to inspect a land-disturbing activity under this section.
- (c) Notice of Violation. If the Town of Waxhaw determines that a person engaged in land-disturbing activity has failed to comply with the Act, this ordinance, or rules, or orders adopted or issued pursuant to this ordinance, a notice of violation shall be served upon that person. The notice may be served by any means authorized under GS 1A-1, Rule 4. The notice shall specify a date by which the person must comply with the Act, or this ordinance, or rules, or orders adopted pursuant to this ordinance, and inform the person of the actions that need to be taken to comply with the Act, this ordinance, or rules or orders adopted pursuant to this ordinance. Any person who fails to comply within the time specified is subject to additional civil and criminal penalties for a continuing violation as provided in G.S. 113A-64 and this ordinance. If the person engaged in the land-disturbing activity has not received a previous notice of violation under this section, the Town of Waxhaw shall ~~deliver the notice of violation in person and shall~~ offer assistance in developing corrective measures. Assistance may be provided by referral to a technical assistance program on behalf of the Approving Authority, referral to a cooperative extension program, or by the provision of written materials such as Department guidance documents. ~~If the Town of Waxhaw is unable to deliver the notice of violation in person within 15 days following discovery of the violation,~~ The notice of violation may be served in the manner prescribed for service of process by G.S. 1A-1, Rule 4, and shall include information on how to obtain assistance in developing corrective measures.
- (d) Investigation. The Town of Waxhaw, shall have the power to conduct such investigation as it may reasonably deem necessary to carry out its duties as prescribed in this ordinance, and who presents appropriate credentials for this purpose to enter at reasonable times, any property, public or private, for the purpose of investigating and inspecting the sites of any land-disturbing activity.

- (e) Statements and Reports. The Town of Waxhaw, shall also have the power to require written statements, or filing of reports under oath, with respect to pertinent questions relating to land-disturbing activity.

Section 18 Penalties

(a) Civil Penalties

- (1) Civil Penalty for a Violation. Any person who violates any of the provisions of this ordinance, or rule or order adopted or issued pursuant to this ordinance, or who initiates or continues a land-disturbing activity for which a Plan is required except in accordance with the terms, conditions, and provisions of an approved Plan, is subject to a civil penalty. The maximum civil penalty amount that the Town of Waxhaw may assess per violation is five thousand dollars (\$5,000.00). A civil penalty may be assessed from the date of the violation. Each day of a continuing violation shall constitute a separate violation. When the person has not been assessed any civil penalty under this subsection for any previous violation, and that person abated continuing environmental damage resulting from the violation within 180 days from the date of the notice of violation, the maximum cumulative total civil penalty assessed under this subsection for all violations associated with the land-disturbing activity for which the erosion and sedimentation control plan is required is twenty-five thousand dollars (\$25,000).
- (2) Civil Penalty Assessment Factors. The governing body of the Town of Waxhaw shall determine the amount of the civil penalty based upon the following factors:
- (i) the degree and extent of harm caused by the violation,
 - (ii) the cost of rectifying the damage,
 - (iii) the amount of money the violator saved by noncompliance,
 - (iv) whether the violation was committed willfully, and
 - (v) the prior record of the violator in complying or failing to comply with this ordinance.
- (3) Notice of Civil Penalty Assessment. The governing body of the Town of Waxhaw shall provide notice of the civil penalty amount and basis for assessment to the person assessed. The notice of assessment shall be served by any means authorized under G.S. 1A-1, Rule 4. A notice of assessment by the Town of Waxhaw shall direct the violator to either pay the assessment, contest the assessment within 30 days by filing a petition for hearing with the Town of Waxhaw (as directed by procedures within the local ordinances or regulations adopted to establish and enforce the erosion and sedimentation control program), or file a request with the ~~Sedimentation Control Commission~~ **Town of Waxhaw** for remission of the assessment

within ~~60~~ 30 days of receipt of the notice of assessment. A remission request must be accompanied by a waiver of the right to a contested case hearing pursuant to Chapter 150B of the North Carolina General Statutes and a stipulation of the facts on which the assessment was based.

- (4) Final Decision: The final decision on contested assessments shall be made by the governing body of the Town of Waxhaw in accordance with (the local ordinances or regulations adopted to establish and enforce the erosion and sedimentation control program.)
- (5) Appeal of Final Decision. Appeal of the final decision of the governing body of the Town of Waxhaw shall be to the Superior Court of the county where the violation occurred. Such appeals must be made within 30 days of the final decision of the governing body of the Town of Waxhaw.
- (6) Remission of Civil Penalties. A request for remission of a civil penalty imposed under G.S. 113A-64 may be filed with the Town of Waxhaw within ~~60~~ 30 days of receipt of the notice of assessment. A remission request must be accompanied by a waiver of the right to a contested case hearing pursuant to Chapter 150B of the General Statutes and a stipulation of the facts on which the assessment was based. The following factors shall be considered in determining whether a civil penalty remission request will be approved:
 - (i) Whether one or more of the civil penalty assessment factors in G.S. 113A-64(a)(3) were wrongly applied to the detriment of the petitioner.
 - (ii) Whether the petitioner promptly abated continuing environmental damage resulting from the violation.
 - (iii) Whether the violation was inadvertent or a result of an accident.
 - (iv) Whether the petitioner had been assessed civil penalties for any previous violations.
 - (v) Whether payment of the civil penalty will prevent payment for necessary remedial actions or would otherwise create a significant financial hardship.
 - (vi) The assessed property tax valuation of the petitioner's property upon which the violation occurred, excluding the value of any structures located on the property.
- (7) Collection. If payment is not received within ~~60~~ 30 days after it is due, the Town of Waxhaw may institute a civil action to recover the amount of the assessment. The civil action may be brought in the Superior Court of the county where the violation occurred, or the violator's residence or principal place of business is located. Such civil actions must be filed within three

(3) years of the date the assessment was due. An assessment that is not contested and a remission that is not requested is due when the violator is served with a notice of assessment. An assessment that is contested or a remission that is requested is due at the conclusion of the administrative and judicial review of the assessment.

(8) Credit of Civil Penalties. The clear proceeds of civil penalties collected by the Town of Waxhaw under this subsection shall be remitted to the Civil Penalty and Forfeiture Fund in accordance with G.S. 115C-457.2. Penalties collected by the Town of Waxhaw may be diminished only by the actual costs of collection. The collection cost percentage to be used shall be established and approved by the North Carolina Office of State Budget and Management on an annual basis, based upon the computation of actual collection costs by the Town of Waxhaw for the prior fiscal year.

(b) Criminal Penalties. Any person who knowingly or willfully violates any provision of this ordinance, or rule or order adopted or issued by the Commission or a local government, or who knowingly or willfully initiates or continues a land-disturbing activity for which a Plan is required except in accordance with the terms, conditions, and provisions of an approved Plan, shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed \$5,000 as provided in G.S. § 113A-64.

(c) Stop work orders.

(1) The erosion control specialist may issue a stop work order if he finds that a land disturbing activity is being conducted in violation of this section or of any rule adopted or order issued pursuant to this section, that the violation is knowing and willful, and that either:

a. Off-site sedimentation has eliminated or severely degraded a use in a lake or natural watercourse or that such degradation is imminent.

b. Off-site sedimentation has caused severe damage to adjacent land or that such damage is imminent.

c. The land disturbing activity is being conducted without an approved plan.

(2) The stop work order shall be in writing and shall state what work is to be stopped and what measures are required to abate the violation. The order shall include a statement of the findings made by the town pursuant to subsection (a) of this section, and shall list the conditions under which work that has been stopped by the order may be resumed. The delivery of equipment and materials which does not contribute to the violation may continue while the stop work order is in effect. A copy of this section shall be attached to the order.

(3) The stop work order shall be served by the county sheriff or by some other person duly authorized by law to serve process as provided by G.S. 1A-1, Rule 4, and shall be served on the person at the site of the land disturbing activity

who is in operational control of the land disturbing activity. The sheriff or other person duly authorized by law to serve process shall post a copy of the stop work order in a conspicuous place at the site of the land disturbing activity. The town shall also deliver a copy of the stop work order to any person that the town has reason to believe may be responsible for the violation.

- (4) The directives of a stop work order become effective upon service of the order. Thereafter, any person notified of the stop work order who violates any of the directives set out in the order may be assessed a civil penalty as provided in subsection (a) of this section. A stop work order issued pursuant to this section may be issued for a period not to exceed five days.
- (5) The erosion control specialist shall designate an employee (which may be the erosion control specialist) to monitor compliance with the stop work order. The name of the employee so designated shall be included in the stop work order. The employee so designated, or the erosion control specialist, shall rescind the stop work order if all the violations for which the stop work order are issued are corrected, no other violations have occurred, and all measures necessary to abate the violations have been taken. The erosion control specialist shall rescind a stop work order that is issued in error.
- (6) The issuance of a stop work order shall be a final agency decision subject to judicial review in the same manner as an order in a contested case pursuant to G.S. ch. 150B, art. 4. The petition for judicial review shall be filed in the superior court of the county in which the land disturbing activity is being conducted.
- (7) As used in this section, days are computed as provided in G.S. 1A-1, Rule 6.
- (8) The attorney for the town shall file a cause of action to abate the violations which resulted in the issuance of a stop work order within two business days of the service of the stop work order. The cause of action shall include a motion for an ex parte temporary restraining order to abate the violation and to effect necessary remedial measures. The resident superior court judge, or any judge assigned to hear the motion for the temporary restraining order, shall hear and determine the motion within two days of the filing of the complaint. The clerk of superior court shall accept complaints filed pursuant to this section without the payment of filing fees. Filing fees shall be paid to the clerk of superior court within 30 days of the filing of the complaint.

Section 19 Injunctive Relief

- (a) Violation of Local Program. Whenever the governing body has reasonable cause to believe that any person is violating or threatening to violate any ordinance, rule, regulation or order adopted or issued by the Town of Waxhaw, or any term, condition, or provision of an approved Plan, it may, either before or after the institution of any other action or proceeding authorized by this ordinance, institute a civil action in the name of the Town of Waxhaw, for injunctive relief to restrain

the violation or threatened violation. The action shall be brought in the superior court of the county in which the violation is occurring or is threatened.

- (b) Abatement of Violation. Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter any order or judgment that is necessary to abate the violation, to ensure that restoration is performed, or to prevent the threatened violation. The institution of an action for injunctive relief under this section shall not relieve any party to the proceedings from any civil or criminal penalty prescribed for violations of this ordinance.

Section 20 Restoration After Non-Compliance

The Town of Waxhaw, may require a person who engaged in a land-disturbing activity and failed to retain sediment generated by the activity, as required by G.S. 113A-57 (3), to restore the waters and land affected by the failure so as to minimize the detrimental effects of the resulting pollution by sedimentation. This authority is in addition to any other civil or criminal penalty or injunctive relief authorized under this ordinance.

Section 21 Severability

If any section or section or sections of this ordinance is/are held to be invalid or unenforceable, all other sections shall nevertheless continue in full force and effect.



APPENDIX-L
EROSION CONTROL FINANCIAL RESPONSIBILITY FORM

No person may initiate any land-disturbing activity as defined in Chapter 159 of the Town of Waxhaw Town Code prior to completion of this form, and an applicable and acceptable erosion and sedimentation control plan has been approved by the Development Services Department.
(Please type or print)

Part I

Name of Project: _____

Address where land disturbing activity will take place: _____

Approximate date disturbing activity will commence: _____

Purpose of development (residential, commercial, industrial, etc.): _____

Total acreage of land to be disturbed or uncovered: _____

Amount of fee enclosed (show calculation): _____

Agent to contact should sediment control issues arise during land disturbing activity:

Name: _____

Address: _____
_____ Zip code: _____
_____ Email: _____

State:

Phone:

Landowner(s):

Name: _____

Address: _____
_____ State: _____ Zip code: _____
_____ Phone: _____ Email: _____

Name: _____

Address: _____
_____ State: _____ Zip code: _____
_____ Phone: _____ Email: _____



APPENDIX-L
EROSION CONTROL FINANCIAL RESPONSIBILITY FORM

Indicate Book and Page where deed of the property where land disturbing activity will take place is recorded:

Book: _____ Page: _____
Book: _____ Page: _____
Book: _____ Page: _____

Book: _____ Page: _____

Indicate tax map and parcel number of the property where land disturbing activity will take place is recorded:

Tax Map: _____ Parcel: _____
Tax Map: _____ Parcel: _____
Tax Map: _____ Parcel: _____
Tax Map: _____ Parcel: _____

Part II

Person(s) or firm(s) who are financially responsible for the land disturbing activity:

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____

If the financially responsible party is not a resident of North Carolina, give the name and address of a North Carolina Agent:

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____



APPENDIX-L
EROSION CONTROL FINANCIAL RESPONSIBILITY FORM

If the financially responsible party is a partnership or other person engaging in business under an assumed name, attach a copy of the Certificate of Assumed Name. If the financially responsible party is a corporation, give the name and address of the registered agent.

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____

The above information is true and correct to the best of my knowledge and belief and was provided by me under oath. I agree to provide corrected information should there be any change in the information provided herein. (This form must be signed by the financially responsible person if an individual or his attorney in fact, or if not an individual, by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person)

Name: _____
Address: _____
State: _____ Zip code: _____
Phone: _____ Email: _____

I, _____, a Notary Public of _____
County, North Carolina, do hereby certify that _____ personally
appeared before me this day, and being duly sworn, stated that in his presence _____
(signed) (acknowledged the execution of) the foregoing instrument.

Witness my hand and official seal, this the _____ day of _____, 20__.

(Official Seal) _____
Notary Public

My commission expires _____, 20__.



APPENDIX-L

Erosion Control Plan Checklist

This Erosion Control Plan Checklist shall accompany all plan submittals or the submittal shall be considered incomplete. Items not applicable should be marked "N.A." Refer to Town of Waxhaw Engineering, Standards and Procedures Manual, Title XV, Chapter 159, and NCDEQ Design Manual, latest edition. Prior to Erosion and Sedimentation Control Plan approval, all applicable plan submittals and approvals from the Department of Development Services shall be obtained, including but not limited to watershed, roadway and storm drainage, Town and State driveway permits and encroachments. All plans must be submitted concurrently with the erosion control plans.

- _____ Maximum plan sheet size is 24"x 36".
- _____ Show a north arrow and vicinity map on the erosion control plan.
- _____ Show a final grading plan, if different from the erosion control plan (2' contours).
- _____ The maximum scale is 1" = 50'.
- _____ Show all property lines and right-of-ways.
- _____ Show sidewalks in accordance with the Town of Waxhaw Engineering, Standards and Procedures Manual.
- _____ Show a legend. Call out each measure on the plan. The legend symbols and plan should match.
- _____ Show water and sewer erosion control measures on erosion control plan. Show the size and location of existing and proposed storm and sewer structures.
- _____ Show existing and proposed (2 foot or 1 foot) contours.
- _____ Show denuded areas (outline in BOLD on plans and note denuded acreage on plans).
- _____ Show planned and existing buildings locations and FFE.
- _____ Show planned and existing roads locations, elevations and profiles.
- _____ Show lot and/or building numbers.
- _____ Show seeps, springs, or wetland limits.
- _____ Show all easement lines (gas, electric, water, sewer, etc.).
- _____ Show boundaries of the total tract of land where disturbing activity will take place.



APPENDIX-L

Erosion Control Plan Checklist

- _____ Show borrow, waste areas, and stockpiled soil locations.

- _____ Show existing and planned drainage areas including off-site areas that drain through the project area.

- _____ Indicate the size of drainage areas above drainage structures.

- _____ Show soil type(s) and special characteristics.

- _____ Show design calculations for peak discharges of runoff.

- _____ Show a watershed plan.

- _____ Show a storm drainage plan.

- _____ Show design calculations per the Town storm water design manual.

- _____ Show design calculations per the Town of Waxhaw Engineering, Standards and Procedures Manual, cross-sections and method of stabilization of existing and planned channels per the NCDEQ Design Manual, latest edition.

- _____ Show design and construction details of energy dissipaters below storm outlets including the size of stone used for rip rap per the NCDEQ Design Manual, latest edition.

- _____ Show design calculations and construction details to control groundwater per the NC DENR Design Manual, latest edition.

- _____ Impervious Coverage:

Existing		Parcel Area	
Proposed		% Coverage	

- _____ NCDOT Driveway Permit and/or Town of Waxhaw Driveway Permit/Encroachments

- _____ Copies of written approvals from US Army Corps of Engineers and/or NC Dept. Environmental Quality and other applicable approvals.

- _____ Show all perennial and intermittent stream buffers and show widths. Add note requiring orange net fencing along all stream buffers.

- _____ The Developer must obtain the written permission of the adjacent property owner(s) for any off-site grading or construction prior to construction drawing approval.



APPENDIX-L

Erosion Control Plan Checklist

- _____ Show the name of the first watercourse into which storm water leaving the site is tributary.
- _____ Show the location of all temporary and permanent erosion and sedimentation control measures.
- _____ Show construction detail drawings for all temporary and permanent erosion and sedimentation control measures per the Town of Waxhaw Engineering, Standards and Procedures Manual.
- _____ Show all design calculations for sediment basins and sediment traps per the NCDEQ Design Manual, latest edition. Note: Minimum of 3 coir fiber baffles per the NCDEQ Design Manual.
- _____ Label basin contours. Tie into existing contours. Show basin dimensions and weir lengths on the plans.
- _____ Show wetland protection measures (Orange net fence).
- _____ Show temporary stream crossings (work along streams, lakes, ponds and wetlands) and details of how each will be stabilized.
- _____ Show maintenance requirements of temporary erosion and sedimentation control measures during construction.
- _____ Indicate the name and phone number of the person who is responsible for maintenance of temporary measures during construction on the plans.
- _____ Show maintenance requirements of permanent erosion and sedimentation control measures following construction.
- _____ Indicate the name and phone number of the person who is responsible for maintenance of permanent measures following construction on the plans.
- _____ Show all areas and acreage to be vegetatively stabilized.
- _____ Drainage area maps clearly and legibly depicts on-site and off-site areas (colored coded maps encouraged). All drainage area maps indicate project limits and are at a legible scale.



APPENDIX-L

Erosion Control Plan Checklist

- _____ Show planned vegetation with details of plants, seed, mulch, and fertilizer. Include seeding requirement from the Town of Waxhaw Engineering, Standards and Procedures Manual.
- _____ Show specifications for permanent and temporary vegetation.
- _____ Indicate the specified method of soil preparation.
- _____ Attach the Financial Responsibility Form from the Town of Waxhaw Engineering, Standards and Procedures Manual.
- _____ Attach bid specifications regarding erosion and sedimentation control measures.
- _____ Indicate setback for streams outside the designated floodplains - 5 times width of top of bank or 20 feet on each side, whichever is greater, as measured from the top of bank.
- _____ 100-year flood plain (old and, if needed, new) and base flood elevation. valves, hydrants, sanitary sewer lines, manholes, gas lines, valves, telephone, cable television, and electric lines and poles.
- _____ Deviations from the Town of Waxhaw Engineering, Standards and Procedures Manual must be clearly noted on the plan. *(The Developer must request any deviation from the manual in writing along with justification for review and recommendation by Staff prior to plan review).* Modifications to the Town of Waxhaw standard details require that the Town's title block be removed from the detail.
- _____ The following notes will be included on all plan sets:
1. If disturbing less than 1 acre, add this note: Ground cover on exposed slopes shall be applied within 14 working days following completion of any phase of grading. Permanent ground cover for all disturbed areas shall be applied within 15 working days or 60 calendar days, whichever is sooner. Slopes left exposed will, within 14 calendar days of completion of any phase of grading, be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion.
 2. If disturbing 1 acre or more, add this note: As required by the NPDES General Permit NCG010000, all perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1) shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 7 calendar days from the last land disturbing activity. All other disturbed areas shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 14 calendar days from the last land disturbing



APPENDIX-L

Erosion Control Plan Checklist

activity. Ground stabilization timeframe exemptions can be found in the NPDES General Permit NCG010000 under Section 2.b. Ground Stabilization.

3. No land disturbing activity, except that which is required to install erosion control measures, may commence prior to approval by the Director of Development Services.
4. Additional erosion control measures may be required based upon specific site conditions.
5. Contact the Town of Waxhaw Development Services Department, at 704-843-2195, for a pre- construction meeting prior to any land disturbing activity.
6. Remove all temporary erosion control devices and structures only after site is fully stabilized and approval has been obtained from the Town of Waxhaw Development Services Department.
7. All erosion control designs shall be in accordance with the Town of Waxhaw Engineering, Standards and Procedures Manual, and the NCDEQ Erosion and Sedimentation Control Planning and Design Manual, latest edition.
8. For phased erosion control plans, the Contractor shall meet with the Erosion Control Specialist prior to commencing each phase of erosion control measures.
9. Site grading is to be covered under the General Stormwater Permit NCG010000. Any land disturbing activity > 1 acre requires compliance with all conditions of this general permit under the NPDES. Any noncompliance is a violation of the Clean Water Act and may require enforcement by NCDEQ.
10. Contractor is to keep street clear of mud and other debris.
11. The Professional Engineer registered with the State of North Carolina who prepared the Erosion Control Plan is solely responsible for identification and location of all environmental wetlands, perennial and intermittent streams and buffers shown on the plans.
12. The Town of Waxhaw is not responsible for the accuracy and adequacy of the design, dimensions, and elevations, which shall be confirmed and correlated at the job site. The Town of Waxhaw, through the approval of this document, assumes no responsibility for the completeness and/or accuracy of this document.
13. Silt sacks will be placed in basins/inlets along roadways after initial asphalt surface work is completed.



APPENDIX-L

Erosion Control Plan Checklist

14. The financially responsible party/agent or the landowner/agent of a land disturbing activity > one acre is required to self-inspect the project. A self inspection, as well as documentation of a project after each phase of the project, is required.

_____ Include scheduling notes and construction notes as well as all pertinent Erosion Control Details from the Town of Waxhaw Engineering, Standards and Procedures Manual on all plan sheets.

_____ Provide construction sequence notes as well as any additional notes necessary to describe the basic sequence of events on the site.

_____ Projects disturbing one acre or more in area are automatically covered by the NPDES General Stormwater Permit NG010000 for construction related activities, provided that basin design requirements and ground stabilization requirements from that permit are included on the erosion control plan. To meet this requirement, include the ground stabilization timeframe table from the Town of Waxhaw Engineering, Standards and Procedures Manual and basin design requirements on the erosion control plan and/or detail sheet, if disturbing 1 acre or more.

_____ NPDES General Stormwater Permit NG010000 requires plans to identify areas where the 7 and 14 day ground stabilization requirements will apply. Please show areas on erosion control plan by using hatching, labeling, or other similar conventions.

_____ Erosion Control Review Fee.

_____ Bond Amount in the form of certified check, cash, or irrevocable letter of credit.

_____ Grading more than one acre without an approved Erosion Control Plan is a violation of the Town of Waxhaw Erosion and Sedimentation Control Ordinance.

_____ Driveway permit for construction entrances in NCDOT right-of-way must be presented at preconstruction meeting.

APPENDIX- M



ENGINEERING CONSTRUCTION DOCUMENT REVIEW CHECKLIST

October 18, 2018
Revised September 9, 2022
Revised March 25, 2024



ENGINEERING DIVISION

CONSTRUCTION DOCUMENT REVIEW CHECKLIST

DEVELOPMENT SERVICES DEPARTMENT

1150 N. Broome Street
PO Box 617
Waxhaw, North Carolina 28173
Phone: 704-843-2195

This is a standardized document generated to facilitate consistent plan reviews. Additional requirements may be necessary based on site-specific conditions. Applicant should verify all items are provided in plans or calculations submitted to ensure a complete application prior to review.

A. PROJECT INFORMATION			
Project Name:		Date Submitted	
Location:		Fee Submitted	\$
Design Contact:		Phone or Email	
FOR OFFICE USE ONLY			
Assigned Reviewer:		PRD Number:	
Application Complete	(Yes/No)	Comments Due:	

B. REVIEWS TO BE COMPLETED PRIOR TO CONSTRUCTION DOCUMENT REVIEW	YES	N/A
1. CHECK THAT REVIEWS BELOW HAVE BEEN COMPLETED PRIOR TO SUBMITTAL		
Rezoning (if site not properly zoned for proposed use)		
Conditional Rezoning		
Conditional Use Permit		
Subdivision Review (residential, multiple building sites and right-of-way dedication projects)		
Commercial Site Plan Review (non-residential projects)		
Traffic Impact Analysis (provided through Town process)		

Applicant to Complete the checklist below and include with submittal documents to the Town. Information missing from the submittal or not filled out below will be considered an incomplete submittal, and will be rejected by Town staff. Only complete submittals will be reviewed and provided comments. This checklist is a guidance document for the Town development requirements. For additional information regarding local site development reference the Town of Waxhaw Unified Development Ordinance (Town UDO), Town of Waxhaw Engineering Design and Construction Standards Procedures Manual, and Town of Waxhaw Stormwater Design Manual. The columns under the header "Town Staff Review" are to be completed by the Town of Waxhaw Engineering Division Reviewer.

C. TO BE COMPLETED BY APPLICANT	YES	N/A	Location Provided	TOWN STAFF REVIEW	
				SATISFIED	N/A
1. GENERAL REQUIREMENTS					
Cover Sheet with Project Name, Project Information and Designer and Owner Information					
Site Address and Vicinity Map					
Sheet List with Sheet Name and Number					
Original Submittal Date Provided in Title Block					
Zoning labeled on plans, Conditional District Notes Included.					
North Arrow, Legible Scale					
Property(s) boundary (bearings and distances) and Deed Information					
Legend provide line-types symbols and hatching on all plan sheets					
U.S. Fish and Wildlife-Endangered Species Letter provided					



ENGINEERING DIVISION

CONSTRUCTION DOCUMENT REVIEW CHECKLIST

DEVELOPMENT SERVICES DEPARTMENT

1150 N. Broome Street
PO Box 617
Waxhaw, North Carolina 28173
Phone: 704-843-2195

C. TO BE COMPLETED BY APPLICANT	YES	N/A	Location Provided	TOWN STAFF REVIEW	
				SATISFIED	N/A
Site Physical and Topographic Survey provided. To be signed and sealed by an NC registered surveyor and include: property boundary, existing paved areas, buildings and structures, utility locations, 1-foot contours, trees (12" DBH and larger), gravel areas, easements, and natural water bodies.					
If construction or grading is proposed in a utility easement or NCDOT rights-of way, then provide a letter from the utility owner granting permission, and/or an encroachment agreement from NCDOT.					
If off-site grading is proposed, then provide easement documentation showing this is permissible (temporary or permanent easements)					
FEMA floodplain and floodway boundaries identified with FIRM map and panel number provided					
North Carolina Department of Transportation Driveway Permit provided					
NCDEQ Construction General Stormwater Permit (NCG01/NCG25) obtained for sites over 1.0-acre					
NCDEQ State Post-Construction Stormwater Quality Permit obtained and provided					
Public water and sanitary sewer mains and connections submitted to Union County Public Works for review under separate submittal.					
Jurisdictional waters of the US (wetlands and streams) identified on the plans					
404/401 permit provided if impacting jurisdictional waters of the US.					
2. DEMOLITION PLAN					
Existing Site Conditions shown based on Site Physical and Topographic Survey					
Denote existing structures, utilities, and paved areas to be removed					
3. EROSION CONTROL PLAN <i>(Reference Town of Waxhaw Erosion Control Ordinance & Standard Detail Section 500)</i>					
Completed and notarized Financial Responsibility Form (if the financially responsible party is out of State, a North Carolina agent must be assigned)					
Minimum 2 phase erosion control plan unless otherwise approved by the Town Engineer.					
Existing and proposed contours. Shown and labeled in intervals of two (2) feet or less. interval, existing dashed grey & proposed solid black. NAVD 88 datum.					
Erosion control device basin map labeled and shows drainage areas for each phase of construction.					
Site specific construction sequence (Town minimum standard sequence attached in Section D-1)					
Denuded/disturbed acres clearly delineated on the plan (straight line styles only) and acreage clearly labeled.					
Undisturbed buffer areas - dimensions and locations (grading in a buffer requires zoning approval)					
Swales, berms & temporary diversion ditches per Town Standards. Sized for the 10-year, 24-hour design intensity and calculations provided indicating non-erosion flow.					
Erosion control blanket/lining indicated for swales and ditches based on non-erosive flow calculations. Specs provided within plans.					
Location of on-site and/or off-site waste disposal areas; location of borrow sites					
Stabilized gravel construction entrance Town Standards					
Temporary Silt fence and High Hazard Temporary Silt Fence. Used for sheet flow control only per Town Standards. Silt fence stone outlets provided at low points and points of concentrated flow.					
Silt fence placed a minimum 10' clear zone from toe of proposed graded slopes.					



ENGINEERING DIVISION

CONSTRUCTION DOCUMENT REVIEW CHECKLIST

DEVELOPMENT SERVICES DEPARTMENT

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PO Box 617
Waxhaw, North Carolina 28173
Phone: 704-843-2195

C. TO BE COMPLETED BY APPLICANT	YES	N/A	Location Provided	TOWN STAFF REVIEW	
				SATISFIED	N/A
Hardware cloth, Rip Rap dissipator pads w/ washed stone for outlet protection shown at all pipe outlets.					
Sediment/Skimmer basin control device (or other appropriate device) showing dimensions, proposed contours, contour labels, tie to existing contours, primary outlet, emergency spillway, and baffles.					
Appropriate basin detail provided on the plans indicating storage volume required/provided					
Designed emergency spillways place in cut (dimensioned and calculations provided)					
Erosion control slope matting provided for all slopes steeper than 3:1 or greater than 10 feet vertical . Matting spec sheet provided in plans					
Temporary Rock Check Dam (Dimensions- Length, height, class of riprap) Town Standards					
Inlet protection and slope drains shown per Town Standards					
Temporary Seeding schedule per Town Standards.					
Stream/creek crossings provided per Town Code					
Jurisdictional streams and wetlands appropriately protected from sedimentation.					
Minimum 30' clear zone from top of stream banks to denuded limit.					
Town Standard Erosion Control Notes provided on plans per Section D-2.					
4. SITE PLAN					
Existing and proposed property lines, easements (public and private), adjacent uses and zoning.					
Existing and proposed driveways with widths shown, opposing driveway locations, sight distance (Town and NCDOT), right-of-way width and required future widths, street pavement width and material, street lane striping shown, curb, gutter and sidewalk.					
Existing and proposed building footprints, uses, square footages, and building distances from property line.					
Off-street parking layout and code required calculations. Location of any proposed on-street parking.					
Typical parking stalls dimensioned, parking aisles width dimensioned					
Radii of driveway and internal drive curb curvatures labeled.					
Site circulation, striping, and signage denoted					
Travel path of delivery trucks and fire trucks shown with heavy duty pavement indicated along the proposed route. Provide truck routes on separate plan sheet.					
Location and size of external utility meters, HVAC systems, dumpster enclosures, transformers with detail of screening to be used.					
Light pole locations. Provide a Lighting Plan in compliance with Section 8.15 of the Town LDC.					
Retaining walls indicated with necessary safety features in place. Provide retaining wall plans as outlined in Section C-5					
Provide retaining wall table including – Identification, Adjacent lot(s), length, and maximum height					
Accessible parking spaces with signs and painted symbols. Show dimensions					
Identify intersection Radii on site plan – See Engineering Design Criteria Section B.					
Sidewalk shown with ramps and curb ramps meeting accessibility requirements					
Pylon and monument sign locations indicated on the plan.					



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				SATISFIED	N/A
5. GRADING AND DRAINAGE PLAN <i>(Reference Town of Waxhaw Erosion Control Ordinance & Standard Detail Section 300)</i>					
All design in accordance with the Town of Waxhaw - Provide details of all drainage structures of reference detail by number.					
Existing and proposed contours. Shown and labeled in intervals of two (2) feet of less. interval, existing dashed grey & proposed solid black. NAVD 88 datum.					
Critical spot elevations at all sidewalks & curb around building, accessible routes and parking, and concrete pads for dumpsters/trash compactors, door stoops, transformers, generator, etc.					
Drainage features shown including ditches, swales, channels, and watercourses; plans should include flow direction arrows and spot elevations. Refer to Section D-3 for additional channel design requirement.					
Building finished floor elevations indicated on all onsite structures existing and proposed.					
Accessible Routes shown with sidewalk grades have a 5% maximum longitudinal slope and 2% cross slope.					
Accessible parking, ramps and landing areas shown with spot elevations showing grades are 2% or less.					
Label all slopes 3:1 and steeper. Slopes steeper than 3:1 are supported by findings of a geotechnical report, and appropriately stabilized until vegetation is established.					
Specify slope matting and include specs for all permanent slopes					
All grading is shown within the property limits and/or public right-of-way. Indicate locations of grading easements offsite and provide documentation for approved easement.					
Sidewalk and cross-walk cross-slope at maximum 2%					
Guard rail placed near drive or parking stall parallel to and within 20' of slope steeper than 3:1 or elevation change greater than 8'					
Provide handrail adjacent to sidewalk within 3' of a slope of 3:1 or greater with an elevation change greater than 10'					
Earthwork requirements for compaction, foundation preparation, topsoil requirements, etc. noted in the plans.					
Location, size, invert and rim or grate elevations, and material for all existing and proposed storm sewer pipe, structures, and culverts on and immediately adjacent to the site.					
Storm sewer system designed to convey the 10-year 24-hour design storm intensity within the pipe.					
Where roadway overtopping is anticipated, drainage that is picked up in a culvert (or other drainage structure) prior to crossing a road or driveway must be conveyed in a system designed for the 25-year 24-hour storm (50-year for thoroughfares). Flow calculations must be based on the appropriate design storm to the end of the system or to a relief point lower than the street elevation.					
Provide scaled profiles for all storm sewer systems and culverts showing and labeling the appropriate design hydraulic grade line (HGL). Indicate utility crossings and clearances.					
Post Development discharge leaves site in same direction and relative location as pre-developed condition. Identify offsite receiving conditions.					
Structures or flared end sections at all inlets and outlets of all pipe systems (no CMP or HDPE FES allowed)					
Non-standard drainage structures (CBs, HWs, FESs, bottomless culverts) will require sealed construction drawings.					



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C. TO BE COMPLETED BY APPLICANT	YES	N/A	Location Provided	TOWN STAFF REVIEW									
				SATISFIED	N/A								
All building roof drain and scupper locations indicated on the plan.													
Minimum storm sewer pipe cover of two (2) feet.													
The minimum allowable slope is 0.5 percent, or the slope, which will produce a velocity of 2.5 fps when the storm water in system is flowing full, whichever is greater.													
Maximum velocity in pipes - 20 fps (10 fps for CMP)													
Maximum discharge velocity at pipe outlets is 10 fps except for pipes > 48" in diameter.													
Defined/stabilized pipe, flume and channel outlet locations. At a minimum, rip rap dissipator pads are provided at all outfall pipes.													
Riprap dissipators when provided at pipe outfalls at 0% slope, Min. L=10', Min. Depth=10".													
Properly sized and labeled Storm Drainage Easements (SDE) see widths below from: <table border="0" style="margin-left: 40px;"> <tr> <td>Pipe Diameter (inches)</td> <td>Pipe Easement Width (feet)</td> </tr> <tr> <td>15-36</td> <td>20</td> </tr> <tr> <td>42-48</td> <td>25</td> </tr> <tr> <td>54+</td> <td>30' min. (Varies)</td> </tr> </table>	Pipe Diameter (inches)	Pipe Easement Width (feet)	15-36	20	42-48	25	54+	30' min. (Varies)					
Pipe Diameter (inches)	Pipe Easement Width (feet)												
15-36	20												
42-48	25												
54+	30' min. (Varies)												
Corrugated metal pipes must be aluminum or aluminized steel.													
Provide details of curb cuts and flumes													
Storm BMPs clearly labeled with Type, BMP number, surface elevations, minimum area and volumes, and reference applicable details. Designed to meet Town standards and calculations and drainage maps provided in Stormwater Calculation Report per Section C-6 .													
BMP Primary Outlet Control Structure and Emergency Spillway clearly labeled. Emergency spillways placed in cut, if possible.													
Review potential impacts of storm outlet discharges downstream (i.e. property damage, erosion impacts, loss of life). Revise discharge location as needed.													
Emergency spillway is design to be non-erosive discharge for designed flow. Lining clearly labeled, as needed.													
Maintenance access provided to detention pond with gate, mountable curb, and gravel drive. Minimum top width of 10' for all BMP permanent earthen berms. 12' to 15' preferred for vehicular access. Minimum of 1' drop for cross-slope on berm.													
Stormwater maintenance and access easement provided from the public right-of-way to the BMP location and encompassing the BMP. Minimum 20' width.													
Retaining walls labeled with top of wall (TW) and bottom of wall (BW) spot elevations. Retaining walls over five (5) feet in height require details to be submitted per Section C-7													
Drainage at top and base of retaining walls considered. Ditches provided where necessary.													
For pipe systems not designed for Q100-YR that receives >50 cfs in Q100-YR, flood protection analysis is required. Refer to Section D-4 for additional requirements.													
100-year floodplain and floodway boundaries, flood hazard soil boundaries, flood storage area easements, and regulatory flood protection elevations should be shown on plans. Indicate FEMA map and/or flood study numbers. If filling in floodplain, identify limits of filled area. Refer to Section D-5 for additional floodplain development requirements.													
Proposed Right-of-Way or Roadway improvements must be shown on the plans. Plan and profile to be provided for Town maintained roadway construction meeting the requirements of the Town of Waxhaw Engineering Design and Construction Standards and Procedures Manual and indicating the proposed design speed.													



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C. TO BE COMPLETED BY APPLICANT	YES	N/A	Location Provided	TOWN STAFF REVIEW	
				SATISFIED	N/A
Maximum of one (1) acre runoff draining into the street at one point.					
No concentrated runoff flowing over Town sidewalks except at driveway entrances					
Roadside ditches sized to convey the 10-year design storm intensity (minimum 18-inches deep), and 25-year design storm intensity checked to prevent inundation of the pavement. Longitudinal slope minimum 1.0%, roadside side slope 3:1 maximum, and right-of-way side slope 2:1 maximum.					
Intersections: Slope less than 2% across intersections may need additional CBs and spot elevations. Catch basin placement at intersections per Town Standard.					
Pipes in R/W 48" or less in diameter may be HDPE or RCP, >48" may be RCP, >60" may be aluminized steel; minimum 15"					
5. STORM BMP DETAILS					
Plan View of BMP provided with detailed labels and grading shown.					
Scaled profile of BMP provided detailing locations and elevations of the primary and emergency spillways, permanent pool, treatment medias, underdrains, permanent and temporary pool, orifice control outlets, and designed water surface elevations.					
Custom details provided for primary spillway with sized and inverts of all orifices, spillways, grates, rims, pipes, emergency drains/valves, trash racks, anti-flotation device, and turn down devices.					
Emergency spillway detail provided indicating the design invert, width, length, and lining. Emergency spillways for ponds shall be designed to pass 50-year storm discharge. Place in cut, if possible, lining required in fill areas.					
BMP notes and specifications provided.					
Anti-seep method and locations indicated in plan and profile.					
Freeboard labeled. Minimum 6" freeboard above 50-year elevation on earthen basins (on basins less than 15' deep)					
Town standard detail provided on sheet.					
Summary table provided outlining the required and provided design volumes and permanent pool areas.					
Separate Plan View or plan sheet indicating proposed plantings and locations. If grass, then permanent seeding and stabilization methods specified.					
Liners noted and specified as needed.					
6. STORMWATER CALCULATION REPORT <i>(Reference Town of Waxhaw Stormwater Design Manual)</i>					
All development submittals requiring calculations shall include a bound report sealed by an NC licensed engineer					
Table of content provided					
Narrative which gives background on the existing/proposed site, means by which hydraulics / hydrology were performed, and any other pertinent information needed to give a better understanding of methodology; including assumptions for design. Indicate how Town requirements were met and provide summary table of peak discharges from the site.					
USGS map, NRCS County Soils Map, FEMA FIRM provided with the site area indicated.					
Soils Hydraulic Soils Group (HSG) information provided for each soil type onsite.					
Pre-development and Post-development drainage area maps provided showing each point of analysis (POA) where discharge is leaving the site property boundary, all detained and undetained drainage, land coverage and associated CN values, soil types, time of concentration paths (label areas of sheet flow, shallow flow, and concentrated flow), impervious surfaces, and acreages.					



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				SATISFIED	N/A
BMP drainage area map (Scale not to exceed 1" = 60') for detailed maps					
BMP sizing calculations showing NCDEQ methods and BMP volume calculations based on stage area.					
Stormwater structures in calculations and modeling must match labels on construction plans					
Anti-flotation calculations for primary risers					
Emergency spillway weir flow calculations and stabilization calculations.					
Pre- and post-construction peak discharge calculations for each outlet from the site (POA). Be sure to provide all supporting calculation routing data for the computation methods used (rainfall data for 2-, 10-, and 50-year storm events, time of concentration/storm duration, and runoff coefficients, detention volumes).					
Plan view of modeling schematic provided to supplement peak discharge calculations.					
Catchment Map for all storm sewer structures and culverts onsite indicating area in acreage, time of concentration and runoff coefficients for each structure.					
Storm sewer calculations table per Town requirements. For each pipe segment, the calculations should indicate at a minimum the catchment area, rainfall intensity, time of concentration, design discharge, design capacity/capacity full, rim elevation, pipe size, velocity, material, pipe invert upstream and downstream, and HGL upstream and downstream.					
Gutter flow and spread calculations. Curb and gutter slopes not less than 0.5 percent. Maximum 6 Feet spread					
Discharge and velocity calculations for temporary and permanent open channel and ditch flows.					
Design calculations for cross sections and method of stabilization for existing and planned channels (include temporary linings). Include appropriate permissible velocity and/or shear stress data					
Design calculations and construction details for energy dissipaters below culvert and storm sewer outlets (include stone/material specs & apron dimensions).					
Design calculations and dimension of sediment basins and skimmers. A Rational C value of 0.6 and a Tc of 5 minutes should be used for cleared land.					
7. RETAINING WALL DETAILS					
Commercial retaining walls less than five feet tall are not required to have plan approval. However, retaining wall systems less than five feet in cumulative vertical relief and adjacent to a structure located closer than the vertical relief shall be designed under the responsible charge of a registered design professional and shall require a permit and inspection.					
Retaining walls designed in accordance with the North Carolina Building Code (NCBC). Provide note on plans.					
Retaining walls over five (5) feet in cumulative vertical relief shall be detailed in scaled cross-section and profile and signed and sealed by a NC licensed engineer. All notes and calculations shall be provided on the plans sheets.					
Wall shall be detailed showing product/wall type, material facing, structural supports, wall footings, wall tie-backs, geofabric and stone lifts, and wall drainage/weep holes.					
If tree plantings, site lighting, guard rail, and/or safety rail are proposed within the structural footprint of the retaining wall, then provide details for proper installation.					
Detail all storm pipes planned to pass through or directly under the wall section.					
A geotechnical report shall be provided accompanying all retaining wall plans and evaluating these design requirements.					



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				SATISFIED	N/A
Add this note to the plan: "As-built details and Engineering letter certifying the retaining wall is built in accordance with NCBC and the approved plans will be required to be submitted to the Town prior to the final inspection approval and the issuance of the Certificate of Compliance."					
If the retaining wall is located adjacent to a walking or driving surface, safety guards and rails shall be installed in accordance with the provisions of 2012 NCBC Section 1013.					
NCBC Section 1807.2.1 require that retaining walls shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, lateral soil pressures on both sides of the keyway shall be considered in the analysis.					
NCBC Section 1807.2.3 Safety Factor. Retaining walls shall be designed to resist the lateral action of soil to produce sliding and overturning with a minimum safety factor of 1.5 in each case. The load combination of Section 1605 shall not apply to this requirement. Instead, design shall be based on 0.7 times nominal earthquake loads, 1.0 times other nominal loads, and investigation with one or more of the variable loads set to zero. The safety factor against lateral sliding shall be taken as the available soil resistance at the base of the retaining wall foundation divided by the net lateral force applied to the retaining wall. Exception: Where earthquake loads are included, the minimum safety factor for retaining wall sliding and overturning shall be 1.1.					

Section D, below, is a supplement to the checklist above and provided as standard guidance to be included in the plans as applicable. The applicant shall be responsible for reviewing the Town of Waxhaw code of ordinance and providing additional information as necessary.

D. EROSION CONTROL STANDARDS
1. MINIMUM CONSTRUCTION SEQUENCE
<i>The Construction Sequence must be project specific and include the following (additional items shall be added depending on site conditions):</i>
<ol style="list-style-type: none"> 1. Obtain Grading/Erosion Control plan approval from the Town of Waxhaw Engineering Department. 2. Set up a on-site pre-construction conference with Erosion Control Inspector of the Town Engineering Department to discuss erosion control measures. Failure to schedule such conference 48 hours prior to any land disturbing activity is a violation of Chapter 17 of the Town Code and is subject to fine. 3. Install silt fence, inlet protection, sediment traps, diversion ditches, tree protection, and other measures as shown on plans, clearing only as necessary to install these devices. 4. Call for on-site inspection by Inspector. When approved, Inspector issues the Grading Permit and clearing and grubbing may begin. 5. The contractor shall diligently and continuously maintain all erosion control devices and structures. 6. For phased erosion control plans, contractor shall meet with Erosion Control Inspector prior to commencing with each phase of erosion control measures. 7. Stabilize site as areas are brought to finished grade. 8. Coordinate with Erosion Control Inspector prior to removal of erosion control measure. 9. All erosion control measures shall be constructed in accordance with the N. C. Erosion and Sediment Control Planning and Design Manual, U. S. Dept. of Agriculture, Town of Waxhaw Erosion Control Ordinance.
2. EROSION CONTROL NOTES
<i>All "Std." numbers refer to the Town of Waxhaw Engineering Design & Construction Standards Procedures Manual.</i>
<ol style="list-style-type: none"> 1. On-site burial pits require an on-site demolition landfill permit from the Zoning Administrator.



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D. EROSION CONTROL STANDARDS

2. Any grading beyond the denuded limits shown on the plan is a violation of the Town's Erosion control Ordinance and is subject to a fine.
3. Grading more than one acre without an approved Erosion Control Plan is a violation of the Town's Erosion Control Ordinance and is subject to a fine.
4. All perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1) shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 7 calendar days from the last land-disturbing activity.
5. All other disturbed areas shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 14 calendar days from the last land-disturbing activity.
6. Additional measures to control erosion and sediment may be required by a representative of the Town of Waxhaw Engineering Division.
7. Slopes shall be graded no steeper than 2:1. Fill slopes greater than 10' high require adequate terracing.
8. A grading plan must be submitted for any lot grading exceeding one acre that was not previously approved.
9. Driveway permit for construction entrances in NCDOT right of way must be presented at pre-construction meeting.

3. CHANNEL DESIGN

(Reference Stormwater Ordinance Chapter 4)

1. Channel cross-sections and calculations provided in plans or Storm Calculation Report.
2. Maximum 2:1 side slopes.
3. Sized to convey 10-year design storm intensity
4. Minimum 6" freeboard
5. The final design of artificial open channels should be consistent with the velocity and shear strength limitations for the selected lining.
6. Liner specifications and design information from manufacturer.
7. Transition to channel sections with a minimum of 5:1 taper?
8. Channels with bottom widths > 10' must have a minimum bottom cross slope of 12:1.
9. Properly sized and labeled storm drainage easement (SDE) see widths below

Area in Acreage	Channel Easement Width (feet)
1-45	20
45-120	30
120-500	40
500+	Per Town Engineer
10. Driveway pipes sized for Q10, check for roadway overtopping as required.
11. In case of 100+1 Overland Relief Channel.
12. Cross-sections at back of curb (beginning of channel), front of building pad(s), and back of building pad(s). Typical detail may be used beyond building pad(s).
13. 1' minimum freeboard at building pad(s).

4. 100+1 FLOOD ANALYSIS [Q100>50 cfs]

(Reference Stormwater Ordinance Chapter 4.3)

1. Overland Relief Point identified on plans.
2. Flood study calculations shall be sealed by PE.
3. Calculations for flow and time of concentration (Tc).
4. Runoff coefficients shall be based on assumption of full development of parcels per current zoning.
5. Include digital copy of channel analysis input file in submittal (e-mail or CD acceptable).
6. Proposed Stormwater Protection Elevations (SWPE) shall be labeled on site and grading plan for each lot (the SWPE should be based on Overland Relief Channel if applicable).
7. Show and label location of 100+1 Stormwater Elevation Line (SWEL) on site and grading plan.
8. Minimum 1,200 sf of buildable area per lot.
9. Show or describe on plan the location and elevation (ref. vertical datum, i.e. NAVD 88) of permanent benchmark used in channel survey. All topographic information shown on grading plan shall also be referenced to this benchmark.



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D. EROSION CONTROL STANDARDS

10. Existing channel cross-section geometry used in analysis shall be based on a "Class A" field survey and shall be sealed by RLS.
 - a. When fill is proposed within the 100+1 Stormwater Elevation Line, plotted channel cross-sections shall be included in the subdivision plan set and shall show both existing and proposed cross-section geometry. Sheets to be signed by RLS for existing and PE for proposed conditions.
 - b. When no grading is proposed within the 100+1 Stormwater Elevation Line, it is not necessary to include plotted cross-sections in the subdivision plan set. A note shall be added to the grading plan specifying that there shall be no grading within the limits of the 100+1 Stormwater Elevation Line.
 - c. Cross sections taken perpendicular to the stream centerline, maximum 100' stations.
 - d. Plot cross-sections showing the 100+1 elevation on site and grading plan.
 - e. Cross-sections based on topographic map are subject to approval of the Town Engineer.
11. In case of a bridge or culvert:
 - a. Cross-sections should be prepared at 25 feet from inlet and 5 to 20 feet from outlet.
 - b. Road profile at culvert crossing to an elevation 2 feet above the low point of road.
 - c. A physical description of the culvert (type, shape, invert, etc.).
 - d. Upstream and downstream top of footer elevations for natural bottom culverts.
 - e. Stormwater Protection Elevations for lots upstream of street crossings shall be based on the higher of the elevation determined by analysis or the low point of the road plus 1 foot.

5. FLOODWAY [Drainage Area > 640 Acres]

(Reference Section 6.5 of the UDO Flood Damage Prevention Ordinance)

1. Creek name (label centerline).
2. Label the following lines clearly on grading and site plan:
 - a. FEMA 1% Annual Chance Floodway Boundary Line.
 - b. FEMA 1% Annual Chance Floodplain Boundary Line (often called "Flood Fringe").
3. Floodway Cross-sections (Label, Stream Station, Location, Future Conditions Flood Elevation)
4. Regulatory Flood Protection Elevation (RFPE): Base Flood Elevation(BFE) + 2' Freeboard for Residential Construction/ Base Flood Elevation(BFE) + 1' Freeboard for Commercial Construction)
5. Contact Matt Hubert at (704) 843-2195 concerning Floodplain Development Permit (any property crossed by a FEMA Floodline is subject to this permit. (Approval required prior to commencement of all construction activities.)

APPENDIX- N



PETITION FOR ADDITION OF PUBLIC STREETS

September 9, 2022

PETITION FOR ADDITION OF PUBLIC STREETS TO THE SYSTEM OF
THE TOWN OF WAXHAW, NORTH CAROLINA
(Developers/Builders)

I hereby certify, as the owner, that to the best of my knowledge the improvements in _____ subdivision have been constructed in accordance with the preliminary plan and are shown on a record map filed in the Union County Register of Deeds Office. All work conforms to the construction standards of the Town of Waxhaw Unified Development Ordinance and the Town of Waxhaw Policy for Street Improvements and Maintenance. **I have attached a recorded copy of the plat for your records along with \$250.00 per map for the Street Acceptance/Turnover Inspection fee.**

I therefore, request that the Town of Waxhaw consider the following streets, sidewalks and storm water system in the public street right of way for maintenance purposes. This also includes the maintenance of _____ (number) streetlights. I understand that the acceptance of said streets, sidewalks, storm water systems and streetlights shall be made only by the Town of Waxhaw Board of Commissioners in accordance with the Town's policy for Street Improvements and Maintenance.

<u>Street Name</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>#Streetlights</u>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

_____	_____
Owner Name	Date
_____	_____
Address	Phone Number

Email	

.....
Accepted by motion of the Town of Waxhaw Board of Commissioners on the _____ day of _____, 20____.

_____	_____
Mayor	Date
4/26/2022	