

# **BID PACKAGE, INCLUDING SPECIFICATIONS**

**2021 425 4th Ave. W. Stormwater Improvements**

**Hendersonville, NC**

City of Hendersonville  
Stormwater Division  
305 Williams Street Hendersonville,  
North Carolina 28792 (828) 697-3013  
[mhuffman@hvlnc.gov](mailto:mhuffman@hvlnc.gov)

**INVITATION FOR BIDS FOR**  
**CITY OF HENDERSONVILLE**  
**2021 425 4th Ave. W. Stormwater Improvements (“Project”)**  
**HENDERSONVILLE, NORTH CAROLINA**

**SCOPE OF WORK**

425 4th Ave. W. Stormwater Improvements includes but is not limited to: mobilization, demolition of existing CMP pipe, removal of existing headwalls and debris, grading, installation of new HDPE pipe and headwall, tie-in to existing upstream stormwater junction, replacement of existing fencing, installation of new stormwater inlet, and asphalt repair and paving as described in Bid Schedule. The contractor will also be responsible for grading, backfilling, and seed and straw. The contractor shall be responsible for all State and local permits and Call Before You Dig matters. The contractor will provide all necessary traffic control signs, cones, etc. and provide flagmen as needed. The contractor is also responsible for notifying businesses and residences within each work zone of the construction schedule and of any changes to that schedule. The contractor must complete all work **before July 31<sup>st</sup>, 2021.**

**BIDS**

Bids for this Project will be received by:  
Michael Huffman, Stormwater Administrator  
City of Hendersonville  
305 Williams Street  
Hendersonville, NC 28792  
Ph: 828-697-3013  
up to **9:00 AM, on Friday, April 30th, 2021**

**PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS**

Complete specifications and contract documents are available on the City’s RFP/Bids webpage:  
Copies of complete plans, specifications and contract documents may be obtained via email: [mhuffman@hvlnc.gov](mailto:mhuffman@hvlnc.gov)

**QUESTIONS AND CLARIFICATIONS**

All questions and requests for clarification of the plans and specifications must be emailed to Michael Huffman: [mhuffman@hvlnc.gov](mailto:mhuffman@hvlnc.gov). No verbal answers will be given.

**License Requirements**

Contractors are hereby notified that they must have proper license under the NC State laws governing their respective trades and that North Carolina General Statute 87 will be observed in receiving and awarding contracts.

**SUBMISSION OF BIDS**

Bids shall be made only on the form provided herein with the bid amount properly filled in and all signatures properly executed. Bids shall be submitted via email to Michael Huffman, Stormwater Administrator [mhuffman@hvlnc.gov](mailto:mhuffman@hvlnc.gov). All bids will be valid for a period of sixty (60) days from receipt by the City.

Bid bonds, payment bonds, or performance bonds will not be required for this Project.

If awarded, the bid will be awarded to the lowest responsive, responsible bidder, taking into account quality, performance and time. The successful bidder will be required to enter into the City’s Standard Form Contract, included in this bid package.

The City of Hendersonville reserves the right to reject any and all bids, and to waive informalities.

End of Invitation to Bid

# SUPPLEMENTARY GENERAL CONDITIONS

**These Supplementary General Conditions are in addition to the General Conditions attached to the City's standard form contract, included in this bid package, and are an integral part of the construction contract for this Project. Where the terms of these Supplementary General Conditions conflict with the General Conditions, these Supplementary General Conditions shall be deemed to control.**

## GENERAL

It is understood and agreed that by submitting a bid that the Contractor has examined these contract documents, drawings and specifications and has satisfied himself relative to the Work to be performed.

**TIME FOR COMPLETION OF THE WORK/LIQUIDATED DAMAGES:** The Contractor shall have until **July 31, 2021** to complete the work. The Contractor shall incur liquidated damages in the amount of \$500.00 per day that the work is delayed beyond the completion date of **July 31, 2021**, continuing until the Project is successfully completed. The parties agree that the City's damages would be difficult to determine in the event of a delay in the work beyond **July 31, 2021**. The sum of \$500.00 per day is not a penalty, but is agreed to be liquidated damages.

## MATERIALS, EQUIPMENT AND EMPLOYEES

The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, sanitary facilities and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied there from, all in accordance with the contract documents.

All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

No changes shall be made in the Work except upon written approval and change order of the Designer/Owner. Change orders shall be subject to provisions in the current North Carolina Construction Manual.

Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed.

However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Substitution of materials, items or equipment of equal or equivalent design shall be submitted to the City for approval or disapproval; such approval or disapproval shall be made by the City prior to the opening of bids.

If at any time during the construction and completion of the work covered by these contract documents, the conduct of any workman of the various crafts be adjudged a nuisance to the Owner or if any workman be considered detrimental to the work, the Contractor shall order such parties removed immediately from the site.

The contractor shall designate a foreman/superintendent who shall direct the work.

## CODES, PERMITS AND INSPECTIONS

The Contractor shall obtain the required permits, if required, give all notices, and comply with all laws, ordinances, codes, rules

and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the Designer in writing. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the Owner, he shall bear all cost arising there from.

All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable.

## **SAFETY REQUIREMENTS**

The Contractor shall be responsible for the entire site and the construction of the same and provide all the necessary protections as required by laws or ordinances governing such conditions and as required by the Owner or Designer. He shall be responsible for any damage to the Owner's property or that of others on the job, by himself, his personnel, or his subcontractors, and shall make good such damages. He shall be responsible for and pay for any claims against the Owner arising from such damages.

The Contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, C o d e of Federal Regulations, Part 1926 published in Volume 39, Number 122, Part 11, June 24, 1974 Federal Register), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

The Contractor shall provide all necessary safety measures for the protection of all persons on the work, including the requirements of the AGC Accident Prevention Manual in Construction as amended, and shall fully comply with all state laws or regulations and North Carolina Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing and shall barricade excavations and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.

## **EQUAL OPPORTUNITY**



The Contractors agree not to discriminate against a n y employees or applicant for employment because of physical or mental disability in regard to any position for which the employees or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified disabled individuals without discrimination based upon their physical or mental disability in all employment practices.

## **INSURANCE**

The Contractor shall not commence work until he has obtained all insurance required, and the Owner has approved such insurance, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been obtained.

The Contractor shall provide and maintain during the life of this contract Workmen's Compensation Insurance for all employees employed at the site of the project under his contract.

The Contractor shall provide and maintain during the life of this contract such Public Liability and Property Damage Insurance as shall protect him and any subcontractor performing work covered by this contract, from claims for damage for personal injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operation be by the Contractor himself or by any subcontractor, or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be as follows:

### **INSURANCE PROVISIONS (See Exhibit A to the Standard Contract, included in this Bid Package, for the required insurance.)**

The Contractor shall furnish such additional insurance as may be required by General Statutes of North Carolina, including motor vehicle insurance in amounts' not less than statutory limits.

Each Certificate of Insurance shall bear the provision that the policy cannot be canceled, reduced in amount or coverage eliminated in less than fifteen {15} days after mailing written notice to the insured and/or the Owner of such alteration or cancellation, sent by registered mail.

The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required before written approval is

granted by the Owner.

#### **STORAGE OF MATERIALS**

The Contractor shall assure proper storage, meeting Federal and State regulations, of all potentially toxic and/or harmful chemicals or materials, to prevent possible access to these materials.

#### **INVOICES FOR PAYMENT**

Not later than the fifth day of the month, the contractor shall submit to the owner a request for payment for work done during the previous month. The request shall be in the form Application for Payment contained in these documents. The contractor shall substantiate the request with invoices of vouchers or payrolls or other evidence.

Executed contract documents, insurance certifications and, upon completion and acceptance of the work, invoices and other information requested are to be sent to:

Michael Huffman, Stormwater Administrator  
City of Hendersonville  
305 Williams Street  
Hendersonville, NC 28792  
Ph: 828-697-3013

It is imperative that contract documents, invoices, etc., be sent only to the above address in order to assure proper and timely delivery and handling.

#### **CLEANING UP**

The Contractor shall be responsible, at the completion of each day's work, to leave the site in a clean workmanlike condition. The Contractor shall always keep the site and surrounding area reasonably free from rubbish and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the project, the Contractor shall thoroughly clean the site, and completely prepare the project and site for use by the owner/ public.

#### **GUARANTEE**

The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work and shall replace such defective materials or workmanship without cost to the owner.

Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor, which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

#### **CONTRACTOR-SUBCONTRACTOR RELATIONSHIPS**

The Contractor agrees that the terms of these contract documents shall apply equally to a subcontractor as to the Contractor, and that the subcontractor is bound by those terms as an employee of the Contractor.



BID PROPOSAL

**2021 425 4th Ave. W. Stormwater Improvements  
HENDERSONVILLE, NORTH CAROLINA**

ALTERING THE FACE OF THIS FORM IN ANY MANNER, OR PROVIDING INFORMATION NOT SPECIFICALLY REQUESTED SHALL RENDER THIS BID PROPOSAL NON-RESPONSIVE AND INELIGIBLE FOR CONSIDERATION BY THE CITY

Date: \_\_\_\_\_

**TO: City of Hendersonville  
North Carolina**

Gentlemen:

The undersigned Bidder, having examined carefully the site, the Invitation to Bid, Instructions to Bidders, Construction Drawings and specifications, the form Construction Agreement, Supplementary General Conditions, other Supplementary Documents (if any) and subsequent Addenda (as acknowledged herein) for the **2021 425 4th Ave. W. Stormwater Improvements for the City of Hendersonville, NC**, hereby proposes to furnish all labor, materials, equipment and services necessary to perform the work required in the aforementioned documents for the Base Bid stated below, based upon the quantities specified in the Bid Schedule below.

Base Bid: \_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

It is understood that the actual contract amount will be based upon the actual quantities used.

Bid Schedule:

<b>425 4th Ave. W. Stormwater Improvements</b>					
BID ITEM	UNIT	QTY		UNIT COST	EXTENDED COST
Mobilization and Construction staking	LS	N/A			
Demo and disposal of existing headwalls, pipe, and debris	LS	N/A			
Remove and replace existing fencing	LF	100			
Install 48" HDPE Pipe	LF	40			
Install 48" Headwall	EA	1			
Raise and install stormwater inlet	EA	1			

Tie-into existing upstream stormwater structure	EA	1			
Repair/Replace asphalt	LS	N/A			
Install grassed swale w/ stone check dams	LF	40			
Rip Rap Allowance	TON	36			
Suitable backfill allowance	TON	90			
Seed and straw backfill area	LS	N/A			

The unit prices stated include profit and overhead and represent the entire unit price for the work stated.

The undersigned further agrees that this Bid Proposal shall be valid for a period of sixty (60) days from the date of receipt of the Bid Proposal and that if this Bid Proposal is accepted by the City within this period, the Bidder will execute the Construction Agreement provided as part of the Contract Documents.

The undersigned further agrees to begin the work promptly upon receipt of the Notice to Proceed and to pursue the work with an adequate work force to complete the work no later than July 31, 2021.

The undersigned Bidder further proposes and agrees to commence the work promptly upon notice, with an adequate force to satisfactorily complete the Project.

The undersigned acknowledges receipt of the following addenda which will be considered as part of the Contract Documents.

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_  
(Company)

Contractor  is or  is not a historically underutilized business, registered with the North Carolina Office of Historically Underutilized Businesses. (Must be completed by all Bidders.)

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

BY: \_\_\_\_\_  
(Signature) (Typed Name)

TITLE: \_\_\_\_\_

NC General Contractor's License No. \_\_\_\_\_

NC State Sales and Use Tax Registration \_\_\_\_\_

- Non-collusion Affidavit has been completed and is attached to this Bid Proposal Form (Required)  
(Note: Inclusion of the non-collusion affidavit is mandatory. A bid will be rejected as non-responsive if not included in the bid submission.)

Select One (One or the other must be chosen by the Bidder):

- Substitution Listing (if substitutions are being proposed) is attached to this Bid Proposal Form.  
(Note: Failure to include the Substitution Listing with this Bid Proposal will render the substitutions ineligible for consideration by the City.) OR
- Substitution Listing is not attached to this Bid Proposal Form (No substitutions are proposed.)





**NON-COLLUSION AFFIDAVIT**

I, on behalf of the Bidder, being first duly sworn or affirmed, do hereby represent on behalf of the Bidder that the Bid Proposal submitted was made without collusion or fraud and that neither I, nor anyone else affiliated with the Bidder to my knowledge, have offered or received any kickbacks or inducements from any other supplier, manufacturer or subcontractor in connection with their Bid Proposal, and neither I, nor anyone else affiliated with the Bidder to my knowledge, have conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

This the \_\_\_\_ day of \_\_\_\_\_, 2019.

BIDDER: \_\_\_\_\_ [Name of Bidder]

By: \_\_\_\_\_

Signature

Print Name:

Print Title:

State of \_\_\_\_\_

County of \_\_\_\_\_

Sworn to or subscribed before me this the \_\_\_\_ day of \_\_\_\_\_, 2019.

(Official Seal)

\_\_\_\_\_  
Notary Public

Print Name: \_\_\_\_\_



### SUBSTITUTION LISTING

TO: City of Hendersonville, North Carolina  
Hereinafter called "Owner"

1. A Bidder requesting a substitution must submit this form to the Project Civil Engineer at least three (3) days prior to the time stated for Bid Opening.
2. Pursuant to bidding requirements for the Work titled:

**[NAME OF PROJECT]**

The Contract Sum proposed by the under signed on the Bid Proposal form is for the Work as shown on the Drawings, and otherwise defined in the Contract Documents. However, the undersigned proposes the following substitutions for the Owner's consideration. Should the Owner accept any or all of the proposed substitutions, the Bidder's proposed contract sum will be reduced by the amount shown.

3. Specified Product Or Material	Drawing Number	Proposed Substitution	Proposed Reduction In Contract Sum
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

PROVIDE SIGNATURE  
IDENTICAL TO THAT  
SHOWN ON THE BID FORM

BIDDER: \_\_\_\_\_ [print name of bidder]

By \_\_\_\_\_  
Signature  
Printed Name and Title: \_\_\_\_\_

END OF SUBSTITUTION LISTING



160 6<sup>th</sup> Avenue East  
Hendersonville, NC 28792  
(704) 875-6541

## CONSTRUCTION CONTRACT

**CONTRACTOR:**

**PROJECT:**

**PROJECT**

**ADDRESS:**

**Hendersonville, NC**

**PROJECT CIVIL ENGINEER:** [Firm Name]  
Firm Address  
City, State Zip  
xxx-xxx-xxxx  
Attn: [Engineers's Rep]

**PROJECT ARCHITECT:** [Firm Name]  
Firm Address  
City, State Zip  
xxx-xxx-xxxx  
Attn: Architect Rep

This Construction Contract, and all exhibits, (collectively this "Contract") is entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ by and between, the City of Hendersonville, a municipal corporation of the State of North Carolina, (the "City") and, \_\_\_\_\_ (the "Contractor") having an address of \_\_\_\_\_.

WITNESSETH:

That for and in consideration of the mutual promises set forth in this Contract, the sufficiency of which is acknowledged by the parties hereto, the parties agree as follows:

1. Scope of Services. The Contractor agrees to provide the professional construction services needed to complete the Project in accordance with the Project Drawings and Specifications and the Contract Documents for the price stated in the Contractors Proposal Form, plus or minus the substitutions listed on the Substitution Listing which are accepted by the City.
2. Contract Documents. The Contract Documents consist of, in addition to this Contract, the Invitation to Bid, Instructions to Bidders, Bid Proposal Form, Non-collusion Affidavit, Substitution Listing, all Addenda issued, the Contract Drawings, and the General Conditions of the Construction Contract, and the Supplementary General Conditions, all of the foregoing being incorporated herein by reference as if fully set forth herein, and all parties agree to be bound thereby.
3. Time for Performance of the Work. The Work shall be completed no later than July 31, 2021.
4. Payment for Services. For the performance of the Work Contractor shall be paid the hereby proposes to furnish all labor, materials, equipment and services necessary to perform the work required in the aforementioned documents.

Contract Sum (Estimated): \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) It is understood and agreed that the Estimated Contract Sum is based upon the upon the quantities specified in the Pricing Schedule below. **The actual Contract Sum paid will be based upon the actual quantities used in the performance of the work.**

Pricing Schedule:

<b>425 4th Ave. W. Stormwater Improvements</b>					
BID ITEM	UNIT	QTY		UNIT COST	EXTENDED COST
Mobilization and Construction staking	LS	N/A			
Demo and disposal of existing headwalls, pipe, and debris	LS	N/A			
Remove and replace existing fencing	LF	100			
Install 48" HDPE Pipe	LF	40			
Install 48" Headwall	EA	1			
Raise and install stormwater inlet	EA	1			
Tie-into existing upstream stormwater structure	EA	1			
Repair/Replace asphalt	LS	N/A			
Install grassed swale w/ stone check dams	LF	40			
Rip Rap Allowance	TON	36			
Suitable backfill allowance	TON	90			
Seed and straw backfill area	LS	N/A			

It is understood and agreed that the unit prices stated above include profit and overhead, and represent the entire unit price amount for the work stated.

All work shall be performed in accordance with the terms and conditions provided in the General Conditions of the Construction Contract.

In witness thereof, the contracting parties, by their authorized agents, affix their signatures this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

**CONTRACTOR**

BY: \_\_\_\_\_  
 Print Name:  
 Print Title:

**CITY OF HENDERSONVILLE**

BY: \_\_\_\_\_  
 Print Name:  
 Print Title:

This instrument has been pre-audited in that manner required by the North Carolina Budget and Fiscal Control Act.

\_\_\_\_\_  
 John Buchanan, Finance Director

## GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

### 1. DEFINITIONS

Owner: "Owner" shall mean, The State of North Carolina through (name of agency)

Contractor: "Contractor" shall mean the entity that will provide the services for the Owner.

Designer: The designer(s) are those referred to within the Contract documents, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer responsible for preparing the Project plans and specifications. They will be referred to hereinafter as if each were of the singular number, masculine gender.

### 2. Scope of Services. The Contractor agrees to perform for the City the following services according to the following requirements:

The Contractor agrees to complete the construction of the Project in accordance with the Contract Documents. Such construction of the Project shall constitute the "Work." The Contractor agrees to provide all of the personnel, contract personnel, subcontractors, financial resources, materials, supplies, and equipment necessary to complete the Work in a timely and professional manner in accordance with the standards of the profession for similar work in the Mecklenburg County area at the time of the performance of the Work.

### 3. Contract Documents. The Contract Documents consist of the Invitation to Bid, Instructions to Bidders, Bid Proposal Form, Non-collusion Affidavit, Substitution Listing, all Addenda issued, the Contract Drawings, the City's Standard Form Contract, and the General Conditions of the Construction Contract. The drawings and specifications are complementary, one to the other. That which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a complete job. In case of discrepancy or disagreement in the Contract Documents, the order of precedence shall be the Construction Contract, the Bid Proposal Form, the Substitution Listing (only those items accepted by the City), Addenda, the Contract Drawings, the Instructions to Bidders, the General Conditions of the Contract, the Invitation to Bid, and the Non-collusion Affidavit.

### 4. Licensure Required. The Contractor must be a licensed General Contractor as required by North Carolina General Statutes Section 87-1, and must have a good ethical and professional standing with the North Carolina General Contractor's Licensing Board. The Contractor will be responsible for providing properly qualified, licensed (if required) personnel to complete the Work in accordance with the standard of care ordinarily used by members of the Contractor's profession practicing under similar circumstances and at the same time in Mecklenburg County.

### 5. Coordination With Others. The Contractor agrees to coordinate its Work with the work of any other unaffiliated contractors or with the work of the City's own forces to avoid delaying or interfering with their work.

### 6. Contract Insurance. Contractor shall be required to purchase and maintain during its performance under this Contract insurance coverage as shown on the Insurance Requirements as stated in Exhibit A, which is incorporated herein by reference. With the exception of Worker's Compensation and Professional Liability policies, all insurance purchased shall have a specific endorsement, copy of which shall be provided to the City, naming the City as an additional insured and for all insurance purchased, an endorsement providing that such insurance will not be cancelled without providing thirty (30) days advance written notice to the City.

### 7. Time for Performance of the Work. The Work will begin within ten (10) days of receipt of the Notice to Proceed from the City. The Contractor will have until July 31, 2021 to complete the Work.

### 8. Payment for Services. In consideration of the above services, the City will pay the Contractor, in accordance with the Contractor's, plus reimbursable expenses at the Contractor's actual cost (without markup). Contractor will submit monthly Requests for Payment for Work performed to the Project Engineer who will forward them to the Project Architect for Review. The Request for payment shall be based upon the Contractor's estimate of the percentage of the total Work completed during the period represented on the Request for Payment. The Project Architect must certify that the Work represented in the Contractor's Request for Payment has been completed in accordance with the Contract Documents, and certify that the Request for Payment is appropriate for payment before the City shall be obligated to make such payment to the Contractor. If any Request for Payment is disputed by the City, in whole or in part, the City shall provide a written explanation for such dispute to Contractor within five days of receipt of the

certified Request for Payment from the Architect and shall pay all undisputed amounts therein.

- a. The designer with the approval of the Owner may withhold payment for the following reasons:
  - (1) Faulty work not corrected.
  - (2) The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.
  - (3) To provide for sufficient contract balance to cover liquidated damages that will be assessed.
  - (4) The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:
    - (5) Claims filed against the Contractor or evidence that a claim will be filed.
    - (6) Evidence that subcontractors have not been paid.
    - (7) When grounds for withholding payments have been removed, payment will be released. Delay of payment due the Contractor without cause will make owner liable for payment of interest to the Contractor as provided in G.S. 143 134.1. As provided in G.S. 143-134.1(e), the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the owner or reasonable evidence that a third-party claim will be filed.
- b. Final payment will be made within forty-five (45) consecutive days after acceptance of the work, receipt of marked-up "as-built" drawings and specifications and the submission both of notarized Contractor's affidavit and final pay request. All pay requests shall be submitted to the Designer/Owner for approval.

THE CONTRACTOR'S FINAL PAYMENT AFFIDAVIT SHALL STATE: "THIS IS TO CERTIFY THAT ALL COSTS OF MATERIALS, EQUIPMENT, LABOR, SUBCONTRACTED WORK, AND ALL ELSE ENTERING INTO THE ACCOMPLISHMENT OF THIS CONTRACT, INCLUDING PAYROLLS, HAVE BEEN PAID IN FULL."

9. Acceptance. Execution of the Contract constitutes an agreement to the terms contained within the Contract Documents. The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and the City with respect to the performance of the Work as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." Except as provided herein, no additional or supplemental provision or provisions in variance with the Contract Documents that may appear in Contractor's proposal, acknowledgment, Requests for Payment, or in any other communication from Contractor to the City shall be deemed accepted by or binding on the City. The City hereby expressly rejects all such provisions which supplement, modify or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until the City's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by the City are subject to correction.
10. Working Drawings And Specifications At The Job Site. The Contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer or his authorized representative. The Contractor shall also maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on Project drawings by the Contractor and submitted to the designer upon Project completion and no later than 30 days after acceptance of the Project.
11. Materials, Equipment, Employees. The Contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.
  - a. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.
  - b. Upon notice, the Contractor shall furnish evidence as to quality of materials.

- c. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the Contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; the designer prior to the opening of bids shall make such approval or disapproval. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.
  - d. The designer is the judge of equality for proposed substitution of products, materials or equipment.
  - e. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the Contractor shall order such parties removed immediately from grounds.
  - f. The Contractor shall cooperate with the designer and the owner in coordinating construction activities.
  - g. The Contractor shall maintain qualified personnel and effective supervision at the site at all times during the Project, and exercise the appropriate quality control program to ensure compliance with the Project drawings and specifications. The designer is responsible for determining compliance with the drawings and specifications.
12. Cleaning Up And Restoration Of Site. The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the Project, the Contractor shall thoroughly clean the sites, and completely prepare the Project and site for use by the Owner. At the end of construction, the Contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs and other elements shall be repaired, cleaned or otherwise restored to their original state.
13. Codes, Permits And Inspections. The Contractor shall obtain the required permits, if required, give all notices, and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the Designer in writing. All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the Owner, he shall bear all cost arising there from.
- All fire alarm work shall be in accordance with the latest State Construction Office (SCO) Guidelines for Fire Alarm Installation (NFPA72). Where the contract documents are in conflict with the SCO guidelines, the SCO guidelines shall govern. The Contractor shall be responsible for all the costs for the correction of the work where he installs it in conflict with the latest edition of the SCO Guidelines for Fire Alarm Installation..
14. Protection Of Work, Property, The Public And Safety. The Contractor shall be solely responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. The Contractor shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. The Contractor shall be responsible for and pay for any damages caused to the owner. Contractor shall have access to the Project at all times.
- a. The Contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.
  - b. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.
  - c. The Contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around it. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

- d. The Contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. Accident Prevention Manual in Construction, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.
- e. The Contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, Federal Register), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.
- f. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the Contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage. Any compensation claimed by the Contractor on account of such action shall be determined as provided for under Article 13(b).

Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the Contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

- 15. As-Built Marked-Up Construction Documents. Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.
- 16. Entire Agreement. The Contract Documents constitute and represent the complete and entire agreement between the City and Contractor and supersede all previous communications, either written or verbal with respect to the subject matter of this Contract.
- 17. Changes, Additions, Deletions. No changes, additions, deletions or modifications (other than substitutions accepted by the City at the time the contract is awarded) of the scope of work, specifications, terms and conditions, quantity, unit of issue, delivery date, delivery charges or price will be permitted unless the same are incorporated into a written Change Order, signed by the City and the Contractor. However, the Contractor will not be liable for delays caused by circumstances beyond its control including without limitation, delays caused by acts of God, the City or its other consultants/contractors, federal, state, and local government authorities, strikes, riots, civil unrest, war, or unknown or concealed conditions, and if such delays occur, the Contractor will be entitled to an equitable adjustment in the time for the performance of the Work and compensation.
- 18. Change Orders. Change orders shall be submitted by the Contractor in writing to the owner/designer for review and approval. The Contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the Contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within five (5) days after receipt of the Contractor's accepted proposal including all supporting documentation required by the designer, the designer shall prepare the change order and forward to the Contractor for his signature or otherwise respond, in writing, to the Contractor's proposal. Within five (5) days after receipt of the change order executed by the Contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order, within five (5) days of receipt.
  - a. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the Project as a result of the change in the work.
  - b. If, during the progress of the work, the owner requests a change order and the Contractor's terms are unacceptable, the owner may require the Contractor to perform such work on a time and material basis whereupon the Contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.



19. Relationship of the Parties. The Contractor is an independent Contractor and not an affiliate of the City. The conduct and control of the work will lie solely with the Contractor. The Contract shall not be construed as establishing a joint venture, partnership or any principal-agent relationship for any purpose between the Contractor and the City. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.
20. Sales Taxes. Any applicable sales taxes shall be invoiced as a separate item.
21. Substitutions. Substitutions proposed by the Contractor on the Substitution Listing Form, submitted with the Contractor's Bid Proposal, which are accepted by the City shall be considered a modification to the Contract Documents. No other substitutions shall be made by the Contractor unless the same is put into a Change Order, signed by the Owner and Contractor.
22. Indemnification. To the greatest extent allowed by the law the Contractor shall indemnify and hold harmless the City, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses, attorneys' fees ("Claims"), but only to the extent the fault of the Consultant or its derivative parties (as defined in N.C.G.S §22B-1) is a proximate cause of the Claim. In the event that any portion of the Work performed under the Contract shall be defective in any respect whatsoever, the Contractor shall indemnify and save harmless the City, its officers, agents, employees and assigns from all loss or the payment of all sums of money, but only to the extent the fault of the Consultant or its derivative parties (as defined in N.C.G.S §22B-1) is a proximate cause of the Claim.
23. Anti-Discrimination. During the performance of the Contract, the Contractor shall not discriminate against or deny the Contract's benefits to any person on the basis of sexual orientation, national origin, race, ethnic background, color, religion, gender, age or disability.
24. Insurance. The Contractor shall provide the insurance coverages shown on Exhibit A, attached hereto and incorporated herein by reference. The Contractor shall provide the City with a North Carolina Certificate of Insurance and such endorsements as may be required by the Contract Documents PRIOR to the commencement of any work under the Contract and agrees to maintain such insurance until the completion of the Contract. Such certificates of insurance shall be considered part of the Contract.
25. Ethics in Public Contracting. By submitting their prices and acceptance of this Contract, the Contractor certifies that their proposal was made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other supplier, manufacturer or subcontractor in connection with their proposal, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
26. Applicable Laws and Courts. This Contract shall be governed in all respects by the laws of the State of North Carolina. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation and enforcement of the Contract, shall be governed in all respects by the laws of the State of North Carolina and venue shall be proper only in a court of competent jurisdiction located in Mecklenburg County, North Carolina. The Contractor represents and warrants that it shall comply with all applicable federal, state and local laws, regulations and orders.
27. Strict Compliance. The City may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
28. Assignment. The Contractor shall not assign, subcontract or otherwise transfer any interest in the Contract without the prior written approval of the City.
29. General Provisions. The City's remedies as set forth herein are not exclusive. Any delay or omission by the City in exercising any right hereunder, or any waiver by the City of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default.
30. Risk of Loss. Risk of Loss for all supplies, materials, the Work performed, and the Project as it is being constructed, shall be on the Contractor until such time as substantial completion is achieved, certified by the Architect, and approved by the City.
31. Warranties. The Contractor warrants it shall adhere to all applicable laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the City of Hendersonville in the performance of the Work outlined in this Contract and any attached specifications. The Contractor warrants that any finished Work completed hereunder shall also adhere to all applicable laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the City of Hendersonville. The Contractor warrants that all Work will be performed in accordance with this Contract and the standard of care ordinarily used by members of the Contractor's engineering profession practicing

under similar circumstances and at the same time in Mecklenburg County. The Contractor makes no additional warranties, express or implied, in connection with the Work. In addition to any other rights available at law or in equity, the City shall be entitled to consequential and incidental damages.

32. Default. In the event of a breach by the Contractor, addition to any other remedies available to the City in law or equity, the City may procure upon such terms as the City shall deem appropriate, construction services substantially similar to those so terminated, in which case the Contractor shall be liable to the City for any excess costs for such similar services and any expenses incurred in connection therewith. This Contract shall not terminate if the alleged default is cured within a ten (10) day notice period. In the event this Contract is terminated by the City for the default of the Contractor, the City shall be entitled to keep and use Work, including materials and supplies on site provided by the Contractor in finishing the construction of the Project.
33. Termination for Convenience. The City shall have the right, without assigning any reason therefore, to terminate any Work under the Contract, in whole or in part, at any time at its complete discretion by providing ten (10) day notice in writing from the City to the Contractor. If the Contract is terminated by the City in accordance with this paragraph, the Contractor will be paid for all Work performed and reimbursable expenses incurred up to the effective date of the termination. The City will not be liable to the Contractor for any costs for materials acquired or contracted for, if such costs were incurred prior to the date of this Contract.
34. Assignment. Contractor may not assign, pledge, or in any manner encumber the Contractor's rights under this Contract, or delegate the performance of any of its obligations hereunder, without the City's prior, express written consent. Hiring a subcontractor to perform any portion of the Work shall be at the Contractor's discretion; however Contractor shall remain liable and responsible to the City for all such Work completed by subcontractors.
35. No Third Party Beneficiaries. There shall be no intended nor incidental third party beneficiaries of this Contract. The Contractor shall include in all contracts, subcontracts or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third party beneficiaries.
36. Valid Contract. In order for this Contract to be valid, it must be executed by the City Manager or his or her authorized designee, and must be preaudited in that manner required by the Local Government Budget and Fiscal Control Act, as the same may be amended.
37. Verification of Work Authorization. The Contractor shall comply with, and require all contractors and subcontractors to comply with, the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, "Verification of Work Authorization," sometimes known as E-verify for all contractors and subcontractors.
38. Iran Divestment List. With the execution hereof, Contractor, certifies that they are not on the Iran Final Divestment List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.58, and will not contract with anyone on such List in performance of the work hereunder.
39. Severability. If any provision of this Contract is found to be invalid or unlawful, then remainder of this Agreement shall not be affected thereby, and each remaining provision shall be valid and enforced to the fullest extent permitted by law.
40. Dispute Resolution. As a precondition for filing a lawsuit related to a dispute under this Agreement, a party must comply with the City of Hendersonville Rules Implementing Mediated Settlement Conferences for City of Hendersonville Construction Projects, the "Dispute Resolution Procedure."

EXHIBIT A

MINIMUM INSURANCE REQUIREMENTS

The Work under this Contract shall not commence until the Firm has obtained all required insurance and verifying certificates of insurance have been approved in writing by the City. The City shall be named as additional insured on all policies, except Worker's Compensation and Professional Liability policies. These certificates shall document that coverages afforded under the policies will not be cancelled until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the City of such cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. Worker's Compensation and Employer's Liability

The Firm shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$100,000.

b. Comprehensive General Liability Insurance

The Firm shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the Firm or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury: \$1,000,000 per occurrence / \$2,000,000 aggregate

Property Damage: \$100,000 per occurrence / \$300,000 aggregate

Or,

Bodily Injury and Property Damage, combined single limit (CSL): \$1,000,000 per occurrence / \$2,000,000 aggregate

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the Work performed under the contract.

c. Deductible

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the Firm.

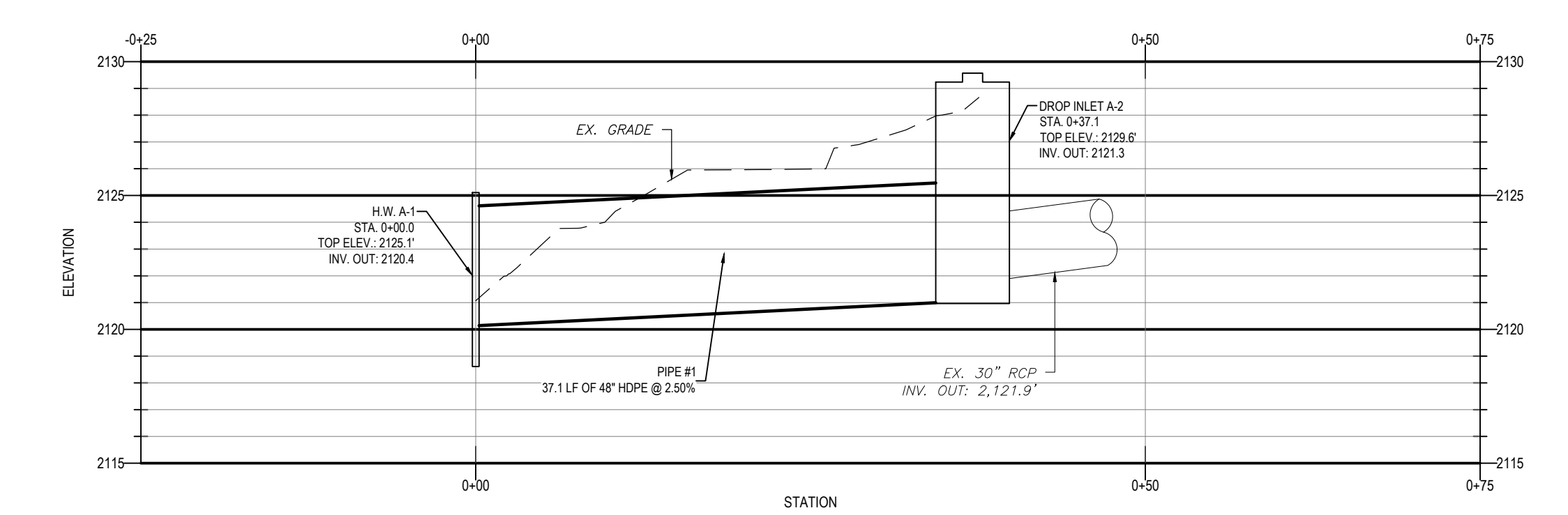
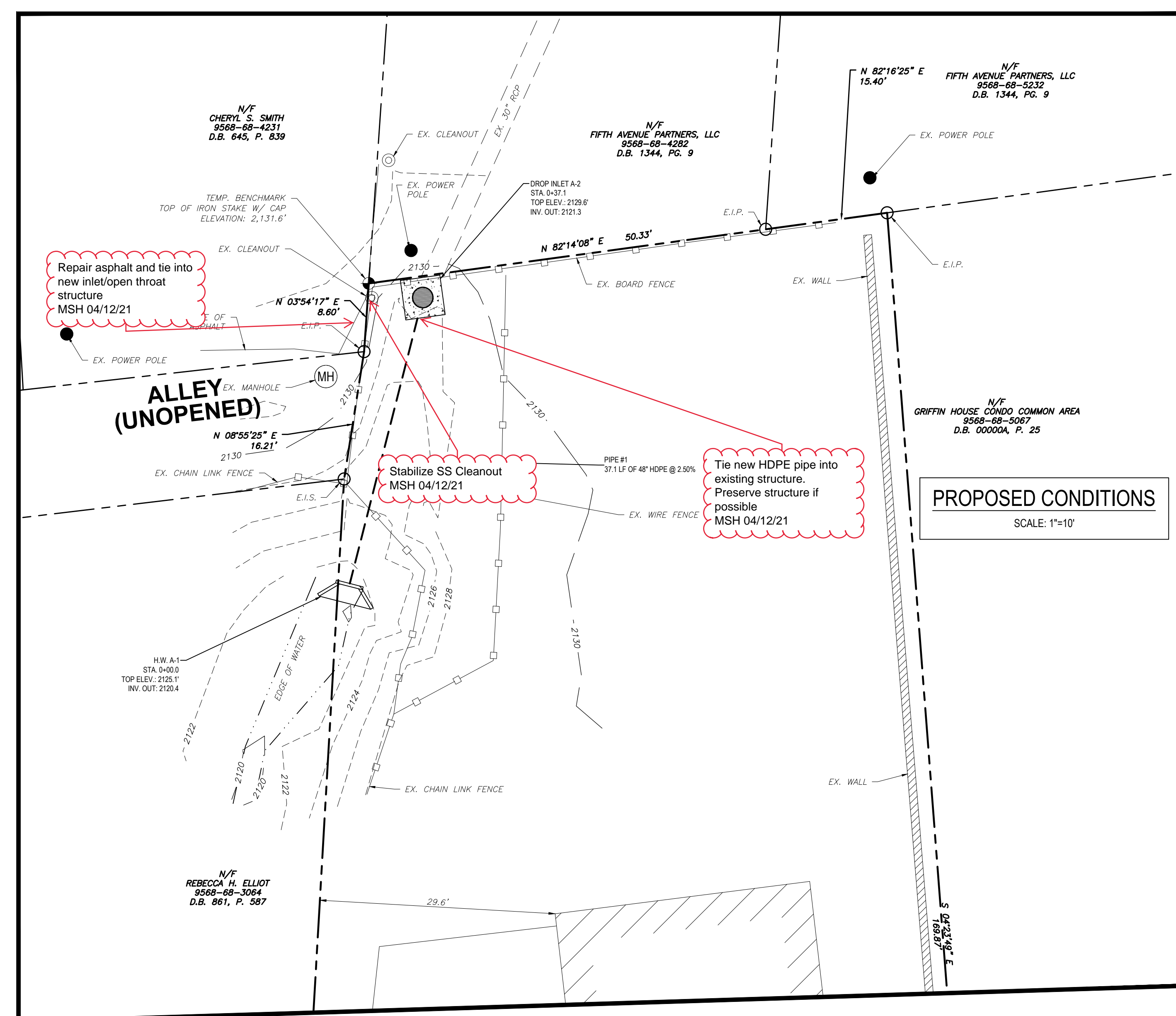
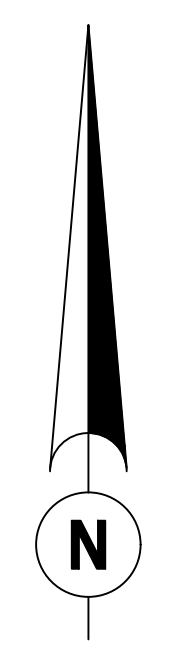
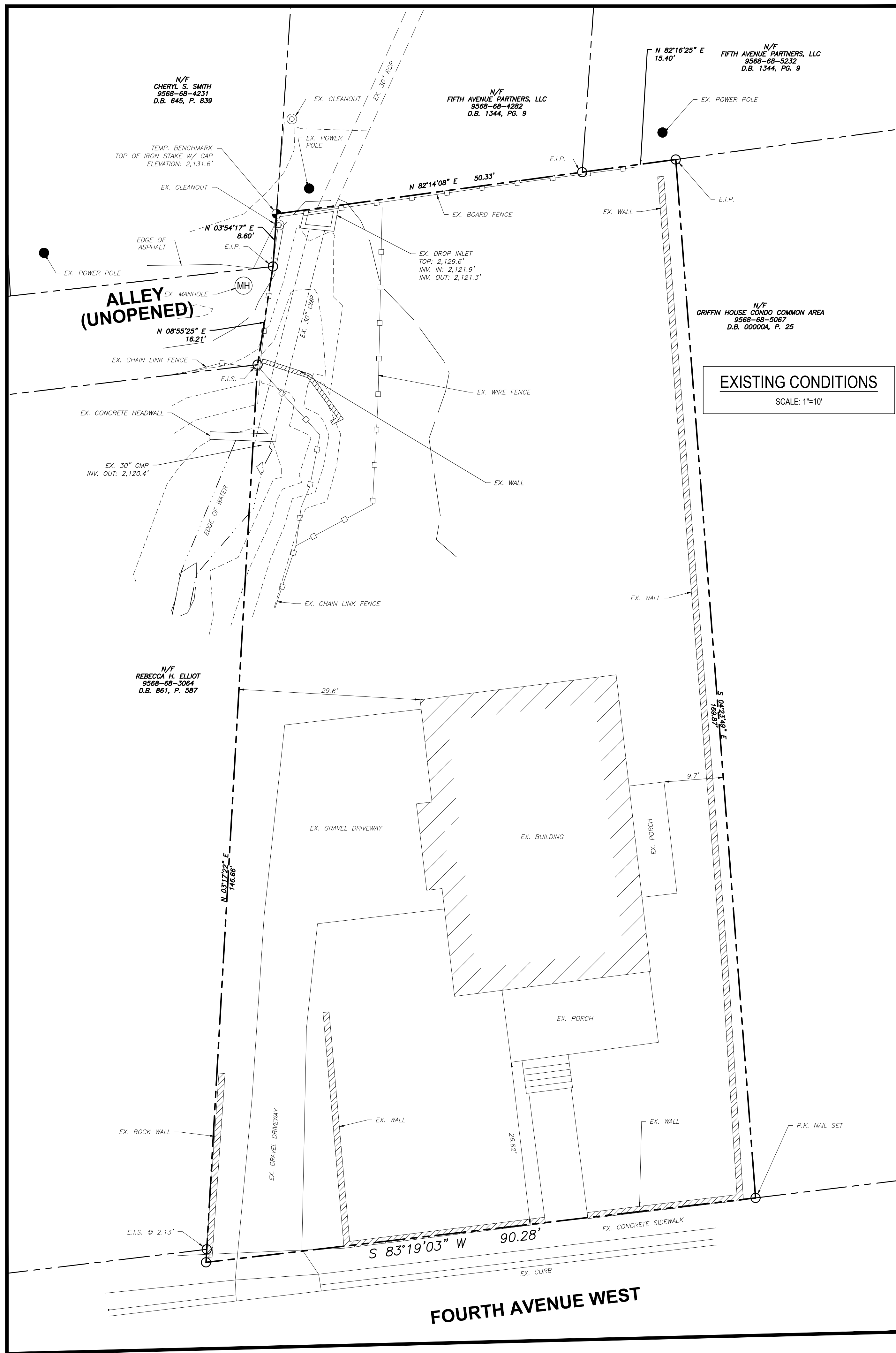
d. Other Insurance

The Firm shall obtain such additional insurance as may be required by the City or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

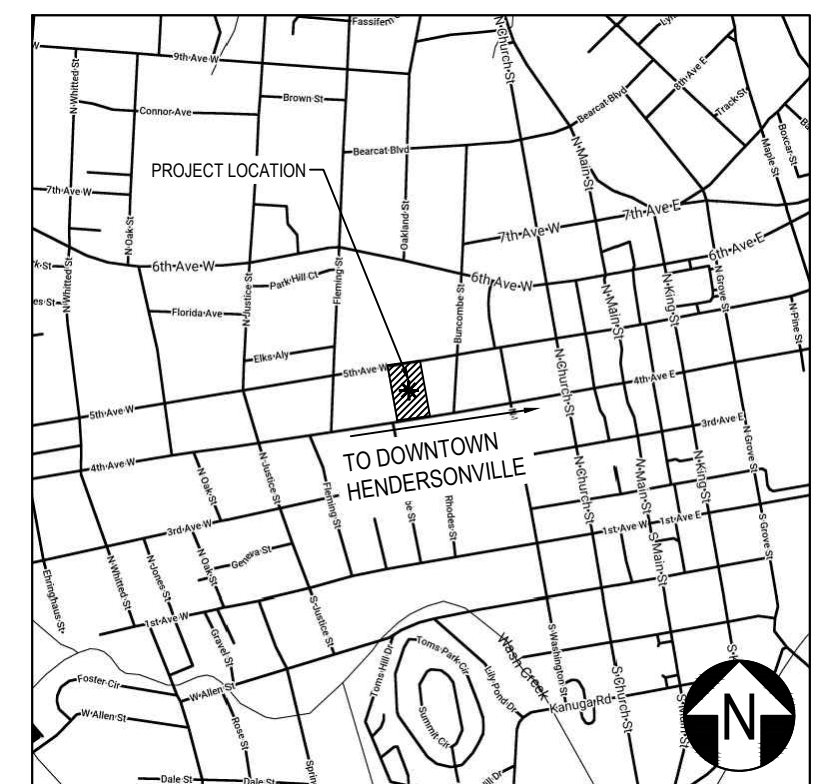
e. Proof of Carriage

The Firm shall furnish the City with satisfactory proof of carriage of the insurance required before written approval is granted by the City





**STORM 'A' PROFILE VIEW**  
 H. SCALE: 1"=10'  
 V. SCALE: 1"=5'



**LOCATION MAP**  
 NOT TO SCALE

- PROJECT NOTES:**
- OWNER:**  
 Ed McClasin  
 Street Address  
 City, NC Zip  
 1-000-000-0000
- ENGINEER:**  
 High Country Engineering, PC (C-3347)  
 111 E. Chestnut Street  
 Asheville, North Carolina 28801  
 T: 828-230-4511  
 Contact: Michael R. Golph, PE  
 Email: mgolph@hcepc.com
- Property located in Henderson County, North Carolina. Property address is 425 4th Avenue West, Hendersonville, NC 28739.
  - PIN NUMBER: 9568-68-4086
  - Zoning: High Density Residential (R-6) by City of Hendersonville.
  - Deed Book: 1244 and Page 387.
  - Project Coordinates: 35.316175° N, 82.465065° W
  - The receiving water course for this project is an unnamed tributary to Wash Creek. At the confluence, Wash Creek, Stream Index 6-55-7, is a Class B water as classified by NCDEQ.
  - Total tract contains over ±0.30 acres/undisturbed area= ±x.xx acres. Total new impervious area = ±x.xx acres (±x.xx%).
  - Boundary & Topographical information obtained from survey by xxxxxxxxxxxx, PLS # L-xxxx of Llaughter, Austin and Associates, P.A. and dated May 12th, 2020.
  - Contour interval is 2 feet.
  - This property is shown on F.I.R.M. parcel number 3700956800, dated October 2, 2008 and is not located within a special flood hazard zone "X" or "AE".
  - The location of underground utilities shown is approximate based on surface field evidence and information supplied by utility agencies. The survey makes no certification as to the completeness of the locations shown hereon. Appropriate utility companies should be contacted for verification of locations prior to any construction activity.
  - The contractor shall verify the invert elevations of all existing storm and sanitary sewer structures prior to commencement of storm and sanitary sewer construction.
  - Contractor shall notify the engineer and owner/developer of any information found in the field that is different from what is shown on these design plans.

**HIGH COUNTRY ENGINEERING, P.C.**  
 111 E. CHESTNUT STREET  
 ASHEVILLE, NORTH CAROLINA 28801  
 T: 828.230.4511  
 F: 828.348.5040

**PRELIMINARY**  
**NOT FOR CONSTRUCTION**

CONSTRUCTION PLANS FOR  
**425 4TH AVENUE**  
**STORMWATER IMPROVEMENTS**  
 for  
**ED MCCLASLIN**  
 City of Hendersonville  
 Henderson County, North Carolina

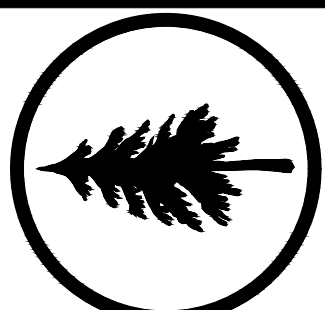
DATE	DESCRIPTION
7/2/2020	Issue 1 - Submitted to Client for Review

**PROJECT NAME:**  
**425 4TH AVE.**  
**STORMWATER IMPROVEMENTS**  
 City of Hendersonville  
 Henderson County, NC

**SHEET TITLE:**  
**STORMWATER PLAN & PROFILE**

PROJECT NO. **EDM001** SHEET NO. **C-1**  
 DATE: **7/2/2020** of **2**  
 ISSUE No. A-1

NC FIRM NO.: C-3347



HIGH COUNTRY ENGINEERING, P.C.  
111 E. CHESTNUT STREET  
ASHEVILLE, NORTH CAROLINA 28801  
T: 828.230.4511  
F: 828.348.5040

NC FIRM NO.: C-3347



CONSTRUCTION PLANS FOR  
**425 4TH AVENUE**  
STORMWATER IMPROVEMENTS  
for  
**ED MCCLASLIN**  
City of Hendersonville  
Henderson County, North Carolina

**DEFINITION**  
RIPRAP CHANNEL SECTION PLACED BELOW STORM DRAIN OUTLETS.

**PURPOSE**  
REDUCE EROSION OF RECEIVING CHANNELS AND STABILIZE GRADES.

**INSTALLATION**  
INSTALL ACCORDING TO APPROVED PLAN.  
PLACE A FILTER BLANKET OR FILTER FABRIC BETWEEN RIPRAP AND SOIL FOUNDATION.  
INSTALL A GRADED GRAVEL LAYER OR SYNTHETIC FILTER CLOTH LINE WITH RIPRAP. GROUTED RIPRAP OR CONCRETE. USE FIELD QUARRY STONE WITH MINIMUM DIAMETER OF 6 INCHES FOR RIPRAP. MINIMUM APRON THICKNESS SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.  
EXTEND APRON LENGTH TO AT LEAST SIX TIMES THE OUTLET PIPE DIAMETER.

**APRON WIDTH FOR A WELL-DEFINED CHANNEL**  
SIDE SLOPES OF THE CHANNEL NO STEEPER THAN 2:1.  
APRON EXTENDS ACROSS THE CHANNEL BOTTOM.  
APRON EXTENDS UP THE CHANNEL BANKS TO AN ELEVATION OF 6 INCHES ABOVE THE MAXIMUM TALL WATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.

**APRON WIDTH FOR A FLAT AREA**  
UPSTREAM WIDTH THREE TIMES THE DIAMETER OF THE OUTLET PIPE.  
DOWNSTREAM WIDTH THREE TIMES THE DIAMETER OF THE OUTLET PIPE PLUS THE LENGTH OF THE APRON.  
CONSTRUCT APRON AT ZERO GRADE WITH NO OVERALL AT THE END. CONFORM TO BOTTOM GRADE OF RECEIVING CHANNEL.  
LOCATE TO PREVENT BENDS IN HORIZONTAL ALIGNMENT.  
VEGETATE ALL DISTURBED AREAS IMMEDIATELY.

**MAINTENANCE**  
INSPECT AFTER HEAVY RAINS FOR EROSION AND DISLOADED STONES.  
MAKE ALL REPAIRS IMMEDIATELY.

**NOTES**  
- L<sub>a</sub> IS THE LENGTH OF THE RIPRAP APRON.  
- T IS 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".  
- A FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

OUTLET PROTECTION DIMENSIONS						
D	3D	L <sub>a</sub>	W	25D	T	
12"	3'	8'	7'	0.5'	0.75'	
18"	4.5'	9'	10.5'	0.5'	0.75'	
24"	6'	12'	14'	1.0'	1.0'	
30"	9'	18'	21'	1.5'	2.0'	
48"	12'	24'	24'	2.0'	3.0'	

\* OUTLET PROTECTION DIMENSIONS WERE CALCULATED BY MAKING CONSERVATIVE ESTIMATES OF THE NCDENR EROSION & SEDIMENT CONTROL, PLANNING & DESIGNING MANUAL, SECTION 6.06, PAGES 3 & 4.

**STORM DRAIN OUTLET PROTECTION**  
NOT TO SCALE

**TYPE II BEDDING**

SHEETING WHEN REED  
CAREFULLY TAMPED BACKFILL OF SELECT EARTH MATERIAL.  
BACKFILL

12" O.D.

#57 WASHED STONE

**TYPE IV BEDDING**

SHEETING WHEN REED  
CAREFULLY TAMPED BACKFILL OF SELECT EARTH MATERIAL.  
BACKFILL

12" O.D.

#57 WASHED STONE

MIN. 6" THICK, 8" THICK IN ROCK

**STORM DRAIN PIPE BEDDING**  
NOT TO SCALE

**PRE-CAST HEADWALL**  
NOT TO SCALE

2:1 SLOPE

PLAN VIEW

SECTION VIEW

COMPACTED SUBGRADE MIN. 95% STD. PROCTOR

**NOTES:**  
1. ALL CONCRETE TO BE 4,000 PSI  
2. CHAMFER ALL EXPOSED EDGES 3/4"  
3. PROVIDE SHOP DRAWING OF REINFORCING STEEL

TABLE OF DIMENSIONS										
VARIABLE DIMENSIONS (METAL OR HDPE PIPE)										
CU. YDS. CONC. DIA. PIPE	A	B	C	D	E	F	G	WT.	AREA	BASE
38	18"	3'-2"	2'-3"	3'-2"	1'-9"	1'-5"	4'-10"	1'-8"	1543	7.34
44	21"	3'-5"	2'-9"	3'-6"	2'-0"	1'-5"	4'-10"	2'-0"	1778	8.32
50	24"	3'-8"	2'-7"	3'-8"	2'-3"	1'-7"	5'-2"	2'-3"	2128	9.90
70	30"	4'-2"	2'-11"	4'-2"	2'-9"	1'-11"	6'-5"	2'-8.5"	2834	13.5
91	36"	4'-8"	3'-3"	4'-8"	3'-3"	2'-3"	7'-8"	3'-2.25"	3678	17.65
1.05	48"	6'-0"	4'-0"	6'-0"	5'-6"	3'-4"	8'-8"	5'-2.25"	4882	20.22

**DROP INLET (D.I.)**  
NOT TO SCALE

TOP ELEVATION AS INDICATED ON PLANS

CONCRETE SLAB W/ CAST IRON MANHOLE FRAME & NEENAH R-604-A OR EQUAL

TYPICAL PEDESTAL (8"X8" BRICK & MORTAR) 8" DIA. CONCRETE CYLINDER, 4 EACH MORTARED IN

PRECAST RISER SECTION

MANHOLE STEPS

PRECAST MONOLITHIC BASE

GROUT INVERT OF BOX SLOPING TO INVERT OF PIPE TO PREVENT STANDING WATER

6" THICK BED OF #57 STONE EXTENDING 9" BEYOND MANHOLE BASE IN ALL DIRECTIONS

STEEL REINFORCEMENT 4x4 - W4.8/W4.0 WWF A<sub>s</sub> - @ 12.50 IN/FT

TONGUE AND GROOVE JOINT TO BE SEALED WITH ASPHALTIC MASTIC NON-SHRINK GROUT, OR O-RING GASKET CONFORMING TO ASTM C361

1. ALL PRECAST SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478.  
2. CONCRETE FOR PRECAST SECTIONS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.  
3. CLASS B CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.  
4. ALL MANHOLE STEPS SHALL CONFORM TO ASTM F738.  
5. ALL HOLES FOR PIPES SHALL BE CAST IN PLACE AT THE FACTORY OR CORED ON-SITE WITH A BORING MACHINE.  
6. ALL GROUT USED IN MANHOLE CONSTRUCTION SHALL BE NON-SHRINKING, TYPE M, MORTAR CONFORMING TO ASTM C270.

REVISION DESCRIPTION	DATE	#
Issue 1 - Submitted to Client for Review	7/2/2020	A

PROJECT NAME:  
**425 4TH AVE. STORMWATER IMPROVEMENTS**  
City of Hendersonville  
Henderson County, NC

SHEET TITLE:  
**DETAILS**

PROJECT NO. **EDM001** SHEET NO. **C-2**  
DATE: **7/2/2020** of **2**  
ISSUE No. **A-1**