NORTH CAROLINA UTILITIES COMMISSION – PIPELINE SAFETY SECTION

REPORT ON THE INVESTIGATION OF THE APRIL 2019 NATURAL GAS PIPELINE INCIDENT IN DURHAM, NORTH CAROLINA, PURSUANT TO NORTH CAROLINA GENERAL STATUTE § 62-50(B)

January __, 2021

State of North Carolina
Utilities Commission

COMMISSIONERS
Charlotte A. Mitchell, Chair
ToNola D. Brown-Bland — Kimberly W. Duffley
Lyons Gray — Jeffrey A. Hughes
Daniel G. Clodfelter — Floyd B. McKissick, Jr.

January __, 2021

The contents of this document constitute the report of the North Carolina Utilities Commission – Pipeline Safety Section on the natural gas pipeline incident that occurred on April 10, 2019, in Durham, North Carolina. This report reflects the findings made by Commission personnel in the Pipeline Safety Division after investigation into the incident with the cooperation of state and federal agencies, pursuant to N.C. Gen. Stat. § 62-50(b).

The report includes an introduction, summary of the incident, findings, and an explanation of the supporting documents included in the report. As further detailed in the report, the Pipeline Safety Section personnel reached the following findings based upon the information obtained during the investigation:

1) PSNC Energy (PSNC) appropriately responded to the incident and cooperated with the Commission personnel's investigation, including reporting as required pursuant to 49 CFR §191.9. PSNC's report is included as Appendix 1 to this report. PSNC satisfied all notification requirements in accordance with 49 CFR §191 and Commission Rule R6-41(b);

2) PSNC's underground facilities, including the service line, were accurately located and marked by PSNC's contractor (Southern Cross Inc.) prior to the work being started pursuant to N.C. Gen. Stat. § 87-121;

3) The probable cause of the natural gas incident at 115. N. Duke St. was the breach of a natural gas facility by a horizontal-directional, or "boring," device that was being used in the installation of fiber optic cable, which allowed natural gas to migrate to the interior of the building at 115 N. Duke St. where it was ignited resulting in an explosion;

4) There is sufficient evidence to conclude that the operator of the horizontal-direction or boring drilling device failed to comply with the requirements of N.C. Gen. Stat. § 87-122(c)(9) in the operation of the drilling device by (1) using mechanized equipment within the tolerance zone of the natural gas facility, and (2) by failing to visually identify the precise location of the natural gas facility prior to using mechanized equipment, and that this failure was a probable cause of the gas incident; and

5) There is sufficient evidence to conclude that the operator of the horizontal-direction or boring drilling device failed to comply with the requirements of N.C. Gen. Stat. § 87-126 by failing to immediately report the damage to the natural gas facility to the notification center (NC 811, Inc.), emergency services (911) and to PSNC.

The Commission's Pipeline Safety Section's investigation and reporting authority is limited to matters related to the enforcement and improvement of pipeline safety regulations. Therefore, this report is not intended to be a definitive determination of all relevant civil or criminal issues, nor does it address compliance with regulations enforced by other governmental agencies. The Commission takes seriously its role in continuously improving pipeline safety in North Carolina and will draw on the lessons learned from this incident in its future regulation of natural gas utilities and in the enforcement of the pipeline safety standards.

Introduction

This report is made pursuant to the authority assigned to the North Carolina Utilities Commission pursuant to N.C. Gen. Stat. § 62-50(b), which allows the Commission personnel to cooperate with other state and federal agencies in determining the probable cause or causes of gas incidents and requires the filing of a written report on the information obtained in the investigation with the Chief Clerk of the Commission. As demonstrated by the contents of this report, the Commission is one of several agencies that carry out similar, but distinct, investigations after a gas incident. The Commission's authority and expertise is in the "inspection, investigation, and regulation of safety standards for interstate and intrastate natural gas pipelines." N.C.G.S. § 62-50(b). Therefore, the conclusions reached in this report are specific to that authority and do not address compliance with other regulations that are enforced by the Commission, regulations enforced by other administrative agencies, civil or criminal wrongdoing. This report is available for public inspection on the website of the North Carolina Utilities Commission at www.ncuc.net.

Summary of Incident

A gas incident occurred at approximately 9:06 a.m. on April 10, 2019, at 115 N. Duke St. in Durham, North Carolina, resulting in 2 deaths, 31 injuries, and damage to multiple city blocks. The probable cause of the incident was the breach of a ¾ inch, 60 psig natural gas distribution line owned and operated by PSNC Energy (PSNC), resulting from contact with the facility by a horizontal-direction or boring drilling device that was being used in the installation of fiber optic cable. The breach of the natural gas pipe allowed natural gas to enter the building at 115 N. Duke Street and an explosion from the ignition of the gas occurred at that location at approximately 10:06 a.m. At 10:38 a.m., Scott Swindler of PSNC reported the incident to the North Carolina Utilities Commission's Pipeline Safety Section by telephone call to Steve Wood, the Commission's Gas Pipeline Safety Manager, as required pursuant to Commission Rule R6-41(b). The Commission's Pipeline Safety personnel arrived at the site of the explosion at approximately 12:30 p.m.

In the days immediately following the gas incident, the Commission's personnel cooperated with other state and federal agencies to preserve the evidence at the site of the incident and to determine the probable cause or causes of the incident. The information gained during the Commission personnel's investigation is contained in this report and supports the Commission personnel's findings made in this report.

Findings

Based on the information obtained during the investigation of the April 10, 2019, gas incident at 115 N. Duke St. in Durham, North Carolina, the Commission personnel makes the following findings:

1. PSNC appropriately responded to the incident and cooperated with the Commission personnel's investigation, including reporting as required pursuant to

49 CFP § 191.9 PSNC's report is included as Appendix 1 to this report. PSNC satisfied all notification requirements in accordance with 49 CFR §191 and Commission Rule R6-41(b);

2. PSNC's underground facilities, including the service line, were accurately located and marked by PSNC's contractor (Southern Cross Inc.) prior to the work being started pursuant to N.C. Gen. Stat. § 87-121;
3. The probable cause of the natural gas incident at 115 N. Duke St. was the breach of a natural gas facility by a horizontal-direction, or "boring," device that was being used in the installation of fiber optic cable which allowed natural gas to migrate to the interior of the building at 115 N. Duke St. where it was ignited resulting in an explosion;
4. There is sufficient evidence to conclude that the operator of the horizontal-direction or boring drilling device failed to comply with the requirements of N.C. Gen. Stat. § 87-121(c)(9) I the operation of the drilling device by (1) using mechanized equipment withing the tolerance zone of the natural gas facility, and (2) by failing to visually identify the precise location of the natural gas facility prior to using mechanized equipment, and that this failure was a probable cause of the gas incident; and
5. There is sufficient evidence to conclude that the operator of the horizontal-direction or boring drilling device failed to comply with the requirements of N.C. Gen. Stat. § 87-126 by failing to immediately report the damage to the natural gas facility to the notification center (NC 811, Inc.), emergency services (911) and to PSNC.

The remainder of this report provides the written documentation of all information obtained by Commission personnel in the conduct of its investigation of this gas incident. This information supports the Commission personnel's findings.

Explanation of Documents

- Pipeline Safety uses Pipeline and Hazardous Materials Safety Administration (PHMSA) Form 11 – Pipeline Failure Investigation Report for our report. This report form is available from PHMSA.
- Appendix 1 - PHMSA Incident Report is submitted by PSNC to PHMSA, this is a requirement for every incident (definition of incident located in CFR 49 Part 191.3) per CFR 49 Part 191.9
- Appendix 2 – National Response Center (NRC) Report submitted to the NRC by PSNC, this is a requirement for each incident per CFR 49 Part 191.5
- Appendix 3 – NC 811 One Call Ticket is submitted by the excavator to the North Carolina 811 One Call program per the North Carolina Damage Prevention Law
- Appendix 4 – Area Map of PSNC Facility, provide to NCUC by PSNC to denote location of system in the area.
- Appendix 5 thru 10 – These documents were provided to NCUC by PSNC during the investigation for verification of compliance with CFR 49 Part 192 requirements.
- Appendix 11 – Ground Penetrating Radar Report (GPRS) was requested by LGI Forensics who represented Tower Engineering Professionals. Our understanding

is this was commissioned in order to collect data along the bore path before PSNC's excavation of evidence.

- Appendix 12 – Durham FD Origin & Cause Investigation Report was conducted by the City of Durham Fire Department per their requirements and made available to the public.
- Photo Documentation – Photos 1 thru 12, were taken by Brooks Tate with NCUC. Photos 13 thru 24 were taken by PSNC employees.

Pipeline System: Distribution **Operator:** Public Service Company of North Carolina

Operator ID: 15938 **Unit Number:** _____ **Activity Number:** _____

Location: Durham, North Carolina **Date of Occurrence:** April 10, 2019

Material Released: Natural Gas **Quantity:** 36,000 scf

PHMSA Arrival Time & Date: 4/11/19 8:00 AM **Total Damages $:** ~$1 Billion+ (number is estimated and subject to judicial determination)

Investigation Responsibility: _X_ State __ PHMSA __ NTSB __Other _____

	Company Reported Apparent Cause:	*Company Reported Sub-Cause (from PHMSA Form 7000-1/7100.2):*
	Corrosion	
	Natural Force Damage	
X	Excavation Damage	Excavation Damage by Third Party
	Other Outside Force Damage	
	Material Failure (Pipe, Joint, Weld)	
	Equipment Failure	
	Incorrect Operation	
	Other	

	Accident/Incident Resulted in (check all that apply):	*Comments:*
	Rupture	
X	Leak	
X	Fire	
X	Explosion	
X	Evacuation	Number of Persons: Unknown Area: Multiple City Blocks

Narrative Summary

Short summary of the Incident/Accident scenario

A third-party telecommunications contractor, while in the process of boring new facilities via horizontal directional drilling along North Duke Street in Durham, NC, damaged below-ground ¾" PE service line piping in PSNC's natural gas system. The contractor struck and damaged the service line feeding the structure at 115 N. Duke St. at approximately 9:06am. The contractor delayed in contacting anyone. Contractor called NC-811 at 9:31 am. NC-811 automatically generated a damage ticket, which was delivered to PSNC at approximately 9:35am. An order was automatically dispatched to PSNC's first responder at approximately 9:36am. PSNC received a call from 911 at approximately 9:48am, noting that the fire department was already on the scene. PSNC's Dispatch contacted the first responder en route to advise him of a gas odor and a damaged line at 115 N. Duke St. The fire department issued a combination of evacuation and shelter in place orders at approximately 9:58am. PSNC's first responder arrived at approximately 10:03am. Between his arrival and approximately 10:06am, PSNC's first responder as well as PSNC's Dispatch contacted additional PSNC resources to assist with securing and making the gas leak safe. At approximately 10:06am, the structure at 115 N. Duke St. exploded. Between 10:26am and 10:50am, additional PSNC employees, including a construction crew, arrived at the site. Crews convened at the incident command center to evaluate options to shut off the gas flow. By 11:05am, the crews identified the proper valve, secured the necessary tools, and, at approximately 11:10am, shut off gas flow to the impacted area by closing a valve located approximately three blocks from the scene. The explosion killed the owner of the coffee shop at 115 N. Duke St. and the PSNC first responder. An estimated 25 people were injured. Approximately 15 buildings were reportedly damaged by the explosion.

Region/State: **Southern Region / North Carolina** **Reviewed by:** **Hilary King**

Principal Investigator: **Brooks Tate** **Title:** **Pipeline Safety Inspector**

Date: **8/13/2020** **Date:** **8/13/2020**

Failure Location & Response

Location (City, Township, Range, County/Parish): (Acquire Map)
Durham, NC

Address or M.P. on Pipeline: (1)	Type of Area (Rural, City): (1)
115 N. Duke St.	City

Coordinates of failure location (Latitude): 35.59599 (Longitude): -78.54286

Date: 4/10/2019	Time of Failure: 10:06 a.m. EST
Time Detected: 9:07 a.m. EST	Time Located: 10:03 a.m. EST

How Located: A contractor called NC-811 to report a damaged facility that automatically sent a damage ticket to PSNC. PSNC's first responder reviewed the ticket and headed to the site.

NRC Report #: (Attach Report)	Time Reported to NRC:	Reported by:
1242352	11:17 a.m. EST	Scott Swindler

Type of Pipeline:

Gas Distribution	**Gas Transmission**	**Hazardous Liquid**	**___ LNG**
__ LP	__ Interstate Gas	__ Interstate Liquid	
__ Municipal	__ Intrastate Gas	__ Intrastate Liquid	
_X_ Public Utility	__ Gas Gathering	__ Offshore Liquid	
__ Master Meter	__ Offshore Gas	__ Liquid Gathering	
	__ Offshore Gas - High H_2S	__ CO_2	
		__ Low Stress Liquid	
		__ HVL	

Pipeline Configuration (Regulator Station, Pump Station, Pipeline, etc.):
Service line coming off of a tapping tee to a commercial meter set. There was an abandoned gas service line in the same location.

Operator/Owner Information

Owner: Public Service Co of North Carolina	Operator: Public Service Co of North Carolina
Address: 800 Gaston Rd. Gastonia, NC 28056	Address: 800 Gaston Rd. Gastonia, NC 28056
Company Official: Shaun Randall	Company Official: Shaun Randall
Phone No.: 704-810-3350 Fax No.:	Phone No. 704-810-3350 Fax No.

Drug and Alcohol Testing Program Contacts _X_ N/A

Drug Program Contact & Phone:

Alcohol Program Contact & Phone:

1 Photo documentation

Damages	
Product/Gas Loss or Spill[(2)] 36,000 SCF Amount Recovered Estimated Amount $	Estimated Property Damage $ +1Billion (number is estimated and subject to judicial determination) Associated Damages[(3)] $
Description of Property Damage: Multiple city blocks were damaged. 115 N. Duke St. and sections of 806 W. Main St. were demolished as a result of the explosion.	
Customers out of Service: _X_ Yes __ No Number: 20 Suppliers out of Service: __ Yes _X_ No Number:	

Fatalities and Injuries					___ ***N/A***
Fatalities:	_X_ Yes	__ No	Company: 1	Contractor:	Public: 1
Injuries - Hospitalization:	_X_ Yes	__ No	Company:	Contractor:	Public: 6
Injuries - Non-Hospitalization:	_X_ Yes	__ No	Company:	Contractor:	Public: 25
Total Injuries (including Non-Hospitalization):			Company:	Contractor:	Public:

Name	Job Function	Yrs. w/ Comp.	Yrs. Exp.	Type of Injury
Jay Rambeaut	Locator/First Responder since 1/15/2005	28	28	Shrapnel and burns from explosion
Kong Lee	Kaffeinate Coffee Owner	N/A	N/A	Multiple blunt force injuries

Drug/Alcohol Testing	***_X__ N/A***
Were all employees that could have contributed to the incident, post-accident tested within the 2 hour time frame for alcohol or the 32 hour time frame for all other drugs? ___Yes ___No	

Job Function	Test Date & Time	Location	Results		Type of Drug
			Pos	Neg	

2 Initial volume lost or spilled
3 Including cleanup cost

System Description
Describe the Operator's System: 60 psi distribution system supplying customers in Durham, NC. The affected block of Duke Street contained a 4-inch plastic main supplying three services. The service at the demolished building was ¾" plastic at 14" depth. There was an abandoned 4" steel line and valve that was replaced with plastic in 2007, in the vicinity of the ¾" plastic service.

Pipe Failure Description	*___ N/A*
Length of Failure (inches, feet, miles): 0.30" axial, 1.20" circumferential (1)	
Position (Top, Bottom, include position on pipe, 6 O'clock): (1) Top, 12 o'clock	Description of Failure (Corrosion Gouge, Seam Split): (1) Mechanical puncture
Laboratory Analysis: _X__ Yes ___ No Performed by: Visual examination and FARO scanning of the damaged pipe was performed by all interested parties and investigators at Engineering Systems, Inc., Norcross, Georgia	
Preservation of Failed Section or Component: __X_Yes ___No If Yes - Method: Securely wrapped in cellophane in a weather-protected facility	
In Custody of: Engineering Systems, Inc., Charlotte, North Carolina	
Develop a sketch of the area including distances from roads, houses, stress inducing factors, pipe configurations, direction of flow, etc. Bar Hole Test Survey Plot, if included, should be outlined with concentrations at test points.	

Component Failure Description	*_X_ N/A*
Component Failed: (1)	
Manufacturer:	Model:
Pressure Rating:	Size:
Other (Breakout Tank, Underground Storage):	

Pipe Data	*___ N/A*
Material: PE 2406	Wall Thickness/SDR: 11
Diameter (O.D.): 0.75"	Installation Date: 2008
SMYS: 1250 psi HDB	Manufacturer: Performance
Longitudinal Seam: N/A	Type of Coating: N/A (plastic pipe)
Pipe Specifications (API 5L, ASTM A53, etc.): ASTM D2513	

Joining	*_X__N/A*
Type:	Procedure:
NDT Method:	Inspected: ___ Yes ___No

Pressure @ Time of Failure @ Failure Site	*___ N/A*
Pressure @ Failure Site: approx.. 58 psi	Elevation @ Failure Site: 377 ft.

Pressure @ Time of Failure @ Failure Site				***___ N/A***
Pressure Readings @ Various Locations:			Direction from Failure Site	
Location/M.P./Station #	Pressure (psig)	Elevation (ft msl)	Upstream	Downstream
RS03082 –Wannamaker Drive off Duke University Road	58		X	

Upstream Pump Station Data	***_X__ N/A***
Type of Product:	API Gravity:
Specific Gravity:	Flow Rate:
Pressure @ Time of Failure [(4)]	Distance to Failure Site:
High Pressure Set Point:	Low Pressure Set Point:

Upstream Compressor Station Data	***_X__ N/A***
Specific Gravity:	Flow Rate:
Pressure @ Time of Failure [(4)]	Distance to Failure Site:
High Pressure Set Point:	Low Pressure Set Point:

Operating Pressure	***___ N/A***
Max. Allowable Operating Pressure: 60 psig	Determination of MAOP: Based of pressure test of services and mains on the system.
Actual Operating Pressure: 58 psig	
Method of Over Pressure Protection: 2 relief valves	
Relief Valve Set Point: Wide Open at 66 psig (10% allowed build up)	Capacity Adequate? __X_ Yes ___ No

Integrity Test After Failure	***___ N/A***
Pressure test conducted in place? (Conducted on Failed Components or Associated Piping): __X_ Yes ___ No	
If No, tested after removal? ___ Yes ___ No	
Method: Leak flow rate testing with the damaged service line in place, followed by pressure testing conducted after removal of the damaged service line.	
Describe any failures during the test. PSNC performed leak flow rate testing at the scene by introducing compressed air into the gas main and the damaged service line. Thereafter, the damaged service line section was removed. The main line and two service lines to other properties then were pressure tested with compressed air. No leaks were discovered during this pressure testing.	

4 Obtain event logs and pressure recording charts

Soil/water Conditions @ Failure Site	***_X__ N/A***
Condition of and Type of Soil around Failure Site (Color, Wet, Dry, Frost Depth):	
Type of Backfill (Size and Description):	
Type of Water (Salt, Brackish):	Water Analysis [5] ___ Yes ___ No

External Pipe or Component Examination	***_X__ N/A***
External Corrosion? ___Yes ___ No [1]	Coating Condition (Disbonded, Non-existent): [1]
Description of Corrosion:	
Description of Failure Surface (Gouges, Arc Burns, Wrinkle Bends, Cracks, Stress Cracks, Chevrons, Fracture Mode, Point of Origin):	
Above Ground: ___ Yes ___ No [1]	Buried: ___ Yes ___ No [1]
Stress Inducing Factors: [1]	Depth of Cover: [1]

Cathodic Protection	***__X_ N/A***
P/S (Surface):	P/S (Interface):
Soil Resistivity: pH:	Date of Installation:
Method of Protection:	
Did the Operator have knowledge of Corrosion before the Incident? ____ Yes ____ No	
How Discovered? (Close Interval Survey, Instrumented Pig, Annual Survey, Rectifier Readings, ECDA, etc):	

Internal Pipe or Component Examination	***_X__ N/A***
Internal Corrosion: ___ Yes ___No [1]	Injected Inhibitors: ___ Yes ___ No
Type of Inhibitors:	Testing: ___ Yes ___ No
Results (Coupon Test, Corrosion Resistance Probe):	
Description of Failure Surface (MIC, Pitting, Wall Thinning, Chevrons, Fracture Mode, Point of Origin):	

5 Attach copy of water analysis report

Internal Pipe or Component Examination	***_X__ N/A***
Cleaning Pig Program: ___ Yes ___ No	Gas and/or Liquid Analysis: ___ Yes ___ No
Results of Gas and/or Liquid Analysis (6)	
Internal Inspection Survey: ___ Yes ___ No	Results (7)
Did the Operator have knowledge of Corrosion before the Incident? ___ Yes ___ No	
How Discovered? (Instrumented Pig, Coupon Testing, ICDA, etc.):	

Outside Force Damage	***___ N/A***
Responsible Party: Optic Cable Technology LLC	Telephone No.: Unknown
Address: 5807 Wrenwood Court, Durham, NC 27703	
Work Being Performed: Horizontal boring under sidewalk for fiber optic cable installation.	
Equipment Involved: Ditch Witch JT2020 Horizontal boring machine. (1)	Called One Call System? _X__ Yes ___ No
One Call Name: NC811	One Call Report # (8) 190931483
Notice Date: 4/3/2019	Time: 10:43 AM
Response Date: 4/9/2019	Time: 12:27 PM
Details of Response to Locate Ticket: One Call ticket was input by PS Splicing LLC 4/3/2019 10:43 PSG02 assigned ticket to JRAMBEAUT 4/3/2019 10:57 RAMBEAUT assigned ticket to SCCDURHAM 4/3/2019 17:53 SCCDURHAM assigned ticket to SCC001 4/6/2019 18:28 SCC001 assigned ticket to SCC081 4/8/2019 16:11 PSG02, response: 30 4/9/2019 12:26 Ticket viewed by SCC081 4/9/2019 12:27 PSG02, response: 20	
Was Location Marked According to Procedures? __X_ Yes ___ No	
Pipeline Marking Type: Yellow Paint (1)	Location: Sidewalk above pipe (1)
State Law Damage Prevention Program Followed? ___ Yes _X__ No ___ No State Law Explanation in Appendix 1 (Section - Part H Narrative and Description of Incident)	
Notice Required: _X__Yes ___No	Response Required: __X_ Yes ___ No

6 Attach copy of gas and/or liquid analysis report
7 Attach copy of internal inspection survey report
8 Attach copy of one-call report

Outside Force Damage	***___ N/A***
Was Operator Member of State One Call? __X_ Yes ___ No	Was Operator on Site? ___ Yes __X_ No
Did a deficiency in the Public Awareness Program contribute to the accident? ___Yes _X__ No	
Is OSHA Notification Required? _X__ Yes ___ No; NCDOL was onscene and issued a report	

Natural Forces	***_X_ N/A***
Description (Earthquake, Tornado, Flooding, Erosion):	

Failure Isolation	***__ N/A***
Squeeze Off/Stopple Location and Method: Valve closure (1) The main leading to 115 N. Duke St. was eventually cut and capped approximately 100' South of 115 N. Duke St.	
Valve Closed - Upstream: Yes Time: 11:10 am	I.D.: DV-120-1048 M.P.:
Valve Closed - Downstream: N/A Time:	I.D.: M.P.:
Pipeline Shutdown Method: _X_ Manual __ Automatic __ SCADA __ Controller __ ESD	
Failed Section Bypassed or Isolated: Isolated	
Performed By: Operator	Valve Spacing: Approximately 1,700 feet from incident site

Odorization	***__ N/A***
Gas Odorized: __X Yes __ No	Concentration of Odorant (Post Incident at Failure Site):
Method of Determination: _X_ Yes __ No	% LEL: __ Yes __ No / % Gas In Air: _X_ Yes __ No
An odorameter was used by Andy Olson on 4/10/2019 at the following locations: 204 W. Morgan Street · 400 N. Duke Street · 300 N. Duke Street	Time Taken: 4/10/19 around 2 pm according to Andy Olson.
Was Odorizer Working Prior to the Incident? _X_ Yes __ No	Type of Odorizer (Wick, By-Pass): Injection units at Williams/Transco Take-Off Stations
Odorant Manufacturer: Chevron Phillips Chemical Company	Type of Odorant:

Odorization	***__ N/A***
LP Model: SCENTINEL N Gas Odorant	Mercaptan Mixture % by Weight t-Butyl Mercaptan 75-80% Isopropyl Mercaptan 13-25% n-Propyl Mercaptan 0-7% sec-butyl Mercaptan 2-4%
Amount Injected: System could be fed by either Cardinal Pipeline or Dan River Take-off. Injection Rates: Williams Gas Pipe Odorization Reports for April 2019 · Dan River 0.71 pounds / MMCF · Cardinal 0.59 pounds / MMCF	Monitoring Interval (Weekly): Monitored on work days at Durham Operations Center located at 2541 Whilden Dr., Durham, NC.
Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site): Daily monitoring at Durham Operations Center located at 2541 Whilden Dr., Durham, NC. Located approximately 5 miles from incident site.	

Weather Conditions	***__ N/A***
Temperature: 71 ºF	Wind (Direction & Speed): 0 mph
Climate (Snow, Rain): Sunny	Humidity: 27%
Was Incident preceded by a rapid weather change? __ Yes _X_ No	
Weather Conditions Prior to Incident (Cloud Cover, Ceiling Heights, Snow, Rain, Fog): Sunny	

Gas Migration Survey	***__ N/A***
Bar Hole Test of Area: __ Yes _X_ No	Equipment Used:
Method of Survey (Foundations, Curbs, Manholes, Driveways, Mains, Services) (9) Flame Pack - Checked Water meters, manholes, Foundations, Cracks in the road, storm drains, Expansion Joints, between the back of road and curb line. Checked the main and services. CGI - Checked manholes, water meters and Storm drains.	(1)

Environment Sensitivity Impact	***_X_ N/A***
Location (Nearest Rivers, Body of Water, Marshlands, Wildlife Refuge, City Water Supplies that could be or were affected by the medium loss): (1)	
OPA Contingency Plan Available? __ Yes __ No	Followed? __ Yes __ No

9 Plot on site description page

Class Location/High Consequence Area	__ N/A
Class Location: 1 __ 2__ 3 _X_ 4 __ Determination: 49 C.F.R. 192.5(b)(3)(ii) (Pipeline lies within 100 yards of a building)	HCA Area? __ Yes __ No _X_ N/A Determination:
Odorization Required? _X_ Yes __ No __ N/A	

Pressure Test History *(Expand List as Necessary)*						**__ N/A**
	Req'd [10] Assessment Deadline Date	Test Date	Test Medium	Pressure (psig)	Duration (hrs)	% SMYS
Installation	N/A	1/29/2008	Air	96	0.25	
Next						
Next						
Most Recent						
Describe any problems experienced during the pressure tests.						

Internal Line Inspection/Other Assessment History *(Expand List as Necessary)*					**_X_ N/A**
	Req'd [10] Assessment Deadline Date	Assessment Date	Type of ILI Tool [11]	Other Assessment Method [12]	Indicated Anomaly If yes, describe below
Initial					__ Yes __ No
Next					__ Yes __ No
Next					__ Yes __ No
Most Recent					__ Yes __ No
Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.					

Pre-Failure Conditions and Actions	**_X_ N/A**
Was there a known pre-failure condition requiring [10] the operator to schedule evaluation and remediation? __ Yes (describe below or on attachment) __ No	
If there was such a known pre-failure condition, had the operator established and adhered to a required [10] evaluation and remediation schedule? Describe below or on attachment. __ Yes __ No __ N/A	

10 As required of Pipeline Integrity Management regulations in 49CFR Parts 192 and 195
11 MFL, TFI, UT, Combination, Geometry, etc.
12 ECDA, ICDA, SCCDA, "other technology," etc.

Pre-Failure Conditions and Actions	*_X_* **N/A**
Prior to the failure, had the operator performed the required [10] actions to address the threats that are now known to be related to the cause of this failure? __ Yes __ No __ N/A List below or on an attachment such operator-identified threats, and operator actions taken prior to the accident.	
Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.	

Maps & Records	*___ N/A*
Are Maps and Records Current? [13] __ X Yes __ No Comments:	

Leak Survey History	*___ N/A*
Leak Survey History (Trend Analysis, Leak Plots): Premise number: 3196417542; Service number: 1000151548. Leak survey 2/26/2019 by Southern Cross, technician krich (0 leaks found, AC grade A). Leak survey 1/28/2016 by Southern Cross, technician jkrus (Grade 3 leak found, AC grade A)	

Pipeline Operation History	*_X__ N/A*
Description (Repair or Leak Reports, Exposed Pipe Reports):	
Did a Safety Related Condition Exist Prior to Failure? ___ Yes ___ No Reported? ___ Yes ___ No	
Unaccounted For Gas:	
Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend):	

Operator/Contractor Error	*_X__ N/A*
Name:	Job Function:
Title:	Years of Experience:
Training (Type of Training, Background):	
Was the person "Operator Qualified" as applicable to a precursor abnormal operating condition? ___Yes ___ No ___ N/A	
Was qualified individual suspended from performing covered task ___ Yes ___ No ___ N/A	
Type of Error (Inadvertent Operation of a Valve):	
Procedures that are required:	

13 Obtain copies of maps and records

Operator/Contractor Error	***_X__ N/A***
Actions that were taken:	
Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation):	
Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit):	
Procedures conducted for Accidental Ignition:	
Was a Company Inspector on the Job? ___ Yes ___ No	
Was an Inspection conducted on this portion of the job? ___ Yes ___ No	
Additional Actions (Contributing factors may include number of hours at work prior to failure or time of day work being conducted):	
Training Procedures:	
Operation Procedures:	
Controller Activities:	

Name	Title	Years Experience	Hours on Duty Prior to Failure	Shift

Alarm Parameters:
High/Low Pressure Shutdown:
Flow Rate:
Procedures for Clearing Alarms:
Type of Alarm:
Company Response Procedures for Abnormal Operations:
Over/Short Line Balance Procedures:
Frequency of Over/Short Line Balance:
Additional Actions:

Additional Actions Taken by the Operator	***___N/A***

Make notes regarding the emergency and Failure Investigation Procedures (Pressure reduction, Reinforced Squeeze Off, Clean Up, Use of Evacuators, Line Purging, closing Additional Valves, Double Block and Bleed, Continue Operating downstream Pumps):

Closed valve approximately three blocks from scene which isolated the main approximately 1 hour after the explosion. A PSNC crew cut and capped the existing 4" PE leading to 115 N. Duke St. approximately 2 hours after the explosion.

Photo Documentation [(1)]

Overall Area from best possible view. Pictures from the four points of the compass. Failed Component, Operator Action, Damages in Area,
Address Markings, etc.

Photo No.	Description	Photo No.	Description
1	Approaching the Scene looking North	16	Damaged section of pipe and cut tracer wire
2	One block from incident looking North	17	Damaged section of pipe and cut tracer wire
3	At incident site looking North	18	Measurements of excavation
4	At incident site looking Northwest	19	Orange pipe showing bore location
5	At incident site looking West	20	Depth of service tap to main
6	At incident site looking South	21	View of old service riser and new service riser
7	0.5 Blocks from incident site looking South	22	Bore head and depth measurement
8	At boring rig location looking North	23	Bore head full view
9	Arial view of incident looking West	24	Bore head, plastic service and bore head locator custody transfer
10	Located service marks on sidewalk looking West	25	
11	Located service marks on sidewalk looking West	26	
12	Located service marks on sidewalk looking South	27	
13	Cross section of riser looking South	28	
14	Borehole above ¾" service	29	
15	Depth of service at HDD	30	
Camera Type: State issued iPhone 6s			

Additional Information Sources			
Agency	Name	Title	Phone Number
Police:	Cerelyn Davis	City of Durham Chief of Police	
Fire Dept.:	Robert Zoldos II	City of Durham Fire Chief	
State Fire Marshall:			
State Agency:			
NTSB:			
EPA:			
USCG:			
FBI:			
ATF:			
OSHA:			
Insurance Co.:			
FRA:			
MMS:			
Television:			
Newspaper:			
Other:			

Persons Interviewed		
Name	Title	Phone Number
Jody Morton	Assistant Chief / Fire Marshall	
Brian Graves	Assistant Fire Marshal	
Julie Halliday	PHMSA Accident Investigator	
Jeremy McFalls	PSNC South Durham Construction Supervisor	
Scott Parker	PSNC North Durham Construction Supervisor	
Scott Swindler, P.E.	PSNC General Manager – Operations & Maintenance	
Bryony Hodges	Dominion Energy Deputy General Counsel	
Robert DeRosset	Attorney for Hector Hernandez	
Hector Hernandez	Owner of Optic Cable Technology Inc	
Susan Harmon, P.E.	Product Safety & Compliance Manager for Ditch Witch	
Valyce Davis	Associate with McGuireWoods LLP	

Event Log	
Sequence of events prior, during, and after the incident by time. (Consider the events of all parties involved in the incident, Fire Department and Police reports, Operator Logs and other government agencies.)	
Time / Date	Event
~9:06 am-4/10/19	Optic Cable Technology Inc's three-person crew struck and damaged the natural gas service line feeding the structure at 115 North Duke Street, Durham.
9:31 am-4/10/19	Optic Cable Technology Inc called 811 to report damage to the gas line.
9:35 am-4/10/19	NC811 generated a damage ticket, which was delivered to PSNC at that time.
9:36 am-4/10/19	An order was automatically generated to PSNC's first responder.
9:43 am-4/10/19	PSNC first responder headed for the site.
9:48 am-4/10/19	PSNC received a call from 911, indicating that the fire department was already on the scene. PSNC alerted its first responder at that time as to a gas odor in the area, and damaged line at 115 North Duke Street.
9:58 am-4/10/19	Durham FD issued a combination of evacuation and shelter-in-place orders.
~10:03 am-4/10/19	PSNC's first responder arrives at the scene. He, along with PSNC Dispatch, requested additional resources to secure the leak and make it safe.
~10:06am-4/10/19	The structure exploded.
10:26-10:50 am-4/10/19	Additional PSNC employees, including a construction crew, arrived. They then met at the incident command center to discuss options for shutting off the gas flow.
11:05-11:10 am-4/10/19	Crew identifies and then shuts off a valve approximately three blocks away that shut off gas to the scene.

Investigation Contact Log			
Time	Date	Name	Description

Failure Investigation Documentation Log					
Operator: Dominion Energy North Carolina		Unit #:	CPF #:		Date: 6/17/20
Appendix Number	Documentation Description		Date Received	FOIA Yes	FOIA No
1	Official PSNC Submitted PHMSA Incident Report		1/30/2020	x	
2	NRC Report		4/10/2019	x	
3	NC 811 One Call Ticket		6/16/2020	x	
4	Area Map of PSNC Facility		4/22/2019	x	
5	Timeline of PSNC Response		5/5/2019	x	
6	115 N. Duke Street Service & Main installation records		4/22/2019	x	
7	OQ Records for PSNC Locator & Contract Locator		4/22/2019	x	
8	Odorant Logs of area		4/22/2019	x	
9	Leak Survey information around 115 N. Duke St.		4/22/2019	x	
10	Leak flow rate calculation of damage		8/14/2019	x	
11	Ground Penetrating Radar Report		5/6/2019	x	
12	Durham Fire Department Origin & Cause Investigation Report		8/2/2019	x	

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed $1,000,000 as provided in 49 USC 60122.		OMB NO: 2137-0522 EXPIRATION DATE: 8/31/2020
U.S Department of Transportation Pipeline and Hazardous Materials Safety Administration	**Original Report Date:**	05/10/2019
	No.	20190049- 33248
		---------- (DOT Use Only)

INCIDENT REPORT - GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. All responses to this collection of information are mandatory. Send comments regarding the burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

Important: *Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at* http://www.phmsa.dot.gov/pipeline/library/forms.

PART A - KEY REPORT INFORMATION

Report Type: *(select all that apply)*	**Original:**	**Supplemental:**	**Final:**
		Yes	

Last Revision Date	01/30/2020
1. Operator's OPS-issued Operator Identification Number (OPID):	15938
2. Name of Operator	PUBLIC SERVICE CO OF NORTH CAROLINA
3. Address of Operator:	
3a. Street Address	800 GASTON ROAD
3b. City	GASTONIA
3c. State	North Carolina
3d. Zip Code	28056
4. Local time *(24-hr clock)* and date of the Incident:	04/10/2019 10:06
5. Location of Incident:	
5a. Street Address or location description	115 N Duke Street
5b. City	Durham
5c. County or Parish	Durham
5d. State:	North Carolina
5e. Zip Code:	27701
5f. Latitude:	35.59599
Longitude:	-78.54286
6. National Response Center Report Number:	1242352
7. Local time *(24-hr clock)* and date of initial telephonic report to the National Response Center:	04/10/2019 11:17
8. Incident resulted from:	Unintentional release of gas
9. Gas released:	Natural Gas
- Other Gas Released Name:	
10. Estimated volume of gas released - Thousand Cubic Feet (MCF):	36.000
11. Were there fatalities?	Yes
- If Yes, specify the number in each category:	
11a. Operator employees	1
11b. Contractor employees working for the Operator	0
11c. Non-Operator emergency responders	0
11d. Workers working on the right-of-way, but NOT associated with this Operator	0
11e. General public	1
11f. Total fatalities (sum of above)	2
12. Were there injuries requiring inpatient hospitalization?	Yes
- If Yes, specify the number in each category:	
12a. Operator employees	0
12b. Contractor employees working for the Operator	0
12c. Non-Operator emergency responders	1
12d. Workers working on the right-of-way, but NOT associated with this Operator	2
12e. General public	2
12f. Total injuries (sum of above)	5
13. Was the pipeline/facility shut down due to the incident?	Yes
- If No, Explain:	
- If Yes, complete Questions 13a and 13b: *(use local time, 24-hr clock)*	

Reproduction of this form is permitted

13a. Local time and date of shutdown:	04/10/2019 11:10
13b. Local time pipeline/facility restarted:	08/17/2019 00:00
- Still shut down? (* Supplemental Report Required)	
14. Did the gas ignite?	No
15. Did the gas explode?	Yes
16. Number of general public evacuated:	10
17. Time sequence *(use local time, 24-hour clock)*:	
17a. Local time operator identified Incident - effective 10-2014, "Incident" changed to "failure"	04/10/2019 09:35
17b. Local time operator resources arrived on site:	04/10/2019 10:03

PART B - ADDITIONAL LOCATION INFORMATION

1. Was the Incident on Federal land?	No
2. Location of Incident	Public property
3. Area of Incident:	Underground
Specify:	Under pavement
If Other, Describe:	
Depth of Cover:	18
4. Did Incident occur in a crossing?	No
- If Yes, specify type below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	
Cased/ Uncased/ Bored/drilled	
- If Road crossing –	
Cased/ Uncased/ Bored/drilled	
- If Water crossing –	
Cased/ Uncased	
Name of body of water (If commonly known):	
Approx. water depth (ft):	

PART C - ADDITIONAL FACILITY INFORMATION

1. Indicate the type of pipeline system:	Investor Owned
- If Other, specify:	
2. Part of system involved in Incident:	Service
- If Other, specify:	
2a. Year "Part of system involved in Incident" was installed:	2008
3. When "Main" or "Service" is selected as the "Part of system involved in Incident" (from PART C, Question 2), provide the following:	
3a. Nominal diameter of pipe (in):	0.75
3b. Pipe specification (e.g., API 5L, ASTM D2513):	ASTM D2513
3c. Pipe manufacturer:	Performance
3d. Year of manufacture:	Unknown
4. Material involved in Incident:	Plastic
- If Other, specify:	
4a. If Steel, Specify seam type:	
None/Unknown?	
4b. If Steel, Specify wall thickness *(inches)*:	
4c. If Plastic, Specify type:	Polyethylene (PE)
- If Other, describe:	
4d. If Plastic, Specify Standard Dimension Ratio (SDR):	11
Or wall thickness:	
4e. If Polyethylene (PE) is selected as the type of plastic in Part C, Question 4.c:	
- Specify PE Pipe Material Designation Code (i.e. 2406, 3408, etc.)	2406
Unknown?	
5. Type of release involved :	Mechanical Puncture
- If Mechanical Puncture - Specify Approx size:	
Approx. size: in. (axial):	.30
in. (circumferential):	1.20
- If Leak - Select Type:	
- If Other, Describe:	
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: (widest opening):	
(length circumferentially or axially):	
- If Other - Describe:	

Reproduction of this form is permitted

PART D - ADDITIONAL CONSEQUENCE INFORMATION	
1. Class Location of Incident :	Class 3 Location
2. Estimated Property Damage :	
2a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator – effective 6-2011, "paid/reimbursed by the Operator" removed	$ 20,000,000
Estimated cost of gas released – effective 6-2011, moved to item 2f	
2b. Estimated cost of Operator's property damage & repairs	$ 24,381
2c. Estimated cost of Operator's emergency response	$ 15,542
2d. Estimated other costs	$ 0
- Describe:	Unknown. Investigation is ongoing.
2e. Property damage subtotal (sum of above)	$ 20,039,923
Cost of Gas Released	
2f. Estimated cost of gas released	$ 155
Total of all costs	$ 20,040,078
3. Estimated number of customers out of service:	
3a. Commercial entities	20
3b. Industrial entities	0
3c. Residences	0

PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Incident (psig):	58.00
2. Normal operating pressure at the point and time of the Incident (psig):	58.00
3. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):	60.00
4. Describe the pressure on the system relating to the Incident:	Pressure did not exceed MAOP
5. Was a Supervisory Control and Data Acquisition (SCADA) based system in place on the pipeline or facility involved in the Incident?	Yes
- If Yes:	
5a. Was it operating at the time of the Incident?	Yes
5b. Was it fully functional at the time of the Incident?	Yes
5c. Did SCADA-based information (such as alarm(s), alert(s), event (s), and/or volume or pack calculations) assist with the detection of the Incident?	No
5d. Did SCADA-based information (such as alarm(s), alert(s), event (s), and/or volume calculations) assist with the confirmation of the Incident?	No
6. How was the Incident initially identified for the Operator?	Other
- If Other, Specify:	Notification from excavator via their NC-811 notification
6a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 6, specify.	
7. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident?	No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)
- If "No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to:" (*provide an explanation for why the operator did not investigate*)	While there are two SCADA monitoring points on the distribution system, both are located on larger diameter feeder mains approximately 2 miles upstream; the volume of gas lost was inconsequential vs. the line-pack and delivery capacities in these feeder mains such that there was not a significant or correlating resultant pressure drop at these points.
- If Yes, Specify investigation result(s) *(select all that apply)*:	
- Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Provide an explanation for why not:	
- Investigation identified no control room issues	
- Investigation identified no controller issues	
- Investigation identified incorrect controller action or controller error	
- Investigation identified that fatigue may have affected the controller (s) involved or impacted the involved controller(s) response	
- Investigation identified incorrect procedures	

Reproduction of this form is permitted

- Investigation identified incorrect control room equipment operation	
- Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response	
- Investigation identified areas other than those above	
Describe:	

PART F - DRUG & ALCOHOL TESTING INFORMATION

1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
1a. How many were tested:	
1b. How many failed:	
2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. How many were tested:	
2b. How many failed:	

PART G - CAUSE INFORMATION

Select only one box from PART G in shaded column on left representing the Apparent Cause of the Incident, and answer the questions on the right. Describe secondary, contributing, or root causes of the Incident in the narrative (PART H).

Apparent Cause:	G3 - Excavation Damage

G1 - Corrosion Failure – only one **sub-cause** can be picked from shaded left-hand column

Corrosion Failure Sub-Cause:	
- If External Corrosion:	
1. Results of visual examination:	
- If Other, Specify:	
2. Type of corrosion:	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other	
- If Other, Describe:	
3. The type(s) of corrosion selected in Question 2 is based on the following:	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
4. Was the failed item buried under the ground?	
- If Yes:	
4a. Was failed item considered to be under cathodic protection at the time of the incident?	
- If Yes, Year protection started:	
4b. Was shielding, tenting, or disbonding of coating evident at the point of the incident?	
4c. Has one or more Cathodic Protection Survey been conducted at the point of the incident?	
If "Yes, CP Annual Survey" – Most recent year conducted:	
If "Yes, Close Interval Survey" – Most recent year conducted:	
If "Yes, Other CP Survey" – Most recent year conducted:	
- If No:	
4d. Was the failed item externally coated or painted?	
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	
6. Pipeline coating type, if steel pipe is involved:	
- If Other, Describe:	
- If Internal Corrosion:	
7. Results of visual examination:	
- If Other, Describe:	
8. Cause of corrosion *(select all that apply)*:	

Reproduction of this form is permitted

- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other	
- If Other, Specify:	
9. The cause(s) of corrosion selected in Question 8 is based on the following: *(select all that apply)*:	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
10. Location of corrosion *(select all that apply)*:	
- Low point in pipe	
- Elbow	
- Drop-out	
- Other	
- If Other, Describe:	
11. Was the gas/fluid treated with corrosion inhibitor or biocides?	
12. Were any liquids found in the distribution system where the Incident occurred?	
Complete the following if any Corrosion Failure sub-cause is selected AND the "Part of system involved in incident" (from PART C, Question 2) is Main, Service, or Service Riser.	
13. Date of the most recent Leak Survey conducted	
14. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	
G2 – Natural Force Damage – only one **sub-cause** can be picked from shaded left-handed column	
Natural Force Damage – Sub-Cause:	
- If Earth Movement, NOT due to Heavy Rains/Floods:	
1. Specify:	
- If Other, Specify:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Specify:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Specify:	
- If Other Natural Force Damage:	
5. Describe:	
Complete the following if any Natural Force Damage sub-cause is selected.	
6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event?	
6.a If Yes, specify *(select all that apply)*:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Specify:	
G3 – Excavation Damage – only one **sub-cause** can be picked from shaded left-hand column	
Excavation Damage – Sub-Cause:	Excavation Damage by Third Party
- If Previous Damage due to Excavation Activity: Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.	
1. Date of the most recent Leak Survey conducted	
2. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	

Reproduction of this form is permitted

Complete the following if Excavation Damage by Third Party is selected.	
3. Did the operator get prior notification of the excavation activity?	Yes
3a. If Yes, Notification received from: *(select all that apply)*:	
- One-Call System	Yes
- Excavator	
- Contractor	
- Landowner	
Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.	
4. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)?	No
5. Right-of-Way where event occurred *(select all that apply)*:	
- Public	Yes
- If Public, Specify:	City Street
- Private	
- If Private, Specify:	
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	
- Dedicated Public Utility Easement	
- Federal Land	
- Data not collected	
- Unknown/Other	
6. Type of excavator :	Contractor
7. Type of excavation equipment :	Directional Drilling
8. Type of work performed :	Telecommunications
9. Was the One-Call Center notified?	Yes
9a. If Yes, specify ticket number:	190931483
9b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
10. Type of Locator:	Contract Locator
11. Were facility locate marks visible in the area of excavation?	Yes
12. Were facilities marked correctly?	Yes
13. Did the damage cause an interruption in service?	Unknown/Other
13a. If Yes, specify duration of the interruption:	
14. Description of the CGA-DIRT Root Cause *(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well)*:	
- Root Cause Description:	Excavation Practices Not Sufficient
- If One-Call Notification Practices Not Sufficient, specify:	
- If Locating Practices Not Sufficient, specify:	
- If Excavation Practices Not Sufficient, specify:	Failure to verify location by test-hold (pot-holing)
- If Other/None of the Above, explain:	
G4 - Other Outside Force Damage - only one **sub-cause** can be selected from the shaded left-hand column	
Other Outside Force Damage – Sub-Cause:	
- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:	
1. Vehicle/Equipment operated by:	
- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:	
2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Heavy Rains/Flood	
- Other	
- If Other, Specify:	
- If Previous Mechanical Damage NOT Related to Excavation: *Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.*	
3. Date of the most recent Leak Survey conducted:	
4. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
- If Intentional Damage:	

Reproduction of this form is permitted

5. Specify:	
- If Other, Specify:	
- If Other Outside Force Damage:	
6. Describe:	
G5 - Pipe, Weld, or Joint Failure - only one **sub-cause** can be selected from the shaded left-hand column	
Pipe, Weld or Joint Failure – Sub-Cause:	
- If Body of Pipe:	
1. Specify:	
- If Other, Describe:	
- If Butt Weld:	
2. Specify:	
- If Other, Describe:	
- If Fillet Weld:	
3. Specify:	
- If Other, Describe:	
- If Pipe Seam:	
4. Specify:	
- If Other, Describe:	
- If Mechanical Fitting:	
5. Specify the mechanical fitting involved:	
- If Other, Describe:	
6. Specify the type of mechanical fitting:	
- If Other, Describe:	
7. Manufacturer:	
8. Year manufactured:	
9. Year Installed:	
10. Other attributes:	
11. Specify the two materials being joined:	
11a. First material being joined:	
- If Other, Specify:	
11b. If Plastic, specify:	
- If Other Plastic, specify:	
11c. Second material being joined:	
- If Other, Specify:	
11d. If Plastic, specify:	
- If Other Plastic, Specify:	
12. If used on plastic pipe, did the fitting – as designed by the manufacturer – include restraint?	
12a. If Yes, specify:	
- If Compression Fitting:	
13. Fitting type:	
14. Manufacturer:	
15. Year manufactured:	
16. Year installed:	
17. Other attributes:	
18. Specify the two materials being joined:	
18a. First material being joined:	
- If Other, specify:	
18b. If Plastic, specify:	
- If Other Plastic, specify:	
18c. Second material being joined:	
If Other, specify:	
18d. If Plastic, specify:	
- Other Plastic, specify:	
- If Fusion Joint:	
19. Specify:	
- If Other, Specify:	
20. Year installed:	
21. Other attributes:	
22. Specify the two materials being joined:	
22a. First material being joined:	
- If Other, Specify:	
22b. Second material being joined:	

Reproduction of this form is permitted

- If Other, Specify:	
- If Other Pipe, Weld, or Joint Failure:	
23. Describe:	
Complete the following if any Pipe, Weld, or Joint Failure sub-cause is selected.	
24. Additional Factors (*select all that apply*):	
- Dent	
- Gouge	
- Pipe Bend	
- Arc Burn	
- Crack	
- Lack of Fusion	
- Lamination	
- Buckle	
- Wrinkle	
- Misalignment	
- Burnt Steel	
- Other	
- If Other, Specify:	
25. Was the Incident a result of:	
- Construction defect	
Specify:	
- Material defect	
Specify:	
- If Other, Specify:	
- Design defect	
- Previous damage	
26. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	
G6 - Equipment Failure - only one **sub-cause** can be selected from the shaded left-hand column	
Equipment Failure – Sub-Cause:	
- If Malfunction of Control/Relief Equipment:	
1. Specify:	
- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- Pressure Regulator	
- Other	
- If Other, Specify:	
- If Threaded Connection Failure:	
2. Specify:	
- If Other, Specify:	
- If Non-threaded Connection Failure:	
3. Specify:	
- If Other, Specify:	
- If Valve:	
4. Specify:	
- If Other, Specify:	
4a. Valve type:	
4b. Manufactured by:	
4c. Year manufactured:	
- If Other Equipment Failure:	
5. Describe:	
G7 - Incorrect Operation - only one **sub-cause** can be selected from the shaded left-hand column	

Reproduction of this form is permitted

Incorrect Operation Sub-Cause:	
- If Other Incorrect Operation:	
1. Describe:	
Complete the following if any Incorrect Operation sub-cause is selected.	
2. Was this Incident related to: (select all that apply)	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other	
- If Other, Describe:	
3. What category type was the activity that caused the Incident:	
4. Was the task(s) that led to the Incident identified as a covered task in your Operator Qualification Program?	
4a. If Yes, were the individuals performing the task(s) qualified for the task (s)?	
G8 - Other Incident Cause - only one **sub-cause** can be selected from the shaded left-hand column	
Other Incident Cause – Sub-Cause:	
- If Miscellaneous:	
1. Describe:	
- If Unknown:	
2. Specify:	
PART H - NARRATIVE DESCRIPTION OF THE INCIDENT	
Narrative exceeds character limit. Complete narrative was emailed to USDOT PHMSA Accident Investigation Division on 1/30/20.	
PART I - PREPARER AND AUTHORIZED SIGNATURE	
Preparer's Name	Michael B. Greene
Preparer's Title	Director Field Support - Distribution Tech. Serv.
Preparer's Telephone Number	704-217-9191
Preparer's E-mail Address	mike.greene@dominionenergy.com
Preparer's Facsimile Number	
Authorize Signature's Name	Scott Swindler
Authorized Signature's Title	General Manager-Operations and Maintenance
Authorized Signature's Email Address	scott.swindler@dominionenergy.com

Reproduction of this form is permitted

Public Service Company of North Carolina, Incorporated's d/b/a name is Dominion Energy North Carolina. PSNC is used in this supplemental report to be consistent with the original report.

On the morning of April 10, 2019, a third-party telecommunications contractor (Optic Cable Technology Inc), while in the process of boring new facilities via horizontal directional drilling along North Duke Street in Durham, NC, damaged below-ground service line piping in PSNC's natural gas system. Optic Cable Technology's three-person crew struck and damaged the service line feeding the structure at 115 North Duke Street at approximately 9:06am. Optic Cable Technology's crew did not call 911 but notified NC-811, the state's one-call office, of the damage at approximately 9:31am. NC-811 automatically generated a damage ticket, which was delivered to PSNC at approximately 9:35am. An order was automatically dispatched to PSNC's first responder at approximately 9:36am. The first responder reviewed the ticket at approximately 9:43am and began heading to the site. PSNC received a call from 911 at approximately 9:48am, noting that the fire department was already on the scene. PSNC's Dispatch contacted the first responder en route to advise him of a gas odor and a damaged line at 115 North Duke Street. The fire department issued a combination of evacuation and shelter in place orders at approximately 9:58am. PSNC's first responder arrived at approximately 10:03am. Between his arrival and approximately 10:06am, PSNC's first responder as well as PSNC's Dispatch contacted additional PSNC resources to assist with securing and making the gas leak safe. At approximately 10:06am, the structure at 115 North Duke Street exploded. Between 10:26am and 10:50am, additional PSNC employees, including a construction crew, arrived at the site. Crews convened at the incident command center to evaluate options to shut off the gas flow. By11:05am, the crews identified the proper valve, secured the necessary tools, and, at approximately 11:10am, shut off gas flow to the impacted area by closing a valve located approximately three blocks from the scene.

The explosion killed the occupant of the structure at 115 North Duke Street. The explosion also severely injured a member of Optic Cable Technology's crew, the owner/operator of PS Splicing LLC (which hired Optic Cable Technology to perform the horizontal directional drilling work), PSNC's first responder, and a firefighter. An estimated 25 people were injured in the explosion and taken to local area hospitals, and 6 individuals were reportedly admitted. PSNC's first responder died in the hospital on April 25, 2019 as a result of injuries that he sustained in the explosion. The explosion resulted in the structures at 115 North Duke Street and 111 North Duke Street being condemned by the Durham Fire Department. Both structures have since been demolished. Approximately 15 buildings in total were reportedly damaged by the explosion.

Fifteen of 20 impacted PSNC customers had their gas service restored by April 15, 2019, with some being restored on the day of the event. Two more have be subsequently been restored for a total of 17 restored. The duration of the outage resulting from the explosion for Part G3 question 13a varied depending upon the location of service, therefore, "Unknown/other" was selected for this entry. A 469' section of the main was taken out of service on the day of the incident by closing Valve DV-120-1048 approximately 1,700' upstream of the incident. A crew dug up the 4" plastic main on Main street and sealed it off in both directions using electrofusion caps. A 350' section of main was replaced by inserting 2" plastic with tracer wire into the isolated section of 4" main. Six areas of the existing 4" main were cut to insert and pull the new main

as well as to install ¾" tapping tees with EFVs. A 249' section of main was installed on West Main Street and 101' section was installed on North Duke Street. and placed into service on August 17, 2019. This date was used in Part A question 13b (Local time and date pipeline/facility restarted).

PSNC's investigation of the explosion has included the following:

- PSNC performed a leakage survey over the remaining underground piping in the vicinity, and no leaks or issues were found. A one-block section of PSNC's gas main on North Duke Street remains out of service.

- PSNC performed leak flow rate testing at the scene by introducing compressed air into the gas main and the damaged service line. The size of the leak in the service line limited the pressure in the main to 22.7 psig. The leak flow rate of air was calculated to be 3,470 standard cubic feet per hour (SCFH), which after a formulaic conversion of air-to-methane, the leak flow rate of methane was calculated to be 6,589 SCFH. This flow rate value was used to compute the post excavation damage up to the explosion flow. After the explosion, the flow rate increased to an estimated 27,501 SCFH due to the damage to the aboveground gas facilities. After the explosion, the natural gas meter and regulator were damaged by the force of the explosion and subsequent falling debris. This caused more natural gas to escape to the air and helped fuel the fire. The estimated gas released value provided for Part A question 10 is 36,000 SCF, which is the summation of the flow post excavation damage up to explosion and the flow after the explosion.

- PSNC, along with other interested parties, on two separate occasions has inspected, photographed, and tested the horizontal directional drilling unit and tracker equipment used by Optic Cable Technology on the date of the explosion. It was discovered during this testing that parts of the horizontal directional drilling unit were not functioning, including the valve through which drilling fluid is introduced into the system and through the drill head.

- PSNC, along with other interested parties, has inspected and photographed all physical evidence that was collected, tagged and catalogued, and preserved by PSNC from the explosion scene. This physical evidence includes the exterior gas meter from 115 North Duke Street, PSNC's first responder's natural gas detector, the drill head from Optic Cable Technology's horizontal directional drilling unit, the damaged section of service line piping, and an undamaged section of the service line piping. Additionally, PSNC used a FARO scanner to obtain three- dimensional, digital images of the drill head and damaged section of service line piping.

- PSNC, along with other interested parties, has inspected and documented the PSNC company truck, including its contents, used by its first responder on the date of the explosion. Certain items from the truck, including company paperwork, personal protection equipment, a knife, a hand-held two-way radio, and a digital camera with its secure digital (SD) memory card, were removed, tagged and catalogued, and preserved. Personal items belonging to PSNC's first responder were collected and provided to his family's attorney.

- PSNC, along with other interested parties, has inspected and photographed the flooring of the structure at 115 North Duke Street after all explosion-related debris was removed. The footprint of the structure also was measured and documented during this site inspection.

PSNC's investigation has revealed that the service line to the structure at 115 North Duke Street was struck and damaged during Optic Cable Technology's horizontal directional drilling work. Approximately 1 hour later, and only 3 minutes after the arrival of PSNC's first responder to the scene, the escaping gas from the damaged service line ignited and resulted in the explosion.

PSNC's underground facilities, including the service line, were accurately located and marked by PSNC's contractor (Southern Cross Inc.) prior to the date of the explosion, but Optic Cable Technology's crew failed to pot-hole and verify the location of the service line under the sidewalk as part of their horizontal directional drilling work. This requirement is located in Chapter 81 of the NC General Statues, Article 8A, Section 87-122(c)(9)(a)(1) that states "The excavator shall not use mechanized equipment, except noninvasive equipment specifically designed or intended to protect the integrity of the facility, within the marked tolerance zone of an existing facility until: 1. The excavator has visually identified the precise location of the facility or has visually confirmed that no facility is present up to the depth of excavation." PSNC has had no known issues with its distribution system in this area in the recent past.

PSNC's investigation of the explosion is ongoing and several items remain unknown at this time. For instance, the exact amounts of property damages (both public and operator), restoration and repair costs required to fully re-commission the gas system, gas release, and emergency response costs have not been finalized. Therefore, all figures in this supplemental report should be read as estimates until PSNC issues its final report.

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

National Response Center Incident Report # 1242352
INC

GOVERNMENT USE ONLY
Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws.This is the summary NRC report. Further information about this report can be obtained at http://www.nrc.uscg.mil/

Incident Description

Report taken by:	HIF5180
At:	11:17
On:	04/10/2019
Incident Type:	PIPELINE
Incident Cause:	UNKNOWN
Affected Area:	
Incident:	OCCURRED on 04/10/2019 local incident time.
Affected Medium:	AIR , ATMOSPHERE
Offshore:	N

Reporting Party

Name:	SCOTT SWINDLER
Organization:	PSNC ENERGY
Address:	800 GASTON RD. GASTONIA NC 28056 , , , GASTONIA ,NC 28056
Primary Phone:	7048103230
Second Phone:	7047184231
Type of Organization:	PUBLIC UTILITY

Suspected Responsible Party

Name:	UNKNOWN
Organization:	
Address:	, , , ,XX
Primary Phone:	
Second Phone:	
Type of Organization:	UNKNOWN

Incident Location

Incident Location:	
Address:	118 N DUKE ST
Streets:	
County:	DURHAM
Nearest City:	DURHAM
State:	NC
Zip:	
Subdivision:	
Distance from city:	
Latitude:	
Longitude:	
Section:	
Township:	
Range:	

Released Material

Chris Code:	ONG
Official Material Name:	NATURAL GAS
Quantity Released:	0 UNKNOWN AMOUNT
Quantity in Water:	

Description of Incident

CALLER REPORTED THAT APPARENTLY A CONTRACTOR STRUCK THE PIPELINE, RESULTING IN FIRE AND UNKNOWN AMOUNT RELEASE OF NATURAL GAS.

Sensitive Information

Incident Details - PIPELINE

Pipeline Type:	DISTRIBUTION
DOT Regulated:	Y
Pipeline Above/Below Ground:	BELOW
Exposed or Under Water:	N
Pipeline Covered:	U
Sheen Size:	
Sheen Length:	
Sheen Width:	
Sheen Color:	
Direction of Sheen Travel:	
Sheen Odor Description:	
Body of Water:	
Tributary of:	
Nearest River Mile Marker:	
Water Supply Contaminated:	U

Impacts

SECURED THE GAS AT 1110.

Fire Involved:	Y	Fire Extinguished:	U
Injuries:	Y	Number of Injuries:	2
Number Hospitalized:	2		
Fatalities:	N	Number of Fatalities:	
Evacuations:	N	Number Evacuated:	
Who evacuated:		Radius/Area:	
Damages:	U	Damage Amount:	
Waterway Closure:	N		
Air Closure:	N		
Road Closure:	Y		
Major Artery:	N		
Direction of Road Closure:			
Rail Track Closure:	N		
Direction of Track Closure:			
Track Milepost:			
Media Interest:	UNKNOWN		
Environmental Impact:	U		
Community Impact due to Material:			

Remedial Actions

SECURED THE GAS AT 1110.

Released Secured:	Y
Release Rate:	
Estimated Release Duration:	

Weather

Weather Condition:	
Air temperature:	
Wind Speed:	
Wind Direction:	
Wave Condition:	
Current Speed:	
Current Direction:	
Water Temperature:	

Additional Agencies Notified

Federal Agency Notified:	
State Agency Notified:	
State/local on Scene:	FD, PD

State Agency Number:				
Additional Information				
Notification by NRC				
Organization	Sub Organization	Date Time Sent	E-mail	Phone
AGCY TOXIC SUBST & DISEASE REGISTRY	HHS	04/10/2019 11:29	eocreport@cdc.gov	(770) 4883430

END INCIDENT REPORT 1242352

The information contained in this communication from the Department of Transportation may be sensitive or privileged and is intended for the sole use of persons or entities named. If you are not the intended recipient of this transmission, you are prohibited from disseminating, distributing, copying or using the information. If you received this communication in error, please immediately contact the US DOT Pipeline and Hazardous Materials Safety Administration at 202-366-4433.

PSG02 00081 NCOCa 04/03/19 10:39:33 A190931483-00A NORM NEW GRID LR

North Carolina 811

Ticket : A190931483 Date: 04/03/19 Time: 10:35 Oper: SFB Chan:999
Old Tkt: A190931483 Date: 04/03/19 Time: 10:39 Oper: SFB Rev :00A

State: NC Cnty: DURHAM Place: DURHAM In/Out: B
Subdivision:

Address :
Street : N DUKE ST   Intersection: N
Cross 1 : W MAIN ST
Cross 2 : S DUKE ST
Location: LOCATE BY 11:59 PM ON 04/08/2019
LOCATE THE ENTIRE INTERSECTION OF N DUKE ST, S DUKE ST AND W MAIN ST FOR BORES
AND LOCATE THE LEFT SIDE OF THE ROAD HEADING NORTH FROM THAT INTERSECTION FOR
APPROX 1/4 MILE TO W CORPORATION ST
EXCAVATION AREA WILL BE MARKED WITH WHITE PAINT, FLAGS, OR STAKES.
:
Grids   : 3559A7854B   3559A7854C   3600D7854B   3600D7854C

Work type:FIBER OPTIC REPLACEMENT
Work date:04/09/19 Time: 00:00 Hours notice: 72/72 Priority: NORM
Ug/Oh/Both: U Blasting: N Boring: Y Railroad: N   Emergency: N
Duration: 2 DAYS Done for: LIGHT TOWER COMMUNICATION

Company : PS SPLICING LLC Type: CONT
Co addr : 4138 SAWMILL RD
City   : OXFORD State: NC Zip: 27565
Caller : DON SMITH Phone: 919-690-0787
Contact : SAME ALT Phone:
BestTime:
Cellular: 919-691-0119
Email   : pssplicingllc@yahoo.com

Submitted date: 04/03/19 Time: 10:39
Members: CLS01 COD01 CSR02 CVI04* DPC14* DUK01 DUK02* GTE03* LEV01 MCI01
Members: PAL01* PSG02 SCM01

View map at:
http://newtin.nc811.org/newtinweb/map_tkt.nap?TRG=1FhIkBt3r8r0p2vsvyp

MBR CODE	STAGE	LOCATOR	RESP	LAST UPDATED
PSG02	CT	SCC081	20	4/9/2019 12:27 PM by SCC081

DATE	EVENT
04/03/19 10:41AM	Ticket A190931483-00A Loaded (for Geocoding)
04/03/19 10:42AM	Ticket Geocoded [STRT-P], entering Auto-Assign stage
04/03/19 10:42AM	Local Area: PSG02 set to Default [0]
04/03/19 10:43AM	Auto-Assign: PSG02 assigned to JRAMBEAUT
04/03/19 10:57AM	Member PSG02 assigned from JRAMBEAUT to SCCDURHAM
04/03/19 05:53PM	Member PSG02 assigned from SCCDURHAM to SCC001

04/06/19 06:28PM Member PSG02 assigned from SCC001 to SCC081
04/08/19 04:11PM Member: PSG02, Response: 30
04/09/19 12:26PM Ticket Viewed by SCC081
04/09/19 12:27PM Member: PSG02, Response: 20
04/10/19 11:49AM Ticket Viewed by JB42890
04/10/19 12:24PM Ticket Viewed by SCC018
04/10/19 01:36PM Ticket Viewed by GM46104
04/10/19 02:07PM Ticket Viewed by JE44771
04/10/19 02:09PM Ticket Viewed by JE44771
04/10/19 02:10PM Ticket Viewed by JE44771
04/10/19 02:14PM Ticket Viewed by JE44771
04/10/19 02:14PM Ticket Viewed by JE44771
04/10/19 03:00PM Ticket Viewed by CNTLDISPATCH
04/10/19 03:38PM Ticket Viewed by GM46104
04/10/19 03:48PM Ticket Viewed by CNTLDISPATCH
04/10/19 03:53PM Ticket Viewed by CNTLDISPATCH
04/10/19 05:20PM Ticket Viewed by HG42743
04/10/19 07:20PM Ticket Viewed by SOUTHERNCROSS
04/10/19 09:14PM Ticket Viewed by SP36306
04/10/19 09:18PM Ticket Viewed by SP36306

PSG02 00127 NCOCc 04/08/19 10:06:49 A190931483-01C NORM RXMT GRID LR

North Carolina 811

Ticket : A190931483 Date: 04/08/19 Time: 10:05 Oper: LAF Chan:999
Old Tkt: A190931483 Date: 04/03/19 Time: 10:39 Oper: SFB Rev :01C

State: NC Cnty: DURHAM Place: DURHAM In/Out: B
Subdivision:

Address :
Street : N DUKE ST   Intersection: N
Cross 1 : W MAIN ST
Cross 2 : S DUKE ST
Location: LOCATE BY 11:59 PM ON 04/08/2019
LOCATE THE ENTIRE INTERSECTION OF N DUKE ST, S DUKE ST AND W MAIN ST FOR BORES AND LOCATE THE LEFT SIDE OF THE ROAD HEADING NORTH FROM THAT INTERSECTION FOR APPROX 1/4 MILE TO W CORPORATION ST
EXCAVATION AREA WILL BE MARKED WITH WHITE PAINT, FLAGS, OR STAKES.
:
Grids   : 3559A7854B   3559A7854C   3600D7854B   3600D7854C

Work type:FIBER OPTIC REPLACEMENT
Work date:04/09/19 Time: 00:00 Hours notice: 0/0 Priority: NORM
Ug/Oh/Both: U Blasting: N Boring: Y Railroad: N   Emergency: N
Duration: 2 DAYS Done for: LIGHT TOWER COMMUNICATION

Company : PS SPLICING LLC Type: CONT
Co addr : 4138 SAWMILL RD
City   : OXFORD State: NC Zip: 27565
Caller : DON SMITH Phone: 919-690-0787
Contact : SAME ALT Phone:
BestTime:
Cellular: 919-691-0119
Email   : pssplicingllc@yahoo.com

Remarks : PER CALLER NO LINES HAVE LOCATED / PLEASE COME OUT TO LOCATE AS SOON AS POSSIBLE
04/08/2019 10:05:47 AM RETRANSMIT BY LAF
:
Submitted date: 04/08/19 Time: 10:06
Members: CLS01 COD01 CSR02 CVI04* DPC14* DUK01 DUK02* EMLCFM GTE03* LEV01
Members: MCI01 PAL01* PSG02 SCM01

View map at:
http://newtin.nc811.org/newtinweb/map_tkt.nap?TRG=1FhIkBt3r8r0p10j7mF

MBR CODE	STAGE	LOCATOR	RESP	LAST UPDATED
PSG02	CT	SCC081	20	4/9/2019 12:27 PM by SCC081

DATE	EVENT
04/08/19 10:07AM	Ticket A190931483-01C Loaded (for Geocoding)
04/08/19 10:08AM	Ticket Geocoded [STRT-P], entering Auto-Assign stage

```
04/08/19 10:08AM  Local Area: PSG02 set to Default [0]
04/08/19 10:09AM  Auto-Assign: PSG02 assigned to JRAMBEAUT
04/08/19 10:44AM  Member PSG02 assigned from JRAMBEAUT to SCCDURHAM
04/08/19 05:50PM  Member: PSG02, Response: 30
04/08/19 06:00PM  Member PSG02 assigned from SCCDURHAM to SCC001
04/08/19 06:23PM  Member PSG02 assigned from SCC001 to SCC081
04/09/19 12:26PM  Ticket Viewed by SCC081
04/09/19 12:27PM  Member: PSG02, Response: 20
04/10/19 10:56AM  Ticket Viewed by OBC43736
04/10/19 10:57AM  Ticket Viewed by OBC43736
04/10/19 11:37AM  Ticket Viewed by JE44771
04/10/19 11:50AM  Ticket Viewed by JB42890
04/10/19 12:25PM  Ticket Viewed by PH40890
04/10/19 01:35PM  Ticket Viewed by GM46104
04/10/19 02:06PM  Ticket Viewed by JE44771
04/10/19 02:09PM  Ticket Viewed by JE44771
04/10/19 02:10PM  Ticket Viewed by JE44771
04/10/19 02:10PM  Ticket Viewed by JE44771
04/10/19 02:10PM  Ticket Viewed by JE44771
04/10/19 03:38PM  Ticket Viewed by GM46104
04/10/19 07:20PM  Ticket Viewed by SOUTHERNCROSS
04/10/19 09:13PM  Ticket Viewed by SP36306
04/10/19 09:16PM  Ticket Viewed by SP36306
```

PSG02 00042 NCOCc 04/09/19 09:21:25 A190931483-02C RUSH 3HRS GRID LR

North Carolina 811

Ticket : A190931483 Date: 04/09/19 Time: 09:20 Oper: LAF Chan:999
Old Tkt: A190931483 Date: 04/08/19 Time: 10:06 Oper: LAF Rev :02C

State: NC Cnty: DURHAM Place: DURHAM In/Out: B
Subdivision:

Address :
Street : N DUKE ST   Intersection: N
Cross 1 : W MAIN ST
Cross 2 : S DUKE ST
Location: LOCATE BY 11:59 PM ON 04/08/2019
LOCATE THE ENTIRE INTERSECTION OF N DUKE ST, S DUKE ST AND W MAIN ST FOR BORES AND LOCATE THE LEFT SIDE OF THE ROAD HEADING NORTH FROM THAT INTERSECTION FOR APPROX 1/4 MILE TO W CORPORATION ST
EXCAVATION AREA WILL BE MARKED WITH WHITE PAINT, FLAGS, OR STAKES.
:
Grids   : 3559A7854B   3559A7854C   3600D7854B   3600D7854C

Work type:FIBER OPTIC REPLACEMENT
Work date:04/09/19 Time: 00:00 Hours notice: 0/0 Priority: RUSH
Ug/Oh/Both: U Blasting: N Boring: Y Railroad: N   Emergency: N
Duration: 2 DAYS Done for: LIGHT TOWER COMMUNICATION

Company : PS SPLICING LLC Type: CONT
Co addr : 4138 SAWMILL RD
City   : OXFORD State: NC Zip: 27565
Caller : DON SMITH Phone: 919-690-0787
Contact : SAME ALT Phone:
BestTime:
Cellular: 919-691-0119
Email   : pssplicingllc@yahoo.com

Remarks : PER CALLER NO LINES HAVE LOCATED / PLEASE COME OUT TO LOCATE AS SOON AS POSSIBLE
04/08/2019 10:05:47 AM RETRANSMIT BY LAF
THE EXCAVATOR IS AWARE OF AND/OR OBSERVES INDICATION OF AN UNMARKED FACILITY AT THE PROPOSED EXCAVATION SITE
PER CALLER NO LINES HAVE BEEN LOCATED / PLEASE COME OUT TO LOCATE AS SOON AS POSSIBLE / CREW IS ON SITE WORKING
04/09/2019 09:20:26 AM 3 HOUR NOTICE BY LAF
:
Submitted date: 04/09/19 Time: 09:21
Members: CLS01 COD01 CSR02 CVI04* DPC14* DUK01 DUK02* EMLCFM GTE03* LEV01
Members: MCI01 PAL01* PSG02 SCM01

View map at:
http://newtin.nc811.org/newtinweb/map_tkt.nap?TRG=DF6tBlJeGgJaEcNQNWH

MBR CODE	STAGE	LOCATOR	RESP	LAST UPDATED
PSG02	CT	SCC081	20	4/9/2019 12:27 PM by SCC081

DATE	EVENT
04/09/19 09:21AM	Ticket A190931483-02C Loaded (for Geocoding)
04/09/19 09:22AM	Ticket Geocoded [STRT-P], entering Auto-Assign stage
04/09/19 09:23AM	Local Area: PSG02 set to Default [0]
04/09/19 09:23AM	Auto-Assign: PSG02 assigned to JRAMBEAUT
04/09/19 09:47AM	Member PSG02 assigned from JRAMBEAUT to SCCDURHAM
04/09/19 11:31AM	Ticket Viewed by SOUTHERNCROSS
04/09/19 11:32AM	Member PSG02 assigned from SCCDURHAM to SCC081
04/09/19 11:56AM	Ticket Viewed by SCC081
04/09/19 12:26PM	Ticket Viewed by SCC081
04/09/19 12:27PM	Member: PSG02, Response: 20
04/10/19 11:07AM	Ticket Viewed by JE45445
04/10/19 11:10AM	Ticket Viewed by JE45445
04/10/19 11:19AM	Ticket Viewed by AH46435
04/10/19 11:21AM	Ticket Viewed by AH46435
04/10/19 11:22AM	Ticket Viewed by AH46435
04/10/19 11:25AM	Ticket Viewed by AH46435
04/10/19 11:26AM	Ticket Viewed by AH46435
04/10/19 11:29AM	Ticket Viewed by AH46435
04/10/19 11:30AM	Ticket Viewed by AH46435
04/10/19 11:34AM	Ticket Viewed by SOUTHERNCROSS
04/10/19 11:34AM	Ticket Viewed by JE44771
04/10/19 11:35AM	Ticket Viewed by JE44771
04/10/19 11:48AM	Ticket Viewed by JB42890
04/10/19 12:23PM	Ticket Viewed by PH40890
04/10/19 12:23PM	Ticket Viewed by AS45690
04/10/19 01:33PM	Ticket Viewed by GM46104
04/10/19 02:24PM	Ticket Viewed by SJOHNSON
04/10/19 03:01PM	Ticket Viewed by BF36797
04/10/19 03:24PM	Ticket Viewed by CNTLDISPATCH
04/10/19 03:37PM	Ticket Viewed by GM46104
04/10/19 03:38PM	Ticket Viewed by GM46104
04/10/19 03:49PM	Ticket Viewed by CNTLDISPATCH
04/10/19 07:20PM	Ticket Viewed by SOUTHERNCROSS
04/10/19 07:21PM	Ticket Viewed by SOUTHERNCROSS
04/10/19 07:26PM	Ticket Viewed by SOUTHERNCROSS
04/10/19 07:39PM	Ticket Viewed by JE45445
04/10/19 07:39PM	Ticket Viewed by JE45445
04/10/19 07:43PM	Ticket Viewed by JE45445
04/10/19 09:18PM	Ticket Viewed by SP36306

PSG02 00029 NCOCc 04/10/19 09:31:34 C191000796-00C EMER NEW GRID DAMG

North Carolina 811

REPORT OF DAMAGE TO UNDERGROUND FACILITIES

Ticket : C191000796 Date: 04/10/19 Time: 09:28 Oper: LJS Chan:999
Old Tkt: C191000796 Date: 04/10/19 Time: 09:31 Oper: LJS Rev :00C

State: NC Cnty: DURHAM Place: DURHAM In/Out: B
Subdivision:

Address :
Street : N DUKE ST   Intersection: N
Cross 1 : W MAIN ST
Cross 2 : S DUKE ST
Location: LOCATE BY 11:59 PM ON 04/15/2019
DAMAGE OCCURRED AT ADDRESS 115 A N DUKE ST BETWEEN W MAIN ST AND W MORGAN ST
EXCAVATION AREA WILL BE MARKED WITH WHITE PAINT, FLAGS, OR STAKES.
:
Grids   : 3559A7854B   3559A7854C   3600D7854B   3600D7854C

Work type:REPORT OF DAMAGE
Work date:04/10/19 Time: 09:28 Hours notice: 0/0 Priority: EMER
Ug/Oh/Both: U Blasting: N Boring: Y Railroad: N   Emergency: Y
Duration: UNK Done for: LIGHT TOWER COMMUNICATION

Company : PS SPLICING LLC Type: CONT
Co addr : 4138 SAWMILL RD
City   : OXFORD State: NC Zip: 27565
Caller : DON SMITH Phone: 919-690-0787
Contact : SAME ALT Phone:
BestTime:
Cellular: 919-691-0119
Email   : pssplicingllc@yahoo.com

Remarks : EXCAVATION TICKET NUMBER: A190931483-02C 04/08/2019 10:06:31 AM LJS
DIRT INFO COLLECTED: 04/10/2019 09:28 AM
DIRT FACILITY OPERATION AFFECTED: NATURAL GAS
DIRT FACILITY TYPE AFFECTED: SERVICE/DROP
DIRT ADDITIONAL COMMENTS: UNKNOWN AT THIS TIME
:
Submitted date: 04/10/19 Time: 09:31
Members: CLS01 COD01 CSR02 CVI04* DPC14* DUK01 DUK02* GTE03* LEV01 MCI01
Members: PAL01* PSG02 PSG1E SCM01

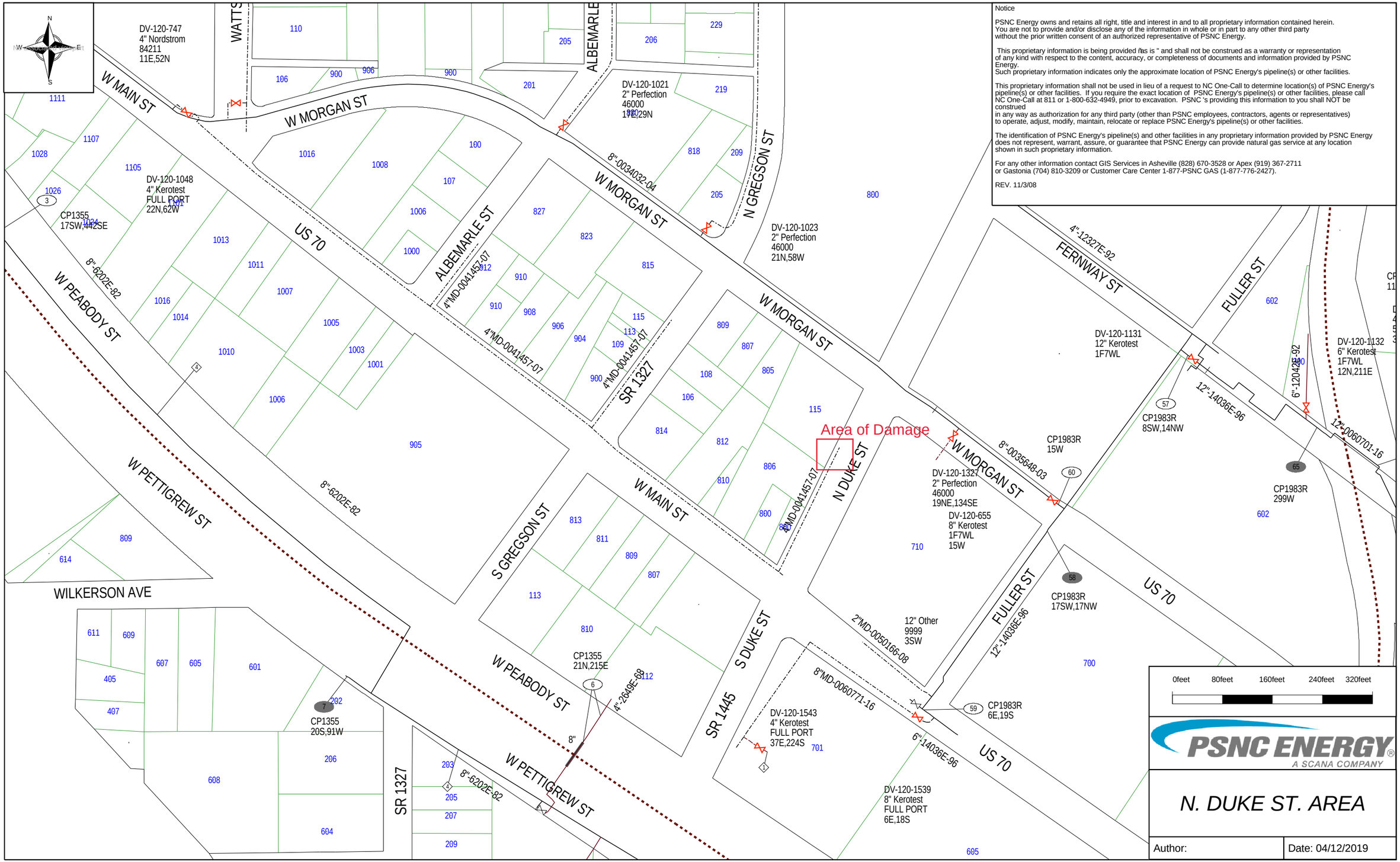
View map at:
http://newtin.nc811.org/newtinweb/map_tkt.nap?TRG=09t59o6o4v4sxr7g6n0

MBR CODE	STAGE	LOCATOR	RESP	LAST UPDATED
PSG02	AL	JRAMBEAUT		4/10/2019 9:34 AM by WebTMS

DATE	EVENT

```
04/10/19 09:34AM  Ticket C191000796-00C Loaded (for Geocoding)
04/10/19 09:34AM  Ticket Geocoded [STRT-P], entering Auto-Assign stage
04/10/19 09:34AM  Local Area: PSG02 set to Default [0]
04/10/19 09:35AM  Ticket delivered to SCANACentralizedGasDispatch@scana.com
04/10/19 09:36AM  Auto-Assign: PSG02 assigned to JRAMBEAUT
04/10/19 09:43AM  Ticket Viewed by JRAMBEAUT
04/10/19 09:48AM  Ticket Viewed by JRAMBEAUT
04/10/19 11:21AM  Ticket Viewed by AH46435
04/10/19 11:21AM  Ticket Viewed by AH46435
04/10/19 11:28AM  Ticket Viewed by AH46435
04/10/19 11:35AM  Ticket Viewed by JE44771
04/10/19 11:44AM  Ticket Viewed by JB42890
04/10/19 11:50AM  Ticket Viewed by PH40890
04/10/19 12:27PM  Ticket Viewed by JB42890
04/10/19 12:28PM  Ticket Viewed by LBROOKS
04/10/19 01:05PM  Ticket Viewed by TWILLIAMS
04/10/19 01:13PM  Ticket Viewed by TWILLIAMS
04/10/19 02:19PM  Ticket Viewed by JE44771
04/10/19 02:24PM  Ticket Viewed by SJOHNSON
04/10/19 02:58PM  Ticket Viewed by CNTLDISPATCH
04/10/19 03:15PM  Ticket Viewed by CNTLDISPATCH
04/10/19 03:23PM  Ticket Viewed by CNTLDISPATCH
04/10/19 03:38PM  Ticket Viewed by GM46104
04/10/19 07:36PM  Ticket Viewed by JE45445
04/10/19 07:37PM  Ticket Viewed by JE45445
04/10/19 09:10PM  Ticket Viewed by SP36306
04/11/19 10:56AM  Ticket Viewed by SP36306
04/11/19 12:56PM  Ticket Viewed by DWHITMAN
04/11/19 04:39PM  Ticket Viewed by HG42743
04/11/19 04:53PM  Ticket Viewed by JG36350
04/11/19 05:59PM  Ticket Viewed by SP36306
```

Appendix 4


Notice
PSNC Energy owns and retains all right, title and interest in and to all proprietary information contained herein. You are not to provide and/or disclose any of the information in whole or in part to any other third party without the prior written consent of an authorized representative of PSNC Energy.
This proprietary information is being provided "as is " and shall not be construed as a warranty or representation of any kind with respect to the content, accuracy, or completeness of documents and information provided by PSNC Energy.
Such proprietary information indicates only the approximate location of PSNC Energy's pipeline(s) or other facilities.
This proprietary information shall not be used in lieu of a request to NC One-Call to determine location(s) of PSNC Energy's pipeline(s) or other facilities. If you require the exact location of PSNC Energy's pipeline(s) or other facilities, please call NC One-Call at 811 or 1-800-632-4949, prior to excavation. PSNC 's providing this information to you shall NOT be construed in any way as authorization for any third party (other than PSNC employees, contractors, agents or representatives) to operate, adjust, modify, maintain, relocate or replace PSNC Energy's pipeline(s) or other facilities.
The identification of PSNC Energy's pipeline(s) and other facilities in any proprietary information provided by PSNC Energy does not represent, warrant, assure, or guarantee that PSNC Energy can provide natural gas service at any location shown in such proprietary information.
For any other information contact GIS Services in Asheville (828) 670-3528 or Apex (919) 367-2711 or Gastonia (704) 810-3209 or Customer Care Center 1-877-PSNC GAS (1-877-776-2427).
REV. 11/3/08
DV-120-747
4" Nordstrom
84211
11E,52N
DV-120-1021
2" Perfection
46000
17E,29N
DV-120-1048
4" Kerotest
FULL PORT
22N,62W
CP1355
17SW,44SE
DV-120-1023
2" Perfection
46000
21N,58W
DV-120-1131
12" Kerotest
1F7WL
DV-120-1132
6" Kerotest
1F7WL
12N,211E
CP1983R
8SW,14NW
CP1983R
15W
CP1983R
299W
DV-120-1327
2" Perfection
46000
19NE,134SE
DV-120-655
8" Kerotest
1F7WL
15W
CP1983R
17SW,17NW
12" Other
9999
3SW
CP1355
21N,215E
CP1355
20S,91W
DV-120-1543
4" Kerotest
FULL PORT
37E,224S
CP1983R
6E,19S
DV-120-1539
8" Kerotest
FULL PORT
6E,18S
Area of Damage
W MAIN ST
W MORGAN ST
ALBEMARLE ST
N GREGSON ST
US 70
W PEABODY ST
W PETTIGREW ST
SR 1327
S GREGSON ST
S DUKE ST
SR 1445
N DUKE ST
FERNWAY ST
FULLER ST
WILKERSON AVE
8"-0034032-04
4"MD-0041457-07
8"-6202E-82
4"-12327E-92
6"-12042E-92
12"-14036E-96
8"MD-0060771-16
8"-0035648-03
2"MD-0050166-08
4"-2649E-69
12"-0060701-16
0feet
80feet
160feet
240feet
320feet
PSNC ENERGY
A SCANA COMPANY
N. DUKE ST. AREA
Author:
Date: 04/12/2019

April 3, 2019

- 10:39 a.m. – PS Splicing makes initial locate request to 811 ("April 3 Locate Request")
- 10:43 a.m. – PSNC receives April 3 Locate Request; auto-assigned to PSNC Locator First Responder
- 10:57 a.m. – PSNC Locator First Responder assigns April 3 Locate Request to Southern Cross
- 5:53 p.m. – Southern Cross assigns April 3 Locate Request to a supervisor ("Southern Cross Supervisor SCC001")

April 6, 2019

- 6:28 p.m. – Southern Cross Supervisor SCC001 assigns April 3 Locate Request to a Southern Cross locator ("Southern Cross Locator SC081")

April 8, 2019

- 10:06 a.m. – PS Splicing resubmits locate request ("April 8 Locate Request") Ticket #A190931483
- 10:09 a.m. – PSNC receives April 8 Locate Request; auto-assigned to PSNC Locator First Responder
- 10:44 a.m. – PSNC Locator First Responder assigns April 8 Locate Request to Southern Cross
- 4:11 p.m. – Southern Cross responds that work is "not completed" for April 3 Locate Request
- 5:50 p.m. – Southern Cross responds that work is "not completed" for April 8 Locate Request
- 6:00 p.m. – Southern Cross assigns April 8 Locate Request to Southern Cross Employee SCC001
- 6:23 p.m. – Southern Cross Supervisor SCC001 assigns April 8 Locate Request to Southern Cross Locator SC081

April 9, 2019

- 9:21 a.m. – Work still not completed; Rush 3-hour locate request submitted by PS Splicing ("Rush Locate Request") Ticket #A190931483-02C
- 9:23 a.m. – PSNC receives Rush Locate Request; auto-assigned to PSNC Locator First Responder
- 9:47 a.m. – PSNC Locator First Responder assigns Rush Locate Request to Southern Cross
- 11:31 a.m. – Southern Cross views Rush Locate Request
- 11:32 a.m. – Rush Locate Request assigned to Southern Cross Locator SC081
- 11:56 a.m. – Southern Cross Locator SC081 views the Rush Locate Request
- 12:26 p.m. – Southern Cross Locator SC081 views the Rush Locate Request again
- 12:26 p.m. – Southern Cross Locator SC081 views the April 3 Locate Request
- 12:26 p.m. – Southern Cross Locator SC081 views the April 8 Locate Request
- 12:27 p.m. – April 3 Locate Request assigned designation of "marked"
- 12:27 p.m. – April 8 Locate Request assigned designation of "marked"

- 12:27 p.m. – Rush Locate Request assigned designation of "marked"

April 10, 2019

- 9:11 a.m. – City of Durham states 911 call received reporting strong odor of gas. Caller: Name unknown; Reported strong smell of gas as she drove through North Duke & Morgan St. intersection.
- 9:13 a.m. – City of Durham dispatches Engine 1 of fire department to scene to investigate odor; no odor detected and Engine 1 returns to fire department
- 9:28 a.m. – PS Splicing calls NC811 to report damage to gas line (Ticket# C191000796-00C)
- 9:31 a.m. – Emergency New Grid C191000796-00C ticket requested/created
- 9:34 a.m. – 811 auto-generates underground damage ticket ("Damage Ticket")
- 9:35 a.m. – Damage Ticket delivered to scanacentralizedgasdispatch@scana.com
- 9:36 a.m. – Damage Ticket auto-assigns to PSNC Locator First Responder
- 9:37 a.m. – PS Splicing calls 911 & stated they hit a gas line; information per City Officials
- 9:37 a.m. – City of Durham dispatches Engine 1 again after learning of struck gas line
- 9:43 a.m. – PSNC Locator First Responder views Damage Ticket while in his vehicle
- 9:48 a.m. – PSNC Locator First Responder views Damage Ticket again
- 9:48 a.m. – PSNC contact center receives call from 911 operator advising of damage to line, gas leak and that Fire Dept on the scene ("911 Operator Call"); Caller: Durham Communications (911): 115 North Duke Street, Durham, NC Smelling gas inside building/ evacuated building/contractor hit gas line under sidewalk.
- 9:55 a.m. – 911 Operator Call concludes
- 9:56 a.m. – PSNC contact center advises dispatch of all the details referred to in the 9:48 a.m. call – Smelling gas inside building/evacuated building/ contractor hit gas line under sidewalk.
- 9:56 a.m. – Customer contacts PSNC contact center to report strong smell of gas odor inside 111 North Duke Street building & adjacent building ("Customer Call")
- 9:57 a.m. – PSNC dispatch contacts PSNC Locator First Responder to advise of gas odor and hit line at 115 North Duke Street
- 9:58 a.m. – Fire Department begins evacuations
- 9:58 a.m. – Customer Call concludes
- 10:00 a.m. – PSNC contact center informs dispatch of all details referred to in the 9:56 a.m. Customer Call related to strong gas odor at 111 North Duke Street
- 10:03 a.m. – PSNC Locator First Responder arrives at the site
- 10:03 a.m. – PSNC dispatch contacts PSNC Employee #1 to advise of gas odor and hit line at 111 North Duke Street
- 10:04 a.m. – PSNC Locator First Responder calls PSNC Construction Supervisor to

advise that a construction crew is needed at the site to make necessary repairs under concrete sidewalk

- 10:05 a.m. – PSNC Construction Supervisor calls PSNC Construction Crew Leader who was working at another job site; PSNC Construction Supervisor instructs PSNC Construction Crew Leader to secure current job site and report to 115 North Duke Street
- 10:06 a.m. – Explosion occurs
- 10:26 a.m. – PSNC Employee #1 arrives at the incident site and assists Fire Department checking for gas leaks
- 10:29 a.m. – PSNC Construction Crew Leader arrives at incident site
- 10:36 a.m. – PSNC Construction Supervisor arrives at incident site
- 10:50 a.m. – Construction crew convenes at command post and begins determining where to shut-off gas
- 10:55 a.m. – PSNC Employee #2 advises PSNC Construction Supervisor of two potential nearby shut-off valves
- 11:05 a.m. – PSNC Employee #2 notified that shut-off valve has been located
- 11:10 a.m. – Gas valve feeding main is shut off manually

PSNC ENERGY Service Construction Work Order REVISED 02/20/04

MARKETING : PWR PLT #_____ PFM PROJECT #: _____

ADDRESS 115 N. Duke St LOT # _____ DATE _____

SUBDIVISION _____ CITY LIMITS: IN ☐ OUT ☐ STATE RD _____

BETWEEN _____ DEPT ID # 3147☐ 3427☐ 3437☐

TOWN _____ ZIP _____ TOWN CODE _____ CITY# _____ KEY# _____ GRID# _____

TYPE OF WORK: NEW SERVICE ☐ RENEW SERVICE ☐ RETIRE SERVICE ☐ READ ROUTE _____

RESIDENTIAL ☐ COMMERICAL ☐ MAIN LESS THAN 2 YRS OLD: Y/N : _____

WRITTEN BY _____ EMPLOYEE # _____ DATE NEEDED _____

CUST/BUILDER NAME _____ SOCIAL SECURITY# _____

MAILING ADDRESS _____ PHONE # _____

SUPT/LANDLORD NAME _____ CONTACT# _____

TYPE OF SERVICE: PLSI ☐ STSI ☐ SIZE ____ APPROX LENGTH ____ ft.

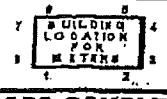
SHORT SIDE ☐ BORE ☐

EXCESS FLOW VALVE: YES ☐ NO ☐ 2lb SYSTEM: YES ☐ NO ☐

REMARKS: _____

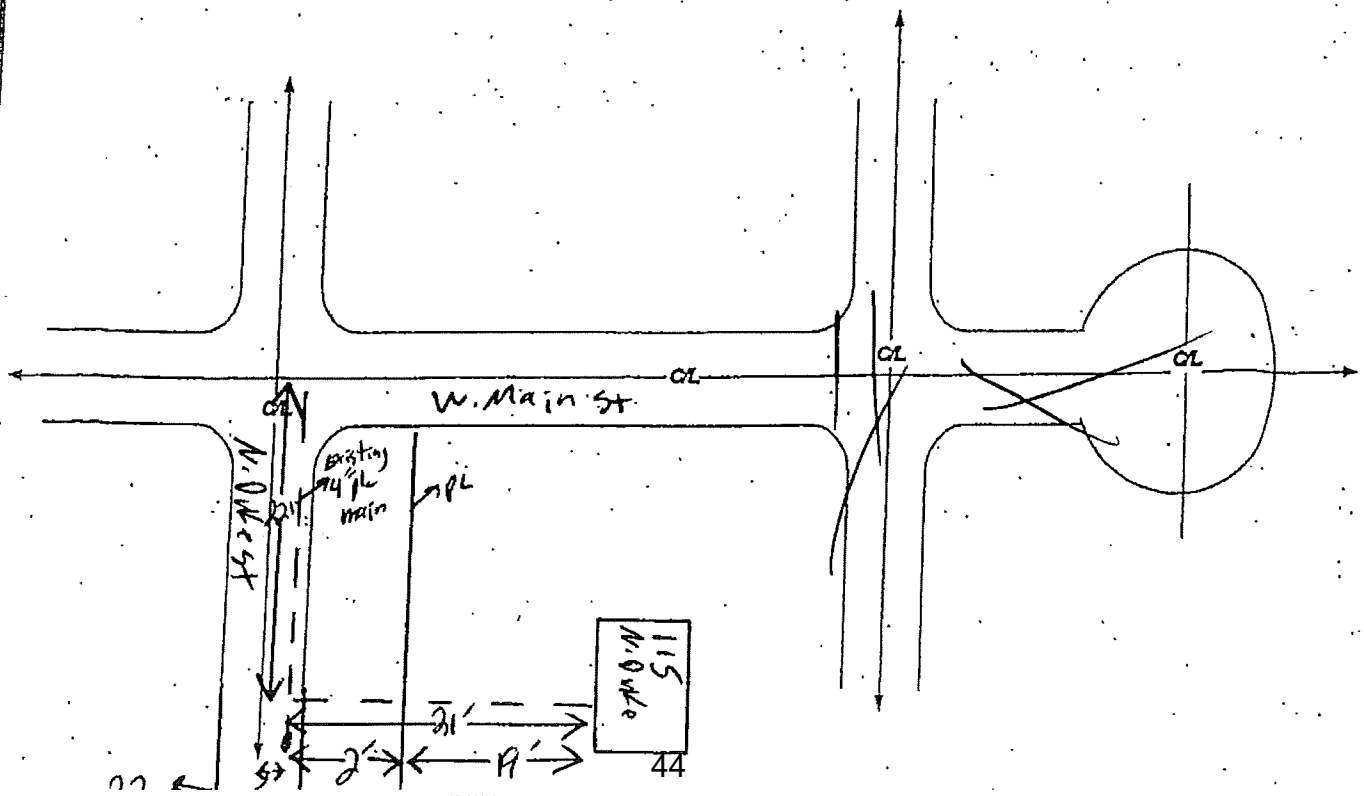
METER LOC: (CIRCLE ONE) 1 2 3 4 5 6 7 8

RISER LOC: ____ FT FROM FRONT ☐ \ BACK ☐ CORNER OF BUILDING



STRUCTURE CODE	FUEL CONVERSION
N.C./ Existing	E O S P M
☐A ☐F SINGLE	APPLIANCES IN USE
☐B ☐G MULTI	W Y R D G M
☐C ☐H COMMER	P Z C S F A
☐C ☐H INDUS	

GDS COMPLETED AS-BUILT CONSTRUCTION DRAWING: NC ONE CALL #_____



SERVICE COMPLETION RECORD:

LOCATION 115 N. Duke St CITY Durham

SERVICE INFORMATION:

SIZE 3/4 in. TYPE: PLSI ☒ STSI ☐ LENGTH 21 FT. INSTALLED ☐ RETIRED ☐ RENEWED ☒

TAP SIZE 1/2 in. TAP LOCATION 221 ft. FROM NEAREST ROAD CENTER LINE

RISER LOCATION 18 FT FROM FRONT ☒ BACK ☐ CORNER OF BUILDING. MARKED BY STUB OUT ☐ OR FLAG ☒

PRESSURE TEST: PRESSURE 90 psi MEDIUM Air LENGTH 1/4 hr DATE 1/29/08 BY: Distributi-

MAIN LOCATION: SIZE 4 in. TYPE: PLSI ☒ STSI ☐ C.I. ☐

DEPTH 3 DISTANCE FROM C/L OF ROAD 22 P/S READING ——

CONSTRUCTION MATERIAL LIST:

MATERIAL ID NUMBER	ISSUED	DESCRIPTION	MATERIAL ID NUMBER	ISSUED	DESCRIPTION
23806	21'	PIPE- PLSI PE 2406 3/4IPS	23842		COUPLING REP PERM 5/8 OD-0
23804		PIPE- PLSI PE 2406 5/8 IPS	23840		COUPLING RED PERM ¾ X 5/8 OD-
23803		PIPE- PLSI PE 2406 1-1/4 IPS	602		TRANSITION – PTSI/PE 2406 3/4
23805	2'	PIPE- PLSI PE 2406 2 IPS	3427		TEE TAP N VALVE STYLE 90 ¾ X
33833	1	RISER ANODELESS PREBENT GAL-3/4	4230		NIPPLE ¾ X 3
33832		RISER ANODELESS PREBENT ¾ X 5/8 OD PERM	76		CAP ¾
11249		TEE TAP – PLSI DRISCO 8000 2 X 3/4	2690	1	VALVE MUELLER GALV # H-11175
23827		TEE TAP- PL 2406 2 X ¾	22442		TEE TAP INNOGAZ 2" IPS(OUTLET-
23917		TEE TAP- PE 2406 2 X 5/8 W CPL	3790	1	3\4 " PLUG
20204		TEE TAP PLSI 80M664110THCXB 4 X 3/4	4156		3\4" X 2 " NIPPLE
23918		TEE TAP PLSI 2406 4 X 5/8 CPL			
23829	1	TEE TAP PL 2406 4 X ¾			
25351		TEE TAP PE 2406 8 X ¾ ELEC FUSION			
26934		TEE PLSI STAB 5/8 X 5/8 X 5/8 OD			
23823		TEE- PLSI PE 2406 ¾ IPS			
33888		TEE PLSI STAB ¾ SDR 11 #50281			
33894		TEE PLSI STAB ¾ X ¾ X 5/8 OD 50930			

SERVICE CONSTRUCTION REPORT:

PIPE SIZE 3/4 in. PIPE FOOTAGE X ft. TOTAL BORE FOOTAGE 21 (yard) ft. SEEDING – LIN. FOOTAGE X

ROCK REMOVAL :
BACKHOE/TRENCHER : ___(L) X ___ (W) ___ (D)/ 27 = _____ (CU YDS)

JACKHAMMER: ___(L) X ___ (W) ___ (D)/ 27 = _____ (CU YDS)

ASPHALT REMOVED (L x W x D)_____ CONCRETE REMOVED (L x W x D)_____ SOD REMOVED _____ Sq ft

ASPHALT REPLACED (L x W x D)_____ CONCRETE REPLACED (L x W x D)_____ SOD PURCHASED _____ Sq

ADDITIONAL ITEMS: _____

THIS WORK HAS BEEN COMPLETED: SIGNED Roverd Bell DATE: 1/29/08

RISER LOCATION FREE OF OBSTRUCTIONS: YES ☒ NO ☐ (EXAMPLE: NO DIRECT VENTS, POWER METERS, ETC PRESE

CONTRACTOR Distributi- FOREMAN Roverd Bell CREW# 05

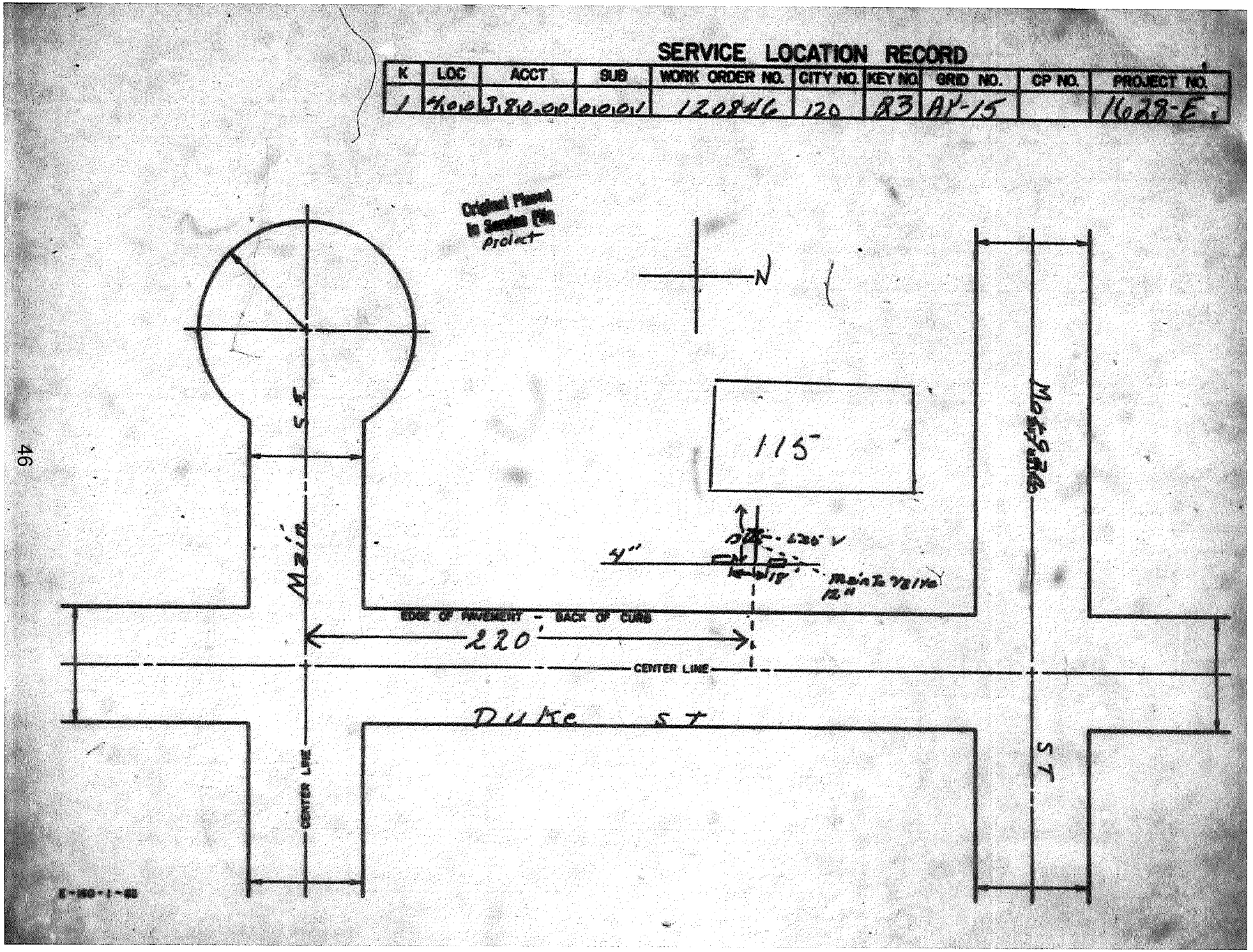
REMARKS _____

COMPLETION APPROVED BY (INSPECTOR)_____ DATE_____

ACCOUNT CODE DIST: PSNC | 1 | 1 | 8 | 0 | 2 | 7 | 0 | PSNC | | |

SERVICE LOCATION RECORD

K	LOC	ACCT	SUB	WORK ORDER NO.	CITY NO.	KEY NO.	GRID NO.	CP NO.	PROJECT NO.
1	41618	3180618	6101011	120846	120	A3	AY-15		1628-E



LOCATION 115 Duke st CITY Durham

BETWEEN STREET & STREET

	SIZE	TYPE	LENGTH	INSTALLED	RETIRED	RENEWED
MAIN TO BLDG.	4"	Steel	13' 6"			
MAIN TO PROP. LINE						
PROP. LINE TO BLDG.						

ENTERS: BRANCHED INTO:

TAP SIZE: PRESSURE 20 P.S.I. ____ INCHES W.C. LOCATION 220± Mark.

of Center Line of Main St

PRESSURE TEST: @ 60# psi For ½ Hrs. By Z-Gas

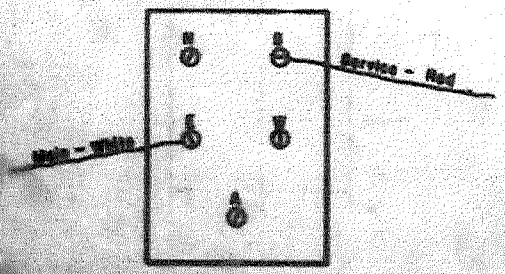
MAIN-SIZE 4" C.I. ___ BARE STEEL ___ COATED STEEL ← PLASTIC ___ YEAR INSTALLED 1935

DEPTH: @ 30 In. LOCATION 2 FT Back of West curb line.

in side walk

"A" P/S READING ____ TOTAL ANODES 1# ___ 17# ___ L.R. # ____

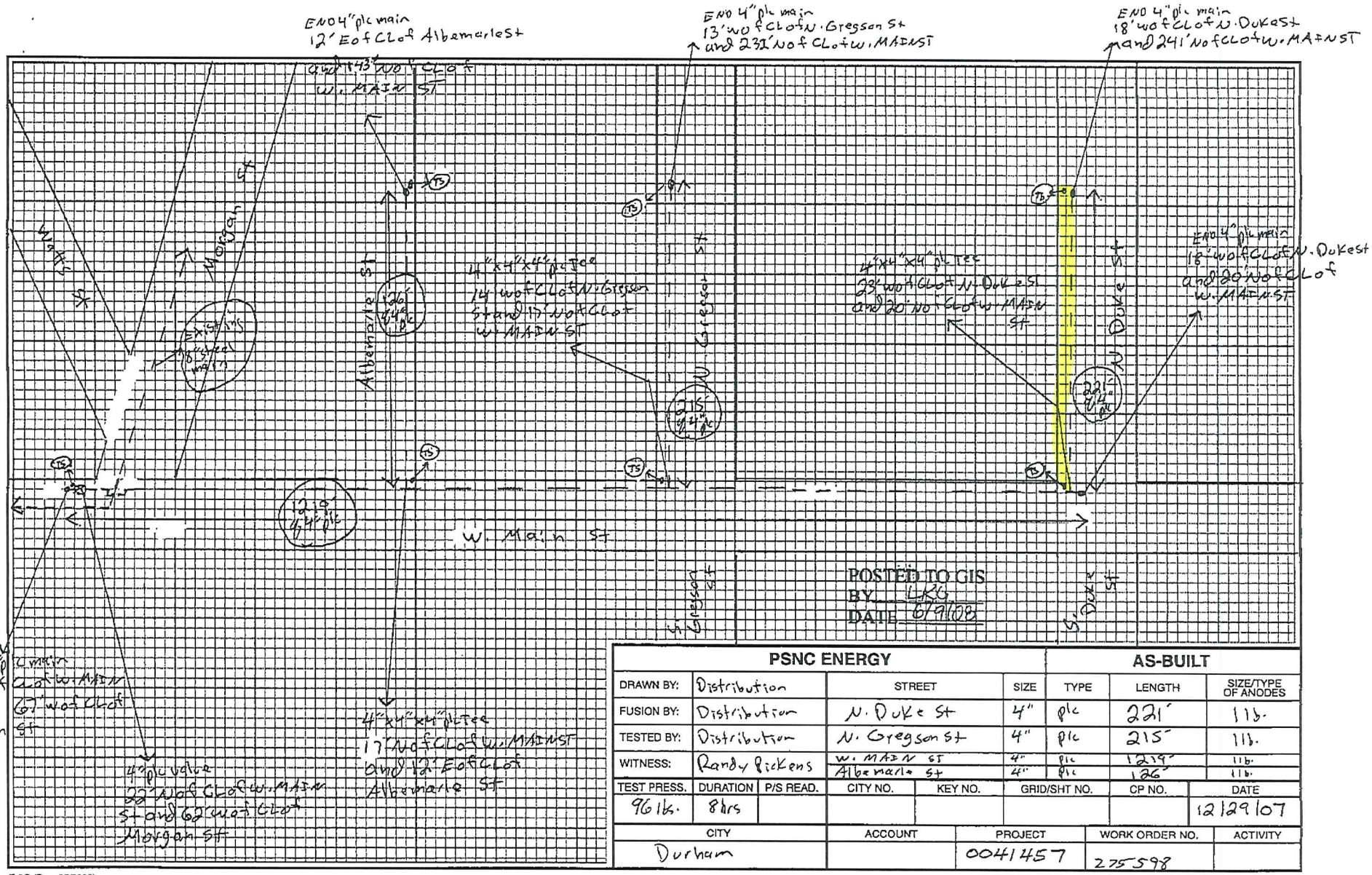
REMARKS:



Test Station		
Reading & Location	Lead	Volts
P/S Pipeline Lead – Red New Service	S	
P/S Pipeline Lead – White Existing Main	E	



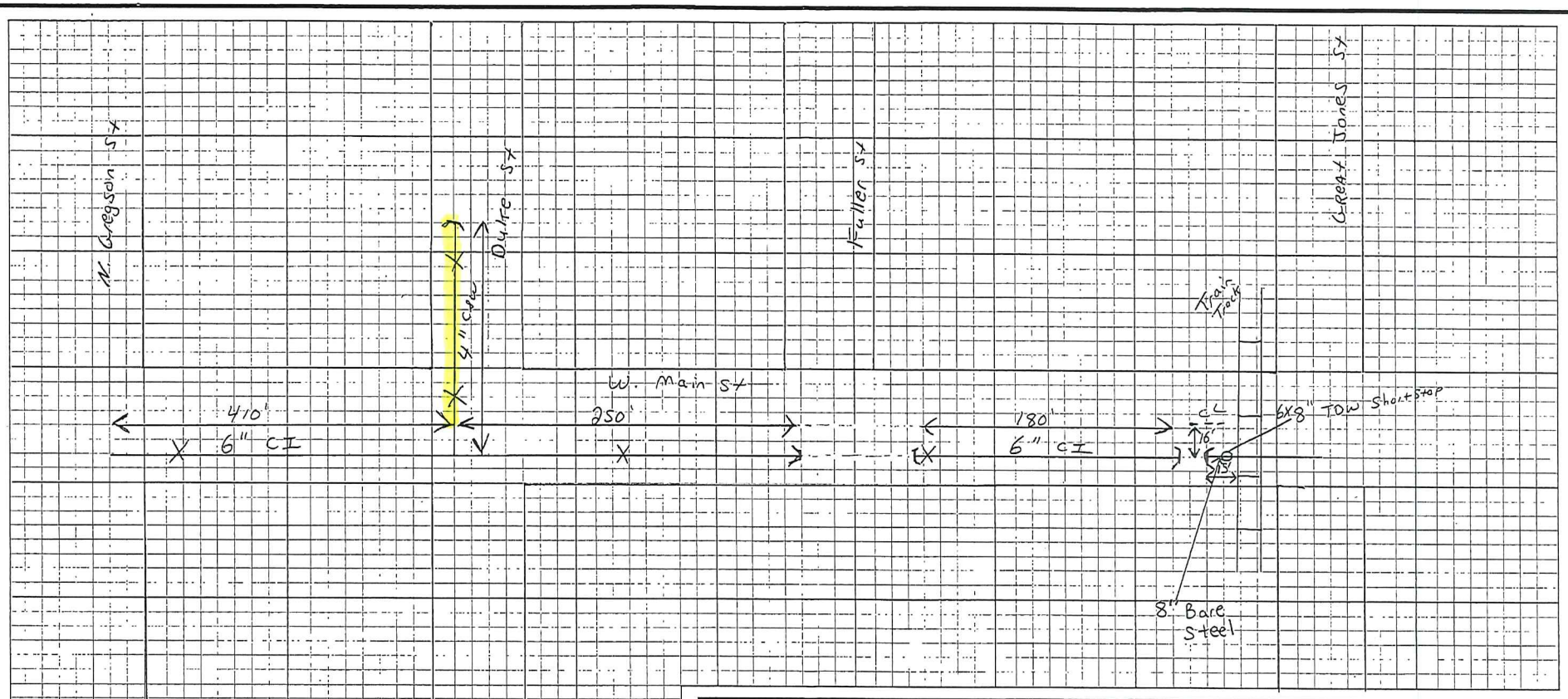
ENG. DEPT. USE ONLY



POSTED TO GIS
BY LKG
DATE 6/9/08

PSNC ENERGY						AS-BUILT		
DRAWN BY:	Distribution	STREET		SIZE	TYPE	LENGTH	SIZE/TYPE OF ANODES	
FUSION BY:	Distribution	N. Duke St		4"	plc	221'	11lb.	
TESTED BY:	Distribution	N. Gregson St		4"	plc	215'	11lb.	
WITNESS:	Randy Pickens	W. MAIN ST		4"	plc	1219'	11lb.	
		Albemarle St		4"	plc	126'	11lb.	
TEST PRESS.	DURATION	P/S READ.	CITY NO.	KEY NO.	GRID/SHT NO.	CP NO.	DATE	
96 lb.	8 hrs						12/29/07	
CITY		ACCOUNT	PROJECT		WORK ORDER NO.		ACTIVITY	
Durham			0041457		275598			

E-6C (Rev. 06/2002)



PSNC ENERGY						AS-BUILT		
DRAWN BY:	S. Lane		STREET		SIZE	TYPE	LENGTH	SIZE/TYPE OF ANODES
FUSION BY:			Duke St		4"	Steel	324'	
TESTED BY:			W. Main St		6"	CI	840'	
WITNESS:								
TEST PRESS:	DURATION	P/S READ	CITY NO.	KEY NO.	GRID/SHT NO.		CP NO.	DATE
			120					5-16-08
CITY			ACCOUNT	PROJECT	WORK ORDER NO.			ACTIVITY
Durham			834380	0040408	50295822			

POSTED TO GIS
BY: LKA
DATE: 6/9/08

E-6C (Rev. 01/2005)

49

Appendix 7

PSNC Skills/Certifications Report
For Employee [redacted]

[redacted]

Job Title/Jobcode: Locator/First Responder I / 310010

Skill ID	Description	Supervisor	Dt Certified	Status	Renew By
AOC0000	Recognize & React to Abnormal	[redacted]	07/24/2018	Passed	07/24/2021
CN1001	PURGE PIPELINES		07/24/2018	Passed	07/24/2021
CN1008	PRESSURE TEST/NON LIQUID MEDIA		07/24/2018	Passed	07/24/2021
CN1015	JOINING OF PIPE - COMPRESSION		08/26/2016	Passed	08/26/2019
CN1017	JOINING OF PIPE - THREADED JOI		08/26/2016	Passed	08/26/2019
CN1018	INSTALL MECHANICAL CLAMPS/SLEE		08/26/2016	Passed	08/26/2019
CN1019	JOINING OF PIPE - HEAT FUSION:		07/24/2018	Passed	07/24/2021
CN1022	JOINING OF PIPE - ELECTROFUSIO		07/24/2018	Passed	07/24/2021
CN1023	JOINING OF PIPE - STAB FITTING		07/24/2018	Passed	07/24/2021
CN1024	JOINING OF PIPE - FLANGE ASSEM		08/26/2016	Passed	08/26/2019
CN1029	TAPPING A PIPE W/BUILT-IN CUTT		07/24/2018	Passed	07/24/2021
CN1030	VISUALLY INSPECT PIPE/COMPONEN		07/24/2018	Passed	07/24/2021
CN1040	INSTALL/MAINTENANCE OF CASING		06/05/2017	Passed	06/05/2020
CN1041	ACHIEVE/MAINTAIN MIN COVER/MIN		07/24/2018	Passed	07/24/2021
CN1043	EXCAVATION AND BACKFILLING		07/24/2018	Passed	07/24/2021
CR2001	COATING APPLICATION AND REPAIR		08/26/2016	Passed	08/26/2019
CR2003	INSTALL/MAINT OF MECHANICAL EL		07/24/2018	Passed	07/24/2021
CR2004	INSTALLATION OF EXOTHERMIC ELE		08/26/2016	Passed	08/26/2019
CR2005	INSPECT OR TEST CATHODIC PROTE		06/05/2017	Passed	06/05/2020
CR2006	INSPECT/TEST CATHODIC PROT ELE		06/05/2017	Passed	06/05/2020
CR2007	VISUAL INSPECT/BURIED PIPE/COM		06/05/2017	Passed	06/05/2020
CR2008	MEASURE EXTERNAL CORROSION		06/05/2017	Passed	06/05/2020
CR2009	VISUAL INSPECTION FOR MECHANIC		06/05/2017	Passed	06/05/2020
CR2010	VISUAL INSPECTION FOR ATMOSPHE		06/05/2017	Passed	06/05/2020
CR2011	MEASURE ATMOSPHERIC CORROSION		06/05/2017	Passed	06/05/2020
CR2013	VISUAL INSPECTION FOR INTERNAL		06/05/2017	Passed	06/05/2020
CR2014	MEASURE INTERNAL CORR(MEASURE		06/05/2017	Passed	06/05/2020
CR2020	MEASURE PIPE-TO-SOIL POTENTIAL		06/05/2017	Passed	06/05/2020
ER3000	SQUEEZE OFF PLASTIC PIPE		07/24/2018	Passed	07/24/2021
ER3001	SQUEEZE OFF STEEL PIPE		07/24/2018	Passed	07/24/2021
ER3003	OUTSIDE GAS LEAK INVESTIGATION		07/24/2018	Passed	07/24/2021
ER3004	RESPOND TO GAS EMERGENCIES		07/24/2018	Passed	07/24/2021
OM6008	INSPECT PIPELINE FACILITY SURF		08/26/2016	Passed	08/26/2019
OM6009	DAMAGE PREVENTION-EXCAVATION/E		07/24/2018	Passed	07/24/2021
OM6011	LOCATE UNDERGROUND PIPELINE FA		07/24/2018	Passed	07/24/2021
OM6012	INSTALL/MAINTAIN PIPELINE MARK		08/26/2016	Passed	08/26/2019
OM6013	MANUALLY OPENING AND CLOSING V		08/26/2016	Passed	08/26/2019
OM6014	VALVE-VISUAL INSPECTION AND PA		08/26/2016	Passed	08/26/2019
OM6015	VALVE-PREVENTIVE AND CORRECTIV		08/26/2016	Passed	08/26/2019
PLASTICR	Plastic Pipe Joiner Recertific		03/01/2019	Passed	03/01/2020
SD919	Smith System Defensive Driving		02/06/2018	Passed	02/06/2020
SFT112	Asbestos Refresher		09/25/2018	Passed	09/25/2019
SFT130B	Resp. Fit Test SCBA		10/22/2018	Passed	10/22/2019
SFT600	Confined Space Entry		04/25/2018	Passed	04/25/2021
SR7003	MAINT OF SERVICE VALVES UPSTRE		06/05/2017	Passed	06/05/2020
SR7004	TEMPORARY ISOLATION OF SERVICE		07/24/2018	Passed	07/24/2021

PSNC ENERGY
A SCANA COMPANY

OQ Contractor Renewal Notification

Company: S&N LOCATING SERVICES LLC [redacted] [redacted]

All Records

05/11/2019
06/10/2019
07/10/2019

Title	Skill Id	Qualification Date	Requalification Date
AOC0000-RECOGNIZE & REACT TO AOC'S	AOC0000	12/07/2016	12/07/2019
OM6011-LOCATE UNDERGROUND PIPELINE FAC	OM6011	12/07/2016	12/07/2019

PSNC ENERGY
A SCANA COMPANY

[ ] LOG OF ODORANT TESTS - Stationary Monitoring

[x] LOG OF ODORANT TESTS - Portable Monitoring

Region Durham Month April, 2019

Town Durham

Date	Town / Location	Threshold Test			Standard Concentration Test (1% Gas in Air)			
		Flow Meter			Operator Initials	Intensity (1,2,3,4 or 5)	Witness Initials	Intensity (1,2,3,4 or 5)
		Ball (B or M)	Reading	% Conc.				
4-10-19	meter 47989	B	4	.1	AO	3		
4-10-19	meter 193667	B	4		AO	3		
4-10-19	meter 193657	B	4	.1	AO	3		
4-10-19	Meter 543112	B	4.5	.12	AO	3		

PSNC ENERGY
A SCANA COMPANY

☑ LOG OF ODORANT TESTS - Stationary Monitoring

☐ LOG OF ODORANT TESTS - Portable Monitoring

Region S. Durham Town _____ Month Febuary, 2019

Serial No.: Durham 6665

Please Print All Data Clearly

Date	Town / Location	Threshold Test			Standard Concentration Test (1% Gas in Air)			
		Flow Meter						
		Ball (B or M)	Reading	% Conc.	Operator Initials	Intensity (1,2,3,4 or 5)	Witness Initials	Intensity (1,2,3,4 or 5)
2-1-19	S. durham	B	4.0	.092	EA	3	JP	3
2-4-19	"	B	4.5	.112	EA	3	JP	3
2-5-19	"	B	4.0	.092	EA	3	JP	4
2-6-19	"	B	4.0	.092	EA	4	JP	4
2-7-19	"	B	4.0	.092	EA	4	JP	3
2-8-19	"	B	4.0	.092	EA	4	JP	4
2-11-19	"	B	4.0	.092	EA	3	JP	3
2-12-19	"	B	4.5	.112	JP	4	BC	3
2-13-19	"	B	4.0	.092	JP	3	BC	3
2-14-19	"	B	4.5	.112	JP	3	BC	3
2-15-19	"	B	4.5	.112	JP	4	B.C	4
2-18-19	"	B	4.0	.092	JP	4	MP	3
2-19-19	"	B	4.5	.112	JP	4	MP	3
2-20-19	"	B	4.5	.112	JP	4	MP	4
2-21-19	"	B	4.0	.092	JP	3	MP	3
2-22-19	"	B	4.0	.092	MP	3	JP	3
2-25-19	"	B	4.5	.112	MP	4	JP	4
2-26-19	"	B	4.5	.112	MP	4	JP	3
2-27-19	"	B	4.0	.092	MP	3	JP	3

Ball - (Blue or Black) or M (Metal)

Intensity - (1) Absent (2) Barely Detectable (3) Readily Detectable (4) Strong (5) Very Strong (Obnoxious)

Reviewed by: _____ Date _____ Reviewed by: _____ Date _____

Supervisor-Operations GM – Operations Maintenance

Actions Taken: _____

Form No.: E-70 (Rev. 04-18-2018)

PSNC ENERGY
A SCANA COMPANY

☐ LOG OF ODORANT TESTS - Stationary Monitoring

☐ LOG OF ODORANT TESTS - Portable Monitoring

Region South Durham

Month March, 19

Town South Durham

PSC 66663

Date	Town / Location	Threshold Test			Standard Concentration Test (1% Gas in Air)			
		Flow Meter			Operator Initials	Intensity (1,2,3,4 or 5)	Witness Initials	Intensity (1,2,3,4 or 5)
		Ball (B or M)	Reading	% Conc.				
3-1	S. Durham	B	4	.092	MP	4	EA	4
3-4	"	B	4	.092	MP	4	EA	3
3-5	"	B	4.5	.112	MP	4	JP	4
3-6	"	B	3	.046	MP	3	JP	4
3-7	"	B	4	.092	MP	3	JP	4
3-8	"	B	4.0	.092	MP	4	JP	3
3-11	"	B	4	.092	MP	3	BC	3
3-12	"	B	3	.046	MP	4	BC	4
3-13	"	B	4	.092	MP	4	JP	4
3-14	"	B	4	.092	MP	3	EA	4
3-15	"	B	3	.046	MP	3	JP	3
3-18	"	B	4	.092	MP	4	JP	3
3-19	"	B	3	.046	MP	4	EA	3
3-20	"	B	4	.092	MP	4	EA	4
3-21	"	B	4	.092	MP	3	EA	4
3-22	"	B	3	.046	MP	3	EA	4
3-25	"	B	3	.046	MP	4	JP	3
3-26	"	B	3	.046	MP	4	JP	3
3-27	"	B	4	.092	MP	4	BC	3
3-28	"	B	3	.046	MP	4	BC	4
3-29	"	B	3	.046	MP	4	JP	3

Ball - (Blue or Black) or M (Metal)

Intensity - (1) Absent (2) Barely Detectable (3) Readily Detectable (4) Strong (5) Very Strong (Obnoxious)

Reviewed by: _____
Supervisor-Operations

Reviewed by: _____
Supervisor-MOC

Actions Taken: _____

Form No-E-70

PSNC ENERGY®
A SCANA COMPANY

☒ LOG OF ODORANT TESTS - Stationary Monitoring

☐ LOG OF ODORANT TESTS - Portable Monitoring

Region Durham Town _____ Month April, 2019

Serial No.: ~~6663~~ 6663

Please Print All Data Clearly

Date	Town / Location	Threshold Test			Standard Concentration Test (1% Gas in Air)			
		Flow Meter			Operator Initials	Intensity (1,2,3,4 or 5)	Witness Initials	Intensity (1,2,3,4 or 5)
		Ball (B or M)	Reading	% Conc.				
4-1-19	S. Durham	B	4.0	.092	MP	4	EA	4
4-2-19	S. Durham	B	4.0	.092	MP	4	EA	4
4-3-19	S. Durham	B	4.0	.092	MP	3	EA	3
4-4-19	S. Durham	B	4.0	.092	MP	4	EA	4
4-5-19	S. Durham	B	4.0	.092	MP	3	EA	3
4-8-19	S. Durham	B	3.0	0.46	MP	3	EA	3
4-9-19	S. Durham	B	4.5	.112	MP	4	EA	4
4-10	S. Durham	B	3.0	.0546	AO	3	DWB	3
4-11-19	S. Durham	B	4.5	.112	MP	4	EA	4
4-12	S. Durham	B	3.0	.046	EA	3	MP	4

Ball - (Blue or Black) or M (Metal)
Intensity - (1) Absent (2) Barely Detectable (3) Readily Detectable (4) Strong (5) Very Strong (Obnoxious)

Reviewed by: _____ Date _____ Reviewed by: _____ Date _____
Supervisor-Operations GM – Operations Maintenance

Actions Taken: _____

Form No.: E-70 (Rev. 04-18-2018)

North Carolina

4/11/2019

Premise Detail

CIS Data

Premise 3196417542

Address 115 N DUKE ST DURHAM NC 27701

Leak Survey Freqency 77

Last Completed Leak Survey 2/26/2019

Account Type Commercial

Gas Office NORTH DURHAM

Service Number	Service Line Status	Service Line Installed	IC Number	Meter Number	Meter Location	Meter Status	Meter Installed	Meter Removed
1000151548	A - Active	1/29/2008	1	000511504	FRONT CENTER	A - Active	12/1/2006	

Survey History

Inspection Type	AC Grade	Leak Grade	Surveyed On	Surveyed By	Technician
LS	A		02/26/2019	Southern Cross	[redacted]
LS	A	3	01/28/2016	Southern Cross	[redacted]

Premise Detail

CIS Data

Premise 7196231972

Address 115 N DUKE ST DURHAM NC 27701

Leak Survey Freqency 77

Last Completed Leak Survey 3/22/2019

Account Type Commercial

Gas Office NORTH DURHAM

Service Number	Service Line Status	Service Line Installed	IC Number	Meter Number	Meter Location	Meter Status	Meter Installed	Meter Removed
1000067382	U - Unknown	9/10/1964	1	000296886	REAR CENTER	K - Removed Or Not Yet	9/22/2000	6/10/2003

Survey History

Inspection Type	AC Grade	Leak Grade	Surveyed On	Surveyed By	Technician
LS	A		03/22/2019	Southern Cross	[redacted]
LS	B		01/28/2016	Southern Cross	[redacted]

From: [redacted]
To:
Cc:
Subject: Requested information Durham Incident
Date: Wednesday, August 14, 2019 5:18:33 PM

Mr. Wood and Mr. Tate,

Per your request, please find update on joint inspections including the leak flow rate calculation in the information provided below:

Since excavating the natural gas pipe on May 6–7, 2019, the interested parties have gathered for joint inspections to document important evidence and gather data that experts will later use to develop opinions regarding the cause and origin of the April 10 explosion. The following inspections have occurred since the excavation of the pipe: the HDD unit inspection; the artifact examination; and the PSNC truck documentation. The tasks accomplished at each inspection are described below. The interested parties anticipate participating in at least two more inspections, namely part two of the HDD unit inspection and an in-laboratory flow rate/leak test of the supply line. These inspections are conducted with notice to the interested parties and usually pursuant to a written protocol.

In Situ Leak Flow Rate Test – May 6, 2019 – Durham, North Carolina

On May 6, 2019, the gas main south of the incident site was excavated to provide a location for connecting the flow test equipment. A Honeywell gas meter (Model American AL-100, S/N 18K489250) and a Fisher regulator (Type 627, S/N R056463920) were connected to the gas main at the excavation. A supply of compressed air was attached upstream of the regulator. The riser adjacent to the east exterior wall of the structure at 115 N. Duke St. was plugged for the leak test. After the first flow test attempt, it was determined that the spring inside the Fisher regulator needed to be replaced to accommodate a higher volumetric flow rate. Compressed air was applied to the gas main and the subject supply pipe. The size of the leak in the supply pipe limited the pressure in the main to 22.7 psig. The gas meter was clocked during the flow test by counting and timing the number of revolutions of the Five Feet dial. The dial made 2 complete revolutions in 26.4 seconds, which equates to 1,364 CFH of air. Assuming constant temperature and ratioing the pressure from the test conditions (P_{test}/P_{std}), the flow rate was calculated at 3,470 SCFH of air:

$$Q_{air} = V_{air}(T_{std}/T)(P_{test}/P_{std}) = V_{air}((22.7 + 14.7)/14.7) = 3{,}470 \text{ SCFH}$$

The leak flow rate of methane was calculated to be 6,589 SCFH using the following equation:

$$Q_{methane} = Q_{air}(SG_{air}/SG_{methane})^{½}(P_{op}/P_{test})^{½}$$

where: Q_{air} is 3,470 SCFH

SG_{air} is the specific gravity of air, or 1

$SG_{methane}$ is the specific gravity of methane, or 0.554

P_{op} is the operating pressure of the main, or 74.7 psia

P_{test} is the pressure from the flow test, or 37.4 psia

This calculation is subject to change if additional information becomes available.

HDD Unit Inspection – June 7, 2019 – Durham, North Carolina

On May 9, Optic Cable Technologies ("Optic Cable") removed from the incident site the Ditch Witch HDD unit that was in the process of boring on North Duke Street at the time the natural gas supply line was punctured. According to Optic Cable, there were six rods in the ground at the time the unit was removed. Optic Cable numbered the first five rods in the order that they were retrieved from the ground. The sixth and final rod was held in the retrieved position by the unit. After leaving the incident site, Optic Cable transported the unit to its storage facility on South Hoover Street in Durham and covered the unit, preserving it for future inspection by the parties.

The interested parties gathered at Optic Cable's storage facility on June 7, 2019 to inspect the unit. Dominion's consultant, ESi, had collected a tracker on April 16 from a work truck, presumably belonging to Optic Cable, that was parked in front of 111 N. Duke Street at the time of the incident. ESi preserved the tracker for future inspection along with the bore head and beacon. During that inspection, the parties photographed the unit, bore head, beacon, and tracker. The parties also checked the batteries in the beacon and attempted to determine the tracker's ability to measure distance. The parties had intended to begin a test bore using an exemplar bore head provided by Ditch Witch. The decision was made to postpone the test bore until August 27. At that time, the parties will calibrate the tracker and proceed with the test bore.

Artifact Examination – July 12, 2019 – Norcross, Georgia

ESi has been responsible for maintaining custody over several artifacts removed from the incident site between April 10 and May 8 either at NCUC's direction or with the consent of the parties. ESi tagged and cataloged each artifact pursuant to applicable chain of custody protocols. On July 12, the parties were given an opportunity to document all artifacts that had been collected and preserved as evidence. This included:

- PSNC gas meter 511504
- Broken metal pieces from gas meter
- Broken plastic pieces and other components from gas meter
- Broken plastic pieces and other components from gas meter
- Melted aluminum pieces
- Bascom-Turner natural gas detector, Model RGI-201, S/N 0507-055154
- Ditch Witch 752 Tracker, S/N 131206
- Pipehorn 800 Series pipe and cable locator
- Drill head
- Valve box cap (retired gas pipe)
- Section of riser pipe sleeve
- Chart from leak test of natural gas main
- Section of supply pipe between gas main and damage
- Supply pipe containing damaged section
- Buckets of soil collected during excavation

In addition to photographing the artifacts, ESi used a FARO scanner to obtain digital renderings of the bore head and the puncture in the supply line. The parties were also able to view and document the cross section of the main that Dominion asked ESi to preserve for future demonstrative purposes.

PSNC Truck Documentation – July 17, 2019 – Durham, North Carolina

Dominion stored and preserved the truck that PSNC employee Jay Rambeaut was driving on the day of the incident along with its contents after the truck was removed from the incident site. On July 17, the parties had the opportunity to document the truck at PSNC's Whilden Drive facility in Durham. All items in the cab and bed of the truck were removed and photographed. The items in the side compartments were not removed from the truck, but rather photographed from the exterior. The parties present expressed a desire to preserve a knife, a walkie talkie, and a digital camera with its SD card and case that were found in the truck. These items were placed in a plastic bag. Later that day, ESi retrieved the bag from the PSNC facility and transported the bag to ESi's Charlotte facility to be cataloged and stored with all other artifacts related to the incident. With the permission of parties present, Mr. Rambeaut's family attorney collected a number of Mr. Rambeaut's personal items that were in the truck, including calendars, certificates of training, and other paperwork. The family attorney will preserve the items in his custody until further notice. Dominion will share the video and photographs from the documentation with the interested party group. Dominion intends to place three tools that were on the truck (*i.e.*, plastic pipe squeeze off tool, steel pipe squeeze off tool, and pressure gauge) back into service with the parties' consent.

Future Inspections

Part two of the HDD unit inspection is currently scheduled for August 27. The parties will conduct a test bore using the subject unit and an exemplar drill head at that time. In the days leading up to the artifact examination, some parties requested that an in-laboratory flow rate/leak test be performed, similar to the test that occurred in situ on May 6. The parties are currently negotiating a date and location for the in-laboratory test. Dominion expects the results from any in-laboratory flow rate/leak test to be different from the results of the in situ test.

Dominion continues to be a leader among the interested party group to push the inspections forward. Dominion's own investigation into the incident is ongoing.

Please advise if you need additional information.

Thanks,

[redacted]

[redacted]

Dominion Energy

Actions Speak Louder™

GPRS SUBSURFACE SCANNING SOLUTIONS

Subsurface Investigation to Locate Underground Features

Prepared For: LGI Forensics Engineering

Prepared By:
Quintin Short
Project Manager-Raleigh, NC
5/6/2019

GPRS SUBSURFACE SCANNING SOLUTIONS

May 13th, 2019

LGI Forensics Engineering
Attn: Steven Pietropaolo
Site: 115 North Duke Street, Durham NC

We appreciate the opportunity to provide this report for our work completed on 5/6/2019 at the above address in Durham, NC.

PURPOSE

The purpose of this project was to attempt to locate the boring head and shaft of the Ditch Witch that was left in the ground from another contractor's previous directional boring activities. Another goal of the project was to attempt to locate the existing gas line in the area and to verify its depth.

EQUIPMENT

- **400 MHz GPR Antenna.** The antenna is mounted in a stroller frame which rolls over the surface. The surface needs to be reasonably smooth and unobstructed in order to obtain readable scans. Obstructions such as curbs, landscaping, and vegetation will limit the feasibility of GPR. The data is displayed on a screen and marked in the field in real time. GPR works by sending pulses of energy into a material and recording the strength and the time required for the return of the reflected signal. Reflections are produced when the energy pulses enter into a material with different electrical properties from the material it left. The strength of the reflection is determined by the contrast in signal speed between the two materials. The total depth achieved can be as much as 8' or more with this antenna but can vary widely depending on the conductivity of the materials. Depths provided should always be treated as estimates as their accuracy can be affected by multiple factors. For more information, please visit: Link
- **Electromagnetic Pipe Locator.** The EM locator can detect the electromagnetic fields from live power or radio frequency signals. It can also be used in conjunction with a transmitter to connect directly to accessible, metallic pipes, risers, or tracer wires. A current is sent through the pipe or tracer wire at a specific frequency and the resulting EM field can then be detected by the receiver. The receiver is moved over the surface without coming in contact with the ground so it is not affected by terrain. Depths provided should always be treated as estimates as their accuracy can be affected by multiple factors. Depths achieved can be as much as 20' depending on the type of signal being traced or methods used. For more information, please visit: Link
- **GPS.** This handheld GPS unit offers accuracy down to 4 inches, however, the accuracy will depend on the satellite environment and obstructions and should not be considered to be survey-grade. Features can be collected as points, lines, or areas and then exported into Google Earth or overlaid on a CAD drawing. For more information, please visit: Link

PROCESS

Our process began with using the EM pipe locator to locate lines or utilities throughout the scan area. We connect to any visible risers or tracer wires that may be in the area if there is an exposed metallic surface. Locations and depths are marked on the surface.

Initial GPR scans were then collected in order to evaluate the data and calibrate the equipment. Based on these findings, a scanning strategy is formed, in this instance we gathered data of the gas line and boring path running parallel to one another. The GPR data is interpreted in real time and anomalies in the data are located and marked on the surface along with their depths using crayon. Depths are dependent on the dielectric of the materials being scanned so depth accuracy can vary throughout a site. Relevant scan examples were saved and will be provided in this report.

LIMITATIONS

Please keep in mind that there are limitations to any subsurface investigation. The equipment may not achieve maximum effectiveness due to soil conditions, above ground obstructions, reinforced concrete, and a variety of other factors. No subsurface investigation or equipment can provide a complete image of what lies below. Our results should always be used in conjunction with as many methods as possible including consulting existing plans and drawings, exploratory excavation or potholing, visual inspection of above ground features, and utilization of services such as One Call/811.

At this site, our scans were limited by curbs and debris in the area.

FINDINGS

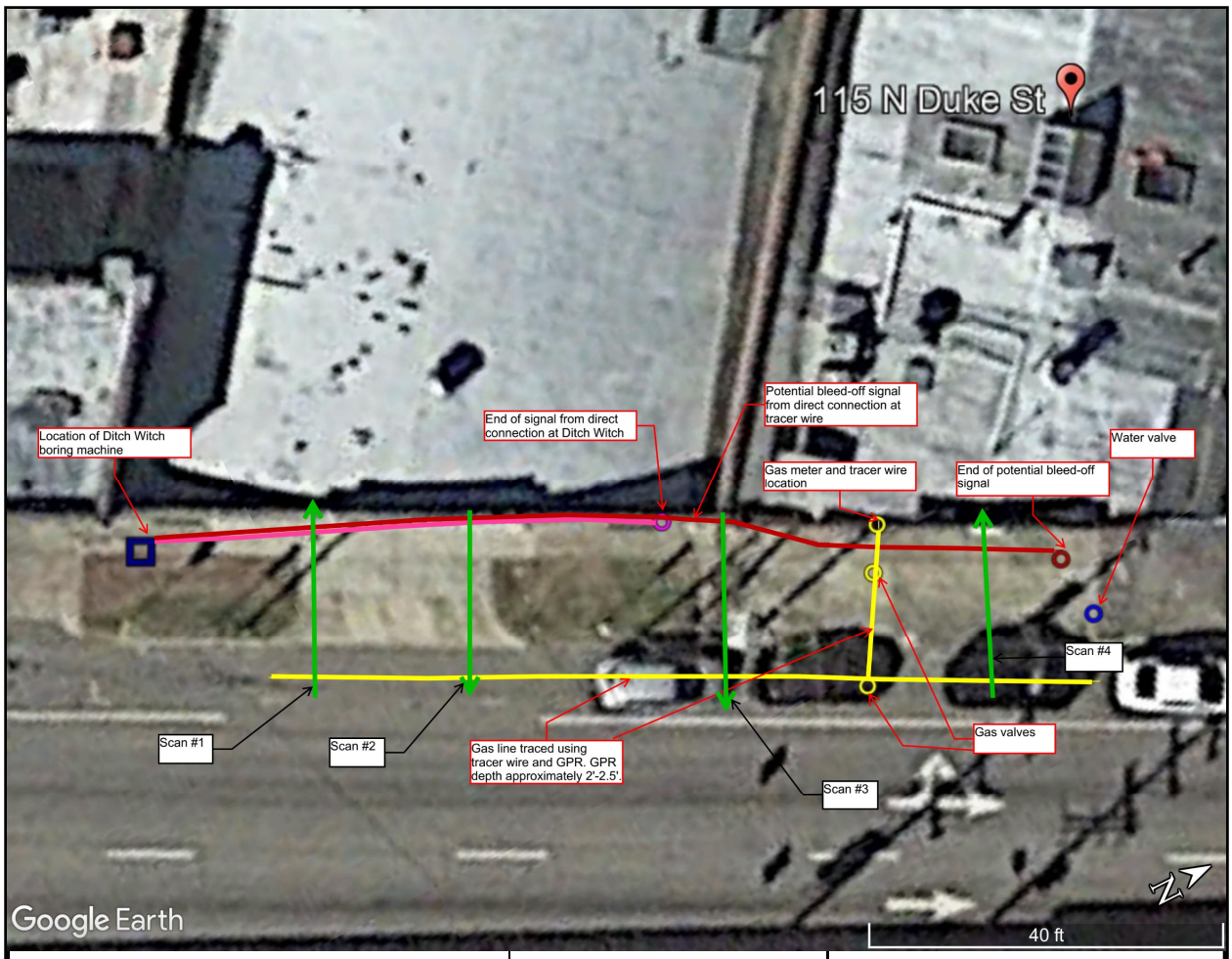
We found that the soil allowed for maximum GPR depth penetration of 3' in most areas. The existing gas line was believed to have been located with both GPR and the EM locator. The GPR showed the gas line to be approximately 2'-2.5' deep based on a dielectric of 19.43 (dielectric obtained via hyperbola matching). This dielectric is only an estimate and is higher than most average soils. A lower dielectric would result in a greater depth by up to 1' or more. The GPR results were inconclusive as there were no clear signs of the boring shaft due to its being either too small or too deep to be detected by GPR in that particular area.

The EM locator was also used to connect directly to the bore shaft to send a traceable current through it. It was able to be traced and then the signal was lost as shown on the map on the following page. GPR was also used to collect scans across the supposed bore path to attempt to determine the depth and location of the boring equipment.

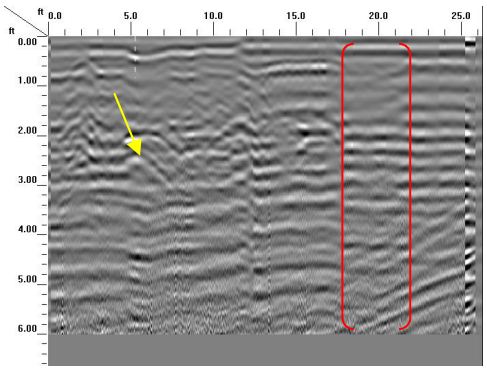
The following pages will provide photos and further explanation of our findings.



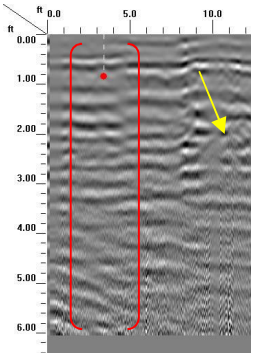
Site Map with Findings	115 North Duke Street, Durham NC	GPRS



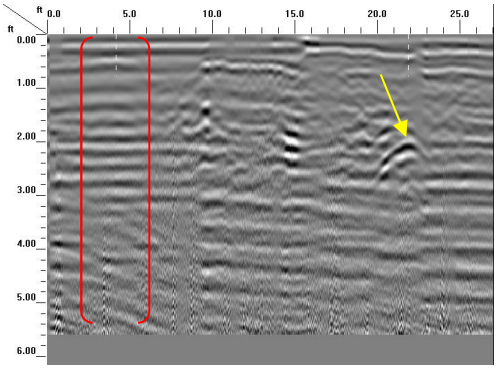
Site Map with Findings and Scan Numbers	115 North Duke Street, Durham NC	GPRS



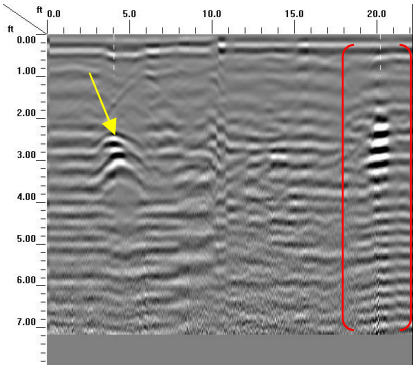
Scan #1: The GPR data was not able to confirm the bore path. The yellow arrow is pointing to the reaction from the supposed gas line. The red brackets are highlighting the area where the boring took place based on the EM locator signal. Its depth could not be confirmed. The approximate depth of the gas line is shown in the scale on the left.



Scan #1: The GPR data was not able to confirm the bore path. The yellow arrow is pointing to the reaction from the supposed gas line. The red brackets are highlighting the area where the boring took place based on the EM locator signal. Its depth could not be confirmed. The approximate depth of the gas line is shown in the scale on the left.



Scan #3: The GPR data was not able to confirm the bore path. The yellow arrow is pointing to the reaction from the supposed gas line. The red brackets are highlighting the area where the boring took place based on the EM locator signal. Its depth could not be confirmed. The approximate depth of the gas line is shown in the scale on the left.



Scan #4: The GPR data was not able to confirm the bore path. The yellow arrow is pointing to the reaction from the supposed gas line. The red brackets are highlighting the area where the boring took place based on the EM locator signal. Its depth could not be confirmed. The approximate depth of the gas line is shown in the scale on the left.

GPR Data Screenshots	115 North Duke Street, Durham NC	GPRS

CLOSING

GPRS, Inc. has been in business since 2001, specializing in underground storage tank location, concrete scanning, utility locating, and shallow void detection for projects throughout the United States. I encourage you to visit our website (www.gprsinc.com) and contact any of the numerous references listed.

In summary, the gas line was able to be located using a tracer wire. The potential path of the bore shaft that was left in the ground was determined by tracing current sent through the shaft using the EM locator described on Page 1. The GPR was able to confirm what appears to be the gas line but was not able to confirm the location or depth of the bore shaft.

GPRS appreciates the opportunity to offer our services, and we look forward to continuing to work with you on future projects. Please feel free to contact us for additional information or with any questions you may have regarding this report.

Signed,

Quintin Short
Project Manager – Raleigh, NC

GPRS SUBSURFACE SCANNING SOLUTIONS

Direct: 919-794-1046
Quintin.short@gprsinc.com
www.gprsinc.com

115 North Duke Street

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2, 2019

Table of Contents

ABSTRACT 3
EXECUTIVE SUMMARY 4
KEY INVESTIGATION FINDINGS 5
KEY INVESTIGATION CONCLUSIONS 6
PARTICIPATING FIRE INVESTIGATORS 6
WEATHER CONDITIONS 7
PROPERTY OWNERS 7
SCENE SECURITY 8
LEGAL PRESENCE 8
FIRE PROTECTION SYSTEMS 9
INITIAL GAS DISCOVERY 9
FIREFIGHTER OBSERVATIONS 11
NATURAL GAS DELIVERY SYSTEM MATERIALS 18
FUEL SOURCE 19
CHEMICAL COMPOSITION 19
SOURCE OF IGNITION 20
METER CHARACTERISTICS 21
SUMMATION OF FORMAL WITNESS INTERVIEWS 22
BUILDING CONSTRUCTION 28
ELECTRICAL SERVICE 30
INTERIOR CONDITIONS PRIOR TO FIRE 32
EXTERIOR SCENE EXAMINATION 33
INTERIOR SCENE EXAMINATION 34
ANALYSIS OF FIRE/EXPLOSION PATTERNS/INDICATORS 36
EXAMINATION OF POTENTIAL IGNITION SOURCES 42
EVIDENCE 43
FATALITIES: 44
KNOWN INJURIES 44
CONCLUSION 45
APPENDICES 48

ABSTRACT

On April 10, 2019, a natural gas explosion occurred at the coffee shop Kaffeinate located at 115 North Duke Street, Durham, NC. An explosive atmosphere was created when a gas service line was struck during a horizontal boring operation. This breach allowed fugitive gas to flow until reaching an ignition source, at which time an explosion occurred resulting in severely damaged and destroyed buildings. As a result of the explosion, several persons, including firefighters, were injured and two fatalities occurred. This investigation will discover critical timelines and actions resulting in this natural gas explosion. This investigation will be conducted under the standards and guidance of "NFPA 921 (The Guide for Fire and Explosion Investigations)."

Note: This report will reference actions of fire department operations and Optic Cable Technology LLC; *however*, this is not an after-action review of tactics or decisions made by referenced members. It is the obligation of the investigator to investigate and document origin, cause and circumstances of the event. The sole purpose of any referenced action is to fulfill the obligations of NFPA 921 and any other use of this information is not the intent of the investigator.

EXECUTIVE SUMMARY

At approximately 1006 hours on Wednesday April 10, 2019, a natural gas explosion and subsequent collapse followed by a fire, destroyed a building located at 115 North Duke Street. The building was occupied by business entities Kaffeinate and Prescient. The explosion caused a range of injuries to an estimated 25 victims, including two fatalities. A number of adjacent properties in the area were also significantly damaged.

The natural gas release was caused by a horizontal drill operated by Optic Cable Technology LLC. The three-person crew which included an operator, a locator and a helper, breached a ¾ inch service line providing gas service to 115 North Duke Street at approximately 0906 hours. The breach was subterranean, approximately five feet from the exterior of Kaffeinate. Approximately 46,000 cubic feet of natural gas flowed from this gas line. (Appendix 1, PHMSA Report). No one from Optic Cable Technology LLC drilling crew called 911 to report the leak.

The first 911 call occurred at approximately 0911 hours in the vicinity of 401 North Duke Street. This call was made by Yolanda Watson to the Durham 911 center from her cell phone as she drove north on North Duke Street. Ms. Watson stated that while she sat in traffic between Main and Morgan Street waiting for the light to change, the smell of gas "engulfed" her car with all the windows up. Ms. Watson further explained that as she began to drive towards Morgan Street the smell continued to be prevalent. She did not know the source of the smell.

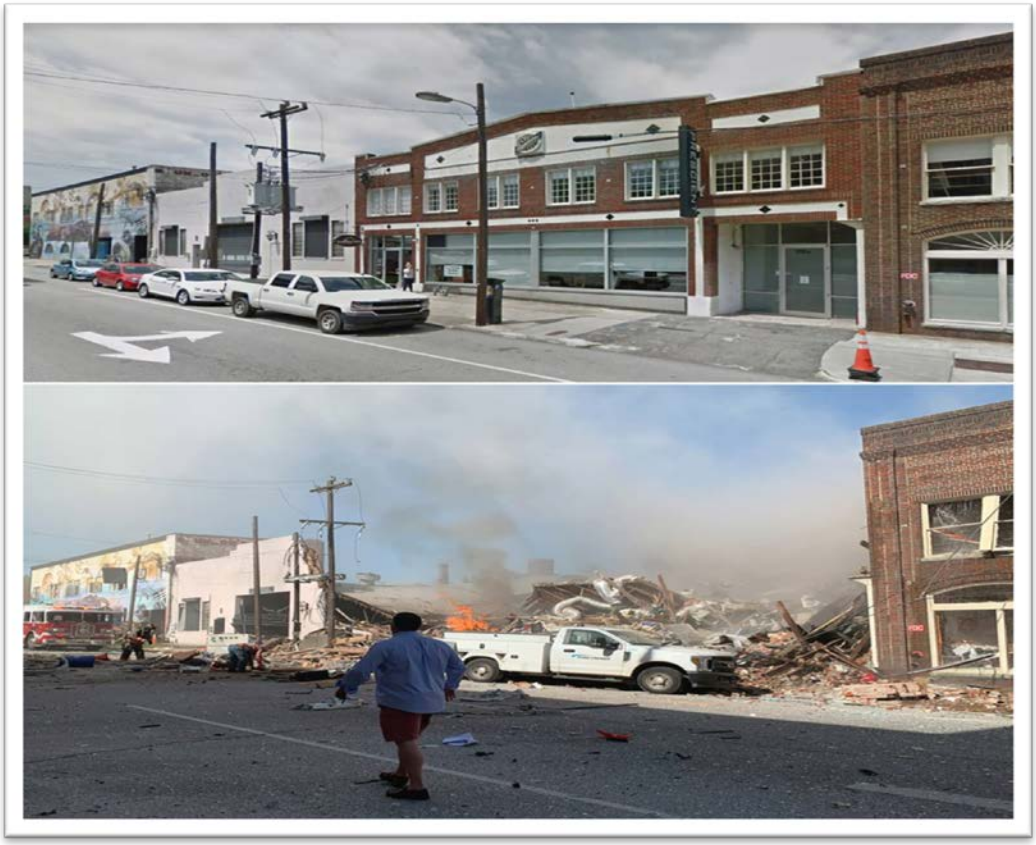
Based on Ms. Watson's 911 call, Durham Fire Department (DFD) Engine 1 (E1) was dispatched to 401 North Duke Street for a Gas Leak/Odor call. (Appendix 2 - Report # 19-09571 Fire and EMS Event Report). E1 arrived in the area of 401 North Duke Street and investigated the smell of gas around the entire block where Durham School of the Arts is located. E1 did not detect any gas at any time during their lap of the area and they returned to service. The engine crew attributed the call to a gas pressure relief valve located at the southeast corner of the intersection of Duke and Morgan Street on the rear of the Duke Research Laboratory (rear of 701 Main Street).

Don Smith, owner of PS Splicing, LLC, was recorded making a 911 call shortly after his arrival at the scene at 0937 hours. In response, at approximately 0940 hours, E1 responded to the reported gas leak in the area of 115 North Duke Street. (Appendix 3 - Report # 19-09574 Fire and EMS Event Report). E1's crew encountered Mr. Smith at the intersection of North Duke and Main Street. Mr. Smith directed the crew to the location of the gas leak. E1 positioned on North Duke Street and began to assess the scene and monitor the atmosphere for gas. Firefighters entered Kaffeinate shortly after arriving on scene. After using a gas meter and recognizing an immediate hazard, E1 began evacuating the business. Crew members faced resistance from Mr. Kong Lee, owner of Kaffeinate, to evacuate. The crew had no complications evacuating Kaffeinate's other staff and customers. Crew members from E1 radioed this information to their Captain and proceeded to the next occupancy.

At approximately 1006 hours, a large explosion with a total building collapse and fire occurred at 115 North Duke Street. The blast wave from this incident caused varied amounts of damage to numerous buildings and vehicles. Ninety-one Durham Firefighters along with Durham County

EMS, Durham Police Department, Durham County Emergency Management, and Mutual-Aid Fire companies responded to this incident.

Figure 1 depicts 115 North Duke Street before and after the explosion.



KEY INVESTIGATION FINDINGS

The Durham Fire Department investigation revealed:

- Optic Cable Technology LLC workers breached a gas line during a horizontal drilling operation at approximately 0906 hours.
- There was no evidence to indicate that any person had acted intentionally to create a fire or explosion at 115 North Duke Street.
- There was a ¾ inch 60 psig gas line located in front of the structure (operating at 58 psig), which was breached sub-terrain.
- The breached gas line that was fractured was 20 inches below the surface and approximately five feet from Kaffeinate's entrance.
- The owner of Kaffeinate, Mr. Lee (Fatality 1), appeared to have knowledge of the gas leak moments after the breach and spoke to members of Optic Cable Technology LLC.
- Ms. Watson called 911 reporting a gas leak at 0911 hours in the vicinity of 401 North Duke Street.

- Mr. Smith, of PS Splicing LLC, called 911 at 0937 hours to report the gas leak.
- Based on video surveillance, Mr. Lee appeared to exit his business four times prior to the fire/explosion.
- Gas readings in Kaffeinate reached 100% of LEL on the Altair gas meter.
- Based upon debris analysis, the building damage was consistent with a natural gas explosion.
- Optic Cabling Technology LLC was operating under Permit Number 18-2826 that was originally issued on 06/27/2018 to Fiber Technologies Networks, LLC and was valid through 06/25/2019. (Appendix 4)

KEY INVESTIGATION CONCLUSIONS

- Natural gas leaked from a fractured ¾ inch service line located in the sidewalk footway in front of 115 North Duke Street.
- It is estimated that the natural gas flowed for one hour prior to the explosion.
- Based on the estimated one-hour flow time, ≥ 46,000 cubic feet of gas flowed from the breached line.
- No report of the smell of gas was made to 911 by any occupant of 115 North Duke Street (Kaffeinate).
- Mr. Lee (Fatality 1) and the crew of Optic Cable Technology LLC were aware of the gas leak moments after the breach and prior to Ms. Watson's 911 call at 0911 hours.
- Mr. Lee (Fatality 1), Mr. Smith, and the crew of Optic Cable Technology LLC were aware of the gas leak prior to E1's arrival at 115 North Duke Street.
- The gas accumulated within 115 North Duke Street reaching 100% of Lower Explosive Limits (LEL).
- The gas was ignited by an undetermined source within 115 North Duke Street leading to the explosion.
- There is no evidence of criminal intent by any company or individual to warrant criminal prosecution.

PARTICIPATING FIRE INVESTIGATORS:

Brian Graves	Durham Fire Department (DFD)
Brandon Link	Durham Fire Department (DFD)
Chris Wilcox	Durham Fire Department (DFD)
David Merritt	Durham Fire Department (DFD)
Michael Kromer	Durham Fire Department (DFD)
Ashley Fletcher	Durham Fire Department (DFD)
Joel Gullie	Durham Fire Department (DFD)
Julius Richmond	Durham Fire Department (DFD)
Brian Massengill	Durham Police Department (DPD)
Daniel Strandh	Durham Police Department (DPD)
Gabriel Munter	Durham Police Department (DPD)
Kristen Kozar	Durham Police Department (DPD)
Johnathan Bell	Durham Police Department (DPD)
Larry Cox	Durham Police Department (DPD)
Howard Henry	Durham Police Department (DPD)
Tyler Fitts	Durham County Fire Marshals' Office (DCFMO)

Brian Lane	Durham County Fire Marshals' Office (DCFMO)
Mark Schell	Durham County Fire Marshals' Office (DCFMO)
William Marshal	North Carolina Office of State Marshal (OSFM)
Chad Edmonds	Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
David Schauble	Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)
Jeremy T. Crowder	NC State Bureau of Investigation (SBI)
A.B. Warren	NC State Bureau of Investigation (SBI)
C.N. Pegram	NC State Bureau of Investigation (SBI)
K.F. Cummings	NC State Bureau of Investigation (SBI)
M.T. Sheron	NC State Bureau of Investigation (SBI)
J.A. Bode	NC State Bureau of Investigation (SBI)
K.M. Bivins	NC State Bureau of Investigation (SBI)
HRD K9 Roxy	NC State Bureau of Investigation (SBI K9)
Patrick Nee	NC State Bureau of Investigation (SBI K9 handler)
HRD K9 Bart	NC State Bureau of Investigation (SBI K9)
K. A. Mathias	NC State Bureau of Investigation (SBI K9 Handler)
Chris Kearns	Town of Chapel Hill Fire Department
Chris Wells	Town of Chapel Hill Fire Department
Tommy Gregory	Town of Chapel Hill Fire Department

WEATHER CONDITIONS:

www.wunderground.com reported the following weather conditions in Durham, North Carolina on April 10, 2019, at approximately 1006 hours: the temperature was 71 degrees Fahrenheit, the dew point was 35 degrees Fahrenheit, and humidity was 27%. Visibility was 5 miles and the winds were calm at 0 miles per hour.

PROPERTY OWNERS:

[This information is based on Durham County tax records]

115 A/B North Duke Street
2050 Bentley LLC
71001 Wilkinson
Chapel Hill, NC 27517

806 W Main, 111 North Duke Street
Sehed Investment Group
2020 West Main Street, Suite 300
Durham, NC 27705

Sehed Investment Group
2020 West Main Street, Suite 300
Durham, NC 27705

800 / 802 West Main Street
Matthews, David R TRS, Bachner, Mary Michele TRS
C/O Suntrust Bank-PHI Department

150 West Main Street, 14th Floor
Norfolk, VA 23510

SCENE SECURITY:

The integrity of the scene was maintained by the Durham Fire Department, the Bureau of Alcohol, Tobacco, Firearms and Explosives, the Durham Police Department and the State Bureau of Investigation.

LEGAL PRESENCE:

The fire/explosion scene investigation was conducted under the authority granted to Durham Fire Department through North Carolina State Statutes and the North Carolina State Building Code Fire Prevention Code. The relevant authorities are shown below:

> N.C.G.S. **§ 58-79-1. Fires investigated; reports; records.**
> The Director of the State Bureau of Investigation, through the State Bureau of Investigation, the Office of the State Fire Marshal, and the chief of the fire department, or chief of police where there is no chief of the fire department, in municipalities and towns, and the county fire marshal and the sheriff of the county and the chief of the rural fire department where such fire occurs outside of a municipality, are hereby authorized to investigate the cause, origin, and circumstances of every fire occurring in such municipalities or counties in which property has been destroyed or damaged, and shall specially make investigation whether the fire was the result of carelessness or design. A preliminary investigation shall be made by the chief of fire department or chief of police, where there is no chief of fire department in municipalities, and by the county fire marshal and the sheriff of the county or the chief of the rural fire department where such fire occurs outside of a municipality, and must be begun within three days, exclusive of Sunday, of the occurrence of the fire, and the Director of the State Bureau of Investigation, through the State Bureau of Investigation, shall have the right to supervise and direct the investigation when he deems it expedient or necessary.
>
> **N.C. State Building Code: Fire Prevention Code**
> **104.11 Authority at fires and other emergencies**.
> The fire chief or officer of the fire department in charge at the scene of a fire or other emergency involving the protection of life or property or any part thereof, shall have the authority to direct such operation as necessary to extinguish or control any fire, perform any rescue operation, investigate the existence of suspected or reported fires, gas leaks or other hazardous conditions or situations, or take any other action necessary in the reasonable performance of duty. In the exercise of such power, the fire chief is authorized to prohibit any person, vehicle vessel or thing from approaching the scene and is authorized to remove, or cause to be removed or kept away from the scene, any vehicle, vessel or thing which could impede or interfere with the operations of the fire department and, in the

judgment of the fire chief, any person not actually and usefully employed in the extinguishing of such fire or in the preservation of property in the vicinity thereof.

FIRE PROTECTION SYSTEMS:

The building located at 115 North Duke Street was equipped with an automatic sprinkler system and an automatic fire alarm system. The sprinkler and fire alarm systems were located in the building occupied by Kaffeinate and Prescient. The sprinkler system was rendered inoperable by the effects of the explosion and therefore, there will be no further observations of the sprinkler system in this report.

INITIAL GAS DISCOVERY:

On April 10, 2019, at approximately 0906 hours (per video documentation), a ¾ inch gas line appears to be unintentionally breached which subsequently allowed fugitive gas to be released underground. This leak was discovered first by three employees of Optic Cable Technology LLC who were operating the equipment that struck the line. There is no evidence that any member of the Optic Cable Technology LLC crew called 911 reporting the breach.

Moments after the gas leak and according to video footage, Mr. Lee of Kaffeinate appeared to be in discussion with employees of Optic Cable Technology LLC. Mr. Lee was observed fanning his hands by his nose to suggest the presence of an offensive or foul smell (Investigator's Note: The smell was likely the odorant mercaptan, having a rotting cabbage-like smell). After this brief exchange, Mr. Lee returned to his business.

Figure 2 depicts Mr. Lee approaching the Optic Cable workers about a foul smell at 09:07:25



(All displayed times have a correction factor of -1h: 6mins)

The first 911 call reporting a smell of gas occurred at approximately 0911 hours in the vicinity of 401 North Duke Street. This call was made by Ms. Watson to the Durham 911 Center from her cell phone as she drove north on North Duke Street. Ms. Watson stated that while sitting in traffic between Main and Morgan Street waiting for the light to change, the smell of gas "engulfed" her car with all the windows up. Ms. Watson further explained that as she began to drive towards Morgan Street, the smell continued to be prevalent. She did not know the source of the smell. Based on this 911 Call, DFD E1 was dispatched to 401 North Duke Street for a Gas Leak/Odor call, Report 19-09571 (Appendix 2).

Figure 3 depicts worker returning to drilling rig after gas line is struck. (0906 hours)



Gas Line Has Been Struck at 09:06:10 (all displayed times have a correction factor of -1h: 6mins)

Ms. Watson encountered a significant amount of released gas that entered her vehicle. It is the opinion of this investigator that this gas entered her vehicle by the vehicle's climate control system. This would explain the description of her vehicle being "engulfed" by the smell of gas. Ms. Watson did not know the origin of this gas and felt compelled to notify 911 to have someone verify the odor. The science of human reaction time to sight, sound, touch, smell and taste stimulus has significant variances. In this situation, Ms. Watson's reaction time to the smell of gas engulfing her car, processing the smell, calling 911, and visual recognition of an address, likely accounts for her traveling to the next block, away from the leak, before fully detecting the smell. 911 Operator O'Sullivan recorded the following dispatch notes: "[EFD] Caller Statement: odor of gas ,,,, near the beginning of the school outside area.. female passed it and smelled Chief Complaint: Gas Leak/Odor outside [04/10/19 09:13:02 OSULLIVAN]" "PER CALLER THE ODOR WAS AT THE INTERSECTION OF DUKE ST AND ONE BLOCK FROM MAIN ST. AT THE START OF THE SCHOOL [04/10/19 09:16:42OSULLIVAN]" (Appendix 2.)

Figure 4 depicts Ms. Watson's direction of travel.



E1 arrived on scene at 0917 hours (response time of three minutes and 56 seconds) after dispatch to the area of 401 North Duke Street. The dispatch address and Computer Aided Dispatch (CAD) notes directed E1 to go a block north from the actual gas leak site.

It can only be speculated why no additional calls to 911 were made for such a significant leak. Prior to the explosion, Ms. Watson called at approximately 0911 hours and Mr. Don Smith, owner of PS Splicing LLC called at approximately 0937 hours. This portion of North Duke Street is heavily traveled by both vehicle and pedestrian traffic. It is my estimate that more than one hundred people encountered this leak. Numerous people walked directly over the sidewalk where the leak originated.

[EFD] Caller Statement: hit gas line Chief Complaint: Gas leak/odor outside [04/10/19 09:38:26 MITCHELLM]-(Appendix 3)

FIREFIGHTER OBSERVATIONS:

Engine 1's Acting Captain Phillip Faucette's narrative for 401 North Duke Street as documented in FIREHOUSE reads as follows:

> E-1 was dispatched and responded to 401 N Duke St reference a reported odor of gas. UOA at the dispatch address E-1 A exited the apparatus and could not detect the odor of gas. Due to the fact that this address is a large area campus E-1 requested that communications have whomever called or someone with knowledge of the location meet E-1 and escort E-1 to where the smell was detected. Communications advised E-1 that the caller was a passerby and that they had no further information. E-1 got back on the

> apparatus and pulled from the parking area back onto N Duke St and made our way north. At some point communications either verbalized our E-1 seen in the dispatch notes on the MCT that the caller had advised that the odor was detected at the intersection of N Duke and Morgan St. E-1 continued down N Duke St then turned left onto Trinity Ave. E-1 traveled on Trinity Ave towards Gregson St then turned left again onto Gregson St. E-1 traveled south on Gregson St to the intersection of Gregson and Morgan St where we again turned left onto Morgan St. E-1 went east on Morgan St to the Morgan St and N Duke St intersection. E-1 stopped at the intersection of N Duke and Morgan St and at no time during the entire duration of our response did anyone on the apparatus detect any odor of gas. While stopped at the intersection of Morgan St and N Duke St E-1 A advised the rest of the crew of a gas service on the north west corner of the building located on the south east corner of the intersection. This was a large service feeding the building and it was assumed that a pressure spike had most likely vented and was responsible for the smell that the passerby had detected. This was assumed because E-1 has responded to numerous calls of the same nature that could only be attributed to a venting situation.

Engine 1's Acting Captain Phillip Faucette's narrative for 115 North Duke Street as documented in FIREHOUSE reads as follows:

> E-1 was dispatched and responded to 115 Duke St reference a reported gas leak. UOA E-1 was met by personnel from a horizontal boring company who advised that they had struck a gas line that was believed to be supplying 115A Duke St. E-1 advised communications to have PSNC respond to the address to repair the gas leak. E-1 tasked E-1 D with stretching our jump line and standing in proper PPE at the ready. E-1 B charged the hoseline then assisted E-1 A and E-1 C. E-1 C exited the apparatus with our Altair meter which had been turned on inside the truck in clean air while en route to the scene. The initial readings outside the structure were 10% LEL. E-1 cleared L-3 because my initial assessment was that E-1 personnel and equipment were sufficient to mitigate an incident with those specific readings. E-1 personnel entered 115A and the meter readings went up significantly. E-1 personnel advised all persons inside the address to evacuate immediately and everyone with the exception of the person who was believed to be the shop owner did so. E-1 A had already left the address and did not know that the shop owner had refused to leave until later in the incident. To the best of my recollection it was around this time that I requested communications to re dispatch L-3. E-1 spoke with L-3 and advised that the incident was very serious. E-1 B and E-1 C exited 115A and began metering the addresses to the right of 115A towards Morgan St and evacuating building occupants as necessary based off meter reading's as they went in a counterclockwise direction around the buildings adjacent to 115A. E-1 A had already exited 115A and went to the left of the address towards Main St and went inside

Torreros restaurant where he found only a slight odor of gas. E-1 A advised the employees of Torreros that he would advise as to whether they should close the business shortly. While returning to 115A E-1 A saw a male subject standing in front of the address and immediately advised the subject that he should not be in that area. The subject seemed agitated and told E-1 A "this is my shop; you can't make me leave". To the best of my recollection this exchange occurred multiple times. After it was clear that the subject was not going to evacuate E-1 A advised communications to attempt to contact B-1. Communications advised that they could not access FTAC 1 in order to contact B-1. E-1 A switched over to FTAC 1 and advised B-1 of the situation at hand and also requested that B-1 respond to the scene. B-1 advised E-1 that having DPD respond would be an appropriate action and that B-1 would be en route to the scene. E-1 switched back to our OPS channel and advised communications to have DPD respond. I E-1 A believe that it was at about this point in time that I requested that E-1 B and E-1 C go to Torreros and meter the interior of the restaurant. The employee from PSNC arrived at about this time also and E-1 A spoke to him and advised that the leak appeared to be under the sidewalk just in front of 115A and that there appeared to be a cutoff near the leak. The PSNC employee advised that he was going to go check to see. E-1 A turned towards Main St and began walking in that direction because I had heard and seen a DPD unit responding towards the scene on Duke St code 3. As E-1 A was walking towards Main St I believe that I was just past our apparatus location when the explosion occurred. I immediately assessed the situation to the best of my ability and advised communications of what had occurred and that we would need at least 2 alarms and that we had multiple persons injured. E-1 A met E-1 D who was running towards Main St. To the best of my recollection he advised that he was ok but thought he was bleeding. A lot of what occurred just after the explosion is not completely clear to me. I remember that I could see that there was only a small amount of fire initially but that it was in close proximity to where there was a person trapped in the rubble. Because of my request for E-1 B to back up the E-1 apparatus, the jump line was shut down and disconnected for a short time. However, due to urgency, the apparatus was not moved so that the jump line could be reconnected and used to provide protection for DFD personnel working to attempt to remove the person trapped by rubble. I also took the water can and CO2 extinguisher to the trapped persons location as added protection. E-1 B was the pump operator from the start of protection and suppression efforts until our crew left the scene to visit E-1 D in the ER. E-1 B and E-1 C assisted with getting injured persons to safe locations. E-1 C also worked to assist with removing the person trapped. E-1 A worked establishing an initial water source for E-1 and also hooking E-1 up to L-3 to relay pump for ladder pipe operations. E-1 A also worked to establish a second water source for E-1 after stretching a 2 ½" handline and learning

that the truck did not have enough incoming water to support operation of this line.
All times associated with this report will be amended. Times listed are incorrect due to dispatch errors.

Additional firefighter observations:

Engine 1's Acting Driver Skyler McEvoy's written statement for 115 North Duke Street reads as follows:

> E1 was dispatched to 115 N Duke for a gas leak call. E1 responded to location. On arrival I stopped short and uphill of the address to coincide with field operating guide for natural gas that can be found on CODI. I then placed the truck in pump gear, put on my helmet, got out of the truck, put out my chock and went through the process of getting the truck ready to pump. I then pulled the jump line with assistance from E1D and placed it in line with the truck with the nozzle at the nose of the truck. I then charged the line and set my relief valve. I then partnered up with E1C to begin metering and evacuating buildings as needed. We started in Kaffeinate (115 A N Duke St.) because we believed it would be the business in the most risk due to location of the leak. I walked in with E1C, who had the meter, and stated that there was a gas leak and that we needed everyone to exit the structure. At this time the patrons started packing their stuff and preparing to leave. I then asked the owner and the barista if there was anything with an open flame or that was electric that could act as an ignition source. They said that there was only the waffle maker. I asked them to turn it off and to exit the structure. The barista then closed the register and grabbed her tips from the jar. The owner then questioned the barista: "You are going to leave?" who responded "Yes I get off at 10:30 anyways so I might as well go now." I then repeated the need for everyone to exit the structure. The patrons and barista exited the structure, knowing that I could not forcefully remove the owner I exited the structure with E1C and informed my Captain that the owner did not want to leave and then moved to the next business to continue metering and evacuating as needed. The next building we checked was 115 B. Upon entering the building we informed the inhabitants that there was a gas leak and that we needed to meter the structure. The meter was still alarming from Kaffeinate and so I instructed E1C to reset the meter so we could get a reading of this business. After resetting the meter E1C went to the rooms that were closest to Kaffeinate to see if we could detect anything. The meter did not detect anything in those areas or anywhere else as we exited the structure. We exited out of the structure on the Gregson St side of the building into the courtyard. We then made contact with the employees at Prescient who were outside in the parking lot because they had smelled gas in the building. We got one of them to let E1C and I into the structure using their fob so we could meter the structure. They then stated everyone was out of the structure. We metered at the back bathrooms of the

structure that were closest to Kaffeinate and got a reading on the meter but I was not informed of the exact reading. Because everyone was out of the structure we moved to the next business which was 111 N Duke. The inhabitants of this address were already in the parking lot. We informed them there was a gas leak and that we needed to meter the structure. I then had the curator of the collection let us in the business and then she returned to the parking lot. We then metered the structure and got a reading of 7% LEL in the corner by Kaffeinate. We were impressed by the collection of cars in there and then exited and told the inhabitants that we had detected gas and to stay out of the structure. Next we went to St. James and informed them that there was a gas leak and stated that we needed to meter. We metered the business at the points closest to the source and did not get a reading. We exited the business and then over the radio E1A instructed E1C and I to meter Torero's at the other corner of the block. We walked into the business and informed them there was a gas leak and that we needed to meter the structure. We were walking back to the kitchen, which was closest to the source of the gas leak to meter, and then the explosion occurred. We then directed the inhabitants of Torero's down Main St towards Gregson away from the explosion. I then ran toward the engine and the explosion knowing that the rest of my crew was probably injured. I met E1D in the dust cloud caused by the explosion. He had cuts all over his face and looked dazed; I asked him if he was okay and he responded he was okay. I walked him to the corner of Main and N Duke by where L3 was parked. I sat him down and again asked if he was okay and he said he was. An off-duty firefighter then began assisting E1D. Another person then walked out of the dust cloud and sat down beside E1D. This PT was bleeding from superficial cuts to his face. I asked him if he was okay he said he was fine and was deemed a green tag and there were other units there so I ran back into the cloud to see if there was anyone else hurt. I grabbed the rest of my turnout gear and SCBA from the engine driver side mid-compartment and ran it to the other side of the truck because there was active fire and the stability of the wall closest to the E1 driver side did not seem sound. I donned my PPE and then ran to the pile of debris where one of the severely injured victims was. I grabbed a large section of metal that had been blown off the structure and improvised a backboard to drag the patient out. E2C and a Durham PD officer then helped me place the PT on the "backboard" and drag him to an ambulance. I then ran back to E1. E1A then told me to back up the truck. I took the truck out of pump gear and disconnected the jump line. As soon as I did this L3A requested water to the line to help protect the firefighters trying to extricate the victim who was trapped. I reconnected the jump line and began pumping to it and then with the assistance of E5B gained a water source from the hydrant at the corner of N Duke St and Main St. L3B who had positioned L3 parallel to E1, then requested water so they could put into place an elevated master stream. I hooked up supply hose to E1's 5" discharge and began nurse feeding L3. A two and a half

inch line was then requested by command. I assisted E10A and Sq4 in placing this line and hooking it up. After I charged this line the residual pressure dropped to 30 PSI. I informed B1 that I would need an additional water source if any more lines were to be added. E1A assisted with locating and bringing in another water source from a different hydrant and the residual pressure was then increased to 50 PSI. Conditions began to change in 111 N Duke and dark smoke began to come out of the roll up door beside E1. The front crosslay was then pulled off E1 by E5 and taken to the door to the left of the roll up door. I then charged it. E5 crew then went inside the structure to protect E1 and knock down any fire in the vicinity. Smoke conditions then changed to a less turbulent white smoke and E5 backed out shortly after. At this time E1A came to the pump panel and told me that command wanted the crews who were present at the time of the explosion off the scene to be evaluated. I told him that I was fine and wanted to keep working. He then replied that we have to go, it is an order from command. I then told him that I was not leaving until someone came and relieved me at the pump panel. Shortly after SQ1A came to the pump panel to take over pump operations. I told her the lines that I had in play and then met up with the remainder of the E1 crew and drove back to Station 1 in E12.

Figure 5 depicts Engine One arriving and establishing a hoseline.

(all displayed times have a correction factor of -1h: 6mins)

Engine 1's Firefighter Darren Wheeler's Verbal Summation as given on May 17, 2019 follows:

- Firefighter Wheeler was at Station 1 studying for the relief driver exam. The crew received a call for a gas leak. CAD notes for the call read "passerby who didn't stop."

- Engine 1 went to the area of Durham School of the Arts and nothing was found. Acting Captain Faucette attempted to obtain more information but there was no more to be provided. Engine 1 then circled the block around Durham School of the Arts and came back to Morgan Street. Nothing was found and they then cleared the call.
- Engine 1 returned to Station 1 and Firefighter Wheeler began studying again. A second call came in and an address of 115 North Duke Street was given.
- Once in the area of Main Street, the Engine apparatus was directed to 115 North Duke street by a worker and the gas could be smelled there. (Investigator Note: Worker referenced was identified as Don Smith of PS Splicing)
- Firefighter Patrick O'Reilly bump tested the gas monitor in the cab of the truck.
- Firefighter Patrick O'Reilly and Acting Fire Driver Skylar McEvoy entered the coffee shop.
- Firefighter Wheeler taped off Duke Street starting at Main Street.
- Firefighter Wheeler briefly entered the coffee shop where the owner was trying to talk the cashier into staying. Her response was "No, I am leaving."
- Firefighter Wheeler exited the coffee shop and returned back to the charged hose line on the ground near Engine 1. At this time, Acting Fire Driver McEvoy and Firefighter O'Reilly were out of his sight. Acting Captain Faucette was in and out of the coffee shop trying to convince the owner to stay outside.
- Acting Captain Faucette then exited the coffee shop and walked past E1. As he was walking by E1, he transmited on his radio that he needed PD assistance with getting the owner out.
- The building then exploded. Firefighter Wheeler was knocked backwards into Engine 1. He had ringing in his ears and his body felt numb. Firefighter Wheeler then began to try to assess where and if he was injured.
- Firefighter Wheeler made it to the corner of Duke Street and Main Street and was met by fire personnel who began assessing and treating his injuries.

Figure 6 depicts Mr. Kong Lee while outside his business after Engine 1's arrival



(all displayed times have a correction factor of -1h: 6mins)

NATURAL GAS DELIVERY SYSTEM MATERIALS

Through the decades, a variety of materials have been used to make natural gas pipelines. The selection of materials varies with the date the pipeline was placed in service, the diameter and pressurization requirements of the pipeline, and the characteristics of the local terrain. Listed below are the two types present at 115 North Duke Street.

- Plastic Pipe
  - The breached line gas line was ¾ inch yellow plastic pipe service line, supplying a single gas meter in the front of the structure.
- Steel Pipe
  - The second gas line present was an abandoned steel pipe gas line capped off in the front of the structure adjacent to the in-service gas meter. PSNC/Dominion Energy confirmed this system to be out of service.

FUEL SOURCE

The fuel source for the explosion was determined to be natural gas originating from a jagged breach in the 3/4-inch plastic underground gas service line. DFD personnel, utilizing an Altair gas meter, entered the front of Kaffeinate at 115 North Duke Street and conducted measurements from the front of the Kaffeinate coffee shop to the rear. In the interior of the structure, the E1 crew detected natural gas migrating into the structure and the meter read at 100% LEL. The probable gas migration path occurred through electrical, structural, and plumbing penetrations into the building. Evidence of natural gas in the structure was also directly observed by Mr. Lee, an additional Kaffeinate employee, Prescient staff, DFD personnel, and the cable boring crew. This fugitive gas was observed by smell and metering prior to the occurrence of the explosion. This observation and conclusion was confirmed through statements and video surveillance.

The natural gas flowed from the leak in the service line, through the ground, beneath the concrete and asphalt into the building and surrounding storm drains. The gas accumulated below the concrete and asphalt ground covering, restricting, and inhibiting vertical dissipation of the gas, and facilitating lateral travel of the gas toward and into the 115 North Duke Street building, adjacent buildings, and storm drains.

The "National Fire Protection Association (NFPA) 921 Guide for Fire and Explosion Investigations" states:

> ***10.9.9.1.1*** *It is common for fuel gases that have leaked from underground piping systems to migrate underground (sometimes for great distances), enter structures, and create flammable atmospheres.*
> *Both lighter-than-air and heavier-than-air fuel gases can migrate through soil; follow the exterior of underground lines; and seep into sewer lines, underground electrical or telephone conduits, drain tiles, or even directly through basement and foundation walls, none of which are as gastight as water or gas lines.*
>
> ***10.9.9.1.2*** *Such gases also tend to migrate upward, permeating the soil and dissipating harmlessly into the atmosphere. Whether the path of migration is lateral or upward is largely a matter of which path provides the least resistance to the travel of the fugitive gas, the depth at which the leak exists, the depth of any lateral buried lines that the gas might follow, and the nature of the surface of the ground.*
> *If the surface of the ground is obstructed by rain, snow, frozen earth, or paving, the gases may be forced to travel laterally. It is not uncommon for a long-existing leak to have been dissipating harmlessly into the air until the surface of the ground changes, such as by the installation of new paving or by heavy rains or freezing, and then be forced to migrate laterally and enter a structure, fueling a fire or explosion.*

CHEMICAL COMPOSITION

The exact composition of natural gas varies between gas fields. The primary component of natural gas is methane (CH4), the shortest and lightest hydrocarbon molecule. Natural gas as a

fossil fuel also contains heavier gaseous hydrocarbons such as ethane (C2H6), propane (C3H8) and butane (C4H10), as well as sulfur-containing gases in varying amounts. Nitrogen, carbon dioxide, trace amounts of hydrogen sulfide, water and odorants can also be present in natural gas.

Processed natural gas is tasteless and odorless. However, before natural gas is distributed to end-users, it is odorized by adding small amounts of thiols. Two types of odorants are t-butyl mercaptan, with a rotting cabbage-like smell, and thiophane, with a rotten-egg-like smell. Odorants are added to the otherwise colorless and odorless gas, so that leaks can be detected before a fire or explosion occurs. Processed natural gas is, in itself, harmless to the human body—however, natural gas is a simple asphyxiate and can displace the oxygen content of the air, enough where it will not support life.

Natural gas is lighter than air, so it tends to dissipate into the atmosphere. However, when confined within a structure, natural gas concentrations can reach explosive limits. Such mixtures, if ignited, result in blasts whose force can destroy buildings. Methane (the primary component of natural gas) has a lower explosive limit of 5 percent in air and an upper explosive limit of 15 percent. Natural gas maintaining concentrations between 5 percent and 15 percent in the presence of a competent ignition source, can trigger explosions**.**

SOURCE OF IGNITION

The source of ignition of the fugitive gas that accumulated in the building at 115 North Duke Street was not conclusively determined; however, immediately prior to the explosion, Mr. Kong Lee was alone in the business and his actions cannot be ruled out as a contributing factor to the ignition source of this fugitive gas.

The "National Fire Protection Association (NFPA) 921 Guide for Fire and Explosion Investigations" states:

> ***19.5.4*** *There may be multiple competent ignition sources in the area of origin with a known first fuel. A cause hypothesis can be developed in the absence of being able to state specifically which of these competent ignition sources ignited the known first fuel. Where propane leaks into a cellar, the standing Pilot on either the water heater or the furnace may have been the ignition source, however post-fire it may not be possible to definitively determine which of the two ignited the gas.*

Figure 7 depicts ignition source temperature ranges.

Source	Temperature (C)	Temperature (F)
Cigarettes - ventilated	400°-780°	**752°-1436°**
Cigarettes - unventilated conditions	288°	550.4°
Cigarettes - insulated and smoldering	510°-621°	**950°- 1149.8°**
Match	600°-800°	**1112°- 1472°**
Candle flame	600°-1400°	**1112°- 2552°**
Stove element	>550°	**>1022°**

Fluorescent light	60°-80°	140°- 176°
Incandescent light	100°-300°	212°- 572°
Tungsten halogen light	600°-900°	**1112°- 1652°**
Electrical arcing	to 3750°	**to 6782°**
Electrical spark	1316°	**2400.8°**

**Gray Highlighting/Bold fields denote examples of competent ignition sources temperature ranges. Data compiled from multiple sources.*

Upper - lower flammable Limits, Upper – Lower explosive limits & ignition temperature				
Gas	**UFL %**	**LFL %**	**Ignition Temperature (C)**	**Ignition Temperature (F)**
Propane	9.6	2.15	466°	870.8
Butane	8.5	1.9	405°	761°
Natural gas	15	4.7	482°-632°	**899.6°- 1169.6°**
Natural gas	3.9% - 4.5% **(LEL)**	14.5%-15%**(UEL)**	482°-632°	899.6°- 1169.6°

METER CHARACTERISTICS

The meters in use by the Durham Fire Department at the time of this incident were Altair 4x, RAE Lite, RAE Pro Plus, Sensit Gold G2 and Sensit HXG. All DFD engine companies are issued the Altair 4x meters. The only company that engaged and utilized its meter prior to the explosion was Engine 1.

All DFD multi-gas meters consist of an Oxygen, Carbon Monoxide (CO), Hydrogen Sulfide (H_2S), and combustible sensor. Each meter is calibrated to a known quantity of Oxygen, CO, H_2S and combustible gas. The Altair 4x is calibrated to pentane. All meters display a percent of the Lower Explosive Limit (LEL). Methane and natural gas are used synonymously, but are actually different compounds because methane is a single compound where natural gas is a mixture of flammable gases with methane being the main component. The other compounds that make up natural gas differ in concentration due to the area of origin which can result in different flammable ranges. It is widely accepted that the average or approximate flammable range of natural gas is 5% to 15%. The flammable range consists of a lower explosive limit (LEL) and an upper explosive limit (UEL). This means that between 0% to the LEL, the concentration is too lean and from the UEL to 100%, the concentration is too rich to cause an explosion. The area between the LEL and UEL limits is the flammable range where combustion can occur.

0% to 4%	5% to 15%	16% to 100%
TOO LEAN FOR COMBUSTION	FLAMMABLE	TOO RICH FOR COMBUSTION

The other sensor that is relative to flammable gas readings is Oxygen primarily because Oxygen must be present for combustion to occur. A minimum of 15% Oxygen is needed to facilitate flaming combustion. Another reason to meter the Oxygen present in the air is to estimate the total percentage of a gas present in the air based on the displacement of Oxygen. Oxygen makes

up 20.8% of the atmosphere which is approximately 1/5 of the atmosphere. The volume of a gas in the atmosphere can be estimated by calculating the displacement of Oxygen in the air (from 20.8%) and multiplying that figure by 5. This is a viable estimation as displacement by a gas is nonspecific to other gases; all gases are generally displaced at the same concentration.

Example: In responding to a natural gas leak, the Oxygen reading is 19.8%. This is a 1% drop or displacement. To estimate the volume of a certain gas in the atmosphere, 1 is multiplied by 5, totaling 5% volume of natural gas. As discussed above, 5% is the lower explosive limit (LEL) of natural gas. See the calculation below:

20.8% Oxygen in air – 19.8% meter reading = 1% drop in Oxygen
1% drop x 5 = 5% of the total atmosphere displaced

SUMMATION OF FORMAL WITNESS INTERVIEWS

B.J.
Prescient Company
May 6, 2019

- BJ worked in a cubicle beside another employee (S.S.). On the day of the incident, B.J. smelled gas. Another employee (C.A.) came and asked if either of them could smell gas, to which they both replied "yes."
- They made an "informed decision" to evacuate.
- The employees exited towards Gregson Street and took the steps to Morgan Street.
- Once in the area of Morgan Street, B.J. along with the other employees, encountered a fire crew. The fire crew asked them if everyone was out of the building and they all replied "yes." The fire crew then asked if someone could let them inside the building to check. The crew was allowed in with somone's card access. They stayed inside several minutes and then exited.
- S.S. walked away prior to the crew exiting the building.
- B.J. indicated that she walked towards Duke Street & Gregson Street (Investigator's Note: These two streets run parallel and do not intersect. The interviewee may have confused the street names. From the context of this interview, it is the invetsigator's opinion that she walked towards Main Street and Gregson Street). C.A. and C.K. (another employee) walked towards the parking lot near Shooters II (nightclub).
- B.J. was approaching Gregson Street when she looked back at the building and saw the explosion occur.
- There was one big boom that sounded similar to a large firework and the ground shook.

J.B.
Prescient Company
May 6, 2019

- J.B. worked for Chevron for 37 years, and stated that he had a lot of training in chemicals, gas, LEL's, explosives, etc.

- At 0930 hours, C.A. came into his office and said "I smell gas. We should get out." J.B. exited his office and he could smell gas.
- J.B. had a 1000 hours conference call scheduled. J.B. began walking through the parking lot on the Gregson Street side and walked toward Parker & Otis to take his call. J.B. was able to see the fire engine upon coming out to Duke Street.
- A woman poked her head out of Ingram's and spoke briefly with J.B. about the gas leak. The woman also said "The facilities manager is behind you. Lets tell him too."
- J.B. told two workers on a bucket truck in the area of St. James Seafood that there was a gas leak and they should probably clear out.
- At approximately 0955 hours, J.B. decided to go home for the day. J.B. reached his car in the parking lot and drove away at approximately 1000 hours or a minute after.
- By 0958 hours J.B. had not encountered any fire, police, or EMS personnel on the Gregson Street side of the building. At this same time, J.B. texted the person he was scheduled to have a conference call with, got in his car, and spoke with that individual via bluetooth.
- J.B. was at home when D (HR employee) called him and advised him that the building had blown up.
- The day prior to the explosion, April 9, 2019, J.B. walked directly in front of Kaffeinate towards Main Street. At 1230 hours, in the area of Kaffeinate, J.B. noticed two workers digging separate holes in front of Kaffeinate with shovels. The holes were about two feet deep. J.B. then noticed a truck with three hispanic men wearing hats and vests, working across the intersection of Duke Street and Morgan Street headed towards Durham School of the Arts.
- J.B. passed back by Kaffeinate around 1430 hours on April 9, 2019 and did not see the men working in that location.
- J.B. stated that "In my opinion, there was NO reason for anyone to get hurt. We had 25 minutes to get out of the buildings. Mr. Lee made a fatal mistake by going back inside the building."

R.J.
Witness
May 16, 2019

- R.J. is an interior designer by trade and was leaving a meeting the morning of April 10, 2019. She was travelling north on Duke Street.
- R.J. sat idle at the stoplight and was directly beside Engine 1. She observed a firefighter (Investigator's Note: determined to be Firefighter Darren Wheeler) standing about 6 feet away from her.
- At the time, the gas smell was so heavy that it was "making her sick."
- R.J. assumed the building that the workers were in front of was a restaurant, but she wasn't sure. R.J. observed a male subject wearing brown/khaki pants, brown belt, and a short sleeved shirt (Investigator's Note: determined to be Mr. Lee), walk to the front door and tape a neon green/yellow sign to the inside of the window and he then turned and walked back out of view inside the building.
- Several seconds later the light changed and she pulled off.

- About the time R.J. approached the other side of Morgan St., she heard the explosion. R.J. looked in her rear view mirror and there was a huge fireball on the sidewalk directly in front of the window that Mr. Lee had been standing in.

C.A.
Prescient Company
May 6, 2019

- C.A. was working at her desk when she smelled something that she thought was gas, but passed it off as sewage due to prior issues in the building. C.A. walked upstairs and smelled the odor virtually everywhere. C.A. checked the bathroom to check for a sewer issue and could smell nothing.
- C.A. spoke with S.S, B.J. and J.B. and asked if they smelled anything. They all answered that they did. They all gathered their belongings to evacuate the building. C.A. then called C.K. to see if she smelled the gas. C.K. initially said "no," but upon walking out of her office, she told her "Yes I do and it's really bad."
- They exited the office and went out via the Gregson Street side. They spoke with three men at the corner of Duke Street and Morgan Street that C.A. said sounded like "good 'ol southern boys". C.A. was advised that a gas line had been struck and that they would be able to go back inside soon. They were also approached by a woman who was "raising hell" because she was unable to get her coffee.
- C.A. returned to the back of the building with C.K., where they made a decision to work from home. A fire crew approached them and asked which business they worked for, to which C.A. replied, "Prescient." The fire crew then confirmed that everyone was out and accounted for, to which C.A. replied "yes." The fire crew requested to be badged into the building and C.K. let them in. The fire crew spent anywhere from two to six mintues inside the building.
- C.A. and C.K. decided to head home and as they crossed Morgan Street, the building blew up.
- C.A. said the explosion sounded like a rapid "boom boom boom" similar to large scale fireworks.

R.P.
Prescient Company
May 6, 2019

- R.P. was on a phone call with an ad agency. C.K. came in and told him that there was a "strong gas smell and they should get out".
- R.P left his office and went outside by way of the Morgan Street door and proceeded to the area of Morgan Street and Duke Street.
- At 0949 hours, R.P. called the ad agency back and talked for nine minutes.
- R.P. then decided he would make the rest of his calls from his apartment in West Village.
- R.P. went back in the building at 0958 hours and retrieved his briefcase and he exited again to head to his apartment.
- R.P. spoke to C.K. and asked her to help him with his phone because he had left his glasses.

- C.K. gave a fire crew access to the building to check for gas. They were inside for a couple of minutes and upon leaving, R.P. thinks they went into the clinic.
- R.P. dialed back in at 1001 hours and was walking along Morgan St. towards the cross walk at West Village.
- R.P. heard and felt the explosion. The windows of West Village blew out simultaneously. R.P. said the explosion was a loud "boom" similar to a large firework.
- R.P. turned and ran back towards the building. R.P. encountered two females who were crying and bleeding. R.P. continued to look for C.K. and C.A..
- R.P. located C.K. and C.A. in the area of Gregson Street and hugged them. There was a male casualty who was bleeding from the head lying near the lightpole.

C.K.
Prescient Company
May 6, 2019

- Around 0930 hours, C.K. went outside to retrieve a trash can. While outside, C.K. noticed a man inside of what she thought was a manhole with only his torso exposed.
- C.K. got a call from C.A. and C.A. asked her if she smelled gas. C.K. replied "No." C.K. then walked out of her office and was able to smell the gas. C.A. instructed C.K. to call D from HR and advise D of the situation.
- D advised C.K. to dial 911. Upon calling 911, C.K. was advised that a fire crew was already at the location.
- C.K. exited the Gregson Street side and was not able to see any fire apparatus.
- C.K. walked to the intersection of Morgan Street and Duke Street and there she noticed the fire truck parked up the street "right before Kaffeinate." There was already a perimeter set up with fireline tape.
- C.K. then went back into the building and went upstairs to tell C.A. that they needed to evacuate. Upon doing so, her co-workers got their belongings and exited.
- C.K. spoke with R.P. and advised him of the situation.
- C.K., C.A. and R.P. stayed inside briefly while everyone else was leaving, as they were expecting a 1000 hours conference call.
- C.K. returned back outside to the Morgan Street/Duke Street corner and spoke with three "construction workers." One man was tall, thin and had dark hair. He advised her that someone had struck a gas line and that they would be able to go back inside in "three minutes." While talking to this man, a "milennial" type young woman approached and she was "raising hell" about not being able to get coffee. One of the workers leaned back and looked towards Kaffeinate and replied to the young woman "He's already put up a sign and they are closed."
- Fire crews approached C.K. and asked her to badge them into the building so they could check it. The crew entered the building and returned a few minutes later.
- C.K. and C.A. debated whether or not to leave and just work from home. They decided to leave and work from home
- C.K. and C.A. then walked in the direction of Gregson Street by way of Morgan Street.
- C.K. then heard several "pop pop pop pops" to which she thought was gunfire. She then a felt a "force" or a "wind tunnel" at their backs.

S.S.
Prescient Company
May 6, 2019

- S.S. was in the process of working on a presentation and all seemed normal. C.A. came over and asked her and B.J. if either of them could smell gas. They both responded that they could. C.A. then headed downstairs and S.S. continued to work. C.A. returned and informed S.S. and B.J. that the smell was worse downstairs and that they were going to evacuate.
- Upon evacuating the building, S.S. walked to The Residence Inn. Once at The Residence Inn, she heard an explosion.
- To S.S. a the explosion sounded like a single "big bang"
- S.S. had experienced the "sugar factory" explosion in Savannah, GA and thought to herself, "Well the building just exploded."

L.B.
Kaffeinate
May 21, 2019

- L.B. reported to work at approximately 0645-0650 hours and everything was completely normal until around 0915 hours.
- L.B. had performed her normal daily duties and the general morning "rush" came in between 0830 hours and 0900 hours.
- Between 0915 hours and 0920 hours, Mr. Lee went outside to talk to the workers about the noise they were making. L.B. said it sounded like "concrete stuff," like a drill in concrete.
- Mr. Lee returned and said that the crew was installing Google Fiber.
- Around 0930 hours, the employes of Kaffeinate started smelling a gas smell that L.B. said smelled like "gasoline." She indicated that the strength was a 4 on a scale of 1-10
- Mr. Lee went back outside and talked to the construction crew. Mr. Lee told L.B. that the construction crew advised him that they had hit a gas line and they had called 911.
- Mr. Lee propped the front door open for a while, then closed it.
- Business continued with the gas smell present.
- At this point, the work crew had moved and was now in front of the shop and had taped off part of the sidewalk.
- A male patron commented, "That smells like gas."
- Mr. Lee went back outside to speak to the crew, but L.B. was unsure of what was said. Mr. Lee returned and went to the back of the shop.
- At 0948 hours (09:48 am per L.B.), L.B. noticed that the fire department was outside. They were present for two to three minutes before speaking to anyone inside the coffee shop.
- Fire department personnel then came in and asked "how many people are inside?" which was six to eight customers plus the employees. The crew then told them that there was "no emergency, but everyone needs to leave." This was said to them very strongly. Not many questions were asked by the patrons.

- The fire crew then asked them if the shop had anything that was "ignitable" or a "heat source" to which they replied that they had a waffle maker. The firefighters then asked Mr. Lee to unplug it, which he did.
- Mr. Lee and L.B. then provided the fire department with information on Prescient and the clinic and told the fire crew how they could access those businesses.
- L.B. then gathered her belongings and clocked out. She told Mr. Lee that she would wait at the corner until her shift ended which was 1030 hours. When she left, fire department personnel were still inside talking with Mr. Lee and there may have been a customer or two left inside, but she was unsure. She stated there was no reluctance from Mr. Lee or anyone else inside to leave and Mr. Lee did not direct her or anyone else to stay. At 0951-0952 hours, she was standing at the parking lot entrance on Morgan Street.
- There were workers on the corner of Duke Street and Morgan Street. She spoke to the workers and was told that it may take 45 minutes and that they were waiting on the gas company.
- It appeared that fire crews were around the back of the building talking to people from Prescient who were coming outside. She noticed a firefighter going inside the clinic building and employees coming out.
- L.B. then heard the explosion some minutes later and it sounded more like a "poooffffff" and not necessarily a "bang" or a "boom."

H.H.
Optic Cable Technology Inc.
May 8, 2019
(H.H's lawyer was present during the interview)

- H.H. is the owner of Optic Cable Technology Inc., located at 5807 Wrenwood Court, Durham, NC. The company has been in business for approximately two years.
- Optic Cable Technology LLC employs 12-13 people.
- On the day of the incident, the following employees were on location: C.V. (Operator), W.L. (Locator) & E.S.(Helper). E.R. (Supervisor & Father of H.H.) was present after the gas line was struck.
- Crown Castle was the primary contractor for the project. Tower Engineering/Utilities was contracted by Crown Castle. Tower Engineering/Utilities then contracted PS Splicing, who then contracted with Optic Cable Technology LLC.
- The piece of machinery being used to bore was a 2006 Ditch Witch JT2020 which was being purhased by Optic Cable Technology LLC from PS Splicing LLC for $60,000.00.
- Crews from Optic Cable Technology LLC were on site the day before, from 0730-1600 hours, spotting and checking depths in the area.
- Work started in the area of Duke Street and Main Street. at approximately 0730 hours on April 10, 2019.
- H.H. was at another jobsite in Wilmington when Cesar called at 0920 hours to tell him they had hit a gas line.
- H.H. then called his father/supervisor E.R. to let him know. E.R. indicated to H.H. that he would call Don Smith (PS Splicing LLC).

- The next phone call H.H. received was from E.S. who told him there had been an explosion.

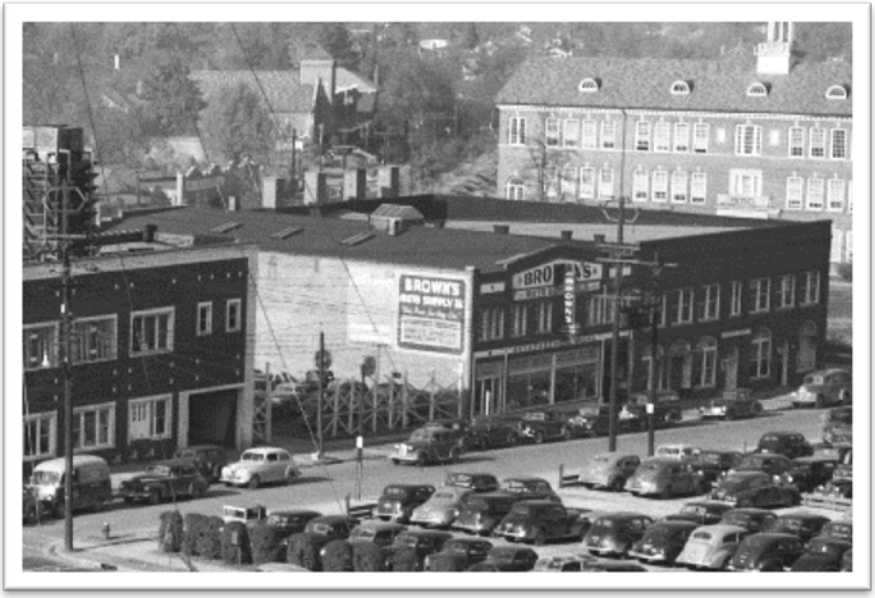
BUILDING CONSTRUCTION

The primary affected structure on 115 North Duke Street was a 2-story, adjoined building with primarily brick walls, hollow core clay tile floors (Figure 8), mixed wood-framed and steel-framed, drywall sheathed interior walls. The roof assembly consisted of open-web steel bar joists supported on steel beams and brick columns. The second floor above Kaffeinate was poured concrete on corrugated steel, supported by open-web steel bar joists supported on steel beams and columns, built sometime in 1920 (Durham County tax records). The original use of this building was an automotive dealership (Figure 9). The combined square footage of both adjoined buildings is 20,872 sq. ft. (Durham County tax records). The two buildings on this curtilage had been blended together through doors and cased openings. Kaffeinate occupied approximately 1,500 sq. ft. of the structure addressed as 115 North Duke Street. Prescient (115A North Duke Street) occupied the rear and upstairs portion directly above Kaffeinate and portions of the connected building. The first floor of the adjacent building 115 North Duke Street, Suite 1-B in Durham, NC (on the corner of Morgan and Duke Streets) was occupied by Main Street Clinical Associates (MSCA). The main entrance to this business was off of the courtyard behind the building.

Figure 8 depicts the type of clay tile sub-floor in 115 North Duke Street



Figure 9 depicts the original use of 115 North Duke Street as a Studibaker delearship



The front of the building (Kaffeinate) faced North Duke Street and was denoted the "Alpha (A)-side." All reference to orientation of direction is clockwise from that cardinal point (Figure 10). It should be noted that this building had additional tenant space that utilized the rear and second floor of the primary structure and in the adjoined building through cased openings. Prescient and Main Street Clinical Associates was addressed as 115 (A and 1-B, respectively) North Duke Street, but the main entrance of both of their spaces was considered to be on the "Charlie (C) Side" of the structure in the rear court yard. Occupied exterior dimensions did not form a complete rectangle, but closely resembled an "L" shape. This area, if present, would not have any significant effect on the findings of this investigation and was not explored.

Those estimated dimensions were as follows in Figure 10:

- A-side (east), approximately 130'
- B-side (South), approximately 115'
- C-side (West Prescient), approximately 65'
- D-side (North Prescient), approximately 62'
- C-side (West MSCA), approximately 75'
- D-side (North MSCA), approximately 50'

Figure 10 denotes 115 North Duke Street orientation



On the “Bravo” (B-1) side of 115 North Duke was 111 North Duke Street. This structure was primarily brick walls, concrete floor, tile floors, mixed wood-framed and steel-framed, and drywall sheathed interior walls. The roof assembly consisted of open-web bowstring steel bar joists, supported on steel beams and brick columns. This structure was built circa 1949-1960.

The roof was wooden plank, built upon bowstring steel trusses, with the ridgeline running in an east-west orientation, covered in composite rolled roofing material. Two large garage-type metal roll-up doors were situated on the ground floor midline on the front and rear (east–west) of the structure, approximately 20’ in width. Beside each roll-up door (positioned on the left side-Duke Street and right side-Gregson Street) was a single egress door that functioned as the entrance to the warehouse.

ELECTRICAL SERVICE

On April 10, 2019, DFD investigators performed an examination in conjunction with NCSBI. The summary follows:

Fixed Electrical Components Supplying the Structure:

Electrical service to the building was provided via an overhead service drop from a direct transformer located on the Alpha side of the structure. This transformer was located in the right-of-way near the building dividing walls of 111 and 115 North Duke Street. From the pole, conductors supplied a main electric service panel, protected by a 400-amp

breaker inside Kaffeinate. This service panel was positioned on the wall, just left of the entry door

Figure 11 depicts the location of the electrical panel in Kaffeinate



The following are observations of the aforementioned electrical service:

- The events that ignited the explosive gas mixture could not be conclusively contributed to an electrical event in this panel.
- This electrical system was **not** Class 1, Division 1 or Division 2 (explosion proof wiring).
- The visual examination of the entire panel configuration did not reveal obvious modifications to the electrical systems.
- It is possible the electrical system in Kaffeinate was operable prior to the explosion with no known defect or failure. This opinion is based on the business operating in its normal condition and statements of an employee to firefighters and investigators.

Interior Fixed Electrical Systems of Building of Origin:

In the building of origin located at 115 North Duke Street, electrical conduit containing insulated conductors and outlets were noted.

As part of the scene examination, efforts were made to examine the conductors from the conduit. This effort presented great challenges due to safety concerns and the use of heavy equipment. Of the components examined, there was no evidence of arc-melting on the conductors.

Non-Fixed Interior Electrical Systems / Components within Building of Origin:

Kaffeinate had several portable electrical appliances and some fixed appliances within its space.

Identified portable and fixed electrical appliances were removed and examined. These items included the following:

- An open top drink cooler
- Waffle irons
- Coffee machine
- Microwave
- Point of sale cash register

INTERIOR CONDITIONS PRIOR TO FIRE

Ground Floor:

The main entrance to Kaffeinate was a single glass door located at the Alpha Side near the Alpha, Bravo (A-B) corner of the building. This shop occupied an estimated 1,500 square feet with a glass store front. The interior configuration consisted of a service area of approximately 400 square feet located on the Bravo side (B-side) interior wall. This area had a Turbo air open display merchandiser refrigerator, waffle irons, microwave, dishwashers, point of sale cash register, and coffee brewing appliance. The rear had a small prep/storage area and bathroom adjacent to it. The seating area had numerous tables and chairs of various sizes and configurations located towards the midline and Delta side (D-Side) of the shop.

Figure 12 denotes interior configuration of Kaffeinate



There was a staircase and entry door located along the east wall at the front of the structure's "A" Side. These stairs entered the area of 115A North Duke Street, that was occupied by Prescient. These stairs were functional prior to the explosion and were noted to be used by C.K. Key of Prescient Company on the morning of the explosion. Prescient occupied a combined space

greater than 10,000 square feet in the two adjoined buildings. All observed systems and services were noted to have been in working order prior to the explosion.

Figure 13 denotes stairwell entrance to Prescient



EXTERIOR SCENE EXAMINATION

A systematic approach was used throughout this process. Examination proceeded from the outside of the building to the inside and from areas having the least amount of damage to areas having heavier damage. There was an emphasis placed on recognition, identification and analysis of fire intensity and movement patterns in accordance with "NFPA 921 Guide to Fire and Explosion Investigations."

The exterior scene examination was conducted in a clockwise manner, starting at the front of the building that faced North Duke Street, denoted the Alpha side (East).

Alpha/A-side of Structure/Front (East)

The front of the structure faced North Duke Street. The storefront of Kaffeinate was reduced to rubble with a gas fed fire. The two story exterior walls of 115-B North Duke St. remained intact with windows present, but no intact glass was present on either level. The exterior on the Bravo side had a collapse of its adjoining wall and connecting roof beam to 115 North Duke Street.

Bravo/B-side Exposure Building

111 North Duke Street was examined. This is the adjoining structure on the Bravo side of the building of origin. Partial collapse and fire damage to this building occurred in an area at its northeast (Alpha/Bravo) corner. This damage matched the blast force between the two buildings. This damage caused the bowstring roof beams to collapse.

Additional buildings sustained damage from the blast force, but did not have any direct fire damage. These buildings will be noted, but no origin and cause examination was warranted for these spaces.

INTERIOR SCENE EXAMINATION

Overview:

The fire in the building of origin was extinguished by firefighters after a prolonged period of gas fed free-burning. During the fire, the roof was largely consumed. Parts of the roof that were not consumed were either knocked down into the structure by large quantities of water during the fire attack or they collapsed under their own weight. Fire and explosion damage throughout the building was extensive.

Comparative analysis of fire damage to the interior of the structure showed a greater degree of destruction to materials at the east (Alpha) end of the building. Based on fire patterns, fire damage, various media sources and witness statements, an area of origin was identified in the east (Alpha) area of the building known as Kaffeinate. Access to the east (Alpha) area of the building for investigators was only possible with the removal of debris by heavy equipment.

Examination:

During every operational period from April 10, 2019 (this date's operational period started at the time of the incident) through April 12, 2019 (0700-1900 hours), Durham Fire Department Fire Investigators, NC State Bureau of Investigation, Durham County Fire Marshals' Office, and Alcohol, Tobacco, Firearms and Explosives Fire Investigators met to discuss how the scene was to be processed. The priority of victim recovery while simultaneously maintaining evidence for the origin and cause examination was considered and taken into account.

The Following Plan was Developed:

After all emergency mitigation efforts were completed, a briefing was conducted for the purpose of transitioning to the investigation phase of the operation. This investigator had a face-to-face conversation with Chief Officers and stated objectives for the operation. The main objective began with complete documentation of the scene by various media platforms, e.g. digital photographs, drone footage and the like. Each element of this was disseminated to assisting members of the aforementioned investigative team. The next stated objective was identification and removal of the deceased victim (presumed) Mr. Lee. This objective was stated face-to-face with Durham Fire Department Division Chief Dan Cremeans. Personnel were allocated and equipment assembled to remove Fatality 1 from entrapment. The Durham Police Department identified the body and maintained chain of custody as it was removed, tagged and bagged for transport. The body was photographed and documented prior to transport to the State Medical Examiner's Office.

During the first operational period of this explosion, it was determined that there was a presumed presence of asbestos associated with this explosion. On April 11, 2019, members from North Carolina Department of Health and Human Services performed testing and recommended full protection. This protection consisted of Tyvek type suits and respiratory protection. This level of

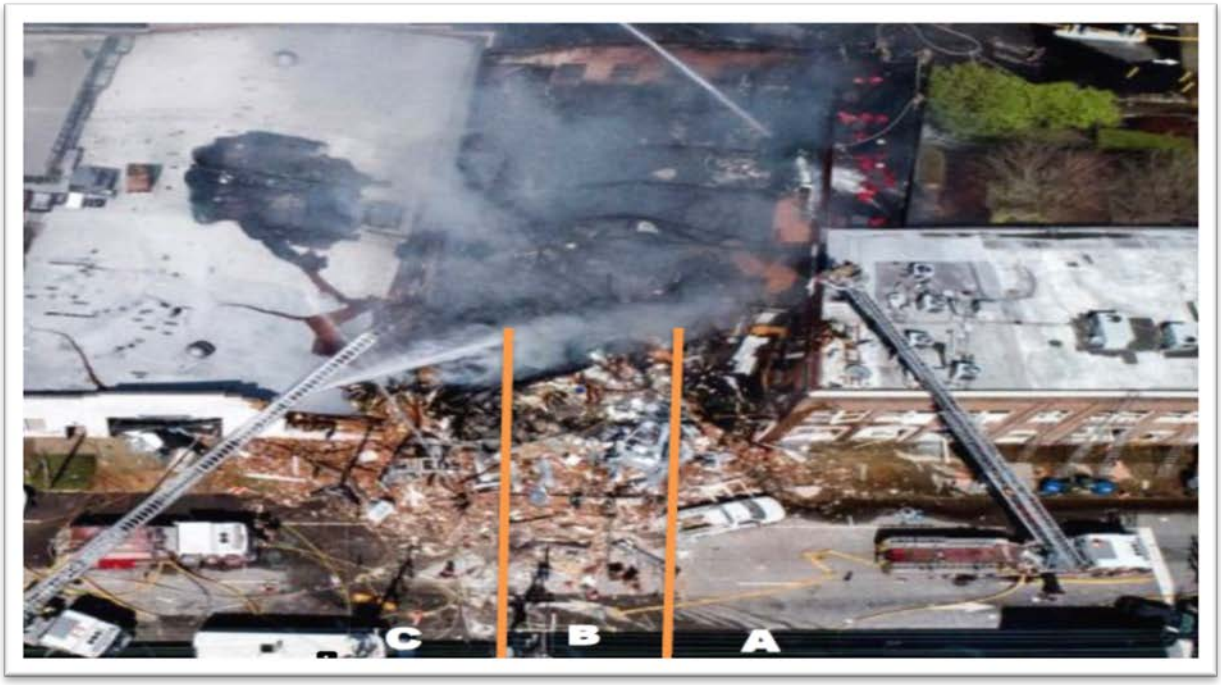
protection required crews to operate in four-person teams working in one-hour intervals. Crew members were briefed of objectives and safety requirements and a safety officer was assigned to the Investigation Division.

The investigation plan required crew members to work in close proximity with excavators and loaders to move debris. The following operators from City of Durham Publics Works Department were assigned to operate equipment:

Cary Brodie
Mark Ferrell
George Hunt
Willie Jiles

The first operational period was to assist in moving debris to enable search dogs to access areas with collapsed roof sections. The excavation site was divided into three sections (Figure 14). These sections were labeled in a reverse order of (C, B, A). The purpose of this order was to identify debris as it was removed from the structure and placed in separate piles. This practice was continued for the duration of the excavation. At the completion of search efforts, the direction of the excavation changed.

Figure 14 denotes debris examination areas



The next investigation operational period started with briefings. All investigators were briefed on operational objectives. PSNC/Dominion energy representatives requested that investigators from Engineering Systems, Inc. (ESI) assist in locating and retrieving two items of evidential value to PSNC/Dominion energy: (1) the natural gas meter and (2) a hand held gas monitor used by the PSNC worker, Mr. Jay Rambeaut. This objective was agreed upon and the operation started with

a safety briefing for ESI employees. Three members of ESI were allowed to accompany investigation members for the purpose of retrieving aforementioned items.

A DFD drone was utilized to conduct overhead surveillance of the site. This assisted this investigator in determining areas requiring a detailed examination from least burned to most burned. Figure 14 (above) reveals area “C” having a large amount of burn in comparison to area “A”. Shortly after the initial response, this was noted to be an area with a gas fed fire. This gave indication for a migration path of gas into the structure. The listed equipment operators were briefed on the investigational objectives. This objective continued for the duration of the excavation.

ANALYSIS OF FIRE/ EXPLOSION PATTERNS/ INDICATORS

Within the structure, blast and fire patterns were examined and evaluated with respect to the characteristics of the materials involved. Each pattern was then evaluated in context and in relation to all of the patterns observed and the mechanisms of energy transfer that led to the formation of these patterns. The conclusion regarding origin is that the explosion originated at the east (Alpha) area of the first floor at 115 North Duke Street and the fire progressed throughout the building growing in size and intensity.

Figure 15 denotes the explosion site moments after blast



Figure 16 denotes the natural gas fed fire of the A/B wall



The following indicators, as referenced in "2017 NFPA 921," which were documented with photographs and 3-D scans, are among those that support the findings in this report.

NFPA 921 references two major types of explosions, "Mechanical Explosions and Chemical Explosions." These two types differ by the source or mechanism by which the blast overpressure is produced. The blast at 115 North Duke Street has been categorized as a Chemical explosion.

> 23.2.3.1 *In chemical explosions, the generation of overpressure is the result of exothermic reactions wherein the fundamental chemical nature of the fuel is changed. Chemical reactions of the type involved in an explosion usually propagate in a reaction front away from the point of initiation.*

Natural gas in it most basic terms is an identified chemical with flammable properties, and this was the first known fuel in the structure of Kaffeinate.

> 23.2.3.1.1 Combustion explosion. *The most common of the chemical explosions are those caused by the burning of combustable hydrocarbon fuels. These are combustion explosions and are frequently characterized by the presence of a fuel with air as an oxidizer. A combustion explosion may also involve dust. In combustion explosions, overpressures are caused by the rapid volume production of heated combustion products as the fuel burns*

Combustion explosions are classified as either deflagrations or detonations, depending on the velocity of the flame front propagration through the fuel air mixture. Deflagration is ordinary slow combustion (subsonic) and is propagated by heat transfer. Detonation is combustion that is propagated by a strong shock wave. A detonation is extremely fast (supersonic) and consequently violent.

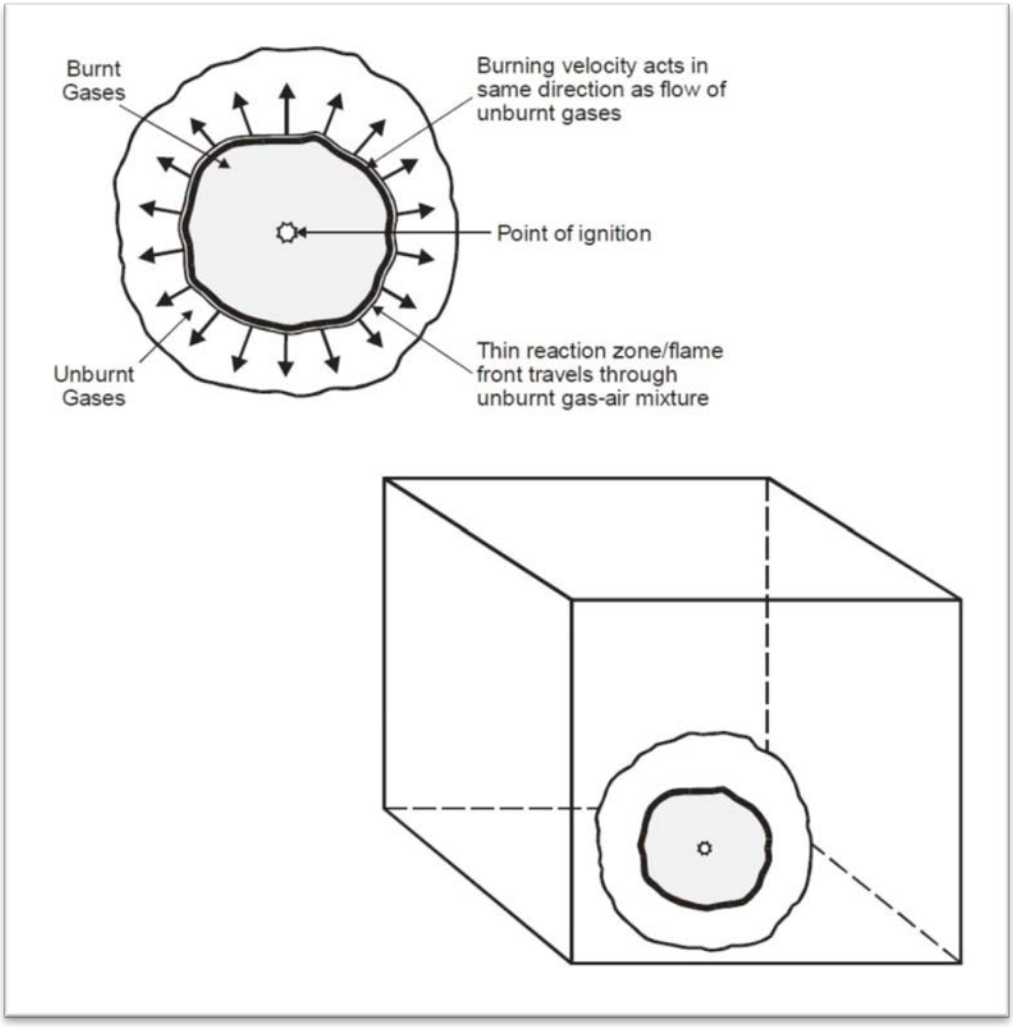
Under certain conditions, a subsonic flame may accelerate to supersonic speed, transitioning from deflagration to detonation. Not fully understood is the exact mechanism, and while existing theories are able to explain and model both deflagrations and detonations, there is no theory at present, which can predict the transition phenomenon.

The shock wave effects of this explosion were wide spread. The damage to surrounding buildings, witness accounts and video footage confirmed the impact of the shock wave. NC Mutual Life Insurance Company reported shattered glass associated to the explosion. This building was located two tenths of a mile from the center of the blast. In explosions of structures where the rate of pressure rise is very rapid and is faster than the structure can respond to it, there will be more shattering of the confining vessel or container and debris will be thrown great distances, as the venting effects are not allowed sufficient time to develop. This is characteristic of high-order damage.

> 23.3.2 High-order damage. *High-order damage is characterized by shattering of the structure, producing small, pulverized debris. Walls, roofs, and structural members are splintered or shattered, with the building completely demolished. Debris is thrown great distances, possibly hundreds of feet. High order damage is the result of rapid rates of pressure rise.*

1. The sequential pattern analysis of the explosion effects and fire patterns, including char analysis, heat and flame effects analysis, and the movement and intensity patterns, indicate the detonation originated in Kaffeinate on the first floor of 115 North Duke Street. In explosion flame propagation, the fuel (natural gas in this example) encounters an ignition source, burning velocity acts in the same direction of flow as unburnt gases. A thin reaction zone/flame front travels through the unburnt gas-air mixture (Figure17). A large fire ball was associated with this explosion. This fireball is attributed to a buoyancy driven force resulting from a combusting vapor cloud. When a fire develops in a compartment, the products of combustion (i.e. heat, soot) begin to influence the materials within the compartment. Consequently, the lining materials for the walls, ceiling, and floor, as well as the various contents within the compartment, are damaged by their exposure to the products of combustion. The variety of damage to these objects is collectively known as fire effects.

Figure 17 depicts propagation of an explosion flame



"2017 NFPA 921" defines fire effects as "the observable or measurable changes in or on a material as a result of exposure to the fire." The degree to which materials are influenced by the developing fire will be a function of the material characteristics, intensity of the products of combustion, and the duration of exposure.

As illustrated in Figures 15 and 16, the initial blast force was concentrated at or around Kaffeinate. Two areas had gas fed fires; one localized around the gas meter on the Alpha side the second was near the Bravo side approximately 30 feet in the rubble pile under the collapsed roof. The fire then grew in intensity and spread to collapsed structural members. This fire could not be easily extinguished because access to the seat of the fire was concealed and gas fed. This allowed lateral spread and notable fire effects to the remainder of the structure. The fugitive gas flowing to this fire was eliminated by PSNC/Dominion Energy at approximately 1110 hours (Appendix 1, line 13a).

The noted fire effects indicated a possible migration path of the fugitive gas in the structure and were examined. Investigators identified a concentrated burn area approximately 30 feet in the rubble on the Bravo wall. This area was marked and photographed by aerial drone photography (Figure 18). This area was considered a possible fugitive gas migration area.

Figure 18 denotes a possible migration path of the fugitive gas



2. A possible gas migration area was located approximately 30 feet along the Bravo wall. It is acknowledged that gas migrated underground and permeated 115 North Duke Street creating an explosive fuel air mixture. The structure's building elements created a moisture tight ensemble, but not vapor tight. There were numerous building components that could allow the fugitive gas to permeate this space.

   Investigators observed an intense area of burn approximately 30 feet in the rubble along the Bravo wall in section "C" west of Duke Street (Figure 14). This area was identified as a utensil wash area, based on prints (Appendix 5). Investigators conducted a guided excavation of this site to the tile floor. This area was excavated with an excavator having a bucket and thumb attachment, which allowed items to be picked rather than pulled. The area revealed items consistent with a utensil wash room. Stainless steel sinks and tables were discovered as well as various stored items. One noted item was a portable propane tank. The tank had

damage and appeared that it was not in use. The tank was removed and placed adjacent to 710 West Main Street. Investigators continued to examine this area and revealed a sump/grease trap basin in the floor with no lid. This sump was plastic, blue in color and approximately 20 inches in circumference. Upon this discovery, investigators suspended the use of the excavator and continued removing debris by hand. A sump cover made of aluminum diamond tread plate was located approximately 3 feet east of the sump. Five attachment screws and anchors were still attached to the cover. The lid was concaved in a manner consistent with force being applied from the bottom of the lid. The force exerted on this lid had pushed all anchors out of the sump and retained them in the lid. The contents of the sump could not be examined at the time of its discovery. This investigator requested to examine the sump at a later time to confirm the hypothesis of a migration path for the fugitive gas in the structure. This investigator is aware of "Expectation Bias and Conformation Bias" as noted in Section 4.3.39 and 4.3.10 of "NFPA 921 Guide for Fire and Explosion Investigations," but could not continue to examine this sump. It was this investigator's request to conduct a smoke test of this sump to see a possible migration path for the fugitive gas. Fire Marshal Jody Morton solicited the opinion of an expert engineer from ATF and gave the following feedback:

> *ATF Agent Edmunds contacted Interim Deputy Fire Marshal Gullie and I back this morning at 0925 hours after talking with an expert engineer at the ATF Lab. The engineer advised that we should not conduct a smoke test for the following reasons:*
> *1) You cannot replicate the conditions prior to the explosion*
> *2) A natural gas line has much more pressure than the smoke machine and therefore you cannot simulate the same pressure and type of gas at the time of the incident*
> *3) The engineer advised that conducting this type of test is a huge liability and would open up the city to additional scrutiny in regards to this case*
> *4) NFPA-921 only requires you as the lead investigator to document that you cannot conduct testing because you cannot replicate the conditions at the time of the incident*
> *5) The expert engineer from the ATF further stated that he worked a similar case 2 years ago and he would advise us to keep the fire investigation report vague and avoid in depth opinionated details*

This expert opinion provided the necessary documentation to render this sump as a "possible" migration path for the fugitive gas. As stated in "NFPA 921 Guide for Fire and Explosion Investigations:"

> ***4.5 Level of Certainty.*** *The level of certainty describes how strongly someone holds an opinion (conclusion). Someone may hold any opinion to a higher or lower level of certainty. That level is determined by assessing the investigator's confidence in the data, in the analysis of that data, and testing of hypotheses formed. That level of certainty may determine the practical application of the opinion, especially in legal proceedings.*

> ***4.5.1*** *The investigator should know the level of certainty that is required for providing expert opinions. Two levels of certainty commonly used are probable and possible:*
>
> *(1) Probable. This level of certainty corresponds to being more likely true than not. At this level of certainty, the likelihood of the hypothesis being true is greater than 50 percent.*
>
> *(2) Possible. At this level of certainty, the hypothesis can be demonstrated to be feasible but cannot be declared probable. If two or more hypotheses are equally likely, then the level of certainty must be "possible."*

A migration path of this fugitive gas was determined to be the front door of Kaffeinate. This was corroborated by witness L.B. Batista, an employee of Kaffeinate, who stated that Mr. Lee propped the front door open. The amount of gas migrating through this door cannot be measured or tested. This door cannot be determined as a sole migration path and will be listed as a "possible" migration path.

EXAMINATION OF POTENTIAL IGNITION SOURCES

Candles/Incense: The use of candles and incense was examined as a possible heat source. No remains of candles or incense were found in the areas in general or in the area of origin. Due to the degree of destruction in the area of origin, the use of candles and/or incense cannot be eliminated.

Smoking Materials: The use of smoking materials was considered as a possible heat source of the explosion. Mr. Lee was identified smoking outside on North Duke Street during the gas leak. It is noted that Mr. Lee had smoking materials in his possession. A red cigarette butt can was located within the area of origin. This was located at the entrance of Prescient on North Duke Street. No occupants were identified smoking or using smoking materials in the area of origin before the explosion. No remains of smoking materials were found during the scene investigation. Due to the degree of destruction in the area of origin, smoking materials cannot be eliminated.

Natural Gas Systems: According to Dominion Energy, 115 North Duke Street had two duct furnaces. These furnaces could not be examined but were visualized in the debris piles. The location and working condition of these appliances could not be confirmed, but both were considered to be rooftop units based on the remaining structural elements.

Propane Systems: A portable propane tank was observed on the first floor, but it was not within the area of origin. No portions or components of a propane system were found within the area of origin. Propane systems and appliances can be eliminated as a potential heat source.

Intentionally Introduced Heat Source: Criminal activity was considered as a possible cause of the ignition, but the scene investigation did not reveal any indications of an intentional ignition

source. Interviews did not reveal any motives for an intentionally set fire. First floor occupants near the area of origin prior to the discovery of the explosion reported that there were no unauthorized persons in that area; however, the introduction of an open flame, either intentionally or carelessly, cannot be eliminated.

Electrical Systems: Throughout the structure, the electrical system was presumed to be in working condition. This is based on historical pictures and witness statements. Numerous identified electrical appliances were noted in operation on April 10, 2019. These items were normal for this type of business and posed no abnormal risk. It should be noted that the entire electrical system and associated appliances were not designed to operate in a flammable gas environment. It is well known that electrical appliances, wiring and fixtures, designed to operate in explosive environments are designed to be intrinsically safe and wiring must be Class1-Division 1 or Class 1-Division 2. None of the electrical system or components in this space met these design specifications. Due to the nature of the electrical supply within the building and electrical appliances, a fault or failure of these items cannot be eliminated.

EVIDENCE

Digital photographs, 3-D scans, and drone video, were taken by Investigators from the Durham Fire Department, Durham Police Department, Bureau of Alcohol, Tobacco, Firearms and Explosives, North Carolina State Bureau of Investigation, and evidence technicians of the Durham Police Department.

Two items of physical evidence were collected; (1) a PSNC ball cap and (2) a North Carolina vehicle registration plate. These items were located on the second floor of the Duke Research building, east of the building of origin. These items were approximately 200 feet from their presumed location of origin. DFD Investigator Brandon Link secured these items until they could be collected by Durham PD Forensics.

The following narrative excerpt was provided by Investigator Brandon Link:

> I was approached by the Major from Duke University Police who advised me that I may want to come to the second floor of 710 W. Main Street (Duke University leases this building for research purposes) and take a look at something. I asked Agent Bode of the SBI to accompany me in case what we were looking at needed to be photographed. Once we were on the second floor, the Major from Duke PD pointed out that there was a PSNC ball hat inside a cubicle space. Given that one of the severely injured victims was in fact, a PSNC employee and that huge implications existed due to the nature of the event, I decided to have Agent Bode photograph the hat and I collected it. The item was placed inside a paper bag and sealed. While looking around, a deformed license plate was also found. The license plate from the PSNC truck was missing and the assumption was made that this could be from the PSNC truck as well. Again, Agent Bode photographed the license plate and I collected that as well. The plate was placed inside a clear plastic bag and sealed. Once we

completed evidence collection in the 710 building, I made contact with a Durham PD officer who was on scene. The officer called his supervisor and was instructed to take custody of the evidence from me until a forensic investigator arrived. Upon arrival, the forensic investigator took custody of it. Once the evidence was turned over to Durham PD, I returned back to the scene.

Digital evidence was collected in the form of video surveillance from 111 North Duke Street and Carolina Livery. This evidence was obtained and provided through verbal consent of its owners. This digital material was provided on two Scan Disk thumb drives. This has remained in the custody of Durham Fire Department and has been maintained in its original state.

Additional open source digital imagery from; Snap Chat, Facebook, Yelp, Google, and Yahoo were utilized in various methods.

FATALITIES:

There were 2 fatalities associated with this fire. The victims' legal names are listed below.

Fatality 1 (as provided by Medical Examiner)
Name:
Kong Lee
2976 Tillinghast Trl.
Raleigh, NC
Probable cause of death "multiple blunt force injuries"

Fatality 2 (as provided by PSNC/Dominion Energy)
Name:
Jay Gordon Rambeaut
DOB: May 17, 1967
Work Address: 1315 Old Oxford Rd, Durham, NC.
Job Title: Locator First Responder 1 Durham Construction and Maintenance Department

A complete autopsy report (Appendix 6) was provided for Mr. Kong Lee. The autopsy was conducted by Medical Examiner Mark Oniffrey of North Carolina Department of Health and Human Services Office of the Chief Medical Examiner. Case Number 19-3846.

KNOWN INJURED

Information provided by Duke Health System and Durham County EMS

GENDER	AGE
Female	48

Female	61
Male	48
Male	35
Male	25
Female	12
Female	42
Female	44
Male	30
Male	27
Male	36
Male	39
Female	30
Male	45
Female	46
Female	26
Female	47
Male	28
Male	65
Female	23
Male	38
Female	47
Male	45
Male	24

CAUSE DETERMINATION

"NFPA 921" defines the cause of a fire or an explosion as:

> **3.3.26 Cause** *the circumstances, conditions, or agencies that brought about or resulted in the fire or explosion incident, damage to property resulting from the fire or explosion incident, or bodily injury or loss of life resulting from the fire or explosion incident*.

For an explosion to occur, four elements must be present:

1. Fuel, (e.g. a combustible dust, flammable gases or vapor)
2. An ignition source
3. An oxidizing agent, which in most occurrences is the oxygen in the air
4. Confinement, which results in pressure buildup during the incipient explosion.

It is confirmed in this investigation that all four of these elements came together to form the combustion explosion causing high-order damage to 115 North Duke street and surrounding structures.

Fuel: The first known fuel was fugitive natural gas from a ¾-inch service line breached by Optic Cable Technology LLC. This gas was metered and had reached 100% of its LEL.

Oxidizing Agent: The known oxidizing agent, oxygen, was found in the air; this level was metered at 19.7%.

Confinement: Natural gas having a vapor density of 0.7-0.9kg/m3 indicates that it is lighter than air and will dissipate if not confined. The fugitive gas in this incident was confined to 115 N Duke Street.

Ignition Source: All these aforementioned elements then found a competent ignition source in the confinement of Kaffeinate. As noted, natural gas has a very low ignition energy requirement and subsequently can be ignited from most *normally* present ignition sources located within occupied structures. (Figure 7).

It is well understood that part of a causation determination includes an ignition sequence analysis. It is outlined that all potential ignition sources in the area of origin be determined if they are competent. This investigation identified competent ignition sources in the area of origin however; this list is not conclusive, but inferred based on physical characteristics of this explosion. The acts or omissions that allowed these elements to come together to form a fugitive gas leak, confinement of said gas, and subsequent explosion have been concluded. Mr. Lee was the last person in the area of origin moments before the explosion. This investigation could not conclusively determine his actions as a contributor to the ignition sequence; however, the ignition source can be inferred as stated in "NFPA 921" section 19.4.4.3 section A.

CONCLUSION

Natural gas has a very low ignition energy requirement and subsequently can be ignited from most *normally* present ignition sources located within buildings (Figure 7). If there is an explosive concentration of fugitive natural gas in a building, it is very difficult to avoid contact with *normally* present ignition sources. In this incident, it is known that the fugitive natural gas had reached 100% of its Lower Explosive Limit (LEL). Subsequently, the potential for this disastrous explosion was substantial.

On April 10, 2019, Optic Cable Technology LLC was conducting a permitted horizontal boring operation in the area of 111 North Duke Street. At 0745 hours, a single crew member arrived with a white Ford F450, pulling a trailer. A 2006 Ditch Witch JT2020 was on the trailer. At 0755 hours, a three-member crew from Optic Cable Technology LLC removed the Ditch Witch JT2020 from the trailer and began setting up to start the boring. Crew members conducted several tasks prior to beginning the boring operation. At 0850 hours, the boring operation started with an operator on the Ditch Witch. A second crew member used a hand held tracking device and a third member was hand digging at the drill head. At 0856 hours, the tracker operator had progressed approximately 50 feet with the tracking device. It is assumed that this is the location of the bit. According to video footage, at 0858 hours, it was noted the the worker gave a hand motion to the operator; this is assumed as a guidance indicator.

At approximately 0906 hours, the gas line was struck and boring was stopped. The two workers returned to the Ditch Witch moments after the line strike. At approximately 0907 hours, Mr. Lee was at the Ditch Witch speaking with workers about the gas leak; this was based on his gestures of a smell and pointing towards his shop (Kaffeinate). The first call for service occurred at approximately 0911 hours and was stated as originating from 401 North Duke Street. This call was made by Yolanda Watson as she drove north on North Duke Street. Ms. Watson explained that while sitting in traffic between Main and Morgan Street, waiting for the light to change, the smell of gas "engulfed" her car with all the windows up. Ms. Watson further explained that as she began to drive towards Morgan Street, the smell continued to be prevalent and she did not know the source of the smell. At this time, Ms. Watson called the Durham 911Center from her cell phone to report the smell. Based on this 911 call, DFD E1 was dispatched to 401 North Duke Street for a Gas Leak/Odor call, Report # 19-09571.

At approximately 0918 hours, an additional employee, Enrique Reyes, of Optic Cable Technology, LLC, arrived on the scene. Shortly after his arrival, crew members placed additional cones and signs around the leak site. At approximately 0937 hours, Don Smith, owner of PS Splicing LLC, was on North Duke street and reported to have called 811 and 911 to report the gas leak. (Appendix 3) - Gas Leak/Odor call, Report # 19-09574.

At approximately 0940 hours, DFD E1 arrived to the reported gas leak in the area of 115 North Duke Street (known as Kaffeinate). E1's crew encountered Don Smith (owner of PS Splicing, LLC) at the intersection of North Duke Street and Main Street. Mr. Smith directed the crew to the leak location. E1 was positioned on North Duke Street and began assessment, monitoring, and evacuation of occupants from affected structures. Firefighters entered Kaffeinate shortly after arrival on scene to meter and evacuate this business. The metered conditions in the coffee shop read 100% of LEL. It was reported that crew members faced resistance from Mr. Lee to exit the building as customers and staff evacuated. Crew members radioed this information to their captain and proceeded to the next occupancy. This gas was documented to have flowed from approximately 0906-1006 hours before the explosion, and continued to flow until 1110 hours, when it was then shut off by PSNC/Dominion Energy. An estimated 46,000 cubic feet of gas was released during this incident. At approximately 1006 hours, a large explosion with a total building collapse and fire occurred at 115 North Duke Street.

This incident caused various injuries and two fatalities. The first fatality occurring moments after the blast, was attributed to the failure to act by Mr. Lee. Mr. Lee knew of this gas leak at 0907 hours, approximately 59 minutes before the deadly explosion and 33 minutes before the fire department arrived. DFD personnel had directed total evacuation after monitoring 100% LEL in Kaffeinate. After the explosion, Mr. Lee was trapped under a large I beam in the front of the structure. This beam was approximately 10 feet west of the entrance, and spanned the width of the structure. This beam was a main support beam of the second floor. The second fatality, Mr. Rambeaut, who arrived moments before the explosion and was located outside of Kaffeinate; he was performing his duties as a responder. The blast force projected him an estimated 20 feet from his pre-explosion location. Based on the Livery video, two additional critically injured victims were located on North Duke Street; Don Smith of PS Splicing LLC and Enrique Reyes of Optic Cable Technology LLC. Both victims were projected 20 to 30 feet from their pre-explosion locations.

Based on the application of the scientific method through fire scene examination, witness statements, fire personnel, and technical data provided, it is my determination that the area of origin was at or about the interior of Kaffeinate on the "A" side of the structure, and the cause is ruled as accidental. The circumstances and conditions of this explosion and fire causation are determined as an unintentional human act. Other reasonable explosion and fire causes have been eliminated through this investigation. It is my conclusion that the breach of the gas line by Optic Cable Technology LLC allowed fugitive natural gas to create an explosive fuel air mixture. This fuel air mixture encountered a competent ignition source in the area of origin. This ignition source caused the explosion in the building of origin.

The cause of this explosion/fire is "Accidental," and in accordance with "NFPA 921," the cause of this explosion/fire is categorized as "Accidental." This investigator reserves the right to amend or supplement this report as new or additional information becomes available.

Brian Graves, CFI

Assistant Fire Marshal
Lead Fire Investigator

APPENDICES

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 1

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed $1,000,000 as provided in 49 USC 60122.	OMB NO: 2137-0522 EXPIRATION DATE: 8/31/2020
U.S Department of Transportation Pipeline and Hazardous Materials Safety Administration	Original Report Date: 05/10/2019 No. 20190049- 32113 (DOT Use Only)

INCIDENT REPORT - GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. All responses to this collection of information are mandatory. Send comments regarding the burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

Important: Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at http://www.phmsa.dot.gov/pipeline/library/forms.

PART A - KEY REPORT INFORMATION

Report Type: *(select all that apply)*	Original:	Supplemental:	Final:
	Yes		
Last Revision Date			
1. Operator's OPS-issued Operator Identification Number (OPID):	15938		
2. Name of Operator	PUBLIC SERVICE CO OF NORTH CAROLINA		
3. Address of Operator:			
3a. Street Address	800 GASTON ROAD		
3b. City	GASTONIA		
3c. State	North Carolina		
3d. Zip Code	28056		
4. Local time *(24-hr clock)* and date of the Incident:	04/10/2019 10:06		
5. Location of Incident:			
5a. Street Address or location description	115 N Duke Street		
5b. City	Durham		
5c. County or Parish	Durham		
5d. State:	North Carolina		
5e. Zip Code:	27701		
5f. Latitude:	35.59599		
Longitude:	-78.54286		
6. National Response Center Report Number:	1242352		
7. Local time *(24-hr clock)* and date of initial telephonic report to the National Response Center:	04/10/2019 11:17		
8. Incident resulted from:	Unintentional release of gas		
9. Gas released:	Natural Gas		
- Other Gas Released Name:			
10. Estimated volume of gas released - Thousand Cubic Feet (MCF):	46.000		
11. Were there fatalities?	Yes		
- If Yes, specify the number in each category:			
11a. Operator employees	1		
11b. Contractor employees working for the Operator	0		
11c. Non-Operator emergency responders	0		
11d. Workers working on the right-of-way, but NOT associated with this Operator	0		
11e. General public	1		
11f. Total fatalities (sum of above)	2		
12. Were there injuries requiring inpatient hospitalization?	Yes		
- If Yes, specify the number in each category:			
12a. Operator employees	0		
12b. Contractor employees working for the Operator	0		
12c. Non-Operator emergency responders	1		
12d. Workers working on the right-of-way, but NOT associated with this Operator	2		
12e. General public	2		
12f. Total injuries (sum of above)	5		
13. Was the pipeline/facility shut down due to the Incident?	Yes		
- If No, Explain:			
- If Yes, complete Questions 13a and 13b: *(use local time, 24-hr clock)*			

Reproduction of this form is permitted

13a. Local time and date of shutdown:	04/10/2019 11:10
13b. Local time pipeline/facility restarted:	
- Still shut down? (* Supplemental Report Required)	Yes
14. Did the gas ignite?	No
15. Did the gas explode?	Yes
16. Number of general public evacuated:	10
17. Time sequence *(use local time, 24-hour clock)*:	
17a. Local time operator identified Incident - effective 10-2014, "Incident" changed to "failure"	04/10/2019 09:35
17b. Local time operator resources arrived on site:	04/10/2019 10:03

PART B - ADDITIONAL LOCATION INFORMATION

1. Was the Incident on Federal land?	No
2. Location of Incident	Public property
3. Area of Incident:	Underground
Specify:	Under pavement
If Other, Describe:	
Depth of Cover:	30
4. Did Incident occur in a crossing?	No
- If Yes, specify type below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	
Cased/ Uncased/ Bored/drilled	
- If Road crossing –	
Cased/ Uncased/ Bored/drilled	
- If Water crossing –	
Cased/ Uncased	
Name of body of water (If commonly known):	
Approx. water depth (ft):	

PART C - ADDITIONAL FACILITY INFORMATION

1. Indicate the type of pipeline system:	Investor Owned
- If Other, specify:	
2. Part of system involved in Incident:	Service
- If Other, specify:	
2a. Year "Part of system involved in Incident" was installed:	2008
3. When "Main" or "Service" is selected as the "Part of system involved in Incident" (from PART C, Question 2), provide the following:	
3a. Nominal diameter of pipe (in):	.75
3b. Pipe specification (e.g., API 5L, ASTM D2513):	ASTM D2513
3c. Pipe manufacturer:	Performance
3d. Year of manufacture:	Unknown
4. Material involved in Incident:	Plastic
- If Other, specify:	
4a. If Steel, Specify seam type:	
None/Unknown?	
4b. If Steel, Specify wall thickness *(inches)*:	
4c. If Plastic, Specify type:	Polyethylene (PE)
- If Other, describe:	
4d. If Plastic, Specify Standard Dimension Ratio (SDR):	11
Or wall thickness:	
4e. If Polyethylene (PE) is selected as the type of plastic in Part C, Question 4.c:	
- Specify PE Pipe Material Designation Code (i.e. 2406, 3408, etc.)	2406
Unknown?	
5. Type of release involved :	Mechanical Puncture
- If Mechanical Puncture - Specify Approx size:	
Approx. size: in. (axial):	2.00
in. (circumferential):	.80
- If Leak - Select Type:	
- If Other, Describe:	
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: (widest opening):	
(length circumferentially or axially):	
- If Other - Describe:	

Reproduction of this form is permitted

PART D - ADDITIONAL CONSEQUENCE INFORMATION	
1. Class Location of Incident :	Class 3 Location
2. Estimated Property Damage :	
2a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator – effective 6-2011, "paid/reimbursed by the Operator" removed	$ 20,000,000
Estimated cost of gas released – effective 6-2011, moved to item 2f	
2b. Estimated cost of Operator's property damage & repairs	$ 7,638
2c. Estimated cost of Operator's emergency response	$ 15,467
2d. Estimated other costs	$ 0
- Describe:	Unknown. Investigation is ongoing.
2e. Property damage subtotal (sum of above)	$ 20,023,105
Cost of Gas Released	
2f. Estimated cost of gas released	$ 196
Total of all costs	$ 20,023,301
3. Estimated number of customers out of service:	
3a. Commercial entities	20
3b. Industrial entities	0
3c. Residences	0

PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Incident (psig):	58.00
2. Normal operating pressure at the point and time of the Incident (psig):	58.00
3. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):	60.00
4. Describe the pressure on the system relating to the Incident:	Pressure did not exceed MAOP
5. Was a Supervisory Control and Data Acquisition (SCADA) based system in place on the pipeline or facility involved in the Incident?	Yes
- If Yes:	
5a. Was it operating at the time of the Incident?	Yes
5b. Was it fully functional at the time of the Incident?	Yes
5c. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations) assist with the detection of the Incident?	No
5d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Incident?	No
6. How was the Incident initially identified for the Operator?	Other
- If Other, Specify:	notification from excavator via their NC-811 notification
6a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 6, specify.	
7. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident?	No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)
- If "No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to:" *(provide an explanation for why the operator did not investigate)*	While there are two SCADA monitoring points on the distribution system, both are located on larger diameter feeder mains approximately 2 miles upstream; the volume of gas lost was inconsequential vs. the line-pack and delivery capacities in these feeder mains such that there was not a significant or correlating resultant pressure drop at these points.
- If Yes, Specify investigation result(s) *(select all that apply)*:	
- Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Provide an explanation for why not:	
- Investigation identified no control room issues	
- Investigation identified no controller issues	
- Investigation identified incorrect controller action or controller error	
- Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response	
- Investigation identified incorrect procedures	

Reproduction of this form is permitted

- Investigation identified incorrect control room equipment operation	
- Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response	
- Investigation identified areas other than those above	
Describe:	

PART F - DRUG & ALCOHOL TESTING INFORMATION

1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
1a. How many were tested:	
1b. How many failed:	
2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. How many were tested:	
2b. How many failed:	

PART G - CAUSE INFORMATION

Select only one box from PART G in shaded column on left representing the Apparent Cause of the Incident, and answer the questions on the right. Describe secondary, contributing, or root causes of the Incident in the narrative (PART H).

Apparent Cause:	G3 - Excavation Damage

G1 - Corrosion Failure – only one **sub-cause** can be picked from shaded left-hand column

Corrosion Failure Sub-Cause:	
- If External Corrosion:	
1. Results of visual examination:	
- If Other, Specify:	
2. Type of corrosion:	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other	
- If Other, Describe:	
3. The type(s) of corrosion selected in Question 2 is based on the following:	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
4. Was the failed item buried under the ground?	
- If Yes:	
4a. Was failed item considered to be under cathodic protection at the time of the incident?	
- If Yes, Year protection started:	
4b. Was shielding, tenting, or disbonding of coating evident at the point of the incident?	
4c. Has one or more Cathodic Protection Survey been conducted at the point of the incident?	
If "Yes, CP Annual Survey" – Most recent year conducted:	
If "Yes, Close Interval Survey" – Most recent year conducted:	
If "Yes, Other CP Survey" – Most recent year conducted:	
- If No:	
4d. Was the failed item externally coated or painted?	
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	
6. Pipeline coating type, if steel pipe is involved:	
- If Other, Describe:	
- If Internal Corrosion:	
7. Results of visual examination:	
- If Other, Describe:	
8. Cause of corrosion *(select all that apply)*:	

Reproduction of this form is permitted

- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other	
- If Other, Specify:	
9. The cause(s) of corrosion selected in Question 8 is based on the following: *(select all that apply)*:	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
10. Location of corrosion *(select all that apply)*:	
- Low point in pipe	
- Elbow	
- Drop-out	
- Other	
- If Other, Describe:	
11. Was the gas/fluid treated with corrosion inhibitor or biocides?	
12. Were any liquids found in the distribution system where the Incident occurred?	
Complete the following if any Corrosion Failure sub-cause is selected AND the "Part of system involved in incident" (from PART C, Question 2) is Main, Service, or Service Riser.	
13. Date of the most recent Leak Survey conducted	
14. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	
G2 – Natural Force Damage – only one **sub-cause** can be picked from shaded left-handed column	
Natural Force Damage – Sub-Cause:	
- If Earth Movement, NOT due to Heavy Rains/Floods:	
1. Specify:	
- If Other, Specify:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Specify:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Specify:	
- If Other Natural Force Damage:	
5. Describe:	
Complete the following if any Natural Force Damage sub-cause is selected.	
6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event?	
6.a If Yes, specify *(select all that apply)*:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Specify:	
G3 – Excavation Damage – only one **sub-cause** can be picked from shaded left-hand column	
Excavation Damage – Sub-Cause:	Excavation Damage by Third Party
- If Previous Damage due to Excavation Activity: Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.	
1. Date of the most recent Leak Survey conducted	
2. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	

Reproduction of this form is permitted

Complete the following if Excavation Damage by Third Party is selected.	
3. Did the operator get prior notification of the excavation activity?	Yes
3a. If Yes, Notification received from: *(select all that apply)*:	
- One-Call System	Yes
- Excavator	
- Contractor	
- Landowner	
Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.	
4. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)?	No
5. Right-of-Way where event occurred *(select all that apply)*:	
- Public	Yes
- If Public, Specify:	City Street
- Private	
- If Private, Specify:	
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	
- Dedicated Public Utility Easement	
- Federal Land	
- Data not collected	
- Unknown/Other	
6. Type of excavator:	Contractor
7. Type of excavation equipment:	Directional Drilling
8. Type of work performed:	Telecommunications
9. Was the One-Call Center notified?	Yes
9a. If Yes, specify ticket number:	190931483
9b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
10. Type of Locator:	Contract Locator
11. Were facility locate marks visible in the area of excavation?	Yes
12. Were facilities marked correctly?	Unknown/Other
13. Did the damage cause an interruption in service?	Yes
13a. If Yes, specify duration of the interruption:	
14. Description of the CGA-DIRT Root Cause *(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well)*:	
- Root Cause Description:	Other
- If One-Call Notification Practices Not Sufficient, specify:	
- If Locating Practices Not Sufficient, specify:	
- If Excavation Practices Not Sufficient, specify:	
- If Other/None of the Above, explain:	Investigation is ongoing.
G4 - Other Outside Force Damage - only one **sub-cause** can be selected from the shaded left-hand column	
Other Outside Force Damage – Sub-Cause:	
- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:	
1. Vehicle/Equipment operated by:	
- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:	
2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Heavy Rains/Flood	
- Other	
- If Other, Specify:	
- If Previous Mechanical Damage NOT Related to Excavation: *Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.*	
3. Date of the most recent Leak Survey conducted:	
4. Has one or more pressure test been conducted since original construction at the point of the incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
- If Intentional Damage:	

Reproduction of this form is permitted

5. Specify:	
- If Other, Specify:	
- If Other Outside Force Damage:	
6. Describe:	
G5 - Pipe, Weld, or Joint Failure - only one **sub-cause** can be selected from the shaded left-hand column	
Pipe, Weld or Joint Failure – Sub-Cause:	
- If Body of Pipe:	
1. Specify:	
- If Other, Describe:	
- If Butt Weld:	
2. Specify:	
- If Other, Describe:	
- If Fillet Weld:	
3. Specify:	
- If Other, Describe:	
- If Pipe Seam:	
4. Specify:	
- If Other, Describe:	
- If Mechanical Fitting:	
5. Specify the mechanical fitting involved:	
- If Other, Describe:	
6. Specify the type of mechanical fitting:	
- If Other, Describe:	
7. Manufacturer:	
8. Year manufactured:	
9. Year installed:	
10. Other attributes:	
11. Specify the two materials being joined:	
11a. First material being joined:	
- If Other, Specify:	
11b. If Plastic, specify:	
- If Other Plastic, specify:	
11c. Second material being joined:	
- If Other, Specify:	
11d. If Plastic, specify:	
- If Other Plastic, Specify:	
12. If used on plastic pipe, did the fitting – as designed by the manufacturer – include restraint?	
12a. If Yes, specify:	
- If Compression Fitting:	
13. Fitting type:	
14. Manufacturer:	
15. Year manufactured:	
16. Year installed:	
17. Other attributes:	
18. Specify the two materials being joined:	
18a. First material being joined:	
- If Other, specify:	
18b. If Plastic, specify:	
- If Other Plastic, specify:	
18c. Second material being joined:	
If Other, specify:	
18d. If Plastic, specify:	
- Other Plastic, specify:	
- If Fusion Joint:	
19. Specify:	
- If Other, Specify:	
20. Year installed:	
21. Other attributes:	
22. Specify the two materials being joined:	
22a. First material being joined:	
- If Other, Specify:	
22b. Second material being joined:	

Reproduction of this form is permitted

- If Other, Specify:	
- If Other Pipe, Weld, or Joint Failure:	
23. Describe:	
Complete the following if any Pipe, Weld, or Joint Failure sub-cause is selected.	
24. Additional Factors (*select all that apply*):	
- Dent	
- Gouge	
- Pipe Bend	
- Arc Burn	
- Crack	
- Lack of Fusion	
- Lamination	
- Buckle	
- Wrinkle	
- Misalignment	
- Burnt Steel	
- Other	
- If Other, Specify:	
25. Was the Incident a result of:	
- Construction defect	
Specify:	
- Material defect	
Specify:	
- If Other, Specify:	
- Design defect	
- Previous damage	
26. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	

G6 - Equipment Failure - only one **sub-cause** can be selected from the shaded left-hand column

Equipment Failure – Sub-Cause:	
- If Malfunction of Control/Relief Equipment:	
1. Specify:	
- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- Pressure Regulator	
- Other	
- If Other, Specify:	
- If Threaded Connection Failure:	
2. Specify:	
- If Other, Specify:	
- If Non-threaded Connection Failure:	
3. Specify:	
- If Other, Specify:	
- If Valve:	
4. Specify:	
- If Other, Specify:	
4a. Valve type:	
4b. Manufactured by:	
4c. Year manufactured:	
- If Other Equipment Failure:	
5. Describe:	

G7 - Incorrect Operation - only one **sub-cause** can be selected from the shaded left-hand column

Reproduction of this form is permitted

Incorrect Operation Sub-Cause:	
- If Other Incorrect Operation:	
1. Describe:	
Complete the following if any Incorrect Operation sub-cause is selected.	
2. Was this Incident related to: (select all that apply)	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other	
- If Other, Describe:	
3. What category type was the activity that caused the Incident:	
4. Was the task(s) that led to the Incident identified as a covered task in your Operator Qualification Program?	
4a. If Yes, were the individuals performing the task(s) qualified for the task(s)?	

G8 - Other Incident Cause - only one **sub-cause** can be selected from the shaded left-hand column

Other Incident Cause – Sub-Cause:	
- If Miscellaneous:	
1. Describe:	
- If Unknown:	
2. Specify:	

PART H - NARRATIVE DESCRIPTION OF THE INCIDENT

On the morning of April 10, 2019, a third-party telecommunications contractor, while in the process of boring in new facilities via horizontal directional drilling along N Duke Street in Durham NC, damaged below-ground piping in PSNC's natural gas system. The contractor notified NC-811, the state's one-call office, of the damage at approximately 9:31 am. NC 811 in turn automatically generated a damage ticket which was delivered to PSNC at approximately 9:35 am. An order was then automatically dispatched to PSNC's first responder at approximately 9:36 am. The first responder reviewed the ticket at approximately 9:43 am and began heading to the site. PSNC received a call from 911 at approximately 9:48 am noting that the fire department was already on the scene. PSNC's Dispatch contacted the first responder in route to advise him of a gas odor and a damaged line at 115 N Duke Street. The fire department issued a combination of evacuation and shelter in place orders at approximately 9:58 am. PSNC's first responder arrived at approx. 10:03 am. Between his arrival and approximately 10:06 am, the PSNC first responder as well as PSNC's Dispatch contacted additional resources to assist with securing and making the scene safe. At approximately 10:06 am, the structure at 115 N Duke Street exploded. Between 10:26am and 10:50 am, additional PSNC employees including a construction crew arrived at the site. Crews convened at the incident command center to evaluate options to shut off the gas flow. At 11:05 am the crews identified the proper valve, secured the necessary tools, and at approximately 11:10 am shut off gas flow to the impacted area by closing a valve located approximately three blocks from the scene. PSNC has since performed a leakage survey over the remaining piping in the vicinity with no leaks or issues found. The section of main approximately 1 block paralleling the bore on Duke Street remains out of service pending the investigation.

The explosion killed the owner/occupant in the structure that was evacuated. The explosion also severely injured a member of the contractor crew, the PSNC first responder, and a fire fighter. 17 to 25 individuals were reportedly taken to local area hospitals. Six are believed to have been admitted, including PSNC's first responder who died in the hospital, as a result of his injuries, on April 25th.

The explosion destroyed the structure at 115 N Duke Street and reportedly damaged two others to a point of being condemned until repairs could be completed. Approximately 15 buildings in total were reportedly damaged by the force of the explosion.

As to PSNC's investigation, it is still ongoing. To date, the investigation has revealed that the service line feeding the structure that exploded was punctured during the directional drilling operation. However, while PSNC has determined that its gas facilities were located by its contract service provider, the investigation has not yet confirmed that the lines either were or were not marked accurately.

PSNC has had no known issues with the distribution system in this area in the recent past. 15 of 20 impacted customers have been restored.

As of this report, and until the scene is fully investigated, there remains a number of additional unknowns:
* PSNC has not yet been able to determine the precise time that its gas system was damaged.
* PSNC has not been able to determine the ignition source inside of the structure that exploded.
* PSNC has not been able to determine the precise number of injuries, again reported in the media to be between 17 and 25 persons.
* PSNC still has not developed precise assessments of costs of property damage (operator and public), restoration/repairs that

Reproduction of this form is permitted

will be required to re-commission the gas system, emergency response costs, the amount of lost gas, etc. Therefore, all figures in this report should be read as estimates until finalized and provided by supplemental reports.

PART I - PREPARER AND AUTHORIZED SIGNATURE	
Preparer's Name	Michael B. Greene
Preparer's Title	General Manager-Engineering Services
Preparer's Telephone Number	704-217-9191
Preparer's E-mail Address	mgreene@scana.com
Preparer's Facsimile Number	
Authorize Signature's Name	Scott Swindler
Authorized Signature's Title	General Manager-Operations and Maintenance
Authorized Signature's Email Address	mswindler@scana.com

Reproduction of this form is permitted

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 2

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

User: EMS4

FIRE AND EMS

04/12/2019 13:19:57

Event Report

Event ID: **2019-137193** Call Ref #: 951 Date/Time Received: 04/10/2019 09:11:56

Rept #: 19-09571 Call Source : W911 Prime Unit : E1 E1

Service Involved: | | **FIRE** | | | |

Location: **401 N DUKE ST**

X-ST: *W CORPORATION ST*
MINERVA AVE

DIST: 250.13 ft

Jur: CAD Service: FIRE Agency: FEMS

St/Beat: 01 District: RA:

Business: DURHAM SCHOOL OF ARTS Phone: (919) 560-3926

Nature: **GAS LEAK OR ODOR** Alarm Lvl: 1 Priority: P Medical Priority: 60B03O

Caller: AT&T MOBILITY Alarm: Call Taker: OSULLIVAN

Addr: 285 S DUKE ST Phone: (919) 884-8958 Alarm Type: Console: CON11N

Vehicle: St: Report Only: No Race: Sex: Age:

Geo-Verified Addr: Yes Nature Summary Code: Disposition: 1 Close Comments:

Notes:
[EFD] Caller Statement: odor of gas ,,,, near the beginning of the school outside area.. female passed it and smelled Chief Complaint: Gas leak/odor outside [04/10/19 09:13:02 OSULLIVAN]
[EFD] Dispatch Code: 60B03 (Outside odor (other/unknown source)) Suffix: O (Odor only) Response: . Questions: 1. Not at loc (3rd pty). 2. Prob outside. 3. Gas smelled only. 4. Unk where gas from (odor only). 5. No one sick/inj. [04/10/19 09:13:26 OSULLIVAN]
OPS4 [04/10/19 09:13:41 MABE]
PER CALLER THE ODOR WAS AT THE INTERSECTION OF DUKE ST AND ONE BLOCK FROM MAIN ST.. AT THE START OF THE SCHOOL [04/10/19 09:16:42 OSULLIVAN]
[EPD] Call Aborted: 7. Changed nature code [04/10/19 09:21:48 OSULLIVAN]

Times

		Time From Call Received
Call Received:	04/10/2019 09:11:56	
Call Routed:	04/10/2019 09:13:26	000:01:30
Call Take Finished:	04/10/2019 09:13:26	000:01:30
1st Dispatch:	04/10/2019 09:13:36	000:01:40 *(Time Held):*
1st En-Route:	04/10/2019 09:13:49	000:01:53
1st Arrive:	04/10/2019 09:17:32	000:05:36 *(Reaction Time):*
Last Clear:	04/10/2019 09:23:45	000:11:49

Unit Reaction: 000:03:56 *(1st Dispatch to 1st Arrive)*
En-Route: 000:00:13 *(1st Dispatch to 1st En-Route)*
On-Scene: 000:06:13 *(1st Arrive to Last Clear)*

Radio Log

Unit	Empl ID	Type	Description	Time Stamp	Comments	Close Code	User
E1	E1	D	Dispatched	04/10/2019 09:13:36	Stat/Beat: 01		MABE
E1	E1	E	En-Route	04/10/2019 09:13:49			Unit:E1
E1	E1	A	Arrived	04/10/2019 09:17:32			Unit:E1
E1	E1	C	Cleared	04/10/2019 09:23:45		1	Unit:E1

Event Log

Unit	Empl ID	Type	Description	Time Stamp	Comments	Close Code	User
		TR	Time Received	04/10/2019 09:11:56	By: E911		OSULLIVAN
		ENT	Entered Street	04/10/2019 09:11:56	600 W MAIN ST		OSULLIVAN
		CHG	Changed Street	04/10/2019 09:12:27	285 S DUKE ST --> 401 N DUKE ST		OSULLIVAN
		ENT	Entered Nature	04/10/2019 09:12:28	GUNSHOT WOUND		OSULLIVAN
		LPS	Law Pri. Started	04/10/2019 09:12:28	Case Started		OSULLIVAN
		CHG	Changed Nature	04/10/2019 09:12:31	GUNSHOT WOUND --> GAS LEAK OR ODOR		OSULLIVAN
		FPS	Fire Pri. Started	04/10/2019 09:12:31	Case Started		OSULLIVAN
		ARM	Added Remarks	04/10/2019 09:13:02			OSULLIVAN
		FPF	Fire Pri. CE Finished	04/10/2019 09:13:02	Case Entry Finished		OSULLIVAN
		ENT	Entered Response Category	04/10/2019 09:13:26	ENG		OSULLIVAN
		FIN	Finished Call Taking	04/10/2019 09:13:26			OSULLIVAN
		RPT	Requested Report#	04/10/2019 09:13:26	FEMS Report #19-09571		OSULLIVAN
		ARM	Added Remarks	04/10/2019 09:13:26			OSULLIVAN
		FPD	Fire Pri. Dispatch	04/10/2019 09:13:26	Case Dispatched		OSULLIVAN
		FPC	Fire Pri. Complete	04/10/2019 09:13:34	Case Completed		OSULLIVAN
		RECO	Unit Rec Btn Click	04/10/2019 09:13:35	Unit recommend for GAS LEAK OR ODOR at 401 N DUKE ST (B: DUR		MABE
		RECO	Unit Recommendation	04/10/2019 09:13:36	Tone / Rip Run Button Clicked		MABE
		RECO	Unit Recommendation	04/10/2019 09:13:36	Plan: RSK1 Cat: ENG Lvl: 1		MABE
		RECO	Unit Recommendation	04/10/2019 09:13:36	Recmnd:E1 [ENG]		MABE
		PAGE	Dispatch Page	04/10/2019 09:13:37	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 09:13:41			MABE
		CHG	Changed CallerName_CallIn	04/10/2019 09:13:46	AT&T MOBILITY --> YOLANDA		OSULLIVAN
		ARM	Added Remarks	04/10/2019 09:16:42			OSULLIVAN
		FPO	Fire Pri. Re-Open	04/10/2019 09:16:50	Case Re-Opened		OSULLIVAN
		CHG	Changed Caller Name	04/10/2019 09:17:03	YOLANDA-->AT&T MOBILITY		OSULLIVAN
		FPC	Fire Pri. Complete	04/10/2019 09:17:04	Case Completed		OSULLIVAN
		ARM	Added Remarks	04/10/2019 09:21:48			OSULLIVAN
		LPA	Law Pri. Aborted	04/10/2019 09:21:48	Case Aborted		OSULLIVAN

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 3

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

User: EMS4 | **FIRE AND EMS** | 04/16/2019 06:02:30

Event Report

Event ID: **2019-137223** Call Ref #: 37 Date/Time Received: 04/10/2019 09:37:38

Rept #: 19-09574 Call Source : W911 Prime Unit : B1 B1

Service Involved: **LAW** | **FIRE** | **EMS**

Location: **115 N DUKE ST**

X-ST: *W MAIN ST* / *W MORGAN ST*

Jur: CAD Service: FIRE Agency: FEMS

St/Beat: 01 District: RA:

Business: Phone:

Nature: **STRUCTURE FIRE** Alarm Lvl: 2 Priority: P Medical Priority: 60C02O

Caller: DON SMITH Alarm: Call Taker: MITCHELLM

Addr: 313 W MAIN ST Phone: (919) 691-0119 Alarm Type: Console: CON10N

Vehicle: St: Report Only: No Race: Sex: Age:

Geo-Verified Addr: Yes Nature Summary Code: Disposition: 1 Close Comments:

Notes:

[EFD] Caller Statement: hit gas line Chief Complaint: Gas leak/odor outside [04/10/19 09:38:26 MITCHELLM]
[EFD] Dispatch Code: 60C02 (Outside commercial line) Suffix: O (Odor only) Response: . Questions: 1. At loc (1st pty). 2. Prob outside. 3. Gas smelled only. 4. Gas from: Line. 5. Commercial line. 6. No one sick/inj. [04/10/19 09:38:57 MITCHELLM]
OPS1 [04/10/19 09:40:24 MABE]
{E1} GET PSNC EN ROUTE [04/10/19 09:47:00 MABE]
CALLING GAS [04/10/19 09:48:09 MABE]
PSNC NOTIFIED, WILL CALL BACK WITH ETA [04/10/19 09:56:26 MABE]
{E1} SEND PD AND FIRE MASHALL [04/10/19 10:01:57 MABE]
[LAW] {A500} EMS CODE 3 - MAJOR EXPLOSION [04/10/19 10:07:22 LEACH]
PER OTHER CALLER, ,REPORTING THE SAME THING... AN EXPLOSION.. ON THE TOP LEVEL OF THE PARKING GARAGE.. AT FULLER ST.. [04/10/19 10:07:37 OSULLIVAN]
[LAW] {A500} all surrounding blocks from Main and Duke shut down completely [04/10/19 10:07:49 LEACH]
PER MELLISA SAREN 336.503.2699 [04/10/19 10:07:51 OSULLIVAN]
ADDTL CALLER STUART HOWES 9197174713 ADV SAME [04/10/19 10:07:55 BRIDGESK]
[LAW] {A500} Close Duke and Chapel Hill, need EMS to Duke/Main for injured firefighter [04/10/19 10:08:08 LEACH]
MELISSA IS AT 200 MORRIS ST , 4TH FLOOR AND CAN SEE IT OUT HER WINDOW.... BLACK SMOKE POSS FROM THE TOP FLOOR ON THE GARAGE.. [04/10/19 10:08:38 OSULLIVAN]
UNK IF ANY INJURIES FROM THEIR VIEW [04/10/19 10:09:06 OSULLIVAN]
ADDTL CALLER CALLING FROM DSA VICTOR 9843899342 ADV HEARD BOOM AND SEES SMOKE [04/10/19 10:09:29 BRIDGESK]
[LAW] {A500} EMS CODE 3 TO DUKE AND MAIN [04/10/19 10:09:35 LEACH]
{B1} FIREFIGHTER INJ [04/10/19 10:09:48 MABE]
{B1} ALL AVAILABLE MEDICS NEEDED ON DUKE ST [04/10/19 10:09:57 MABE]
[LAW] CALLING DATA [04/10/19 10:10:19 WHITIST]
[EMS] HAVE 4 MEDIC`S ENROUTE AT THIS TIME [04/10/19 10:11:01 WALKERC]
[EMS] ADD`TL CALLING 201-906-1217 S GREGSON/MORGAN W/A SUBJ BLEEDING ON THE GROUND....BLEEDING FROM HEAD [04/10/19 10:11:20 WALLO]
ADDTL CALLER MARNIE 9196380438 ADV MULTIPLE PEOPLE INJURIED [04/10/19 10:11:34 BRIDGESK]
[EMS] EMS203 EMS1 EMS211 ENROUTE [04/10/19 10:11:58 WALKERC]
CALING ORANGE COUNTY AND WAKE COUNTY 911 FOR EMS COVRAGE.. [04/10/19 10:12:11 OSULLIVAN]
ADDTL CALLER 9196686958 ADV HEARD BIG EXPLOSION [04/10/19 10:12:22 BRIDGESK]
[LAW] ADDT PT INJURED AT MORGAN/ GREGSON, PT IS BLEEDING FROM THE HEAD.. HIS ARM IS BLOODY.. SPOKE WITH PHILLIP 615.812.1234 [04/10/19 10:12:23 BOBBITTC]
This is a reopened incident. [04/10/2019 10:13:33 MABE]
[LAW] DATA NOTFD OF STREET CLOSINGS [04/10/19 10:13:41 WHITIST]
[EMS] MORGAN/DUKE - NEED MEDIC, CRITICAL PT [04/10/19 10:13:47 WALKERC]
[EMS] ALL CRITICAL PT AT DUKE/MORGAN 3 PT AT THIS TIME [04/10/19 10:14:08 WALKERC]
[EMS] HOSPITALS CONTACTED [04/10/19 10:14:57 WALKERC]
CALLING DUKE MEDICAL CENTER FOR PATIENTS RESPONDING [04/10/19 10:15:36 OSULLIVAN]
[LAW] REGIONAL NOTFD [04/10/19 10:15:59 WHITIST]
CALLING DUKE MEDICAL CENTER IN REGARDS TO 3 PATIENTS IN CRITICAL CONDITION, DUE TO EXPLOSION [04/10/19 10:16:25 OSULLIVAN]
[LAW] {POL5} secure pol2 ref perimeter ops [04/10/19 10:16:52 LEACH]
{B2} MORGAN/GREGSON [04/10/19 10:17:04 WALKERC]
{B2} MORGAN/GREGSON [04/10/19 10:17:04 MABE]

[LAW] MEDIC TO GREGSON / MORGAN [04/10/19 10:17:14 WHITIST]
{B1} NEED OXYGEN TO COMMAND SIDE [04/10/19 10:18:16 MABE]
{B1} AT MORGAN/DUKE [04/10/19 10:18:25 MABE]
[EMS] {EMS51} MEDICAL TRIAGE AT MORGAN/DUKE [04/10/19 10:19:30 WALKERC]
{FD8} ASSUMING COMMAND [04/10/19 10:19:39 MABE]
[EMS] CORRETION,, IT IS 1 PATIENT AND NOT 3 PATIENTS GOING DO TO DMC... [04/10/19 10:20:10 OSULLIVAN]
[LAW] DUKE NOTIFIED FOR POTENTIAL MASS PATIENTS [04/10/19 10:20:34 OSULLIVAN]
[EMS] DUKE ER ,, ADVISED TO BE READY FOR MULT PATIENTS.. FOR NOW WAS TOLD 1 PATIENT IS IN CRITICAL CONDITION [04/10/19 10:21:04 OSULLIVAN]
[LAW] {POL2} SIGN SHOP FOR BARRICADES -- MEET AT TRINITY / GREGSON [04/10/19 10:22:48 WHITIST]
{1SQ} YELLOW TAG AT DUKE/MORGAN [04/10/19 10:23:28 MABE]
[LAW] SIGN SHOP NOTFD [04/10/19 10:23:52 WHITIST]
{E4} ON C SIDE CHECKING FOR VICTIMS [04/10/19 10:23:58 MABE]
[LAW] ********** OPS4 MEDICAL [04/10/19 10:25:35 WHITIST]
[EMS] {EMS50} DISPATCH ALL AVAILABLE MEDICS [04/10/19 10:25:49 WALKERC]
[LAW] PER TRAVIS NOTIFY RALEIGH, CARY AND CHAPEL HILL TO BE NOTIFIED FOR STAND BY [04/10/19 10:26:17 MITCHELLM]
[LAW] CARY NOTIFIED [04/10/19 10:26:20 MITCHELLM]
[EMS] MEDICAL BRANCH OPS4 [04/10/19 10:26:38 WALKERC]
PER ERIC,, REPORTING BLACK SMOKE ALL THE WAY NEAR HOLLOWAY/N HYDE PARK [04/10/19 10:26:58 OSULLIVAN]
[EMS] {M8} M8 BACK ENROUTE TO DUKE ST [04/10/19 10:27:12 WALKERC]
{DC100} POLICE COMMAND NEEDED URGENTLY AT MORGAN/N DUKE [04/10/19 10:27:30 ZIMMERMAN]
[LAW] ORANGE NOTIFIED [04/10/19 10:27:39 MITCHELLM]
[EMS] HOLD ALL ALPHA RESPONSES [04/10/19 10:27:43 WALKERC]
[EMS] {M21} BACK ENROUTE TO DUKE ST [04/10/19 10:28:07 WALKERC]
[LAW] RALEIGH NOTIFIED [04/10/19 10:28:54 MITCHELLM]
[LAW] A500 IS IC FOR PD ---- SENDING CAR30 TO DUKE/ MORGAN [04/10/19 10:30:16 WHITIST]
CARY, RALEIGH AND ORANGE NOTIFIED TO BE 10-12 IN CASE NEEDED FOR THIS AND OR OTHER CALLS [04/10/19 10:30:17 MITCHELLM]
[LAW] {POL5} fire and EMS staging at Duke/Morgan [04/10/19 10:30:20 LEACH]
[EMS] STG AREA FERNWAY/DUKE COME IN FROM THE EAST SIDE OF DUKE [04/10/19 10:31:11 WALKERC]
[LAW] {POL5} Official command post is parking lot of old HQ [04/10/19 10:32:16 LEACH]
[EMS] NORFOLK SOUTHERN RR COMPANY NOTIFIED -MARTY [04/10/19 10:36:23 CARDEN]
[EMS] EMS STG AT FERNWAY/DUKE [04/10/19 10:36:28 WALKERC]
[EMS] EMS RADIO TRAFFIC ON OPS4 - EMS51 [04/10/19 10:37:28 WALKERC]
{L3} ACTIVE FIRE, STARTING TO BREAK THROUGH THE ROOF [04/10/19 10:37:41 MABE]
{L3} MAY NEED ANOTHER LADDER TRUCK [04/10/19 10:37:52 MABE]
[EMS] RALEIGH ADVISED 2 MEDICS ARE 10-12 @RDU/BRIERCREEK [04/10/19 10:39:40 WATSON]
[EMS] RR COMPANY WANTS TO KNOW IF COMMAND WANTS THE TRAINS STOPPED [04/10/19 10:40:45 CARDEN]
m7 clear Duke [04/10/19 10:41:18 Unit:M7]
919-607-0355---JOHN AYERS---500 W MORGAN---PNC---WANTS TO KNOW IF STAFF NEEDS TO EVACUATE [04/10/19 10:42:50 MITCHELLM]
[LAW] EMS TO 604 WEST VILLAGE -- FEM WITH GLASS IN HEAD [04/10/19 10:43:56 WHITIST]
[EMS] Norfolk Southern Police notified to let the trains continue-Jessica [04/10/19 10:45:34 CARDEN]
[LAW] {POL5} Per Command, have trains stopped through downtown area [04/10/19 10:46:12 LEACH]
PNC NOTIFIED, NO NEED TO EVACUATE [04/10/19 10:47:17 MITCHELLM]
[EMS] Norfolk Southern Police notfied command does want all trains stopped till further advised.Jessica [04/10/19 10:48:07 CARDEN]
m7 back on scene [04/10/19 10:48:54 Unit:M7]
[EMS] One train is about to come through Durham and they are trying to get it stopped, but if not all others will be stopped. [04/10/19 10:49:31 CARDEN]
{E10} C SIDE OF STRUCT [04/10/19 10:50:00 MABE]
[LAW] {POL5} 701 W Main someone trapped in the elvator, SE wing of the 5th floor [04/10/19 10:51:29 LEACH]
[LAW] {POL5} PD TO STAGE AT OLD HQ [04/10/19 10:52:17 WHITIST]
[EMS] HZ TEAM REQ MIRV [04/10/19 10:53:31 WALKERC]
[LAW] JUSTIN GREENIDGE 9196733238 ADV THAT HIS VEH WAS DAMAGED FROM THE EXPLOSION --- COMP IS AT 8727 MORGAN ST NEAR A BAR CALLED SHOOTERS SALOON --- WHI NISSAN MAXIMA SEDAN [04/10/19 10:56:23 BRIDGESK]
{L17} FIRE SHOWING THROUGH ROOF ON DUKE ST SIDE [04/10/19 11:00:19 MABE]
[EMS] OPS8 FOR LOGISTICS [04/10/19 11:06:21 WALKERC]
[EMS] ALL TRAINS HAVE BEEN STOPPED TILL FURTHER NOTICE AND NORFOLK SOUTHERN REQUESTING A CALL BACK WHEN TRAINS CAN COME THROUGH [04/10/19 11:08:15 CARDEN]
[LAW] HAVE A500 CALL FEMALE THAT NEEDS TO GET TO HER DAUGHTER NUMBER IS 732-429-3680 [04/10/19 11:09:18 BLACKMANL]
{E4} OUT OF BLDG, GOING TO REHAB [04/10/19 11:22:05 MABE]
{7SQ} NEED RELIEF ON 2.5" LINE [04/10/19 11:22:43 MABE]

{L3} L3A L3C GOING TO REHAB [04/10/19 11:26:43 MABE]
{Q7} GOING TO REHAB [04/10/19 11:26:47 MABE]
{7SQ} REHAB [04/10/19 11:26:52 MABE]
[EMS] REHAB [04/10/19 11:27:14 MABE]
{L6} REHAB [04/10/19 11:27:38 MABE]
{FD8} NO FURTHER PAR CHECK NOTIFICATIONS FROM COMMUNICATIONS [04/10/19 11:34:59 MABE]
[EMS] M, M22 M8 EMS50 EMS51 EMS52 [04/10/19 11:41:11 WALKERC]
NICOLE SMITH W/PSNC REQ COMANND TO 10-21 HER @ 803-217-9501 [04/10/19 11:43:05 WALLO]
[LAW] MALE NAMED JUSTIN THAT HAS DAMAGE TO HIS VEH DUE TO EXPLOSION NO LONGER 10-12...WILL CB WHEN HE RETURNS TO DURHAM [04/10/19 11:47:01 WALLO]
{FD31} CLEAR OPS7, GOING BACK TO OPS1 FOR NOW [04/10/19 11:48:08 MABE]
{FD20} B4 WILL NOW BE HAZMAT COMMAND [04/10/19 11:50:21 MABE]
[EMS] M7 M22 M8 EMS50 EMS51 EMS52 EMS 202 203 211 MD1 CP2 EMS 50 EMS51 EMS 52 M8 M7 M22 [04/10/19 11:50:47 WALKERC]
{L17} GOING TO REHAB [04/10/19 11:51:25 MABE]
WAKE EMS34 MOVING INTO CITY FROM THE RDU AREA [04/10/19 11:53:59 MITCHELLM]
[LAW] ED51 REQ PATCH OPS13 TO POL2 [04/10/19 11:58:09 WHITIST]
SHERRI CURRY 336 202 0353 SPECIAL AGENT WITH NORFOLK SOUTHERN RR.....REQ PHONE CALL WHEN THEY CAN RESUME TRAINS....ALSO ADVISED THAT HER BOSSES ARE MAKING HER CALL EVERY HOUR ANYWAY TO SEE WHEN THEY CAN RESUME [04/10/19 12:01:08 BROWNS]
{FD20} HEAVY SMOKE FROM TOREROS [04/10/19 12:03:52 MABE]
{FD20} 41% AT DUKE/MAIN, DOESN`T SEEM TO BE MIGRATING [04/10/19 12:10:09 MABE]
[EMS] {MIRV1} ON SCENE FOR OVER AN HOUR [04/10/19 12:21:42 OSULLIVAN]
[EMS] {EMS51} HAVE A COMPLETE PAR [04/10/19 12:22:22 OSULLIVAN]
[LAW] REQ FORENSICS -- BEST ACCESS FROM DUKE / TRINITY [04/10/19 13:15:06 WHITIST]
[LAW] FORENSICS TO COMMAND POST DUKE/ MORGAN [04/10/19 13:15:43 WHITIST]
[LAW] SWITCH TO POL5 WHEN 10-17 [04/10/19 13:15:59 WHITIST]
[LAW] {POL5} 801 ADV GREY JEEP CHEROKEE COMING IN DUKE/ CHAPEL HILL [04/10/19 13:40:22 WHITIST]
[LAW] {ED2} DOT SIGN ON 147 TO SAY DUKE ST IS CLOSED [04/10/19 15:10:41 WHITIST]
[LAW] E AND W CHAPEL HILL HAS BEEN REOPENED EXCEPT AT DUKE ST [04/10/19 15:11:28 WHITIST]
PER FD38 ACTIVE FIRE INSIDE PORSCHE DEALERSHIP [04/10/19 15:26:01 MABE]
[LAW] {DOT} NOTFD OF SIGNAGE REQ FOR 147 [04/10/19 15:27:21 WHITIST]
[LAW] {CAR30} QUALITY MORTUARY REQUESTED [04/10/19 16:43:33 CARDEN]
[LAW] QUAILITY NEEDED AT GREGSON / MORGAN [04/10/19 16:44:36 CARDEN]
[LAW] Martha Regalio adv that her building was supposed to be evacuated at West Village on Morgan St but they were never notified, she wants to know if she leaves this location will she be able to get back to her home later. 10-21 compl 919 475 0433 [04/10/19 16:45:17 ALLENJ]
[LAW] QUALITY MORTUARY NOTIFIED AND WILL BE 10-17 NOW [04/10/19 16:46:05 CARDEN]
[LAW] Michelle Terry lives in West Village and would like to speak with PD in ref to getting her items and when she could come back ---work number 919 530 6795, cell number --- 919 638 0994. [04/10/19 17:31:12 ALLENJ]
Dannie Roberts, Owner of Shooters adv that he will not be opening due to the incident and if space is needed to park, units are welcomed to use the Parking Lot. 10-21 Compl at 919 369 8381 [04/10/19 17:40:48 ALLENJ]
Julie Noria adv that her boyfiriend works construction in the area and she cant get ahold of him, wants to speak with PD to get more information 10-21 compl at 646 660 4439 [04/10/19 17:45:25 ALLENJ]
[LAW] {POL5} next on rot to heavily damaged SUV, have them respond to Gregson/Morgan [04/10/19 17:47:14 LEACH]
[LAW] {TOW} ROBERTS 10-17 [04/10/19 17:51:30 BLACKMANL]
FIRE TO KNOCK DOWN ON THE CHARLIE SIDE [04/10/19 17:53:54 MITCHELLM]
[LAW] {D15} NEED QUALITY TO RESPOND BACK OUT [04/10/19 17:55:03 BLACKMANL]
[LAW] {POL5} req ID back to N Duke/Morgan [04/10/19 18:03:00 LEACH]
[LAW] {POL5} Need a tow for the Carolina Livery - 20 passenger bus needs to be towed from scene [04/10/19 18:03:47 LEACH]
[LAW] {POL5} Tow truck driver on scene adv the bus will not be a heavy tow - command running veh tag to confirm the weight. [04/10/19 18:19:01 LEACH]
[LAW] {POL5} 10-22 Carolina Livery tow req for now [04/10/19 18:20:10 LEACH]
[LAW] {POL5} Owner req for Lemons for 20-25 passenger van, Carolina Livery [04/10/19 18:22:18 LEACH]
[LAW] ***OR LEMONS WRECKER 10-17 FOR OWNERS REQ [04/10/19 18:33:09 BALLENTINE]
[LAW] {CAR30} transferring command to BK50, clear police 2 and ops13 [04/10/19 19:28:20 LEACH]
[LAW] Harriet Puttman is the Director of Duke memorial Preschool and would like to speak with PD in ref to openings tomorrow. 10-21 compl at 919 423 3713 [04/10/19 21:06:06 ALLENJ]
[EMS] MRS. JULIE NORA ADVISED HER BF WAS WORKING IN DOWNTOWN DURHAM TODAY AND SHE HAS NOT HEARD FROM HIM SINCE THE FIRE. SUBJS NAME IS PETER GEORGESON. WOULD LIKE 10-21 FROM PD WITH ANY INFO IF ANY AVAILABLE AT ALL. 10-21 CALLER AT 646-660-4439 [04/10/19 22:36:59 FRANCO]
[LAW] BK50 XFERRING COMMAND TO G1 [04/11/19 00:14:55 BALLENTINE]
[LAW] 1013 W Main St. brown and white ford econoline van blocking the roadway fire truck on scene can`t pass. Driver is a bm in late 60`s taking pics of the scene still in the area [04/11/19 00:19:44 HANDWORK]
[EMS] STOC/DOT REQ LIST OF ROADS THAT ARE STILL GOING TO BE CLOSED [04/11/19 00:58:45 PRICES]
[LAW] NOTIFIED STOC OF CONTINUED ROAD CLOSURE.....ADV THEY WILL CB MAYBE ONCE A SHIFT TO GET UPDATE ON ROAD CLOSURES [04/11/19 01:30:39 PRICES]

[LAW] G1 TRNSF COMMAND TO BK30 [04/11/19 06:05:06 KENDALME]
[EMS] HAZMAT UNITS NOW ON OPS10---------- [04/11/19 08:15:01 WORRELLSW]
[EMS] FIRE OPERATIONS ON OPS9---------- [04/11/19 08:15:16 WORRELLSW]
[EMS] EMS OPERATIONS ON OPS14---------- [04/11/19 08:15:24 WORRELLSW]
[LAW] {D223} NEED A UNIT NEAR FULLER/MORGAN TO GIVE A RESIDENT AT 206 N DUKE ST APT 226 AN ESCORT TO GET A DOG [04/11/19 09:10:49 BLACKMANL]
[LAW] {D223} 10-22 LAST [04/11/19 09:12:23 BLACKMANL]
[EMS] EM5 ADV LINES NEED TO BE REMOVED AT DUKE/MORGAN [04/11/19 09:35:43 CAPPSA]
[EMS] CONTACTING DUKE [04/11/19 09:35:56 CAPPSA]
[EMS] DUKE TICKET NUMBER D11002432 [04/11/19 09:42:42 CAPPSA]
801 relieving 223 at MORGAN ST/ FULLER ST [04/11/19 09:43:48 Unit:801]
[LAW] DUKE ENERGY SHOULD BE ON SCENE IN 15 [04/11/19 09:46:30 KENDALME]
[EMS] {MIRV1} NO 10-90 CHECKS NEEDED, WILL BE ON OPS14 [04/11/19 13:08:03 MABE]
[LAW] PD req Street maintence ref to glass clean up at Main/DUKE [04/11/19 21:26:45 ALLENJ]
[LAW] {STM} Spoke to after hours street maintenance, he adv they have scheduled third shift street sweepers to come through and will contact someone to see if they can come out sooner. No further [04/11/19 21:33:48 HANDWORK]
[LAW] Cpt Montgomery back online- req STM call her for update on eta. Receiving a lot of pressure t re-open street. [04/11/19 22:06:09 MILLERJ]
[LAW] Street Maintenance notified to 10-21 Captain Montgomery [04/11/19 22:09:51 HANDWORK]

Times

Call Received: 04/10/2019 09:37:38	Time From Call Received		
Call Routed: 04/10/2019 09:38:56	000:01:18	Unit Reaction: 000:04:32	*(1st Dispatch to 1st Arrive)*
Call Take Finished: 04/10/2019 09:38:56	000:01:18	En-Route: 000:00:45	*(1st Dispatch to 1st En-Route)*
1st Dispatch: 04/10/2019 09:40:17	000:02:39 *(Time Held):*	On-Scene: 012:25:06	*(1st Arrive to Last Clear)*
1st En-Route: 04/10/2019 09:41:02	000:03:24		
1st Arrive: 04/10/2019 09:44:49	000:07:11 *(Reaction Time):*		
Last Clear: 04/11/2019 22:09:55	012:32:17		

Radio Log							
Unit	Empl ID	Type	Description	Time Stamp	Comments	Close Code	User
E1	E1	D	Dispatched	04/10/2019 09:40:17	Stat/Beat: 01		MABE
L3		D	Dispatched	04/10/2019 09:40:17	Stat/Beat: 03		MABE
E1	E1	E	En-Route	04/10/2019 09:41:02			MABE
L3		E	En-Route	04/10/2019 09:42:01			Unit:L3
E1	E1	A	Arrived	04/10/2019 09:44:49			Unit:E1
L3		C	Cleared	04/10/2019 09:48:08		16	Unit:L3
L3		D	Dispatched	04/10/2019 09:57:49	Stat/Beat: 03		MABE
L3		E	En-Route	04/10/2019 09:57:49	Stat/Beat: 03		MABE
B1	B1	D	Dispatched	04/10/2019 10:04:25	Stat/Beat: 111		Unit:B1
B1	B1	E	En-Route	04/10/2019 10:04:25	Stat/Beat: 111		Unit:B1
L3		A	Arrived	04/10/2019 10:04:57			Unit:L3
FD8	FD8	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 888		MABE
1SQ		D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 51		MABE
E2	E2	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 02		MABE
E5	E5	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 05		MABE
E4	E4	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 04		MABE
E10	E10	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 10		MABE
Q11	Q11	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 11		MABE
L12		D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 12		MABE
L17		D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 17		MABE
B2	B2	D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 222		MABE
B4		D	Dispatched	04/10/2019 10:06:50	Stat/Beat: 444		MABE
B2	B2	E	En-Route	04/10/2019 10:07:15			Unit:B2
E2	E2	E	En-Route	04/10/2019 10:07:15			Unit:E2
E5	E5	E	En-Route	04/10/2019 10:07:40			Unit:E5
E10	E10	E	En-Route	04/10/2019 10:07:48			Unit:E10
L12		E	En-Route	04/10/2019 10:07:54			Unit:L12
MS1	MS1	D	Dispatched	04/10/2019 10:07:57	Stat/Beat: MS1		MABE
E6	E6	D	Dispatched	04/10/2019 10:07:57	Stat/Beat: 06		MABE
E12	E12	D	Dispatched	04/10/2019 10:07:58	Stat/Beat: 12		MABE
EM5		D	Dispatched	04/10/2019 10:08:07	Stat/Beat: EM		MABE
EM5		E	En-Route	04/10/2019 10:08:07	Stat/Beat: EM		MABE
FD8	FD8	E	En-Route	04/10/2019 10:08:11			MABE
HM13	HM13	D	Dispatched	04/10/2019 10:08:17	Stat/Beat: 13;E		MABE
HM13	HM13	E	En-Route	04/10/2019 10:08:17	Stat/Beat: 13;E		MABE
Q11	Q11	E	En-Route	04/10/2019 10:08:54			Unit:Q11
E4	E4	E	En-Route	04/10/2019 10:08:54			Unit:E4
E12	E12	E	En-Route	04/10/2019 10:09:23			MABE
B4		E	En-Route	04/10/2019 10:09:47			Unit:B4
E6	E6	E	En-Route	04/10/2019 10:10:21			Unit:E6
E6	E6	X	Canceled	04/10/2019 10:10:41	Cancelled by Exchange Command		MABE
E3	E3	D	Dispatched	04/10/2019 10:10:41	Out Srv: [20] at		MABE
E3	E3	E	En-Route	04/10/2019 10:10:41	Out Srv: [20] at		MABE
FD2		D	Dispatched	04/10/2019 10:10:43	Stat/Beat: FD20		IANNUZZICH
FD2		E	En-Route	04/10/2019 10:10:43	Stat/Beat: FD20		IANNUZZICH
MS1	MS1	E	En-Route	04/10/2019 10:10:51			Unit:MS1
E2	E2	A	Arrived	04/10/2019 10:11:11			Unit:E2
4SQ		D	Dispatched	04/10/2019 10:11:28	Stat/Beat: 54		Unit:4SQ
4SQ		E	En-Route	04/10/2019 10:11:28	Stat/Beat: 54		Unit:4SQ
E5	E5	A	Arrived	04/10/2019 10:11:50			Unit:E5
L6	L6	D	Dispatched	04/10/2019 10:11:54	Stat/Beat: 06		Unit:L6
L6	L6	E	En-Route	04/10/2019 10:11:54	Stat/Beat: 06		Unit:L6
FD2		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
MS1	MS1	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE

HM13	HM13	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
1SQ		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E1	E1	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E10	E10	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
Q11	Q11	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E12	E12	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
L12		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
4SQ		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E4	E4	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
B1	B1	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E5	E5	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
L6	L6	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
B4		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
L17		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
FD8	FD8	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
B2	B2	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
L3		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E3	E3	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
E2	E2	X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
EM5		X	Canceled	04/10/2019 10:13:04	Event Cancelled		MABE
B1	B1	D	Dispatched	04/10/2019 10:13:45	Stat/Beat: 111		MABE
B1	B1	E	En-Route	04/10/2019 10:13:45	Stat/Beat: 111		MABE
B1	B1	A	Arrived	04/10/2019 10:13:45	Stat/Beat: 111		MABE
B2	B2	D	Dispatched	04/10/2019 10:13:55	Stat/Beat: 222		MABE
B2	B2	E	En-Route	04/10/2019 10:13:55	Stat/Beat: 222		MABE
B2	B2	A	Arrived	04/10/2019 10:13:55	Stat/Beat: 222		MABE
L3		D	Dispatched	04/10/2019 10:14:05	Stat/Beat: 03		MABE
L3		E	En-Route	04/10/2019 10:14:05	Stat/Beat: 03		MABE
L3		A	Arrived	04/10/2019 10:14:05	Stat/Beat: 03		MABE
E2	E2	D	Dispatched	04/10/2019 10:14:05	Stat/Beat: 02		MABE
E2	E2	E	En-Route	04/10/2019 10:14:05	Stat/Beat: 02		MABE
E2	E2	A	Arrived	04/10/2019 10:14:05	Stat/Beat: 02		MABE
1SQ		D	Dispatched	04/10/2019 10:14:05	Stat/Beat: 51		MABE
1SQ		E	En-Route	04/10/2019 10:14:05	Stat/Beat: 51		MABE
1SQ		A	Arrived	04/10/2019 10:14:05	Stat/Beat: 51		MABE
E5	E5	D	Dispatched	04/10/2019 10:14:18	Stat/Beat: 05		MABE
E5	E5	E	En-Route	04/10/2019 10:14:18	Stat/Beat: 05		MABE
E5	E5	A	Arrived	04/10/2019 10:14:18	Stat/Beat: 05		MABE
E1	E1	D	Dispatched	04/10/2019 10:14:18	Stat/Beat: 01		MABE
E1	E1	E	En-Route	04/10/2019 10:14:18	Stat/Beat: 01		MABE
E1	E1	A	Arrived	04/10/2019 10:14:18	Stat/Beat: 01		MABE
HM13	HM13	D	Dispatched	04/10/2019 10:14:32	Stat/Beat: 13		MABE
HM13	HM13	E	En-Route	04/10/2019 10:14:32	Stat/Beat: 13		MABE
E3	E3	D	Dispatched	04/10/2019 10:14:32	Stat/Beat: 03		MABE
E3	E3	E	En-Route	04/10/2019 10:14:32	Stat/Beat: 03		MABE
EM5		D	Dispatched	04/10/2019 10:15:07	Stat/Beat: EM		MABE
EM5		E	En-Route	04/10/2019 10:15:07	Stat/Beat: EM		MABE
EM5		A	Arrived	04/10/2019 10:15:09			MABE
E4	E4	D	Dispatched	04/10/2019 10:15:18	Stat/Beat: 04		MABE
E4	E4	E	En-Route	04/10/2019 10:15:18	Stat/Beat: 04		MABE
E16	E16	D	Dispatched	04/10/2019 10:15:44	Out Srv: [5] at		BLACKMANL
E16	E16	E	En-Route	04/10/2019 10:15:44	Out Srv: [5] at		BLACKMANL
E16	E16	A	Arrived	04/10/2019 10:15:44	Out Srv: [5] at		BLACKMANL
B4		D	Dispatched	04/10/2019 10:15:44	Stat/Beat: 444		MABE
B4		E	En-Route	04/10/2019 10:15:44	Stat/Beat: 444		MABE
4SQ		D	Dispatched	04/10/2019 10:16:20	Stat/Beat: 54		MABE

4SQ		E	En-Route	04/10/2019 10:16:20	Stat/Beat: 54		MABE
E4	E4	A	Arrived	04/10/2019 10:16:24			Unit:E4
E9	E9	D	Dispatched	04/10/2019 10:16:25	Stat/Beat: 09		MABE
E9	E9	E	En-Route	04/10/2019 10:16:25	Stat/Beat: 09		MABE
E10	E10	D	Dispatched	04/10/2019 10:16:28	Stat/Beat: 10		MABE
E10	E10	E	En-Route	04/10/2019 10:16:28	Stat/Beat: 10		MABE
B3	B3	D	Dispatched	04/10/2019 10:16:37	Out Srv: [20] at		MABE
B3	B3	E	En-Route	04/10/2019 10:16:37	Out Srv: [20] at		MABE
L2	L2	D	Dispatched	04/10/2019 10:16:42	Stat/Beat: 01		MABE
L2	L2	E	En-Route	04/10/2019 10:16:42	Stat/Beat: 01		MABE
Q11	Q11	D	Dispatched	04/10/2019 10:16:52	Stat/Beat: 11		MABE
Q11	Q11	E	En-Route	04/10/2019 10:16:52	Stat/Beat: 11		MABE
Q11	Q11	A	Arrived	04/10/2019 10:16:52	Stat/Beat: 11		MABE
L12		D	Dispatched	04/10/2019 10:16:54	Stat/Beat: 12		MABE
L12		E	En-Route	04/10/2019 10:16:54	Stat/Beat: 12		MABE
L12		A	Arrived	04/10/2019 10:16:54	Stat/Beat: 12		MABE
Q7		D	Dispatched	04/10/2019 10:17:33	Stat/Beat: 07		MABE
Q7		E	En-Route	04/10/2019 10:17:33	Stat/Beat: 07		MABE
Q7		A	Arrived	04/10/2019 10:17:38			Unit:Q7
MS1	MS1	D	Dispatched	04/10/2019 10:18:01	Stat/Beat: MS1		MABE
MS1	MS1	E	En-Route	04/10/2019 10:18:01	Stat/Beat: MS1		MABE
SAF1		D	Dispatched	04/10/2019 10:18:01	Out Srv: [O] at		MABE
SAF1		E	En-Route	04/10/2019 10:18:01	Out Srv: [O] at		MABE
7SQ		D	Dispatched	04/10/2019 10:18:57	Stat/Beat: 57		Unit:7SQ
7SQ		E	En-Route	04/10/2019 10:18:57	Stat/Beat: 57		Unit:7SQ
7SQ		A	Arrived	04/10/2019 10:19:28			Unit:7SQ
FD8	FD8	D	Dispatched	04/10/2019 10:19:34	Stat/Beat: 888		MABE
FD8	FD8	E	En-Route	04/10/2019 10:19:34	Stat/Beat: 888		MABE
FD8	FD8	A	Arrived	04/10/2019 10:19:34	Stat/Beat: 888		MABE
B3	B3	C	Cleared	04/10/2019 10:20:02		16	Unit:B3
B3	B3	D	Dispatched	04/10/2019 10:20:20	Stat/Beat: 333		MABE
B3	B3	E	En-Route	04/10/2019 10:20:20	Stat/Beat: 333		MABE
B3	B3	A	Arrived	04/10/2019 10:20:20	Stat/Beat: 333		MABE
FD20	FD20	D	Dispatched	04/10/2019 10:20:43	Stat/Beat: FD20		MABE
FD20	FD20	E	En-Route	04/10/2019 10:20:43	Stat/Beat: FD20		MABE
FD20	FD20	A	Arrived	04/10/2019 10:21:01			Unit:FD20
E3	E3	A	Arrived	04/10/2019 10:23:09			MABE
L2	L2	A	Arrived	04/10/2019 10:23:12			MABE
MS1	MS1	A	Arrived	04/10/2019 10:23:13			MABE
B4		A	Arrived	04/10/2019 10:23:15			MABE
4SQ		A	Arrived	04/10/2019 10:23:16			MABE
E10	E10	A	Arrived	04/10/2019 10:23:39			MABE
E9	E9	A	Arrived	04/10/2019 10:23:41			MABE
HM13	HM13	A	Arrived	04/10/2019 10:23:43			MABE
EM2		D	Dispatched	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM2		E	En-Route	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM2		A	Arrived	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM3		D	Dispatched	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM3		E	En-Route	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM3		A	Arrived	04/10/2019 10:26:45	Stat/Beat: EM		WHITIST
EM2		X	Canceled	04/10/2019 10:26:57			WHITIST
EM4		D	Dispatched	04/10/2019 10:27:00	Stat/Beat: EM		WHITIST
EM4		E	En-Route	04/10/2019 10:27:00	Stat/Beat: EM		WHITIST
EM4		A	Arrived	04/10/2019 10:27:00	Stat/Beat: EM		WHITIST
DC100		D	Dispatched	04/10/2019 10:27:27	Out Srv: [O] at		ZIMMERMAN
DC100		E	En-Route	04/10/2019 10:27:27	Out Srv: [O] at		ZIMMERMAN

DC100		A	Arrived	04/10/2019 10:27:27	Out Srv: [O] at		ZIMMERMAN
FD31		D	Dispatched	04/10/2019 10:34:26			MABE
FD31		E	En-Route	04/10/2019 10:34:26			MABE
FD31		A	Arrived	04/10/2019 10:34:26			MABE
FD6	FD6	D	Dispatched	04/10/2019 10:34:26	Stat/Beat: 01		MABE
FD6	FD6	E	En-Route	04/10/2019 10:34:26	Stat/Beat: 01		MABE
FD6	FD6	A	Arrived	04/10/2019 10:34:26	Stat/Beat: 01		MABE
L17		D	Dispatched	04/10/2019 10:39:20	Stat/Beat: 17		MABE
L17		E	En-Route	04/10/2019 10:39:20	Stat/Beat: 17		MABE
L17		A	Arrived	04/10/2019 10:39:28			MABE
E13	E13	D	Dispatched	04/10/2019 10:52:01	Stat/Beat: 13		MABE
E13	E13	E	En-Route	04/10/2019 10:55:04			Unit:E13
E13	E13	A	Arrived	04/10/2019 11:02:47			Unit:E13
FD36		D	Dispatched	04/10/2019 11:08:43			MABE
FD36		E	En-Route	04/10/2019 11:08:43			MABE
FD36		A	Arrived	04/10/2019 11:08:43			MABE
SAF1		A	Arrived	04/10/2019 11:26:14			MABE
L6	L6	D	Dispatched	04/10/2019 11:27:35	Stat/Beat: 06		MABE
L6	L6	E	En-Route	04/10/2019 11:27:35	Stat/Beat: 06		MABE
L6	L6	A	Arrived	04/10/2019 11:27:35	Stat/Beat: 06		MABE
E3	E3	C	Cleared	04/10/2019 13:49:20		16	Unit:E3
L6	L6	C	Cleared	04/10/2019 13:53:56		16	Unit:L6
L12		C	Cleared	04/10/2019 14:08:50		16	Unit:L12
Q11	Q11	C	Cleared	04/10/2019 14:19:21		16	Unit:Q11
B2	B2	C	Cleared	04/10/2019 14:23:27		16	Unit:B2
E16	E16	C	Cleared	04/10/2019 14:33:52		16	MABE
7SQ		C	Cleared	04/10/2019 14:36:10		16	MABE
L2	L2	C	Cleared	04/10/2019 14:40:13		16	Unit:L2
1SQ		C	Cleared	04/10/2019 14:46:44		16	Unit:1SQ
E10	E10	C	Cleared	04/10/2019 14:55:09		16	Unit:E10
L17		C	Cleared	04/10/2019 15:24:09		16	MABE
TANK17		D	Dispatched	04/10/2019 15:46:35	Stat/Beat: 17		MABE
TANK17		E	En-Route	04/10/2019 15:46:35	Stat/Beat: 17		MABE
E2	E2	C	Cleared	04/10/2019 15:57:14		10	Unit:E2
E5	E5	L	Location Change	04/10/2019 15:57:40	FIRE STATION 5		Unit:E5
HM13	HM13	C	Cleared	04/10/2019 16:02:59		16	Unit:HM13
TANK17		A	Arrived	04/10/2019 16:06:58			MABE
E13	E13	C	Cleared	04/10/2019 16:08:25		16	Unit:E13
B4		C	Cleared	04/10/2019 16:29:52		16	MABE
B1	B1	C	Cleared	04/10/2019 16:43:19		10	Unit:B1
E5	E5	C	Cleared	04/10/2019 17:22:06		16	Unit:E5
EM5		C	Cleared	04/10/2019 19:09:31		16	MABE
EM5		D	Dispatched	04/10/2019 19:15:06	Stat/Beat: EM		MABE
EM5		E	En-Route	04/10/2019 19:15:06	Stat/Beat: EM		MABE
EM5		A	Arrived	04/10/2019 19:15:06	Stat/Beat: EM		MABE
E18		D	Dispatched	04/10/2019 19:31:56	Out Srv: [O] at		MABE
E18		E	En-Route	04/10/2019 19:31:56	Out Srv: [O] at		MABE
E18		A	Arrived	04/10/2019 19:32:03			MABE
TANK17		C	Cleared	04/10/2019 19:52:35		16	MABE
E4	E4	C	Cleared	04/10/2019 19:58:02		16	Unit:E4
E1	E1	C	Cleared	04/10/2019 20:04:10		16	PRICES
4SQ		C	Cleared	04/10/2019 20:09:37		16	Unit:4SQ
FD31		C	Cleared	04/10/2019 20:16:43	16	16	PRICES
FD6	FD6	C	Cleared	04/10/2019 20:16:43	16	16	PRICES
DC100		C	Cleared	04/10/2019 20:23:58	16	16	PRICES
E9	E9	C	Cleared	04/10/2019 20:29:41		16	Unit:E9

FD8	FD8	C	Cleared	04/10/2019 20:37:05		16	FD8
Q7		C	Cleared	04/10/2019 20:39:40		16	Unit:Q7
EM3		C	Cleared	04/10/2019 20:47:01		16	NICOLAYSEN
EM4		C	Cleared	04/10/2019 20:47:01		16	NICOLAYSEN
EM5		C	Cleared	04/10/2019 20:47:01		16	NICOLAYSEN
L3		L	Location Change	04/10/2019 20:53:43	STATION 1		Unit:L3
FD20	FD20	C	Cleared	04/10/2019 21:07:51		16	Unit:FD20
MS1	MS1	C	Cleared	04/10/2019 21:14:52		16	Unit:MS1
TANK18		D	Dispatched	04/10/2019 21:22:19	Stat/Beat: 18		PRICES
TANK18		E	En-Route	04/10/2019 21:22:19	Stat/Beat: 18		PRICES
TANK18		A	Arrived	04/10/2019 21:22:19	Stat/Beat: 18		PRICES
E19	E19	D	Dispatched	04/10/2019 21:35:37	Stat/Beat: 19		Unit:E19
E19	E19	E	En-Route	04/10/2019 21:35:37	Stat/Beat: 19		Unit:E19
E19	E19	A	Arrived	04/10/2019 21:45:48			Unit:E19
SAF1		C	Cleared	04/10/2019 21:46:34		16	Unit:SAF1
L3		C	Cleared	04/10/2019 21:59:43		16	Unit:L3
B3	B3	X	Canceled	04/10/2019 22:16:09	Pre-empted to Event # 840		WORRELLSW
E18		C	Cleared	04/10/2019 22:29:04		16	Unit:E18
E19	E19	C	Cleared	04/10/2019 23:54:52		16	Unit:E19
TANK11		D	Dispatched	04/11/2019 00:26:24	Stat/Beat: 11		WORRELLSW
TANK11		E	En-Route	04/11/2019 00:26:24	Stat/Beat: 11		WORRELLSW
TANK11		A	Arrived	04/11/2019 00:26:24	Stat/Beat: 11		WORRELLSW
B4		D	Dispatched	04/11/2019 00:44:01	Stat/Beat: 444		Unit:B4
B4		E	En-Route	04/11/2019 00:44:01	Stat/Beat: 444		Unit:B4
B4		A	Arrived	04/11/2019 00:44:01	Stat/Beat: 444		Unit:B4
TANK18		C	Cleared	04/11/2019 01:05:40		16	WORRELLSW
E8	E8	D	Dispatched	04/11/2019 01:55:28	Out Srv: [O] at HEADED TO 115 N DUKE ST		WORRELLSW
E8	E8	E	En-Route	04/11/2019 01:55:28	Out Srv: [O] at HEADED TO 115 N DUKE ST		WORRELLSW
E8	E8	A	Arrived	04/11/2019 01:55:28	Out Srv: [O] at HEADED TO 115 N DUKE ST		WORRELLSW
TANK19	TANK19	D	Dispatched	04/11/2019 03:23:53	Stat/Beat: 19		WORRELLSW
TANK19	TANK19	E	En-Route	04/11/2019 03:23:53	Stat/Beat: 19		WORRELLSW
TANK19	TANK19	A	Arrived	04/11/2019 03:23:53	Stat/Beat: 19		WORRELLSW
FD38		D	Dispatched	04/11/2019 03:27:25			WORRELLSW
FD38		E	En-Route	04/11/2019 03:27:25			WORRELLSW
FD38		X	Canceled	04/11/2019 03:27:34	Pre-empted to Event # 59		WORRELLSW
TANK11		C	Cleared	04/11/2019 03:43:49		16	WORRELLSW
E12	E12	D	Dispatched	04/11/2019 03:44:34	Stat/Beat: 12		WORRELLSW
E12	E12	E	En-Route	04/11/2019 03:44:34	Stat/Beat: 12		WORRELLSW
E12	E12	A	Arrived	04/11/2019 03:44:34	Stat/Beat: 12		WORRELLSW
B4		C	Cleared	04/11/2019 03:48:49		16	Unit:B4
E17	E17	D	Dispatched	04/11/2019 03:57:05	Out Srv: [O] at		WORRELLSW
E17	E17	E	En-Route	04/11/2019 03:57:05	Out Srv: [O] at		WORRELLSW
E17	E17	A	Arrived	04/11/2019 03:57:05	Out Srv: [O] at		WORRELLSW
E8	E8	C	Cleared	04/11/2019 04:26:00		16	Unit:E8
TANK19	TANK19	C	Cleared	04/11/2019 06:18:28		16	PRICES
SAF1		D	Dispatched	04/11/2019 06:56:04	Stat/Beat: SAF1		Unit:SAF1
SAF1		E	En-Route	04/11/2019 06:56:04	Stat/Beat: SAF1		Unit:SAF1
SAF1		A	Arrived	04/11/2019 06:56:04	Stat/Beat: SAF1		Unit:SAF1
E17	E17	C	Cleared	04/11/2019 07:13:38		16	WORRELLSW
SAF1		C	Cleared	04/11/2019 07:38:42		16	Unit:SAF1
E12	E12	C	Cleared	04/11/2019 07:49:29		16	WORRELLSW
E1	E1	D	Dispatched	04/11/2019 08:04:45	Out Evt: [D] at 2920 SPRUCEWOOD DR		WORRELLSW
E1	E1	E	En-Route	04/11/2019 08:04:45	Out Evt: [D] at 2920 SPRUCEWOOD DR		WORRELLSW
E1	E1	A	Arrived	04/11/2019 08:04:45	Out Evt: [D] at 2920 SPRUCEWOOD DR		WORRELLSW
EM5		D	Dispatched	04/11/2019 12:49:00	Stat/Beat: EM		CAPPSA
EM5		E	En-Route	04/11/2019 12:49:00	Stat/Beat: EM		CAPPSA

EM5		A	Arrived	04/11/2019 12:49:00	Stat/Beat: EM		CAPPSA
EM5		C	Cleared	04/11/2019 16:57:10		16	CARDEN
E1	E1	C	Cleared	04/11/2019 17:08:09		16	Unit:E1
FD36		C	Cleared	04/11/2019 22:09:55		1	PRICES

Event Log

Unit	Empl ID	Type	Description	Time Stamp	Comments	Close Code	User
		TR	Time Received	04/10/2019 09:37:38	By: E911		MITCHELLM
		ENT	Entered Street	04/10/2019 09:37:38	301 W MAIN ST		MITCHELLM
		DLS	Duplicate List	04/10/2019 09:37:47	Potential Duplicate Events Listed (1		MITCHELLM
		CHG	Changed Street	04/10/2019 09:38:01	313 W MAIN ST --> N DUKE ST/W MAIN ST		MITCHELLM
		DLS	Duplicate List	04/10/2019 09:38:10	Potential Duplicate Events Listed (1		MITCHELLM
		CHG	Changed Street	04/10/2019 09:38:12	N DUKE ST/W MAIN ST --> 115 N DUKE ST		MITCHELLM
		ENT	Entered Nature	04/10/2019 09:38:16	GAS LEAK OR ODOR		MITCHELLM
		FPS	Fire Pri. Started	04/10/2019 09:38:16	Case Started		MITCHELLM
		ARM	Added Remarks	04/10/2019 09:38:26			MITCHELLM
		FPF	Fire Pri. CE Finished	04/10/2019 09:38:26	Case Entry Finished		MITCHELLM
		ENT	Entered Response Category	04/10/2019 09:38:56	EL		MITCHELLM
		RPT	Requested Report#	04/10/2019 09:38:56	FEMS Report #19-09574		MITCHELLM
		FIN	Finished Call Taking	04/10/2019 09:38:56			MITCHELLM
		ARM	Added Remarks	04/10/2019 09:38:57			MITCHELLM
		FPD	Fire Pri. Dispatch	04/10/2019 09:38:57	Case Dispatched		MITCHELLM
		FPC	Fire Pri. Complete	04/10/2019 09:39:24	Case Completed		MITCHELLM
		FPO	Fire Pri. Re-Open	04/10/2019 09:39:29	Case Re-Opened		MITCHELLM
		RECO	Unit Rec Btn Click	04/10/2019 09:40:16	Unit recommend for GAS LEAK OR ODOR at 115 N DUKE ST (Caller		MABE
		RECO	Unit Recommendation	04/10/2019 09:40:17	Tone / Rip Run Button Clicked		MABE
		RECO	Unit Recommendation	04/10/2019 09:40:17	Recmnd:E1 [ENG], L3 [LAD]		MABE
		RECO	Unit Recommendation	04/10/2019 09:40:17	Plan: RSK1 Cat: EL Lvl: 1		MABE
		PAGE	Dispatch Page	04/10/2019 09:40:18	Paged DFD		PAGESRV
		CHG	Changed Caller Name	04/10/2019 09:40:20	VERIZON-->DON SMITH		MITCHELLM
		FPC	Fire Pri. Complete	04/10/2019 09:40:20	Case Completed		MITCHELLM
		ARM	Added Remarks	04/10/2019 09:40:24			MABE
		ARM	Added Remarks	04/10/2019 09:47:00			MABE
		ARM	Added Remarks	04/10/2019 09:48:09			MABE
		ARM	Added Remarks	04/10/2019 09:56:26			MABE
		FF			LAW		MABE

			Fast Forward to LAW	04/10/2019 10:01:35			
		SP	Spawned	04/10/2019 10:01:41	Spawned LAW event #2019137256, callref #16		MABE
		ARM	Added Remarks	04/10/2019 10:01:57			MABE
		ARM	Added Remarks	04/10/2019 10:01:57	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:06:44	Units: E1,B1,L3		MABE
		CHG	Changed Nature	04/10/2019 10:06:45	GAS LEAK OR ODOR --> STRUCTURE FIRE		MABE
		FPS	Fire Pri. Started	04/10/2019 10:06:45	Case Started		MABE
		RECO	Unit Rec Btn Click	04/10/2019 10:06:48	Unit recommend for STRUCTURE FIRE at 115 N DUKE ST (Caller:		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:49	Tone / Rip Run Button Clicked		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:50	Plan: RSK1 Cat: SF3 Lvl: 1		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:50	Recmnd:E4 [ENG], E10 [ENG], Q11 [LAD]		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:50	Recmnd:FD8, 1SQ [SQ], E2 [ENG], E5 [ENG]		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:50	Recmnd:B4 [BAT]		MABE
		RECO	Unit Recommendation	04/10/2019 10:06:50	Recmnd:L12 [LAD], L17 [LAD], B2 [BAT]		MABE
		PAGE	Dispatch Page	04/10/2019 10:06:50	Paged DFD		PAGESRV
		SP	Spawned	04/10/2019 10:06:53	Spawned EMS event #2019137262, callref #22		WALKERC
		SP	Spawned	04/10/2019 10:06:53	Spawned EMS event #2019137263, callref #23		MABE
		FF	Fast Forward to EMS	04/10/2019 10:06:53	EMS		MABE
		ARM	Added Remarks	04/10/2019 10:07:22	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 10:07:37			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:07:37	Sent to: Linked Events		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:07:49	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 10:07:51			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:07:51	Sent to: Linked Events		OSULLIVAN
		FPC	Fire Pri. Complete	04/10/2019 10:07:52	Case Completed		MABE
		RECO	Unit Rec Btn Click	04/10/2019 10:07:54	Unit recommend for STRUCTURE FIRE at 115 N DUKE ST (Caller:		MABE
		ARM	Added Remarks	04/10/2019 10:07:55			BRIDGESK
		ARM	Added Remarks	04/10/2019 10:07:55	Sent to: Linked Events		BRIDGESK
		CHG	Changed Alarm Level	04/10/2019 10:07:57	1 ---> 2		MABE
		RECO	Unit Recommendation	04/10/2019 10:07:57	Tone / Rip Run Button Clicked		MABE
		RECO	Unit Recommendation	04/10/2019 10:07:57	Plan: RSK1 Cat: SF3 Lvl: 2		MABE

		RECO	Unit Recommendation	04/10/2019 10:07:57	Recmnd:MS1, E6 [ENG], E12 [ENG]		MABE
		CHG	Changed Alarmlev	04/10/2019 10:07:57	1 ---> 2		MABE
		PAGE	Dispatch Page	04/10/2019 10:07:58	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:08:08	Notes sent from LAW event #2019137256		LEACH
		PAGE	Dispatch Page	04/10/2019 10:08:08	Paged EM		PAGESRV
		CHG	Changed Street	04/10/2019 10:08:13	115 N DUKE ST --> 115 N DUKE ST		BOBBITTC
		PAGE	Dispatch Page	04/10/2019 10:08:18	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:08:38			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:08:38	Sent to: Linked Events		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:09:06			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:09:06	Sent to: Linked Events		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:09:29			BRIDGESK
		ARM	Added Remarks	04/10/2019 10:09:30	Sent to: Linked Events		BRIDGESK
		ARM	Added Remarks	04/10/2019 10:09:35	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 10:09:48			MABE
		ARM	Added Remarks	04/10/2019 10:09:48	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:09:57			MABE
		ARM	Added Remarks	04/10/2019 10:09:57	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:10:19	Notes sent from LAW event #2019137256		WHITIST
		PAGE	Dispatch Page	04/10/2019 10:10:42	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:11:01	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:11:20	Notes sent from EMS event #2019137262		WALLO
		ARM	Added Remarks	04/10/2019 10:11:34			BRIDGESK
		ARM	Added Remarks	04/10/2019 10:11:34	Sent to: Linked Events		BRIDGESK
		ARM	Added Remarks	04/10/2019 10:11:58	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:12:11			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:12:11	Sent to: Linked Events		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:12:22			BRIDGESK
		ARM	Added Remarks	04/10/2019 10:12:22	Sent to: Linked Events		BRIDGESK
		ARM	Added Remarks	04/10/2019 10:12:23	Notes sent from LAW event #2019137256		BOBBITTC
		CAN	Event Cancelled	04/10/2019 10:13:07		ACC	MABE

		ROPN	Re-Opened Event	04/10/2019 10:13:33	ERROR		MABE
		ARM	Added Remarks	04/10/2019 10:13:41	Notes sent from LAW event #2019137256		WHITIST
		PAGE	Dispatch Page	04/10/2019 10:13:46	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:13:47	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:13:56	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:14:06	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:14:08	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:14:18	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:14:33	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:14:57	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:15:08	Paged EM		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:15:19	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:15:36			OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:15:36	Sent to: Linked Events		OSULLIVAN
		PAGE	Dispatch Page	04/10/2019 10:15:45	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:15:59	Notes sent from LAW event #2019137256		WHITIST
		PAGE	Dispatch Page	04/10/2019 10:16:21	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:16:25			OSULLIVAN
		PAGE	Dispatch Page	04/10/2019 10:16:26	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:16:26	Sent to: Linked Events		OSULLIVAN
		PAGE	Dispatch Page	04/10/2019 10:16:29	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:16:37	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:16:42	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:16:52	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:16:52	Notes sent from LAW event #2019137256		LEACH
		PAGE	Dispatch Page	04/10/2019 10:16:55	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:17:04			WALKERC
		ARM	Added Remarks	04/10/2019 10:17:04			MABE
		ARM	Added Remarks	04/10/2019 10:17:04	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:17:04	Sent to: Linked Events		WALKERC
		ARM	Added Remarks	04/10/2019 10:17:14	Notes sent from LAW event #2019137256		WHITIST

		PAGE	Dispatch Page	04/10/2019 10:17:34	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:18:02	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/10/2019 10:18:02	Paged SAF1		PAGESRV
		ARM	Added Remarks	04/10/2019 10:18:16			MABE
		ARM	Added Remarks	04/10/2019 10:18:16	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:18:25	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:18:25			MABE
		SP	Spawned	04/10/2019 10:18:31	Spawned FIRE event #2019137287, callref #48		MABE
		CHG	Changed Street	04/10/2019 10:19:17	115 N DUKE ST --> Q	ACC	MABE
		CHG	Changed Street	04/10/2019 10:19:29	Q --> 115 N DUKE ST	ACC	MABE
		ARM	Added Remarks	04/10/2019 10:19:30	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:19:35	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:19:39			MABE
		ARM	Added Remarks	04/10/2019 10:19:39	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:20:10	Notes sent from EMS event #2019137262		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:20:34	Notes sent from LAW event #2019137256		OSULLIVAN
		PAGE	Dispatch Page	04/10/2019 10:20:44	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:21:04	Notes sent from EMS event #2019137262		OSULLIVAN
		ARM	Added Remarks	04/10/2019 10:22:48	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 10:23:28			MABE
		ARM	Added Remarks	04/10/2019 10:23:28	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:23:52	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 10:23:58			MABE
		ARM	Added Remarks	04/10/2019 10:23:58	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:25:35	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 10:25:49	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:26:17	Notes sent from LAW event #2019137256		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:26:20	Notes sent from LAW event #2019137256		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:26:38	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:26:46	Paged EM		PAGESRV
		ARM	Added Remarks	04/10/2019 10:26:58			OSULLIVAN

		ARM	Added Remarks	04/10/2019 10:26:58	Sent to: Linked Events		OSULLIVAN
		PAGE	Dispatch Page	04/10/2019 10:27:00	Paged EM		PAGESRV
		ARM	Added Remarks	04/10/2019 10:27:12	Notes sent from EMS event #2019137262		WALKERC
		PAGE	Dispatch Page	04/10/2019 10:27:29	Paged EM		PAGESRV
		ARM	Added Remarks	04/10/2019 10:27:30			ZIMMERMAN
		ARM	Added Remarks	04/10/2019 10:27:30	Sent to: Linked Events		ZIMMERMAN
		ARM	Added Remarks	04/10/2019 10:27:39	Notes sent from LAW event #2019137256		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:27:43	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:28:07	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:28:54	Notes sent from LAW event #2019137256		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:30:16	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 10:30:17			MITCHELLM
		ARM	Added Remarks	04/10/2019 10:30:17	Sent to: Linked Events		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:30:20	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 10:31:11	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:32:16	Notes sent from LAW event #2019137256		LEACH
		RSW	Reset Watchdog Timer	04/10/2019 10:35:50	Units: E9 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:35:57	Units: 7SQ >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:36:02	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:36:22	Units: B4 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:36:23	Notes sent from EMS event #2019137262		CARDEN
		ARM	Added Remarks	04/10/2019 10:36:28	Notes sent from EMS event #2019137262		WALKERC
		RSW	Reset Watchdog Timer	04/10/2019 10:37:08	Units: L3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:37:19	Units: E16 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:37:27	Units: FD20 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:37:28	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:37:41			MABE
		ARM	Added Remarks	04/10/2019 10:37:41	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:37:52			MABE
		ARM	Added Remarks	04/10/2019 10:37:52	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:37:59	Units: B1 >>> 20Min.		MABE

		RSW	Reset Watchdog Timer	04/10/2019 10:39:02	Units: FD8 >>> 20Min.		MABE
		PAGE	Dispatch Page	04/10/2019 10:39:20	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 10:39:40	Notes sent from EMS event #2019137262		WATSON
		RSW	Reset Watchdog Timer	04/10/2019 10:39:57	Units: L2 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:40:45	Notes sent from EMS event #2019137262		CARDEN
		ARM	Added Remarks	04/10/2019 10:41:18			Unit:M7
		ARM	Added Remarks	04/10/2019 10:42:50			MITCHELLM
		ARM	Added Remarks	04/10/2019 10:42:50	Sent to: Linked Events		MITCHELLM
		ARM	Added Remarks	04/10/2019 10:43:56	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 10:45:34	Notes sent from EMS event #2019137262		CARDEN
		ARM	Added Remarks	04/10/2019 10:46:12	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 10:47:17			MITCHELLM
		ARM	Added Remarks	04/10/2019 10:47:17	Sent to: Linked Events		MITCHELLM
		RSW	Reset Watchdog Timer	04/10/2019 10:47:38	Units: E1 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:47:55	Units: E2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:48:01	Units: E2 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:48:07	Notes sent from EMS event #2019137262		CARDEN
		RSW	Reset Watchdog Timer	04/10/2019 10:48:48	Units: E3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:48:53	Units: E4 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:48:54			Unit:M7
		RSW	Reset Watchdog Timer	04/10/2019 10:49:25	Units: E5 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:49:31	Notes sent from EMS event #2019137262		CARDEN
		RSW	Reset Watchdog Timer	04/10/2019 10:49:35	Units: E9 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:49:47	Units: E10 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:50:00			MABE
		ARM	Added Remarks	04/10/2019 10:50:00	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 10:51:29	Notes sent from LAW event #2019137256		LEACH
		RECO	Unit Rec Btn Click	04/10/2019 10:51:52	Unit recommend for STRUCTURE FIRE at 115 N DUKE ST (Caller:		MABE
		RECO	Unit Recommendation	04/10/2019 10:52:00	Tone / Rip Run Button Clicked		MABE
		RECO	Unit Recommendation	04/10/2019 10:52:01	Recmnd:E14 [ENG], E17 [ENG], L6 [LAD]		MABE
		RECO	Unit Recommendation	04/10/2019 10:52:01	Plan: RSK1 Cat: SF3 Lvl: 2		MABE

		PAGE	Dispatch Page	04/10/2019 10:52:02	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/10/2019 10:52:09	Units: L12 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:52:17	Notes sent from LAW event #2019137256		WHITIST
		RSW	Reset Watchdog Timer	04/10/2019 10:53:13	Units: 4SQ >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:53:20	Units: 7SQ >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 10:53:31	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 10:56:23	Notes sent from LAW event #2019137256		BRIDGESK
		RSW	Reset Watchdog Timer	04/10/2019 10:56:31	Units: E5 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:56:34	Units: L17 >>> 19Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:56:49	Units: B1 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:56:51	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:57:00	Units: E2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:57:02	Units: E5 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:57:06	Units: E4 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:57:11	Units: E9 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:57:38	Units: L17 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:58:02	Units: L3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:58:07	Units: MS1 >>> 15Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:58:28	Units: L3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:58:43	Units: B2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:59:03	Units: B2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:59:06	Units: E2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 10:59:11	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:00:08	Units: B4 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:00:19			MABE
		ARM	Added Remarks	04/10/2019 11:00:19	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:01:40	Units: L12 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:01:54	Units: E5 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:05:04	Units: E3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:05:27	Units: FD31 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:06:11	Units: E5 >>> 20Min.		MABE

		ARM	Added Remarks	04/10/2019 11:06:21	Notes sent from EMS event #2019137262		WALKERC
		RSW	Reset Watchdog Timer	04/10/2019 11:06:53	Units: L2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:07:03	Units: L17 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:07:39	Units: L3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:07:43	Units: L2 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:08:15	Notes sent from EMS event #2019137262		CARDEN
		RSW	Reset Watchdog Timer	04/10/2019 11:08:49	Units: FD31 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:09:18	Notes sent from LAW event #2019137256		BLACKMANL
		RSW	Reset Watchdog Timer	04/10/2019 11:16:38	Units: 7SQ >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:17:41	Units: FD6 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:17:44	Units: E16 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:18:23	Units: E3 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:18:26	Units: L17 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:21:56	Units: E4 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:22:05			MABE
		ARM	Added Remarks	04/10/2019 11:22:05	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 11:22:43			MABE
		ARM	Added Remarks	04/10/2019 11:22:43	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:22:51	Units: L12 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:24:06	Units: B4 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:24:10	Units: FD20 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:24:12	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:24:37	Units: E2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:25:22	Units: L2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:25:26	Units: E13 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:25:30	Units: HM13 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:25:36	Units: L17 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:26:22	Units: L3 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:26:43			MABE
		ARM	Added Remarks	04/10/2019 11:26:43	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 11:26:47			MABE

		ARM	Added Remarks	04/10/2019 11:26:47	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:26:49	Units: Q7 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:26:52	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 11:26:52			MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:26:55	Units: 7SQ >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:27:14	Notes sent from EMS event #2019137262		MABE
		PAGE	Dispatch Page	04/10/2019 11:27:36	Paged DFD		PAGESRV
		ARM	Added Remarks	04/10/2019 11:27:38			MABE
		ARM	Added Remarks	04/10/2019 11:27:38	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:30:26	Units: E4 >>> 20Min.		MABE
		CHG	Changed AddSt	04/10/2019 11:30:42	DIST: 126.31 FT -->	ACC	WALLO
		ARM	Added Remarks	04/10/2019 11:34:59			MABE
		ARM	Added Remarks	04/10/2019 11:34:59	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:35:15	Units: B2 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:35:17	Units: L17 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:41:11	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 11:43:05			WALLO
		ARM	Added Remarks	04/10/2019 11:43:05	Sent to: Linked Events		WALLO
		ARM	Added Remarks	04/10/2019 11:47:01	Notes sent from LAW event #2019137256		WALLO
		ARM	Added Remarks	04/10/2019 11:48:08			MABE
		ARM	Added Remarks	04/10/2019 11:48:08	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:49:39	Units: B4 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:49:45	Units: B1 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:49:47	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:49:49	Units: FD20 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:50:21			MABE
		ARM	Added Remarks	04/10/2019 11:50:21	Sent to: Linked Events		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:50:30	Units: E13 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:50:47	Notes sent from EMS event #2019137262		WALKERC
		ARM	Added Remarks	04/10/2019 11:51:25			MABE
		ARM	Added Remarks	04/10/2019 11:51:25	Sent to: Linked Events		MABE

		RSW	Reset Watchdog Timer	04/10/2019 11:51:27	Units: L17 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:51:29	Units: FD8 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:51:57	Units: Q11 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:53:19	Units: B2 >>> 20Min.		MABE
		ARM	Added Remarks	04/10/2019 11:53:59			MITCHELLM
		ARM	Added Remarks	04/10/2019 11:53:59	Sent to: Linked Events		MITCHELLM
		ARM	Added Remarks	04/10/2019 11:58:09	Notes sent from LAW event #2019137256		WHITIST
		RSW	Reset Watchdog Timer	04/10/2019 11:59:19	Units: B4 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:59:21	Units: FD20 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:59:24	Units: E16 >>> 20Min.		MABE
		RSW	Reset Watchdog Timer	04/10/2019 11:59:44	Units: FD31,FD36,FD6,FD20,MS1,HM13,DC100,EM3,Q7,B3,EM4,1SQ,E		MABE
		ARM	Added Remarks	04/10/2019 12:01:08			BROWNS
		ARM	Added Remarks	04/10/2019 12:01:08	Sent to: Linked Events		BROWNS
		ARM	Added Remarks	04/10/2019 12:03:52			MABE
		ARM	Added Remarks	04/10/2019 12:03:52	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 12:10:09			MABE
		ARM	Added Remarks	04/10/2019 12:10:09	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 12:21:42	Notes sent from EMS event #2019137262		OSULLIVAN
		ARM	Added Remarks	04/10/2019 12:22:22	Notes sent from EMS event #2019137262		OSULLIVAN
		ARM	Added Remarks	04/10/2019 13:15:06	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 13:15:43	Notes sent from LAW event #2019137473		WHITIST
		ARM	Added Remarks	04/10/2019 13:15:59	Notes sent from LAW event #2019137473		WHITIST
		ARM	Added Remarks	04/10/2019 13:40:22	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 15:10:41	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 15:11:28	Notes sent from LAW event #2019137256		WHITIST
		ARM	Added Remarks	04/10/2019 15:26:01			MABE
		ARM	Added Remarks	04/10/2019 15:26:01	Sent to: Linked Events		MABE
		ARM	Added Remarks	04/10/2019 15:27:21	Notes sent from LAW event #2019137256		WHITIST
		PAGE	Dispatch Page	04/10/2019 15:46:36	Paged DFD		PAGESRV
		CHG	Changed Street	04/10/2019 15:56:33	115 N DUKE ST --> 115 N DUKE ST	ACC	OSULLIVAN
		RSW	Reset Watchdog Timer	04/10/2019 16:31:48	Units: E5 >>> 999Min.		MABE

		RSW	Reset Watchdog Timer	04/10/2019 16:31:52	Units: TANK17 >>> 999Min.		MABE
		ARM	Added Remarks	04/10/2019 16:43:33	Notes sent from LAW event #2019137256		CARDEN
		ARM	Added Remarks	04/10/2019 16:44:36	Notes sent from LAW event #2019137256		CARDEN
		ARM	Added Remarks	04/10/2019 16:45:17	Notes sent from LAW event #2019137256		ALLENJ
		ARM	Added Remarks	04/10/2019 16:46:05	Notes sent from LAW event #2019137256		CARDEN
		ARM	Added Remarks	04/10/2019 17:31:12	Notes sent from LAW event #2019137256		ALLENJ
		ARM	Added Remarks	04/10/2019 17:40:48			ALLENJ
		ARM	Added Remarks	04/10/2019 17:40:48	Sent to: Linked Events		ALLENJ
		ARM	Added Remarks	04/10/2019 17:45:25			ALLENJ
		ARM	Added Remarks	04/10/2019 17:45:25	Sent to: Linked Events		ALLENJ
		ARM	Added Remarks	04/10/2019 17:47:14	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 17:51:30	Notes sent from LAW event #2019137256		BLACKMANL
		ARM	Added Remarks	04/10/2019 17:53:54			MITCHELLM
		ARM	Added Remarks	04/10/2019 17:53:54	Sent to: Linked Events		MITCHELLM
		ARM	Added Remarks	04/10/2019 17:55:03	Notes sent from LAW event #2019137256		BLACKMANL
		ARM	Added Remarks	04/10/2019 18:03:00	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 18:03:47	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 18:19:01	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 18:20:10	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 18:22:18	Notes sent from LAW event #2019137256		LEACH
		ARM	Added Remarks	04/10/2019 18:33:09	Notes sent from LAW event #2019137256		BALLENTINE
		PAGE	Dispatch Page	04/10/2019 19:15:08	Paged EM		PAGESRV
		RSW	Reset Watchdog Timer	04/10/2019 19:15:10	Units: EM5 >>> 999Min.		MABE
		ARM	Added Remarks	04/10/2019 19:28:20	Notes sent from LAW event #2019137256		LEACH
		PAGE	Dispatch Page	04/10/2019 19:31:56	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/10/2019 19:58:45	Units: E18 >>> 999Min.		MABE
		ARM	Added Remarks	04/10/2019 21:06:06	Notes sent from LAW event #2019137256		ALLENJ
		RSW	Reset Watchdog Timer	04/10/2019 21:09:09	Units: L3 >>> 999Min.		PRICES
		PAGE	Dispatch Page	04/10/2019 21:22:19	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/10/2019 21:52:07	Units: FD36,TANK18,B3,E18,E19 >>> 999Min.		PRICES
		ARM	Added Remarks	04/10/2019 22:36:59	Notes sent from EMS event #2019137262		FRANCO

		VCHS	Viewed Call History	04/10/2019 23:00:23	Location Information		PRICES
		VCHS	Viewed Call Hist (Neighbo	04/10/2019 23:01:08	Location Information		PRICES
		ARM	Added Remarks	04/11/2019 00:14:55	Notes sent from LAW event #2019137256		BALLENTINE
		ARM	Added Remarks	04/11/2019 00:19:44	Notes sent from LAW event #2019137256		HANDWORK
		PAGE	Dispatch Page	04/11/2019 00:26:24	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/11/2019 00:43:23	Units: FD36,TANK18,TANK11 >>> 60Min.		WORRELLSW
		ARM	Added Remarks	04/11/2019 00:58:45	Notes sent from EMS event #2019137262		PRICES
		RSW	Reset Watchdog Timer	04/11/2019 01:05:54	Units: FD36,TANK11,B4 >>> 60Min.		WORRELLSW
		ARM	Added Remarks	04/11/2019 01:30:39	Notes sent from LAW event #2019137256		PRICES
		PAGE	Dispatch Page	04/11/2019 01:55:30	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/11/2019 02:24:22	Units: E8 >>> 666Min.		PRICES
		RSW	Reset Watchdog Timer	04/11/2019 02:24:34	Units: FD36,TANK11,E8,B4 >>> 666Min.		PRICES
		PAGE	Dispatch Page	04/11/2019 03:23:53	Paged DFD		PAGESRV
		PAGE	Dispatch Page	04/11/2019 03:44:35	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/11/2019 03:50:02	Units: FD36,E12,E8,TANK19 >>> 60Min.		WORRELLSW
		PAGE	Dispatch Page	04/11/2019 03:57:06	Paged DFD		PAGESRV
		RSW	Reset Watchdog Timer	04/11/2019 04:56:48	Units: FD36,E12,TANK19,E17 >>> 30Min.		WORRELLSW
		RSW	Reset Watchdog Timer	04/11/2019 05:27:11	Units: FD36,E12,TANK19,E17 >>> 30Min.		WORRELLSW
		ARM	Added Remarks	04/11/2019 06:05:06	Notes sent from LAW event #2019137256		KENDALME
		RSW	Reset Watchdog Timer	04/11/2019 06:19:21	Units: FD36,E12,E17 >>> 666Min.		PRICES
		RSW	Reset Watchdog Timer	04/11/2019 07:13:55	Units: FD36,E12,SAF1 >>> 60Min.		WORRELLSW
		ARM	Added Remarks	04/11/2019 08:15:01	Notes sent from EMS event #2019137262		WORRELLSW
		ARM	Added Remarks	04/11/2019 08:15:16	Notes sent from EMS event #2019137262		WORRELLSW
		ARM	Added Remarks	04/11/2019 08:15:24	Notes sent from EMS event #2019137262		WORRELLSW
		RSW	Reset Watchdog Timer	04/11/2019 08:19:57	Units: FD36,E1 >>> 60Min.		WORRELLSW
		RSW	Reset Watchdog Timer	04/11/2019 08:29:07	Units: FD36,E1 >>> 999Min.		WORRELLSW
		RSW	Reset Watchdog Timer	04/11/2019 08:29:13	Units: FD36,E1 >>> 999Min.		WORRELLSW
		ARM	Added Remarks	04/11/2019 09:10:49	Notes sent from LAW event #2019137256		BLACKMANL
		ARM	Added Remarks	04/11/2019 09:12:23	Notes sent from LAW event #2019137256		BLACKMANL
		ARM	Added Remarks	04/11/2019 09:35:43	Notes sent from EMS event #2019137262		CAPPSA
		ARM	Added Remarks	04/11/2019 09:35:56	Notes sent from EMS event #2019137262		CAPPSA

		ARM	Added Remarks	04/11/2019 09:42:42	Notes sent from EMS event #2019137262		CAPPSA
		ARM	Added Remarks	04/11/2019 09:46:30	Notes sent from LAW event #2019137256		KENDALME
		PAGE	Dispatch Page	04/11/2019 12:49:01	Paged EM		PAGESRV
		ARM	Added Remarks	04/11/2019 13:08:03	Notes sent from EMS event #2019137262		MABE
		RSW	Reset Watchdog Timer	04/11/2019 13:10:03	Units: EM5 >>> 999Min.		CAPPSA
		VCHS	Viewed Call History	04/11/2019 16:52:25	Location Information		ZITTA
		ARM	Added Remarks	04/11/2019 21:26:45	Notes sent from LAW event #2019137256		ALLENJ
		ARM	Added Remarks	04/11/2019 21:33:48	Notes sent from LAW event #2019137256		HANDWORK
		ARM	Added Remarks	04/11/2019 22:06:09	Notes sent from LAW event #2019137256		MILLERJ
		ARM	Added Remarks	04/11/2019 22:09:51	Notes sent from LAW event #2019137256		HANDWORK
		CHG	Changed PRIMEUNIT	04/11/2019 22:10:39	FD36 --> B1		PRICES

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 4

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

City of Durham
Public Works Department
Engineering Division
101 City Hall Plaza, 3rd Floor, Durham, NC 27701
Telephone: (919) 560-4326 *Facsimile: (919) 560-4316*

City of Durham
Private Utility Excavation Permit

APPLICATION INFORMATION: **Permit Number:** 18-2826

Issued To: Fiber Technologies Networks, L.L.C.
Subcontractor:
Contact Name: Michael Eades
Contact Address: 300 Meridian Centre Blvd
Rochester, NY 14618
Phone #: 585-445-5899

Issue Date: 06/27/2018
Valid Until: 06/25/2019
Subdivision:
Application Project # U20122-4-DT Durham
Emergency Phone #:

Utility Type:
- ☐ Electrical conduit
- ☐ Telecommunications cable
- ☐ Gas line
- ☐ Poles
- ☒ Fiber Cable
- ☐ Other

Number and Size of conduits:

Type of Excavation ☒ Bore ☐ Trench

☐	Pavement/Street Cut	L	0.00 ft	W	1.00 ft
☒	Sidewalk Cut	L	100.00 ft	W	100.00 ft
☐	Driveway Cut	L	0.00 ft	W	0.00 ft
☐	Other				

Dimensions of Proposed Excavations

City R/W (in ft)	County (in ft)	Private Land (in ft)	Total Length (in ft)
11492.00	0.00	0.00	11492.00
Width (in ft)	**Depth (in ft)**		
0.00	0.00		

Proposed Traffic Control
- ☐ Detour
- ☐ Lane Restriction
- ☒ Cones
- ☒ Signs
- ☐ Other

Start Date: 07/30/2018 **Duration:** 90

All requests for street closings must be approved by the City Transportation Department. Contact: (919) 560-4366

Locations of Work:

Address Range	Street	Street Number	Cross Streets
500 - 505	S Duke St		JACKSON ST and YANCEY ST
400 - 499	S Duke St		W CHAPEL HILL ST and JACKSON ST
307 - 399	S Duke St		MEMORIAL ST and W CHAPEL HILL ST
300 - 303	S Duke St		W PETTIGREW ST and MEMORIAL ST
200 - 299	S Duke St		W PEABODY ST and W PETTIGREW ST
100 - 199	S Duke St		W Main St and W PEABODY ST
100 - 199	N Duke St		W MAIN ST and W MORGAN ST
200 - 299	N Duke St		W MORGAN ST and FERNWAY AV
300 - 399	N Duke St		FERNWAY AV and W CORPORATION ST
500 - 699	W Main St		N GREAT JONES ST and FULLER ST
400 - 499	W Main St		E CHAPEL HILL ST and N GREAT JONES ST
300 - 399	W Main St		MARKET ST and W Chapel Hill St
200 - 299	W Main St		N CORCORAN ST and MARKET ST
100 - 199	W Main St		N MANGUM ST and N CORCORAN ST
100 - 199	E Main St		N MANGUM ST and N CHURCH ST

Address Range	Street	Street Number	Cross Streets
200 - 299	E Main St		N CHURCH ST and N ROXBORO ST
300 - 399	E Main St		N ROXBORO ST and N QUEEN ST
400 - 499	E Main St		N QUEEN ST and N DILLARD ST
500 - 533	E Main St		N DILLARD ST and COMMERCE ST
100 - 199	N Roxboro St		E MAIN ST and E PARRISH ST
100 - 199	N Mangum St		W Main St and W PARRISH ST
200 - 299	N Great Jones St		W Main St and W Morgan St
100 - 111	Market St		W MAIN ST and W PARRISH ST
112 - 199	Market St		W PARRISH ST and E CHAPEL HILL ST
200 - 299	E Chapel Hill St		MARKET ST and FOSTER ST
200 - 299	Foster St		E Chapel Hill St and W Morgan St
206 - 299	W Morgan St		HOLLAND ST and FOSTER ST
200 - 205	W Morgan St		Rigsbee Av and Holland St
300 - 399	Rigsbee Ave		W MORGAN ST and W SEMINARY AV
400 - 499	Rigsbee Ave		W SEMINARY AV and HUNT ST

Address Range	Street	Street Number	Cross Streets
500 - 599	Rigsbee Ave		Hunt St and Broadway St
600 - 699	Rigsbee Ave		Broadway St and W Corporation St
700 - 799	Rigsbee Ave		W CORPORATION ST and W GEER ST
700 - 799	W Main St		FULLER ST and N DUKE ST
100 - 103	S Corcoran St		W Ramseur St and W Main St

Reason for Work: Connect cell tower to aerial antennas on power poles.

Applicant Signature: MICHAEL EADES

Application Received Date: 06/26/2018 **Applicant Fee:** $0.00

Comments

Approved by: Mike Ross **Approval Date:** 06/27/2018

Inspection Request Date:

Inspection Date: **Inspector:**

Comments

Submitter Comments

Reviewer Comments

There may be City of Durham water, sanitary sewer, storm drainage, and service laterals in the vicinity of the proposed work. Avoid encumbering any City of Durham utilities. Contact NC 811 for utility locates as required by law.

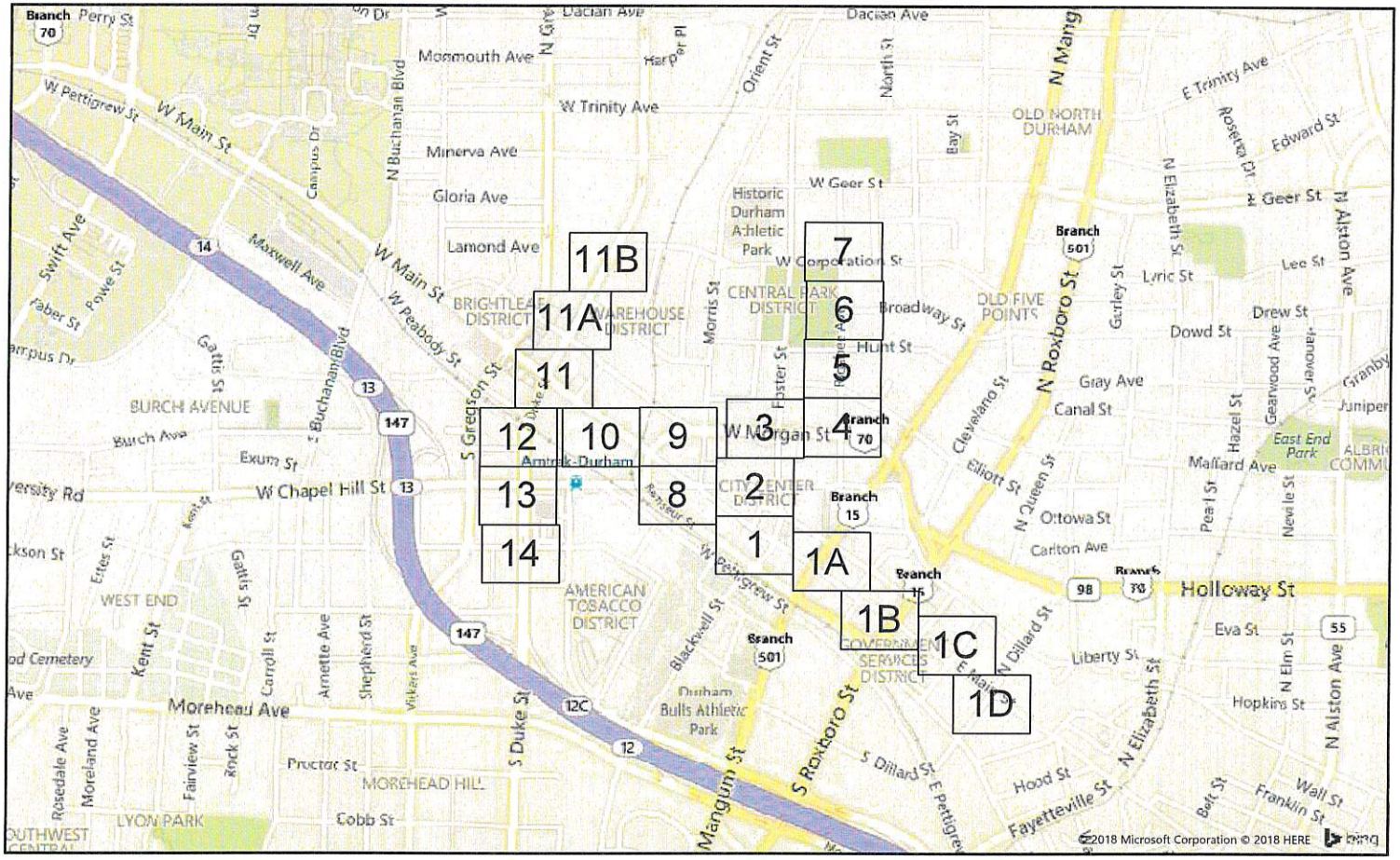
Aboveground obstacles (poles, pedestals, etc.) are not allowed in public utility easements. The City of Durham has and will continue to install sidewalk at various locations throughout the City. Special consideration should be exercised in selecting placement of all above ground obstacles.

The Prime applicant is responsible for relocating any facilities placed in conflict with City utilities &/or in conflict with future City infrastructure development. All contractors are required to have an electronic or hard copy of the permit on site throughout the duration of work in City ROW.

Notes

Inspections are required prior to placing any concrete in the City R/W and for all asphalt work. Inspections should be requested through the web-based program. For work in the City R/W a Final Inspection should be requested when all work and final restoration of the permitted area is complete using the web-based program. 1. Underground conduit shall be placed at a minimum depth of 24 inches for trench and plow applications, cable or conduit installed by directional bore shall maintain a minimum depth of 24 inches. Vertical separation from city utilities shall be a minimum of 18 inches. Horizontal clearance of 36 inches minimum shall be maintained from the outer edge of city utilities including water, sanitary sewer, and storm drainage. 2. Directional bore method of installation parallel to state roadway shall be at a minimum depth of 60 inches. 3. All directional bores under state roadways to be a minimum of 10 feet deep. All directional bores under controlled access to be a minimum of 15 feet deep.
4. 12, 20, & 24 inch diameter distribution & transmission mains are located in close proximity to this permitted work.

OWNER: Lightower Fiber Networks
PROJECT NAME: U20122- 4 - DT DURHAM
ADDRESS: 301 W MAIN ST, DURHAM, NC 27701



SITE LOCATION

CONTACTS

Utility Owner: Lightower (Fibertech)
300 Meridian Centre Blvd, Suite 200,
Rochester, NY
William Greenwell - Fiber Construction Engineer - NC
Phone: 919-249-9214
William.Greenwell@crowncastle.com

Engineering Company : Utilis Engineering
2033 Cross Beam Dr.,Charlotte, NC 28217
Matt Oelkers
Sr. Project Manager
moelkers@utilisdesign.com
Office: (980) 404-2752 ext 103

2033 Cross Beam Dr.,Charlotte, NC 28217
Matthew Hall
CAD Designer
mhall@utilisdesign.com
Office: (980) 404-2752

SHEET INDEX

SHT. NO.	DESCRIPTION
A	TITLE SHEET
B	LEGEND
C	GENERAL NOTES
D-F	TYPICALS
G	MATERIALS RAKEOFF
1-14	PROJECT SHEETS

Know what's below Call before you dig.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

LEGEND

LINETYPES

- UG FIBER – EXISTING
- UG FIBER – PROPOSED
- AERIAL FIBER – EXISTING
- AERIAL FIBER – PROPOSED
- STRAND – EXISTING
- STRAND – PROPOSED
- CONDUIT – EXISTING
- CONDUIT – PROPOSED
- INNERDUCT – EXISTING
- INNERDUCT – PROPOSED
- G — GAS
- W — WATER
- T — TELEPHONE
- E — ELECTRIC
- SEW — SANITARY SEWER (SEW)
- SD — STORM DRAIN
- X — X — FENCE
- TV — CABLE TV
- STM — STEAM
- OIL — OIL
- UNK — UNKNOWN UTILITY
- R/W — RIGHT OF WAY
- EOP — EOP — EDGE OF PAVEMENT

SYMBOL	DESCRIPTION
ASW	ASPHALT SIDEWALK
BIP	BLACK IRON PIPE
BSP	BLACK STEEL PIPE
CSW	CONCRETE SIDEWALK
EOP	EDGE OF PAVEMENT
EOTW	EDGE OF TRAVEL WAY
FOC	FACE OF CURB
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
JB	JUNCTION BOX
MH	MANHOLE
MP	MILE POST
O/S	OFFSET
PVC	POLY VINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL CONDUIT
ROW	RIGHT OF WAY
STA.	STATION

- (R) — RISER
- [T] — TELEPHONE
- [P] — POWER VAULT
- CATCH BASIN/INLET
- FIRE HYDRANT
- GROUND/BOND
- STREET LIGHT
- TREE
- CULVERT
- WING VAULT
- BRIDGE
- (U) — MISC. UTILITY
- (⊗) OWNER ID — UTILITY POLE – EXISTING
- OWNER ID — POLE – PROPOSED
- HH– [HH] HANDHOLE OWNER — HANDHOLE – EXISTING
- HH- [HH] HANDHOLE OWNER — HANDHOLE – PROPOSED
- MH– [MH] MANHOLE OWNER — MANHOLE – EXISTING
- MH- [MH] MANHOLE OWNER — MANHOLE – PROPOSED
- PB– [PB] PULLBOX OWNER — PULLBOX – EXISTING
- PB- [PB] PULLBOX OWNER — PULBOX – PROPOSED

- VAULT– [V] VAULT OWNER — VAULT – EXISTING
- VAULT- [V] VAULT OWNER — VAULT – PROPOSED
- 0' — AERIAL STORAGE – EXISTING
- 0' — AERIAL STORAGE – PROPOSED
- (0') — VAULT/BUILDING STORAGE – EXISTING
- (0') — VAULT/BUILDING STORAGE – PROPOSED
- POLE ANCHOR/DOWN GUY – EXISTING
- POLE ANCHOR/DOWN GUY – PROPOSED
- PROPOSED DOWN GUY ON EXISTING ANCHOR
- [FDP] NAME SIZE LOCATION — TERMINATION – EXISTING
- [FDP] NAME SIZE LOCATION — TERMINATION – PROPOSED
- BLDG NAME STREET — BUILDING CALLOUT – PROPOSED
- MANUFACTURER NAME — SPLICE POINT – EXISTING
- MANUFACTURER NAME — SPLICE POINT – PROPOSED
- #F | IN: 0 / OUT: 0 — SEQUENTIAL CALLOUT
- #F | IN: 0 / TAIL: 0 — SEQUENTIAL IN TAIL CALLOUT
- #F | TAIL: 0 / OUT: 0 — SEQUENTIAL TAIL OUT CALLOUT

POLE NO	N/A
UTILITY1	0'-0"

POLE ATTACHMENT CALLOUT – EXISTING
USE DYNAMIC PULL DOWN TO SELECT FROM 1 TO 6 ATTACHMENTS

POLE NO	N/A
UTILITY1	0'-0"

POLE ATTACHMENT CALLOUT – PROPOSED
USE DYNAMIC PULL DOWN TO SELECT FROM 1 TO 6 ATTACHMENTS

(1) CABLE FIBERS: FIBERS
CABLE OWNER: OWNER
CABLE LENGTH: LENGTH
NOTES:
— CABLE SPAN CALLOUT – EXISTING FOR USE ON PAPER SPACE (SHOWN AT 50X)

(1) CABLE FIBERS: FIBERS
CABLE OWNER: OWNER
CABLE LENGTH: LENGTH
NOTES:
— CABLE SPAN CALLOUT – PROPOSED FOR USE ON PAPER SPACE (SHOWN AT 50X)

(1) CONDUIT OWNER: OWNER
CONDUIT LENGTH: LENGTH
CONDUIT QTY: CONDUITS
CONDUIT SIZE: SIZE
CONDUIT TYPE: TYPE
INNER DUCT QTY: INNERDUCTS
INNER DUCT SIZE: SIZE
INNER DUCT TYPE: TYPE
NOTES:
— CONDUIT CALLOUT – EXISTING FOR USE ON PAPER SPACE (SHOWN AT 50X) WITH OR WITHOUT INNER DUCT INFO

(1) CONDUIT OWNER: OWNER
CONDUIT LENGTH: LENGTH
CONDUIT QTY: CONDUITS
CONDUIT SIZE: SIZE
CONDUIT TYPE: TYPE
INNER DUCT QTY: INNERDUCTS
INNER DUCT SIZE: SIZE
INNER DUCT TYPE: TYPE
NOTES:
— CONDUIT CALLOUT – PROPOSED FOR USE ON PAPER SPACE (SHOWN AT 50X) WITH OR WITHOUT INNER DUCT INFO

(1) STRAND TYPE: TYPE
STRAND LENGTH: LENGTH
NOTES:
— STRAND CALLOUT – EXISTING FOR USE ON PAPER SPACE (SHOWN AT 50X)

(1) STRAND TYPE: TYPE
STRAND LENGTH: LENGTH
NOTES:
— STRAND CALLOUT – PROPOSED FOR USE ON PAPER SPACE (SHOWN AT 50X)

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY — SHEET: 8 OF 14

GENERAL NOTES

GENERAL NOTES

CONTRACTOR MUST OBTAIN LOCATES PRIOR TO DISTURBING THE GROUND.

CONTRACTOR MUST HAVE A COPY OF THE APPROVED PERMIT FROM THE APPROPRIATE AGENCY ON THE JOBSITE AT ALL TIMES.

ALL CABLE WILL BE PLACED AT A MINIMUM DEPTH OF 36" DEEP UNLESS OTHERWISE DIRECTED BY A REPRESENTATIVE OF THE UTILITY OWNER.

ANY LANDSCAPING WILL BE REPLACED TO EQUAL OR BETTER THAN THAT WHICH EXISTED PRIOR TO WORK.

PROJECT SITE WILL BE PROPERLY SECURED PRIOR TO THE END OF EACH DAY.

ALL WORK IS TO BE IN ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION IN THE WORK ZONE.

CONTRACTORS ARE ADVISED TO CONTACT THE PROJECT MANAGER FOR ANY ADDITIONAL INFORMATION OR CLARIFICATION CONCERNING SCOPE OF WORK OR THE REQUIREMENTS NECESSARY FOR PROJECT COMPLETION.

CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL DIMENSIONS, QUANTITIES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION. IF A SIGNIFICANT CHANGE TO THE RUNNING LINE IS NEEDED, PLEASE CONTACT THE PROJECT MANAGER BEFORE PROCEEDING.

BEFORE CONSTRUCTION BEGINS, CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO AVOID ANY POTENTIAL OBSTRUCTIONS PRIOR TO PROCEEDING WITH WORK.

NO CONSTRUCTION ON PRIVATE PROPERTY WILL COMMENCE UNTIL APPROVAL IS GIVEN BY A REPRESENTATIVE OF THE UTILITY OWNER.

CONTRACTOR SHALL NOT PROCEED WITH WORK UNTIL THEY HAVE RECEIVED A PURCHASE ORDER AND HAVE BEEN DIRECTED TO DO SO BY AN AUTHORIZED REPRESENTATIVE OF THE UTILITY OWNER.

CONTRACTOR SHALL NOT EXCEED THE PURCHASE ORDER VALUE WITHOUT AUTHORIZATION IN WRITING FROM THE APPROPRIATE REPRESENTATIVE OF THE UTILITY OWNER.

AS-BUILTS WILL BE REQUIRED FOR EACH PROJECT INCLUDING CABLE FOOTAGE SEQUENTIALS AT EVERY ACCESS POINT, SLACK LOOP, SPLICE LOCATION, POLE AND TERMINATION POINT. CONTRACTOR SHOULD ALSO PROVIDE NOTES OF ALL CHANGES IN DEPTHS, RUNNING LINES, MH/HH LOCATIONS, AND ANY OTHER APPLICABLE NOTES TO DEPICT THE WORK THAT TOOK PLACE. NOTE: ALL MAJOR CHANGES NEED TO BE PRE-APPROVED BY AN AUTHORIZED REPRESENTATIVE OF THE UTILITY COMPANY PRIOR TO STARTING THE WORK.

SITE CONDITIONS

THE ACTUAL LOCATION OF EXISTING CONDUIT AND CABLES MAY VARY FROM THE LOCATION SHOWN. REPAIR OF ANY DAMAGED CONDUIT CONTAINING CABLE SHALL BE MADE BY USE OF PVC SPLIT DUCT. THE CONTRACTOR SHALL ENCLOSE THE EXISTING CABLES IN PVC.

THE LOCATIONS OF EXISTING UTILITIES SHOWN IN THIS PLAN ARE APPROXIMATE. WHEN WORK IS TO BE CONDUCTED IN THE VICINITY OF KNOWN UTILITIES, THEIR ACTUAL LOCATION MUST BE FIELD VERIFIED TO AVOID CONFLICTS OR DAMAGE TO THOSE UTILITIES. VARIATION IN LOCATION BETWEEN "RECORDED POSITIONS" AND ACTUAL POSITIONS SHOULD BE ANTICIPATED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES. BURIED UTILITIES MAY EXIST IN THE AREA IN ADDITION TO THOSE SHOWN ON THE PLAN. THE CONTRACTOR SHALL CONTACT PROPERTY OWNERS WHEN WORKING WITHIN PRIVATE EASEMENTS FOR LOCATION OF UNDERGROUND TANKS, PIPELINES, DRAIN TILES, OR OTHER BURIED IMPROVEMENTS. THE CONTRACTOR SHALL ALSO NOTIFY THE UTILITY NOTIFICATION CENTER PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES.

THE CONTRACTOR MUST ASSUME ALL BURIED UTILITIES ENCOUNTERED ARE ALIVE AND ACTIVE UNLESS SPECIFICALLY INSTRUCTED OTHERWISE BY OWNERS OR OPERATORS OF SAID UTILITIES.

DAMAGE TO SUB-SURFACE STRUCTURES IS THE SOLE RESPONSIBILITY OF THE PLACING CONTRACTOR.

THE CONTRACTOR SHALL PROTECT THE EXISTING TRAFFIC CONTROL LOOPS. IF EXISTING TRAFFIC CONTROL LOOPS ARE DAMAGED DURING CONSTRUCTION, THE ENTIRE LOOP WIRE FROM TERMINAL TO TERMINAL SHALL BE REPLACED IN ACCORDANCE WITH GOVERNING AGENCY STANDARDS AND REGULATIONS AT CONTRACTOR'S EXPENSE.

REMOVAL OF EXISTING ASPHALT PAVEMENT, CONCRETE CURBS, AND CONCRETE SIDEWALKS WILL BE "NEAT LINE" WITH SAW OR PAVEMENT CUTTER, PER REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY OR DEPARTMENT RESPONSIBLE FOR EACH LOCATION. IF CONCRETE PAVEMENT IS ENCOUNTERED WHILE EXCAVATING CONDUIT TRENCHES, THE CONCRETE REMOVAL WILL BE "NEAT LINE" WITH A PAVEMENT SAW.

IF CONCRETE CURB RETURNS AND/OR SIDEWALKS ARE REPLACED DUE TO CONDUIT OR MANHOLE INSTALLATION, THE CONTRACTOR SHALL PLACE APPROVED HANDICAPPED SIDEWALK AND CURB ACCESS RAMPS IN CONFORMANCE WITH THE APPROPRIATE STATE STATUTES.

ALL MATERIALS NECESSARY FOR THE REPAIR OF STREETS, CURBS, SIDEWALKS, SANITARY SEWERS, STORM SEWERS, AND PUBLIC SERVICE UTILITIES, AND THE INSTALLATION OF SUCH MATERIALS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY OR DEPARTMENT RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE REPAIRED FACILITY.

ALL WORK SHALL CONFORM TO THE SPECIFICATIONS OF THE JURISDICTIONAL PERMIT AGENCY.

ALL OPEN TRENCH WILL BE CLEARLY MARKED WITH BARRICADES OR CONES. STEEL PLATES OR OTHER TYPES OF BRIDGING SHALL BE PROVIDED TO COVER OPEN TRENCH IN THE TRAVEL PORTION OF THE STREETS. THESE PLATES OR BRIDGING SHALL BE ADEQUATE TO SUPPORT THE NORMAL VEHICLE LOADS ANTICIPATED IN THIS AREA AND SHALL BE IN PLACE DURING ALL NON-WORKING AREAS.

ALL SURFACES TO BE RESTORED TO ORIGINAL CONDITION, AND BACKFILL TO BE COMPACTED AS SPECIFIED. TRENCH EXCAVATION IN SURFACES WHICH INCLUDE CONCRETE TREATED BASE SHALL FOLLOW LOCAL AREA SPECIFICATIONS.

HAZARDOUS MATERIALS

THE CONTRACTOR SHALL NOTIFY THE JURISDICTIONAL PERMIT AGENCY IMMEDIATELY IF ANY MATERIALS ARE ENCOUNTERED THAT ARE CONSIDERED HAZARDOUS BY THE EPA, DEQ, OR OSHA. IF POTENTIALLY HAZARDOUS MATERIALS ARE ENCOUNTERED THE CONTRACTOR SHALL SECURE THE SITE AND PREVENT THE ACCIDENTAL EXPOSURE BY THE PUBLIC OR THE CONTRACTOR'S PERSONNEL.

THE CONTRACTOR MAY EXCAVATE UP TO, BUT SHALL NOT DISTURB KNOWN HAZARDOUS MATERIALS SUCH AS ASBESTOS, OILS, ACID, ETC. THE REMOVAL OF ALL HAZARDOUS MATERIALS MUST BE DONE BY AN APPROVED OR CERTIFIED HAZARDOUS MATERIALS CONTRACTOR LICENSED IN THE APPROPRIATE STATE.

A COPY OF ALL CORRESPONDENCE PERTINENT TO THE REMOVAL OF HAZARDOUS MATERIALS SHALL BE TRANSMITTED TO OWNER AND A COPY SHALL BE AVAILABLE AT THE PROJECT OFFICE AND THE JOB SITE.

AERIAL NOTES

- AERIAL CONSTRUCTION TO BE PERFORMED TO INDUSTRY ACCEPTABLE STANDARDS.
- ALL HEIGHTS OF CABLE PLACEMENT WILL BE RECORDED AT TIME OF CONSTRUCTION. DOCUMENT ALL POINTS OF ATTACHMENT.
- ALL EXTENSION ARMS TO BE PLACED WILL BE EPOXY ARMS UNLESS OTHERWISE NOTED OR APPROVED BY THE INSPECTOR.
- BOND STRAND TO POWER MGN WHERE APPLICABLE. ANCHORS TO BE USED WILL BE 3/4 SCREW IN TYPE.
- ALL STRAPS WILL BE PLACED 4" BEFORE AND AFTER EVERY SUPPORTING CLAMP AT A MINIMUM OF 21" APART.
- P.O.A. = POINT OF ATTACHMENT.
- ADD MISSING GROUNDS.
- REPAIR/REPLACE EXISTING LASHING WIRE IF DAMAGED.

CONSTRUCTION STAKING

IN AREAS WHERE THE CONDUIT ALIGNMENT IS NOT CLEARLY DEFINED BY CURB LINES, FENCE LINES, OR OTHER EVIDENCE OF THE RIGHT-OF-WAY, THE ENGINEER WILL PROVIDE CENTERLINE STAKES OR PAINT MARKS WHERE REQUIRED TO MAKE THE PROPOSED CONDUIT ALIGNMENT EVIDENT.

MANHOLE CENTERS WILL BE FIELD STAKED BY THE ENGINEER WHEN REQUESTED WITH OFFSET STAKES AT RIGHT ANGLES (90°) TO THE CONDUIT ALIGNMENT.

CLOSURES IDENTIFIED IN THE PLANS SHALL BE LOCATED BY THE CONTRACTOR. DEVIATION FROM PLAN LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONDUIT AND/OR CLOSURE INSTALLATION.

IF ADDITIONAL, FIELD STAKING OR LOCATION OF CONDUITS, MANHOLES, PROPERTY LINES, ETC., BECOMES NECESSARY, THE CONTRACTOR IS TO NOTIFY THE INSPECTOR OR THE ENGINEER TWO WORKING DAYS PRIOR TO BEGINNING THE WORK.

PERMITS - FRANCHISES - EASEMENTS

PHYSICAL WORK SHALL NOT BE STARTED UNTIL THE GOVERNING AGENCY INSPECTOR AND THE CONTRACTOR ARE IN POSSESSION OF AND HAVE CAREFULLY REVIEWED AND FULLY UNDERSTAND ALL CONDITIONS AND SPECIFICATIONS SET FORTH IN THE REQUIRED PERMITS, FRANCHISES, AND/OR EASEMENTS.

PLACING FOREMAN TO HAVE A COPY OF THE PERMITS/EASEMENTS ON SITE AT ALL TIMES.

ANY CONFLICT BETWEEN WORK PRINT SPECIFICATIONS AND SPECIFICATIONS SET FORTH UNDER RELATED PERMITS, FRANCHISES, AND/OR EASEMENTS MUST BE CLEARED BY PROPER COMPANY AUTHORITY BEFORE PROGRESSING WITH WORK INVOLVED

TRAFFIC CONTROL

THIS PROJECT WILL INVOLVE WORKING ALONG A MAJOR ARTERIAL ROAD AND HEAVY TRAFFIC VOLUME SHOULD BE ANTICIPATED.

UNIFORM TRAFFIC FLOW SHALL BE MAINTAINED AT ALL TIMES. ONLY EQUIPMENT AND MATERIALS NECESSARY FOR IMMEDIATELY SCHEDULED OR IN PROGRESS WORK WILL BE MAINTAINED IN THE WORK AREA. ALL OTHER EQUIPMENT AND MATERIALS WILL BE "STORED OR STOCKPILED" IN SUCH A MANNER AS TO ELIMINATE HAZARDOUS CONDITIONS FOR TRAFFIC OR PEDESTRIANS DURING NON-WORKING OR SHUT DOWN PERIODS.

TRAFFIC WARNING DEVICES AND SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (U.S. GOVERNMENT PRINTING OFFICE) AND TO THE NORTH CAROLINA STATE HIGHWAY DIVISION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. HIGH LEVEL WARNING TYPE DEVICES ARE TO BE USED AT ALL TIMES AND SPECIAL WARNING DEVICES MAY BE STIPULATED BY THE JURISDICTIONAL PERMIT AGENCY AT ANY TIME THE USE WILL ADD TO THE SAFETY AND PROTECTION OF TRAFFIC OR PEDESTRIANS IN THE CONSTRUCTION AREA.

ALL CONDUIT TRENCHING IN PAVED AREAS SHALL BE BACKFILLED WITH CRUSHED GRAVEL OR COMPLETELY COVERED AT THE COMPLETION OF EACH WORKING DAY. ANY BACKFILLED TRENCH SHALL BE CAPPED WITH A MINIMUM LAYER OF ASPHALTIC CONCRETE COLD PATCH AT THE END OF EACH WORKING DAY.

THE CONTRACTOR SHALL MARK THE CONDUIT TRENCH AND DEFINE HIS CONSTRUCTION AREA CLEARLY WITH BARRICADES, CONES, AND/OR OTHER VISIBLE METHODS THAT ALERT THE PUBLIC OF THE CONSTRUCTION ACTIVITY.

A TRAFFIC CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AS REQUIRED AND SUBMITTED TO EACH PERMITTING AGENCY REQUESTING SUCH PLAN FOR REVIEW AND APPROVAL OR REVISION PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY FOR THIS PROJECT. THE APPROVED PLAN SHALL BE SUBMITTED TO THE AGENCY AND A COPY OF THE PLAN SHALL BE KEPT AT THE CONSTRUCTION SITE AND MUST BE READILY AVAILABLE REVIEW BY THE AGENCY REPRESENTATIVES.

SPECIAL UTILITY CLEARANCES

ALL WORK CONDUCTED ADJACENT TO WATER MAINS SHALL CONFORM TO THE FOLLOWING CONDITIONS:

A. WHEREVER POSSIBLE CONDUIT SHALL MAINTAIN A HORIZONTAL SEPARATION OF 3.0 FEET, MEASURED SURFACE TO SURFACE (OUTSIDE EDGE TO OUTSIDE EDGE), FROM PARALLEL WATER MAINS.

B. WHEREVER POSSIBLE, CONDUIT SHALL PASS UNDER EXISTING WATER MAINS AND MUST MAINTAIN 12" VERTICAL CLEAR SEPARATION. CONDUITS PASSING OVER WATER MAINS MUST ALSO MAINTAIN THE 12" VERTICAL SEPARATION.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THIS REQUIRED VERTICAL SEPARATION BY EITHER EXPOSING THE WATER MAIN EVERY 100 FEET IN THOSE AREAS WHERE HORIZONTAL SEPARATION IS LESS THAN 3.0 FEET OR BY UTILIZING THE DEPTHS OF ADJACENT WATER VALVES. IF THE CONTRACTOR UTILIZES THE ADJACENT WATER TO DETERMINE WATER MAIN DEPTH, HE SHALL CONTACT THE AGENCY AT EACH SUCH LOCATION AND THE AGENCY WILL DETERMINE THE NECESSARY DEPTH OF THE TOP OF THE CONDUIT AT THAT POINT.

D. THE VERTICAL AND HORIZONTAL SEPARATION SHALL BE MAINTAINED AT ALL TIMES UNLESS SPECIFICALLY REVISED BY AGREEMENT BETWEEN THE JURISDICTIONAL PERMIT AGENCY AND THE AGENCY ANY SPECIFIC DEVIATION IN VERTICAL AND HORIZONTAL SEPARATION FROM THOSE DESCRIBED SHALL BE REPORTED TO THE OWNER BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING VERTICAL AND HORIZONTAL SEPARATION AT ALL TIMES AND SHALL BE RESPONSIBLE FOR ANY AND ALL ENCROACHMENTS.

E. CLEARANCES TO STORM SEWERS AND SANITARY SEWERS SHALL BE EXACTLY THE SAME AS THOSE TO WATER MAINS.

STRUCTURE PROTECTION

MANHOLES AND CONDUIT TO BE PLACED ADJACENT TO EXISTING STRUCTURES SUCH AS BRIDGE BRIDGE FOOTINGS/PIERS, BUILDING FOUNDATIONS, WALLS, POWER AND TELEPHONE POLES, AND OTHER UTILITIES SHALL MAINTAIN A MINIMUM CLEARANCE AS SHOWN. THE CONTRACTOR SHALL NOT UNDERMINE ANY ADJACENT STRUCTURE WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER/OPERATOR OF SUCH STRUCTURE.

SHORING USED AS FOUNDATION SUPPORT SHALL BE DESIGNED SPECIFICALLY FOR BOTH THE LIVE AND DEAD LOADS OF THE STRUCTURE, OR IF ONLY THE DEAD LOAD IS USED FOR DESIGN, THE CONTRACTOR SHALL PROVIDE A DETAILED LAYOUT AND PLAN OF THE METHOD OF ESTABLISHING AND MAINTAINING THE DESIGN LOAD CONDITIONS (I.E., ROAD DETOURS, TIEBACKS, ETC.).

SEE UTILITY CLEARANCE SECTION NOTES FOR CLEARANCE CRITERIA TO PARALLEL OR CROSS UTILITIES.

EXISTING UTILITIES EXPOSED DURING EXCAVATION SHALL BE 100% SUPPORTED BY EITHER TRENCH BRIDGING AND SUSPENSION OR BY THE USE OF LONGITUDINAL TRAYS OR PLATFORMS VERTICALLY SUPPORTED BY ADJUSTABLE BUILDING JACKS.

EXISTING SPLICE CASES AND CABLES SHALL BE SUPPORTED BY SUSPENSION FROM A CROSSING BEAM. SUPPORTS SHALL BE PLACED AT A MAXIMUM SPACING OF 4.0 FEET AND SHALL CONSIST OF A CANVAS SLING WITH NYLON BELTING OR ROPE. ALL CABLE SUPPORTS SHALL BE PLACED IN A MANNER THAN PREVENTS KINKS OR OTHER DAMAGE TO THE CABLE SHEATH.

AN ACCEPTABLE ALTERNATIVE TO CABLE SLINGS WOULD BE THE UTILIZATION OF A WIDE FLANGE "I" BEAM OR CHANNEL AS A "CABLE TRAY" WITH THE CABLES/CASES BANDED IN PLACE.

SHORING

THE CONTRACTOR SHALL PROVIDE SHORING FOR CONDUIT TRENCH EXCAVATION 42" OR MORE IN DEPTH AS MEASURED FROM THE HIGH SIDE OF THE TRENCH AND FOR ALL MANHOLE EXCAVATION.

MANHOLE SHORING SHALL BE TIGHT-SHEETED.

ALL SHORING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF LOCAL CITY OF GREENSBORO AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

SHORING SHALL BE DESIGNED TO MEET H-20 HIGHWAY LOADING.

THE CONTRACTOR SHALL PROVIDE ALL SHORING AND DESIGN CALCULATIONS TO THE PERMIT ISSUING AGENCY PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY.

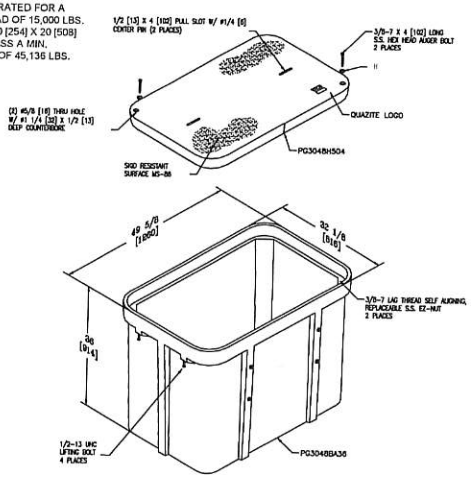
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

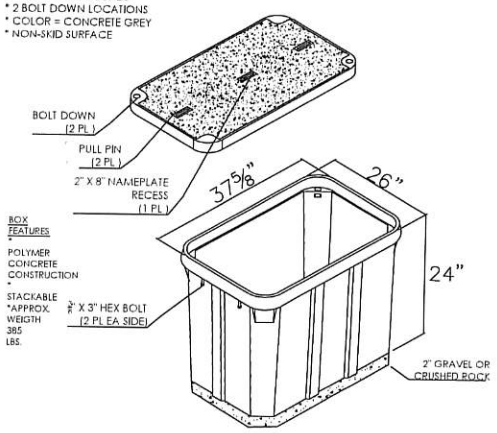
TYPICALS

FEATURES
THIS ASSEMBLY IS RATED FOR A STATIC DESIGN LOAD OF 15,000 LBS. [66,720 N] OVER A 10 [254] X 20 [508] AREA AND MUST PASS A MIN. STATIC TEST LOAD OF 45,136 LBS. [200,765 N].



"36 x 48" x 30" HANDHOLE. HUBBELL MODEL PG3048BA36 OR EQUAL

COVER FEATURES:
* STANDARD LOAD RATING: 45,136 POUND WHEEL LOAD ON 10 X 20 PLATE
* POLYMER CONCRETE CONSTRUCTION
* WEIGHT = 220 POUNDS
* 2 BOLT DOWN LOCATIONS
* COLOR = CONCRETE GREY
* NON-SKID SURFACE



BOX FEATURES
* POLYMER CONCRETE CONSTRUCTION
* STACKABLE
* APPROX. WEIGTH 385 LBS.

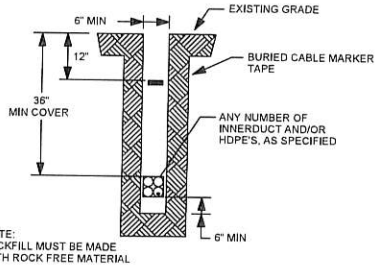
3/4" X 3" HEX BOLT (2 PL EA SIDE)

24" x 36" x 24" NCDOT APPROVED HANDHOLE WITH EXTRA REBAR IN LID. HUBBELL MODEL PG24362950 OR PG24362952 OR EQUAL

PLACEMENT - TYPICALS

TYPICAL "A"

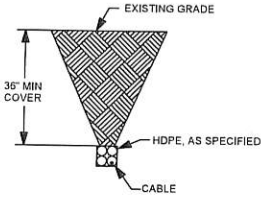
PLACE CONDUIT CROSS SECTION

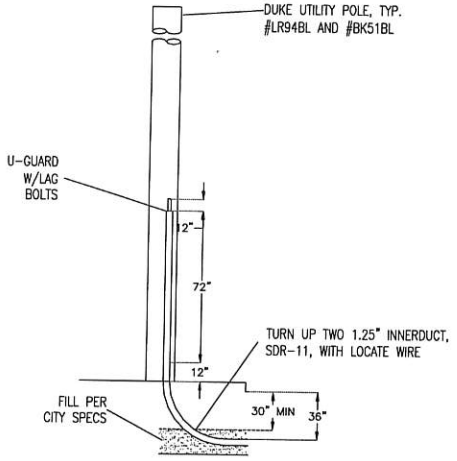


NOTE:
BACKFILL MUST BE MADE WITH ROCK FREE MATERIAL

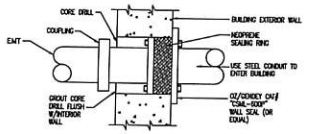
TYPICAL "B"

PLACE HDPE (DIRECTIONAL BORE) CROSS SECTION





POLE DETAIL
N.T.S.



TYPICAL DETAIL – #14
CONDUIT SEAL

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

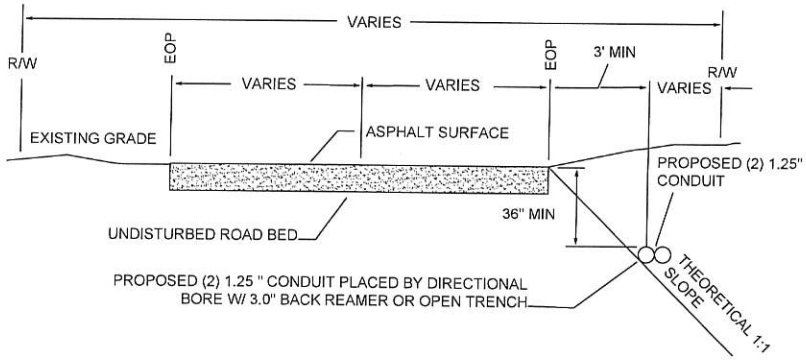
PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY SHEET D OF 14

TYPICALS

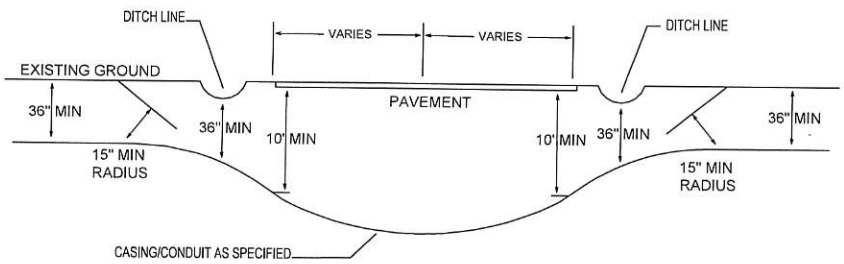
PARALLEL CONDUIT DETAIL FOR NCDOT RIGHT-OF-WAY

NOT TO SCALE



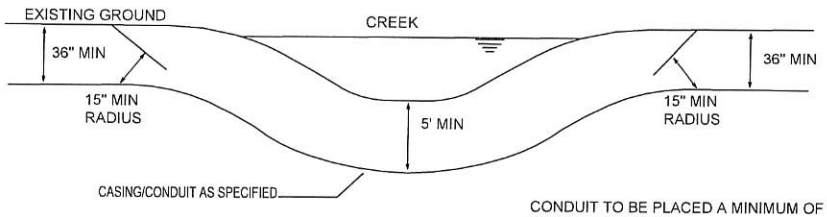
DIRECTIONAL BORE UNDER SECONDARY ROADWAY

NOT TO SCALE



DIRECTIONAL BORE UNDER CREEK BED

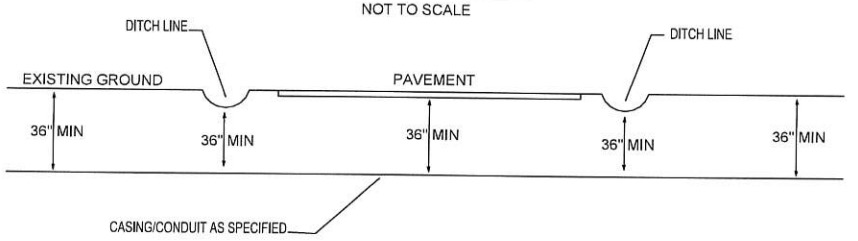
NOT TO SCALE

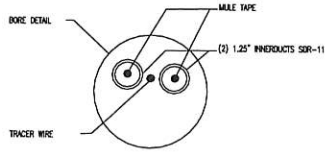


CONDUIT TO BE PLACED A MINIMUM OF 5 FEET BELOW CREEK BED

DRY BORE UNDER ROADWAY

NOT TO SCALE





BORE DETAIL WITH
(2) 1-1/4" INNERDUCTS, SDR-11

N.T.S.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

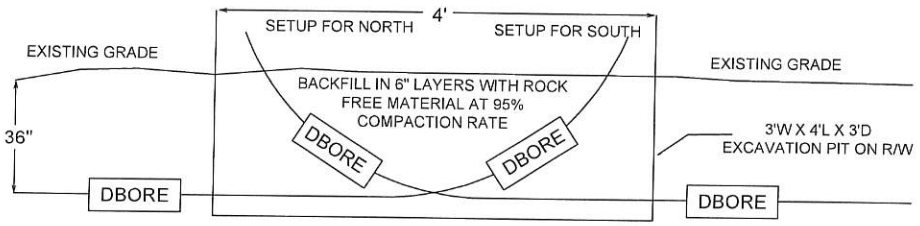
PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY SHEET E OF 14

TYPICALS

DIRECTIONAL BORE TIE-IN DETAIL

NOT TO SCALE

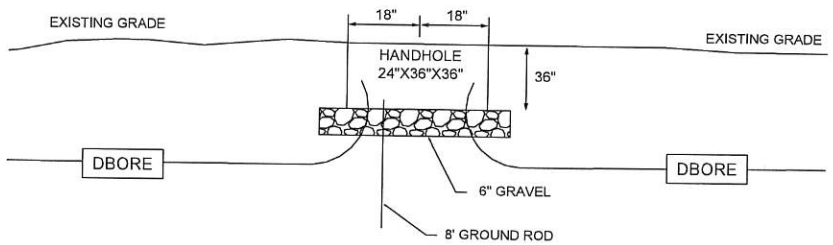


TIE-IN STATION

- BORE FROM EACH DIRECTION IS RUN AT DESIGN DEPTH TO 2 FEET PAST THE INTENDED TIE-IN. THEN TURNED UP TO DAYLIGHT.
- THE TIE-IN POINT IS EXCAVATED. THE CONDUITS CUT OFF WHERE THEY CROSS EACH OTHER AT DESIGN DEPTH, AND A COUPLER IS INSTALLED TO CONNECT THE TWO CONDUITS AT THE DESIGN DEPTH.
- ALL EXCAVATIONS OR TRENCHES 4 FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED IN OSHA'S EXCAVATION STANDARD, 29 CFR 1926.650, .651, AND .652

HANDHOLE CONSTRUCTION DETAILS, CONDUIT TO HANDHOLE PROFILE FOR R/W CONSTRUCTION

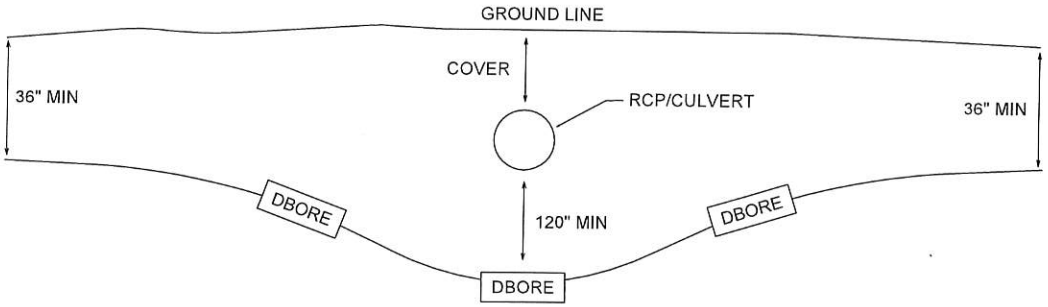
NOT TO SCALE



ALL EXCAVATIONS OR TRENCHES 4FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED ACCORDING TO THE PROCEDURES AND REQUIREMENTS SET FORTH IN OSHA'S EXCAVATION STANDARD, 29 CFR 1926.650, .651, AND .652.

CULVERT CROSSING DETAIL

NOT TO SCALE



NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATERIALS RAKE-OFF

Total Underground Rake Off			
Unit Code & Description	Units	Estimated Quantity	Actual Quantity
144-COUNT FIBER OPTIC CABLE (5% ADDER INCLUDED)	FT	14,624	
24-COUNT FIBER OPTIC CABLE (5% ADDER INCLUDED)	FT	2,349	
(2) 1.25" HDPE SDR 11 CONDUIT (5% ADDER INCLUDED)	FT	12,075	
(3) 1.25" HDPE SDR 11 CONDUIT (5% ADDER INCLUDED)	FT	71	
(1) 4" HDPE SDR 11 CONDUIT (5% ADDER INCLUDED)	FT	615	
HANDHOLES - 30" X 48" X 36"	EACH	15	
HANDHOLES - 24" X 36" X 24"	EACH	12	
FIBER MARKER POST	EACH	28	
CUT AND RESTORE CONCRETE SIDEWALK	SQ. FT	425	
CUT AND RESTORE BRICK PAVERS	SQ. FT	225	

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 2

SECTION 2
SHEETS 1–7

FIBER SECTION 5 – (SHEETS 1–14)
(1) 144 FIBER OPTIC CABLE (DIELECTRIC)
LATERAL B:
LINEAR FOOTAGE – 3,559'
MEASURED LENGTH – 4,359'
CUT LENGTH – 4,577'

975' FROM HANDHOLE TO HANDOLE

PLACE:
•(1) 30"x48"x36" HANDHOLE
•LEAVE 100' SLACK LOOP 144 BACKBONE FIBER
•STUB CONDUIT FROM EXISTING VZW HH TO PORPOSED HH
•CUT AND RESTORE 25 SQ. FT CONCRETE SIDEWALK

144 FIBER TO BE PLACED BY UTILIS INTO MACRO

VERIZON HANDHOLE TO BE PLACED BY VERIZON. SEE VZW SOW

BORE TO MAINTAIN MINIMUM DEPTH OF 4' BELOW CITY MAINTAINED ROADWAY

PLACE:
•(1) 30"x48"x36" HANDHOLE
•LEAVE 100' SLACK LOOP 144 BACKBONE FIBER
•LEAVE 100' SLACK LOOP 144 LATERAL B FIBER
•CUT AND RESTORE 25 SQ. FT CONCRETE SIDEWALK

DIRECTIONAL BORE:
- (2) 1.25" HDPE SDR 11 CONDUIT
- (1) 144 DIELECTRIC FIBER
- (1) TRACER WIRE
- (1) MULE TAPE
- MINIMUM DEPTH = 36"

PLACE:
•(1) 30"x48"x36" HANDHOLE
•LEAVE 100' SLACK LOOP 144 BACKBONE FIBER
•LEAVE 100' SLACK LOOP 144 LATERAL A FIBER
•CUT AND RESTORE 25 SQ. FT BRICK PAVERS

FIBER SECTION 2 – (SHEETS 1–10)
(1) 144 FIBER OPTIC CABLE (DIELECTRIC)
LATERAL A:
LINEAR FOOTAGE – 2,497'
MEASURED LENGTH – 2,997'
CUT LENGTH – 3,147'

DIRECTIONAL BORE:
- (2) 1.25" HDPE SDR 11 CONDUIT
- (1) 144 DIELECTRIC FIBER
- (1) TRACER WIRE
- (1) MULE TAPE
- MINIMUM DEPTH = 36"

400' FROM HANDHOLE TO HANDOLE

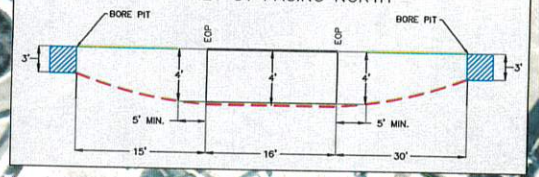
BORE TO MAINTAIN MINIMUM DEPTH OF 4' BELOW CITY MAINTAINED ROADWAY

FIBER SECTION 1 – (SHEETS 1–14)
(1) 144 FIBER OPTIC CABLE (DIELECTRIC)
BACKBONE:
LINEAR FOOTAGE – 3,738'
MEASURED LENGTH – 4,638'
CUT LENGTH – 4,870'

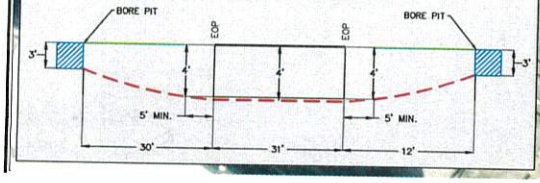
DIRECTIONAL BORE:
- (2) 1.25" HDPE SDR 11 CONDUIT
- (1) 144 DIELECTRIC FIBER
- (1) TRACER WIRE
- (1) MULE TAPE
- MINIMUM DEPTH = 36"

PLACE:
•(1) 24"x36"x24" HANDHOLE.
•LEAVE 100' SLACK LOOP
•CUT AND RESTORE 25 SQ. CONCRETE SIDEWALK

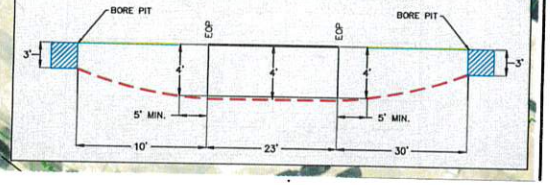
CROSSING PROFILE
MARKET ST FACING NORTH



CROSSING PROFILE
W MAIN ST FACING NORTHWEST



CROSSING PROFILE
N CORCORAN ST FACING NORTH



HANDHOLE - SPLICE DETAIL
PROPOSED HANDHOLE
144 BACKBONE FIBER
144 LATERAL B FIBER
144 BACKBONE FIBER
90°
100°
90°

HANDHOLE - SPLICE DETAIL
PROPOSED HANDHOLE
144 BACKBONE FIBER
144 LATERAL A FIBER
144 BACKBONE FIBER
90°
100°
90°

RAMSEUR ST (US-70-BUS)

S CORCORAN ST (CITY MAINTAINED)

N CORCORAN ST (CITY MAINTAINED)

W MAIN ST (CITY MAINTAINED)

MAIN ST (CITY MAINTAINED)

MATCH TO SHEET 8

MATCH TO SHEET 1A

691

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

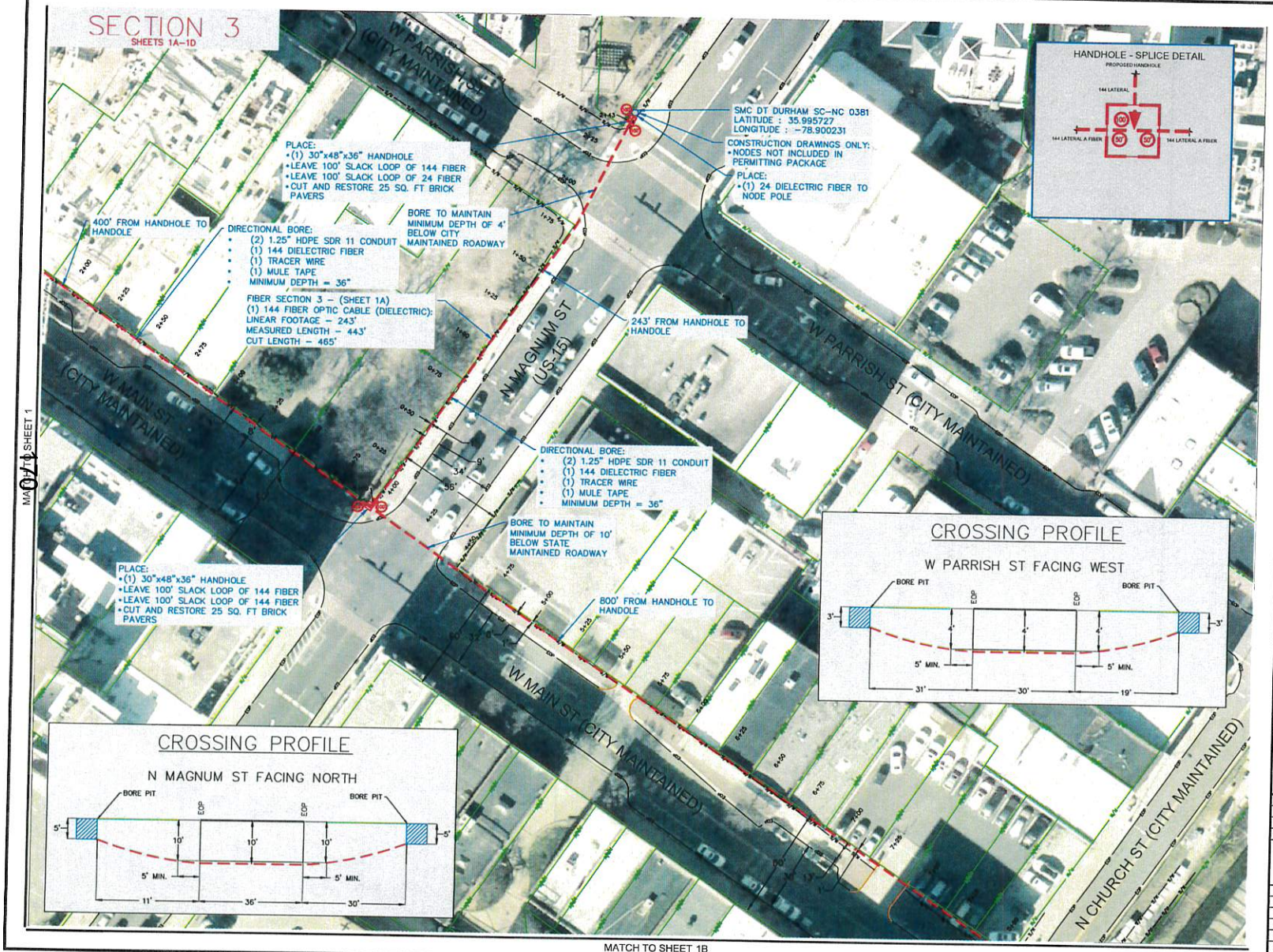
(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below
Call before you dig.

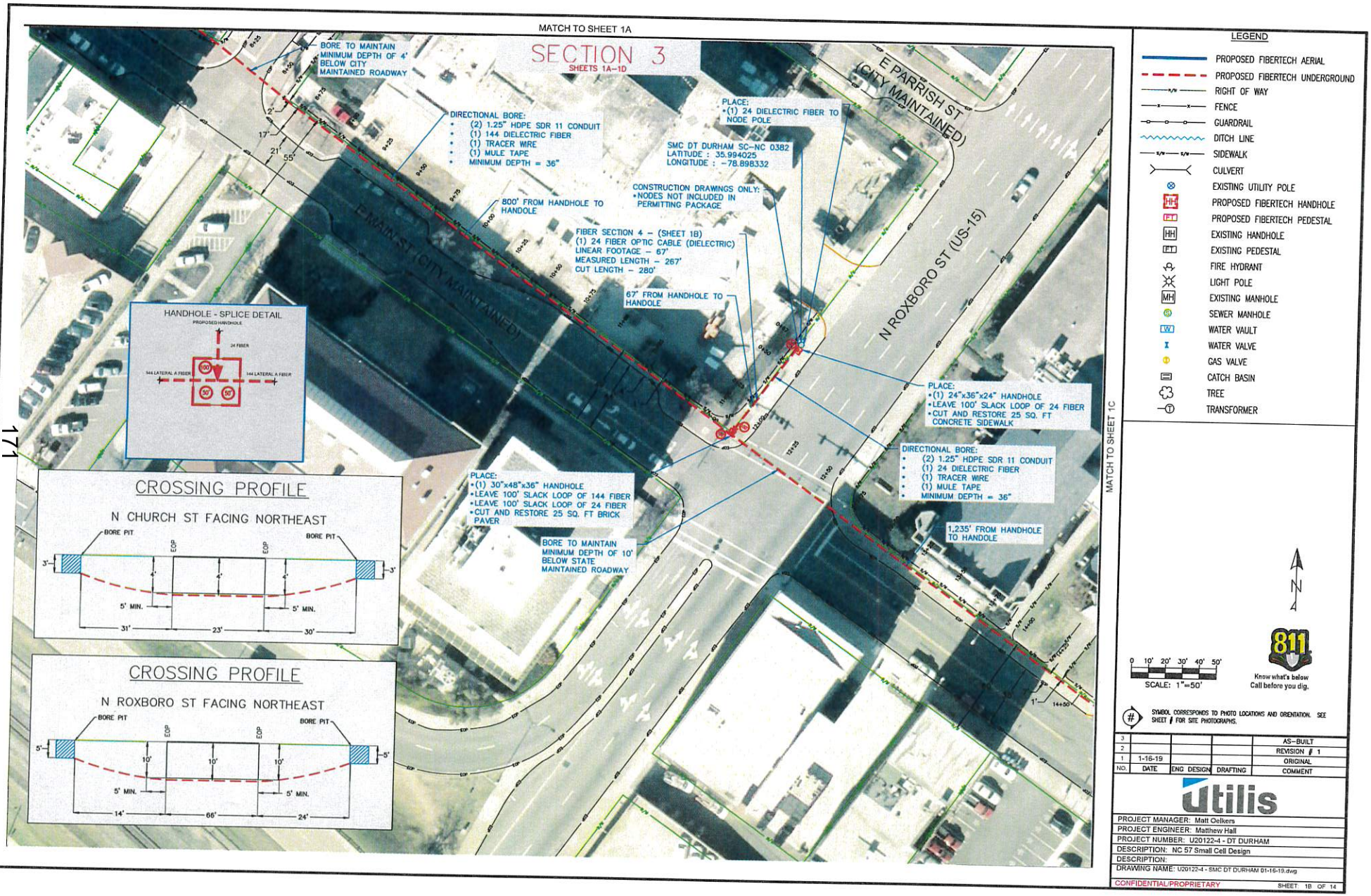
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

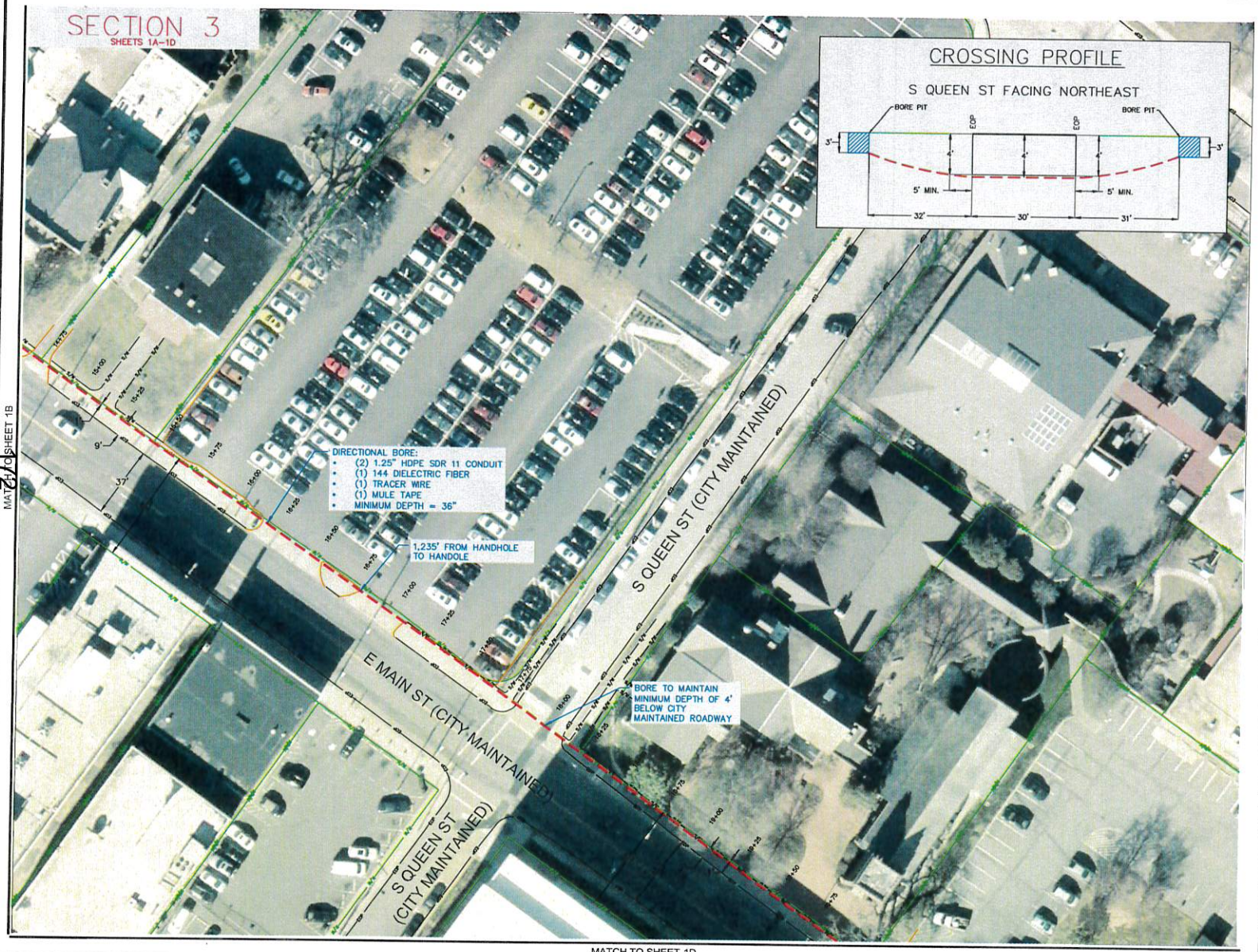
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS–BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY


MATCH TO SHEET 1A
SECTION 3
SHEETS 1A–1D
BORE TO MAINTAIN MINIMUM DEPTH OF 4' BELOW CITY MAINTAINED ROADWAY
DIRECTIONAL BORE:
• (2) 1.25" HDPE SDR 11 CONDUIT
• (1) 144 DIELECTRIC FIBER
• (1) TRACER WIRE
• (1) MULE TAPE
• MINIMUM DEPTH = 36"
800' FROM HANDHOLE TO HANDOLE
PLACE:
•(1) 24 DIELECTRIC FIBER TO NODE POLE
SMC DT DURHAM SC-NC 0382
LATITUDE : 35.994025
LONGITUDE : -78.898332
CONSTRUCTION DRAWINGS ONLY:
•NODES NOT INCLUDED IN PERMITTING PACKAGE
FIBER SECTION 4 – (SHEET 1B)
(1) 24 FIBER OPTIC CABLE (DIELECTRIC)
LINEAR FOOTAGE – 67'
MEASURED LENGTH – 267'
CUT LENGTH – 280'
67' FROM HANDHOLE TO HANDOLE
E PARRISH ST (CITY MAINTAINED)
E MAIN ST (CITY MAINTAINED)
N ROXBORO ST (US-15)
HANDHOLE - SPLICE DETAIL
PROPOSED HANDHOLE
24 FIBER
144 LATERAL A FIBER
144 LATERAL A FIBER
100'
50'
50'
PLACE:
•(1) 24"x36"x24" HANDHOLE
•LEAVE 100' SLACK LOOP OF 24 FIBER
•CUT AND RESTORE 25 SQ. FT CONCRETE SIDEWALK
DIRECTIONAL BORE:
• (2) 1.25" HDPE SDR 11 CONDUIT
• (1) 24 DIELECTRIC FIBER
• (1) TRACER WIRE
• (1) MULE TAPE
• MINIMUM DEPTH = 36"
PLACE:
•(1) 30"x48"x36" HANDHOLE
•LEAVE 100' SLACK LOOP OF 144 FIBER
•LEAVE 100' SLACK LOOP OF 24 FIBER
•CUT AND RESTORE 25 SQ. FT BRICK PAVER
BORE TO MAINTAIN MINIMUM DEPTH OF 10' BELOW STATE MAINTAINED ROADWAY
1,235' FROM HANDHOLE TO HANDOLE
CROSSING PROFILE
N CHURCH ST FACING NORTHEAST
BORE PIT
BORE PIT
EOP
EOP
3'
4'
4'
4'
3'
5' MIN.
5' MIN.
31'
23'
30'
CROSSING PROFILE
N ROXBORO ST FACING NORTHEAST
BORE PIT
BORE PIT
EOP
EOP
5'
10'
10'
10'
5'
5' MIN.
5' MIN.
14'
66'
24'
MATCH TO SHEET 1C
LEGEND
PROPOSED FIBERTECH AERIAL
PROPOSED FIBERTECH UNDERGROUND
RIGHT OF WAY
FENCE
GUARDRAIL
DITCH LINE
SIDEWALK
CULVERT
EXISTING UTILITY POLE
PROPOSED FIBERTECH HANDHOLE
PROPOSED FIBERTECH PEDESTAL
EXISTING HANDHOLE
EXISTING PEDESTAL
FIRE HYDRANT
LIGHT POLE
EXISTING MANHOLE
SEWER MANHOLE
WATER VAULT
WATER VALVE
GAS VALVE
CATCH BASIN
TREE
TRANSFORMER
N
0 10' 20' 30' 40' 50'
SCALE: 1"=50'
811
Know what's below Call before you dig.
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.
3 AS-BUILT
2 REVISION # 1
1 1-16-19 ORIGINAL
NO. DATE ENG DESIGN DRAFTING COMMENT
Utilis
PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg
CONFIDENTIAL/PROPRIETARY
SHEET 1B OF 14



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- R/W — RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

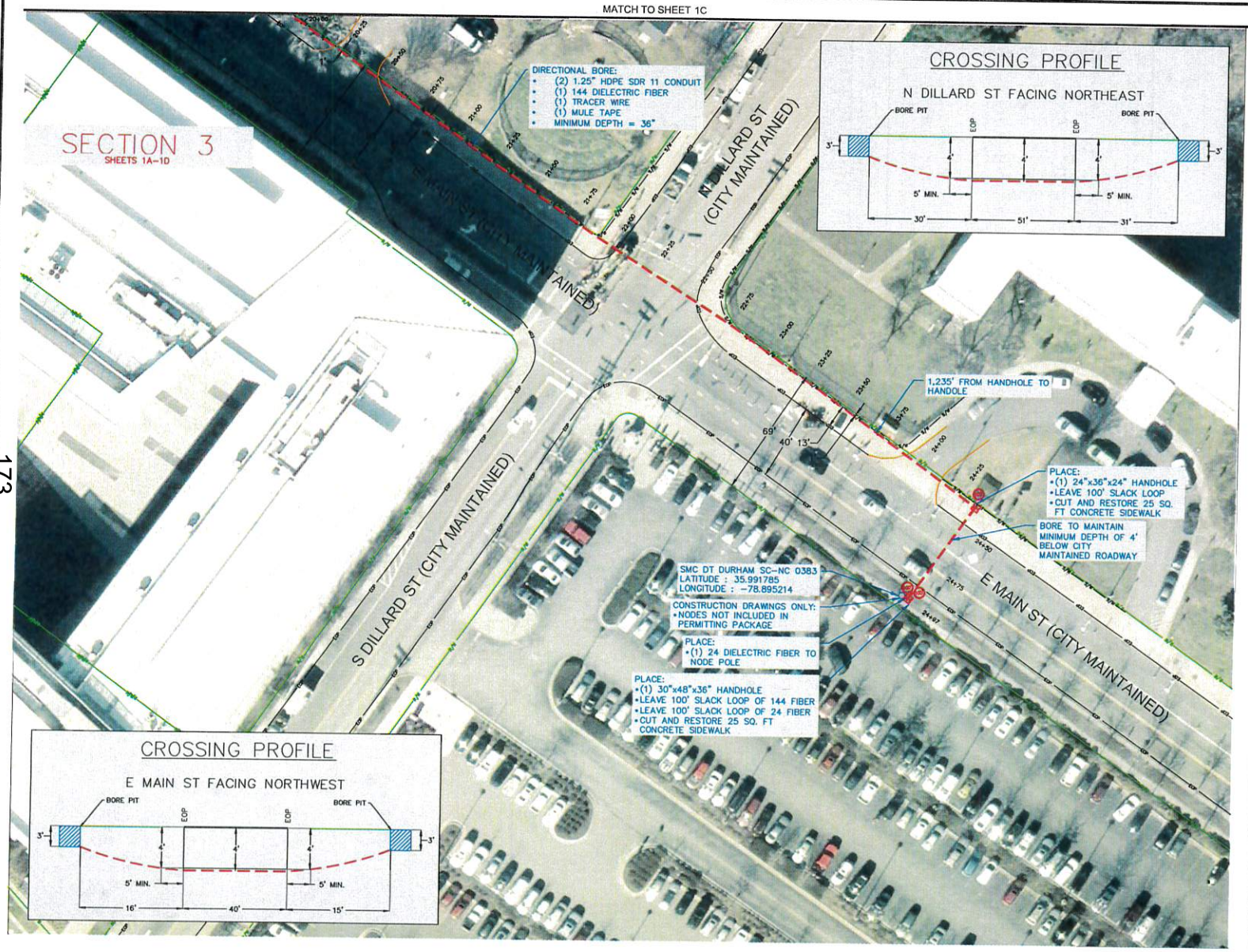
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 1C



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- R/W — RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- S/W — SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

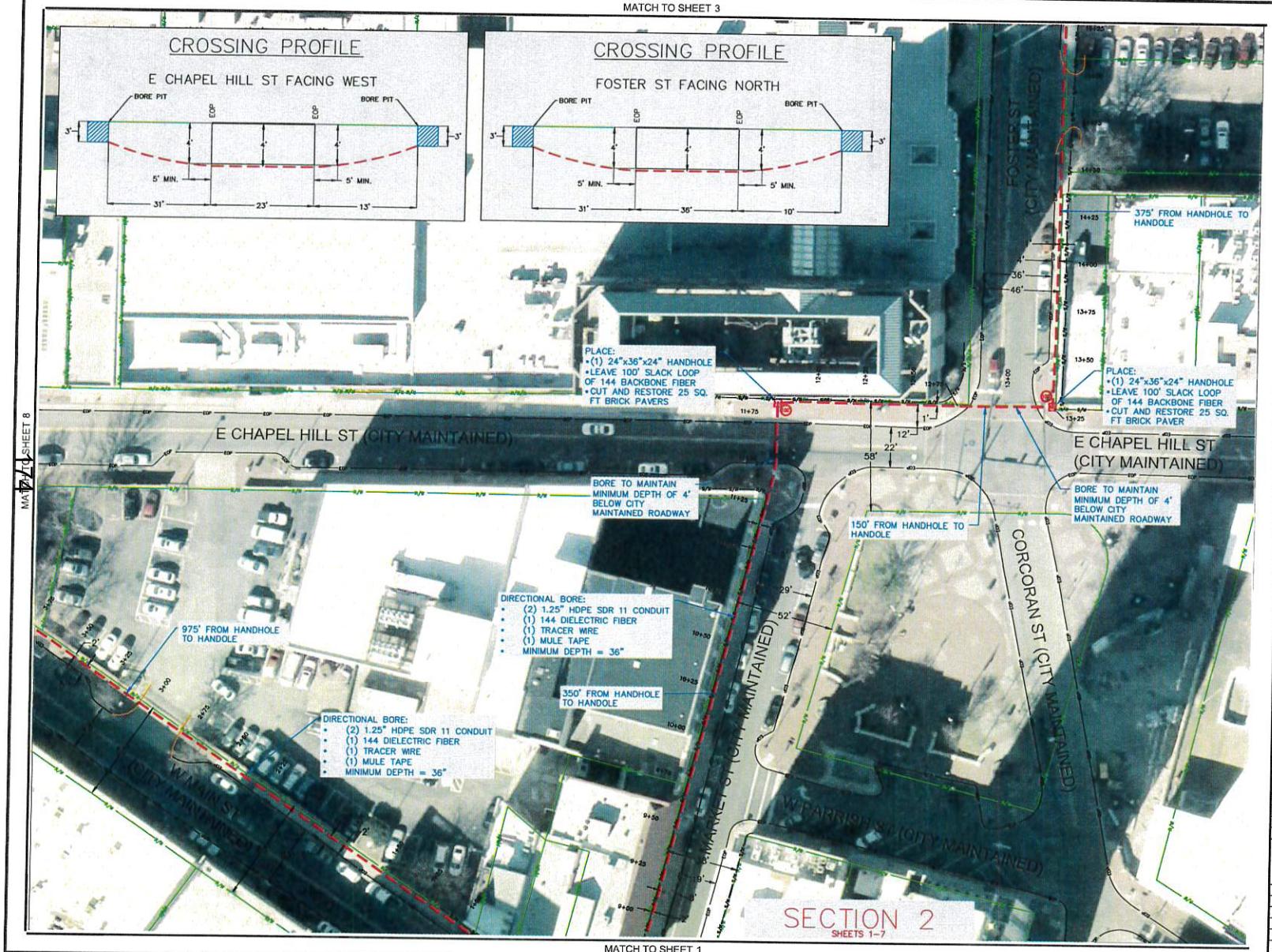
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-15-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 3



MATCH TO SHEET 8

MATCH TO SHEET 1

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

0 10' 20' 30' 40' 50'
SCALE: 1"=50'

811 Know what's below Call before you dig.

(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG. DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY SHEET: 2 OF 14



175

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

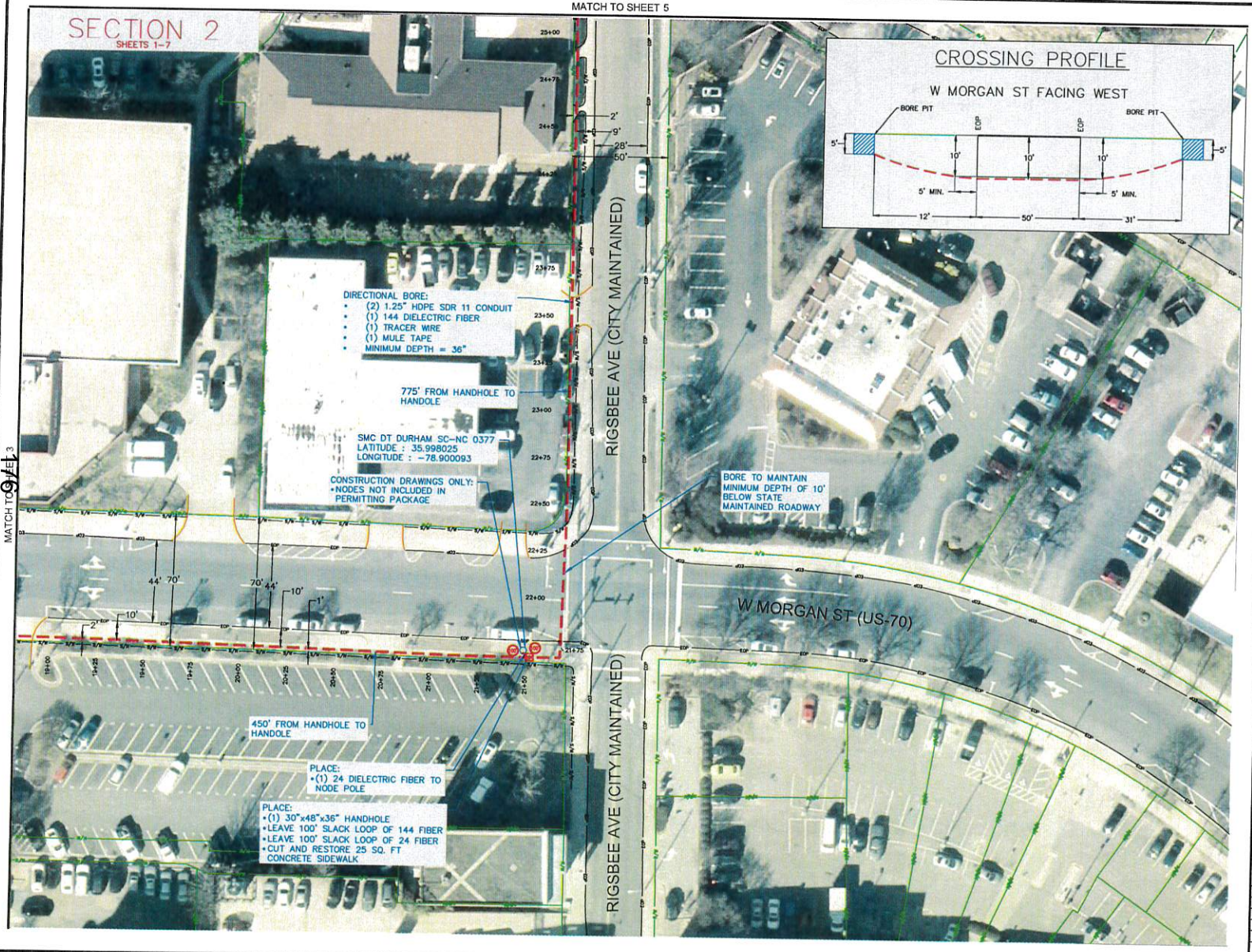
Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 5

SECTION 2
SHEETS 1–7



MATCH TO SHEET 3

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

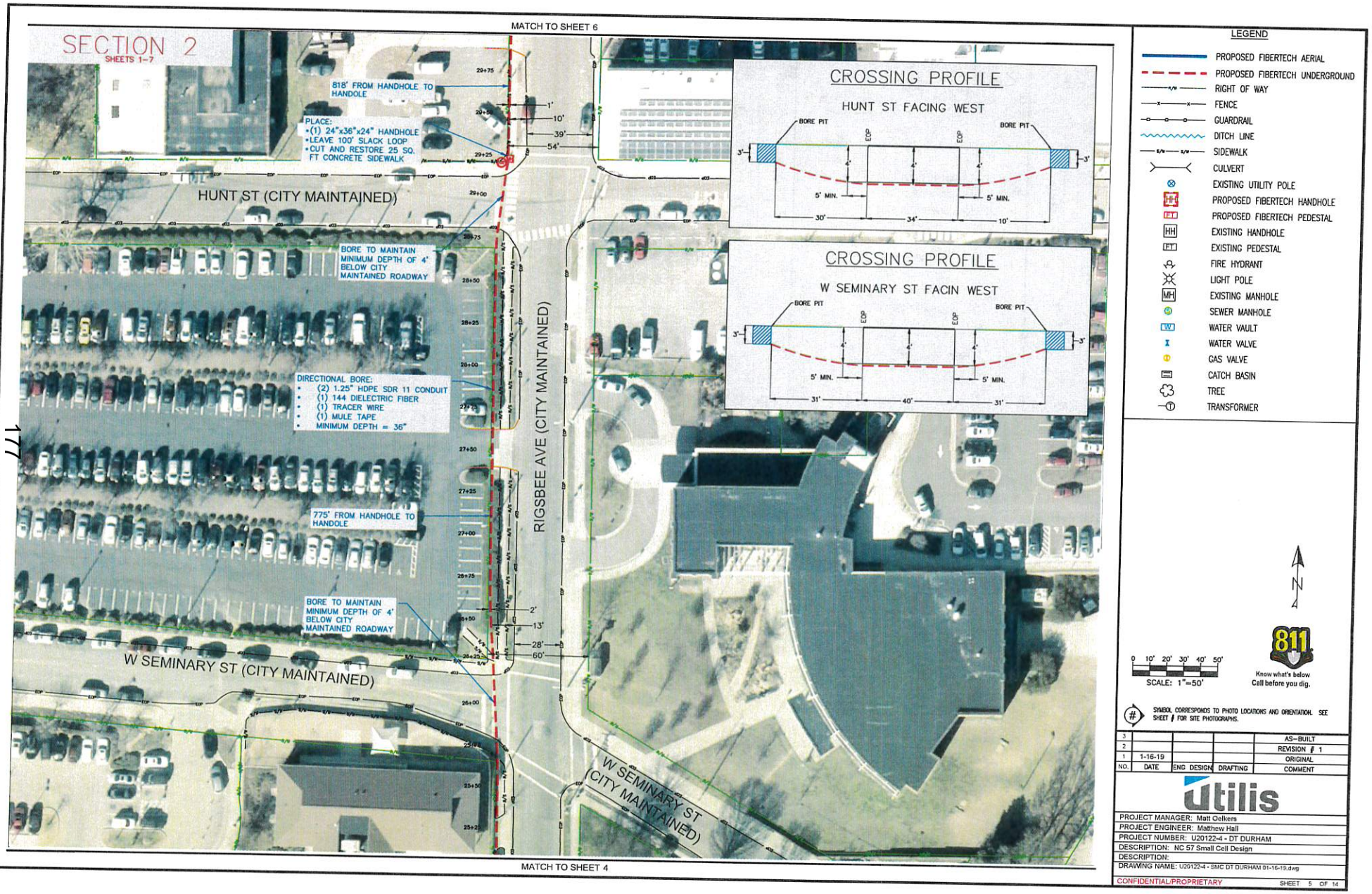
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

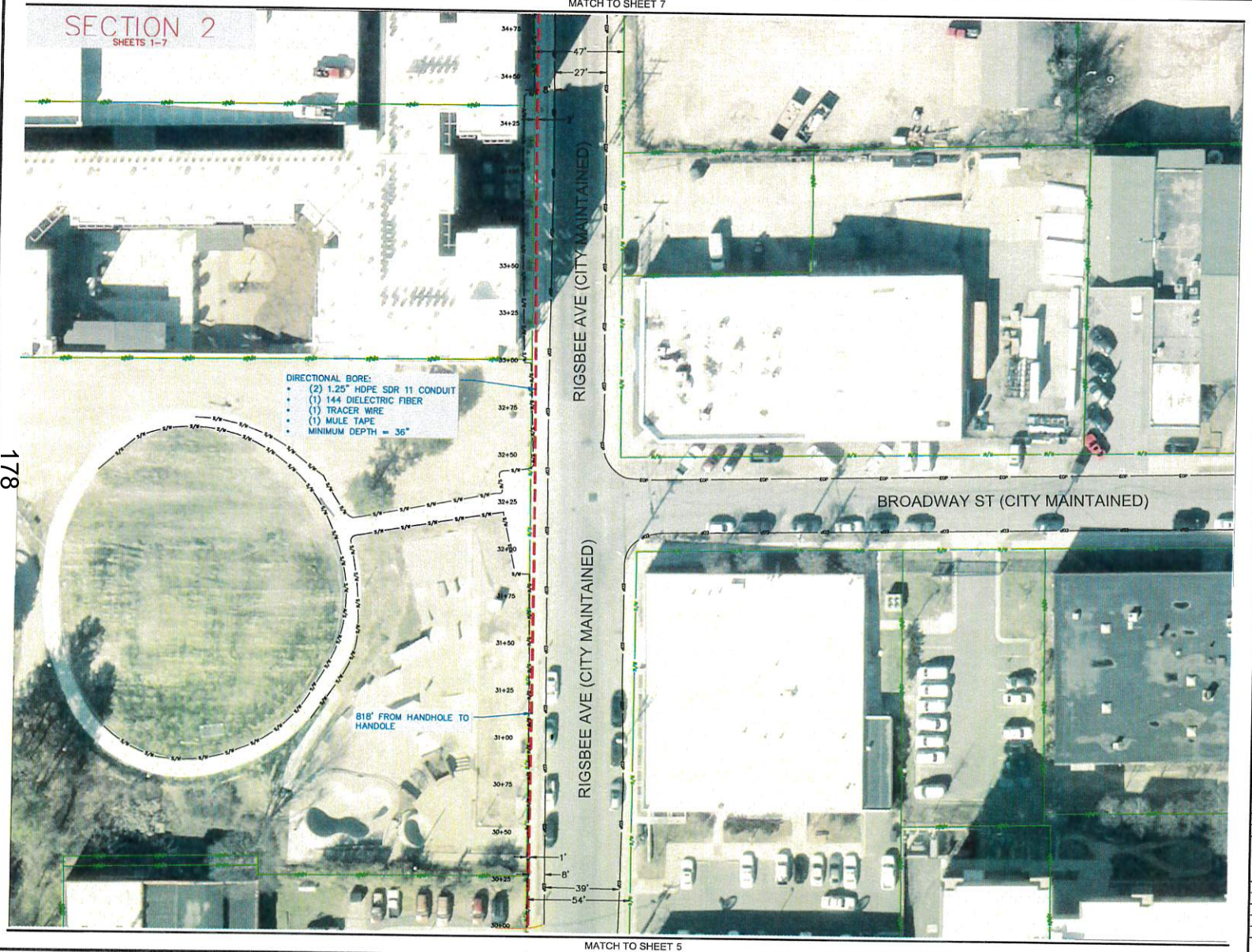
Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 7

SECTION 2
SHEETS 1-7



MATCH TO SHEET 5

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'
0 10' 20' 30' 40' 50'

811 Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

SECTION 2

SHEETS 1-7



CROSSING PROFILE

W CORPORATION ST FACING WEST

MATCH TO SHEET 6

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

0 10' 20' 30' 40' 50'

SCALE: 1"=50'

811 Know what's below Call before you dig.

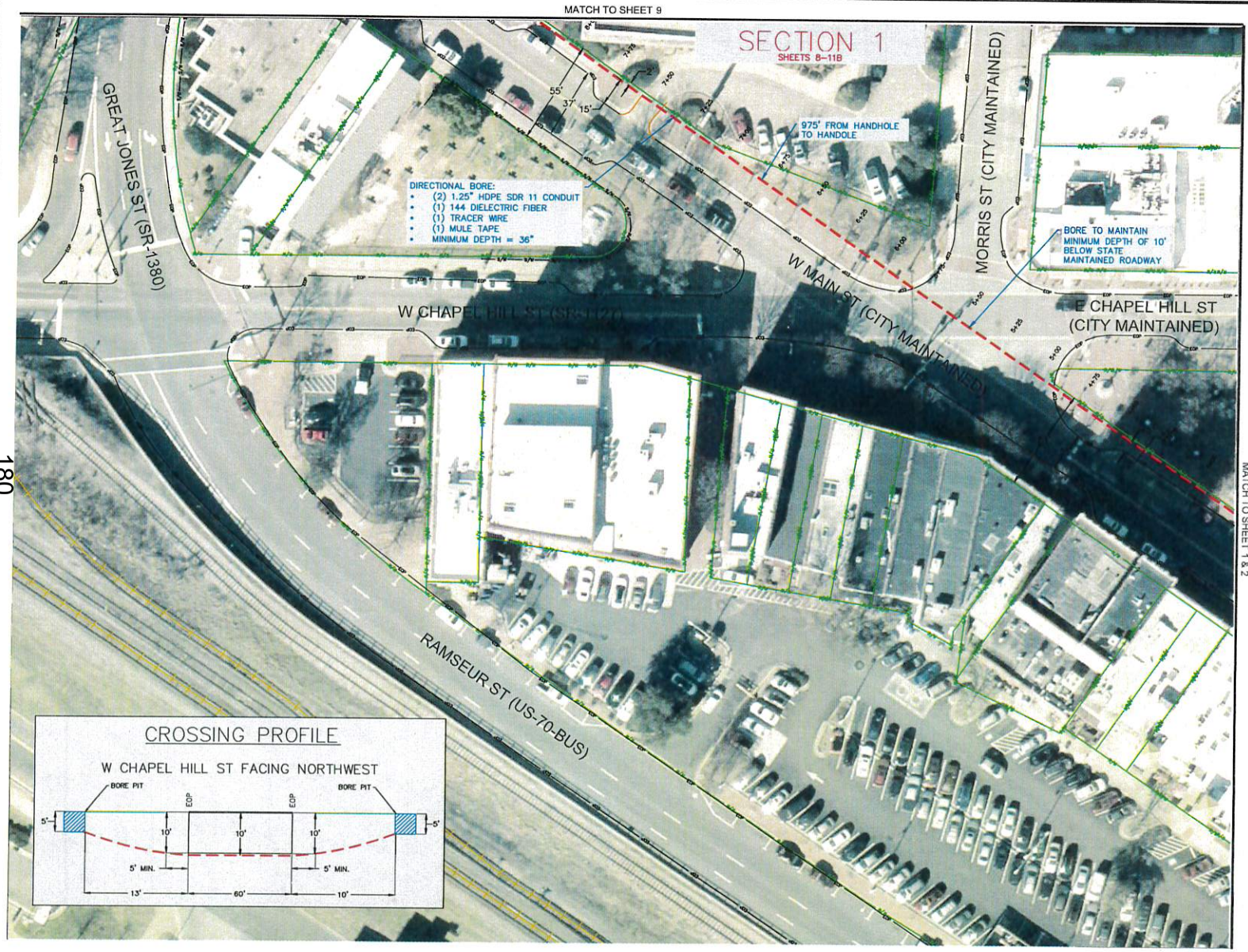
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY



MATCH TO SHEET 1 & 2

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

0 10' 20' 30' 40' 50'
SCALE: 1"=50'

811 Know what's below Call before you dig.

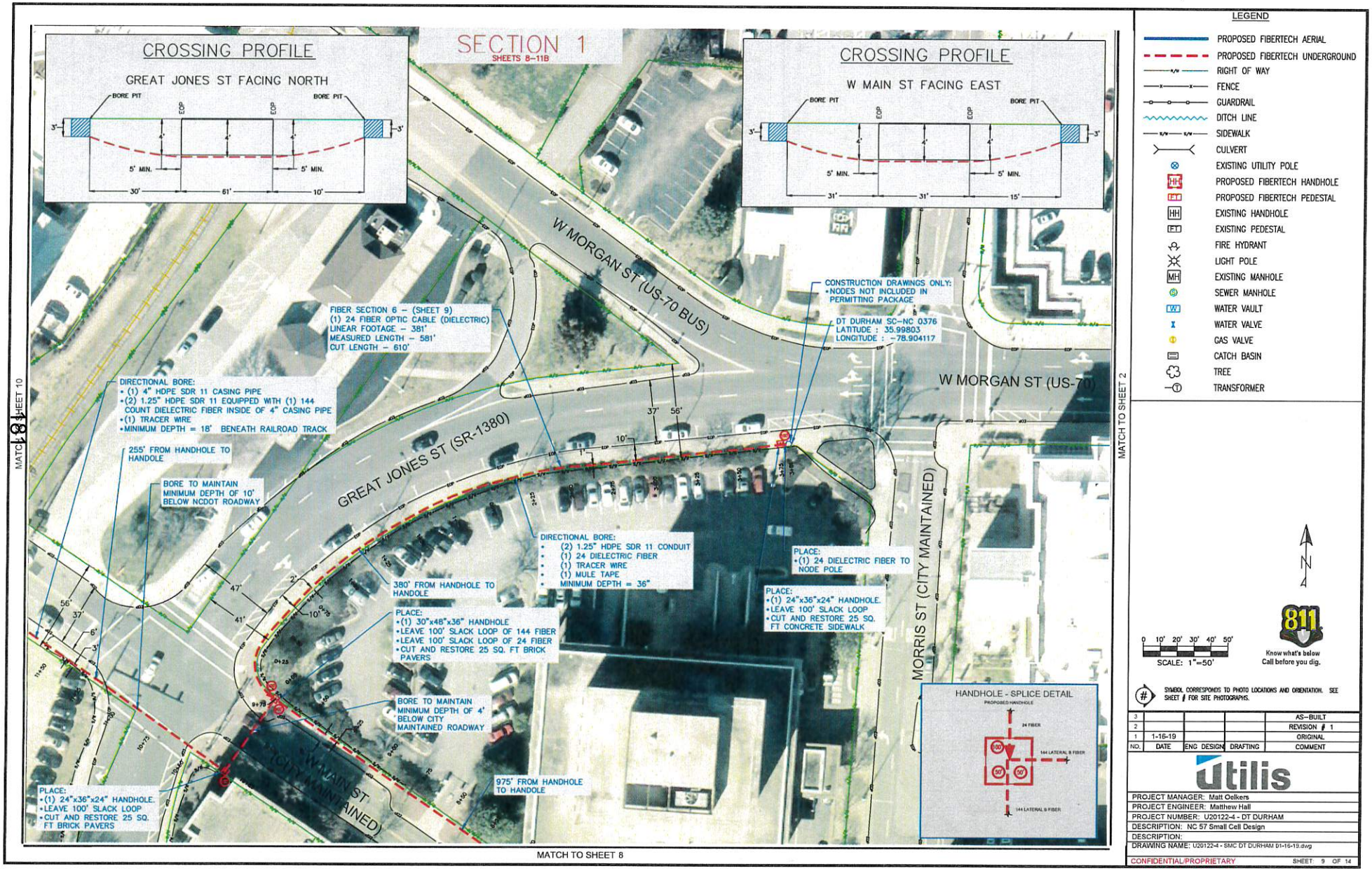
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SNC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below Call before you dig.

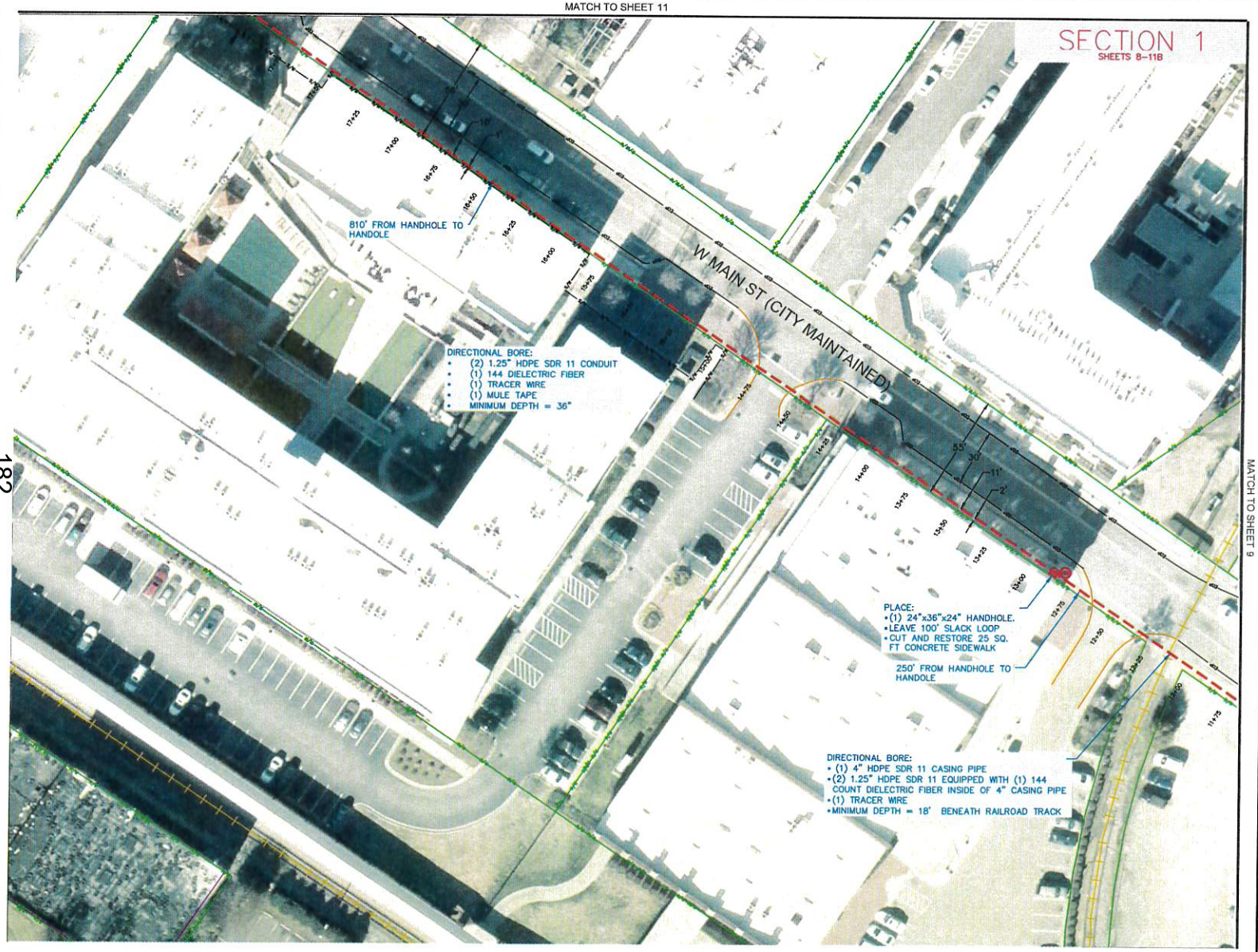
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS–BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

MATCH TO SHEET 11



MATCH TO SHEET 9

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below
Call before you dig.

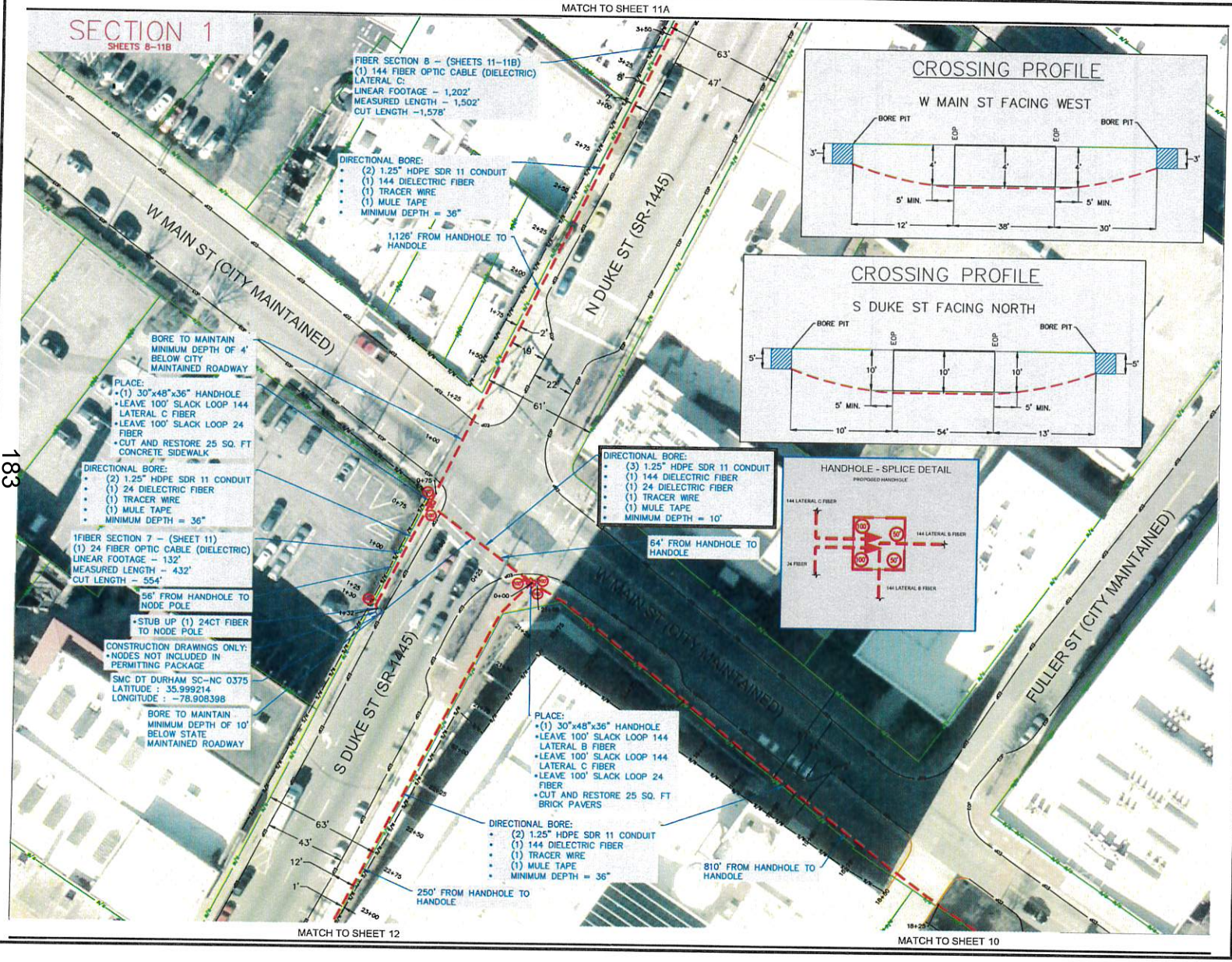
SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 11B

SECTION 1

SHEETS 8–11B

CROSSING PROFILE

W MORGAN ST FACING WEST



MATCH TO SHEET 11

184

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

SECTION 1

SHEETS 8–11B



MATCH TO SHEET 11A

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

811 Know what's below Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

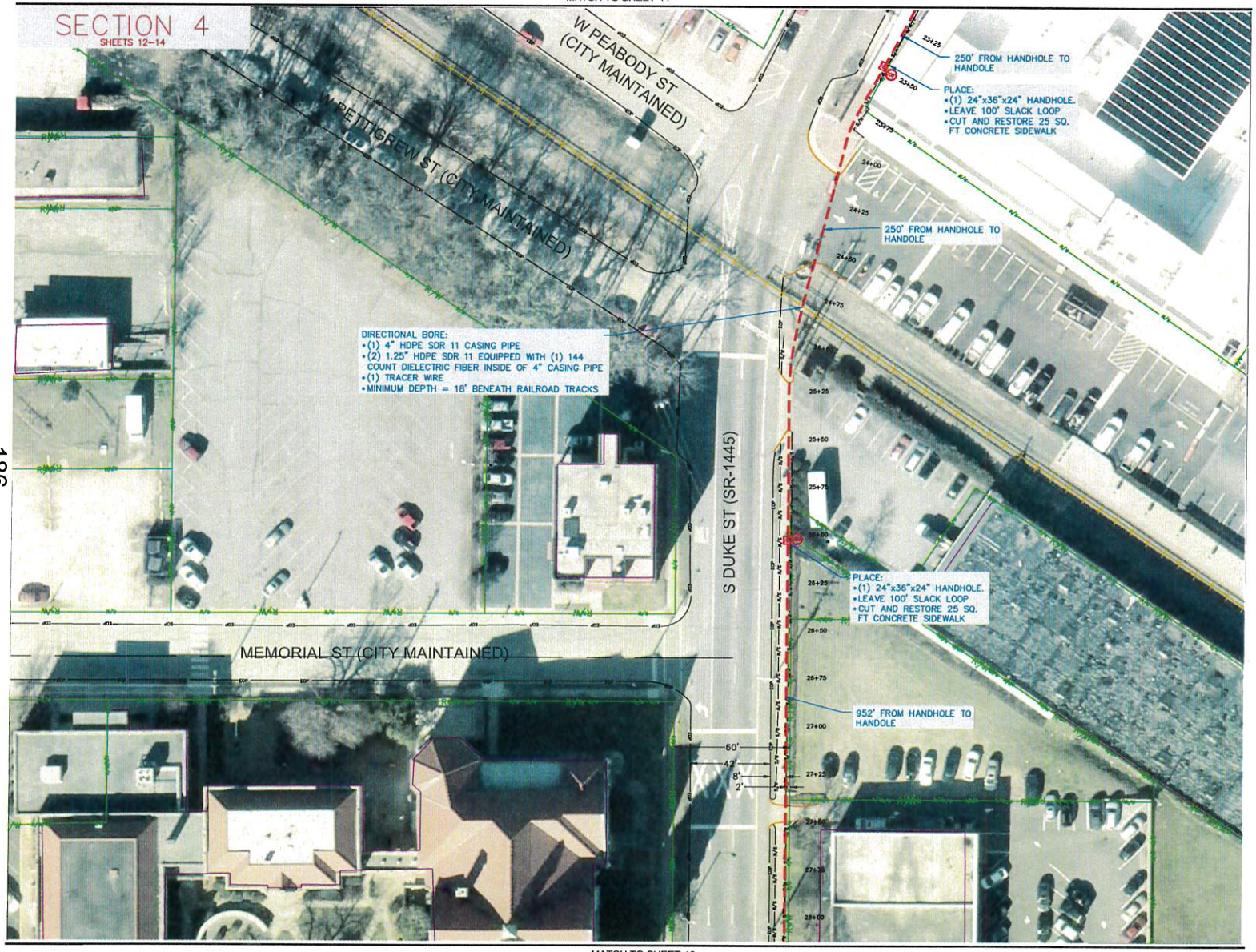
Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 11

SECTION 4
SHEETS 12–14



MATCH TO SHEET 13

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

SCALE: 1"=50'

Know what's below
Call before you dig.

SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 12

SECTION 4
SHEETS 12–14



CROSSING PROFILE

W CHAPEL HILL ST FACING EAST

MATCH TO SHEET 14

187

LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

0 10' 20' 30' 40' 50'
SCALE: 1"=50'

811 Know what's below Call before you dig.

(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

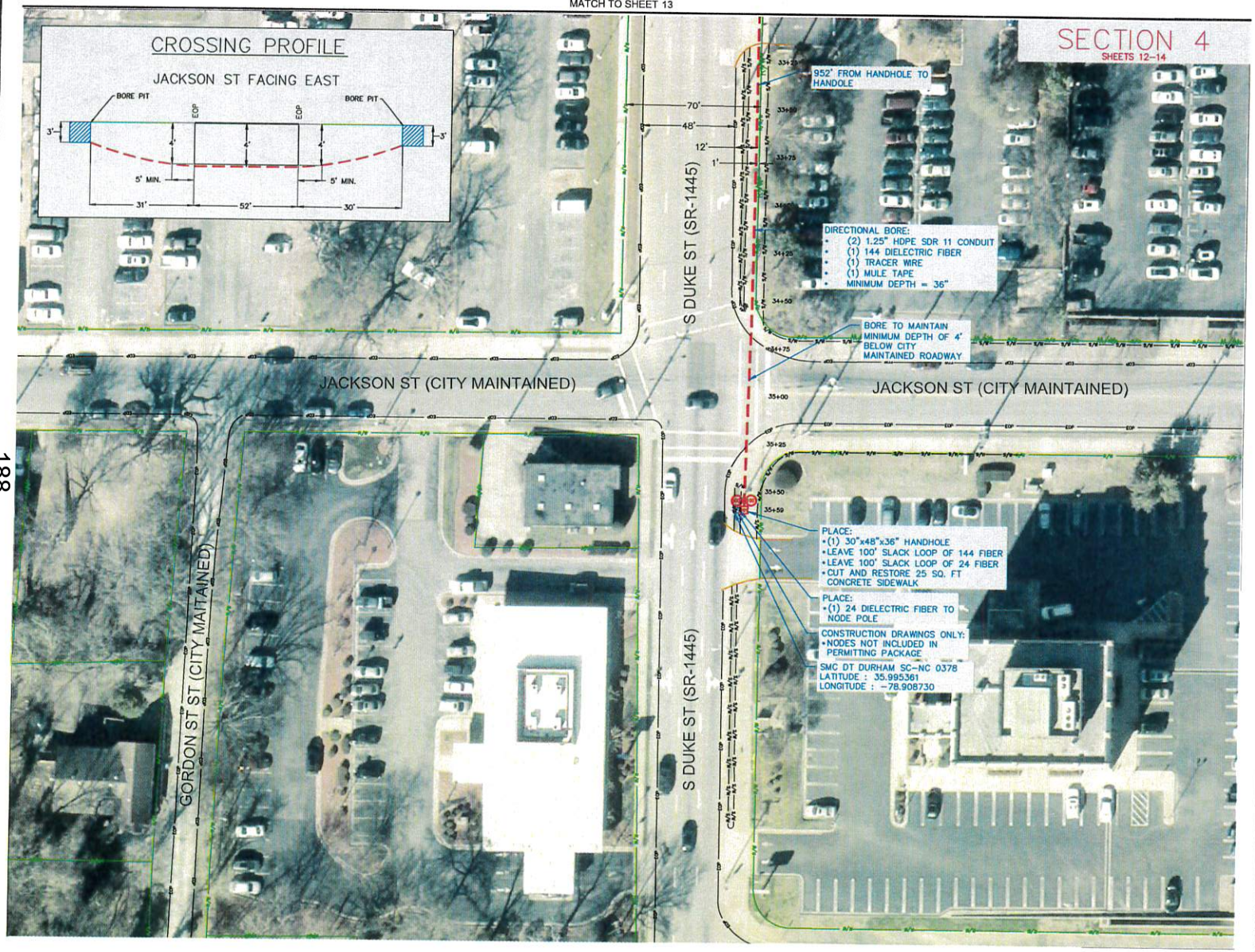
NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

MATCH TO SHEET 13



LEGEND

- PROPOSED FIBERTECH AERIAL
- PROPOSED FIBERTECH UNDERGROUND
- RIGHT OF WAY
- FENCE
- GUARDRAIL
- DITCH LINE
- SIDEWALK
- CULVERT
- EXISTING UTILITY POLE
- PROPOSED FIBERTECH HANDHOLE
- PROPOSED FIBERTECH PEDESTAL
- EXISTING HANDHOLE
- EXISTING PEDESTAL
- FIRE HYDRANT
- LIGHT POLE
- EXISTING MANHOLE
- SEWER MANHOLE
- WATER VAULT
- WATER VALVE
- GAS VALVE
- CATCH BASIN
- TREE
- TRANSFORMER

N

0 10' 20' 30' 40' 50'
SCALE: 1"=50'

811 Know what's below Call before you dig.

(#) SYMBOL CORRESPONDS TO PHOTO LOCATIONS AND ORIENTATION. SEE SHEET # FOR SITE PHOTOGRAPHS.

NO.	DATE	ENG DESIGN	DRAFTING	COMMENT
3				AS-BUILT
2				REVISION # 1
1	1-16-19			ORIGINAL

Utilis

PROJECT MANAGER: Matt Oelkers
PROJECT ENGINEER: Matthew Hall
PROJECT NUMBER: U20122-4 - DT DURHAM
DESCRIPTION: NC 57 Small Cell Design
DESCRIPTION:
DRAWING NAME: U20122-4 - SMC DT DURHAM 01-16-19.dwg

CONFIDENTIAL/PROPRIETARY

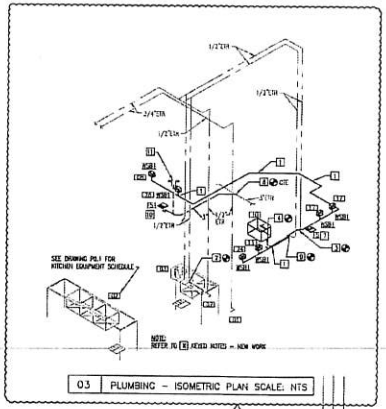
SHEET: 14 OF 14

Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 5

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

KEYED NOTES – DEMOLITION

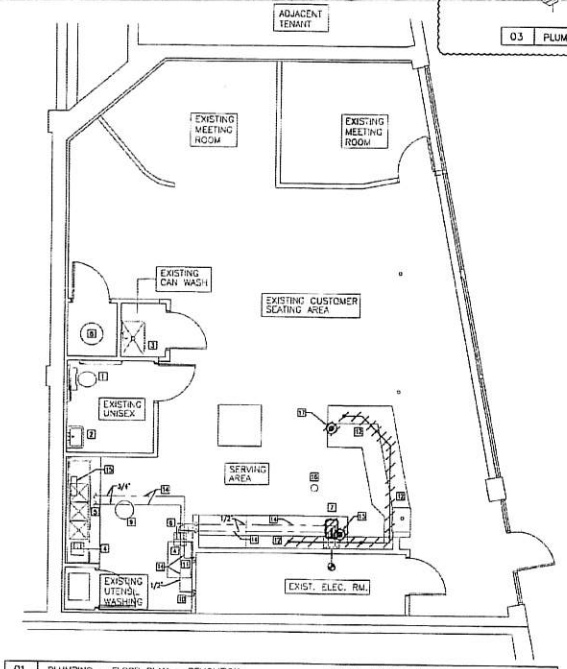
1. WATER CLOSET, ETR.
2. LAVATORY, ETR.
3. CAN WASH, ETR.
4. FLOOR SINK, ETR.
5. 3-COMPARTMENT SINK, ETR.
6. HAND WASHING SINK, ETR.
7. BUMP SINK. REMOVE SINK AND PREPARE FOR RE-USE. REMOVE TRAP AND TAIL-PIECE AND CAP BEHIND CONCEALMENT. WATER PIPING TO REMAIN FOR RE-USE.
8. WATER HEATER, ETR. STATE MFR. SG4-50. 50 GAL. CAP., 24KW, AT 208V, 3Ø, 82GPH RECOVERY AT 100° F. RISE.
9. GREASE TRAP, ETR. IMPERIAL MDL. #72-100 W/ 350GPM INLET FLOW, W/ 140LB GREASE STORAGE.
10. COLD WATER STUB-OUT, ETR. PREPARE FOR RE-USE WITH NEW UNDERCOUNTER ICE MACHINE.
11. HOT WATER STUB-OUT, ETR. PREPARE FOR RE-USE WITH NEW SINGLE COMPARTMENT VEGETABLE SINK.
12. 3/8" WATER PIPING ROUTED IN CASE WORK, ETSO.
13. FLOOR DRAIN, ETSO. PREPARE WASTE PIPING FOR NEW FLOOR SINK INSTALLATION, REFER TO NEW WORK FLOOR PLAN.
14. HOT & COLD WATER PIPING ROUTED IN CEILING, ETR. SIZE AS NOTED.
15. 3/4" REDUCED PRESSURE ZONE BACKFLOW PREVENTER MOUNTED BELOW 3-COMPARTMENT SINK, ETR.
16. FLOOR CLEANOUT, ETR.
17. FLOOR DRAIN, ETSO. PREPARE SANITARY SEWER PIPING FOR EXTENSION. REFER TO NEW WORK FLOOR PLAN.



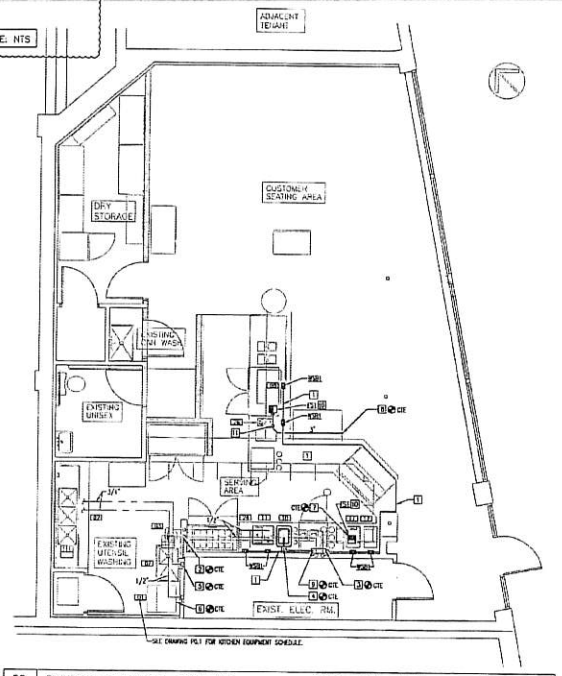
03 PLUMBING – ISOMETRIC PLAN SCALE: NTS

KEYED NOTES – NEW WORK

1. 1/2" COLD WATER PIPE ROUTED CONCEALED IN CABINET WORK. COORDINATE PIPE ROUTING WITH CABINET LAYOUT.
2. TAP EXISTING 1/2" COLD WATER PIPE DROP ROUTED IN WALL. EXTEND 1/2" COLD WATER PIPE TO NEW SINGLE COMPARTMENT VEGETABLE SINK BY OTHERS.
3. TAP EXISTING 1/2" COLD WATER SUPPLY STUB-OUT THROUGH WALL. STUB-OUT TO SERVE BOTH THE BUMP SINK AND PIPING ROUTED IN CABINET WORK.
4. CONNECT REINSTALLED BUMP SINK LOCATED IN NEW COUNTER TOP TO NEW HOT AND COLD WATER PIPING. ROUTE WASTE PIPE TO ADJACENT FLOOR SINK (FS1).
5. CONNECT SINGLE COMPARTMENT VEGETABLE SINK TO EXISTING HOT WATER AND NEW COLD WATER SUPPLIES. SINK BY OTHERS.
6. CONNECT UNDERCOUNTER ICE MACHINE TO EXISTING COLD WATER SUPPLY.
7. FLOOR SINK (FS1). CONNECT TO EXISTING SANITARY SEWER PIPE THAT SERVED EXISTING FLOOR DRAIN IN SAME LOCATION.
8. CONNECT NEW 3" SANITARY SEWER PIPE TO EXISTING SANITARY SEWER PIPE. VERIFY SIZE, LOCATION AND SLOPE OF EXISTING PIPING PRIOR TO STARTING WORK.
9. TAP EXISTING 1/2" HOT WATER SUPPLY STUB-OUT THROUGH WALL. REROUTE PIPING TO REINSTALLED BUMP SINK LOCATION.
10. FLOOR SINK. ROUTE ADJACENT EQUIPMENT WITH A DRAIN TO TERMINATE OVER FLOOR SINK WITH AN AIR GAP. END AIR GAP PIPING TERMINATING OVER FLOOR SINK SHALL HAVE END OF PIPE CUT AT A 45 DEGREE ANGLE.
11. 1-1/2" AIR ADMITTANCE VALVE. LOCATE IN ACCESSIBLE LOCATION.



01 PLUMBING – FLOOR PLAN – DEMOLITION SCALE: 1/4" = 1'-0"



02 PLUMBING – FLOOR PLAN – NEW WORK SCALE: 1/4" = 1'-0"

CHAD F. CHANDLER
ARCHITECT, PA
5108 CAMDEN COURT
DURHAM-WAKE, NC 27526
PHONE/FAX: 919-597-7109

NORTH CAROLINA REGISTERED ARCHITECT SEAL 025918 MICHAEL J. MESSITTE 11.28.17

PROJECT: KAFFEINATE COFFEE SHOP ALTERATIONS
115A NORTH DUKE STREET; DURHAM, NORTH CAROLINA
OWNER: KONG LEE

DRAWN BY: JBW
DATE: 03/09/17
JOB NUMBER: 1701
REVISIONS:
1 04-20-17 review comment

DWG NAME: PLUMBING - FLOOR PLANS - DEMOLITION & NEW WORK

P1.1



Fatal Natural Gas Explosion
Origin and Cause Investigation Report
Incident No. 19-1909574
April 10, 2019
Appendix 6

Brian Graves
Assistant Fire Marshal
City of Durham Fire Department
August 2nd, 2019

I2019 – 04550

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
OFFICE OF THE CHIEF MEDICAL EXAMINER
Raleigh, North Carolina 27699-3025

REPORT OF INVESTIGATION BY MEDICAL EXAMINER

OCME USE ONLY
19-3846
Case Number
APR 24 2019
Date Received
☐ Res ☐ NR

DECEDENT: KONG (First) LEE (Last)

RESIDENCE: 2976 TILLINGHAST TRL (Number and Street) RALEIGH, NC (City, State) WAKE (County)

AGE: 61 SEX: ■ Male ☐ Female ☐ Unknown

RACE: ■ Asian ☐ Black ☐ Native American ☐ White ☐ Other

HISPANIC ORIGIN: ☐ Yes ■ No ☐ Unknown

INFORMATION ABOUT OCCURRENCE

	DATE	TIME	ADDRESS OR FACILITY	COUNTY
ONSET OF INJURY OR ILLNESS	04/10/2019	10:07	115A N DUKE ST, DURHAM NC	DURHAM
DEATH	04/10/2019	12:33	115A N DUKE ST, DURHAM NC	Durham
VIEW OF BODY	04/12/2019	09:47	☐ Scene of Death ☐ Hospital ☐ Funeral Home ☐ Morgue OCME - RALEIGH (Facility Name) ☐ Not Viewed	
ME NOTIFIED	04/10/2019	13:05		
LAST KNOWN TO BE ALIVE	04/10/2019	10:00		

LAW ENFORCEMENT AGENCY: DURHAM PD

OFFICER: R. ARMSTRONG TELEPHONE: (919) 698-7122

AUTOPSY: ■ None ☐ M.E. Authorized ☐ Non-M.E./Private-Facility Name:

BLOOD SAMPLE : Mailed by: ■ ME after External ☐ Pathologist after Autopsy ☐ Reason not obtained:

IF CLINICAL ALCOHOL PERFORMED, RESULT: Where:

PROBABLE CAUSE OF DEATH: ☐ Pending

1. MULTIPLE BLUNT FORCE INJURIES
DUE TO
2.
DUE TO
3.
DUE TO
4.

CONTRIBUTING CONDITIONS

MANNER OF DEATH:
☐ Natural ■ Accident ☐ Homicide ☐ Suicide ☐ Pending

This Section "OCME REVIEW ONLY"

1.
DUE TO
2.
DUE TO
3.
DUE TO
4.

CONTRIBUTING CONDITIONS

MANNER OF DEATH:
Natural Accident Homicide Suicide Undetermined

Reviewer: Date: 5/17/19

Information in this block supersedes that contained in space at left.

SDC
None
AL
Dictated
COG

I hereby certify that after receiving notice of the death described herein I took charge of the body and made inquiries regarding the cause of death in accordance with Article 16 of Chapter 130A of the N.C. General Statutes and the information contained herein regarding such death is true and correct to the best of my knowledge and belief.

Signature of Medical Examiner	04/22/2019	DURHAM
MARK ONFFREY	Date	County of Appointment
Print Name of Medical Examiner		

DHHS 1114 (Revised 2013)

MEDICAL HISTORY

☐ Alcoholism ☐ Cancer ☐ Depression ☐ Diabetes ☐ Hypertension
☐ Ischemic Heart Disease ☐ Seizure Disorder ☐ Smoking ☐ Substance Abuse
■ Other UNKNOWN Physician _____ City _____

MEANS OF DEATH

☐ VEHICLE: Type of vehicle associated with this decedent:
☐ ATV ☐ Bicycle ☐ Farm Equipment ☐ Moped ☐ Motorcycle ☐ Passenger Car
☐ Pickup Truck ☐ Truck –more than 2 axle ☐ SUV ☐ Other _____
Position: ☐ Driver ☐ Passenger ☐ Pedestrian ☐ Unknown
Devices: ☐ Seat Restraints ☐ Air Bag ☐ Helmet ☐ Child Restraint ☐ None ☐ Unknown
Number of Units Involved: _____
☐ GUN: ☐ Rifle-Caliber _____ ☐ Handgun-Caliber _____ ☐ Shotgun-Gauge _____ ☐ Unknown
☐ INSTRUMENT: ☐ Asphyxial ☐ Blunt ☐ Sharp Description _____
☐ TOXIC AGENT(S) SUSPECTED: ☐ Alcohol ☐ Others _____ ☐ Noted In Summary on Page 4
☐ DROWNING: ☐ Bathtub ☐ Lake ☐ Ocean ☐ Pond ☐ Pool ☐ River ☐ Other _____
Life Preserver: ☐ Yes ☐ No ☐ Unknown Able to swim: ☐ Yes ☐ No ☐ Unknown
Activity _____
■ FIRE: Suspected Cause: GAS EXLOSION, BUILDING COLLAPSE Smoke Detector: ☐ Yes ☐ No ■ Unknown
☐ FALL: From: ☐ Sitting ☐ Standing ☐ Other _____ Approximate Distance ____ (Feet)

ACTIVITY OF DECEDENT AND PREMISES

Work Related:
Fatal Injury or Illness Occurred on a Job*: ■ Yes ☐ No ☐ Unknown
If Yes, was employment: ☐ Primary Job ☐ Secondary ☐ Volunteer Work ■ Unknown
Name of this employing firm or agency SELF-EMPLOYED
Type of business or industry CAFE/RESTAURANT Decedent's occupation OWNER
**Activity on a job that is income generating regardless of age of decedent including farming or part time work; also include non-income generating volunteer or charity work.*

Non-Work Related: *(See Examples Below)*
FATAL INJURY OR ILLNESS: Activity _____ ☐ Unknown
Type of place _____ Specific location _____

Examples-Activity: Running, lifting hay bales, eating, typing letter, driving commercial truck, sleeping, bathing, watching television, fight, etc.
Type of place: House, apartment, trailer, school, jail, bar or tavern, hotel, restaurant, store, street, hospital, farm, highway, factory, etc.
Specific location: Bathroom, assembly line, kitchen, front yard, office, parking lot, emergency room, roadside, ambulance, etc.

DEATH: Type of place CAFE/RESTAURANT Specific location INDOORS
Death occurred while in custody: ☐ Yes ■ No ☐ Unknown
If yes, was in: ☐ County Jail ☐ State Prison ☐ Federal Prison ☐ Police Presence
Death occurred in State Operated Facility: ☐ Yes ■ No

DESCRIPTION OF BODY

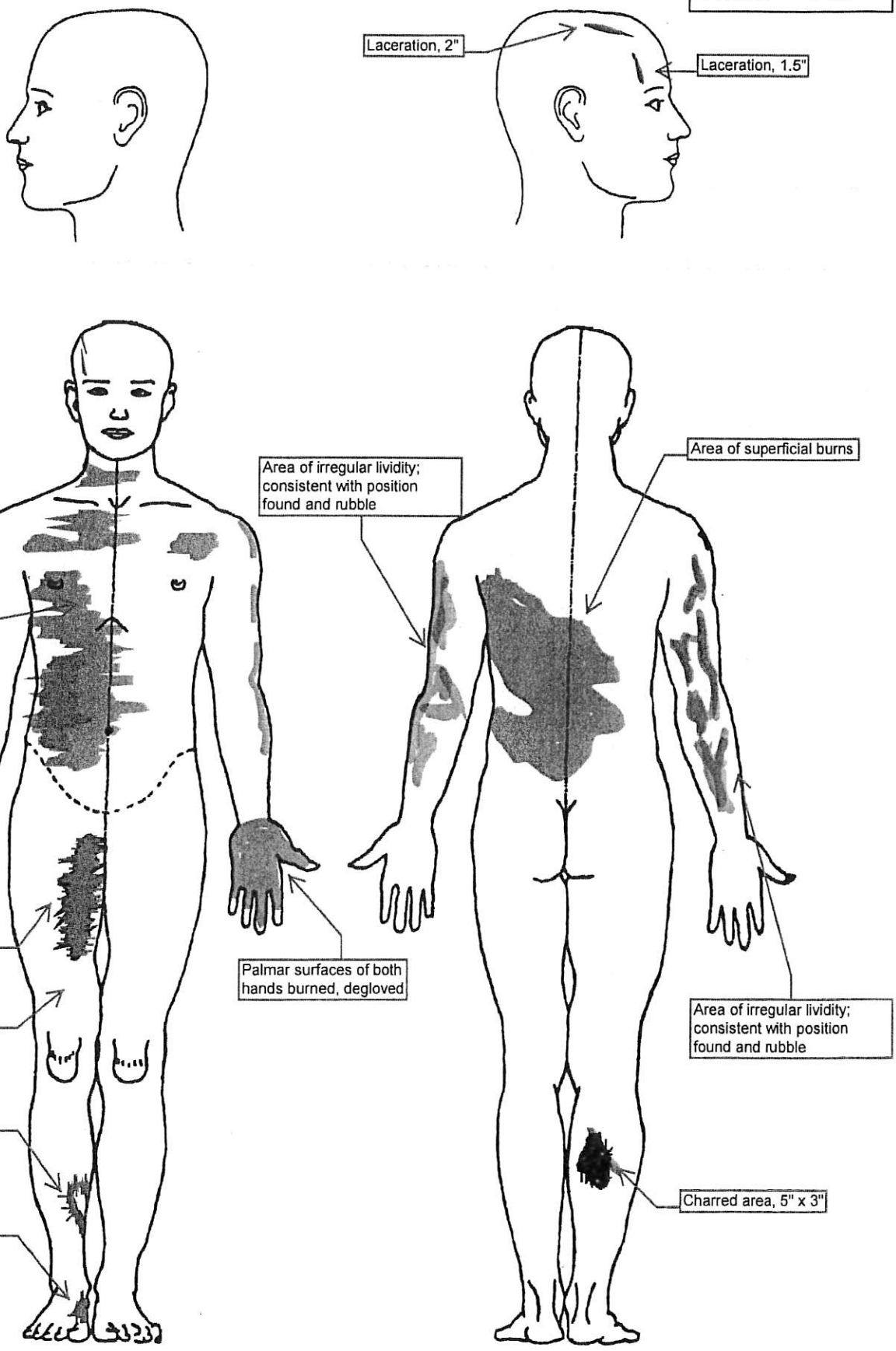
For Pathologists Only: Refer to Autopsy Report ☐

CONDITION: ■ Intact ☐ Decomposed ☐ Fragmented ☐ Skeletonized
☐ Embalmed ☐ Charred ☐ Prolonged immersion
RIGOR: ☐ None ☐ 1+ ☐ 2+ ■ 3+
LIVOR: ☐ None ☐ Anterior ■ Posterior ☐ Lateral Color: FIXED - PURPLE
LENGTH: 66 INCHES ☐ Estimate WEIGHT: 159 POUNDS ☐ Estimate
BODY TEMPERATURE: ☐ Warm ☐ Cool ■ Cold HAIR: Color BLACK ☐ Facial _____
EYES: Color BROWN Abnormalities _____
TEETH: LOWER: ■ Natural ☐ Dentures ☐ None UPPER: ■ Natural ☐ Dentures ☐ None
PHOTOGRAPHS: ■ Yes ☐ No RADIOGRAPHS: ■ Yes ☐ No
CLOTHING: ONE (1) RED SHIRT (BURNED), ONE (1) WHITE T-SHIRT (BURNED), ONE (1) PAIR TAN PANTS (DAMAGED) ☐ Not Clothed
ONE (1) PAIR BLACK UNDERWEAR, TWO (2) BLACK SOCKS, TWO (2) BLACK TENNIS SHOES, ONE (1) BLACK BELT
VALUABLES: ONE (1) BLACK MOBILE PHONE, ONE (1) BLACK WALLET, SEVEN (7) $20 BILLS, ☐ No Valuables
FIVE (5) $5 BILLS, THREE (3) $1 BILLS, ONE (1) QUARTER, ONE (1) NICKEL, FOUR (4) PENNIES

KONG LEE

BODY DIAGRAMS

Legend:
A= Abrasion G= Gunshot
B= Burn L= Laceration
C= Contusion S= Stab



Indicate nature, location and measurements of wounds and other lesions (scars, tattoos, medical therapy, *etc.*) on these diagrams

(Not to Scale)

KONG LEE

MEDICAL EXAMINER PRELIMINARY SUMMARY OF CIRCUMSTANCES SURROUNDING DEATH*

On April 10th, 2019 an explosion and building collapse occurred at 115A North Duke Street in Durham, NC. A single decedent was reported to OCME at 13:05.

Sandra Jones (ME Specialist) visited the scene and spoke with Law Enforcement on April 10th, 2019. Her report includes:

"A gas leak had been reported and the area was evacuated. The owner of Kaffeinate had refused to evacuate and law enforcement had been dispatched to remove him from the premises. Durham Fire Department and PSNC Energy, a natural gas company, arrived at the business and were present when the explosion occurred. Injuries were sustained by individuals on scene...

...115 North Duke Street was reduced to rubble and the debris spilled into the street. There was obvious deformity to the exterior brick walls of the two-story building across the street. Part of the Northwest wall of 115 North Duke Street still stood. The first story of the Northwest wall had collapsed, and debris spilled into the parking lot. The Northeast wall of the building beside it (111 North Duke Street) had collapsed. Smoke was visibly rising from the rubble and fire personnel were actively fighting to suppress the fire..

...The decedent was located in the rubble closest to North Duke Street. The body was visible from the street and first responders had placed a sheet over him. According to law enforcement, when EMS arrived on scene the decedent had a pulse but they were unable to extricate him from the debris due to the surrounding hazards."

At 17:28, decedent was reportedly presumed to be Kong Lee, owner of the coffee shop where the explosion was believed to have originated. Condition was reported as intact and visually identifiably "burned but not charred".

Decedent identified on April 11th, 2019 as Kong Lee. Visual identification was made by law enforcement using both a photo provided by family, and a tattoo on the left shoulder.

External examination performed by M. Oniffrey on April 12th, 2019 at 09:47.

PURPOSE: To document the findings of a Medical Examiner investigation. *This is not an autopsy report. When completed, this form constitutes a report to the Chief Medical Examiner as required by G.S. 130A-385(a); within fourteen (14) days of Medical Examiner's examination.

PREPARATION: The investigating Medical Examiner completes all appropriate information, and signs the certification statement on the front of the form.

DISTRIBUTION: Mail original copy to the Office of the Chief Medical Examiner, 3025 Mail Service Center, Raleigh, NC 27699-3025

DISPOSITION: This form is maintained by the Chief Medical Examiner in accordance with the current records disposition schedule published by the N.C. Division of Archives and History.

COPIES: Additional copies may be ordered from the Office of the Chief Medical Examiner, Raleigh, NC 27699-3025

Electronic Investigation Report can be emailed to **ocme.eIR@dhhs.nc.gov** . You do not need to send via postal mail

Picture 1



Picture 2



Picture 3



Picture 4



Picture 5



Picture 6



Picture 7



Picture 8



Picture 9



Picture 10



Picture 11



Picture 12



Picture 13



Picture 14



Picture 15



Picture 16



Picture 17



Picture 18



Picture 19



Picture 20



Picture 21



Picture 22



Picture 23



Picture 24

