VERSION 2.0

DATE: JULY 2023

REGIONAL MIDDLE MILE BACKBONE NETWORK – SR-11 LAKE TO RIVER FIBER BROADBAND CORRIDOR IMPLEMENTATION PLAN

EASTGATE REGIONAL COUNCIL OF GOVERNMENTS

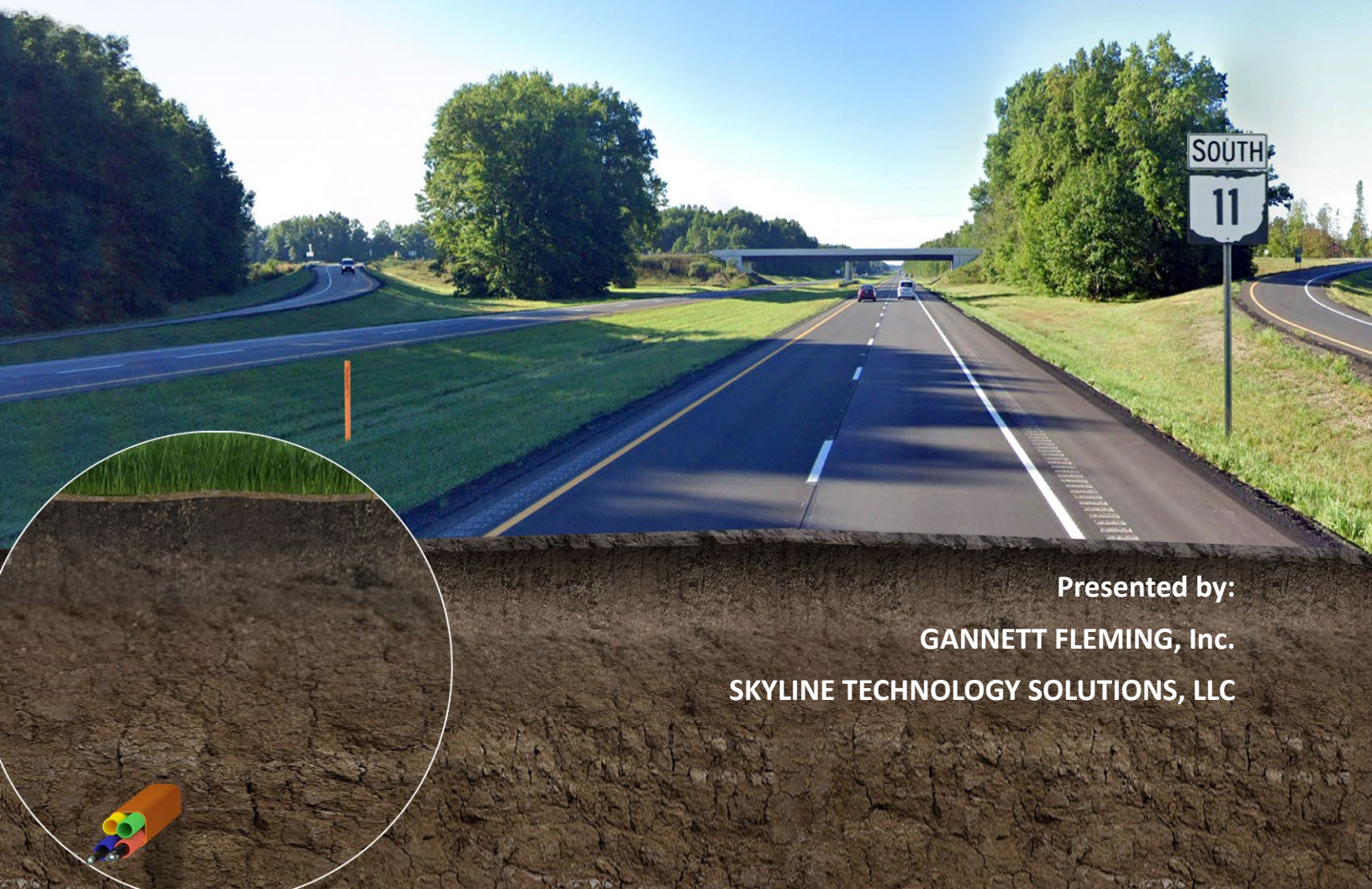

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TABLE OF CONTENTS

SECTION 1.0 PROJECT OVERVIEW 1
1.1 Project Background and Description 1
1.2 Project Purpose 2
1.3 High-Level Objectives 2
1.4 Deliverables 2
1.5 Definitions 3
SECTION 2.0 STRATEGIC BUILDOUT PLAN 4
2.1 Project Area 4
2.2 Project Stakeholder Coordination 5
2.3 Community Anchor Institutions 6
2.4 Connection Points 9
2.4.1 Northern Terminus 9
2.4.2 Southern Terminus 10
2.4.3 Meet-Me Locations 10
2.5 Project Phasing 12
2.5.1 Single-Source Funding 12
2.5.2 Multiple Segment Construction 12
2.5.3 Final Design and Coordination 13
SECTION 3.0 PRELIMINARY MIDDLE MILE FIBER NETWORK 15
3.1 ODOT Facilities 15
3.2 Underground Conduit and Fiber Optic Cable 15
3.2.1 Underground Conduit 15
3.2.2 Fiber Optic Cable 17
3.2.3 Design Alternative: Armored Fiber Optic Cable 17
3.2.4 Installed Depth Requirements 17
3.2.5 Directional Boring Requirements 18
3.2.6 Structural Attachment Requirements 19
3.3 Pull Boxes 19
3.3.1 32” Pull Box With Pad 19
3.3.2 48” Pull Box With Pad 20

3.3.3 Connection Points 20
3.4 Routing Alignment 20
3.4.1 Center Median 20
3.4.2 Between EOP and ROW Line 21
3.4.3 Preferred Installation Alternative 22
3.5 Fiber Optic Cable Splicing and Terminations 22
3.5.1 Fiber Optic Cable Splicing 22
3.5.2 Fiber Optic Cable Terminations 23
3.6 Testing and Integration 24
3.6.1 Pre-Installation Testing 24
3.6.2 Operational Acceptance Testing 24
3.6.3 Limitations of Testing Equipment 24
3.7 Fiber Strand Allocation 25
3.8 Procurement 25
SECTION 4.0 FUNDING 26
4.1 Needs Assessment 26
4.2 Middle Mile Grant 27
4.3 BEAD Program 27
4.4 Cost Estimate 28
4.5 Schedule 28

APPENDIX A. PRELIMINARY ROUTING LAYOUT PLAN
APPENDIX B. PRELIMINARY COST ESTIMATE
APPENDIX C. STAKEHOLDER COORDINATION MEETING MINUTES

SECTION 1.0 PROJECT OVERVIEW

1.1 PROJECT BACKGROUND AND DESCRIPTION

The Eastgate Regional Council of Governments, hereby referred to as Eastgate, is an association of local governments in Northeast Ohio's Ashtabula, Mahoning, and Trumbull Counties. In 2020, Eastgate commissioned a Feasibility Study to investigate and recommend a means of providing reliable, high-speed broadband internet for the region. The Feasibility Study, completed in 2021, found a lack of access and recommended the build-out of fiber optic cable-based connectivity for residents and businesses in the region.

Eastgate is advancing the Feasibility Study findings to deliver robust communications infrastructure to the region. The end goal is to bring reliable, high-speed broadband internet access to residents, businesses and key Project Stakeholders in the region and eliminate the current digital divide.

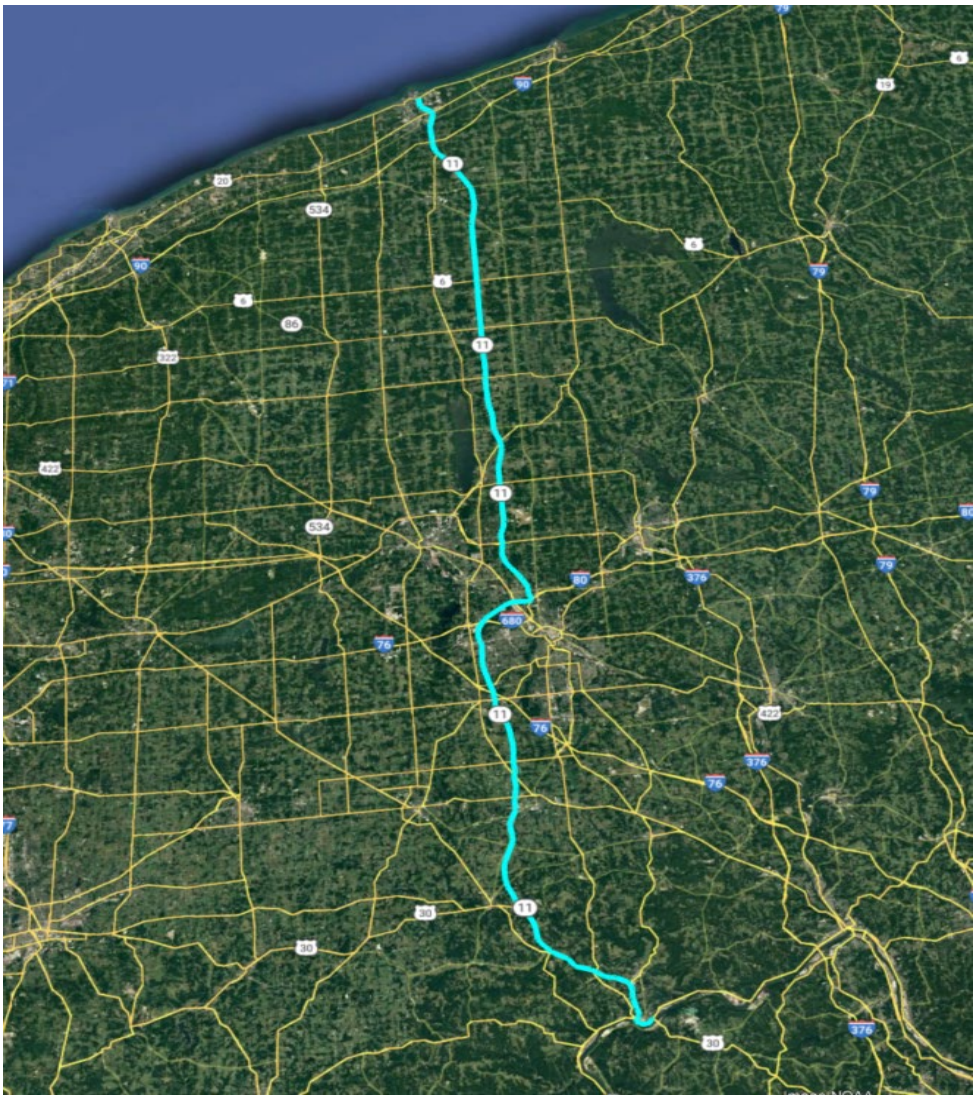


FIGURE 1. APPROXIMATE MIDDLE-MILE FIBER PATH THROUGHOUT THE LAKE TO RIVER CORRIDOR.

1.2 PROJECT PURPOSE

The purpose of this Implementation Plan is to build upon the Feasibility Study and facilitate a plan for the build-out of an open access middle-mile fiber optic cable backbone within Ashtabula, Trumbull, Mahoning and Columbiana Counties. This middle-mile fiber network will be constructed along State Route 11 (SR-11) utilizing Ohio Department of Transportation (ODOT) right-of-way (ROW) from the approximate limits of Lake Erie (Ashtabula County) to the Ohio River (Columbiana County). This corridor will be known as the "Lake To River" corridor and is depicted above in **Figure 1**.

The proposed network would provide fiber-based connectivity for the region of Northeastern / Eastern Ohio in proximity to SR-11 and make great strides towards accomplishing the goal of providing the robust communications infrastructure necessary to keep the region technologically competitive. The middle-mile fiber network would be open access and available for last mile providers to establish a connection, leading to a reduction in price for last mile connectivity and greatly enhancing broadband coverage and connection speeds across the region. This proposed build-out benefits Eastgate, ODOT, local businesses, community institutions, residents and the Project Stakeholders while accommodating for potential future growth and technology needs.

1.3 HIGH-LEVEL OBJECTIVES

The high-level objectives of the Engineering Analysis performed for the project are as follows:

1. Determine a list of Project Stakeholders that will benefit from the installation of the Regional Middle Mile Backbone Network. Engage with the Project Stakeholders to make each Stakeholder aware of the project and the potential benefits.
2. Meet with Internet Service Providers (ISP's) currently operating in the region or who may have an interest in operating broadband services along the proposed corridor.
3. Develop a Preliminary Regional Middle Mile Backbone Network, including preliminary underground duct size and fiber optic cable count recommendations, allowable installation methodologies, northern and southern project limits, and major connection points. As part of the Preliminary Regional Middle Mile Backbone Network, identify potential challenges in the field for installation of the middle-mile fiber optic cable backbone and develop recommendations to help mitigate them.
4. Provide phasing recommendations for construction of the middle mile network.
5. Develop a Cost Estimate for the construction of the middle mile network.

1.4 DELIVERABLES

To meet the high-level objectives of the project, the following Deliverables are presented:

1. Preliminary Routing Layout Plan: The Preliminary Routing Layout Plan evaluated the primary SR-11 corridor and developed a plan that identifies optimal routing alignment,

including ROW constraints, connection points, and potential conflicts with railroads, bridges, utilities and environmentally sensitive areas. The Preliminary Routing Layout Plan is conceptual in nature at a "30% Design" level and only identifies a potential conduit path for consideration. The Preliminary Routing Layout Plan is not prescriptive and allows for further refinement and engineering in the future in coordination with Eastgate, BroadbandOhio, and ODOT. The Preliminary Routing Layout Plan is included as **Appendix A.**

2. Implementation Plan: The Implementation Plan identifies the list of Project Stakeholders, develops the Preliminary Regional Middle Mile Backbone Network, phases the project with a strategic build-out plan and identifies potential funding sources for the build-out. The Implementation Plan builds upon the conceptual design within the Preliminary Routing Layout Plan and develops further guidelines and recommendations for construction of the middle mile network.
3. Cost Estimate: The Cost Estimate approximates the costs for construction of the middle mile network as identified within the Preliminary Routing Layout Plan and Implementation Plan. The Cost Estimate is included as **Appendix B.**

1.5 DEFINITIONS

Regional Middle Mile Backbone Network: The Regional Middle Mile Backbone Network is the backbone fiber optic cable installed along the SR-11 corridor within ODOT right-of-way. This network does not include connections to last-mile fiber optic cables, connection points to data centers or appurtenances outside of the SR-11 project area.

SECTION 2.0 STRATEGIC BUILDOUT PLAN

2.1 PROJECT AREA

The project area consists of Ashtabula, Trumbull, Mahoning and Columbiana Counties. The approximate location of the proposed middle-mile fiber along SR-11 is depicted relative to the region in **Figure 2**.

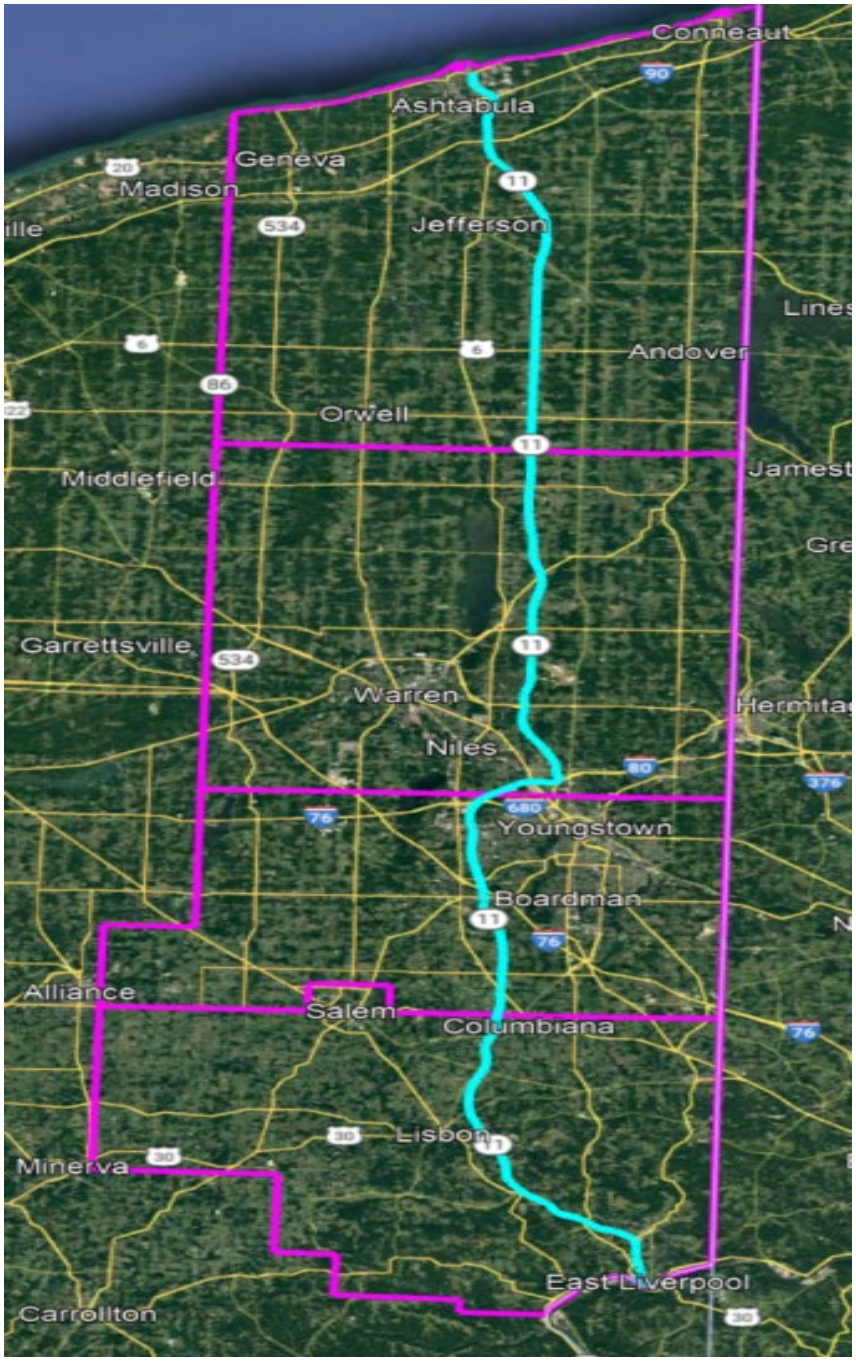


FIGURE 2. LAKE TO RIVER CORRIDOR WITHIN EACH RESPECTIVE COUNTY

2.2 PROJECT STAKEHOLDER COORDINATION

During the Stakeholder Engagement Phase, substantial outreach efforts were made to local authorities, organizations, institutions and companies. During this outreach, a list of Project Stakeholders was developed. These Project Stakeholders have expressed interest in partnering in the build-out or being aware of the Regional Middle Mile Backbone Network and include the following:

1. The Ohio Department of Development – Office of Broadband Ohio
2. Ohio Department of Transportation (ODOT)
3. Ohio Academic Resources Network (OARnet)
4. Ohio Turnpike and Infrastructure Commission (OTIC)
5. Northeast Ohio Management Information Network (NEOMIN)
6. ACCESS Ohio
7. Ashtabula County
8. Columbiana County
9. Mahoning County
10. Trumbull County
11. Internet Services Providers (ISP's)

From October 2022 thru December 2022, a series of coordination meetings were held between Eastgate, Gannett Fleming, Skyline Technology Solutions (consulting partner) and the Project Stakeholders. The purpose of these coordination meetings was to inform each Project Stakeholder of the intent of the project and assess their needs for connection to the proposed middle-mile fiber optic network. These coordination meetings were critical for the development of the Preliminary Regional Middle Mile Backbone Network, including:

- Determining fiber optic cable count and type
- Coordinating use of ROW for the installation of fiber along the proposed route
- Preliminary routing of the middle-mile fiber optic cable
- Identifying Community Anchor Institutions (CAI's)
- Locating strategic connection points
- Developing ISP connections
- Reinforcing regional support

Stakeholder coordination meeting minutes are included in **Appendix C**.

2.3 COMMUNITY ANCHOR INSTITUTIONS

Community Anchor Institutions (CAI's) were identified in the NTIA Grant application filed by BroadbandOhio in 2022. The CAI's are located within the vicinity of the proposed SR-11 corridor and have been categorized in three (3) tiers:

1. Tier 1: Institutions located within 1,000 feet of the corridor. These CAI's are located within the red buffer zone depicted in **Figure 3**.
2. Tier 2: Institutions located within 1 mile of the corridor. These CAI's are located within the purple buffer zone depicted in **Figure 3**.
3. Tier 3: Institutions located within 5 miles of the corridor. These CAI's are located within the fuchsia buffer zone depicted in **Figure 3**.

These "buffer zones" assist in identifying edge sites around the SR-11 corridor that will benefit from middle-mile backbone fiber optic cable construction by providing reasonable limits for the development of a last-mile connection. For this reason, the majority of CAI's are located closest to the proposed corridor. CAI's within these "buffer zones" are identified in **Table 1**.

Due to funding constraints, only Tier 1 CAI's were identified within the NTIA Grant application. CAI connections to the Preliminary Regional Middle Mile Backbone Network are not guaranteed and determinations may be made based on available funding. The list of CAI's provided is subject to change based on available funding, preferences by the network Owner / Operator, and level of interest by CIA's located within the buffer zones. For example, CAI's within the Tier 2 or Tier 3 buffer zones that have the available funding to establish a last mile connection are not excluded from coordinating with the Owner / Operator in the future to potentially establish a connection. In addition, as new businesses, institutions and residences populate the area, the list of CAI's interested in connecting to the middle mile network may grow.

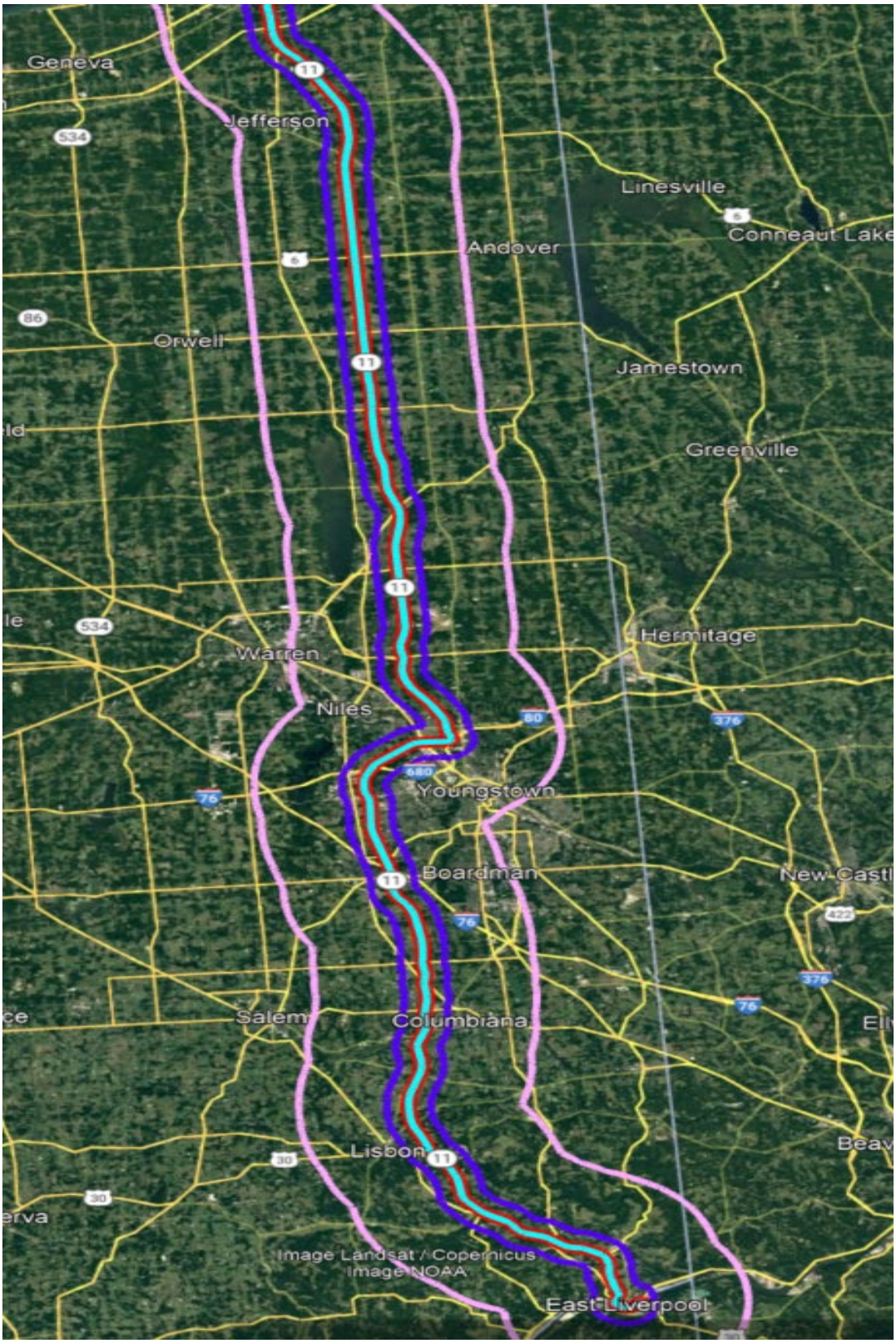


FIGURE 3. PROPOSED SR-11 CORRIDOR DEPICTING 1,000 FT, 1-MILE AND 5-MILE BUFFER ZONES.

Distance to Rt 11	Community Anchor Institutions				
1000 FT (35 CAI's)	Ashtabula Township	Ashtabula Township Fire Chief	Road Department Garage	Ashtabula Township Clerk's Office	Ridgeview Elementary School
	University Women's Health Clinic	Mercy Health-Home Health	Hospice of The Valley	Occhealth Concepts	Ohio's Choice Home Health
	Mahoning County Building Inspection	Mahoning County Planning Commission	Mahoning County	Mahoning County Lead Abatement	Austintown Township Zoning Office
	Mahoning County Board	Hilltop Elementary School	Mercy Health - Talsman Primary Care	Counseling Center	Columbiana County Metropark
	East Liverpool City School District	East Liverpool Board of Education	East Liverpool Middle School	East Liverpool City Hospital	St. Aloysius Elementary School
	Comprehensive Primary Care	Trinity Health Systems Dr. Olang	A VA Women's Center	Buckeye Online School - Success	New Castle School of Trades
	Quaker Digital Academy	Oda, An Ohio K-12 Online School	Mary Patterson Building	Carnegie Public Library	Kent St University East Liverpool Campus
1-Mile (14 CAI's)	Highway Patrol – Weight Station	Columbiana County Hwy Garage	Glenmoor Head Start (Preschool)	East Liverpool Christian School	Glenmoor Volunteer Fire Dept
	Adkins, Andrea (Dentist)	Trinity Express Clinic Calcutta	State of Ohio Dept of Public Safety (SR-170)	East Liverpool Community Health	State of Ohio Dept of Public Safety (St Clair)
	Community Home Medical	Med Health Services	East Liverpool City Office	East Liverpool Fire Department	
5-Mile (1 CAI)	Glenmoor American Legion Post 736				

TABLE 1. COMMUNITY ANCHOR INSTITUTIONS IDENTIFIED WITHIN BUFFER ZONES OF THE PROPOSED SR-11 CORRIDOR

2.4 CONNECTION POINTS

Connection Points are sites that will serve as tie-in locations to provide access to the Regional Middle Mile Backbone Network. There are two (2) different types of connection points:

- Terminus Locations: These locations are the northern and southern endpoints of the project.
- "Meet-Me" Locations: These locations are intermediate points along the project that are installed at key intervals to provide future access to the middle-mile fiber for tie-in by Project Stakeholders or other key partners granted access in the future.

2.4.1 NORTHERN TERMINUS

The proposed Northern Terminus is located in Ashtabula County at the SR-11 and US-20 Interchange. The US-20 Interchange provides access to infrastructure as it is a major interchange located nearby offices, retail shopping centers and residential neighborhoods. The approximate location of the proposed northern terminus point is identified in **Figure 4**.

The proposed northern terminus identified below is conceptual and based on current project objectives and progress. The network Owner and/or Operator(s) have the flexibility to modify the terminus point if future project criteria or requirements evolve. Final location will need approved specifically from ODOT if placed within their Right-of-Way (ROW).

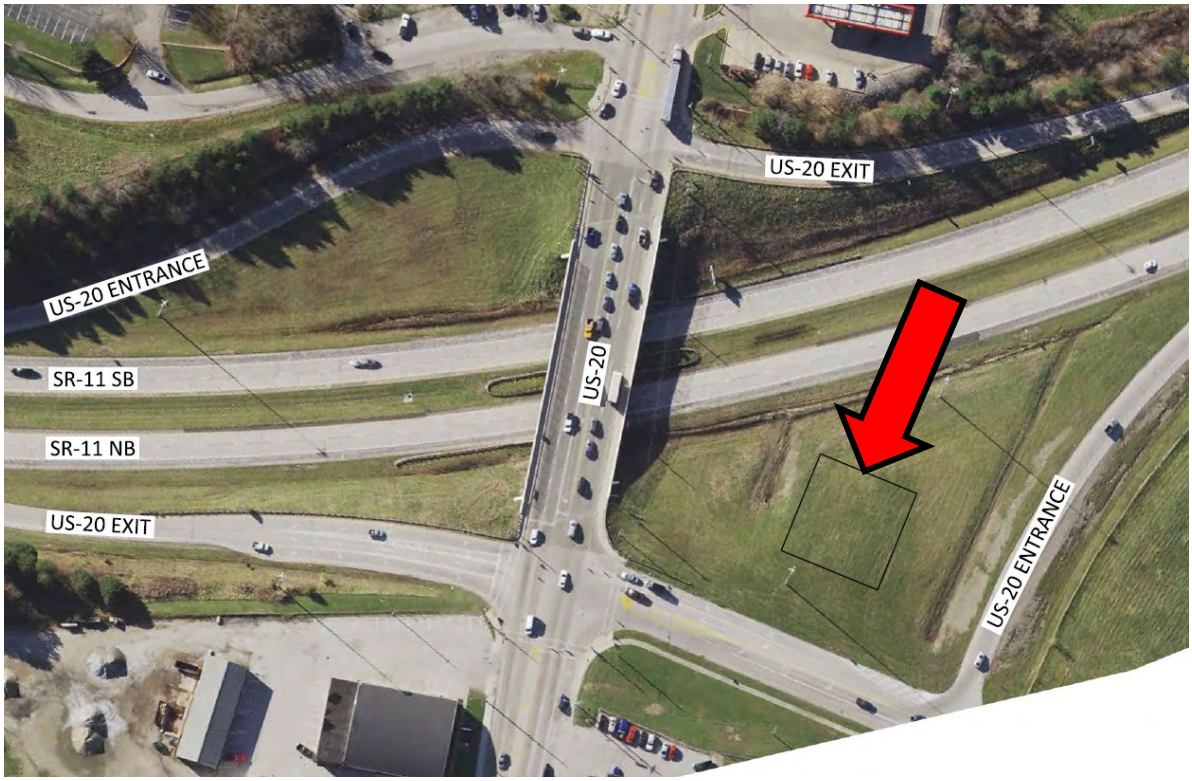


FIGURE 4. APPROXIMATE NORTHERN TERMINUS

2.4.2 SOUTHERN TERMINUS

The proposed Southern Terminus is located in Columbiana County at the SR-11/US-30 & SR-7/SR-39 Interchange. This interchange is located at the proposed southern project limit and is conveniently located nearby critical infrastructure, including hospitals, schools, numerous community institutions and residential areas. The approximate location of the proposed southern terminus point is identified in **Figure 5**.

The proposed southern terminus identified below is conceptual and based on current project objectives and progress. The network Owner and/or Operator(s) have the flexibility to modify the terminus point if future project criteria or requirements evolve. Final location will need approved specifically from ODOT if placed within their R/W.

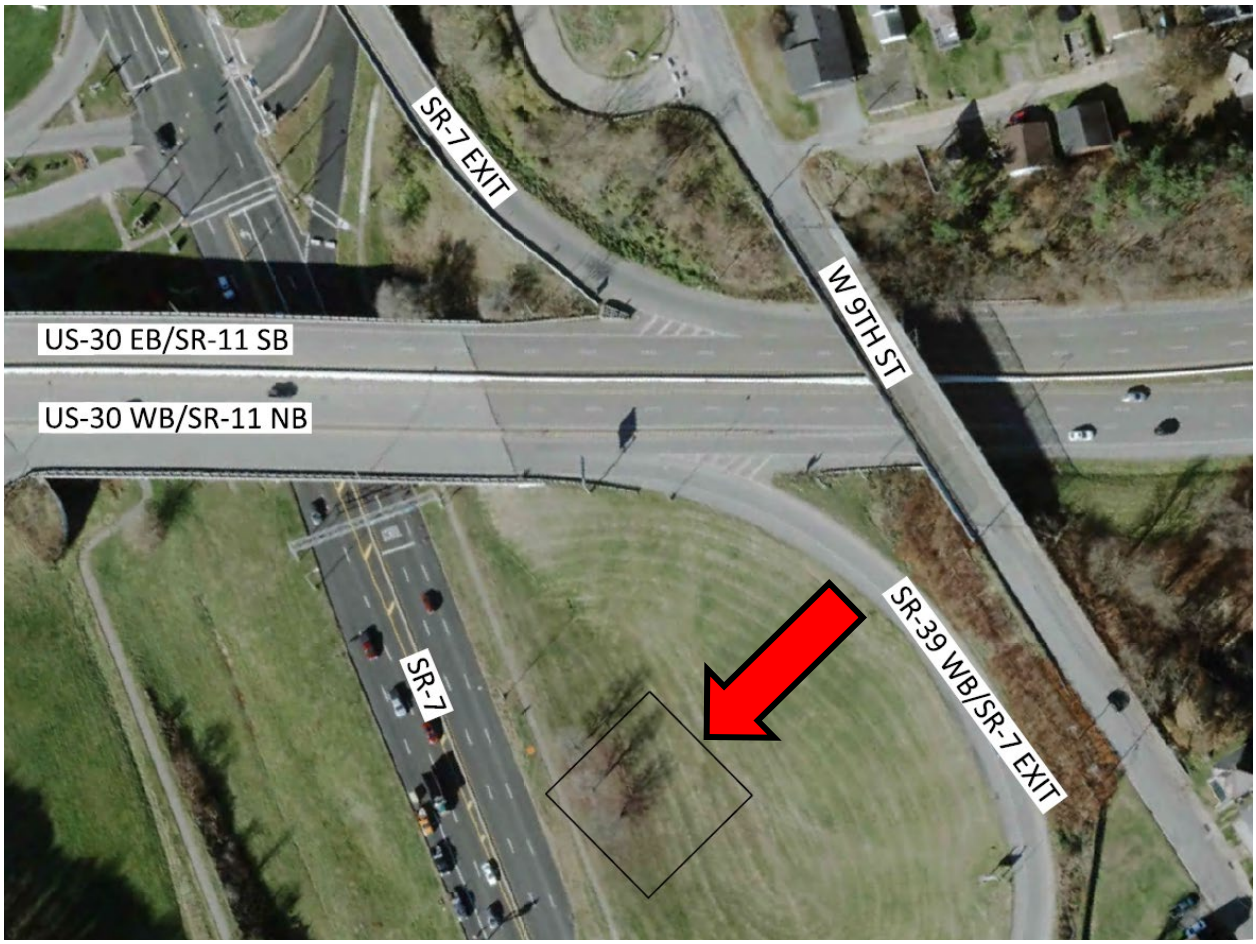


FIGURE 5. APPROXIMATE SOUTHERN TERMINUS

2.4.3 MEET-ME LOCATIONS

Strategic “Meet-Me” locations are provided along the limits of the project to facilitate future connections to the middle-mile fiber. These “Meet-Me” locations are access points where a Project Stakeholder may splice, terminate or otherwise tie into the Middle Mile Backbone Network with their own last-mile fiber optic cable connection.

These “Meet-Me” locations are strategically located at interchanges that are near Project Stakeholders, high-traffic arterial roads, industrial / commercial businesses, community institutions and residential neighborhoods that would benefit from access to the fiber optic backbone. A list of proposed ”Meet-Me” locations are identified in **Table 2**.

Cross Rd	Community Anchor	ITS/Signals	County	OARnet	Existing ISP	Data Center
US-20 / Ridge Rd	x	x	x			
I-90		x	x		x	x
SR-5 / Warren Rd		x	x		x	
SR-305 / Wilson Sharpsville Rd		x	x		x	
SR-82		x	x		x	x
Tibbetts Wick Rd	x	x	x		x	
I-80 / SR-711		x	x	x	x	x
US-422 / State St		x	x			
Salt Springs Rd		x	x		x	
I-680	x	x	x	x	x	
Mahoning Ave	x	x	x	x	x	x
US-224	x	x	x	x	x	
SR-154	x	x	x			
SR-7 / SR-267	x	x	x			
SR-170	x	x	x			
SR-7 / SR-39	x			x	x	

TABLE 2. PROPOSED SR-11 “MEET-ME” LOCATIONS

The “Meet-Me” locations identified within **Table 2** above are conceptual based on preliminary coordination efforts and outreach. As the project develops, further coordination may reveal additional CAI’s that may have an interest in connecting to the Regional Middle Mile Backbone Network. In addition, future development of the area may lead to more businesses, institutions and residents interested in establishing a connection point. The network Owner and/or Operator(s) have the flexibility to add, subtract or modify the connection points within the table as the project progresses.

At a minimum, upfront installation of the backbone fiber shall connect into OARnet facilities and the Youngstown Data Center.

2.5 PROJECT PHASING

A field meeting was conducted on March 24, 2023, between representatives of Gannett Fleming and Eastgate Regional Council of Governments. During this field meeting, a complete drive-thru of the project site was conducted. The purpose of this project site drive-thru was to observe general field conditions and perform a high-level assessment of the jobsite for informational purposes.

During this drive-thru, it was observed that field conditions were more challenging for underground duct installation in Columbiana County near the southern terminus. These challenging field conditions include lack of a center median, fluctuating elevations, more austere slopes, narrower right-of-way, increased presence of rock, and more frequent drop-offs behind guardrail.

In addition, current broadband availability along the proposed SR-11 corridor is inconsistent. According to a September 2022 analysis of broadband availability by BroadbandOhio, the area's most in need of broadband coverage along the proposed SR-11 corridor are located in southern Ashtabula County and northern Trumbull County. This recent analysis by BroadbandOhio is shown below in **Figure 6**.

2.5.1 SINGLE-SOURCE FUNDING

Due to the construction challenges and current broadband infrastructure gaps, it is advisable to prioritize the most northern portions of the project area. However, detailed project phasing will hinge on whether the Regional Middle Mile Backbone Network is funded and constructed as a single project or broken into individual segments. Assuming the middle mile network is successfully funded as a single project, it is recommended to begin construction in Ashtabula County near the proposed northern terminus and proceed south. Field construction crews often increase their productivity as they become more familiar with the unique features of a jobsite and get into a rhythm operating the equipment and installing the materials required. Beginning the project near the northern terminus allows the crews to become more familiar with the project site and practiced with the means and methods so they are more seasoned before they encounter the more challenging conditions at the southern terminus. In addition, this sequencing prioritizes the installation of fiber optic cable in areas of the project site where critical broadband infrastructure is most needed.

2.5.2 MULTIPLE SEGMENT CONSTRUCTION

If the Regional Middle Mile Backbone Network cannot be funded and constructed as a single project and must be broken into multiple segments, it is recommended to prioritize construction of segments in southern Ashtabula County and northern Trumbull County due to the lack of critical broadband infrastructure in the area. This will require the ISP(s) to locate a data center connection point within that project segment area to commission and operate the fiber optic cable. The ISP(s) should make necessary efforts to establish this priority connection. If the ISP(s) does not have the ability to establish a connection in the priority segments due to lack of data centers in the area, the recommended option would be to construct the middle mile network

from Youngstown and proceed north to reach northern Trumbull County and southern Ashtabula County as quickly as possible and continue construction to the northern terminus.

Once the middle mile network has been constructed from Ashtabula to Youngstown, the recommended phasing would be to proceed construction of the network from Youngstown to the southern Terminus through Mahoning County and Columbiana County. While portions of Columbia County do suffer from poor broadband connection speeds, it is advised to continue building segments connected to the already-established fiber optic network from Youngstown to Ashtabula for the most efficient means of construction, commissioning and operation of the network.

2.5.3 FINAL DESIGN AND COORDINATION

It is recommended these differing site conditions and disproportionate needs for broadband infrastructure are considered during Final Design when developing more detailed requirements for Maintenance of Traffic (MOT) and project sequencing and phasing. A recommendation is to require the constructor to submit a project schedule that adheres to the phasing recommendations detailed above. However, additional field meetings should be conducted during Final Design to survey the jobsite at a more detailed level and confirm these initial findings.

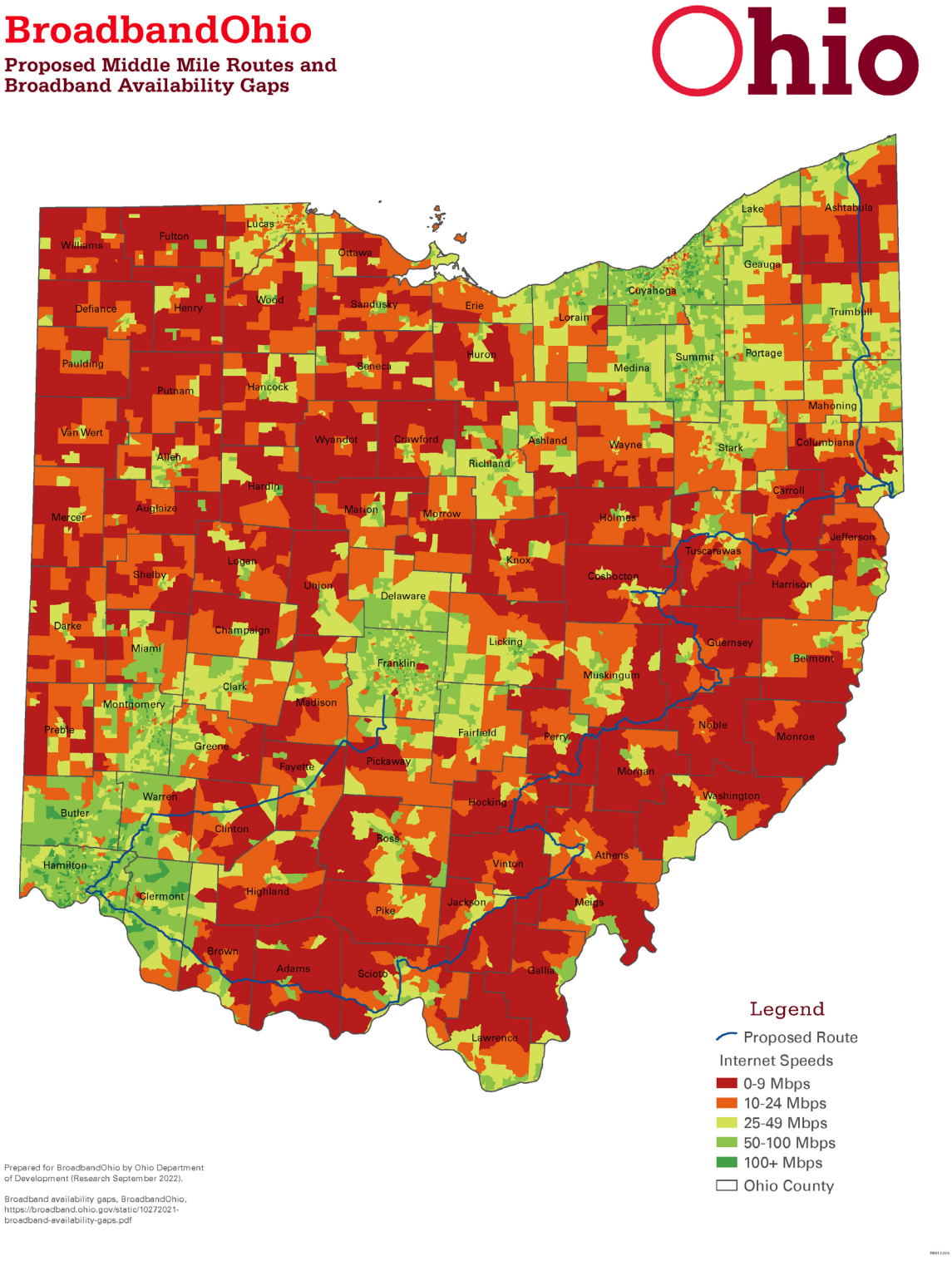


FIGURE 6. BROADBAND AVAILABILITY GAPS, STATE OF OHIO (SEPTEMBER 2022)

SECTION 3.0 PRELIMINARY MIDDLE MILE FIBER NETWORK

3.1 ODOT FACILITIES

Ohio Department of Transportation (ODOT) is partnering with Eastgate and BroadbandOhio to permit the installation of the Regional Middle Mile Backbone Network within their ROW. This arrangement is specific to this project and will require additional coordination to finalize the terms and conditions. A license agreement will be needed for SR-11 and a potentially more time intensive special agreement will be needed along I-80. This project will provide limited ITS Facilities to be operated by ODOT. These facilities include:

1. One (1) 24-CT fiber optic cable. After testing and commissioning, this fiber optic cable will be owned and operated by ODOT and will reside in a separate duct. The requirements of this fiber optic cable are defined below.
2. One (1) pull box installed within the vicinity of each Road Weather Information System (RWIS) and Automatic Traffic Recorder (ATR) installed within the SR-11 ROW within the limits of the fiber optic cable. Further coordination with ODOT will be necessary to determine pull box layout at each existing device. The requirements of the pull boxes are defined below.
3. Additionally, existing signals owned by ODOT at interchange ramp intersections shall be tied into ODOT's dedicated fiber strands.

3.2 UNDERGROUND CONDUIT AND FIBER OPTIC CABLE

The Regional Middle Mile Backbone Network will be contained in an underground duct bank. The anticipated component items of the duct bank are identified below.

3.2.1 UNDERGROUND CONDUIT

The preferred alternative for underground conduit is a bundled duct product with the following characteristics:

A. Duct product shall contain four (4) individual ducts composed of HDPE.

B. All four (4) ducts shall be bundled with an outer sheathing composed of HDPE.

C. The duct bundle shall contain an integrated tracer wire(s). Tracer wire(s) shall not be installed within the inner ducts.

D. All four (4) ducts shall be of the same size and maintain the same orientation and color pattern throughout the project.

E. Recommended for direct bury installation by the manufacturer.

F. Duct couplings used to maintain continuity of the conduit path shall be of the same manufacturer as the bundled duct product and be designed for that specific duct product.

G. Duct product shall be of the same manufacturer throughout project limits.

H. Suitable for installing cable within the duct by air-blowing or jetting means.

I. Only one (1) cable may be installed per individual duct.

When selecting duct size, it is imperative that the duct size is paired with the size of the cable to facilitate proper installation. If the duct is over-sized, there may not be enough pressure inside the duct to facilitate blowing /jetting. Conversely, if the duct is under-sized, there may not be enough space within the duct to facilitate blowing / jetting. Proper pairing of duct size and cable size ensures the Fill Ratio is within the "optimal" range as determined by the manufacturer.

The Fill Ratio is defined as the ratio of the nominal Outside Diameter of the cable to the nominal Interior Diameter of the duct, expressed as a percentage. To calculate the Fill Ratio, divide the nominal Outside Diameter of the cable (d) by the Interior Diameter of the duct (D), and express the final result as a percentage as shown in **Figure 7**. Ensure that the Fill Ratio is calculated to be within the recommended limits of the duct manufacturer and does not exceed 75%.

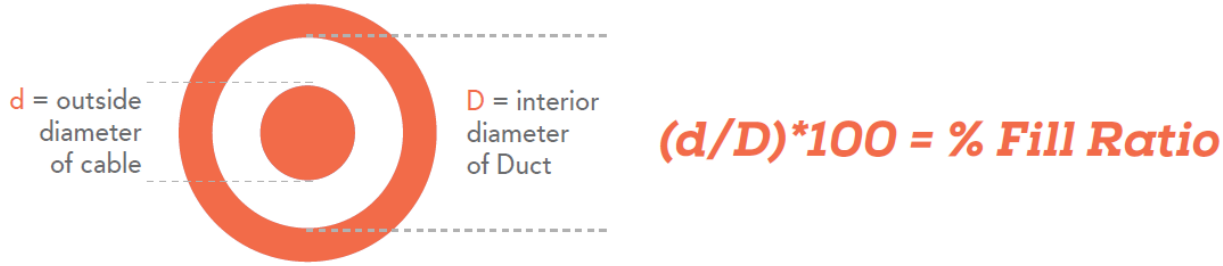


FIGURE 7. CALCULATING CABLE FILL RATIO

Determining the proper size of the bundled duct product will hinge on the nominal Outside Diameter of the fiber optic cables selected for installation. Therefore, sizing of the ducts should be reserved for later stages of design. However, it is critical to note that higher fiber count does not necessarily guarantee a larger nominal outer diameter when selecting fiber optic cables for installation. Fiber optic cable manufacturers offer a wide range of different fiber optic cable models that vary widely in cable type, jacket type and thickness, fiber orientation and other factors, and different features can dramatically impact the nominal thickness of the overall cable. Therefore, it is possible to select two (2) different fiber optic cables with dramatically different fiber counts that have nominal outer diameters similar enough to fit within the recommended Fill Ratio of a duct manufacturer for installation via blowing / jetting.

See Fiber Optic Cable below for more information on the preferred alternative for the fiber optic cables.

3.2.2 FIBER OPTIC CABLE

The preferred alternative recommends the installation of two (2) fiber optic cables as part of this project:

1. One (1) 432-CT fiber optic cable. This cable will be the backbone of the middle mile network.
2. One (1) 24-CT fiber optic cable. This fiber optic cable will be owned and operated by ODOT (or an alternative agreement) and will reside in a separate duct.

Each fiber optic cable must be rated for Outside Plant (OSP) installations and recommended for installation within underground duct by the manufacturer. Each fiber optic cable must be sized appropriately to conform with manufacturer Fill Ratio requirements as outlined above and within **Figure 7**. Each fiber optic cable must be suitable for installation via air-blowing / jetting through duct.

3.2.3 DESIGN ALTERNATIVE: ARMORED FIBER OPTIC CABLE

A possible design alternative was considered to specify armored fiber optic cable for installation along the project. Armored cable provides additional crush resistance, resistance to rodents and can potentially retard fire damage. However, it comes with significant downsides, including:

- Increased material cost
- Larger nominal diameter
- Increased rigidity

In addition to the increased material cost of the fiber optic cable, the added size and weight of the armored fiber optic cable would require larger ducts to accommodate the cable. These downsides make it significantly more expensive and technically difficult to install fiber optic cable using means of blowing or jetting. For this reason, armored fiber optic cable is not recommended for installation on this project.

3.2.4 INSTALLED DEPTH REQUIREMENTS

It is recommended (and potentially required by ODOT) to install the proposed bundled duct at a minimum depth of 36 inches from the top of the duct bundle to the top of final grade. If the bundled duct encounters an existing underground utility, pipe, or culvert along its path, the duct shall be installed a minimum 24 inches below the bottom of the existing crossing.

Warning tape should be installed a minimum distance of 12 inches above the duct to provide notification to future excavators that a duct bank is located beneath the tape.

Possible methods of installing the underground duct in typical conditions are plowing, trenching, and digging. It is recommended that means and methods are not dictated to the contractor in most cases and to allow the contractor the flexibility to install the majority of the duct in what the contractor believes is the most efficient means possible to reduce installation cost and schedule. Exceptions where means and methods should be dictated include areas of directional

boring and structural attachment as defined below. If an existing underground utility, pipe, underdrain, or culvert is encountered, the conduit sleeve / duct shall be installed a minimum 24 inches below the bottom of the existing crossing.

3.2.5 DIRECTIONAL BORING REQUIREMENTS

Directional boring should be required in special circumstances where standard excavation and installation of duct do not apply. These circumstances include:

- Crossing the roadway mainline
- Crossing underneath ramps, police pull-over areas, and other asphalt and concrete crossings
- Crossing over / under utilities and culverts
- Crossing creeks and streams, except for those explicitly detailed in Structural Attachment Requirements
- Crossing underneath railroads, except those explicitly detailed in Structural Attachment Requirements
- Other situations to be determined in Final Design through coordination with Eastgate, ODOT, the contractor and all applicable Third Parties

When the bundled duct is installed underneath the roadway (including mainline, ramps, police pull-overs, asphalt, concrete, etc.), creeks, streams and railroads, install a conduit sleeve. The conduit sleeve may be composed of either HDPE with a minimum wall thickness of SDR11 or rigid galvanized steel (RGS). The conduit sleeve should be sized during Final Design based on the proposed size of the bundled duct product, but not smaller than an inner diameter of 4 inches to accommodate future expansion, if desired. Once the directional boring sleeve has been installed, the bundled duct product should be pushed / pulled through the sleeve to complete the pathway.

The only time a conduit sleeve should not be required is if, during Final Design, it is determined that areas of the project require directional boring in unpaved areas as an alternative to traditional means of excavation (plowing, trenching, digging, etc.) due to grade elevations and right-of-way clearance. If field conditions determine additional locations during physical construction, these areas should be coordinated with Project Staff and accepted prior to installation.

When directional boring, install the proposed conduit sleeve / bundled duct at a minimum depth of 36 inches from the top of the conduit to the top of final grade when boring under unpaved areas, ramps and police pullovers, and at a minimum depth of 60 inches when boring under roadway mainline, wetlands and streams. If an existing underground utility, pipe, underdrain, or culvert is encountered along its path while boring, the conduit sleeve / duct shall be installed a minimum 24 inches below the bottom of the existing crossing.

3.2.6 STRUCTURAL ATTACHMENT REQUIREMENTS

Structural attachment of conduit is only permitted in areas that have been explicitly accepted by ODOT prior to physical construction. As part of this Implementation Plan, initial coordination with ODOT has resulted in tentative approval at the following structures for attachment:

- Over Norfolk Southern and Mahoning River (outside attachment) (Structure Numbers 7803338 and 7803362)
- Over Consolidated Rail Corp, Norfolk Southern, and CSX Railroad (outside attachment) (Structure Numbers 7803400 and 7803435)
- Over Ashtabula River (median attachment) (Structure Numbers 0401684 and 0401714)

Additional locations that structure attachments are requested will require coordination and approval by ODOT. Conduit attached to structure should be rigid galvanized steel (RGS) conduit that will function as a sleeve to contain the bundled duct. The RGS conduit should be sized during Final Design based on the proposed size of the bundled duct product, but not smaller than 4 inches to accommodate future expansion, if desired. Expansion / deflection fittings should be installed as necessary to accommodate flexing, shrinking and expanding of the bridge. Attachment means, supplemental hardware and fittings should be designed during Final Design based on the unique characteristics of each structure. Once the RGS conduit has been installed, the bundled duct product should be pushed / pulled through the sleeve to complete the pathway. Attachment should take place in the cross frames of the bay closest to the median. Consideration should be made to not go through the backwall/abutment and route the fiber around the abutment and onto the cross frames.

3.3 PULL BOXES

Pull boxes are necessary to facilitate the installation of conduit and fiber optic cable along the proposed corridor.

3.3.1 32” PULL BOX WITH PAD

The most commonly installed pull box along the corridor will be ODOT Standard Item 32” PULL BOX WITH PAD (or equivalent as approved by ODOT). This item is detailed on ODOT Standard Construction Drawing (SCD) ITS-14.11. A 32” pull box will be required in the following scenarios:

1. The maximum spacing of pull boxes shall be no greater than 2,000 feet when installing a bundled duct designed for air-blown or jetted fiber optic cable as defined above. In a scenario where fiber optic cable is to be manually pulled through a duct, the maximum spacing of pull boxes shall be 500 feet.
2. At each lateral conduit crossing (both mainline and ramp crossings).
3. On each side of a bridge approach at locations approved for conduit attachment.
4. As necessary to send / receive a directional bore.
5. Other locations as determined by the Contractor that does not require a 48” pull box.

All 32” pull boxes require the installation of a pull box pad as shown on SCD ITS-14.11 unless approval is granted by the Owner.

3.3.2 48” PULL BOX WITH PAD

ODOT Standard Item 48” PULL BOX WITH PAD (or equivalent as approved by ODOT) will be required in scenarios where a 32” pull box is insufficient. This item is detailed on ODOT Standard Construction Drawing (SCD) ITS-14.20 and will be required in the following scenarios:

1. At any location where splice enclosures will be installed.
2. At locations where splice enclosures may be installed in the future, including Connection Points detailed within this Implementation Plan. Please see the section Connection Points below for more details.
3. At each Road Weather Information System (RWIS) and Automatic Traffic Recorder (ATR) location as noted above.
4. Other locations as determined by the Contractor where a 32” pull box will be insufficient.

3.3.3 CONNECTION POINTS

Connection Points listed in **Table 2** identify a minimum number of locations where a future tie-in to the Regional Middle Mile Backbone Network is likely. These tie-in locations are anticipated because:

- They are located at interchanges near Stakeholders, Community Anchor Institutions, businesses and communities identified within this Implementation Plan and are therefore the most convenient locations to place infrastructure for a future connection, and,
- They are located at interchanges where existing Traffic Signals/ITS devices have been identified that will require a future tie-in to the middle mile network.

All interchanges identified within **Table 2** require a 48” pull box with pad to accommodate the future tie-in. However, this does not preclude future design activities from identifying additional locations requiring a connection. As design progresses, it is anticipated that additional locations may be identified for a future connection as more coordination efforts develop between regional entities and additional field survey is performed.

3.4 ROUTING ALIGNMENT

All underground ducts should be installed within ODOT right-of-way. There are two installation alternatives along the proposed route:

3.4.1 CENTER MEDIAN

The first alternative is to install the underground duct, pull boxes and fiber optic cable within the center median. The majority of the proposed route along SR-11 has a relatively wide, flat median free from above-ground obstructions and steep drop-off locations behind guardrail.

Installing the duct within the center median provides the opportunity for a mostly consistent installation free from frequent grade changes, which will help minimize installation costs.

While ODOT generally prefers underground conduit installation near the ROW line, the large, attractive median that is consistent throughout much of the proposed SR-11 corridor is a clearly more desirable location than along the ROW line, which is often narrow, full of trees, and subject to steep drop-offs behind guardrail. This reality has been brought to ODOT's attention, and the center median has been conditionally approved for conduit installation assuming final design requirements are met (such as depth, offset from pavement, etc).

Challenges to duct installation within center median include occasional sections of roadway where the center median does not exist, most notably a 5-mile section of SR-11 from the US-7 Interchange to approximately 1.2 miles north of the Ohio River. There are also occasional storm drainage and crossing culverts, as well as strategically placed police pull-over areas, that will require avoidance.

To provide a consistent installation, a standard offset should be required when installing conduit within the center median. This will make the underground fiber and duct more easily locatable in the future. At this time, an installation offset of 14-15' feet from edge of pavement is recommended as shown in the 30% Concept Plans. However, this installation offset should be confirmed / refined during Final Design by increased analysis of the corridor and through further coordination efforts with ODOT. There may be instances where the offset cannot be maintained where ditches and swales are installed to direct watershed, which are intermittent and inconsistent along the corridor.

3.4.2 BETWEEN EOP AND ROW LINE

A second alternative is to install the underground duct, pull boxes and fiber optic cable between the Edge of Pavement (EOP) and ROW line parallel to the mainline shoulder. During the initial phases of the project, the option was explored to install the underground duct within clear zone to minimize the chances of the duct being struck by future excavation activities. However, the significant majority of the proposed SR-11 route does not have clear zone available. Much of the area is narrow with intermittent drop-offs behind guardrail due to frequent slopes found along this section. For this reason, underground duct installed here should be installed with a specified installation offset from edge of pavement to provide a consistent installation.

If installation occurs between the EOP and ROW line, a minimum offset of 6 feet from outside edge of pavement should be maintained. However, this installation offset should be confirmed or refined during Final Design by increased analysis of the corridor and through further coordination efforts with ODOT. There may be instances where the offset cannot be maintained where steep drop-offs and slopes are present, which are intermittent and inconsistent along the corridor.

3.4.3 PREFERRED INSTALLATION ALTERNATIVE

The preferred installation alternative is to allow the contractor the flexibility to determine the best routing of the conduit. Allowing this flexibility will likely provide the lowest installation cost and most aggressive construction schedule. While it should be a requirement that the contractor choose a “typical” installation location, either the center median (hovering the SB or NB direction) or between EOP and ROW line and commit to installing the duct in this location wherever possible with a defined offset, exceptions can be made to allow a deviation where obstructions, either underground or above-ground, make it clearly advantageous to relocate the duct bank. These allowable deviations may include changing sides of the center median, boring across the mainline to switch sides or changing from a center median installation to between the EOP and ROW line installation.

Example scenarios where a change of duct location is likely includes:

- The approximately 5-mile portion of SR-11 between the US-7 Interchange to approximately 1.2 miles north of the Ohio River where center median does not exist.
- Areas where steep drop-offs and slopes behind guardrail make installation unnecessarily difficult or technically infeasible.
- Areas where underground duct transitions to structural attachment at bridges.
- Areas requiring boring where underground and above-ground obstructions require a change of entry / exit, including utilities, creeks, streams, structures and other physical hardships or dangers.
- Other challenges to be identified during Final Design. The contractor should coordinate with Eastgate, BroadbandOhio, ODOT and relevant Third Parties to identify these obstructions during Final Design.

3.5 FIBER OPTIC CABLE SPLICING AND TERMINATIONS

3.5.1 FIBER OPTIC CABLE SPLICING

Perform all fiber optic cable splices within an underground splice enclosure. Each fiber shall be fusion spliced for each location required. Only fusion splicing should be allowed. Fiber optic splice enclosures must be housed inside a 48” pull box and be affixed to the side of the pull box using cable support brackets. All cables must be properly dressed and affixed to rails or brackets within the pull box. No cables or splice enclosures may be permitted to lie on the pull box floor.

Provide fiber optic splice enclosures that are compatible with the proposed fiber optic network made of corrosion resistant dome-type enclosures. The splice enclosures should be re-enterable, waterproof and airtight and employ reusable materials that allow for multiple re-entrances without replacing any components. Splice enclosures should be designed for use under the most severe conditions such as moisture, vibration and impact, and are designed for a temperature range of -40°C to +70°C (-40°F to +158 °F).

Most fiber optic cable splices required along project limits will be reel-to-reel splices when one reel of fiber optic cable "ends" and a new reel must be connected to continue the install. Other reasons for fiber optic cable splices include:

- Device connections (traffic signals, ITS devices, RWIS stations, Automatic Traffic Recorders, etc.)
- Last mile connections to the Regional Middle Mile Backbone Network. This may include connections to Stakeholders, Community Anchor Institutions, ISP's, etc. and are referred to as "Meet-Me" Locations within this Implementation Plan.
- Other future use applications determined during Final Design and beyond.

3.5.2 FIBER OPTIC CABLE TERMINATIONS

Fiber optic cable terminations are required at locations where devices connect to the fiber optic network. These locations may include:

- ISP Connection Site(s). The Regional Middle Mile Backbone Network will require connection by an ISP.
- Demarcation Sites. It may be determined during later stages of design that locations along project limits may benefit from a defined demarcation site (instead of just a pull box) to provide more robust and secure access to the middle mile network. Typical Demarcation Sites consist of a communications shelter / hut, which is a ground-mounted structure that hold and protect sensitive communications equipment. This equipment may include server racks, termination panels, signal amplification equipment, battery back-up or generator equipment, security systems, environmental controls and lighting. Typical demarcation sites can vary between 12-20 feet long by 12-20 feet wide.

  While communications shelters allow for the most robust meet-me solutions, it comes with a significant cost. Prices for a complete setup communications shelter, including land acquisition, site preparation, concrete slab install, the physical building itself, backup generator, grounding rings, propane, etc. can range from $300,000 to $600,000 depending on size and land costs. As shown in the 30% Concept Plans and cost estimate, two (2) communication shelters are accounted for in the initial buildout.
- Connected Devices. This may include traffic signals, ITS devices, RWIS stations, Automatic Traffic Recorders, etc.
- OARnet facilities and the Youngstown Data Center.
- Other locations determined during Final Design and beyond.

Perform all fiber terminations at Fiber Termination Panels (FTP) in required locations using pre-manufactured patch cables. The type of patch cables required should be determined during Final Design.

3.6 TESTING AND INTEGRATION

3.6.1 PRE-INSTALLATION TESTING

All fiber optic cable must be 100% attenuation tested at the factory. The attenuation of each fiber must be provided with each cable reel.

Prior to installation, the contractor should perform pre-installation testing using an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter on all fiber optic cable before any cable removal from the shipping reel. This is necessary to verify the results from the factory and ensure that the fiber was not damaged during loading, shipping and unloading. No fiber optic cable should be installed until the fiber tests verify the cable is acceptable for use.

3.6.2 OPERATIONAL ACCEPTANCE TESTING

All fibers must be tested for continuity and signal quality prior to acceptance and integration. Perform Operational Acceptance Testing using an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter on all fiber optic cables installed along project limits. Compare the results of the tests to the allowable loss parameters established.

Table 3 represents maximum allowances for losses within the network. These allowances are recommendations only and should be verified during Final Design. If losses are recorded in excess of the allowable losses, repair the network until it is within the allowable loss parameters. This may include re-making splices and terminations and replacing lengths of fiber optic cable damaged during installation.

Measurement	Characteristics
Power Meter – Bi-directional 1310nm and 1550nm	Perform circuit testing on each fiber to confirm overall link loss measured in dB and continuity.
OTDR – Bi-directional 1310nm and 1550nm	• Splicing (field) – not to exceed 0.3 dB per splice at 1310nm and 0.2 dB at 1550nm • Connectors – not to exceed 0.5 dB per mated connection at 1310nm and 1550nm • Reflection – less than -35 dB • Attenuation – 0.35 dB/Km at 1310nm and 0.30 dB/km at 1550nm • Additional testing may be required for 100GB network capacity

TABLE 3. RECOMMENDED FIBER TESTING ACCEPTANCE PARAMETERS

3.6.3 LIMITATIONS OF TESTING EQUIPMENT

Due to the length of the long-haul fiber, testing equipment may struggle to reach the end of a continuous fiber, particularly at 1310nm. During Final Design, considerations should be made to test the long-haul fiber at both 1310nm and 1550nm given these potential equipment limitations. This may require testing the network in segments, installing amplifiers or designing intermediate sites to specifically accommodate fiber testing. These limitations should be considered and addressed during Final Design.

In addition, the contractor should be made aware of these potential equipment limitations prior to bidding and physical construction. The contractor must coordinate with their Testing Representative to develop a testing procedure and successfully execute testing as required. A recommendation is to require the contractor to develop and submit a Fiber Optic Testing Plan that outlines how they propose to test the network and identifies procedures to accommodate testing the long-haul fibers at both 1310nm and 1550nm prior to physical construction.

3.7 FIBER STRAND ALLOCATION

It is recommended that a minimum set of fiber performance characteristics be established to ensure that future network services utilizing the fiber will perform adequately. These performance characteristics should be set during Final Design and coordinated between the Owner and Contractor based on the current needs of the Owner, Stakeholders and future expansion goals. **Table 4** depicts a sample fiber strand allocation table for reference purposes only. This sample fiber strand allocation is not meant to be a recommendation, but rather serve as a visual tool for the Owner to consider when allocating fiber strands prior to physical construction. OARnet will require a small number of strands as part of the bundle.

Strands	Purpose / Network
1-72	Long-haul
73-108	Maintenance
109-156	State/County Partnership (OARnet, Counties, etc.)
157-252	Rural Broadband
253-432	Future Expansion

TABLE 4. SAMPLE FIBER STRAND ALLOCATION TABLE

3.8 PROCUREMENT

Project procurement depends on the type of funding secured. Once sources of funding have been obtained, procurement will be determined in collaboration with Eastgate, BroadbandOhio, and the Ohio Department of Transportation.

The proposed middle-mile fiber network will be privately owned and will require a permit from ODOT for the installation of all proposed facilities within ODOT ROW. Agreements will be developed to clarify maintenance requirements, open access model, etc. Once the facilities are installed, the Owner will be responsible for maintenance and operations of the middle-mile fiber network. In the event that future ODOT roadway maintenance or improvements impact the middle-mile fiber network, it will be the Owner's responsibility to accommodate these impacts at the Owner's expense.

SECTION 4.0 FUNDING

4.1 NEEDS ASSESSMENT

Appalachian Ohio consists of 32 counties in the southern and eastern parts of Ohio and ranks as the most economically disadvantaged region in the state. The regional economy is undergoing a shift from a previous dependence on heavy industry, agriculture and mining and gradually diversifying to incorporate service industries, retail, government and tourism. In addition, semiconductor manufacturing is coming to the region with Intel's plan to develop new chip manufacturing factories in Ohio.

This economic diversification places great need for broadband services in the region. As part of the state's Ohio Middle Mile Plan (OMMP) Request for Information (RFI) process, a survey was conducted to assess the competitive landscape of the area. This request for information revealed that the current broadband infrastructure in the region falls short of meeting and sustaining current and future needs in the largely rural area. Current broadband providers are challenged to fulfill broadband needs in this sprawling area, which represents 40% of the land mass and 17% of the population of Ohio. The challenges of building and maintaining broadband infrastructure in this region, with varying terrain and rural makeup, widen the economic gap for its high poverty population. The OMMP outlined in **Figure 8** is a roadmap to bringing this critical broadband infrastructure to the region and narrow the economic gap. The Regional Middle Mile Fiber Network outlined within this Implementation Plan would realize the OMMP through Ashtabula, Mahoning, Trumbull and Columbiana Counties.

Realization of the OMMP hinges on funding. The U.S. Commerce Department's National Telecommunications and Information Administration (NTIA) administers grant programs designed to further the deployment and use of broadband technologies nationwide. The goal of one such grant, the NTIA-Middle Mile program is to provide Internet for all and includes a $65 billion investment to help close the digital divide and ensure that all Americans have access to reliable high-speed broadband internet. The NTIA grant specifically targets rural communities for the buildout of high-speed broadband internet in an attempt to close the digital divide and narrow the economic gap, and the region of Northeastern Ohio identified for buildout within this Implementation Plan is a prime target for such funding. An additional NTIA program that could serve as a potential funding opportunity is the Broadband Equity Access, and Deployment (BEAD) program discussed further in Section 4.3.

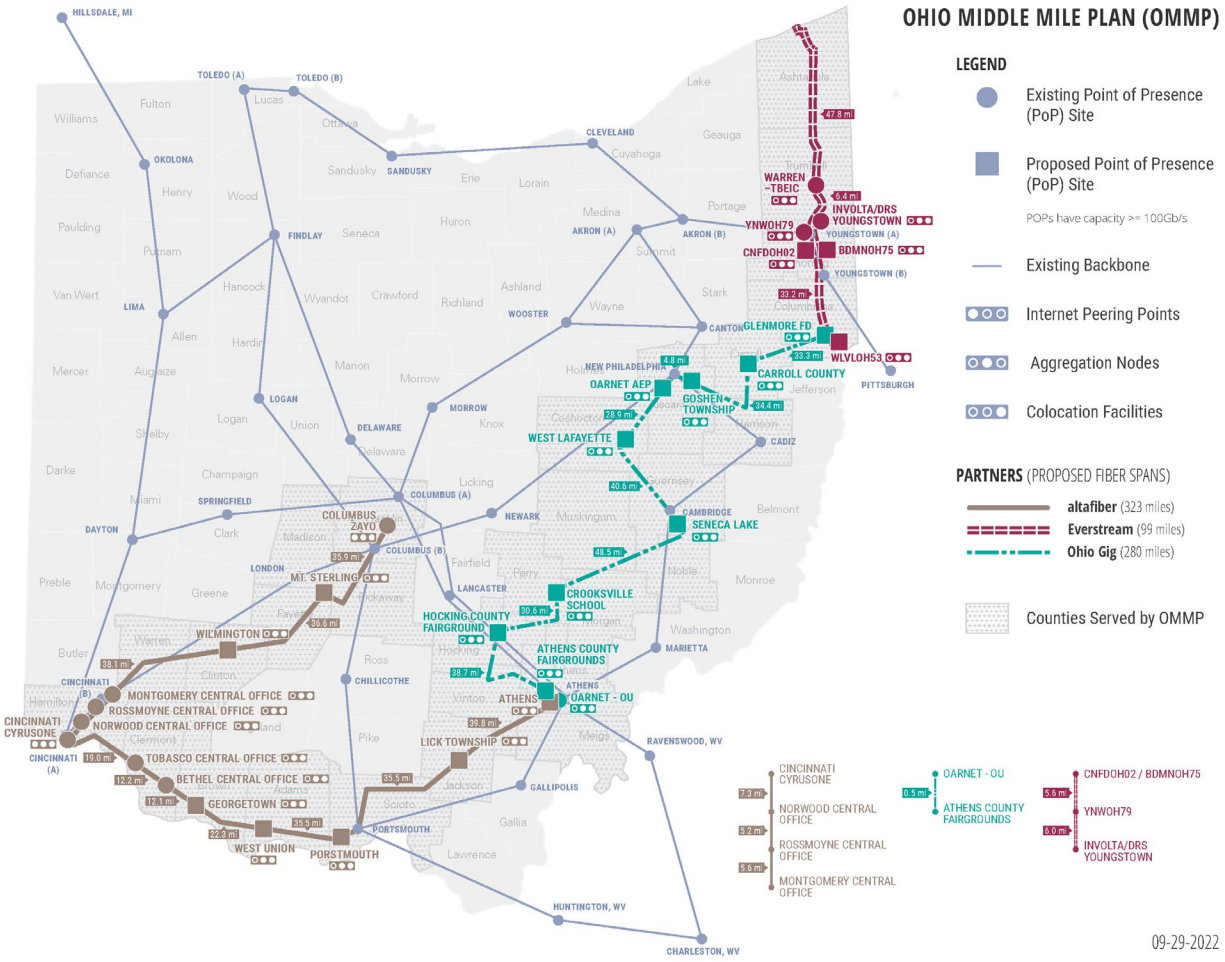


FIGURE 8. OHIO MIDDLE MILE PLAN

4.2 MIDDLE MILE GRANT

In late 2022, BroadbandOhio became a formal applicant for the NTIA-Middle Mile Grant. Within this application, BroadbandOhio proposed the OMMP and coalesced a team of public and private entities with the record of experience to successfully implement broadband initiatives of the size and scope outlined within this Implementation Plan.

The NTIA announced grant was awarded in June 2023, and the OMPP was not selected.

4.3 BEAD PROGRAM

In June 2023, the State of Ohio received $793M from NTIA's BEAD program. BroadbandOhio is in the process of developing an Initial Proposal for how to use the funds and will issue grants beginning in 2024. Eastgate will further explore this potential funding opportunity and coordinate with BroadbandOhio accordingly.

4.4 COST ESTIMATE

A cost estimate has been prepared to approximate the physical construction costs of the Preliminary Middle Mile Network installed within SR-11 ROW. The cost estimate assumes the Preliminary Middle Mile Network will be constructed as a single construction project, which maximizes the efficiency of procurement and construction. The cost estimate is high-level and conceptual in nature. The primary items in the cost estimate include:

1. Underground Duct
2. Excavation
3. Pull Boxes
4. Conduit Attached to Structure
5. Fiber Optic Cable
6. Fiber Optic Splice Enclosures
7. Contingency

In the event the Regional Middle Mile Backbone Network cannot be funded and installed as a single construction project, the estimates can be modified and broken down into smaller fundable segments and/or into more defined cost-sharing scenarios as they develop. The preliminary cost estimate to construct the middle mile network is **$24.2M** and is included in **Appendix C**.

4.5 SCHEDULE

An approximate duration of construction activities has been drafted based on the anticipated size and scope of the project. These durations assume the Regional Middle Mile Backbone Network will be constructed as a single project.

A. Final Design Phase: 4-6 months. An approximate duration of 4-6 months is anticipated to design a final plan for the installation of the Regional Middle Mile Backbone Network. This duration assumes the Designer will design and submit the project in individual buildable units or segments rather than wait to develop the entire design package before submission for review. This methodology provides project acceleration because the Owner may review a segment of the design while latter segments are still in development. In addition, the Owner may approve and release segments of the project for construction while latter segments are still in the design phase. This allows a partial overlapping of the design, review and construction phases.

B. **Construction Phase: 18-24 months.** An approximate 18-24 months is anticipated to physically construct the project. Similar to the Final Design Phase, this schedule anticipates the final design will be reviewed, approved and released for construction in segments, allowing field construction activities to commence while the Final Design Phase is still active.

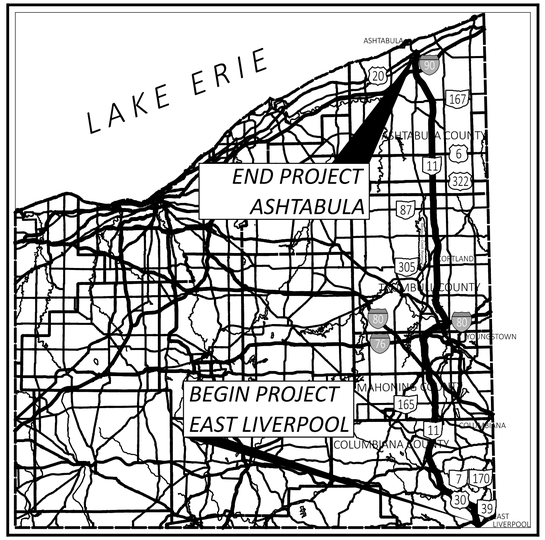
The exact duration of construction is dependent on the time of year NTP is given because field construction activities are likely to be impacted by winter weather. An NTP date that results in the Final Design Plan released for construction in Fall or Winter will likely result in a longer Construction Phase duration than a Final Design Plan released for construction

during warmer weather, since construction commencement may not be feasible during cold weather. “Winter Shutdown” periods should be considered when detailed scheduling activities commence.

C. **Testing, Integration and Commissioning Phase: 3-6 months.** An approximate 3-6 months is anticipated for fiber optic testing, integration and commissioning activities. Fiber testing durations can range widely due to the fragility of optical fibers, and how much testing and repair is required will hinge on the quality of the splices, terminations and the overall installation of the fiber optic cable itself. Once test results are accepted, integration and commissioning may commence. The durations of these activities will hinge on the readiness of the Owner and Stakeholders. Having the appropriate networking facilities in place will optimize the timeframe for these final activities.

If funding requires the Regional Middle Mile Backbone Network to be constructed as multiple individual products, the overall duration of design, construction, testing, integration and commissioning will increase.

APPENDIX A. PRELIMINARY ROUTING LAYOUT PLAN



LOCATION MAP

SR-11 MIDDLE MILE FIBER

COLUMBIANA, MAHONING, TRUMBULL, ASHTABULA COUNTIES

RAILROAD INVOLVEMENT

TBD

PROJECT DESCRIPTION

30% CONCEPT PLANS TO INSTALL A FIBER OPTIC NETWORK ALONG THE SR-11 CORRIDOR IN ASHTABULA, COLUMBIANA, MAHONING, AND TRUMBULL COUNTIES.

INDEX OF SHEETS:

TITLE SHEET	*1*
TYPICAL SECTIONS	*2*
SCHEMATIC PLAN	*3 - 4*
PLANS	*5 - 102*

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:
GANNETT FLEMING
2500 Corporate Exchange Drive, Suite 230, Columbus, OH 43231

30% CONCEPT PLANS
NOT FOR CONSTRUCTION
JULY 7, 2023

TITLE SHEET

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER: GF
REVIEWER: SCC 03/16/23
PROJECT ID: 117648
SHEET 1 TOTAL 102

EASTGATE FIBER PLANS

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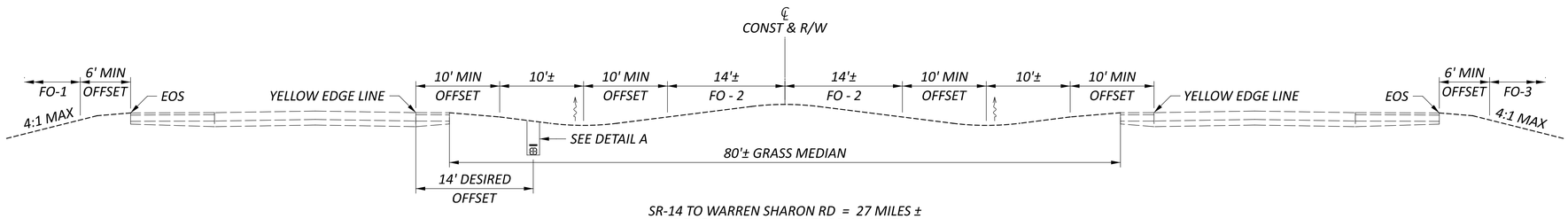
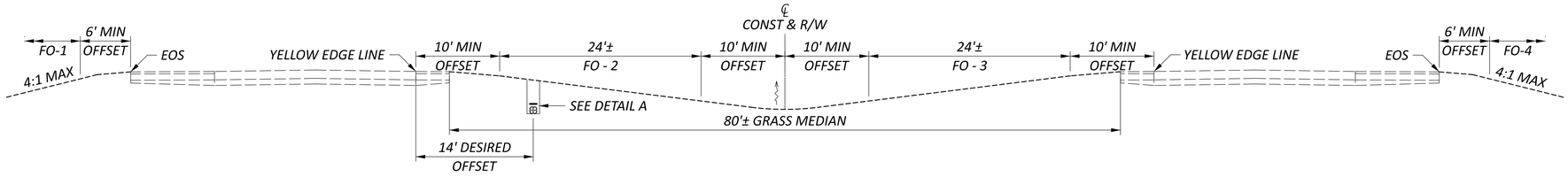


SR-14 TO WARREN SHARON RD = 27 MILES ±
(DOUBLE DITCH VARIES THROUGHOUT)



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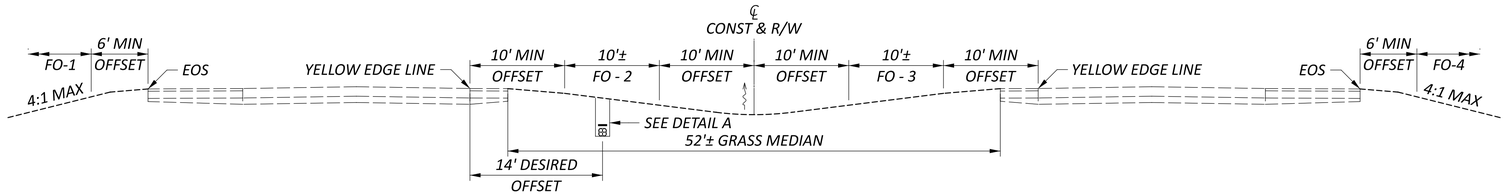
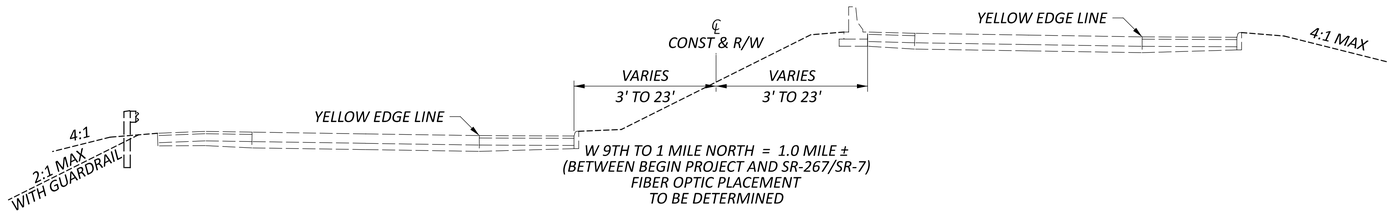
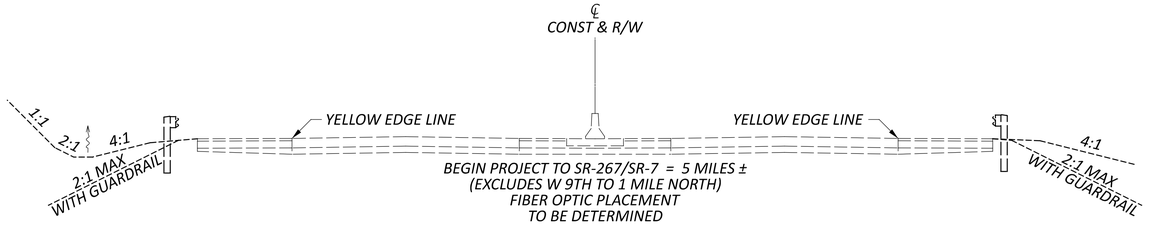


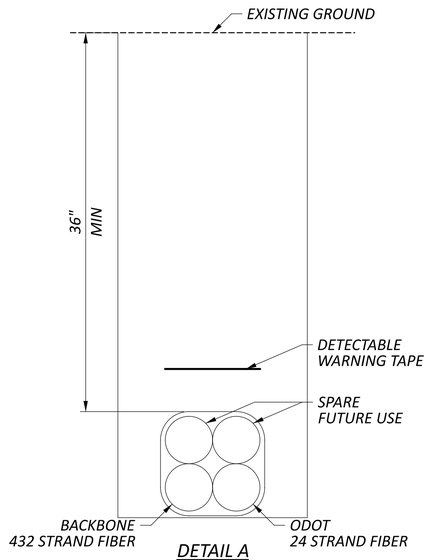
SR-267/SR-7 TO SR-14 = 18 MILES ±
WARREN SHARON RD TO END PROJECT = 45 MILES ±



W 9TH TO 1 MILE NORTH = 1.0 MILE ±
(BETWEEN BEGIN PROJECT AND SR-267/SR-7)
FIBER OPTIC PLACEMENT
TO BE DETERMINED



BEGIN PROJECT TO SR-267/SR-7 = 5 MILES ±
(EXCLUDES W 9TH TO 1 MILE NORTH)
FIBER OPTIC PLACEMENT
TO BE DETERMINED



DETAIL A

MICRO-DUCT PATHWAY
4 CELL PATHWAY FOR COMMUNICATIONS

PER COORDINATION WITH ODOT, IT IS PREFERRED TO INSTALL UNDERGROUND DUCT WITH AN OFFSET OF 14-15' FROM YELLOW EDGE LINE. AREAS OF ALLOWABLE INSTALLATION HAVE BEEN DESIGNATED 'FO - X' WITHIN EACH TYPICAL SECTION. FINAL APPROVAL NEEDED DURING DETAILED DESIGN.

NOTE:

TYPICAL SECTIONS NOT REPRESENTATIVE OF CULVERT PIPE AND ROADWAY CROSSINGS, BRIDGE ATTACHMENTS, AND OTHER NON-TYPICAL LOCATIONS.

TYPICAL SECTIONS

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 202
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 2 TOTAL 102

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EASTGATE FIBER PLANS

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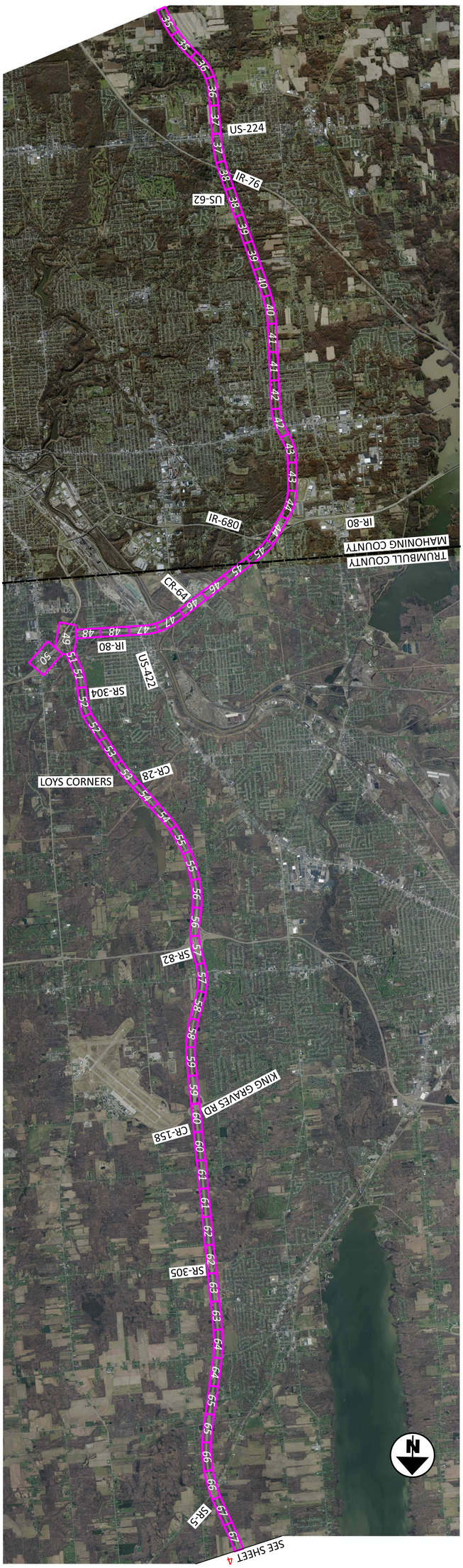



SHEET	TOTAL
3	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY: GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

SCHEMATIC PLAN

HORIZONTAL SCALE IN FEET
0 5000
2500 10000

EASTGATE FIBER PLANS

MODEL: TB002 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:45:20 AM USER: gfurio
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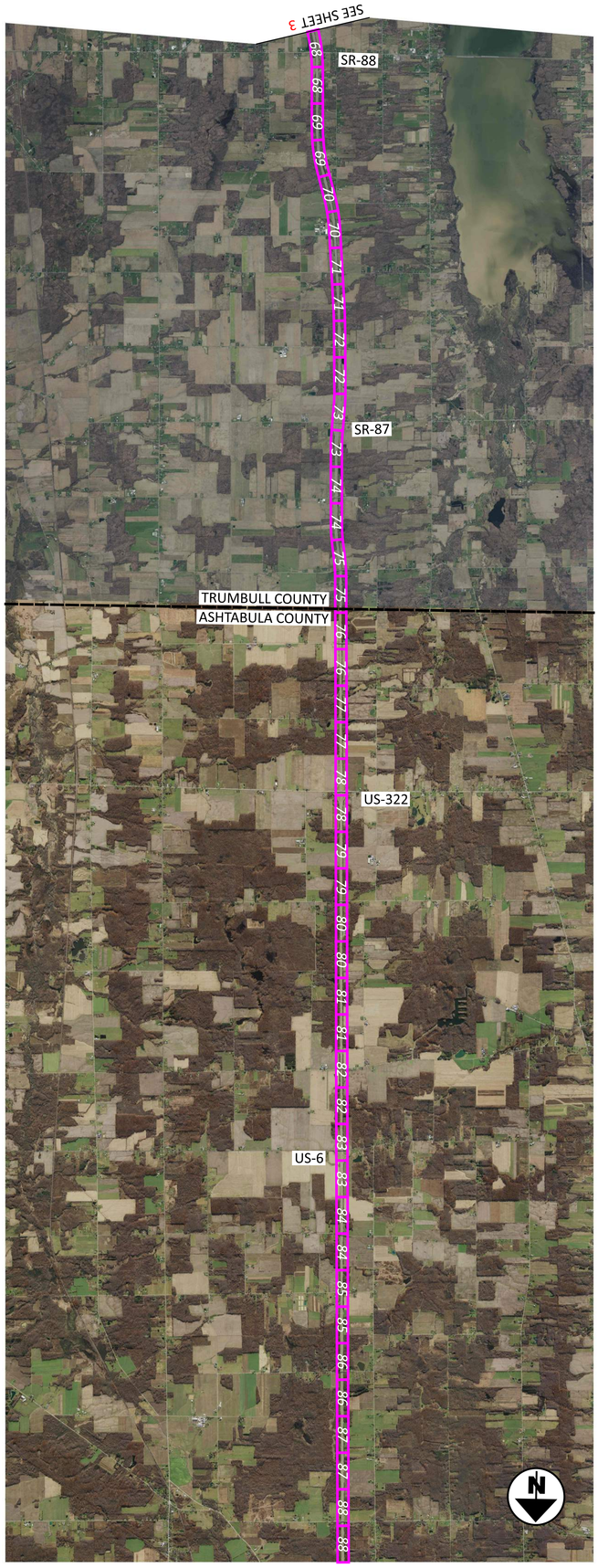
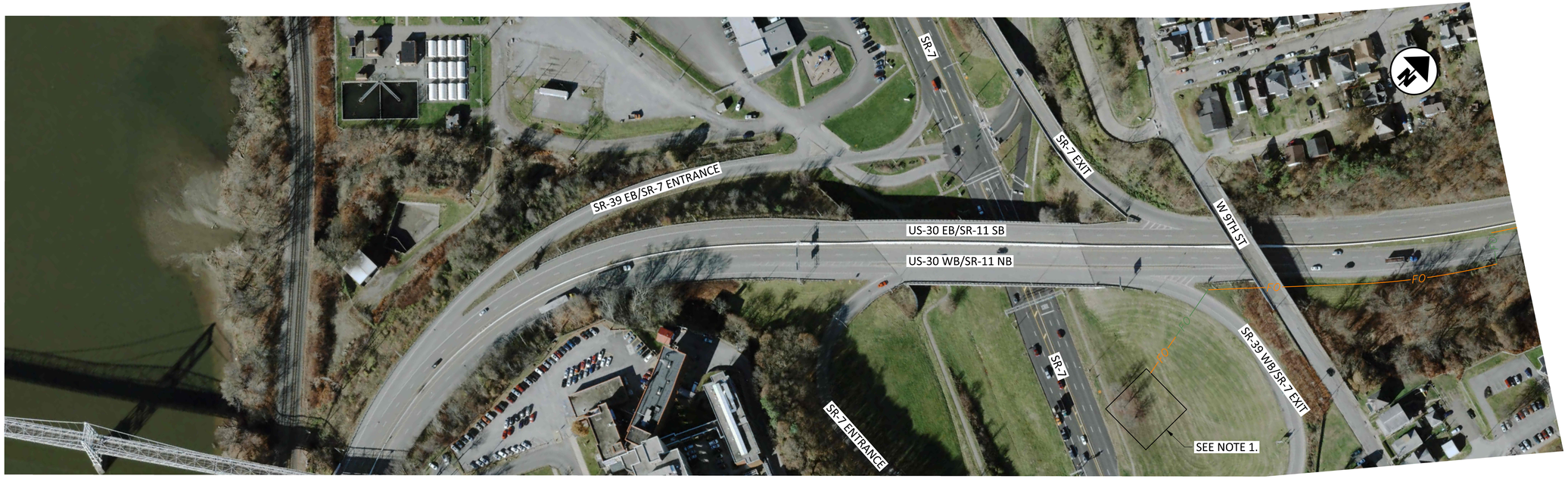


SCHEMATIC PLAN

HORIZONTAL SCALE IN FEET
0 2500 5000 10000

SHEET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
4 | TOTAL 102	117648	SCC 03/16/23	GF	GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231





LEGEND

FO — *TRENCH*

FO — *BORE*

FO — *ATTACH*

NOTES:

1. PROPOSED LOCATION OF TERMINATION BUILDING IS PRELIMINARY, SUBJECT TO CHANGE, AND CONTINGENT ON ODOT APPROVAL IF WITHIN R/W.
2. PROPOSED INSTALLATION TYPE IS IDENTIFIED PRIMARILY FOR COST ESTIMATING PURPOSES. FINAL INSTALLATION TYPE TO BE DETERMINED IN DETAILED DESIGN / CONSTRUCTION (TYP).
3. PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.
4. SEE IMPLEMENTATION PLAN DATED JULY 2023 FOR PROPOSED "MEET-ME" LOCATIONS FOR POTENTIAL EXISTING (OR FUTURE) CONNECTIONS WITH STAKEHOLDERS, COMMUNITY ANCHOR INSTITUTIONS AND/OR ISPS (TYP).

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP001 PAPERSIZE: 34x22 (in.) DATE: 7/6/2023 TIME: 3:49:47 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 5 TOTAL 102





LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP002 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 3:29:23 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 220
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 6 TOTAL 102





EASTGATE FIBER PLANS

MODEL: TP003 PAPERSIZE: 34x22 (in.) DATE: 6/22/2023 TIME: 3:33:45 PM USER: gfurlo
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LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

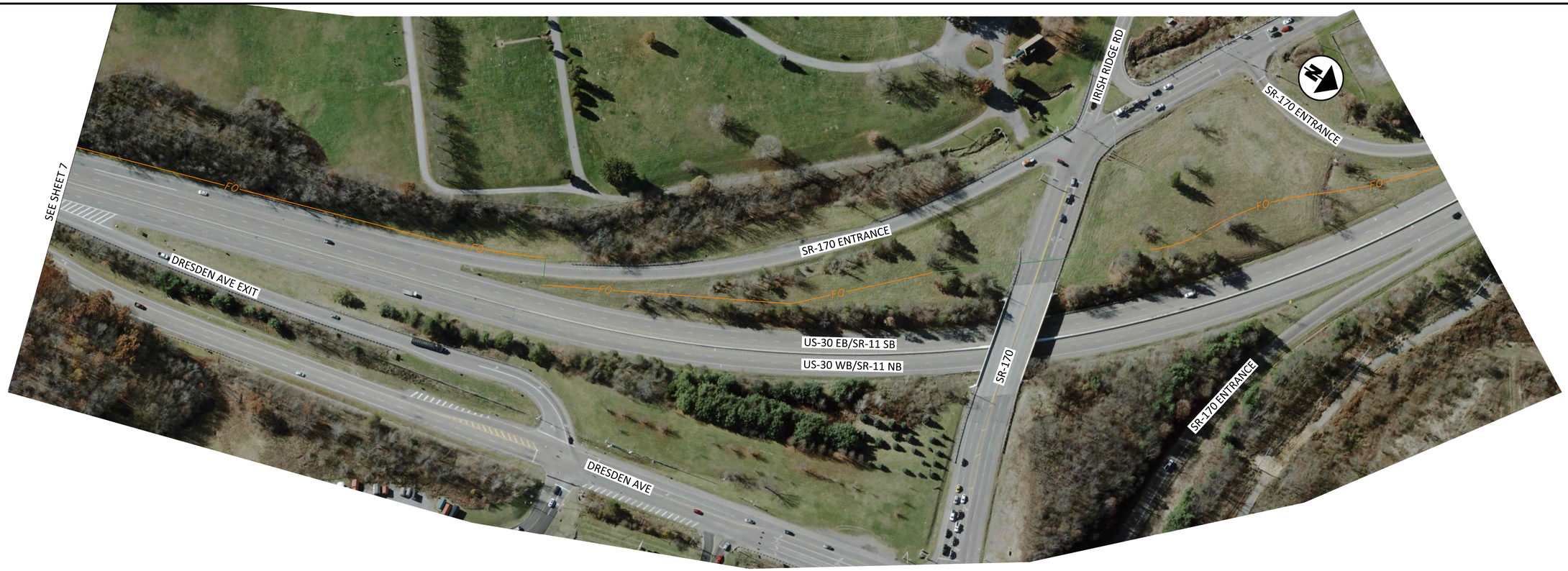
DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 7 TOTAL 102





LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 8 TOTAL 102





LEGEND

FO *TRENCH*

FO *BORE*

FO *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET

0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP005 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 5:38:46 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 202
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 9 TOTAL 102





EASTGATE FIBER PLANS

MODEL: TP006 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 5:43:39 PM USER: gfurlo
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LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 10 TOTAL 102





LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

NOTE:

PROPOSED LOCATION OF THE FIBER OPTIC CABLE THROUGH THIS SECTION OF SR-11 WILL REQUIRE COORDINATION WITH ODOT DURING DETAILED DESIGN TO ARRIVE AT AN ACCEPTABLE OFFSET.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP007 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 5:48:13 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 11 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP008 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:50:51 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 12 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP009 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:51:32 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 13 TOTAL 102





LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:
PRELIMINARY COORDINATION WITH ODOT DISTRICT 11 WAS PERFORMED TO DETERMINE ACCEPTANCE OF A BRIDGE ATTACHMENT AT THIS LOCATION. BORE IS CURRENTLY BEING ASSUMED. ODOT DISTRICT 11 WILL REQUIRE JUSTIFICATION FOR A BRIDGE ATTACHMENT PRIOR TO APPROVAL.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP010 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:52:14 AM USER: gfurlo
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DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 202
Columbus, OH 43231

DESIGNER: GF
REVIEWER: SCC 03/16/23
PROJECT ID: 117648
SHEET: 14 TOTAL: 102

EASTGATE FIBER PLANS

MODEL: TP011 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:52:57 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 14



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
15	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP012 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:53:41 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





SHEET 16	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP013 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:54:24 AM USER: gfurio
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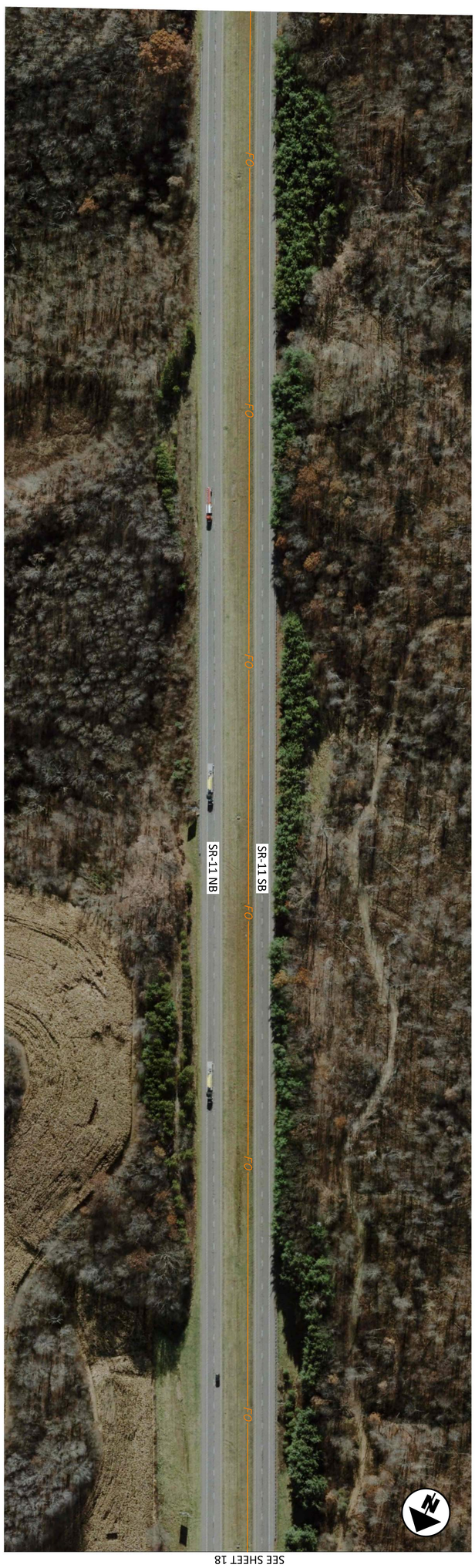
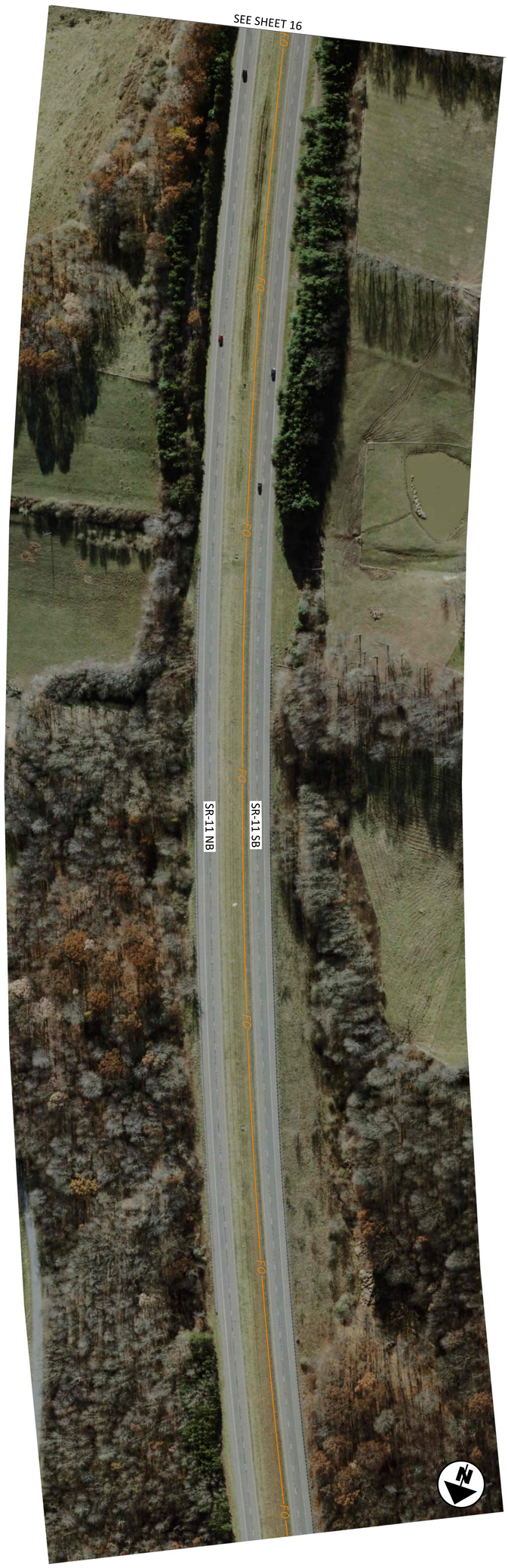
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 17 TOTAL 102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

PLAN





HORIZONTAL SCALE IN FEET
0 50 100 200

LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:
PRELIMINARY COORDINATION WITH ODOT DISTRICT 11 WAS PERFORMED TO DETERMINE ACCEPTANCE OF A BRIDGE ATTACHMENT AT THIS LOCATION. BORE IS CURRENTLY BEING ASSUMED. ODOT DISTRICT 11 WILL REQUIRE JUSTIFICATION FOR A BRIDGE ATTACHMENT PRIOR TO APPROVAL.

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER: GF
REVIEWER: SCC 03/16/23
PROJECT ID: 117648
SHEET 18 TOTAL 102

MODEL: TP014 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:55:07 AM USER: gfurio
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EASTGATE FIBER PLANS

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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 19 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP016 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:56:41 AM USER: gfurio
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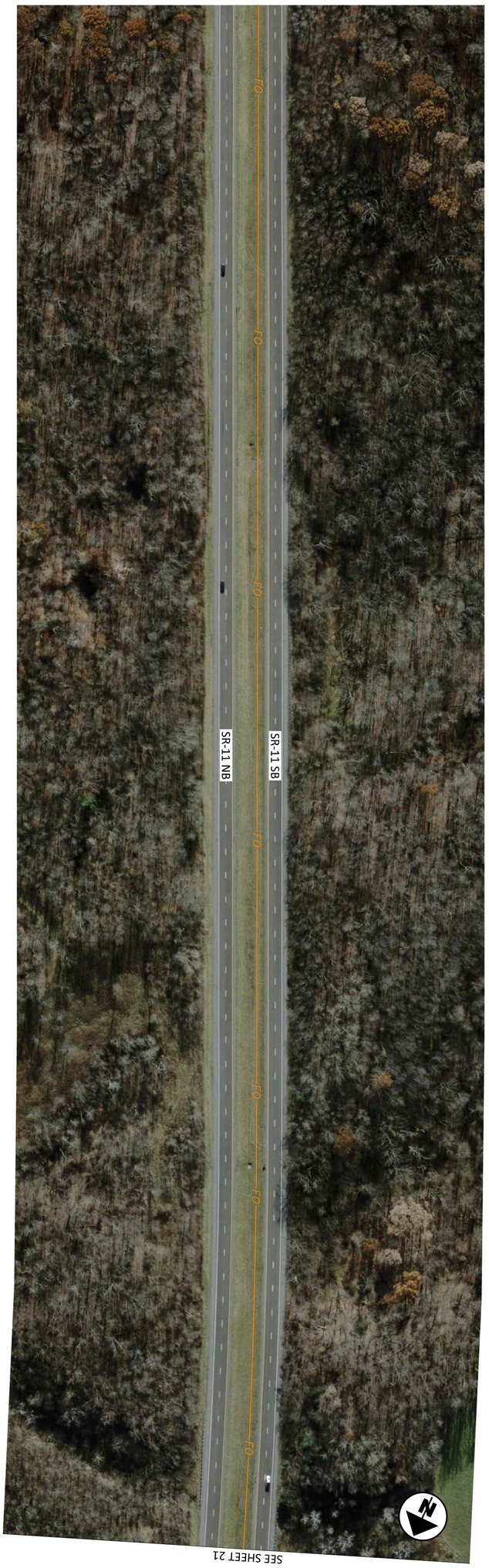
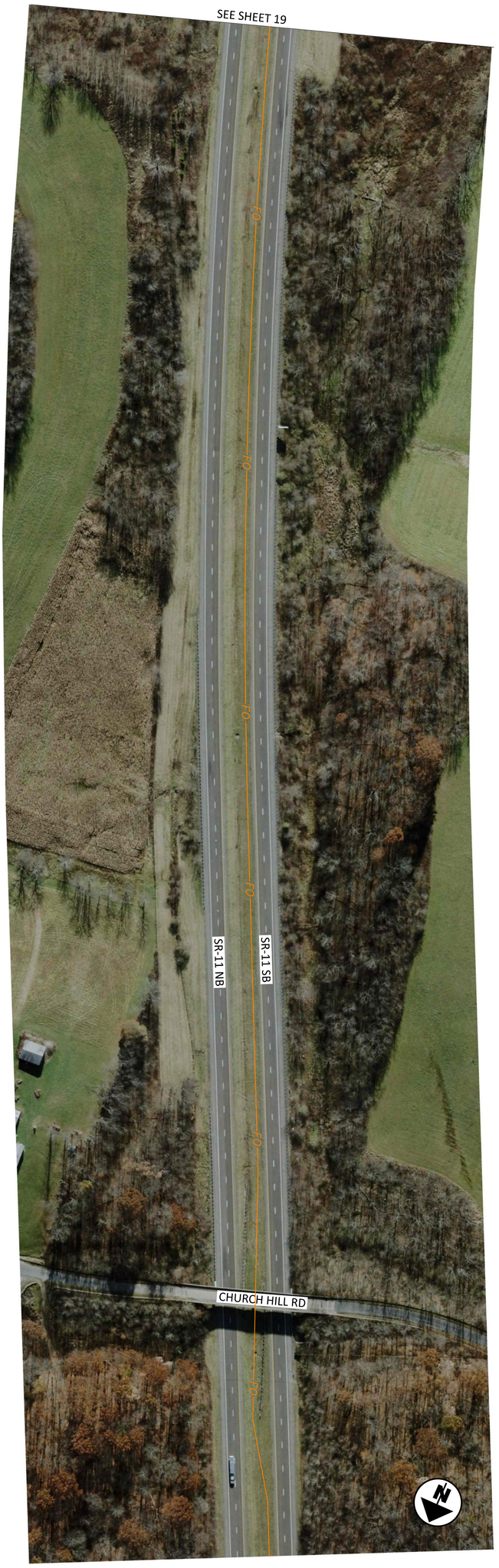
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	20	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP017 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 9:57:27 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY	GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231
DESIGNER	GF
REVIEWER	SCC 03/16/23
PROJECT ID	117648
SHEET	21
TOTAL	102

EASTGATE FIBER PLANS

MODEL: TP018 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:13:52 AM USER: gfurio
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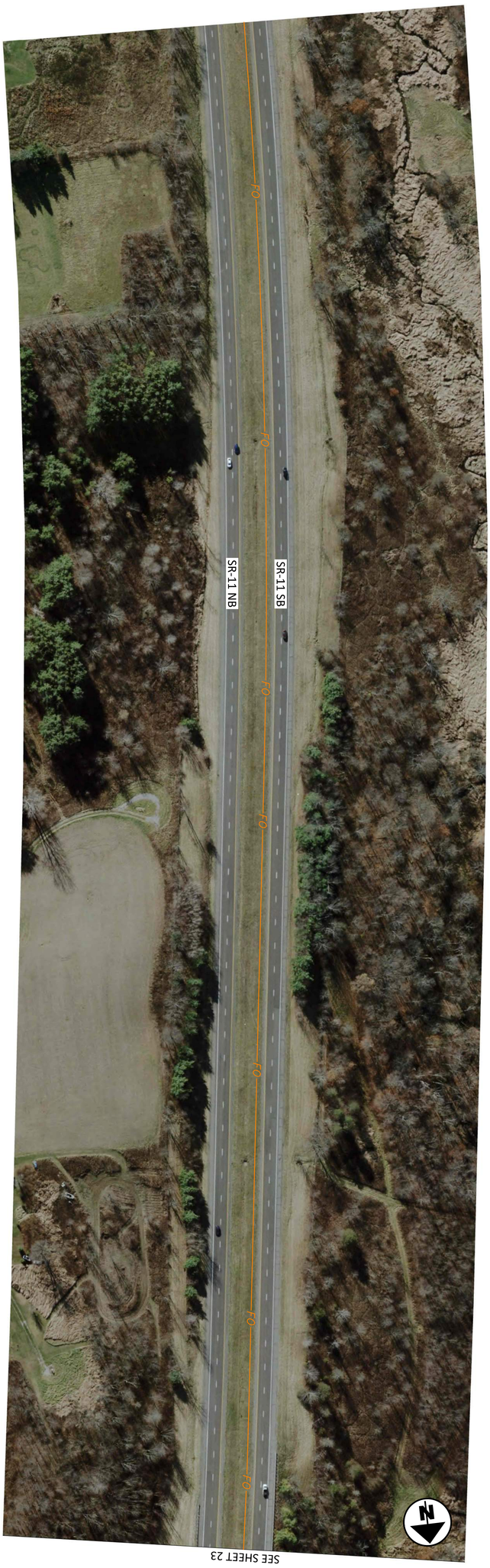
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	22	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP019 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:14:33 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	23	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP020 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:15:10 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 23



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 24 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP021 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:15:48 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
25	102

PROJECT ID 117648

REVIEWER SCC 03/16/23

DESIGNER GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP022 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:16:26 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 26 TOTAL 102

EASTGATE FIBER PLANS

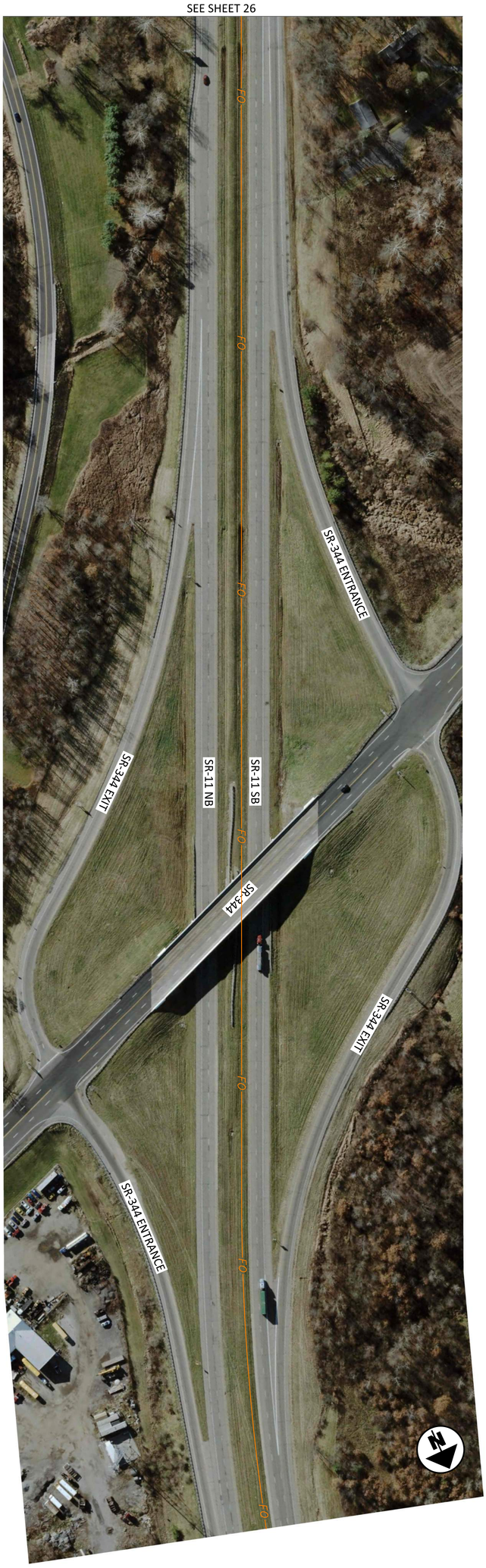
MODEL: TP023 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:17:05 AM USER: gfurio
pw:\\gfnet-pw.bentley.com:gfnet-pw-01\Documents\Projects\73422\400-Engineering\Traffic\Sheets\117648_TP000.dgn

LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 26



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
27	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF
DESIGN AGENCY: GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP024 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:17:48 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 28 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP025 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:18:54 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 29 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP026 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:19:54 AM USER: gfurio
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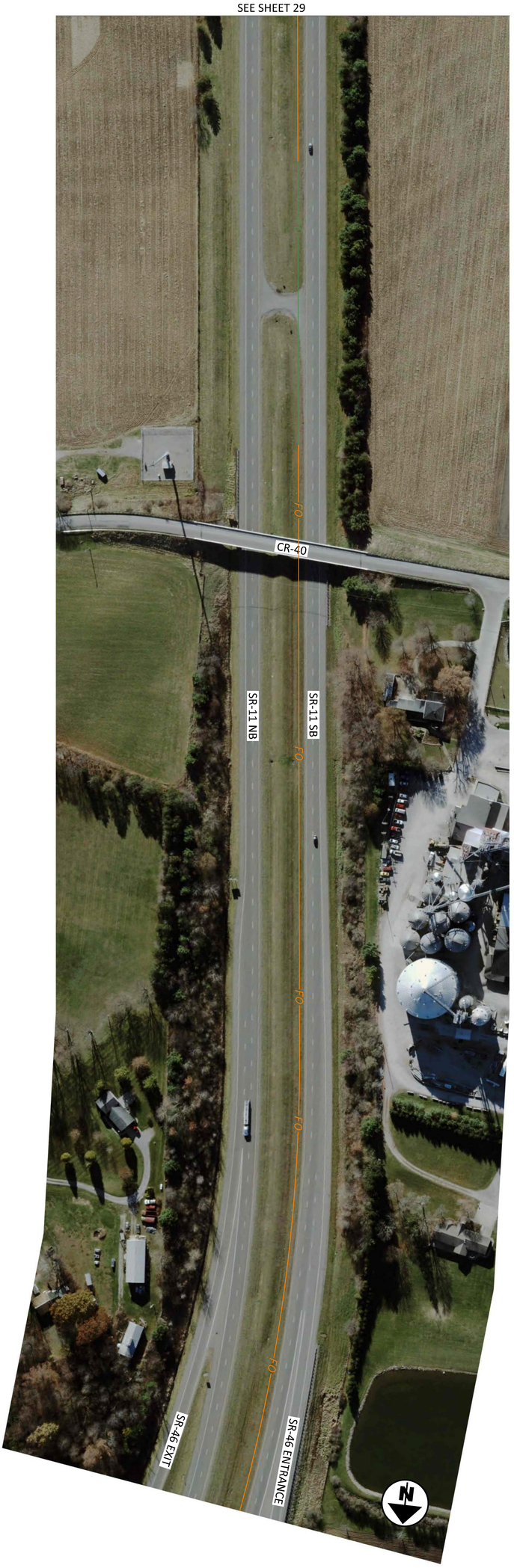
LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 29



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 30 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP027 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:20:46 AM USER: gfurio
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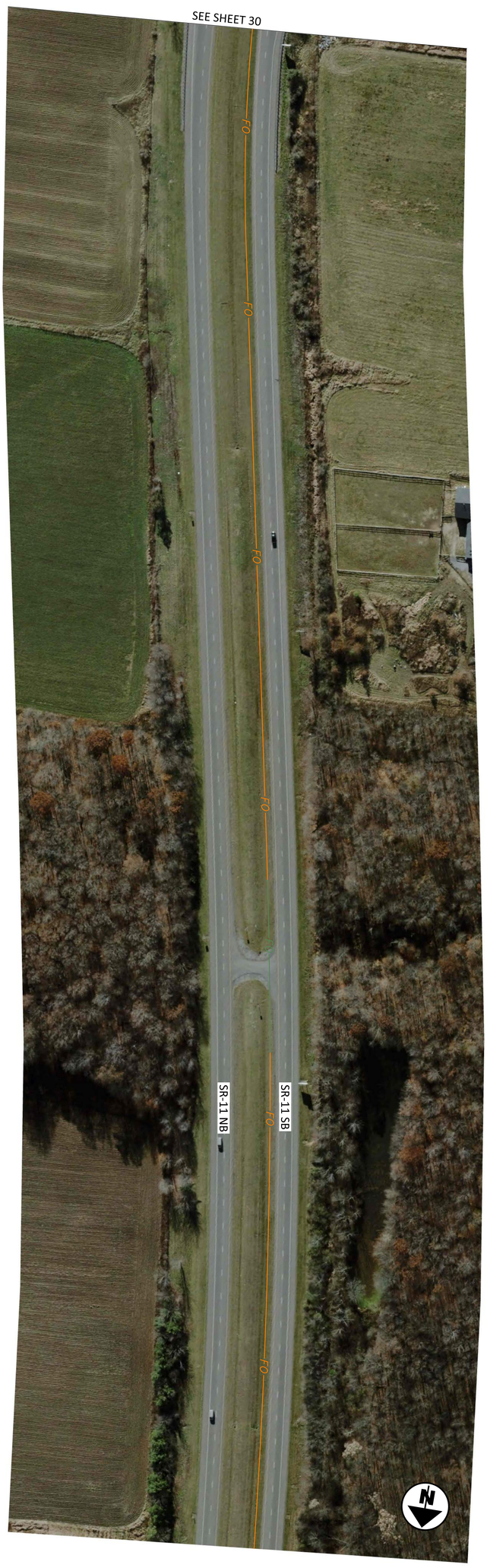
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 31	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP028 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:21:29 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 32 TOTAL 102

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP029 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:22:03 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	33	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP030 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:22:39 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 34 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP031 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:23:17 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 35 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP032 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:23:54 AM USER: gfurio
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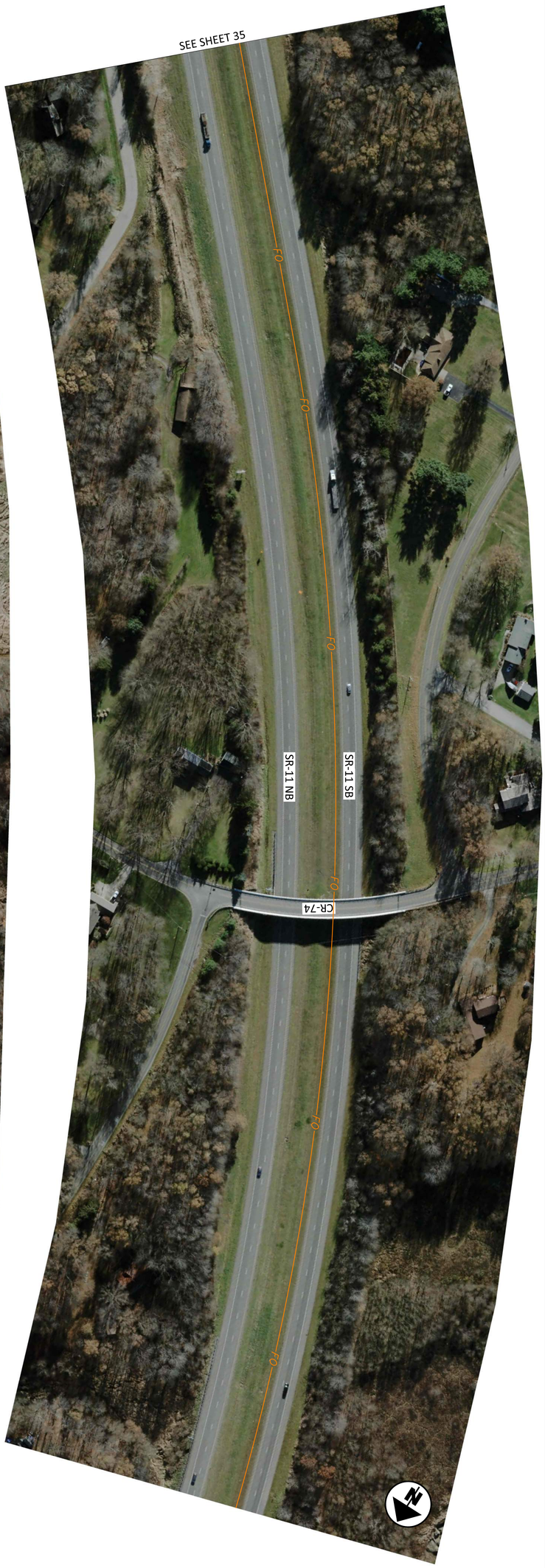
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	36	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231





LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

EASTGATE FIBER PLANS

MODEL: TP033 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:24:31 AM USER: gfurlo
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HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 37 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP034 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:25:09 AM USER: gfurio
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LEGEND

FO — TRENCH

FO — BORE

FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 38 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP035 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:25:52 AM USER: gfurio
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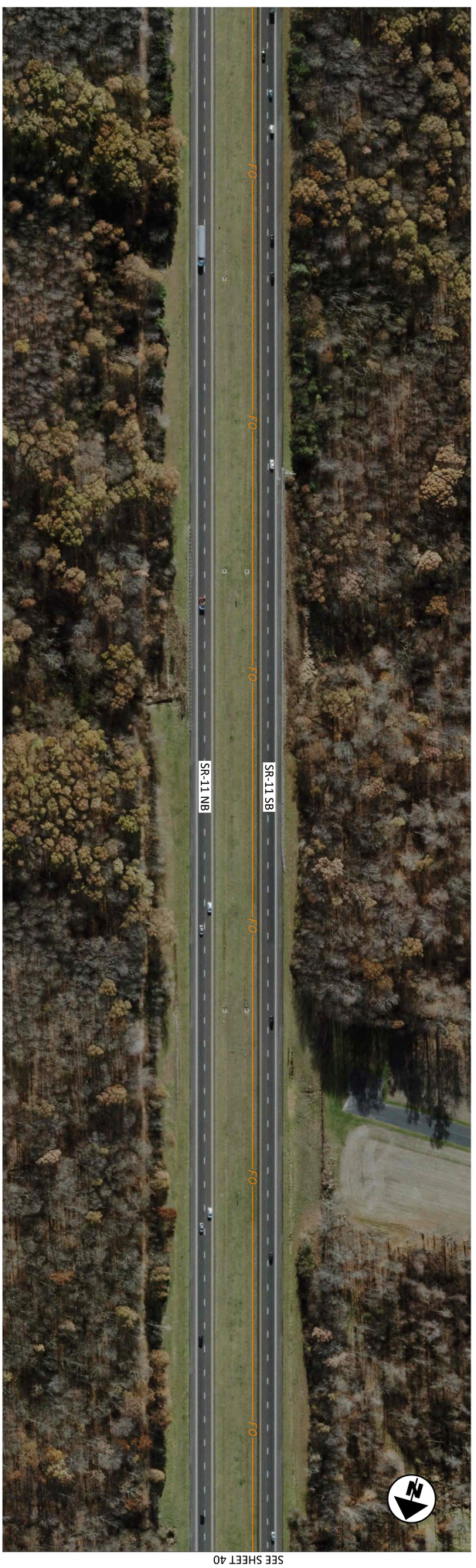
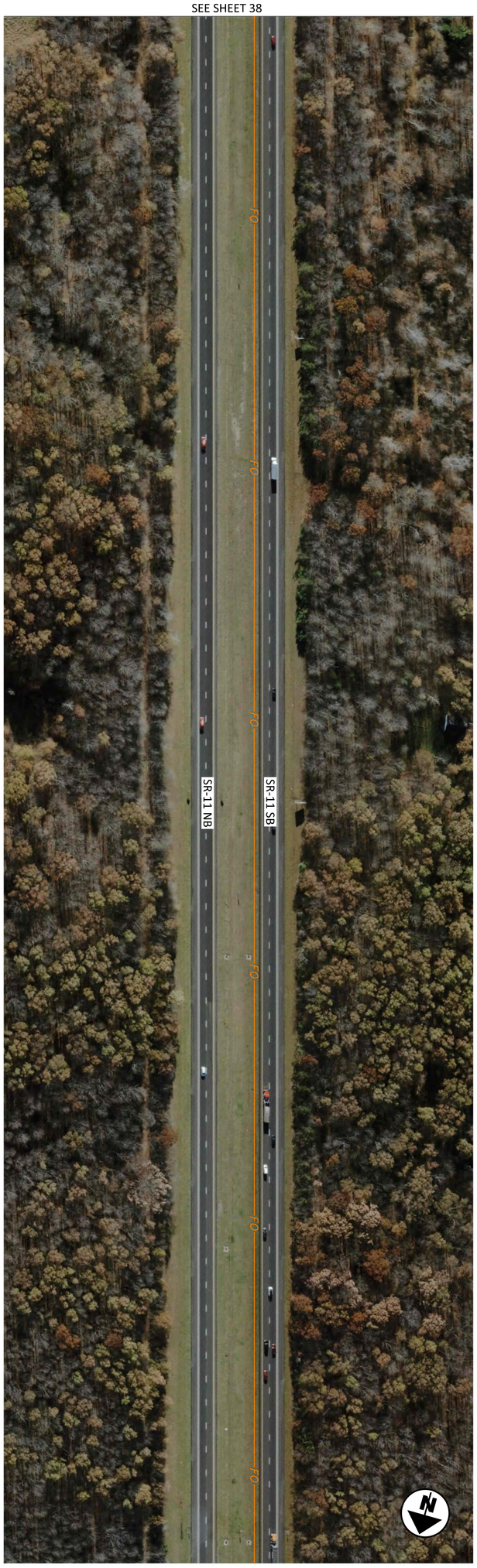
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 39 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP036 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:26:34 AM USER: gfurio
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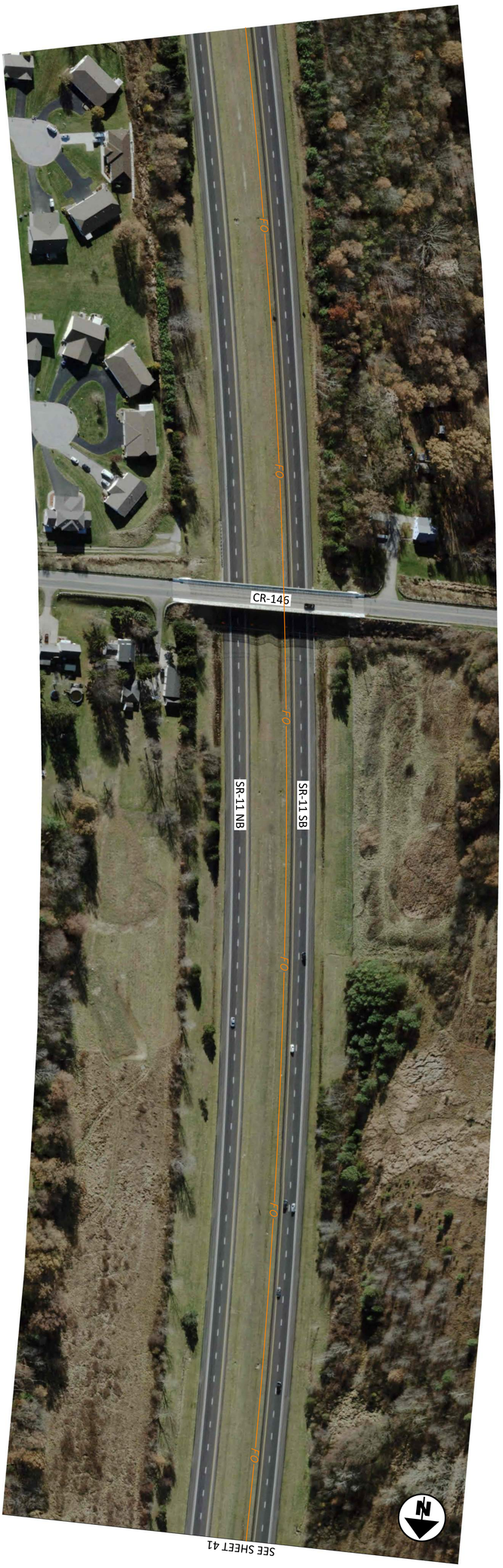
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 40	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP037 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:27:17 AM USER: gfurio
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LEGEND

FO TRENCH

FO BORE

FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 41 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP038 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:27:58 AM USER: gfurio
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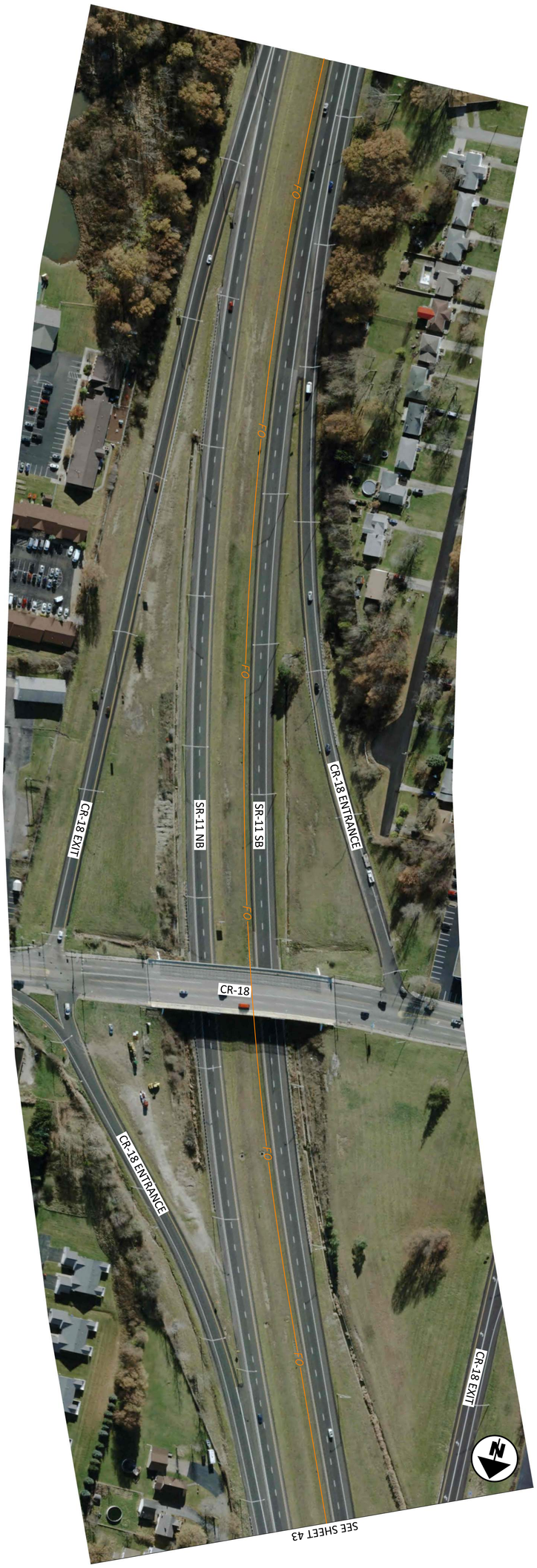
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
42	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF
DESIGN AGENCY: GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP039 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:28:39 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





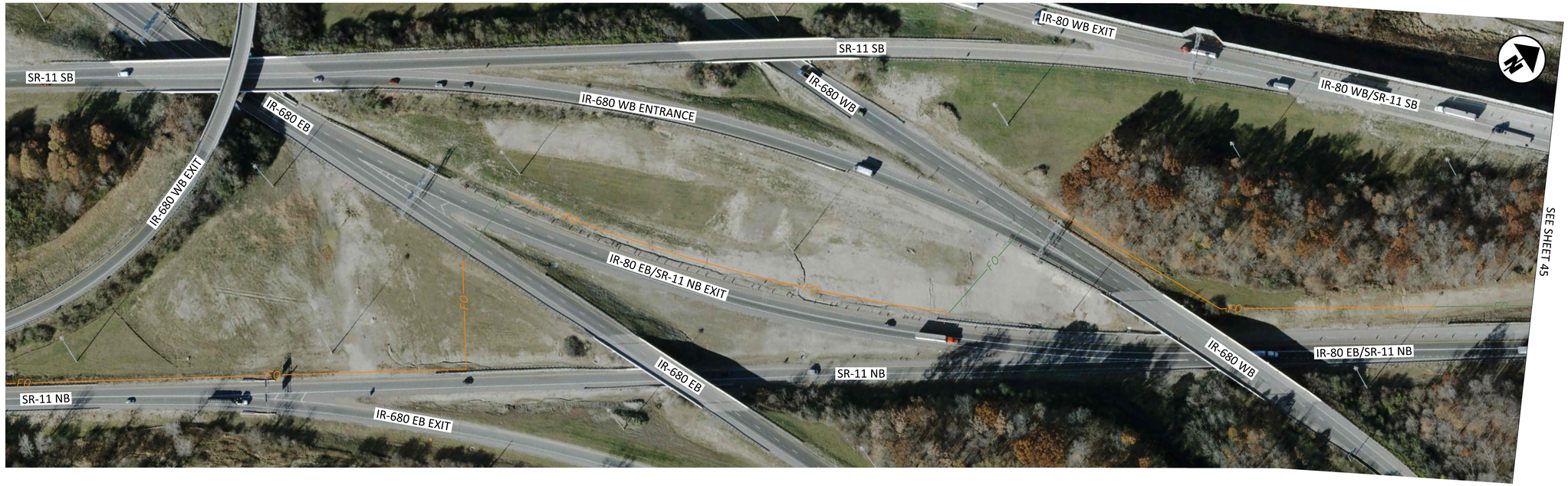
PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
GF	SCC 03/16/23	117648	43	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231





LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH

NOTE:

PROPOSED LOCATION OF FIBER OPTIC CABLE THROUGH INTERCHANGE IS DEPICTED FOR COST ESTIMATING PURPOSES. FINAL LOCATION TO BE DETERMINED IN FINAL DESIGN / CONSTRUCTION.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP040 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:24:01 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 44 TOTAL 102





LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

NOTE:

PROPOSED LOCATION OF FIBER OPTIC CABLE THROUGH INTERCHANGE IS DEPICTED FOR COST ESTIMATING PURPOSES. FINAL LOCATION TO BE DETERMINED IN FINAL DESIGN / CONSTRUCTION.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP041 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:29:43 PM USER: gfurlo
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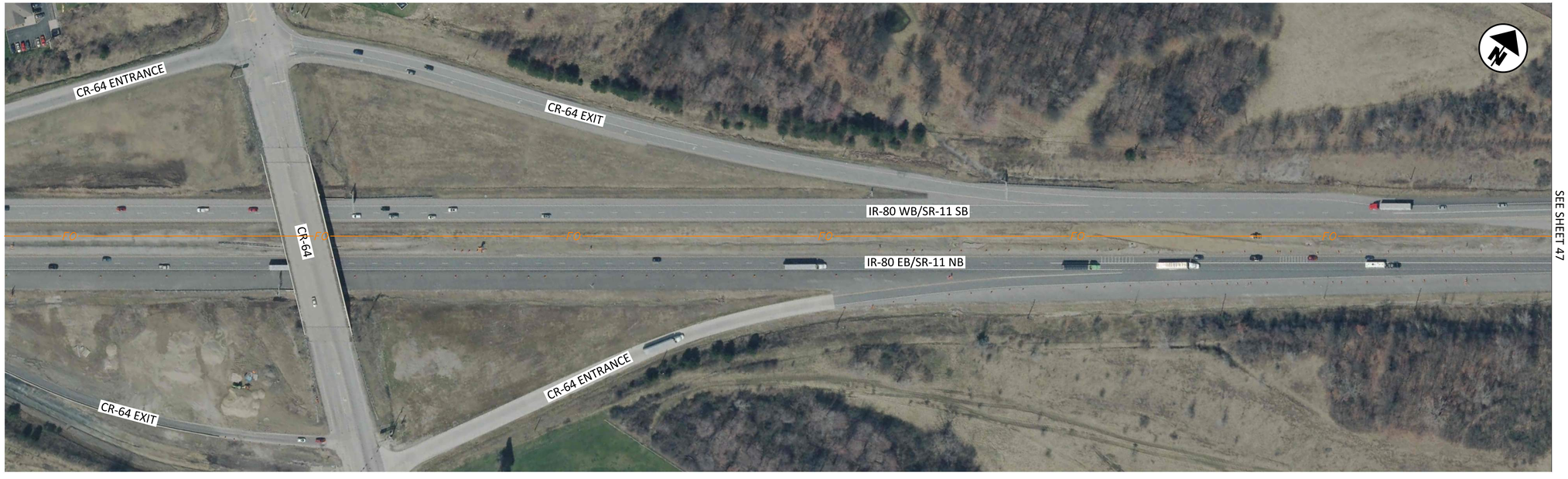
DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 45 TOTAL 102



SEE SHEET 45



SEE SHEET 47

LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

EASTGATE FIBER PLANS

MODEL: TP042 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:31:03 AM USER: gfurlo
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HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

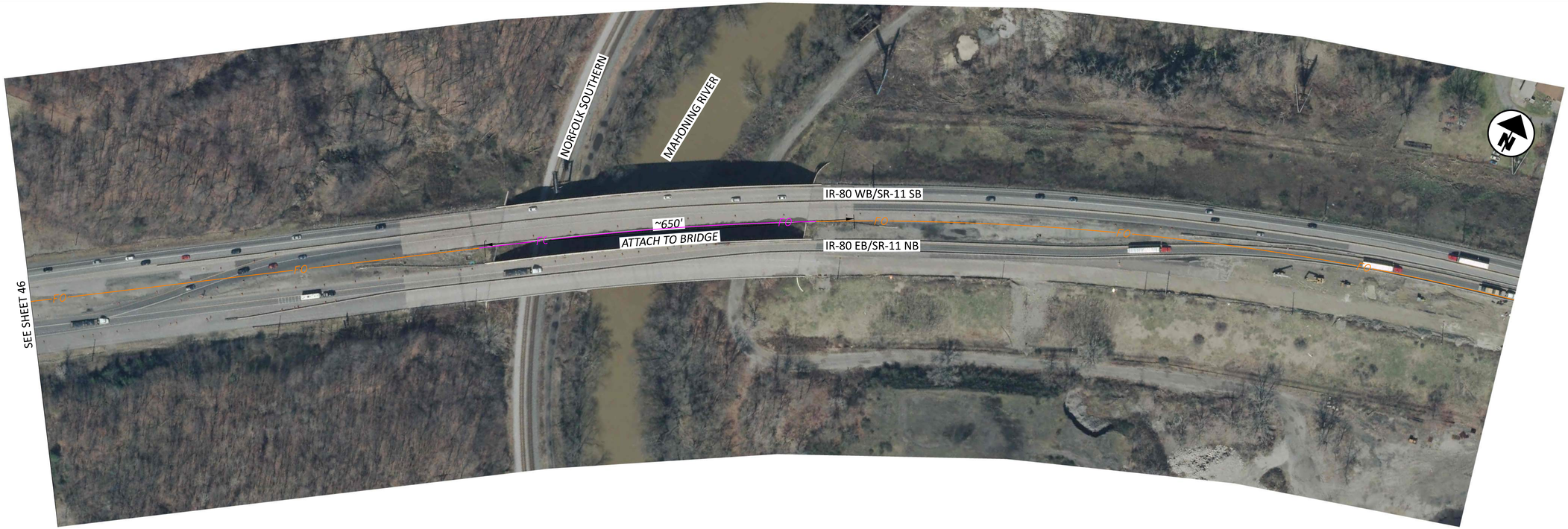
DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 46 TOTAL 102

EASTGATE FIBER PLANS





LEGEND

FO TRENCH
FO BORE
FO ATTACH

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2300 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 47 TOTAL 102

MODEL: TP043 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:32:07 AM USER: gfurlo
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LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

EASTGATE FIBER PLANS

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HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 48 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP045 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:37:20 PM USER: gfurlo
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SEE SHEET 48

SR-11 NB/IR-80 EB

IR-80 EB EXIT

SR-711 SB

SR-11 SB EXIT

SR-11 SB

SEE SHEET 51

IR-80 WB

SR-711 SB ENTRANCE

SR-11 NB

IR-80 EB

SR-711 NB

IR-80 EB EXIT

SR-11 NB ENTRANCE

IR-80 WB

IR-80 EB EXIT

SEE SHEET 50

FO

LEGEND

FO *TRENCH*

FO *BORE*

FO *ATTACH*

NOTES:

1. EXTEND PROPOSED FIBER OPTIC CABLE TO SR-193 AND CONNECT INTO EXISTING INFRASTRUCTURE (THAT CONTINUES TO YOUNGSTOWN DATA CENTER).

2. PROPOSED LOCATION OF FIBER OPTIC CABLE THROUGH INTERCHANGE IS DEPICTED FOR COST ESTIMATING PURPOSES. FINAL LOCATION TO BE DETERMINED IN FINAL DESIGN / CONSTRUCTION.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 49 TOTAL 102

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP046 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:39:56 PM USER: gfurlo
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LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

NOTE:

EXTEND PROPOSED FOC TO SR-193 AND CONNECT INTO EXISTING INFRASTRUCTURE (THAT CONTINUES TO YOUNGSTOWN DATA CENTER).

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 50 TOTAL 102





LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP047 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:34:56 AM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 51 | TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP048 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:35:34 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 52 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP049 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:36:19 AM USER: gfurio
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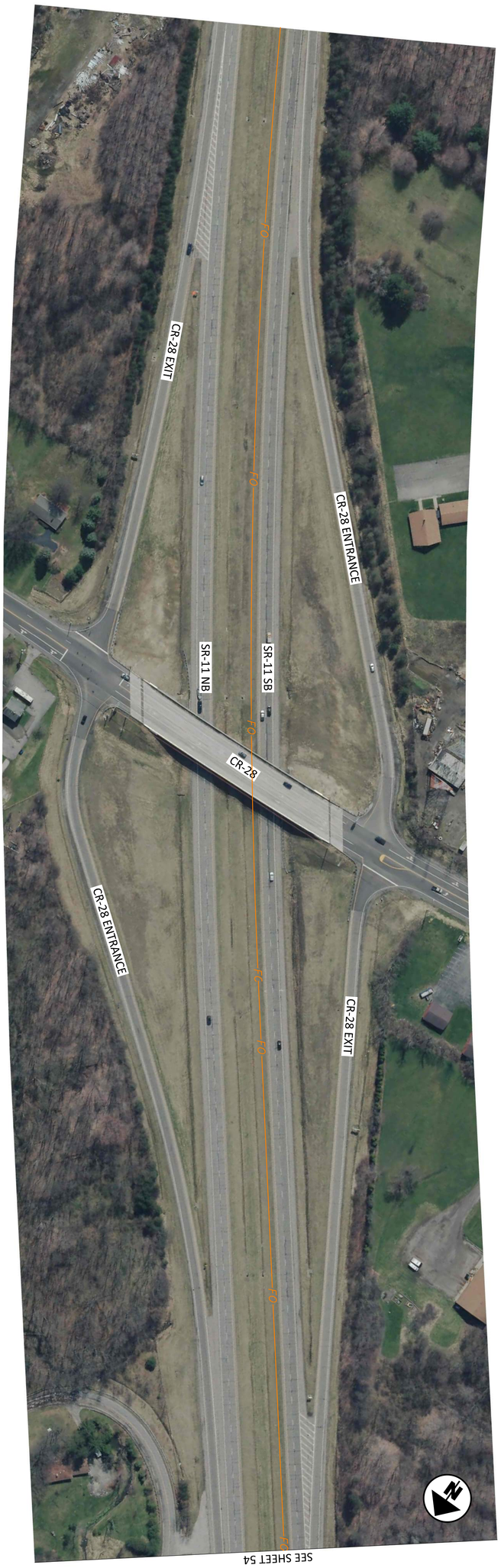
LEGEND

FO TRENCH
FO BORE
FO ATTACH





SHEET	TOTAL
53	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

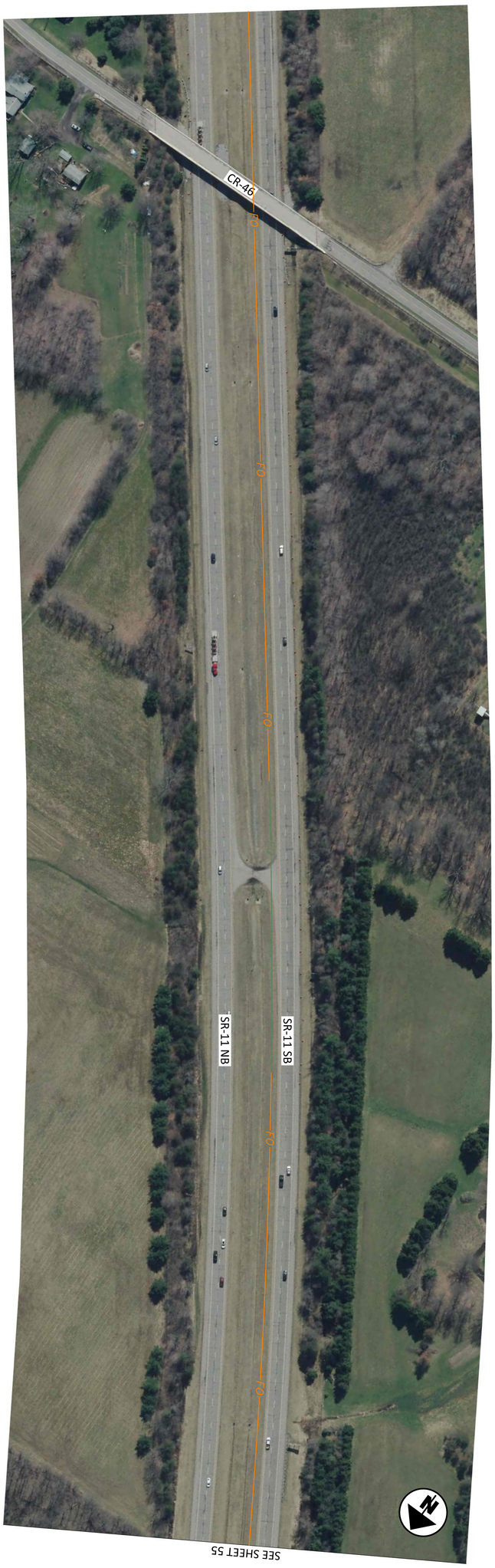
HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP050 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:37:05 AM USER: gfurio
pw:\\gfnet-pw.bentley.com:gfnet-pw-01\Documents\Projects\73422\400-Engineering\Traffic\Sheets\117648_TP000.dgn

LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 54 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP051 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:37:52 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 55 TOTAL 102

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP052 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:38:39 AM USER: gfurio
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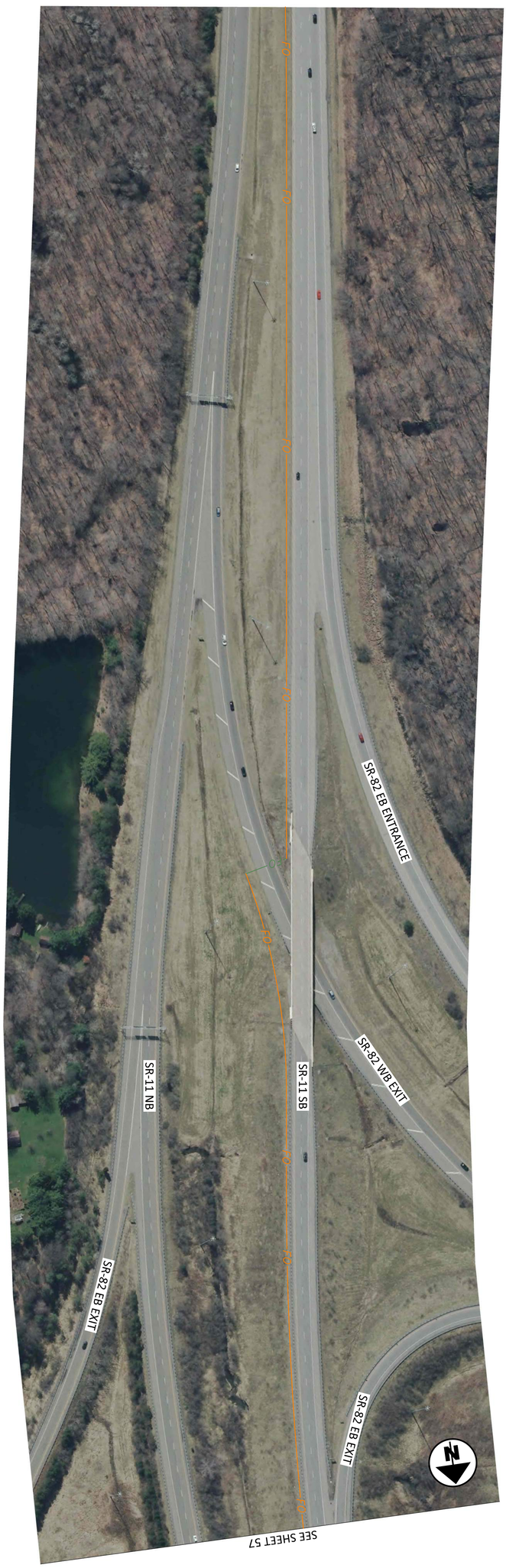
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH



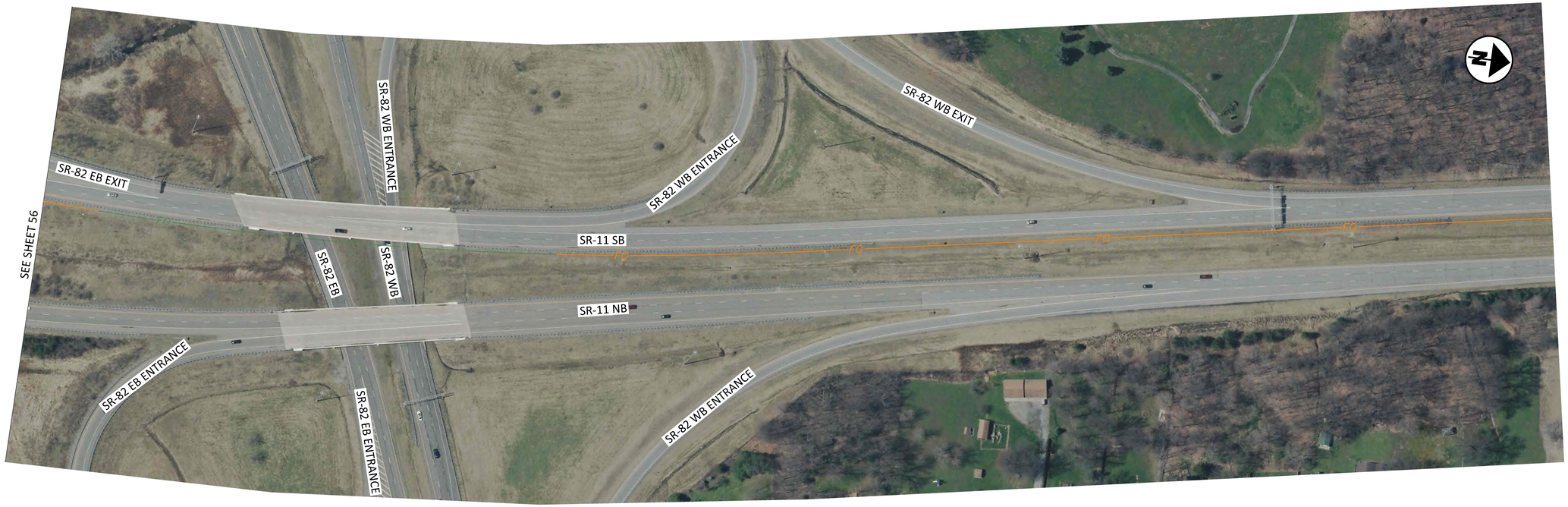


PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 56 TOTAL 102





NOTE:

PROPOSED LOCATION OF FIBER OPTIC CABLE THROUGH INTERCHANGE IS DEPICTED FOR COST ESTIMATING PURPOSES. FINAL LOCATION TO BE DETERMINED IN FINAL DESIGN / CONSTRUCTION.

LEGEND

FO	*TRENCH*
FO	*BORE*
FO	*ATTACH*

EASTGATE FIBER PLANS

MODEL: TP053 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:42:08 PM USER: gfurio
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HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 57 TOTAL 102





LEGEND

FO *TRENCH*
FO *BORE*
FO *ATTACH*

EASTGATE FIBER PLANS

MODEL: TP054 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:40:10 AM USER: gfurlo
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HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER
GF

REVIEWER
SCC 03/16/23

PROJECT ID
117648

SHEET 58 | TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP055 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:40:55 AM USER: gfurio
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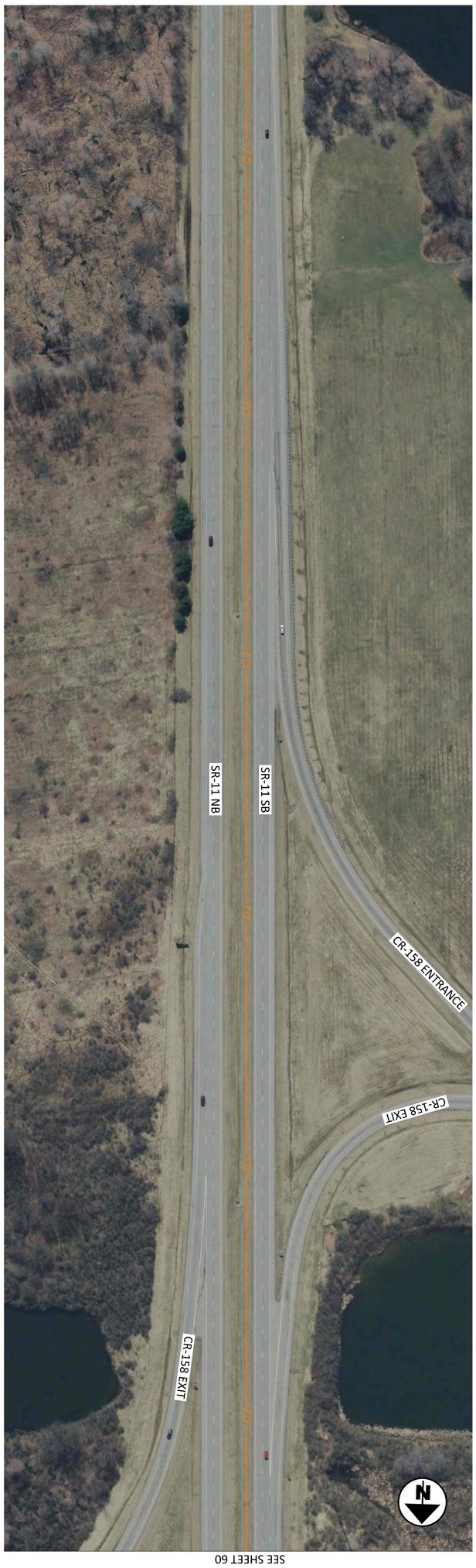
LEGEND

FO — TRENCH

FO — BORE

FO — ATTACH





SHEET 59 / TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231	PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP056 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:41:41 AM USER: gfurio
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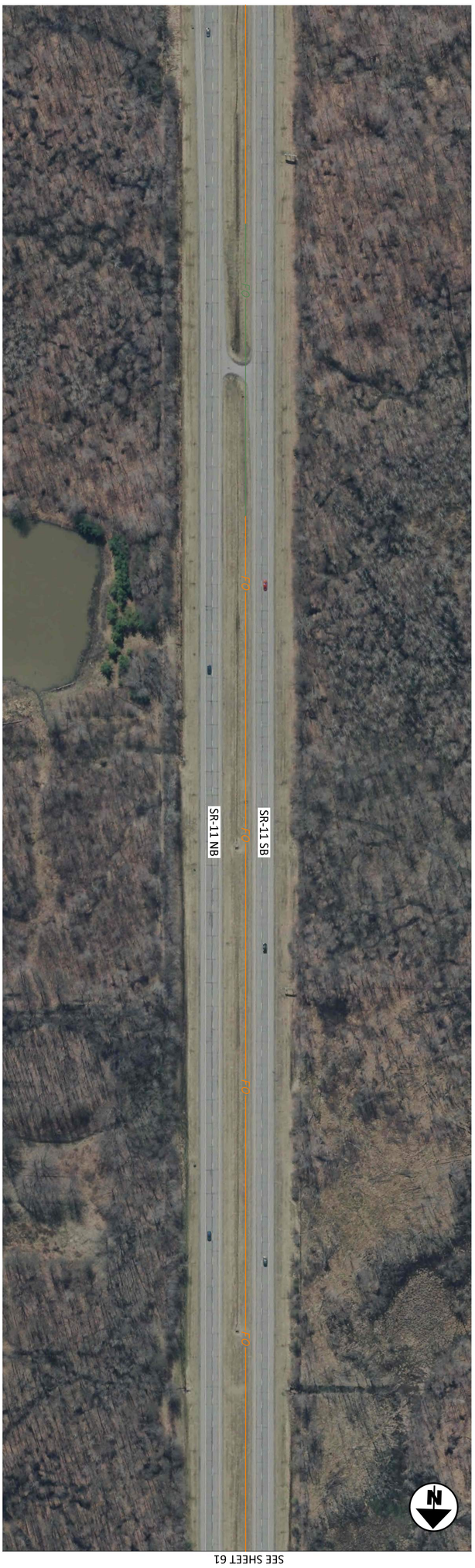
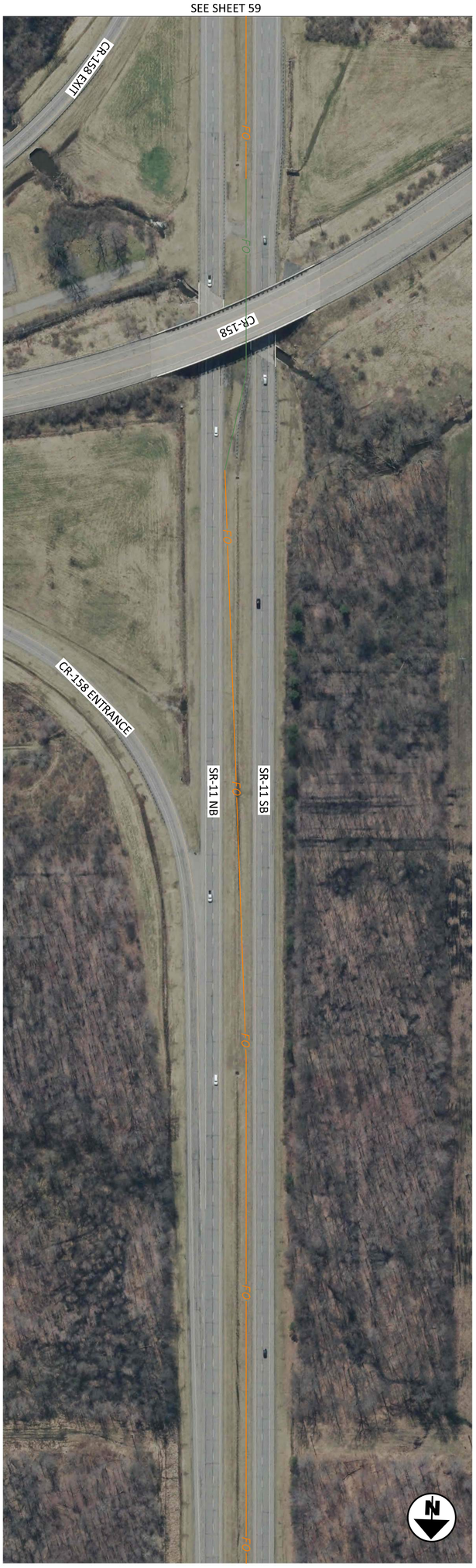
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	REVIEWER	PROJECT ID	SHEET
GF	SCC 03/16/23	117648	60

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP057 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:42:26 AM USER: gfurio
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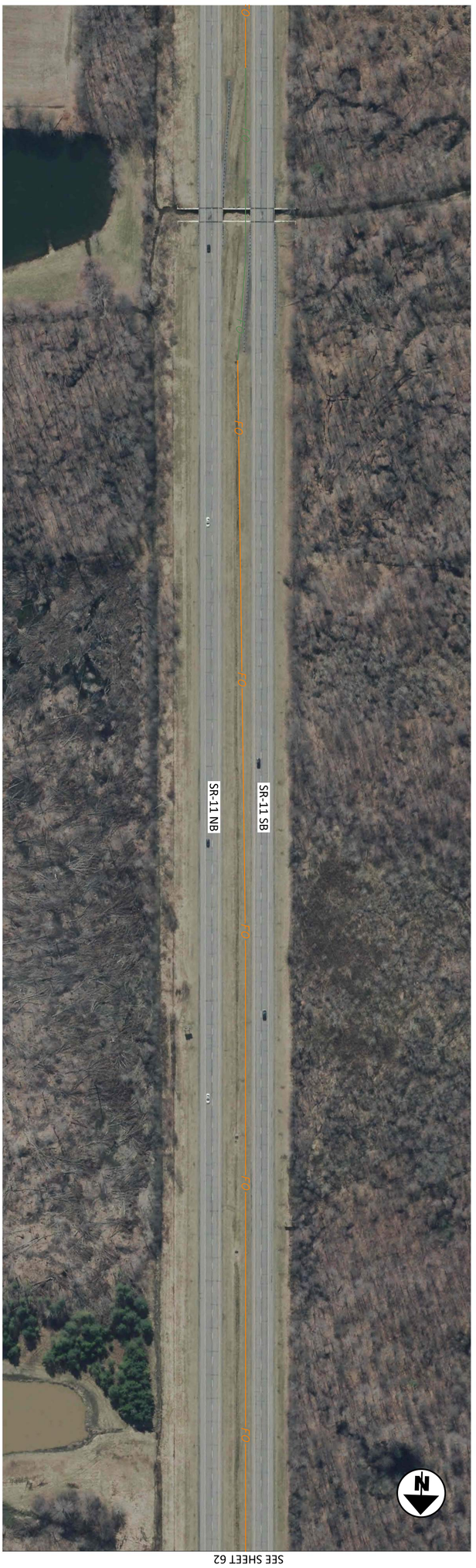
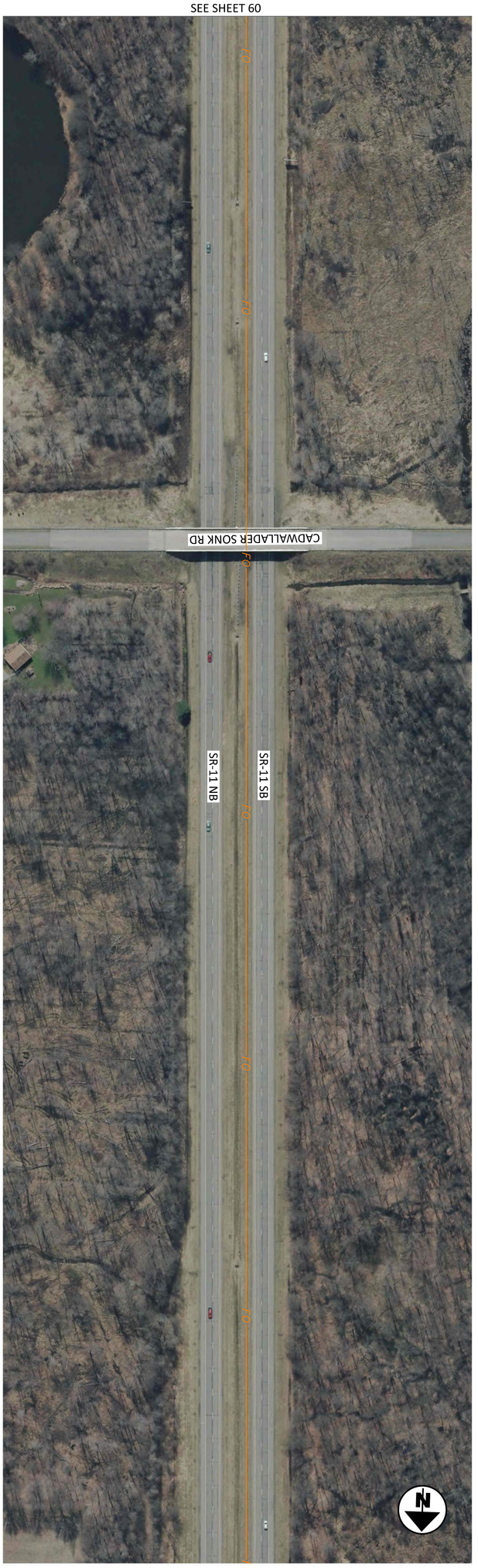
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 61 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP058 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:43:12 AM USER: gfurio
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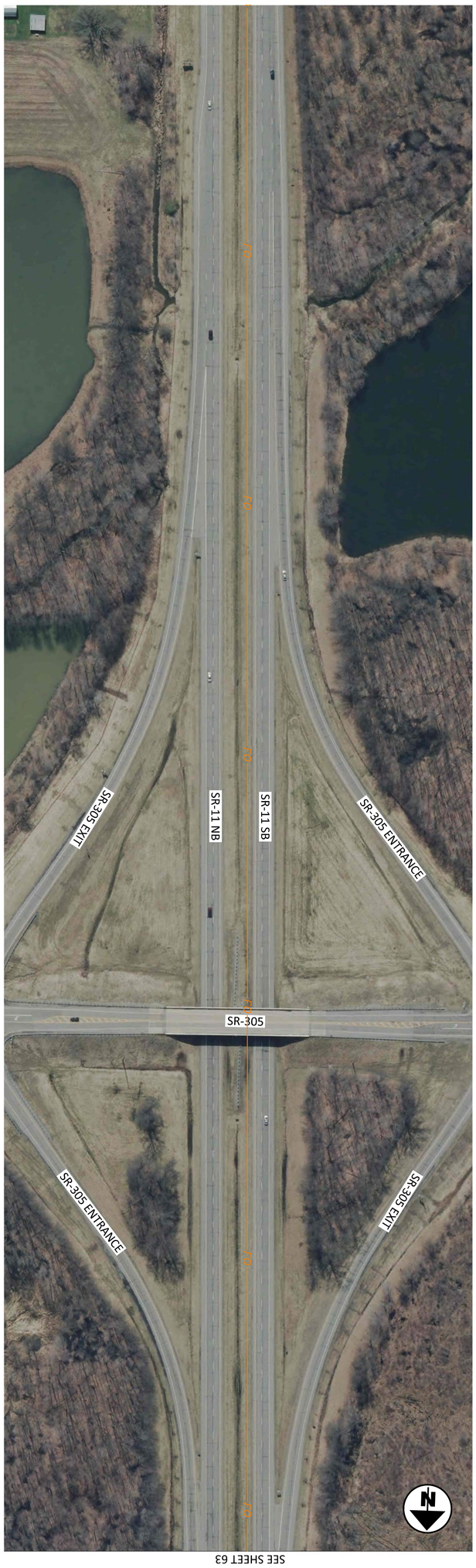
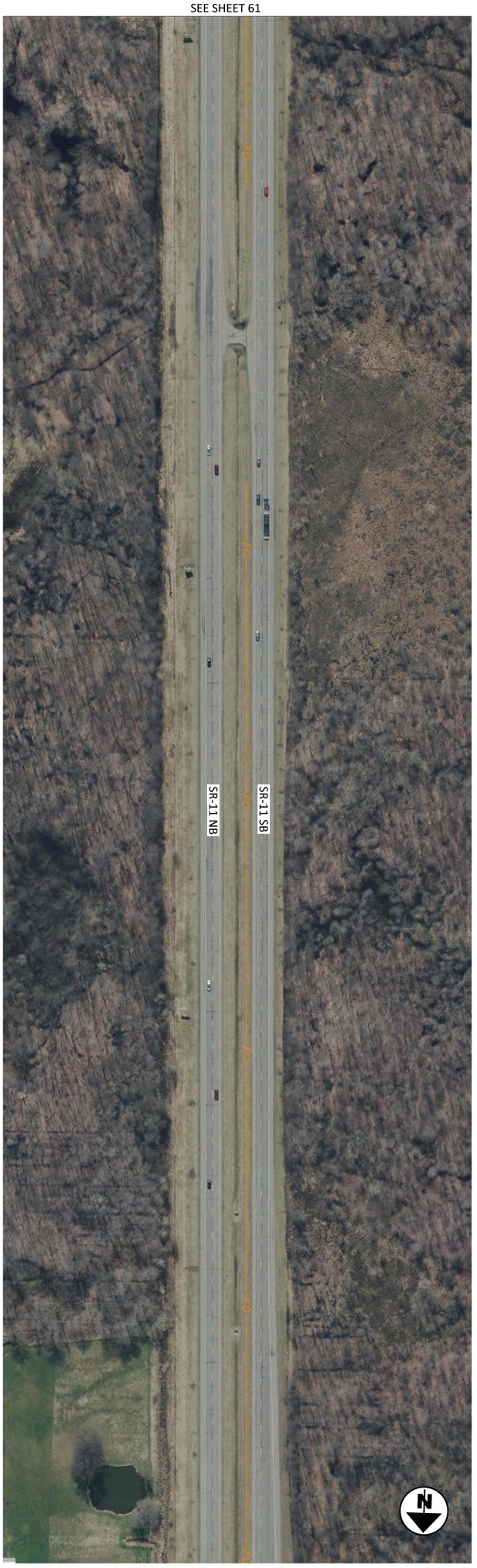
LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 63

SEE SHEET 61



SHEET	TOTAL
62	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP059 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:43:56 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 64

SEE SHEET 62



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
63	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP060 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:44:42 AM USER: gfurio
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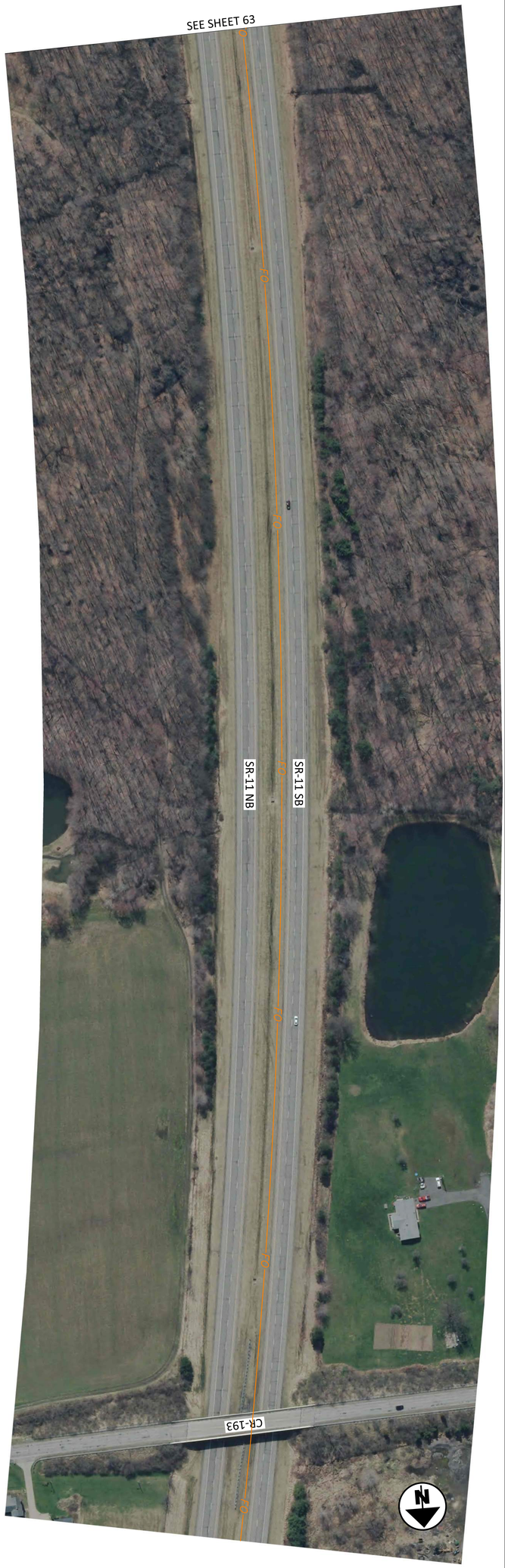
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
64	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP061 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:45:28 AM USER: gfurio
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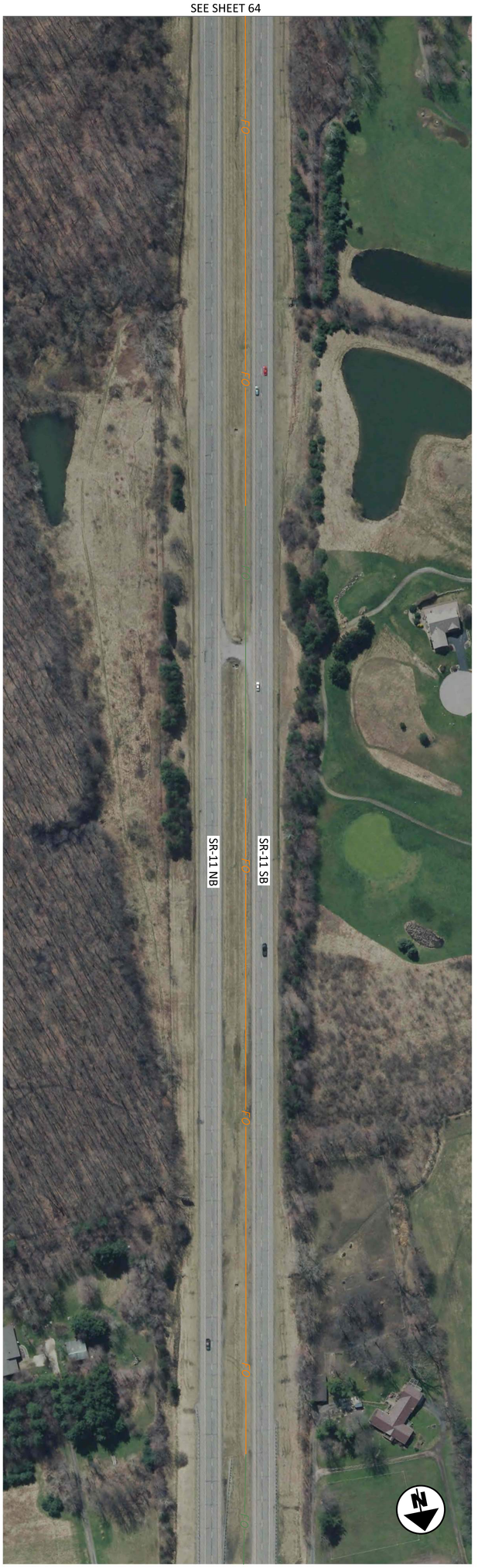
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 65	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP062 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:46:14 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
66	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP063 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:46:58 AM USER: gfurio
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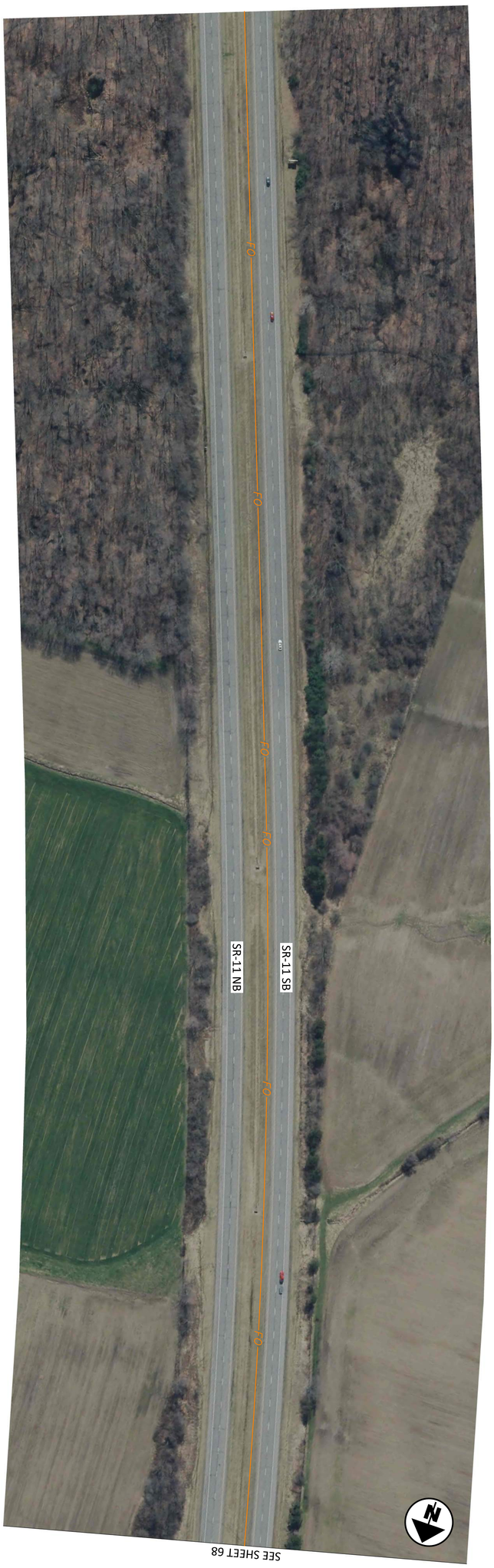
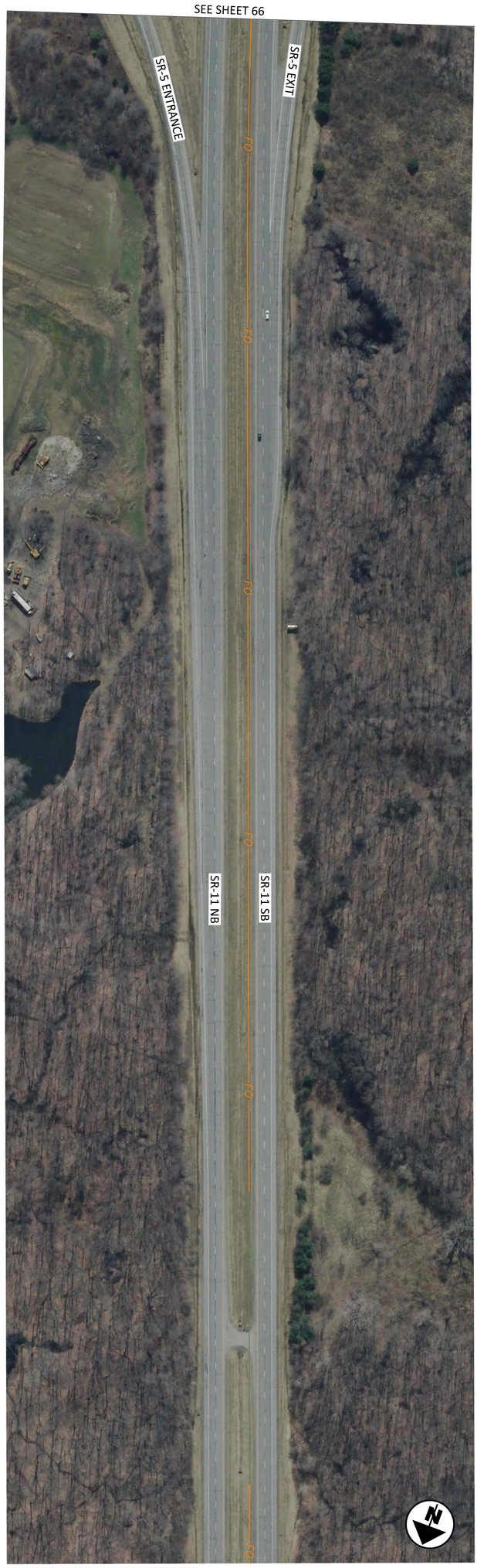
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
67	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP064 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:47:45 AM USER: gfurio
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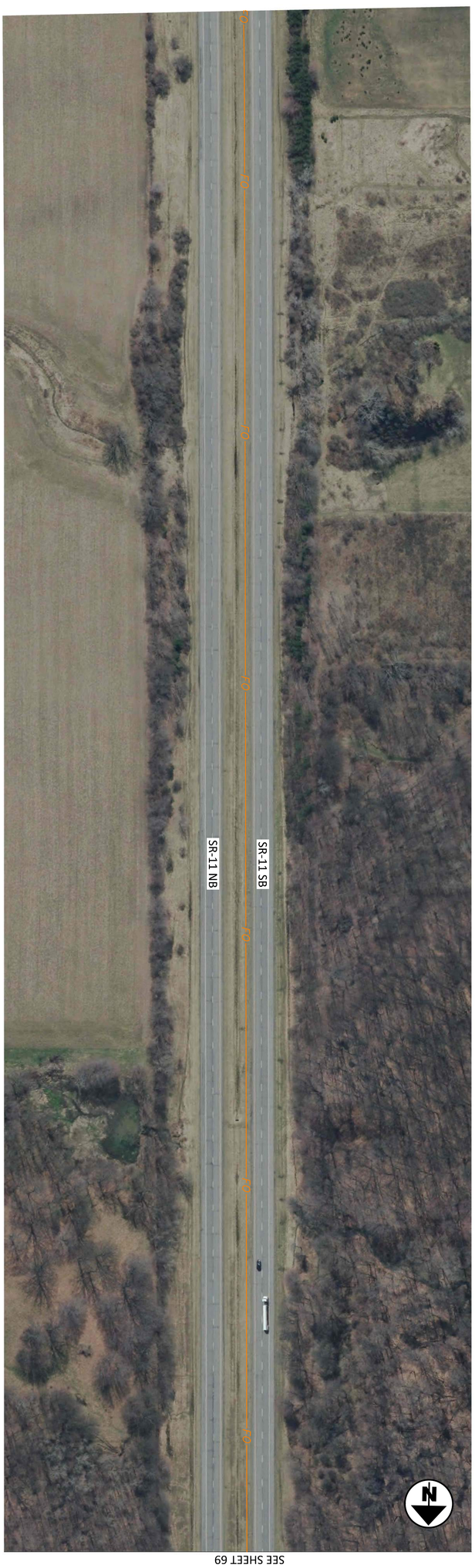
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 68 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP065 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:48:29 AM USER: gfurio
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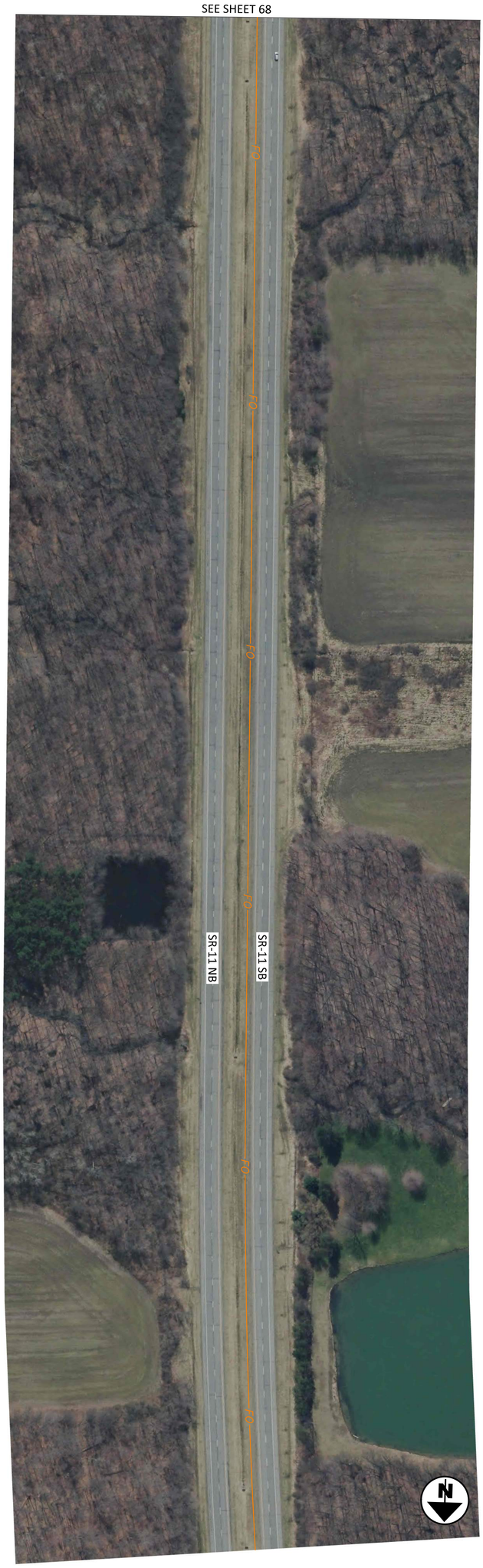
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
69	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP066 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:49:15 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
70	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP067 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:50:02 AM USER: gfurio
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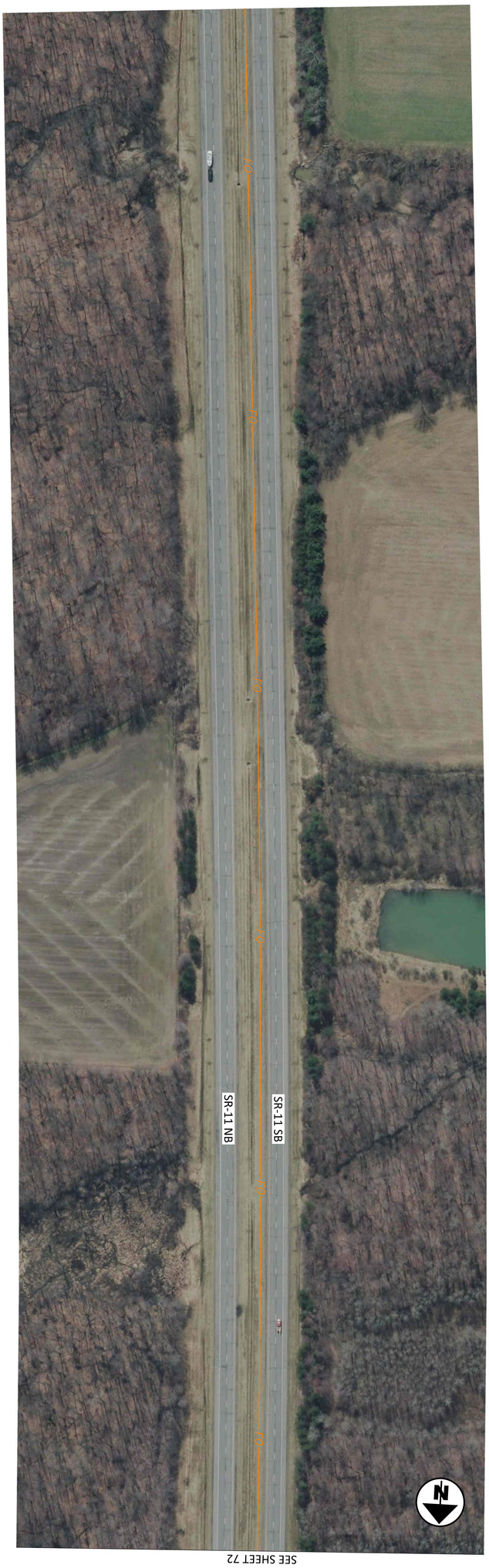
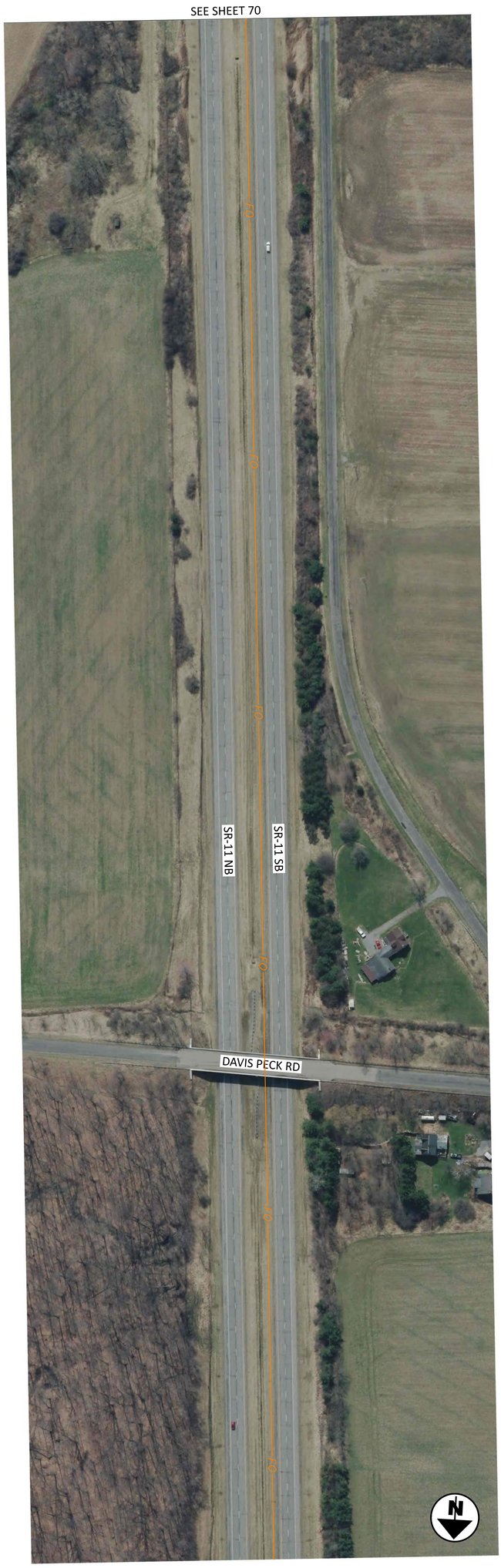
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
71	102	117648	SCC 03/16/23	GF	GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP068 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:50:48 AM USER: gfurio
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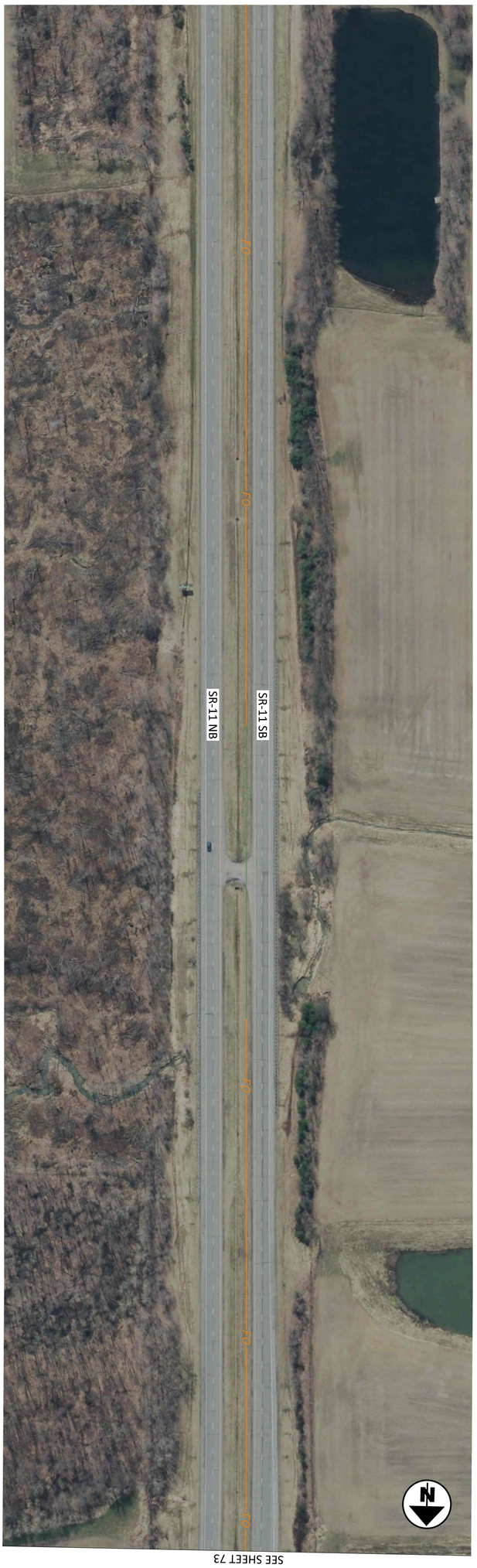
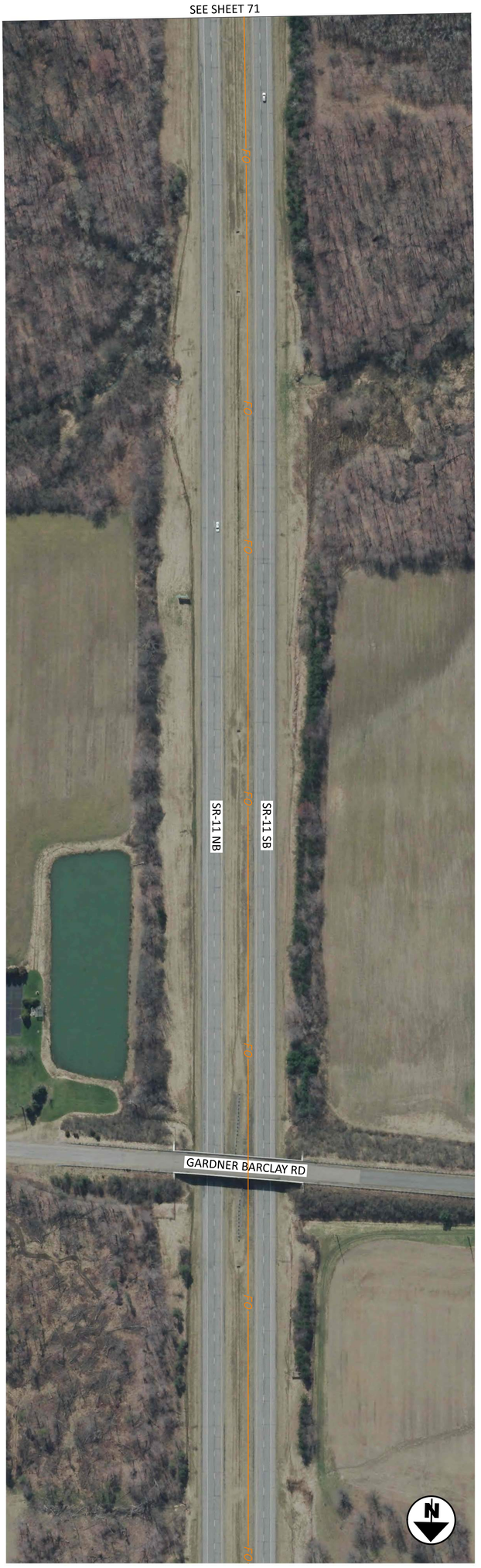
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
72	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP069 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:51:33 AM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 73 / TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231	PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP070 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:52:20 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 73



PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
74	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF
DESIGN AGENCY: GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP071 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:53:06 AM USER: gfurio
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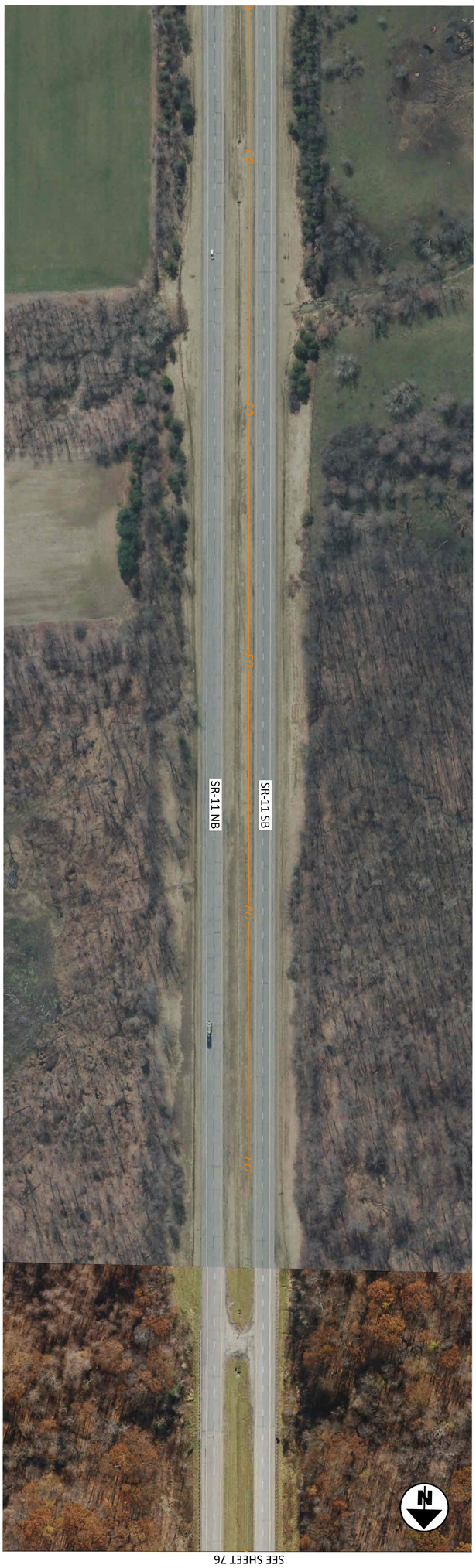
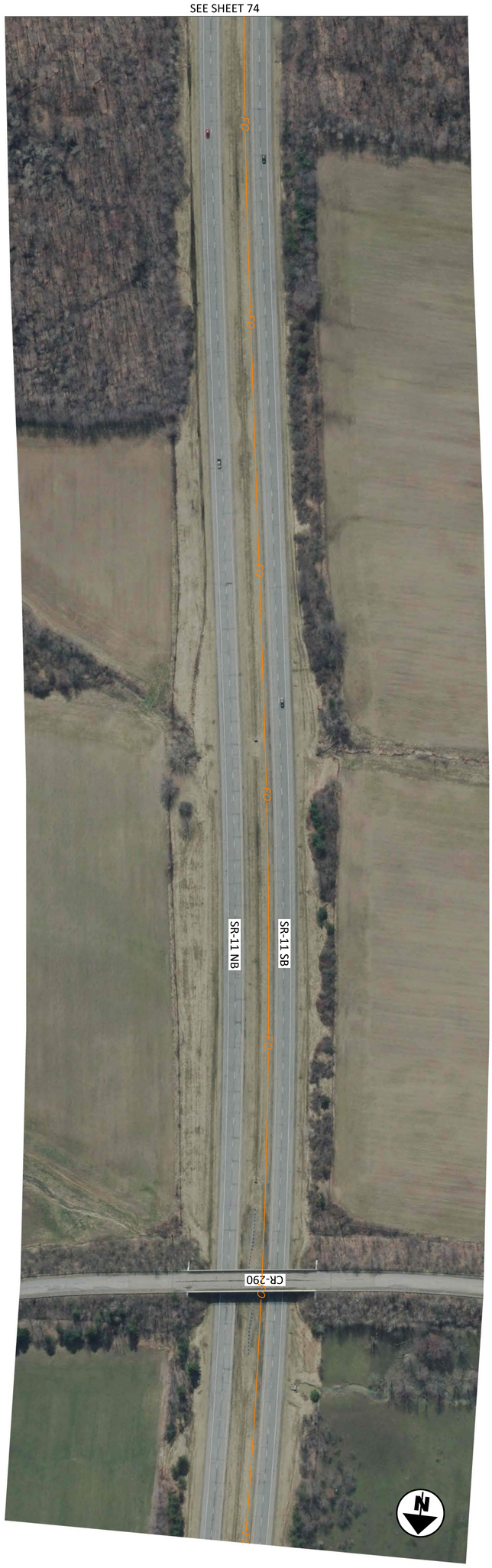
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
75	102	117648	SCC 03/16/23	GF	GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP072 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:54:00 AM USER: gfurio
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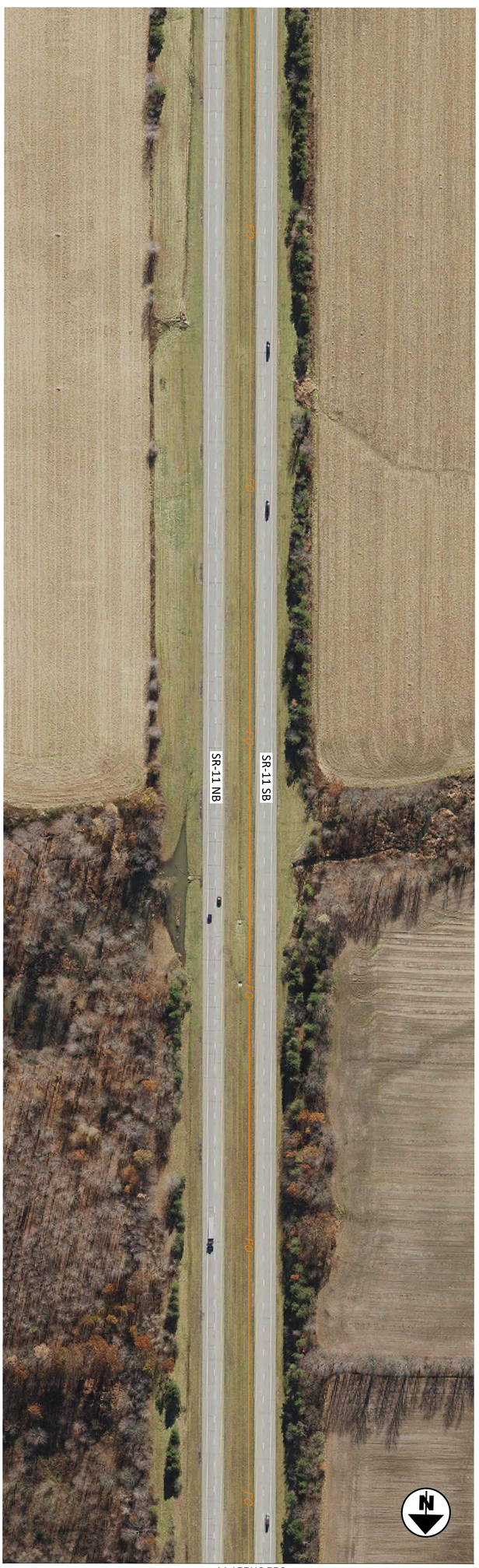
LEGEND

FO TRENCH
FO BORE
FO ATTACH

SEE SHEET 75





SEE SHEET 77

SHEET	TOTAL
76	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP073 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:54:30 AM USER: gfurio
pw:\\gfnet-pw.bentley.com:gfnet-pw-01\Documents\Projects\73422\400-Engineering\Traffic\Sheets\117648_TP000.dgn

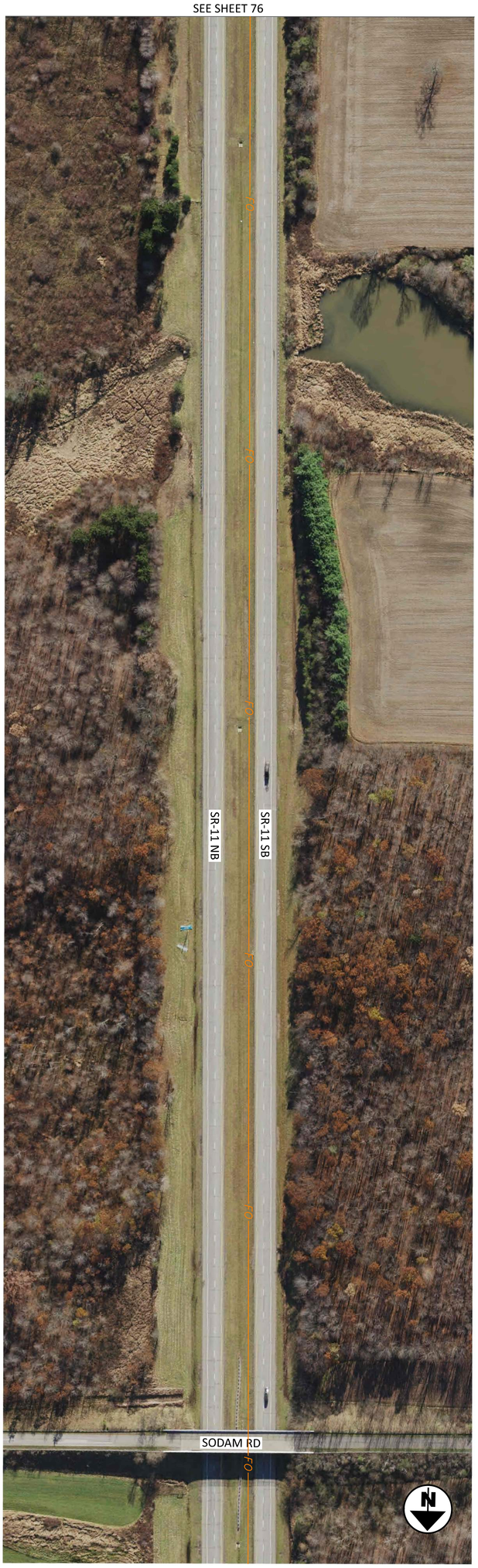
LEGEND

FO — TRENCH

FO — BORE

FO — ATTACH





SHEET 77 / TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231	PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP074 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:54:49 AM USER: gfurio
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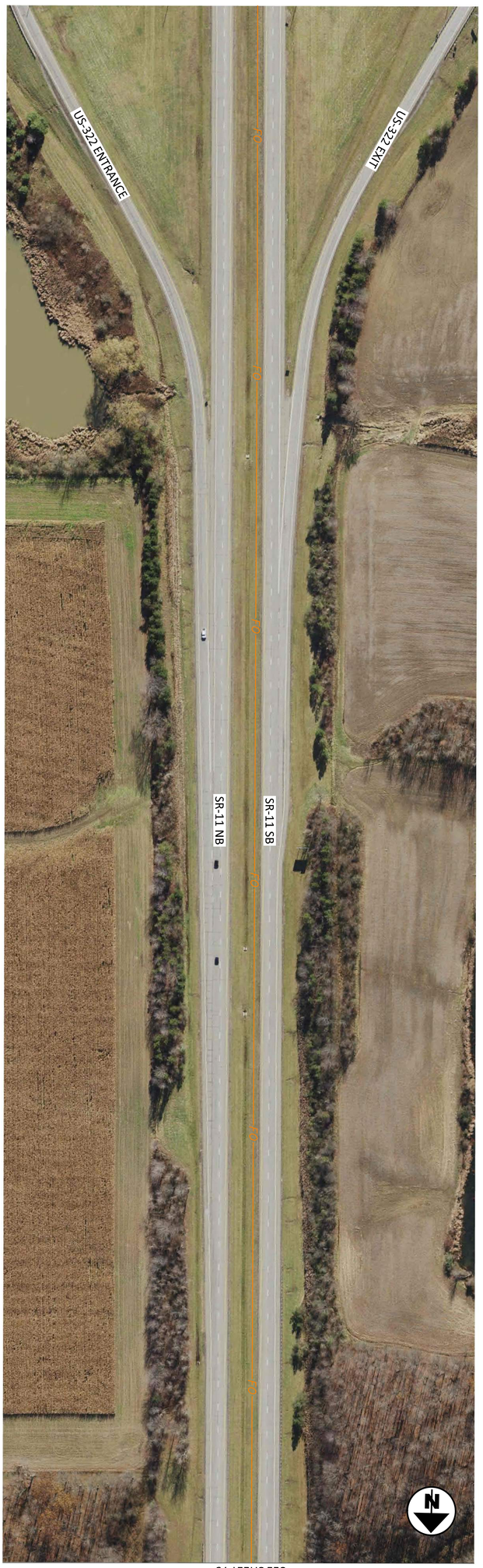
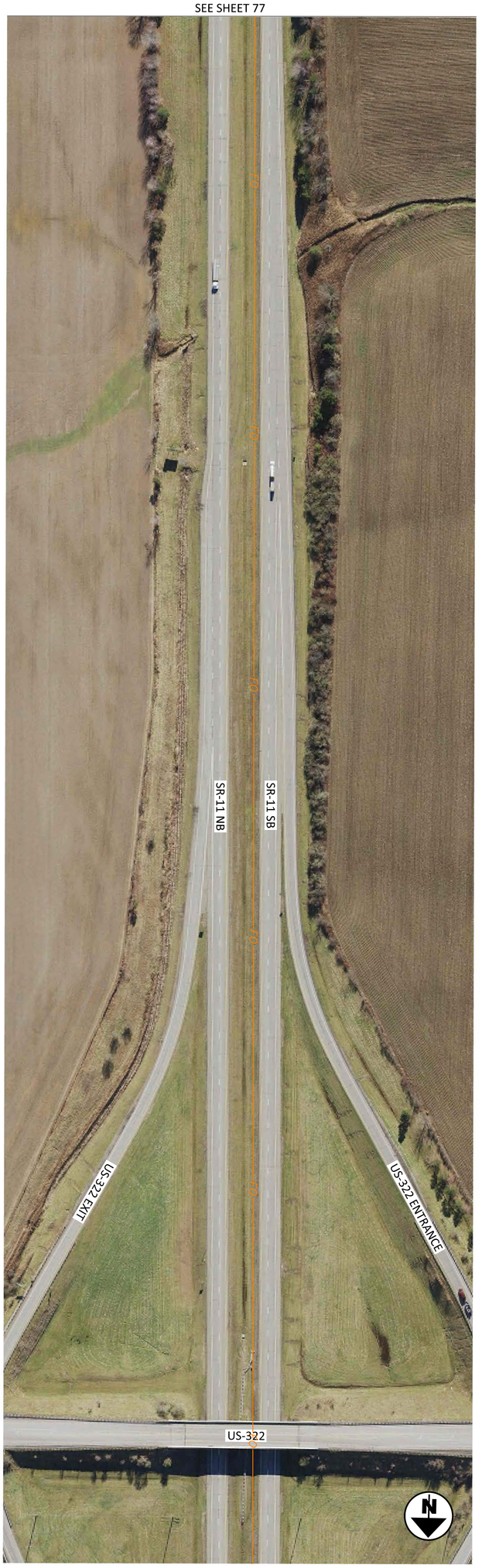
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 78 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP075 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:55:06 AM USER: gfurio
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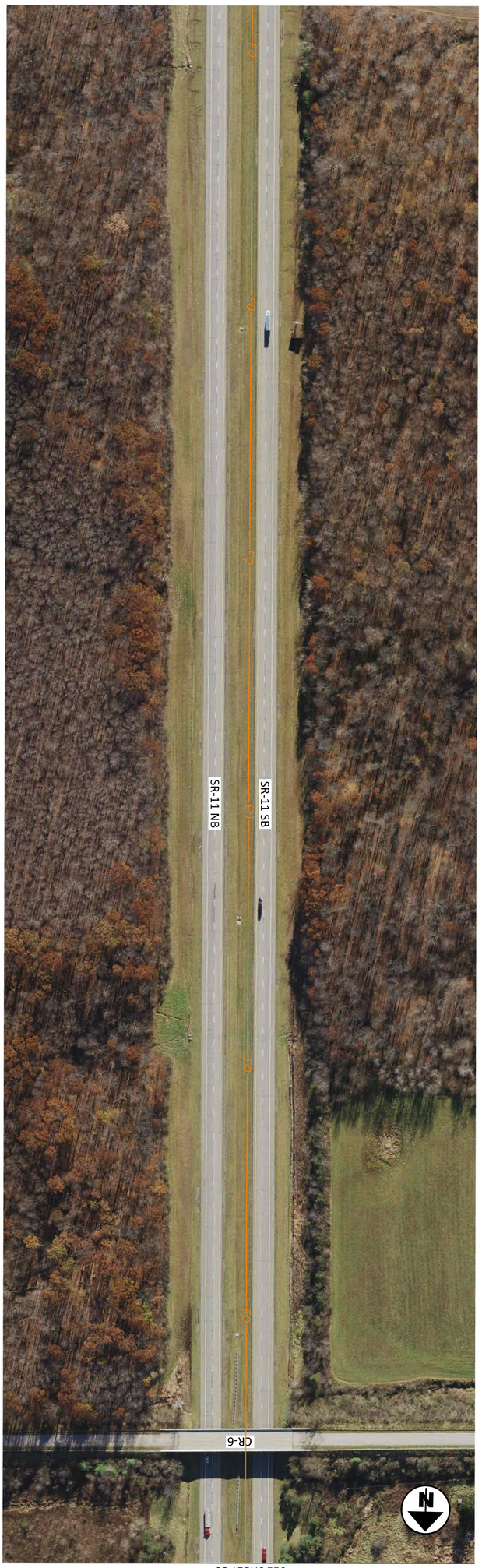
LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 80

SEE SHEET 78



SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
79	102	117648	SCC 03/16/23	GF	GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP076 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:55:24 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
80 / TOTAL 102	117648	SCC 03/16/23	GF	GANNETT FLEMING, 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

MODEL: TP077 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:55:42 AM USER: gfurio
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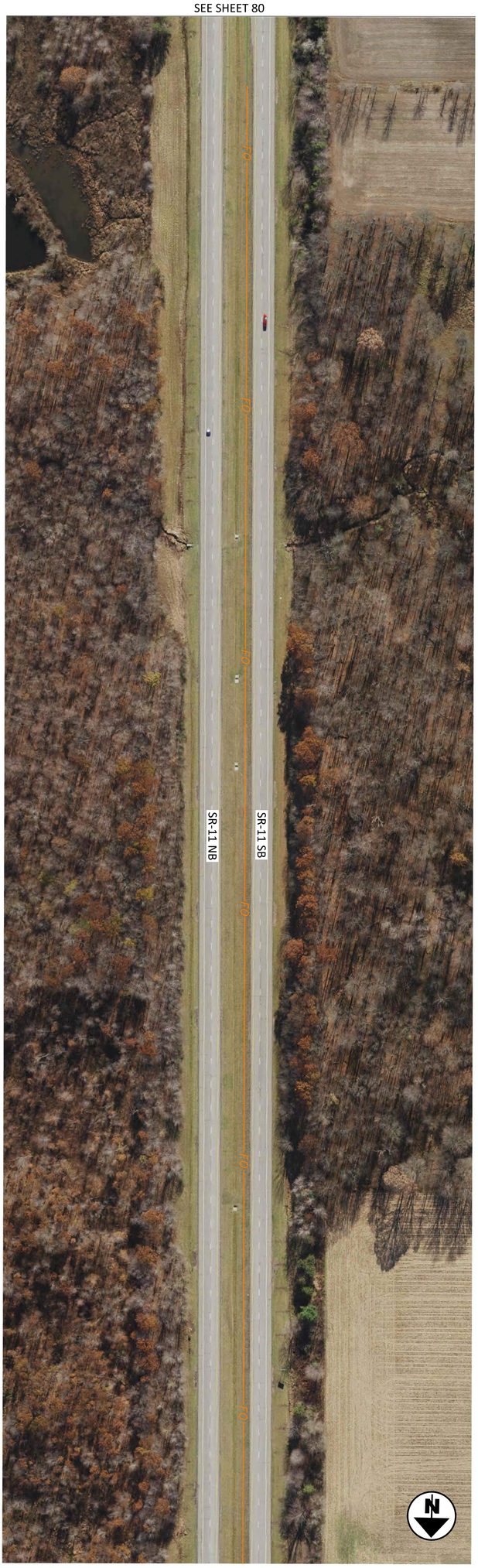
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 81 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP078 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:56:00 AM USER: gfurio
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LEGEND

FO TRENCH
FO BORE
FO ATTACH



SEE SHEET 83

SEE SHEET 81



SHEET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
82 TOTAL 102	117648	SCC 03/16/23	GF	GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

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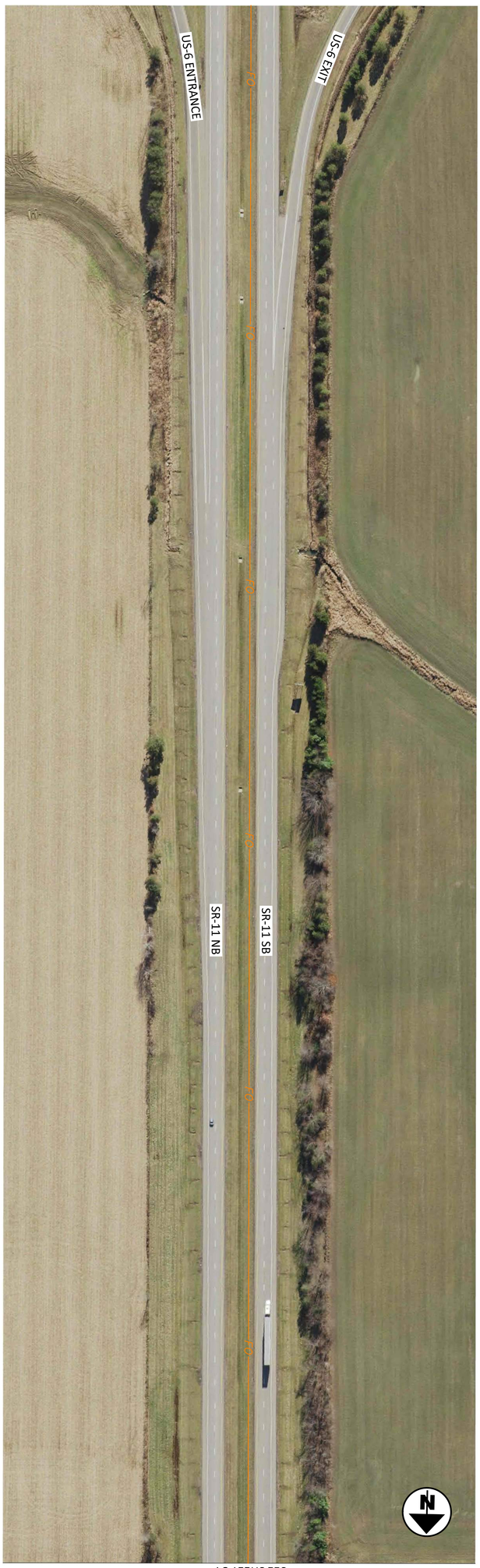
LEGEND

FO TRENCH
FO BORE
FO ATTACH

SEE SHEET 82





SEE SHEET 84

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	GF
REVIEWER	SCC 03/16/23
PROJECT ID	117648
SHEET	83
TOTAL	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH



SEE SHEET 85

SEE SHEET 83



SHEET 84	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

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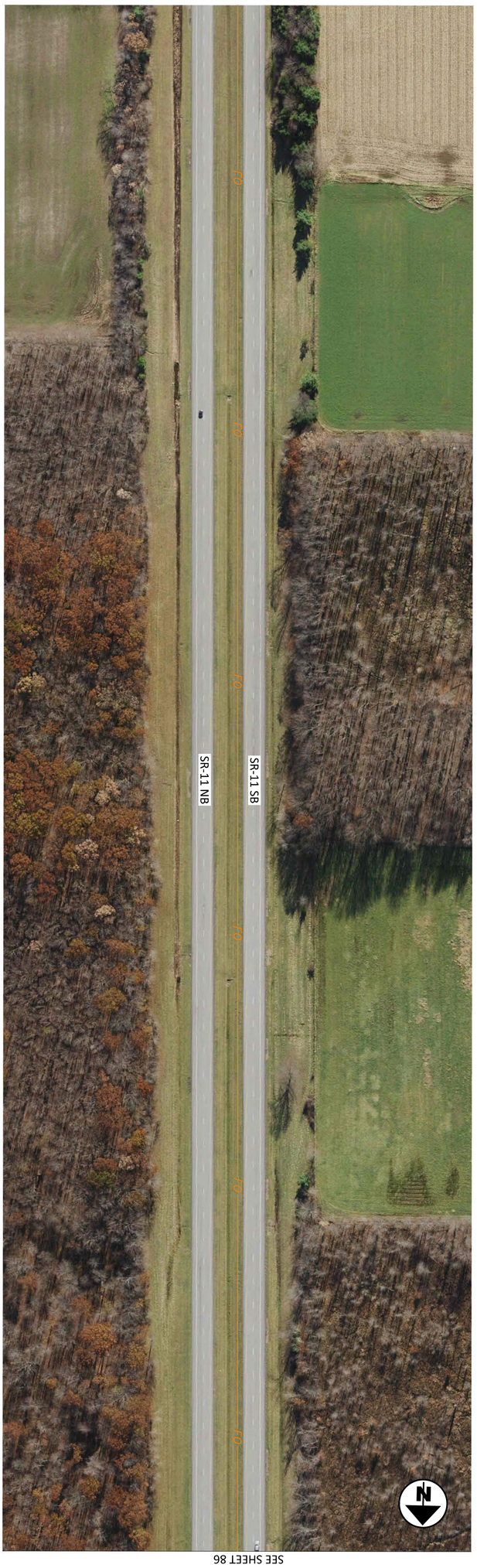
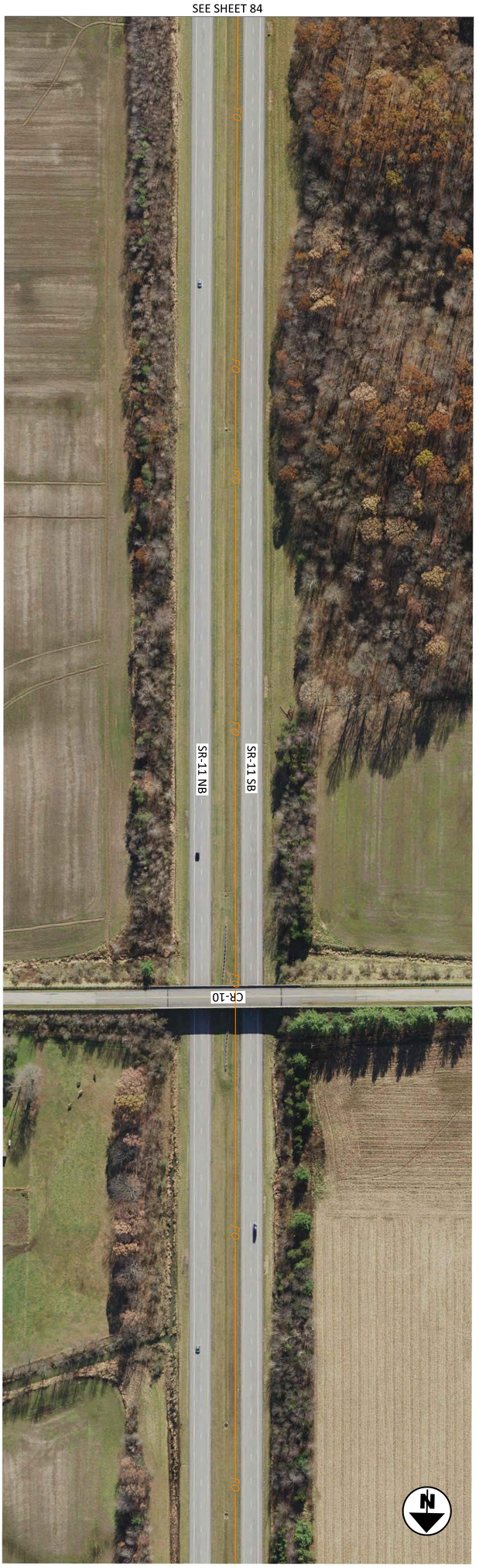
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY	DESIGNER	REVIEWER	PROJECT ID	SHEET
GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231	GF	SCC 03/16/23	117648	85 TOTAL 102

EASTGATE FIBER PLANS

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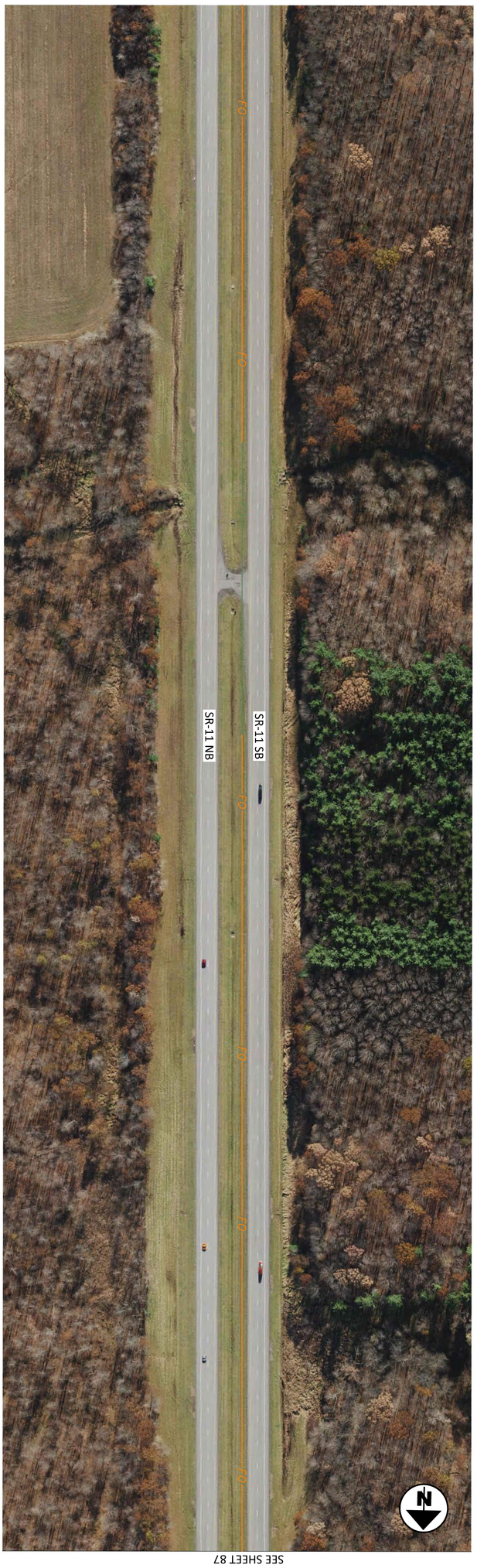
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 86 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP083 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:57:34 AM USER: gfurio
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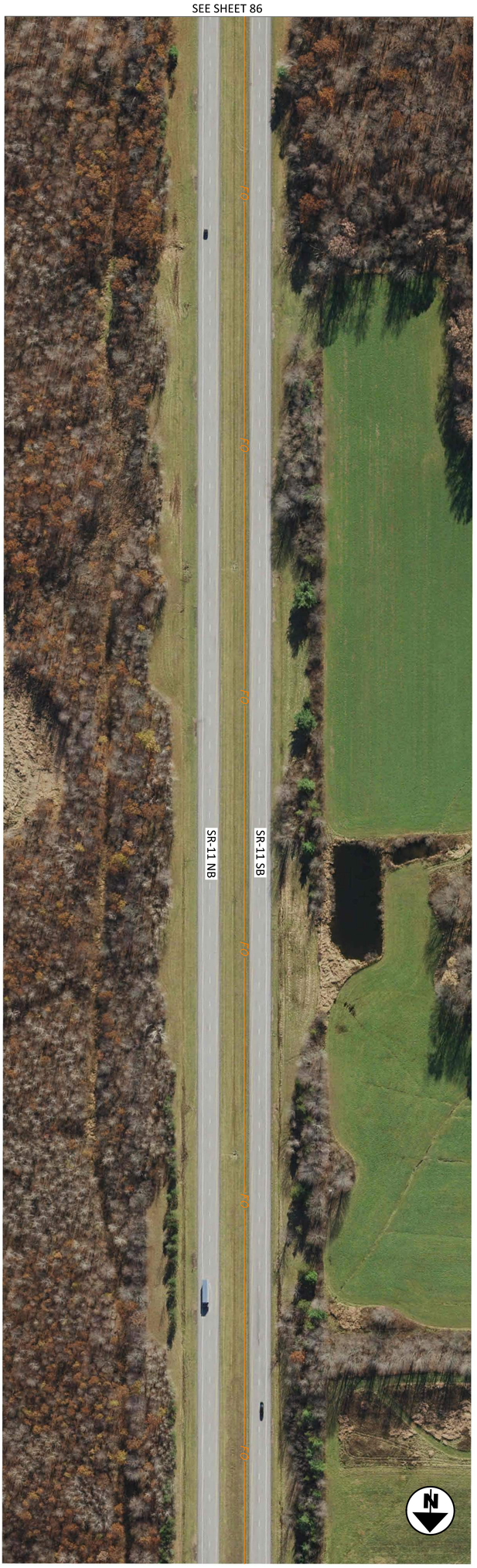
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH

SEE SHEET 86





SEE SHEET 88

SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
87	102	117648	SCC 03/16/23	GF	GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

MODEL: TP084 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:57:54 AM USER: gfurio
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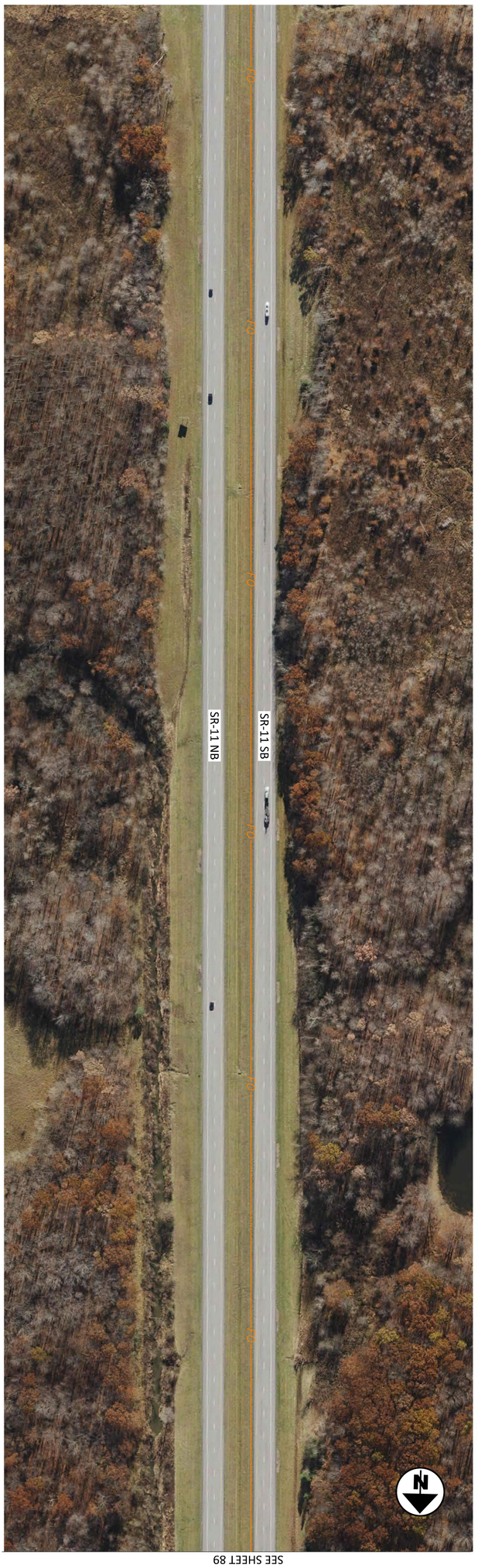
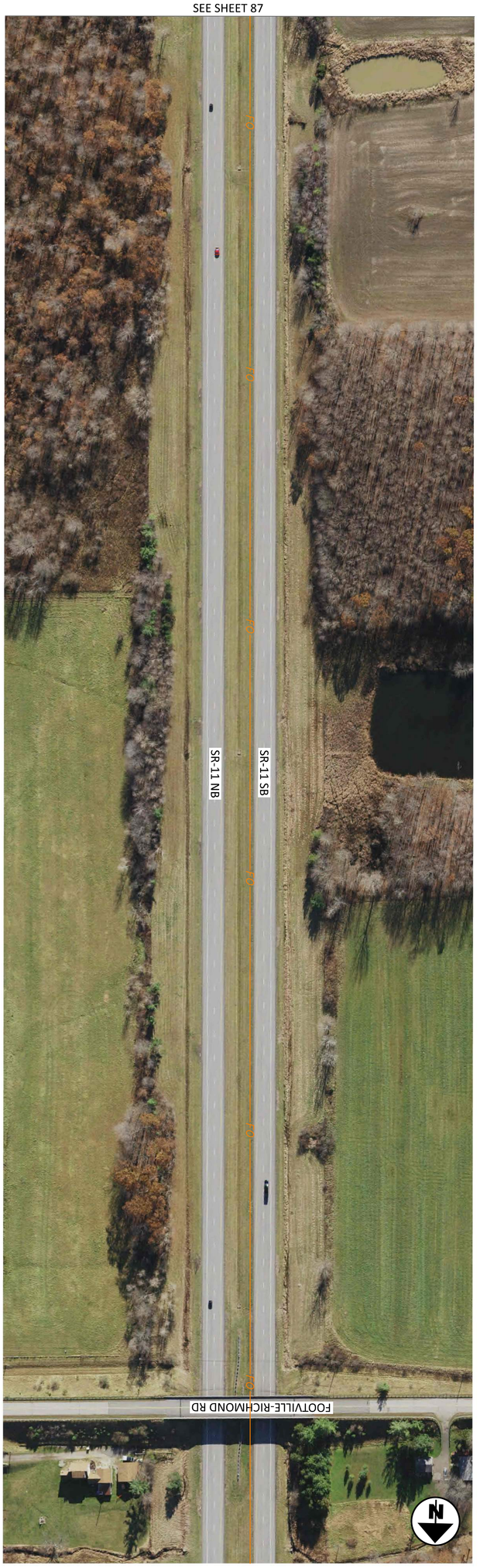
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 88 | TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP085 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:58:14 AM USER: gfurio
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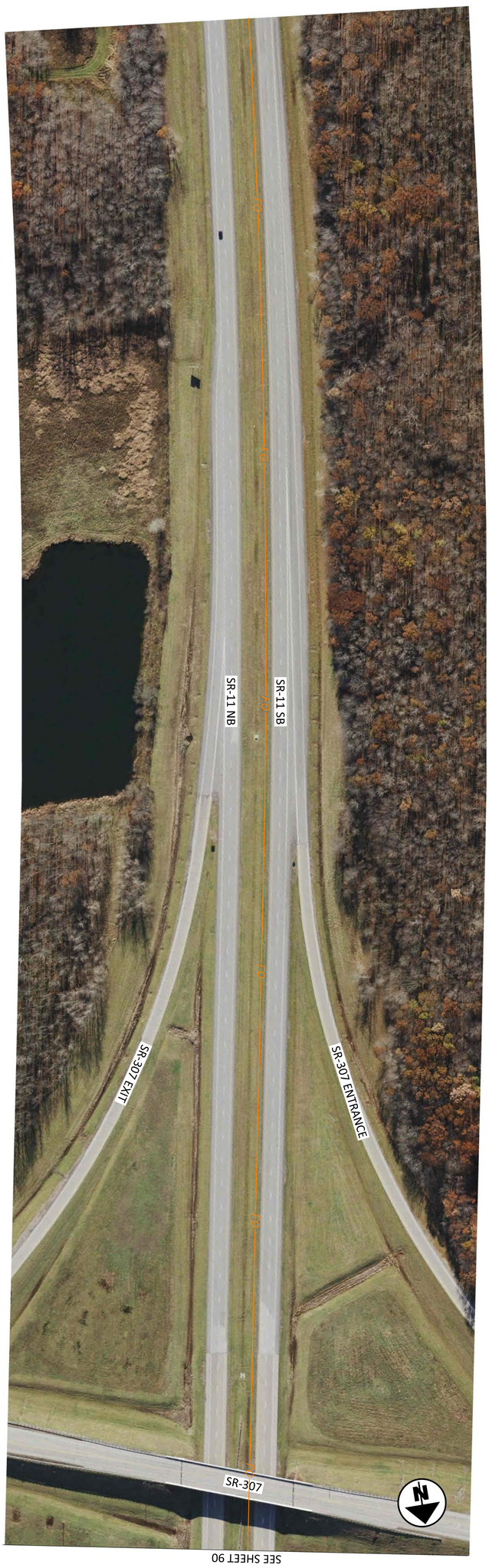
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 89 | TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP086 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:58:34 AM USER: gfurio
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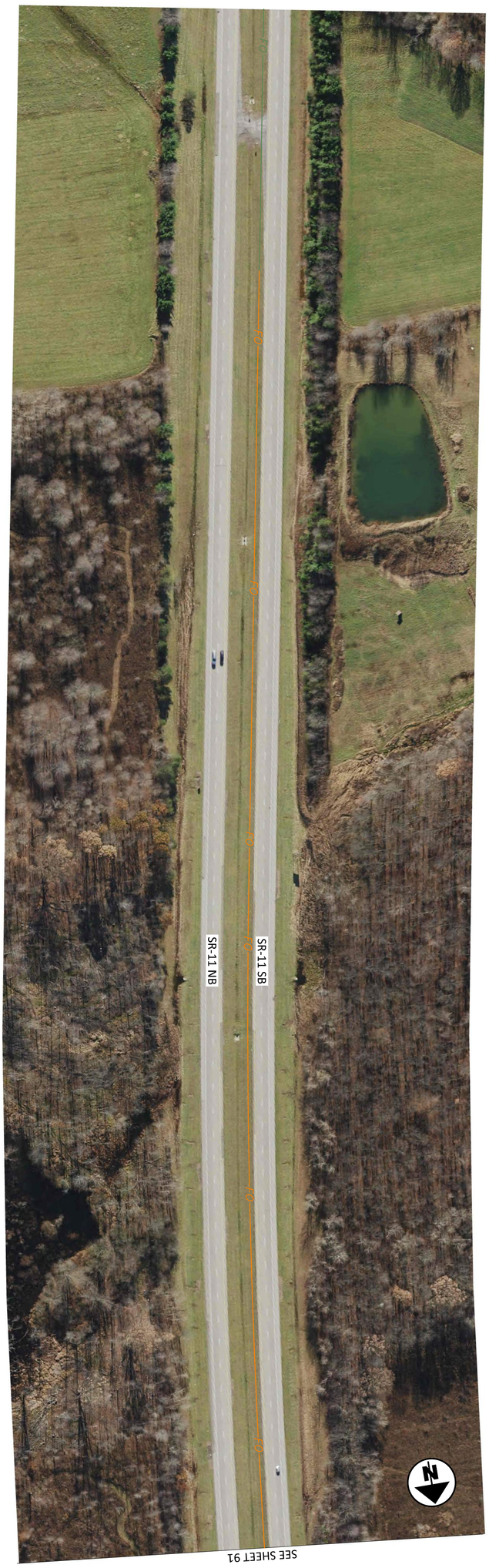
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
90	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP087 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 11:58:55 AM USER: gfurio
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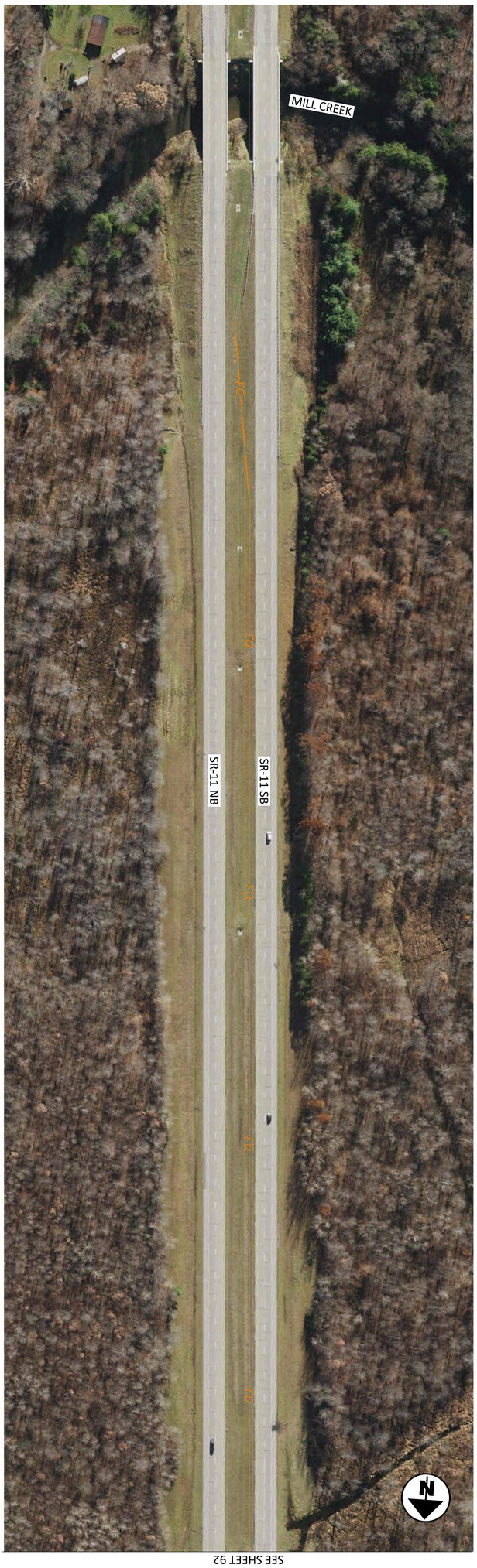
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
91	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

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LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
92	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF
DESIGN AGENCY: GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

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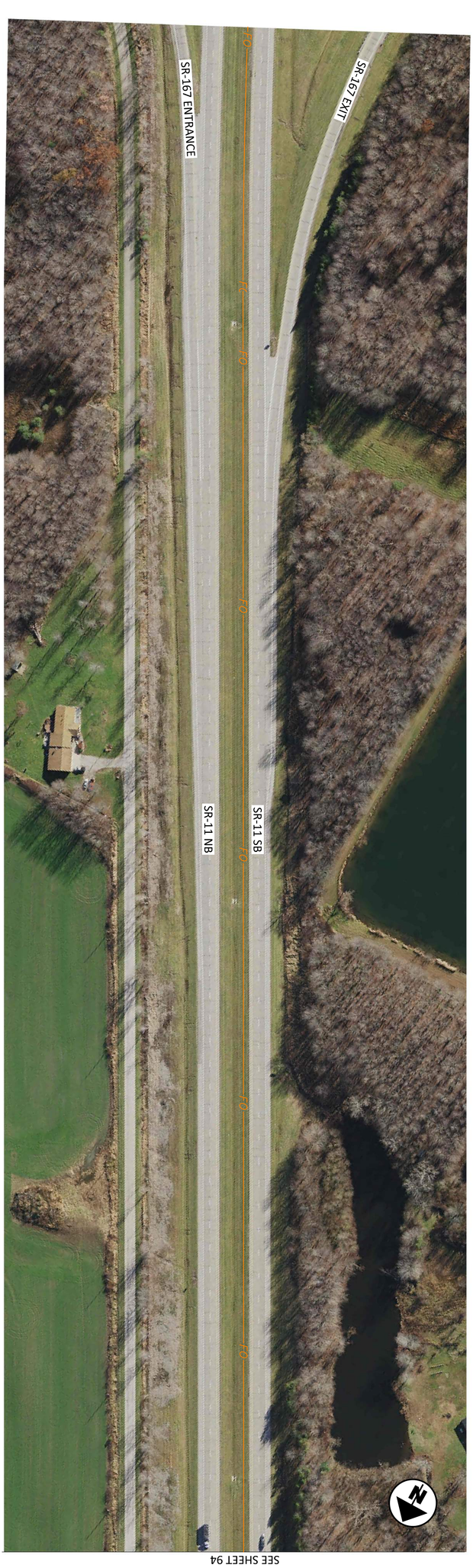
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER	GF
REVIEWER	SCC 03/16/23
PROJECT ID	117648
SHEET	93
TOTAL	102

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

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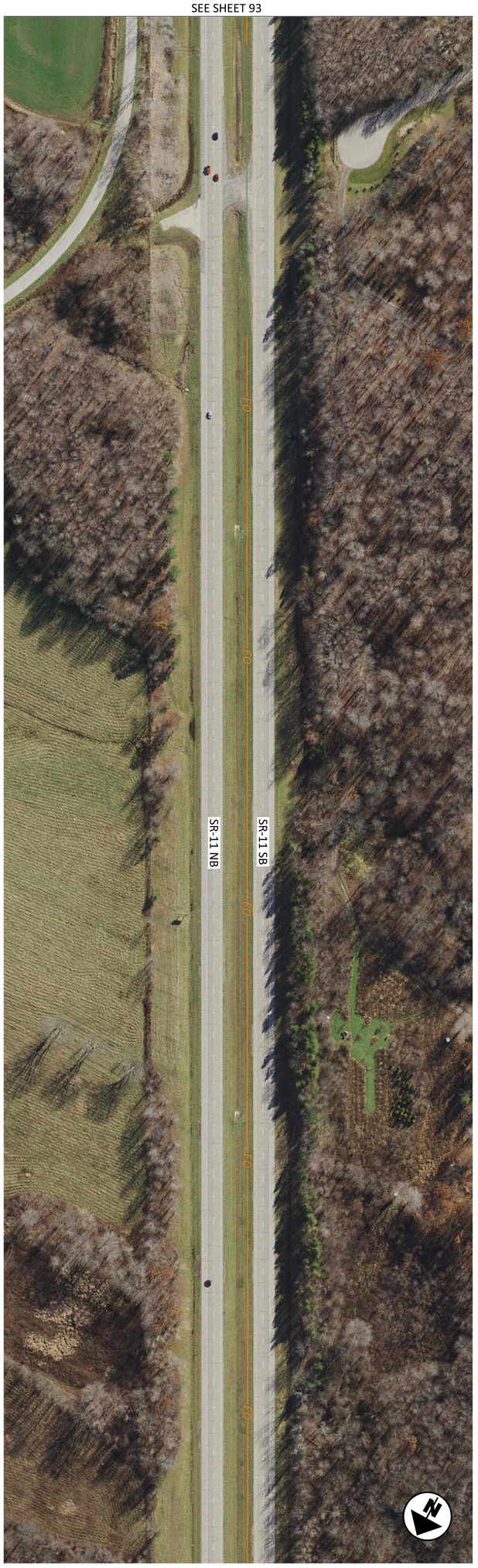
LEGEND

FO TRENCH
FO BORE
FO ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 94 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP091 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 12:00:00 PM USER: gfurio
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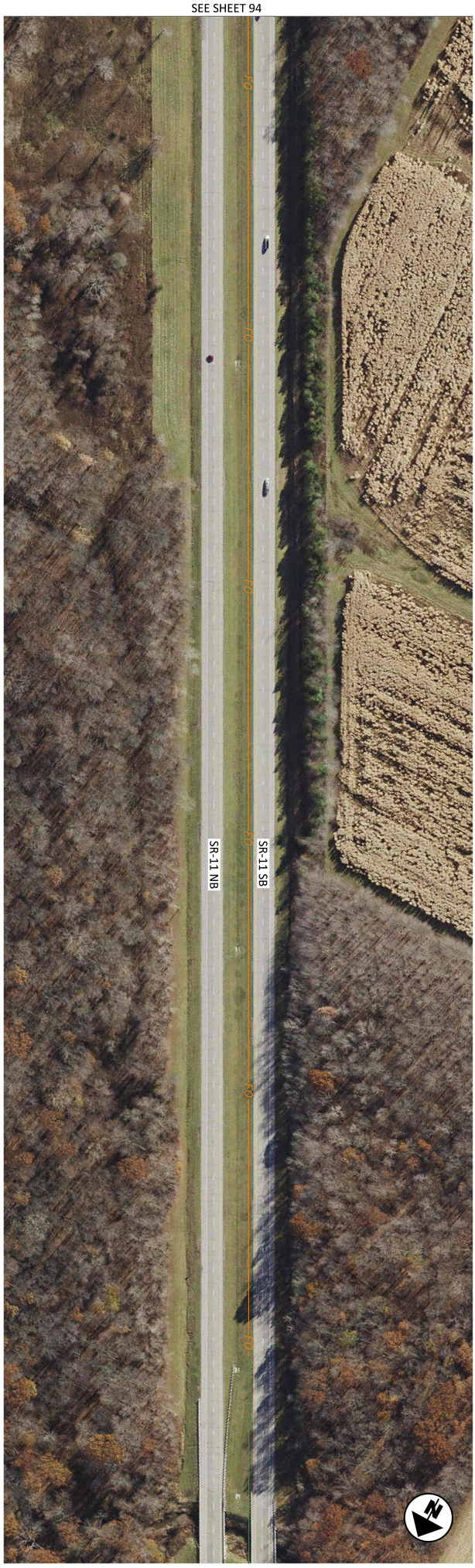
LEGEND

FO TRENCH
FO BORE
FO ATTACH

SEE SHEET 94





SEE SHEET 96

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
95	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 96	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF	DESIGN AGENCY GANNETT FLEMING 2500 Corporate Exchange Dr. Suite 230 Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

SHEET	TOTAL
97	102

PROJECT ID: 117648
REVIEWER: SCC 03/16/23
DESIGNER: GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

EASTGATE FIBER PLANS

MODEL: TP094 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 12:00:36 PM USER: gfurio
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LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

DESIGNER GF
REVIEWER SCC 03/16/23
PROJECT ID 117648
SHEET 98
TOTAL 102





LEGEND

- FO — *TRENCH*
- FO — *BORE*
- FO — *ATTACH*

NOTE:

PROPOSED BRIDGE ATTACHMENT IS SUBJECT TO ODOT APPROVAL.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP095 PAPERSIZE: 34x22 (in.) DATE: 6/2/2023 TIME: 4:47:03 PM USER: gfurlo
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 99 TOTAL 102

EASTGATE FIBER PLANS

MODEL: TP096 PAPERSIZE: 34x22 (in.) DATE: 4/25/2023 TIME: 12:01:15 PM USER: gfurio
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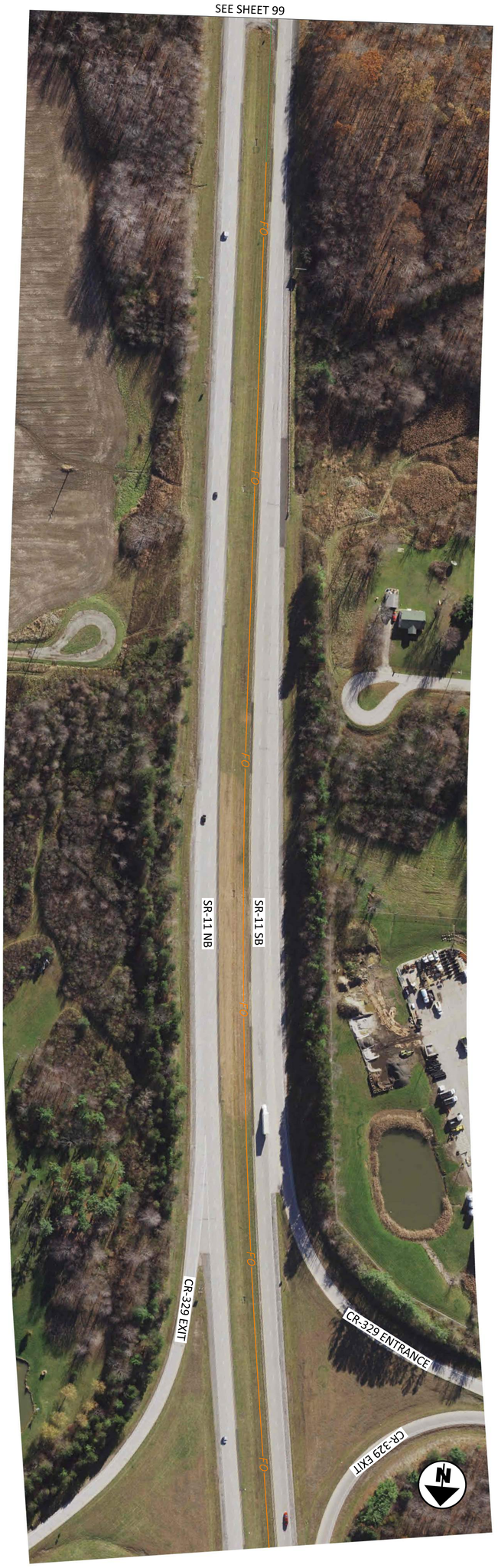
LEGEND

FO TRENCH
FO BORE
FO ATTACH





SHEET	TOTAL
100	102

PROJECT ID: 117648

REVIEWER: SCC 03/16/23

DESIGNER: GF

DESIGN AGENCY:
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

EASTGATE FIBER PLANS

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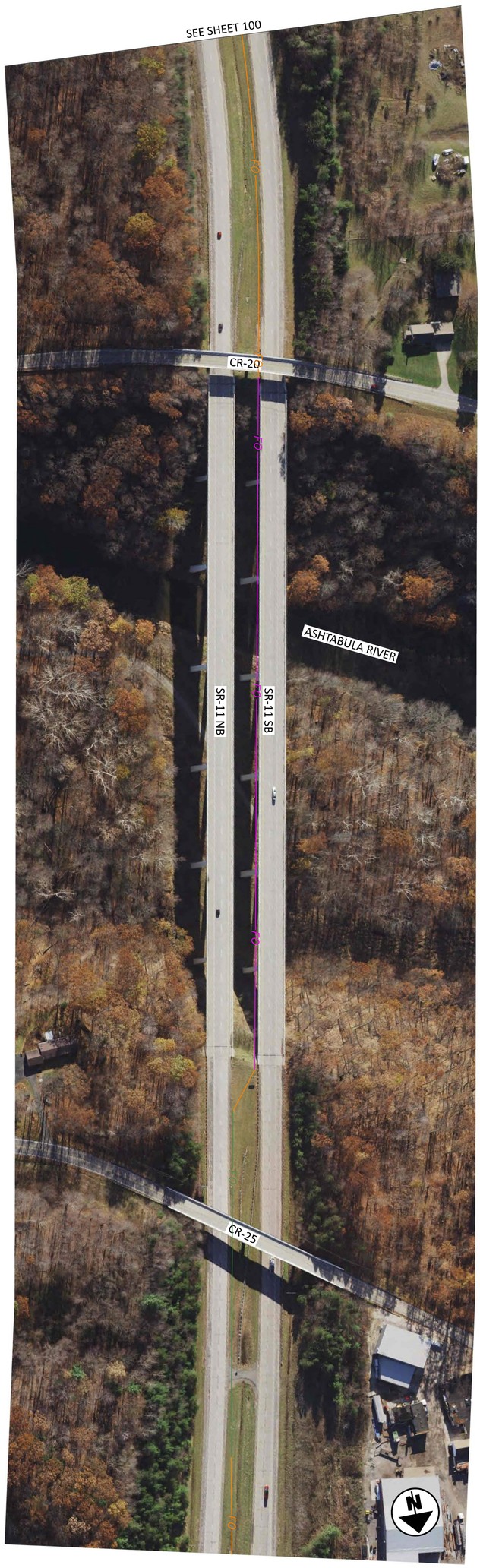
LEGEND

FO — TRENCH
FO — BORE
FO — ATTACH





SHEET 101	TOTAL 102	PROJECT ID 117648	REVIEWER SCC 03/16/23	DESIGNER GF

DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 230
Columbus, OH 43231

PLAN

HORIZONTAL SCALE IN FEET
0 100
50 200

LEGEND

FO *TRENCH*

FO *BORE*

FO *ATTACH*

NOTE:

PROPOSED LOCATION OF TERMINATION BUILDING IS PRELIMINARY, SUBJECT TO CHANGE, AND CONTINGENT ON ODOT APPROVAL IF WITHIN R/W.

HORIZONTAL SCALE IN FEET
0 50 100 200

PLAN

EASTGATE FIBER PLANS

MODEL: TP098 PAPERSIZE: 34x22 (in.) DATE: 6/22/2023 TIME: 4:48:38 PM USER: gfurio
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DESIGN AGENCY
GANNETT FLEMING
2500 Corporate Exchange Dr.
Suite 200
Columbus, OH 43231

DESIGNER GF

REVIEWER SCC 03/16/23

PROJECT ID 117648

SHEET 102 TOTAL 102

APPENDIX B. PRELIMINARY COST ESTIMATE

EASTGATE FIBER 30% CONSTRUCTION COST ESTIMATE

CONSTRUCTION ITEMS

Item #	Description	Quantity	Unit Price	Total
1	TRENCH AND BACKFILL	451738	$ 12.00	$ 5,420,856.00
2	DIRECTIONAL BORING	50902	$ 68.00	$ 3,461,336.00
3	CONDUIT, 4 INCH, RIGID GALVANIZED STAINLESS, ATTACH TO STRUCTURE	3003	$ 95.75	$ 287,537.25
4	PULL BOX, 32 INCH	446	$ 2,825.00	$ 1,259,950.00
5	PULL BOX, 48 INCH	55	$ 4,030.00	$ 221,650.00
6	MICRODUCT, BUNDLED, 4-WAY, 27/20MM	502640	$ 7.05	$ 3,543,612.00
7	FIBER OPTIC CABLE, 432-CT	552904	$ 7.45	$ 4,119,134.80
8	FIBER OPTIC SPLICE ENCLOSURE	55	$ 4,075.00	$ 224,125.00
9	FLEXIBLE DELINEATOR POSTS	501	$ 75.00	$ 37,575.00
			SUBTOTAL	$ 18,575,776.05

CONTINGENCY ITEMS

Item #	Description	Quantity	Unit Price	Total
C1	MOBILIZATION	1	$ 928,788.80	$ 928,788.80
C2	MAINTENANCE OF TRAFFIC	1	$ 1,393,183.20	$ 1,393,183.20
C3	FIBER TESTING AND INTEGRATION	1	$ 557,273.28	$ 557,273.28
C4	DEMARCATION SITES	1	$ 928,788.80	$ 928,788.80
C5	OTHER CONTINGENCY	1	$ 1,857,577.61	$ 1,857,577.61
			SUBTOTAL	$ 5,665,611.70

TOTALS	$ 24,241,387.75

ASSUMPTIONS:

- TRENCH IS ASSUMED TO CONSIST OF APPROXIMATELY 85% PLOWING, 10% EXCAVATION, 5% HAND DIGGING
- MOBILIZATION 5% OF SUBTOTAL
- MAINTENANCE OF TRAFFIC 7.5% OF SUBTOTAL
- FIBER TESTING AND INTEGRATION 3% OF SUBTOTAL
- DEMARCATION SITE COSTS 5% OF SUBTOTAL
- OTHER CONTINGENCY 10% OF SUBTOTAL
- COST ESTIMATE INCLUDES COSTS FOR PHYSICAL CONSTRUCTION ONLY. COST ESTIMATE DOES NOT INCLUDE COSTS AND REVENUES FOR DESIGN, OPERATIONS, MAINTENANCE AND COMMERCIALIZATION ACTIVITIES.

APPENDIX C. STAKEHOLDER COORDINATION MEETING MINUTES

ACCESS STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with ACCESS		
Date: November 21, 2022	Time: 2:00PM	Location: Teams

Minutes

Introductions

- Lisa Smith, Executive Director, and Patrick Rager, Director of Technology (ACCESS)
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell, Anthony Barbetto, and Kevin Hunt (Gannett Fleming)
- Scott Hoffman, Sean Dean, Nataki Johnson, and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. ACCESS is familiar with project. OARnet will have fiber strands on middle mile along SR-11.
2. **Phase 2: Stakeholder Engagement**
    a. Currently in this phase. Have met with OARnet, ODOT, Ohio Turnpike Commission, four counties (Ashtabula, Trumbull, Mahoning, Columbiana), Involta, an ISP, and will be meeting with NEOMIN.
3. **Phase 3: Preliminary Network Model**
    a. ACCESS Background
        i. One of 18 Information Technology Centers (ITCs)
            1. Created under legislature 30 years ago originally under department of education
            2. Tasks to provide connectivity to schools (including student information centers, data centers for the schools, etc)
                a. Leverages OARnet's infrastructure and partners with Port Authority and Involta.
            3. Independently operated by region.
            4. Extensive fiber network. Can work w/ libraries and government and port authorities.
            5. Equivalent is NEOMIN (Brian Greenhouse) that covers Trumbull and Ashtabula counties
    b. ACCESS Network
        i. Location of existing infrastructure

1. Map from Tad may be dated
    a. 350 miles of fiber.
    b. 40 Gb backbone (can be increased) and 10Gb to each school
    c. Over built the fiber and for example Involta leases strands.
2. Tricounty broadband
    a. Task force in mahoning, columbiana, and Trumbull counties. Current focus is helping school districts.

ii. Lateral tie in points along SR-11
1. Would entertain connections along SR-11 and serve as the carrier
2. OARnet may want to put a POP at Kent State branch in East Liverpool.
3. Potentially be interested in creating loops in Columbiana County.
4. Loop fiber is shown by the kmz received from Tad. Lisa/Pat will provide a mark-up w/ potential laterals

iii. Future Plans
1. ITCs are doing the middle mile and looking at ACCESS as micro-POPs a lot of projects overlaying each other
2. East Liverpool, Columbiana connections?
3. Additional time needed to think about what future state should look like
4. Currently talking with Involta abut future projects, need to understand what trying to accomplish and get to benefit entire area
5. If looking long-term, getting services to communities working with Broadband Ohio, can expand from school district and work with ISP, use as transport mechanism

4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

Schedule

Action Items

ACCESS - Send back strategic points for tie in
ACCESS - Send Updated KMZ- current map just shows the 4 loops, they have more granular street level maps

ASHTABULA COUNTY STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Ashtabula County		
Date: November 8, 2022	Time: 2:00PM	Location: Teams

Minutes

Participants

- J.P. Ducro (Ashtabula County Commissioner)
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell and Kevin Hunt (Gannett Fleming)
- Scott Hoffman and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. JP is familiar with the project. Project background not needed.
2. **Phase 2: Stakeholder Engagement**
    a. Team has met with ODOT, OTIC, OARnet, and Everstream. Team is meeting with Counties this week.
3. **Phase 3: Preliminary Network Model**
    a. Mahoning County's Current Challenges
        i. Northern 1/3 (north of I-90) has lots of ISP options. Greater issue is affordability, not accessibility. Charter/Spectrum, Greatwave, and other ISPs exist.
        ii. Southern 2/3 is more rural. Residential and businesses complain about coverage. No telehealth. Eight different school districts. Minimal providers in the area. No ISP interest in expanding – only extending telephone costs
        iii. SR-11 cuts through the heartland of Ashtabula. Really wants each interchange to allow for an easy connection for last mile.
        iv. Need to get fiber on major thoroughfares and supplement w/ WISP.

    b. County Plans
        i. Business/Residential ISP
            1. Ohio Transparent Telecom (TT) OhioTT to put equipment on two existing towers plus new small tower in second quarter of 2023 and will serve 6-8,000 residents
                a. Newline
                b. Cherry Valley

c. Richmond
d. Route 193 and 6 – MARCS Tower
e. New Lime tower – parallel to State route 167

2. No capacity or interest in being their own ISP.
3. NTIA grant the last round ($14M (include $6 of grant) with
    a. Windstream/Connectic (phoneline fiber – Southwest part of county
        i. GreatWave – southeast loop)
4. Broadband Ohio – none of the initial grants funded (4 or five companies)
5. RDOF funding initially to two providers from out of state
    a. These providers did nothing and the funding has been pulled

ii. Eastgate
1. Collaborating with them and their grant writer for support

c. Ohio Middle Mile Plan
i. Location of existing infrastructure
1. Not aware of any
ii. Lateral tie in points along SR-11
1. Priority should be at 322, 6, 307, 167
2. 90 could add that redundancy/resiliency if a connection could occur with an ISP line.
iii. Connectivity with "regional ISPs"
1. Orwell has a new ISP bought old provider
2. Zito
3. Everstream has fiber
4. GreatWave
5. Charter
6. Windstream
7. Lumen
8. Armstrong (PA-based)
9. Fixed Wireless Company from Western PA
10. AT&T
iv. Other potential stakeholders within the county
1. Jake Hudson, Hudson Communications is a fiber installer. Could contact him to understand local perspective.

4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Ashtabula County		
Date: November 8, 2022	Time: 2:00PM	Location: Teams

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Eastgate's desire is to break ground this time next year, but funding and other factors will determine construction schedule.

Eastgate Broadband Engineering Analysis
September 26, 2022

ID	Task Name	Duration	Start	Finish	Predecessors
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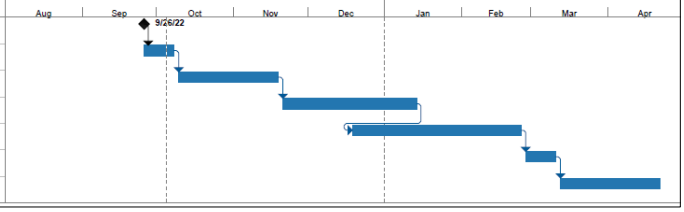

Action Items

Following the meeting, JP provided the following contacts:

Jake Hudson from Hudson Communications whom I mentioned. jake@hudson-comm.com

Bill Callahan who sits on our Broadband Taskforce and has a great deal of background in Broadband and has been active with the Digital Inclusion Alliance. He lives in Pierpont with terrible internet service from his provider. 'Bill Callahan' bill@connectyourcommunity.org

Ohio TT contact would be Kyle Yoder or Megan Kwame Kyle Yoder <kyle@ohiott.com>; Megan Kvamme <megan@ohiott.com>

GreatWave Communications is our local community ISP based out of Conneaut. Used to be known as the Conneaut Telephone Company. I have two contacts there in Kenny Knapp kknapp@greatwavecom.com and Don Zappitelli donzapp@greatwavecom.com

My Windstream/Kinetic rep is Chris Thomas Chris.Thomas@windstream.com

Spectrum/Charter is Ashley N Karlen Ashley.Karlen@charter.com

Armstrong which comes out of PA and services the Andover area is Adam J Alexander aalexander@agoc.com

Also, will you speak to someone from NEOMIN? I believe the local school districts are on this system. Not sure how they tie in with OHRNET. Contact there is Brian Greathouse brian.greathouse@neomin.org

And lastly, it may be beneficial to speak with Mike Candela who is the Supt for the County Educations Service Center (ESC) and is the contact to connect with all the county school superintendents.
mike.candela@ashtabulaesc.org

COLUMBIANA COUNTY STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Columbiana County		
Date: November 9, 2022	Time: 9:30AM	Location: Teams

Minutes

Attendees

- Bobby Ritchey (Columbiana County Port Authority Recovery Coordinator)
- Tad Herold (Columbiana County Director of Economic Development)
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell and Kevin Hunt (Gannett Fleming)
- Scott Hoffman and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. Bobby and Tad are familiar with the project. Project background not needed.
2. **Phase 2: Stakeholder Engagement**
    a. Team has met with ODOT, OTIC, OARnet, and Everstream. Team is meeting with Counties this week.
3. **Phase 3: Preliminary Network Model**
    a. Current Challenges in Columbiana County
        i. Priority of the County is to improve broadband.
        ii. Transitional zone geographically with rolling terrain
        iii. Southern part of the county
            1. Fixed-based wide area operator
            2. RAA wireless (same folks as Springfield Township)
                a. Commissioners made a commitment under the CARES act, $1.3M to RAA to assist in the build out. Primarily southern and western portions of the county. Assets are in.
        iv. Businesses
            1. Need Broadband
                a. Industrial parks – large business
                    i. Port Authority
                b. Downtown – small business
            2. Port Authority perspective
                a. Broadband is a priority

b. County Plans
    i. Business/Residential ISP
        1. Preliminary discussions, but nothing concrete.
        2. Industrial parks on east and west side of Leetonia, Salem, and Columbiana
c. Ohio Middle Mile Plan
    i. Location of existing infrastructure
        1. ACCESS loop (ITC for Columbiana and Mahoning)
            a. Owns four (4) strands and leases two (2) dark strands
            b. Services schools
            c. Involta maintains
            d. Tad will look for a KMZ file.
            e. Eastgate will send contact for Involta.
    ii. Future locations
    iii. Lateral tie in points along SR-11
        1. 344 interchange for existing and future development
        2. 154
        3. Village of Wellsville
            a. Intermodal facility…consider extending middle mile to this location
        4. Involta has a data center at the East Liverpool hospital
        5. East Liverpool was evaluating free public WiFi
    iv. Connectivity with "regional ISPs"
    v. Other potential stakeholders within the county
        1. No additional stakeholder identified
4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Eastgate's desire is to break ground this time next year, but funding and other factors will determine construction schedule.

Eastgate Lake to River Broadband Engineering Analysis Mtg with Columbiana County		
Date: November 9, 2022	Time: 9:30AM	Location: Teams

Eastgate Broadband Engineering Analysis
September 26, 2022

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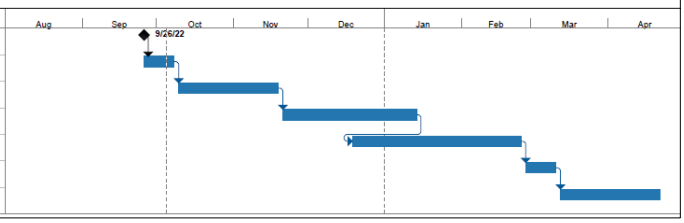

Action Items

Following the meeting, Steve provided Involta contact information and Tad provided ACCESS kmz file.

EVERSTREAM STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Everstream		
Date: October 28, 2022	Time: 10:00AM	Location: Teams

Minutes

Attendees

Joe Calzone (Everstream), Mark Ragozine (Eastgate PM), Steve Kristan (Eastgate Broadband Coordinator), Joann Esenwein (Eastgate), Anthony Barbetto (GF), Shane Campbell (GF PM), Scott Hoffman (Skyline), Paul Lennon (Skyline),

Introductions

Joe Calzone is the primary point of contact at Everstream. Shane Campbell is Gannett Fleming's PM, located in Columbus. Gannett Fleming is being assisted by Skyline Tech Solutions (Paul, Scott, and others). Skyline is leading the preliminary network analysis. Joe's background includes working on a $45M middle mile NTIA in 2008. He worked with 40 plus rural service providers in upstate NY. Joe's been w/ Everstream a little less than one year.

Everstream Overview (by Joe)

- NTIA grant process
  - Broadband Ohio invited various Services Providers to respond to an RFI in August.
  - Everstream responded along with ~112 service providers.
  - Narrowed down to less than 5. Most carriers did not proceed, didn't want to be limited.
  - State took lead on the grant app
  - Glenmore Fire department was the meet me point in East Liverpool between Everstream and Ohio Gig.
- Model Streams
  - Wholesales to Service providers- no interest in consumer
    - Dish T-Mobile, AT&T, Verizon, etc
    - Open to working with WISPs,
    - Comfortable with fiber to the tower
- Operate in about 10 States
  - 63 Data Centers

Eastgate Lake to River Broadband Engineering Analysis Mtg with Everstream		
Date: October 28, 2022	Time: 10:00AM	Location: Teams

- 100 Content providers
- Cell Carriers have a land line division
  - Willing to open I-LEC collocations
    - Services
    - Lambdas
    - Lit services etc
    - SD-WAN
  - Ohio Broadband
    - If don't do I-LEC would agree to establish a micro-POP and allow for colocation of other service provider equipment
  - Wholesale SIP capabilities– not in the UC space
    - Not a Vonage or 8x8
  - Establish NNI
  - Willing to work with ISP in northern area however would be heavy lift. Small ISP will want them to recognize a peering point.
- Biggest miss
  - Don't seem to have any WISP players
  - POPs shown in the NTIA grant were not vetted. Where are some of the tie in points off the road?
    - Would be waiting on the community associations for info on this
    - Possibly a county municipal
    - BEAD funding available for the Counties
  - NY PSAPs were County based
    - Various towers for emergency communications
    - Construct fiber to the tower
- Assumed 288 strand for fiber in the NTIA grant
  - Used because commonly available, past experience in NY, expecting to same thing to happen
  - Previous experience had to request NTIA exception to purchase outside of Corning (Japanese glass)
  - Planning to use what is available
- Community Anchor Institutions
  - NTIA said the Grant application had to identify
  - CAI's are "not for profit"
  - Everstream should assess what anchor institutions make sense, "blank slate" right now
  - Unclear who would do the K12, OARNet is in K-12 space as well

Eastgate Lake to River Broadband Engineering Analysis Mtg with Everstream		
Date: October 28, 2022	Time: 10:00AM	Location: Teams

- Final list of CAIs to ensure construction to correct laterals (determined to use latest given by OARNet). Shane to send list to Joe that was included in the NTIA application.

*****ACTION ITEMS*****
Joe - will send the NDA to Shane for Skyline and GF to sign.
Joe – Once NDA is executed, will provide the POP coordinates, GIS infrastructure, list of potential last mile providers in the area

INVOLTA STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Involta		
Date: November 21, 2022	Time: 1:00PM	Location: Teams

Minutes

Participants

- Mike Meloy (EdgecityIT, acquisition and fiber consultant for Involta)
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell Anthony Barbetto, and Kevin Hunt (Gannett Fleming)
- Scott Hoffman Sean Dean, Nataki Johnson, and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. Mike has heard of the project. Shane gave a quick review. Eastgate MPO completed a Broadband Feasibility Study in 2021. Department of Development provided funds for Eastgate to initiate an Engineering Analysis for middle mile broadband on SR-11. Gannett Fleming was selected to complete the analysis and develop an implementation plan that will likely be a private/public partnership. Skyline Technology Solutions is a subconsultant to Gannett Fleming and is leading the preliminary network analysis. Ohio Broadband submitted an application to the National Telecommunication and Infrastructure Administration (NTIA) for the Middle Mile grant. Significant support was provided by OARnet and Counties as part of that grant application that also included two additional segments across southern Ohio. Everstream was selected as the ISP for the SR-11 section. NTIA awards are scheduled to be announced in March of 2023.
2. **Phase 2: Stakeholder Engagement**
    a. Currently in this phase. Have met with OARnet, ODOT, Ohio Turnpike Commission, four counties (Ashtabula, Trumbull, Mahoning, Columbiana), an ISP and will be meeting with ACCESS and NEOMIN.
3. **Phase 3: Preliminary Network Model**
    a. Involta Background (including arrangement w/ OARnet and ACCESS)
        i. Data
        ii. Hybridizes IT services with data center.
        iii. Data Recovery Services merged w/ Involta in 2017.
        iv. Two data centers in Youngstown

1. 1343 Belmount AVe
2. 3203 Southern Blvd (more of fiber hub than data center, not just Involta fiber in this DC)

v. Manage agreement for fiber acquired from ACCESS.
vi. Strong relationship with OARnet.
vii. "Carrier's Carrier" selling fiber in the downtown markets of Youngstown
1. Trade agreements with OARnet more so than buy/sell
2. Fiber path between YSU and Belmount and/or Southern
3. Hospital's PoP comes from Involta's data center(s)
4. 911 PSAP hosted by Involta and backed up in Akron
5. Provides a lot of dark fiber (leased assets or IOUs)

viii. ACCESS is one of 18 Information Technology Centers (ITCs) who primarily serve education facilities.
1. Patt Raiger, director at ACCESS used to work with Mike.

ix. Mike will send us an NDA

b. Involta Network
i. Location of existing infrastructure
1. Mike's son (who works for Involta) will send us a KMZ of their network. Will provide existing and future expansion plans, but need NDAs

ii. Future Plans
1. $10M expansion in Mahoning County. Funding from Mahoning County. Contracts are signed and engineering is ongoing. Project will be completed Q1 of 2024. Tying into 77 government facilities. Expanding fiber footprint. Tying into Mahoning county water plant (near Meander lake).

iii. Proposed OARnet connections with SR-11 Middle Mile:
1. Mahoning Ave. & SR-11 – Involta has a 288-count here.
2. SR-193 (Belmont Ave) & I-80 – Involta has 144-576-count here.
3. Interested in swap along 11 from Mahoning Ave up to 680/80 interchange (12-24 strands).
4. Fiber exists on 193 and could create a ring w/ both tie-in points. OARnet prefers to have two paths for redundancy.
5. Potentially interested in purchasing fiber on SR-11 from 224 (Canfield) to Mahoning Ave (Austintown)

iv. Lateral tie in points along SR-11
1. See connections noted above.
2. East Liverpool is a PoP for their southern network.
3. Involta likes to exchange fiber counts and would look for exchange dark for dark fiber
4. Possibly tie in to Rt 11 at 224 and Green line (Canfield)

4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Involta		
Date: November 21, 2022	Time: 1:00PM	Location: Teams

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Desire is to break ground this time next year, but funding and other factors will determine construction schedule.

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September 26, 2022

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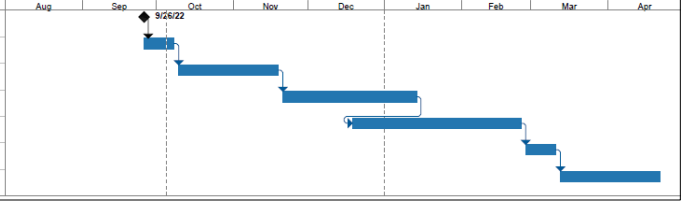

Action Items

- NDA with Skyline and Involta
- NDA with GF and Involta
- Involta KMZs to add to overall map

MAHONING COUNTY STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Mahoning County		
Date: November 7, 2022	Time: 2:00PM	Location: Teams

Minutes

Participants

- Annemarie (Anna) DeAscentis, (Mahoning County Commissioners Grant Manager)
- Joann Esenwein, Mark Ragozine, Steve Kristan, (Eastgate MPO)
- Shane Campbell and Kevin Hunt, (Gannett Fleming)
- Scott Hoffman and Paul Lennon, (Skyline Technology Solutions)

Middle Mile Engineering Analysis

1. **Phase 1: Stage Setting**
    a. Anna is familiar with the project. Project background not needed.
2. **Phase 2: Stakeholder Engagement**
    a. Team has met with ODOT, OTIC, OARnet, and Everstream. Team is meeting with Counties this week.
3. **Phase 3: Preliminary Network Model**
    a. Current Challenges
        i. COVID highlighted low to no coverage in rural areas.
        ii. Most of the exits off SR-11 are in the populated areas where broadband is in good shape.
    b. Regional Level
        i. Local providers
            1. Armstrong- top last mile, wired
            2. Spectrum- top last mile, wired
            3. AT&T- top last mile, wired
            4. Century Link
            5. Wireless (T-Mobile, Verizon)- more variables but easier to deploy
            6. Townships are split up by different providers, there are gaps in coverage
                a. Springfield, Goshen, Milton, Jackson-- multiple options but not overlapping
                b. Columbiana services some of Mahoning
            7. RAA Wireless
        ii. County plans

1. Business/Residential ISP
2. OARNET
    a. CenturyLink 120 Walnut
    b. (DRS) - Involta – connecting to Columbus
    c. Steve – OARnet does not have direct fiber to Ashtabula
3. County is building a loop around the county for government offices. Leasing 12-16 strands from Involta, which will be a closed network. Anna is going to look into mapping.
4. Anna concerned that the southwestern part of the county will not have much reach.
5. RFI will be released yet this year targeting five townships.
6. AT&T just announced a "big drive" for Austintown and Youngstown
7. RRA Wireless recent contract in Columbiana County

c. Ohio Middle Mile Plan
    i. Location of existing infrastructure
    ii. Future locations
    iii. Lateral tie in points along SR-11
        1. Nothing too noteworthy although 680, Mahoning Ave loop
        2. Crossroads along SR-11 were identified
        3. Currently no middle mile to encourage services in the SW part of the county.
        4. AT&T is growing their presence in Austintown, Youngstown
        5. Spectrum is also increasing their speeds in Youngstown.
    iv. Connectivity with "regional ISPs".
    v. Other potential stakeholders within the county
        1. Port Authority
            a. Quasi government authority, in charge of Youngstown airport, involved in economic development. Anna could connect us with that person. They should be aware of businesses in need of broadband. For example, there is development in Jackson township and Port Authority could help us understand their needs.
            b. Niles is about to start a broadband study through Niles, WeathersField, Allen, and Warre. Anna.

4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Mahoning County		
Date: November 7, 2022	Time: 2:00PM	Location: Teams

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Desire is to break ground this time next year, but funding and other factors will determine construction schedule.

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September 26, 2022

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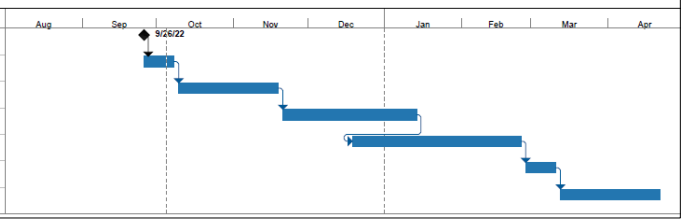


Action Items

Anna – Provide mapping (if available) of fiber loop around County servicing government offices.

NEOMIN STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with NEOMIN		
Date: November 29, 2022	Time: 1:00PM	Location: Teams

Minutes

Introductions

- Brian Greathouse, Executive Director (NEOMIN)
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell and Anthony Barbetto (Gannett Fleming)
- Scott Hoffman, Nataki Johnson, and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. Brian has heard of the project. Shane gave a quick review. Eastgate MPO completed a Broadband Feasibility Study in 2021. Department of Development provided funds for Eastgate to initiate an Engineering Analysis for middle mile broadband on SR-11. Gannett Fleming was selected to complete the analysis and develop an implementation plan that will likely be a private/public partnership. Skyline Technology Solutions is a subconsultant to Gannett Fleming and is leading the preliminary network analysis. Ohio Broadband submitted an application to the National Telecommunication and Infrastructure Administration (NTIA) for the Middle Mile grant. Significant support was provided by OARnet and Counties as part of that grant application that also included two additional segments across southern Ohio. NTIA awards are scheduled to be announced in March of 2023.
2. **Phase 2: Stakeholder Engagement**
    a. Currently in this phase. Have met with OARnet, ODOT, Ohio Turnpike Commission, four counties (Ashtabula, Trumbull, Mahoning, Columbiana), Involta, and an ISP.
    b. OARnet will have fiber strands along SR-11.
3. **Phase 3: Preliminary Network Model**
    a. NEOMIN Background
        i. NEOMIN does not have any fiber, 100% Leased services. Currently pays for leased line for internet to the schools from ISPs like Spectrum (10 year lease is two years away from renewal)
        ii. Offering data center space (power, rack space)

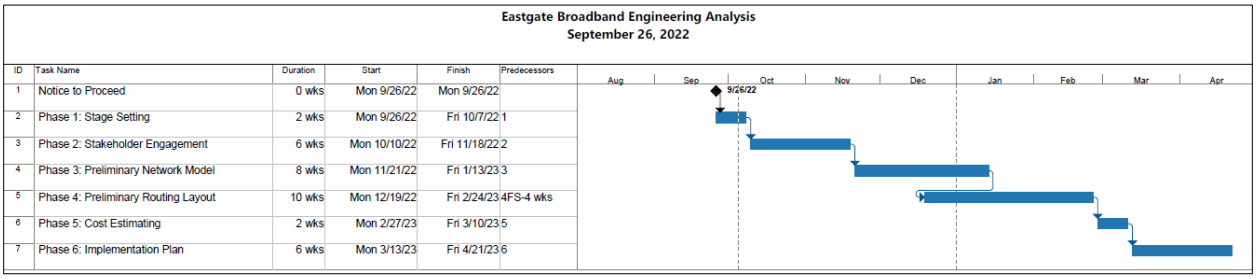
iii. OARnet provides internet to their data centers. NEOMIN connection goes to Youngstown PoP. Talking about making them a PoP, which would put them on the backbone.
iv. 10G connection from OARnet
v. Would like to have a microPOP at a data center in their region
vi. Atech is close to SR-11 at SR-167 (Jefferson City).

b. NEOMIN Network
i. Location of existing infrastructure
1. No fiber as mentioned aboved.
ii. Lateral tie in points along SR-11
1. Action item: NEOMIN to send addresses that are near highway 11 that can be offered up as Micro PoPs. Brian will reply to an email thread with Shane. Paul and Scott should be cc'ed.
iii. Future Plans
1. Information Technology Center – can offer services to government offices, so beyond just schools. Would like to potentially serve government offices as the network expands.

4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Desire is to break ground this time next year, but funding and other factors will determine construction schedule.



Action Items

1. NEOMIN to send addresses that are near highway 11 that can be offered up as Micro PoPs. Brian will send to email thread with Shane and Paul and Scott should be cc'ed

OARNET STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with OARnet		
Date: October 27, 2022	Time: 12:00PM	Location: Teams

Minutes

Attendees

Denis Walsh (OARnet), Mark Ragozine (Eastgate PM), Joann Esenwein (Eastgate), Anthony Barbetto (GF), Kevin Hunt (GF), Shane Campbell (GF PM), Scott Hoffman (Skyline), Paul Lennon (Skyline), Art LeClair (Skyline), Cameron Stang (Skyline), Steve Crawford (Skyline), Sean Dean (Skyline)

Introductions

Denis Walsh is the primary point of contact at OARnet. Shane Campbell is Gannett Fleming's PM, located in Columbus. Gannett Fleming is being assisted by Skyline Tech Solutions (Paul, Scott, and others). Skyline is leading the preliminary network analysis.

OARnet Overview (by Denis)

- State of OH backbone.
- Primarily government and education
- 5k miles of fiber throughout OH
- DWDM Network, running 100 gig network for several years (2015)
- In the process of adding 400 gigs to run statewide to accommodate clients running large networks.
- Internet provider, they aggregate the internet throughout OH (AT&T and Lumen are the main providers).
- There is an MPLS group who can get involved when necessary. Operations Manager for locations and optical network. Aaron Wise – network director, focus on IP and infrastructure routing.

Project Timeline

1. Phase 1: Stage Setting
2. Phase 2: Stakeholder Engagement – current stage
3. **Phase 3: Preliminary Network Model**
    a. Ohio Middle Mile Plan

i. Focusing on the red area, which represents the lowest internet speeds across the state – OARnet's old provider wasn't responsive. Traditionally, big companies go elsewhere, and the Midwest is an afterthought.
ii. OARnet doesn't build any fiber. They lease and do hire use. They do light it all and run an optical backbone (running CISCO today) but replacing them all today.
iii. Routing platform is juniper (Core). CP is usually on the end – no last mile and uses private sectors for that to get to points of presence (a more important aspect).
iv. They have the same requirements as a central office or data center.
v. Core is optical and last mile is usually router based and a CP at the end of the last mile (from another provider) as a sort of check to confirm responsibility for issues.
vi. Nothing in Ashtabula area – they only have one point of presence/underdeveloped.
    1. Working with Everstream to reach this part of the state and have fiber in this region.
    2. There is an ITC that serves this area in place already.
vii. OARnet is the state network and the fiber corresponding to OARnet will be used for other applications and projects.
    1. Team has talked to ODOT and they're a big part because they own physical right of way. No other organizations in the region were noted.
    2. Some amount of fiber will be IRUed for state use.
viii. K through 12 – everything on OARnet fiber
ix. 18 information technology centers throughout the state. (Access(?) and NEOMIN)
    1. Many rural places can't afford to have tech teams, so these areas serve as hubs for rural school districts.
    2. 30 points of presence with them (200 gig upgrade).
    3. Work on getting the last mile in place with the actual districts.
x. K12 is a unique environment

b. Type of service (leased/owned and lit, dark, etc.)
c. OARnet fiber use interest in the Eastgate region
    i. Number of strands
    ii. Location of existing infrastructure
    iii. Future locations
        1. Service delivery
        2. Aggregation/Collocation
        3. Peering (IPX/Compute/etc)
        4. Considerations

a. Tier I - Are there data centers in that area, or does Everstream have a presence?
b. Tier II – is there a university/branch campus or municipal building that can be upgraded to meet the requirements. Building can become a hub to distribute services. (unlikely that it will be a straight shot down SR11).
    i. Anchor institution list included with NTIA application – developed based on the community anchor description in the grant application.
    ii. OARnet's contribution – locations with service today via last-mile connection (not fiber).
    iii. Need something in Ashtabula – likely more than one
c. Hardwired for the network, and is there capacity for an antenna and dropdown service from towers in the area?
d. POPs – most provided by the sector of partners, and the criteria depends on the provider (30-40 miles). A lot of the sights have nothing around.
    i. May have to lean heavily on the provider/Everstream or connect to Tier II anchor institutions because there are not many that exist in the Ashtabula region.
    ii. Few that are state owned, most are with a carrier or state owned. Try to get data centers where possible because carriers are territorial.
e. Skyline has solved this type of problem by working with 911 centers because they tend to have redundancy and requirements.

5. Location information of POPs and existing sights – Denis to send over to Shane and Shane will distribute.
6. The proposed POPs (solid squares) on the NTIA grant network exhibit were spaced very close together.
    a. Suggested from Everstream.
7. Map also shows resource OARnet is leveraging.
8. Off ramps will be wherever the carrier tells OARnet they are.

iv. Middle-mile only or last mile as well?
v. Resiliency

d. Use cases to consider (P-20, State, Local, others)
e. Extends to Pittsburgh and provides to West VA and talks to extend to Buffalo.
    i. Purpose is to have other states provide services to states during large outages and emergency issues.
    ii. OARnet has gone to other states to get services other providers could not provide.

Eastgate Lake to River Broadband Engineering Analysis Mtg with OARnet		
Date: October 27, 2022	Time: 12:00PM	Location: Teams

4. **Phase 4: Preliminary Routing Layout**
    a. Design Considerations
        i. Build
            1. OARnet doesn't build fiber, they leverage it and POPs to co-locate.
        ii. Share - Shared and lease
        iii. Lease
        iv. It doesn't sound like OARnet needs many strands. Pair or two for resiliency to connect, but then can choose another model for going out from the middle mile.
            1. Requirements – quality of fiber to support the # of gigs. Most will meet those requirements, but it depends on certain characteristics.
        v. Ohio's public safety perspective –
            1. Marks network (state's power network) geared for 1st responders. (main wireless network for the state)
            2. LEADS network – ex: used to run plates when a police officer pulls someone over. Also supports every police station/sheriff's office in OH (field and station support).
            3. Some of the towers can convert wireless into fiber – may be useful consideration for this project depending on where the towers are located/if there is a tower in the Ashtabula region.
        vi. If unsuccessful with NTIA, there is also BEAD Program. But also, Broadband OH is going to do something.
            1. There are certain places that are fiber/network deserts (Appalachian regions, and others that aren't categorized as Appalachian) and they need the resources to help bring counties online and deliver resources and opportunities to help resources and economic needs.
        vii. Need to come up with a recommendation of what the Middle Mile should include and that can depend on the amount of funding that is granted. But this may also be one-time money, so sustainability is really important to consider What will OARnet scale up for down:
            1. Open-ended network
                a. Can lease fiber to other carriers
                b. Lease co-location space (revenue-generating opportunities to help sustain the cost of the program)
                c. Once you have it there, people start to buy it, and carriers need to expand.

Eastgate Lake to River Broadband Engineering Analysis Mtg with OARnet		
Date: October 27, 2022	Time: 12:00PM	Location: Teams

2. How much can they do with POPs and existing infrastructure to reduce costs?

b. Partners

5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

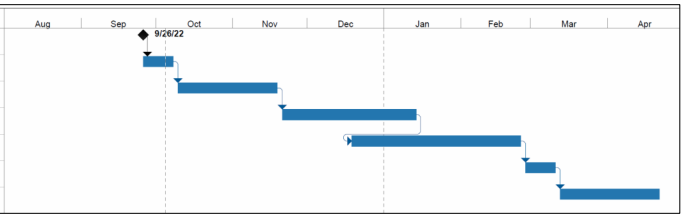
Information/Requirements Gathering

Questions/Comments

Action Items/Next Steps

- Location information of POPs and existing sights – Dennis to send over to Shane and Shane will distribute.

ID	Task Name	Duration	Start	Finish	Predecessors
1	Notice to Proceed	0 wks	Mon 9/26/22	Mon 9/26/22	
2	Phase 1: Stage Setting	2 wks	Mon 9/26/22	Fri 10/7/22	1
3	Phase 2: Stakeholder Engagement	6 wks	Mon 10/10/22	Fri 11/18/22	2
4	Phase 3: Preliminary Network Model	8 wks	Mon 11/21/22	Fri 1/13/23	3
5	Phase 4: Preliminary Routing Layout	10 wks	Mon 12/19/22	Fri 2/24/23	4FS-4 wks
6	Phase 5: Cost Estimating	2 wks	Mon 2/27/23	Fri 3/10/23	5
7	Phase 6: Implementation Plan	6 wks	Mon 3/13/23	Fri 4/21/23	6



Risks

Out of Scope Items

Hopper

- NTIA / Funding status
- Middle mile anchor institution connections

Action Items

ODOT STAKEHOLDER MEETING NO. 1

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with ODOT		
Date: October 19, 2022	Time: 2:00PM	Location: Teams

Minutes

Attendees

Tom Powell (ODOT D4), Chris Huff (ODOT D4), Jeremy Cessna (ODOT D11), Jason Yeray (ODOT CO Traffic Operations), Drew Gilmore (ODOT CO Real Estate), Wendi Snyder (ODOT CO Real Estate), Mark Ragozine (Eastgate PM), Steve Kristan (Eastgate Broadband Coordinator), Anthony Barbetto (GF), Kevin Hunt (GF), Shane Campbell (GF PM), Scott Hoffman (Skyline), Paul Lennon (Skyline), Art LeClair (Skyline), Cameran Stang (Skyline)

Project Overview

Eastgate MPO completed a Broadband Feasibility Study in 2021. Department of Development provided funds for Eastgate to initiate an Engineering Analysis for middle mile broadband on SR-11. Gannett Fleming was selected to complete the analysis and develop an implementation plan that will likely be a private/public partnership. Ohio Broadband submitted an application to the National Telecommunication and Infrastructure Administration (NTIA) for the Middle Mile grant. Significant support was provided by OARnet and Counties as part of that grant application that also included two additional segments across southern Ohio. Everstream was selected as the ISP for the SR-11 section. NTIA awards are scheduled to be announced in March of 2023.

Project Scope

GF's scope covers six phases. Currently in Phase 2 with stakeholder meetings scheduled with OARnet and Everstream next week. Meeting with ODOT primarily focused on Phases 3 and 4.

1. Phase 1: Stage Setting
2. Phase 2: Stakeholder Engagement
3. **Phase 3: Preliminary Network Model**
   - GF's team will recommend the number of fiber optic cable strands and duct configuration. NTIA grant assumed a 288-count middle mile fiber optic cable.

- ODOT will provide requested number of strands and innerduct expectations. Early coordination appears to have been a total of 24 strands with 12 strands through two innerducts.
- Preliminary network design will include conduit configuration and pull box layout that considers ODOT assets and operation and maintenance needs.
- DriveOhio, per coordination earlier in the week with Nick Hegemier, does not have any additional requests at this time that would increase the fiber count (beyond the 24-strands) for future transportation technology.
- ODOT will provide a KMZ of their existing signal/ITS infrastructure along the corridor.
- No other needs were mentioned that should be considered at this stage of development.

4. Phase 4: Preliminary Routing Layout

- Design Considerations

    1. Typical section – ODOT will have to approve acceptable locations within R/W that the fiber can be installed. Examples from three Ohio fiber DB projects were shown that ranged from placing the fiber near the R/W fence, to the outside graded shoulder/foreslope, to the grass median. GF will provide a recommended typical section for ODOT to review following a drive through of the corridor. It was shared that states like Utah have established a uniform offset (e.g. right off the edge of pavement) for statewide deployment. This will be taken into consideration, yet SR-11 is a standalone project in the state that may not follow a consistent offset due to physical constraints and terrain. It was also noted that fiber in Cincinnati that's close to guardrail has experienced multiple hits.
    2. Other factors such as bridge crossing, railroads, and utility crossings will be revisited in a subsequent discussion. ODOT D4 is in the process of marking their underdrain outlets.

- Environmental

    1. It appears the NTIA grant will require NEPA compliance. If the project is successful in winning the grant, additional discussion with ODOT will take place related to the NEPA scope. From an

ODOT R/W permitting standpoint, the installer is required per the permit to obtain all federal permits.

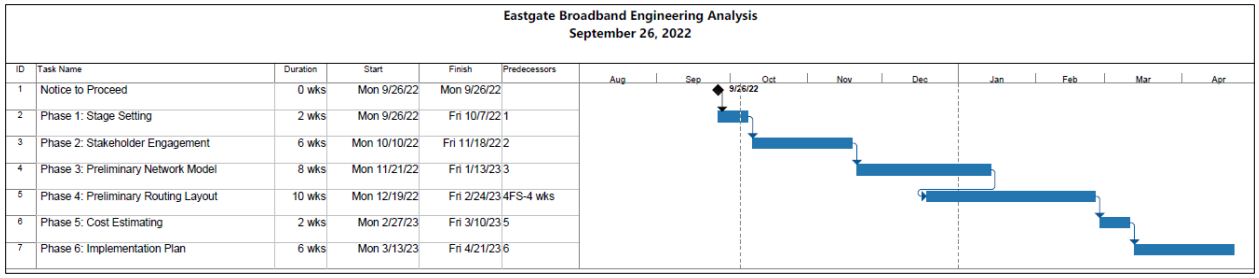
- ROW Considerations
    1. License agreement will be developed that will specify the terms and conditions of shared resources once installed. Permit will be needed to allow for installation.
    2. Installation of fiber through overlap section of I-80 is being addressed by ODOT since it is an interstate unlike the policy provisions that SR-11 follows which permits private infrastructure within ODOT R/W.
    3. Permitting – plans will need submitted. E-permitting system will be used. There is a possibility of submitting an application "on behalf of" someone else. Link to ODOT permitting resources was provided: https://www.transportation.ohio.gov/working/permits/row-utility/resources-manuals
- Phase 5: Cost Estimates
- Phase 6: Implementation Plan
    1. Unknown at this time how the project will be phased.
    2. ODOT doesn't have any priority sections except the I-80 section, which may get pushed out if ODOT's interstate policy isn't updated for this potential use.

Schedule

Schedule below was shared. Date of second meeting with ODOT is up in the air. Likely in December or January. Eastgate expectations is that project breaks ground by this time next year. Funding, environment clearance, material lead times, etc could impact the installation schedule. Construction will likely take 1-2 years to complete, but that varies depending on several factors.

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with ODOT		
Date: October 19, 2022	Time: 2:00PM	Location: Teams



Eastgate Broadband Engineering Analysis
September 26, 2022

ID	Task Name	Duration	Start	Finish	Predecessors
1	Notice to Proceed	0 wks	Mon 9/26/22	Mon 9/26/22	
2	Phase 1: Stage Setting	2 wks	Mon 9/26/22	Fri 10/7/22	1
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6	Phase 5: Cost Estimating	2 wks	Mon 2/27/23	Fri 3/10/23	5
7	Phase 6: Implementation Plan	6 wks	Mon 3/13/23	Fri 4/21/23	6

Hopper

- Shared resource agreement was discussed and documented above.

Action Items

- ODOT to provide KMZ file of traffic signal/ITS infrastructure. Jason Y. provided KMZ file on 10/20/22.
- GF team will provide a recommended typical section for ODOT to review following field visit.
- ODOT to confirm strand count for their use.
- Tom Powell assigned PID 117648 to the project and opened a ProjectWise folder for use as needed.

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ODOT STAKEHOLDER MEETING NO. 2

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with ODOT – 2		
Date: March 17, 2023	Time: 8:00AM	Location: Teams

Meeting Minutes

1. **Attendees:**
   A. Shane Campbell – Gannett Fleming
   B. Giovanni Furio – Gannett Fleming
   C. Anthony Barbetto – Gannett Fleming
   D. Bill Curlett – Skyline
   E. Paul Lennon – Skyline
   F. Scott Hoffman – Skyline
   G. Steve Kristan – Eastgate Broadband Coordinator
   H. Mark Ragozine – Eastgate PM
   I. Jeremy Cessna – ODOT D11
   J. Christopher Huff – ODOT D04
   K. Thomas Powell – ODOT D04
   L. Jason Yeray – ODOT CO Traffic Operations
2. **Introduction of Concept Plans** (link)
   A. Not to be construed as ODOT plans
   B. Schematic/Sheet Index
   C. Typical Sections
      i. Begin Project to SR–267/SR–7
         a. Median Barrier with No Raceway
         b. NB outside is difficult to install conduit
         c. More leeway on SB outside shoulder – Still not too much
         d. Potentially install within the outside paved shoulder for last 6 miles
         e. What is a reasonable approach at a concept stage
         f. Tom Powell – Consider installing a new median barrier with raceway?
            1 Would drive the cost up from normal fiber installation.
            2 D11 to see if major rehab is programmed for this roadway
      ii. Hugging the R/W for majority of corridor is not reasonable due to trees and shrubs
      iii. Seeking feedback on where ODOT is leaning as far as offsets.
            1 Central Office – No preference, but the access points and maintenance are key
            2 District – Impacts are the primary concern: Cable barrier, road widening
      iv. One option, keep the fiber on one bound and cable barrier on the other
         a. Maintenance would know where the fiber is at all times.
         b. Tom Powell – Cable barrier varies from side to side depending on crossings and bridges.
         c. Place the fiber behind cable barrier.
      v. Raised median and dual ditch is no longer used so future project may convert to a single ditch.
      vi. Wide medians will generally not require cable barrier

vii. Establish a uniform location so that ODOT will know for future use where the fiber is at all times. Placing it approximately 14' from edge line would be behind future cable barrier (12' min. offset). In the locations for the raised median/dual ditch section, catch basin aprons are generally 16'-24' away from edge line.
viii. Median is preferred for cost and constructability
ix. Jeremy: What method would be used to install within the paved shoulder?
    a. Depends on contractor
    b. Boring would require a bore pit every 500', PB/manhole every 1000'
    c. Micro–trenching isn't likely
    d. Could influence spec of installation
    e. Curlett – Cast iron, lockable lid in shoulder for security and safety purposes
    f. Powell – Shoulder would include underdrain conflicts
        1 Deeper installation would be required.

D. Plans
E. Show allowable "swaths"

3. Summary of Email Sent from Shane Campbell on 3/16/2023

A. Nonstandard locations

i. I–680 & I-80 Interchanges and I-80 from SR-11 to SR-193
    a. Location of fiber needs further evaluation during detailed design
ii. Powell – Run lines to local roads?
    a. 48" Manholes or a PB at select interchanges
iii. Powell – Power Drops required?
    a. Power is not required, only at the Terminal Buildings

B. Bridge attachments

i. Over Norfolk Southern and Mahoning River (outside attachment) (Structure Numbers 7803338 and 7803362) – Sheet 47
ii. Over Consolidated Rail Corp, Norfolk Southern, and CSX Railroad (outside attachment) (Structure Numbers 7803400 and 7803435) – Sheet 47
iii. Over Ashtabula River (median attachment) (Structure Numbers 0401684 and 0401714) – Sheet 101
iv. Not achievable via boring
v. Obtain existing plans to determine conduit status on bridges
vi. Powell – How many and how is it attached
    a. One metal conduit (likely four inner ducts) and through cross frames or on outside of parapet.

C. Potential Terminal Buildings

i. SR-7 Interchange – very likely if successful with NTIA grant.
ii. US-20 Interchange – TBD
iii. Cessna – Have issued permits in the passed for cell towers, etc. Unknown at this time as to whether a structure would be allowed.

Eastgate Lake to River Broadband Engineering Analysis Mtg with ODOT – 2		
Date: March 17, 2023	Time: 8:00AM	Location: Teams

iv. Revisit potential locations and ODOT to provide feedback on a structure within the infield
v. Powell – What frequency of access would be required?
   a. Low – Could be similar to cell tower access
vi. Huff – How large of a building?
   a. Barbetto – Small: ~12'x12', ~15'x15' in NC
   b. Similar to a cell tower: Concrete box, or mobile home size or smaller

D. Potential Connections to ODOT Assets

i. ODOT to follow back up on connecting assets
ii. Yeray – CCTV and Signalized Intersections would be beneficial, follow up on RWIS and ATRs

E. Plans

i. Powell – How will plans get delivered
   a. Most likely go through permit process
   b. Will need further discussion if successful w/ NTIA grant

F. R/W Implications

i. License Agreement on SR-11
ii. I-80 will require special agreement

G. Plan Requests

i. Additional Plan Requests to Confirm bore vs bridge attachment
   a. SR-11 bridges over CSX (Structure Numbers 0401862 and 0401897).
   b. SR-11 bridges over Little Beaver Creek bridges (Structure Numbers 1500783 and 1500813).
   c. SR-11 bridges over Little Beaver Creek / US-30 (Structure Numbers 1500570 and 1500600).
ii. Thom Powell to provide additional bridge plans from D04

ODOT Feedback is Requested as Follows:

1. Let us know if a roadway rehab project is programmed on SR 11/US 30 between SR-267 and SR-7 that would replace the existing median barrier.
2. Provide any initial feedback on placement of fiber in the section between SR-7 and SR-267 (6 miles). Could the SB outside paved shoulder be considered as along as certain specifications are followed (e.g. type of lid, backfill around mh, depth, etc)?
3. Is a consistent offset to the median acceptable on one bound for the majority of the project, such as 14' from edge line?
4. Do you accept attaching the fiber line on the following three (3) bridges: Over Norfolk Southern and Mahoning River (outside attachment) (Structure Numbers 7803338 and 7803362) – Sheet 47, Over Consolidated Rail Corp, Norfolk Southern, and CSX Railroad (outside attachment) (Structure Numbers 7803400 and 7803435) – Sheet 47, and Over Ashtabula River (median attachment) (Structure Numbers 0401684 and 0401714) – Sheet 101? Additional investigation will be performed at three more bridges following receipt of existing plans.

Eastgate Lake to River Broadband Engineering Analysis Mtg with ODOT – 2		
Date: March 17, 2023	Time: 8:00AM	Location: Teams

5. Is it conceivable that ODOT would allow a small terminal building to be placed w/in an interchange infield such as at SR-7 South/39 West/Eight Street in East Liverpool?
6. Provide plans for the following bridges:
    i. Over Norfolk Southern and Mahoning River (outside attachment) (Structure Numbers 7803338 and 7803362) – Sheet 47/104 (D4)
    ii. Over Consolidated Rail Corp, Norfolk Southern, and CSX Railroad (outside attachment) (Structure Numbers 7803400 and 7803435) – Sheet 47/104 (D4)
    iii. Over Ashtabula River (median attachment) (Structure Numbers 0401684 and 0401714) – Sheet 101/104 (D4)
    iv. SR-11 bridges over CSX (Structure Numbers 0401862 and 0401897). Sheet 103/104 (D4)
    v. SR-11 bridges over Little Beaver Creek bridges (Structure Numbers 1500783 and 1500813). Sheet 14/104 (D11)
    vi. SR-11 bridges over Little Beaver Creek / US-30 (Structure Numbers 1500570 and 1500600). Sheet 18/104 (D11)
7. Provide confirmation on what ODOT assets should be connected to the middle mile fiber. We will assume CCTVs and traffic signals if we don't hear otherwise.

From:	Powell, Thomas
To:	Yeray, Jason; Comer, Bryan; Cessna, Jeremy; Brett, Thomas; Huff, Christopher
Cc:	Chaney, Nicholas; Hollis, Jeron; Ensinger, Paul; Lucas, Stephen; Beranek, Jason; Chaney, Michelle; Click, Denyse; Snyder, Wendi
Subject:	RE: PID 117648 ---- Eastgate Lake to River Broadband Engineering Analysis
Date:	Monday, April 3, 2023 12:31:55 PM
Attachments:	Eastgate Lake to River Broadband Engineering Analysis - ODOT Mtg No. 2.msg RE PID 117648 ---- Eastgate Lake to River Broadband Engineering Analysis.msg

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To summarize what we talked about this morning

1. Grass Median Sections
    a. Placement of the fiber should be in the median at a constant offset from the edge line
    b. The offset should be such that if we install Median Cable Barrier, it is not in the way. Suggested a constant offset of 14-15'
    c. Should be placed on the same side for the length of the corridor
2. Concrete Median Section
    a. D11 will be conducting more internal discussions concerning the placement of the fiber
    b. Concerns were raised about the future paving of the freeway and the need to adjust manholes/pullboxes and how the coordination with the "utility" would be handled
    c. There is a section of the corridor shown on sheets 6, 7 & 8 that will be replacing the median barrier this year, contract is already sold, and work is expected to start in May 2023. D11 will hold some internal meetings to determine if it is feasible to install a single 2" conduit in the new barrier with this project.
3. Bridge Attachments in D04
    a. It is permissible to attach the bridges where needed
    b. Attachment should take place within the cross frames of the bay closest to the median
    c. Consideration should be made to NOT go through the backwall/abutment and route the fiber around the abutment and onto the cross frames
    d. This applies to the bridges identified by Gannet Flemming

i. Over Norfolk Southern and Mahoning River (outside attachment) (Structure Numbers 7803338 and 7803362) – Sheet 47

ii. Over Consolidated Rail Corp, Norfolk Southern, and CSX Railroad (outside attachment) (Structure Numbers 7803400 and 7803435) – Sheet 47

iii. Over Ashtabula River (median attachment) (Structure Numbers 0401684 and 0401714) – Sheet 101

4. General Concerns
    a. Fiber is to be routed under cross culverts
    b. Fiber is to be routed under the underdrain outlets
    c. Fiber is to be routed under lighting circuits
    d. Concerns were voiced about how the future coordination will be made with the fiber owner when projects are impacting the fiber. Such as Median Crossovers, drainage work, etc.

Thank you

Thomas J (T.J.) Powell, PE
Design Build, Geotechnical and Standards Engineer
Ohio Department of Transportation - District 4
2088 S. Arlington Rd, Akron, Ohio 44306
330.786.4834 (office) | 440.897.8122 (mobile)

transportation.ohio.gov
Chat via Microsoft Teams
-----Original Appointment-----
From: Powell, Thomas
Sent: Thursday, March 23, 2023 9:01 AM
To: Powell, Thomas; Yeray, Jason; Comer, Bryan; Cessna, Jeremy; Brett, Thomas; Huff, Christopher
Cc: Chaney, Nicholas; Hollis, Jeron; Ensinger, Paul; Lucas, Stephen; Beranek, Jason; Chaney, Michelle; Click, Denyse; Snyder, Wendi
Subject: PID 117648 ---- Eastgate Lake to River Broadband Engineering Analysis
When: Monday, April 3, 2023 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting
Internal meeting to discuss the placement of the Fiber along the corridor.
My suggestion is to place the Fiber at 15' off the edge line in the median. This location gets it 3' behind the location of Tensioned Cable Barrier if it is installed on that freeway, etc.
I would like to pick one side for the corridor so that it is consistent, and everyone will know where it is.
The first 6-7 miles or so in D11 is problematic due to the median barrier. I had mentioned in the meeting it would be a good idea to place it in a new median. I am not sure how feasible that is due to funding. In D11 it would be a good idea to engage the Planning section to see if there is interest in replacing this median barrier. Another option for this section would be to go under the outside paved shoulder.
Also, want to discuss bridge attachments.
We may want to engage HMA to let them know this is and get some feedback.
There are preliminary plans in ProjectWise at 2023-03-17 and I would look at 2023-03-15_117648.pdf for the entire corridor, this is a very large file and will take some time to open.
GF expect to get meeting minutes from our 03/17/2023 meeting and I will post at 2023-03-17. I expect the minutes today.
Thank you
Thomas J (T.J.) Powell, PE
Design Build, Geotechnical and Standards Engineer
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Chat via Microsoft Teams

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OTIC STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with OTIC		
Date: November 7, 2022	Time: 11:00AM	Location: Teams

Minutes

Attendees

Julius Szahlender (Ohio Turnpike and Infrastructure Commission Roadway and Utility Management), Mark Ragozine (Eastgate PM), Steve Kristan (Eastgate Broadband Coordinator), Joann Esenwein (Eastgate), Shane Campbell (Gannett Fleming PM),

Project Background

Eastgate MPO completed a Broadband Feasibility Study in 2021. Department of Development provided funds for Eastgate to initiate an Engineering Analysis for middle mile broadband on SR-11. Gannett Fleming was selected to complete the analysis and develop an implementation plan that will likely be a private/public partnership. Skyline Technology Solutions is a subconsultant to Gannett Fleming and is leading the preliminary network analysis. Ohio Broadband submitted an application to the National Telecommunication and Infrastructure Administration (NTIA) for the Middle Mile grant. Significant support was provided by OARnet and Counties as part of that grant application that also included two additional segments across southern Ohio. Everstream was selected as the ISP for the SR-11 section. NTIA awards are scheduled to be announced in March of 2023.

Middle Mile Engineering Analysis

1. Phase 1: Stage Setting
2. Phase 2: Stakeholder Engagement
3. Phase 3: Preliminary Network Model
    a. OTIC plans/opportunities
        i. Existing
            1. Century Link then Lumin now Brightspeed installed fiber in the early 1990s within OTIC R/W from Indiana to Pennsylvania. Not sure what the fiber count is, but OTIC users a low number for their operations. Fiber is on the north side (WB direction) at the SR-11 bridge crossing. Brightspeed pays a recurring fee. Not

aware of Brightspeed adding to fiber count or expanding facilities.

2. Julius' only contact with Brightspeed is for utility location services, which is Doug Halloway. Steve has a contact for Brightspeed that he will share.
3. MCI/Verizon has fiber between MM 160 – 200. SR-11 MM is 226.5.

ii. Proposed

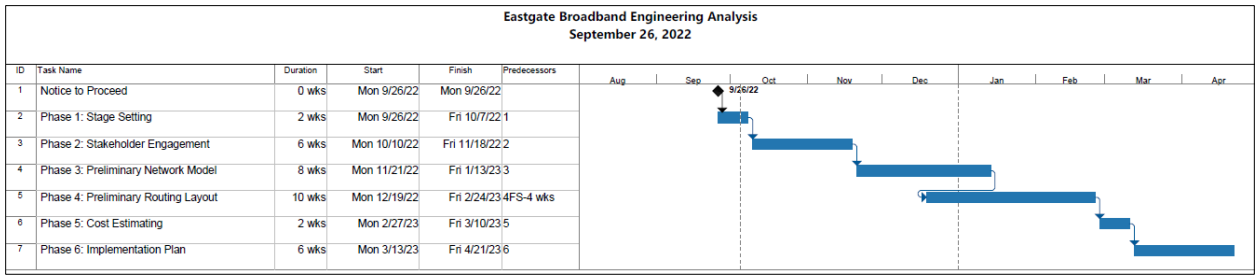
1. OTIC doesn't have any plans to expand fiber in this area. No recent interest from private telecommunication companies has been expressed to extend long haul along OTIC R/W.
2. No transportation technology is being advanced in the area.
3. JJ will ask Brian Kelley (OTIC Chief Technology Officer) if OTIC is interested in tying into a SR-11 network.

b. SR-11 connections

i. If we tie into Brightspeed w/in OTIC R/W then a permit is needed. If connection is outside of R/W then no permit is needed. Permit information can be found at this webpage: https://www.ohioturnpike.org/business/doing-business-with-us/utility-permits

4. Phase 4: Preliminary Routing Layout
   a. R/W ownership at crossing of SR-11
      i. Is permit needed if fiber is suspended on SR-11 bridge? Yes.
      ii. Turnpike does own some state overpass bridges, so we need to confirm with D4 if they own the SR-11 bridge.
         1. If Turnpike owns it, they will not approve the fiber being suspended on their bridge.
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

Schedule



Discussion of material lead times. Conduit is around 4 months while fiber is 9-18 months.

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with OTIC		
Date: November 7, 2022	Time: 11:00AM	Location: Teams

Action Items

- Ask Brian Kelley if OTIC has any interest in tying into the proposed SR-11 connection (Julius and Shane)
- Receive contact information for Brightspeed (Steve)
- Contact Brightspeed (Skyline Technologies)

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TRUMBULL COUNTY STAKEHOLDER MEETING

STAKEHOLDER MEETING

Eastgate Lake to River Broadband Engineering Analysis Mtg with Trumbull County		
Date: November 10, 2022	Time: 12:00PM	Location: Teams

Minutes

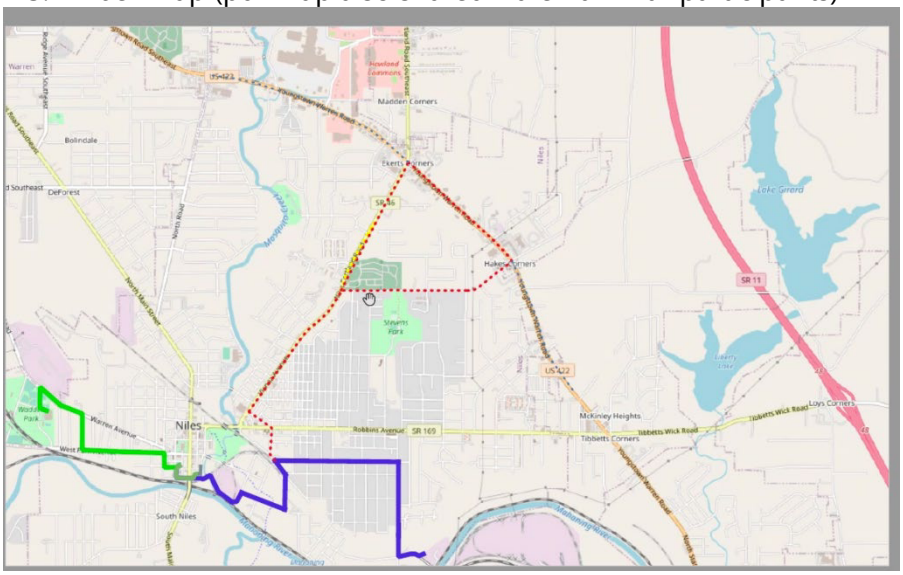
Attendees

- Nicholas Coggins, Assistant Director of Trumbull County Planning Commission.
- Joann Esenwein, Mark Ragozine, Steve Kristan (Eastgate MPO)
- Shane Campbell and Kevin Hunt (Gannett Fleming)
- Scott Hoffman and Paul Lennon (Skyline Technology Solutions)

Project Overview

1. **Phase 1: Stage Setting**
    a. Nick is familiar with the project. Project background not needed.
2. **Phase 2: Stakeholder Engagement**
    a. Team has met with ODOT, OTIC, OARnet, and Everstream. Team is meeting with Counties this week.
3. **Phase 3: Preliminary Network Model**
    a. Current Challenges / lay of the land in Trumbull County
        i. More people who need internet than they can take phone calls from
        ii. Top ten townships of unserved. Terrain plays an issue (Brookfield Township)
        iii. Money isn't there to build everything out. Interim solution of wireless service for last mile coverage. Spectrum or Armstrong are in the area for wired. Otherwise, Satellite coverage is generally the only other means of internet.
        iv. SR-11 cuts through the county down the middle and will provide reach to both the east and west.
        v. Commissioners support broadband
    b. County Plans
        i. City of Niles (Weatherfield Township)
            1. City of Niles runs 911 and connected Signals
            2. Niles has their own IT person on staff
            3. RFP of Engineering Analysis
                a. Funds from Appalachian Regional Commission
                b. Intent is to tie into SR-11 at W. Market St and/or SR-82

4. Don't know the owner yet. AT&T is in Niles. CenturyLink/Lumin/Brighstpeed in Lordstown.
5. Fiber Map (pdf map also shared via email with participants)



Red dotted line- fiber line exists
Green line- fiber being built, some may be completed
Blue line - "wish list" for connectivity to mills and business parks

a. Niles has their own electric company and poles
b. The "yellow routes" are planned
    i. North Main Street – will through major "industrial park" and to Warren where there are Small ISPs

ii. 911 Director -
    1. Update needed for MARCS system (tower connectivity)
    2. 911 –possible partnership to add/use towers
    3. County or state centric 911? - 2 communities run their own, county has one
    4. Southern Ashtabula Wireless
iii. Eastgate Partnership with Broadband Ohio
iv. Feasibility Study
    1. Administration (County as a whole)
        a. OK owning conduit/fiber
        b. Don't want to be an ISP service Provider
v. Nick Creshian – port Authority – meeting on 11/7 Kick off for partner meetings for grant funds (From Application Regional Commission) that they have been allocated
vi. Business/Residential ISP
    1. Trumbull County Administrator doesn't want to be an ISP.

c. Ohio Middle Mile Plan
    i. Location of existing infrastructure

Eastgate Lake to River Broadband Engineering Analysis Mtg with Trumbull County		
Date: November 10, 2022	Time: 12:00PM	Location: Teams

1. Everstream and Comcast has lines with potentially both connecting into the hospital
2. Charter

ii. Future locations
1. Industrial park called Golden Triangle (one of the largest steel employees)
    a. $3.2M grant to improve infrastructure
2. Development of former RG Steel (owned by BDM)
3. Airport
4. Route five bypass – new hospital facility (Mercy)
5. Lordstown is seeing a lot of business/industry expansion

iii. Lateral tie in points along SR-11
1. Route 82
2. Every township has a SR that goes across township, intersect with SR-11, those are main roads to get to residential and small business
3. 87, 88, 305, 82
4. I-80
5. Lordstown (Would want to build up 45 (from turnpike to Warren
    a. TJX Home Goods distribution center
    b. Foxconn with electrical Vehicles
    c. GM and Korean company building factory for batteries
6. Niles – AT&T ILEC
7. Warran – Lumen ILEC

iv. Connectivity with "regional ISPs"
1. Open access should help

v. Other potential stakeholders within the county
1. County engineer could be a source.

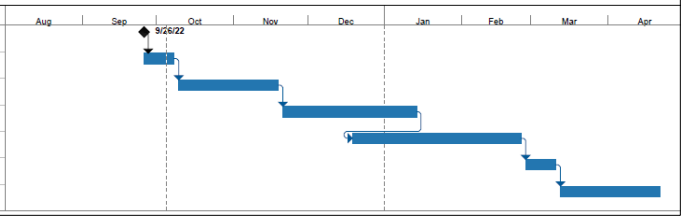
4. Phase 4: Preliminary Routing Layout
5. Phase 5: Cost Estimates
6. Phase 6: Implementation Plan

Schedule

Engineering analysis is on schedule as shown below. Awaiting NTIA grant awards in March. Eastgate's desire is to break ground this time next year, but funding and other factors will determine construction schedule.

Eastgate Broadband Engineering Analysis
September 26, 2022

ID	Task Name	Duration	Start	Finish	Predecessors
1	Notice to Proceed	0 wks	Mon 9/26/22	Mon 9/26/22	
2	Phase 1: Stage Setting	2 wks	Mon 9/26/22	Fri 10/7/22	1
3	Phase 2: Stakeholder Engagement	6 wks	Mon 10/10/22	Fri 11/18/22	2
4	Phase 3: Preliminary Network Model	8 wks	Mon 11/21/22	Fri 1/13/23	3
5	Phase 4: Preliminary Routing Layout	10 wks	Mon 12/19/22	Fri 2/24/23	4FS-4 wks
6	Phase 5: Cost Estimating	2 wks	Mon 2/27/23	Fri 3/10/23	5
7	Phase 6: Implementation Plan	6 wks	Mon 3/13/23	Fri 4/21/23	6



Action Items

None