

Determination of Effects Addendum Report

Norfolk Southern Railway Company,
Pittsburgh Vertical Clearance Projects

W. North Avenue Bridge Project and Allegheny Commons Pedestrian
Bridge Project

City of Pittsburgh, Allegheny County, Pennsylvania

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Prepared For:

Norfolk Southern Railway Company

650 West Peachtree Street, NW

Atlanta, Georgia 30308

Prepared By:

Michael Baker International, Inc.

100 Airside Drive

Moon Township, Pennsylvania 15108

Authors:

Timothy G. Zinn, Architectural Historian

Jesse A. Belfast, Architectural Historian

Michael Baker

I N T E R N A T I O N A L

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Abstract

Since the issuance of the 2022 Determination of Effects Report (Michael Baker International, Inc. 2022), two of the five projects comprising the Pittsburgh Vertical Clearance (PVC) Projects have been removed from further review. The removed projects are the Washington Avenue Bridge in the Borough of Swissvale and the Columbus Avenue Bridge in the City of Pittsburgh. One new project, the Allegheny Commons Pedestrian Bridge has been added to the compliance process. The PVC Projects currently consists of four projects: the Amtrak Station Project, the Allegheny Commons Pedestrian Bridge Project, the W. North Avenue Bridge Project, and the Pennsylvania Avenue Bridge Project.

The 2022 Determination of Effects Report resulted in no adverse effect findings for historic properties within the (areas of potential effects (APEs) for the Amtrak Station Project and the Pennsylvania Avenue Bridge Project. No design changes or further minimization is proposed for these projects. This report is an addendum to the 2022 Determination of Effects Report (Michael Baker International, Inc. 2022) to assesses the potential effects and present proposed minimization and mitigation measures for the Allegheny Commons Pedestrian Bridge and W. North Avenue Bridge projects.

The application of the Definition of Effect and Criteria of Adverse Effect indicates that the proposed project will result in a **FINDING OF ADVERSE EFFECT**. The proposed undertaking will result in an adverse effect on the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District because of the proposed demolition of a contributing element, the W. North Avenue Bridge. This finding remains unchanged from the 2022 report. The purpose of this report is to summarize the consultation with the projects' consulting parties and the Design Advisory Team (DAT), which was formed to provide input on the designs of the W. North Avenue Bridge and the Allegheny Commons Pedestrian Bridge in an effort to minimize the effects of the undertakings on the National Register of Historic Places (NRHP) listed International Harvester Company of America: Pittsburgh Branch House, the NRHP-listed Allegheny Commons Historic District, and the NRHP-eligible the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District and Allegheny Second Ward Industrial Historic District.

Coordination with the Pennsylvania State Historic Preservation Office (PA SHPO) and consulting parties has occurred throughout the course of the project. Measures to mitigate the adverse effects of this project will be identified in consultation with the PA SHPO and the consulting parties. The agreed-upon mitigation measures for the undertaking will be included in a memorandum of understanding (MOU) between PennDOT, PA SHPO, and Norfolk Southern and other consulting parties as necessary.

This report is submitted for the purpose of consultation and compliance with the Commonwealth of Pennsylvania Act No. 1978-273 (as amended as Act No. 1988-72), as codified at Title 37 of the Pennsylvania Code, 37 Pa.C.S. § 101 et seq. (Pennsylvania History Code), as applicable.

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1.0 Introduction

When the Norfolk Southern Pittsburgh Vertical Clearance Projects Pennsylvania State Historic Preservation Office (PA SHPO) Project Review Form and Determination of Area of Potential Effects and Identification of Previously Recorded Historic Resources (Michael Baker International, Inc. 2018) was submitted in May 2018, the project contained nine project locations. Since that time, the Frazier Street Pedestrian Bridge and the Overland Street Bridge in the Boroughs of Braddock and North Braddock, the Washington Street Bridge in the Borough of Swissvale, and the Columbus Avenue Bridge and the Ohio Connecting Bridge Flyovers in the City of Pittsburgh have been removed from the scope of the projects to be reviewed. Norfolk Southern is proceeding with those projects without state or federal funding and in the normal course of its operations. Merchant Street Bridge was also removed from the Pittsburgh Vertical Clearance Projects and was advanced as a separate project. The reconstruction of the Allegheny Commons Pedestrian Bridge was recently added to the projects. The PVC Projects currently consists of four projects: the Amtrak Station Project, the Allegheny Commons Pedestrian Bridge Project, the W. North Avenue Bridge Project, and the Pennsylvania Avenue Bridge Project (Figure 1-1).

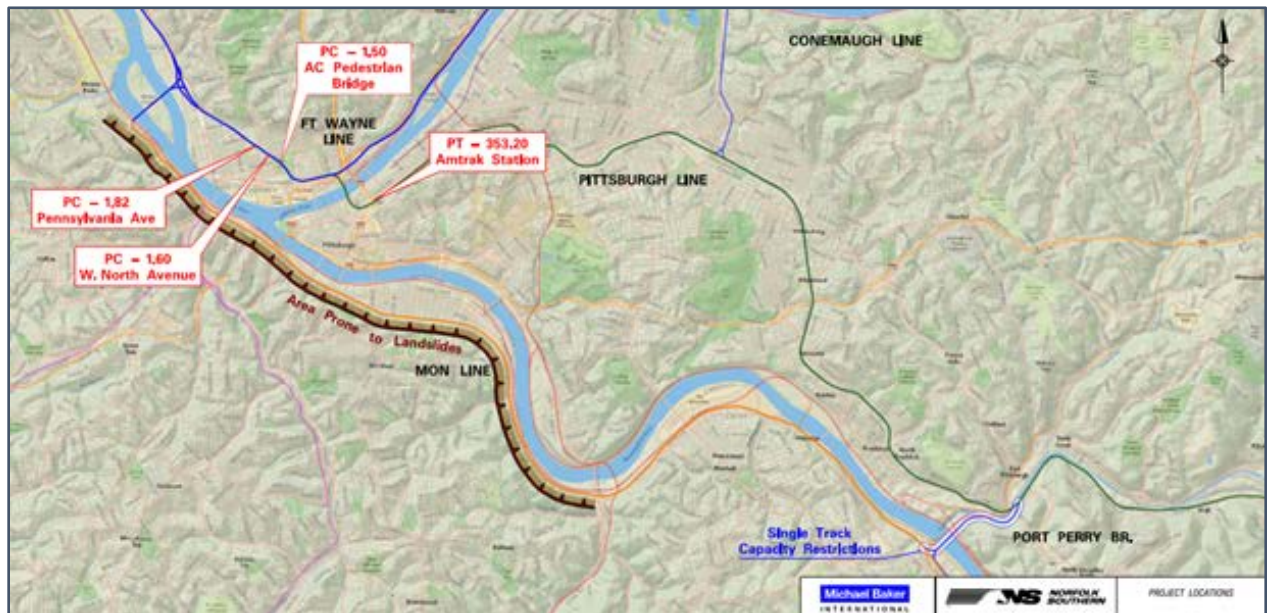


Figure 1-1: Project location map showing the four project locations for vertical clearance improvements.

The 2022 Determination of Effects Report resulted in no adverse effect findings for historic properties within the area of potential effects (APEs) for the Amtrak Station Project and the Pennsylvania Avenue Bridge Project and for specific historic properties within APE of the W. North Avenue Bridge. Those effect findings are summarized in Table 1-1. No design changes or further minimization is proposed for these projects and individual historic properties are not included in this addendum to the 2022 Determination of Effects Report (Michael Baker International, Inc. 2022). Continued consultation was necessary to minimize the effects of the W. North Avenue Bridge Project on specific historic properties including the International Harvester Building, the Allegheny Second Ward Industrial Historic District, and the Allegheny Commons Historic District. The proposed minimization and mitigation measures resulting from continued consultation with the project’s consulting parties and members of the Design Advisory Team (DAT) are summarized in this report. The report also assesses the potential effects and proposed minimization measures for the Allegheny Commons Pedestrian Bridge Project.

Table 1-1: Summary of Effect Findings of Remaining Projects in the PVC Projects Concluded Upon by the PA SHPO	
HISTORIC PROPERTY NAME	EFFECT FINDING
Amtrak Station Project	
Pennsylvania Railroad Station	No Adverse Effect
The Rotunda of the Pennsylvania Railroad Station	No Historic Properties Affected
Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District	No Adverse Effect
W. North Avenue Project	
Allegheny West Historic District	No Adverse Effect
Mexican War Streets Historic District	No Adverse Effect
Allegheny City Stables Building	No Adverse Effect
Pennsylvania Avenue Project	
Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	No Adverse Effect
Allegheny Second Ward Industrial Historic District	No Adverse Effect

This report is submitted for the purpose of consultation and compliance with the Commonwealth of Pennsylvania Act No. 1978-273 (as amended as Act No. 1988-72), as codified at Title 37 of the Pennsylvania Code, 37 Pa.C.S. § 101 et seq. (Pennsylvania History Code), as applicable.¹ Cultural resources investigations conducted for these projects were completed in accordance with 36 C.F.R. §800, which outlines the procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and is being followed in order to comply with the Pennsylvania History Code. The assessment of the projects' effects on historic properties was completed in accordance with 36 C.F.R. §800.5, "Assessment of Adverse Effects." The results of this report will be considered a part of the environmental evaluation of the project in accordance with Section 2002 of Pennsylvania Act 120 to minimize harm to any historic property relating to a transportation project by or for PennDOT.

All work associated with this report was performed in accordance with Section 2002 of Pennsylvania Act 120 of P.L. 356 (Act 120), amended Section 2002, as codified at Title 71 of the Pennsylvania Code, 71 Pa.C.S. § 512. Federal and state laws and guidelines pertaining to cultural resources, regardless of applicability, were considered including the Pennsylvania History Code, Section 106 of the National Historic Preservation Act of 1966 (NHPA; 54 U.S.C. Subtitle 3, Sec. 300101 et seq., formerly 16 U.S.C.A. 470 et seq.), as amended; the National Environmental Policy Act of 1969; Presidential

¹ Certain state and local approvals and conflicting requirements are preempted as applied to rail facilities operating in interstate commerce under the Interstate Commerce Commission Termination Act of 1995 ("ICCTA"), 49 U.S.C. § 10501 et seq., and Federal Railway Safety Act of 1970 (FRSA) 49 U.S.C. §§ 20101 et seq. Norfolk Southern does not waive and expressly preserves any claims or defenses related to such ICCTA or FRSA preemption related to the subject matter of this report.

Executive Order 11593 “Protection and Enhancement of the Cultural Environment” (1971); the regulations of the Advisory Council on Historic Preservation (ACHP) at 36 C.F.R. § 800; the Secretary of the Interior’s Standards and Guidelines (48 C.F.R. § 44716-44742); the Archaeological and Historic Preservation Act of 1974; and the Commonwealth of Pennsylvania Act No. 1978-273 (as amended as Act No. 1988-72). The assessment is based on 36 C.F.R. § 800 and the guidance regarding these regulations made available by the ACHP (see www.achp.gov).

All work was performed by professionals meeting the Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation (formerly Professional Qualification Standards for Architectural Historian Professionals (see 62 Fed. Reg. 33,708 [June 20, 1997]; 36 C.F.R. § 61 [Appendix A] for Architectural Historian).

1.1 Project Description

Norfolk Southern, with funding through PennDOT, proposes to address four obstructions (the undertakings) that currently limit vertical clearance for double-stack rail traffic along the Pittsburgh and Fort Wayne Lines in Allegheny County, Pennsylvania. The undertakings involve track and railbed maintenance and improvement projects and/or bridge rehabilitation, reconstruction, or replacement largely within existing railroad right-of-way with only minimal right-of-way acquisition. The obstructions addressed by the projects and assessed in this study are located in the City of Pittsburgh. Individual project locations consist of the Amtrak Station in downtown Pittsburgh; and the Allegheny Commons Pedestrian Bridge, the W. North Avenue Bridge, and the Pennsylvania Avenue Bridge, all located in the city’s North Side. No work is being performed in the intervening track area between the four individual project locations. The projects will be partially funded with state funds, with Norfolk Southern funding the remainder.

1.2 Statement of Purpose and Need

1.2.1 Purpose:

The purpose of the Pittsburgh Vertical Clearance Projects is to promote the efficient transportation of goods between Chicago and the New York/New Jersey commercial markets and to improve mobility and safety for freight traffic through Pittsburgh. The projects will remove some of the final remaining vertical clearance restrictions creating chokepoints and other hindrances to efficient flow of intermodal rail traffic and will support truck/rail intermodal facilities along this important rail corridor by allowing for double-stack intermodal traffic, which is a PennDOT goal under the Commonwealth’s State Rail Plan, developed in compliance with Federal Railroad Administration requirement and with the Rail Freight Preservation and Improvement Act of 1984, as amended, Public Law 587-119. See US DOT, The Strategic Multimodal Analysis, Task 3: Chicago-New York City Corridor Analysis, Final Report (Apr. 2006) (<https://www.fhwa.dot.gov/policy/otps/sma/index.cfm>).

The Pittsburgh and Fort Wayne Lines compose one of two Norfolk Southern mainline routes through Pittsburgh. The Mon Line is not being considered as a viable railway improvement project due to several major physical constraints and engineering factors. These factors include the fact that the Mon Line is prone to unpredictable landslides from adjacent properties, which cause hazardous conditions and substantial transportation interruption and reliability concerns for freight movement. In addition, although the Mon Line is cleared for double-stack freight movement, it has substantial capacity constraints due to a single-track line through a tunnel and a major river crossing, thus causing further delay and capacity issues for freight transit between Chicago and the east coast on that line.

Because of the constraints of the Mon Line, the Pittsburgh and Fort Wayne Lines currently are the primary route through the City of Pittsburgh for sensitive freight such as hazardous materials and would be the preferred route for time-

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dependent freight such as intermodal traffic, in large part because it avoids the hazardous conditions and delay experienced on the Mon Line. Furthermore, the Pittsburgh and Fort Wayne Lines are a shorter route between Chicago and the east coast and use of that route increases network fluidity while reducing transit time.

Although the double-track Pittsburgh and Fort Wayne Lines are the preferred freight route through the City of Pittsburgh, several bridges on that line limit the clearance for rail freight such that double-stack intermodal and automobile multilevel freight cannot move on that line. Rail capacity exists on the double-track Pittsburgh and Fort Wayne Lines and these proposed projects will allow the line to accommodate anticipated freight growth and double-stack intermodal traffic. In addition, the condition of the bridge over the railroad at W. North Avenue in Pittsburgh has safety deficiencies that pose risks to current rail traffic and forecasted rail traffic increases throughout the United States and within Pennsylvania in particular.

Need

The project needs for the railway improvement projects along the Pittsburgh and Fort Wayne Lines are to address:

- A. Forecasted traffic demands
- B. Vertical clearance constraints
- C. Operational safety and reliability
- D. Public safety
- E. Facility deficiencies
- F. Mobility

A. Forecasted Traffic Demands:

Anticipated increases in freight capacity projections, especially in the intermodal market, indicate that double-stack utilization will increase over the next 30 years. Pennsylvania state and national rail plans have identified clearances restricting freight rail transportation as a major impediment to freight capacity, recommending reducing choke points restricting double-stack intermodal traffic [2015 Pennsylvania State Rail Plan (PennDOT 2016); The Strategic Multimodal Analysis, Task 3: Chicago-New York City Corridor Analysis, Final Report (U.S. DOT, Apr. 2006); Pennsylvania Intercity Passenger and Freight Rail Plan (PennDOT 2010); 2003 Pennsylvania State Rail Plan (PennDOT 2003).] Intermodal shipment is a method of moving freight from origin to final destination using two or more transportation modes, without handling the freight itself when changing modes. This method improves efficiency by allowing for use of the most efficient transportation mode for each segment of a shipment of goods in a trailer or container. In an intermodal transportation network, trains, trucks, ships, and aircraft are connected seamlessly to provide an efficient and flexible transportation system meeting the needs of the nation's consumers, carriers, and shippers (FHWA 2009).

The intermodal business is one way to achieve a long-term sustainable balance between business needs and the impact of railroad operations on the environment. In intermodal operations, containers often are loaded two high, called "double-stack," to allow twice as many shipments to be moved on one intermodal train. Double-stack intermodal traffic increases capacity using the existing infrastructure, with appropriate clearance and without requiring new rail lines for additional trains. Double-stack rail traffic also reduces shipping costs and improves service, while at the same time providing new competitive rail alternatives and new economic development opportunities for customers and communities.

The need for improving freight transportation throughout the United States is driven by factors such as:

- Growing congestion on U.S. highways used for long-haul freight movement;
- Volatile or high fuel prices and the quest for energy-efficiency;
- The strain on the truck driver labor pool;

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- Need for improvements in shipping services; and
- The national policy toward the reduction of greenhouse gas (GHG) emissions.

The Federal Highway Administration (FHWA) Freight Analysis Framework (FAF) forecasts that the tons of freight transported within the U.S. by rail will increase by more than 20 percent between 2015 and 2045, with a more than 80 percent increase in value of freight by rail over that same time frame. (<https://www.bts.gov/newsroom/dot-releases-30-year-freight-projections>; https://www.bts.gov/sites/bts.dot.gov/files/docs/FFF_2017_Full_June2018revision.pdf). FHWA's FAF, which compares relevant statistics from 2012 to 2045, also predicts that, with current infrastructure, highway congestion would increase dramatically because of the increase in freight and intermodal demand. It is infeasible to accommodate these anticipated increases in freight requirements by merely maintaining the current national rail infrastructure. Projects are needed to address the national need to enhance rail infrastructure as evidenced by the forecasted increase in demand and congestion.

Pennsylvania ranks first in the country in the number of operating railroads (approximately 65) and ranks near the top in total track mileage (more than 5,600 miles). Each year, around 200 million tons of freight originate in, terminate in, or pass through Pennsylvania by rail, including more than 50 million tons of coal, steel, food, and other products mined or grown throughout the Commonwealth. The Commonwealth of Pennsylvania is expected to face substantial highway-truck traffic congestion as a result of the increase in demand and freight transportation. PennDOT predicts that within the Commonwealth of Pennsylvania, intermodal freight rail traffic will increase by 86.4 percent. The primary east-west Class I freight rail corridor in Pennsylvania is through Pittsburgh. The Pittsburgh-Allegheny County region in particular is expected to be highly congested in the absence of additional freight transportation planning.

To accommodate the expected increases in rail demand, as well as to support national goals relating to GHG emissions and fuel efficiency, the national freight rail system has been substantially modernized over the past decades to raise clearances, upgrade tunnels, and modify rail lines throughout much of America's 140,000-mile freight rail network to accommodate double-stack intermodal trains. (See <https://www.aar.org/article/6-milestones-intermodal-growth/>) Limitations for double-stack intermodal trains still impact freight transportation through Pennsylvania, however. The clearance projects represent the final obstacles for double-stack and automobile multilevel traffic along the Pittsburgh and Fort Wayne Lines and complement the clearance of 163 previously existing obstructions to double-stack container traffic in the 1990s through a Conrail/PennDOT partnership.

B. Vertical Clearance Constraints:

The Pittsburgh and Fort Wayne Lines serve as an alternate route for the Mon Line but currently have limited vertical clearance at various locations that prevent the passage of double-stack trains or automobile multilevel traffic. The W. North Avenue and Pennsylvania Avenue bridges limit the height of freight railroad cars travelling along the Pittsburgh and Fort Wayne Lines. The structures do not provide sufficient vertical clearance between the bridge and the tracks. Additionally, Amtrak Station's shed canopy over the freight line is not tall enough to allow double-stack intermodal trains to travel underneath.

The current vertical clearance at the project locations varies along the corridor from 18'-3" to 20'-6". The PUC requirement for vertical clearance in Pennsylvania is 22'-0", absent a waiver (Figure 1-2).

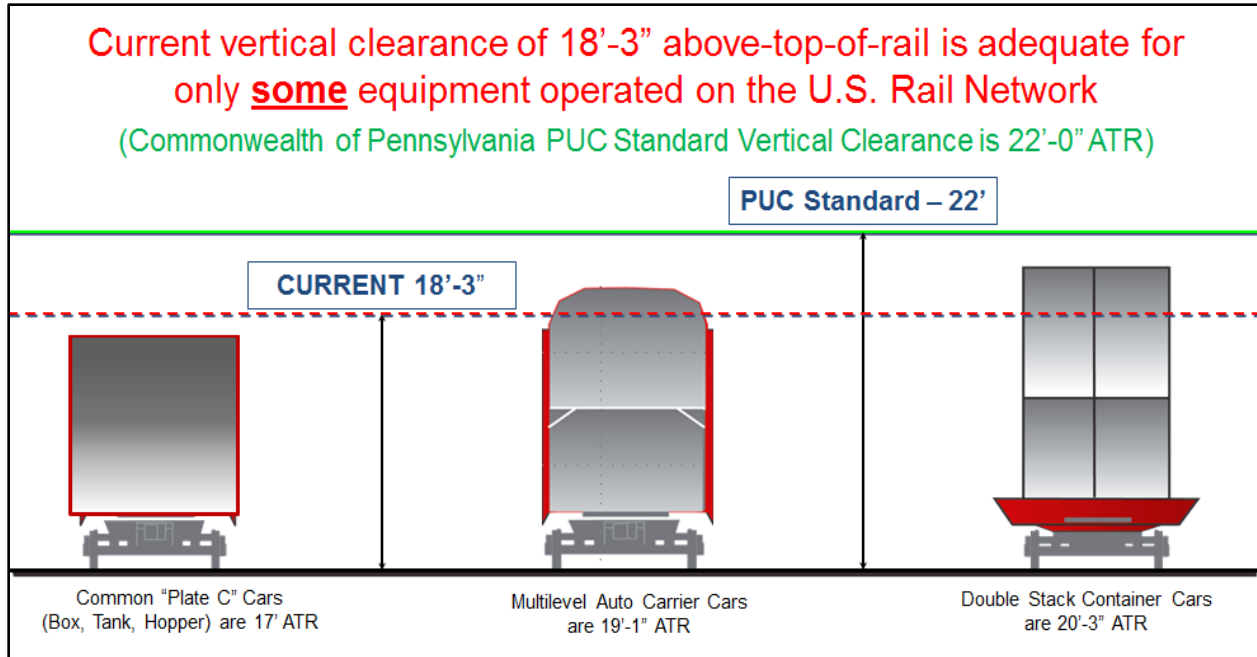


Figure 1-2: Vertical Clearance Standards.

C. Operational Safety and Reliability:

The Norfolk Southern line between Chicago and metropolitan New York City via Cleveland, Pittsburgh, and Harrisburg is referred to as the "Premier Corridor" and is the most critical freight artery on Norfolk Southern's 22-state network. Norfolk Southern has two east-west freight routes through Pittsburgh, one of which is cleared for double-stacked intermodal trains and automobile multilevel trains. However, that double-stack route, known as the Port Perry Branch and the Mon Line (together, the Mon Line) is currently at or near capacity and, as a result, frequently faces congestion issues and service delays. In addition, the infrastructure and geography of the Mon Line create challenges for timely delivery of the service-sensitive intermodal freight that uses it today. The Mon Line has a 3-mile single-tracked segment that includes a tunnel and an adjacent bridge over the Monongahela River. This 3-mile segment is the largest chokepoint on Norfolk Southern's route between Chicago and the New York metropolitan area. In addition to the choke point, and more importantly, the topography adjacent to the railroad right-of-way is susceptible to landslides from the adjacent Mount Washington. The slope of Mount Washington continues to shift, and each time it does, the potential exists for soil and rock to be deposited on the railroad tracks, making them unable to be traversed until the debris is removed and the slide area stabilized. Besides the substantial costs incurred for cleanup, the unpredictable slides create hazardous conditions and cause hours of delay annually. These landslides range from moderate to severe in nature and the timing and severity of the incidents are unpredictable. Further, the landslides originate on property not owned or controlled by Norfolk Southern, and as such Norfolk Southern can merely react to landslides as they may occur. Each year, delay times resulting from these events, averaging approximately 32.9 hours, create substantial cost for the railroad, customers, and businesses. Delays on the Mon Line relating to landslides are projected to cause almost 4.3 million hours of closures over the next 30 years. Service-sensitive freight on this line and the additional capacity through southwest Pennsylvania anticipated in the future will need to be accommodated.

Norfolk Southern's second mainline through Pittsburgh comprises the Pittsburgh and Fort Wayne Lines, which has double track throughout for more efficient operations. However, the current vertical clearance on this line is inadequate for double-stack trains in several locations, and consequently the line constrains the capability to accommodate the projected

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increases in freight tons, and the anticipated increase in intermodal capacity, expected to be moving on the nation's transportation network. These limitations result in freight rail congestion and lead to less efficient intermodal transportation. An increase in intermodal traffic in order to keep trucks off highways needs to be accommodated for this major east-west artery. Under the current circumstances, adding more traffic to the Mon Line route to accommodate the forecasted increases in intermodal and other freight over the next many years would result in additional delays to train schedules and worsened congestion. In addition, NSR's dependence on the capacity- and geography-constrained Mon Line through Pittsburgh for its double-stack intermodal traffic, most of which has interstate commerce related time sensitivities, affects its ability to deliver quality service to customers and, ultimately, to compete with trucks. The structural risks adjacent to the current Mon Line route pose a threat to its long-term vitality, especially for this service-sensitive traffic. Considering that intermodal traffic through this part of Pennsylvania is expected to substantially increase in the coming years, it is crucial that investment be made in infrastructure improvement on the Pittsburgh and Fort Wayne Lines in the near-term for operational safety and reliability.

D. Public Safety:

Public safety is the primary operational focus of Norfolk Southern, PennDOT, the City of Pittsburgh, Allegheny County, and Amtrak. The safety of citizens, employees, and operations are central to the goals of the Pittsburgh Vertical Clearance Projects. Additional rail capacity is beneficial to the safety of the motoring public by removing long-haul trucks from the highways of multiple states.

The Pittsburgh and Fort Wayne Lines (in the project area) have only three at-grade crossings, of which just one is a public at-grade crossing. Adding freight to the Pittsburgh and Fort Wayne Lines presents less risk of automobile/rail conflict for high-volume freight transportation. While at-grade crossing accidents have been greatly reduced through public education initiatives nationwide, projects like the Pittsburgh Vertical Clearance Projects boost these efforts by routing trains on heavily gated lines with pedestrian and motor vehicle crossing options.

E. Facility Deficiencies:

Structurally deficient structures become less effective and more expensive to maintain or repair as their conditions worsen. Facility deficiencies must be addressed for this key component of the rail network in order to help to minimize future maintenance and address existing structural deficiencies and traffic demands (e.g., rail, vehicular, pedestrian, and bicycle). The W. North Avenue Bridge, at the intersection of W. North Avenue and Brighton Road in Pittsburgh, is in poor condition. The current poor condition of the W. North Avenue Bridge has led to the partial closure of the structure and increased maintenance actions. These maintenance activities eventually will require more frequent interruptions on the Pittsburgh and Fort Wayne Lines to allow for more extensive maintenance repairs, thus causing significant disruption to interstate commerce on the busiest corridor between the Midwest and the East Coast. If the structural conditions are not addressed, the poor condition of this bridge will result in its full closure, resulting in the loss of connectivity over the Norfolk Southern in this location for the traveling public.

F. Mobility:

The Allegheny Commons Pedestrian Bridge over the Norfolk Southern tracks was closed due to safety concerns in 1998 and the deck removed in 2013, creating a mobility issue for pedestrians trying to access the Lake Elizabeth area from West Commons. Currently, park visitors wishing to access Northwest Commons and Lake Elizabeth from West Commons must take a circuitous route from West Ohio Street to Brighton Road to the W. North Avenue Park entrance, resulting in a 0.32-mile pedestrian detour from one side of the former pedestrian bridge to the other. As the result, the replacement

of this bridge was listed as a priority project in the Allegheny Commons 2018 Action Plan by the Pittsburgh Park Conservancy and again in the 2022 Allegheny Common Master Plan.

1.3 Methodology for Determining the Areas of Potential Effects

According to 36 C.F.R. § 800.16(d), the APE is “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking” [36 C.F.R. § 800.16; Protection of Historic Properties; Final Rule, 65 Fed. Reg. 77,698 (Tuesday, December 12, 2000/Rules and Regulations)]. Because the projects involve four separate project locations, historians delineated four APEs, which were described and justified in the report entitled: *Norfolk Southern Pittsburgh Vertical Clearance Projects PA SHPO Project Review Form and Determination of Area of Potential Effects and Identification of Previously Recorded Historic Resources* (Michael Baker International, Inc. 2018).

In general, the APE for each project location first took into consideration the constraints within the railroad corridor at those locations. Corridor constraints include buried utilities, retaining walls, and depressed or elevated sections of track. Where track lowering is possible based on the absence of corridor constraints, that alternative was used as the basis of determining the limits of the APE, as track lowering was identified as the least-harm alternative to surrounding historic properties, if present. Where corridor constraints are present that could limit or prevent track lowering at a given location, the APE was based on bridge raising to achieve full vertical clearance per PUC requirements at that location as a worst-case scenario.

The Pennsylvania State Historic Preservation Office (PA SHPO) concurred with the projects’ APEs in a letter dated June 5, 2018. The letter is provided in Appendix A, Agency Coordination.

1.4 Methodology for Assessment of Effects

Since historic properties exist within the project APE, it is necessary to assess potential project effects on those properties. Potential project effects were assessed based upon the guidelines specified in the Section 106 Regulations (amended August 5, 2004), as published in the Federal Register and on the ACHP’s website.

1.4.1 Methodology

Definition of Effect

According to 36 C.F.R. § 800.16(i), an Effect is defined as an alteration to the characteristics of a historic property that qualify it for inclusion in, or eligibility for, the NRHP. The two possible results of identification and evaluation are as follows:

No Historic Properties Affected

If the Agency Official finds that either there are no historic properties present or there are historic properties present but the undertaking would have no effect upon them as defined in 36 CFR 800.16(i), the Agency Official shall provide documentation of this finding, as set forth in 36 CFR 800.11(d), to the State Historic Preservation Office (SHPO). The Agency Official shall notify all consulting parties and make the documentation available for public inspection prior to approving the undertaking. If the SHPO does not object within 30 days of receipt of an adequately documented finding, the Agency Official’s responsibilities under Section 106 are fulfilled.

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Historic Properties Affected

If the Agency Official finds that there are historic properties that may be affected by the undertaking, the Agency Official shall notify all consulting parties and invite their views on the effects and assess adverse effects, if any, in accordance with 36 CFR 800.5. If the SHPO objects within 30 days of receipt of an adequately documented finding, the Agency Official shall consult to resolve the disagreement in accordance with 36 C.F.R. § 800.5(c).

Criteria of Adverse Effect

An adverse effect is found when an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for inclusion in the NRHP. Adverse effects may include reasonably foreseeable impacts that could be caused by the undertaking and that may be cumulative, may occur later in time, or may occur farther removed in distance. As per 36 C.F.R. § 800.5(a)(2), examples of adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and
- (vi) Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Results of Assessment of Adverse Effect

No Adverse Effect

The Agency Official shall maintain a record of the finding and provide information on the finding to the public on request, consistent with the confidentiality provisions of 36 CFR 800.11(c). Implementation of the undertaking in accordance with the finding, as documented, fulfills the Agency Official's responsibilities under Section 106 and 36 CFR 800.11. If the Agency Official will not conduct the undertaking as proposed in the finding, the Agency Official shall reopen consultation under Section 800.5(a).

Adverse Effect

If an adverse effect is found, the Agency Official shall consult further to resolve the adverse effect pursuant to 36 C.F.R. § 800.6, which describes the resolution of adverse effect. The procedures for resolution include continuing consultation with the agency and the SHPO, resolving Adverse Effects, and preparing a memorandum of agreement (MOA).

1.5 Assessment of Corridor-Wide Effects for Emissions, Noise, and Vibration

Because project effects related to changes in emissions, noise, and vibration are similar for all project locations along each line, potential effects are discussed in the following sections on a corridor-wide basis rather than in the individual chapters for each of the four project locations.

1.5.1 Air Quality

Pittsburgh Line

The Pittsburgh Line includes the Amtrak Station Project in Pittsburgh. Norfolk Southern conducted a corridor-wide air quality analysis to evaluate secondary or indirect effects related to emissions (FHWA 2009)². Air quality is directly tied to the number of locomotives per day utilizing the Pittsburgh Line, and the air quality analysis assumed that each freight or passenger train consists of two locomotives. In 2019, there were 22 trains per day on the Pittsburgh Line. Because the Mon Line is currently at capacity, any future increase in rail traffic through Pittsburgh under the No Build Alternative would need to be accommodated by single-stack trains on the Pittsburgh Line. Under the Preferred Build Alternative, double-stack trains with greater freight capacity would operate on the Pittsburgh Line, resulting in fewer total trains per day. Therefore, predicted train numbers for the design year (2045) are slightly higher under the No Build Alternative (50 trains per day) than under the Preferred Build Alternative (48 trains per day). In 2019, total emissions along the segment of the Pittsburgh Line in the project corridor were 26.2 tons per year (T/yr). Under the No Build Alternative, emissions are predicted to be 44.4 T/yr in 2045, while under the Preferred Build Alternative they would be 42.6 T/yr in 2045. This study shows that total emissions will increase between 2019 and design year 2045, but this increase is not due to the Pittsburgh Vertical Clearance Projects. Rather, the increase is correlated with a general increase in rail traffic across the region and nation. Implementation of the project under the Preferred Build Alternative would slightly decrease emissions along the Pittsburgh Line through the use of more efficient double-stack trains.

Fort Wayne Line

In 2019, there were 36 trains per day on the Fort Wayne Line. Because the Mon Line is currently at capacity, any future increase in rail traffic through Pittsburgh under the No Build Alternative would need to be accommodated by single-stack trains on the Fort Wayne Line. Under the Preferred Build Alternative, double-stack trains with greater freight capacity would operate on the Fort Wayne Line, resulting in fewer total trains per day. Therefore, predicted train numbers for the design year (2045) are slightly higher under the No Build Alternative (62 trains per day) than under the Preferred Build Alternative (58 trains per day). In 2019, total emissions along the segment of the Pittsburgh Line in the project corridor were 14.1 T/yr. Under the No Build Alternative, emissions are predicted to be 18.1 T/yr in 2045, while under the Preferred Build Alternative they would be 15.5 T/yr in 2045. This analysis shows that total emissions will increase between 2019 and design year 2045, but this increase is not due to the Pittsburgh Vertical Clearance Projects. Rather, the increase is correlated with a general increase in rail traffic across the region and nation. Implementation of the undertaking under

² The complete text of the air quality memorandum can be found in Appendix B.

the Preferred Build Alternative would slightly decrease emissions along the Fort Wayne Line through the use of more efficient double-stack trains.

Pittsburgh Region

Total emissions among all three Norfolk Southern lines through Pittsburgh (the Pittsburgh, Fort Wayne, and Mon Lines) totaled 89.4 T/yr in 2019. Under the No Build Alternative, total emissions are predicted to be 98.9 T/yr in design year 2045. Under the Preferred Build Alternative, total emissions are predicted to be 71.0 T/yr in design year 2045. Thus, when considered holistically for the Pittsburgh region, implementation of the project would reduce emissions below both current levels and predicted levels in year 2045 under the Preferred Build Alternative.

1.5.2 Noise

Like emissions, noise levels are correlated with the number of trains operating along the Pittsburgh and Fort Wayne Lines. Direct effects for noise for all five project locations would be limited to temporary construction-related effects, and these are not anticipated to be adverse. Norfolk Southern conducted corridor-wide noise and vibration analyses to evaluate secondary or indirect effects related to noise³. This study utilized Surface Transportation Board (STB) noise assessment guidelines. According to these guidelines, an adverse effect occurs when *both* of the following conditions occur: 1) increases of 3 decibels (dB) or greater occur at noise-sensitive receptors as a result of the project, and 2) sound levels increase to levels of 65 dBA L_{dn} or greater as a result of the project⁴. A change in 3dB is generally the minimum perceptible change in sound outside the laboratory. Under both the No Build and Preferred Build Alternatives, future sound levels along the Pittsburgh and Fort Wayne Lines would increase by an average of about 1db, with a slightly higher increase occurring under the No Build Alternative due to slightly greater numbers of single-stack trains. Noise modeling predicts that 320 sites would meet or exceed the STB's assessment guidelines (i.e. increase above 3dB or change to a level above 65dB) under the No Build Alternative while 262 sites would be impacted under the Preferred Build Alternative.⁵ In addition, all impacted land uses under the Preferred Build Alternative would also be impacted under the No Build Alternative. Therefore, implementation of the Pittsburgh Vertical Clearance Projects would result in a reduction of 58 noise sensitive land uses when compared with the No Build Alternative. This is because future noise levels are correlated with future freight demand (traffic), which is unrelated to the implementation of the Pittsburgh Vertical Clearance Projects. Project implementation would result in no adverse direct or indirect effects related to noise.

1.5.3 Vibration

Vibration from train trips is event based and is not additive like that of noise. Locomotives are the heaviest component of a train consist (the locomotives and cars in a train) and are the most intense source of vibration from passing trains. The Pittsburgh Vertical Clearance Projects will have no direct or indirect effect on vibration along the Pittsburgh and Fort

³ The complete text of the noise and vibration analysis can be found in Appendix C.

⁴ Because human sensitivity to sound varies with frequency, the A-weighting system (expressed as dBA) is used when describing environmental noise in order to provide a single descriptor that best correlates with human subjective experience. The L_{dn} is the average equivalent sound level over a 24-hour period, with a 10dB penalty added for noise during the nighttime hours of 22:00 to 07:00.

⁵ The noise analysis adopted the Federal Transit Administration's (FTA's) noise sensitive land use categories, which require analysis at Category 1, 2, and 3 land use sites. Category 1 includes tracts of land where quiet is an essential element of its intended purpose; no Category 1 land uses were identified in the Pittsburgh Vertical Clearance Projects study area. Category 2 uses include residential land use and buildings where people normally sleep, such as hotels and hospitals. Category 3 uses include institutional land uses with primarily daytime and evening use, such as schools, libraries, theaters, churches, as well as places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities.

Wayne Lines because they will not change the intensity of the vibration source. Minor changes in vertical alignment of tracks (track lowering) at select project locations would provide negligible reductions in vibration that would not be appreciably different from the No Build scenario⁶. Therefore, no adverse effects from vibration are predicted to occur as a result of the implementation of the Pittsburgh Vertical Clearance Projects.

⁶ The complete text of the noise and vibration analysis can be found in Appendix C.

2.0 Summary of Design Advisory Team Coordination

Norfolk Southern and PennDOT held DAT meetings on the following dates: June 14, 2023, August 29, 2023, and March 26, 2024. In addition, supplemental meetings to refine designs were held with the DAT Technical Team on September 14, 2023, and October 23, 2023. The DAT Technical Team consisted of Rick Belloli (Q Development), Paul Tellers (Architect), Sara Thompson (Pashek + MTR), and Matthew Craig (Young Preservationists Association [YPA]). Mr. Tellers and Ms. Thompson were engaged by YPA to provide technical assistance. See Appendix D for copies of DAT meeting minutes and comment-response documents.

DAT Meeting 1 - June 14, 2023:

Michael Baker outlined the DAT process and gave an overview of minimization and proposed mitigation measures.

Norfolk Southern committed to two mitigation measures as part of the PUC mediation process. 1) the construction by Norfolk Southern of a new pedestrian bridge within Allegheny Commons, which would become the property of the City of Pittsburgh after completion, and 2) Norfolk Southern will donate \$1,250,000 to the Northside Leadership Conference for enhancement projects within Allegheny Commons and surrounding neighborhoods.

Minimization measures discussed include:

- Repair and in-kind replacement (where missing or damaged) of wrought iron fencing in project limits along the railroad corridor
- Minimize impacts to mature trees in the park
- Minimize impacts of fill slopes in the park
- Reconstruction of missing portion of low brick wall along W. North Avenue
- Replacement of damaged/missing sections of railroad safety fencing with new standard safety fencing

W. North Avenue Bridge:

The location and sizes of potential planting areas in the SW and SE quadrants of the Brighton Road/W. North Avenue intersection were discussed.

For safety/code reasons the ca. 1929 wrought iron fence south of the bridge must be replaced with a safety barrier, and where taller fencing is also required, fencing matching that along the railroad corridor will be used.

Concrete element decision points discussed (retaining walls wing walls, barriers, bridge panels, and plazas: color, finish texture, panel design details [scale, corner style]). Decision points on the concrete planters discussed include materials, finish (concrete vs. brick cladding), and whether a fence is desired between the SE planter and the bridge plaza.

A concrete core wall with brick cladding is required in the reconstructed parts of the missing low brick wall along W. North Avenue. Codes require the height of the replaced sections must be increased from 36" to 42" and thickness to increase from 9-5/8" to 12-1/4".

Allegheny Commons Pedestrian Bridge:

Determination of Effects Addendum Report:

2.0 Summary of Design Advisory Team Coordination

The most current bridge, plaza, and sidewalk/ramp layouts were presented. Three trees are expected to be impacted by the access ramps. Steep (2:1) slopes with tree root aeration are proposed to minimize tree impacts.

Lighting decision points: park standard lights versus ornamental lights for paths and bridge deck; accent lighting on stairs and circular plazas.

Pavements: asphalt on paths and concrete on bridge. Concrete color/finish options were discussed.

Bridge concrete panel decision points: height of concrete parapets; use of parapets versus railings in the bridge plaza areas; should panel design match that used for W. North Avenue and W. Ohio Street bridges or be a reproduction of those on the previous pedestrian bridge.

Context-sensitive design solutions: abutments/signal cabinet areas—options for historic architectural elements such as pilasters and cabinet screening were discussed.

DAT Meeting 2 - August 29, 2023:

W. North Avenue Bridge:

It was clarified that any bridge features need to be approved by the City and agreed to be maintained by the City or other parties; volunteer maintenance is not acceptable.

There was discussion of potential interpretive signage; stained or stamped concrete in plazas, and the challenges of planter construction and maintenance. Bridge loading must be considered in planter location section. DAT members expressed concerns over maintenance and voiced a preference for designs requiring the least maintenance and minimal irrigation.

Allegheny Commons Pedestrian Bridge:

Paul Tellers suggested that the bridge location be moved 15' northwest because of the deteriorated state of the existing stairs and abutments and to line up better with existing park paths. Elevated semi-circles are desired at each end of the bridge. He prefers a steel through girder system with concrete façade panels to tie the design to that of the W. Ohio Street and W. North Avenue bridges.

Michael Baker presented revised bridge plans that preserve the existing stairs and keep the bridge at its historic location. A 15-foot change in alignment would have additional and likely adverse impacts on the park and would impact a sewer main and retaining walls. DAT members expressed a desire to minimize the amount, size, and visibility of concrete retaining walls. Landscaping could screen walls and deter graffiti.

DAT members preferred path option 2B, which avoids tree impacts. The layout on the Lake Elizabeth size is similar to Paul Tellers' plans. Additional coordination will occur to refine designs to minimize retaining walls, minimize slopes, minimize tree impacts, and reuse the historic stairs if possible. Oval plazas at the bridge entrance are acceptable context-sensitive design elements. Landscaping should be minimized to reduce future maintenance.

Determination of Effects Addendum Report:

Summary of design refinements advanced from the DAT Technical Team meetings on September 14 and October 23, 2023:

W. North Avenue Bridge:

- New railings will be galvanized steel painted black.
- The Greater Pittsburgh Arts Council will be consulted on any public art designs, if applicable.

Allegheny Commons Pedestrian Bridge:

- The lower stairs from the previous bridge will not be reused in order to minimize impacts to other contributing park features, such as landscaping and trees, which were more highly valued by DAT members. Further, the stairs are a remnant feature in poor condition, within a limited remaining service life. Alternative 5A was developed to replace the stairs in the same general location while minimizing impacts to trees and retaining wall height.

March 13, 2024, Q Development Letter to Mr. Corey Layman, Chief Zoning Officer, City of Pittsburgh:

Q Development stated to the City of Pittsburgh its commitment to maintain the sidewalk planters developed as minimization for 810 W. North Avenue as part of the PVC Project. These planters, and the maintenance thereof, are part of the overall landscaping plan that serves as alternative compliance for the City of Pittsburgh's street tree requirements. These planters front the building and serve to minimize the visual effects of the sidewalk grade change on the building façade and require no alterations to the building's door and window openings.

DAT Meeting 3 – March 26, 2024

W. North Avenue Bridge:

Revised plaza planter configurations were presented, including those in the northwest bridge quadrant, which was added in response to previous DAT member comments. A curved open space in the southwest plaza has been reserved for potential future public art (by others).

Changes to PennDOT design criteria have permitted the transition safety barrier in the southeast quadrant to be reduced from 65' to 19.5'.

Updated illustrations for bridge panels were shown, and natural versus painted concrete finish options were discussed.

A follow-up survey will allow DAT members to vote on preferences on plaza planter layout and concrete panel color.

Allegheny Commons Pedestrian Bridge:

Summary to context-sensitive design solutions to date-to be refined:

- Cambered bridge profile.
- Concrete façade panels on bridge and concrete panels on face of adjacent plaza areas
- Circle-and-picket design used for the bridge and plaza railings (where required)

Determination of Effects Addendum Report:

2.0 Summary of Design Advisory Team Coordination

- Circular plazas adjacent to bridge with benches
- Relocation/screening of railroad signal cabinet under the bridge
- Ornamental lighting
- Landscaping

DAT members expressed a desire for curved concrete panels at the ends of the bridge to mimic the concrete arch design of the previous structure.

Design alternatives, including preferred color, were discussed for the exposed face of the bridge through-girder at the outer edges of the sidewalk. DAT members expressed concern for the potential of trash and debris to accumulate near the girder stiffening members.

Park standard lights will be used along the bridge approach paths. Eight ornamental light fixtures are proposed: four on each corner of the bridge and four on each corner of the plazas. Several design options for light poles and fixtures available from the vendor that supplies the park standard fixtures were presented for DAT feedback.

Concrete pavement will be used on the bridge and its plazas and asphalt paving will be used on paths, to be consistent with the current treatment of other park paths.

Steep (4:1) slopes are favored to minimize impacts to surrounding park landscape features. Walls will be used when required to minimize tree impacts. Conventional and alternative (proprietary) wall designs were discussed. Additional coordination with the City and its forester to refine wall designs and minimize tree impacts will be required.

A follow-up survey will allow DAT members to vote on preferences on concrete panel color, color for exposed steel girders adjacent to the sidewalk, and ornamental light pole and fixture designs.

Summary of March 28, 2024, DAT Survey Results:

W. North Avenue Bridge:

- Preferred plaza planter layout: Option C – combining the planters and reducing the plaza arc.
- Preferred concrete color for concrete bridge panels and other vertical concrete surfaces: Option B – painted concrete to match W. Ohio Street Bridge (sandstone/beige).

Allegheny Commons Pedestrian Bridge:

- Preferred color for concrete panels and other vertical concrete surfaces: Option B – painted concrete to match W. Ohio Street Bridge (sandstone/beige).
- Preferred color for exposed steel girders on bridge deck along curbline: Option B – paint to match proposed black fence.
- Preferred light pole and fixture options for ornamental lighting on bridge and in plazas: Option B – Sternberg Model 1910LED Double-Arm pendant fixture on 7700 Birmingham pole.

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Summary of DAT Meeting 3 Written Comments and Responses:

W. North Avenue Bridge:

- Mr. Belloli submitted refined designs for the southwest plaza planter to increase the size of the three planters by reducing the public art area from 35' to 30'. These changes were accepted by project engineers.
- Mr. Belloli's proposed reduction in width of the 7' diagonal sidewalk was rejected by project engineers. Interior aisles must be at least 4' wide and exterior paths must be at least 7' wide according to a City directive.
- Mr. Stroker asked if there has been consideration of railings for pedestrian assistance along sidewalks where steeper slopes are being introduced. Pedestrian railings will be provided where required by PennDOT.
- Mr. Setzler noted that the diagonal sidewalk in the southeast plaza would be a popular place to watch trains and expressed a desire for its width to be maintained at 7'.

Allegheny Commons Pedestrian Bridge:

- The DAT member suggestion for solid metal panels at the curblineline to limit trash and debris accumulation is acceptable to the City and design team.
- Mr. Stroker noted a preference for the geosynthetic reinforced soil option for retaining walls. The City expressed strong reservations about this option. The design team feels this design is not in keeping with the historical character of the park, and it introduces additional maintenance complexities. Project engineers are dismissing this option from further consideration.
- Mr. Stroker stated that railings are desirable on the steps leading the bridge. Project engineers clarified that these railings are required by code and are part of the project design.
- Mr. Fitzpatrick requested a design feature be added to the bridge to increase the appearance of an arc more than its current camber. Project engineers will investigate ways to include an arc feature to the bridge design.
- Mr. Panzitta noted that integral concrete coloring would be better than painted concrete. Project engineers considered integral coloring, but this option was dismissed because different types of concrete are required for different bridge elements, resulting in the potential for non-uniform coloring. Future maintenance would make color consistency even less consistent.

2.0 Summary of Design Advisory Team Coordination

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3.0 Allegheny Commons Pedestrian Bridge Project

3.1 Results of Identification of Historic Properties

3.1.1 Area of Potential Effects

APE Justification

Consistent with the methodology for establishing project APEs presented in Chapter 1 for projects where corridor constraints are present that could limit or prevent track lowering, the Allegheny Commons Pedestrian Bridge Project APE was based on the height of the replacement bridge raised to achieve full vertical clearance per PUC requirements at this location as a worst-case scenario. The APE takes into account the nature of the undertaking and its potential for direct and indirect effects (including cumulative effects) on historic properties.

The northern and southern limits of the APE are entirely within the Allegheny Commons Park and are bisected by the depressed railroad corridor. The APE is illustrated in Figure 3-1.

APE Description

Beginning on the north curblineline of W. Ohio Street, the APE extends approximately 245' to the north wall of the depressed Norfolk Southern rail corridor, turns northeast and extends approximately 120', turns northwest and extends approximately 220', turns southwest and extends approximately 170' to the north wall of the Norfolk Southern rail corridor, turns southeast and extends approximately 130', and turns southwest and extends approximately 275' to the point of the beginning. The APE contains 1.36 acres.

3.1.2 Historic Properties Identified within the APE

Two historic properties are within the Allegheny Commons Pedestrian Bridge APE: the NRHP-eligible Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District (Resource No. 1993RE01080) and the NRHP-listed Allegheny Commons Historic District (Resource No. 1999RE00182).

Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District

Description of Historic Property

The portion of railroad corridor surveyed for this project area includes an approximately 125-linear-foot segment centered at the location of the former pedestrian bridge over the railroad corridor. The surveyed segment's depressed railroad corridor measures 58' wide between retaining walls and contains four tracks. Two historic-age features were identified in the survey area: decorative wrought-iron fencing and concrete retaining walls with stone coping (Figure 3-2 and Figure 3-3).

Both of the historic-age features identified within the APE were found to be NRHP eligible as contributing elements as part of this study, being functional and/or decorative components that were constructed during the district's period of significance and that retain historic integrity. The former pedestrian bridge, which is also located within the APE, was constructed ca. 1905 as part of the grade separation project through the North Side and was a contributing element of the historic district; however, in 2013, the main span over the railroad corridor was demolished leaving only the abutments remaining. The bridge, therefore, does not retain sufficient integrity and no longer contributes to the significance of the railroad corridor historic district.

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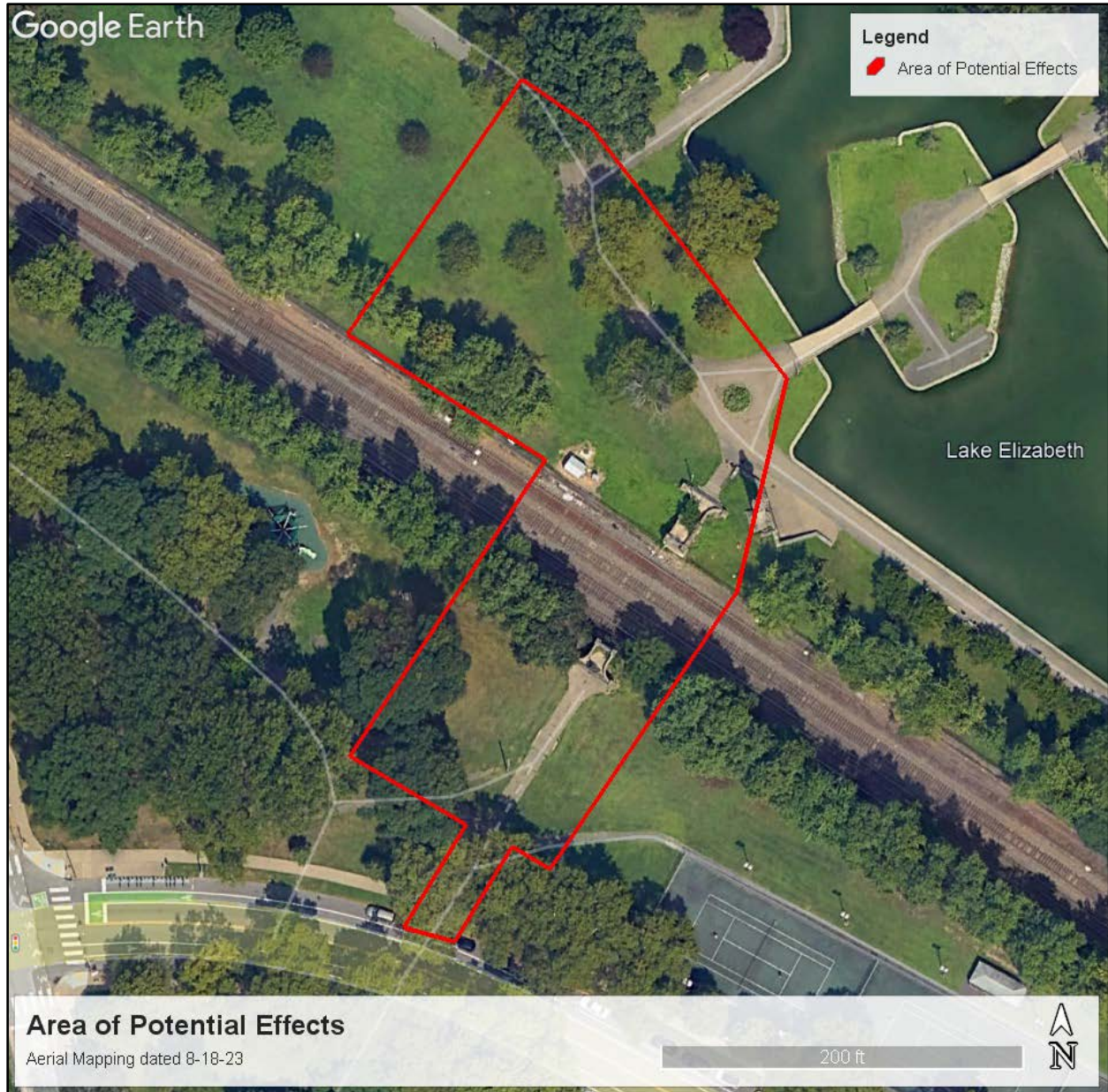


Figure 3-1: Allegheny Commons Pedestrian Bridge Project APE shown on aerial mapping (Google Earth 2023).



Figure 3-2: Allegheny Commons Pedestrian Bridge Project location, showing the depressed railroad corridor with concrete retaining walls with stone coping and decorative wrought iron fencing, facing southeast.



Figure 3-3: Detail of wrought-iron fencing atop retaining wall, facing southwest.

3.0 Allegheny Commons Pedestrian Bridge Project

Significance of Historic Property

The Pennsylvania Railroad Main Line from Pittsburgh to the Ohio State Line was previously determined eligible for listing in the NRHP under Criteria A and C as a railroad corridor historic district for its "state-wide significance in transportation, economy and the development of Pennsylvania's industries and communities" (Barrett 1993). The period of significance of the railroad corridor historic district is 1848-1958. Requirements for rail safety and rail operation require periodic replacement of rail infrastructure including ballast, rail ties, rails, and associated structures since the time of the period of significance. The main line will continue to be used for rail operations as part of the proposed project.

Boundary of Historic Property

The historic property includes the entirety of the surveyed segment of railroad within the APE as described above and shown in Figure 3-4. The 125' segment of right-of-way is approximately 58' wide and encompasses approximately 0.2 acre.

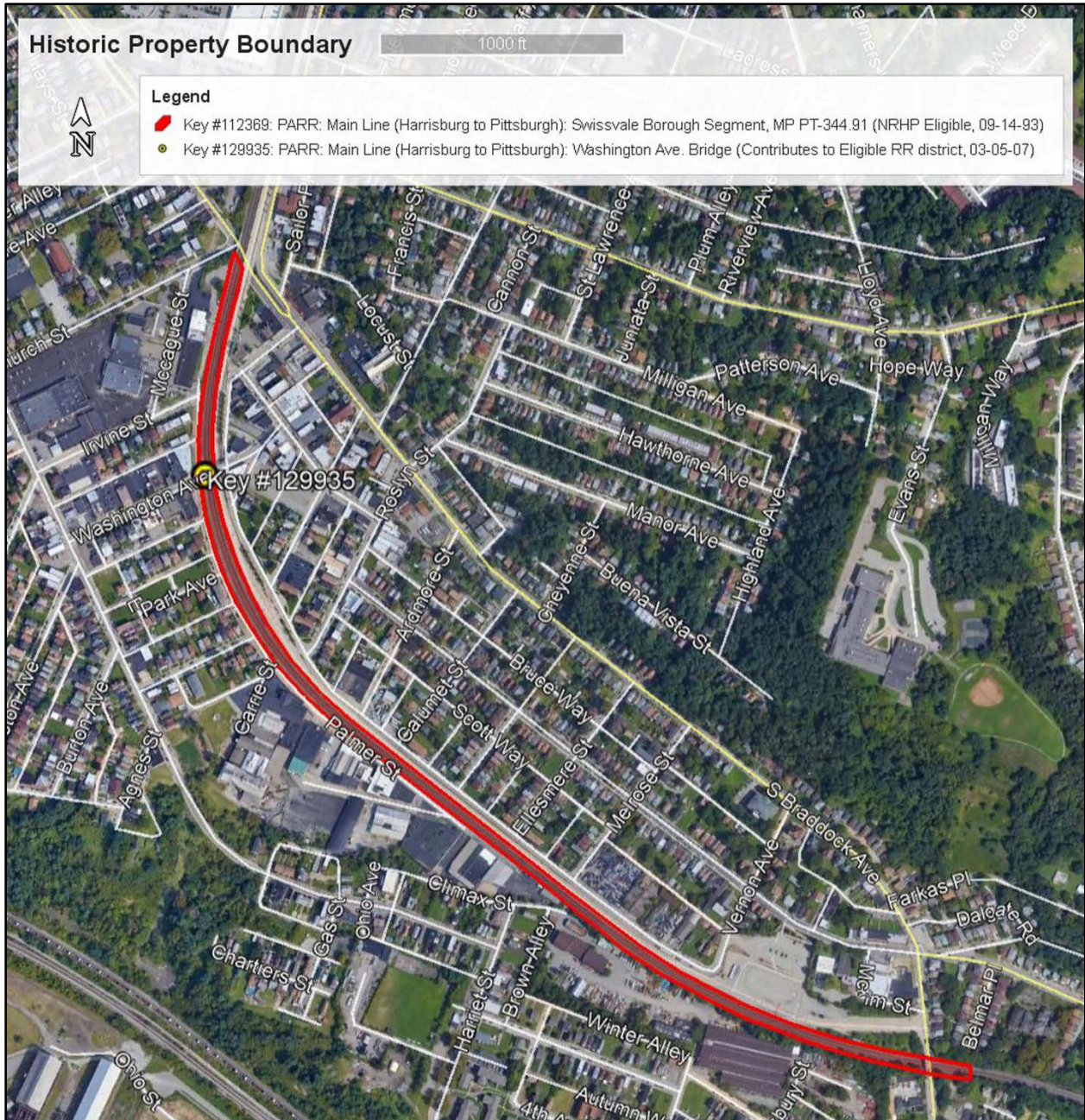


Figure 3-4: Historic property boundary for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District.

Allegheny Commons Historic District

Description of Historic Property

The Allegheny Commons Historic District was listed in the NRHP on September 17, 2013 (Bamberg 2013). The park was initially constructed between 1868 and 1876, with major alterations ca. 1935 and 1967; the landscape architecture firm of Mitchell and Grant was responsible for the park’s initial design, and the firm Simonds and Simonds designed the mid-1960s alterations. Allegheny Commons is the oldest public park in Pittsburgh, the city’s only formal urban park, and one of the first public parks developed west of the Allegheny Mountains (Figure 3-5.). Allegheny Commons was designated

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Norfolk Southern Railway Company, Pittsburgh Vertical Clearance Projects

3.0 Allegheny Commons Pedestrian Bridge Project

a City of Pittsburgh Historic Site on November 26, 1990. One contributing element, the decorative wrought iron fencing lining the railroad corridor, is within the W. North Avenue Bridge Project APE (Figure 3-6). The former pedestrian bridge, which is also located within the APE, was constructed ca. 1905 as part of the grade separation project through the North Side and was a contributing element of the Allegheny Commons Historic District; however, in 2013, the main span over the railroad corridor was demolished leaving only the abutments remaining. The bridge, therefore, does not retain sufficient integrity and no longer contributes to the significance of the historic district.

Significance of Historic Property

The park is significant under NRHP Criterion A in the area of Community Planning and Development and under Criterion C in the area of Landscape Architecture.

Boundary of Historic Property

The district is roughly bounded by W. North Avenue, Cedar Avenue, Stockton Street, the railroad tracks, Ridge Avenue, and Brighton Road. The interior, non-park section of the polygon is not included in the district. The boundary encompasses approximately 62 acres (Figure 3-7).



Figure 3-5: Allegheny Commons Historic District showing Lake Elizabeth, facing southeast.



Figure 3-6: Decorative wrought iron fencing along the northeast retaining wall and a line of Ginkgo trees in the Allegheny Commons Historic District, facing northwest.

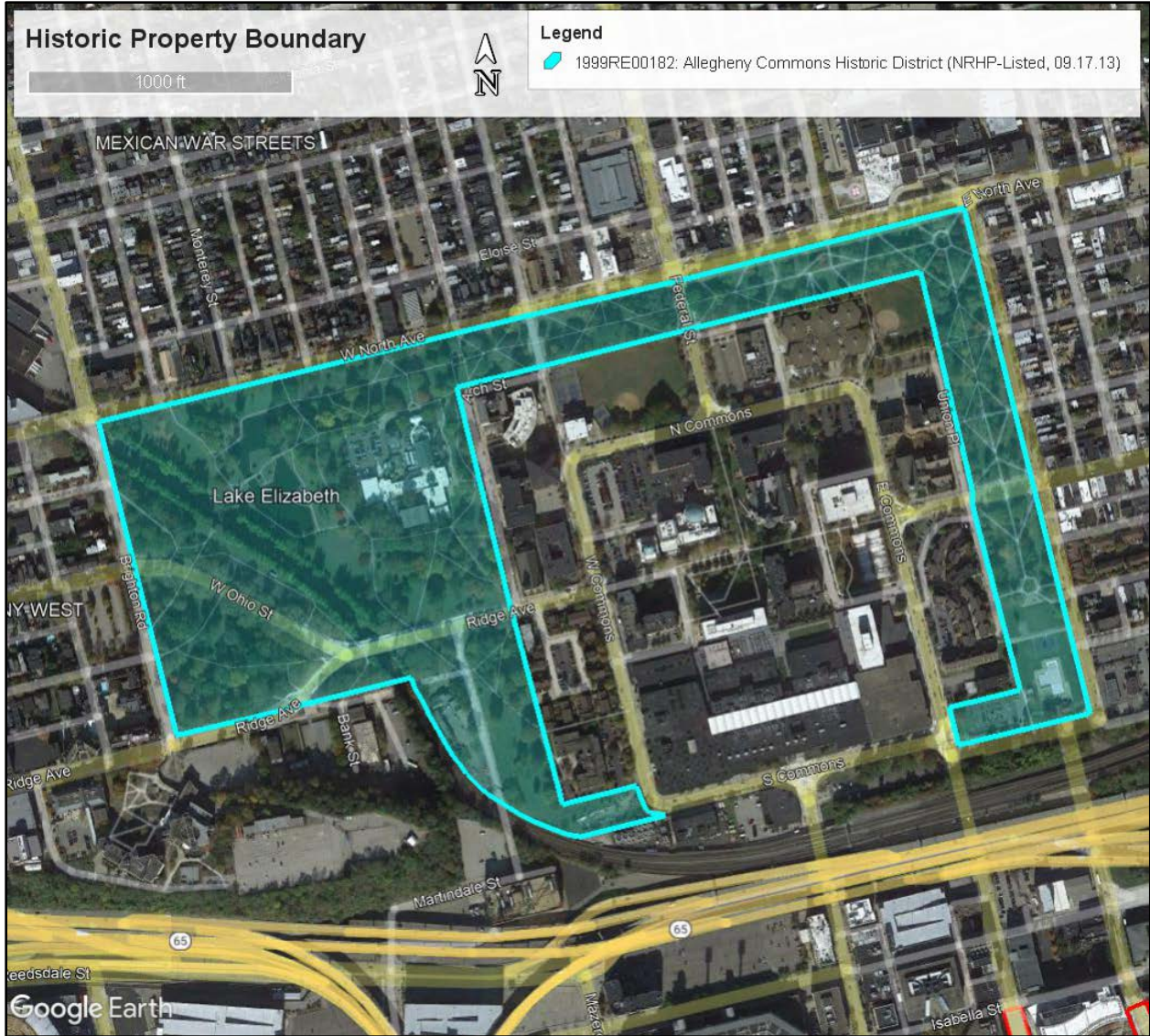


Figure 3-7: Historic property boundary of the Allegheny Commons Historic District.

3.2 Efforts to Avoid or Minimize Adverse Effects

An Alternatives Analysis Report was prepared for the Allegheny Commons Pedestrian Bridge Project (Michael Baker International, Inc. 2024) that identified three alternatives, as follows:

- Alternative 1 – No Build Alternative
- Alternative 2 – Steel girder bridge with 10'-wide approach paths to achieve 22'-0" vertical clearance
- Alternative 3 – Through girder bridge with 6'-wide approach paths to achieve 21'-4" vertical clearance

When accounting for impacts to the surrounding area, project complexity, and potential historic property impacts, Alternative 3 was selected to be advanced for further consideration. The Preferred Alternative for the Allegheny Commons Bridge Project, Alternative 3, was a refinement of Alternative 2 based on input from the project's DAT. The alternative was advanced with the following goals:

- Minimize retaining walls
- Minimize slopes (4:1 preferred for ease of maintenance)
- Maintain trees
- Re-use existing lower stairs where possible (upper stairs are in poor condition)
- Include oval plazas at bridge level (considered context-sensitive design)
- Keep landscaping minimal due to existing being minimal and to reduce future maintenance
- Use a steel through girder deck while still preserving the concrete panel system
- Reduce the minimum vertical clearance to 21'-4" to match W. North Ave.
- Match existing path widths

Multiple refinements to minimize impacts to the park and maximize the pedestrian experience were incorporated into the Preferred Alternative. By reducing the clearance and utilizing a through girder deck, the elevation difference from the existing park paths to the bridge crossing was reduced, thereby minimizing the length of the required ADA-accessible paths and impacts to the park. Multiple iterations were investigated to retain the lower approach stairs. The stairs on the north side of the bridge can remain; however, the alternatives to keep the stairs on the south side have more impacts to the park landscape and potentially more and higher walls due to the elevation constraint at the top of the existing stairs. This elevation constraint also results in a longer ADA-accessible path and pushes the proximity of the grading closer to the trees and tree driplines which could potentially impact an existing 66" tree.

Due to the condition of the existing stairs and the additional impacts to the park due to the longer paths, Alternative 3 includes the replacement of the stairs generally in the same location but with a lower elevation at the top landing, which would reduce the impacts to the park landscape, reduce the wall heights, and move the grading farther away from the trees and dripline and potentially not impact the 66' tree. This would also allow the path alignment to follow the contours of the existing earthen mounds surrounding the former pedestrian bridge more closely, thereby reducing the visual impact of the new paths.

The proposed Alternative 3 bridge would consist of two through girders, connected at even intervals by floor beams. The through girders would be built-up sections which follow the vertical curve to achieve the desired vertical clearance. The floor beams would be rolled wide flange sections. The deck would be a continuous 8.5" reinforced concrete slab that spans between floor beams. The inner "pockets" of the through girder would be covered with a steel plate to prevent debris accumulation. The outside of the through girders would be covered with concrete façade panels to match the appearance of the W. Ohio Street Bridge. Panels and girders would be tied together via a concrete cap which would also support the decorative fence.

3.0 Allegheny Commons Pedestrian Bridge Project

The new superstructure would be built upon cantilever abutments with spread footings built to bear on the existing abutments, which will be demolished down to an elevation equal to the top of the existing railroad retaining walls. The design needs to account for the 72" brick sewer that runs parallel to the retaining wall on the north side of the railway corridor. Any disturbance to the sewer will be avoided. The existing signal cabinet located 70' to the west of the former pedestrian bridge will remain in place rather than be relocated under the bridge due to safety and maintenance concerns.

Alternative 3 would replace the former pedestrian bridge in the same location with a steel girder bridge with 6'-wide approach paths to achieve 21'-4" vertical clearance. Because the bridge's center span over the railroad corridor was demolished in 2013 leaving only the abutments and approach stairs remaining, the bridge has lost sufficient historic integrity to no longer be considered a contributing element of both the Allegheny Commons Historic District and the railroad corridor historic district. The replacement of the pedestrian bridge under Alternative 3 would have less impact than under Alternative 2 but would still have a moderate potential to affect character-defining features of the Allegheny Commons Historic District such as plantings, existing pathways and stairs, and topography resulting from direct physical impacts related to the construction of new abutments and approaches including ADA-compliant pathways. It is anticipated that the Preferred Alternative would result in 1.054 acre (45,915 square feet) of temporary construction impacts to the Allegheny Commons Historic District for construction staging and access. Because of the lowered clearance height and resulting lowered top landing for the pathways, less fill would be required for the approach pathways and would have less impacts to mature trees than under Alternative 2. The Preferred Alternative has the potential to have visual effects on the Allegheny Commons Historic District resulting from the introduction of a new pedestrian bridge and its associated approach pathways and stairs but only a moderate to low potential to affect character-defining features of the Pennsylvania Railroad: Main Line (Pittsburgh to the Ohio State Line) Railroad Corridor Historic District.

An existing railroad signal box, located approximately 60' northwest of the pedestrian bridge, was to be relocated under the new structure, but several logistical issues with moving the signal equipment into a closed location under the proposed pedestrian bridge abutment became apparent. Such issues include:

- Complications involved in lowering of the footing to accommodate the signal equipment to allow the cables to remain connected during relocation in order to maintain rail operations through the corridor. Any outage of the signal system essentially shuts down the tracks until the system is restored, tested, and put back into service. Given the amount of rail traffic through the corridor, eliminating outages is critical.
- Providing clearance around the box for ventilation and maintenance. Due to constraints with the lowering of the footing, only minimal clearance can be provided.
- Providing access to the city for future inspection and maintenance of the bridge.

Subsequent coordination calls and technical meetings were held with representatives of the City of Pittsburgh, the Department of Public Works, and the Pittsburgh Parks Conservancy to discuss the logistical items related to the relocation of the railroad signal box to the area under the new pedestrian bridge. Based on these discussions, it was agreed that the signal equipment would not be relocated under the new structure, that it would remain in its current location, and landscaping and possibly a utility wrap would be installed to camouflage the signal box as much as possible.

To aid in the assessment of visual effects of the Preferred Alternative, plan and profile view (Figure 3-8) and renderings of the completed bridge (Figure 3-9) and signal box screening (Figure 3-10) are provided on the following pages.

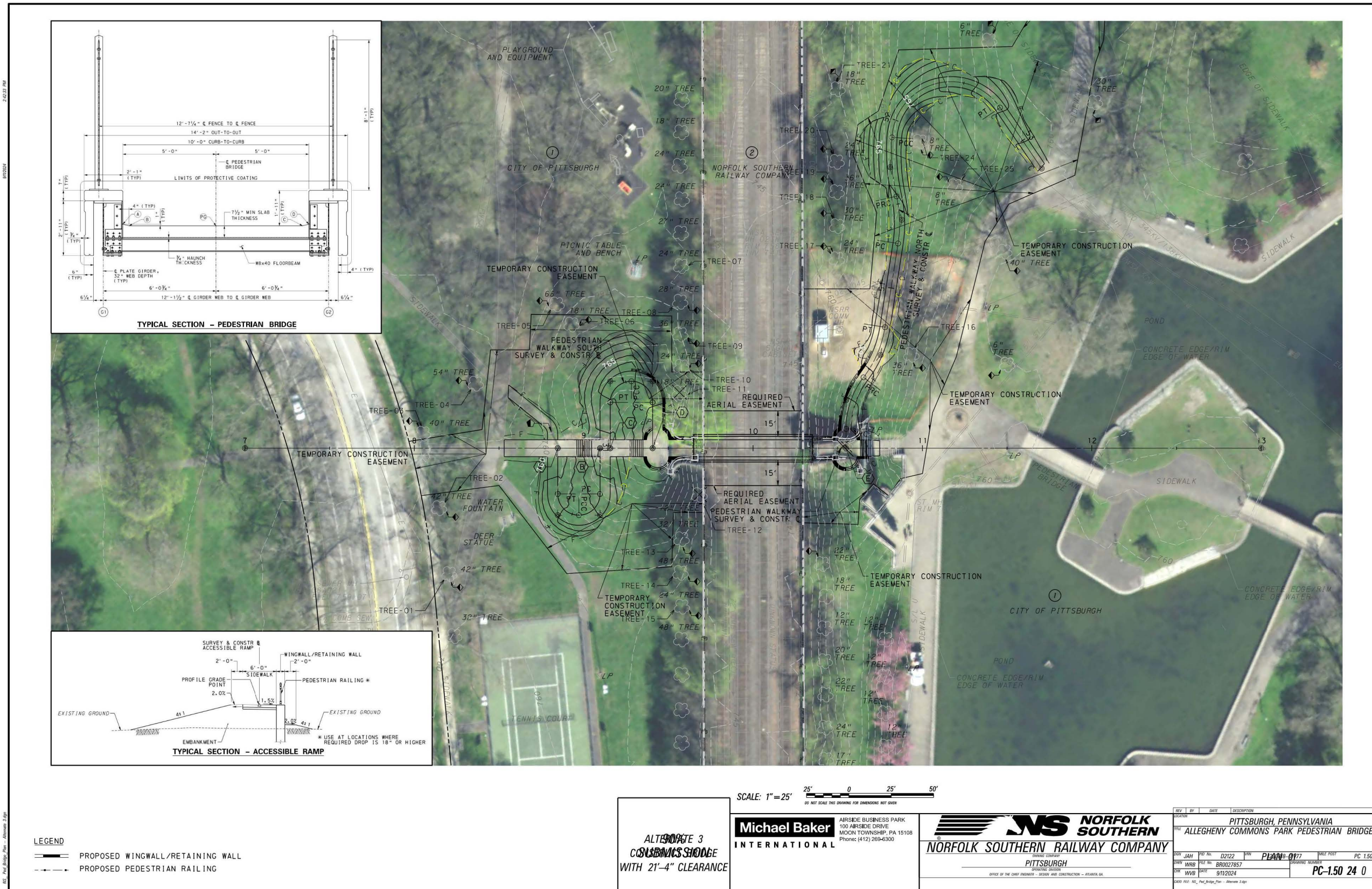


Figure 3-8: Plan and profile views of the Allegheny Commons Pedestrian Bridge and proposed paths.



Figure 3-9: Rendering of view facing northeast of the of the Allegheny Commons Pedestrian Bridge and signal box visual screening.



Figure 3-10: Detail of proposed green vinyl wrap and American Holly screening of the signal box (an Allegheny Commons Master Plan-approved species).

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3.3 Application of Definition of Effect and Criteria of Adverse Effect

The following section describes how the proposed Allegheny Commons Bridge Project would affect historic properties identified within the project’s APE in accordance with 36 C.F.R. § 800.5, “Assessment of Adverse Effects,” which outlines the procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), 54 U.S.C. Subtitle 3, Sec. 300101 et seq., (formerly 16 U.S.C.A. 470 et seq.) 54 U.S.C. § 306108. The Pennsylvania History Code and PennDOT guidance apply NHPA criteria to assessment of effects on historic and cultural resources.

Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District

Relationship of Proposed Action to Historic Property and Assessment of Project Effect

The Preferred Alternative for the Allegheny Commons Pedestrian Bridge Project would require the reconstruction of the former pedestrian bridge’s substructure and superstructure. The former bridge’s substructure remains do not contribute to the NRHP-eligible Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The Preferred Alternative would not require any work on the concrete retaining walls with stone coping and any work required on the decorative wrought-iron fencing would be in-kind repairs or replacements as both features are contributing elements in this portion of the railroad corridor historic district. The potential to affect the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District is summarized in Table 3-1

Table 3-1: Results of Effect Evaluation for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) is eligible for listing in the NRHP under Criteria A and C as a railroad corridor historic district. The Preferred Alternative has the potential to affect the historic property by adding a new visual element over the railroad corridor with the construction of a new Allegheny Commons Pedestrian Bridge.
FINDING:	<i>Historic Properties Affected</i>

3.0 Allegheny Commons Pedestrian Bridge Project

Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District

The Preferred Alternative would not adversely affect the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The former bridge's remaining substructure does not contribute to the NRHP-eligible Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The former poured concrete substructure and superstructure would be replaced with poured concrete substructure and a steel through-girder superstructure similar in scale and configuration to the original ca. 1905 Allegheny Commons Pedestrian Bridge (Figure 3-11) and would not result in a substantial visual change within the railroad corridor historic district. The substructure and superstructure replacement have a low potential to visually affect the district's character-defining features. To further address the potential visual effect on the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District, Table 3-2 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).



Figure 3-11: Historical photograph dated July 8, 1920, showing the former poured concrete Allegheny Commons Pedestrian Bridge carrying a park path over the rail corridor, facing northwest (University of Pittsburgh).

Table 3-2: Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
<p>Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.</p>	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	The Preferred Alternative would not result in the physical destruction or damage to the historic property.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would reconstruct the Allegheny Commons Pedestrian Bridge by removing the remains of the former bridge’s substructure and constructing a new substructure and superstructure at the location of the former bridge. The remains of the former bridge’s substructure do not contribute to the railroad corridor historic district.
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the railroad corridor historic district from its historic location.
(iv) Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property’s use; the project would allow for the continued use of the historic property. The project would change physical features of the property, but those would be insignificant.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features;	The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the railroad corridor historic district’s significant historic features. The visual effects of reconstructing a pedestrian bridge at the same location with a visually similar bridge will be insignificant. As detailed in Chapter 1.5.1, the project would have no indirect or cumulative effects on the railroad, as it would slightly decrease train traffic for the 2045 design year when compared with the No Build

Table 3-2: Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
	condition for 2045. Thus, the undertaking would cause no foreseeable degradation of character-defining features of the railroad corridor historic district.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	The property is not under Federal ownership or control.
OTHER:	
FINDING: The Allegheny Commons Bridge Project results in a finding of <i>No Historic Properties Adversely Affected</i> for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District under the Preferred Alternative .	

Allegheny Commons Historic District

Relationship of Proposed Action to Historic Property and Assessment of Project Effect

The Preferred Alternative for the Allegheny Commons Pedestrian Bridge Project would require the reconstruction of the former pedestrian bridge’s substructure and superstructure. The former bridge’s substructure remains do not contribute to the NRHP-listed Allegheny Commons Historic District. Any work required on the decorative wrought-iron fencing, a contributing element of the historic district, would be in-kind repairs or replacements that meet the SOI Standards. The Preferred Alternative would replace the former pedestrian bridge in the same location with a steel girder bridge with 6’-wide approach paths to achieve 21’-4” vertical clearance. Because the bridge’s center span over the railroad corridor was demolished in 2013 leaving only the abutments and approach stairs remaining, the bridge has lost sufficient historic integrity to no longer be considered a contributing element of the Allegheny Commons Historic District. The replacement of the pedestrian bridge would have a moderate potential to affect character-defining features of the Allegheny Commons Historic District such as plantings, existing pathways and stairs, and topography resulting from direct physical impacts related to the construction of new abutments and approaches including ADA-compliant pathways. The Preferred Alternative has the potential have visual effects on the Allegheny Commons Historic District resulting from the introduction of a new pedestrian bridge and its associated approach pathways. The potential to affect the Allegheny Commons Historic District is summarized in Table 3-3.

Table 3-3: Results of Effect Evaluation for the Allegheny Commons Historic District	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The Preferred Alternative would affect the historic property through the reconstruction of the former Allegheny Commons Pedestrian Bridge, access stairs on the south approach, and ADA-compliant pathways at the north and south ends of the bridge.
FINDING:	<i>Historic Properties Affected</i>

Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District

The Preferred Alternative would not adversely affect the Allegheny Commons Historic District. The remains of the former bridge’s substructure do not contribute to the NRHP-listed Allegheny Commons Historic District. The remains of the former poured concrete substructure would be replaced with poured concrete substructure and a steel through-girder superstructure similar in scale and configuration to the original ca. 1905 Allegheny Commons Pedestrian Bridge (see Figure 3-11) and would not result in a substantial visual change within the historic district. The bridge design was vetted through a rigorous consultation process including consulting parties, DAT members, and park stakeholders and was designed in accordance with the SOI Standards to be a product of its time and to not create a false sense of history while being compatible with the massing, scale, and materials of the former pedestrian bridge.

The proposed project also includes the addition of ADA-compliant approach pathways that have been designed to minimize, to the maximum extent possible, impacts to the surrounding landscape, including earthen berms, pathways and internal circulation networks, and plantings, including mature trees and planting beds. To further address the potential effects on the Allegheny Commons Historic District, Table 3-4 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).

Table 3-4: Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District
Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Table 3-4: Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	The Preferred Alternative would not result in the physical destruction or damage to the historic property. Affects to the surrounding landscape have been minimized to the maximum extent possible to ensure the least amount of impacts to the surrounding landscape, including earthen berms, pathways and internal circulation networks, and plantings, including mature trees and planting beds. The design will retain the existing north approach stairs and will repair or replace in kind any damaged wrought iron decorative fencing around the pedestrian bridge.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would reconstruct the former Allegheny Commons Pedestrian Bridge with a new, but visually compatible replacement bridge in the same location in order to utilize the existing earthen mounds created for the former bridge and the existing approach pathways and pedestrian connections. Although the bridge is not meant to be a reconstruction as defined by the SOI Standards, it does draw from design elements of the former bridge and is compatible with the massing, scale, and materials of the former pedestrian bridge. As a product of new construction, the design of the replacement bridge is sufficiently differentiated from the design of the former bridge so as to avoid a false sense of history. Thus, the proposed replacement bridge is designed in conformance with the SOI Standards and would not result in a substantial visual change in the relationship between the bridge and the surrounding landscape.
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the Allegheny Commons Historic District from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property's use; the project would allow for the continued use of the park property and would reestablish an

Table 3-4: Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District	
	important pedestrian connectivity link that has been closed for more than a decade. The project would change physical features of the property by introducing a new replacement bridge, access stairs on the south approach, and ADA-compliant pathways on the north and south ends of the bridge, but those changes have been vetted through a rigorous consulting party, DAT, and park stakeholders review process to ensure that the designs are compatible with the historic district and minimize effects to the park's character-defining features.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;	The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the historic district's significant historic features. The visual effects of reconstructing a pedestrian bridge at the same location with a visually similar bridge will be insignificant. As detailed in Chapter 1.5.1, the project would have no indirect or cumulative effects on the railroad, as it would slightly decrease train traffic for the 2045 design year when compared with the No Build condition for 2045. Thus, the undertaking would cause no foreseeable degradation of character-defining features of the Allegheny Commons Historic District.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	The property is not under Federal ownership or control.
OTHER:	
FINDING: The Allegheny Commons Bridge Project results in a finding of <i>No Historic Properties Adversely Affected</i> for the Allegheny Commons Historic District under the Preferred Alternative .	

3.4 Proposed Minimization Stipulations for the Memorandum of Understanding

The following proposed minimization stipulation to minimize effects on the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District and the Allegheny Commons Historic District is to be included in the project's forthcoming memorandum of understanding (MOU):

- Replacement of the Allegheny Commons Pedestrian Bridge will be completed in accordance with the DAT-approved, context-sensitive design elements contained in the 90-Percent Plans (see Appendix E – Attachment 4).

4.0 W. North Avenue Bridge Project

4.1 Results of the Identification of Historic Properties

4.1.1 Area of Potential Effects

APE Justification

No change in the APE has occurred since the identification of historic properties in 2019. Consistent with the methodology for establishing project APEs presented in Chapter 1 for projects where corridor constraints are present that could limit or prevent track lowering, the W. North Avenue APE was based on the bridge raising to achieve full vertical clearance per PUC requirements at this location as a worst-case scenario. The APE takes into account the nature of the undertaking and its potential for direct and indirect effects (including cumulative effects) on historic properties.

Because the proposed replacement of the bridge includes alternatives at a greater height to obtain the appropriate vertical clearance, the APE was drawn to encompass the bridge and roughly a one-parcel buffer around the greater project construction limits including all potentially affected streets that would experience grade changes. These grade changes would potentially affect properties along a portion of the 600, 700, and 800 blocks of W. North Avenue and the 900, 1000, 1100, and 1200 blocks of Brighton Road including intersecting streets and driveways. The APE contains 12.80 acres and is illustrated in Figure 4-1.



Figure 4-1: W. North Avenue Bridge APE shown on aerial mapping (Google Earth 2023).

4.1.2 Historic Properties Identified within the APE

An *Identification of Historic Properties Report* was submitted to the PA SHPO in September 2019 (Michael Baker International, Inc. 2019), which identified five NRHP-listed or -eligible historic districts within the W. North Avenue APE: the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District (Resource No. 1993RE01080), the Allegheny West Historic District (Resource No. 1978RE00013), the Mexican War Streets Historic District

(Resource No. 1975RE00037), the Allegheny Commons Historic District (Resource No. 1999RE00182), and the Allegheny Second Ward Industrial Historic District (Resource No. 2019RE06933), and two individually NRHP-listed or -eligible properties: the International Harvester Company of America: Pittsburgh Branch House (International Harvester Building) (Resource No. 2020RE00935) and the Allegheny City Stables Building (Resource No. 2006RE00765).

No changes to the boundaries, criteria of significance, periods of significance, minimization measures, or previous effects evaluations have occurred for the following historic properties:

- Allegheny West Historic District
- Mexican War Streets Historic District
- Allegheny City Stables Building

PA SHPO concurred that the W. North Avenue Bridge Project would have no adverse effect on these three properties on April 13, 2023. Therefore, their effects evaluations presented in the 2022 *Determination of Effects Report* are not repeated here.

Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District

Description of Historic Property

The portion of railroad corridor surveyed for this project area includes an approximately 566 linear foot segment centered at the W. North Avenue/Brighton Road railroad overpass bridge on Pittsburgh's North Side at milepost PC-1.60. The surveyed segment's depressed railroad corridor measures 58' wide between retaining walls and contains four tracks. Six historic-age features were identified in the survey area: the 1929 bridge carrying W. North Avenue and Brighton Road over the railroad corridor [Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line): W. North Avenue Bridge (Pittsburgh), a signal bridge, decorative wrought-iron fencing, standard three-rail railroad safety fencing, an elevated out-of-service siding, and concrete retaining walls with stone coping.

Of the six historic-age features identified within the APE, one feature, the W. North Avenue Bridge, was previously determined to be a contributing element of the railroad corridor historic district; the remaining five elements were found to be NRHP eligible as contributing elements as part of this study, being functional and/or decorative components that were constructed during the district's period of significance and that retain historic integrity. Since the initial survey, the signal bridge has been demolished.

Significance of Historic Property

The Pennsylvania Railroad Main Line from Pittsburgh to the Ohio State Line was previously determined eligible for listing in the NRHP under Criteria A and C as a railroad corridor historic district for its "state-wide significance in transportation, economy and the development of Pennsylvania's industries and communities" (Barrett 1993). The period of significance of the railroad corridor historic district is 1848-1958. Requirements for rail safety and rail operation require periodic replacement of rail infrastructure including ballast, rail ties, rails, and associated structures since the time of the period of significance. The main line will continue to be used for rail operations as part of the proposed project.

Boundary of Historic Property

The historic property includes the entirety of the surveyed segment of railroad within the APE as described above and shown in Figure 4-2. The 566' segment of right-of-way is approximately 100' wide and encompasses approximately 1.1 acres.

Determination of Effects Addendum Report:

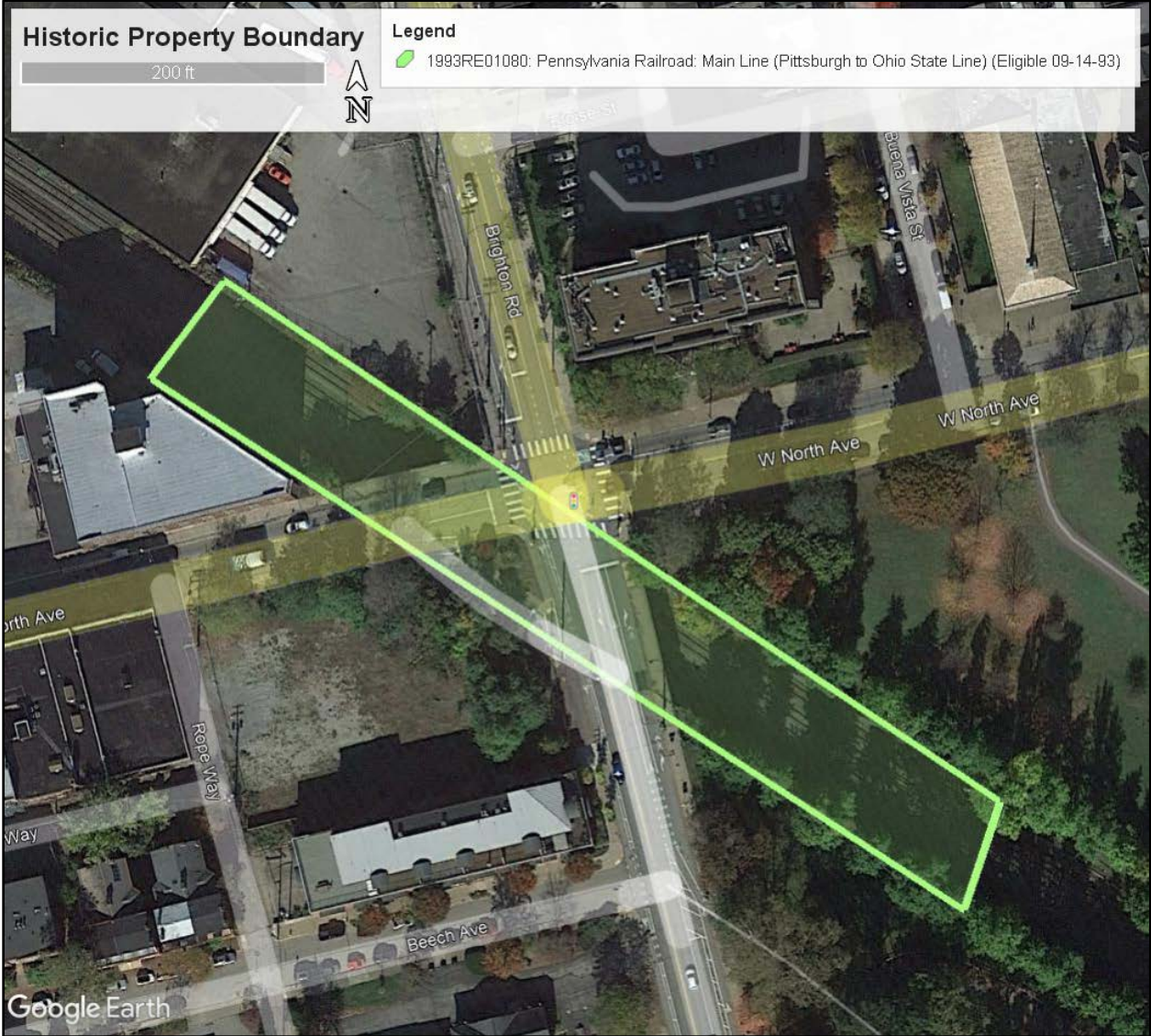


Figure 4-2: Historic property boundary for the segment of the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District within the W. North Avenue Bridge Project APE.

Allegheny Commons Historic District

Description of Historic Property

The Allegheny Commons Historic District was listed in the NRHP on September 17, 2013 (Bamberg 2013). The park was initially constructed between 1868 and 1876, with major alterations ca. 1935 and 1967; the landscape architecture firm of Mitchell and Grant was responsible for the park's initial design, and the firm Simonds and Simonds designed the mid-1960s alterations. Allegheny Commons is the oldest public park in Pittsburgh, the city's only formal urban park, and one of the first public parks developed west of the Allegheny Mountains. Allegheny Commons was designated a City of Pittsburgh Historic Site on November 26, 1990. One contributing element, the decorative wrought iron fencing lining the railroad corridor, is within the W. North Avenue Bridge Project APE.

Significance of Historic Property

The park is significant under NRHP Criterion A in the area of Community Planning and Development and under Criterion C in the area of Landscape Architecture.

Boundary of Historic Property

The district is roughly bounded by W. North Avenue, Cedar Avenue, Stockton Street, the railroad tracks, Ridge Avenue, and Brighton Road. The interior, non-park section of the polygon is not included in the district. The boundary encompasses approximately 62 acres (Figure 4-3).

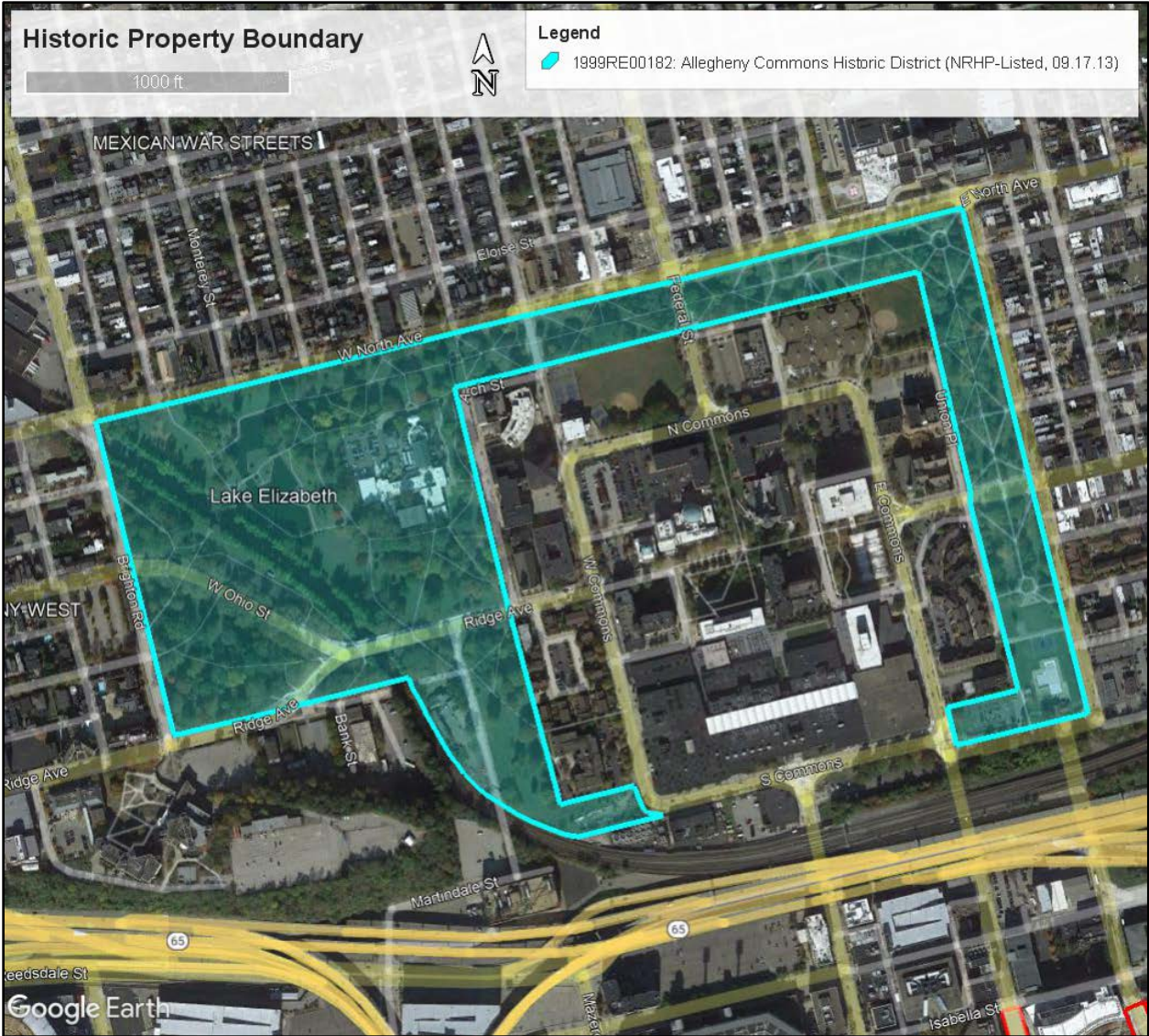


Figure 4-3: Historic property boundary of the Allegheny Commons Historic District.

Allegheny Second Ward Industrial Historic District

Description of Historic Property (Updated)

The Allegheny Second Ward Industrial Historic District (Figure 4-4) is located in the former Second Ward of Allegheny City (currently the Twenty-Second Ward of the City of Pittsburgh, with the exception of one contributing property in the 21st Ward and one in the 25th Ward). Per additional SHPO coordination in December 2023, the boundary and period of significance of the district has been expanded. The revised district contains 39 contributing buildings, three contributing structures, three non-contributing buildings, seven non-contributing sites, and one contributing resource previously listed in the NHRP (the International Harvester Company of America: Pittsburgh Branch House, 810-822 W. North Avenue). Of the 43 contributing resources, three were built between 1849 and 1865, 11 were built between 1866 and 1894, 11 were built between 1894 and 1910, and 18 were built between 1910 and 1958. Nearly all of the buildings within the district are brick masonry. Eleven contributing elements of the historic district are within the W. North Avenue Bridge Project APE: the Hipwell Manufacturing Company Complex (five buildings located at 825-839 W. North Avenue), the International Harvester Building (810-822 W. North Avenue), the Katsafanas Coffee Company Building (828 W. North Avenue), the Allegheny City Stables Building (840 W. North Avenue), the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line), the Veech/Union Hotel (1206-1208 Brighton Road), and five rowhouses (1210-1218 Brighton Road) (Figure 4-5 and Figure 4-6).

Significance of Historic Property (Updated)

The Allegheny Second Ward Industrial Historic District is locally significant under Criterion A in the area of Industry. Because the district includes the previously listed International Harvester Company of America: Pittsburgh Branch House, it also includes the criteria and areas of significance for which that property was listed: Criterion A for Commerce, Criterion B for Commerce, and Criterion C for Architecture. The district's period of significance is 1851-1958, beginning with the date of construction of the oldest resource, the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line). The ending date coincides with the ending date of the period of significance for said railroad. The Allegheny Second Ward Industrial Historic District possesses a significant concentration and continuity of buildings and structures whose interrelationship conveys the area's industrial identity. The district is a surviving example of a cohesive industrial block, touting examples of common nineteenth and twentieth century manufactories now largely missing from the North Side landscape. The buildings reflect a range of industrial production, though the majority found a niche in metallurgical production and manipulation. Mirroring the much larger steel industry, metalworkers found the prevalence of local raw materials a boon to success. Coupled with the shipping and receiving capabilities provided by the adjacent railroad, the district became a hub for industry, innovation, and invention. The district is notable for its cohesiveness, its tangible sense of feeling and association, and its ability to act as a physical timeline illustrating parts of Pittsburgh's industrial evolution.

Boundary of Historic Property (Updated)

The Allegheny Second Ward Industrial Historic District boundary is centered upon a concentration of industrial use buildings in a pocket of development located primarily in Pittsburgh's Central Northside neighborhood. It is bordered by residential areas in Manchester, Allegheny West, and Allegheny Center. The district excludes resources previously enumerated in surrounding NRHP-listed historic districts, including the Manchester Historic District, the Allegheny West Historic District, the Allegheny Commons Historic District, and the Mexican War Streets Historic District. The boundary incorporates residential and industrial buildings with moderate to high levels of historic integrity constructed within the district's period of significance (1851-1958). The boundary of the historic district contain 26.2 acres and roughly encompasses the area bound by the south side of W. North Avenue, the east side of Allegheny Avenue, the south side of Pennsylvania Avenue, and the west side of Drovers Way (Figure 4-7).

Determination of Effects Addendum Report:



Figure 4-4: South side of the 800 block of W. North Avenue in the Allegheny Second Ward Industrial Historic District from W. North Avenue Bridge, facing southwest.



Figure 4-5: Overview of east side of 1200 block of Brighton Road showing east curb line, facing southeast. This side of the street was added to the district boundary since the 2022 effects report was submitted.



Figure 4-6: View, facing southeast, of the six additional district contributors in the 1200 block of Brighton Road added to APE since the district’s boundary was expanded in 2023. Included are the former Union Hotel (Riggs Restaurant & Lounge, 1206-1208 Brighton Road) and five adjacent rowhouses (1210-1218 Brighton Road).

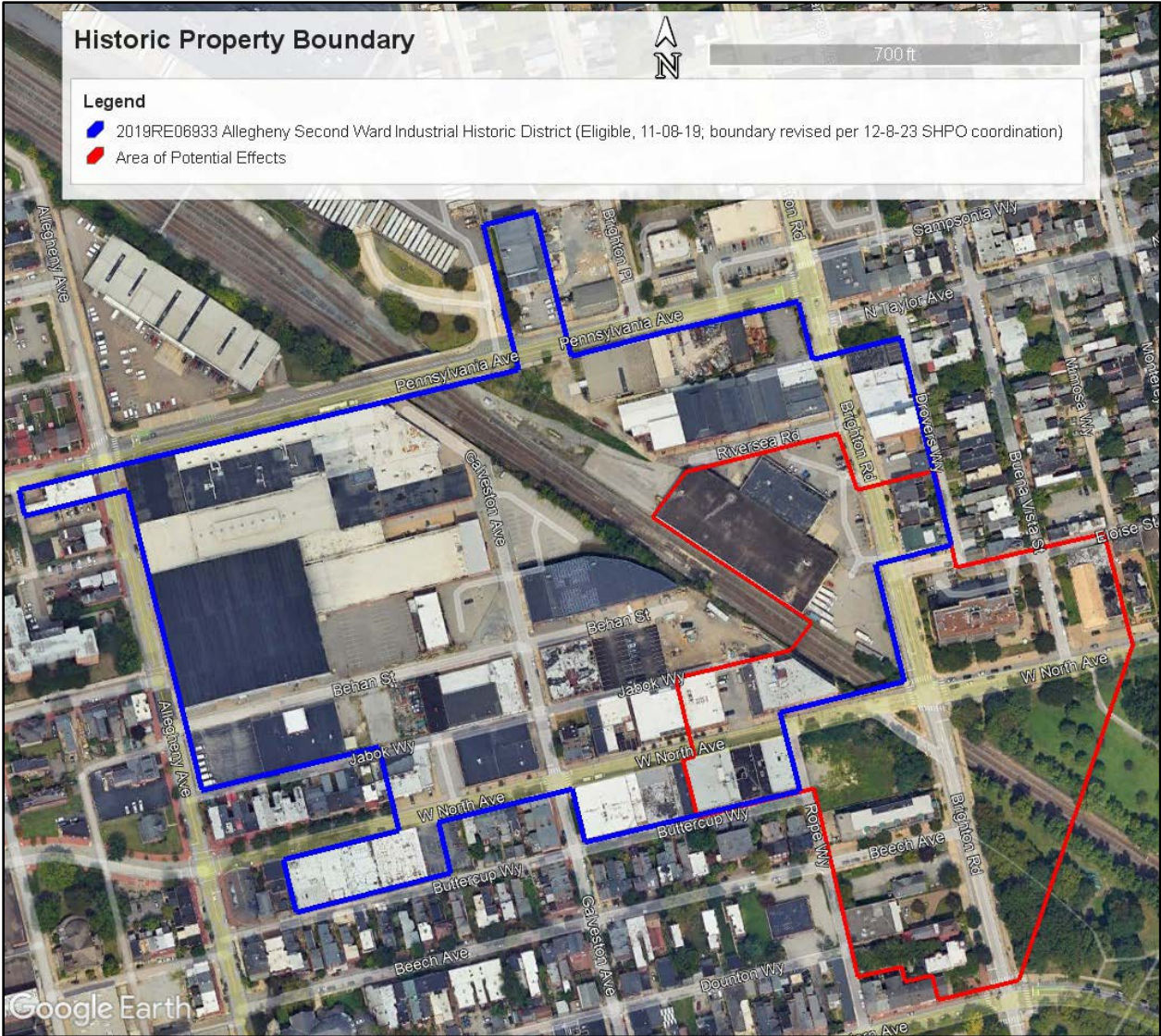


Figure 4-7: Updated historic property boundary for the Allegheny Second Ward Industrial Historic District shown in relation to the APE. The updated boundary has resulted in the addition of six contributing buildings in the APE on the east side of Brighton Road.

International Harvester Company of America: Pittsburgh Branch House

Description of Historic Property

The International Harvester Building was listed in the NRHP on April 12, 2021. The building, located at 810-822 W. North Avenue (Figure 4-8), is a 1902, four-story, brick, commercial building with Classical Revival stylistic details. The building was originally three stories tall and six bays wide with a “flatiron” configuration that conformed to the wedge-shaped lot demarcated by what was then the Pittsburgh, Fort Wayne & Chicago Railway. From 1912 to 1913, International Harvester Company enlarged the building, constructing a three-bay wide, four-story addition on the west side and adding a fourth story atop the existing building (Slack 2020).

Significance of Historic Property

The International Harvester Company Building is significant under NRHP Criterion A in the area of Commerce, under NRHP Criterion B for its association with Branch Manager Emil Louis Mayer, and under NRHP Criterion C in the area of Architecture. The building’s period of significance is from 1902 to 1933.

Boundary of Historic Property

The historic property boundary conforms to Allegheny County Tax Parcel 0023-N-00130-0000-00 and encompasses approximately 0.32 acre (Figure 4-9).



Figure 4-8: South (front) façade of the International Harvester Building at 810-822 W. North Avenue, facing northwest.

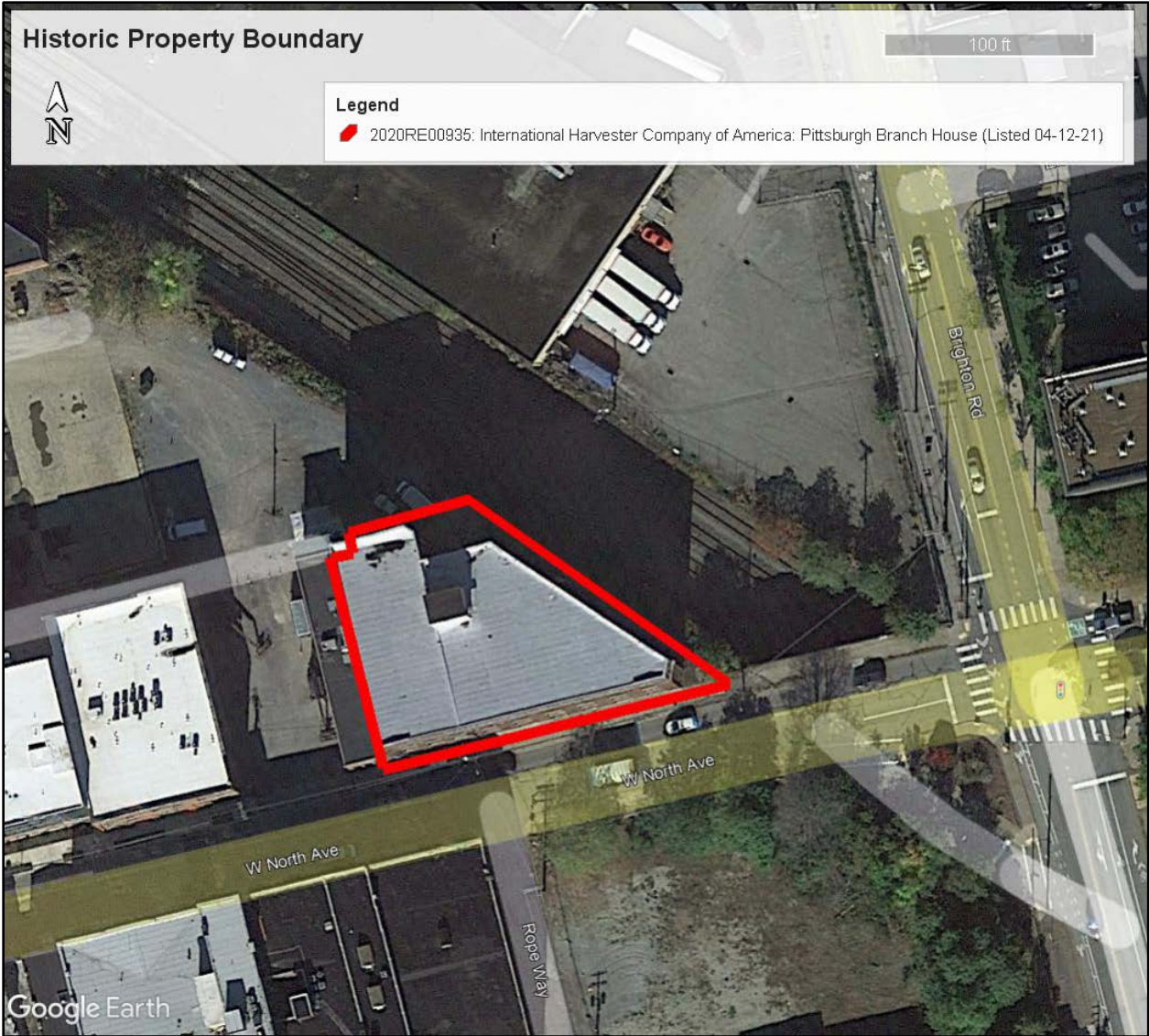


Figure 4-9: Historic property boundary for the International Harvester Building.

4.2 Efforts to Avoid or Minimize Adverse Effects

In an effort to avoid and minimize effects on historic properties, Alternative 2 with the design modification of raising the bridge height to achieve 21'-4" vertical clearance was chosen as the Preferred Alternative. The 21'-4" design modification has benefits in reducing potential effects on historic properties compared to Alternative 2 at 22'-0" vertical clearance. To aid in the assessment of visual effects of the Preferred Alternative, plan and profile views (Figure 4-10, Figure 4-11, Figure 4-12, and Figure 4-13), sections and elevations of a the proposed brick park wall reconstruction (Figure 4-14), a comparison of the existing conditions and renderings of the completed elevated street grades (Figure 4-15, Figure 4-16, Figure 4-17, Figure 4-18, Figure 4-19, Figure 4-20, Figure 4-21, Figure 4-22, Figure 4-23, Figure 4-24, Figure 4-25, Figure 4-26), and a section detail of the proposed sidewalk planters fronting 810-822 W. North Avenue (Figure 4-27) are provided on the following pages.

The Preferred Alternative activities that could affect historic properties include the replacement of the W. North Avenue Bridge superstructure; repairs to the substructure necessary to raise the bridge, increasing the vertical grade of the bridge approaches and sidewalks; side street adjustments to accommodate the roadway profile change; temporary construction impacts due to sidewalk replacement, driveway adjustments, and retaining wall and toe wall construction along several of the adjacent properties; permanent property acquisitions for embankment slopes in all four quadrants; and permanent property takes and temporary construction easements required for fill slopes in Allegheny Commons Historic District due to the bridge raising and construction.

The Preferred Alternative would require the removal of the entire existing superstructure and require the existing abutments to be modified in height and width to facilitate the new superstructure. The proposed superstructure would be a single-span prestressed concrete spread box beam bridge. The reinforced concrete deck would be 8" thick and would be supported by 33 concrete box beams measuring 48" wide and 30" deep. The box beams are flared, ranging in spacing from 6'-0" center to center at Abutment 2 to 7'-9 7/8" center to center at Abutment 1, with three beams along the centerline of bridge at 7'-9 7/8", as required by the configuration of roadway lanes on the bridge. Abutment 2 would be lengthened to correspond with the new superstructure plan-view configuration.

Roadway approach work along W. North Avenue would extend approximately 155' to the west and 240' to the east of the bridge. Roadway approach work along Brighton Road would extend approximately 210' to the south and 340' to the north of the bridge. Approach work would include roadway pavement and sidewalk reconstruction, including the construction of a retaining wall in the northwest quadrant and toe walls with pedestrian railings along Brighton Road. Due to the profile change, side street adjustments are required along Beech Avenue, Eloise Street, and the Buncher property driveway at 1201 Brighton Road. The W. North Avenue profile has a maximum 8.0 percent grade on the west approach to the intersection and 7.15 percent grade on the east approach, with points of reverse vertical curvature on either side tying into flatter slopes from the intersection. The Brighton Road profile has a maximum 6.8 percent grade on the south approach and a 6.0 percent grade on the north approach to the intersection, with each of these grades tying into points of reverse vertical curvature on the south and north ends further from the intersection with flatter grades. The Preferred Alternative would maintain the existing lane configuration and bike lanes; however, construction limits of the design modification would be reduced 25' on North Avenue and 15' on Brighton Road due to the lower vertical clearance over the railroad.

Property impacts under the design modification would include temporary construction impacts due to sidewalk replacement, driveway adjustments, and retaining wall and toe wall construction along several of the adjacent properties, along with permanent property acquisitions for embankment slopes in all four quadrants. Fill slopes in Allegheny

Commons Historic District due to the bridge raise and the bridge construction phase would require both permanent property takes and temporary construction easements. The permanent property impact in the park would be approximately 0.047 acre and the temporary impact would be 0.114 acre. Missing sections of the park brick wall the intersection of W. North Avenue and Brighton Road will be replaced in accordance with MOU Stipulation 3 (see chapter 4.4).

Sidewalk grades would follow the roadway profile except for the sidewalk segment fronting the International Harvester Building (810-822 W. North Avenue), which would have be narrowed and separated from the front of the building by a curb sidewalk east of the building's main entrance. The separated will minimize the amount of foundation wall and storefront windows obscured by the sidewalk grade change, as indicated in MOU Stipulation 1 (see chapter 4.4), and in Figure 4-14.

In accordance with DAT member feedback, planters are proposed in the plazas in the northwest, southwest, and southeast bridge quadrants. Planter size has been maximized to the greatest extent possible while maintaining required internal and external circulation path widths (Figure 4-10). Bridge concrete elements will be painted to match the color of the W. Ohio Street Bridge (sandstone/beige), and the W. North Avenue Bridge will be constructed in accordance with context-sensitive design elements contained in MOU Stipulation 2 (see chapter 4.4) and in its related attachment in Appendix E.

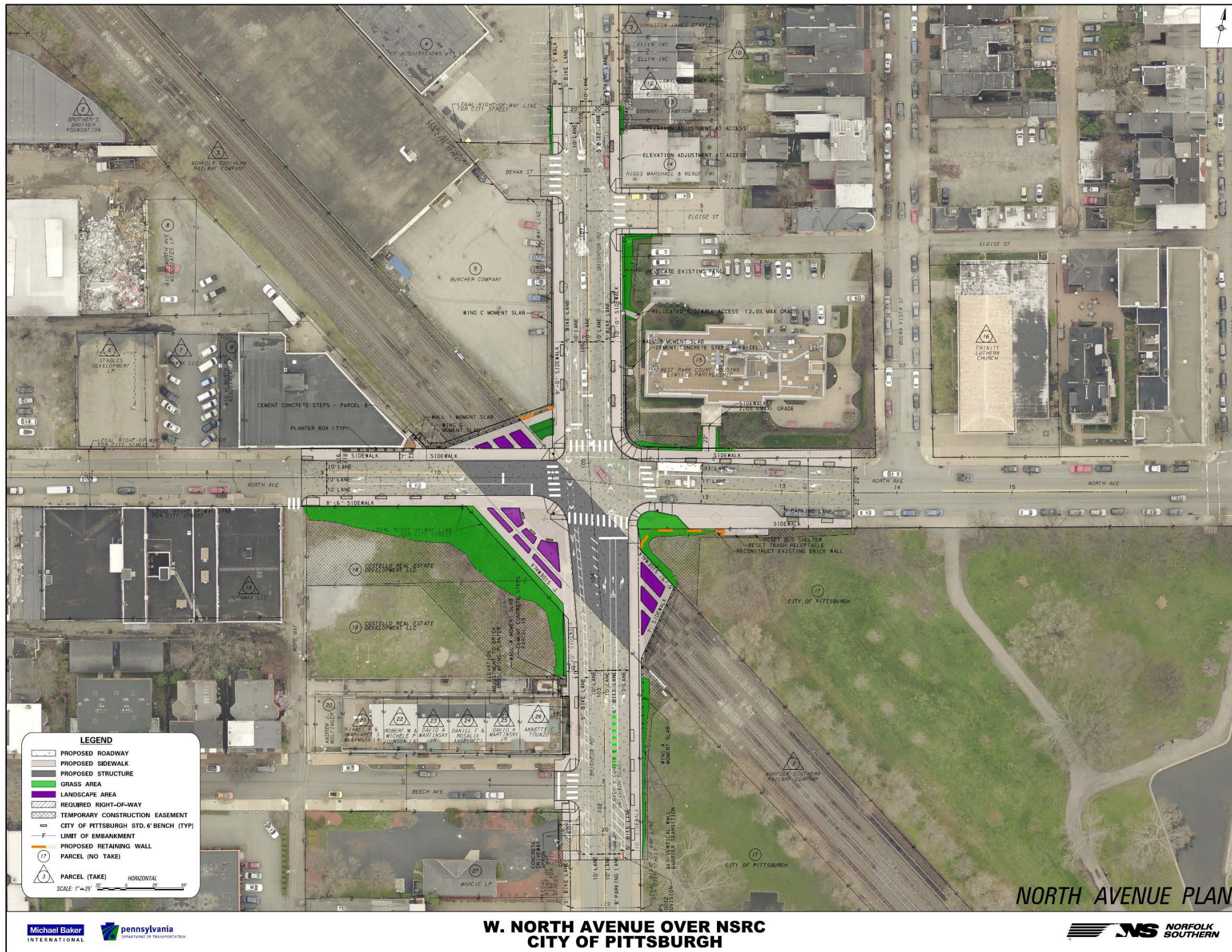


Figure 4-10: Updated plan view showing the proposed bridge structure and changes to the roadway and sidewalks.

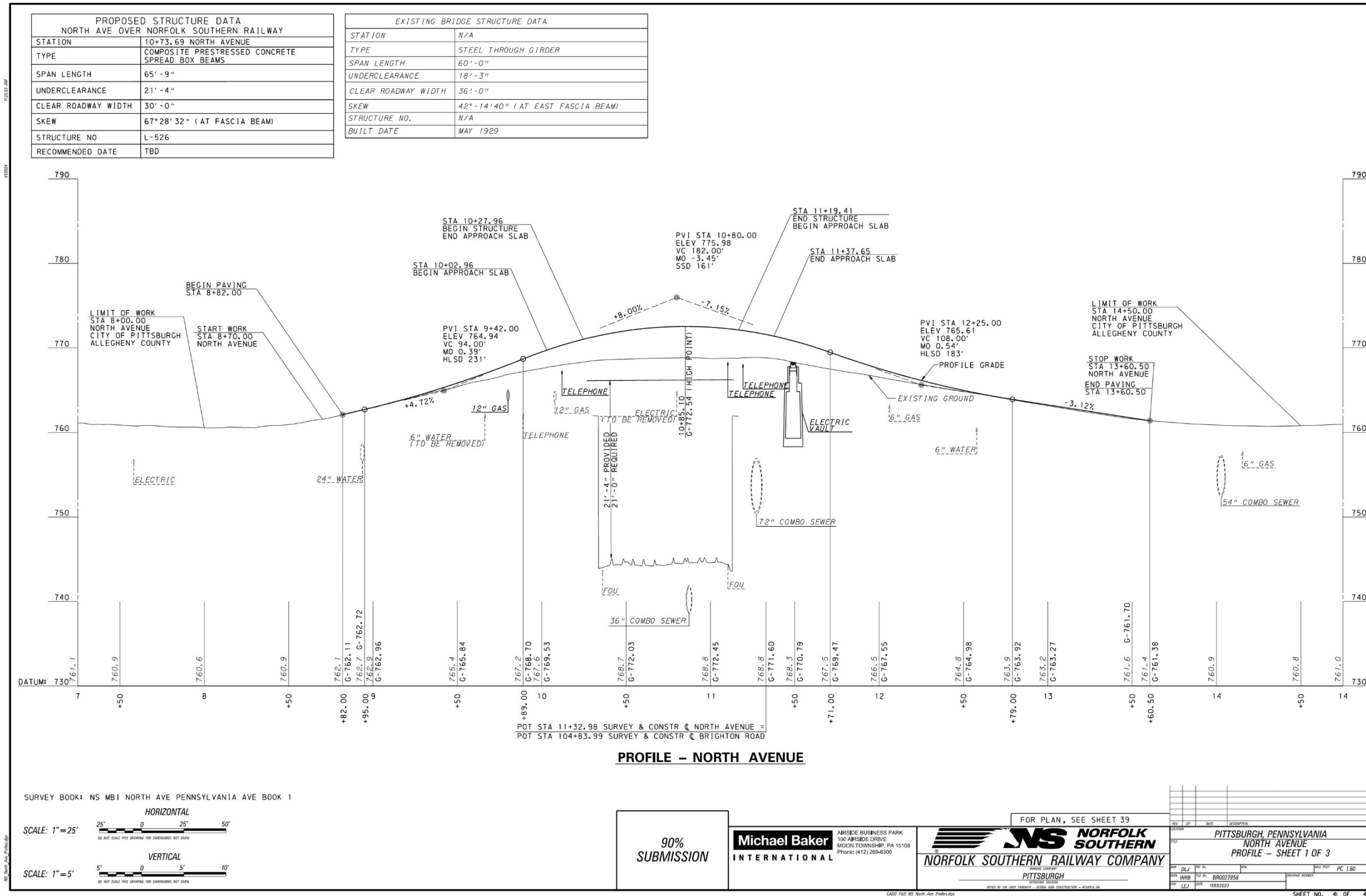


Figure 4-11: Profile view showing the proposed grade changes on W. North Avenue.

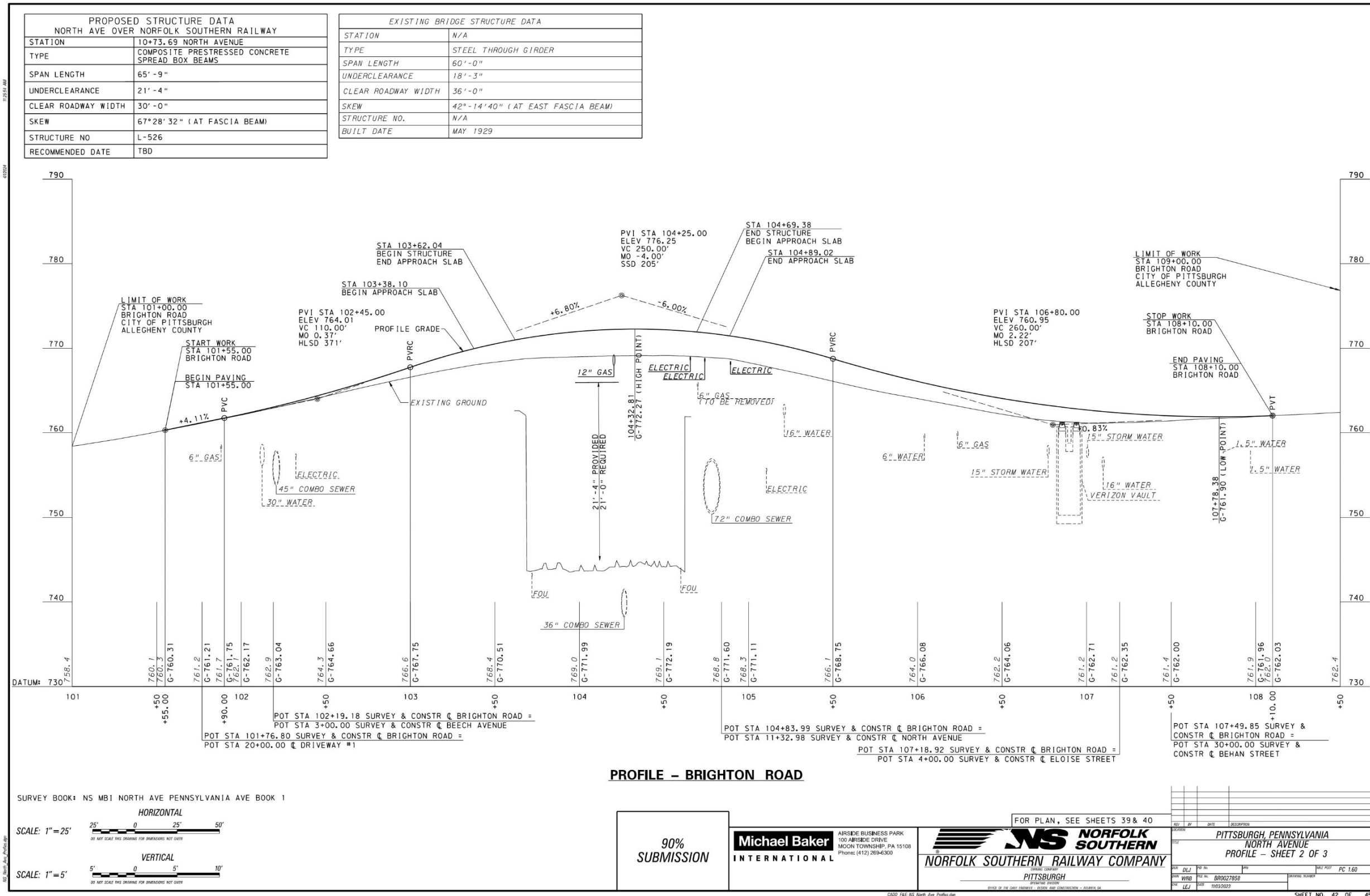


Figure 4-12: Profile view showing the proposed grade changes on Brighton Road.

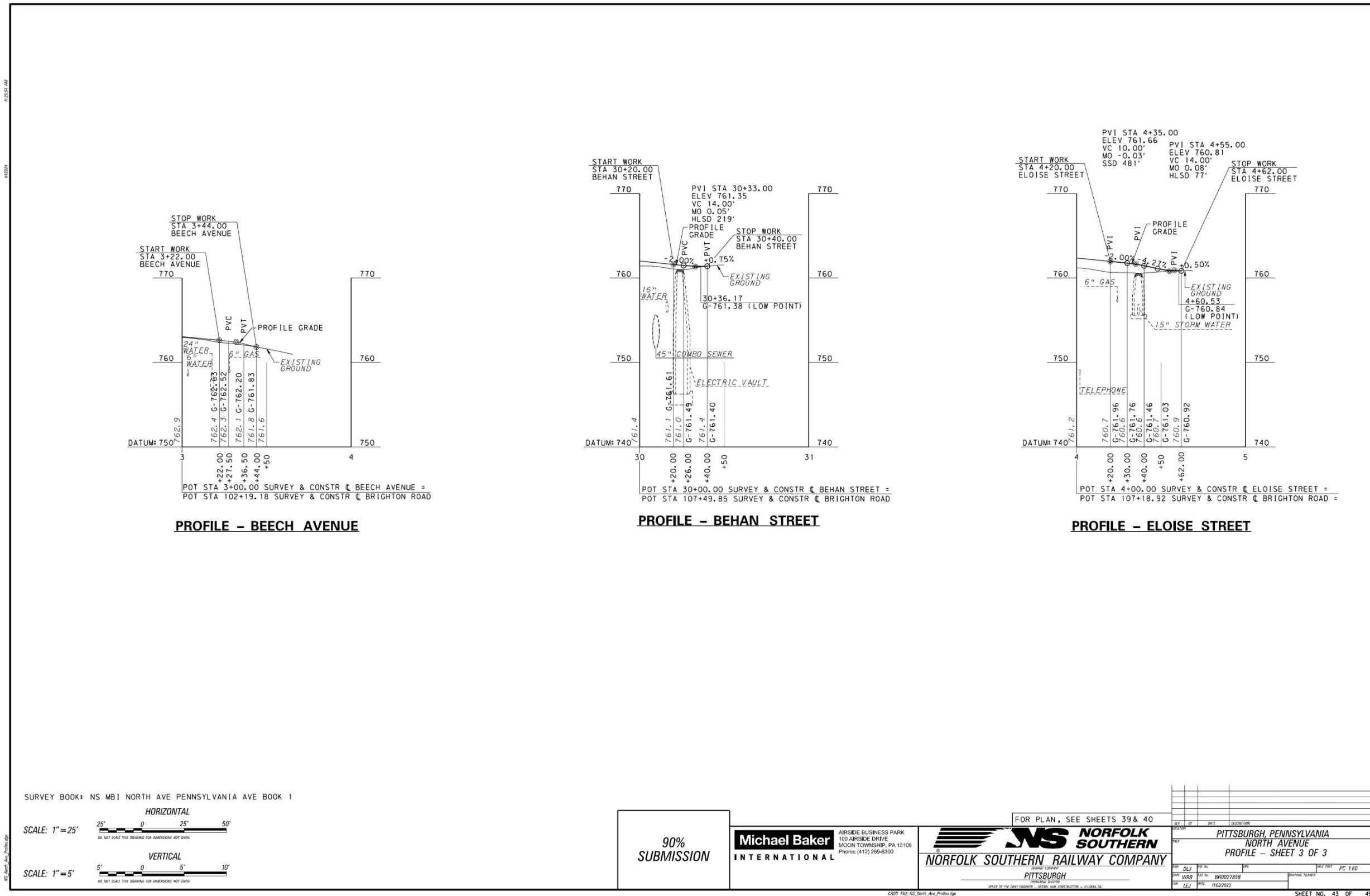


Figure 4-13: Profile view showing the proposed grade changes on Beech Avenue, Behan Street, and Eloise Street.

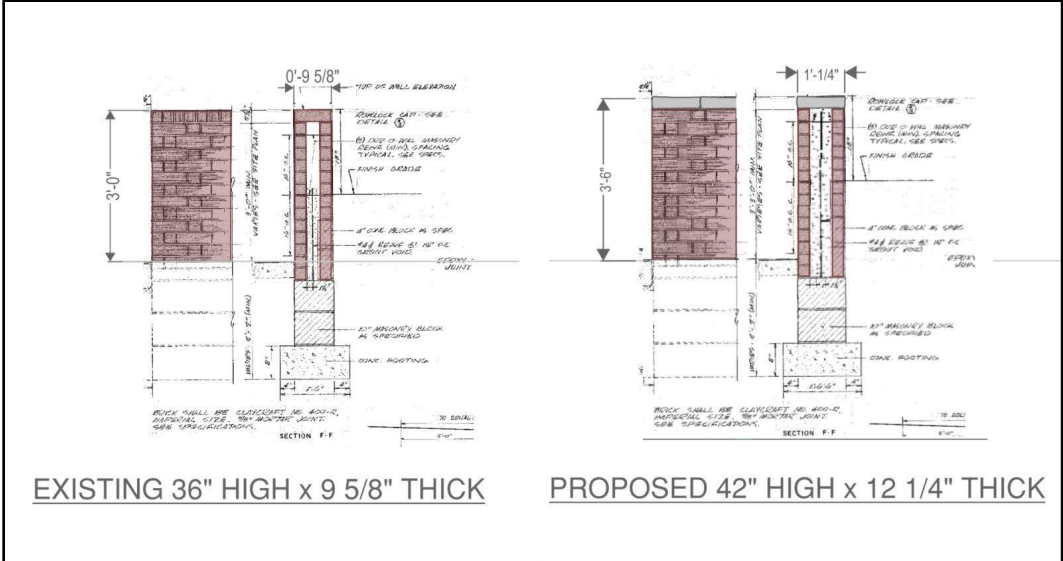


Figure 4-14: Comparison of existing and proposed elevation and section of Allegheny Commons brick wall to be reconstructed at the southeast quadrant of the Brighton Road/W. North Avenue intersection.



Figure 4-15: Photo of existing W. North Avenue Bridge from track edge, facing northwest.



Figure 4-16: Rendering of proposed W. North Avenue Bridge from track edge, facing northwest.



Figure 4-17: Photo of existing W. North Avenue Bridge from track edge, facing east.



Figure 4-18: Rendering of proposed W. North Avenue Bridge from track edge, facing east.



Figure 4-19: Photo of existing W. North Avenue Bridge from street level at the northeast corner of W. North Avenue and Brighton Road street level, facing southeast.



Figure 4-20: Rendering of proposed W. North Avenue Bridge from street level at the northeast corner of W. North Avenue and Brighton Road street level, facing southeast. Note addition of reconstructed brick wall.



Figure 4-21: Photo of existing W. North Avenue Bridge from the southwest corner of Brighton Road and Beech Avenue, facing north.



Figure 4-22: Rendering of proposed W. North Avenue Bridge from the southwest corner of Brighton Road and Beech Avenue, facing north. Note the reduced size of the safety barrier transition at right.



Figure 4-23: Photo of existing W. North Avenue Bridge from Brighton Road, facing southeast.

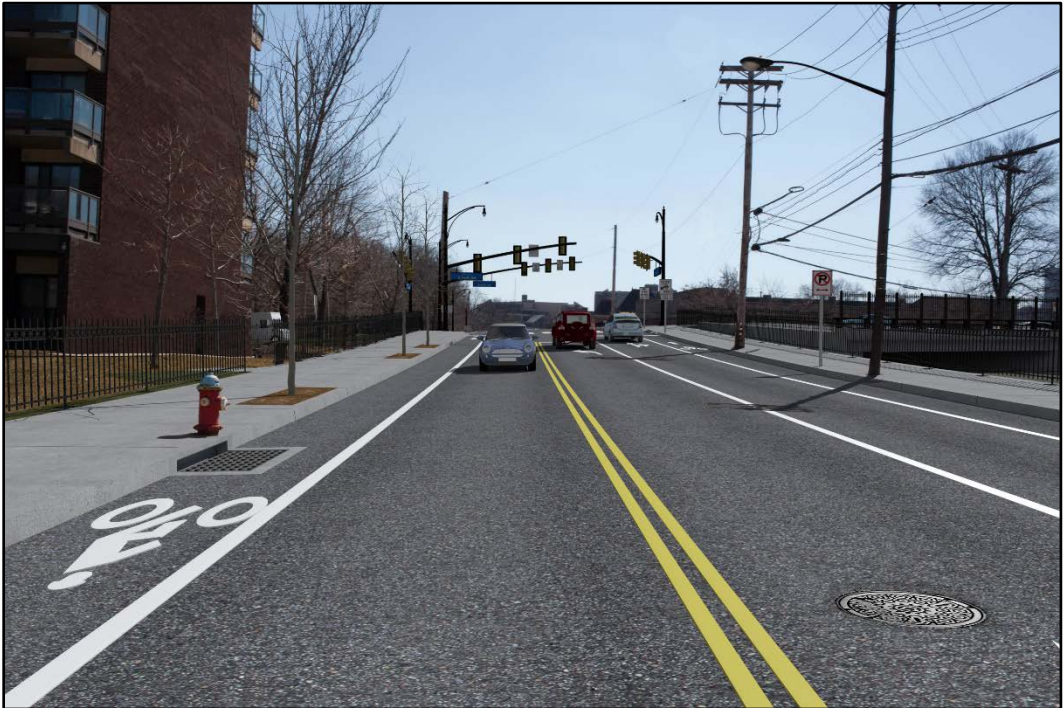


Figure 4-24: Rendering of proposed W. North Avenue Bridge from Brighton Road, facing southeast.



Figure 4-25: Photo of existing W. North Avenue Bridge from W. North Avenue Road, facing northeast.



Figure 4-26: Rendering of proposed grade-separated planters fronting the former International Harvester Building at 810-822 W. North Avenue, which is designed to minimize changes to the stone foundation and minimize the visual and physical effects of the sidewalk grade change on building's façade.

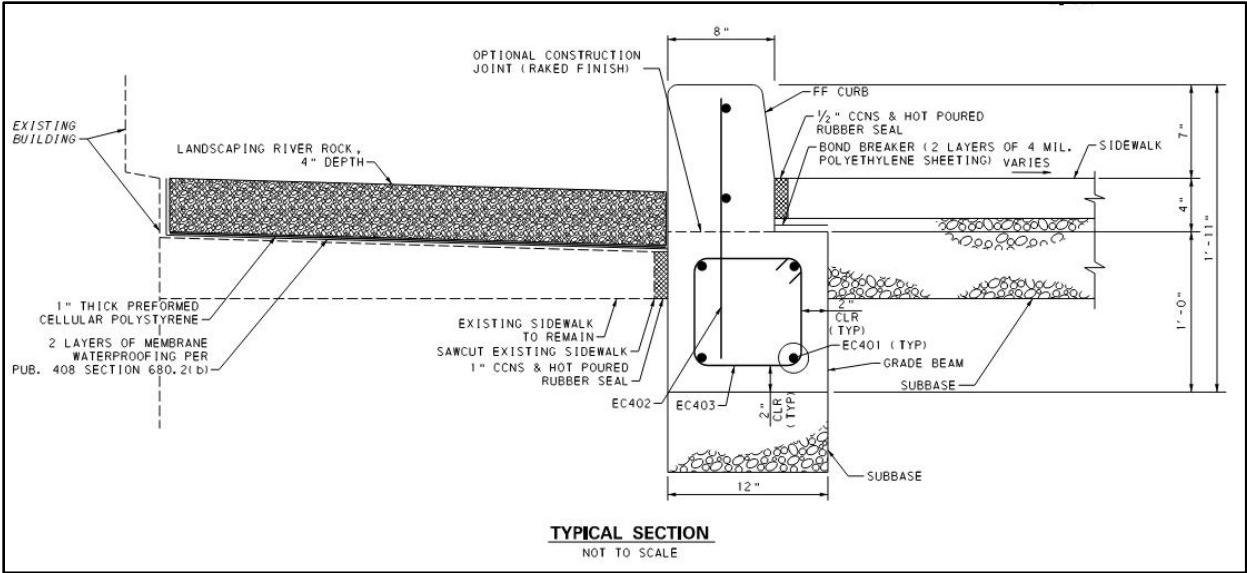


Figure 4-27: Typical section of proposed planter fronting 810-822 W. North Avenue, which will minimize the amount of the building foundation obscured by the sidewalk grade change. The planters will be maintained by the property owned and be an alternative to street trees at this location.

4.3 Application of Definition of Effect and Criteria of Adverse Effect

The following section describes how the proposed W. North Avenue Bridge Project would affect historic properties identified within the project’s APE in accordance with 36 C.F.R. § 800.5, “Assessment of Adverse Effects,” which outlines the procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), 54 U.S.C. Subtitle 3, Sec. 300101 et seq., (formerly 16 U.S.C.A. 470 et seq.) 54 U.S.C. § 306108. The Pennsylvania History Code and PennDOT guidance apply NHPA criteria to the assessment of effects on historic and cultural resources.

Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District

Relationship of Proposed Action to Historic Property and Assessment of Project Effect

The Preferred Alternative and design modification for the W. North Avenue Bridge Project would require the replacement of the bridge superstructure and repairs to its substructure to raise the bridge. The bridge is a contributing element of the NRHP-eligible Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The Preferred Alternative would also alter or remove portions of the concrete retaining walls with stone coping, decorative wrought-iron fencing, and standard railroad safety railing, which are contributing elements in this portion of the railroad corridor historic district. The potential to affect the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District is summarized in Table 4-1.

Table 4-1: Results of Effect Evaluation for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) is eligible for listing in the NRHP under Criteria A and C as a railroad corridor historic district. The Preferred Alternative has the potential to affect the historic property by removing the W. North Avenue Bridge, a contributing element of the historic district and replacing it with a modern bridge, as well as altering or removing other contributing elements of the historic district.
FINDING:	<i>Historic Properties Affected</i>

Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District.

The Preferred Alternative would adversely affect the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The alternative would require the replacement of the W. North Avenue Bridge superstructure and repairs to the substructure necessary to raise the bridge. The W. North Avenue Bridge is a contributing element of the NRHP-eligible railroad corridor historic district, and its removal would adversely affect the characteristics of the historic district that qualify it for NRHP eligibility. The existing through-girder superstructure would be replaced with a single-span prestressed concrete spread box beam bridge and would result in a substantial visual change within the railroad corridor historic district. The expanded footprint of the bridge to the southeast and northwest would alter

and obscure the concrete retaining walls with stone coping, remove portions of the standard railroad safety railings north of the bridge, and remove portions of the decorative wrought-iron fencing south of the bridge in this grade depressed section of the corridor. All of these elements contribute to the railroad corridor historic district and their removal would affect the characteristics of the historic district that qualify it for NRHP eligibility. A permanent easement of 0.082 acre is required from the railroad property for bridge widening.

To further address the effect on the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District, Table 4-2 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).

Table 4-2: Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	The Preferred Alternative will result in the physical destruction or damage to the historic property by demolishing and replacing the W. North Avenue Bridge and requiring alterations/removal of other contributing elements such as the concrete and stone retaining walls, decorative wrought iron fencing, and standard railroad safety fencing.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would require alterations that are not in keeping with the Secretary's Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines. However, context-sensitive design measures indicated in Appendix E – Attachment 2 will be utilized for the replacement bridge design.
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the railroad corridor historic district from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property's use; the project would allow for the continued use of the historic property. The project would, however, affect

Table 4-2: Application of the Criteria of Adverse Effect for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	
	features that contribute to the property’s significance; the W. North Avenue Bridge is a contributing element of the historic district, as are the concrete and stone retaining walls, the decorative wrought-iron fencing, and the standard railroad safety fencing.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features;	The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the railroad corridor historic district’s character-defining features. As detailed in Chapter 1.5, the project would have no indirect or cumulative effects on the railroad, as it would slightly decrease train traffic for the 2045 design year when compared with the No Build condition for 2045. Thus, the undertaking would cause no foreseeable degradation of character-defining features of the railroad corridor historic district. However, replacement of the W. North Avenue Bridge would result in a substantial visual change within the railroad corridor historic district.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance.	The property is not under Federal ownership or control.
OTHER:	
FINDING: The W. North Avenue Bridge Project results in a finding of <i>Historic Properties Adversely Affected</i> for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District under the Preferred Alternative .	

Allegheny Commons Historic District

Relationship of Proposed Action to Historic Property and Assessment of Project Effects

The Preferred Alternative for the W. North Avenue Bridge Project would require replacement of the bridge superstructure and repairs to its substructure to raise the bridge. To accommodate the raised bridge elevation, roadway approach work along W. North Avenue would extend approximately 155’ to the west and 240’ to the east of the bridge. Roadway approach work along Brighton Road would extend approximately 210’ to the south and 340’ to the north of the bridge.

Determination of Effects Addendum Report:

Approach work would include roadway pavement and sidewalk reconstruction, including the construction of a retaining wall in the northwest quadrant and toe walls with pedestrian railings along Brighton Road. Due to the profile change, side street adjustments are required along Beech Avenue, Eloise Street, and the Buncher property driveway at 1201 Brighton Road.

The Preferred Alternative has the potential to affect the NRHP-listed Allegheny Commons Historic District. The proposed vertical alignment adjustment in the 700 block of W. North Avenue and in the 900 and 1000 blocks of Brighton Road would require temporary construction impacts due to sidewalk replacement and toe wall construction, and permanent property acquisitions for fill slopes along a small portion of the historic district’s north and west boundaries. The permanent property impact in the park would be approximately 0.047 acre and the temporary impact in the park would be 0.114 acre. The replacement W. North Avenue Bridge would incorporate a triangular concrete covering over the railroad corridor extending approximately 35’ east of the current outside edge of the present bridge and within the historic district. This area will contain planters, as previously shown in Figure 4-10. The existing bus shelter in the 700 block of W. North Avenue would be grade adjusted, and the existing brick wall along south side of W. North Avenue (including sections presently missing) would be reconstructed using a concrete core wall with matching brick cladding, as illustrated in Figure 4-14 and Figure 4-20 and described in the minimization specification contained in Appendix E – Attachment 3. The existing retaining wall and low fence along the east side of Brighton Road would be replaced with a new retaining wall and low fence. The potential to affect the Allegheny Commons Historic District is summarized in Table 4-3.

Table 4-3: Results of Effect Evaluation for the Allegheny Commons Historic District	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The Allegheny Commons Historic District is eligible for listing in the NRHP under Criteria A and C. The Preferred Alternative has the potential to affect the historic property by requiring minimal temporary and permanent right-of-way and by introducing new visual elements, such as the new W. North Avenue Bridge, elevated street and sidewalk grades along W. North Avenue and Brighton Road, the removal of a low fence and wall along the north side of the historic district, and the replacement of a low fence along the west side of the historic district.
FINDING:	<i>Historic Properties Affected</i>

Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District

To further address the potential effects on the Allegheny Commons Historic District as indicated above, Table 4-4 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).

Table 4-4: Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District	
<p>Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.</p>	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	The Preferred Alternative would not result in the physical destruction or damage to the historic property. Temporary construction impacts due to sidewalk replacement and toe wall construction, and permanent property acquisitions for fill slopes will be required along a small portion of the historic district’s north and west boundaries. The permanent property impact in the park would be approximately 0.047 acre and the temporary impact in the park would be 0.114 acre.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would raise the street and sidewalk along the northwest corner of the historic district. All sidewalks and fences/handrails would meet applicable ADA design standards and will be executed in accordance with the SOI Standards.
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the historic district from its historic location.
(iv) Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property’s use. The new W. North Avenue Bridge would not affect features that contribute to the district’s significance; the W. North Avenue Bridge and the existing modern streetscape elements do not contribute to the property’s setting.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features;	The replacement W. North Avenue Bridge would incorporate a triangular concrete covering over the railroad corridor extending approximately 35’ east of the current outside edge of the present bridge and within the historic district. The visual effects of this concrete plaza would be mitigated by the installation of planters. The new and reconstructed sections of park brick fence wall will

Table 4-4: Application of the Criteria of Adverse Effect for the Allegheny Commons Historic District	
	follow SOI Standards, as indicated in Appendix E – Attachment 3. The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the historic district’s character-defining features. The new W. North Avenue Bridge and the raising of the street and sidewalk grade would not result in a substantial visual change within the viewshed of the historic district.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance.	The property is not under Federal ownership or control.
OTHER:	
FINDING: The W. North Avenue Bridge Project results in a finding of <i>No Historic Properties Adversely Affected</i> for the Allegheny Commons Historic District under the Preferred Alternative .	

Allegheny Second Ward Industrial Historic District

Relationship of Proposed Action to Historic Property and Assessment of Project Effects

The Preferred Alternative for the W. North Avenue Bridge Project would require replacement of the bridge superstructure and repairs to its substructure to raise the bridge. To accommodate the raised bridge elevation, roadway approach work along W. North Avenue would extend approximately 155’ to the west and 240’ to the east of the bridge. Roadway approach work along Brighton Road would extend approximately 210’ to the south and 340’ to the north of the bridge. Approach work would include roadway pavement and sidewalk reconstruction, including the construction of a retaining wall in the northwest quadrant and toe walls with pedestrian railings along Brighton Road. Due to the profile change, side street adjustments are required along Beech Avenue, Eloise Street, and the non-contributing Buncher property driveway at 1201 Brighton Road. Permanent easements required for three properties in the Allegheny Second Ward Industrial Historic District total 0.052 acre, including 0.035 acre from the railroad property for bridge widening, 0.016 acre from the Buncher Company parcel (non-contributing to the district) for sidewalk and retaining wall construction, and 0.001 acre from the International Harvester Building property for the construction of a moment-slab retaining wall.

The Preferred Alternative has the potential to affect the NRHP-eligible Allegheny Second Ward Industrial Historic District. Activities within the district would include approximately 155’ of roadway approach work within the 800 block of W. North Avenue, a vertical alignment adjustment to Rope Way to accommodate the raised profile adjustment to W. North Avenue,

roadway pavement and sidewalk reconstruction, and the construction of a fill slope and a retaining wall, both with pedestrian railings. The proposed vertical alignment adjustment in the 800 block of W. North Avenue would increase the profile grade to a maximum of 8.0 percent. Sidewalk grades would follow the roadway profile except for the sidewalk segment fronting the International Harvester Building, a contributing element of the historic district, which would be narrowed and separated from the front of the building by a curb east of the building's main entrance. The sidewalk separation would avoid the obscuring of storefront windows, and planters will minimize the visibility of the concrete curb associated with the sidewalk separation (Figure 4-26, Figure 4-27, Figure 4-28, Figure 4-29, and Figure 4-30). To the west of the door, the change in sidewalk grade would obscure a maximum of 4" of the building's stone foundation. Concrete stairs would be constructed to access the existing walkway along the building's northeast façade, and a 27' retaining wall with a protective fence would be constructed along W. North Avenue between the stairs and the new bridge. The former Hipwell Manufacturing Company complex consists of five separate buildings, all of which contribute to the historic district. The proposed vertical alignment adjustment in the 800 block of W. North Avenue would only affect the easternmost Hipwell building (825-829 W. North Avenue) where the profile of an approximately 25' segment of sidewalk would be raised to accommodate the new profile of W. North Avenue. The two additional contributing buildings located in the APE on W. North Avenue, the Katsafanas Coffee Company Building (828 W. North Avenue) and the Allegheny City Stables Building (840 W. North Avenue), would not be directly affected by project activities. The six additional contributing buildings in the APE on Brighton Road, the Veech/Union Hotel (1206-1208 Brighton Road) and five rowhouses (1210-1218 Brighton Road), would not be directly affected by the project. The potential to affect the Allegheny Second Ward Industrial Historic District is summarized in Table 4-5.



Figure 4-28: View of the International Harvester Building in 1904 showing the limestone foundation/water table and first floor windowsills prior to the grade separation of W. North Avenue and the rail corridor that occurred ca. 1906.

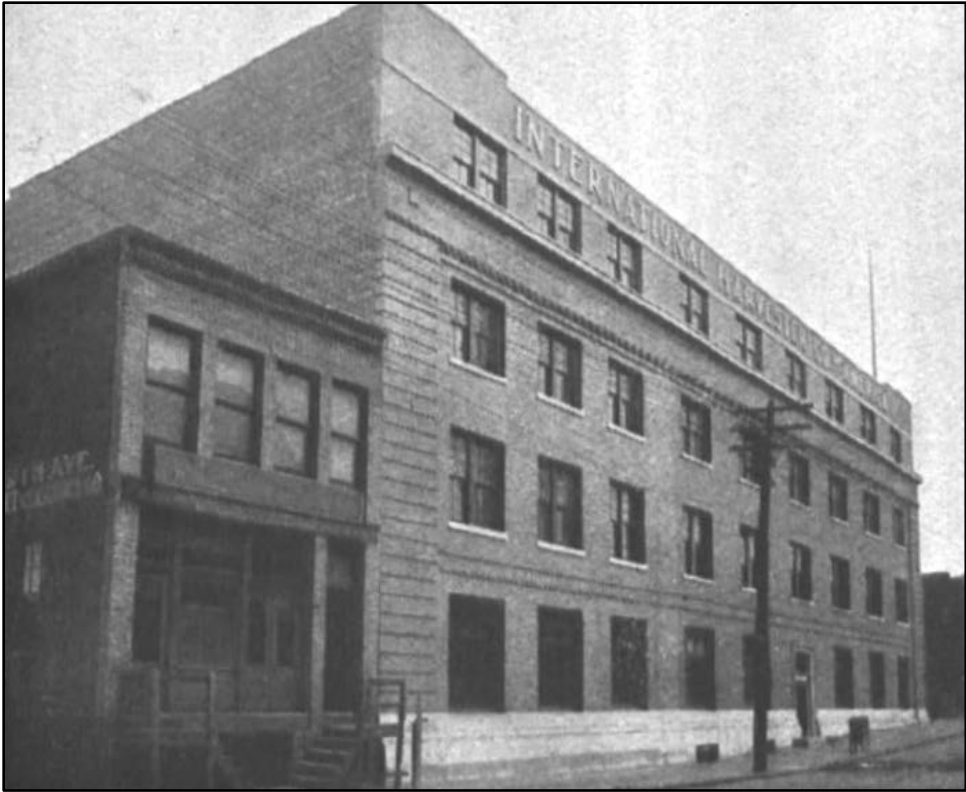


Figure 4-29: View of the International Harvester Building in 1913 showing the limestone foundation/water table and first floor windowsills prior to alterations from street grade changes ca. 1929 and again in the 1940s.



Figure 4-30: Current view of the International Harvester Building showing the stepped limestone foundation/water table and first floor windowsills of the three easternmost first-floor display windows after alterations from street grade changes ca. 1929 and again in the 1940s.

Table 4-5: Results of Effect Evaluation for the Allegheny Second Ward Industrial Historic District	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The Allegheny Second Ward Industrial Historic District is eligible for listing in the NRHP under Criteria A and C. The Preferred Alternative has the potential to affect the historic property by introducing new visual elements, such as the new W. North Avenue Bridge, elevated street and sidewalk grades along W. North Avenue, and a grade-separated planters along one of the district’s contributing buildings, the International Harvester Building, at 810-822 W. North Avenue.
FINDING:	<i>Historic Properties Affected</i>

Application of the Criteria of Adverse Effect for the Allegheny Second Ward Industrial Historic District

To further address the potential effects on the Allegheny Second Ward Industrial Historic District as indicated above, Table 4-6 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).

Table 4-6: Application of the Criteria of Adverse Effect for the Allegheny Second Ward Industrial Historic District	
Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	While the Preferred Alternative would require the construction of a raised sidewalk profile (4” maximum) west of the International Harvester Building’s main entrance and grade-separated planters east of its main entrance, which would both obscure a small portion of the stone water table, the sidewalk

Table 4-6: Application of the Criteria of Adverse Effect for the Allegheny Second Ward Industrial Historic District	
	separation would avoid damaging and reducing the size of the storefront window openings.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would raise the street and sidewalk along the International Harvester Building, a contributing element of the historic district, for a distance of approximately 90'. Minimization measures include the use of grade-separated planters east of the building's main entrance to avoid alteration of the storefront window openings and minimize the visual intrusiveness of the sidewalk separation. The amount of the building's stone foundation obscured by the sidewalk grade change west of the entrance is minimal (maximum 4").
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the property from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property's use. The project would not affect features that contribute to the property's significance; the W. North Avenue Bridge and the existing modern streetscape elements do not contribute to the property's setting.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;	The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the historic property's character-defining features. The visual effects of the project on the historic property will be minor. The new W. North Avenue Bridge, the raising of the street and sidewalk grade, the construction of grade-separated sidewalk planters, and the alteration of recent landscape elements would not result in a substantial visual change within the viewshed of the historic property.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	The property is not under Federal ownership or control.
OTHER:	

Table 4-6: Application of the Criteria of Adverse Effect for the Allegheny Second Ward Industrial Historic District
FINDING: The W. North Avenue Bridge Project results in a finding of <i>No Historic Properties Adversely Affected</i> for the Allegheny Second Ward Industrial Historic District under the Preferred Alternative .

International Harvester Company of America: Pittsburgh Branch House

Relationship of Proposed Action to Historic Property and Assessment of Project Effects

The Preferred Alternative for the W. North Avenue Bridge Project would require replacement of the bridge superstructure and repairs to its substructure to raise the bridge. To accommodate the raised bridge elevation, roadway approach work along W. North Avenue would extend approximately 155' to the west and 240' to the east of the bridge. Approach work would include roadway pavement and sidewalk reconstruction, including the construction of a retaining wall in the northwest quadrant.

The Preferred Alternative has the potential to affect the NRHP-listed International Harvester Building as noted in the above assessment of the Allegheny Second Ward Industrial Historic District. The building would be directly affected by raising of the sidewalk a maximum of 4" west of the main entrance, the construction of grade-separated planters east of the main entrance, and the construction of a concrete stair to access an existing walkway along the building's northeast facade. The potential to affect the International Harvester Building is summarized in Table 4-7.

Table 4-7: Results of Effect Evaluation for the International Harvester Building	
DEFINITION OF EFFECT	EVALUATION (Preferred Alternative)
An effect may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP as defined in Section 800.16(i).	The International Harvester Building is eligible for listing in the NRHP under Criteria A, B, and C. The Preferred Alternative has the potential to affect the historic property by introducing new visual elements, such as the new W. North Avenue Bridge, elevated street grade, elevated sidewalk grade west of the building's entrance, a narrowed sidewalk and grade-separated planters east of the building's main entrance, and a new concrete stair along the building's northeast façade.
FINDING:	<i>Historic Properties Affected</i>

Application of the Criteria of Adverse Effect for the International Harvester Building

The Preferred Alternative would require a vertical alignment adjustment in the 800 block of W. North Avenue that would increase the profile grade to a maximum of 8.0 percent. Sidewalk grades would follow the roadway profile except for the sidewalk segment east of the main entrance of the International Harvester Building, which would have a narrowed sidewalk with grade-separated planters located long the building foundation. To the west of the entrance, the sidewalk grade change would obscure the building's stone foundation a maximum of 4". Concrete stairs would be constructed to

access the existing walkway along the building’s northeast façade, and a 27’ retaining wall with a protective fence would be constructed along W. North Avenue between the stairs and the new bridge. A permanent easement of 0.001 acre is required from the International Harvester Building property for the construction of the moment-slab retaining wall.

To further address the potential effects on the International Harvester Building as indicated above, Table 4-8 applies the Criteria of Adverse Effect to the historic property in accordance with 36 CFR 800.5(a)(1).

Table 4-8: Application of the Criteria of Adverse Effect for the International Harvester Building	
<p>Criteria of Adverse Effect: An adverse effect is found when an undertaking may alter, directly or indirectly, any characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.</p>	
Examples of Adverse Effects, pursuant to Section 800.5(a)(2)	Evaluation
Adverse effects on historic properties include, but are not limited to:	
(i) Physical destruction of or damage to all or part of the property;	While the Preferred Alternative would require the construction of a raised sidewalk profile (4” maximum) west of the International Harvester Building’s main entrance and grade-separated planters east of its main entrance, which would both obscure a small portion of the stone foundation, the sidewalk separation would avoid damaging and reducing the size of the storefront window openings.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR§68) and applicable guidelines;	The Preferred Alternative would raise the street and sidewalk along the International Harvester Building for a distance of approximately 90’. Minimization measures include the use of grade-separated planters east of the building’s main entrance to avoid alteration of the storefront window openings and minimize the visual intrusiveness of the sidewalk separation. The amount of the building’s stone foundation obscured by the sidewalk grade change west of the entrance is minimal (maximum 4”).
(iii) Removal of the property from its historic location;	The Preferred Alternative would not result in the removal of the property from its historic location.

Table 4-8: Application of the Criteria of Adverse Effect for the International Harvester Building	
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The Preferred Alternative would not change the historic property's use. The project would not affect features that contribute to the property's significance; the W. North Avenue Bridge and the existing modern streetscape elements do not contribute to the property's setting. Construction of stairs and a retaining wall with fence northeast of the building would not affect the integrity of features that contribute to the property's setting.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;	The Preferred Alternative would not introduce atmospheric or audible elements that diminish the integrity of the historic property's character-defining features. The visual effects of the project on the historic property will be minor. The new W. North Avenue Bridge, the raising of the street and sidewalk grade, the construction of grade-separated sidewalk planters, and the alteration of recent landscape elements would not result in a substantial visual change within the viewshed of the historic property. The amount of the building's foundation obscured by the sidewalk grade change will be minimal (4").
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	The Preferred Alternative would not cause neglect of the property resulting in its deterioration.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	The property is not under Federal ownership or control.
OTHER:	
FINDING: The W. North Avenue Bridge Project results in a finding of <i>No Historic Properties Adversely Affected</i> for the International Harvester Building under the Preferred Alternative .	

4.4 Proposed Minimization and Mitigation Stipulations for the Memorandum of Understanding

The following proposed stipulations to minimize effects on the International Harvester Company of America: Pittsburgh Branch House, Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District, and Allegheny Commons Historic District are to be included in the project's forthcoming MOU:

1. The sidewalk fronting the International Harvester Company of America: Pittsburgh Branch House will be narrowed and separated from the front of the building by a curb to avoid obscuring any of the first-floor display windows, and planter boxes will be placed in front of the display windows in accordance with Sheet 1 of the North Avenue Plan Sheet 100-Percent Submission and Sheet 1 of the North Avenue Typical Sections 100-Percent Submission (see Appendix E - Attachment 1);
2. Replacement of the W. North Avenue Bridge will be completed in accordance with the DAT-approved, context-sensitive design elements contained in the 100-Percent Plans for the bridge, associated walls and barriers, on-structure and off-structure planters, and benches (see Appendix E - Attachment 2); and
3. Replacement of the missing brick garden wall along W. North Avenue and Brighton Road between the sidewalk and Allegheny Commons Historic District will be completed in accordance with the SOI Standards and as detailed in Project Specifications: Reconstruction of Missing Brick Garden Wall in Allegheny Commons Historic District (see Appendix E - Attachment 3).

The following proposed stipulation to mitigate effects on the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District is to be included in the project's forthcoming MOU:

- Norfolk Southern will complete the following mitigation actions, which have been reviewed by PHMC and consulting parties to this agreement:

Repair and paint the wrought-iron fencing along the south side of the rail corridor within Allegheny Commons Historic District from W. North Avenue to the Allegheny Commons Pedestrian Bridge in accordance with the SOI Standards and as detailed in Project Specifications: Decorative Fence Repair and Painting (see Appendix E - Attachment 5).

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5.0 Conclusion

This Determination of Effects Addendum Report describes the evaluation of potential effects of two of the proposed Pittsburgh Vertical Clearance Projects, located in the City of Pittsburgh, Allegheny County, on historic properties located within the project APE.

Application of the Definition of Effect and Criteria of Adverse Effect resulted in the overall finding that the proposed undertakings will have an **ADVERSE EFFECT** on historic properties because of the direct physical effects to the Pennsylvania Railroad Main Line (Pittsburgh to Ohio State Line) by removing a contributing element, the W. North Avenue Bridge (Table 5-1). Measures to mitigate the adverse effects of this project will be identified in consultation with the PA SHPO and the consulting parties. The agreed upon mitigation measures for the undertaking will be included in a memorandum of understanding between PennDOT, PA SHPO, and Norfolk Southern.

Table 5-1: Summary of Project Effects	
HISTORIC PROPERTY NAME	EFFECT FINDING
Allegheny Commons Bridge Project	
Allegheny Commons Historic District	No Adverse Effect
Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	No Adverse Effect
W. North Avenue Project	
Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District	Adverse Effect
Allegheny Commons Historic District	No Adverse Effect
Allegheny Second Ward Industrial Historic District	No Adverse Effect
International Harvester Building	No Adverse Effect
FINDING:	The Pittsburgh Vertical Clearance Projects result in a finding of Historic Properties Adversely Affected for the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) under the Preferred Alternatives .

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6.0 References

Bamberg, Angelique

2013 *Allegheny Commons, Pittsburgh, Pennsylvania*. National Register of Historic Places Registration Form. Clio Consulting, Inc. United States Department of the Interior, National Park Service, Washington D.C.

Barrett, Brenda

1993 Letter to David J. Sands, Consolidated Rail Corporation, from Brenda Barrett, Director, Pennsylvania Historical & Museum Commission, Bureau for Historic Preservation (PHMC-BHP), regarding Pennsylvania Double-Stack Clearance Improvement Project, ER# 93-4041-042. Letter on file at PHMC-BHP, Harrisburg, Pennsylvania.

Federal Highway Administration (FHWA)

2009 Congestion Mitigation and Air Quality Improvement (CMAQ) Program. Electronic document, accessed 05 July 2022,
https://www.fhwa.dot.gov/ENVIRONMENT/air_quality/cmaq/reference/intermodal_freight_transportation/index.cfm

Google Earth

2023 Aerial mapping in vicinity of Brighton Road and W. North Avenue, Pittsburgh, Pennsylvania. Image date August 18.

Michael Baker International, Inc.

2018 *PA SHPO Project Review Form and Determination of Area of Potential Effects, Identification of Previously Recorded Historic Resources, Identification of Historic-age Resources for Nine Rail Transportation Undertakings, Pittsburgh Vertical Clearance Projects*. Prepared for Norfolk Southern Railway Company and Pennsylvania Department of Transportation.

2019 *Identification of Historic Properties Report*. Prepared for Norfolk Southern Railway Company and Pennsylvania Department of Transportation.

2022 *Determination of Effects Report, Pittsburgh Vertical Clearance Projects*. Prepared for Norfolk Southern Railway Company, December 2022.

2024 *Alternatives Analysis, Pittsburgh Vertical Clearance Projects*. Prepared for Norfolk Southern Railway Company and Pennsylvania Department of Transportation.

Pennsylvania Department of Transportation (PennDOT)

2003 *Pennsylvania State Rail Plan*. Pennsylvania Department of Transportation, Harrisburg, Pennsylvania.

2010 *Pennsylvania Intercity Passenger and Freight Rail Plan*. Pennsylvania Department of Transportation, Harrisburg, Pennsylvania. Electronic document, accessed 5 July 2022,
<https://www.dot.state.pa.us/public/bureaus/railfreight/PARailPlanAppend2/PARailPlanlowres.pdf>

2016 *2015 Pennsylvania State Rail Plan*. Pennsylvania Department of Transportation, Harrisburg, Pennsylvania. Electronic document, accessed 5 July 2022, [https://www.penndot.pa.gov/Doing-Business/Transit/InformationandReports/Documents/2015%20Pennsylvania%20State%20Rail%20Plan%20\(low\).pdf](https://www.penndot.pa.gov/Doing-Business/Transit/InformationandReports/Documents/2015%20Pennsylvania%20State%20Rail%20Plan%20(low).pdf)

Determination of Effects Addendum Report:

Norfolk Southern Railway Company, Pittsburgh Vertical Clearance Projects

Slack, Jeff

2020 *International Harvester Company of America, Pittsburgh Branch House, Pittsburgh, Pennsylvania*. National Register of Historic Places Registration Form. Time & Place LLC. United States Department of the Interior, National Park Service, Washington D.C.

United States Department of Transportation (USDOT)

2006 *The Strategic Multimodal Analysis, Task 3: Chicago-New York City Corridor Analysis, Final Report*. U.S. Department of Transportation, Washington, D.C. Electronic Document accessed 05 July 2022, https://www.fhwa.dot.gov/policy/otps/sma/sma_report.pdf

Appendix A
Agency Coordination

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

December 13, 2022

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
Moon Township, PA 151080000

RE: ER Project # 2018PR13984.021, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE
Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Mr. Zinn,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Project Description

The project addresses five obstructions limiting vertical clearance of double-stack rail traffic. The purpose of the Pittsburgh Vertical Clearance Projects is to enhance the existing rail infrastructure on the main line through Pittsburgh and in southwest Pennsylvania in order to provide more efficient movement of freight from New York/New Jersey to Chicago and specifically through Pennsylvania.

Overall Project Comments

We require more information to complete our review of the Determination of Effects Report. We may have additional questions following the December 14, 2022 consulting party meeting. The comments of PA SHPO should be considered alongside those raised by other consulting parties for the project. Please forward other consulting party comments on the report as they are received for our consideration. Please submit the comments and revised report in response to the More Information Request via PA-SHARE.

Review Period

According to the PennDOT Cultural Resources Handbook (Publication No. 689), the consulting parties have 30 days to comment on a PennDOT/FHWA finding that a project has an effect on historic properties. The over 400-page report with appendices was provided to the consulting parties via email on December 1, 2022, two weeks before the consulting party meeting, scheduled for December 14th. The consulting parties should be given until December 30, 2022 to provide comments on the Determination of Effect Report. An additional 30-day review period should be allowed for any new information provided at the December 14th consulting party meeting or in response to comments made on the Determination of Effect Report.

Public Involvement and Consulting Party Coordination

As part of this additional information request, please provide an explanation as to why there has been no consultation on this vertical clearance project since 2020.

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Purpose and Need

The purpose of the review process is to ensure consideration of historic properties alongside the purpose and need of the project. The Purpose and Need statement on pages 5-9 addresses the needs of the overall project but does not address the specific needs at the five obstruction locations beyond noting height restrictions or condition of existing overhead bridges. For several of the project locations, more information is needed on site specific requirements. For example, for the West North Avenue Bridge, the pedestrian use requirements for sidewalk height, grades, and ADA accessibility are not stated. Please include more detailed information on the specific requirements of each location either here or in the relevant sections of the report.

Consideration of Alternatives

36 CFR 800.6 requires the development and evaluation of alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects. For each location, the report lists the names of the alternatives and describes and assess the effects of the preferred alternative. There are references to Alternatives Analysis Reports for each of the five obstruction locations in the report: Washington Avenue Bridge (page 19), the Amtrak Station Project (page 43), West North Avenue (page 84), Pennsylvania Avenue (page 133), and Columbus Avenue (page 154). We request a copy of the alternatives analysis reports for each of the five locations in order to document alternatives that were considered to avoid or minimize adverse effects to historic properties.

Project Specific Comments

Washington Avenue Bridge Project

This project involves lowering track beneath the bridge that carries Washington Avenue over the Pennsylvania Railroad: Main Line (Harrisburg and Pittsburgh) Railroad Corridor Historic District (Pennsylvania Railroad: Main Line) and repairing spalls and repointing the substructure of the contributing bridge. Will there be protection for the adjacent stone retaining wall and decorative wrought iron fencing, also contributing resources to the Pennsylvania Railroad: Main Line during construction? Will there be a commitment to restore portions of the wall or fencing in accordance with the Secretary of the Interior's Standards that might be affected during exposure or construction?

Amtrak Station Project

The project involves alterations to the roof girders and exhaust chutes over track 1 and 2 of the 1958 train shed. The train shed is a contributing resource to both the Pennsylvania Railroad Station and the Pennsylvania Railroad: Main Line. Please provide photographs and more detailed plans of the two locations on both tracks where foundations and new columns will be installed.

W. North Avenue Bridge Project

The project involves the demolition, replacement, and raising of the bridge that carries W. North Avenue over the railroad, and alterations/removal of other contributing elements to the Pennsylvania Railroad: Main Line. In addition, it will be necessary to make changes to the adjacent areas to meet the required vertical clearance. These proposed changes include increasing the vertical grade of the bridge approaches and sidewalks, sidewalk replacement, driveway adjustments, retaining wall and toe wall construction along several of the adjacent properties, and permanent property acquisition to allow for embankment slopes at all four quadrants of the crossing.

Contributing features to the Pennsylvania Railroad: Main Line adjacent to this location include concrete retaining walls with stone coping, decorative wrought iron fencing, railroad safety fencing and an elevated out-of-service railroad siding that served the former International Harvester Building. Will there be protection for the adjacent concrete retaining wall with stone coping and

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fencing during construction? Will there be a commitment to reconstruct/restore portions of the wall or fencing in accordance with the Secretary of the Interior's Standards? How will the substructure for the new bridge tie into the historic wall and fencing? Please also provide more information on how the siding of the former International Harvester Building will be affected by the project.

Please discuss pedestrian needs at this location and alternatives considered to avoid alterations to the façade of the International Harvester Building and the introduction of new visual elements along W. North Avenue in the immediate setting of the International Harvester Building and the Allegheny Second Ward Industrial District. Please also note that some previous infill of the windows and changes to the water table of the International Harvester Building were carried out during the period of significance for the resource (1902-1933).

The report notes the decorative wrought iron fencing lining the railroad corridor is a contributing feature to the Allegheny Commons Historic District. However, there is no discussion of other adjacent landscaping in the park, such as the maple trees along Brighton Road and the ginko trees flanking the railroad tracks, which are contributing features. In addition, the low brick retaining wall along W. North Avenue dates to the Simonds & Simonds park-wide redesign scheme of the mid 1960s and is a contributing feature. Please provide more detailed plans on potential project effects and proposed treatment of the wrought iron fencing, landscaping, low brick retaining wall and any other contributing landscape features of the historic district. Please provide more information on the permanent (.09 acres) property take and temporary construction easement (.04 acres) in the park. What is the current appearance and use of this land in this area and how will it be affected by the project?

It would be helpful to understand why the alternative that involved the replacement of the bridge and lowering of the railroad tracks to achieve 22' vertical clearance alternative was dismissed, as it would appear this alternative would have minimized impacts to adjacent historic properties.

The preferred alternative indicates the replacement bridge would be a single-span prestressed concrete spread box beam bridge. Why was this bridge type selected? Will the new bridge be designed to be compatible with other bridges along the railroad corridor?

Pennsylvania Avenue Bridge Project

This project involves replacement of the through-girder bridge that carries Pennsylvania Avenue over the Pennsylvania Railroad: Main Line. A steel pony truss similar in scale and configuration to the original ca. 1905 pony truss bridge is proposed at this location. Contributing features to the railroad adjacent to this location include concrete retaining walls with stone coping, decorative wrought iron fencing and railroad safety railing. Will there be protection for the adjacent stone retaining wall and fencing during construction? Will there be a commitment to restore portions of the wall or fencing in accordance with the Secretary of the Interior's Standards that might be affected during construction?

The project will also require approach work along Pennsylvania Avenue to accommodate the increased height of the bridge. This includes raising the height of the sidewalk by 11" and obscuring the façade of 901 Pennsylvania Avenue, a contributing resource to the Allegheny Second Ward Historic District. Please provide more information on the pedestrian access requirements at this location and efforts made to minimize the introduction of new features into the district.

Columbus Avenue Bridge Project

The project involves lowering the track under the non-contributing bridge that carries Columbus Avenue over the Pennsylvania Avenue: Main Line and track reconfiguration. Minor repairs to the

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bridge substructure are also planned. No work is proposed along Columbus Avenue or California Avenue. The concrete retaining walls with cut stone coping along the corridor and decorative iron fencing along Allegheny Avenue and Columbus Avenue approach ramp are contributing features. Will there be protection for the adjacent concrete retaining wall and fencing during construction? Will there be a commitment to restore portions of the wall or fencing in accordance with the Secretary of the Interior's Standards that might be exposed or affected during construction?

Minimization and Mitigation

We have not commented on the potential for effects in our review of the Determination of Effects Report as we require more information to complete our review. However, we would like to provide some guidance on efforts to minimize or mitigate for adverse effects in advance of the upcoming consulting party meeting as a preliminary discussion of mitigation measures is included in the agenda. The purpose of minimization is to lessen the potential effects of a project on historic properties. Minimization measures can include protection of historic features during construction; repair or replacement of affected features in kind; and the development of landscaping and lighting plans, etc. Minimization measures can be commemorated in project agreements but should not be misconstrued as mitigation.

Mitigation is used to resolve adverse effects and can include any actions that help to offset or compensate for a project's negative impacts to a historic property. The PA SHPO maintains Criteria for Meaningful Mitigation: <https://www.phmc.pa.gov/Preservation/About/Documents/Criteria%20for%20Determining%20Meaningful%20Mitigation.pdf> for use in the development of mitigation ideas. These criteria are to serve as a framework for the development of meaningful mitigation and/or as a tool for assessing the effectiveness of mitigation ideas. The mitigation for adverse effects will be identified in consultation with the PA SHPO and the consulting parties.

We look forward to further discussions at the consulting party meeting on December 14, 2022

For questions concerning this review, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,



Emma Diehl
Environmental Review Division Manager



Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

January 13, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
Moon Township, PA 151080000

RE: ER Project # 2018PR13984.022, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE
Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Mr. Zinn,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation.

Above Ground Resources

We request a written response to our questions regarding the Determination of Effect Report outlined in our letter of December 13, 2022. In addition, we offer the following comments, for consideration and response, regarding the December 14, 2022 Consulting Party Meeting, Alternatives Analysis Report, and the January 11, 2023 letter from Q Development.

December 14, 2022 Consulting Party Meeting

At the December 14, 2022 consulting party meeting, the specific clearances at each of the five obstruction locations identified in the report was briefly discussed. While the project's purpose and need indicates the PUC requirement for vertical clearances is 22'-0", with waivers, the specific level of vertical clearance required at each of the five locations is unclear. The clearances proposed for the preferred alternatives presented in the Alternatives Analysis and Effect Reports are as follows, ordered from least to greatest amounts: 21'-0" at the Amtrak Station; 21'-1" at Columbus Avenue Bridge; 21'-2" at the Pennsylvania Avenue Bridge; 21'-4" at the West North Avenue Bridge; and 21'-9" at the Washington Avenue Bridge. As outlined in our letter of December 13, 2022, we require more detailed information on the specific requirements of each of the five obstruction locations. Given lower clearances at other obstruction locations, can the height clearances of the preferred alternatives for those locations where there is the potential for an adverse effect (West North Avenue Bridge and Pennsylvania Avenue Bridge) be reduced to minimize impacts to the adjacent historic properties?

Also at the December consulting party meeting, there was discussion of construction of a pedestrian bridge that would connect the two sides of Allegheny Commons, now separated by the railroad. We understand the pedestrian bridge is to be constructed before work at the obstruction locations. To date we have received no information on this part of the project and request consultation including: a purpose and need statement, mapping of the proposed project and Area of Potential Effect (APE), photographs of the APE, plans or specifications, including proposed design and materials. In addition, what are the potential effects of this bridge project on the National Register of Historic Places (National Register)-listed Allegheny Commons Historic District? Has there been any public

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feedback on the proposed pedestrian bridge and its potential to affect Allegheny Commons? What efforts have been made to minimize effects of the pedestrian bridge on historic properties?

Alternatives Analysis Report and Assessment of Effect

Washington Avenue Bridge

Of the alternatives considered, we agree that the preferred alternative (alternative 3 with design modifications) best minimizes effects to the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District as this alternative would not require work that might affect buildings or driveway entrances on Washington Avenue. (This area was not previously identified as a historic district, but the Alternatives Analysis report indicates there may be the potential for a district at this location). Contributing features that will be affected by the preferred alternative include the superstructure and substructure of the Washington Avenue Bridge, adjacent stone retaining walls along Palmer Street and Washington Avenue, and decorative wrought iron fencing. If the plans and specifications provide for protection of these contributing features during exposure and construction as well as commit to restoration of the affected portions of the features to match the old in size, scale, design, color, finishes, materials, and construction techniques, we agree the project should not adversely affect the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District.

Amtrak Station

Of the alternatives considered, we agree that the preferred alternative (alternative 3) best minimizes effects to the Pennsylvania Railroad Station and the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District. Alternative 3 accommodates historic preservation concerns alongside the project purpose and need by accommodating vertical clearance needs through limited modifications to the girders and exhaust shoots at Tracks 1 and 2 of the trainshed rather than removal of entire portions of the trainshed (alternative 2). The changes will be compatible with existing materials and features, and the original construction techniques and craftsmanship will be visible elsewhere within the structure. Therefore, we agree the preferred alternative should not adversely affect the Pennsylvania Railroad Station and the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District.

We agree the preferred alternative does not have the potential to affect The Rotunda of the Pennsylvania Railroad Station.

West North Avenue Bridge

The preferred alternative (alternative 2 with design modifications) proposes removal of the entire superstructure, replacement with a single-span prestressed concrete spread box beam of greater width, an increase in the height and length of abutments, and an increased vertical grade at both the bridge and its approaches to accommodate a height of 21'-4". Alternative 3, which had lesser impacts to historic properties, was dismissed in the Alternatives Analysis Report as it would reduce the number of tracks through the area from four to three. While we understand replacement of the bridge is needed and there will be an adverse effect to the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District, it is necessary to ensure adequate consideration of alternatives that avoid or minimize potential adverse effects to historic properties.

Within the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District, alternative 2 with design modifications would affect the bridge superstructure,

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substructure, retaining walls, and fencing as well as an out-of-service railroad siding, all contributing features. As outlined in our letter of December 13, 2022, please provide more information on the proposed replacement structure, plans for the reconstruction or restoration of contributing features, and a discussion of potential effects to the railroad siding.

Within the Allegheny Commons Historic District, alternative 2 with design modifications has the potential to adversely affect the park through the introduction of new features including a new bridge, sidewalk replacement and toe wall construction, changes to the bus shelter, and replacement of the existing retaining wall and railing along the east side of Brighton Road. Please provide further detail on consideration of minimization of the effects of the design on these and other contributing features in the park. Please include a more detailed discussion of the potential for cumulative visual effects on the park including renderings showing the proposed new features in the setting of the historic district.

To accommodate the increased grade, alternative 2 with design modifications proposes changes to the International Harvester Building, individually listed in the National Register and a contributing feature to the National Register-eligible Allegheny Second Ward Industrial Historic District. The windows and water table are character-defining features of the International Harvester Building, and alterations to the openings and appearance of the front elevation as part of the preferred alternative have the potential to affect integrity and adversely affect the resource and district. The loading dock adjacent to the railroad siding is also a character defining feature that has the potential to be affected by the current design. In addition, we are concerned about the introduction of new features (elevated sidewalk, ramps, railings, and a retaining wall) at the primary façade.

Further documentation and consideration of alternatives that limit changes to the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District, the Allegheny Commons Historic District, the International Harvester Building, and the Allegheny Second Ward Industrial District is required. This should include reconsideration of the amount of vertical clearance needed at this obstruction location, a clear understanding of the pedestrian and ADA accessibility requirements adjacent to the International Harvester Building, and consideration of alternative designs that accommodate the increased vertical grade of the bridge approaches.

Pennsylvania Avenue Bridge

Of the alternatives considered, alternatives 2 with design modifications (preferred) and 4 best minimize effects to the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District as they do not require buttressing of the concrete retaining walls that line the railroad historic district (alternative 3).

The bridge superstructure and substructure do not contribute to the significance of the railroad district as they were replaced after the period of significance of the railroad. To minimize changes to the railroad district, a steel pony truss similar in scale and configuration to the original ca. 1905 pony truss bridge is proposed. Contributing features that will be affected include the concrete retaining walls with stone coping, safety railings, and decorative wrought iron fencing. If the plans and specifications provide for protection of these contributing features during construction as well as commit to restoration of the affected walls and fencing to match the old in size, scale, design, color, finishes, materials, and construction techniques, we agree the project should not adversely affect the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District.

Both alternative 2 with design modification (preferred) and alternative 4 would require modifications to the bridge approaches resulting in the introduction of new features into the setting

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of 901 Pennsylvania Avenue, a contributing feature in the Allegheny Second Ward Industrial Historic District. These new features will include a bifurcated sidewalk with handicap ramp and handrail. As currently designed, to accommodate the ramp, it will be necessary to cover over a portion of the brick side wall (up to 11" high) of 901 Pennsylvania Avenue. Further information is required before we can comment on the potential for the project to adversely affect the Allegheny Second Ward Industrial District. Please provide specifications for the pedestrian and ADA accessibility requirements adjacent to 901 Pennsylvania Avenue and discuss efforts made to minimize effects to 901 Pennsylvania Avenue.

Columbus Avenue Bridge

Of the alternatives considered, we agree that the preferred alternatives (3A with design modification or 3B with design modification) best minimize effects to the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District. The 1907 superstructure has lost integrity of design and workmanship and does not contribute to the district. While work to contributing features of the district (bridge substructure, retaining walls, and iron fencing) is proposed, the preferred alternatives eliminate the need for work along Columbus Avenue and potential impacts to the 1907 Columbus Avenue approach ramp, another contributing feature to the district. If the project plans and specification provide for protection for the substructure, adjacent concrete retaining walls and fencing during construction as well as commit to restoration of those features that are affected during construction by matching the old in size, scale, design, color, finishes, materials, and construction techniques, we agree the project should not adversely affect the Pennsylvania Railroad: Main Line (Harrisburg to Pittsburgh) Railroad Corridor Historic District.

January 11, 2023 Q Development Response Letter

We have reviewed the comments on the Determination of Effect Report provided by Q Development on January 11, 2023. For the West North Avenue Bridge Project, we echo their concerns about the potential adverse effect to the International Harvester Building as the alterations to the building are not in keeping with the Secretary of the Interior's Standards. At this time, it is unclear if these changes would jeopardize the \$2.5 million in Rehabilitation Investment Tax Credits approved by the National Park Service in August of 2022. We would also like to request consideration of alternative sidewalk designs to minimize effects to the International Harvester Building, including those provided by Q Development in their response letter.

Regarding the noise wall requested by Q Development, please note, we have concerns about the potential visual effects as it will introduce new features into the setting of several historic properties.

In conclusion, this letter should not preclude consideration of any comments provided by local consulting parties. Please share our comments with the local consulting parties and continue to provide copies of any comments from other consulting parties to our office. We look forward to additional consultation to avoid, minimize, and mitigate for adverse effects to historic properties.

For questions concerning this review, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,



Emma Diehl
Environmental Review Division Manager



Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

April 13, 2023

Timothy Zinn
Michael Baker International, Inc.
100 Airside Drive
Moon Township PA 151080000

RE: ER Project # 2018PR13984.023, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE
Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Mr. Zinn,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

We are in receipt of the Response to Comments document provided in response to the Effect Report, Alternative Analysis Report, and the December 14, 2022 Consulting Party Meeting. We offer the following comments for consideration as well as discussion at the upcoming consulting party meeting scheduled for May 2, 2023.

West North Avenue Bridge

International Harvester Building

The Response to Comments indicates the following about the sidewalk designs at Washington Avenue Bridge: need to comply with Norfolk Southern, City of Pittsburgh, PennDOT, and ADA guidelines; need to meet with the approval of the Department of Mobility and Infrastructure (DOMI); additional coordination with DOMI on acceptable sidewalk alternatives is ongoing; and the design team is committed to finding a mutually agreeable solution through ongoing meetings. A mutually agreeable solution is defined as one that would "not result in an adverse effect on the property [the International Harvester Building], would meet the SOI Standards, and that would be accepted by DOMI." As noted in our January letter, we would like a clear understanding of the pedestrian and ADA accessibility requirements being used in DOMI's review process. We offer the following comments on the current design with regards to adverse effects and the Secretary of the Interior's Standards.

The Standards for the Treatment of Historic Properties, specifically the Rehabilitation Treatment Standards (Standards), are used as a measure for determining the appropriateness of work to historic properties as part of federal, state, and local historic preservation programs. They are utilized in review of state and federal projects in the assessment of potential adverse effects on historic properties. They are also used to determine if rehabilitation work qualifies as a certified rehabilitation for state and federal tax incentive programs.

ER Project #2018PR13984.023
Page 2 of 5

The International Harvester Building is currently undergoing rehabilitation as part of the Allegheny Branch House Lofts project, a certified rehabilitation project under construction that qualified for \$2.5 million in federal tax credits and \$.5 million in state tax credits in 2022. The PA SHPO certified the rehabilitation plans for the state tax credit and reviewed the rehabilitation plans for the federal tax credit before providing them to the National Park Service (NPS) for review, comment, and certification. The PA SHPO was also actively involved in resolution of NPS comments, which included multiple considerations on the windows and window openings at the façade of the International Harvester Building.

As currently designed, it is the opinion of the PA SHPO that the proposed sidewalk improvements associated with the West Avenue Bridge, adjacent to the International Harvester Building would meet the definition of an adverse effect, as found in 36 CFR Part 800.5(2)ii. "Alteration of a property . . . that is not consistent with the Secretary Standards for the Treatment of Historic Properties and applicable guidelines." The National Register of Historic Places (National Register)-listed International Harvester Building was listed in the National Register under Criterion A for Commerce, Criterion B for its association with Branch Manager Emil Louis Mayer, and Criterion C for Architecture. The windows of the façade and water table, which are all considered character-defining features, will be altered in a manner not consistent with the Standards, affecting the architectural significance of the building.

The sidewalk plans, as currently designed, do not meet the Standards for Rehabilitation, specifically standards 2, 5, and 9, as outlined below.

Standard 2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

The project, as currently designed, will result in raising the limestone water table and sills, character-defining features of the building, to accommodate the increased vertical alignment of the sidewalk. Changes to the sidewalk will also affect the integrity of the street scape adjacent to the building.

Standard 5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

The project as currently designed will result in changes to the window openings and sills and the limestone water table, distinctive features and finishes at the façade.

Standard 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

The proposed changes to the windows and water table will destroy historic materials that characterize the property.

If the proposed sidewalk cannot be redesigned to accommodate DOMI's needs alongside the Standards, the state and federal tax credits for the Allegheny Branch House Lofts project could be jeopardized. The project is already under construction. To avoid threats to the state and federal tax credits, we urge rapid action to find a mutually agreeable solution. We are willing to make PA SHPO staff available for in-person discussions to assist in these discussions.

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Allegheny Commons Historic District

The Allegheny Commons Historic District was listed in the National Register under Criterion A for Community Planning and Development and under Criterion C for Landscape Architecture. The document indicates the fencing along the railroad will be replaced to match the decorative fencing along the rail corridor; no mature trees will be affected; a retaining wall will be replaced and there will be grading changes. Two sections of a low brick retaining wall from the Simonds & Simonds mid 1960s redesign will be impacted and a permanent right of way totaling .09 acre will be required. The sidewalk will be replaced in-kind. Given the number of changes to landscape features within the National Register-listed Allegheny Commons Historic District, there is the potential for an adverse effect. The PA SHPO would like documentation of consultation with the Pittsburgh Parks Conservancy regarding efforts to minimize impacts to the district. This can be presented at the upcoming May 2, 2023 consulting party meeting and as an addendum to the effect report.

Allegheny Second Ward Industrial District

The Allegheny Second Ward Industrial Historic District is eligible for the National Register under Criterion A in the areas of Industry and Commerce and under Criterion C as a significant and distinguishable entity whose components who lack individual distinction. (*Note: This is a correction to the Determination of Eligibility (DOE) letter that was issued in November of 2019 which stated the district was eligible under Criterion C in the area of Architecture.*) The proposed new bridge, alterations to the International Harvester Building, and changes to sidewalks and grades, will not affect the ability of the district to convey its industrial and commercial significance. Therefore, in our opinion, based on the information received and available within our files, the West North Avenue Bridge Project will not adversely affect the Allegheny Second Ward Industrial District.

Allegheny City Stables Building

The Allegheny City Stables Building is eligible for listing in the National Register under Criterion A in the area of Politics/Government. The new bridge and elevated street and sidewalk grades along West North Avenue do not have the potential to affect the significance of the district. Therefore, in our opinion, based on the information received and available within our files, the West North Avenue Bridge Project will not adversely affect the Allegheny City Stables Building.

Mexican War Streets Historic District

The Mexican War Streets Historic District was listed in the National Register under Criterion A for Social/Humanitarianism and Urban Planning and Criterion C for Architecture. The project will introduce new visual elements into the setting of the district, including the bridge and elevated street and sidewalk grades along Brighton Road and West North Avenue. These changes will not affect the significance of the district. Therefore, in our opinion, based on the information received and available within our files, the West North Avenue Bridge Project will not adversely affect the Mexican War Street Historic District.

Allegheny West Historic District

The Allegheny West Historic District was listed in the National Register under Criterion A for Social History and Criterion C for Architecture. The project will introduce new visual elements including a new bridge and elevated street and sidewalk grades. These changes will not affect the significance of the district. Therefore, in our opinion, based on the information received and available within our files, the West North Avenue Bridge Project will not adversely affect the Allegheny West Historic District.

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Page 4 of 5

Pennsylvania Avenue Bridge

Allegheny Second Ward Industrial District

The proposed new Pennsylvania Avenue bridge, alterations to 901 Pennsylvania Avenue, and changes to sidewalks will not affect the ability of the district to convey its industrial and commercial significance. Therefore, in our opinion, based on the information received and available within our files, the Pennsylvania Avenue Bridge Project will not adversely affect the Allegheny Second Ward Industrial District.

Pedestrian Bridge

We remain concerned about the potential of the proposed pedestrian bridge to affect the National Register-listed Allegheny Commons Historic District as it will result in physical impacts and introduce a new feature in the setting of the district. As outlined in our letter of January 13, 2023, the pedestrian bridge should be addressed as part of the project undertaking. We require more information on location, excerpts from the Allegheny Commons Master Plan that indicate the purpose and need, photographs of area, and any preliminary plans. This can be provided at the upcoming May 2, 2023 consulting party meeting and as an addendum to the effect report.

Minimization

As outlined in our letter of December 13, 2022, the purpose of minimization is to lessen the potential effects of a project on historic properties. Minimization measures can be commemorated in the project agreement but should not be misconstrued as mitigation. We note the following minimization measures have been identified for the project.

- Consultation on the design of the West North Avenue Bridge, adjacent features, and landscaping (including the low brick wall) in the Allegheny Commons Historic District.
- Consultation on the design of the new pedestrian bridge in the Allegheny Commons Historic District.
- Consultation on the design of the sidewalk, landscaping and related features adjacent to the International Harvester Building.
- Consultation on protection for/repairs to contributing features within the Pennsylvania Railroad: Main Line (Harrisburg and Pittsburgh) Railroad Corridor Historic District including bridge abutments, retaining walls and decorative fencing.

Mitigation

As stated in our response letter of January 13, 2023, the proposed project will adversely affect the Pennsylvania Railroad: Main Line (Harrisburg and Pittsburgh) Railroad Corridor Historic District due to the replacement of the West North Avenue Bridge, a contributing feature. The project also has the potential to affect the International Harvester Building and the Allegheny Commons Historic District, depending on the results of continued consultation to avoid adverse effects to these historic properties.

Mitigation involves compensation for the loss or diminishment of the integrity of a historic property. As noted in past correspondence, the PA SHPO maintains Criteria for Meaningful Mitigation:

<https://www.phmc.pa.gov/Preservation/About/Documents/Criteria%20for%20Determining%20Mea>

ER Project #2018PR13984.023
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[ningful%20Mitigation.pdf](#) for use in development and assessing the appropriateness of mitigation. Guidance published by the Advisory Council on Historic Preservation (ACHP) indicates mitigation should be in the public interest, address concerns or interests of the consulting parties, and enhance the preservation and management of National Register-listed or eligible resources:
https://www.achp.gov/Section_106_Archaeology_Guidance/Questions%20and%20Answers/Reaching%20agreement%20on%20Appropriate%20Treatment.

In addition, the mitigation should be identified as part of a consultative process that involves an active exchange of information between the PA SHPO and all the consulting parties. By its very nature, the consultative component of the review process presents opportunities for the development of creative and innovative measures for the resolution of adverse effects. To date, there have been no consulting party meetings/collective discussions at which mitigation was presented and discussed. We understand the reconstruction of a pedestrian bridge over the railroad was developed as part of a mediation process ordered by the Public Utility Commission (PUC), separate from the Pennsylvania History Code process. The identification of the pedestrian bridge as a potential mitigation option should not preclude consideration of other mitigation ideas.

We look forward to continued consultation on the project. For questions concerning this review and/or for future consultation, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,



Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

May 12, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
MoonTownship PA 151080000

RE: ER Project # 2018PR13984.026, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Tim Zinn:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

SHPO Sends Comments - Environmental Review - SHPO Sends Above Ground Comments

Thank you for the invitation. Bill Callahan will participate in the Design Advisory Team for the PA SHPO and plans to attend the first meeting on June 14, 2023. Barbara Frederick will serve as the alternate.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

May 26, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
MoonTownship PA 151080000

RE: ER Project # 2018PR13984.025, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Tim Zinn:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

More Information Requested - New Attachment

Thank you for a copy of the presentation. Please send a copy of the meeting minutes when they become available. Please submit the requested materials to the PA SHPO through PA-SHARE using the link under SHPO Requests More Information on the Response screen.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

June 13, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
Moon Township PA 151080000

RE: ER Project # 2018PR13984.027, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE
Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Mr. Zinn,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Thank you for a copy of the presentation made at the May 2, 2023 consulting party meeting and the meeting minutes. We offer the following comments:

International Harvester Building

Regarding Option 6, while a fence will be introduced within the streetscape, the new design will not result in raising of the limestone water table and sills to accommodate the increased vertical alignment of the sidewalk, thereby avoiding an adverse effect. Please provide more detailed information on the revised design of the sidewalk, landscaping and related features adjacent to the International Harvester Building. Please indicate how the design meets the requirements of the City's Department of Mobility and Infrastructure and the Secretary of Interior's Standards for the Treatment of Historic Properties and thereby avoids an adverse effect.

Allegheny Commons Historic District

Thank you for the additional information on efforts to avoid or minimize adverse effects to the district presented at the May 2, 2023 meeting. We remain concerned about the introduction of the new pedestrian bridge in the historic district. The bridge will be constructed in the historic location of a pedestrian bridge, reusing approach steps, and will restore pedestrian access to both sides of the park. It will also introduce a new design feature into the setting of the district. We understand a Design Advisory Team (DAT) is being formed to vet the proposed designs for the new Allegheny Commons Pedestrian Bridge and the new West North Avenue Bridge as well as any resultant park landscaping or other features to ensure compatibility within Allegheny Commons Historic District. If the DAT follows the Secretary of the Interior's Standards for the Treatment of Historic Properties and focuses on the preservation of character defining features identified in the 2013 National Register nomination, the project should have a No Adverse Effect on the Allegheny Commons Historic District. This finding is conditional on conformance of the designs with the Standards. The Standards should be included in guiding principles for the DAT, as outlined below.

ER Project #2018PR13984.027

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- Character defining features of the park within the project area for the new bridges will be identified and preserved during the design process.
- The new designs will be compatible with the overall historic character of the district and will not alter the integrity of design, setting, materials, workmanship, and feeling of the district.
- The size, scale, and materials of the new designs will be compatible with the adjacent district.
- The new design will be clearly differentiated from the original features in the district.
- The new structure will be designed to avoid demolition or alteration of features that contribute to the public landscape, including the steps of the former pedestrian bridge, trees, and the circulation system.
- The new structure will be designed to be in keeping with the requirements of the City Historic Designation.

The design of the new bridge through the DAT and the guiding principles is necessary to avoid an adverse effect and should be commemorated in the MOU for the project. The MOU should also provide for submission of the final design of the pedestrian bridge to the PA SHPO office. The MOU should also allow for reinitiating consultation under the State History Code should the PA SHPO find the selected design will have an adverse effect.

Minimization

The purpose of minimization is to lessen the potential effects of a project on historic properties. Minimization measures can be commemorated in the project agreement but should not be misconstrued as mitigation. The following minimization measures have been identified for the project to date:

- Consultation on the design of the West North Avenue Bridge, adjacent features (including the new bridge railing at Brighton Road), and landscaping (including the contributing low brick wall) in the Allegheny Commons Historic District.
- Consultation on the design of the new pedestrian bridge in the Allegheny Commons Historic District as well as adjacent features and landscaping.
- Formation of a Design Advisory Team to review the proposed designs for the West North Avenue Bridge and the new pedestrian bridge to ensure compatibility with the Allegheny Commons Historic District.
- Consultation on the design of the sidewalk, landscaping and related features adjacent to the International Harvester Building.
- Consultation on protection for/repairs to contributing features within the Pennsylvania Railroad: Main Line (Harrisburg and Pittsburgh) Railroad Corridor Historic District including bridge abutments, retaining walls and decorative fencing.

These and any additional minimization efforts outlined in past documents, discussions, and in the presentation for the May 2, 2023 meeting should be commemorated in the MOU for the project.

Mitigation

As outlined in our letter of April 13, 2023, mitigation should be identified as part of a consultative process that involves an active exchange of information between the PA SHPO and all the consulting parties to the State History Code review. As discussed at the meeting, previous commitments developed as part of the PUC mediation process should not be misconstrued as mitigation for the State History Code process or preclude consideration of other mitigation ideas. As outlined in our

ER Project #2018PR13984.027
Page 3 of 3

letter of April 13, 2023, the PA SHPO views replacement of the pedestrian bridge as part of the larger project and not as mitigation for the adverse effect.

Mitigation measures discussed at the May 2, 2023 meeting include the following:

- Restoration or repair of fencing throughout Allegheny Commons Historic District
- Restoration of the stone building near the tennis courts
- Installation of low pipe railing on the west side of the park
- Additional ideas outlined in the park management plan

We look forward to participation in the Design Advisory Team and continued consultation on the project. For questions concerning this review, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,



Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

June 30, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
MoonTownship PA 151080000

RE: ER Project # 2018PR13984.028, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Tim Zinn:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

SHPO Sends Comments - Environmental Review - SHPO Sends Above Ground Comments

We offer the following comments in response to the first Design Advisory Technical meeting. We would like to reiterate that the design of the pedestrian bridge is not considered to be mitigation but is rather part of an effort to minimize a potential adverse effect. As outlined in our letter of June 13th, at future meetings, please mention the guiding principles based in the Secretary of the Interior's Standards and the need to ensure the proposed design is consistent with the historic materials and character of adjacent historic properties. This will ensure avoidance of an adverse effect to the Allegheny Commons Historic District, the International Harvester Building, and Allegheny Second Ward Historic District. We also request that future meetings include a more active design process, with a landscape architect, engineer, or other design professional actively seeking and providing design feedback during the meeting.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,

Emma Diehl

ER Project # 2018PR13984.028
Page 2 of 2

Environmental Review Division Manager



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

November 22, 2023

Sent Via PA-SHARE

RE: ER Project # 2018PR13984.029, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Submitter,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

SHPO Sends Comments - Environmental Review - SHPO Sends Above Ground Comments

Thank you for your response to our letter of June 13, 2023 and the presentation and minutes from the May 2023 consulting party meeting. We appreciate acknowledgement that the new pedestrian bridge is minimization. A member of our office will continue to participate in meetings of the Design Advisory Technical Committee to consult on the proposed design for the West North Avenue and pedestrian bridge to be sensitive to the Allegheny Commons Historic District. When the plans for the pedestrian bridge and West North Avenue Bridge and approach work adjacent to the International Harvester Building have been finalized, please provide an addendum to the effect report to our office and local consulting parties for review and comment. Finally, potential minimization and mitigation measures, including those discussed at the May 2023 consulting party meeting and outlined in our letter of June 13, 2023, should be presented to the consulting parties for review and comment prior to drafting the Memorandum of Agreement for the project.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

December 15, 2023

Tim Zinn
Michael Baker International, Inc.
100 Airside Drive
MoonTownship, PA 151080000

RE: ER Project # 2018PR13984.031, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE
Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Mr. Zinn,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

We appreciate the collaborative efforts made to design the West North Avenue Bridge and the Allegheny Commons Bridge in in the Allegheny Commons Historic District in coordination with the local preservation interests and PA SHPO and to enlist the opinions of a variety of professionals including architects, landscape architects, and engineers. We also appreciate efforts to ensure the design conforms to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

We are in general agreement with the proposed design for the West North Avenue Bridge and the reconstruction of the low brick retaining wall from the Simonds & Simonds mid-1960s redesign as part of efforts to minimize effects to historic properties.

The proposed new pedestrian bridge will introduce a new structure into the district in the former location of a pedestrian bridge. To accommodate ADA requirements and the height of the new structure, it will be necessary to introduce new pathways and some grading in the park. We appreciate the new paths will be designed to be no wider than the existing abutments and efforts are being made to minimize changes to historic landscaping. These will help to minimize the impacts of the new circulation system on the character of the district.

Please provide more detailed information as to why it is not possible to retain the approach stairs from the previous bridge. As the 60% design process approaches, we would appreciate the development of renderings of the new Allegheny Commons bridge, especially the approach plazas being designed as part of Option 5a.

We look forward to continued consultation on the project.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

ER Project #2018PR13984.031
Page 2 of 2

Sincerely,



Emma Diehl
Environmental Review Division Manager



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

February 12, 2024

Sent Via PA-SHARE

RE: ER Project # 2018PR13984.032, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Submitter,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

SHPO Sends Comments - Environmental Review - SHPO Sends Above Ground Comments

Thank you for the additional information on why it is not possible to retain the approach steps from the previous bridge and efforts made to retain the existing trees. We look forward to additional consideration of design details during the forthcoming DAT meeting including the proposed plaza design, lighting, details of the pedestrian bridge, landscaping plan, retaining walls, and proposed materials.

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

July 25, 2024

Sent Via PA-SHARE

RE: ER Project # 2018PR13984.034, NORFOLK SOUTHERN PITTSBURGH VERTICAL CLEARANCE, Department of Transportation (PennDOT), Pittsburgh City, Allegheny County

Dear Submitter,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Archaeological Resources

No Archaeological Concerns - Environmental Review - Negative Survey Report/Negative Survey Form

This report meets our standards and specifications as outlined in Guidelines for Archaeological Investigations in Pennsylvania (SHPO 2021) and the Secretary of the Interior's Guidelines for Archaeological Documentation. We agree with the recommendations of this report, and in our opinion, no further archaeological work is necessary for this project. If project plans should change and/or you should be made aware of historic property concerns, please reinstate consultation with our office using PA-SHARE.

For questions concerning archaeological resources, please contact Kristen Walczesky at kwalczesky@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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Appendix B
Air Quality Memorandum

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Norfolk Southern Railway Company
Pittsburgh Vertical Clearance Projects
Air Quality Technical Memorandum

HMMH Report No. 310190
February 14, 2024

Prepared for:

Michael Baker International
100 Airside Drive
Moon Township, PA 15108

Prepared by:
Scott Noel
Phil DeVita



HMMH
700 District Ave Suite 800
Burlington, MA 01803
T 781.229.0707
F 781.229.7939

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1 Introduction

The Pittsburgh Vertical Clearance Projects are comprised of four (4) railway improvement projects on the Pittsburgh and Fort Wayne Rail Lines (together referred to as the Pittsburgh Line), owned and operated by Norfolk Southern Railway Company (Norfolk Southern). The proposed projects address freight capacity and delay constraints through the City of Pittsburgh, Allegheny County, Pennsylvania. Norfolk Southern is a common carrier and the Pittsburgh Line forms a critical component of its route through Pittsburgh between Chicago and the New York/New Jersey commercial markets. Three projects are overhead clearance projects [North Avenue Bridge (PC-1.60); Pennsylvania Avenue Bridge (PC-1.82); and Amtrak Station Canopy (PT-353.20)] that have vertical clearance obstructions along the Pittsburgh Line and prevent efficient movement of freight, especially time-sensitive intermodal freight, by rail between Chicago and New York/New Jersey, and specifically through Pennsylvania. The fourth project is installation of a new Allegheny Commons Pedestrian Bridge (PC 1.50).

Unused capacity exists on the Pittsburgh Line and these clearance projects will allow the line to accommodate anticipated freight growth while allowing for double-stack intermodal freight to use the Pittsburgh Line in lieu of Norfolk Southern's Monongahela line (Mon Line) south of the rivers. The ability to move this double-stack traffic on the Pittsburgh Line will eliminate exposure to hazardous conditions and delay to time-sensitive freight relating to the unpredictable landslides from adjacent property that occur along the Mon Line.

The air quality assessment was conducted to evaluate the effects of the Pittsburgh Vertical Clearance Projects. Because air analysis is regional in nature, and while the Pittsburgh Vertical Clearance Projects are comprised of four individual projects, a regional air analysis was undertaken along a study corridor encompassing all four of the projects. Merchant Street Bridge is part of the Norfolk Southern Pittsburgh Line. The Merchant Street Bridge Project was to replace the bridge that carries the Pittsburgh Line over Merchant Street. As a separate, standalone replacement along the corridor, this air quality analysis performed for the Vertical Clearance Projects covered this location and therefore a separate quality assessment was not necessary for the separate Merchant Street Bridge Project. Figure 1 shows the study corridor, which includes an approximately 13-mile portion of the Pittsburgh Line north of the Allegheny and Ohio Rivers from just west of the Ohio Connecting (OC) Flyover Bridge Flyover to a point east of the Point Perry Bridge. While an air quality analysis may not be needed for the review of these projects, this analysis was developed in accordance with Pennsylvania Act 120 of 1970 and is consistent with the Pennsylvania Department of Transportation (PennDOT) Publication 321. See <https://www.dot.state.pa.us/public/PubsForms/Publications/PUB%20321.pdf>.

This memorandum addresses the affected environment and environmental consequences of the projects currently under consideration, including an overview of regulations, general conformity and attainment status, methodology, and estimates of pollutant emissions for the existing conditions ("Existing" scenario) and for the design year conditions without the projects ("No Build" scenario) and with the projects (or "Build" scenario). Because diesel locomotive emissions are the primary emissions relating to railroad operations along railroad line, this assessment studied the potential change in diesel locomotive emissions associated with rail traffic in each of these scenarios, accommodating for forecasted growth in freight volumes as well as rerouting of double-stack traffic from the Mon Line to the Pittsburgh Line in the Build scenarios.

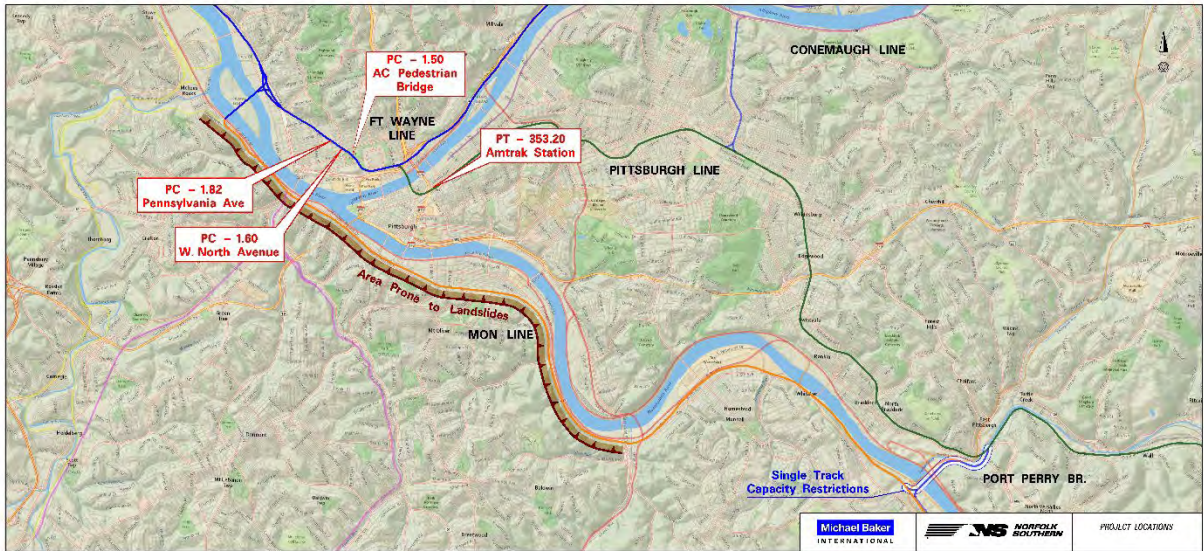


Figure 1. Location Map

2 Background and Regulatory Context

PennDOT has awarded state funding for the projects, which triggers a review under Pennsylvania’s Act 120. As set forth in Publication 321, PennDOT’s policy is to assess the air quality impacts of transportation improvement projects and to give consideration to the incorporation of appropriate avoidance and/or relief strategies into preliminary engineering designs and construction for those projects that have potential air quality impacts. PennDOT’s guidelines are in compliance with 23 CFR Part 771, and also reflect recent procedures regarding conformity as promulgated by the United States Environmental Protection Agency (EPA) as of April 2012 (Final Conformity Rule 40 CFR Parts 51 and 93). PennDOT’s policy is to follow regulations issued by EPA, the Federal Highway Administration (FHWA), and the Pennsylvania Department of Environmental Protection (DEP). To the extent Act 120 reviews would require analysis of air impacts, such analysis would be completed consistent with these guidelines. This air quality (qualitative) analysis was conducted for the projects based on the Clean Air Act, 42 U.S.C. § 7401 et seq., and the most recent EPA and DEP air quality classifications.

2.1 Criteria Pollutants and National and State Ambient Air Quality Standards

Table 1 presents the national ambient air quality standards (NAAQS), see 40 C.F.R. Part 50, established by the EPA for criteria air pollutants, namely: carbon monoxide (CO), sulfur dioxide (SO₂), ozone (O₃), particulate matter (PM), nitrogen dioxide (NO₂), and lead (Pb). There are two types of NAAQS—primary and secondary: “*Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public*

welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.”¹

Table 1. Criteria Pollutant NAAQS

Pollutant		Primary/Secondary	Ave.Time	Level	Form
Carbon Monoxide (CO)		Primary	8 Hour	9 ppm	Not to be exceeded more than once per year
			1 Hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3-month average	0.15 µg/m ³ , ¹	Not to be exceeded
Nitrogen Dioxide (NO ₂)		Primary	1 Hour	100 ppb	98th percentile of 1 hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	Annual	53 ppb, ²	Annual Mean
Ozone		Primary and Secondary	8 hours	0.070 ppm, ³	Annual fourth highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter	PM ₁₀	Primary and secondary	24 hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Particulate Matter	PM _{2.5}	Primary	Annual	12.0 µg/m ³	Annual mean averaged over 3 years
		Secondary	Annual	15.0 µg/m ³	Annual mean averaged over 3 years
		Primary and Secondary	24 hour	35 µg/m ³	98th percentile, averaged over 3 years
Sulfur Dioxide (SO ₂)		Primary	1 hour	75 ppb, ⁴	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(as of February 2019: Source: <http://www3.epa.gov/ttn/naaqs/criteria.html>)

µg/m³ = Micrograms per cubic meter

ppm = Parts per million

primary standards = provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly.

Secondary standards = provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Form = denotes the form of the standard and how the standard is met.. Each standard has its own criteria for how many times it may be exceeded.

1. In areas designated non-attainment for the Pb standards prior to the promulgation of the current 2008 standards, and for which implementation plans to attain or maintain the current 2008 standards have not been submitted and approved, the previous standards (1.5 ug/m³ as a calendar quarter average) also remain in effect.
2. The annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard.
3. Final rule signed October 1, 2015 and effected December 28, 2015.
4. The previous SO₂ standards 0.14 ppm 24-hour and 0.03 ppm annual will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current 2010 standards, and (2) any area for which an implementation plan providing for attainment of the current 2010 standard has not been submitted and approved and that is designated non-attainment under the previous SO₂

¹ From the EPA preamble to the NAAQS table: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>



standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

2.2 Pollutants of Concern

As discussed above, the EPA established NAAQS for commonly found air pollutants, called criteria pollutants, in the CAA and 1990 Clean Air Act Amendments (CAAA). The seven criteria pollutants are CO, ozone, PM_{2.5}, PM₁₀, NO₂, SO₂, and lead. A number of these pollutants, such as CO, PM, ozone, and NO₂ commonly result from transportation-related sources. In particular²:

- CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of combustion engine exhaust, which contributes approximately 56 percent of all carbon emissions nationally. CO is affected by variations in temperature and vehicle speeds.
- PM is a term used to describe particles in the air including dust, dirt, soot, smoke, and liquid droplets. Sources that directly emit PM include on-road motor vehicles, construction activities, locomotives, and unpaved roads. Sources of particles that form in the air from chemical processes involving sunlight and water vapor include fuel combustion in combustion engines, at power plants and from industrial processes. PM₁₀ is used as a measure of coarse particulate, in which the particles are 10 microns or less in size. Coarse particles of this size are typically formed by earth-based materials such as construction and re-entrained road dust and brake and tire wear. PM_{2.5} is used as a measure of fine particulate, in which the particles are 2.5 microns or less in size. Fine particles of this size are typically, but not exclusively, formed as a product of combustion.
- Ozone (i.e., ground-level photochemical smog) is different from CO and PM in that it results from a chemical reaction between volatile organic compounds and oxides of nitrogen in the presence of sunlight. Also, the concentration and dispersion of ozone are significantly affected by an area's meteorology and topography. Because it is primarily an area wide pollutant, it is typically assessed in system-level planning as part of the air quality State Implementation Plan (SIP) development and conformity process. Through the Transportation Improvements Program (TIP)/SIP evaluation process, this pollutant is evaluated on a regional level.
- NO₂, along with particles in the air, is often seen as a reddish-brown layer over urban areas. The primary sources of NO₂ emissions are combustion engines, electric utilities, and industrial, commercial, and residential sources that burn fuel. NO₂ is considered an ozone precursor and are evaluated as part of the regional conformity requirements during the project planning phases.
- SO₂ is a product of fuel combustion at power plants, businesses, and residential locations using coal or oil containing sulfur. It forms acidic aerosols harmful to the respiratory tract and can aggravate symptoms associated with lung disease like asthma and bronchitis. SO₂ is a primary contributor to acid deposition which leads to acidification of lakes and streams and damage to vegetation and materials, along with diminution of visibility.
- Lead (Pb) is an elemental heavy metal found naturally in the environment as well as in manufactured products and industrially in the production of gasoline. Lead can be released directly into the air, as suspended particles. Low lead exposure can have adverse effects on the nervous system of fetuses and young children. Historic major sources of lead air emissions were motor vehicles and industrial sources. After lead was phased out of vehicle fuels in 1995, emissions of lead from the automotive

² Pennsylvania Department of Transportation, Project-Level Air Quality Handbook:
<https://www.dot.state.pa.us/public/PubsForms/Publications/PUB%20321.pdf>



section have declined. Today, most lead emissions in the U.S. are from leaded aviation fuel in piston engine aircraft and industrial operations such as smelters.

2.3 NAAQS Attainment Status

Areas that have never been designated by EPA as nonattainment for one or more of the NAAQS are classified as attainment areas, while areas that do not meet one or more of the NAAQS may be designated by EPA as nonattainment areas for that or those criteria pollutants. Areas that have failed to meet the NAAQS in the past but have since re-attained them may be re-designated as attainment (maintenance) areas, which are commonly referred to as maintenance areas.

The EPA Green Book³ and the DEP⁴ lists non-attainment, maintenance, and attainment areas across the nation. The current designations for the Pittsburgh area (located in Allegheny County), within which the projects lie, are as follows:

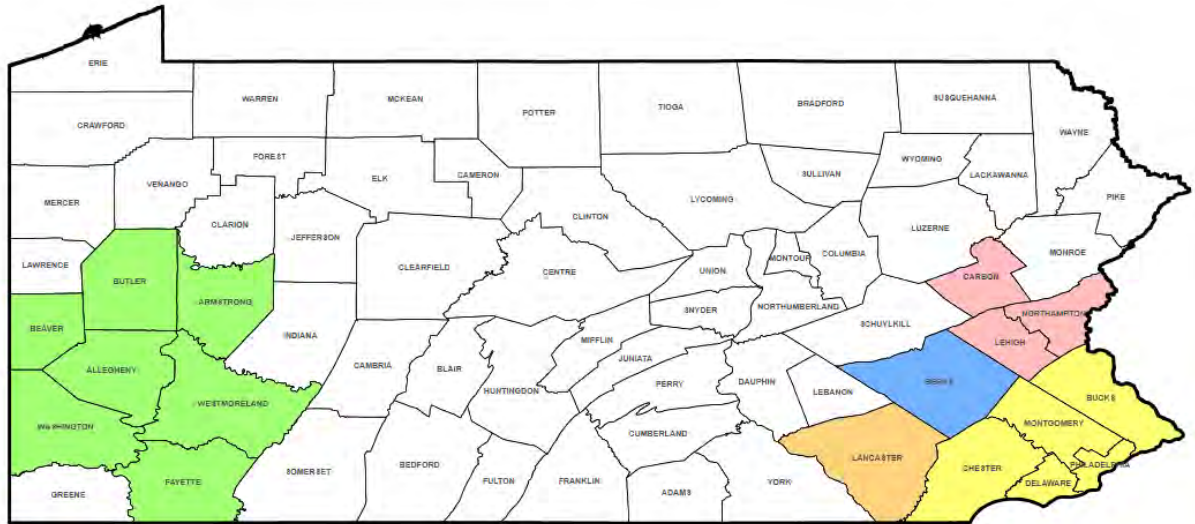
- Marginal nonattainment for the 2008 ozone standard;
- Maintenance for the 1971 carbon monoxide standard;
- Maintenance for the 2006 PM_{2.5} standard;
- Moderate nonattainment for the 2012 PM_{2.5} standard; and
- Nonattainment for the 2010 SO₂ standard.

Figure 2 to Figure 4 show graphically the nonattainment region for each pollutant per DEP⁵. The remaining pollutants lead and NO₂ are designated as being in attainment for the NAAQS.

³ EPA Green Book: <https://www.epa.gov/green-book>.

⁴ Pennsylvania Department of Environmental Protection:
<https://www.dep.pa.gov/business/air/baq/regulations/pages/attainment-status.aspx>

⁵ <https://www.dep.pa.gov/business/air/baq/regulations/pages/attainment-status.aspx>



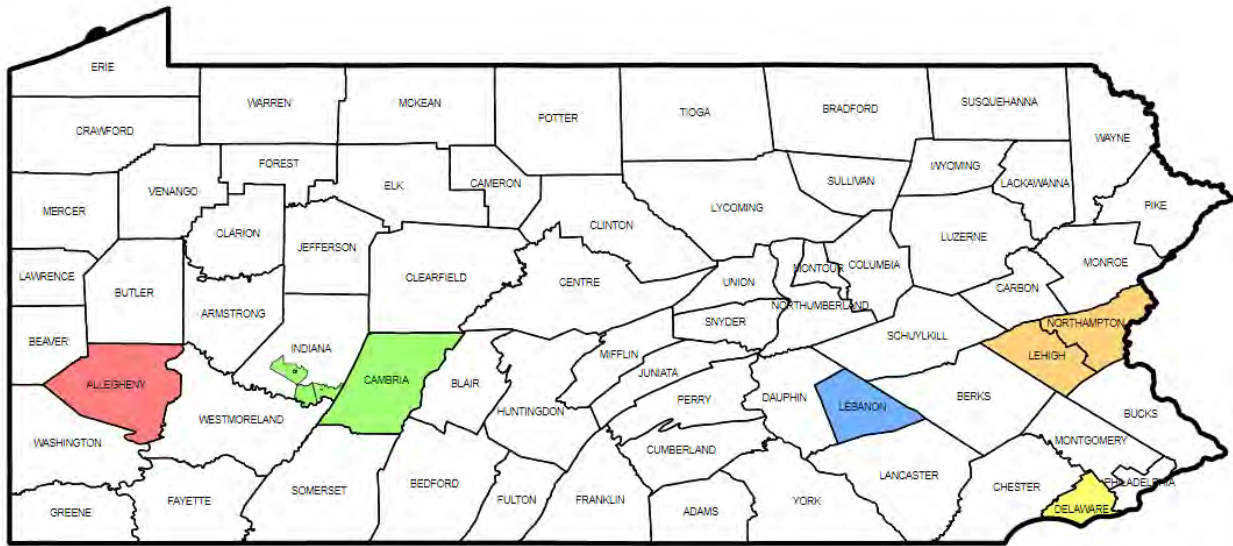
Nonattainment Areas

- Allentown-Bethlehem-Easton, PA
- Lancaster, PA
- Philadelphia-Wilmington-Atlantic City, PA-DE-MD-NJ
- Pittsburgh-Beaver Valley, PA
- Reading, PA

Source: <https://www.dep.pa.gov/business/air/baq/regulations/pages/attainment-status.aspx>

Note: Current Nonattainment: (All are classified Marginal) Allegheny, Armstrong, Beaver, Berks, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland.

Figure 2. Pennsylvania Ozone Nonattainment Area (2008 Standard)



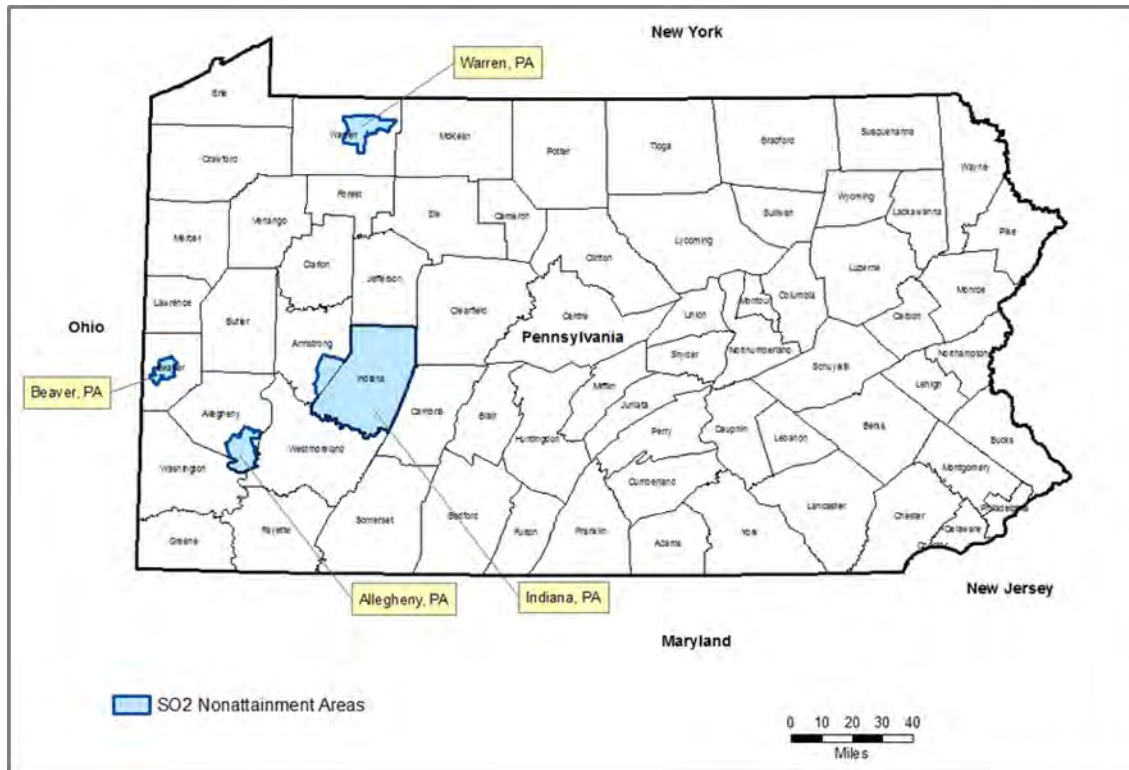
PM_{2.5} Nonattainment Areas

Allegheny Co Allentown Delaware Co Johnstown Lebanon Co

Source: <https://www.dep.pa.gov/business/air/baq/regulations/pages/attainment-status.aspx>

Notes: current attainment status for PM_{2.5} is Allegheny, Delaware, and Lebanon are currently classified as moderate non attainment

Figure 3. Pennsylvania PM_{2.5} Nonattainment Area (2012 Standard)



Source: <https://www.dep.pa.gov/business/air/baq/regulations/pages/attainment-status.aspx>

Notes: current attainment status for PM2.5 is Allegheny, Delaware, and Lebanon are currently classified as moderate non attainment

Figure 4. Pennsylvania SO2 Nonattainment Area (2010 Standard)

2.4 General Conformity

Pursuant to 40 CFR Parts 51 and 93, the general conformity rule (GCR) applies to federal actions for non-FHWA components of a transportation project requiring actions by federal agencies in nonattainment or maintenance areas for any of the applicable criteria pollutants. The GCR specifies *de minimis* emission levels by pollutant to determine the applicability of a conformity requirement for a project. A conformity applicability analysis under GCR is the first step of a conformity evaluation and determines whether a conformity determination would be undertaken for a federal action.

The Pittsburgh Vertical Clearance Projects are not federal actions and require no action, approvals, or funding from any US Department of Transportation agency, including the Federal Railroad Administration (FRA), FHWA, or Federal Transit Authority (FTA). Rather, PennDOT has awarded state funding for these projects, which triggers a review under Pennsylvania's Act 120. To the extent Act 120 reviews would require analysis of air impacts, such analysis would be completed consistent with the GCR. If the analysis results indicate that the total projected emissions under both the construction and operational activities would not exceed the *de minimis* levels, then the conformity evaluation is the final step. If, however, the *de minimis* levels would be exceeded by the proposed action, under the federal GCR process, a general conformity determination would be undertaken for the applicable nonattainment/maintenance pollutants.

While the GCR analysis is not necessary for the vertical clearance projects, the applicability analysis was conducted to identify if *de minimis* levels have the potential to be exceeded by the projects.

3 Existing Air Quality

Existing air quality conditions in Allegheny County can be reflected through the current status of the NAAQS attainment and the recent ambient air monitoring data collected by DEP and published by EPA.

As shown above, the project area has EPA designations as follows:

- Marginal nonattainment for the 2008 ozone standard;
- Maintenance for the 1971 carbon monoxide standard;
- Maintenance for the 2006 PM_{2.5} standard;
- Moderate nonattainment for the 2012 PM_{2.5} standard;
- Nonattainment for the 2010 SO₂ standard.

The DEP operates the Commonwealth of Pennsylvania Air Monitoring System (COPAMS) air monitoring sites, including ambient (i.e., outdoor) air monitoring sites, to continuously monitor pollutant levels throughout the state. This data is used to monitor compliance with federal and state ambient air quality standards and is provided to the public in annual reports. According to its website, the DEP does not generally monitor air quality in Allegheny County and relies on the independent Allegheny County Health Department Air Quality Program to monitor air quality monitoring in the county.

The Allegheny County Health Department Air Quality Program's Annual Reports for 2016, 2017, and 2018 include both published data for each year as well as analysis concerning 1997-2018 air quality trends. Data provided for the most recent three years at the monitoring stations nearest the project area are used to describe the representative ambient air quality in the project area and are presented in Table 2. The measured ambient air concentrations closest to the project area were all well below the corresponding NAAQS, except for the exceedance of the 8-hour ozone standard recorded in Lawrenceville in 2016, 2017, and 2018. However, the annual fourth highest daily maximum 8-hour concentration averaged over 3 years, which is how EPA measures the compliance standard, are below the standard.

Table 2. Representative Monitored Ambient Air Quality Data

Pollutant	Averaging Time	Year			Primary Standard	Monitoring Site Location
		2021	2020	2019		
Carbon Monoxide (CO)	1-hour Maximum (ppm)	2.3	1.9	2.2	35	Lawrenceville
	8-hour Maximum (ppm)	1.1	1.4	1.4	9	
Ozone (O ₃)	8-hour Maximum (ppm)	2019 to 2021 3-Year Average of 4 th Maximum 0.064			0.070	Lawrenceville
Nitrogen Dioxide (NO ₂)	1-hour Maximum (ppb)	46	51	40	100	Parkway East
	Annual (ppb)	10	9.0	10.0	53	
Particulate Matter (PM ₁₀) ¹	24-hour Maximum (µg/m ³)	24	31	26	150	Clairton
Particulate Matter (PM _{2.5}) ¹	24-hour (98 th Percentile) (µg/m ³)	23.1	18.9	21.7	35	Lawrenceville
	Annual	8.8	7.7	9.0	12	
Sulfur Dioxide (SO ₂)	1-hour Maximum (ppb)	15	7	21	75	Lawrenceville

Note: ¹Filter based monitor results presented.

Source: Allegheny County Air Quality Reports, 2019⁶, 2020⁷, 2021⁸

4 Methodology

The Pittsburgh Vertical Clearance Projects are designed to improve mobility and efficiency along the east-west rail corridor by allowing double stack intermodal train traffic to be rerouted from the Mon Line to the Pittsburgh Line, each of which are located within the Pittsburgh, PA metropolitan area. Currently, double stack intermodal traffic crosses the OC Bridge Flyover over the Ohio River and follows the Mon Line on the west side of the Ohio and Monongahela Rivers down to the single tracked Port Perry Bridge, where it crosses back over and connects to the Pittsburgh Line. Train emissions result primarily from the diesel fuel used in locomotives. Locomotives and locomotive engines, as well as the fuel allowed to be used in locomotives, are subject to federal EPA emissions standards. The air quality assessment is focused on the regional annual net changes in locomotive emissions that would result from the proposed projects. The GCR applicability analysis was completed for the net change in annual CO, PM_{2.5}, NO₂ and volatile organic compounds (VOCs) from locomotives to evaluate air quality impacts. Ultra-low sulfur diesel oil (ULSD) was fully phased in for locomotives by 2014, resulting in low SO₂ emissions. Therefore, emissions of SO₂ were not included and are expected to be well below the EPA *de minimis* levels. Emissions were estimated for the Existing (2019), the No Build (2045), and Build (2045)

⁶ Allegheny County, 2019 Air Quality Annual Report: [2019-Air-Quality-Annual-Report.pdf \(alleghenycounty.us\)](#)

⁷ Allegheny County, 2020 Air Quality Annual Report: [2020-Air-Quality-Annual-Report.pdf \(alleghenycounty.us\)](#)

⁸ Allegheny County, 2021 Air Quality Annual Report: [2021-data-summary.pdf \(alleghenycounty.us\)](#)



scenarios. The design year analysis is an anticipated future scenario informed by United States Department of Transportation (DOT) and PennDOT rail traffic forecasts.

Locomotive emissions were estimated using a weighted average of the fleet distribution of the current and expected fleet mix, assuming the EPA-established line haul locomotive exhaust emission standards (Tier 0, Tier 1, Tier 2, Tier 3, and Tier 4)⁹. For purposes of this analysis, Tier 0 and some of the Tier 0+ and Tier 1+ locomotives assumed for the existing condition will be phased out over time, with higher proportions of Tier 2, Tier 3, and Tier 4 locomotive engines comprising the fleet mix in the design year. The emission factors for the anticipated Norfolk Southern locomotive fleet mix for each condition is presented in Table 3.

Table 3. Norfolk Southern Fleet Mix Emission Factors

Operating Condition	N-S Systemwide Locomotive Emission Factors (g/bhp-hr)			
	NO ₂	PM	CO	HC
2019 Existing Conditions	6.76	0.22	2.04	0.81
2045 Design Conditions	4.82	0.12	1.87	0.36

Note: PM represents PM_{2.5} and PM₁₀ emissions.

Figure 5 presents the air quality analysis segments. The study corridor along which the projects lie was divided into three segments: Segment 1 – Pittsburgh Line, Braddock/East Pittsburgh to Downtown Pittsburgh (distance of 11.8 miles); Segment 2 – Pittsburgh Line, Northside Segment, Mile Post 0.0 to PC 3.17 (distance of 3.9 miles); and Segment 3 – Mon Line from where it crosses the OC Bridge Flyover over the Ohio River and follows the Mon Line on the west side of the Ohio and Monongahela Rivers down to the single tracked Port Perry Bridge, where it crosses back over and connects to the Pittsburgh Line (distance of 15.9 miles). These segments encompass the entire study area. Daily locomotive movements were estimated for both the freight line and the passenger traffic over the two Amtrak routes along each segment. The Existing and No Build scenarios do not include the rerouting of any intermodal trains with double stacked cars from the Mon Line to the Pittsburgh Line because the Pittsburgh Line would not accommodate double stack in those scenarios, but the No Build scenario does include forecasted traffic projections for a low-growth scenario and a high-growth scenario. The low-growth scenario is based on the Pennsylvania Department of Transportation (PennDOT) 2020 Rail Plan¹⁰ and the high-growth scenario is based on the PennDOT 2015 Rail Plan¹¹.

The high growth scenario is a result of the freight flow projections developed as part of the 2015 PA Freight Plan where PennDOT is projecting an 80+% growth in intermodal container traffic. The (low growth) projections for 2045 in the 2020 PA Freight Plan were modified significantly to reflect changes in global freight changes. The low growth reflects minor (1-2%) growth in intermodal over the next 20+

⁹ See 40 CFR 1033.101

¹⁰ Pennsylvania Department of Transportation 2020 Rail Plan: (PennDOT 2021

<https://www.penndot.pa.gov/Doing-Business/RailFreightAndPorts/Planning/Documents/2020%20Pennsylvania%20State%20Rail%20Plan/2020%20Pennsylvania%20State%20Rail%20Plan.pdf>)

¹¹ Pennsylvania Department of Transportation 2015 Rail Plan: (PennDOT 2016 [https://www.penndot.pa.gov/Doing-Business/Transit/InformationandReports/Documents/2015%20Pennsylvania%20State%20Rail%20Plan%20\(low\).pdf](https://www.penndot.pa.gov/Doing-Business/Transit/InformationandReports/Documents/2015%20Pennsylvania%20State%20Rail%20Plan%20(low).pdf))



years. Thus, the only changes between low and high growth for this analysis are the number of intermodal trains.

The Build scenarios assume the rerouting of intermodal trains with double stacked traffic to the Pittsburgh Line from the Mon Line as well as forecasted traffic projections. The Mon Line is currently operating at or near capacity. Therefore, the study presumes that under all future scenarios, to accommodate growth in intermodal train movements through the Pittsburgh area, additional trains operating with double stacked rail cars (in the Build scenario) or trains operating with single stacked rail cars (in the No Build scenario) would operate on the Pittsburgh Line. In general, this would mean that under the No Build condition, the Mon Line would continue to operate at capacity with double stack traffic and the study presumes growth in intermodal rail traffic would be routed in a larger number of single stack trains on the Pittsburgh Line. For the Build condition, growth in intermodal rail traffic is presumed to shift from the Mon Line to the Pittsburgh Line and all intermodal growth is presumed to also occur on the Pittsburgh Line. Remaining traffic on the Mon Line with the Build condition would include existing freight movements of any non-double stack intermodal trains.

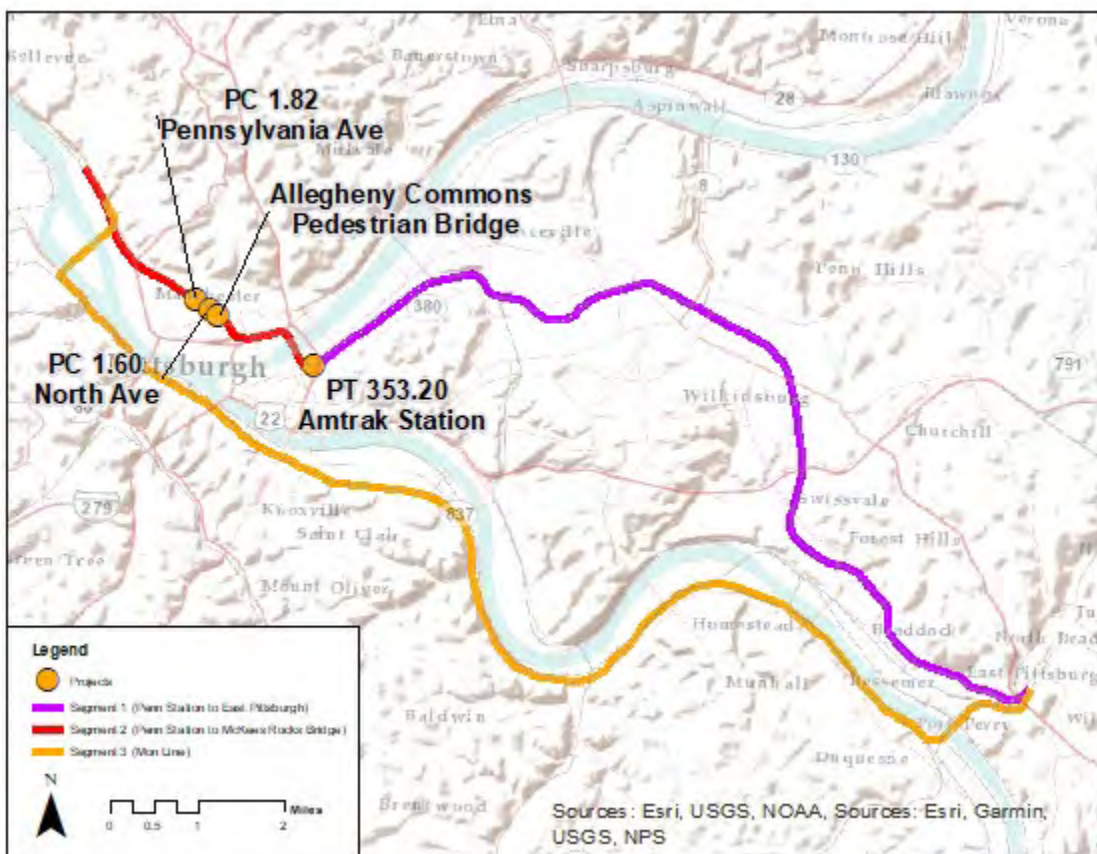


Figure 5. Air Quality Analysis Segments

There is variability in how locomotives operate throughout the study corridor, and generally in railroad operations, due to a number of factors, including maximum track speeds, slowing down or idling due to speed changes, increasing speed and use of higher throttle settings, and specific train consists (i.e., the number of locomotives, cars and their contents on a train). For these reasons, average locomotive speeds, weighted emission factors, average engine horsepower rating, and average load factors were included in the emission calculation. In lieu of project-specific values, a load factor of 0.28 was assumed for Existing and No Build and Build scenarios based on typical locomotives at these speeds. The load

factor corresponds to the percentage of full power applied in a given notch setting on the locomotive. Notch settings include engine braking, idle, and numeric values ranging from 1 to 8. A load factor of 0.28 means that the locomotive is using about 28% of full power, which corresponds to a notch setting of 3 or 4. Emissions were estimated for each of the segments for the Existing and 2045 No Build and Build scenarios, with a low-growth and high-growth scenario included for all future conditions. Table 4 and Table 5 summarizes the pollutant emissions in tons per year for each condition and segment with future low-growth in intermodal traffic and high-growth conditions, respectively.

Table 4. Locomotive Emissions Summary for Each Scenario under Low Growth in Intermodal Traffic

N-S Rail Line Operational Condition	Rail Segment Description	Train Type	Distance (miles)	Number of Locomotives per Day ¹	Annual VMT ²	Ave. Speed (mph)	Load Factor ³	Horsepower	NS Systemwide Locomotive Emission Factors (g/bhp-hr) ⁴				Emissions Tons per Year (TPY)			
									NO ₂	PM ⁵	CO	HC ⁶	NO ₂	PM ⁵	CO	HC ⁶
2019 Existing Conditions	Pittsburgh Line - Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	38	164,338.6	26.67	0.28	1226.1	6.76	0.22	2.04	0.81	15.7695	0.5171	4.7687	1.8933
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1226.1	6.76	0.22	2.04	0.81	0.7378	0.0242	0.2231	0.0886
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1226.1	6.76	0.22	2.04	0.81	1.4757	0.0484	0.4463	0.1772
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	68	96,386.7	26.67	0.28	1226.1	6.76	0.22	2.04	0.81	9.2490	0.3033	2.7969	1.1104
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1226.1	6.76	0.22	2.04	0.81	0.4705	0.0154	0.1423	0.0565
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	68	395,370.3	30	0.28	1226.1	6.76	0.22	2.04	0.81	33.7275	1.1059	10.1993	4.0494
Total												61.43	2.01	18.58	7.38	
2045 No Build	Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	82	354,624.7	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	24.6814	0.6097	9.5627	1.8198
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1248.4	4.82	0.12	1.87	0.36	0.5352	0.0132	0.2073	0.0395
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1248.4	4.82	0.12	1.87	0.36	1.0703	0.0264	0.4147	0.0789
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	118	167,258.9	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	11.6410	0.2876	4.5102	0.8583
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1248.4	4.82	0.12	1.87	0.36	0.3413	0.0084	0.1322	0.0252
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	22	127,913.9	30	0.28	1248.4	4.82	0.12	1.87	0.36	7.9145	0.1955	3.0664	0.5836
Total												46.18	1.14	17.89	3.41	
2045 Build	Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	58	250,832.1	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	17.4576	0.4313	6.7638	1.2872
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1248.4	4.82	0.12	1.87	0.36	0.5352	0.0132	0.2073	0.0395
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1248.4	4.82	0.12	1.87	0.36	1.0703	0.0264	0.4147	0.0789
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	90	127,570.3	29.17	0.28	1248.4	4.82	0.12	1.87	0.36	8.1178	0.2005	3.1452	0.5986
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1248.4	4.82	0.12	1.87	0.36	0.3413	0.0084	0.1322	0.0252
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	0	0.0	30	0.28	1248.4	4.82	0.12	1.87	0.36	0.0000	0.0000	0.0000	0.0000
Total												27.52	0.68	10.66	2.03	

Notes:

- Number of locomotives per day assumptions are based on existing train movements with forecasted increases from the 2020 Pennsylvania Rail Plan (PennDOT 2021).
- Vehicle Miles Traveled (VMT) assumes number of locomotives a day occur every day for 365 days per year.
- Load factor of 0.28 based on typical engine at 20 to 25 mph.
- Existing line haul emission factors use weighted average for 2019 Norfolk Southern fleet. Design line haul emission factors use weighted average of expected NS fleet mix for 2045 design year.
- PM includes both PM₁₀ and PM_{2.5} emissions
- Hydrocarbons (HC) are synonymous with volatile organic compounds (VOC)

Definitions:

VMT - Vehicle miles traveled is the total number of miles traveled by trains on each of the rail segments.
Load Factor - the load factor is based on the notch setting (or throttle setting) of the locomotives operating along the segments and is based on an average setting provided by Norfolk Southern's operations staff.

Table 5. Locomotive Emissions Summary for Each Scenario under High Growth in Intermodal Traffic

N-S Rail Line Operational Condition	Rail Segment Description	Train Type	Distance (miles)	Number of Locomotives per Day ¹	Annual VMT ²	Ave. Speed (mph)	Load Factor ³	Horsepower	NS Systemwide Locomotive Emission Factors (g/bhp-hr) ⁴				Emissions Tons per Year (TPY)			
									NO ₂	PM ⁵	CO	HC ⁶	NO ₂	PM ⁵	CO	HC ⁶
2019 Existing Conditions	Pittsburgh Line - Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	38	164,338.6	26.67	0.28	1226.1	6.76	0.22	2.04	0.81	15.7695	0.5171	4.7687	1.8933
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1226.1	6.76	0.22	2.04	0.81	0.7378	0.0242	0.2231	0.0886
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1226.1	6.76	0.22	2.04	0.81	1.4757	0.0484	0.4463	0.1772
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	68	96,386.7	26.67	0.28	1226.1	6.76	0.22	2.04	0.81	9.2490	0.3033	2.7969	1.1104
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1226.1	6.76	0.22	2.04	0.81	0.4705	0.0154	0.1423	0.0565
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	68	395,370.3	30	0.28	1226.1	6.76	0.22	2.04	0.81	33.7275	1.1059	10.1993	4.0494
Total												61.43	2.01	18.58	7.38	
2045 No Build	Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	94	406,521.0	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	28.2934	0.6989	10.9621	2.0862
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1248.4	4.82	0.12	1.87	0.36	0.5352	0.0132	0.2073	0.0395
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1248.4	4.82	0.12	1.87	0.36	1.0703	0.0264	0.4147	0.0789
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	120	170,093.8	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	11.8383	0.2924	4.5867	0.8729
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1248.4	4.82	0.12	1.87	0.36	0.3413	0.0084	0.1322	0.0252
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	68	395,370.3	30	0.28	1248.4	4.82	0.12	1.87	0.36	24.4629	0.6043	9.4780	1.8037
Total												66.54	1.64	25.78	4.91	
2045 Build	Braddock to Downtown Pittsburgh Segment - Milepost PT-341.00 to PT-353.35 (Pittsburgh Line from MP 341.0 to Start of Fort Wayne Line)	Freight	11.8	90	389,222.2	26.67	0.28	1248.4	4.82	0.12	1.87	0.36	27.0894	0.6692	10.4956	1.9974
		Passenger (Amtrak Pennsylvania Line)	11.8	2	8,649.4	30	0.28	1248.4	4.82	0.12	1.87	0.36	0.5352	0.0132	0.2073	0.0395
		Passenger (Amtrak Capitol Limited Line)	11.8	4	17,298.8	30	0.28	1248.4	4.82	0.12	1.87	0.36	1.0703	0.0264	0.4147	0.0789
	Pittsburgh Line - Northside Segment - Milepost PC-0.00 to PC-3.17 (From convergence of Fort Wayne and Conemaugh Lines westward to convergence of Ft. Wayne and Mon Lines west of OC Bridge)	Freight	3.9	112	158,754.2	29.17	0.28	1248.4	4.82	0.12	1.87	0.36	10.1021	0.2496	3.9140	0.7449
		Passenger (Amtrak Capitol Limited Line)	3.9	4	5,669.8	30.84	0.28	1248.4	4.82	0.12	1.87	0.36	0.3413	0.0084	0.1322	0.0252
	Mon Line (OC Bridge Flyover across the Ohio River south to the Port Perry Bridge and connection to the Pittsburgh Line)	Freight	15.9	24	139,542.5	30	0.28	1248.4	4.82	0.12	1.87	0.36	8.6340	0.2133	3.3452	0.6366
Total												47.77	1.18	18.51	3.52	

Notes:

- Number of locomotives per day assumptions are based on existing train movements with forecasted increases from the 2015 Pennsylvania Rail Plan (PennDOT 2016).
- Vehicle Miles Traveled (VMT) assumes number of locomotives a day occur every day for 365 days per year.
- Load factor of 0.28 based on typical engine at 20 to 25 mph.
- Existing line haul emission factors use weighted average for 2019 Norfolk Southern fleet. Design line haul emission factors use weighted average of expected NS fleet mix for 2045 design year.
- PM includes both PM₁₀ and PM_{2.5} emissions
- Hydrocarbons (HC) are synonymous with volatile organic compounds (VOC)

Definitions:

VMT - Vehicle miles traveled is the total number of miles traveled by trains on each of the rail segments.
Load Factor - the load factor is based on the notch setting (or throttle setting) of the locomotives operating along the segments and is based on an average setting provided by Norfolk Southern's operations staff.

5 General Conformity Rule Applicability

The GCR applicability analysis was performed for the proposed action to determine whether a formal conformity analysis would be undertaken. Table 6 and Table 7 summarizes the regional locomotive emissions estimates for the Existing, No Build, and Build conditions for NO₂, VOC, CO, and PM_{2.5} for intermodal low growth and high growth projections, respectively. As noted earlier, locomotives use ultra-low-sulfur diesel fuel consistent with EPA fuel standards and corresponding SO₂ emissions are expected to be very low and well below applicable *de minimis* levels.

As shown in Table 6 and Table 7, the predicted annual net change in operational emissions is expected to decrease for all pollutants in the subarea region for the low growth and high growth projections for the 2045 Build conditions as compared to the 2045 No Build conditions. This expected reduction is primarily due to more efficient utilization of locomotives (double stacking leading to fewer locomotives for the same amount of freight) under the Build scenario. Furthermore, the net change in emissions would also be below established EPA *de minimis* thresholds for NO₂, PM_{2.5}, and CO for both growth projections and would not result in a significant air quality impact. Therefore, a general conformity determination is not required for the Build scenarios and no adverse air quality impacts would be expected to result from the Build scenario for the low growth and high growth projections.

Table 6. Pittsburgh Regional Annual Net Change in Emissions from Build Scenario Compared to EPA *de minimis* Thresholds for the Intermodal Low-Growth Future Conditions

Scenarios	Emissions (TPY) ^{1,2}			
	NO ₂	PM _{2.5}	CO	VOC
2019 Existing	61.43	2.01	18.58	7.38
2045 No Build	46.18	1.14	17.89	3.41
2045 Build	27.52	0.68	10.66	2.03
Difference in No Build and Build scenarios	-18.66	-0.46	-7.23	-1.38
EPA <i>de minimis</i> thresholds	100	100	100	50
Below the <i>de minimis</i> thresholds	Yes	Yes	Yes	Yes

Notes:

1. As a conservative assumption, all PM in Table 6 is assumed to be PM_{2.5} when comparing to the PM_{2.5} *de minimis* levels.
2. For this analysis, VOC emissions are the same as the HC emissions as presented in Table 6 above.

Table 7. Pittsburgh Regional Annual Net Change in Emissions from Build Scenario Compared to EPA *de minimis* Thresholds for the Intermodal High-Growth Future Conditions

Scenarios	Emissions (TPY) ^{1,2}			
	NO ₂	PM _{2.5}	CO	VOC
2019 Existing	61.43	2.01	18.58	7.38
2045 No Build	66.54	1.64	25.78	4.91
2045 Build	47.77	1.18	18.51	3.52
Difference in No Build and Build scenarios	-18.77	-0.46	-7.27	-1.38
EPA <i>de minimis</i> thresholds	100	100	100	50
Below the <i>de minimis</i> thresholds	Yes	Yes	Yes	Yes

Notes:

3. As a conservative assumption, all PM in Table 7 is assumed to be PM_{2.5} when comparing to the PM_{2.5} *de minimis* levels.
4. For this analysis, VOC emissions are the same as the HC emissions as presented in Table 7 above.

5.1 Mobile Source Air Toxics

Based on regulations now in effect, an analysis of national trends with EPA’s MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority of mobile source air toxic (MSAT) from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). This will both reduce the background level MSAT as well as the possibility of even minor MSAT emissions from these projects. As shown in the GCR analysis above, these projects have been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and have not been linked with any special MSAT concerns. As such, the projects would not cause a significant increase in MSAT impacts over that of the No Build condition. Moreover, EPA regulations for locomotive engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades.

6 Construction Emissions

As indicated in PennDOT guidance, air quality impacts resulting from construction activities are typically not a concern when contractors utilize appropriate control measures. In Pennsylvania, contractors shall perform all construction activities / operations in accordance with 25 Pa. Code Article III (Chapters 121-145, Air Resources) to ensure adequate control measures are in place. PennDOT, Pub. 321, at 1.6. For that reason, the emissions results in this study only include operational emissions and do not include construction emissions, which would be temporary in nature.

7 Conclusions

Regional locomotive emissions were estimated for the Existing, 2045 Build and No Build conditions for the Proposed Action under low-growth and high-growth intermodal freight trains scenarios. Emissions

of NO₂, CO, PM_{2.5} (i.e. PM), and VOCs (i.e. HC) were estimated and compared to the EPA *de minimis* levels for operational emissions only to determine significant air quality impacts. Construction emissions are short-term and typically not a concern and were not included as part of this analysis. With the Proposed Action under the low growth and high growth scenario, it is estimated there would be a net reduction in annual regional locomotive operational emissions, and therefore no significant impacts would result with implementation of the projects and a general conformity determination would not be required.

This analysis does not include the indirect beneficial effects of additional freight modal shifts from highway to rail that may result after these projects are completed. One freight train can carry the freight of several hundred trucks. Emissions of particulate matter and nitrogen oxides are significantly lower for railroads than for trucks. On average railroads are four times more fuel efficient than trucks. Because greenhouse gas emissions are directly related to fuel consumption, moving freight by rail instead of truck reduces greenhouse gas emissions by 75 percent¹².

¹² See <https://www.aar.org/wp-content/uploads/2018/07/AAR-Rail-Intermodal.pdf>.

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Michael Baker
INTERNATIONAL

Appendix C
**Noise and Vibration
Analysis**

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Norfolk Southern Railway Company

Pittsburgh Vertical Clearance Projects

Noise and Vibration Technical Report

HMMH Report No. 310190
February 14, 2024

Prepared for:

Michael Baker International
100 Airside Drive
Moon Township, PA 15108

Prepared by:
Scott Noel
John Weston
Julia Nagy



HMMH
700 District Ave Suite 800
Burlington, MA 01803
T 781.229.0707
F 781.229.7939

Executive Summary

The Pittsburgh Vertical Clearance Projects comprise four (4) railway improvement projects on the Pittsburgh and Fort Wayne Rail Lines (together referred to as the Pittsburgh Line), owned and operated by Norfolk Southern Railway Company (Norfolk Southern). The proposed projects will address freight capacity and delay constraints through the City of Pittsburgh, Allegheny County, Pennsylvania. Norfolk Southern is a common carrier and the Pittsburgh Line forms a critical component of its route through Pittsburgh between Chicago and the New York/New Jersey commercial markets. Three (3) of the four (4) projects are overhead clearance projects [W. North Avenue Bridge (PC-1.60); Pennsylvania Avenue Bridge (PC-1.82); and Amtrak Station Canopy (PT-353.20)] that have vertical clearance obstructions along the Pittsburgh Line and prevent efficient movement of freight, especially time-sensitive intermodal freight, by rail between Chicago and New York/New Jersey, and specifically through Pennsylvania. The fourth project is the installation of a new Allegheny Commons Pedestrian Bridge (PC-1.50).

Unused capacity exists on the Pittsburgh Line and these clearance projects will allow the line to accommodate anticipated freight growth while allowing for double-stack intermodal freight to use the Pittsburgh Line in lieu of Norfolk Southern's Monongahela line (Mon Line) south of the rivers. The ability to move this double-stack traffic on the Pittsburgh Line will eliminate exposure to hazardous conditions and delay to time-sensitive freight relating to the unpredictable landslides from adjacent property that occur along the Mon Line.

Community meetings were held in June 2018 and December 2022 to obtain feedback from the community related to the scope of the projects. The community identified noise as a primary concern related to the projects. To address that concern, although noise and vibration analyses may not be needed for the environmental review of these projects, Norfolk Southern elected to conduct this noise and vibration impact assessment to evaluate the potential impacts associated with the projects. This analysis was developed in accordance with Pennsylvania Act 120 of 1970 and is consistent with the Pennsylvania Department of Transportation (PennDOT) Publication 24 "*Project Level Highway Traffic Noise Handbook*", see <https://www.dot.state.pa.us/public/pubsforms/Publications/PUB%2024.pdf>. Although Publication 24 relates to highway projects, the principles of that guidance have been applied to the analysis of these projects. The United States Environmental Protection Agency (EPA) regulations at 40 C.F.R. Part 201 establish noise emission standards for transportation equipment for interstate rail carriers, and Federal Railroad Administration (FRA) regulations at 49 C.F.R. Parts 210, 222, and 227 establish noise standards for rail equipment and operations. These standards apply to Norfolk Southern's rail operations as a general matter. For environmental analysis of noise for the purpose of Act 120 analysis, PennDOT incorporates Federal Highway Administration (FHWA) processes applicable to highway projects. FHWA processes do not address freight rail. As explained below, for this analysis HMMH has applied Surface Transportation Board (STB) regulations and Federal Transit Administration (FTA) noise and vibration guidance applicable to transit rail projects and/or high-speed rail projects consistent with previous FRA analyses.

Existing noise and vibration levels were measured along the study corridor to establish existing conditions and for use in determining potential impacts applying STB noise assessment guidelines and vibration thresholds per FTA/FRA guidance, specifically the FTA's "*Transit Noise and Vibration Impact Assessment Manual*" (FTA 2018). Existing sound levels along the corridor are typical of an urban

environment with sounds from urban sources, roadways, industrial sources, the existing Norfolk Southern line, and natural sounds.

Existing sound levels are variable depending on distance from sound sources, such as the rail line, but on average are approximately 65 day-night (L_{dn})¹ A-weighted decibels (dBA). Under the “Build” (with projects) or “No Build” (without projects) future conditions sound levels would increase by an average of approximately 1 decibel (dB) throughout the analysis area, with slightly higher increases occurring under the No Build future conditions due to higher train traffic relative to the future Build conditions. The STB assessment guidelines are being used as a framework only and not because the projects are subject to review under the STB regulations and guidance. In accordance with 49 C.F.R. § 1105.7, STB impact thresholds are based on changes in noise exposure relative to the existing conditions, with an impact occurring if either of these two conditions occur:

1. STB regulations require identifying sensitive receptors where noise levels are increased by 3 decibels (dB) or more as a result of the Project;
2. Or, where sound levels are increased to 65 dBA L_{dn} or greater as a result of the Project.

Noise and vibration impacts were predicted for the train traffic that would result as an indirect effect of the clearance projects in the future under both the Build and No Build under low-growth and high-growth scenarios. The low-growth scenario is based on the 2020 State of Pennsylvania Rail Plan projections for freight trains and the high-growth scenario is based on the 2015 State of Pennsylvania Rail Plan projections for freight traffic. Noise levels would be slightly higher along the Pittsburgh Line under either growth scenario for the No Build scenario than the Build scenario, due to the greater number of single-stack trains that would be required to accommodate future rail traffic demand, as compared to the fewer double-stack trains capable of carrying the same amount of rail freight. Specifically, acoustic modeling identified that 58 less noise sensitive land uses would be impacted under the future Build conditions than under the future No Build conditions under both the low-growth and high-growth scenarios. In addition, all impacted land uses under the future Build conditions would also be impacted under the future No Build conditions.

Vibration from train trips is event based and for this reason is not additive like that of noise. Locomotives are the heaviest component of a train consist (the locomotives and cars in a train) and as such the most intense source of vibration from train pass-by events. The clearance projects will have no direct effect on vibration. Because the vibration source is not changing in intensity no potential indirect effects are predicted throughout the corridor. Additionally, small reductions in the vertical alignment of the Norfolk Southern line under the Build scenario provide negligible reductions in vibration, which would not be appreciably different than the No Build scenario. For these reasons no vibration impacts are predicted.

¹ The L_{dn} is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. during the nighttime period 10 dB is added.

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1 Introduction

The Pittsburgh Vertical Clearance Projects, also referred to as the “Build” conditions or scenario, are comprised of four (4) railway improvement projects on the Pittsburgh and Fort Wayne Rail Lines (together referred to as the Pittsburgh Line), owned and operated by Norfolk Southern Railway Company (Norfolk Southern). The proposed projects address freight capacity and delay constraints through the City of Pittsburgh, Allegheny County, Pennsylvania. Norfolk Southern is a common carrier and the Pittsburgh Line forms a critical component of its route through Pittsburgh between Chicago and the New York/New Jersey commercial markets. Three (3) of the four (4) projects are overhead clearance projects [W. North Avenue Bridge (PC-1.60); Pennsylvania Avenue Bridge (PC-1.82); and Amtrak Station Canopy (PT-353.20)] that have vertical clearance obstructions along the Pittsburgh Line and prevent efficient movement of freight, especially time-sensitive intermodal freight, by rail between Chicago and New York/New Jersey, and specifically through Pennsylvania. Unused capacity exists on the Pittsburgh Line and these clearance projects will allow the line to accommodate anticipated freight growth while allowing for double-stack intermodal freight to use the Pittsburgh Line in lieu of Norfolk Southern’s Monongahela line (Mon Line) south of the rivers. The ability to move this double-stack traffic on the Pittsburgh Line will eliminate exposure to hazardous conditions and delay to time-sensitive freight relating to the unpredictable landslides from adjacent property that occur along the Mon Line. The fourth project is the installation of a new Allegheny Commons Pedestrian Bridge (PC-1.50).

The bridge improvements will not have a direct effect on noise and vibration, but due to community feedback and identification of noise and vibration as an issue of interest and potential indirect effect, Norfolk Southern engaged HMMH to conduct and elected to complete a noise and vibration impact assessment for the length of the rail corridor that encompasses all four of the projects, which is approximately 13 miles in length. This document presents the measured noise and vibration levels for the existing conditions and the predicted noise and vibration impact conditions associated with the projects through this study corridor.

2 Noise and Vibration Basics

2.1 Noise Fundamentals and Descriptors

Noise is typically defined as unwanted or undesirable sound, whereas sound is characterized by small air pressure fluctuations above and below the atmospheric pressure. The basic parameters of environmental noise that affect human subjective response are (1) intensity or level, (2) frequency content and (3) variation with time. The first parameter is determined by how greatly the sound pressure fluctuates above and below the atmospheric pressure and is expressed on a compressed scale in units of decibels. By using this scale, the range of normally encountered sound can be expressed by values between 0 and 120 decibels. On a relative basis, a 3-decibel change in sound level generally represents a barely noticeable change outside the laboratory, whereas a 10-decibel change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound. A 5-decibel change is readily noticeable by people with average hearing.

The frequency content of noise is related to the tone or pitch of the sound and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second (called Hertz and abbreviated as Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the A-weighting system is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise. To indicate what various noise levels represent, Figure 1 shows typical A-weighted sound levels for both rail and non-rail sources. As indicated on this figure, most commonly encountered outdoor noise sources generate sound levels within the range of 60 dBA to 90 dBA at a distance of 50 feet.

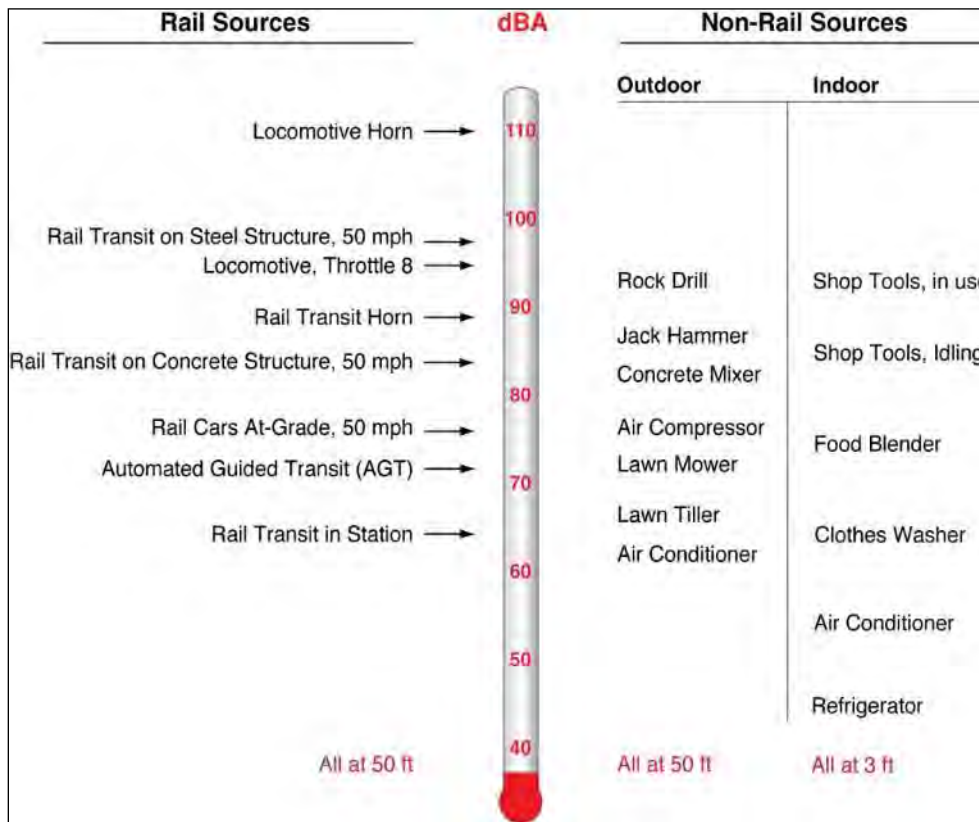


Figure 1. Weighted Sound Levels

Because environmental noise fluctuates from moment to moment, it is common practice to condense all of this information into a single number, called the "equivalent" sound level (L_{eq}). L_{eq} can be thought of as the steady sound level that represents the same sound energy as the varying sound levels over a specified time period (typically 1 hour or 24 hours). Often, the L_{eq} values over a 24-hour period are used to calculate cumulative noise exposure in terms of the Day-Night Sound Level (L_{dn}). L_{dn} is the A-weighted L_{eq} over a 24-hour period with an adjustment factor for noise during the nighttime hours (between 10:00 PM and 7:00 AM) to account for the greater sensitivity of most people to noise during the night. The effect of nighttime adjustment is that one nighttime event, such as a train passing by between 10:00 P.M. and 7:00 A.M., is equivalent to 10 similar events during the daytime. Figure 2 provides examples of typical noise environments and criteria in terms of L_{dn} . While the extremes of L_{dn} are shown to range

from 35 dBA in a wilderness environment to 85 dBA in noisy urban environments, L_{dn} is generally found to range between 55 dBA and 75 dBA in most communities.

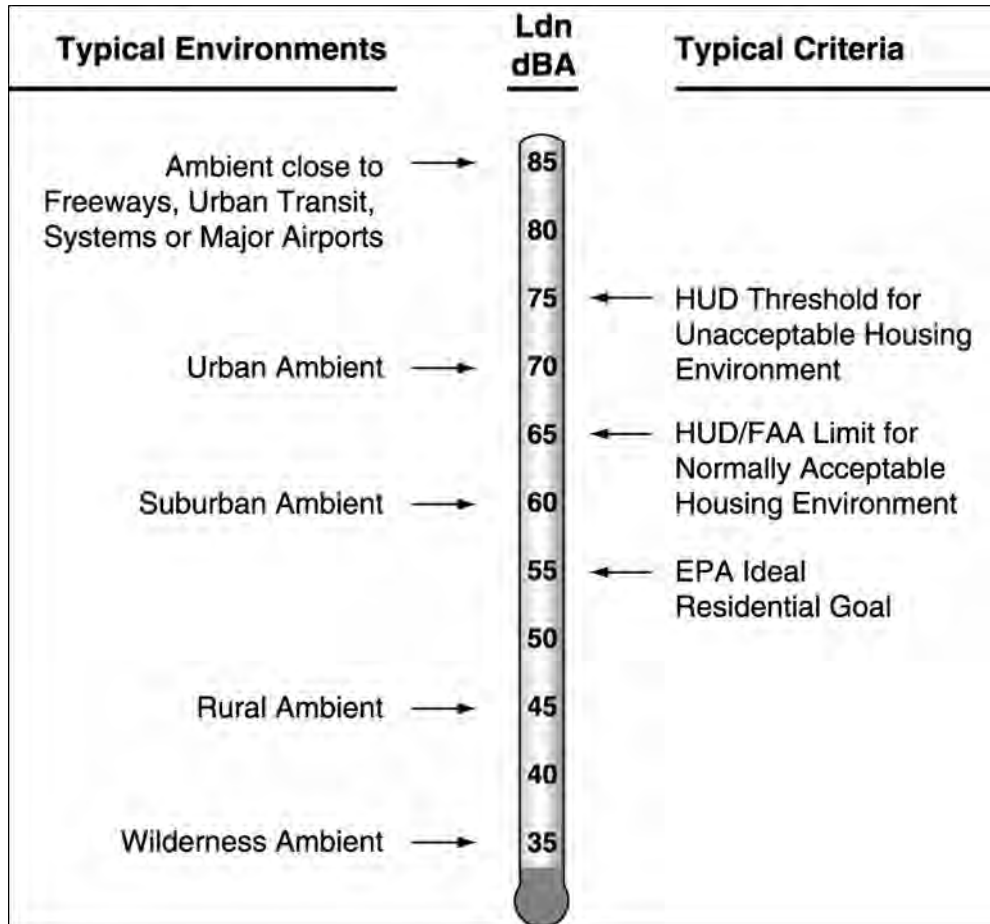


Figure 2. Examples of Typical Outdoor Noise Exposure

2.2 Ground-Borne Vibration Fundamentals and Descriptors

Ground-borne vibration is the oscillatory motion of the ground about some equilibrium position that can be described in terms of displacement, velocity or acceleration. Because sensitivity to vibration typically corresponds to the amplitude of vibration velocity within the low-frequency range of most concern for environmental vibration (roughly 5-100 Hz), velocity is the preferred measure for evaluating ground-borne vibration from transit projects.

The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV), defined as the maximum instantaneous peak of the vibratory motion. PPV is typically used in monitoring blasting and other types of construction-generated vibration, since it is related to the stresses experienced by building components. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response, which is better related to the average vibration amplitude. Thus, ground-borne vibration from transit systems is usually characterized in terms of the "smoothed" root mean square (rms) vibration velocity level, in decibels (VdB), with a reference

quantity of one micro-inch per second. VdB is used in place of dB to avoid confusing vibration decibels with sound decibels.

Figure 3 illustrates typical ground-borne vibration levels for common sources as well as criteria for human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the approximate threshold of human perception to vibration is 65 VdB, annoyance is usually not significant unless the vibration exceeds 70 VdB.

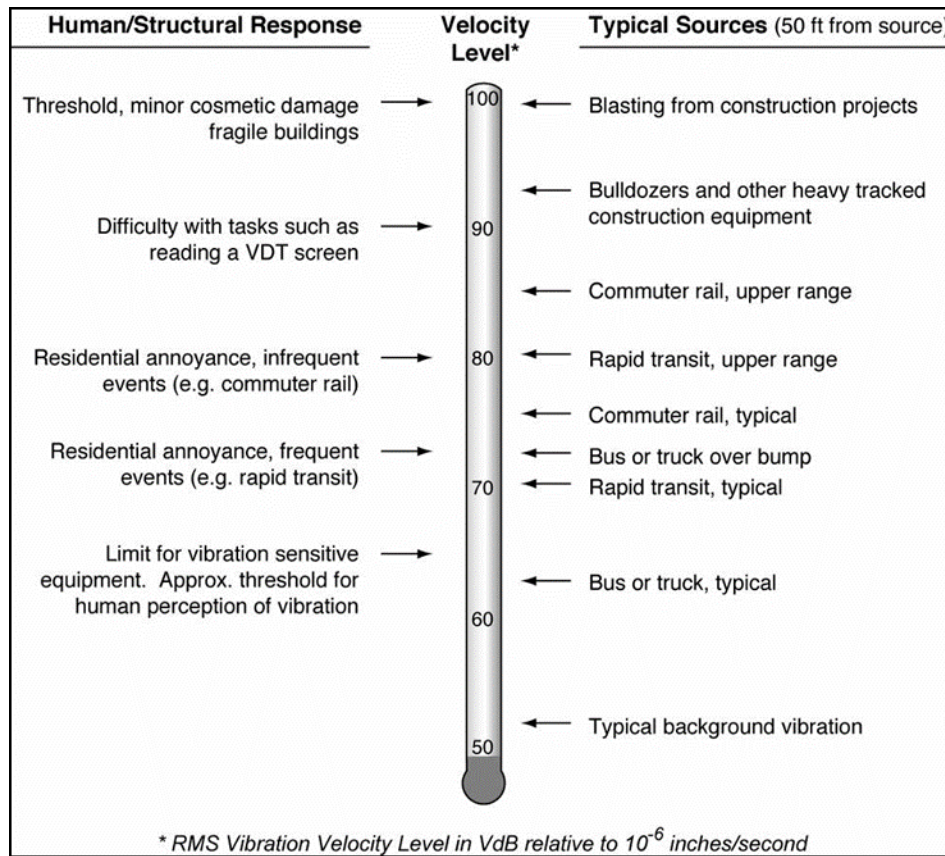


Figure 3. Typical Ground Borne Vibration Levels and Criteria

3 Noise and Vibration Impact Criteria

The following sections are included for informational purposes, to provide context for the noise and vibration levels discussed in this document. The noise assessments for these projects are based on U.S. Surface Transportation Board (STB) provisions for Procedures for Implementation of Environmental Laws in 49 C.F.R. 1105.7 and the noise and vibration impact criteria defined in the U.S. Federal Transit Administration (FTA) guidance manual, *Transit Noise and Vibration Impact Assessment* (FTA 2018) (“FTA Manual”). The Federal Railroad Administration (FRA) has applied methodology used in the FTA Manual for use on freight rail projects for environmental analysis. The FTA Manual sets forth methodologies for analyzing noise and vibration from commuter and intercity rail operations and as such are the standard

methodology for assessing potential impacts of new rail bridges and transit systems. Consequently, these impact criteria were utilized in the project's noise and vibration analysis.

3.1 Rail Noise Criteria

STB noise assessment guidelines are provided in 49 C.F.R. 1105.7(e) and are based on changes in noise exposure as compared to conditions that would exist without a proposed project. STB regulations involve noise assessment guidelines in cases where STB authorization is required for certain changes in freight rail operations. The STB regulations serve as a framework for analysis because they relate specifically to impacts from changes in rail operations; the Pittsburgh Vertical Clearance Projects are not subject to STB review and do not require any federal authorizations.

The STB criteria have two conditions to determine potential impacts:

1. STB regulations require identifying sensitive receptors where noise levels are increased by 3 decibels (dB) or more as a result of the Project;
2. Or, where sound levels are increased to 65 dBA L_{dn} or greater as a result of the Project.

49 C.F.R. § 1105.7.

Where a noise increase is below 3 dB, analysis is not specified by STB regulations due to the low potential for impact. However, both components together resulting in a 3 dB increase or greater and an overall 65 dBA L_{dn} or greater level must be met in order to consider an increase to be a potentially adverse noise impact (STB 1998). Both of these components (3 dB increase or 65 dBA L_{dn}) are employed to determine whether a potential noise impact should be included in environmental reports.

The FTA Manual provides procedures for predicting and assessing noise and vibration impacts of proposed transit projects for different stages of project development and different levels of analysis. As noted above, freight rail noise regulations are met by the Norfolk Southern fleet and are found at EPA regulations at 40 C.F.R. Part 201, and FRA regulations at 49 C.F.R. Parts 210, 222, and 227. The FTA Manual is intended for use in transit projects funded by FTA which include buses, trolleys, commuter and light rail, but not freight rail. STB regulations address procedures for environmental analysis of potential freight rail noise. (See 49 C.F.R. § 1105.7.) Similar to the STB regulations, the FTA Manual is not applicable here because the FTA has no jurisdiction over the projects, but the guidelines provide a framework for noise and vibration analyses for these projects.

Generally, the FTA Manual provides methods for determining potential effects, conducting screening and noise and vibration analyses, and determining noise and vibration impacts. A first step in determining potential effect includes an evaluation of land use categories. The FTA Manual provides procedures for predicting and assessing noise and vibration impacts of proposed transit projects for different stages of project development and different levels of analysis (FTA 2018).

FTA provides a screening level noise analysis that provides distances from freight rail lines where impacts may occur. If no noise-sensitive land uses or receivers are present in the area, then no further noise assessment is needed. If noise sensitive land uses are identified within the screening distance, FTA projects can select to conduct either a "General Assessment" or a "Detailed Assessment" of noise impacts. To identify noise impacts the FTA Manual provides a sliding scale of potential impact based on existing noise exposure that are measured and/or estimated at each of the noise sensitive land uses. Unlike the STB procedures, the FTA analysis is variable depending on existing noise exposure. Predicted

sound levels that are modeled to potentially result from a given project are compared to existing noise levels at sensitive land uses to identify the potential net increase in noise that would result from the project and without the project.

For noise analyses from freight railroads for the type of modeling assessment such as in the case of the projects, the most applicable regulations are the STB freight rail noise assessment procedures. This analysis has applied the STB regulations while adapting FTA’s noise sensitive land use categories as defined in the FTA Manual which are provided Table 1. For example, the STB regulations require analysis at the following noise sensitive land uses which correspond to either FTA Land Use Category 2 or 3 as follows:

- Hospitals, residences, retirement communities, and nursing homes (FTA 2)
- Schools, parks (passive), and libraries (FTA 3)

FTA Land Use Category 1 includes land uses where quiet is an essential element of their intended purpose. These land uses are somewhat uncommon and would include things like the Tomb of the Unknown Soldier; whereas parks, such as the Allegheny Commons, would fall into FTA Category 3. There are no FTA Land Use Category 1 properties in the analysis area for this study.

Table 1. FTA Land Use Categories

Land Use Category	Description of Land Use Category
1	Tracts of land where quiet is an essential element in of its their intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and as well as National Historic Landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
2	This category is applicable to all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	This category is applicable to Institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and recreational facilities are included in this category.

Source: Transit Noise and Vibration Impact Assessment Manual, FTA, September 2018, Table 4-3 at p. 23

In addition to the STB thresholds for railroad projects, locomotive noise is governed by U.S. Environmental Protection Agency regulations Part 201, Subpart B Interstate Rail Carrier Operations Standards. EPA’s criteria establish standards for interstate rail carriers promulgated under Federal law, 42 U.S.C. § 7641, Noise Abatement, as follows:

- Locomotives produce A-weighted sound levels at 96 dB or lower when moving at any time or under any condition of grade, load, acceleration, or deceleration, when measured in accordance with the criteria specified in Subpart C of this regulation with fast meter response at 30 meters (100 feet) from the centerline of any section of track having less than a two (2) degree curve (or a radius of curvature greater than 873 meters (2865 feet)).
- Locomotives or locomotive combinations produce A-weighted sound levels at 90 dB or lower when moving at any time or under any condition of grade, load, acceleration, or deceleration, when measured in accordance with the criteria specified in Subpart C of this part with fast meter

response at 30 meters (100 feet) from the centerline of any section of track having less than a two (2) degree curve (or a radius of curvature greater than 873 meters (2,865 feet)).

- Switcher locomotives produce A-weighted sound levels at 90 dB or below when moving at any time or under any condition of grade, load, acceleration or deceleration, and when measured in accordance with the criteria in Subpart C of this part with fast meter response at 30 meters (100 feet) from the centerline of any section of track having less than a two (2) degree curve (or a radius of curvature greater than 873 meters (2,865 feet)).

These Federal requirements are not changed or altered by an individual project assessment such as this noise assessment which is developed to assess potential for impacts of a project subject to review under Pennsylvania Act 120 of 1970.

3.2 Rail Ground-Borne Vibration Criteria

The FTA ground-borne vibration impact criteria are based on land use and operational frequency, as shown in Table 2 and are given in terms of the maximum RMS vibration level for an event. The ground-borne vibration criteria are based on levels that may cause human annoyance. The FTA criteria were developed for transit rail use, not freight rail, and are therefore applied here as a guideline as opposed to the federally required criteria.

FTA guidance provides that when the project will cause vibration more than 5 VdB above the existing vibration, “the existing source can be ignored” and the standard vibration criteria are appropriate. When the project will cause vibration less than 5 VdB above the existing vibration level, FTA guidance provides assessment methodology accounting for existing vibration (FTA Manual, at 127). For a project or project segment with “frequent events” (defined as more than 70 events per day), the FTA Manual states that for rail in heavily used areas (greater than 12 trains/day), an approximate doubling of the events is required for determination that there is a significant increase. Otherwise, the thresholds in Table 2 should be applied to determine potential for impact. Again, these FTA criteria apply to transit, not freight rail operations, but are being applied in this modeling analysis as a conservative approach.

Table 2. FTA Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch /sec)			Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
Category 1: Buildings where vibrations would interfere with interior operations.	65 VdB ⁴	65 VdB ⁴	65 VdB ⁴	N/A ⁴	N/A ⁴	N/A ⁴
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA
<p>(1) "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most freight rail projects fall into this category.</p> <p>(2) "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.</p> <p>(3) "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.</p> <p>(4) This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.</p> <p>(5) Vibration-sensitive equipment is generally not sensitive to ground-borne noise.</p>						

Source: FTA Manual, September 2018, Table 6-3, p. 126

Unlike noise analysis, the FTA vibration assessment is per event, and there is not a methodology to average daily events such as with the noise L_{dn} . Thus, the FTA analytical approach is intended to assess vibration for specific events.

4 Existing Conditions

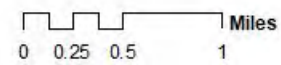
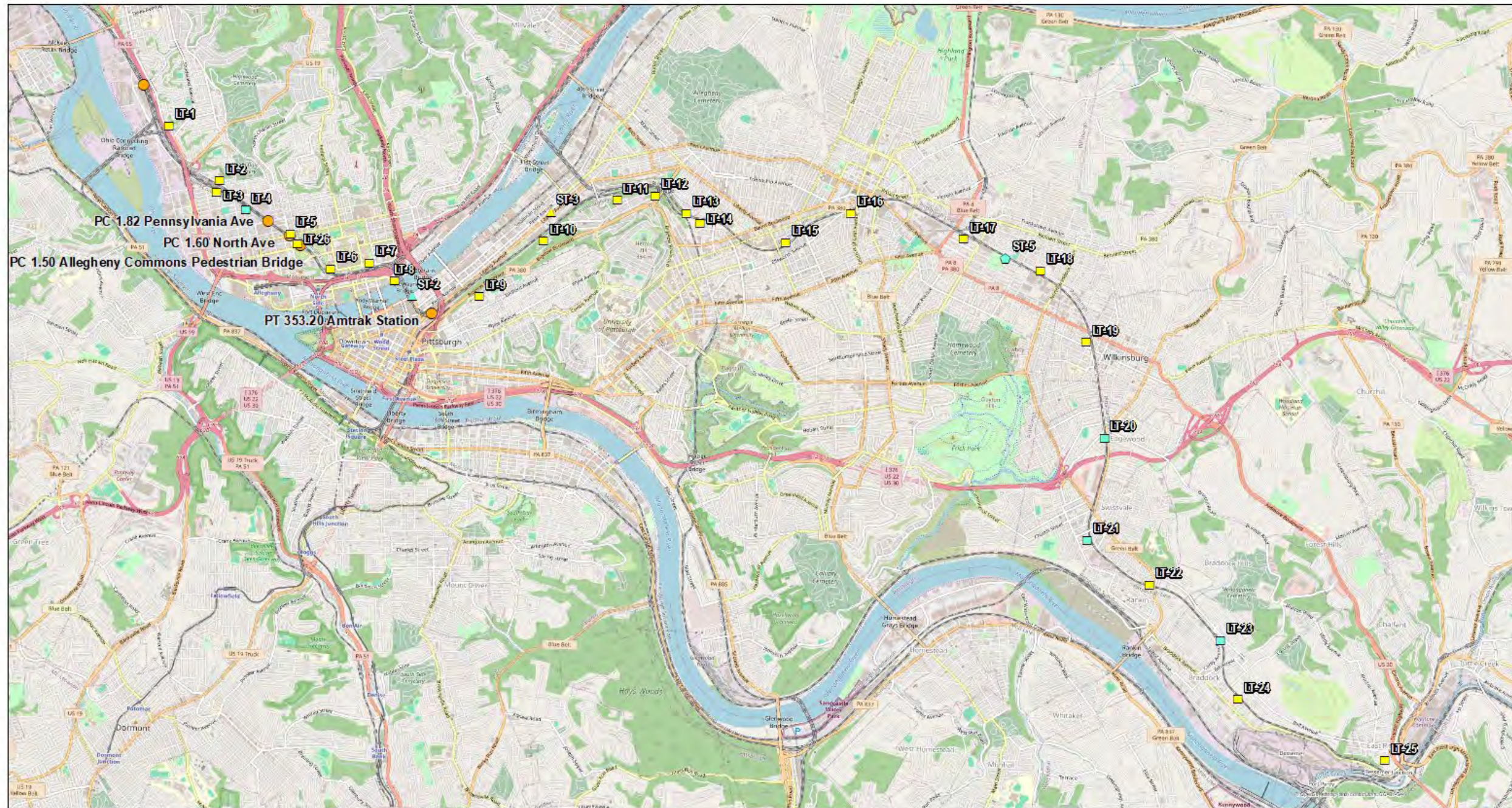
4.1 Noise Environment

The existing noise environment along the study corridor varies depending on proximity to, and occurrence of, sound sources. The dominant sound sources are rail traffic and roadway traffic, with local community noise and air traffic as secondary sources. Land use along the corridor principally falls within Category 2, which includes residential land uses, hotels, hospitals and other land uses with nighttime sensitivity. There are scattered Category 3 land uses, which are primarily churches and passive parks. The Martin Luther King Jr. East Busway is a transit use adjacent to much of the corridor under analysis and provides public bus transportation services for the City. The projects are limited to the bridges being improved to address vertical obstructions and the installation of the new Allegheny Commons Pedestrian Bridge. The bridge improvements do not have direct effects on noise with the exception of temporary construction related potential effects. This analysis is being performed to assess the potential for indirect effects relating to changes in rail traffic and consequent potential vibration effects of those changes. Due to the greater capacity of double-stack intermodal trains and associated increases in freight rail efficiency, the analysis shows a long-term decrease in train trips and associated decrease in noise. The analysis included identification of changes in noise in accordance with STB assessment guidelines and potential sensitive receptors.

A baseline sound level survey was conducted throughout the study corridor to establish the existing sound levels and to determine applicable thresholds (see Section 3) for the projects. HMMH established plans for pre-project noise monitoring to establish baseline noise levels at sensitive locations. Sound was measured at these locations, which are depicted in Figures 6-41, Noise Assessment Maps. The sound measurement locations were selected to be representative of the noise sensitive areas of Category 2 and 3 land uses along the study corridor (and not necessarily near one of the project locations), and at locations most likely to be exposed to higher levels of train noise such as those near the railroad. At each site, the measurement microphone was positioned to characterize the exposure of the site to the dominant noise sources in the area. Brüel & Kjær noise monitors (models 2245, 2250 and 2270) were used for gathering noise data. The noise measurement locations are shown in Figure 4.

The results of the existing ambient noise measurements are summarized in Table 3 below. Narrative descriptions are provided in the paragraphs that follow. Appendix A and B provide additional detail on the monitoring locations and results.

Figure 4. Overview of Project Area and Measurement Locations



- | | | | |
|-------|-------------------------------|--|--|
| +++++ | Existing Rail | | Long-Term Noise Measurement |
| ● | Project Improvement Locations | | Long-Term Noise and Short-Term Vibration Measurement |
| | | | Short-Term Noise Measurement |
| | | | Short-Term Noise and Vibration Measurement |
| | | | Short-Term Vibration Measurement |

Norfolk Southern Vertical Clearance Project
Pittsburgh Metropolitan Area, Pennsylvania

Overview of Project Area and Measurement Locations

Table 3. Summary of Existing Ambient Noise Measurement Results

Site No.	Measurement Location	Start of Measurement		Meas. Duration (hrs)	Existing Sound Exposure (dBA)						
		Date	Time		L _{dn}	Peak Hour L _{eq}	L _{eq} (day)	L _{eq} (night)	L ₁₀	L ₅₀	L ₉₀
LT-1	2462 California Avenue	12/6/2018	10:11	24	70.6	68.6	62.1	64.3	68.3	64.1	54.4
LT-2	1234 Sunday Street	12/6/2018	10:27	24	65.9	63.5	56.5	58.7	65.0	58.2	47.9
LT-3*	1907 Fulton Street	12/11/2018	12:34	24	62.9	72.4	58.5	58.5	57.8	55.0	52.8
LT-4	1016 N. Franklin Street	12/6/2018	9:35	3	64.3	62.1	54.4	56.6	60.6	52.4	48.1
LT-5	710 W. North Avenue	12/12/2018	10:32	24	71.2	71.0	62.4	64.6	68.5	62.4	54.7
LT-6	410 W. Commons	12/12/2018	11:03	24	68.9	68.2	60.5	62.7	65.0	57.9	53.7
LT-7*	301 Cedar Avenue	12/12/2018	13:38	3	63.5	62.8	59.2	59.4	59.3	55.9	54.0
LT-8	100 Anderson Street	12/12/2018	10:00	24	67.1	65.0	58.1	60.3	64.9	58.2	53.0
LT-9	1846 Arcena Street	12/11/2018	11:00	24	59.5	58.4	48.9	51.1	57.1	53.6	47.8
LT-10	2630 Brereton Street	12/11/2018	9:42	24	59.4	64.7	48.7	50.9	55.3	51.6	46.2
LT-11	3415 Flavian Street	12/6/2018	8:38	24	61.2	60.0	51.6	53.8	56.5	47.8	42.2
LT-12	3811 Fleetwood Street	12/3/2018	11:26	24	59.3	59.9	49.1	51.3	59.1	49.9	43.1
LT-13	4732 Juniper Street	12/6/2018	9:01	24	65.1	66.4	56.2	58.4	58.9	49.7	42.4
LT-14	15 Hemingway Street	12/11/2018	11:00	24	66.3	69.9	55.9	58.1	61.3	46.8	38.8
LT-15	5445 Potter Street	12/11/2018	9:08	24	58.8	57.5	48.9	51.1	51.7	46.4	44.0
LT-16	205 Lehigh Avenue	12/11/2018	9:00	24	59.0	59.3	49.5	51.7	53.4	50.1	47.6
LT-17	6736 Simonton Street	12/3/2018	11:56	24	62.1	60.8	52.7	55.0	56.5	48.2	40.8
LT-18	7357 Finance Street	12/3/2018	12:21	24	61.4	61.1	52.2	54.4	60.8	45.9	35.2
LT-19	444 Ross Avenue	12/4/2018	14:03	24	60.8	65.3	51.3	53.5	52.7	43.4	36.5
LT-20	1 Pennwood Avenue	12/3/2018	12:52	24	72.1	71.4	61.9	64.1	60.9	51.8	40.1
LT-21	Park Avenue	12/4/2018	14:37	24	67.3	70.7	58.4	60.6	54.4	44.2	33.8
LT-22	McKim Street	12/3/2018	10:26	24	74.9	76.2	64.0	66.2	60.8	53.7	41.6
LT-23	504 Hawkins Avenue	12/4/2018	15:34	24	71.5	75.7	60.4	62.6	51.4	42.6	35.2
LT-24	431 Verona Street	12/4/2018	15:52	24	68.2	68.5	59.4	61.6	56.1	52.7	49.3
LT-25	300 Main Street	12/4/2018	16:33	24	64.7	67.0	53.6	55.9	60.4	52.9	45.0
LT-26	Allegheny Commons Park West (Iron Deer Playground)	4/13/2022	21:53	24	74.2	72.3	64.8	68.1	59.2	50.8	47.2
ST-2	1000 Ft. Duquesne Blvd.	12/12/2018	14:55	0.5	N/A	70.6	N/A	N/A	74.8	65.9	59.8
ST-3	2901 Liberty Avenue	12/12/2018	15:44	0.5	N/A	60.5	N/A	N/A	63.2	59.8	54.7

Note: *Estimated using 1-hour samples during peak hour, midday, and nighttime.
Source: Harris Miller Miller & Hanson Inc., 2018

Site LT-1: 2462 California Avenue. The L_{dn} measured over a 24-hour period in the front yard of this single-family residence was 70.6 dBA. Marine traffic on the Ohio River, local roadway traffic on California Avenue and Highway 65, and rail traffic on the Norfolk Southern rail line contribute to the noise environment at this location. The peak hour L_{eq} sound level at this location was 68.6 dBA.

Site LT-2: 1234 Sunday Street. The L_{dn} measured over a 24-hour period in the side yard of this single-family residence was 65.9 dBA. Local roadway traffic on California Avenue and rail traffic on the Norfolk

Southern rail line contribute to the noise environment at this location. The peak hour L_{eq} sound level at this location was 63.5 dBA.

Site LT-3: 1907 Fulton Street. The L_{dn} estimated for a period of 24 hours, using 1-hour samples on the public rights of way (sidewalk), was 62.9 dBA. Local roadway traffic on Fulton and Adams Streets and rail traffic on the Norfolk Southern line contribute to the noise environment at this location. The peak hour L_{eq} at this location was 72.4 dBA.

Site LT-4: 1016 North Franklin Street. The L_{dn} measured over a 24-hour period in the side yard of this single-family residence was 64.3 dBA. Local roadway traffic on North Franklin Street and Allegheny Avenue and rail traffic on the Norfolk Southern line contribute to the noise environment at this location. The peak hour L_{eq} at this location was 62.1 dBA.

Site LT-5: 710 W. North Avenue. The L_{dn} measured over a 24-hour period from a southwest-facing balcony on the 8th floor of this apartment building was 71.2 dBA. Local roadway traffic on W. North Avenue and Brighton Road and rail traffic on the Norfolk Southern line contribute to the noise environment at this location. The peak hour L_{eq} at this location was 71.0 dBA.

Site LT-6: 401 West Commons. The L_{dn} measured over a 24-hour period in the front yard area of this retirement community was 68.9 dBA. The Norfolk Southern line and local roadway traffic on South Commons and Interstate 279 contribute to the noise environment at this location. The peak hour L_{eq} at this location was 68.2 dBA.

Site LT-7: 301 Cedar Avenue. The L_{dn} 63.5 dBA at this site was estimated using 1-hour samples from the sidewalk adjacent to an unoccupied public swimming pool complex. Local roadway traffic on Cedar and Stockton Avenues, as well as Canal Street, Anderson Street and East Commons contribute to the noise environment at this location, in addition to rail traffic on the Norfolk Southern line. The peak hour L_{eq} at this location was 62.8 dBA.

Site LT-8: 100 Anderson Street. The L_{dn} measured over a 24-hour period on the property of this riverfront apartment complex was 67.1 dBA. Freight trains on the Norfolk Southern rail line and local roadway traffic on River Avenue and Interstate 279 contribute to the noise environment at this location. Marine traffic on the Ohio River also contributed to the noise level. The peak hour L_{eq} at this location was 65.0 dBA.

Site LT-9: 1846 Arcena Street. The L_{dn} measured over a 24-hour period in the front yard of this single-family residence was 59.5 dBA. Rail traffic on the Norfolk Southern line and roadway traffic on Bigelow Boulevard and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 58.4 dBA.

Site LT-10: 2630 Brereton Street. The L_{dn} measured over a 24-hour period in the side yard of this single-family residence was 59.4 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Brereton Street and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 64.7 dBA.

Site LT-11: 3415 Flavian Street. The L_{dn} measured over a 24-hour period in the side yard of this single-family residence was 61.2 dBA. Rail traffic on the Norfolk Southern line, bus transit on the East Busway and roadway traffic on local roads contribute to the noise environment at this location. The peak hour L_{eq} at this location was 60.0 dBA.

Site LT-12: 3811 Melwood Avenue. The L_{dn} measured over a 24-hour period in this undeveloped tax lot adjacent to single family residences was 59.3 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Melwood Avenue and the Bloomfield Bridge contribute to the noise environment at this location. The peak hour L_{eq} at this location was 59.9 dBA.

Site LT-13: 4732 Juniper Street. The L_{dn} measured over a 24-hour period in the back yard of this single-family residence was 65.1 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Juniper Street and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 66.4 dBA.

Site LT-14: 15 Hemingway Street. The L_{dn} measured over a 24-hour period in the rear yard of this multi-family townhome was 66.3 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 69.9 dBA.

Site LT-15: 5445 Potter Street. The L_{dn} measured over a 24-hour period in the back yard, behind the row of buildings, at this multi-family residence was 58.8 dBA. Rail traffic on the Norfolk Southern line and roadway traffic on the East Busway and Porter Street contribute to the noise environment at this location. The peak hour L_{eq} at this location was 57.5 dBA.

Site LT-16: 205 Lehigh Avenue. The L_{dn} measured over a 24-hour period in the back yard, behind the first row of residential structures, of this multi-family residence was 59.0 dBA. Rail traffic on the Norfolk Southern line and roadway traffic on the East Busway, Lehigh Way, Greenbriar Way, and Ellsworth Avenue contribute to the noise environment at this location. The peak hour L_{eq} at this location was 59.3 dBA.

Site LT-17: 6736 Simonton Street. The L_{dn} measured over a 24-hour period in this vacant, residentially zoned lot was 62.1 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Simonton Street and North Linden Avenue contribute to the noise environment at this location. The peak hour L_{eq} at this location was 60.8 dBA.

Site LT-18: 7357 Finance Street. The L_{dn} measured over a 24-hour period in the front yard of this single-family residence was 61.4 dBA. Rail traffic on the Norfolk Southern line and roadway traffic on Finance Street and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 61.1 dBA.

Site LT-19: 444 Ross Avenue. The L_{dn} measured over a 24-hour period in the back yard of this single-family residence was 60.8 dBA. Rail traffic on the Norfolk Southern line and roadway traffic on Ross and Pennwood Avenues contribute to the noise environment at this location. The peak hour L_{eq} at this location was 65.3 dBA.

Site LT-20: 1 Pennwood Avenue. The L_{dn} measured over a 24-hour period in the rear outdoor storage area of the C.C. Mellor Memorial Library was 72.1 dBA. Rail traffic on the Norfolk Southern line in addition to local roadway traffic on Pennwood Avenue, Edgewood Avenue and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 71.4 dBA.

Site LT-21: 7499 Park Avenue. The L_{dn} measured over a 24-hour period in this public-use park area was 67.3 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Park Avenue, Palmer Street and the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 70.7 dBA.

Site LT-22: 2501 McKim Street. The L_{dn} measured over a 24-hour period in this road-facing wooded area was 74.9 dBA. Rail traffic on the Norfolk Southern line and bus transit on the East Busway contribute to the noise environment at this location. The peak hour L_{eq} at this location was 76.2 dBA.

Site LT-23: 504 Hawkins Avenue. The L_{dn} measured over a 24-hour period in the back yard of this single-family residence was 71.5 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Hawkins Avenue contribute to the noise environment at this location. The peak hour L_{eq} at this location was 75.7 dBA.

Site LT-24: 431 Verona Street. The L_{dn} measured over a 24-hour period in the back yard of this single-family residence was 68.2 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Ash Street contribute to the noise environment at this location. The peak L_{eq} at this location was 68.5 dBA.

Site LT-25: 300 Main Street. The L_{dn} measured over a 24-hour period in this wooded area abutting a public park was 64.7 dBA. Rail traffic on the Norfolk Southern line, which includes the use of locomotive warning horns at a nearby public grade crossing, and local roadway traffic on Bluff Street contribute to the noise environment at this location. The peak hour L_{eq} at this location was 67.0 dBA.

Site LT-26: Iron Deer Playground (a.k.a., Deer Pit Playground) at Allegheny Commons Park West. The L_{dn} measured over a 24-hour period in the park near the playground adjacent to the railroad was 74.2 dBA. Rail traffic on the Norfolk Southern line and local roadway traffic on Brighton Road and Ohio Street contribute to the noise environment at this location. The peak hour L_{eq} at this location was 72.3 dBA.

Site ST-2: The L_{eq} measured over a 30-minute period was 70.6 dBA. This site was located in a public park area northwest of the intersection of Fort Duquesne Boulevard and Fort Wayne Bridge. A short-term 30-minute long noise measurement was completed at this public open space site during peak-hour conditions. Two train events crossing the Fort Wayne Bridge and relatively heavy roadway traffic on Fort Duquesne Boulevard were the dominant sound sources during the measurement.

Site ST-3: Denny Park. A short-term 30-minute-long noise measurement was completed at this public park during peak-hour conditions and measured 60.5 dBA L_{eq} . One train event crossing, in addition to relatively heavy roadway traffic on Liberty Avenue were the dominant sound sources during the measurement.

4.2 Existing Vibration Environment

The existing vibration environment in the vicinity of the Norfolk Southern railway in Pittsburgh varies with proximity to rail lines. To characterize existing vibration levels, measurements were obtained at the same locations where noise measurements were completed at LT-4, LT-20, LT-21, LT-23, and ST-2, and only vibrations were measured at ST-5, each of which are vibration sensitive uses or are representative of vibration sensitive uses. Vibration measurements were obtained from train pass-by events to determine if ground propagation characteristics are typical for the study corridor. Measurements were completed using a PCB 393A and 393C accelerometers and Brüel & Kjær noise and vibration monitors (model 2270). Two vibration accelerometers were deployed at each measurement site to obtain samples of vibration attenuation rates as a function of distance. Typically, the sensor situated nearest to the Norfolk Southern train tracks (“near sensor”) was located approximately 25 feet closer to the tracks than the sensor placed further away (“far sensor”). The vibration measurement locations are shown in Figure 4. Overview of Project Area and Measurement Locations, and the distances from the train tracks for each sensor are provided in Table 4. Summary of Existing Vibration Measurements, along with the maximum measured vibration levels (VdB).

Table 4. Summary of Existing Vibration Measurements

Site No.	Measurement Location Description	Date/Time	Near Sensor Distance (feet) ¹	Far Sensor Distance (feet) ¹	Max VdB (near)	Max VdB (far)
LT-4	1016 N. Franklin Street	12/13/2018 10:16	75	94	80.8	79.7
LT-20	1 Pennwood Avenue	12/3/2018 15:53	60	85	85.2	83.5
LT-21	Park Avenue	12/5/2018 13:26	70	95	80.1	83.3
LT-23	504 Hawkins Avenue	12/5/2018 15:00	75	100	82.3	78.6
ST-2	1000 Ft. Duquesne Blvd. Fort Wayne Bridge	12/12/2018 14:33	11.0	30	80.9	80.6
ST-2	1000 Ft. Duquesne Blvd. Fort Wayne Bridge	12/12/2018 14:50	11.0	30	80.9	76.8
ST-5	7051 Thomas Blvd.	12/5/2018 10:59	60	85	83.7	80.5

1. As measured from nearest rail.

Source: Harris Miller Miller & Hanson Inc., 2018

Site LT-4: 1016 North Franklin Street. Vibration sensors were deployed at locations 75 feet and 94 feet from the nearest track. One train pass-by event with a speed 30 mph was observed. The train was comprised of three locomotives and 115 rail cars.

Site LT-20: 1 Pennwood Avenue. Vibration sensors were placed at locations 60 feet and 85 feet from the nearest track. One train pass-by event with a speed of 20 mph was monitored. The train included two locomotives and no rail cars.

Site LT-21: Park Avenue. Vibration sensors were deployed at locations 70 feet and 95 feet from the nearest track. One train pass-by event with a speed of 35 mph was observed in which the train was comprised of four locomotives and 143 rail cars.

Site LT-23: 504 Hawkins Avenue. Vibration sensors were deployed at locations 75 feet and 100 feet from the nearest track. One train pass-by event with a speed of 20 mph was monitored. The train included 2 locomotives and 100 rail cars.

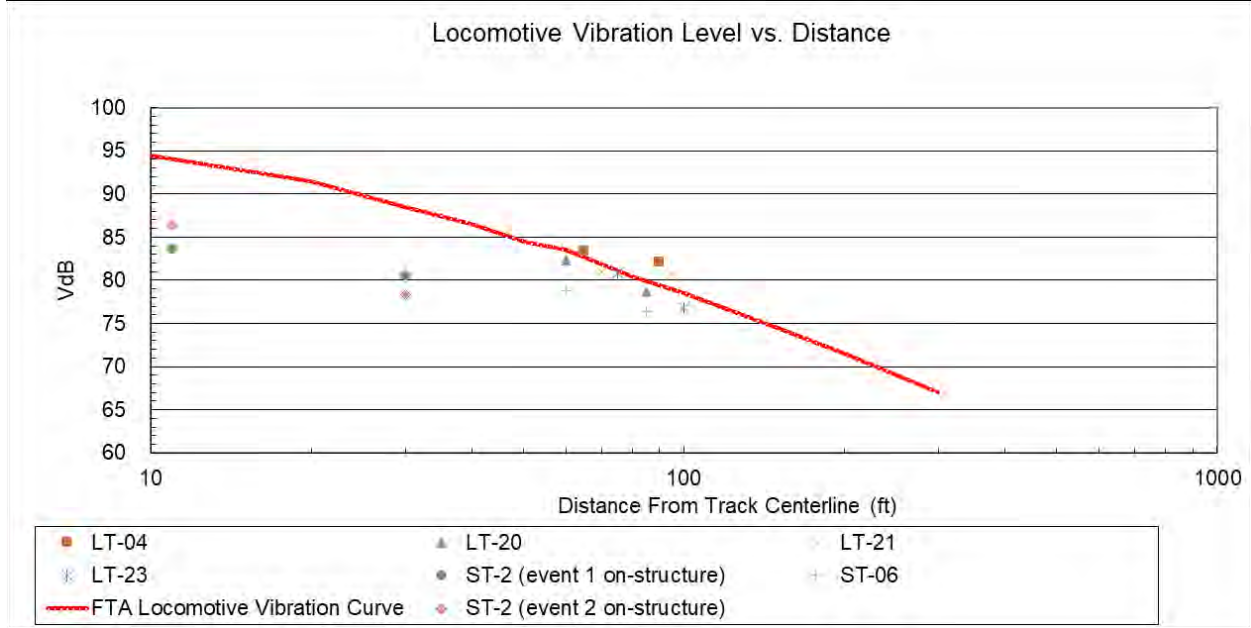
Site ST-2: One vibration sensor was located at the base of the concrete footing of the Fort Wayne Bridge and the second sensor was placed 19 feet away from the structure. Two train pass-by events were monitored. The first event included a train consisted of two locomotives and no rail cars and the second event included a train that was comprised of 2 locomotives and 150 rail cars. The speed of the first event was 11 mph and the speed of the second event was 20 mph.

Site ST-5 : This vibration-only measurement was completed at Westinghouse Park. Vibration sensors were located at locations 60 feet and 85 feet from the nearest track. One train pass-by event with a speed of 25 mph was monitored of a train with two locomotives and 54 rail cars.

Measurement data were normalized by adjusting vibration levels to match the reference speed of 50 mph for a diesel electric locomotive which is the heaviest component of each train and generally results in the highest vibration levels. The normalized vibration levels were plotted on a graph (Figure 5) and compared to the general vibration curve for diesel locomotives obtained from the FTA Manual. As Figure 5 demonstrates, all of the vibration measurements of trains operating on the ground show good agreement with the general locomotive vibration curve except for the vibration measurements near the

Fort Wayne Bridge (Site ST-2). These measurements are approximately 8 to 10 VdB lower than the general vibration curve for locomotives. The FTA Manual indicates that trains operating on structure typically result in vibration levels 10 VdB lower than those operating on the ground; therefore, these measurements show that the FTA adjustment factor of -10 VdB for on structure vibration sources is accurate for these projects.

Figure 5. Existing Vibration Levels



5 Methodology for Assessment of Noise and Vibration

Consistent with STB regulations for noise and FTA/FRA guidelines for vibration, a noise and vibration impact assessment was conducted for a study area covering the proposed projects. This section presents the information used in conducting the noise and vibration assessment. Section 6 presents the results of the assessments.

The following summarizes the primary alternatives being considered for each of the projects. These alternatives are for purposes of this analysis and a more detailed analysis for each project is being developed separately for the Act 120 analysis and other applicable provisions. For the purpose of this modeling analysis the alternative list below adequately covers the range of potential for direct, indirect, and cumulative effects vis a vis the noise and vibration analysis assessment.

Amtrak Station

- No Build Alternative
- Remove portion of train shed to achieve appropriate vertical clearance
- Adjust train shed roof beams to achieve appropriate vertical clearance

W. North Avenue Bridge Project

- No Build Alternative
- Rehabilitate and raise bridge to achieve appropriate vertical clearance
- Rehabilitate bridge and lower tracks to achieve appropriate vertical clearance
- Combination rehabilitate and raise bridge and lower tracks to achieve appropriate vertical clearance
- Replace and raise bridge to achieve appropriate vertical clearance
- Replace bridge and lower tracks to achieve appropriate vertical clearance
- Combination replace and raise bridge and lower railroad tracks to achieve appropriate vertical clearance

Pennsylvania Avenue Bridge Project

- No Build Alternative
- Replace and raise bridge to achieve appropriate vertical clearance
- Repair substructure and lower tracks to achieve appropriate vertical clearance
- Combination replace and raise bridge and lower tracks to achieve appropriate vertical clearance

Allegheny Commons Pedestrian Bridge Project

- No Build Alternative
- Replace bridge with appropriate vertical clearance

5.1 Noise Projections

The primary components of wayside noise from train operations are engine/exhaust noise for diesel locomotives and wheel/rail noise from the steel wheels rolling on steel rails for freight railcars. Projections of train operation noise were completed for two operational conditions, the post-project timeframe with the projects complete (the “Build” condition or scenario) and post-project timeframe without the projects completed (the “No Build” condition or scenario). The projection of wayside noise was carried out using models specified in the FTA Manual as they are implemented in three-dimensional acoustic modeling software package SoundPLAN GmbH version 8.0 with the following assumptions:

- Noise measurements were completed throughout the areas in proximity to the study corridor as documented in Section 4. These measurements were used to determine the impact conditions for the projects.
- Increased rail traffic that would result with or without the projects is included in the prediction and was logarithmically added to the existing measured sound levels throughout the project area to identify the cumulative noise increases that would occur. Two rail traffic scenarios were evaluated:

- Low-Growth: these projections are based on the Pennsylvania Department of Transportation (PennDOT) 2020 Pennsylvania Rail Plan (PennDOT 2021).
- High-Growth: these projections are based on the PennDOT 2015 Pennsylvania Rail Plan (PennDOT 2016).
- Increased rail traffic would all consist of intermodal trains with two diesel electric locomotives and 125 single-stack intermodal rail cars or 125 double-stack intermodal rail cars for the No Build and Build future conditions, respectively.
- Sound exposure level (SEL) for the intermodal trains is based on measurements of intermodal train pass-by events on the Mon Line.
 - Measurements were normalized using FTA's methodology which results in an SEL of 100 dBA.
- Special track work locations, such as crossovers and turnouts, include a 5 dB increase adjustment consistent with FTA Manual, page 42.
- Locomotive noise would comply with 40 CFR 201.12.
- In accordance with the FRA train horn rule (49 CFR; Part 222; Part 229), horn use was included in the predictions for trains approaching within 20-seconds of the one public grade crossing where Norfolk Southern trains currently sound their horn as required, located at the southeastern end of the study corridor, with the assumption that they operate at 35 miles per hour (mph).
- Where trains operate on structure, the modeling includes a 4 dB increase adjustment consistent with the FTA Manual.
- Train speeds throughout the study corridor are assumed to operate at the maximum allowable speeds to be conservative.
 - Note that changes in operational speed from higher speeds to lower speeds can reduce noise levels; however, this reduction is offset somewhat because this also would result in a longer time period where the noise source is present.
- Predictions assume a track type of continuously welded rail on ballast and tie.

5.2 Vibration Projections

The potential vibration impact from trains operating along the study corridor was assessed using the FTA criteria. The following factors were used in determining potential vibration impacts along the proposed rail alignment:

- Existing ground-borne vibration measurements were conducted at 6 sites in the study area. These measurement results were compared with the typical locomotive maximum vibration level versus distance curve in the FTA Manual, as shown in Section 4. This curve was used to model vibration levels at sensitive receptor locations along the study corridor.
- The existing vibration conditions in the study area were assumed to be in the category of a "Heavily Used Rail Corridor," as defined in the FTA Manual.

- In locations where the existing train vibration exceeds the impact criteria, the projects will cause additional impact only if the project vibration is 3 VdB or more than existing vibration levels.
- For projects, in locations where the existing train vibration does not exceed the impact criteria, impact is assessed based on an exceedance of the vibration criteria.
- Due to the length of freight trains and the duration of the vibration events, freight operations were assessed using the “Frequent Events” category in the vibration impact criteria, as defined by the FTA Manual.
- Vibration predictions assume the same operational speeds as the noise predictions.
- Predictions of vibration from trains operating on aerial structures are reduced by 10 VdB consistent with FTA Manual.
- Predictions of vibration at locations where wheel impacts occur at special track areas such as crossovers or turnouts are increased by 10 VdB consistent with FTA guidance.

6 Noise and Vibration Impact Assessment

Two scenarios were evaluated, the low-growth scenario based on the 2020 Pennsylvania State Rail Plan (PennDOT 2021) and the high-growth scenario based on the 2015 Pennsylvania State Rail Plan (PennDOT 2015). Sections 6.1 and 6.2 summarize these two noise impact scenarios, respectively. The vibration impact assessment is summarized in Section 6.3 and would be the same for either the low-growth or high-growth scenarios since impacts are based on individual train pass-by events.

6.1 Noise Impact Assessment Low-Growth Scenario

Table 5 summarizes the results of the noise impact assessment for the project under the low-growth scenario compared to the No Build conditions at places where people sleep (Category 2) and institutional (Category 3) locations. The table provides information by noise sensitive receptor group, each of which is represented by a noise measurement location. Also provided in the table are the distances to the nearest rail line, train speeds, existing and predicted noise levels, impact criteria, and the numbers of both moderate and severe noise impacts predicted for each land use category.

Increases in Build and No build noise are predominantly a result of the increase in rail traffic during daytime and nighttime hours. The variation in vertical alignments of either the track or the roadways crossing the track that is associated with the alternatives for projects at W. North Avenue/Brighton Road and Pennsylvania Avenue are small, anticipated to be less than five feet. Changes in vertical track or vertical bridge alignment associated with these alternatives would result in generally imperceptible differences that are within tenths of dB of one another. The dominant consideration for noise in these circumstances is the number of train operations, and that would not be different for any of the alternatives for these projects. Therefore, from a noise perspective, any of the approaches to achieving the needed vertical clearance at these locations are considered the same. Nighttime train movements are more impactful than daytime train movements from a noise impact assessment perspective since the L_{dn} noise metric applies a 10 dB penalty to sounds that occur at night to account for heightened sensitivity during this time period. Rail traffic would increase in the study corridor in the Build (low-growth scenario) and No Build conditions as follows:

Milepost PT-341 to PT-353.35

- Daytime (7:00 a.m. to 10:00 p.m.) – existing 11 train movements, future Build 15 train movements, and future No Build 26 train movements
- Nighttime (10:00 p.m. to 7:00 a.m.) – existing 10 train movements, future Build 17 train movements, and future No Build 16 train movements

Milepost PC-0.00 to PC-3.17

- Daytime (7:00 a.m. to 10:00 p.m.) – existing 17 train movements, future Build 22 train movements, and future No Build 31 train movements
- Nighttime (10:00 p.m. to 7:00 a.m.) – existing 17 train movements, future Build 23 train movements, and future No Build 25 train movements

As Table 5 shows, the future Build low-growth scenario would result in 181 sites exceeding the STB assessment guidelines (e.g., increase above 3 dB or change to a level above 65 dB) and under the future No Build low-growth scenario 239 sites exceeding STB assessment guidelines would potentially result. Additionally, all of the Build scenario impacts would be impacted under the No Build scenario. This is due to future freight demand under the low-growth scenario which is constant with or without the projects, and the projects' clearance features allowing movement of more freight with fewer trains.

Table 5. Low-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-1	2	184 - 470	40	66.3 - 77.5	65.0	3.0	48.3 - 60.6	66.4 - 77.6	0 - 0.4	46.7 - 59	66.3 - 77.6	0 - 0.3	0	0
	3	212 - 388		65.4 - 73.5	65.0	3.0	44 - 54.5	65.4 - 73.5	0 - 0.1	39.6 - 50.2	65.4 - 73.5	0 - 0	0	0
LT-2	2	80 - 439	40	62.2 - 71.5	65.0	3.0	47.3 - 67.6	62.3 - 73	0.1 - 1.5	45.6 - 66	62.3 - 72.6	0.1 - 1.1	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-3	2	157 - 473	40	63 - 74.3	65.0	3.0	51.6 - 61.4	63.5 - 74.3	0.1 - 1.6	50 - 59.8	63.3 - 74.3	0 - 1.2	0	0
	3	270 - 270		58.3 - 60.3	65.0	3.0	51.5 - 54.3	59.1 - 61.2	0.8 - 1	45.9 - 49.4	58.5 - 60.6	0.2 - 0.3	0	0
LT-4	2	69 - 503	40	57.6 - 68.2	65.0	3.0	47 - 67.8	58 - 71	0.3 - 3.8	45.6 - 66	57.9 - 70.3	0.2 - 2	13	13
	3	392 - 392		58.7 - 60.6	65.0	3.0	43.5 - 47.2	58.8 - 60.8	0.1 - 0.2	39.1 - 42.8	58.7 - 60.7	0 - 0.1	0	0
LT-5	2	94 - 504	40	64.5 - 72.1	65.0	3.0	45.3 - 61.8	64.6 - 72.2	0 - 0.4	43.7 - 60.3	64.6 - 72.2	0 - 0.3	0	0
	3	262 - 262		67.3 - 69.3	65.0	3.0	47 - 49.6	67.4 - 69.4	0 - 0	42.6 - 45.2	67.3 - 69.3	0 - 0	0	0
LT-6	2	194 - 654	20	63.7 - 75.6	65.0	3.0	42.1 - 60.5	63.7 - 75.7	0 - 0.3	40.5 - 58.9	63.7 - 75.6	0 - 0.2	0	0
	3	69 - 437		65.4 - 73.4	65.0	3.0	37 - 50.9	65.4 - 73.5	0 - 0	32.6 - 46.6	65.4 - 73.5	0 - 0	0	0
LT-7	2	252 - 471	20	60.5 - 69.6	65.0	3.0	48.8 - 61.9	60.8 - 69.7	0.1 - 1.1	47.2 - 60.3	60.7 - 69.7	0.1 - 0.8	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-8	2	53 - 488	20	67.9 - 75.8	65.0	3.0	#N/A	#N/A	#N/A	46.8 - 66.2	68.2 - 76.1	0 - 0.8	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-9	2	441 - 575	20	60 - 63.8	65.0	3.0	39.5 - 48.1	60.1 - 63.9	0 - 0.1	38.1 - 46.6	60.1 - 63.9	0 - 0.1	0	0
	3	96 - 96		57.9 - 59.9	65.0	3.0	51.3 - 53.4	58.7 - 60.7	0.8 - 0.9	45.7 - 47.8	58.1 - 60.1	0.2 - 0.3	0	0
LT-10	2	156 - 464	30	56.5 - 63.2	65.0	3.0	48.3 - 63	57.3 - 65.7	0.5 - 3.5	47 - 61.8	57.1 - 65.2	0.4 - 2.8	2	2
	3	213 - 478		57.6 - 64.9	65.0	3.0	39.4 - 57.1	57.7 - 65.1	0 - 1.5	33.8 - 51.3	57.6 - 64.9	0 - 0.5	0	0
LT-11	2	93 - 473	30	58.8 - 67.9	65.0	3.0	46.2 - 65.9	59.1 - 70	0.2 - 2.9	44.9 - 64.6	59 - 69.5	0.1 - 2.3	2	2
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-12	2	149 - 215	30	60.5 - 64.1	65.0	3.0	52.3 - 63.6	61.2 - 66.9	0.6 - 2.8	51 - 62.4	61.1 - 66.3	0.4 - 2.3	2	2
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0

Table 5. Low-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-13	2	60 - 497	30	59.1 - 70.3	65.0	3.0	45.1 - 66.3	59.3 - 71.7	0.1 - 3.9	43.8 - 65	59.2 - 71.4	0.1 - 3.1	7	7
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-14	2	117 - 475	30	61.4 - 69.4	65.0	3.0	42.5 - 64.2	61.4 - 70.6	0.1 - 1.2	41.2 - 62.9	61.4 - 70.3	0 - 0.9	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-15	2	27 - 463	30	52.7 - 72	65.0	3.0	46.9 - 71.9	53.9 - 74.9	0.2 - 6.4	45.6 - 70.7	53.6 - 74.4	0.1 - 5.4	50	33
	3	412 - 412		58.2 - 60.2	65.0	3.0	42.1 - 43.5	58.3 - 60.3	0.1 - 0.1	36.3 - 37.8	58.2 - 60.2	0 - 0	0	0
LT-16	2	24 - 459	30	54.2 - 74	65.0	3.0	47.7 - 70.2	55.5 - 75.5	0.2 - 4	46.5 - 69	55.2 - 75.2	0.1 - 3.3	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-17	2	158 - 454	40	58.4 - 69.7	65.0	3.0	49.9 - 63	59.3 - 70.1	0.2 - 3	48.7 - 61.8	59.1 - 70	0.1 - 2.4	2	0
	3	139 - 139		63.3 - 63.3	65.0	3.0	56.8 - 56.8	64.2 - 64.2	0.9 - 0.9	51 - 51	63.6 - 63.6	0.2 - 0.2	0	0
LT-18	2	58 - 464	40	57 - 68	65.0	3.0	46.8 - 69.9	57.8 - 72.1	0.3 - 5.3	45.5 - 68.7	57.7 - 71.4	0.2 - 4.5	22	14
	3	432 - 432		57.3 - 59.3	65.0	3.0	51.7 - 54	58.4 - 60.4	0.9 - 1.1	46 - 48.2	57.7 - 59.7	0.3 - 0.3	0	0
LT-19	2	59 - 463	40	56.8 - 67.8	65.0	3.0	50.6 - 68.7	57.9 - 71.3	0.3 - 5.6	49.4 - 67.5	57.7 - 70.6	0.2 - 4.8	87	69
	3	332 - 406		57.4 - 60.3	65.0	3.0	50.9 - 55.1	58.3 - 61.4	0.8 - 1.2	45.1 - 49.4	57.7 - 60.6	0.2 - 0.3	0	0
LT-20	2	18 - 464	40	62.2 - 81.6	65.0	3.0	49.1 - 75	62.4 - 81.8	0 - 2.4	47.9 - 73.7	62.3 - 81.7	0 - 1.9	0	0
	3	47 - 47		72.1 - 74.1	65.0	3.0	66.2 - 66.3	73.1 - 74.8	0.7 - 1	60.4 - 60.5	72.4 - 74.3	0.2 - 0.3	0	0
LT-21	2	67 - 487	40	61 - 71.6	65.0	3.0	47.8 - 68.7	61.6 - 73.2	0.1 - 2.3	46.6 - 67.5	61.4 - 72.9	0.1 - 1.8	0	0
	3	388 - 388		62 - 64	65.0	3.0	50.8 - 53.8	62.3 - 64.4	0.3 - 0.4	45.1 - 48.1	62.1 - 64.1	0.1 - 0.1	0	0
LT-22	2	44 - 437	40	65.5 - 77.5	65.0	3.0	48.4 - 70.3	65.7 - 78.2	0.1 - 1.1	47.2 - 69.1	65.6 - 78.1	0.1 - 0.9	0	0
	3	226 - 263		67.7 - 70.4	65.0	3.0	50.6 - 54	67.8 - 70.5	0.1 - 0.1	44.9 - 48.3	67.8 - 70.4	0 - 0	0	0
LT-23	2	51 - 449	40	62.6 - 74	65.0	3.0	52.4 - 69.8	63.3 - 75.3	0.2 - 3.3	51.1 - 68.5	63.2 - 75.1	0.1 - 2.6	1	1
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-24	2	27 - 436	40	59.9 - 74	65.0	3.0	47.2 - 73.8	60.2 - 76.9	0.2 - 4	46 - 72.6	60.1 - 76.3	0.1 - 3.3	27	14
	3	177 - 326		61.1 - 65.8	65.0	3.0	46.8 - 57.1	61.3 - 65.9	0.1 - 0.7	41.1 - 51.4	61.2 - 65.8	0 - 0.2	0	0

Table 5. Low-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-25	2	211 - 493	40	63.9 - 69.5	65.0	3.0	54.9 - 73.1	65.6 - 74	0.2 - 7.5	53.6 - 71.8	65.3 - 73	0.1 - 6.5	24	24
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-26	2	0 - 0	20	0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
	3	47 - 47		72.4 - 72.4	65.0	3.0	54.7 - 54.7	72.4 - 72.4	0.1 - 0.1	50.3 - 50.3	72.4 - 72.4	0 - 0	0	0
ST-2	2	0 - 0	20	0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
	3	105 - 290		66.2 - 70.6	65.0	3.0	51.9 - 54.2	66.3 - 70.7	0.1 - 0.2	47.5 - 49.7	66.2 - 70.6	0 - 0.1	0	0
Total												239	181	

6.2 Noise Impact Assessment High-Growth Scenario

Table 6 summarizes the results of the noise impact assessment for the project high-growth scenario compared to the No Build conditions at places where people sleep (Category 2) and institutional (Category 3) locations. The table provides information by noise sensitive receptor group, each of which is represented by a noise measurement location. Also provided in the table are the distances to the nearest rail line, train speeds, existing and project high-growth scenario noise levels, impact criteria, and the numbers of both moderate and severe noise impacts predicted for each land use category.

Increases in Build and No build noise under the high-growth scenario are predominantly a result of the increase in rail traffic during daytime and nighttime hours. The variation in vertical alignments of either the track or the roadways crossing the track that is associated with the alternatives for projects at W. North Avenue/Brighton Road and Pennsylvania Avenue are small, anticipated to be less than five feet. Changes in vertical track or vertical bridge alignment associated with these alternatives would result in generally imperceptible differences that are within tenths of dB of one another. The dominant consideration for noise in these circumstances is the number of train operations, and that would not be different for any of the alternatives for these projects. Therefore, from a noise perspective, any of the approaches to achieving the needed vertical clearance at these locations are considered the same. Nighttime train movements are more impactful than daytime train movements from a noise impact assessment perspective since the L_{dn} noise metric applies a 10 dB penalty to sounds that occur at night to account for heightened sensitivity during this time period. Rail traffic would increase in the study corridor in the Build and No Build conditions as follows:

Milepost PT-341 to PT-353.35

- Daytime (7:00 a.m. to 10:00 p.m.) – existing 11 train movements, future Build 29 train movements, and future No Build 29 train movements
- Nighttime (10:00 p.m. to 7:00 a.m.) – existing 10 train movements, future Build 20 train movements, and future No Build 21 train movements

Milepost PC-0.00 to PC-3.17

- Daytime (7:00 a.m. to 10:00 p.m.) – existing 17 train movements, future Build 31 train movements, and future No Build 34 train movements
- Nighttime (10:00 p.m. to 7:00 a.m.) – existing 17 train movements, future Build 27 train movements, and future No Build 28 train movements

As Table 6 shows, the future Build scenario would result in 263 sites exceeding the STB assessment guidelines (e.g., increase above 3 dB or change to a level above 65 dB) and under the future No Build scenario 321 sites exceeding STB assessment guidelines would potentially result. Additionally, all of the Build scenario impacts would also be impacted under the No Build scenario. This is due to future freight demand which is constant with or without the projects, and the projects' clearance features allowing movement of more freight with fewer trains.

6.3 Vibration Impact Assessment

No vibration impacts are predicted for the low-growth or high-growth Build scenarios. Currently the study corridor is defined as "heavily-used" (more than 12 freight trains per day). Under future conditions

there is no change to the train speeds or track locations, other than small changes in vertical alignment in areas that would result in a negligible change in vibration; therefore, both the Build scenario and No Build scenarios would only result in an increase in the number of trains per day. However, because the number of trains is not predicted to result in an increase of 3 VdB or greater at any vibration sensitive land uses, there would be no vibration impacts under either the Build or No Build scenarios.

Additionally, the variation in vertical alignments of either the track or the roadways crossing the track that is associated with the alternatives for projects at W. North Avenue/Brighton Road, Pennsylvania Avenue, and the Allegheny Commons Pedestrian Bridge are small, anticipated to be less than five feet. Additionally, none of these vertical alignment adjustments would result in the train tracks being closer to sensitive properties, which means that under any of the alternatives where the vertical alignment of the track is changed there would be a small reduction in vibration relative to the No Build conditions. Imperceptible differences in vibration from train operations would occur because the differences proposed for each of these projects' alternatives are small.

Table 6. High-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-1	2	184 - 470	40	66.3 - 77.5	65.0	3.0	49.7 - 62	66.4 - 77.6	0 - 0.6	49.1 - 61.5	66.4 - 77.6	0 - 0.5	0	0
	3	212 - 388		65.4 - 73.5	65.0	3.0	44.8 - 55.3	65.4 - 73.5	0 - 0.1	44 - 54.5	65.4 - 73.5	0 - 0.1	0	0
LT-2	2	80 - 439	40	62.2 - 71.5	65.0	3.0	48.7 - 69	62.4 - 73.5	0.2 - 1.9	48 - 68.5	62.3 - 73.3	0.2 - 1.8	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-3	2	157 - 473	40	63 - 74.3	65.0	3.0	52.9 - 62.7	63.7 - 74.4	0.1 - 2.1	52.4 - 62.2	63.6 - 74.3	0.1 - 1.9	0	0
	3	270 - 270		58.3 - 60.3	65.0	3.0	52.4 - 55.2	59.3 - 61.4	0.9 - 1.2	50.4 - 53.9	58.9 - 61.2	0.7 - 0.9	0	0
LT-4	2	69 - 503	40	57.6 - 68.2	65.0	3.0	48.4 - 69.4	58.1 - 71.9	0.4 - 4.8	48 - 68.6	58.1 - 71.4	0.4 - 3.2	13	13
	3	392 - 392		58.7 - 60.6	65.0	3.0	44.3 - 48	58.8 - 60.9	0.1 - 0.2	43.5 - 47.2	58.8 - 60.8	0.1 - 0.2	0	0
LT-5	2	94 - 504	40	64.5 - 72.1	65.0	3.0	46.7 - 63.1	64.6 - 72.3	0 - 0.6	46.2 - 62.6	64.6 - 72.3	0 - 0.5	0	0
	3	262 - 262		67.3 - 69.3	65.0	3.0	47.8 - 50.6	67.4 - 69.4	0 - 0.1	46.9 - 49.8	67.4 - 69.4	0 - 0	0	0
LT-6	2	194 - 654	20	63.7 - 75.6	65.0	3.0	43.5 - 61.8	63.7 - 75.7	0 - 0.4	42.9 - 61.3	63.7 - 75.7	0 - 0.4	0	0
	3	69 - 437		65.4 - 73.4	65.0	3.0	37.8 - 51.8	65.4 - 73.5	0 - 0	37 - 51	65.4 - 73.5	0 - 0	0	0
LT-7	2	252 - 471	20	60.5 - 69.6	65.0	3.0	50.1 - 63.2	60.9 - 69.7	0.1 - 1.5	49.7 - 62.8	60.9 - 69.7	0.1 - 1.4	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-8	2	53 - 488	20	67.9 - 75.8	65.0	3.0	49.6 - 69.1	68.5 - 76.3	0 - 1.4	49.1 - 68.6	68.4 - 76.3	0 - 1.3	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-9	2	441 - 575	20	61.2 - 63.8	65.0	3.0	41.2 - 49.4	61.2 - 63.9	0 - 0.2	40.7 - 48.9	61.2 - 63.9	0 - 0.1	0	0
	3	96 - 96		57.9 - 59.9	65.0	3.0	52.4 - 54.5	59 - 61	1 - 1.1	52.1 - 54.2	58.9 - 60.9	0.9 - 1	0	0
LT-10	2	156 - 464	30	56.5 - 63.2	65.0	3.0	49 - 63.7	57.4 - 66.1	0.6 - 3.9	48.5 - 63.1	57.3 - 65.8	0.5 - 3.6	2	2
	3	213 - 478		57.6 - 64.9	65.0	3.0	40.4 - 58.1	57.7 - 65.2	0.1 - 1.9	40.1 - 57.8	57.7 - 65.1	0.1 - 1.8	0	0
LT-11	2	93 - 473	30	58.8 - 67.9	65.0	3.0	46.8 - 66.5	59.1 - 70.2	0.2 - 3.2	46.3 - 66	59.1 - 70	0.2 - 3	2	2
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-12	2	149 - 215	30	60.5 - 64.1	65.0	3.0	52.9 - 64.3	61.3 - 67.2	0.7 - 3.1	52.4 - 63.8	61.2 - 67	0.6 - 2.9	2	2
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0

Table 6. High-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-13	2	60 - 497	30	59.1 - 70.3	65.0	3.0	45.7 - 66.9	59.3 - 71.9	0.1 - 4.2	45.2 - 66.4	59.3 - 71.8	0.1 - 3.9	7	7
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-14	2	117 - 475	30	61.4 - 69.4	65.0	3.0	43.1 - 64.9	61.4 - 70.7	0.1 - 1.3	42.6 - 64.3	61.4 - 70.6	0.1 - 1.2	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-15	2	27 - 463	30	52.7 - 72	65.0	3.0	47.6 - 72.6	54 - 75.3	0.2 - 6.8	47 - 72.1	53.9 - 75	0.2 - 6.4	92	56
	3	412 - 412		58.2 - 60.2	65.0	3.0	42.9 - 44.5	58.3 - 60.3	0.1 - 0.1	42.7 - 44.2	58.3 - 60.3	0.1 - 0.1	0	0
LT-16	2	24 - 459	30	54.2 - 74	65.0	3.0	48.4 - 70.9	55.6 - 75.8	0.2 - 4.4	47.9 - 70.4	55.5 - 75.6	0.2 - 4.1	0	0
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-17	2	158 - 454	40	58.4 - 69.7	65.0	3.0	50.6 - 63.7	59.4 - 70.2	0.2 - 3.3	50.1 - 63.2	59.3 - 70.1	0.2 - 3.1	2	2
	3	139 - 139		63.3 - 63.3	65.0	3.0	57.8 - 57.8	64.4 - 64.4	1.1 - 1.1	57.6 - 57.6	64.3 - 64.3	1 - 1	0	0
LT-18	2	58 - 464	40	57 - 68	65.0	3.0	47.4 - 70.6	57.9 - 72.5	0.4 - 5.8	46.9 - 70.1	57.9 - 72.2	0.3 - 5.4	27	23
	3	432 - 432		57.3 - 59.3	65.0	3.0	52.8 - 55	58.7 - 60.7	1.2 - 1.4	52.5 - 54.8	58.6 - 60.6	1.1 - 1.3	0	0
LT-19	2	59 - 463	40	56.8 - 67.8	65.0	3.0	51.3 - 69.4	58 - 71.7	0.3 - 6.1	50.8 - 68.9	57.9 - 71.4	0.3 - 5.7	95	88
	3	332 - 406		57.4 - 60.3	65.0	3.0	51.9 - 56.1	58.5 - 61.7	1 - 1.4	51.7 - 55.9	58.4 - 61.6	0.9 - 1.4	0	0
LT-20	2	18 - 464	40	62.2 - 81.6	65.0	3.0	49.8 - 75.6	62.4 - 81.8	0 - 2.7	49.3 - 75.1	62.4 - 81.8	0 - 2.4	0	0
	3	47 - 47		72.1 - 74.1	65.0	3.0	67.2 - 67.3	73.3 - 74.9	0.8 - 1.2	67 - 67.1	73.3 - 74.9	0.8 - 1.2	0	0
LT-21	2	67 - 487	40	61 - 71.6	65.0	3.0	48.5 - 69.4	61.7 - 73.4	0.1 - 2.6	48 - 68.9	61.6 - 73.3	0.1 - 2.3	0	0
	3	388 - 388		62 - 64	65.0	3.0	51.9 - 54.8	62.4 - 64.5	0.4 - 0.5	51.6 - 54.6	62.4 - 64.4	0.4 - 0.5	0	0
LT-22	2	44 - 437	40	65.5 - 77.5	65.0	3.0	49.1 - 71	65.7 - 78.4	0.1 - 1.3	48.6 - 70.5	65.7 - 78.3	0.1 - 1.2	0	0
	3	226 - 263		67.7 - 70.4	65.0	3.0	51.7 - 55.1	67.8 - 70.5	0.1 - 0.1	51.4 - 54.8	67.8 - 70.5	0.1 - 0.1	0	0
LT-23	2	51 - 449	40	62.6 - 74	65.0	3.0	53 - 70.4	63.4 - 75.5	0.2 - 3.6	52.5 - 69.9	63.3 - 75.4	0.2 - 3.3	3	1
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-24	2	27 - 436	40	59.9 - 74	65.0	3.0	47.9 - 74.5	60.2 - 77.2	0.2 - 4.4	47.3 - 74	60.2 - 76.9	0.2 - 4.1	39	33
	3	177 - 326		61.1 - 65.8	65.0	3.0	47.8 - 58.1	61.3 - 65.9	0.1 - 0.8	47.6 - 57.9	61.3 - 65.9	0.1 - 0.8	0	0

Table 6. High-Growth Scenario Noise Impact Projections

NSA Group	Land Use Cat.	Distance to Near Track / Lane (ft)	Maximum Speed (mph)	Existing Noise Level (dBA L _{dn})	STB Assessment Guideline		No Build Sound Levels (dBA L _{dn})			Build Sound Levels (dBA L _{dn})			Number of Noise Sensitive Land Use Sites Above Threshold	
					W/ Project Limit if Existing <65 dBA L _{dn}	Increase over Existing (dB)	Predicted Noise Only	Predicted plus Existing	Increase over Existing	Predicted Noise Only	Predicted plus Existing	Increase over Existing	W/O Project Scenario	W/ Project Scenario
LT-25	2	211 - 493	40	63.9 - 69.5	65.0	3.0	55.5 - 73.7	65.7 - 74.5	0.2 - 8.1	55 - 73.2	65.6 - 74.1	0.2 - 7.7	37	34
	3	0 - 0		0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
LT-26	2	0 - 0	20	0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
	3	47 - 47		72.4 - 72.4	65.0	3.0	55.5 - 55.5	72.4 - 72.4	0.1 - 0.1	54.7 - 54.7	72.4 - 72.4	0.1 - 0.1	0	0
ST-2	2	0 - 0	20	0 - 0	65.0	3.0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0	0
	3	105 - 290		66.2 - 70.6	65.0	3.0	52.8 - 55	66.4 - 70.7	0.1 - 0.2	51.9 - 54.2	66.3 - 70.7	0.1 - 0.2	0	0
Total												321	263	

7 References

FTA. 2018. Transit Noise and Vibration Impact Assessment (September 2018) (“FTA Manual”).

Pennsylvania Department of Transportation (PennDOT): 2016. 2015 Pennsylvania State Rail Plan.

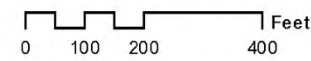
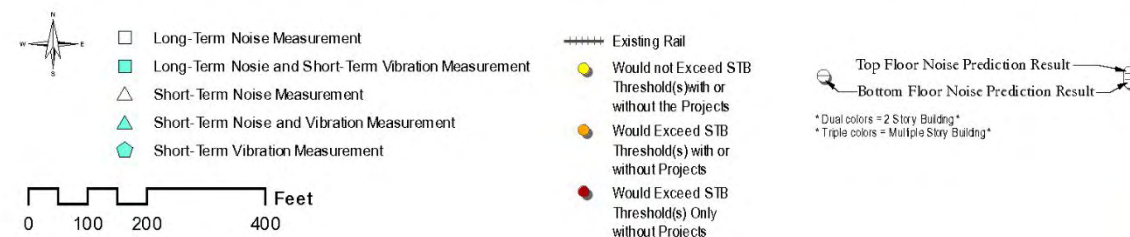
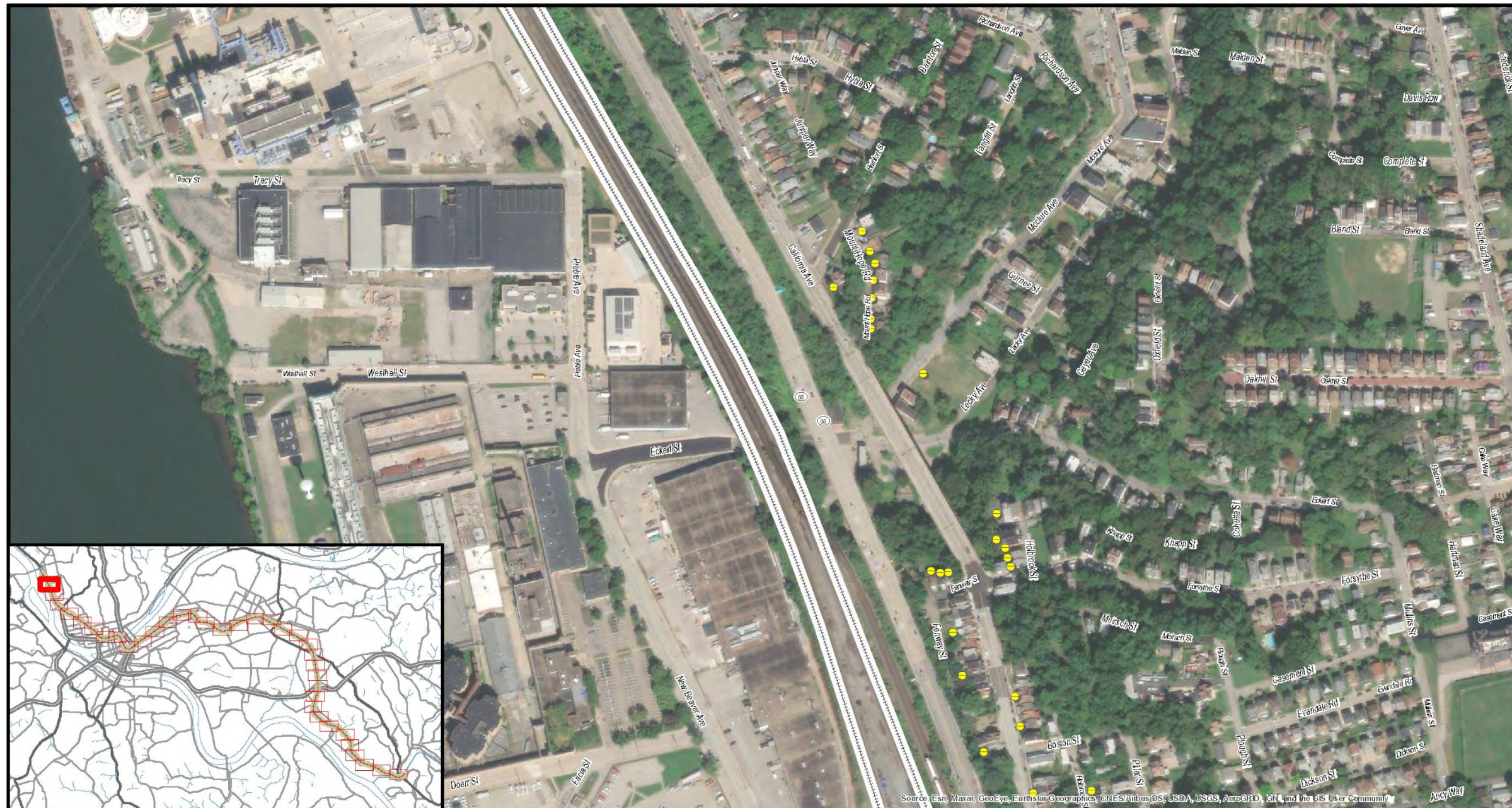
Pennsylvania Department of Transportation (PennDOT): 2021. 2020 Pennsylvania State Rail Plan.

STB. 1998. Final Environmental Impact Statement No. 980194, Conrail Acquisition (Finance Docket No. 33388) https://www.stb.gov/stb/docs/conrail_summary.pdf

8 Maps

This section provides detailed mapping for potential noise and vibration receptors within the 13-mile corridor assessed in this analysis. Figure 6 through Figure 41 are maps of the low-growth scenario impact conditions and Figure 42 through Figure 77 are maps of the high-growth scenario.

Figure 6. Low-Growth Scenario Noise and Vibration Assessment Map 1

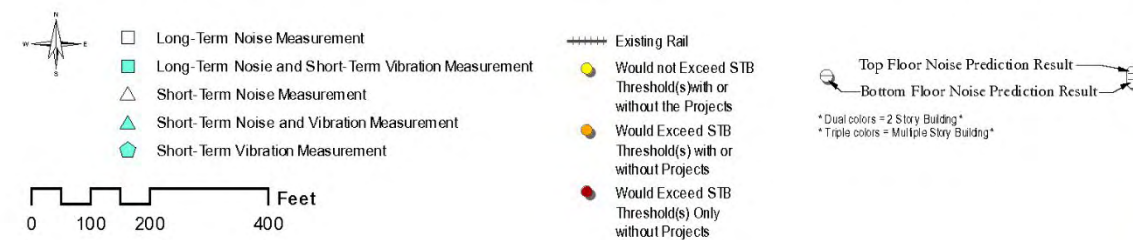


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Figure 7. Low-Growth Scenario Noise and Vibration Assessment Map 2

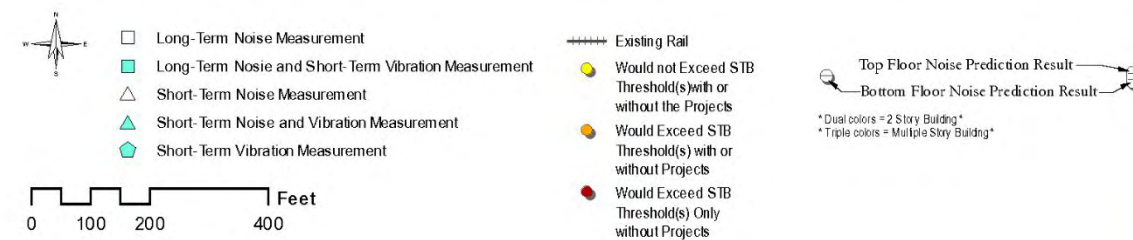
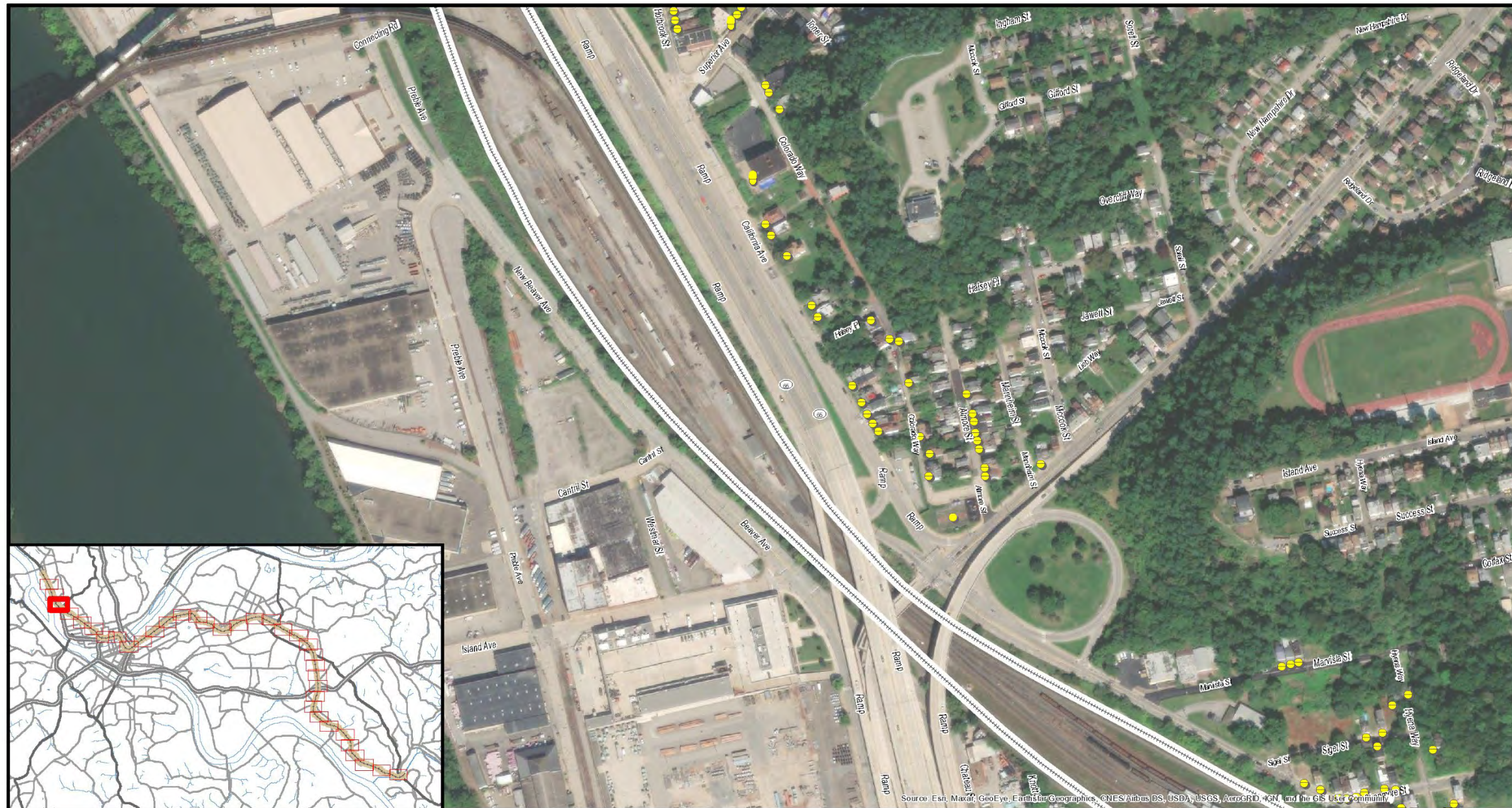


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Figure 8. Low-Growth Scenario Noise and Vibration Assessment Map 3



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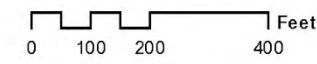
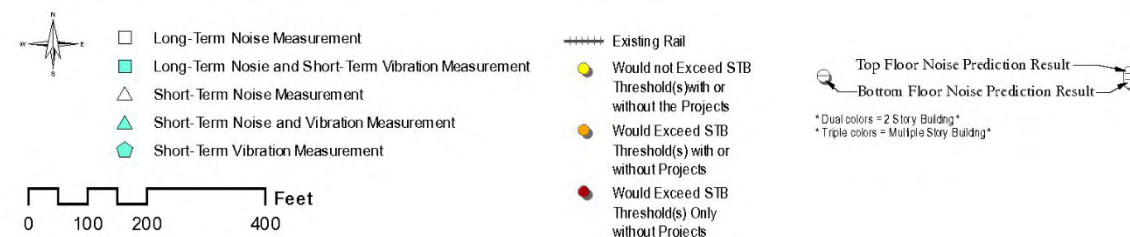
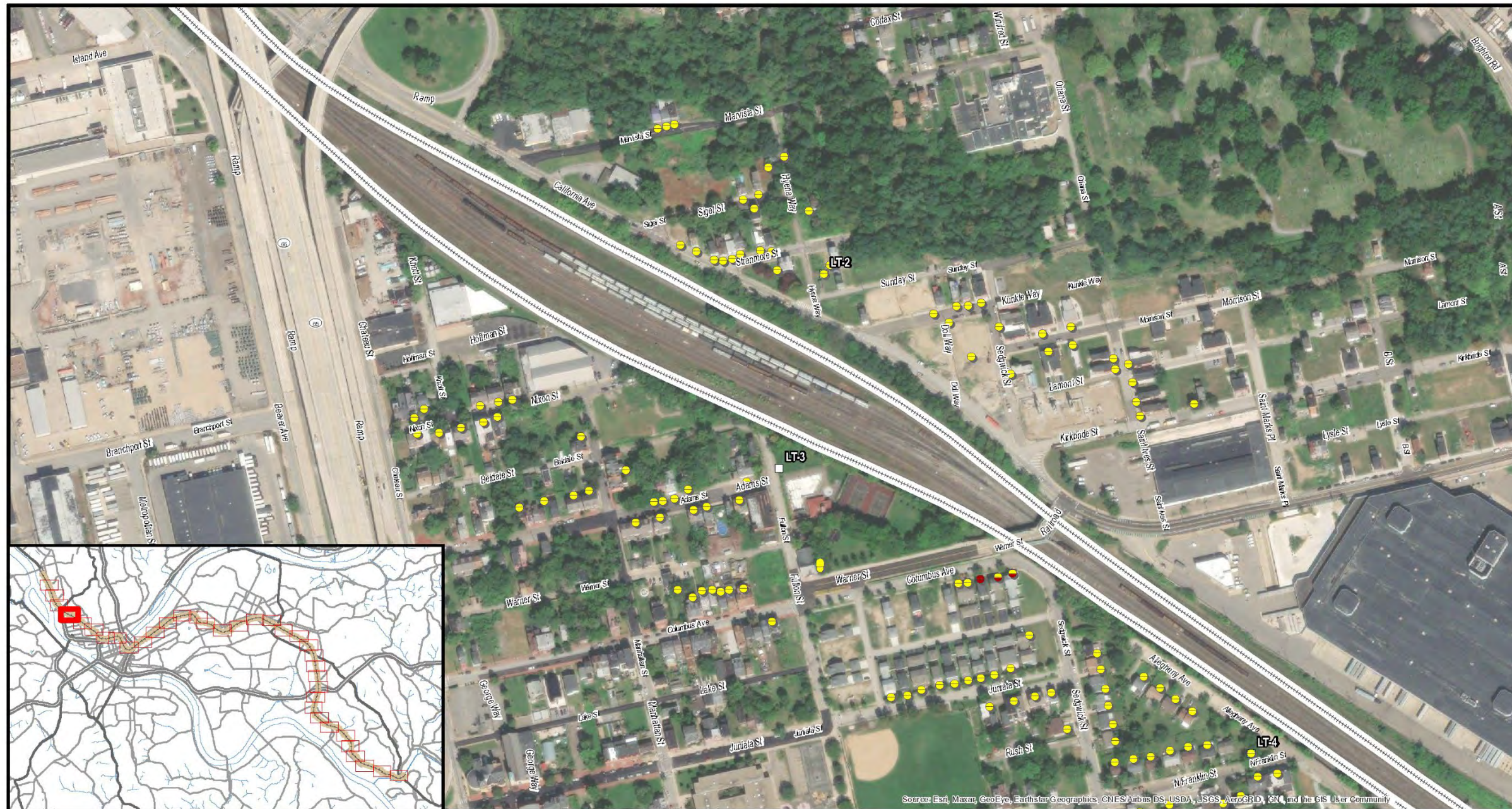


Figure 9. Low-Growth Scenario Noise and Vibration Assessment Map 4

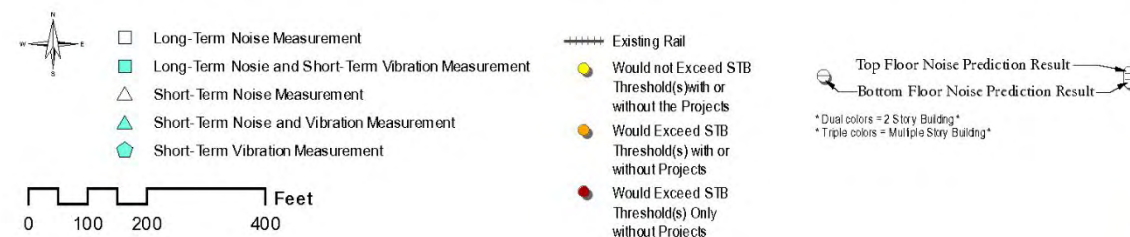


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Figure 10. Low-Growth Scenario Noise and Vibration Assessment Map 5

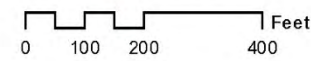
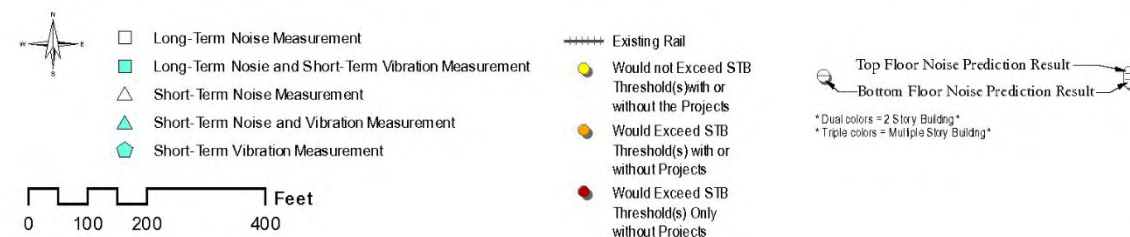


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Figure 11. Low-Growth Scenario Noise and Vibration Assessment Map 6

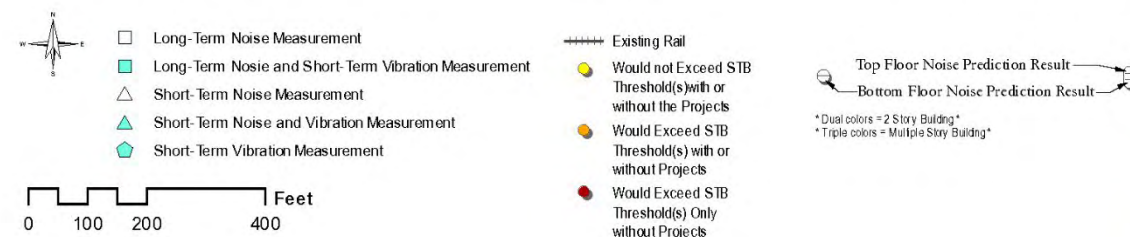
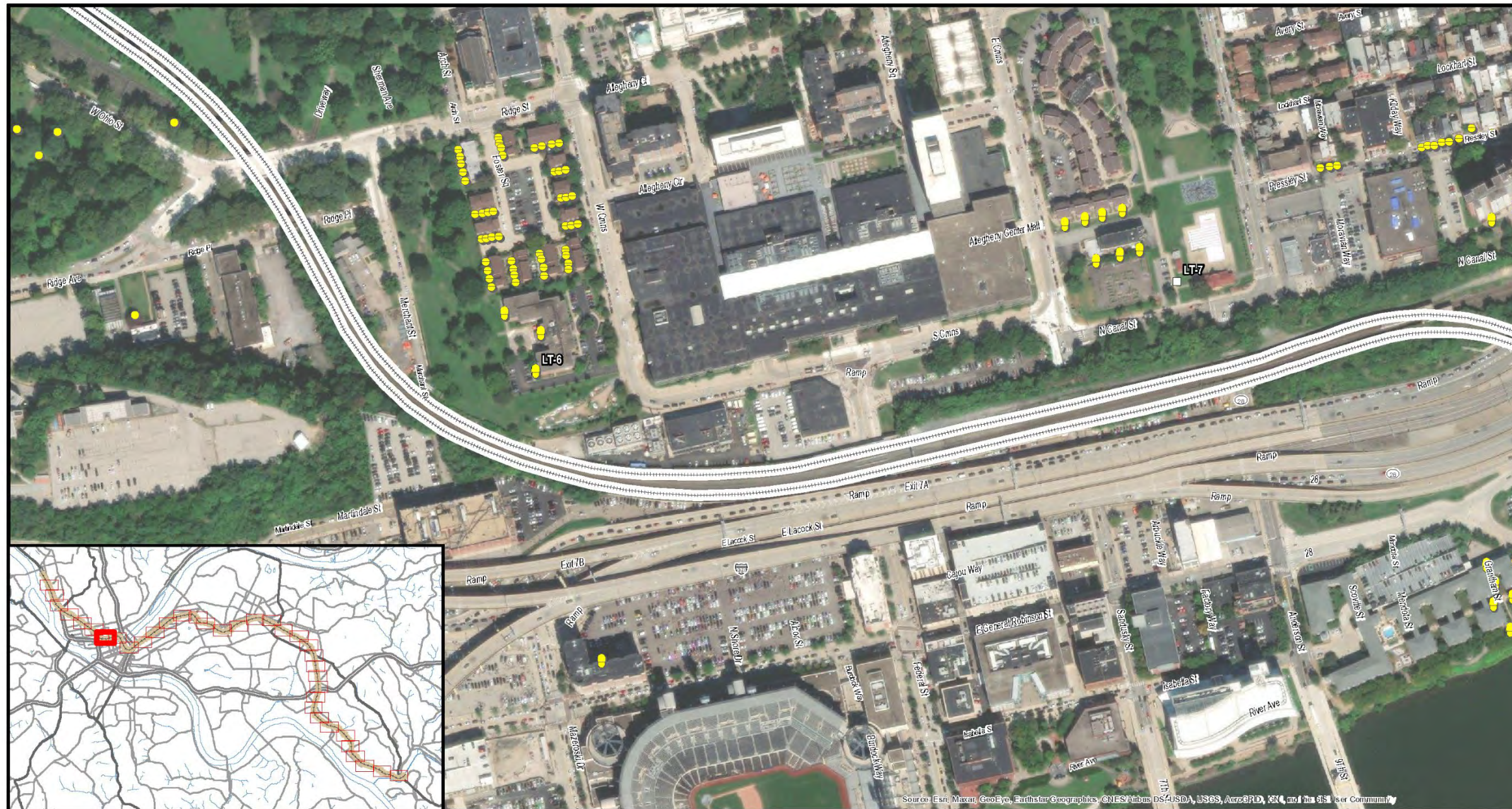


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Figure 12. Low-Growth Scenario Noise and Vibration Assessment Map 7

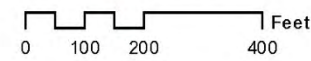
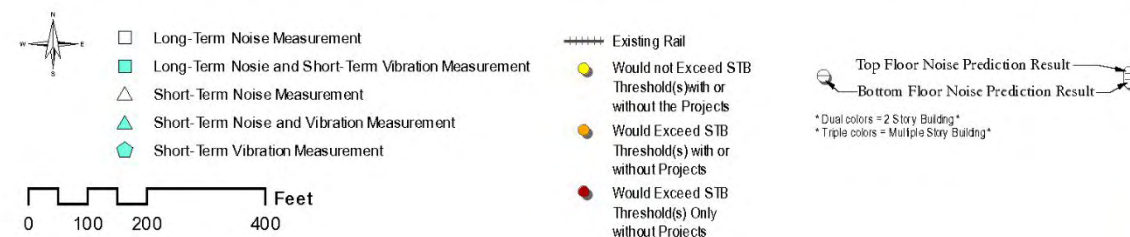


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Figure 13. Low-Growth Scenario Noise and Vibration Assessment Map 8

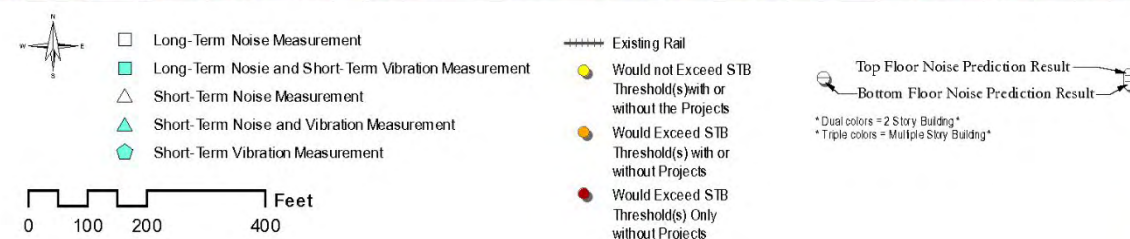
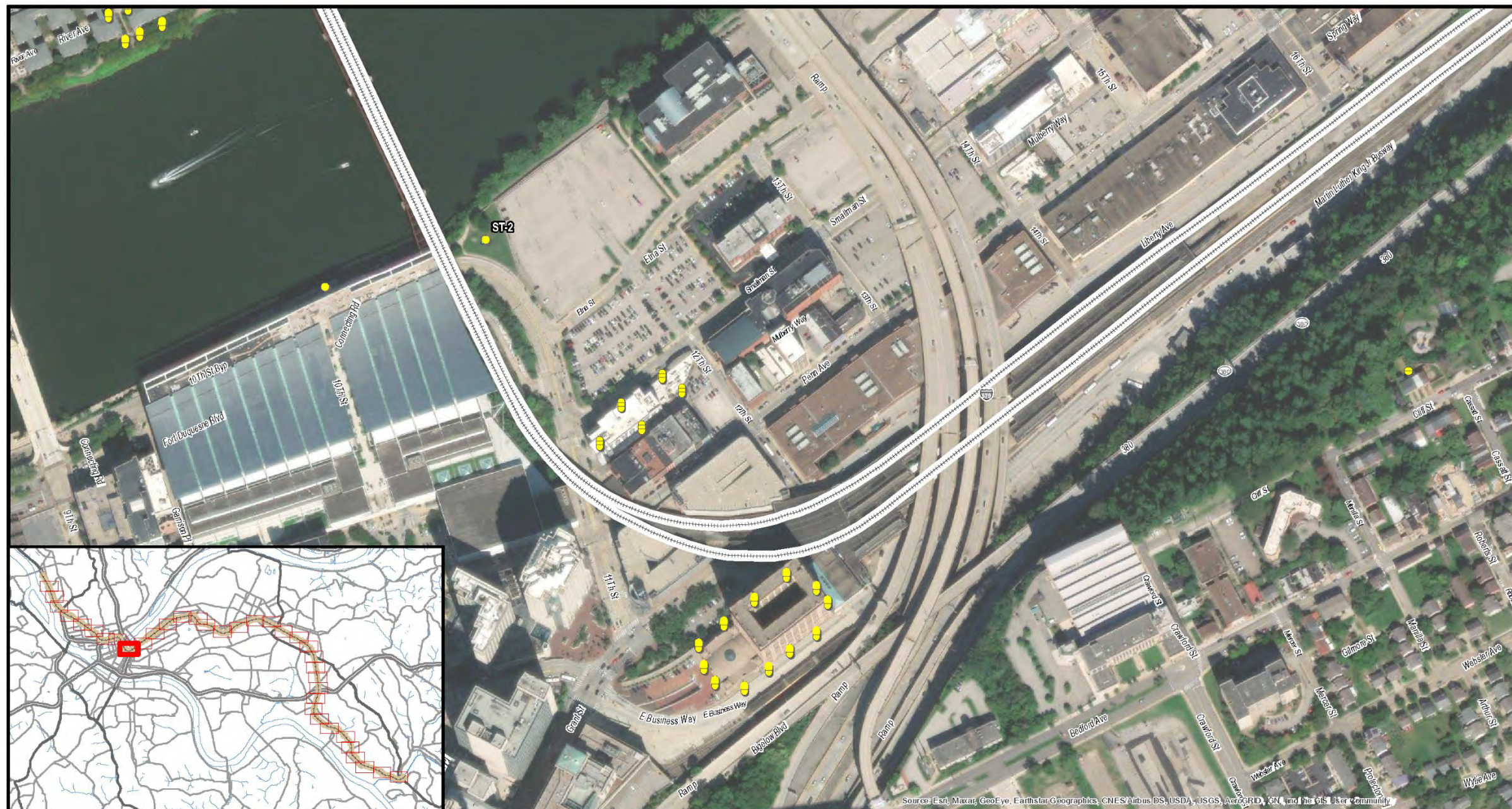


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Figure 14. Low-Growth Scenario Noise and Vibration Assessment Map 9

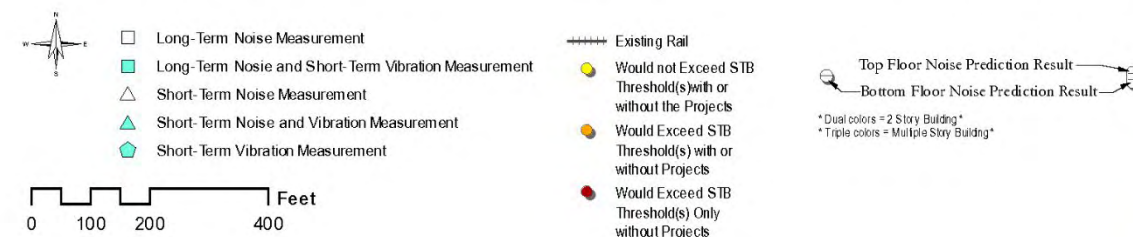


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Figure 15. Low-Growth Scenario Noise and Vibration Assessment Map 10

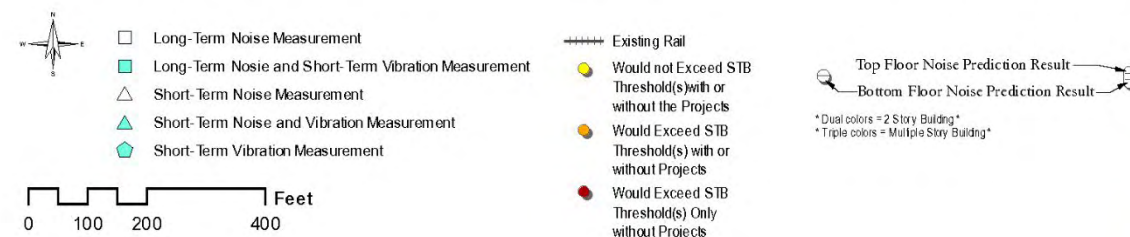
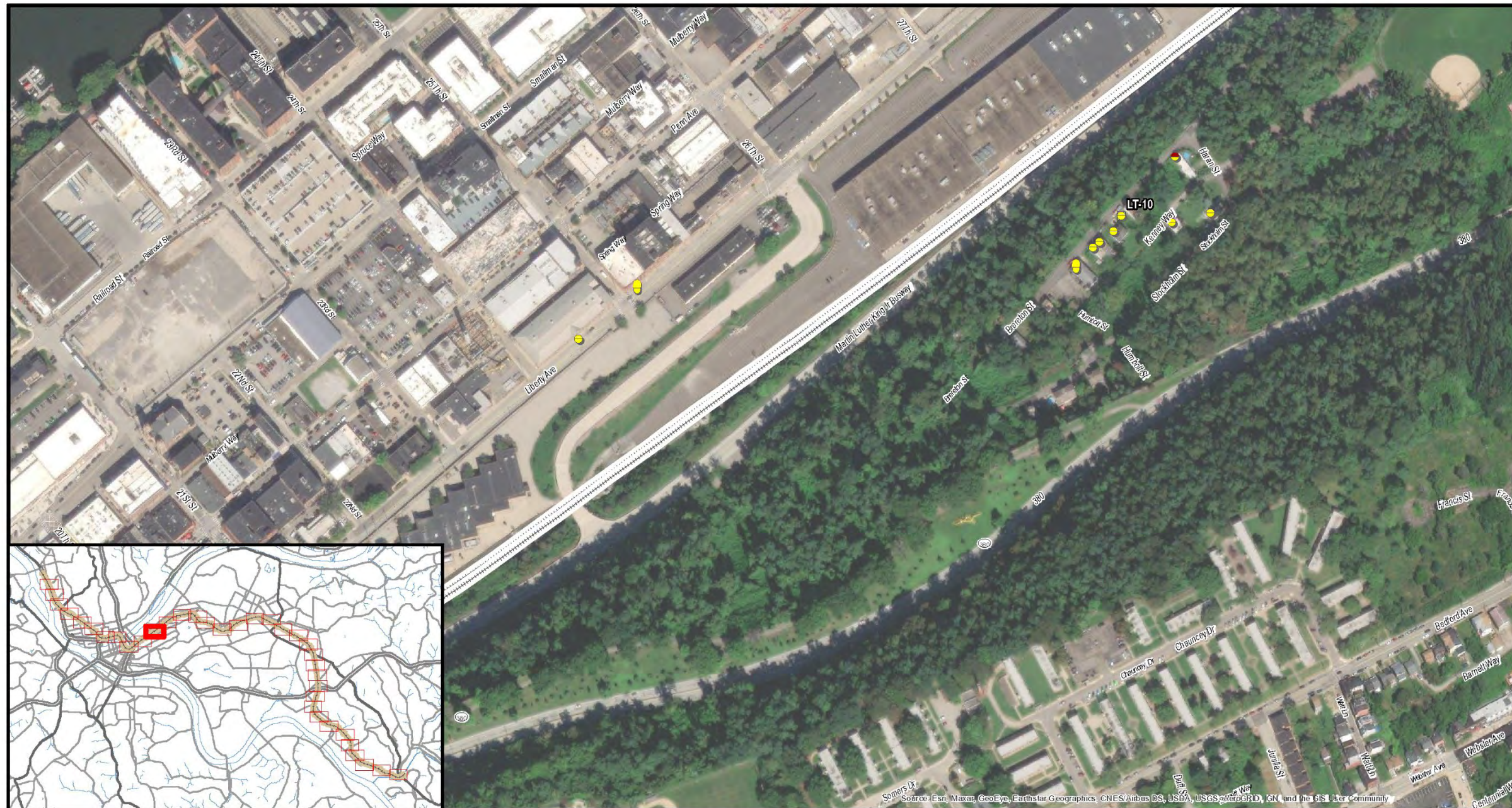


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Figure 16. Low-Growth Scenario Noise and Vibration Assessment Map 11

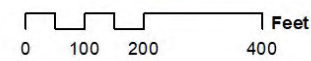
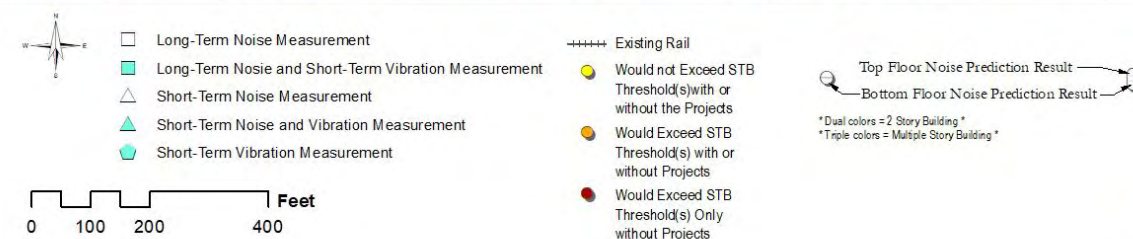
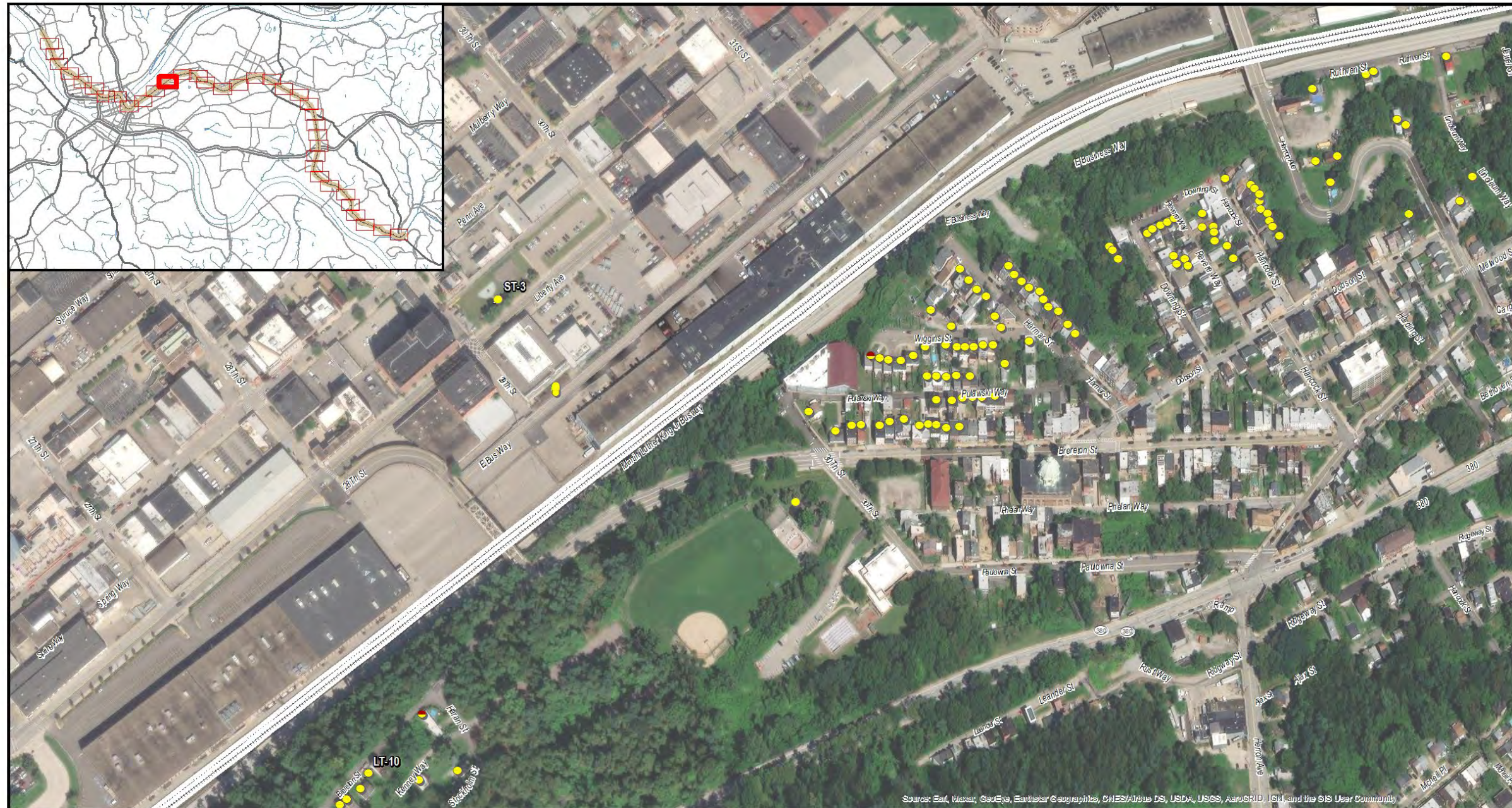


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Figure 17. Low-Growth Scenario Noise and Vibration Assessment Map 12

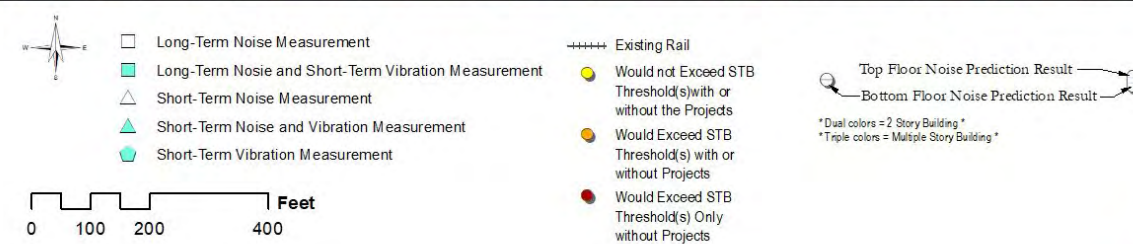
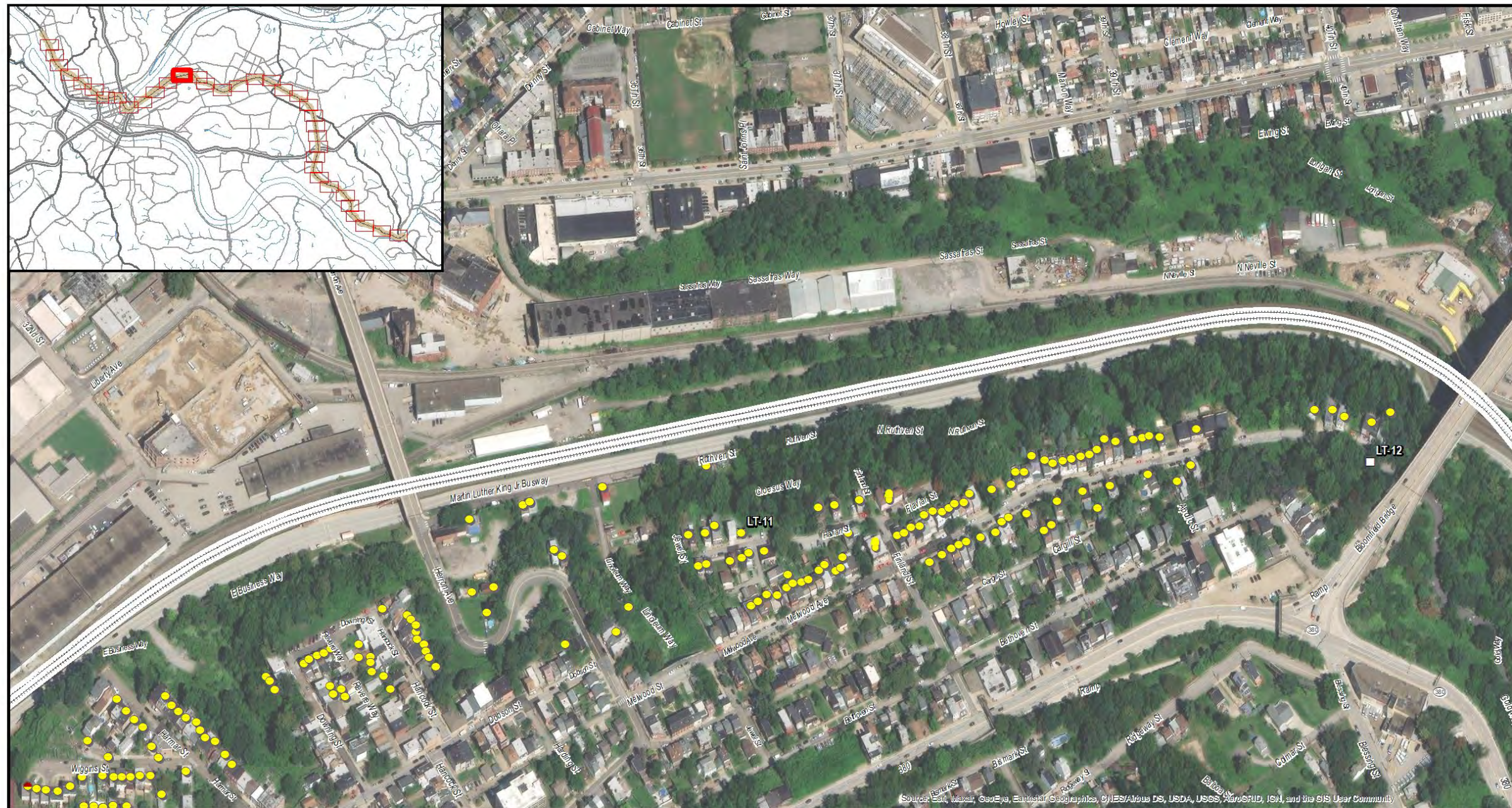


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Figure 18. Low-Growth Scenario Noise and Vibration Assessment Map 13

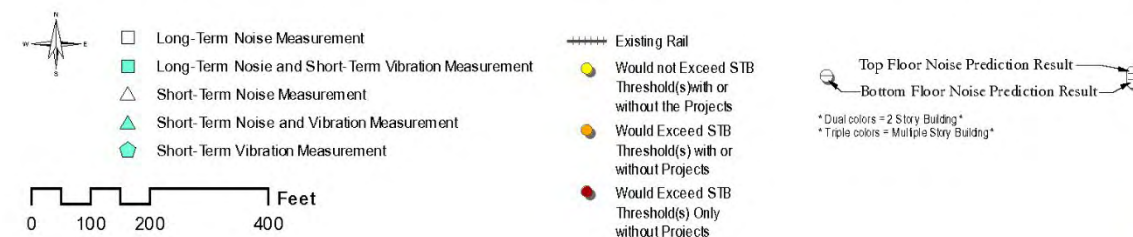


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Figure 19. Low-Growth Scenario Noise and Vibration Assessment Map 14



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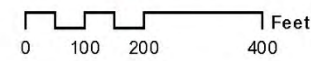
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Figure 20. Low-Growth Scenario Noise and Vibration Assessment Map 15



- Long-Term Noise Measurement
- Long-Term Noise and Short-Term Vibration Measurement
- △ Short-Term Noise Measurement
- ▲ Short-Term Noise and Vibration Measurement
- ◆ Short-Term Vibration Measurement



- Existing Rail
- Would not Exceed STB Threshold(s) with or without the Projects
- Would Exceed STB Threshold(s) with or without Projects
- Would Exceed STB Threshold(s) Only without Projects

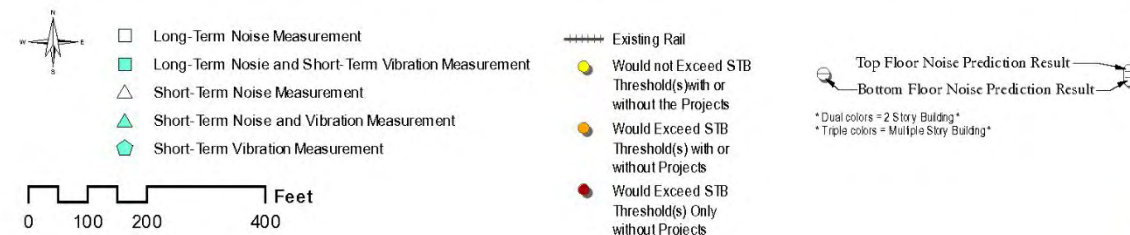
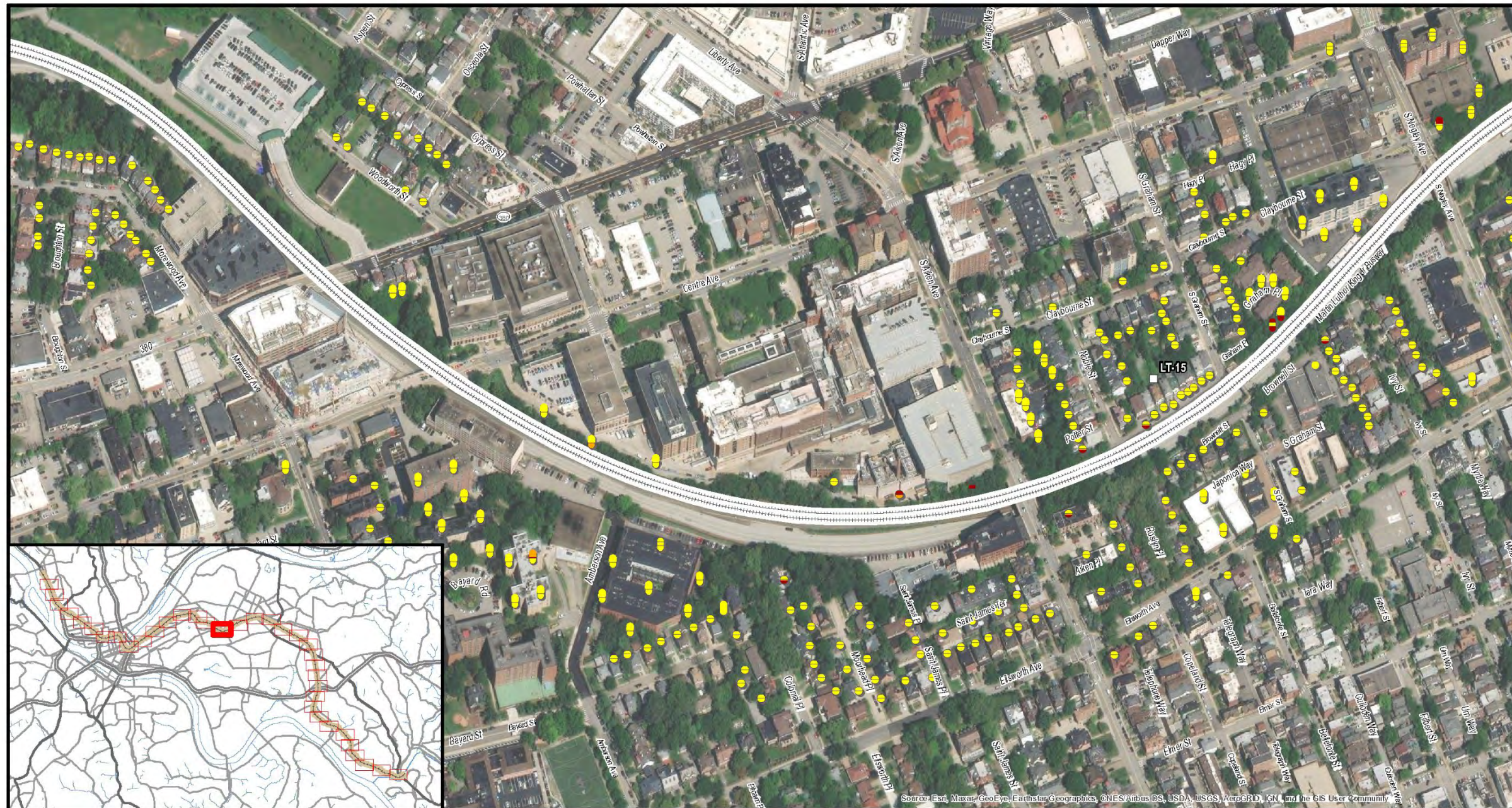
- Top Floor Noise Prediction Result
- Bottom Floor Noise Prediction Result
- * Dual colors = 2 Story Building*
- * Triple colors = Multiple Story Building*

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Figure 21. Low-Growth Scenario Noise and Vibration Assessment Map 16

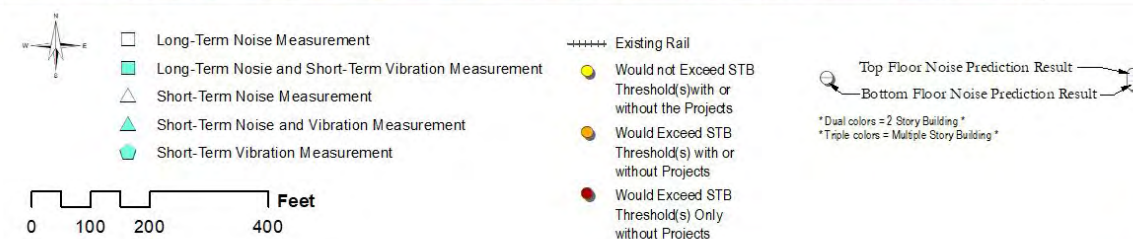
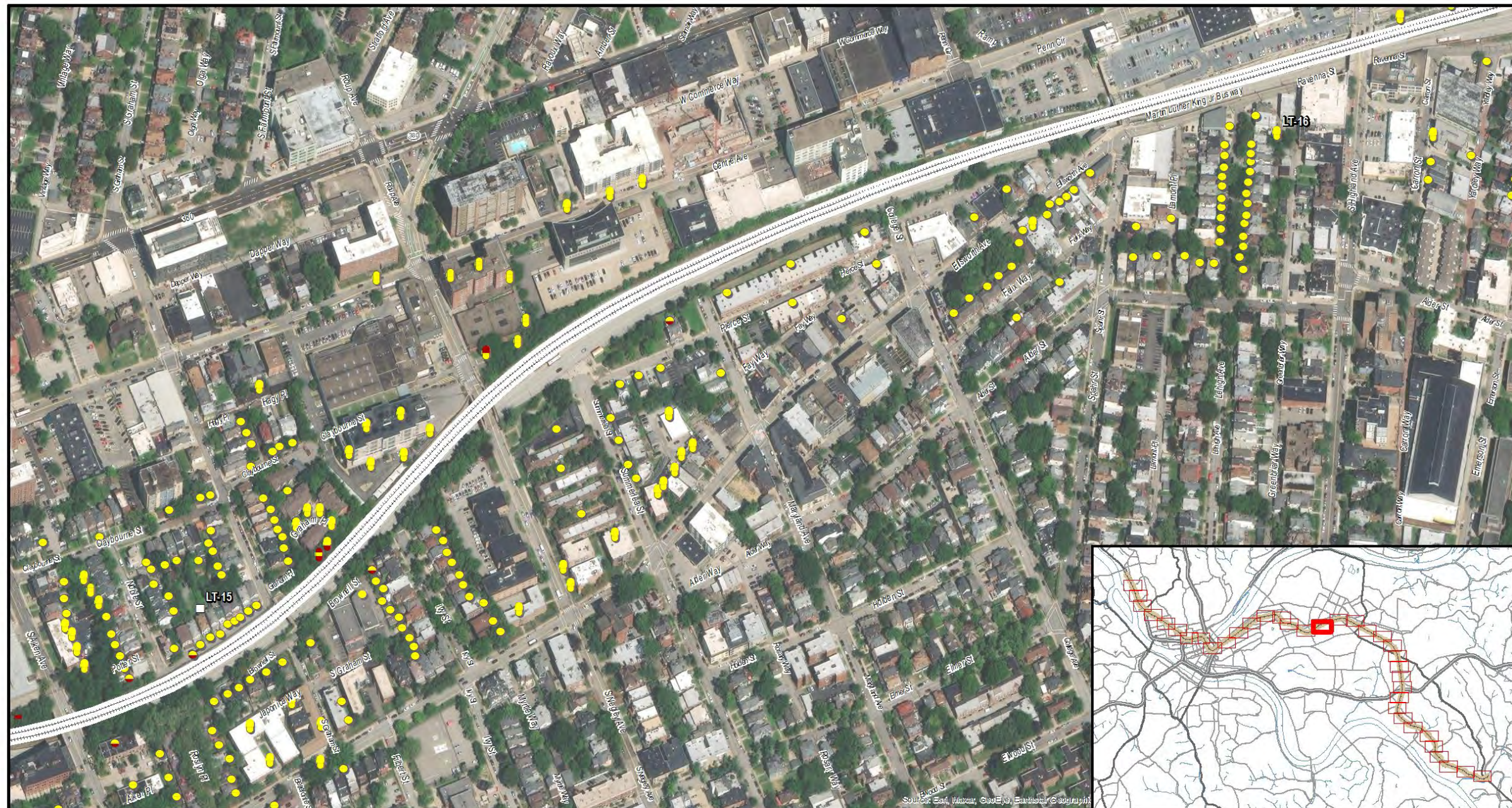


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Figure 22. Low-Growth Scenario Noise and Vibration Assessment Map 17

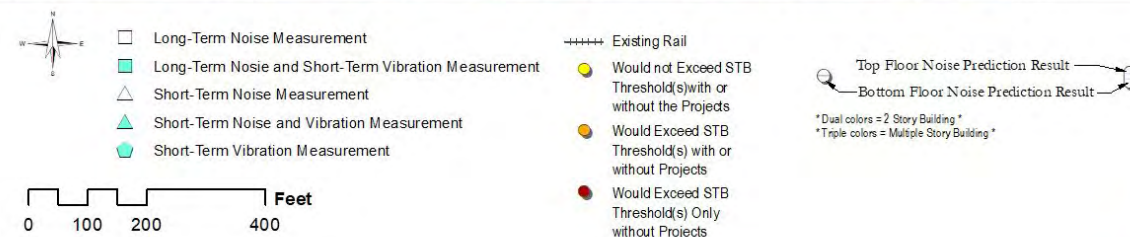
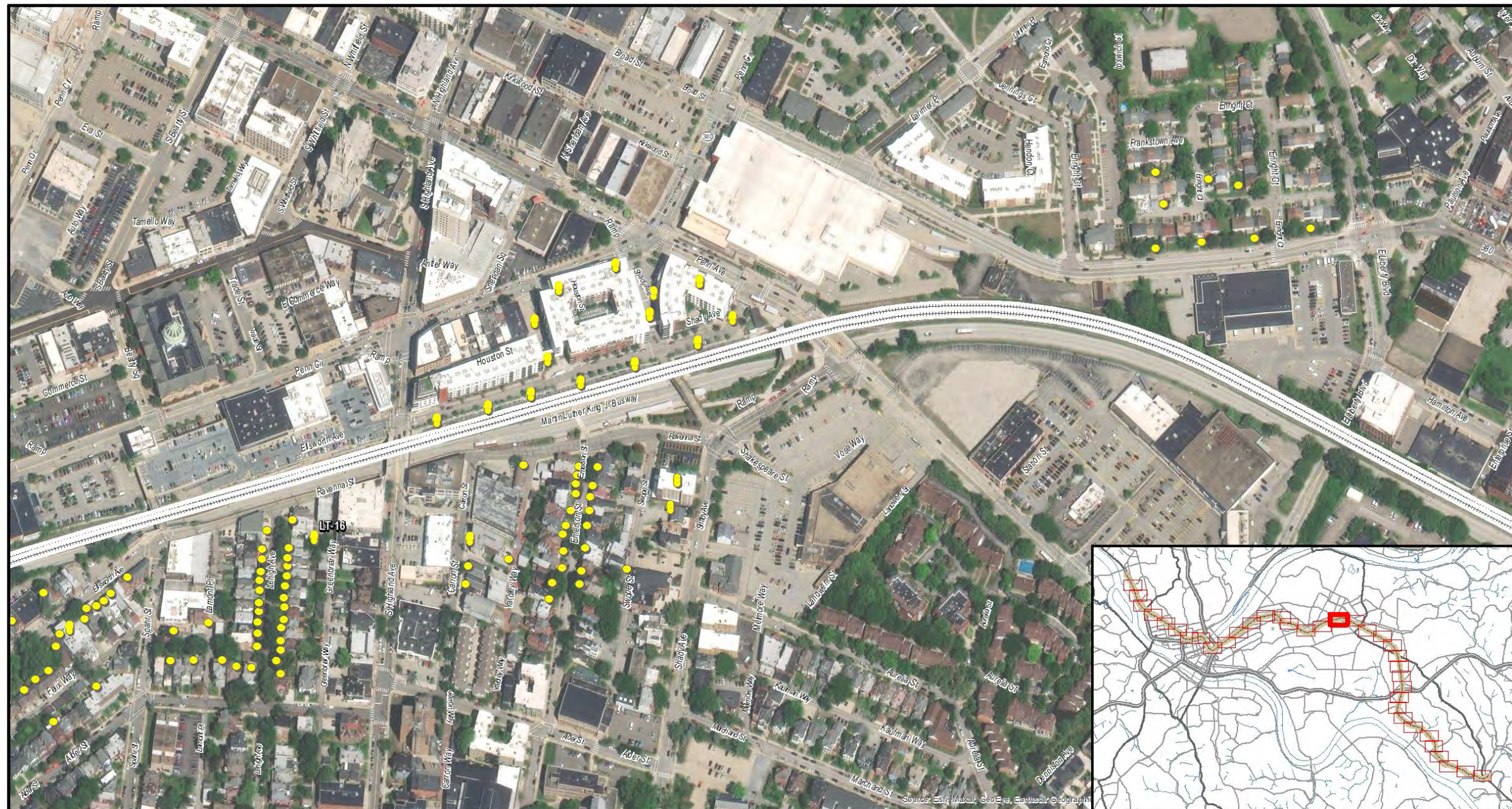


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Figure 23. High-Growth Scenario Noise and Vibration Assessment Map 18



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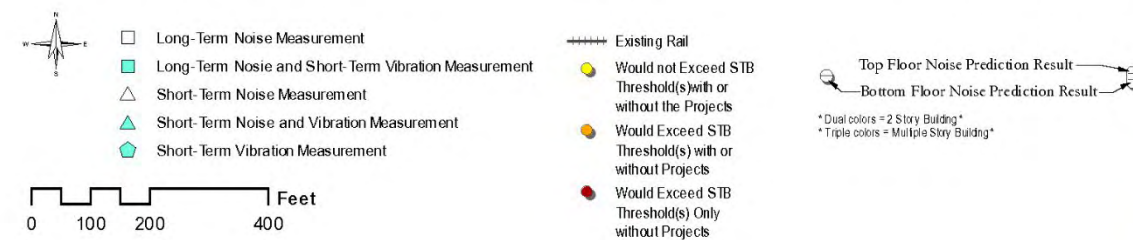
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Figure 24. Low-Growth Scenario Noise and Vibration Assessment Map 19



Source: Esri, Maxar, GeoEye, Earthstar, Geographic, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

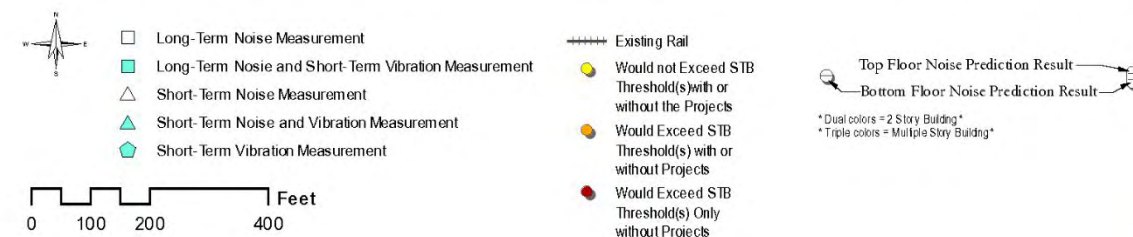


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Figure 25. Low-Growth Scenario Noise and Vibration Assessment Map 20

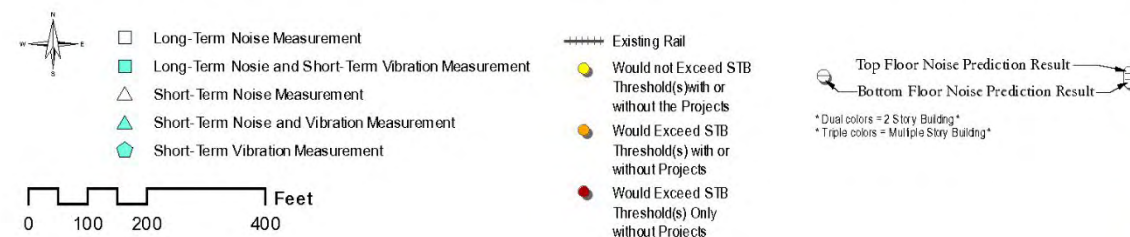


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Figure 26. Low-Growth Scenario Noise and Vibration Assessment Map 21

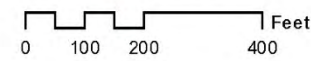
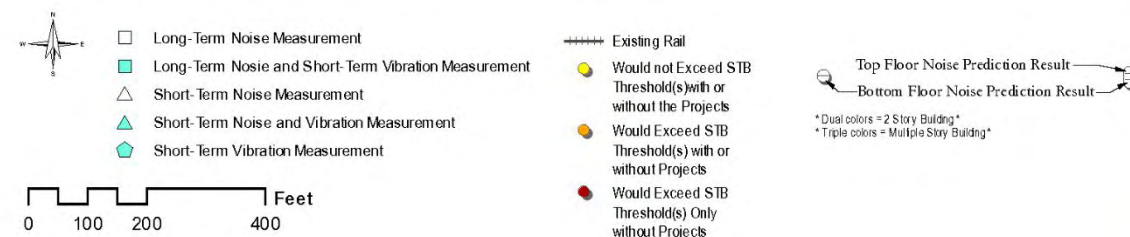
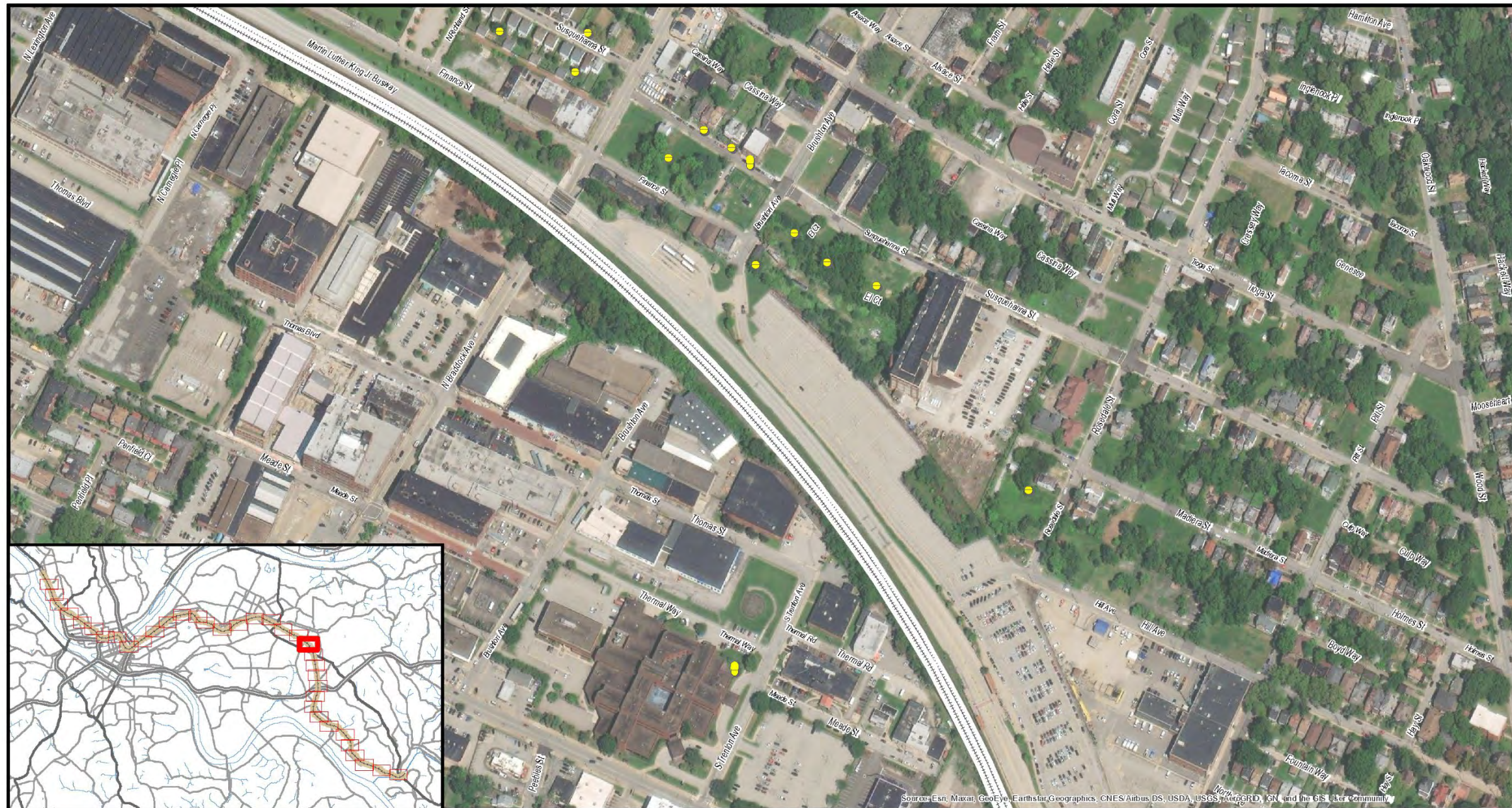


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Figure 27. Low-Growth Scenario Noise and Vibration Assessment Map 22

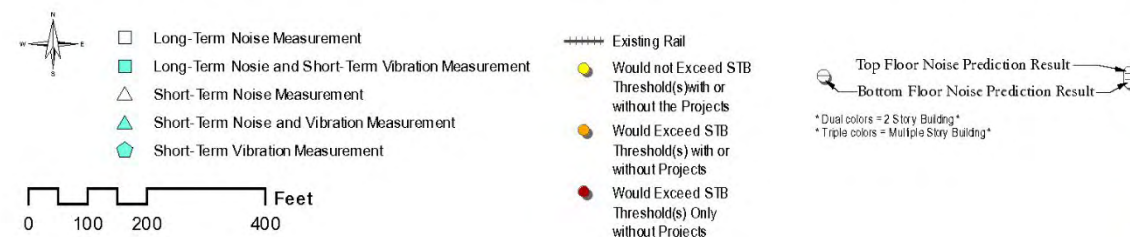


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Figure 28. Low-Growth Scenario Noise and Vibration Assessment Map 23

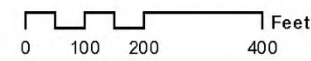
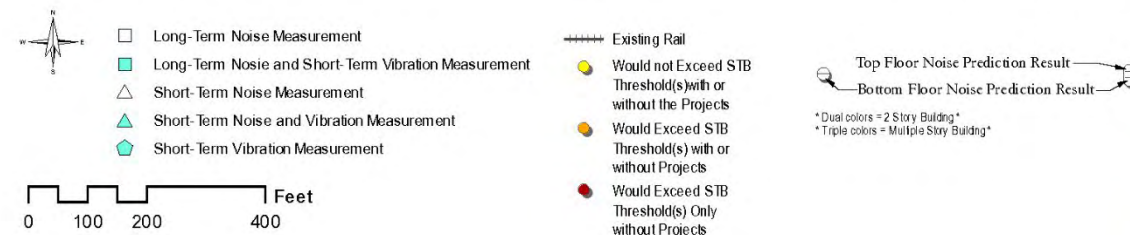


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Figure 29. Low-Growth Scenario Noise and Vibration Assessment Map 24

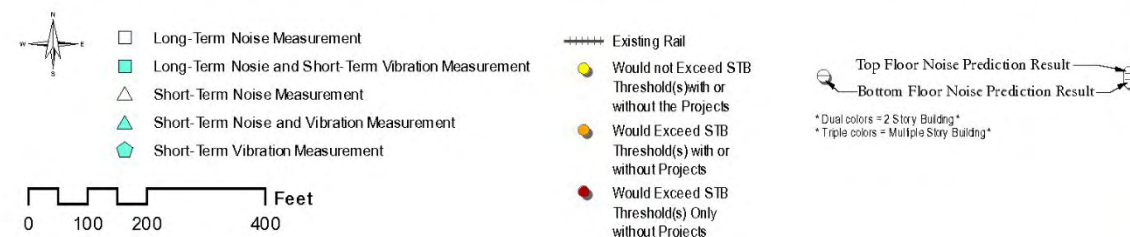


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Figure 30. Low-Growth Scenario Noise and Vibration Assessment Map 25

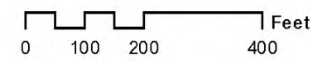
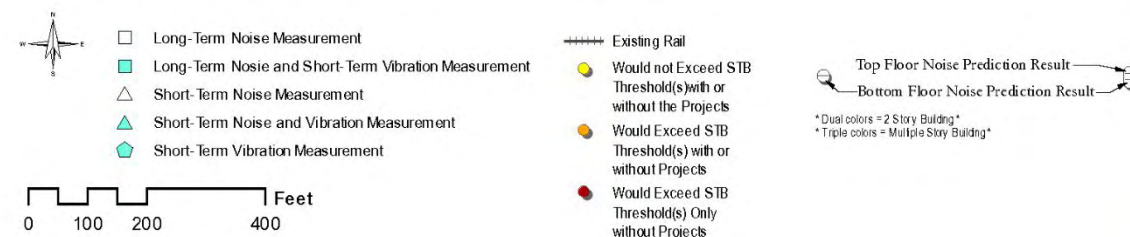
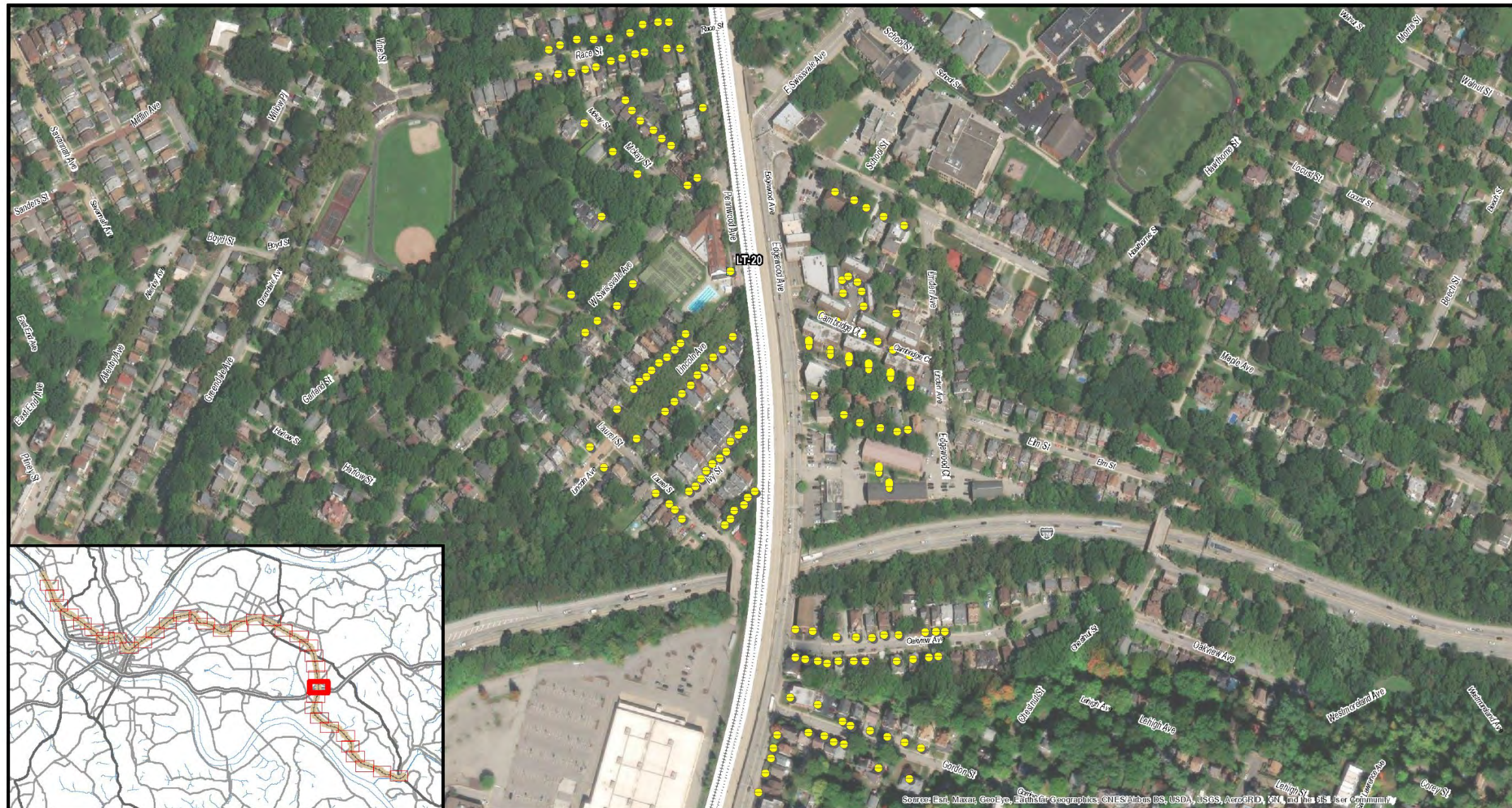


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Figure 31. Low-Growth Scenario Noise and Vibration Assessment Map 26

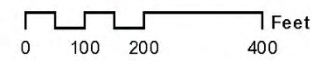
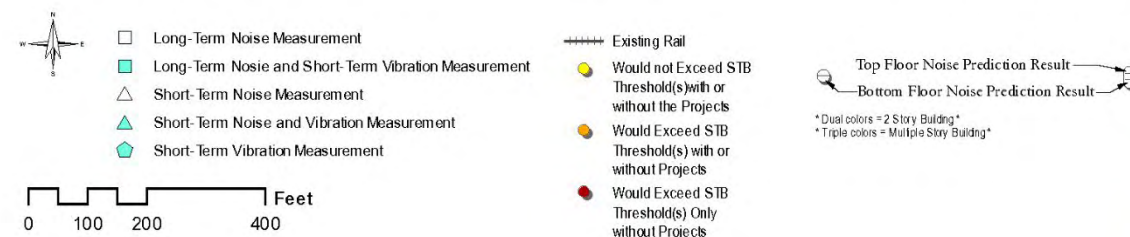


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Figure 32. Low-Growth Scenario Noise and Vibration Assessment Map 27

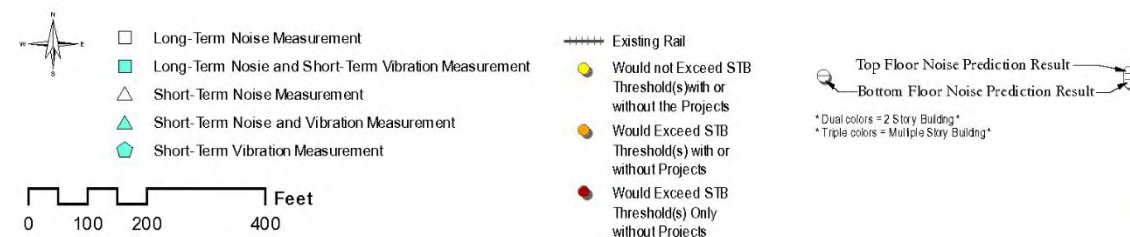


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Figure 33. Low-Growth Scenario Noise and Vibration Assessment Map 28

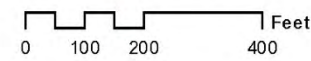
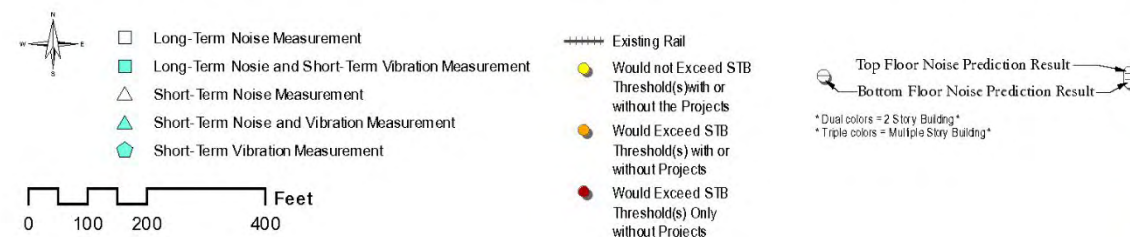


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Figure 34. Low-Growth Scenario Noise and Vibration Assessment Map 29

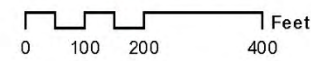
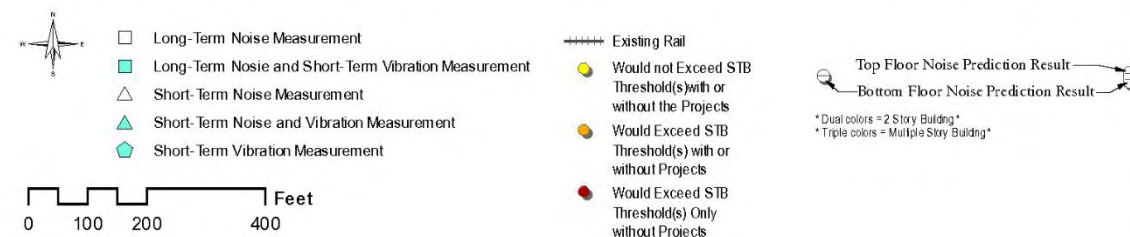


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Figure 35. Low-Growth Scenario Noise and Vibration Assessment Map 30

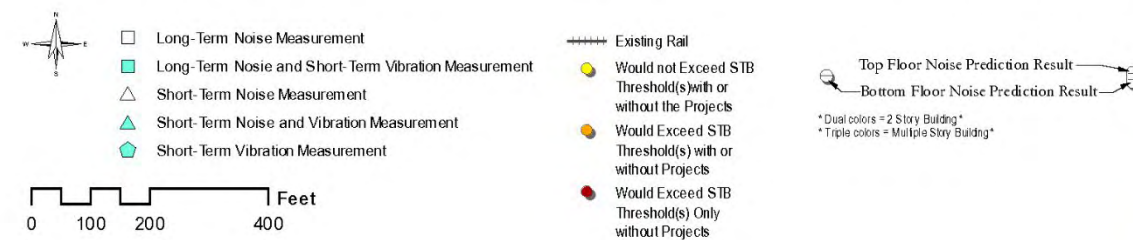


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Figure 36. Low-Growth Scenario Noise and Vibration Assessment Map 31

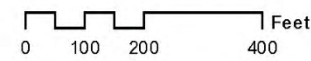
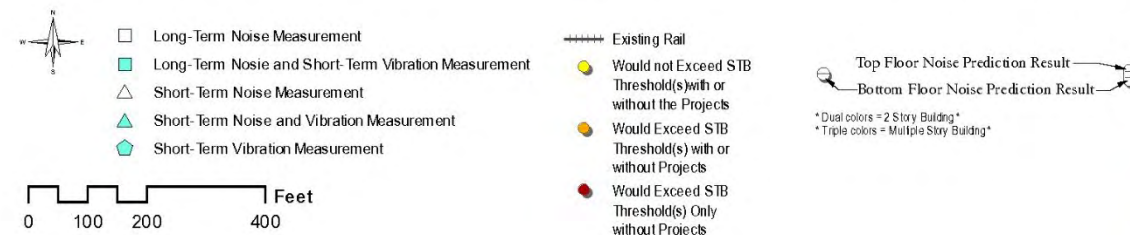


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Figure 37. Low-Growth Scenario Noise and Vibration Assessment Map 32

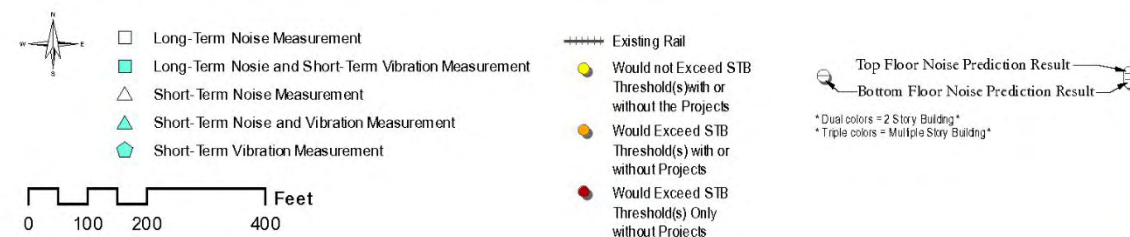


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Figure 38. Low-Growth Scenario Noise and Vibration Assessment Map 33

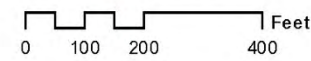
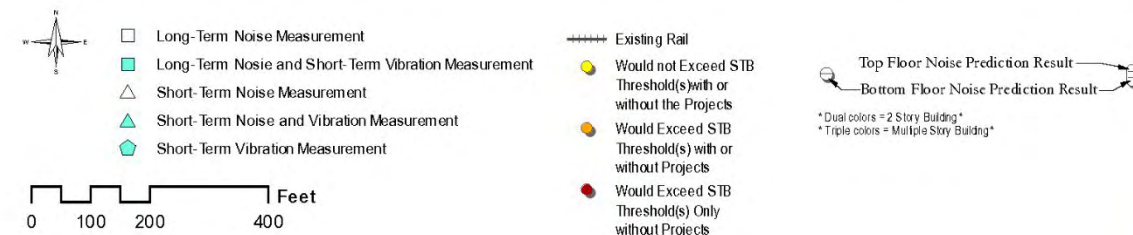


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Figure 39. Low-Growth Scenario Noise and Vibration Assessment Map 34

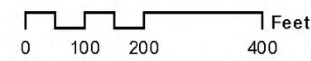
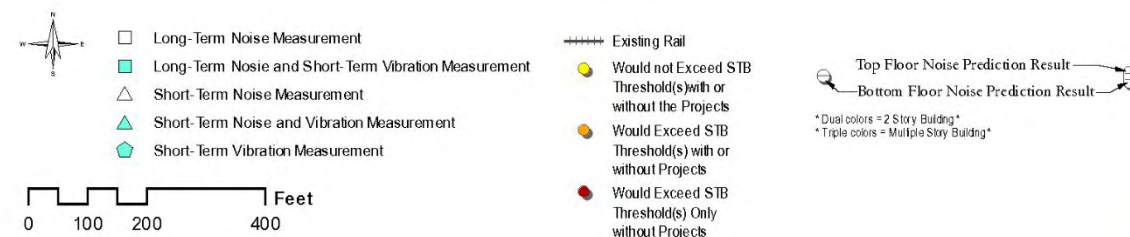


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Figure 40. Low-Growth Scenario Noise and Vibration Assessment Map 35

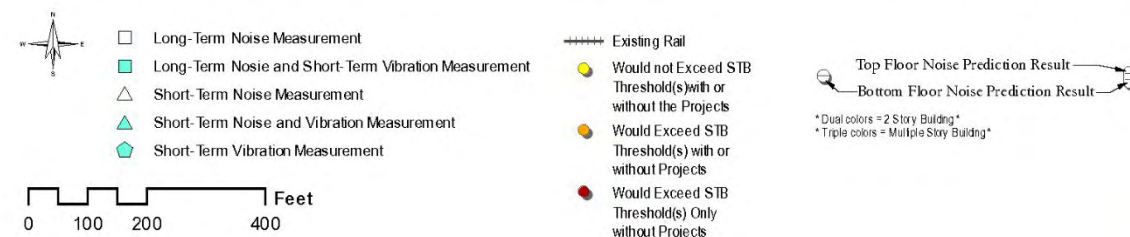
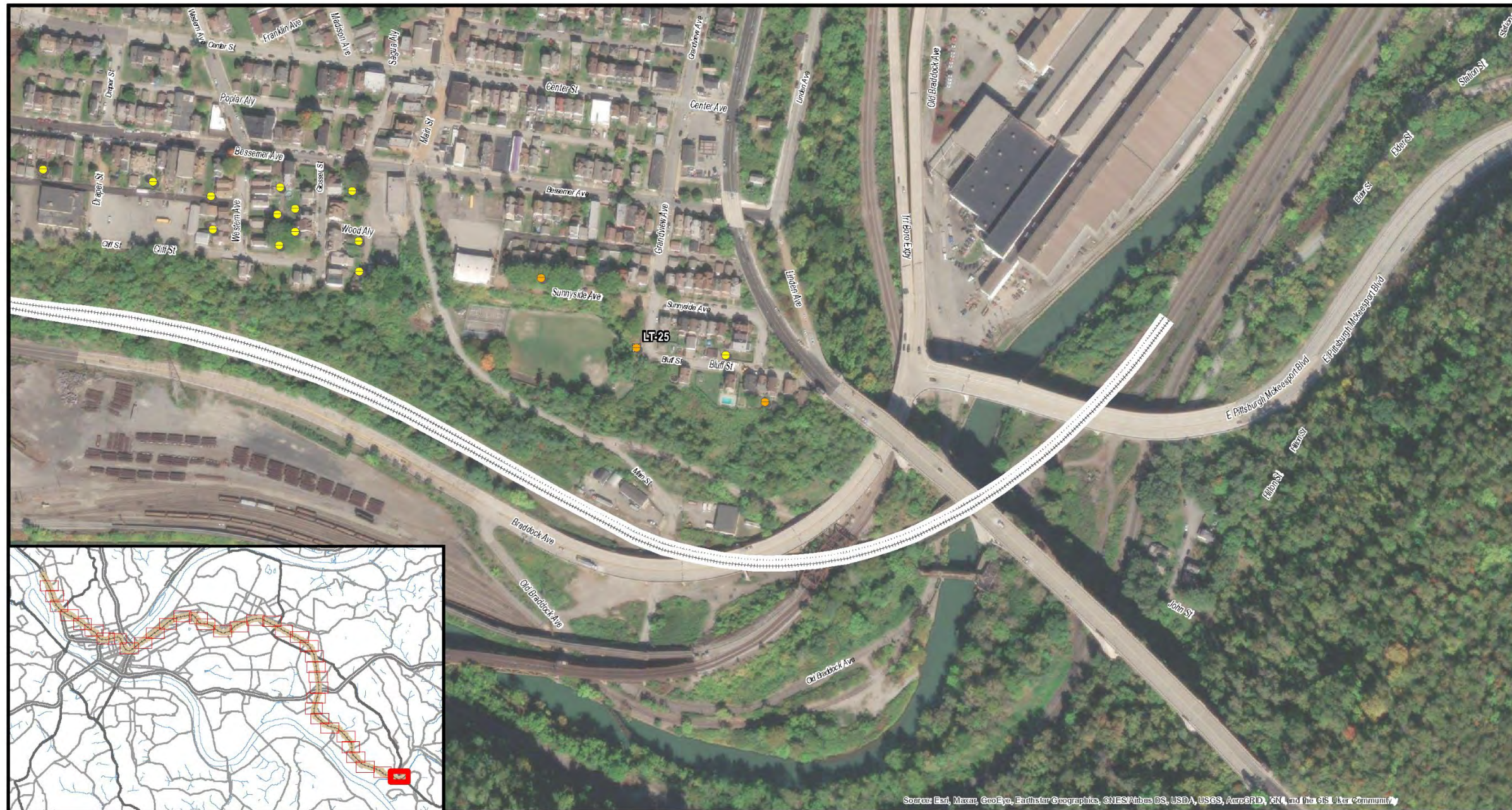


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Figure 41. Low-Growth Scenario Noise and Vibration Assessment Map 36

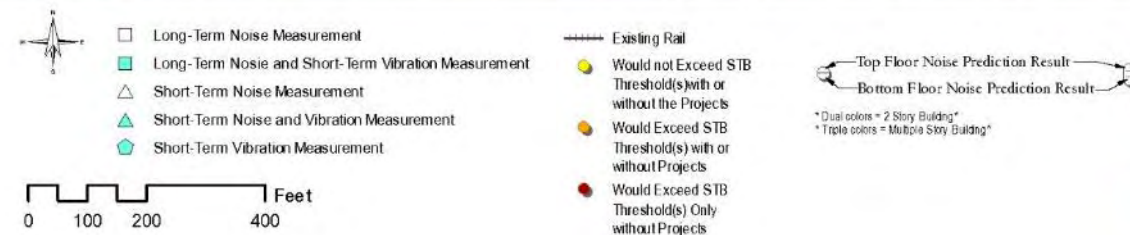


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Figure 42. High-Growth Scenario Noise and Vibration Assessment Map 1

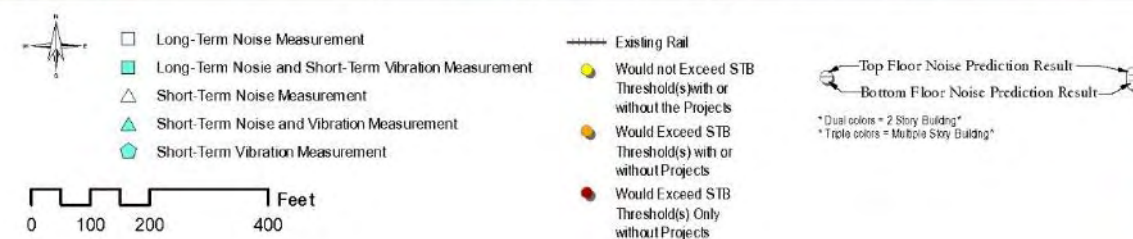


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Figure 43. High-Growth Scenario Noise and Vibration Assessment Map 2

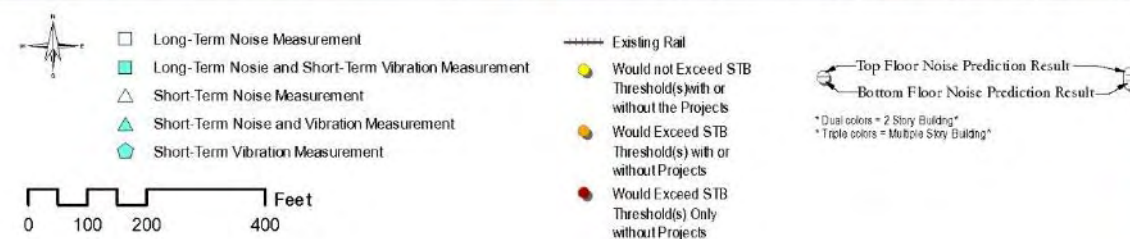


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Figure 44. High-Growth Scenario Noise and Vibration Assessment Map 3



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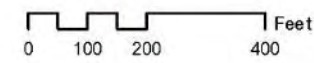
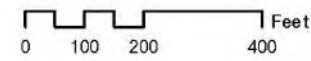
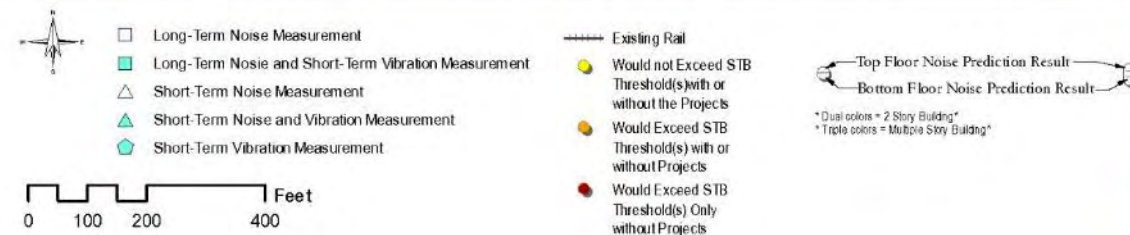


Figure 45. High-Growth Scenario Noise and Vibration Assessment Map 4

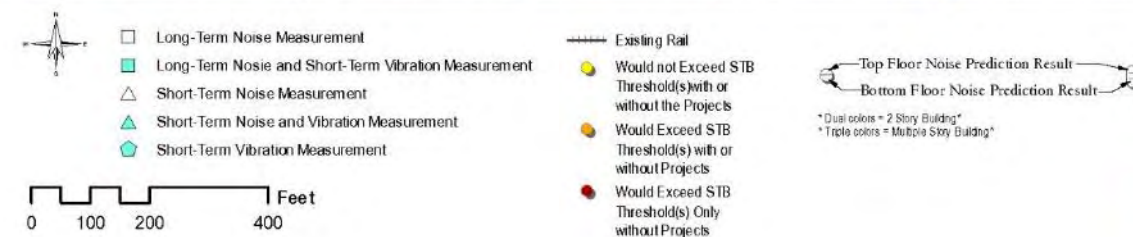


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Figure 46. High-Growth Scenario Noise and Vibration Assessment Map 5

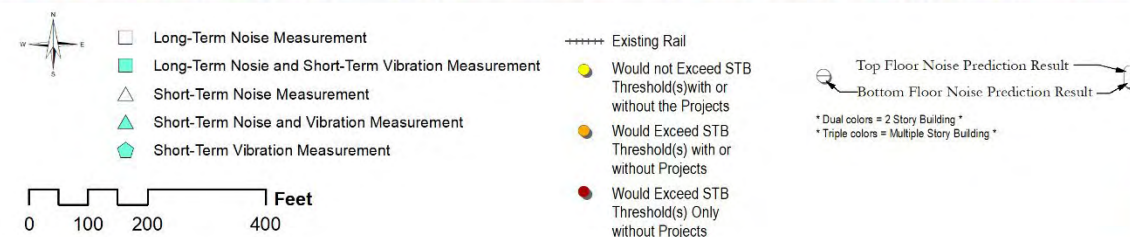


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Figure 47. High-Growth Scenario Noise and Vibration Assessment Map 6

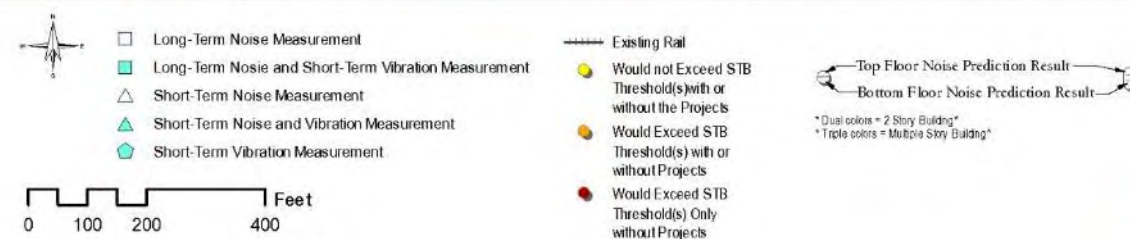
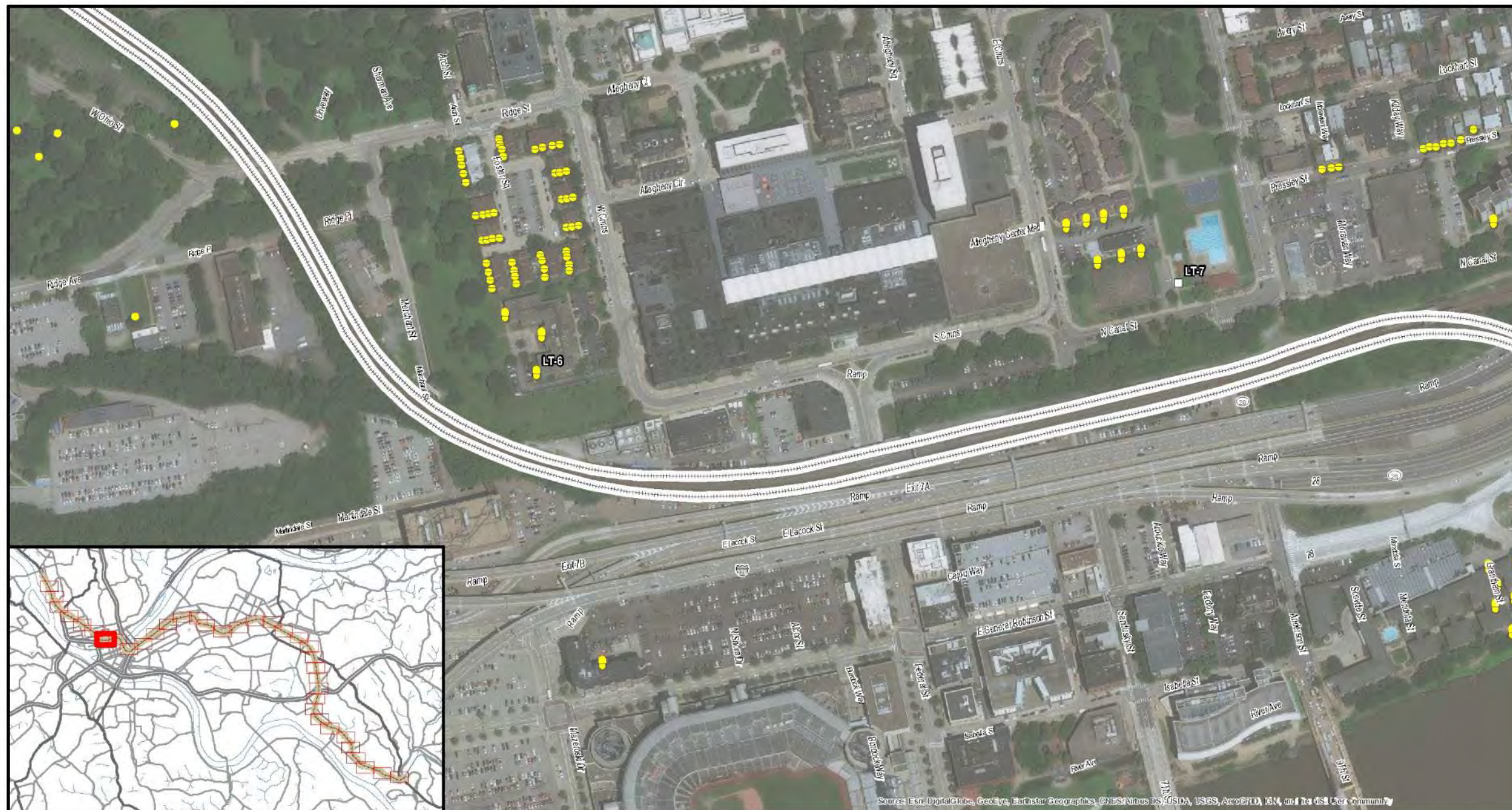


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Figure 48. High-Growth Scenario Noise and Vibration Assessment Map 7

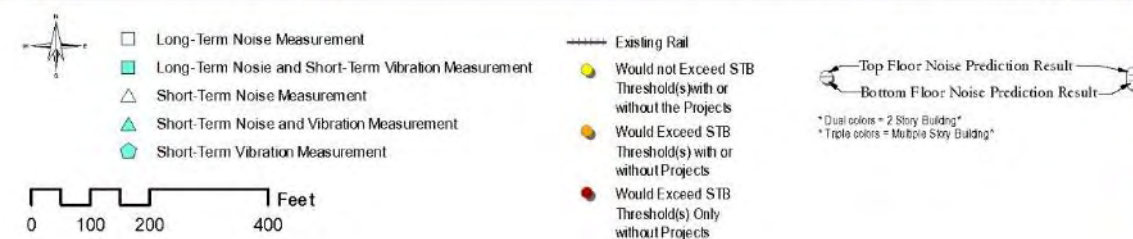


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Figure 49. High-Growth Scenario Noise and Vibration Assessment Map 8

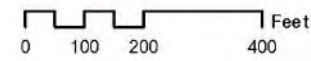
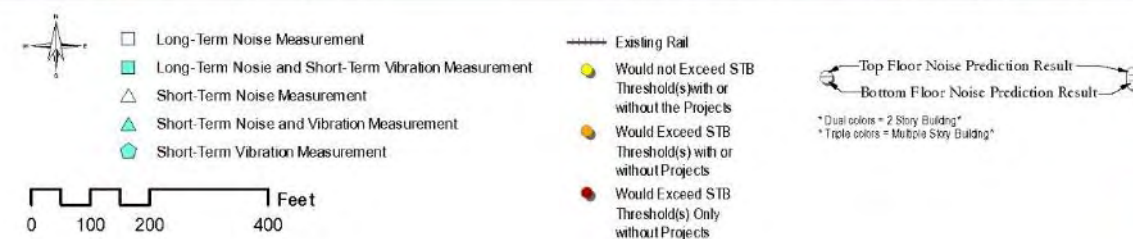


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Figure 50. High-Growth Scenario Noise and Vibration Assessment Map 9

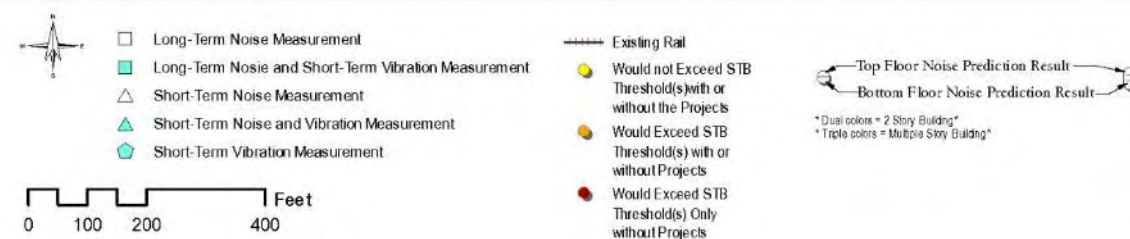


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Figure 51. High-Growth Scenario Noise and Vibration Assessment Map 10

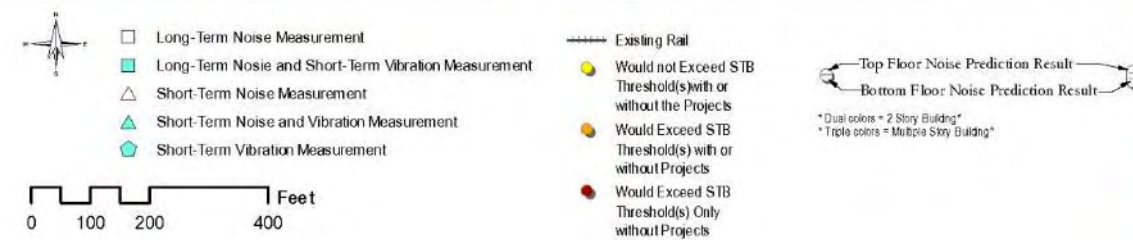


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Figure 52. High-Growth Scenario Noise and Vibration Assessment Map 11

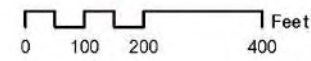
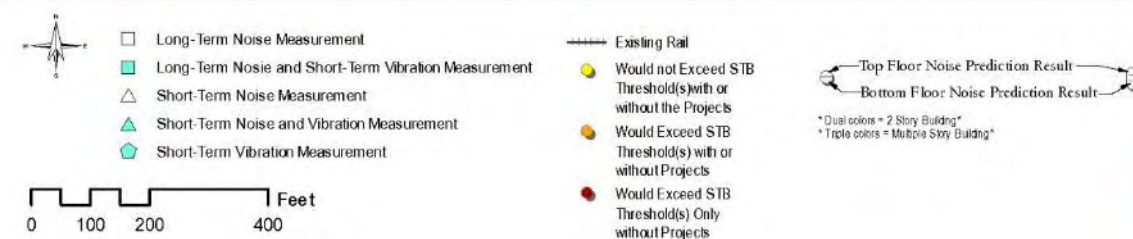
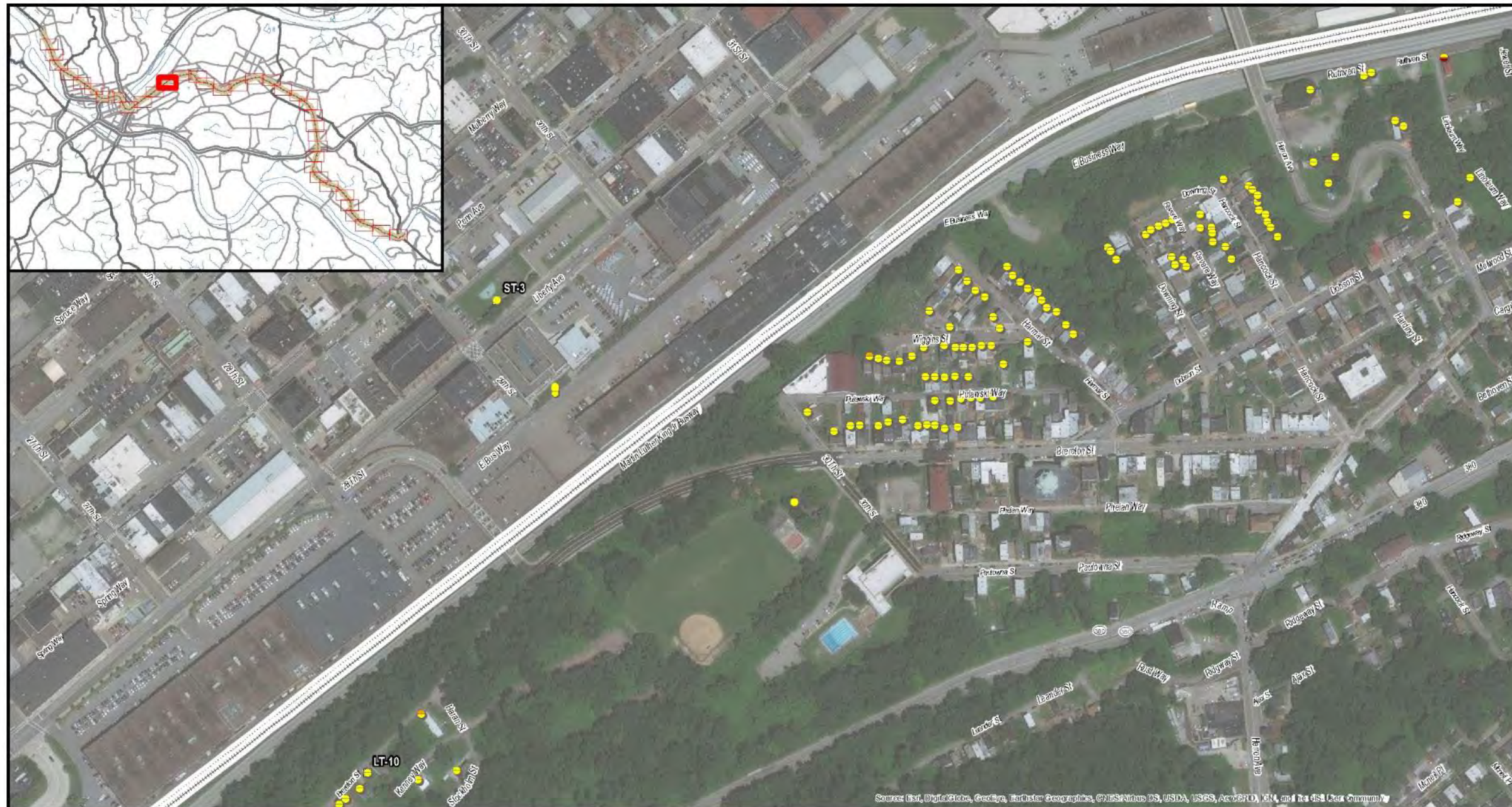


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Figure 53. High-Growth Scenario Noise and Vibration Assessment Map 12

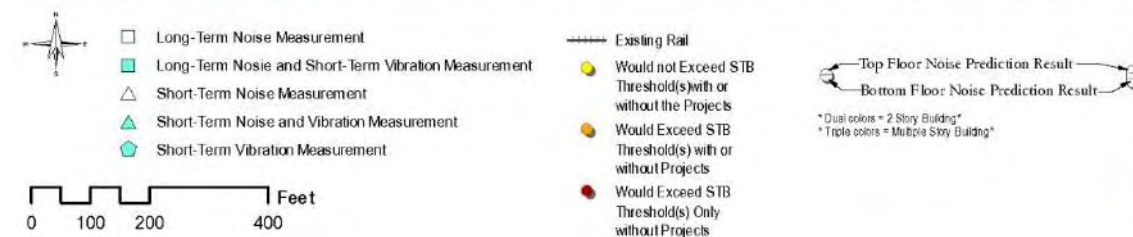


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Figure 54. High-Growth Scenario Noise and Vibration Assessment Map 13

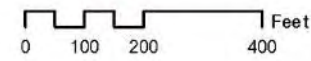
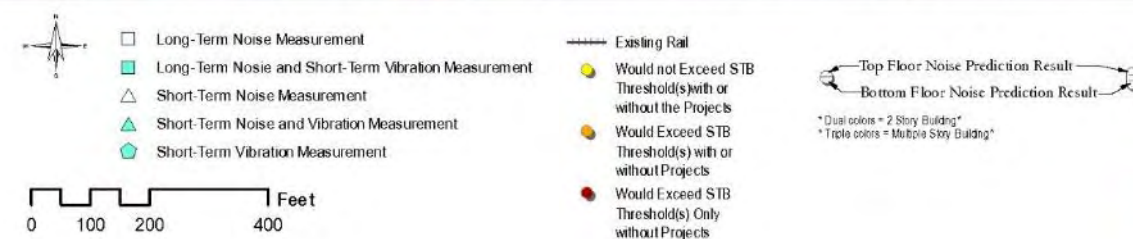


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Figure 55. High-Growth Scenario Noise and Vibration Assessment Map 14

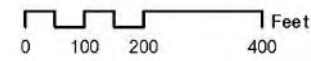
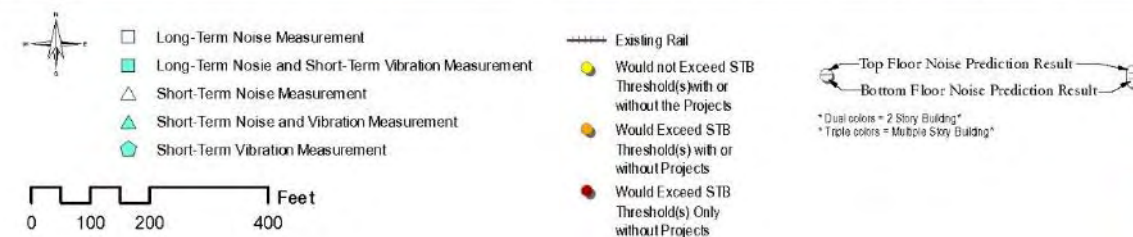


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Figure 56. High-Growth Scenario Noise and Vibration Assessment Map 15

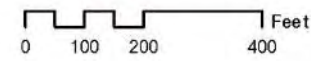
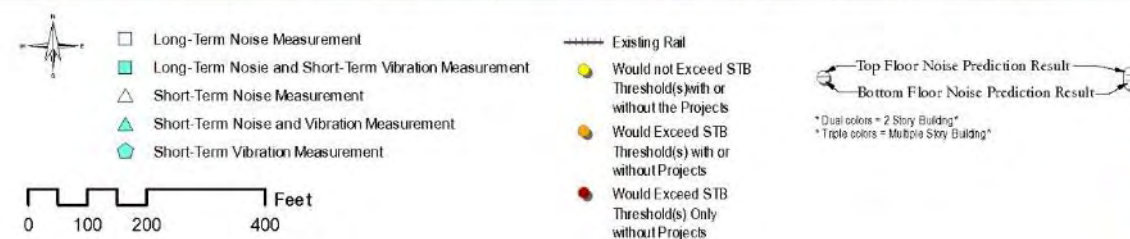


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Figure 57. High-Growth Scenario Noise and Vibration Assessment Map 16

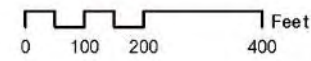
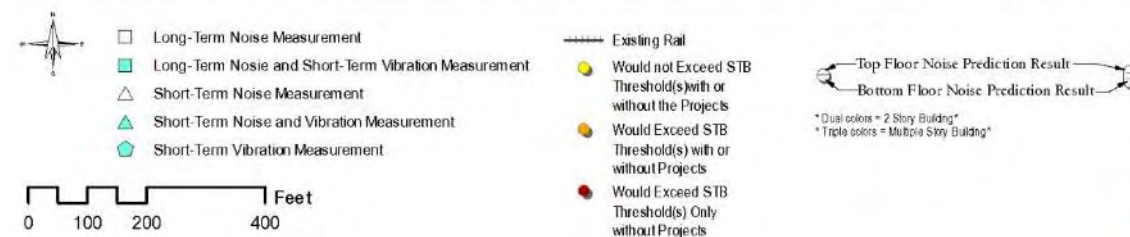


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Figure 58. High-Growth Scenario Noise and Vibration Assessment Map 17



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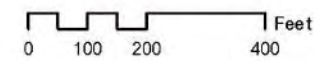
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Figure 59. High-Growth Scenario Noise and Vibration Assessment Map 18



- Long-Term Noise Measurement
- Long-Term Noise and Short-Term Vibration Measurement
- △ Short-Term Noise Measurement
- ▲ Short-Term Noise and Vibration Measurement
- ◆ Short-Term Vibration Measurement



- Existing Rail
- Would not Exceed STB Threshold(s) with or without the Projects
- Would Exceed STB Threshold(s) with or without Projects
- Would Exceed STB Threshold(s) Only without Projects

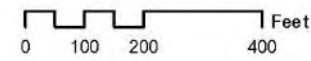
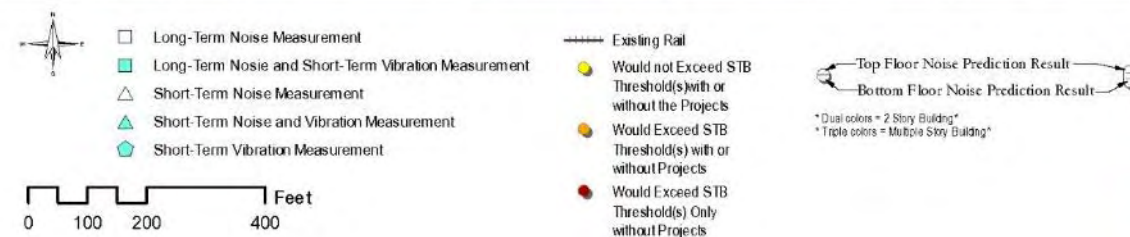
- Top Floor Noise Prediction Result
- Bottom Floor Noise Prediction Result
- * Dual colors = 2 Story Building*
- * Triple colors = Multiple Story Building*

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Figure 60. High-Growth Scenario Noise and Vibration Assessment Map 19

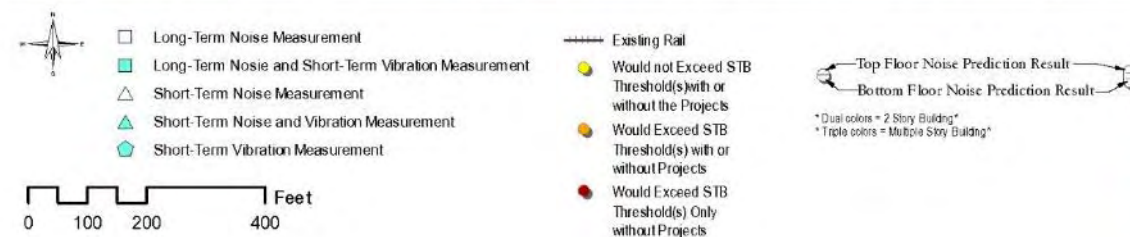


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Figure 61. High-Growth Scenario Noise and Vibration Assessment Map 20

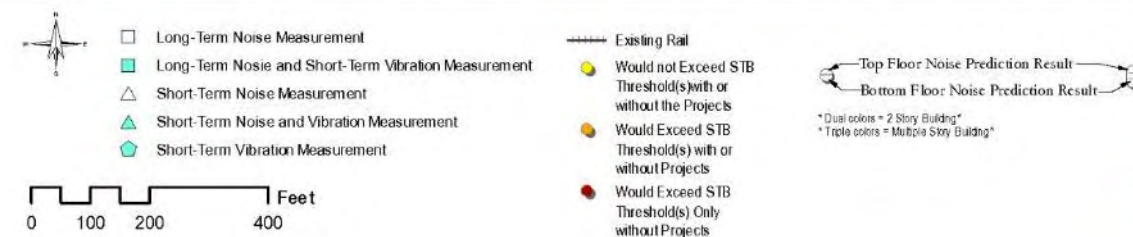
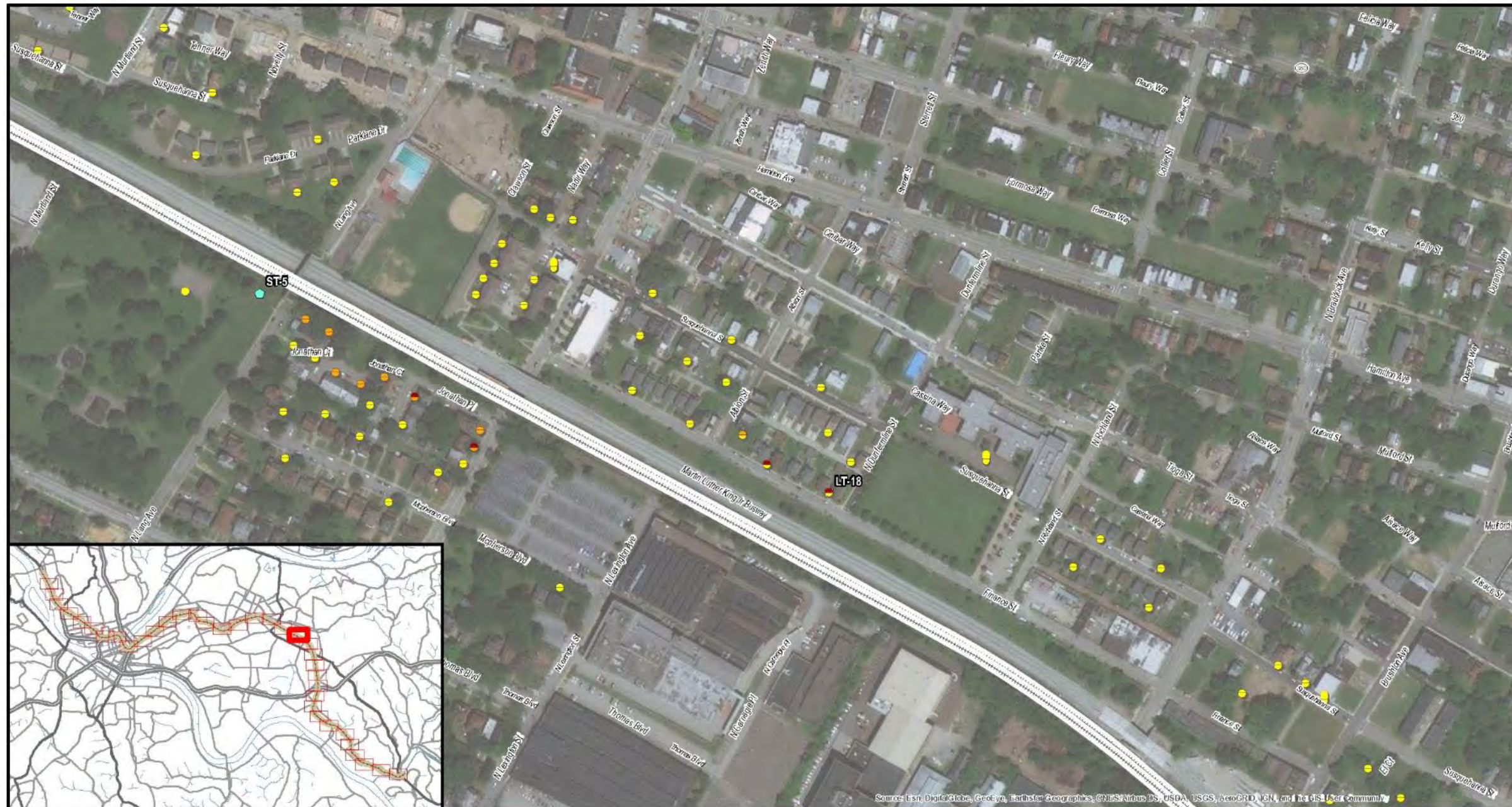


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Figure 62. High-Growth Scenario Noise and Vibration Assessment Map 21

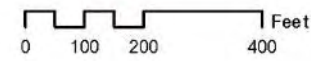
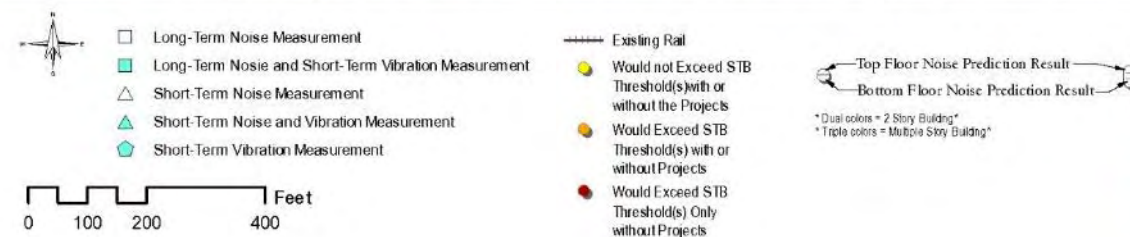


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Figure 63. High-Growth Scenario Noise and Vibration Assessment Map 22

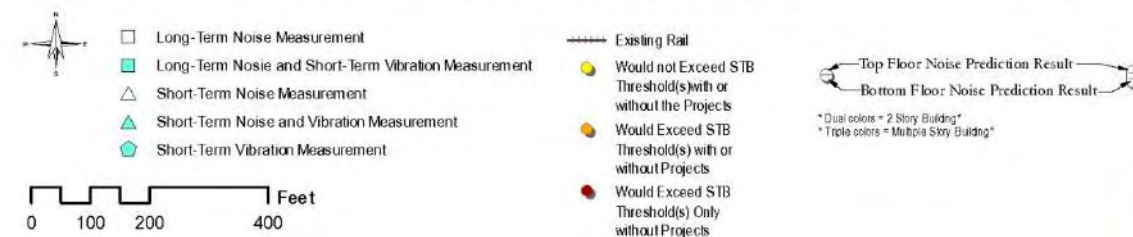


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Figure 64. High-Growth Scenario Noise and Vibration Assessment Map 23

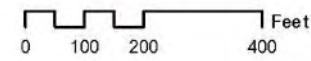
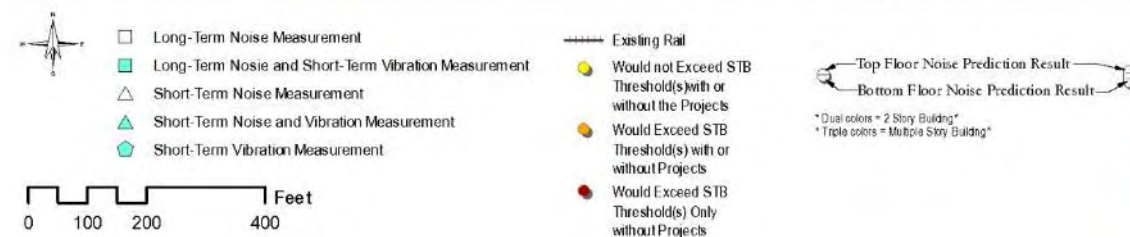


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Figure 65. High-Growth Scenario Noise and Vibration Assessment Map 24

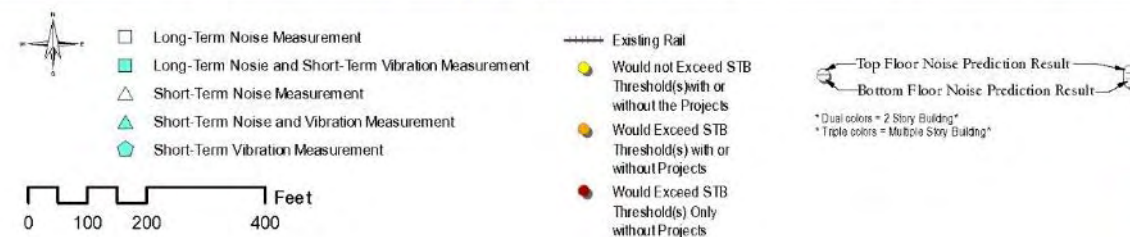


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Figure 66. High-Growth Scenario Noise and Vibration Assessment Map 25

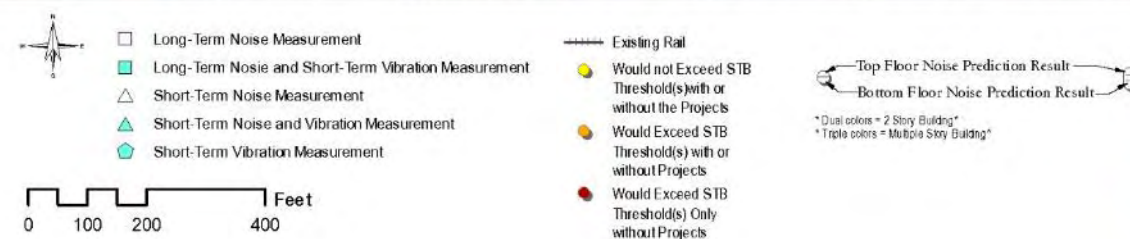
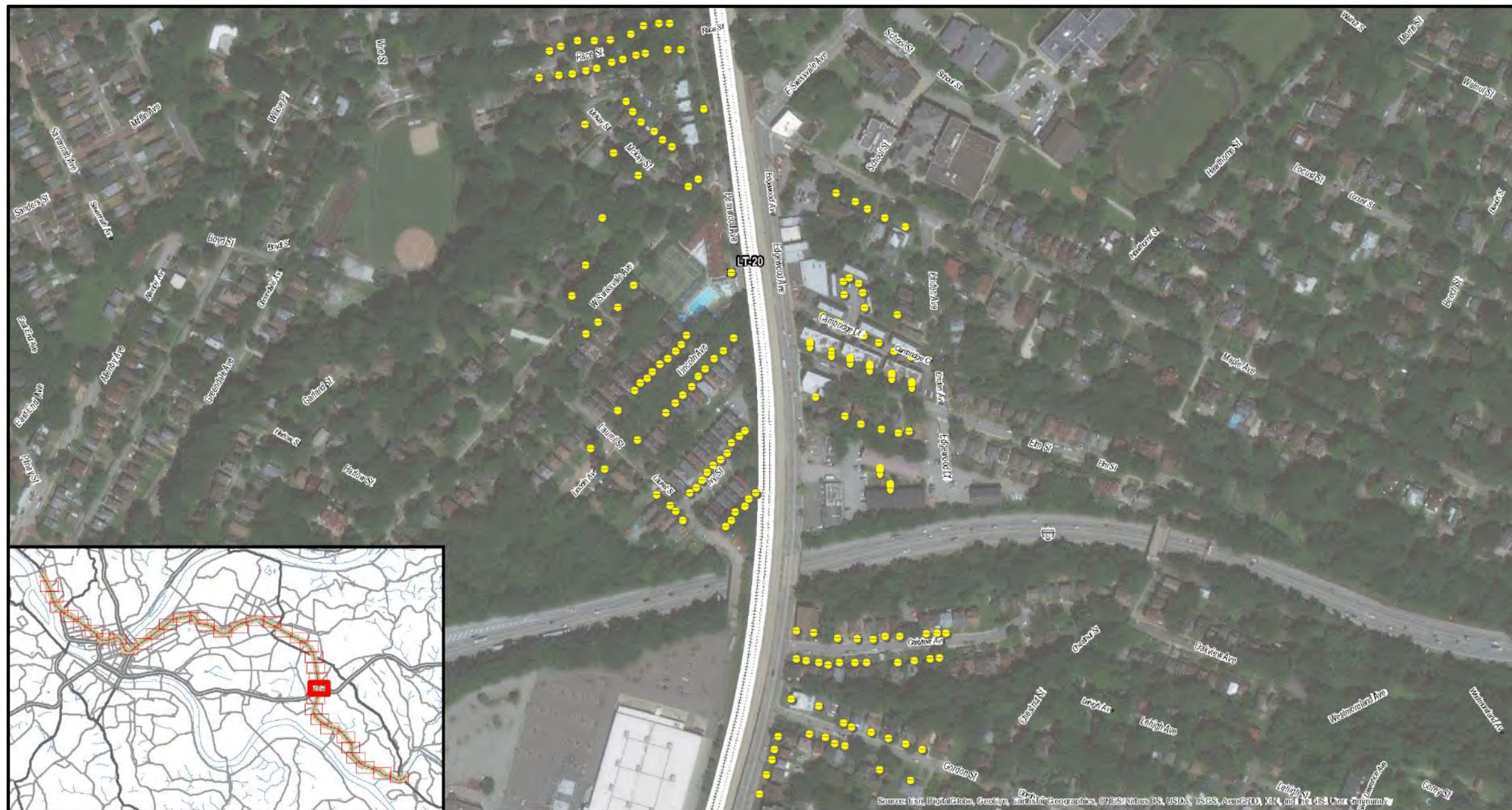


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Figure 67. High-Growth Scenario Noise and Vibration Assessment Map 26

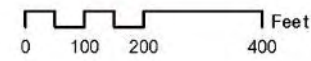
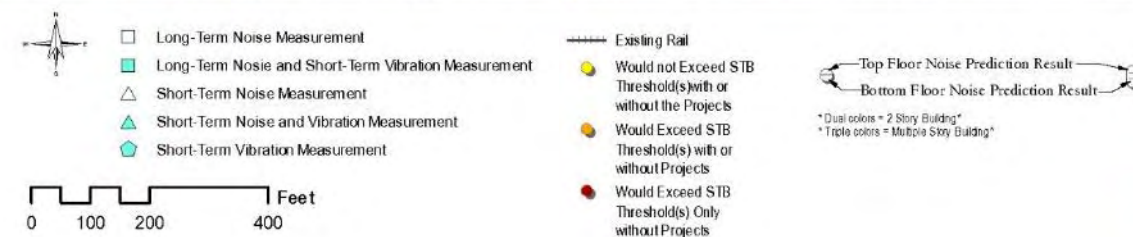


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Figure 68. High-Growth Scenario Noise and Vibration Assessment Map 27

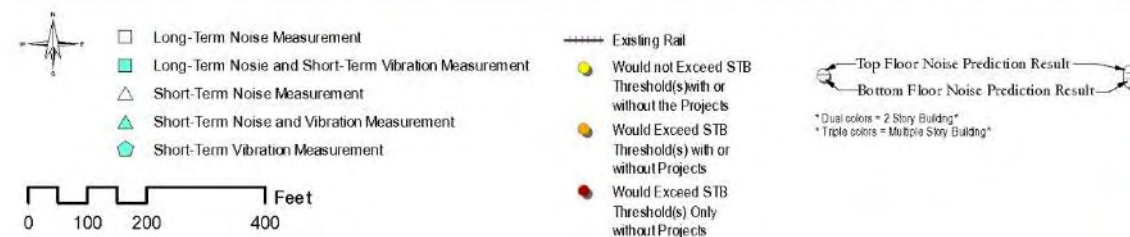


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Figure 69. High-Growth Scenario Noise and Vibration Assessment Map 28

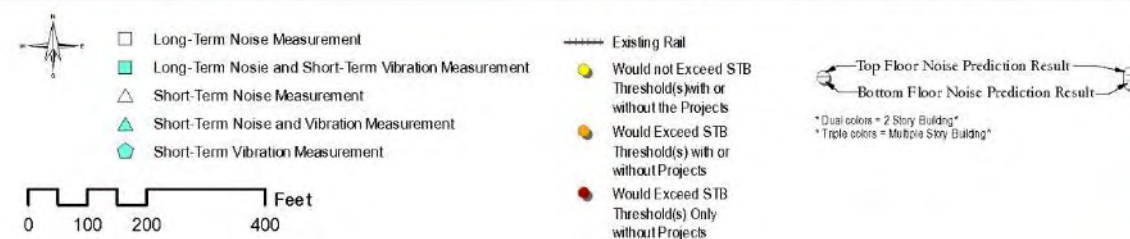


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Figure 70. High-Growth Scenario Noise and Vibration Assessment Map 29

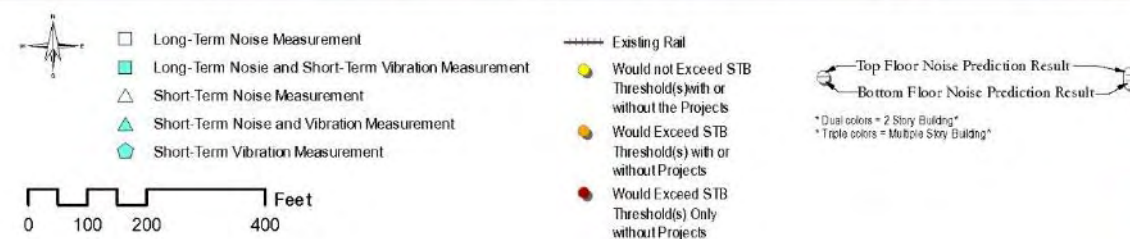


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Figure 71. High-Growth Scenario Noise and Vibration Assessment Map 30

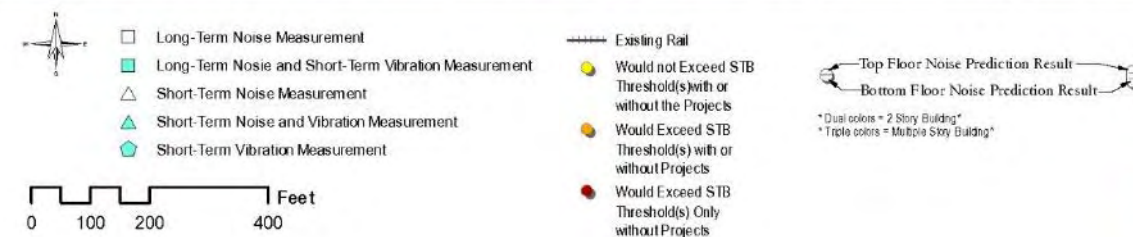


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Figure 72. High-Growth Scenario Noise and Vibration Assessment Map 31

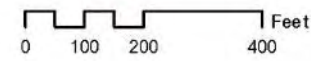
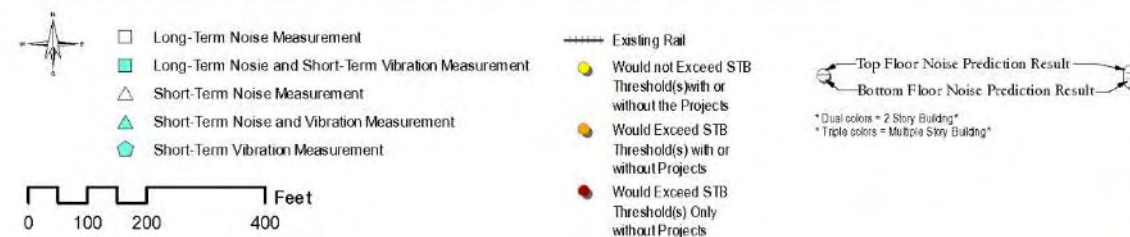


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Figure 73. High-Growth Scenario Noise and Vibration Assessment Map 32

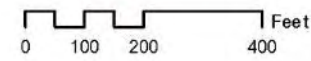
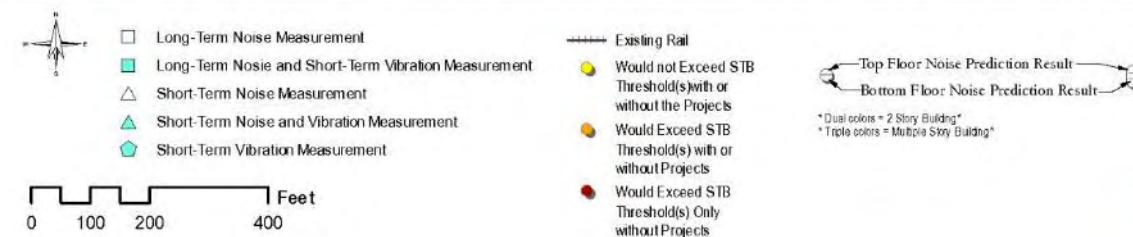


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Figure 74. High-Growth Scenario Noise and Vibration Assessment Map 33

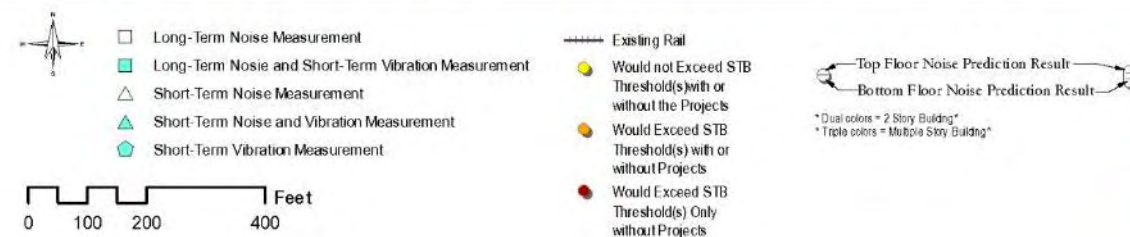
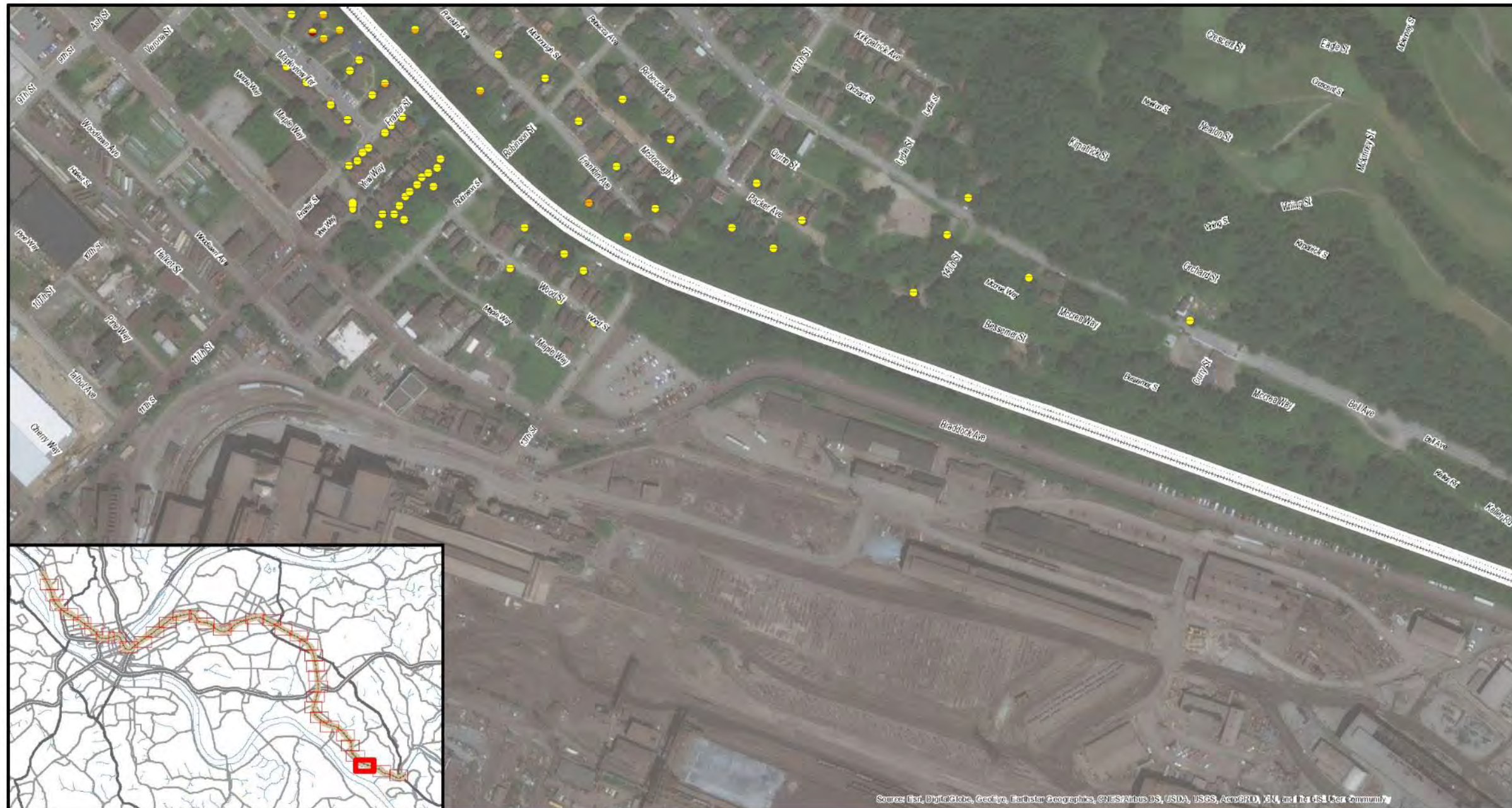


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Figure 75. High-Growth Scenario Noise and Vibration Assessment Map 34

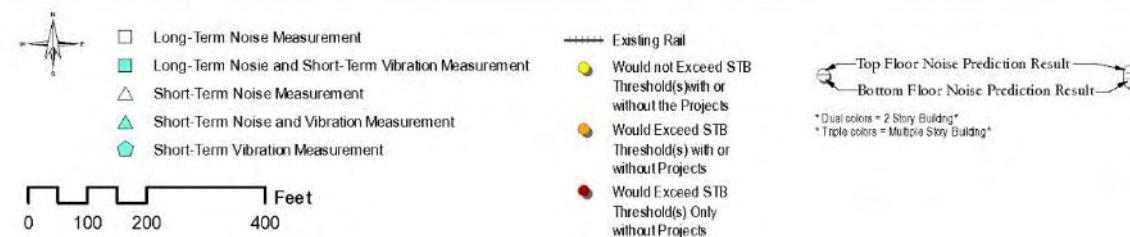
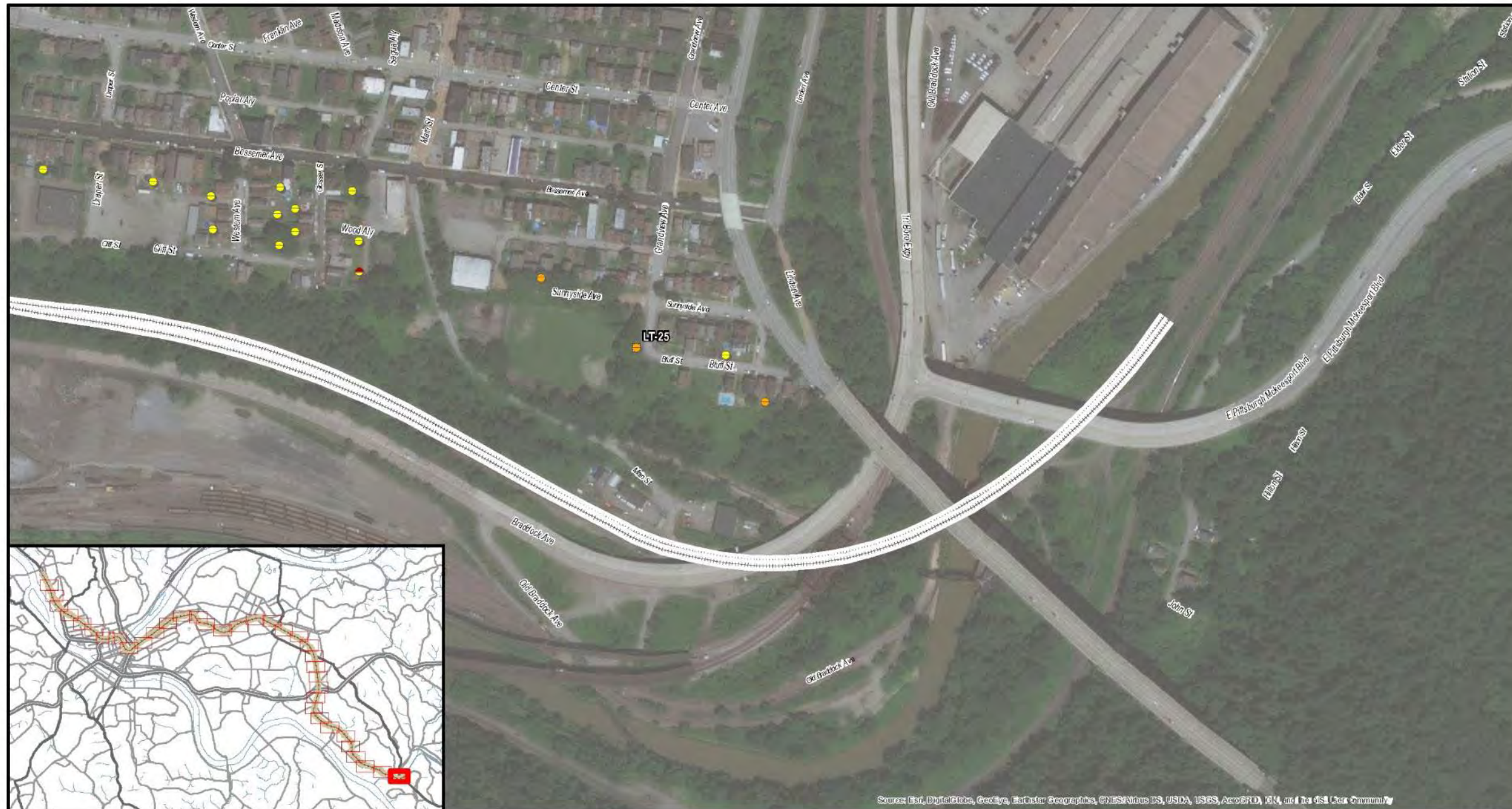


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Figure 77. High-Growth Scenario Noise and Vibration Assessment Map 36



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Appendix A Measurement Site Photographs

A.1 Long- and Short-Term Noise Measurement Locations



Figure A-1A. Site LT-1: 2462 California Avenue



Figure A-1B. Site LT-1: 2462 California Avenue



Figure A-2. Site LT-2: 1234 Sunday Street



Figure A-3. Site LT-3: 1907 Fulton Street



Figure A-3A. Site LT-3: 1907 Fulton Street



Figure A-4. Site LT-4: 1016 N. Franklin Street



Figure A-5. Site LT-5: 710 W. North Avenue



Figure A-6. Site LT-6: 401 W. Commons



Figure A-7. Site LT-7: 301 Cedar Avenue



Figure A-8. Site LT-8: 100 Anderson Street



Figure A-9. Site LT-9: 1846 Arcena Street



Figure A-10. Site LT-10: 2630 Brereton Street



Figure A-11. Site LT-11: 3415 Flavian Street



Figure A-12. Site LT-12: 3811 Fleetwood Street



Figure A-13. Site LT-13: 4732 Juniper Street

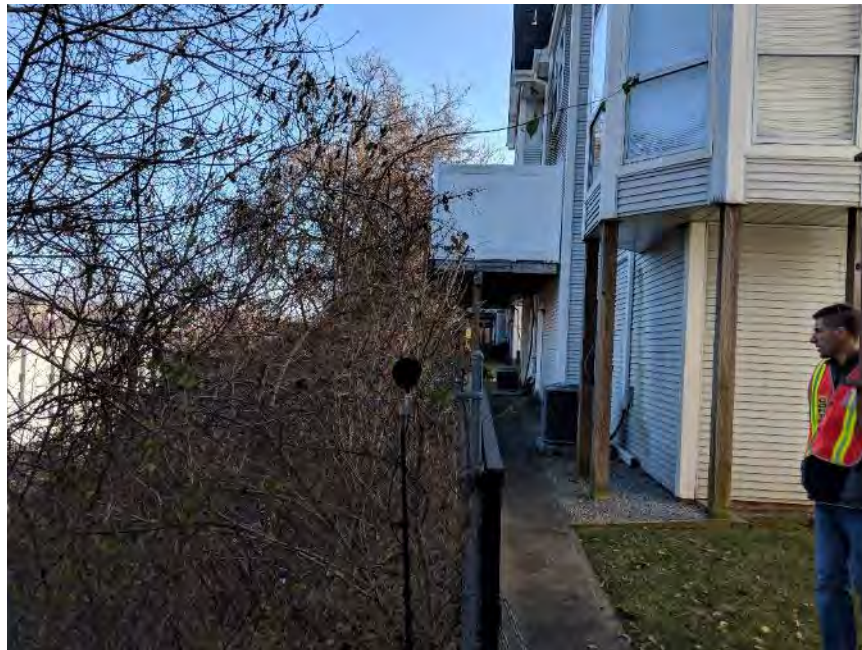


Figure A-14. Site LT-14: 15 Hemingway Street



Figure A-15. Site LT-15: 5445 Potter Street



Figure A-16. Site LT-16: 205 Lehigh Avenue



Figure A-17. Site LT-17: 6736 Simonton Street



Figure A-18. Site LT-18: 7357 Finance Street



Figure A-19. Site LT-19: 444 Ross Avenue



Figure A-20. Site LT-20: 1 Pennwood Avenue



Figure A-21. Site LT-21: Park Avenue



Figure A-22. Site LT-22: McKim Street



Figure A-23. Site LT-23: 504 Hawkins Avenue



Figure A-24. Site LT-24: 431 Verona Street



Figure A-25. Site LT-25: 300 Main Street



Figure A-26. Site ST-2: 1000 Ft. Duquesne Boulevard



Figure A-27. Site ST-3: 2901 Liberty Avenue

A.2 Vibration Measurement Locations



Figure A-4A. Site LT-4: 1016 N. Franklin Street



Figure A-15A. Site LT-15: 5445 Potter Street



Figure A-20A. Site LT-20: 1 Penwood Avenue



Figure A-21A. Site LT-21: Park Avenue



Figure A-24A. Site LT-24: 431 Verona Street



Figure A-26A. Site ST-02: 1000 Ft. Duquesne Boulevard



Figure A-28. Site ST-06: 7051 Thomas Boulevard



Figure A-29. Site ST-26: Iron Deer Playground at Allegheny Commons Park West

Appendix B Long Term Noise Measurement Data

Site LT-1: 2462 California Avenue
Ldn = 70.6 dBA

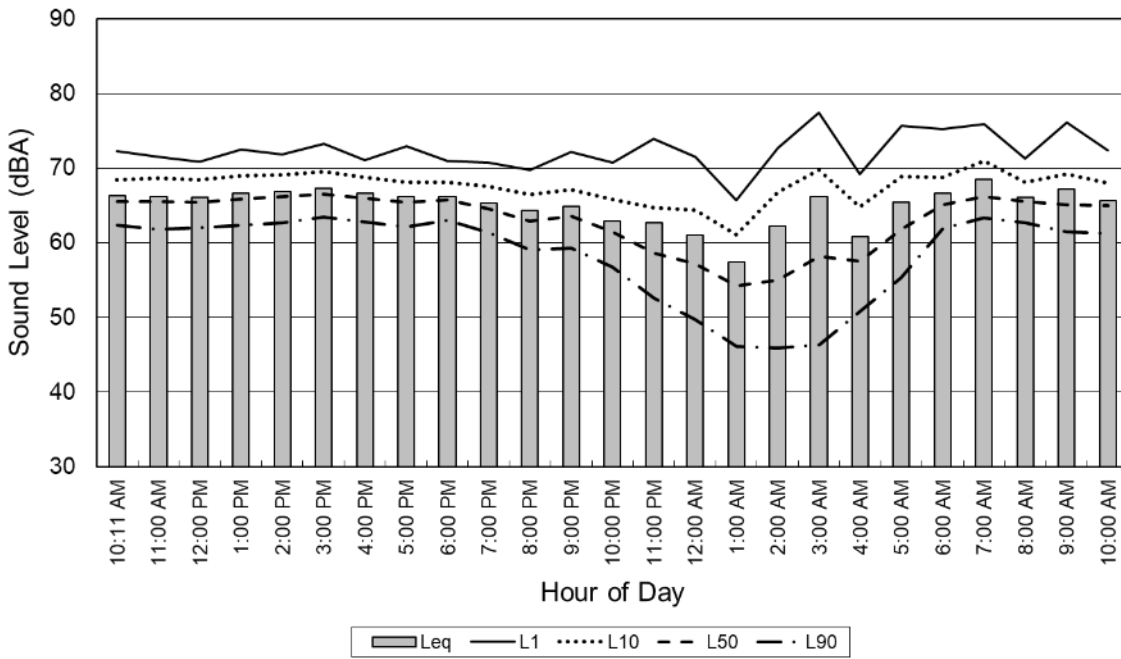


Figure B-1. Site LT-01 Time History Chart

Site LT-2: 1234 Sunday Street
Ldn = 65.9 dBA

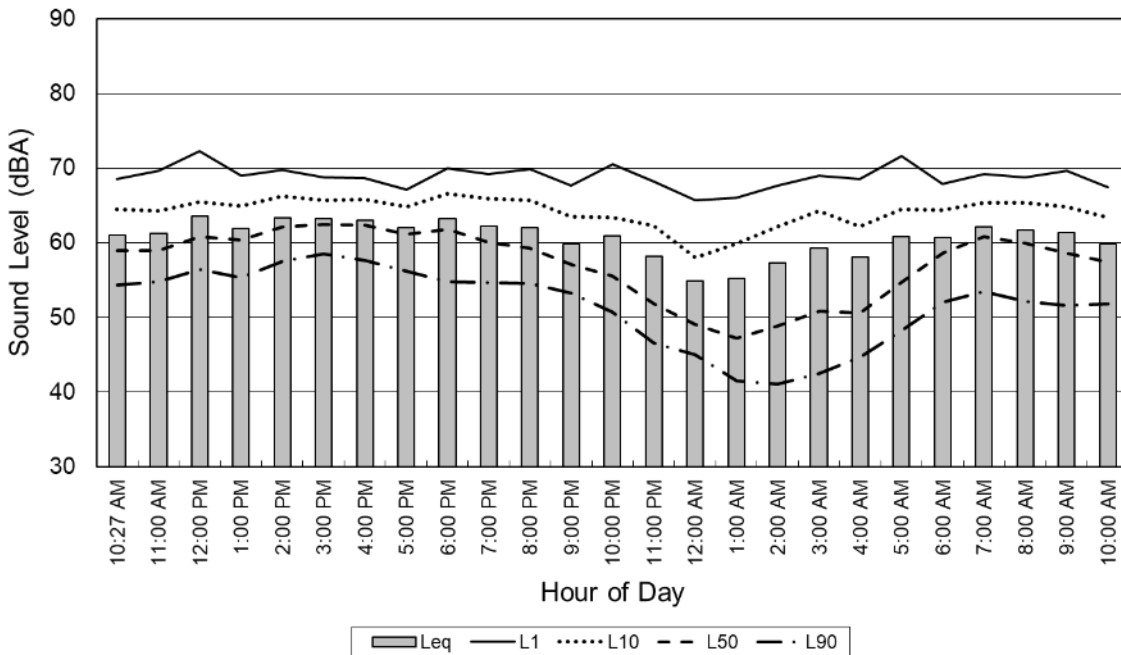


Figure B-2. Site LT-02 Time History Chart

Site LT-4: 1016 N. Franklin Street
Ldn = 64.3 dBA

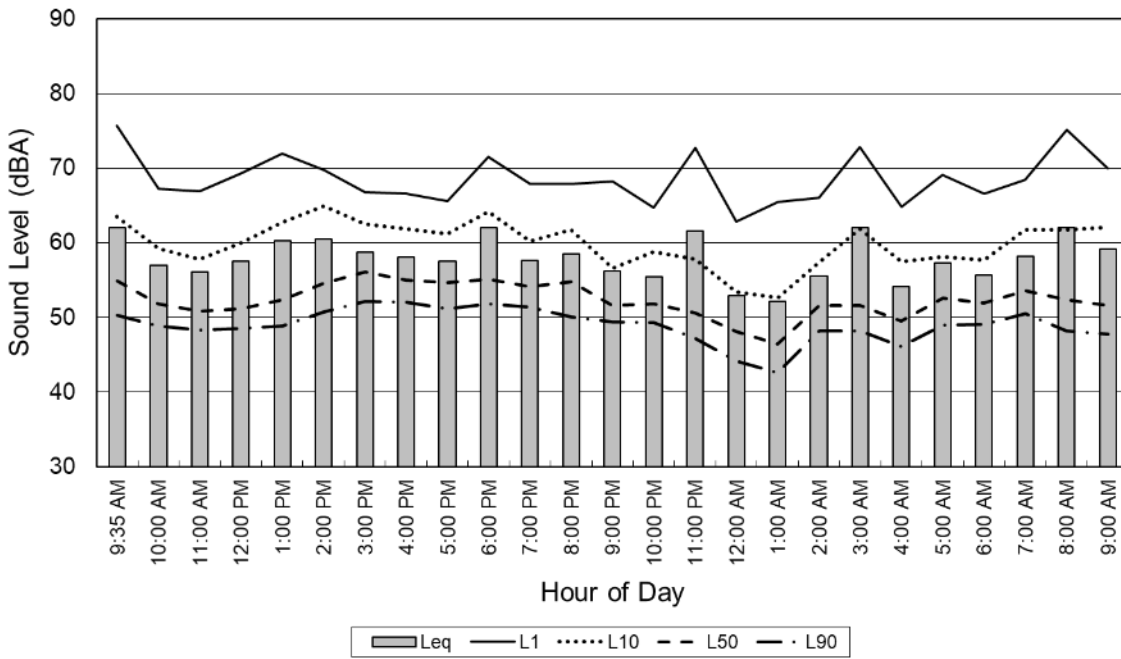


Figure B-3. Site LT-04 Time History Chart

Site LT-5: 710 W. North Avenue
Ldn = 71.2 dBA

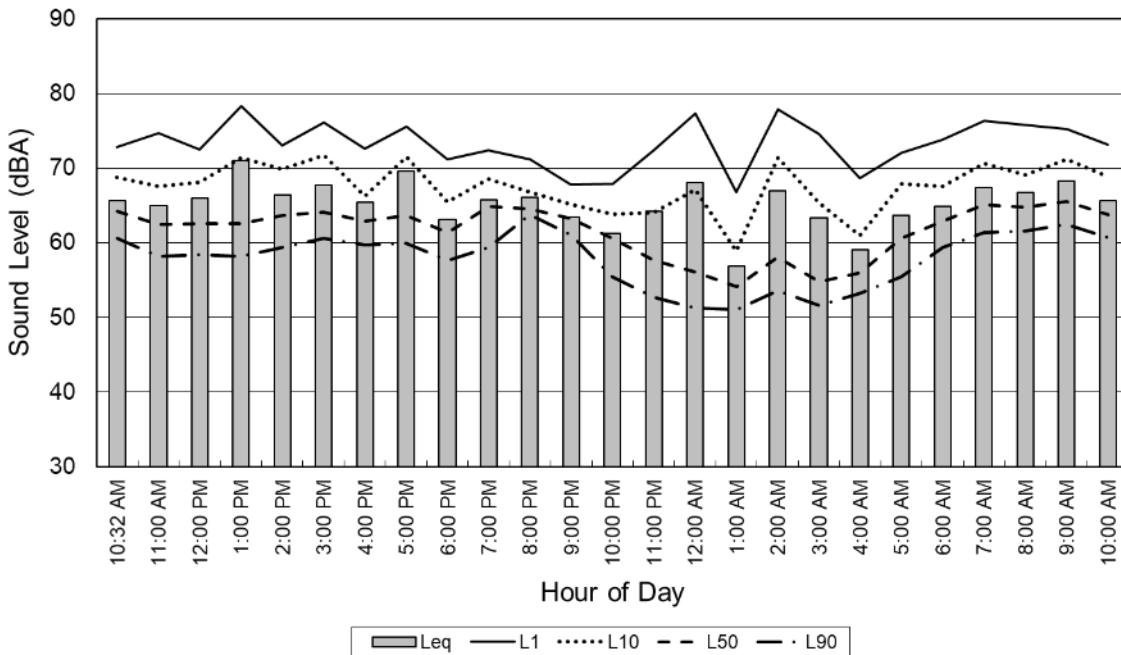


Figure B-4. Site LT-05 Time History Chart

Site LT-6: 410 W. Commons
Ldn = 68.9 dBA

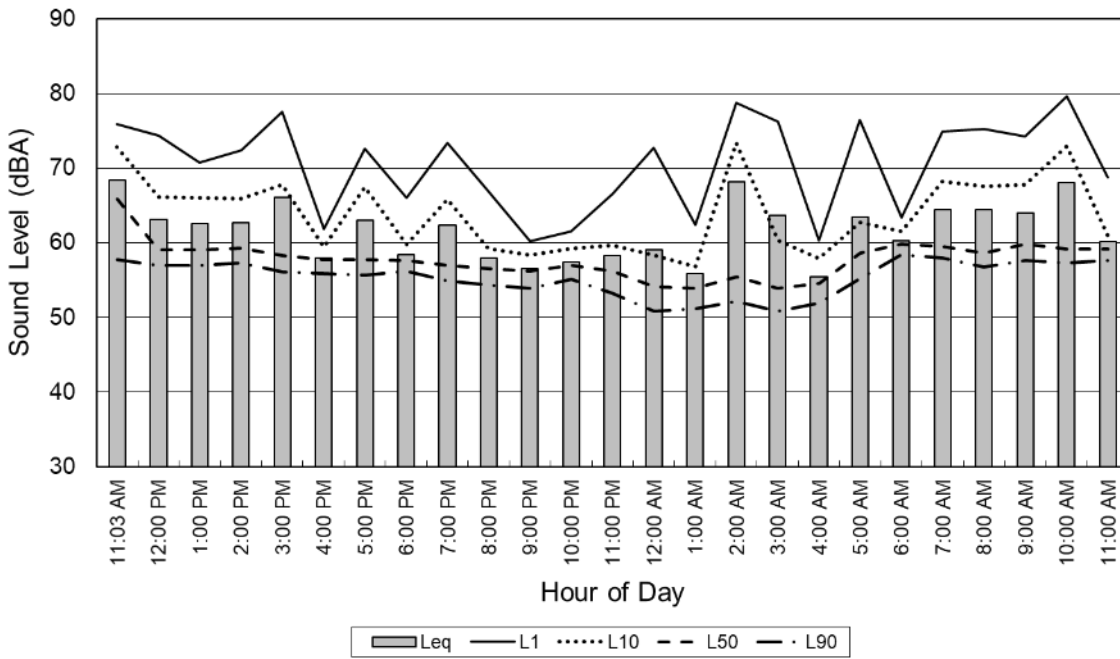


Figure B-5. Site LT-06 Time History Chart

Site LT-8: 100 Anderson Street
Ldn = 67.1 dBA

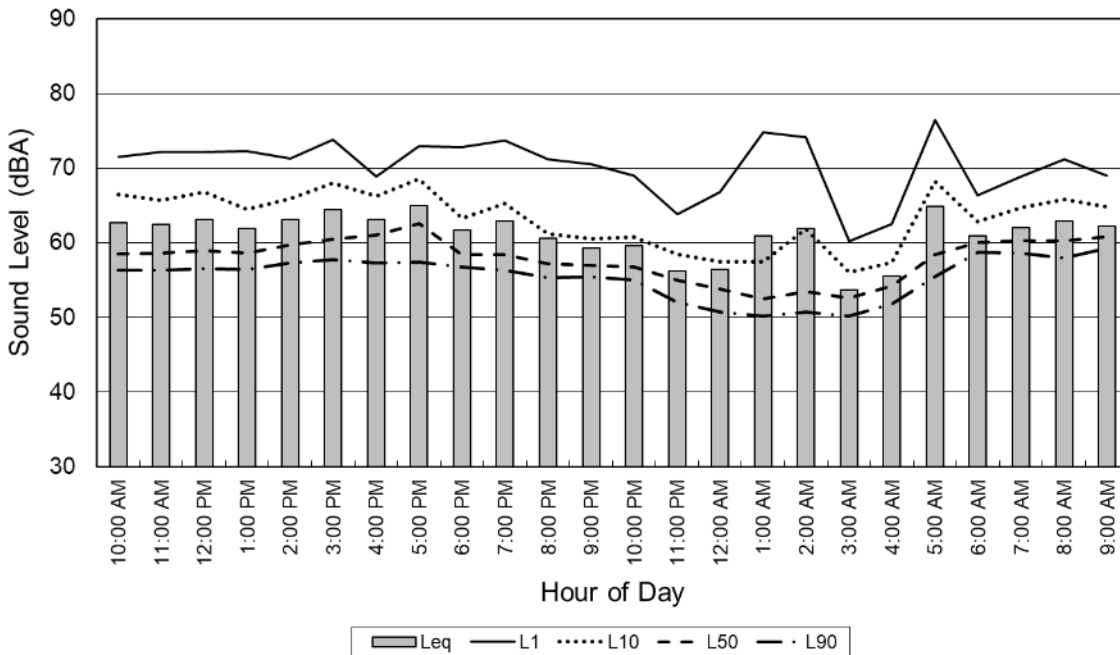


Figure B-6. Site LT-08 Time History Chart

Site LT-9: 1846 Arcena Street
Ldn = 59.5 dBA

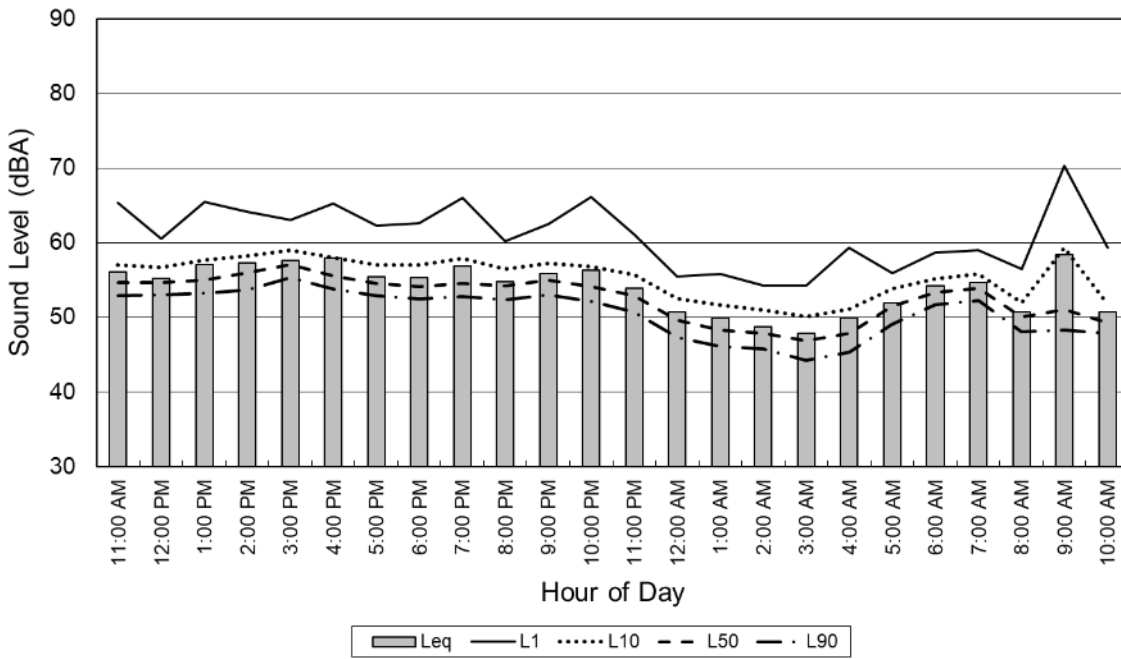


Figure B-7. Site LT-09 Time History Chart

Site LT-10: 2630 Brereton Street
Ldn = 59.4 dBA

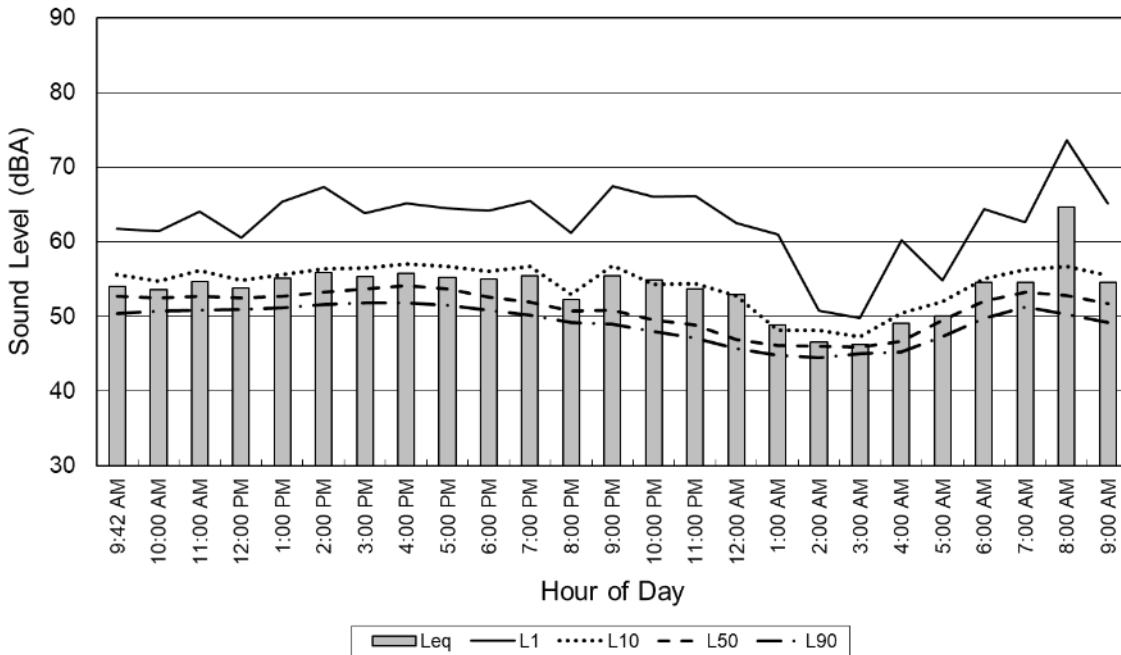


Figure B-8. Site LT-10 Time History Chart

Site LT-11: 3415 Flavian Street
Ldn = 61.2 dBA

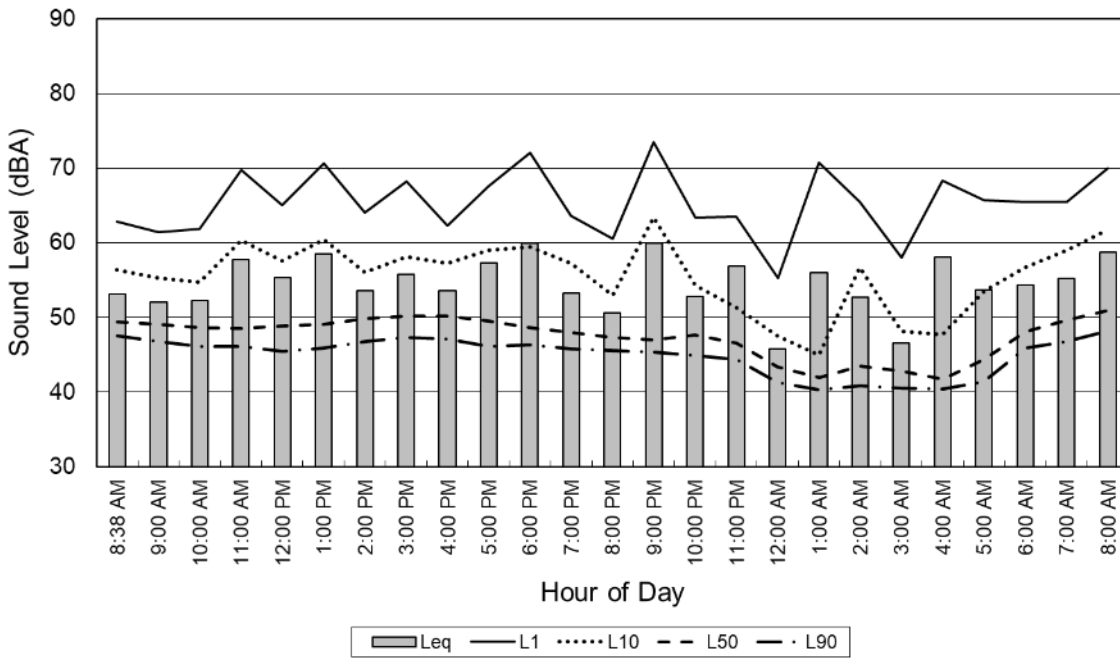


Figure B-9. Site LT-11 Time History Chart

Site LT-12: 3811 Fleetwood Street
Ldn = 59.3 dBA

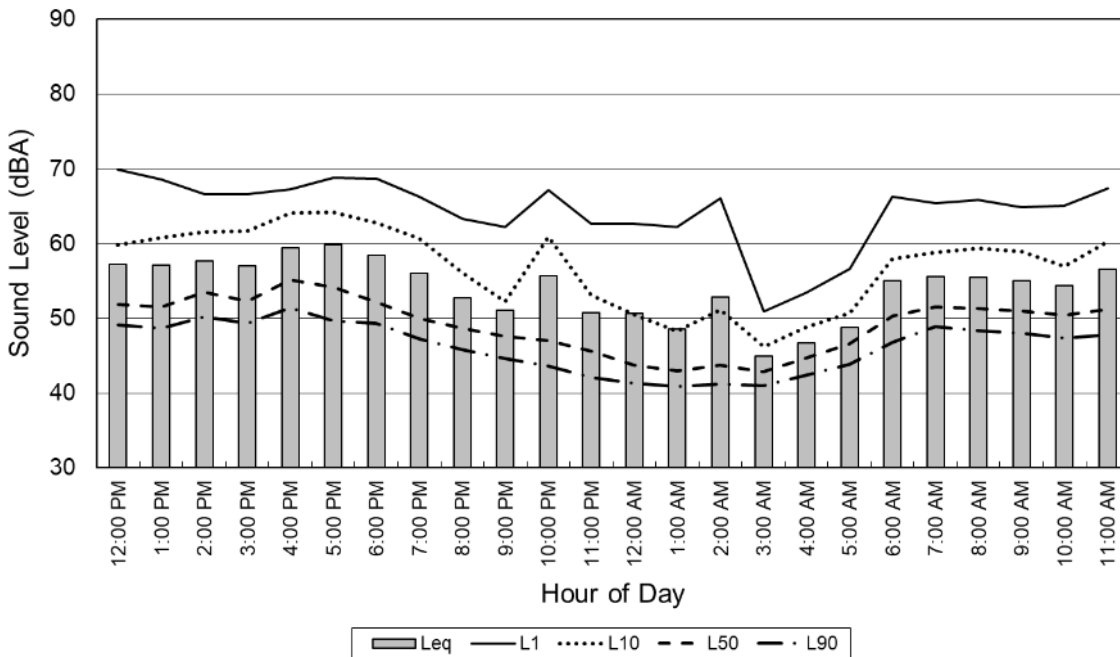


Figure B-10. Site LT-12 Time History Chart

Site LT-13: 4732 Juniper Street
Ldn = 65.1 dBA

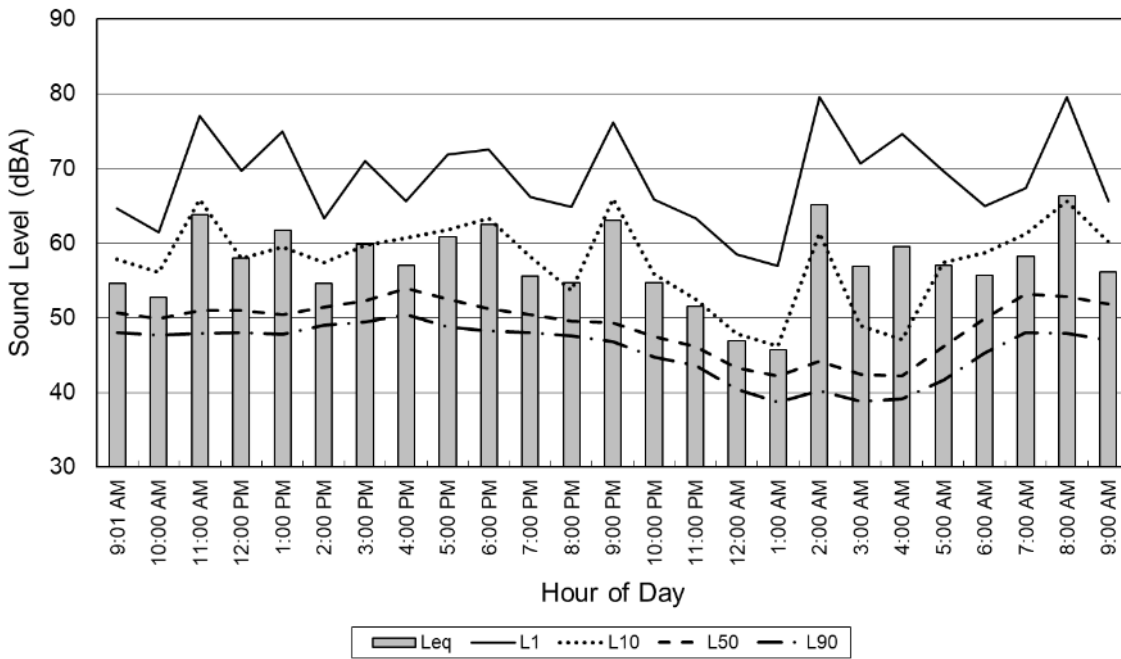


Figure B-11. Site LT-13 Time History Chart

Site LT-14: 15 Hemingway Street
Ldn = 66.3 dBA

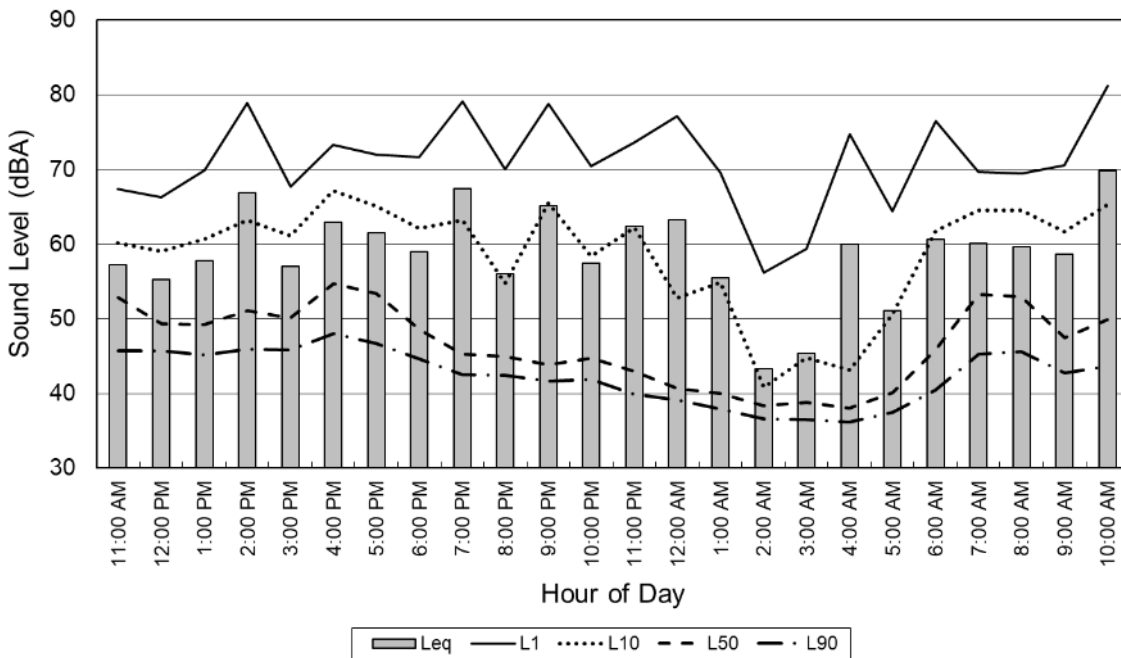


Figure B-12. Site LT-14 Time History Chart

Site LT-15: 5445 Potter Street
Ldn = 58.8 dBA

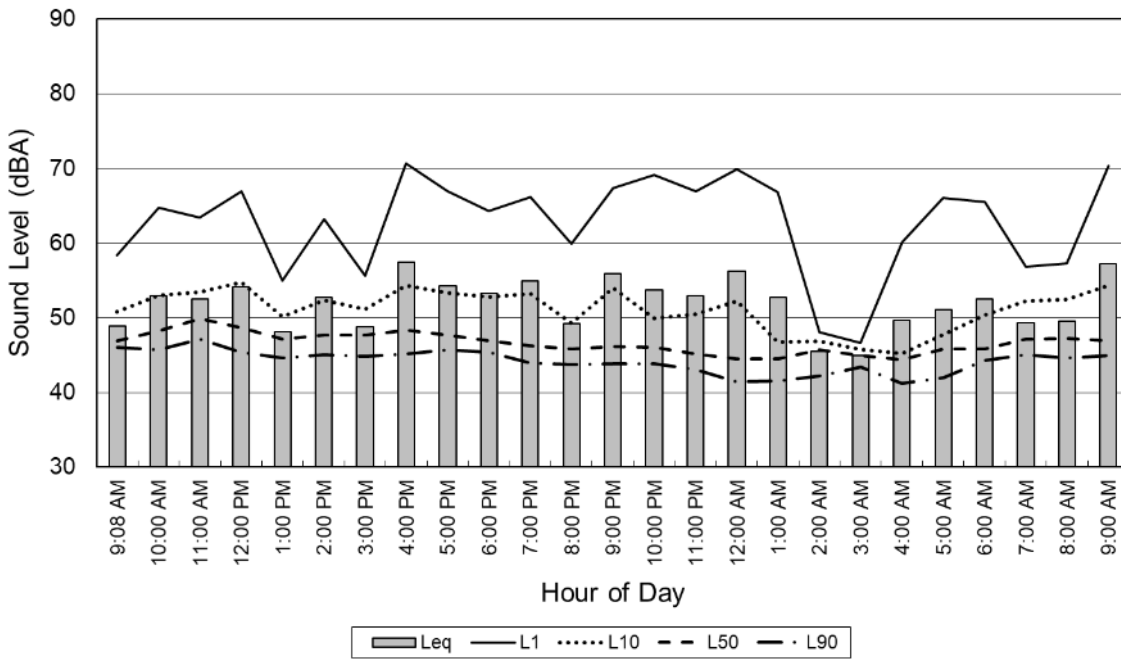


Figure B-13. Site LT-15 Time History Chart

Site LT-16: 205 Lehigh Avenue
Ldn = 59 dBA

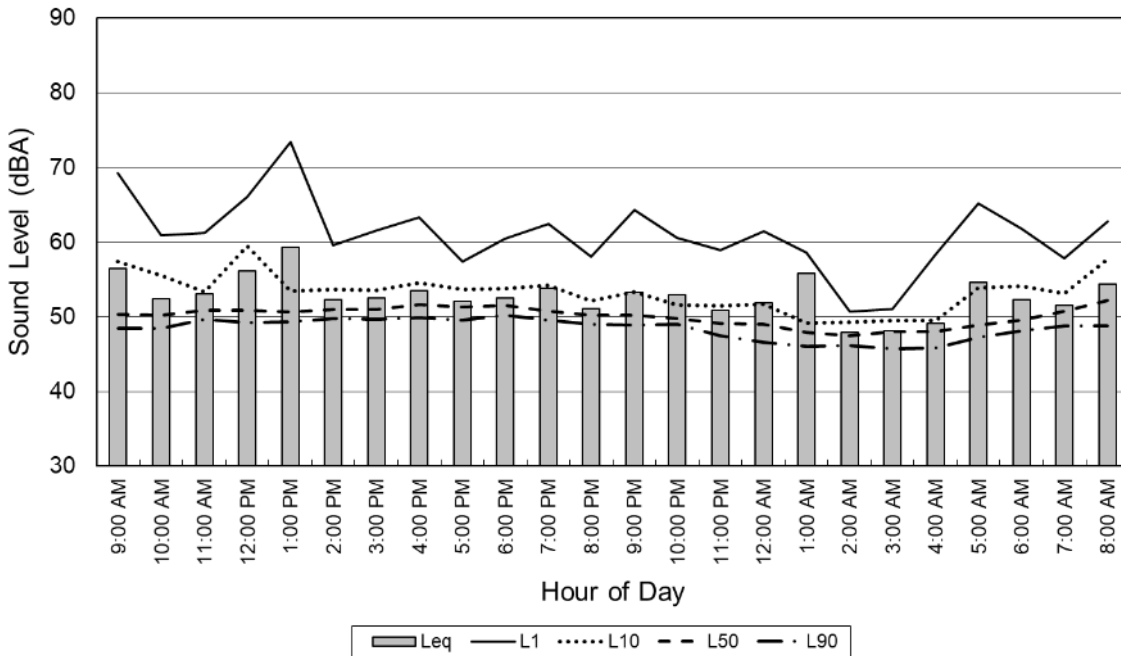


Figure B-14. Site LT-16 Time History Chart

Site LT-17: 6736 Simonton Street
Ldn = 62.1 dBA

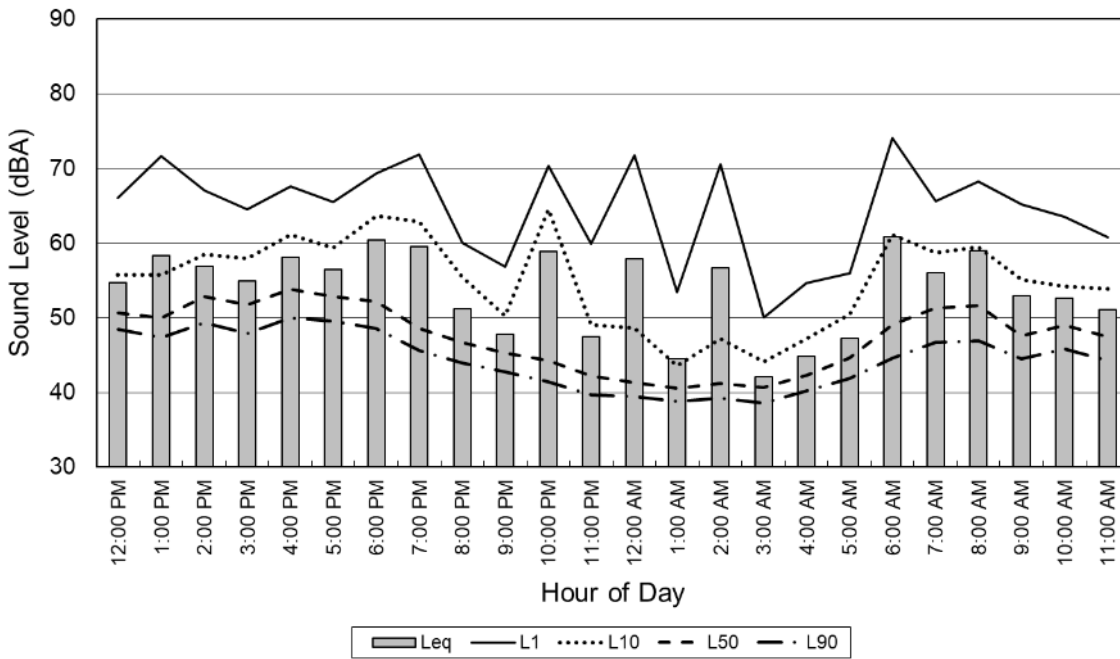


Figure B-15. Site LT-17 Time History Chart

Site LT-18: 7357 Finance Street
Ldn = 61.4 dBA

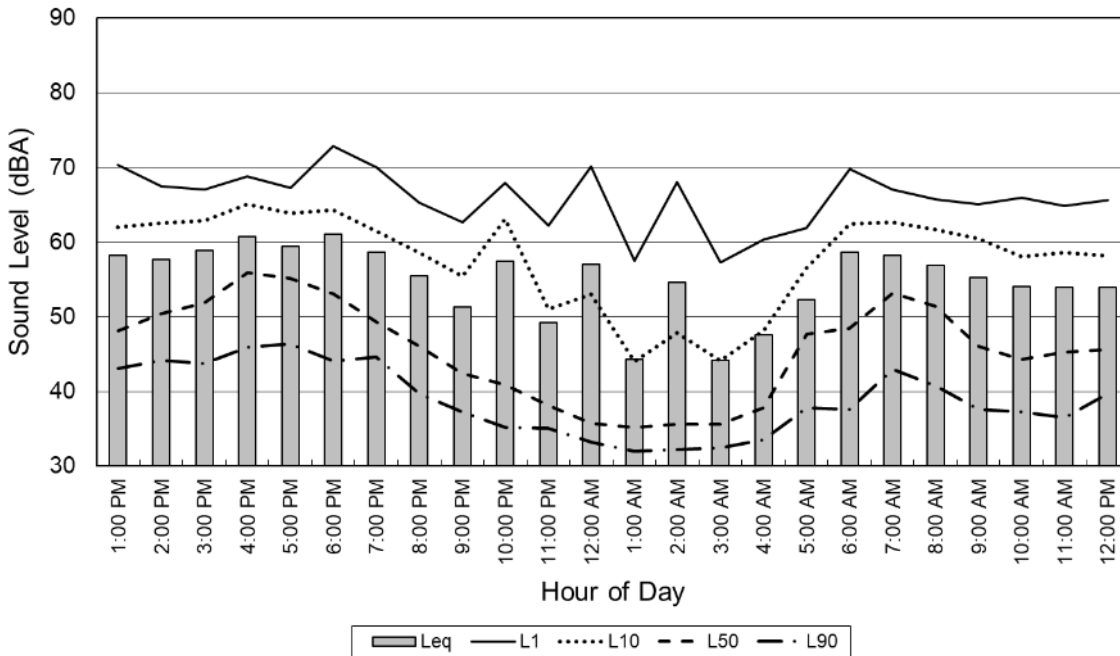


Figure B-16. Site LT-18 Time History Chart

Site LT-19: 444 Ross Avenue
Ldn = 60.8 dBA

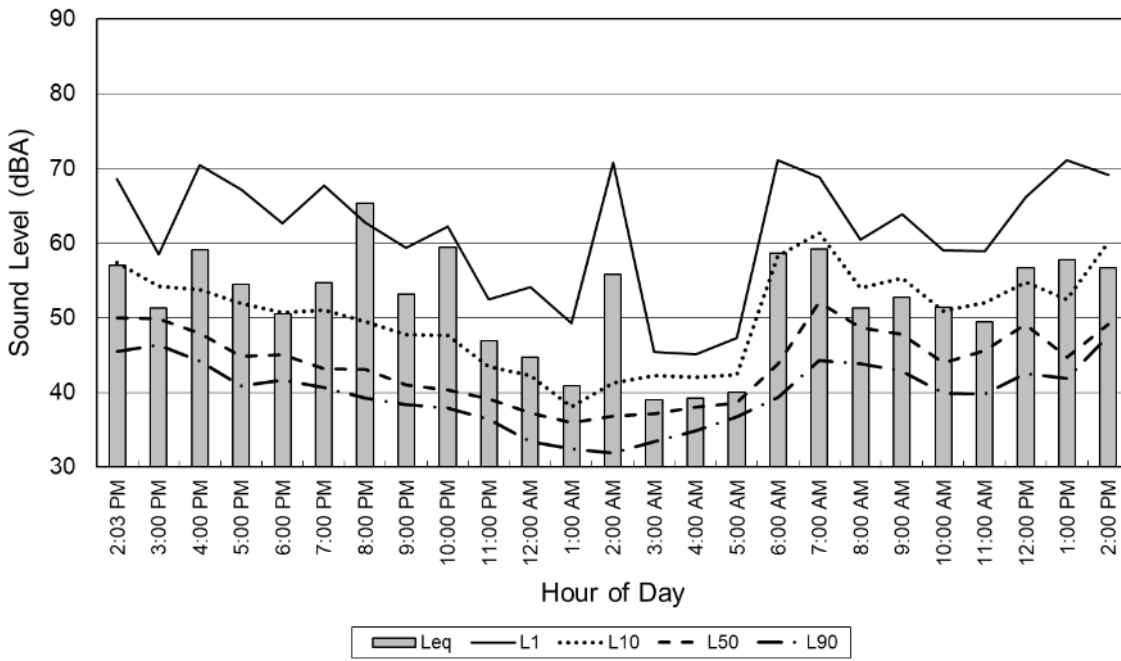


Figure B-17. Site LT-19 Time History Chart

Site LT-20: 1 Pennwood Avenue
Ldn = 72.1 dBA

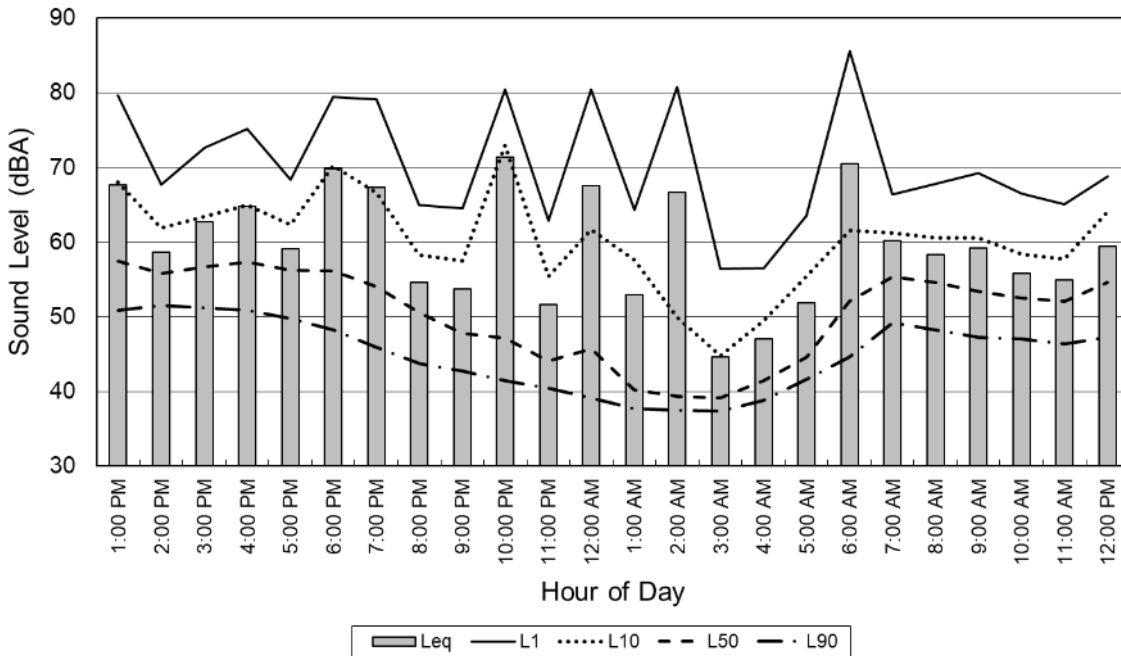


Figure B-18. Site LT-20 Time History Chart

Site LT-21: Park Avenue
Ldn = 67.3 dBA

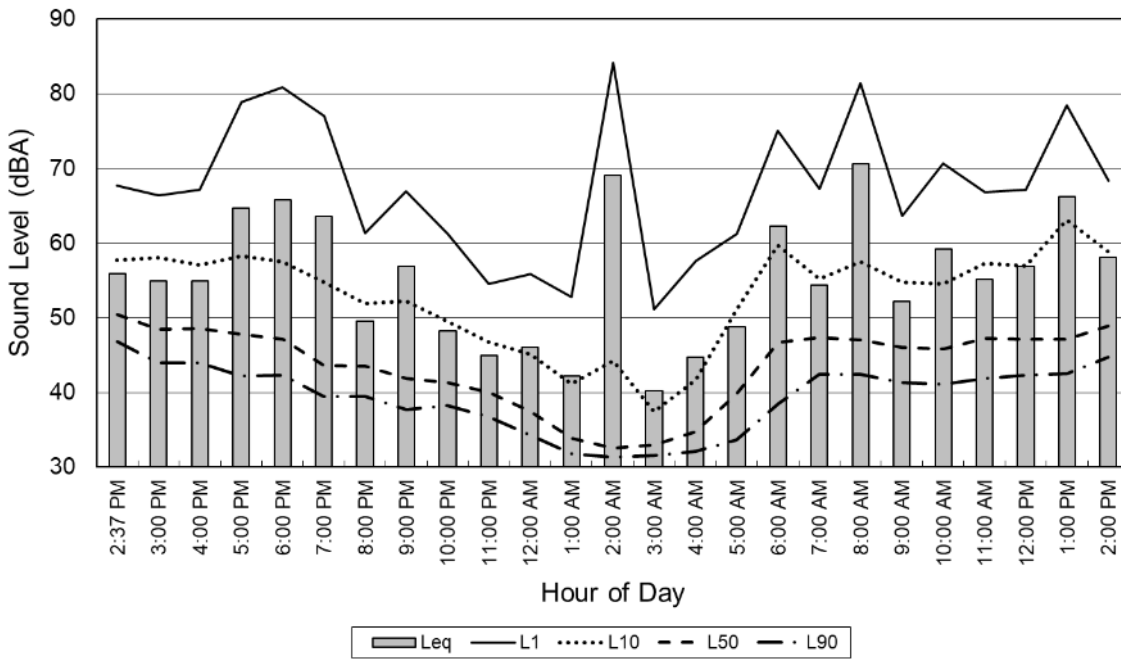


Figure B-19. Site LT-21 Time History Chart

Site LT-22: McKim Street
Ldn = 74.9 dBA

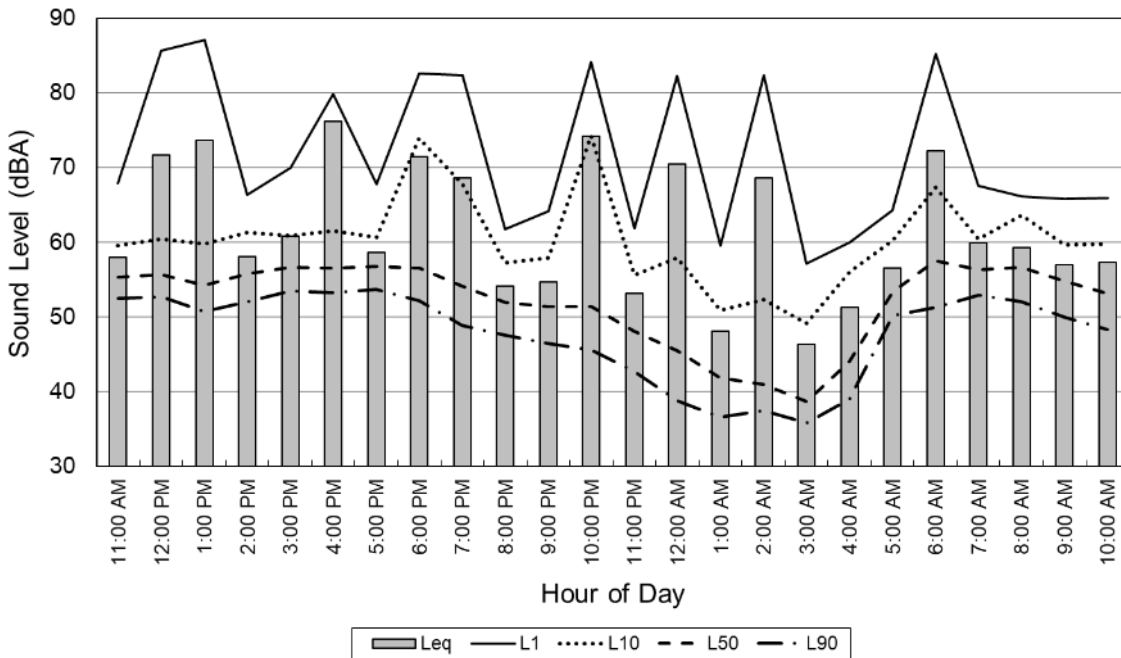


Figure B-20. Site LT-22 Time History Chart

Site LT-23: 504 Hawkins Avenue
Ldn = 71.5 dBA

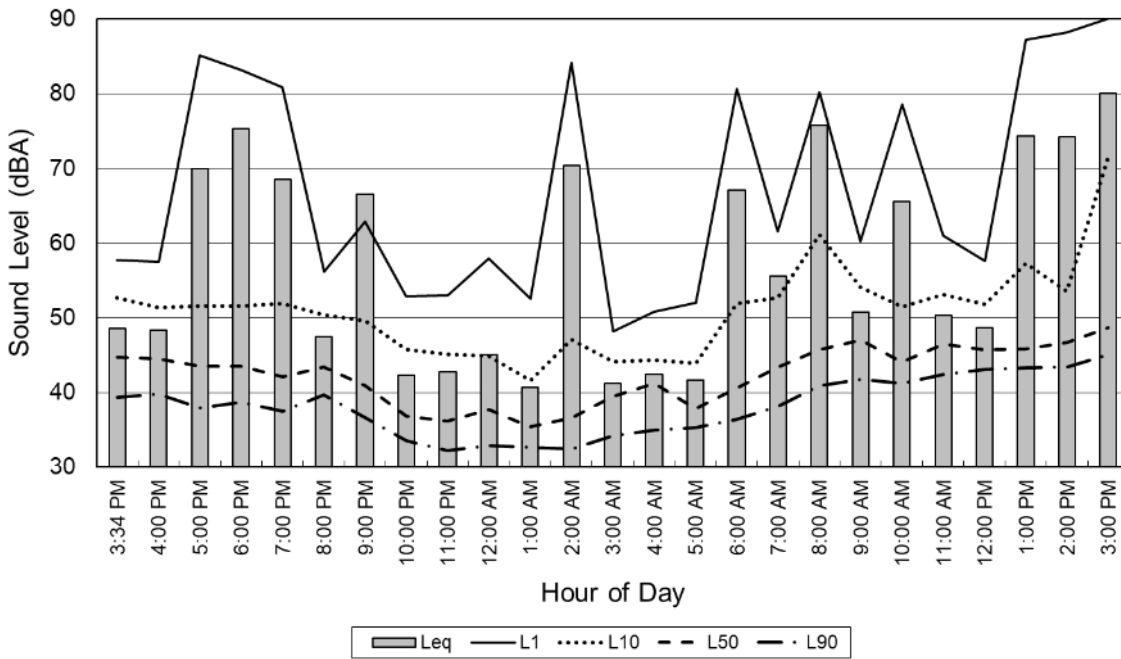


Figure B-21. Site LT-23 Time History Chart

Site LT-24: 431 Verona Street
Ldn = 68.2 dBA

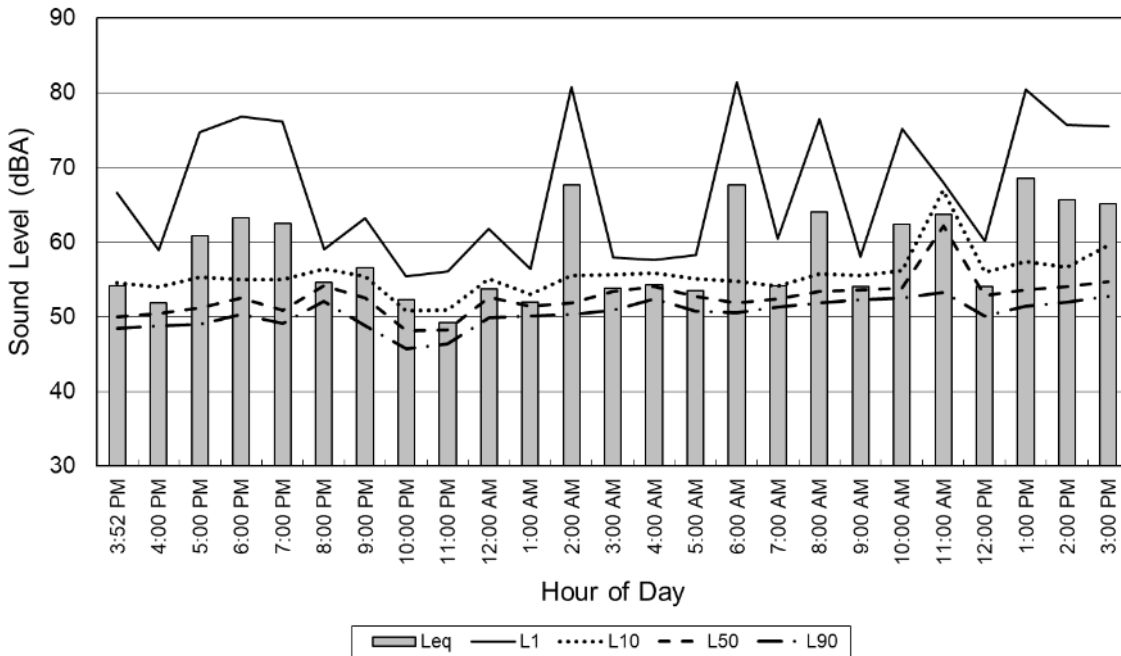


Figure B-22. Site LT-24 Time History Chart

Site LT-25: 300 Main Street
Ldn = 64.7 dBA

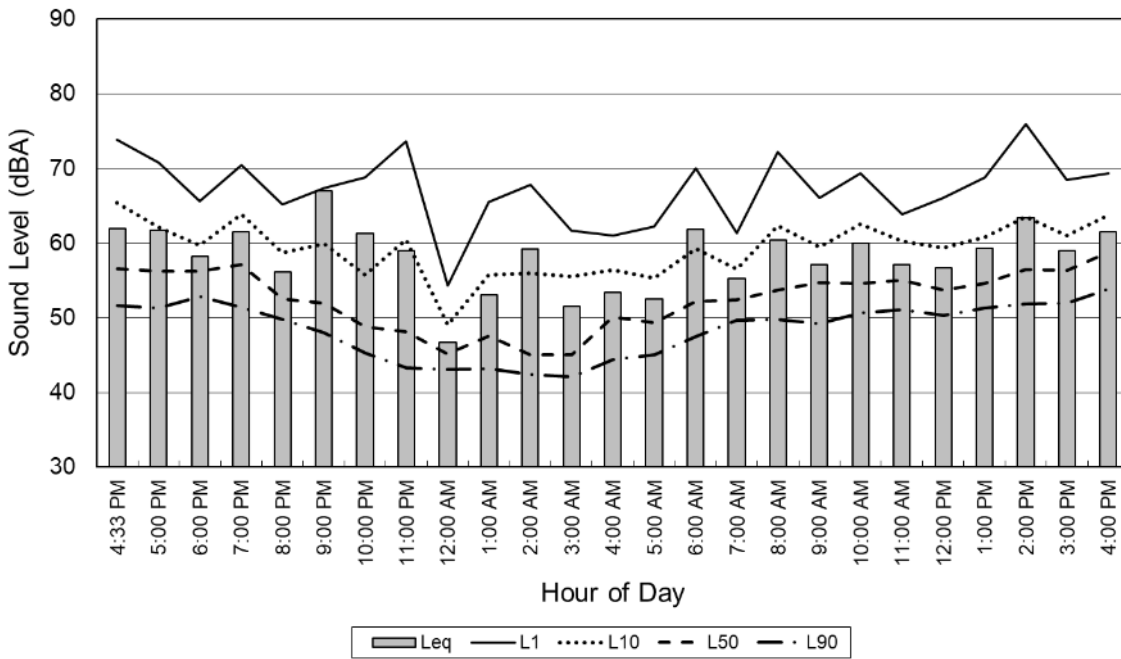


Figure B-23. Site LT-25 Time History Chart

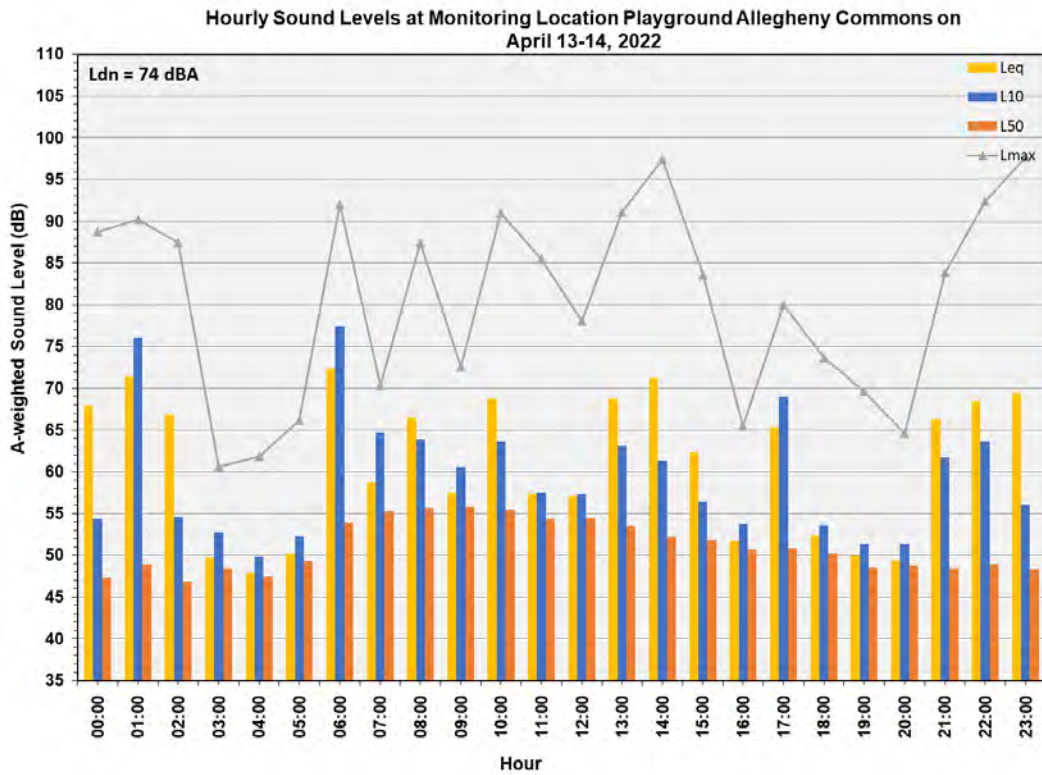


Figure B-24. Site LT-26 Time History Chart

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Appendix D
**Documentation of Design
Advisory Team Consultation**

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DAT Field Meeting, August 29, 2023



DAT Field Meeting

Pedestrian Bridge & W. North Ave. Bridge

August 29, 2023 — 10:00AM | Allegheny Commons Park

- Invitees:**
- | | |
|--|--|
| X Wendy Berrill/Michael Baker | X Rick Belloli/Q Development |
| X Kirsten Bowen/Michael Baker | X Paul Tellers/PVT |
| X Amy Pinizzotto/Michael Baker | X Matthew Craig/YPA |
| X Timothy Zinn/Michael Baker | X Brandon Riley/Pittsburgh Parks Conservancy |
| X Cindy Bartus/Michael Baker | X Erin Tobin/Pittsburgh Parks Conservancy |
| X Clayton Fisher/Michael Baker | X Sharon Spooner/City of Pittsburgh |
| X Jesse Belfast/Michael Baker | X Michael Kelley/City of Pittsburgh |
| X Chris Cawley/NS | X Barbara Frederick/SHPO |
| X Mike Panzitta/DOMI | X Frank Stroker/PHLF |
| X David Anthony/PennDOT | X Jerome Jackson/NSLC |
| X Mark Young/PennDOT | X John Canning/Allegheny City Society |
| X Arron Kotlensky/PennDOT | X David Grinnell/Allegheny City Society |
| X Julianne Hluska/Councilman Wilson's Office | X Allison Keating/Pittsburghers for Public Transit |
| X Mohammed Burny/Councilman Wilson's Office | X John Fitzpatrick/Allegheny Commons Initiative |

Notes:

Pedestrian Bridge:

- Will need to follow the Secretary of the Interior's Standards for the Treatment of Historic Properties in order to minimize effects on the Allegheny Commons Historic District sufficiently to avoid an adverse effect, with the important constraints/historic features being:
 - Location of the structure
 - Existing pedestrian bridge abutments and approach stairs
 - Path circulation network
 - Earthen berms from 1960s
 - Mature trees
 - Decorative wrought iron railroad fencing
- Paul Tellers' ideas/suggestions:
 - Shift bridge about 15' to the NW due to the state of the existing abutment/stairs and to line up better with the path circulation system and shift away from the existing monument
 - Provide elevated semi-circles/plazas at each end of the bridge
 - Use a steel through girder deck while still preserving the concrete panel system to tie in better with the design of the W. Ohio Street Bridge
- MBI's ideas/suggestions/comments:
 - Modified options presented during June 14 DAT meeting with input from the participants. These updated options preserve the existing stairs and keep the bridge in



the same location. Moving the bridge 15' NW will impact the historic character of the park's contributing elements and will impact the sewer main and retaining wall.

- Could provide landscape in front of walls to shield the concrete look such as low maintenance shrubbery. Maintenance is a key factor because there is not enough staff to take care of current needs.
 - Try to reduce walls as much as possible
 - Consider green walls in order to minimize graffiti and keep the look of the park consistent
- Options keep fill slopes away from dripline of trees
- Options reduce impacts to existing berms as much as possible
- Can accommodate the semi-circular plazas at bridge elevation
- Circular path features would be "new" and would be an effect to the historic pathways. It was also noted at the June 14 DAT meeting that the path circle/roundabouts were not preferred.

- The group seemed to prefer Option 2B. It was noted that this option would not impact any of the trees in the park.
- Group agreed to path layout on the Lake Elizabeth side - MBI option and Tellers' option are similar.
- It was agreed to move forward with the pedestrian bridge in the existing location/alignment with the following goals:
 - Minimize retaining walls
 - Minimize slopes
 - Maintain trees
 - Re-use stairs where possible
 - Oval plazas at bridge level could be considered context-sensitive design
 - Instead of oval plazas, an entrance similar to the existing bridge could be substituted
 - Keep landscaping minimal due to existing being minimal and to reduce future maintenance

W. North Ave.:

- Bridge design is due to box beam layout and skew over the railroad
- Any features on the bridge would need to be approved by the City and agreed to be maintained by the City or other parties. Need to keep in mind that it is not appropriate to propose maintenance that would need to be provided by volunteers.
- Ideas:
 - Interpretive signing
 - Stained/stamped concrete – less maintenance than brick or pavers
 - Planters
 - Very hard to maintain
 - Incorporate planters with least amount of maintenance and minimal need for irrigation



- Depending on style could impact bridge loading especially in future
- Proposed reconstruction of missing portion of historic brick wall along W. North Avenue—this request was made through the Pennsylvania History Code compliance process and was recommended by the project’s consulting parties.

ACTION ITEM:

MBI to schedule a follow-up meeting with the architect (Tellers) and Pashek+MTR. A summary of this meeting will be sent to the entire DAT.

The information presented in this summary represents the author’s interpretation and understanding of the discussions during the meeting. Any clarifications or corrections to these minutes are to be provided to the author at NSPghVerticalClearance@gmail.com by September 20, 2023. No response implies that information presented is agreed to and recipients have no objection as written.

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DAT Meetings September 14, 2023, and October 23, 2023

Norfolk Southern Railway Company
 Pittsburgh Vertical Clearance Projects/W. North Avenue and AC Pedestrian Bridge
 Design Advisory Technical Team Meetings - September 14, 2023, and October 23, 2023
 Responses to Comments

Comment #	Document/Page#/Section/Paragraph	Commenter	Comments	Responses
1	12/15/2023 PA SHPO Comments on Ped Bridge Design/ Page 1/ AC Pedestrian Bridge/ Paragraph 5	Emma Diehl/ Barbara Frederick	Please provide more detailed information as to why it is not possible to retain the approach stairs from the previous bridge.	<p>Multiple alternatives were investigated to retain the lower approach stairs from the previous bridge. These alternatives have more impacts to the park landscape, potentially more retaining walls, and higher retaining walls (see Att. 1 - Option 2B Alt 2). Due to the elevation constraint at the top of the existing stairs, a longer ADA accessible path is required which results in the proximity of the grading being closer to the trees and dripline which could potentially impact the 66" tree.</p> <p>In addition, due to the condition of the existing stairs an alternative was developed (see Att. 2 - Option 5A) that would replace the stairs, generally in the same location but with a lower elevation at the top, which would reduce the impacts to the park landscape, reduce the retaining wall heights, and move the grading further away from the trees and dripline and potentially not impact the 66" tree. This also allows the path alignment to follow the contours of the existing mound more closely thereby reducing the visible impact of the new paths. (This is very similar to the photo rendering [see Att. 3 - Option 2B] that was presented at the DAT Field Meeting on 8/29/2023.)</p> <p>Finally, conversations were referenced from meetings with community members of the DAT, including some SHPO staff, (PennDOT, NS and Michael Baker were not present at these meetings) that indicated a preference to save the trees rather than the stairs. As reported to Michael Baker, the consensus was that the stairs could be sacrificed in order to reduce impacts on other park features such as landscaping and trees. It should be noted that the stairs, which are in poor condition, are a remnant feature of the ca. 1905 bridge that is proposed to be replaced.</p>
2	12/15/2023 PA SHPO Comments on Ped Bridge Design/ Page 1/ AC Pedestrian Bridge/ Paragraph 5	Emma Diehl/ Barbara Frederick	As the 60% design process approaches, we would appreciate the development of renderings of the new Allegheny Commons bridge, especially the approach plazas being designed as part of Option 5a.	Renderings will be prepared for and provided prior to DAT Meeting #3.
3	12/15/2023 Rick Belloli, Q Development email/AC Pedestrian Bridge/Bullet 1	Community DAT Technical Team *	We would like confirmation that all the walkways are <5% grade, ensuring that they are both ADA accessible and that they will not require any railings or occasional landings as a result.	The paths proposed with the latest concept (Option 5A) are all ADA accessible (5% grade maximum) with only landings at the stair intersections. Railings are proposed on the retaining walls.
4	12/15/2023 Rick Belloli, Q Development email/AC Pedestrian Bridge/Bullet 2	Community DAT Technical Team *	Where there are retaining walls in the plan, we would like more clarification on the proposed materials, design elements, and landscaping plans around said walls.	As we progress the design to the 60% design level, we will have a better understanding of the limits and height of the proposed retaining walls. These types of details (proposed materials, design elements, and landscaping plans) will be discussed at DAT Meeting #3.

Comment #	Document/Page #/ Section/Paragraph	Commenter	Comments	Responses
5	12/15/2023 Rick Belloli, Q Development email/AC Pedestrian Bridge/Bullet 3	Community DAT Technical Team *	Which trees are being impacted by the latest plans? What is the overall tree protection plan? What is the grading near the trees and the dripline? Are any root aeration systems being proposed now, or have those been eliminated in this iteration?	The latest concept (Option 5A) does not impact any of the trees. As we progress the design to the 60% design level, we will have a better understanding of the proximity of the grading near the trees and the dripline and the overall tree protection plan if required. We will coordinate our efforts with the City of Pittsburgh DPW – Forestry Division.
6	12/15/2023 Rick Belloli, Q Development email/W. North Avenue Bridge/Bullet 1	Community DAT Technical Team *	The updated rendering (as noted) features 3' aiseways around all the planters.	Noted.
7	12/15/2023 Rick Belloli, Q Development email/W. North Avenue Bridge/Bullet 2	Community DAT Technical Team *	An updated cost estimate is coming from Streetlife for the planters in this plan. It will be forwarded as soon as received.	Noted.
8	12/15/2023 Rick Belloli, Q Development email/W. North Avenue Bridge/Bullet 3	Community DAT Technical Team *	Are the railings planned to be powder coated steel or something else? (Considering how best to complement the existing design aspect with the planters themselves.)	The railings will match the West Ohio Street Bridge which are steel – galvanized first then shop painted. See attached project specification for additional information (Att. 4 - Item 9000-0004 – Decorative Fence).
9	12/15/2023 Rick Belloli, Q Development email/W. North Avenue Bridge/Bullet 4	Community DAT Technical Team *	We agree, per the minutes of the meeting on 10.23 that the Greater Pittsburgh Arts Council should be engaged for the public art component of the plan. <ul style="list-style-type: none"> o I will be reaching out to Patrick at GPAC on this topic (as I've been having other discussions of late) just to give him a heads up that the organization has been penciled in for this role. o We also want to be sure that GPAC engages a community input process for the art, especially from the residents in the adjacent West Park Court senior high rise. 	Noted.
10	12/15/2023 Rick Belloli, Q Development email	Community DAT Technical Team *	Finally, to be able to ascertain these items and impacts for both the Pedestrian Bridge and the W North/Brighton Bridge, please pass along a link to download the *complete* set of plans, drawings, sections and elevations for the technical team to review.	A link to download the complete set of plans, drawings, sections, and elevations for the Pedestrian Bridge (60% Design Submission) and W. North/Brighton Bridge (90% Design Submission) will be provided prior to DAT Meeting #3.

* Rick Belloli (Q Development), Paul Tellers (PVT), Sara Thompson (Pashek MTR), and Matthew Craig (Young Preservationist Association)







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ITEM 9000-0004 – DECORATIVE FENCE

DESCRIPTION—This work is the detailing, fabrication, galvanizing, shop painting, supply and erection of new structural steel fence systems in accordance with Section 1050, 1060, and applicable portions of Section 1022 and as indicated.

MATERIAL –

- Structural Steel- Section 1105 and AASHTO M270, Grade 50 (ASTM A709, Grade 50), minimum, designation unless noted otherwise on the Contract Drawings.
- Bolts - High strength bolts conforming to AASHTO M 164 (ASTM A325) Type 3, with compatible nuts and washers.
- Galvanizing - Section 1105
- Caulking Compound - Section 705.8
- Anchor Bolts- ASTM A307 with compatible nuts and washers.
- Paint- In accordance with Section 1060, as indicated and as follows:
 - Paint applied over galvanized surfaces must be manufacturer certified as applicable for this application and must be compatible with paint specified for final field finish paint specified for structural steel.
 - Final finish paint shall be black in color. FS 17038.

CONSTRUCTION—Perform this work in accordance with Section 1060, Section 1105, and as indicated.

- Perform paint application in the fabrication shop
 - Prepare galvanized surface for painting and apply first coat of paint that is compatible with application over galvanized surfaces and compatible with the final finish paint of black in color. Apply final finish coat in the shop.
- Submit the proposed methods for erection of structural steel to the Representative for review.
- Shop Drawings - Prior to submitting shop drawings, visit the site and review all details of work. Review existing field conditions, as-built conditions and dimensions. Submit, including but not limited to, field set railing post anchor bolt locations. Submit site conditions preventing fabrication or installation of the structural steel railing system to the Representative for review. No additional payment will be allowed because of lack of knowledge of any existing conditions discernible from observation at the site.
- Submit shop drawings in accordance with the requirements of Section 105. Do not begin work until the shop drawings have been received and reviewed with no exceptions taken, and approved by the Representative.
- Railing fabrication and installation must comply with the ADAAG Standards, dated 2002.
- To prevent loosening/removal, field weld the railing anchor bolts after appropriately tightened.
- After the steel railings have been installed, the contractor shall inspect for, and repair paint system damage in accordance with 1060.2(b).

MEASUREMENT AND PAYMENT - Linear Feet of railing system complete in place including anchors, mounting details, handrail, and all necessary appurtenances.



March 13, 2024

Mr. Corey Layman, AICP
Chief Zoning Officer
Zoning Administrator
Department of City Planning
Division of Zoning & Development Review
100 Ross Street, Suite 202
Pittsburgh, PA 15219

RE: 810 W. North Avenue Alternative Compliance for Street Trees

Mr. Layman:

Following our extensive dialogue about the redevelopment of 810 W. North Avenue into the Allegheny Branch House Lofts project, please consider this letter documentation of the Alternative Compliance for Street Trees process. The Allegheny Branch House Lofts project is scheduled for completion and the receipt of its final Certificate of Occupancy on or around April 30, 2024.

As you know, Norfolk Southern Railroad has engaged Michael Baker International to design and oversee the replacement of the W. North Avenue Bridge at Brighton Road, in compliance and coordination with the City of Pittsburgh Department of Mobility & Infrastructure. These plans are now at the 90% completion level, while the reconstruction of the bridge itself is likely to occur in 2025 or 2026.

Meanwhile, Q Development has actively engaged its full team of PWWG Architects, Morris Knowles & Associates civil engineers, Mistick Construction as general contractor and Time & Place LLC as the historic preservation consultant to guide a resolution to the increased elevation of the bridge that will protect the historic integrity (and the resulting \$2.5 million of Federal Rehabilitation Investment Tax Credits) to coordinate this work with the National Register-listed Allegheny Branch House Lofts project.

All parties have agreed that the best resolution to the many challenging infrastructure and historic preservation dynamics at this location is for the installation of sidewalk curb and planting system along the building frontage. As part of the reconstruction of the bridge, Norfolk Southern Railroad and its contractors have agreed to install the planters and planting bed as a component of the bridge reconstruction project. The 90% engineering drawings and renderings of the planter design and installation are attached to this letter as evidence thereof.

Once those planters are complete, Q Development will maintain the planters and plantings as part of its overall landscaping plan as the Alternative Compliance for Street Trees process with the City of Pittsburgh. Q Development will do so as with the four street tree wells also along W. North Avenue as part of its commitment and requirement for street trees and/or Alternative Compliance.

We sincerely appreciate you working with the full team to provide this Alternative Compliance route that is best suited for the unique situation and location of Allegheny Branch House Lofts and the W.

www.Qdevelopment.com



North Avenue/Brighton Road bridge replacement project and for this letter to serve as the documentation thereof.

Please let me know if you have any questions. I can be reached at 412.805.5153 or via email at Rick@Qdevelopment.com.

Best Regards,

A handwritten signature in blue ink, appearing to read 'Rick Belloli'.

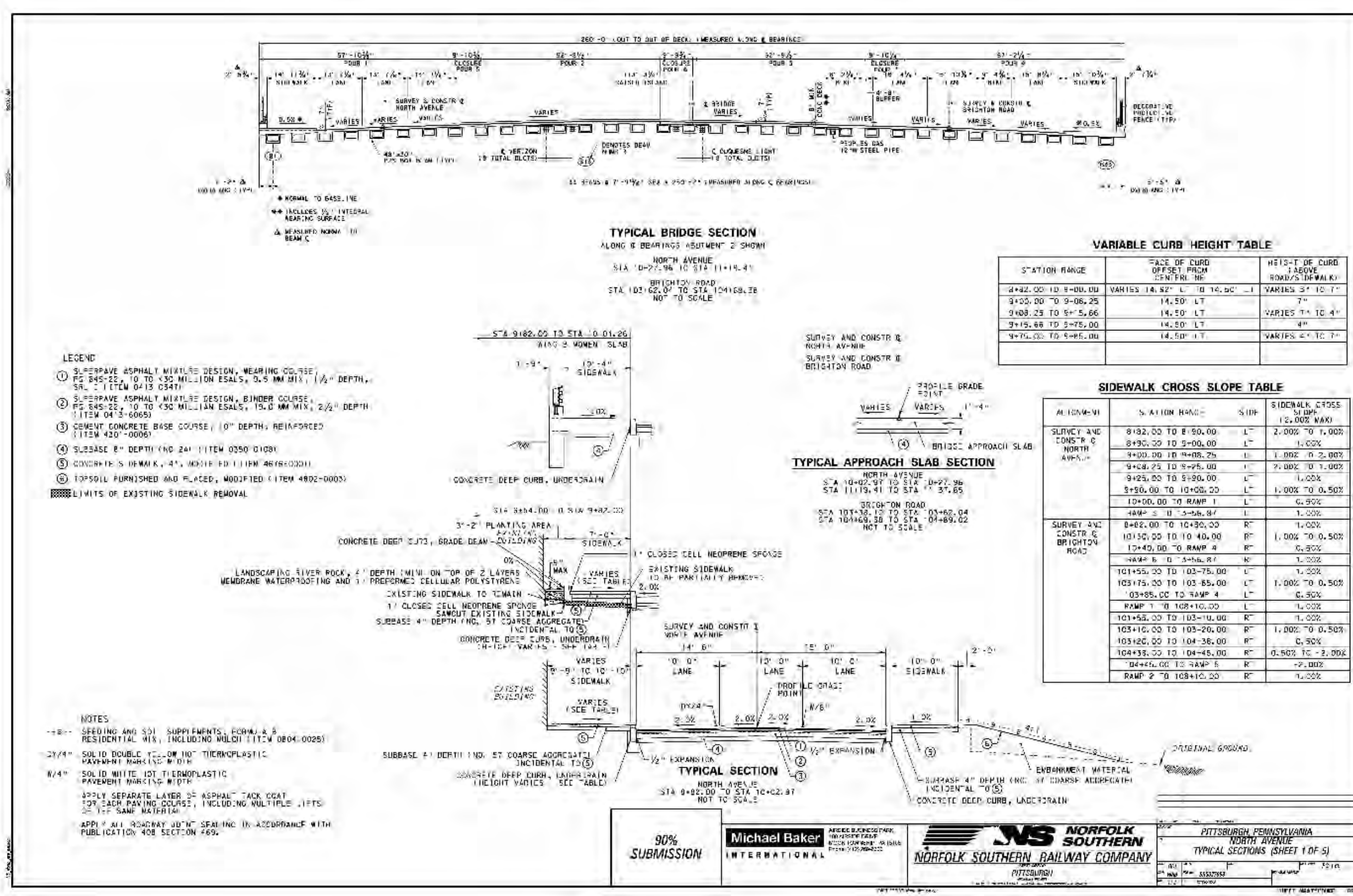
Rick Belloli
Principal

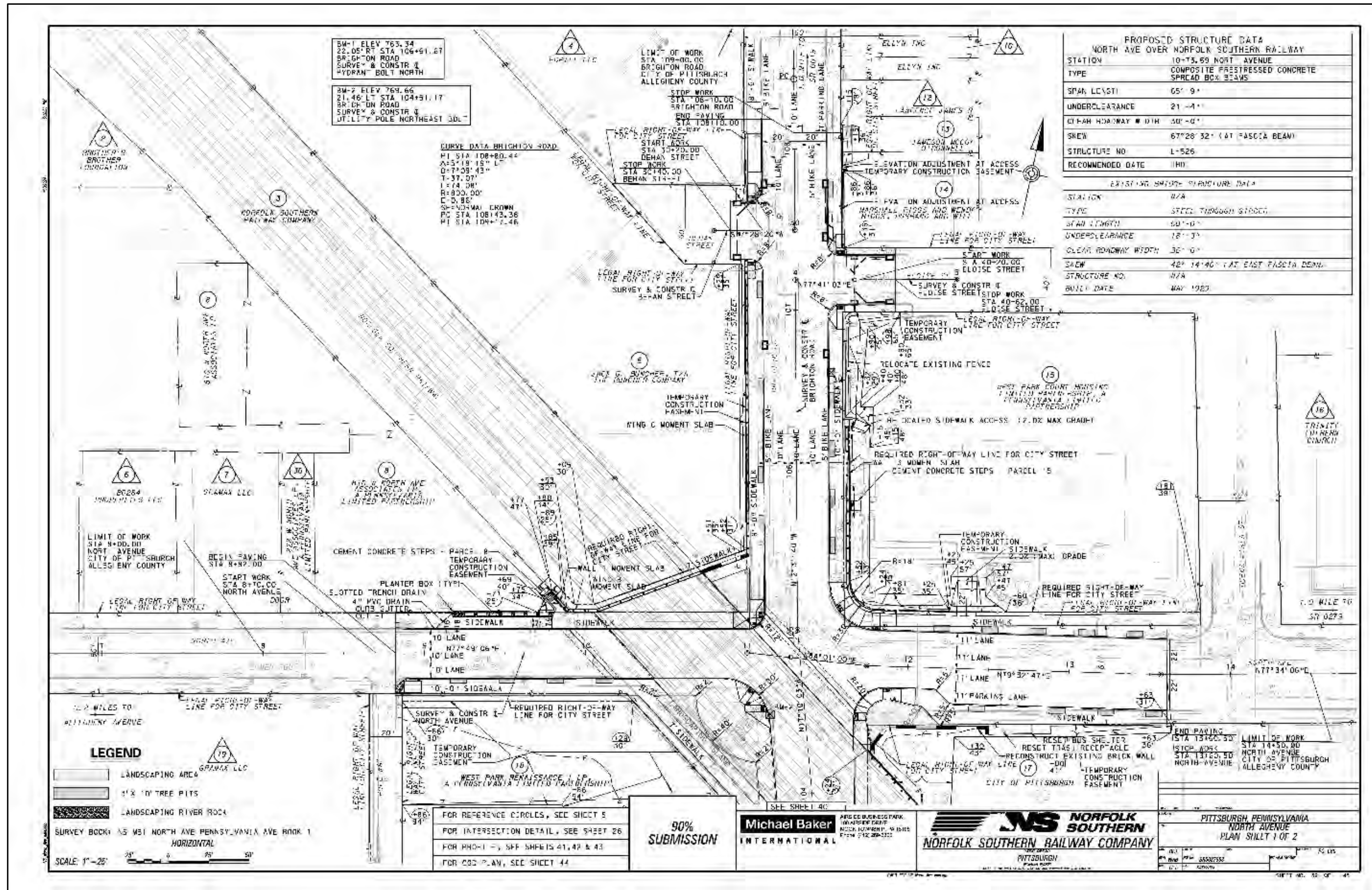
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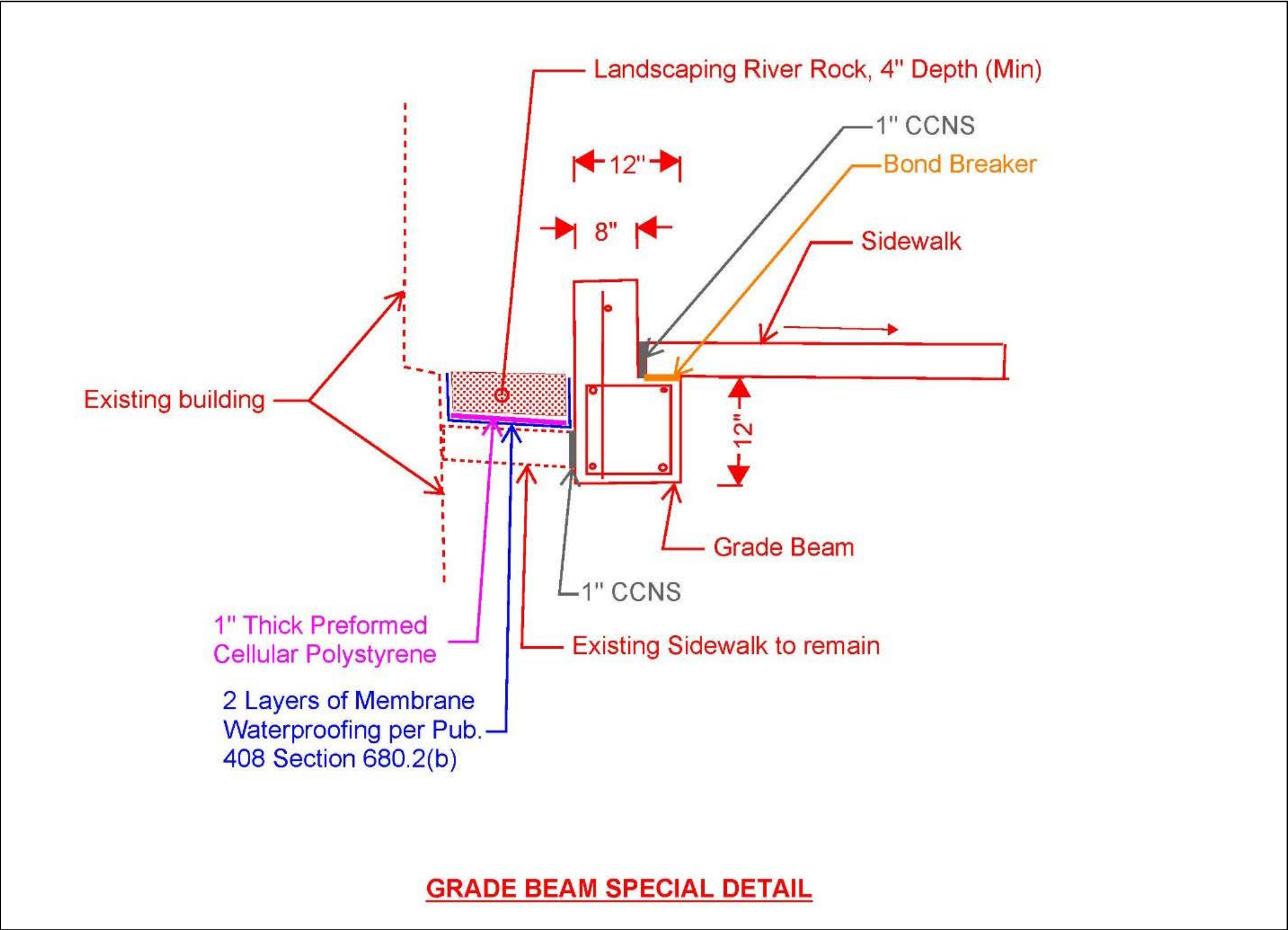
cc: K. McKeegan, Meyer, Unkovic & Scott
C. Bartus, Michael Baker International
C. Cawley, Norfolk Southern
M. Panzitta, Department of Mobility & Infrastructure
B. Houck, PWWG Architects
D. Cellitti, Morris Knowles & Associates
A. Stadt, Mistick Construction
J. Slack, Time & Place LLC

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DAT Meeting March 26, 2024

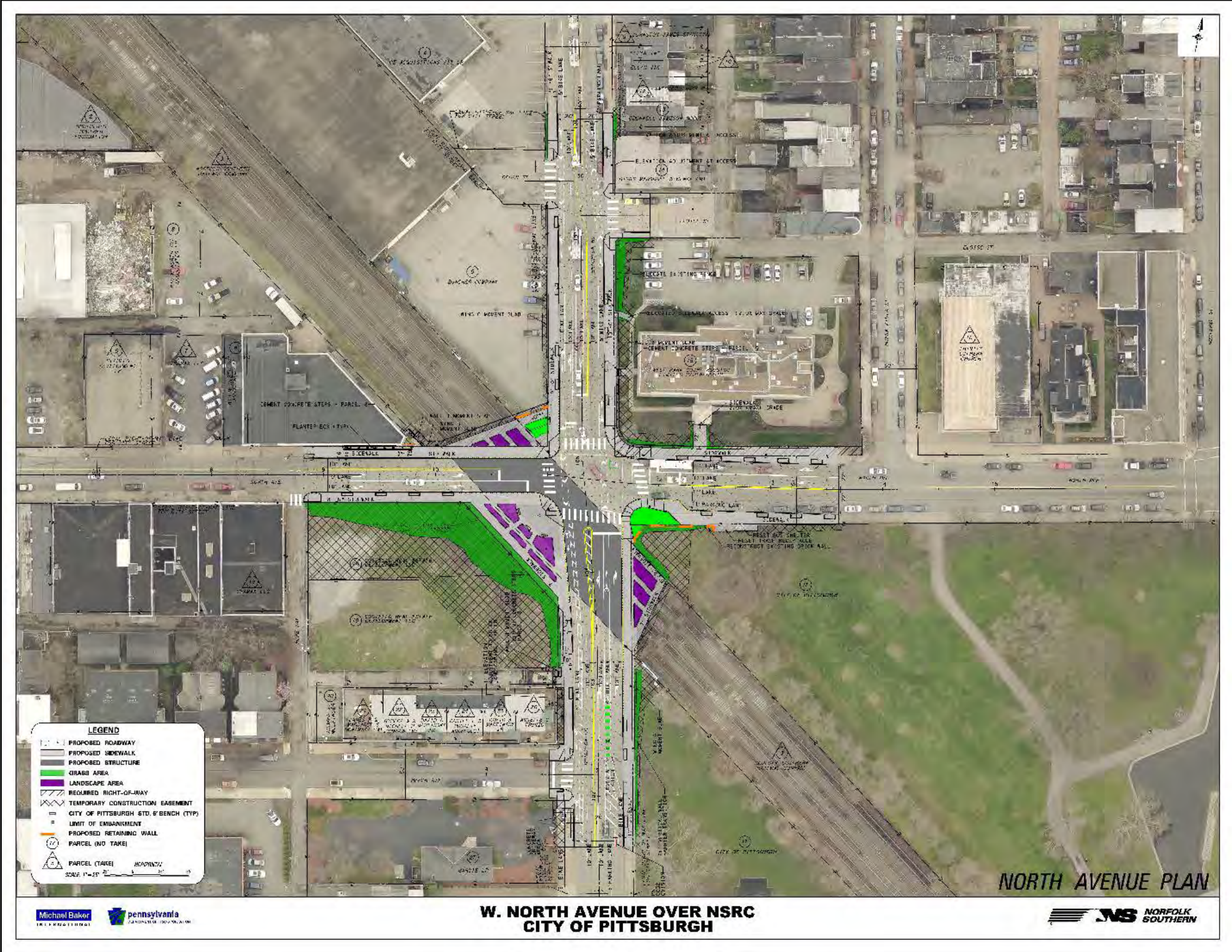
**Norfolk Southern Railway Company
Pittsburgh Vertical Clearance Projects/W. North Avenue and AC Pedestrian Bridge
Design Advisory Team Meeting #3, March 26, 2024
Responses to Comments**

Comment #	Document/Page #/ Section/Paragraph	Commenter	Comments	Responses
1	Survey W. North Ave. Bridge	Rick Belloli Q Development	It was agreed at the meeting to provide the drawings to Paul Tellers as the technical architect representative of the community to evaluate the planter options above or tweak as needed. I defer to his guidance, but has he been provided this material as agreed?	As per discussion at the meeting including suggested revisions from Paul Tellers, Michael Baker was to develop alternates for the DAT to review. Two alternates to the design presented at the DAT were included in the survey for the DAT members to evaluate.
2	4/3/2024 Email W. North Ave. Bridge	Rick Belloli Q-Development	With the requirement to NOT building over the edge of deck, I divided the planters on the southwest corner into three parts rather than four parts as shown in previous sketches. This gives the planters a more reasonable size. A 30' plaza for public art (rather than the previous 35') should be adequate. (RB note: it also comports consistently with the other two planter areas of three individual planters...)	The layout of three segments of planters and a 30' plaza for public art has been incorporated into the design of the planters.
3	4/3/2024 Email W. North Ave. Bridge	Rick Belloli Q-Development	The MBI drawings showed the diagonal sidewalk on the southeast corner to be 7' wide. I thought this could be misleading for a pedestrian heading north on the Brighton Road sidewalk who might think that the wide sidewalk would be a shortcut to the North Avenue sidewalk. So my drawing, once again, shows it 3' wide.	As discussed at the meeting the 3' aisleways are not acceptable to the City of Pittsburgh (DOMI). All interior aisleways will be 4' and the exterior paths along the bridge railing will be 7' wide as per a subsequent comment from the City of Pittsburgh (see comment 22). See attached exhibit.
4	4/3/2024 Email W. North Ave. Bridge	Rick Belloli Q-Development	The MBI drawings showed a quarter circle of sidewalk at the northwest corner to make room for utility poles. My drawing shows the quarter circle passing through the corner of the adjacent planter.	As originally detailed, the existing arc of the northwest off-bridge planter never intersects the nearest on-bridge planter. The radius of the arc can't be changed at this point because it impacts mast arm #5 foundation and associated conduit. Proposed temporary shoring also passes through this area which is needed to construct the Wing C retaining wall, so we can't move the mast arm any farther away from the intersection than it is now. Moving the other way will impact the ADA ramps and potentially the bridge joint at abutment 2.
5	Survey AC Pedestrian Bridge	Rick Belloli Q Development	There was discussion at the meeting about including some form of metal panels along the inside of the bridge to minimize trash and leaf collecting locations. This should be done. This provides an opportunity to utilize something other than solid panels as well (https://www.amazon.com/Outdoor-Privacy-Screen-Metal-Freestanding/dp/B0BWMWR5FL?th=1). Panels like this could even be railroad or park-themed.	Solid panels are preferred by the City of Pittsburgh.
6	Survey W. North Ave. Bridge	Jerome Jackson Northside Leadership Conference	It is very difficult to make an informed selection without discussion. I really don't understand how this process is community friendly. When will the community at large get the opportunity to give feedback?	Three Design Advisory Team meetings were held with members of the Design Advisory Team. Two additional Technical meetings were held as a result of comments from the second Design Advisory Meeting.
7	Survey AC Pedestrian Bridge	Jerome Jackson Northside Leadership Conference	I feel like all decisions have been made and you are just checking a box with this survey.	The design presented at the DAT is a result of two previous DAT meetings and an additional two DAT technical meetings. All DAT members have been provided the minutes and progress exhibits during the process and have been given the opportunity to provide feedback throughout.
8	Survey W. North Ave. Bridge	Nazia Tarannum Department of City Planning	Just want to clarify that I am new to the DCP team and my colleague very kindly forwarded the presentation to me as I am the neighborhood planner responsible for this area. So, my comments are solely based on the slide deck only. I would love to attend future DAT meetings re: this bridge.	Noted.

Comment #	Document/Page #/ Section/Paragraph	Commenter	Comments	Responses
9	Survey W. North Ave. Bridge and 4/3/2024 Email	Frank Stroker Pittsburgh History & Landmarks Foundation	Yes, sidewalk slopes leading to intersection. Consideration of railings for pedestrian assistance along the sidewalks where steep slope is being introduced leading to the intersection. Has a mobility analyses been conducted for the new "at grade" elevations?	An ADA submission and Technically Infeasible Forms have been submitted to PennDOT for review and approval for the curb ramps associated with the intersection. Pedestrian railings are proposed where required.
10	4/3/2024 Email - W. North Ave. Bridge	Frank Stroker Pittsburgh History & Landmarks Foundation	Incorporation of an "artwork" on the bridge should have a historical context relating to the railroad corridor and the adjoining historic districts. This may be appropriate as a mitigation measure. An historic districts wayfinding pole was one possibility suggested.	Noted.
11	Survey AC Pedestrian Bridge and 4/3/2024 Email	Frank Stroker Pittsburgh History & Landmarks Foundation	Possible painted panel to cover the exposed steel surfaces. We request the exposed steel along the pedestrian path of the bridge to be enclosed with a secure panel that may be removed for inspection purposes. The color should match the painted concrete.	Noted.
12	4/3/2024 Email - AC Pedestrian Bridge	Frank Stroker Pittsburgh History & Landmarks Foundation	We prefer the geosynthetic reinforced soil option for the retaining walls required along the accessible pathways. We would request that a grass or appropriate ground cover be seeded making it consistent with the remainder of the rising grade. We feel that this will not introduce a new structural element and be more harmonious with the existing gentle mounding.	The City has strong reservations about the geosynthetic reinforced soil option – look does not keep with the historical character and maintenance concerns.
13	4/3/2024 Email - AC Pedestrian Bridge	Frank Stroker Pittsburgh History & Landmarks Foundation	Railings are desirable with the steps leading to the bridge, either a single center rail or flanking as required by code. The presentation rendering did not include railings. An anti-gliding feature may be necessary.	Railings are proposed as required by code. The need for anti-gliding features to deter skateboard, bike and snowboard use will be discussed with the City of Pittsburgh.
14	Survey W. North Ave. Bridge	Matthew Craig Young Preservationists Association (YPA)	Please consider the feedback provided by Paul Tellers through Rick Belloli on April 3rd as these represent my wishes as well. Thank you!	The feedback provide by Paul Tellers through Rick Belloli on April 3 rd regarding the layout of three segments of planters has been incorporated into the design of the planters. As discussed at the meeting the 3' aisleways are not acceptable to the City of Pittsburgh (DOMI). All interior aisleways will be 4' and the exterior paths along the bridge railing will be 7' wide as per a subsequent comment from the City of Pittsburgh (see comment 22) See attached exhibit.
15	Survey AC Pedestrian Bridge	Matthew Craig Young Preservationists Association (YPA)	I'm pleased that our feedback has been heard and that the design reflects this. I would like to advocate also that as few trees are affected as possible. Thank you again for allowing us the opportunities to interact with this process as often as you did. Much appreciated!	Noted.
16	Survey W. North Ave. Bridge	John Fitzpatrick Allegheny Commons Initiative	Looks good to me	Noted.
17	Survey AC Pedestrian Bridge	John Fitzpatrick Allegheny Commons Initiative	Everything looks good, if you could make it appear to arc more than the current camber that would be great	As discussed at the DAT, we will investigate if an "arc" feature can be added to create the appearance of "more" of an arc than the current camber. We will discuss with the City of Pittsburgh.
18	Survey AC Pedestrian Bridge	Sharon Spooner	Question 9-OK with any option, but painting to match the adjacent concrete surfaces would be my first choice	Noted.

Comment #	Document/Page #/ Section/Paragraph	Commenter	Comments	Responses
		City of Pittsburgh, Department of City Planning		
19	Survey AC Pedestrian Bridge	Mike Panzitta City of Pittsburgh DOMI (and nearby resident)	Perhaps integral coloring would be better than painted concrete.	Integral coloring was considered, however due to the different types of concrete the coloring would not be consistent when constructed and even less consistent for any future maintenance, therefore we selected the painted concrete to match West Ohio Street.
20	Survey W. North Ave. Bridge	Barbara Frederick PA SHPO	No additional comments.	Noted.
21	Survey AC Pedestrian Bridge	Barbara Frederick PA SHPO	No additional comments.	Noted.
22	4/4/2024 Email	Eric Setzler City of Pittsburgh DOMI	It is anticipated that the diagonal sidewalk on the southeast corner will be a popular place to stop and look at trains and the park. Maintain this width at 7'.	Noted.

Exhibit



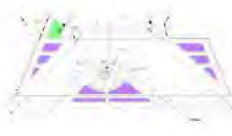
DAT Meeting 3 Follow-up Survey Summary

SURVEY RESULTS SUMMARY

Number of responses shown next to each option

Please indicate your preferred planter layout for the W. North Ave. bridge. Planters are indicated in purple shapes on the graphics below. Green shading denotes grass areas.

*For this selection, we are only asking for input on the planter layout. **



2 Option A – see planters layout above and also on presentation slides 11, 12, 13

3 Option B – combining the planters as suggested by some of the DAT attendees

4* Option C – combining the planters and reducing the plaza arc

***Refined to incorporate subsequent comments from DAT architects**

Please indicate your preferred color for the concrete panels and other vertical surfaces on the W. North Ave. bridge. See also presentation slides 20, 21 and 22.

*For this selection, we are only asking for input on the color of the concrete. **



3 Option A – natural concrete (gray) similar to the existing bridge, no paint

6 Option B – painted concrete to match W. Ohio St. Bridge (sandstone/beige)

Please indicate if you have any additional feedback for consideration on the W. North Ave Bridge design. *

No additional comments.

The following section pertains to the **Allegheny Commons Pedestrian Bridge**:

Appendix D: Documentation of Design Advisory Team Consultation

8

Please indicate your preferred color for the concrete panels and other vertical surfaces on the Allegheny Commons Pedestrian Bridge. See also presentation slides 20, 21 and 22.

*For this selection, we are only asking for input on the color of the concrete. **



3 Option A – natural concrete (gray) similar to the existing bridge, no paint

6 Option B – painted concrete to match W. Ohio St. Bridge (sandstone/beige)

9

Please indicate your preferred color for the exposed steel surfaces (shown below as blue) on the inside of the Allegheny Commons Pedestrian Bridge. See also presentation slides 29 and 32. *



3 Option A – painted to match the concrete color (sandstone/beige) of W. Ohio St. Bridge (see photos)

4 Option B – paint to match proposed black fence (see photo)

2 Option C – paint to match natural concrete (gray)

Appendix D: Documentation of Design Advisory Team Consultation

10

Please indicate your preferred light pole design for the ornamental lights on the Allegheny Commons Pedestrian Bridge. See also presentation slide 36. *



4 Option A: Sternberg Model 1910LED Double-Arm Design on 3400 Georgetown pole (as shown on slide 36)

5 Option B: Sternberg Model 1910LED Double-Arm Design on 7700 Birmingham pole (park standard pole but with pendant fixture)

11

Please indicate if you have any additional feedback for consideration on the AC Pedestrian Bridge design. *

No additional comments

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Appendix E

MOU Stipulation Attachments

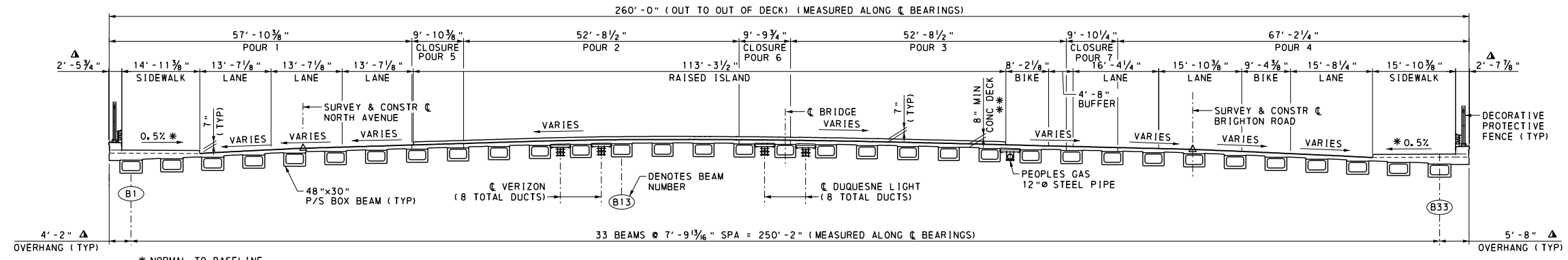
Note: Plan Sheets shown for the W. North Avenue Bridge are taken from the 100 percent design submission. Plan Sheets shown for the Allegheny Commons Pedestrian Bridge are taken from the 90 percent design submission.

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ATTACHMENT 1

**Project Specifications: Sidewalk Fronting the International Harvester Company of
America: Pittsburgh Branch House**

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* NORMAL TO BASELINE
 ** INCLUDES 1/2" INTEGRAL WEARING SURFACE
 ▲ MEASURED NORMAL TO BEAM C

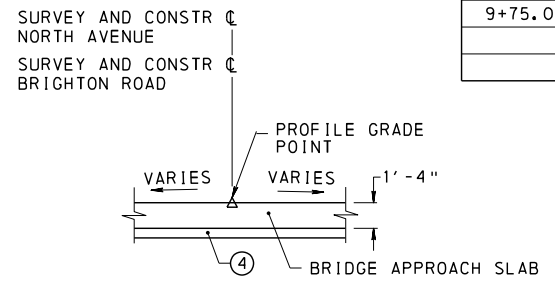
TYPICAL BRIDGE SECTION
 ALONG C BEARINGS ABUTMENT 2 SHOWN
 NORTH AVENUE
 STA 10+27.96 TO STA 11+19.41
 BRIGHTON ROAD
 STA 103+62.04 TO STA 104+69.38
 NOT TO SCALE

VARIABLE CURB HEIGHT TABLE

STATION RANGE	FACE OF CURB OFFSET FROM CENTERLINE	HEIGHT OF CURB (ABOVE ROAD/SIDEWALK)
8+82.00 TO 9+00.00	VARIES 14.92' LT TO 14.50' LT	VARIES 3" TO 7"
9+00.00 TO 9+08.25	14.50' LT	7"
9+08.25 TO 9+15.66	14.50' LT	VARIES 7" TO 4"
9+15.66 TO 9+75.00	14.50' LT	4"
9+75.00 TO 9+85.00	14.50' LT	VARIES 4" TO 7"

LEGEND

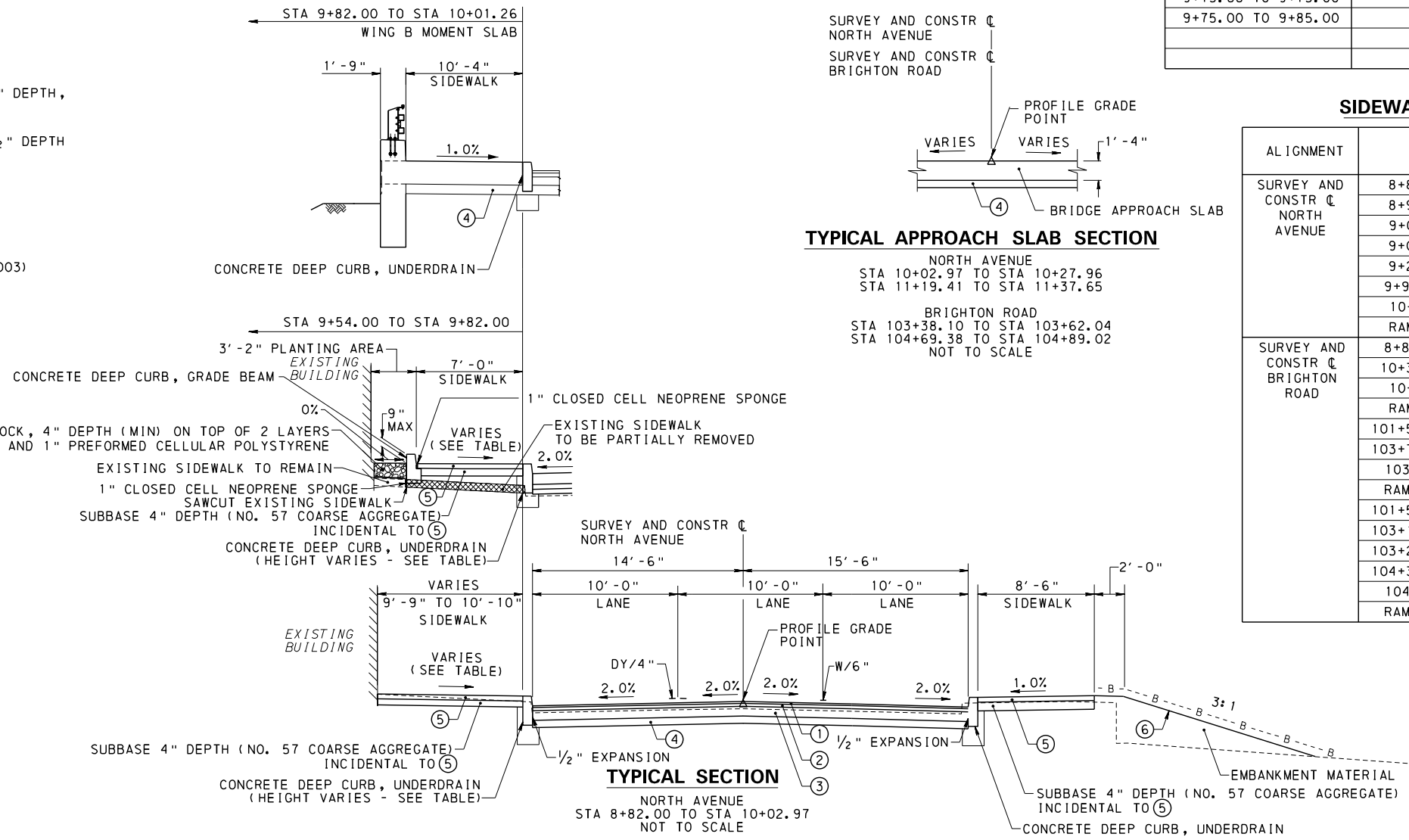
- ① SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64S-22, 10 TO <30 MILLION ESALS, 9.5 MM MIX, 1 1/2" DEPTH, SRL-E (ITEM 0413-0347)
- ② SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10 TO <30 MILLIAN ESALS, 19.0 MM MIX, 2 1/2" DEPTH (ITEM 0413-6065)
- ③ CEMENT CONCRETE BASE COURSE, 10" DEPTH, REINFORCED (ITEM 4301-0006)
- ④ SUBBASE 8" DEPTH (NO 2A) (ITEM 0350-0108)
- ⑤ CONCRETE SIDEWALK, 4", MODIFIED (ITEM 4676-0001)
- ⑥ TOPSOIL FURNISHED AND PLACED, MODIFIED (ITEM 4802-0003)
- ▨ LIMITS OF EXISTING SIDEWALK REMOVAL



TYPICAL APPROACH SLAB SECTION
 NORTH AVENUE
 STA 10+02.97 TO STA 10+27.96
 STA 11+19.41 TO STA 11+37.65
 BRIGHTON ROAD
 STA 103+38.10 TO STA 103+62.04
 STA 104+69.38 TO STA 104+89.02
 NOT TO SCALE

SIDEWALK CROSS SLOPE TABLE

ALIGNMENT	STATION RANGE	SIDE	SIDEWALK CROSS SLOPE (2.00% MAX)
SURVEY AND CONSTR C NORTH AVENUE	8+82.00 TO 8+90.00	LT	2.00% TO 1.00%
	8+90.00 TO 9+00.00	LT	1.00%
	9+00.00 TO 9+08.25	LT	1.00% TO 2.00%
	9+08.25 TO 9+25.00	LT	2.00% TO 1.00%
	9+25.00 TO 9+90.00	LT	1.00%
	9+90.00 TO 10+00.00	LT	1.00% TO 0.50%
SURVEY AND CONSTR C BRIGHTON ROAD	10+00.00 TO RAMP 1	LT	0.50%
	RAMP 3 TO 13+56.87	LT	1.00%
	8+82.00 TO 10+30.00	RT	1.00%
	10+30.00 TO 10+40.00	RT	1.00% TO 0.50%
	10+40.00 TO RAMP 4	RT	0.50%
	RAMP 6 TO 13+56.87	RT	1.00%
	101+55.00 TO 103+75.00	LT	1.00%
	103+75.00 TO 103+85.00	LT	1.00% TO 0.50%
	103+85.00 TO RAMP 4	LT	0.50%
	RAMP 1 TO 108+10.00	LT	1.00%
101+55.00 TO 103+10.00	RT	1.00%	
103+10.00 TO 103+20.00	RT	1.00% TO 0.50%	
103+20.00 TO 104+38.00	RT	0.50%	
104+38.00 TO 104+45.00	RT	0.50% TO -2.00%	
104+45.00 TO RAMP 5	RT	-2.00%	
RAMP 2 TO 108+10.00	RT	1.00%	



TYPICAL SECTION
 NORTH AVENUE
 STA 8+82.00 TO STA 10+02.97
 NOT TO SCALE

NOTES

- B -- SEEDING AND SOIL SUPPLEMENTS, FORMULA B RESIDENTIAL MIX, INCLUDING MULCH (ITEM 0804-0025)
- DY/4" SOLID DOUBLE YELLOW HOT THERMOPLASTIC PAVEMENT MARKING WIDTH
- W/4" SOLID WHITE HOT THERMOPLASTIC PAVEMENT MARKING WIDTH
- APPLY SEPARATE LAYER OF ASPHALT TACK COAT FOR EACH PAVING COURSE, INCLUDING MULTIPLE LIFTS OF THE SAME MATERIAL.
- APPLY ALL ROADWAY JOINT SEALING IN ACCORDANCE WITH PUBLICATION 408 SECTION 469.

100% SUBMISSION

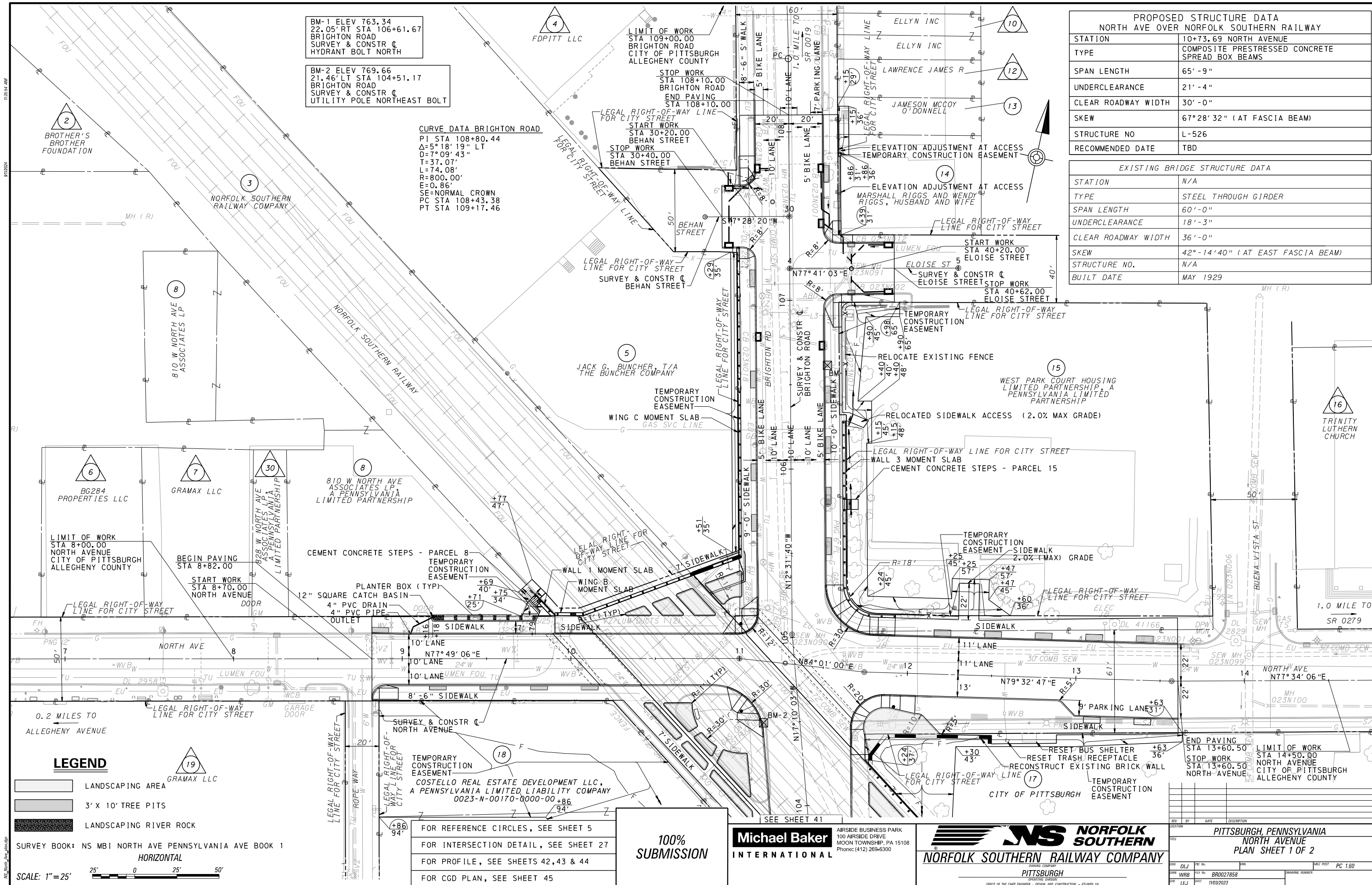
Michael Baker INTERNATIONAL

AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 Phone: (412) 269-6300

NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE TYPICAL SECTIONS (SHEET 1 OF 5)
 DRAWN: DLJ
 FILE NO: BR0027858
 DATE: 11/03/2023
 SHEET NO. 6 OF 46



BM-1 ELEV 763.34
22.05' RT STA 106+61.67
BRIGHTON ROAD
SURVEY & CONSTR C
HYDRANT BOLT NORTH

BM-2 ELEV 769.66
21.46' LT STA 104+51.17
BRIGHTON ROAD
SURVEY & CONSTR C
UTILITY POLE NORTHEAST BOLT

CURVE DATA BRIGHTON ROAD
PI STA 108+80.44
 $\Delta = 5^\circ 18' 19''$ LT
 $D = 7^\circ 09' 43''$
 $T = 37.07'$
 $L = 74.08'$
 $R = 800.00'$
 $E = 0.86'$
SE-NORMAL CROWN
PC STA 108+43.38
PT STA 109+17.46

PROPOSED STRUCTURE DATA	
NORTH AVE OVER NORFOLK SOUTHERN RAILWAY	
STATION	10+73.69 NORTH AVENUE
TYPE	COMPOSITE PRESTRESSED CONCRETE SPREAD BOX BEAMS
SPAN LENGTH	65'-9"
UNDERCLEARANCE	21'-4"
CLEAR ROADWAY WIDTH	30'-0"
SKIEW	67° 28' 32" (AT FASCIA BEAM)
STRUCTURE NO	L-526
RECOMMENDED DATE	TBD

EXISTING BRIDGE STRUCTURE DATA	
STATION	N/A
TYPE	STEEL THROUGH GIRDER
SPAN LENGTH	60'-0"
UNDERCLEARANCE	18'-3"
CLEAR ROADWAY WIDTH	36'-0"
SKIEW	42°-14'40" (AT EAST FASCIA BEAM)
STRUCTURE NO.	N/A
BUILT DATE	MAY 1929

LEGEND

- LANDSCAPING AREA
- 3' X 10' TREE PITS
- LANDSCAPING RIVER ROCK

SURVEY BOOK: NS MBI NORTH AVE PENNSYLVANIA AVE BOOK 1



- FOR REFERENCE CIRCLES, SEE SHEET 5
- FOR INTERSECTION DETAIL, SEE SHEET 27
- FOR PROFILE, SEE SHEETS 42, 43 & 44
- FOR CGD PLAN, SEE SHEET 45

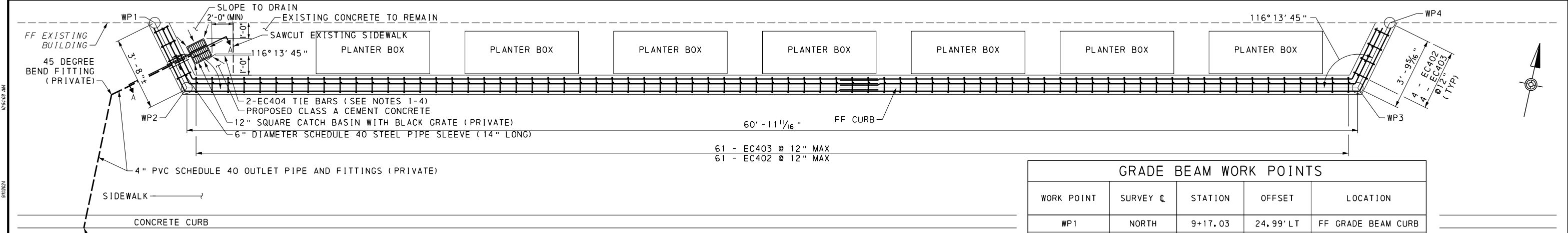
100% SUBMISSION

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AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

PITTSBURGH, PENNSYLVANIA
NORTH AVENUE
PLAN SHEET 1 OF 2

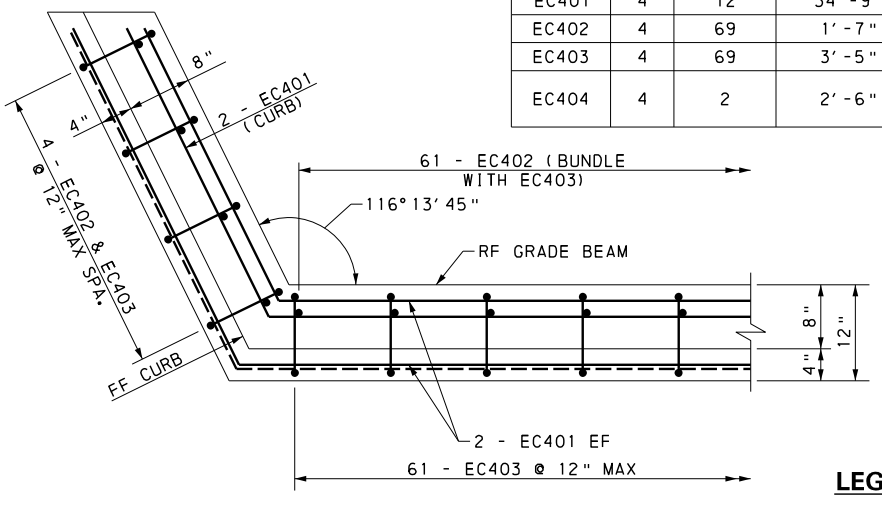
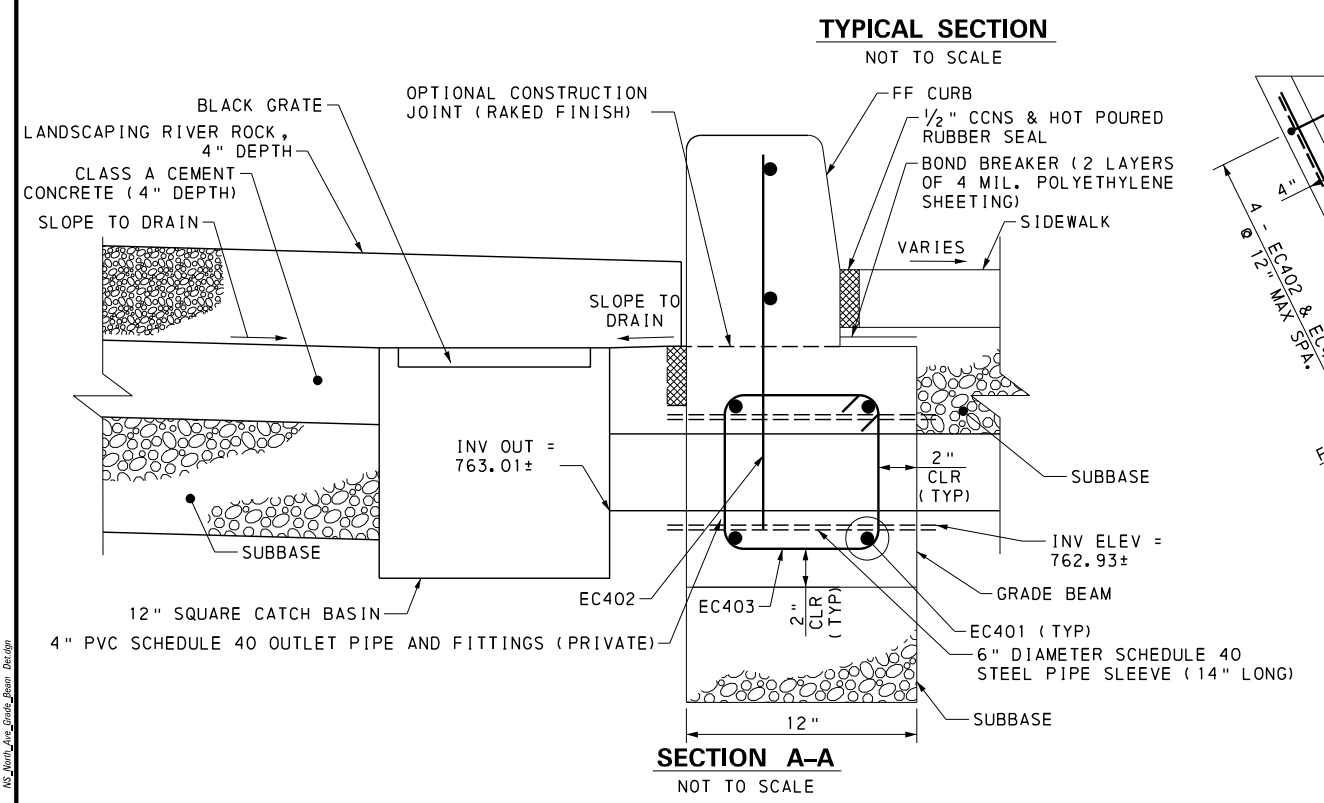
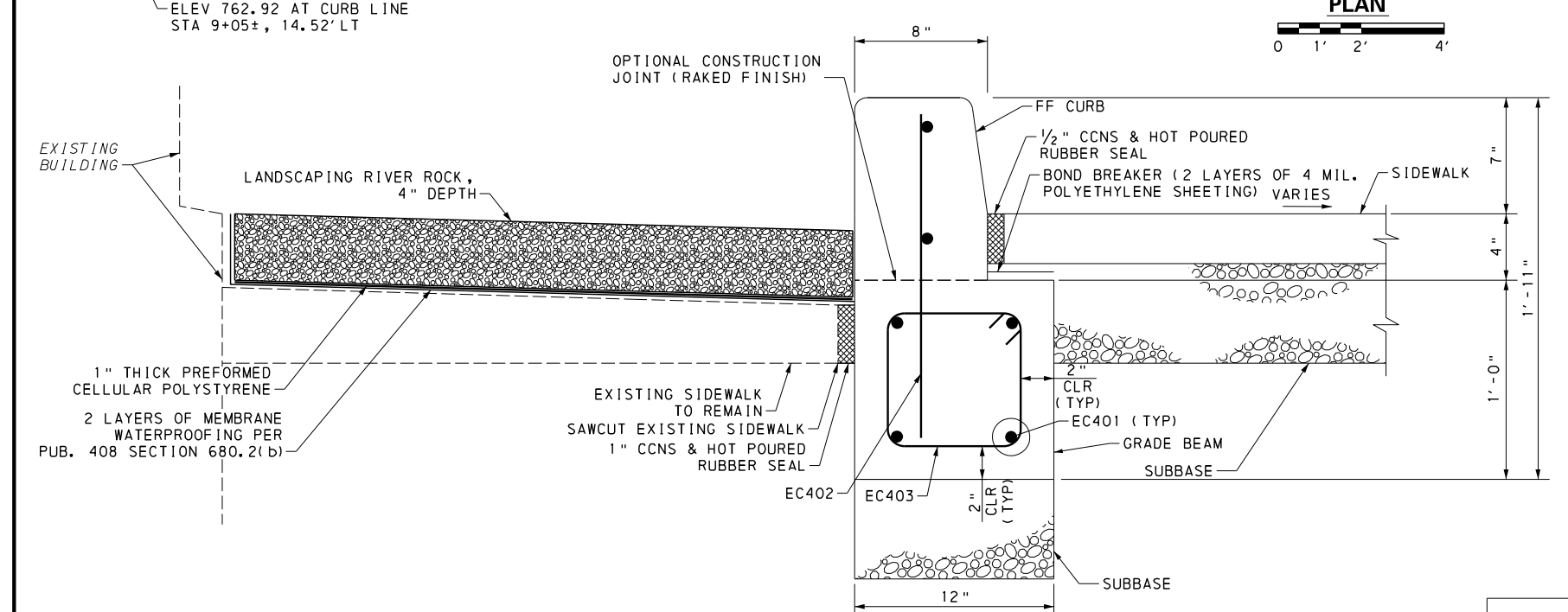


GRADE BEAM WORK POINTS				
WORK POINT	SURVEY C	STATION	OFFSET	LOCATION
WP1	NORTH	9+17.03	24.99' LT	FF GRADE BEAM CURB
WP2	NORTH	9+18.26	22.50' LT	FF GRADE BEAM CURB
WP3	NORTH	9+78.82	22.50' LT	FF GRADE BEAM CURB
WP4	NORTH	9+80.32	25.56' LT	FF GRADE BEAM CURB

APPROXIMATE QUANTITIES - GRADE BEAM				
ITEM NO	DESCRIPTION	UNIT	TOTAL	
9000-0055	GRADE BEAM	(2)	LS	LS
(1)	CLASS A CEMENT CONCRETE		CY	5
(1)	MEMBRANE WATERPROOFING SYSTEM INSTALLED ON OTHER SURFACES	(3)	SY	43
(1)	REINFORCEMENT BARS, EPOXY COATED		LB	514
(1)	1" PREFORMED CELLULAR POLYSTYRENE		SY	22
(1)	1/2" CLOSED CELL NEOPRENE SPONGE (CCNS)	(4)	SY	6
(1)	PREFABRICATED 12" SQUARE CATCH BASIN		EA	1
(1)	4" DIA. PVC SCHEDULE 40 OUTLET PIPE AND FITTINGS		LF	18
(1)	6" DIA. SCHEDULE 40 STEEL PIPE SLEEVE (14" LONG)		EA	1

- (1) ITEMS IN GRADE BEAM LUMP SUM ITEM 9000-0055 - GIVEN FOR INFORMATION ONLY
- (2) SEE CONTRACT SPECIAL PROVISIONS
- (3) QUANTITY INCLUDES 2 LAYERS OF MEMBRANE WATERPROOFING
- (4) INCLUDES HOT POURED RUBBERIZED JOINT SEALING MATERIAL PER PUB 408 SECTION 705.4(b)

GRADE BEAM REINFORCEMENT BAR SCHEDULE											
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EC401	4	12	34'-9"	11	31'-6"	3'-3"	2'-11"				TRIM IN FIELD AS REQ'D
EC402	4	69	1'-7"	STR							
EC403	4	69	3'-5"	25	8"	8"	4 1/2"	2"			
EC404	4	2	2'-6"	STR							TIE BAR W/ EPOXY ANCHORING SYSTEM



- NOTES:**
- TWO EPOXY COATED #4 30 +/- 1/4" LONG TIE BARS SPACED 1' APART CENTER TO CENTER PLACED PERPENDICULAR TO AND CENTERED OVER THE SAWCUT JOINT. EMBED TIE BARS AT A DEPTH OF D/2 +/- 3/4" WHERE D IS THE DEPTH OF THE EXISTING SIDEWALK. EPOXY COAT TIE BARS AS SPECIFIED IN PUBLICATION 408, SECTION 709.1(c). EPOXY COAT OR GALVANIZE TIE BOLTS AND THREADED SLEEVE NUTS, EXCLUDING THREADS, AS SPECIFIED IN PUBLICATION 408, SECTION 709.1(c) OR SECTION 1105.02(s) RESPECTIVELY. STRAIGHT TIE BARS TO BE EITHER GRADE 40 OR GRADE 60.
 - USE AN APPROVED ANCHORING MATERIAL TO WITHSTAND THE NECESSARY MINIMUM PULL-OUT RESISTANCE SPECIFIED IN PUBLICATION 408, SECTION 501.3(j). TIE BAR HOLE DIAMETER IN EXISTING PAVEMENT, AS PER MANUFACTURER'S RECOMMENDATION. USE ROTARY IMPACT DRILL TO AVOID IMPACTING FINES INTO HOLE.
 - MAKE THE TOP OF THE JOINT SEALING MATERIAL FROM 1/8" TO 1/4" BELOW THE CONCRETE SURFACE.
 - FOR DETAILS NOT SHOWN, SEE RC-20M SHEET 2, DETAIL "LONGITUDINAL JOINT WHEN TYING INTO EXISTING CONCRETE PAVEMENT/SHOULDER"

LEGEND:
 CCNS CLOSED CELL NEOPRENE SPONGE
 FF FRONT FACE
 RF REAR FACE

100% SUBMISSION

Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 Phone: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION

LOCATION: **PITTSBURGH, PENNSYLVANIA**
NORTH AVENUE
SPECIAL DETAILS

SCALE: **PC 1.60**

DATE: **11/03/2023**

ITEM NO. 9000-0048 PLANTER BOX

DESCRIPTION -

This work is the furnishing and installation of planter boxes as indicated and as directed area in front of Parcel 8.

MATERIAL –

Planter box to be STREETLIFE® ShrubTubs Model STUB-81-180-90-PC Rectangular Planter in Corten Steel finished with double powder coating, with the following specifications:

1. Color to be RAL 7016 Anthracite Grey.
2. Size to be 32" x 71" x 35"
3. Material -PC: Corten steel, delivered finished with double powder coating in Streetlife color specified in #1 above.
4. Fitted with drainage holes and internal provisions for root ball anchoring
5. Fitted with TT-Bottom Up "Tree Tec" watering system installed

Submit for approval before purchase at no expense to the City, catalog cuts, drawings, and manufacturer specifications for all Planter Box materials.

CONSTRUCTION –

As indicated and as follows:

1. Box installation. Install Planter Boxes per manufacture recommendations and on top of compacted subgrade and on top of Landscaping River Rock (Item 9000-0049) in locations shown on contract drawings.
2. Remove any labels or factory tags and clean the planter box after installation.
3. Touch up any finish faults resulting from installation with manufacturer-approved coatings.

MEASUREMENT AND PAYMENT –

Each.

Plantings and planting mix to be installed by others.

ITEM 9000-0055 GRADE BEAM

DESCRIPTION – This work is the construction of cement concrete grade beams to surround and support the planters and landscaped area along Parcel 8 from North Avenue Sta. 9+16 to 9+79. This work includes removal of the existing sidewalk as indicated and directed, installation of waterproofing, Private 12-inch square yard inlet with black grate and 4-inch diameter PVC, Schedule 40 outlet pipe and fittings, and expansion material. Protection of Parcel 8 is incidental to this item.

Installation of planters and landscaping media is included in other items.

MATERIAL –

- Class A Cement Concrete – Section 704.
- Reinforcement – Section 709. Epoxy coated or galvanized, Grade 60.
- Closed Cell Neoprene Sponge – Section 1107.02(p)1.
- Preformed Cellular Polystyrene – ASTM C578, Type 1.
- Membrane Waterproofing – Section 680.2(b).
- No. 2A Coarse Aggregate – Section 703.2
- Private 4" PVC, Schedule 40 pipe and fittings – Section 601.2(a)6.a.2
- 6" Diam Schedule 40 Steel Pipe Sleeve (14" Long) -
- Private 12" square (nominal) yard drain and all components and accessories required for a full yard drain system including end caps and outlet caps by one of the following manufacturers listed below (or approved equal). Verify all components and part numbers with the manufacturer's representative and submit list to the Representative for approval prior to ordering materials.
 1. NDS
 - www.ndspro.com
 - Product Numbers:
 - 12" square Catch Basin 2 Openings - Part No. 1200
 - 6" Universal Plug - Part No. 1206
 - 4" Universal Locking Outlet - Part No. 1243
 - 12" Square Grate - Part No. 1213
 - Color - Black
 2. Source One Environmental
 - www.s1eonline.com
 - Product Numbers:
 - 12 Catch Basin - FSD-120-CB-2
 - Catch Basin Plug - FSD-UA-Plug
 - Universal Adapter - FSD-UA-001
 - Flat Grate - FSD-0124-SF
 - Color - Black
 3. Rain Bird
 - www.rainbird.com
 - Product Numbers:
 - 12" Square Catch Basin - DB12S2
 - 4" Basin Adapter - DBAA6
 - Basin Plug - DBAAP
 - 12" Square Flat Grate - DG12SFB
 - Color - Black

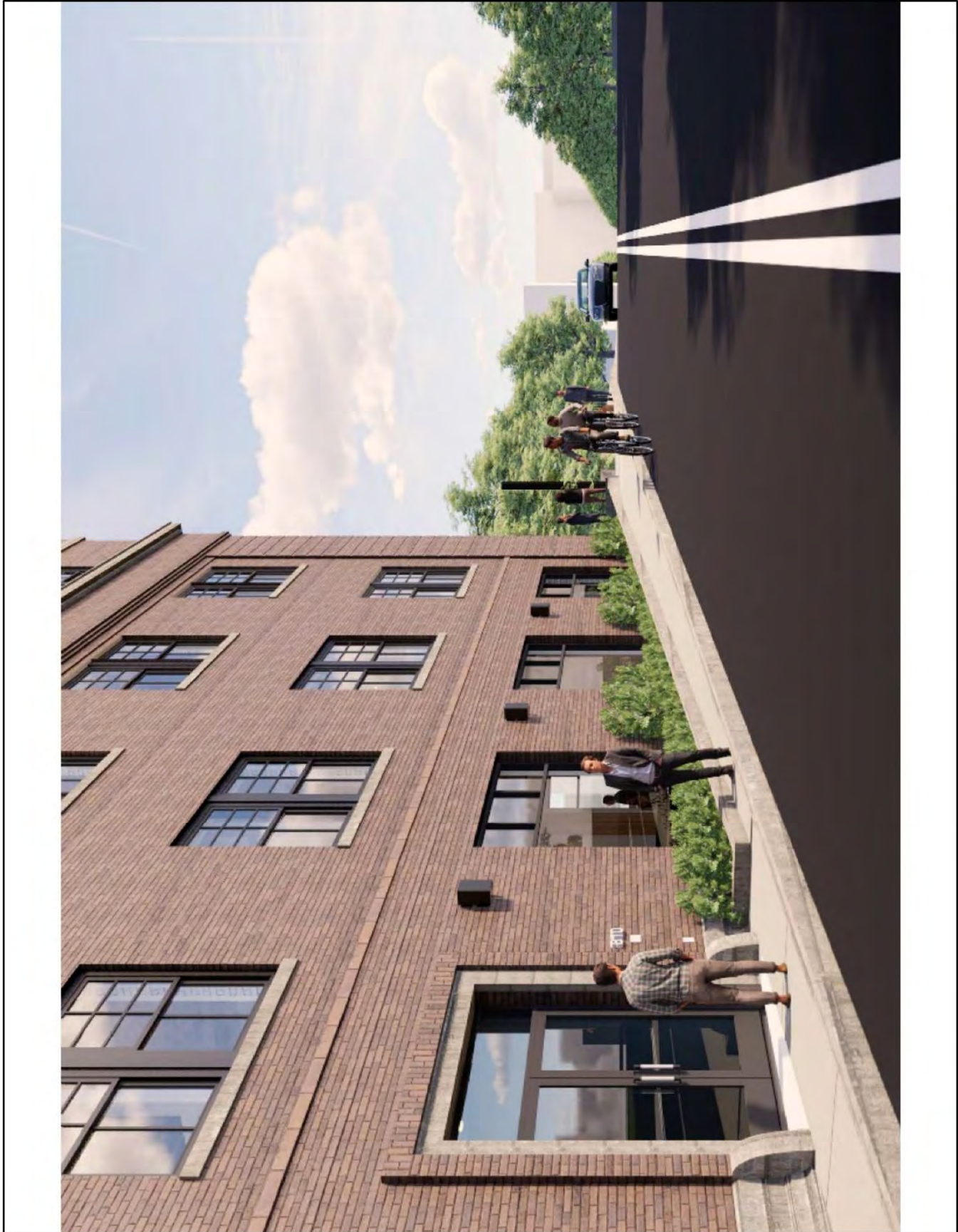
CONSTRUCTION – In accordance with applicable portions of Sections 206, 601, 673, 680, 703, and 1001 and as follows:

Coordinate this work with construction of the adjacent sidewalk and roadway pavement.

- a. Install suitable protection to protect Parcel 8 façade, windows, doors, and landscaping from damage. Maintain protection for the duration of construction of the grade beam and installation of planters and landscaping media.
- b. Remove the existing sidewalk to the limits indicated. Install 12-inch square yard drain and 4-inch PVC schedule 40 outlet pipe per the manufacturer recommendation and as follows: Excavate for the yard drain as required. Place 6" thick No. 2A Coarse Aggregate base and compact in accordance with Section 350.3(e). Place yard drain on No. 2A aggregate base and set front edge of yard drain as shown in the construction documents. Backfill excavated spaces around the yard drain, with acceptable embankment material, as specified in Section 206.3(b)4. Satisfactorily dispose of unsuitable and surplus materials. Install closed cell neoprene sponge along full depth between the existing sidewalk and proposed construction.
- c. Form, install reinforcing, and place grade beam to the line and grade indicated. Cure concrete for a minimum of three days prior to installing waterproofing. Do not use curing membranes or compounds on surfaces to receive waterproofing membrane.
- d. Install waterproofing membrane in accordance with Section 680.3(d)2. Install two layers of membrane.
- e. Place 1-inch-thick preformed cellular polystyrene on top of waterproofing membrane. Use a compatible adhesive or asphalt compound to permanently bond the polystyrene to the waterproofing membrane.

MEASUREMENT AND PAYMENT – LUMP SUM

Removal of existing sidewalk, forming, and miscellaneous tools and materials required to complete this work are incidental to this item.



ATTACHMENT 2

Project Plans and Illustrations: W. North Avenue Bridge Replacement

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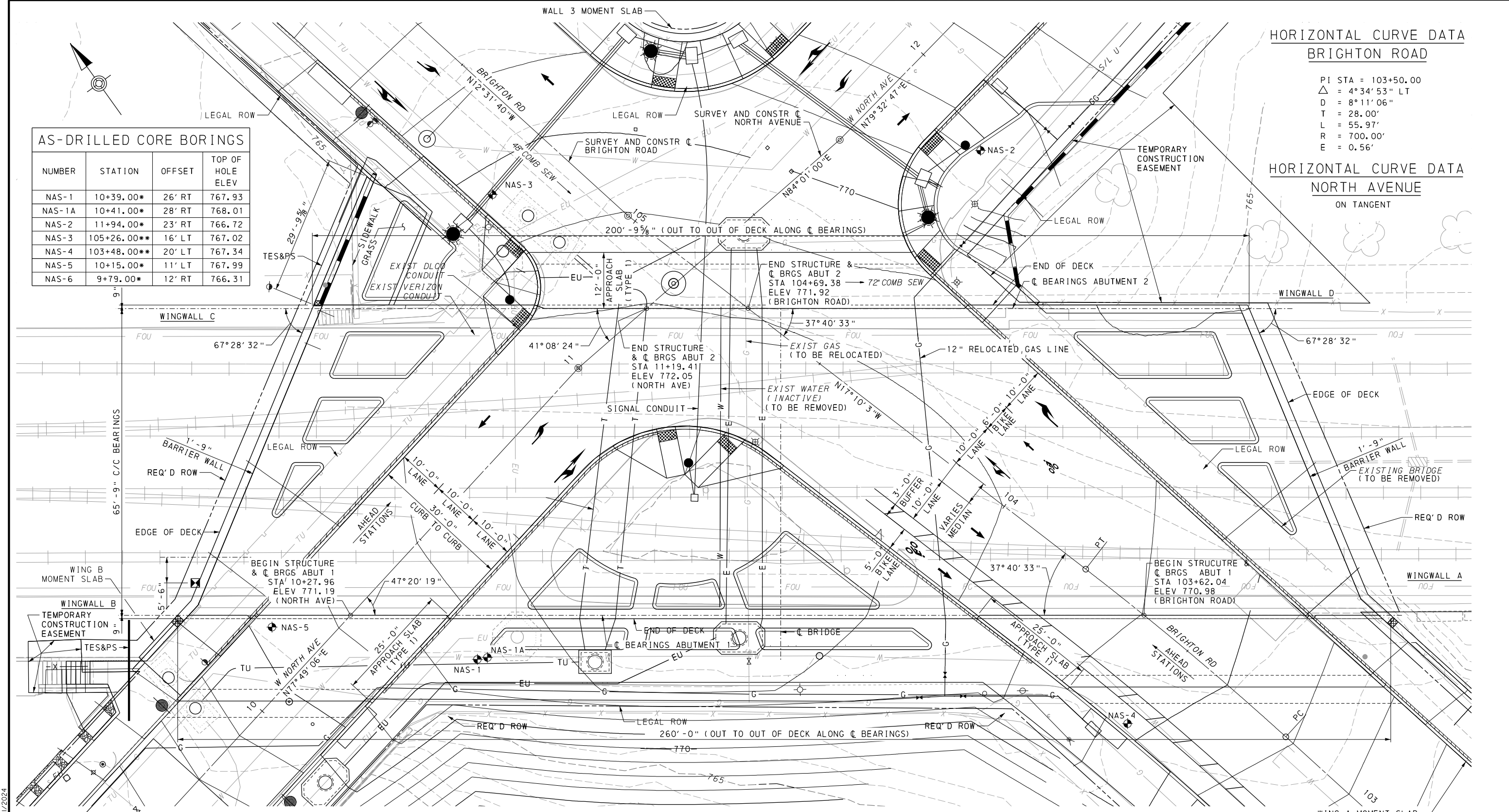
AS-DRILLED CORE BORINGS

NUMBER	STATION	OFFSET	TOP OF HOLE ELEV
NAS-1	10+39.00*	26' RT	767.93
NAS-1A	10+41.00*	28' RT	768.01
NAS-2	11+94.00*	23' RT	766.72
NAS-3	105+26.00**	16' LT	767.02
NAS-4	103+48.00**	20' LT	767.34
NAS-5	10+15.00*	11' LT	767.99
NAS-6	9+79.00*	12' RT	766.31

**HORIZONTAL CURVE DATA
BRIGHTON ROAD**

PI STA = 103+50.00
 $\Delta = 4^{\circ}34'53''$ LT
 D = $8^{\circ}11'06''$
 T = 28.00'
 L = 55.97'
 R = 700.00'
 E = 0.56'

**HORIZONTAL CURVE DATA
NORTH AVENUE
ON TANGENT**



LEGEND:

- MINIMUM VERTICAL CLEARANCE
- CORE BORING
- TRAFFIC DIRECTION
- FIRE HYDRANT
- ROADWAY ITEM
- NEW WALL
- PROPOSED CONTOURS (1'-0" INTERVAL)
- EXISTING CONTOURS (1'-0" INTERVAL)
- LEVEL 3 FIBER OPTIC UNDERGROUND
- EQUITABLE GAS LINE
- PWSA WATER LINE
- VERIZON TELEPHONE UTILITY
- ELECTRIC LINE UNDERGROUND
- BIKE LANE
- TES&PS
- SURVEY & CONSTR C NORTH AVENUE
- SURVEY & CONSTR C BRIGHTON ROAD



- REFERENCES:**
- ELEVATION & SUPPLEMENTAL DRAWINGS
 - GENERAL NOTES
 - QUANTITIES
 - INDEX OF DRAWINGS

- SHEET:**
- | | | | |
|----|----|----|----|
| 02 | 03 | 04 | 08 |
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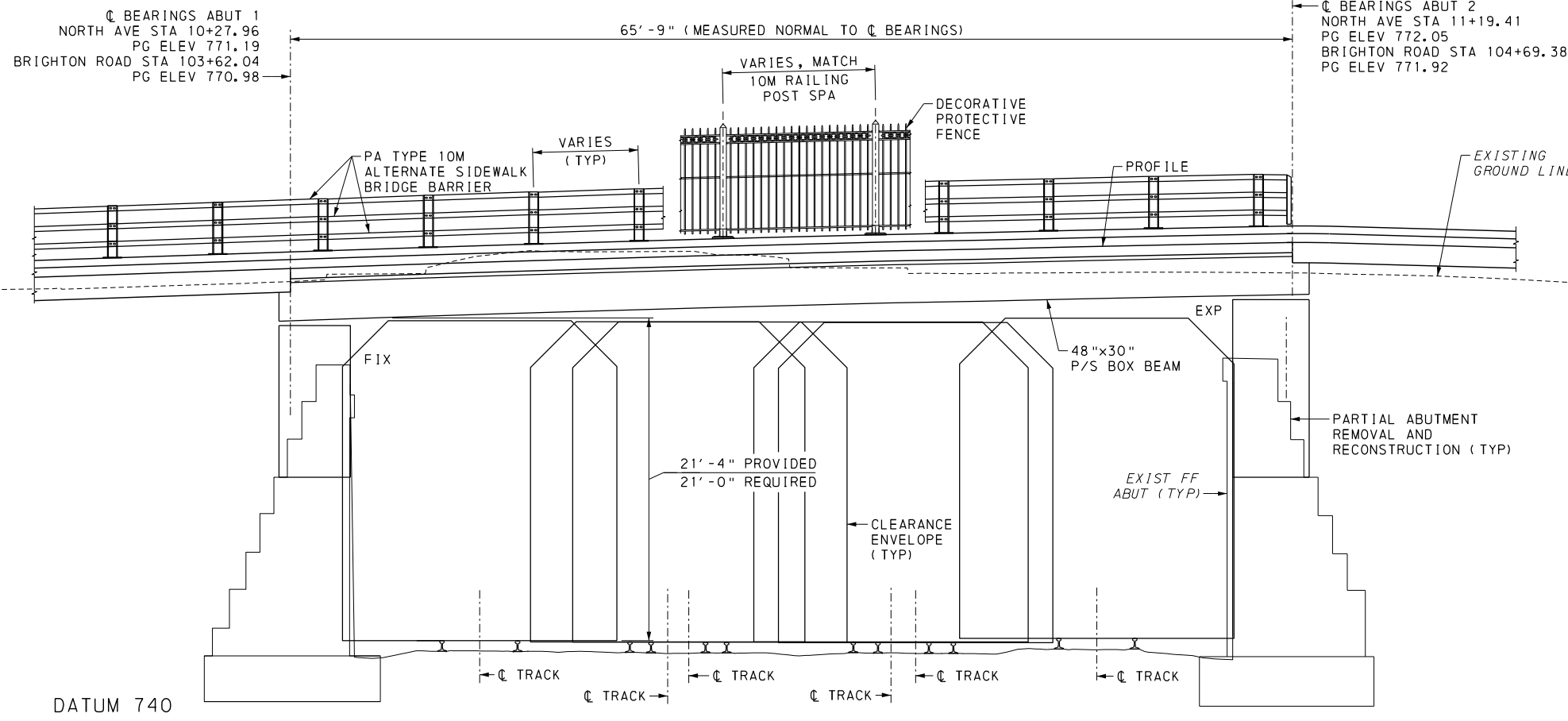
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Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 M.BAKER@INTL.COM

NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE BRIDGE REPLACEMENT GENERAL PLAN
 DGN: DMB
 EEM: FILE NO: BR0027858
 PK: CGF
 DATE: 9/11/2024
 DRAWING NUMBER: PC-1.60 23 01
 SHEET NO. 01 OF 83



VERTICAL CURVE DATA

NORTH AVENUE

+8.00% @ -7.15%
 PVI STA = 10+80.00
 PVI ELEV = 775.98
 VC = 182.00'
 MO = -3.45'

VERTICAL CURVE DATA

BRIGHTON ROAD

+6.80% @ -6.00%
 PVI STA = 104+25.00
 PVI ELEV = 776.25
 VC = 250.00'
 MO = -4.00'



DESCRIPTION	DWG. NO.	APP. DATE
CLASSIFICATION OF EARTHWORK FOR STRUCTURES	RC-11M	06/01/2010
BACKFILL AT STRUCTURES	RC-12M	11/01/2022
CONCRETE PAVEMENT JOINTS	RC-20M	11/01/2022
BRIDGE APPROACH SLABS	RC-23M	02/08/2019
PROTECTIVE FENCE	BC-701M	11/23/2022
PA TYPE 10M BRIDGE BARRIER	BC-709M	11/23/2022
ELECTRICAL DETAILS	BC-721M	02/19/2021
PERMANENT METAL DECK FORMS	BC-732M	11/23/2022
ANCHOR SYSTEMS	BC-734M	02/19/2021
WALL CONSTRUCTION AND EXPANSION JOINT DETAILS	BC-735M	09/30/2016
REINFORCEMENT BAR FABRICATION DETAILS	BC-736M	11/23/2022
BRIDGE DRAINAGE	BC-751M	01/31/2019
CONCRETE DECK SLAB DETAILS	BC-752M	11/23/2022
BEARINGS	BC-755M	01/31/2019
PREFORMED NEOPRENE COMPRESSION SEAL JOINT FOR APPROACH SLABS	BC-766M	11/23/2022
MISCELLANEOUS PRESTRESS DETAILS	BC-775M	11/23/2022
REINFORCED CONCRETE REPAIR	BC-783M	01/31/2019
TYPICAL WATERPROOFING AND EXPANSION DETAILS	BC-788M	11/23/2022
UTILITY ATTACHMENT & SUPPORT DETAILS, PRESTRESSED BRIDGES	BC-794M	01/31/2019
DESCRIPTION	DWG. NO.	APP. DATE
SUPPLEMENTAL DRAWINGS		

SCOPE NOTE:

- REMOVE EXISTING VEGETATION FROM WINGWALLS AND EMBANKMENT. INCIDENTAL TO ITEM FOR CLEARING AND GRUBBING (ROADWAY ITEM).

LEGEND:

- FF DENOTES FRONT FACE
- EXP DENOTES EXPANSION BEARING
- FIX DENOTES FIXED BEARING

REFERENCES:

- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS

SHEET:

- 03
- 04
- 08

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Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 MBAKERINTL.COM

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT ELEVATION			
DWG	DMB	PD/No	VERN
DWG	EEM	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 02

GENERAL:

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408/2020, AASHTO/AWS D1.5M/D1.5: 2015 BRIDGE WELDING CODE (USE AASHTO/AWS D1.1/D1.1M: 2015 FOR WELDING NOT COVERED IN AASHTO/AWS D1.5M/D1.5:2015), AND CONTRACT SPECIAL PROVISIONS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL, EXCEPT AS NOTED.

SUPERSTRUCTURE DIMENSIONS SHOWN ARE FOR A NORMAL TEMPERATURE OF 68 DEGREES F.

STATIONS AND ELEVATIONS ARE GIVEN IN FEET UNLESS OTHERWISE NOTED. DO NOT CONSIDER ANY OF THE DATA ON THE EXISTING STRUCTURE SUPPLIED IN THE ORIGINAL DESIGN DRAWINGS OR MADE AVAILABLE TO YOU BY THE DEPARTMENT OR ITS AUTHORIZED AGENTS AS POSITIVE REPRESENTATIONS OF ANY OF THE CONDITIONS THAT YOU WILL ENCOUNTER IN THE FIELD.

THE INFORMATION SHOWN ON THE PLANS FOR THE EXISTING BRIDGE IS NOT PART OF THE PLANS, PROPOSAL, OR CONTRACT AND IS NOT TO BE CONSIDERED A BASIS FOR COMPUTATION OF THE UNIT PRICES USED FOR BIDDING PURPOSES. THERE IS NO EXPRESSED OR IMPLIED AGREEMENT THAT INFORMATION IS CORRECTLY SHOWN. THE BIDDER IS NOT TO RELY ON THIS INFORMATION, BUT IS TO ASSUME THE POSSIBILITY THAT CONDITIONS AFFECTING THE COST AND/OR QUANTITIES OF WORK TO BE PERFORMED MAY DIFFER FROM THOSE INDICATED.

THE CONTRACTOR SHALL PROTECT ADJACENT RAILROAD FACILITIES AND THE COST OF SUCH PROTECTION SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

TRAFFIC SHALL BE MAINTAINED ON ALL STREETS AS SHOWN IN THE PLANS AND THE CONTRACTOR SHALL NOTIFY THE CITY BEFORE COMMENCING CONSTRUCTION UNLESS APPROVED AND PERMITTED BY THE CITY.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF PITTSBURGH AND THE STATE OF PENNSYLVANIA PRIOR TO COMMENCING CONSTRUCTION.

ALL WORK SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ALL OTHER REGULATIONS OF AGENCIES HAVING JURISDICTION.

THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PROTECT ADJUTING PROPERTY, UTILITIES, PEDESTRIANS, AND VEHICULAR TRAFFIC.

THE CONTRACTOR SHALL USE EXTREME CARE IN PROSECUTING WORK, SO AS NOT TO DAMAGE, DEFACE, OR OTHERWISE DISTURB ADJACENT IMPROVED AREAS. ALL WORK NECESSARY TO RESTORE ADJACENT AREAS TO EXISTING CONDITIONS WILL BE MADE AT THE EXPENSE OF THE CONTRACTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING, SHORING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, COLLAPSE, DISTORTION, AND MISALIGNMENT. SUCH TEMPORARY BRACING SHALL REMAIN IN-PLACE UNTIL PERMANENT CONSTRUCTION HAS BEEN COMPLETED. CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF NEW WORK FROM DAMAGE.

THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE BASELINE DURING CONSTRUCTION. THIS SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION SHALL BE ALLOWED.

CONSTRUCTION ACTIVITIES SHALL NOT DISRUPT RAILROAD OPERATIONS AND SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. ALL WORK TO BE SCHEDULED IN ACCORDANCE WITH THE CONSTRUCTION SCHEDULE AND CONSTRUCTION STAGING PLANS.

THE CONTRACTOR SHALL COORDINATE ALL WORK WITH NORFOLK SOUTHERN.

DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT DISPOSE OF WASTE CONCRETE, DEBRIS, OR OTHER WASTE MATERIAL ON RAILROAD RIGHT-OF-WAY OR FOUL TRACKS BEYOND WHERE IT IS PERMITTED OTHERWISE BY THE CHIEF ENGINEER. ALL DEMOLISHED MATERIALS NOT TO BE REUSED MUST BE REMOVED FROM NORFOLK SOUTHERN'S PROPERTY ON A REGULAR BASIS AND DISPOSED OF PROPERLY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS/HER OWN CLEANUP THROUGHOUT THE COURSE OF THE CONSTRUCTION. ALL ROADS, SIDEWALKS, STAGING AREAS, CONSTRUCTION AREAS, ETC. SHALL BE KEPT CLEAN ON A DAILY BASIS. IN THE EVENT THE CONTRACTOR FAILS TO PROVIDE THE CLEANUP, CITY WILL DO THE CLEANUP AND THE CONTRACTOR SHALL PAY THE CITY BACKCHARGE.

DISPOSAL OF ALL MATERIALS SHALL BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

EXISTING PLANS:

NORTH & IRWIN AVES. PLANS (JANUARY 1904)
RENEWAL OF O.H. BRIDGE NOS. 1.61 & 1.62 PLANS (MAY 1929)

VERIFY ALL DIMENSIONS AND GEOMETRY OF THE EXISTING STRUCTURE IN THE FIELD AS NECESSARY FOR PROPER FIT OF THE PROPOSED CONSTRUCTION.

BRIDGE IS CURRENTLY CLOSED AND WAS PREVIOUSLY WEIGHT RESTRICTED. SEE CONSTRUCTION SEQUENCE NOTES.

DO NOT STOCKPILE MATERIALS ON LOAD POSTED BRIDGES, DO NOT PLACE VEHICLES OR EQUIPMENT ON LOAD POSTED BRIDGES THAT EXCEED THE LOAD POSTING. SEE PUBLICATION 408/2022 SECTION 105.17 FOR ADDITIONAL CONSTRUCTION LOADING LIMITS.

DESIGN SPECIFICATIONS:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2017, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4 (INCLUDING LATEST REVISIONS, DECEMBER, 2019).

LIVE LOAD DISTRIBUTION TO GIRDERS IS BASED UPON DM-4 DISTRIBUTION FACTOR METHOD.

DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

DESIGN LIVE LOAD:

PHL-93, ML-80, TK527, P-82 AND P2013-16.

FATIGUE DESIGN IS BASED ON THE FOLLOWING:
PRESTRESSED CONCRETE: NORTH AVE ADTT 52 (2043) ONE DIRECTIONAL
BRIGHTON ROAD ADTT 436 (2043) ONE DIRECTIONAL

MAXIMUM ALLOWABLE TENSILE STRESS IN PRECOMPRESSED TENSILE ZONE:
0.0948*SQURE ROOT(f'c).

DEAD LOADS:

INCLUDES SURFACE AREA DENSITY OF 0.030 KSF FOR FUTURE WEARING SURFACE ON THE DECK SLAB.

INCLUDES A SURFACE AREA DENSITY OF 0.015 KSF FOR PERMANENT METAL DECK FORMS WHICH TAKES INTO ACCOUNT THE WEIGHT OF THE FORM, PLUS THE WEIGHT OF THE CONCRETE IN THE VALLEYS OF THE FORMS.

INCLUDES 0.051 KIP/FT FOR UTILITIES

INCLUDES 0.078 KIP/FT FOR FENCE

CONCRETE NOTES:

PROVIDE 2" CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.

USE CLASS AAAP CEMENT CONCRETE IN:
DECK SLAB

USE CLASS AA CEMENT CONCRETE IN:
RAISED SIDEWALKS
CURBS
APPROACH SLABS
BARRIERS (PUB 408 SECTION 1001.2(d)1.0 USE NO 8 COARSE AGGREGATE)
SHEAR BLOCKS
CHEEKWALLS
CONCRETE DIAPHRAGMS
MOMENT SLABS
TOE WALLS
BARRIER ON MOMENT SLABS

USE CLASS A CEMENT CONCRETE IN:
ABUTMENTS BELOW BEAM SEAT
RETAINING WALLS

A HIGHER CLASS CONCRETE MAY BE SUBSTITUTED FOR A LOWER CLASS CONCRETE AT NO ADDITIONAL COST, IF APPROVED BY THE REPRESENTATIVE.

RAKE-FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.

DRILL HOLES FOR DOWELS AT THE LOCATIONS AND DEPTH INDICATED. DRILL DOWEL HOLES AT TWICE THE DIAMETER OF THE DOWEL AND FILL WITH NON-SHRINK GROUT.

FOR SPREAD BOX BEAMS, PLACE CHEEKWALLS AND SHEAR BLOCKS AFTER BEAMS HAVE BEEN SET.

CONSTRUCT DECK SLAB TRANSVERSE CONSTRUCTION JOINTS PARALLEL TO BRIDGE CENTERLINE OF BEARINGS.

CHAMFER EXPOSED CONCRETE EDGES 3/4 IN BY 3/4 IN, EXCEPT AS NOTED.

USE EITHER PERMANENT METAL FORMS OR REMOVABLE FORMS TO CONSTRUCT THE DECK SLAB.

DECK SLAB THICKNESS INCLUDES A 0.5" INTEGRAL WEARING SURFACE.

PREPARE BEARING AREAS AS SPECIFIED IN PUBLICATION 408, SECTION 1001.3(k)9.

DO NOT BACKFILL ABUTMENTS UNTIL BEAMS ARE SET AND DECK IS PLACED

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. RAILROAD NOTES	04
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA GA

REINFORCEMENT NOTES:

PROVIDE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A 615/A 615M, A 996/A 996M, OR A 706/A 706M. DO NOT WELD GRADE 60 REINFORCING STEEL BARS UNLESS SPECIFIED. GRADE 40 REINFORCING STEEL BARS MAY BE SUBSTITUTED WITH A PROPORTIONAL INCREASE IN CROSS-SECTIONAL AREA, IF APPROVED BY THE CHIEF BRIDGE ENGINEER. DO NOT USE RAIL STEEL A 996/A 996M REINFORCEMENT BARS IN BRIDGE PIERS, ABUTMENTS, SHEAR BLOCKS, BEAMS, BARRIERS OR WHERE BENDING OR WELDING OF THE REINFORCEMENT BARS IS INDICATED.

USE EPOXY-COATED REINFORCEMENT BARS IN ALL CAST-IN-PLACE CONCRETE AND IN STIRRUPS PROTRUDING FROM PRESTRESSED BEAMS INTO THE DECK SLAB.

WELDING OF REINFORCEMENT BARS DURING FABRICATION OR CONSTRUCTION IS NOT PERMITTED UNLESS SPECIFIED.

GALVANIZED REINFORCING STEEL BARS MAY BE SUBSTITUTED FOR EPOXY-COATED REINFORCING STEEL BARS AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROVIDE MINIMUM EMBEDMENT AND SPLICE LENGTHS IN ACCORDANCE WITH STANDARD DRAWING BC-736M, UNLESS OTHERWISE INDICATED.

WELDING:

MAKE TACK WELDS WITH THE SAME TYPE OF ELECTRODE AND INCORPORATE IN THE FINAL WELD. NO OTHER TACK WELDING IS PERMITTED.

DO NOT WELD WHEN SURFACES PREPARED FOR WELDING ARE MOIST OR EXPOSED TO RAIN, SNOW, OR WIND, OR WHEN WELDERS ARE EXPOSED TO INCLEMENT CONDITIONS THAT WILL ADVERSELY AFFECT THE QUALITY OF THE WORK.

DO NOT WELD OR BURN WHEN THE TEMPERATURE IS BELOW 0 DEGREES FAHRENHEIT. PREHEAT AND MAINTAIN THE TEMPERATURE OF THE METAL TO AT LEAST 70 DEGREES FAHRENHEIT WHEN THE TEMPERATURE OF THE METAL IS BETWEEN 0 DEGREES FAHRENHEIT AND 32 DEGREES FAHRENHEIT DURING WELDING OR BURNING.

PREHEAT THE STEEL TO THE SPECIFIED MINIMUM TEMPERATURE FOR A DISTANCE EQUAL TO THE THICKNESS OF THE PART BEING WELDED, BUT NOT LESS THAN 3 INCHES IN ALL DIRECTIONS FROM THE POINT OF WELDING.

REMOVE ANY MOISTURE PRESENT AT POINT OF WELD BY APPLICATION OF HEAT. PROVIDE WINDBREAKS FOR PROTECTION FROM DIRECT WIND.

THOROUGHLY CLEAN ALL PORTIONS OF NEW SURFACES TO RECEIVE WELDS OF ALL FOREIGN MATTER FOR A DISTANCE OF 2 INCHES FROM EACH SIDE OF THE OUTSIDE LINES OF WELD PRIOR TO PLACING WELD.

TEST COMPLETED WELDS USING VISUAL AND NONDESTRUCTIVE METHODS IN ACCORDANCE WITH AASHTO/AWS.D1.5M/D1.5 BRIDGE WELDING CODE CHAPTER 6.

FIELD WELDING, EXCEPT FOR THE UTILITY SUPPORTS AND STAY-IN-PLACE FORMS, IS NOT PERMITTED UNLESS APPROVED BY THE DEPARTMENT REPRESENTATIVE.

UTILITY NOTES:

COORDINATE, LOCATE, AND CONDUCT ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH PUBLICATION 408/2020, SECTIONS 105.06 AND 107.12.

PRIOR TO ANY EXCAVATION OR DEMOLITION WORK, CONTACT THE PA ONE CALL SYSTEM, INC. AT 1-800-242-1776 AND COMPLY WITH THE PROVISIONS OF PA ACT 287 OF 1994 AS AMENDED BY ACT 187 OF 1996. IDENTIFY ALL OVERHEAD LINES AND NOTIFY AND COMPLY WITH THE APPLICABLE UTILITY OWNER'S CLEARANCE REQUIREMENTS. DESIGNER'S SERIAL NUMBER FOR THE CITY OF PITTSBURGH IS 20222691967 (WARD 22)

UTILITY LOCATIONS SHOWN ON THESE PLANS ARE BASED ON BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE RESPECTIVE UTILITY COMPANIES.

CONTRACTOR TO PROVIDE SUPPORT TO KEEP VERIZON AND DUQUESNE LIGHT UTILITIES ACTIVE DURING CONSTRUCTION PER THE SUGGESTED CONSTRUCTION PHASING SEQUENCE. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING ALL ADJACENT UTILITIES FROM DAMAGE DURING CONSTRUCTION.

SCOPE OF REHABILITATION:

REMOVE EXISTING SUPERSTRUCTURE AND TOP PORTION OF ABUTMENT.

PERFORM DETERIORATED CONCRETE REPAIRS AS INDICATED AND CONSTRUCT NEW BEAM SEATS.

CONSTRUCTION NEW SUPERSTRUCTURE, PORTION OF ADJACENT RETAINING WALLS, APPROACH SLABS AND UTILITIES.

CONSTRUCTION SIDEWALKS, MEDIANS, BARRIERS AND DECORATIVE PROTECTIVE FENCE.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT GENERAL NOTES			
OWN	DMB	PD/No	VERN
OWN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 03

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RAILROAD NOTES

REFER TO THE PUBLIC PROJECTS MANUAL FOR OUTAGE LIMITATIONS.

THE CONTRACTOR SHALL PROVIDE OPEN ACCESS ALONG THE NORFOLK SOUTHERN MAINTENANCE WAY THROUGHOUT CONSTRUCTION.

DO NOT REDUCE EXISTING CLEARANCES WITHOUT WRITTEN PERMISSION FROM NORFOLK SOUTHERN CORPORATION.

TEMPORARY RAILROAD CLEARANCES:
13'-0" HORIZONTAL FROM C TANGENT TRACK

ALL WORK TO BE PERFORMED ON, OVER, UNDER, OR ADJACENT TO THE RAILROAD RIGHT-OF-WAY SHALL COMPLY WITH THE NORFOLK SOUTHERN RAILWAY COMPANY ("RAILROAD", "NSR" OR "NS") PUBLIC PROJECTS MANUAL (APPENDIX E, SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS, AND APPENDIX H1, OVERHEAD GRADE SEPARATION DESIGN CRITERIA). WHEN IN CONFLICT WITH OTHER PROJECT SPECIFICATIONS, THE MOST STRINGENT ONE SHALL APPLY.

"ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVE 2 DAYS IN ADVANCE OF WORK AT THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE THE RAILROAD'S UNDERGROUND FACILITIES. UPON REQUEST FROM THE CONTRACTOR OR SPONSOR, RAILROAD FORCES WILL LOCATE AND PAINT MARK OR FLAG THE RAILROAD'S UNDERGROUND FACILITIES. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE FACILITIES. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD FACILITY, THE CONTRACTOR SHALL COORDINATE WITH THE RAILROAD TO HAVE THE FACILITY POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION. THE FACILITY SHALL BE PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF THE RAILROAD'S REPRESENTATIVE. (SEE NS PUBLIC PROJECTS MANUAL, APPENDIX E, SECTION 3.D).

THE CONTRACTOR SHALL NOT COMMENCE ANY WORK ON RAILROAD RIGHTS-OF-WAY UNTIL HE HAS COMPLIED WITH THE CONDITIONS PRESENTED ON NS PUBLIC PROJECTS MANUAL (SEE APPENDIX E, NORFOLK SOUTHERN - SPECIAL PROVISIONS FOR PROTECTION OF RAILWAY INTERESTS).

THE CONTRACTOR SHALL SO ARRANGE AND CONDUCT HIS WORK THAT THERE WILL BE NO INTERFERENCE WITH RAILROAD'S OPERATIONS. WHENEVER WORK IS LIABLE TO AFFECT THE OPERATIONS OR SAFETY OF TRAINS, THE METHODS OF DOING SUCH WORK SHALL FIRST BE SUBMITTED TO THE RAILROAD ENGINEER FOR APPROVAL, BUT SUCH APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM ANY LIABILITY.

THE RAILROAD WILL BE PROVIDED AS-BUILT DRAWINGS SHOWING THE ACTUAL CLEARANCES AS CONSTRUCTED. DEPTH, SIZE, AND LOCATION OF ALL FOUNDATION COMPONENTS SHALL BE SHOWN ON THE DRAWINGS. (SEE NS PUBLIC PROJECTS MANUAL, APPENDIX H1, SECTION 8A)

FOR PROJECTS REQUIRING MORE THAN 30 CONSECUTIVE DAYS OF FLAGGING, CONTRACTOR SHALL PROVIDE THE FLAGMAN A SMALL WORK AREA WITH A DESK/COUNTER AND CHAIR WITHIN THE FIELD/SITE TRAILER, INCLUDING THE USE OF BATHROOM FACILITIES, WHERE THE FLAGMAN CAN CHECK IN/OUT WITH THE PROJECT, AS WELL AS TO THE FLAGMAN'S HOME TERMINAL. THE WORK AREA SHOULD PROVIDE ACCESS TO TWO (2) ELECTRICAL OUTLETS FOR RECHARGING RADIO(S), AND A LAPTOP COMPUTER; AND HAVE THE ABILITY TO PRINT OFF NEEDED DOCUMENTATION AND ORDERS AS NEEDED AT THE FIELD/SITE TRAILER. THIS SHOULD AID IN MAXIMIZING THE FLAGMAN'S TIME AND EFFICIENCY ON THE PROJECT.

NORFOLK SOUTHERN CONTACT PERSON:
MR. CHRIS CAWLEY
REGIONAL ENGINEER BRIDGE & STRUCTURES
NORFOLK SOUTHERN CORPORATION
650 WEST PEACHTREE STREET NW
ATLANTA, GA 30308
TELEPHONE: (412) 893-7257
EMAIL: CHRISTOPHER.CAWLEY2@NSCORP.COM

L-526 - SUMMARY OF ESTIMATED QUANTITIES

ITEM NO	DESCRIPTION	UNIT	APPR SLAB 1	APPR SLAB 2	ABUT 1	ABUT 2	SUPER	MOMENT SLAB(S)	TOTAL
8010-0001	PRESTRESSED CONCRETE SPREAD BOX BEAM (48 "x30 ") BRIDGE SUPERSTRUCTURE L-526 (1) (2)	LS	---	---	---	---	---	---	LS
(1)	CLASS 3 EXCAVATION	CY	---	---	1,502	1,162	---	---	2,664
(1)	STRUCTURE BACKFILL	CY	---	---	1,756	1,357	---	---	3,113
(1)	MEMBRANE WATERPROOFING SYSTEM INSTALLED ON OTHER SURFACES	SY	---	---	243	186	---	---	429
(1)	6 " STRUCTURE FOUNDATION DRAIN	LF	---	---	288	226	---	---	514
(1)	CLASS AAAP CEMENT CONCRETE (3)	CY	---	---	---	---	464	---	464
(1)	CLASS AA CEMENT CONCRETE (4)	CY	118	71	---	6	203	439	837
(1)	CLASS A CEMENT CONCRETE (5)	CY	---	---	454	324	---	---	778
(1)	DOWEL HOLES, 40 " DEPTH	EA	---	---	352	276	---	---	628
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, REINFORCED CONCRETE SUBSTRUCTURE SURFACES) (7)	SY	---	---	139	130	---	---	269
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE) (7)	SY	215	118	---	---	1,767	653	2,753
(1)	FABRICATED STRUCTURAL STEEL (8)	LB	---	---	---	---	1,612	---	1,612
(1)	PRESTRESSED CONCRETE SPREAD BOX BEAMS, 48 " X 30 "	LF	---	---	---	---	2,282	---	2,282
(1)	PA TYPE 10M BRIDGE BARRIER, ALTERNATE SIDEWALK WITH COMBINED BASEPLATE (2)	LF	---	---	---	---	217	---	217
(1)	ARCHITECTURAL RECESS PANEL AND STAIN (2)	SF	---	---	---	---	401	904	1,305
1002-0052	REINFORCEMENT BARS, EPOXY COATED	LB	23,840	15,580	40,050	32,600	107,550	58,640	278,260
1002-0220	STAINLESS STEEL REINFORCEMENT BARS	LB	---	---	520	---	---	---	520
5018-0048	REMOVAL OF PORTION OF EXISTING BRIDGE, NORTH AVE BRIDGE (2)	LS	---	---	---	---	---	---	LS
9000-0050	DECORATIVE RAILROAD PROTECTIVE FENCE (2)	LF	---	---	---	---	152	---	152
9000-0051	DECORATIVE PROTECTIVE FENCE, BOLTED ANCHORAGE (2)	LF	---	---	---	---	474	---	474
9000-0052	DECORATIVE PROTECTIVE FENCE, CORED ANCHORAGE (2)	LF	---	---	---	---	92	---	92
9000-0053	HANDRAIL (2)	LF	---	---	18	18	---	---	36
9000-0054	CLEANING OUT EXISTING WEEPHOLE AND INSTALLATION OF MAINTAINABLE WEEPHOLE COMPONENT (2)	EA	---	---	5	5	---	---	10
9000-0404	TYPE X POLE, ANCHORAGE (2)	EA	---	---	---	---	1	---	1
9000-0610	CLASS A CEMENT CONCRETE REPAIRS (2) (6)	CF	---	---	69	53	---	---	122
9203-0101	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM, L-526 (2)	LS	---	---	---	---	---	---	LS

- (1) ITEMS IN BRIDGE STRUCTURE LUMP SUM ITEM 8010-0001 - GIVEN FOR INFORMATION ONLY
- (2) SEE CONTRACT SPECIAL PROVISIONS
- (3) INCLUDES CLASS AAAP CEMENT CONCRETE QUANTITY IN DECK SLAB AND STAY-IN-PLACE FORM TROUGHS. STAY-IN-PLACE FORM TROUGH APPROXIMATE QUANTITY: 47 CY
- (4) INCLUDES CLASS AA CEMENT CONCRETE QUANTITY IN BARRIERS, DIAPHRAGMS, CHEEKWALLS, AND SAFETY WINGS ABOVE BRIDGE SEAT CONSTRUCTION JOINT (AS PER PUB 408 SECTION 1001.2(a) 1. a USE NO 8 COARSE AGGREGATE IN BARRIERS)
- (5) INCLUDES CLASS A CEMENT CONCRETE QUANTITY IN ABUTMENT CAPS BELOW BRIDGE SEAT
- (6) PERFORM CLASS A CEMENT CONCRETE REPAIRS AS DIRECTED BY THE REPRESENTATIVE
- (7) APPLY COATING TO EXPOSED SURFACES, EXISTING AND PROPOSED
- (8) HIGH STRENGTH BOLTS, NUTS AND WASHERS ARE INCIDENTAL TO THE FABRICATED STRUCTURAL STEEL

REFERENCES:

- 1. SUPPLEMENTAL DRAWINGS
- 2. GENERAL NOTES
- 3. INDEX OF DRAWINGS

SHEET:

- 02
- 03
- 08

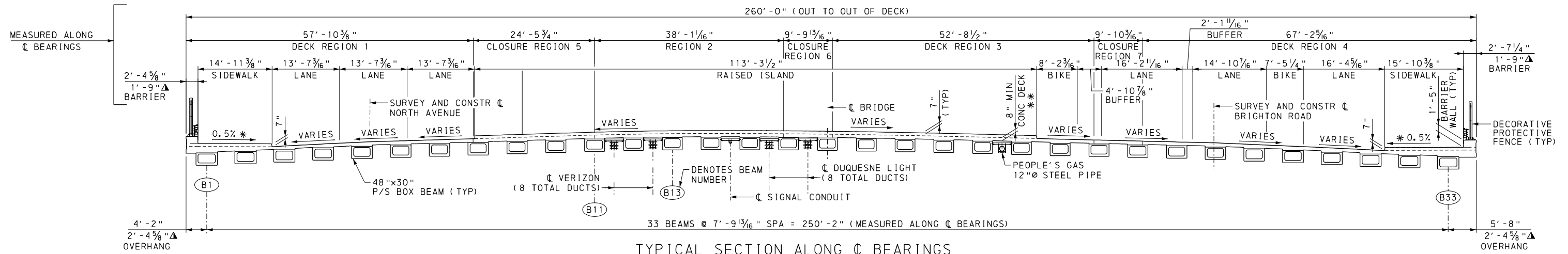


AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM



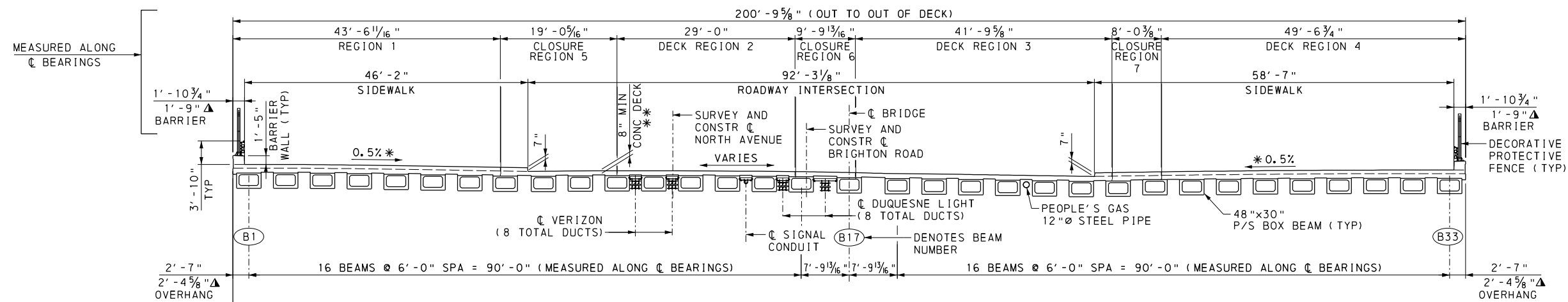
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT QUANTITIES AND GENERAL NOTES			
DRAWN	DMB	FILE NO	DATE
CHK	WRB	DATE	9/11/2024
DRAWING NUMBER: BR0027858			SCALE POST: PC 1.60
SHEET NO. 04			OF 83



TYPICAL SECTION ALONG C BEARINGS

ABUTMENT 1
(LOOKING AHEAD STATIONS)
0 5' 10' 20'



TYPICAL SECTION ALONG C BEARINGS

ABUTMENT 2
(LOOKING AHEAD STATIONS)
0 5' 10' 20'

LEGEND:

- * NORMAL TO CURBLINE
- ** INCLUDES 1/2" INTEGRAL WEARING SURFACE
- ▲ TYPICAL MEASURED NORMAL TO EDGE OF DECK

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. CONSTRUCTION PHASING SECTIONS - 1 - 2
5. INDEX OF DRAWINGS
6. DECK ELEVATIONS - 1 - 2

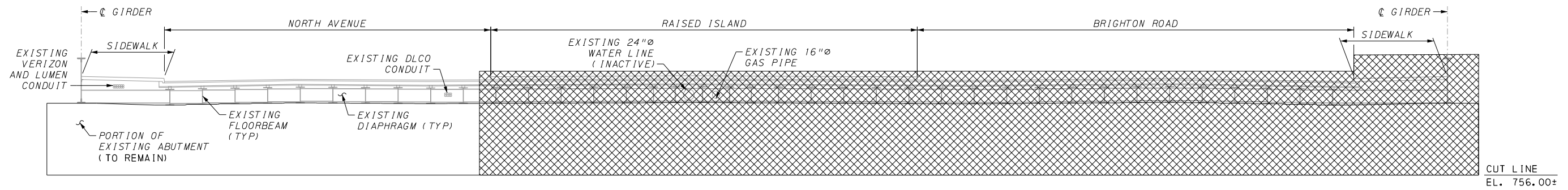
SHEET:

- 02
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- 04
- 06 - 07
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- 09 - 10

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

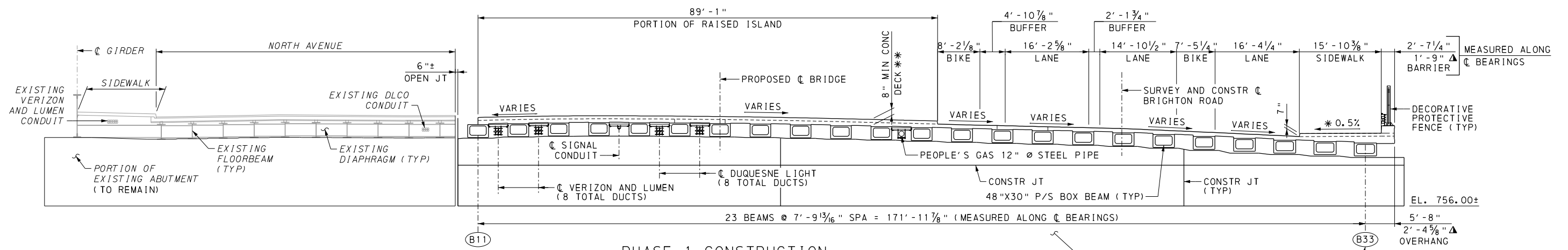
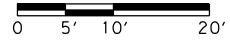
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE NORTH AVENUE BRIDGE REPLACEMENT TYPICAL SECTIONS			
DRW	DMB	PD/No	VRN
DWN	WRB	FILE No	SCALE POST
CHK	ABC	DATE	PC-1.60
DRAWING NUMBER BR0027858			PC-1.60 23 05
DATE 9/11/2024			



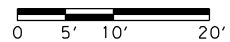
**PHASE 1 REMOVAL
ALONG \bar{C} BEARINGS ABUTMENT 1**

(LOOKING AHEAD STATIONS)
(\bar{C} BRG ABUTMENT 2 SIMILAR)



**PHASE 1 CONSTRUCTION
ALONG \bar{C} BEARINGS ABUTMENT 1**

(LOOKING AHEAD STATIONS)
(\bar{C} BRG ABUTMENT 2 SIMILAR)



SUGGESTED PHASE 1 CONSTRUCTION SEQUENCE:

1. **PRE/NON-PHASED WORK:**
 - DETOUR TRAFFIC PER MAINTENANCE AND PROTECTION OF TRAFFIC PLANS.
 - COORDINATE UTILITY SUPPORT WITH AFFECTED UTILITIES (NOTE: UNDER-DECK COMMUNICATIONS AND ELECTRIC UTILITIES ARE TO REMAIN IN SERVICE DURING CONSTRUCTION).
2. **PHASE 1 REMOVAL:**
 - REMOVE DECK WITHIN PORTION OF BRIDGE TO BE REMOVED.
 - ERECT TEMPORARY SUPPORT TO STABILIZE FASCIA GIRDER DURING DEMOLITION.
 - REMOVE STEEL FLOORBEAMS AND DIAPHRAGMS.
 - REMOVE GIRDER.
 - REMOVE PORTION OF EXISTING ABUTMENT.
3. **PHASE 1 CONSTRUCTION:**
 - CONSTRUCT PORTION OF PROPOSED ABUTMENT.
 - ERECT NEW SUPERSTRUCTURE.
 - PLACE NEW UTILITY BRACKETS/CONDUITS.
 - PLACE DECK SLAB, SIDEWALK, RAISED ISLAND, AND BARRIER WALL CONCRETE.
 - DO NOT BACKFILL ABUTMENTS UNTIL BEAMS ARE SET AND DECK IS PLACED. (PLACE NEW STRUCTURE BACKFILL WITHOUT EXCEEDING A 2-FOOT DIFFERENCE IN FILL ELEVATION BETWEEN ABUTMENTS 1 & 2).
 - DO NOT PLACE CLOSURE REGIONS UNTIL DECK REGIONS HAVE AGED 84 DAYS TO ALLOW SHRINKAGE TO OCCUR (SEE DECK PLANS AND TYPICAL SECTIONS).

LEGEND:

- ▲ TYPICAL OVERHANG MEASURED NORMAL TO \bar{C} BEAM
- * NORMAL TO SURVEY AND CONSTR \bar{C}
- ** INCLUDES 1/2" INTEGRAL WEARING SURFACE
- ▣ PORTION OF STRUCTURE TO BE REMOVED

REFERENCES:

NO.	DESCRIPTION	SHEET:
1.	SUPPLEMENTAL DRAWINGS	02
2.	GENERAL NOTES	03
3.	QUANTITIES	04
4.	TYPICAL SECTIONS	05
5.	CONSTRUCTION PHASING SECTIONS - 2	07
6.	INDEX OF DRAWINGS	08

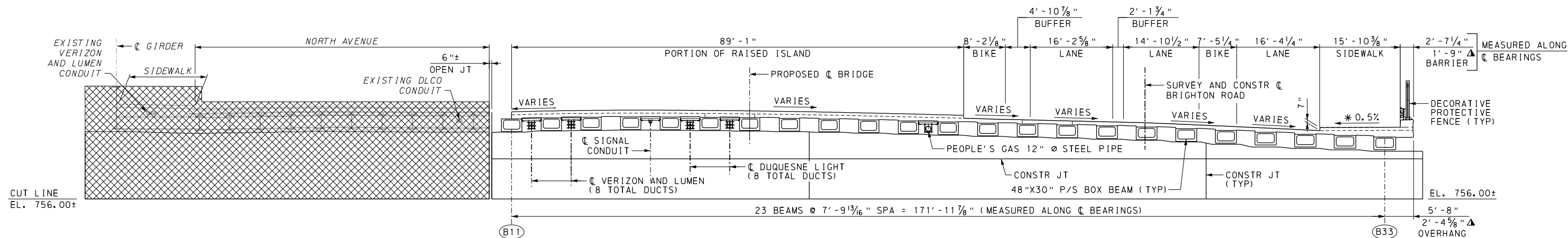
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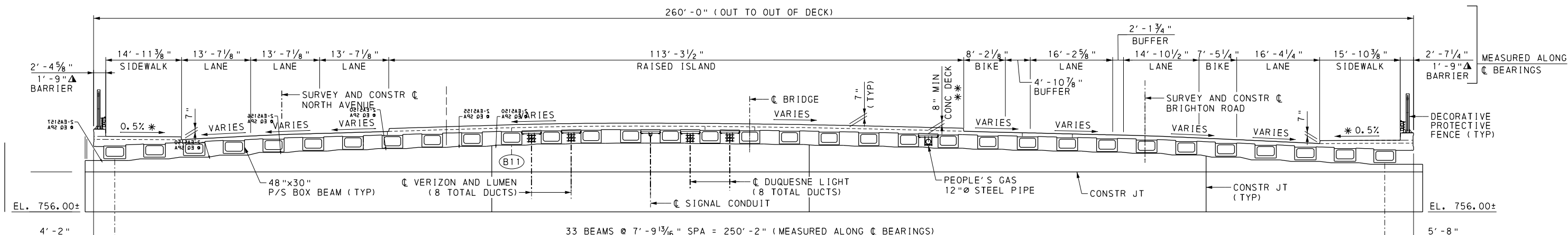
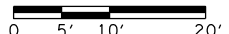
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
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TITLE: NORTH AVENUE BRIDGE REPLACEMENT CONSTRUCTION PHASING SECTIONS - 1			
DWN	DMB	FD/No	VERN
DWN	WRB	FILE No	BR0027858
CHK	ARC	DATE	9/11/2024
DRAWING NUMBER			PC-1.60
DRAWING NUMBER			PC-1.60 23 06



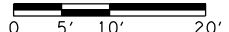
PHASE 2 REMOVAL
ALONG \bar{C} BEARINGS ABUTMENT 1

(LOOKING AHEAD STATIONS)
(\bar{C} BRG ABUTMENT 2 SIMILAR)



PHASE 2 CONSTRUCTION
ALONG \bar{C} BEARINGS ABUTMENT 1

(LOOKING AHEAD STATIONS)
(\bar{C} BRG ABUTMENT 2 SIMILAR)



SUGGESTED PHASE 2 CONSTRUCTION SEQUENCE:

1. **PHASE 2 REMOVAL:**
 - COORDINATE TRANSFER OF REMAINING ACTIVE UTILITIES TO SUPERSTRUCTURE CONSTRUCTED IN PHASE 1.
 - REMOVE REMAINDER OF EXISTING DECK.
 - ERECT TEMPORARY SUPPORTS TO STABILIZE FASCIA GIRDER DURING DEMOLITION.
 - CONSTRUCT TEMPORARY SHORING TO PROTECT ADJACENT PROPERTY.
 - REMOVE STEEL FLOORBEAMS AND DIAPHRAGMS.
 - REMOVE GIRDER
 - REMOVE PORTION OF EXISTING ABUTMENT.
2. **PHASE 2 CONSTRUCTION:**
 - CONSTRUCT PORTION OF PROPOSED ABUTMENT.
 - ERECT NEW SUPERSTRUCTURE.
 - PLACE DECK SLAB, SIDEWALK, REMAINDER OF RAISED ISLAND, AND BARRIER WALL CONCRETE.
 - DO NOT BACKFILL ABUTMENTS UNTIL BEAMS ARE SET AND DECK IS PLACED. (PLACE NEW STRUCTURE BACKFILL WITHOUT EXCEEDING A 2-FOOT DIFFERENCE IN FILL ELEVATION BETWEEN ABUTMENTS 1 & 2).
 - DO NOT PLACE CLOSURE REGIONS UNTIL DECK REGIONS HAVE AGED 84 DAYS TO ALLOW SHRINKAGE TO OCCUR (SEE DECK PLANS AND TYPICAL SECTIONS).

LEGEND:

- ▲ TYPICAL OVERHANG MEASURED NORMAL TO \bar{C} BEAM
- * NORMAL TO SURVEY AND CONSTR \bar{C}
- ** INCLUDES 1/2" INTEGRAL WEARING SURFACE
- ▣ PORTION OF STRUCTURE TO BE REMOVED

REFERENCES:

NO.	DESCRIPTION	SHEET NO.
1.	SUPPLEMENTAL DRAWINGS	02
2.	GENERAL NOTES	03
3.	QUANTITIES	04
4.	TYPICAL SECTIONS	05
5.	CONSTRUCTION PHASING SECTIONS - 1	06
6.	INDEX OF DRAWINGS	08

SHEET:

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AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT CONSTRUCTION PHASING SECTIONS - 2			
DRN	DMB	FD/No	WVN
DRN	WRB	FILE No	BR0027858
CHK	ARC	DATE	9/11/2024

SCALE POST: PC 1.60
DRAWING NUMBER: PC-1.60 23 07

INDEX OF DRAWINGS

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3	GENERAL NOTES	45	TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1
4	QUANTITIES AND GENERAL NOTES	46	TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2
5	TYPICAL SECTIONS	47	DECK REINFORCING SCHEDULE - 1
6	CONSTRUCTION PHASING SECTIONS - 1	48	DECK REINFORCING SCHEDULE - 2
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8	LOAD RATING AND INDEX OF DRAWINGS	50	LANDSCAPING PLAN
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24	ABUTMENT 2 PLAN AND ELEVATION - 2	66	MOMENT SLAB WALL 1
25	ABUTMENT 2 SECTIONS - 1	67	MOMENT SLAB WING C
26	ABUTMENT 2 SECTIONS - 2	68	MOMENT SLAB WALL 3
27	ABUTMENT 2 SECTIONS - 3	69	MOMENT SLAB WALL 4
28	ABUTMENT 2 DETAILS	70	MOMENT SLAB TYPICAL SECTION
29	ABUTMENT 2 REINFORCING SCHEDULE	71	MOMENT SLAB REINFORCING SCHEDULE - 1
30	FOUNDATION DRAIN DETAILS	72	MOMENT SLAB REINFORCING SCHEDULE - 2
31	SUBSTRUCTURE CONCRETE REPAIR DETAILS	73	WING C RETAINING WALL PLAN AND ELEVATION
32	FRAMING PLAN	74	WING C RETAINING WALL DETAILS
33	BEAM FABRICATION DETAILS - 1	75	WING C RETAINING WALL REINF SCHED
34	BEAM FABRICATION DETAILS - 2	76	BRICK WALL DETAILS
35	ELASTOMERIC BEARING DETAILS - 1	77	BRICK WALL GENERAL NOTES & DETAILS
36	ELASTOMERIC BEARING DETAILS - 2	78	STRUCTURE BORING LOG - 1
37	END DIAPHRAGMS - 1	79	STRUCTURE BORING LOG - 2
38	END DIAPHRAGMS - 2	80	STRUCTURE BORING LOG - 3
39	END DIAPHRAGMS - 3	81	STRUCTURE BORING LOG - 4
40	UTILITY HANGER DETAILS	82	STRUCTURE BORING LOG - 5
41	DECK PLAN - 1	83	STRUCTURE BORING LOG - 6
42	DECK PLAN - 2		

BRIDGE LOAD RATINGS (LRFD)

		WITH FUTURE WEARING SURFACE						
		H20	HS20	ML-80	PHL-93	TK527	P-82	P2016-13
INVENTORY RATING (IR)	DISTRIBUTION FACTOR	0.545	0.545	0.545	0.545	0.545	N/A	N/A
	LOCATION	0.50 L	0.50L	0.50 L	0.50 L	0.50L	N/A	N/A
	LIMIT STATE	SER-IIIIP	SER-IIIIP	SER-IIIIP	SER-IIIIP	SER-IIIIP	N/A	N/A
	BEAM LOCATION	B2	B2	B2	B2	B2	N/A	N/A
	RATING FACTOR	1.73 M	1.25 M	1.07 M	1.16 M	1.10 M	N/A	N/A
OPERATING RATING (OR)	DISTRIBUTION FACTOR	0.713	0.713	0.713	0.713	0.713	0.713	0.713
	LOCATION	0.25 L	0.25 L	0.25 L	0.25 L	0.25 L	0.08 L	0.08 L
	LIMIT STATE	STR-II	STR-II	STR-II	STR-IA	STR-II	STR-II	STR-II
	RATING FACTOR	3.02 V	2.17 V	1.94 V	1.75 V	1.93 V	1.21 V	1.15 V
		WITHOUT FUTURE WEARING SURFACE						
		H20	HS20	ML-80	PHL-93	TK527	P-82	P2016-13
INVENTORY RATING (IR)	DISTRIBUTION FACTOR	0.545	0.545	0.545	0.545	0.545	N/A	N/A
	LOCATION	0.50 L	0.50 L	0.50 L	0.50 L	0.50 L	N/A	N/A
	LIMIT STATE	SERV-IIIIP	SERV-IIIIP	SERV-IIIIP	SERV-IIIIP	SERV-IIIIP	N/A	N/A
	BEAM LOCATION	B2	B2	B2	B2	B2	N/A	N/A
	RATING FACTOR	1.99 M	1.44 M	1.24 M	1.33 M	1.27 M	N/A	N/A
OPERATING RATING (OR)	DISTRIBUTION FACTOR	0.713	0.713	0.713	0.713	0.713	0.713	0.713
	LOCATION	0.25 L	0.25 L	0.25 L	0.25 L	0.25 L	0.08 L	0.25 L
	LIMIT STATE	STR-II	STR-II	STR-II	STR-IA	STR-II	STR-II	STR-II
	RATING FACTOR	3.19 V	2.29 V	2.05 V	1.84 V	2.03 V	1.28 V	1.22 V

- MAXIMUM FACTORED POSITIVE FLEXURAL RESISTANCE = 5062.7 K-FT
LOCATION = 0.45 L - 31.73'
- MAXIMUM FACTORED SHEAR RESISTANCE = 513.5 K
LOCATION = 0.05 L - 3.33'
- BRIDGE LOAD RATINGS BASED ON LRFD METHOD.
- GOVERNING LOAD CONDITION:
(M) = MOMENT
(V) = SHEAR
- FUTURE WEARING SURFACE OF 30 LB PER SQUARE FOOT.
- DISTRIBUTION FACTOR IS THE VEHICULAR LOAD DISTRIBUTION FACTOR TO PRODUCE THE GOVERNING RATING.
- LIVE LOAD DISTRIBUTION FACTORS ARE COMPUTED ACCORDING TO DM-4.

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- TYPICAL SECTIONS

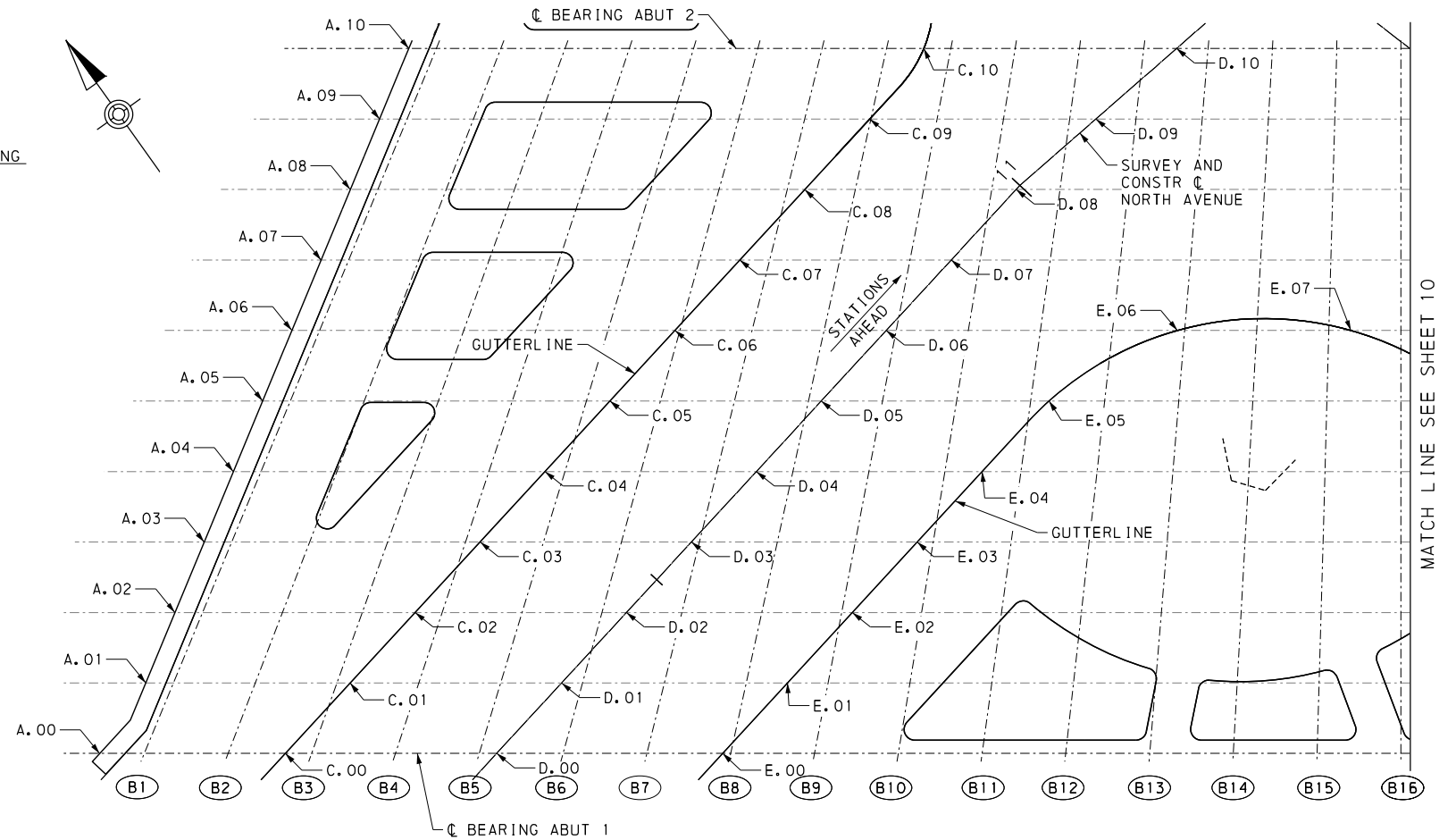
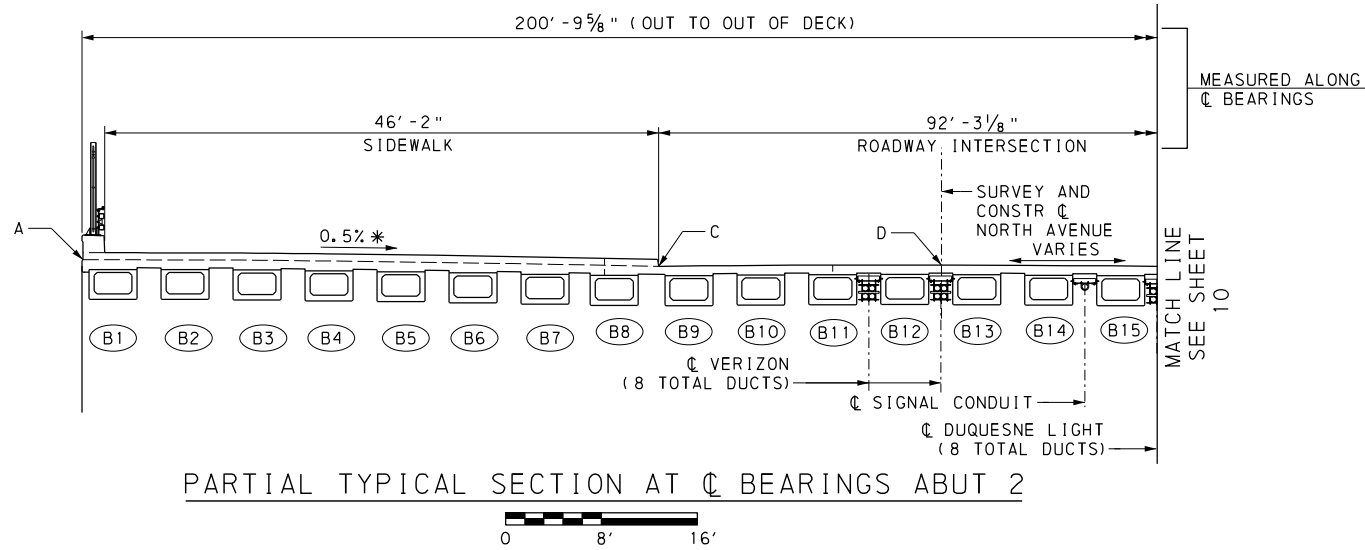
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- 02
- 03
- 04
- 05

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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT LOAD RATING AND INDEX OF DRAWINGS			
DIV	DMB	FILE No	DATE
WRB		BR0027858	9/11/2024
DRW	FILE No	DATE	SCALE
PC	PC-1.60		
DRAWING NUMBER			PC-1.60 23 08



TOP OF DECK ELEVATIONS @ CL BEAM AT 10TH POINTS

10TH POINTS	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15
XXX.00	769.67	769.98	770.32	770.72	771.11	771.37	771.61	771.86	772.10	772.33	772.55	772.73	772.84	772.88	772.86
XXX.01	770.11	770.38	770.63	770.98	771.33	771.63	771.85	772.07	772.29	772.47	772.66	772.80	772.87	772.88	772.85
XXX.02	770.50	770.74	770.96	771.21	771.52	771.81	772.04	772.24	772.44	772.62	772.76	772.85	772.89	772.87	772.85
XXX.03	770.86	771.07	771.26	771.43	771.68	771.94	772.18	772.35	772.54	772.71	772.82	772.88	772.90	772.87	772.84
XXX.04	771.19	771.36	771.52	771.66	771.81	772.04	772.25	772.42	772.59	772.75	772.87	772.91	772.89	772.87	772.84
XXX.05	771.48	771.62	771.75	771.85	771.95	772.11	772.29	772.45	772.60	772.73	772.87	772.92	772.89	772.86	772.83
XXX.06	771.73	771.84	771.94	772.02	772.08	772.14	772.30	772.43	772.55	772.68	772.78	772.86	772.87	772.86	772.83
XXX.07	771.94	772.02	772.10	772.14	772.18	772.21	772.27	772.37	772.47	772.56	772.64	772.69	772.70	772.67	772.63
XXX.08	772.11	772.17	772.20	772.23	772.25	772.25	772.21	772.25	772.34	772.42	772.48	772.50	772.48	772.45	772.41
XXX.09	772.22	772.25	772.29	772.29	772.28	772.23	772.19	772.09	772.16	772.22	772.27	772.29	772.26	772.22	772.18
XXX.10	772.35	772.36	772.34	772.31	772.25	772.18	772.14	771.91	771.92	771.94	771.98	772.03	772.03	771.99	771.96

PARTIAL DECK ELEVATION KEY PLAN

TOP OF DECK ELEVATIONS @ BREAKPOINTS AT 10TH POINTS

10TH POINTS	A	C	D	E
X.00	770.26	770.18	771.18	771.84
X.01	770.01	770.67	771.57	772.19
X.02	770.42	771.10	771.90	772.47
X.03	770.79	771.46	772.16	772.68
X.04	771.12	771.75	772.35	772.83
X.05	771.42	771.97	772.48	772.91
X.06	771.68	772.13	772.54	772.89
X.07	771.90	772.23	772.53	772.81
X.08	772.09	772.19	772.46	N/A
X.09	772.23	772.10	772.30	N/A
X.10	772.35	771.91	772.03	N/A

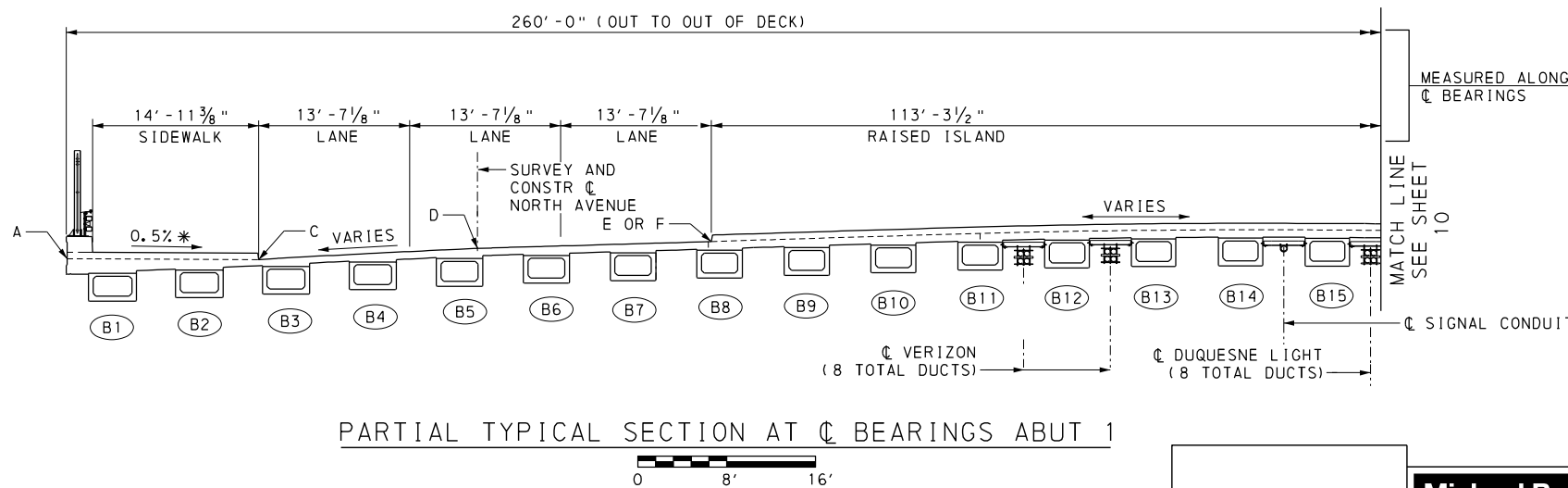
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REFERENCES:

- | | |
|-------------------------------------|---------|
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. TYPICAL SECTIONS | 05 |
| 5. INDEX OF DRAWINGS | 08 |
| 6. DECK ELEVATIONS - 2 | 10 |
| 7. APPROACH SLAB ELEVATIONS - 1 - 2 | 12 - 13 |

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PARTIAL TYPICAL SECTION AT CL BEARINGS ABUT 1

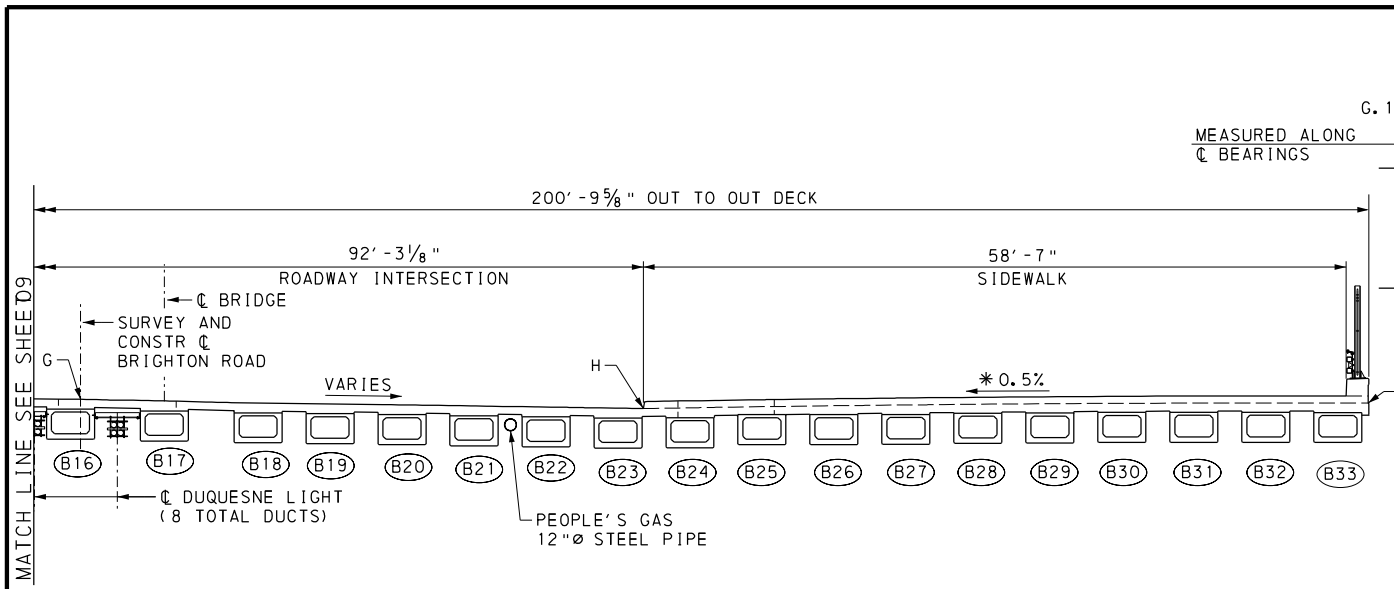
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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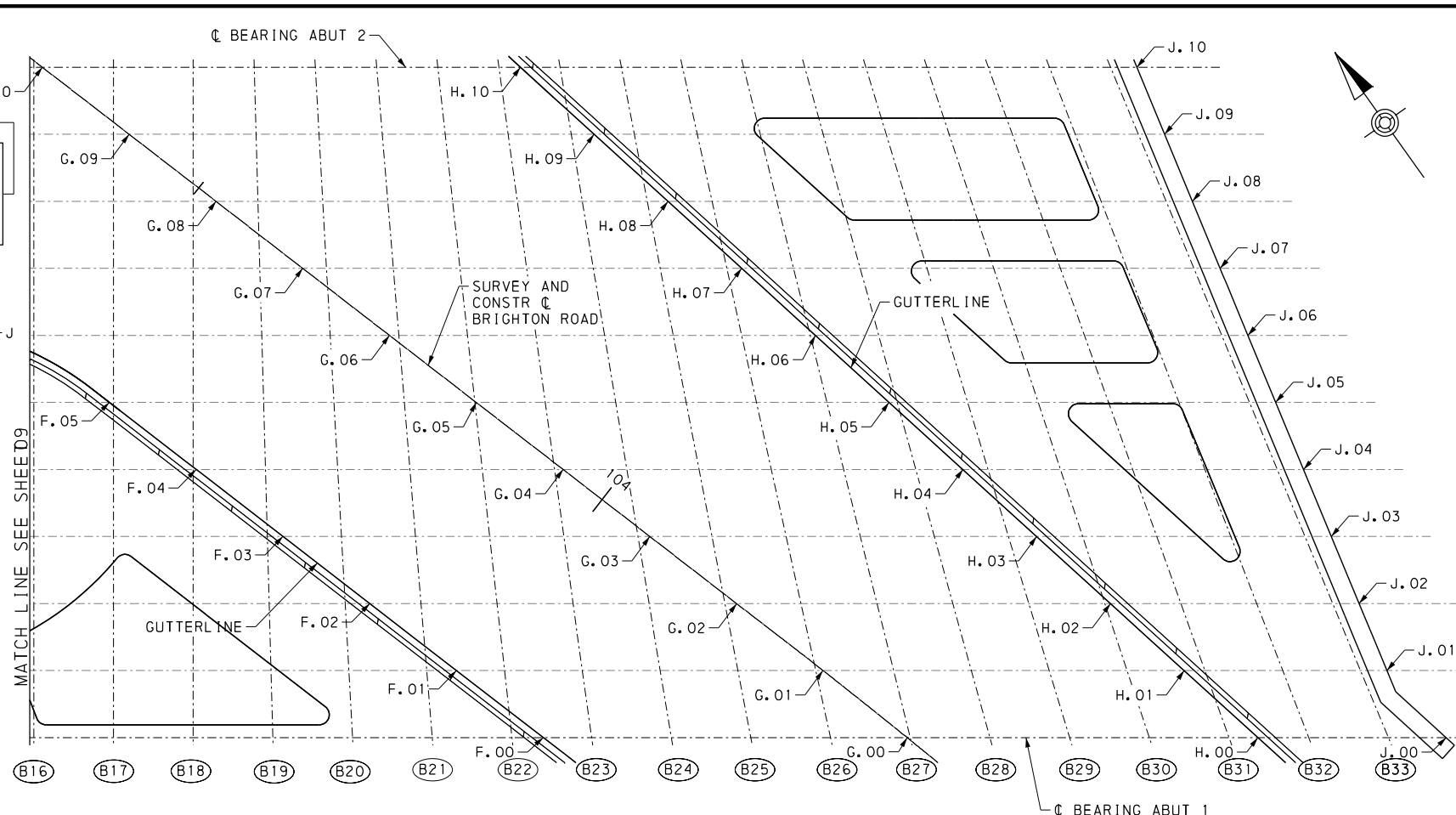
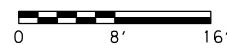
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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT DECK ELEVATIONS - 1			
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

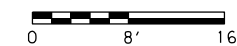
SCALE POST: PC 1.60
DRAWING NUMBER: PC-1.60 23 09
SHEET NO. 09 OF 83



PARTIAL TYPICAL SECTION AT CL BEARINGS ABUT 2



PARTIAL DECK ELEVATION KEY PLAN

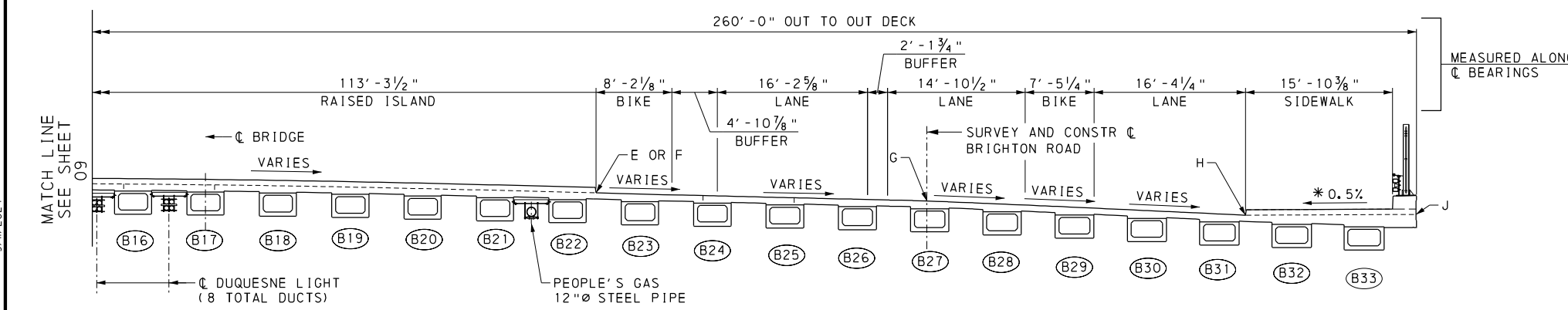


TOP OF DECK ELEVATIONS @ CL BEAM AT 10TH POINTS

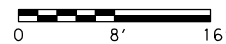
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XXX.00	772.80	772.72	772.61	772.48	772.31	772.13	771.93	771.73	771.54	771.34	771.16	770.97	770.65	770.30	769.94	769.57	769.27	769.00
XXX.01	772.81	772.74	772.64	772.52	772.34	772.22	772.04	771.86	771.69	771.52	771.35	771.08	770.78	770.46	770.13	769.81	769.59	769.34
XXX.02	772.80	772.75	772.66	772.56	772.35	772.28	772.12	771.96	771.81	771.66	771.43	771.17	770.89	770.60	770.29	770.09	769.88	769.66
XXX.03	772.80	772.75	772.68	772.59	772.46	772.31	772.17	772.04	771.90	771.70	771.48	771.24	770.98	770.71	770.51	770.34	770.16	769.96
XXX.04	772.80	772.75	772.69	772.57	772.45	772.31	772.20	772.08	771.89	771.70	771.50	771.30	771.06	770.86	770.72	770.58	770.41	770.24
XXX.05	772.79	772.74	772.61	772.51	772.41	772.30	772.19	772.01	771.84	771.66	771.48	771.32	771.14	771.03	770.92	770.79	770.65	770.50
XXX.06	772.75	772.63	772.50	772.42	772.33	772.23	772.07	771.91	771.75	771.59	771.43	771.28	771.25	771.10	770.99	770.87	770.87	770.73
XXX.07	772.57	772.47	772.38	772.30	772.21	772.06	771.92	771.77	771.63	771.49	771.35	771.33	771.32	771.30	771.25	771.17	771.06	770.95
XXX.08	772.37	772.31	772.23	772.12	771.99	771.86	771.73	771.61	771.48	771.36	771.34	771.36	771.37	771.36	771.34	771.29	771.23	771.14
XXX.09	772.15	772.10	771.97	771.86	771.74	771.63	771.52	771.41	771.30	771.30	771.35	771.38	771.40	771.41	771.41	771.39	771.34	771.28
XXX.10	771.93	771.78	771.64	771.55	771.47	771.37	771.28	771.18	771.20	771.27	771.33	771.38	771.42	771.44	771.45	771.46	771.44	771.43

TOP OF DECK ELEVATIONS @ BREAKPOINTS AT 10TH POINTS

10TH POINTS	F	G	H	J
X.00	771.85	770.98	769.43	769.51
X.01	772.15	771.34	769.87	769.25
X.02	772.39	771.64	770.26	769.58
X.03	772.57	771.88	770.60	769.89
X.04	772.69	772.07	770.90	770.17
X.05	772.75	772.19	771.15	770.44
X.06	N/A	772.26	771.27	770.68
X.07	N/A	772.26	771.32	770.89
X.08	N/A	772.21	771.32	771.10
X.09	N/A	772.07	771.26	771.27
X.10	N/A	771.92	771.15	771.42



PARTIAL TYPICAL SECTION AT CL BEARINGS ABUT 1



LEGEND:
* PERPENDICULAR TO GUTTERLINE

- REFERENCES:
- SUPPLEMENTAL DRAWINGS
 - GENERAL NOTES
 - QUANTITIES
 - TYPICAL SECTIONS
 - INDEX OF DRAWINGS
 - DECK ELEVATIONS - 1
 - APPROACH SLAB ELEVATIONS - 1

- SHEET:
- | |
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| 02 |
| 03 |
| 04 |
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| 09 |
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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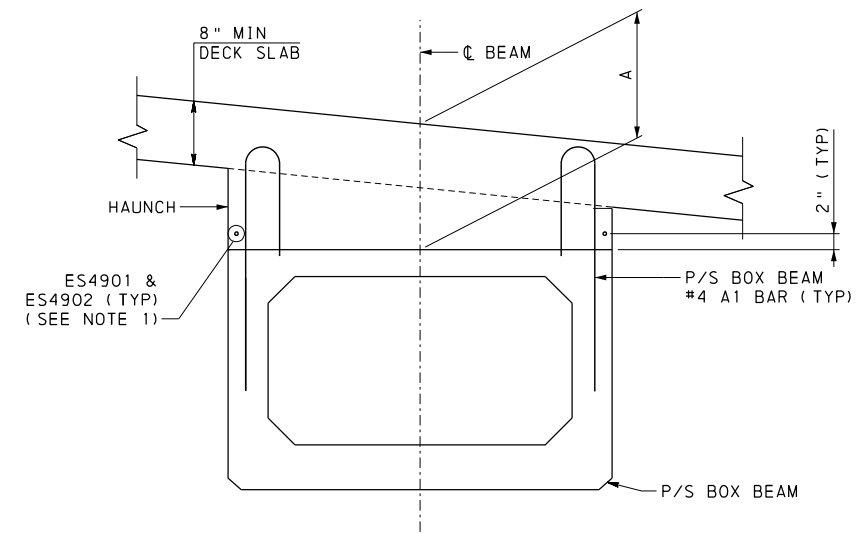
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
			PITTSBURGH, PENNSYLVANIA
			NORTH AVENUE BRIDGE REPLACEMENT DECK ELEVATIONS - 2
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

SCALE POST: PC 1.60
DRAWING NUMBER: PC-1.60 23 10

TOTAL DECK THICKNESSES AT BEAM LINES

BEAM	AT ABUTMENT 1	AT BEAM CENTERLINE	AT ABUTMENT 2	HAUNCH REINFORCEMENT
	DECK THICKNESS "A"	DECK THICKNESS "A"	DECK THICKNESS "A"	
B1	1 7/16"	5 5/16"	1 7/16"	2-ES4901 & 2-ES4902
B2	1 1/2"	5 3/16"	1 1/2"	2-ES4901 & 2-ES4902
B3	1 5/8"	4 15/16"	1 5/8"	2-ES4901 & 2-ES4902
B4	1 11/16"	3 7/8"	1 11/16"	2-ES4901 & 2-ES4902
B5	1 1/2"	2 15/16"	1 1/2"	---
B6	1 5/16"	3 1/2"	1 5/16"	---
B7	1 1/4"	4 7/16"	1 1/4"	2-ES4901 & 2-ES4902
B8	1 1/4"	6 1/4"	1 1/4"	2-ES4901 & 2-ES4902
B9	1 3/16"	6 1/2"	1 3/16"	2-ES4901 & 2-ES4902
B10	1 3/16"	6 5/8"	1 3/16"	2-ES4901 & 2-ES4902
B11	1 1/8"	6 3/8"	1 1/8"	2-ES4901 & 2-ES4902
B12	1 5/16"	5 5/8"	1 5/16"	2-ES4901 & 2-ES4902
B13	3/4"	4 7/16"	3/4"	2-ES4901 & 2-ES4902
B14	5/8"	4"	5/8"	2-ES4901 & 2-ES4902
B15	1 1/16"	4"	1 1/16"	2-ES4901 & 2-ES4902
B16	7/8"	4 5/16"	7/8"	2-ES4901 & 2-ES4902
B17	1 1/16"	5 1/4"	1 1/16"	2-ES4901 & 2-ES4902
B18	1"	5 1/16"	1"	2-ES4901 & 2-ES4902
B19	1 5/16"	5 3/16"	1 5/16"	2-ES4901 & 2-ES4902
B20	1 1/16"	5 5/8"	1 1/16"	2-ES4901 & 2-ES4902
B21	1 1/16"	5 15/16"	1 1/16"	2-ES4901 & 2-ES4902
B22	1 1/8"	6 7/16"	1 1/8"	2-ES4901 & 2-ES4902
B23	1 1/8"	6 1/8"	1 1/8"	2-ES4901 & 2-ES4902
B24	1 1/8"	4 15/16"	1 1/8"	2-ES4901 & 2-ES4902
B25	1 3/16"	3 7/8"	1 1/16"	2-ES4901 & 2-ES4902
B26	1 5/16"	2 7/8"	2 5/16"	---
B27	1 7/8"	2 1/4"	2 5/8"	---
B28	2"	1 5/8"	2"	---
B29	2 5/16"	2 3/8"	2 1/16"	---
B30	2 5/8"	2 7/8"	1 5/8"	---
B31	1 9/16"	3 1/8"	1 9/16"	---
B32	1 3/8"	3 3/16"	1 3/8"	---
B33	1 5/16"	3"	1 5/16"	---



DECK THICKNESS KEY SECTION

NOT TO SCALE

NOTES:

1. BEAM HAUNCH REINFORCEMENT WAS DETERMINED TO BE REQUIRED FOR THE COMPUTED BEAM CAMBERS AND HAUNCHES AS INDICATED IN THE TABLE AT LEFT. PROVIDE HAUNCH REINFORCEMENT IN ACCORDANCE WITH BC-752M WHERE IRREGULAR BEAM CAMBERS OR OTHER CONSTRUCTION CONDITIONS PROVIDE ACTUAL HAUNCHES THAT EXCEED THE LIMITS SPECIFIED IN BC-752M.
2. EPOXY COAT ALL HAUNCH REINFORCEMENT.
3. SEE DECK PLANS AND DECK REINFORCEMENT SCHEDULES FOR HAUNCH REINFORCEMENT REQUIRED WITH EACH DECK SLAB DESIGN REGION.
4. HAUNCH THICKNESSES ROUNDED TO NEAREST 1/16".

REFERENCES:

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. BEAM FABRICATION DETAILS - 2	34
6. ELASTOMERIC BEARING DETAILS - 1 - 2	35 - 36
7. END DIAPHRAGMS - 1 - 3	37 - 39
8. UTILITY HANGER DETAILS	40

REINFORCING NOTES:

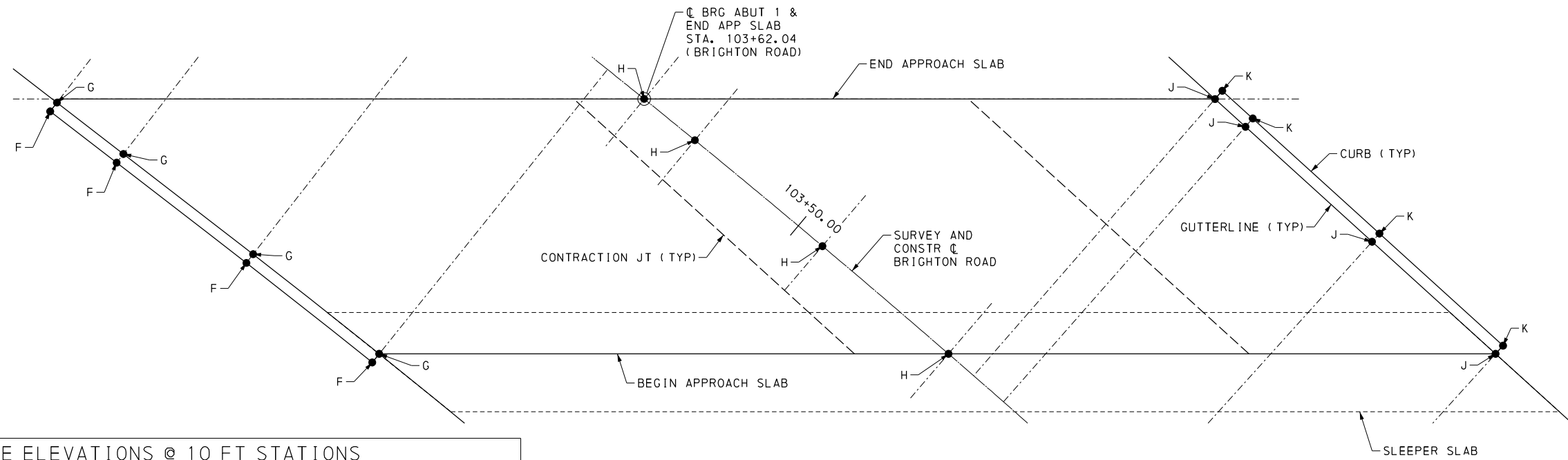
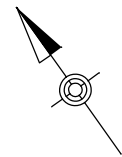
1. ALL HAUNCH REINFORCEMENT IS STRAIGHT.
2. "E" PREFIX DENOTES EPOXY COATED BARS.
3. FOR DETAILS NOT SHOWN, SEE STANDARD DRAWINGS BC-736M AND BC-752M.
4. MINIMUM LAP LENGTH OF ES4901 & ES4902 BARS = 1' - 11".

NS_NorTh-HaunchData.dgn 9/11/2024 2:55:20 PM

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
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PITTSBURGH

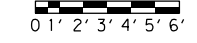
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TITLE: NORTH AVENUE BRIDGE REPLACEMENT HAUNCH DATA			
DIV	DMB	PD No	VERN
DIV	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 11



TOP OF APPROACH SLAB 1 - NORTH AVE ELEVATIONS @ 10 FT STATIONS

A			B			C			D			E		
STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
9+89.60	15.17' LT	769.04	9+89.60	14.50' LT	768.45	---	---	---	---	---	---	---	---	---
9+99.60	15.17' LT	769.79	9+99.60	14.50' LT	769.21	---	---	---	---	---	---	---	---	---
10+02.96	15.17' LT	770.03	10+02.96	14.50' LT	769.44	10+02.96	0.00 FT	769.73	---	---	---	---	---	---
10+12.96	15.17' LT	770.67	10+12.96	14.50' LT	770.09	10+12.96	0.00 FT	770.38	---	---	---	---	---	---
10+14.60	15.17' LT	770.77	10+14.60	14.50' LT	770.18	10+14.60	0.00 FT	770.47	---	---	---	---	---	---
---	---	---	---	---	---	10+17.24	0.00 FT	770.62	10+17.24	15.50' RT	770.51	10+17.24	16.17' RT	771.10
---	---	---	---	---	---	10+27.24	0.00 FT	771.15	10+27.24	15.50' RT	771.11	10+27.24	16.17' RT	771.69
---	---	---	---	---	---	10+27.96	0.00 FT	771.18	10+27.96	15.50' RT	771.14	10+27.96	16.17' RT	771.73
---	---	---	---	---	---	---	---	---	10+37.24	15.50' RT	771.61	10+37.24	16.17' RT	772.20
---	---	---	---	---	---	---	---	---	10+41.84	15.50' RT	771.82	10+41.84	16.17' RT	772.40

APPROACH SLAB 1 BRIGHTON ROAD PLAN

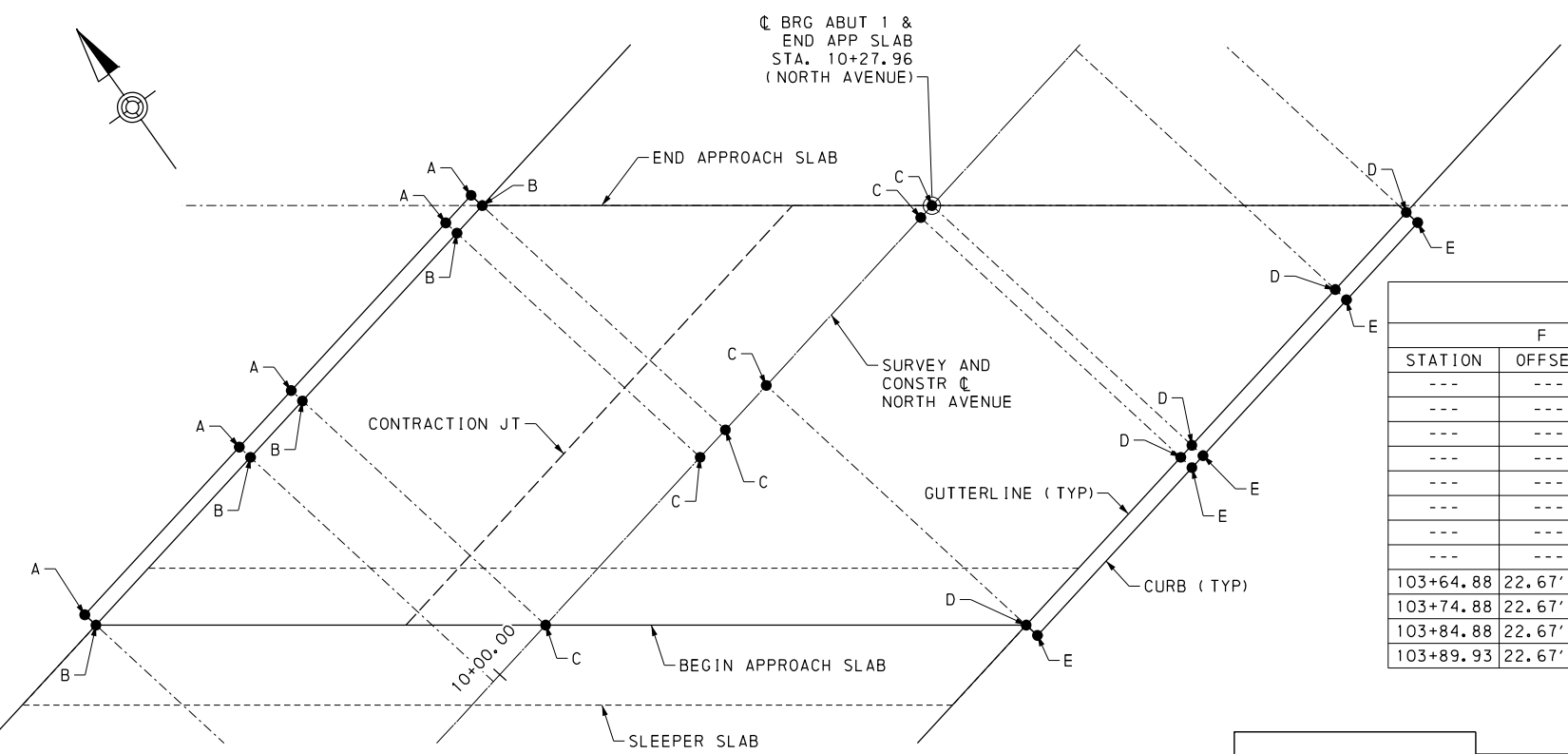
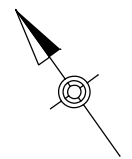


LEGEND:
 LT LEFT
 RT RIGHT

- REFERENCES:**
- SUPPLEMENTAL DRAWINGS
 - GENERAL NOTES
 - QUANTITIES
 - TYPICAL SECTIONS
 - INDEX OF DRAWINGS
 - DECK ELEVATIONS - 1 - 2
 - APPROACH SLAB ELEVATIONS - 2

- SHEET:**
- | |
|---------|
| 02 |
| 03 |
| 04 |
| 05 |
| 08 |
| 09 - 10 |
| 13 |

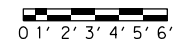
NOTES:
 1. LEFT AND RIGHT ARE DEFINED LOOKING STATIONS AHEAD.



TOP OF APPROACH SLAB 1 - BRIGHTON RD ELEVATIONS @ 10 FT STATIONS

F			G			H			J			K		
STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
---	---	---	---	---	---	---	---	---	103+13.68	22.00' RT	768.19	103+13.68	22.67' RT	768.78
---	---	---	---	---	---	---	---	---	103+23.68	22.00' RT	768.79	103+23.68	22.67' RT	769.36
---	---	---	---	---	---	---	---	---	103+33.68	22.10' RT	769.31	103+33.68	22.77' RT	769.89
---	---	---	---	---	---	---	---	---	103+36.09	22.16' RT	769.51	103+36.09	22.81' RT	770.01
---	---	---	---	---	---	103+38.10	0.00 FT	769.97	---	---	---	---	---	---
---	---	---	---	---	---	103+48.10	0.00 FT	770.43	---	---	---	---	---	---
---	---	---	---	---	---	103+58.10	0.00 FT	770.84	---	---	---	---	---	---
---	---	---	---	---	---	103+62.04	0.00 FT	770.98	---	---	---	---	---	---
103+64.88	22.67' LT	771.49	103+64.88	22.00' LT	770.91	---	---	---	---	---	---	---	---	---
103+74.88	22.67' LT	771.90	103+74.88	22.00' LT	771.32	---	---	---	---	---	---	---	---	---
103+84.88	22.67' LT	772.26	103+84.87	22.00' LT	771.68	---	---	---	---	---	---	---	---	---
103+89.93	22.67' LT	772.42	103+89.93	22.00' LT	771.84	---	---	---	---	---	---	---	---	---

APPROACH SLAB 1 NORTH AVENUE PLAN

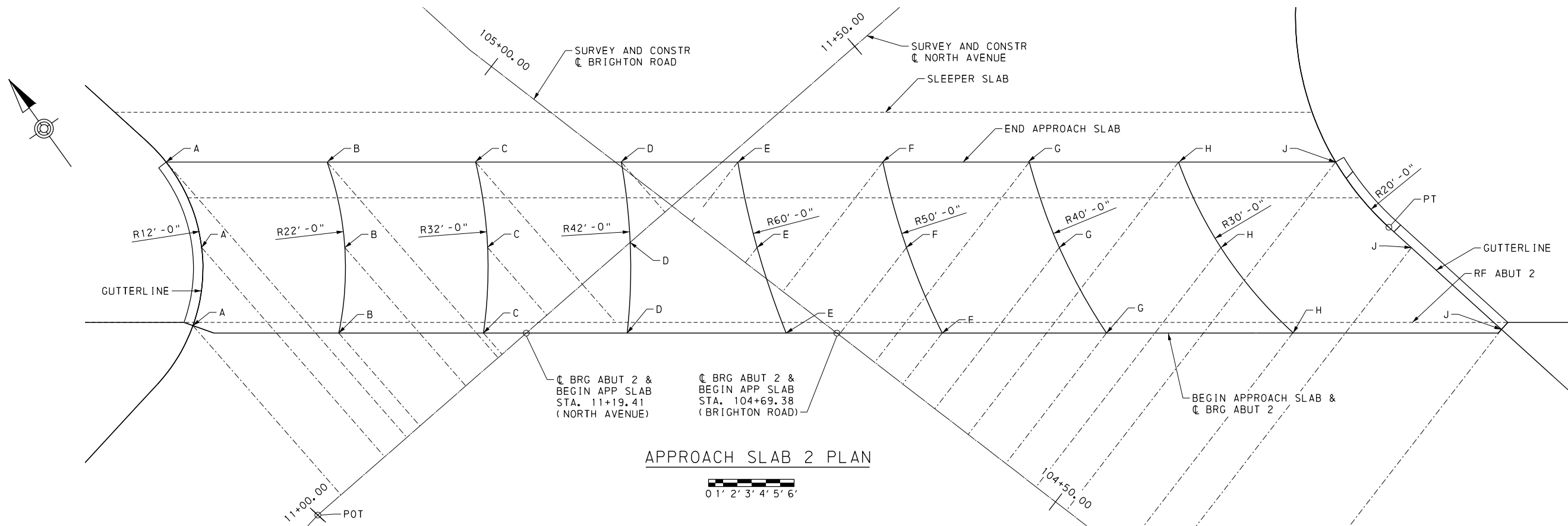


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Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 MBAKERINTL.COM

NORFOLK SOUTHERN
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 PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 1 ELEVATIONS			
DWG	DMB	PD/No	WVN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 12



APPROACH SLAB 2 PLAN

TOP OF APPROACH SLAB 2 ELEVATIONS @ 10 FT SPACINGS ALONG NORTH AVE PGL

A			B			C			D		
STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
11+02.15	15.78' LT	771.88	11+09.51	8.66' LT	771.95	11+17.15	1.98' LT	772.03	11+24.74	4.65' RT	772.01
11+06.22	19.49' LT	771.57	11+13.78	12.89' LT	771.65	11+21.32	6.30' LT	771.73	11+28.86	0.28' RT	771.75
11+08.29	25.65' LT	771.16	11+16.79	18.23' LT	771.34	11+24.63	11.37' LT	771.43	11+32.32	4.66' LT	771.45

TOP OF APPROACH SLAB 2 ELEVATIONS @ 10 FT SPACINGS ALONG BRIGHTON RD PGL

E			F			G			H			J		
STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
104+72.20	2.17' LT	771.93	104+63.54	4.51' RT	771.77	104+54.41	11.47' RT	771.58	104+44.08	19.58' RT	771.38	104+32.64	28.70' RT	771.15
104+77.48	1.33' RT	771.68	104+69.19	7.73' RT	771.49	104+60.69	14.29' RT	771.30	104+51.73	21.22' RT	771.15	104+41.16	29.38' RT	771.00
104+82.22	5.25' RT	771.38	104+74.16	11.47' RT	771.19	104+66.03	17.75' RT	771.00	104+57.75	24.15' RT	770.82	104+49.03	30.88' RT	770.73

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- TYPICAL SECTIONS
- INDEX OF DRAWINGS
- DECK ELEVATIONS - 1 - 2
- APPROACH SLAB ELEVATIONS - 1

SHEET:

- 02
- 03
- 04
- 05
- 08
- 09 - 10
- 12

LEGEND:

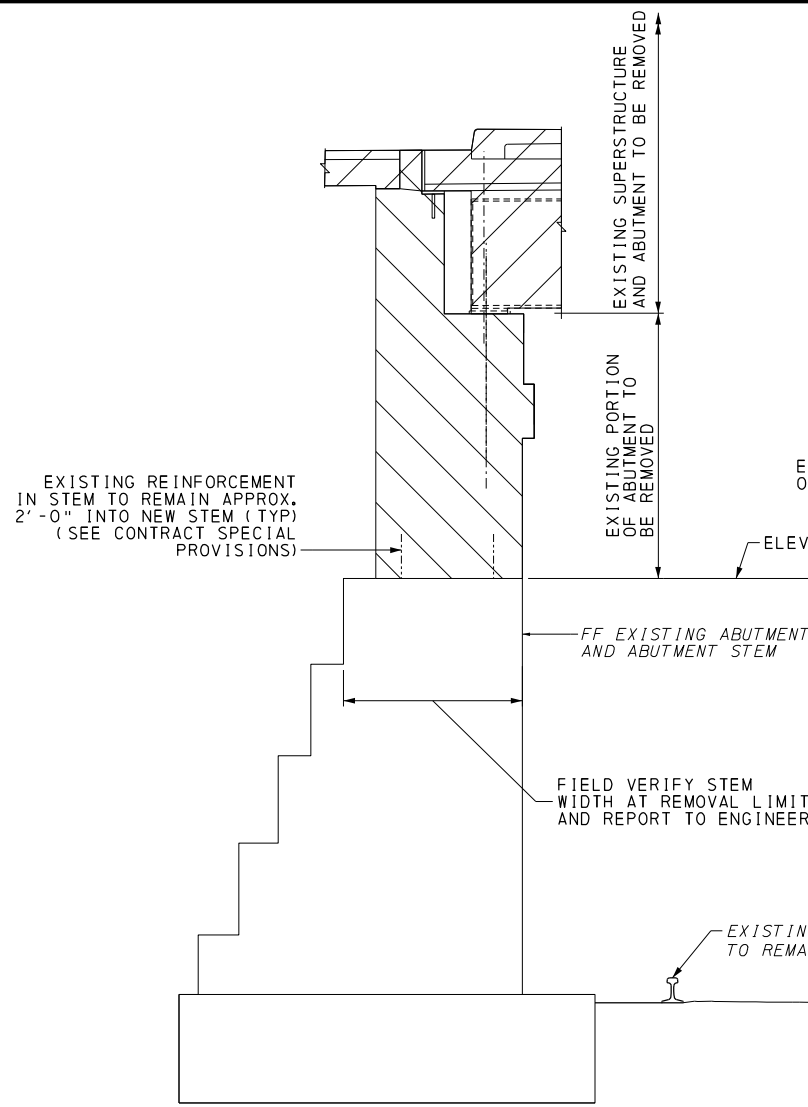
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- RF REAR FACE
- RT RIGHT

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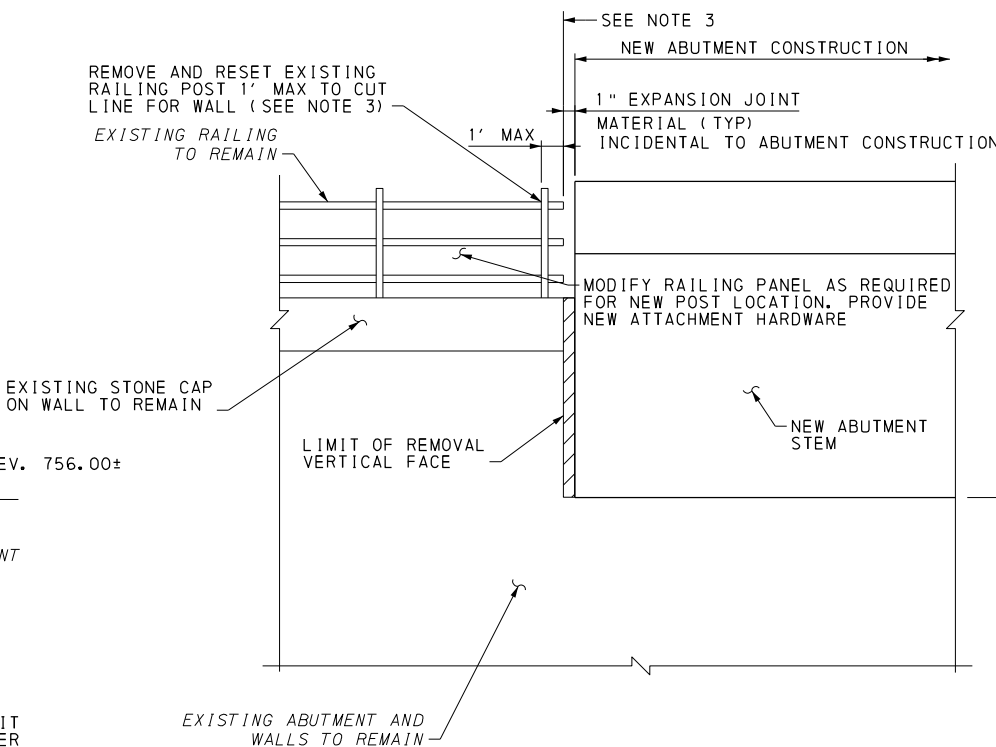
Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 M.BAKER@INTL.COM

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OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

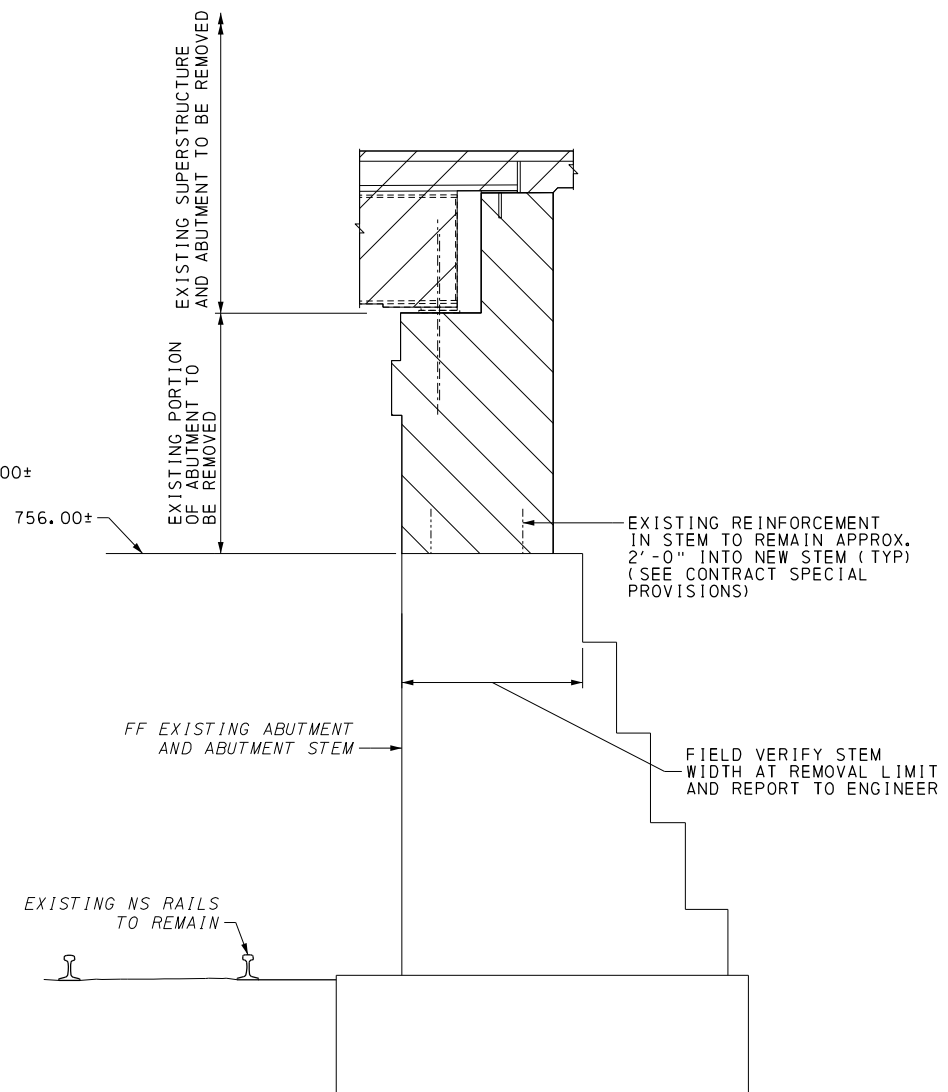
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CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 13



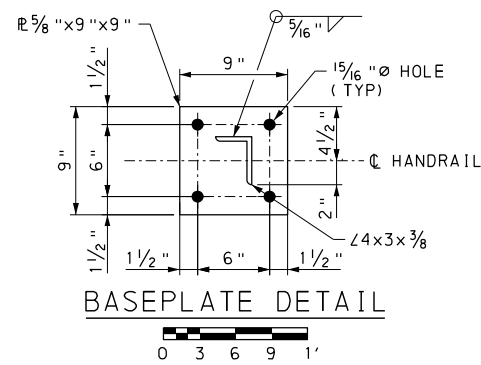
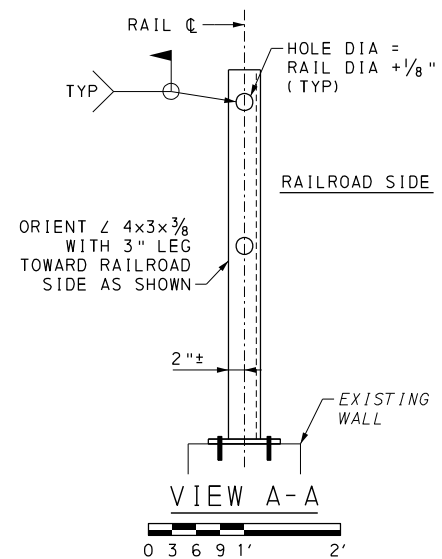
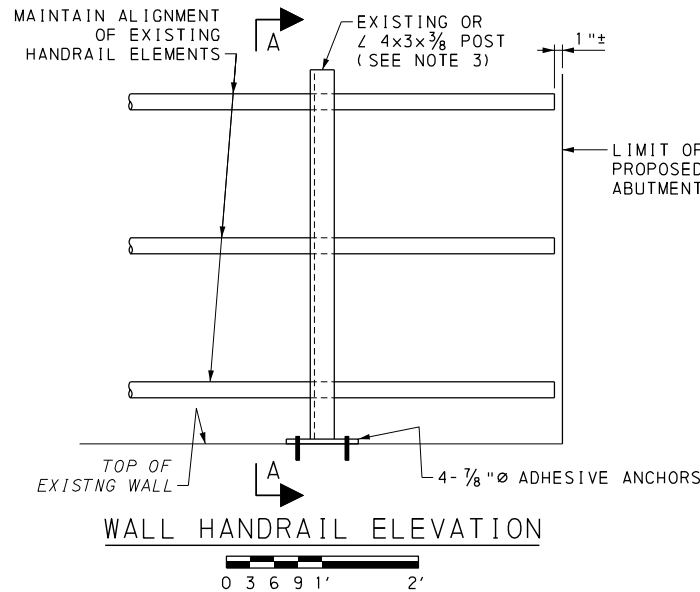
ABUTMENT 1 TYPICAL REMOVAL
NOT TO SCALE



TYPICAL ABUTMENT ELEVATION
NOT TO SCALE



ABUTMENT 2 TYPICAL REMOVAL
NOT TO SCALE



LEGEND:

- FF FRONT FACE
- PORTION OF STRUCTURE TO BE REMOVED

NOTES:

1. STRUCTURE REMOVAL SHOWN ON THIS SHEET IS INCLUDED IN ITEM 5018-0048.
2. REMOVAL AND RESETTING OF RAILING POSTS AND PANELS IS INCLUDED IN ITEM 9000-0053.
3. REMOVE AND REINSTALL AN EXISTING RAILING POST TO THE LIMIT SHOWN. CUT EXISTING RAILING PIPES TO PROVIDE A 1" ± GAP TO THE PROPOSED ABUTMENT. IF NO EXISTING RAILING POSTS ARE SUITABLE FOR REUSE, PROVIDE A NEW RAILING POST PER THE INDICATED DETAILS. USE 7/8" Ø ADHESIVE ANCHORS TO REINSTALL THE RAILING POST. SEE THE CONTRACT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

REFERENCES:

1. SUPPLEMENTAL DRAWINGS 02
2. GENERAL NOTES 03
3. QUANTITIES 04
4. INDEX OF DRAWINGS 08
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2 15 - 16
6. ABUTMENT 2 PLAN AND ELEVATION - 1 - 2 23 - 24

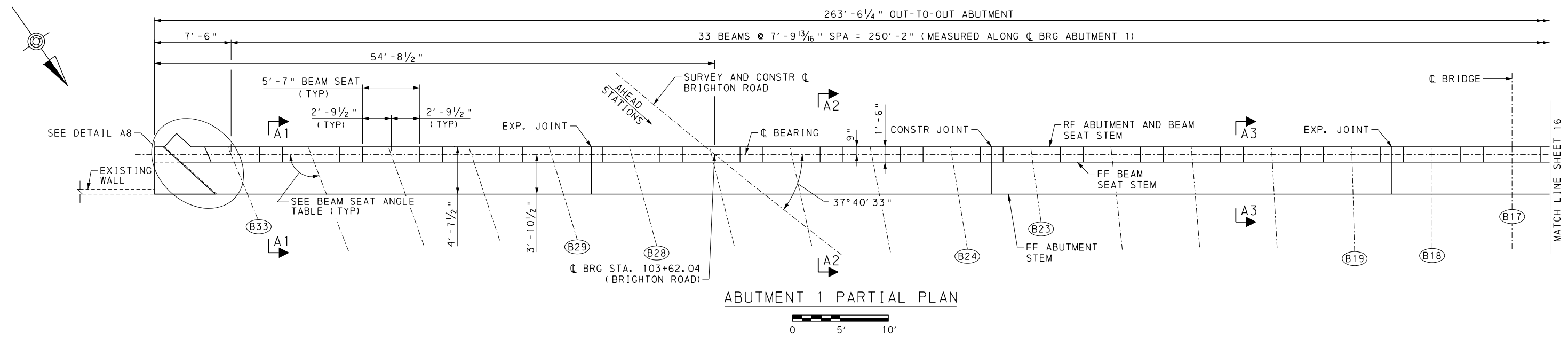
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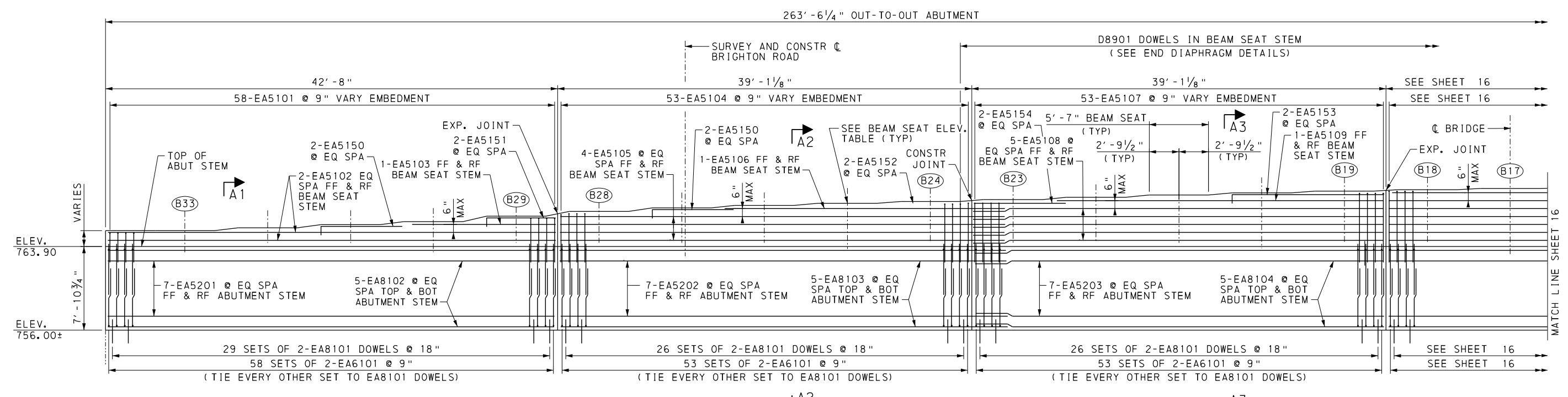
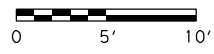
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AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
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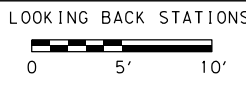
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PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT REMOVAL DETAILS			
DWN	DMB	PD/No	WVN
DWN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 14



ABUTMENT 1 PARTIAL PLAN



ABUTMENT 1 PARTIAL ELEVATION



- NOTES:**
1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 2. WORK THIS SHEET WITH SHEET 16.
 3. A PORTION OF THE EXISTING ABUTMENT STEM REINFORCEMENT TO REMAIN AS SHOWN ON SHEET 14.
 4. PROPOSED DOWEL BARS NOT SHOWN FOR CLARITY. REFER TO THE PROPOSED ABUTMENT SECTIONS.

- LEGEND:**
- FF FRONT FACE
 - RF REAR FACE
 - EF EACH FACE
 - B1 BEAM NUMBER

REFERENCES:

1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 2	16
6. ABUTMENT 1 SECTIONS - 1 - 3	17 - 19
7. ABUTMENT 1 DETAILS	20
8. GENERAL ABUTMENT DETAILS	21
9. ABUTMENT 1 REINFORCING SCHEDULE	22
10. END DIAPHRAGM DETAILS - 1 - 3	37 - 39

BAR LAPS

REBAR	MINIMUM BAR LAP
#5	3' - 10"
#8	5' - 8"

BEAM SEAT ELEVATION AT ABUTMENT 1

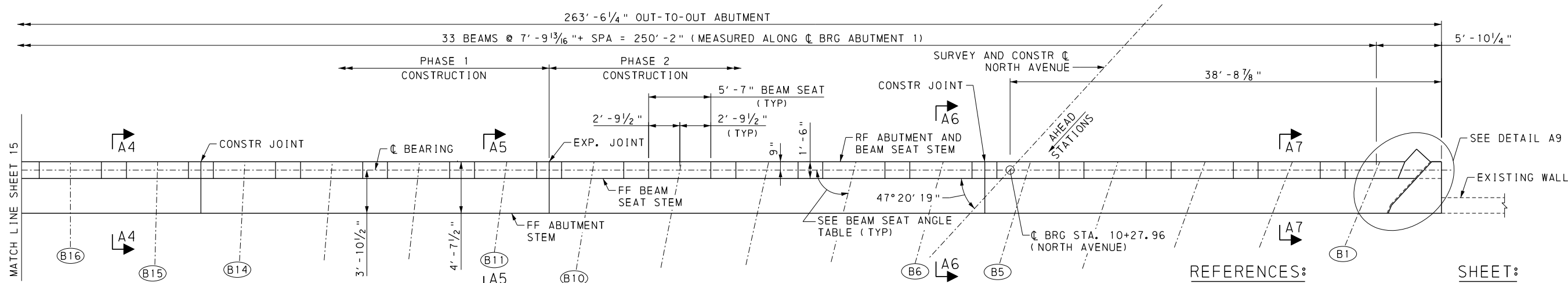
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ELEV.	769.32	769.22	769.08	768.91	768.72	768.50	768.30	768.10	767.93	767.69	767.46	767.13	766.76	766.24	765.96	765.66	765.40
ANGLE (DEG)	90°00'00"	90°00'00"	91°35'01"	93°09'54"	94°44'29"	96°18'38"	97°52'14"	99°25'07"	100°57'11"	102°28'19"	103°58'23"	105°27'17"	106°54'56"	108°21'15"	109°46'09"	111°09'35"	112°31'28"

NS_Northern_Abutment1.dgn 2:55:04 PM 9/11/2024

Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 MBAKERINTL.COM

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 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 1 PLAN AND ELEVATION-1			
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	MALE POST
CHK	ABC	DATE	PC 1.60
BR0027858			PC-1.60 23 15
9/11/2024			



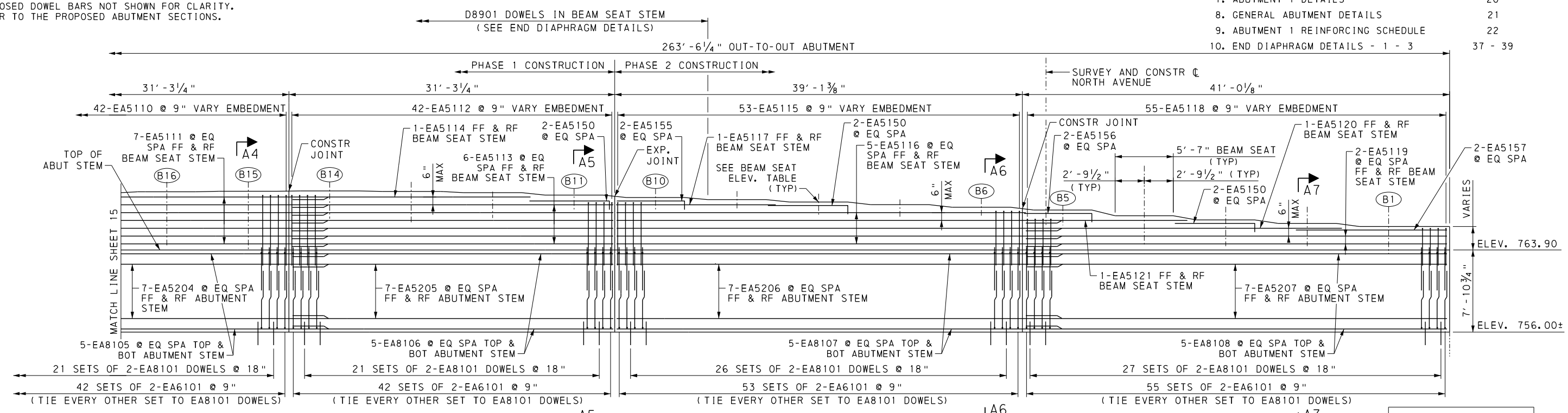
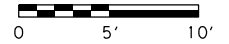
ABUTMENT 1 PARTIAL PLAN

- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - WORK THIS SHEET WITH SHEET 15.
 - A PORTION OF THE EXISTING ABUTMENT STEM REINFORCEMENT TO REMAIN AS SHOWN ON SHEET 14.
 - PROPOSED DOWEL BARS NOT SHOWN FOR CLARITY. REFER TO THE PROPOSED ABUTMENT SECTIONS.

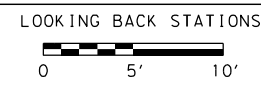
REFERENCES:

1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 1	15
6. ABUTMENT 1 SECTIONS - 1 - 3	17 - 19
7. ABUTMENT 1 DETAILS	20
8. GENERAL ABUTMENT DETAILS	21
9. ABUTMENT 1 REINFORCING SCHEDULE	22
10. END DIAPHRAGM DETAILS - 1 - 3	37 - 39

SHEET:



ABUTMENT 1 PARTIAL ELEVATION



BAR LAPS

REBAR	MINIMUM BAR LAP
#5	3' - 10"
#8	5' - 8"

- LEGEND:**
- FF FRONT FACE
 - RF REAR FACE
 - EQ EACH FACE
 - EQ EQUAL
 - B1 BEAM NUMBER

BEAM SEAT ELEVATION AT ABUTMENT 1

BEAM NO.	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16
ELEV.	766.05	766.36	766.69	767.09	767.63	767.91	768.16	768.40	768.68	768.88	769.12	769.34	769.46	769.51	769.48	769.42
ANGLE (DEG)	67°28'32"	68°50'25"	70°13'51"	71°38'45"	73°05'04"	74°32'43"	76°01'37"	77°31'41"	79°02'49"	80°34'53"	82°07'46"	83°41'22"	85°15'31"	86°50'06"	88°24'59"	90°00'00"

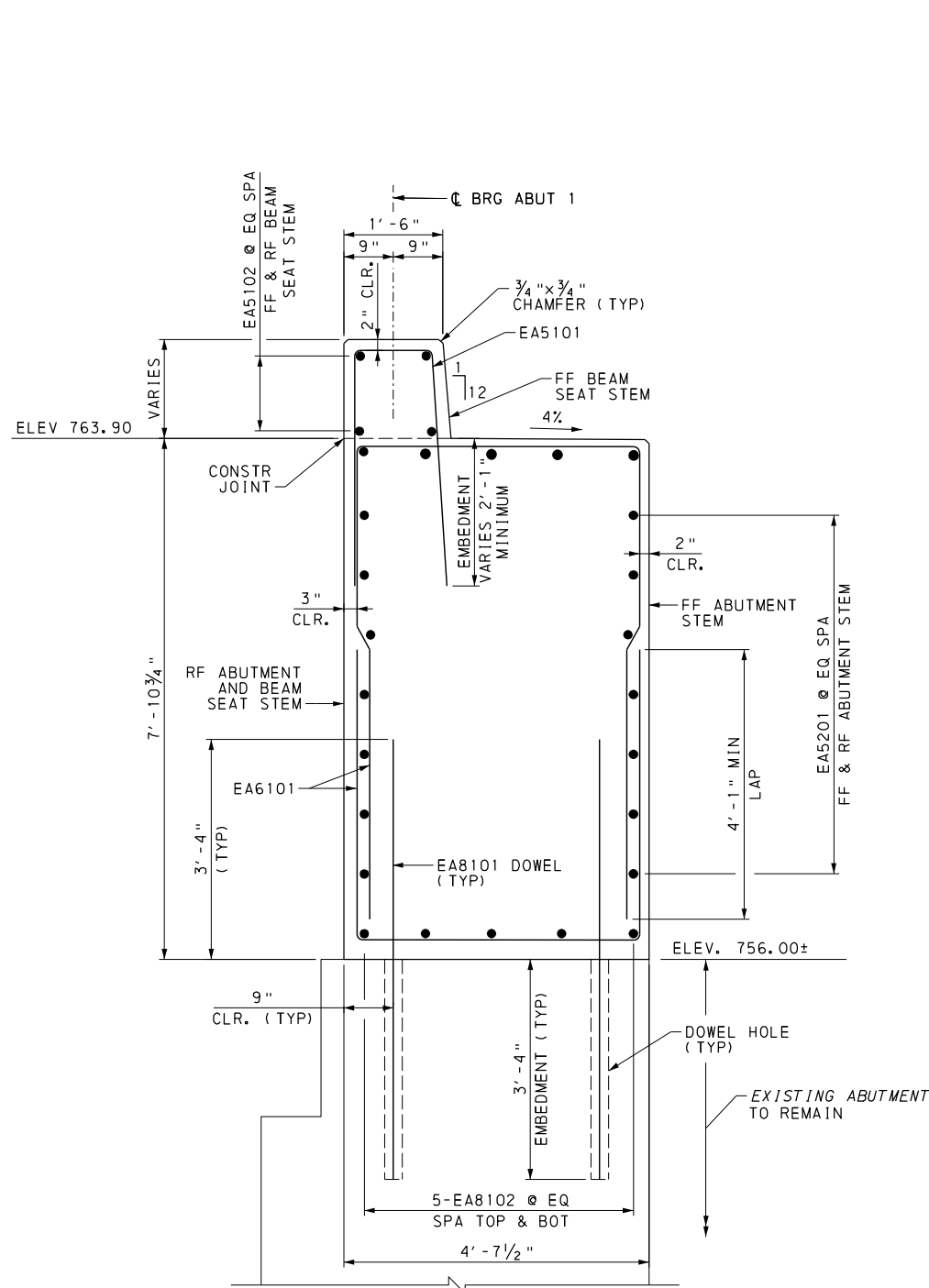
9/11/2024 NS-Nor-th-Abutment1-I.dgn 2:55:10 PM

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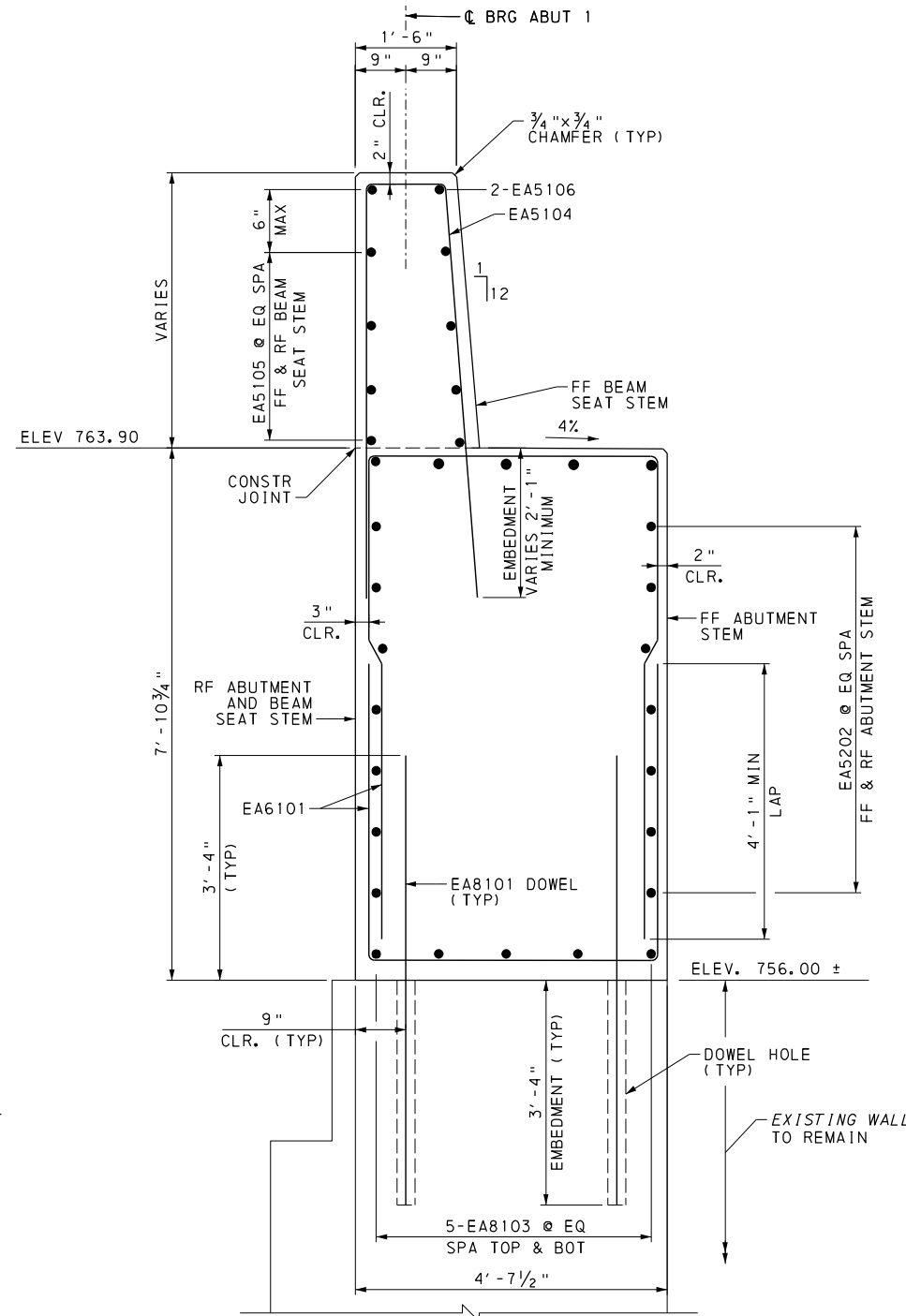
NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
 OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION

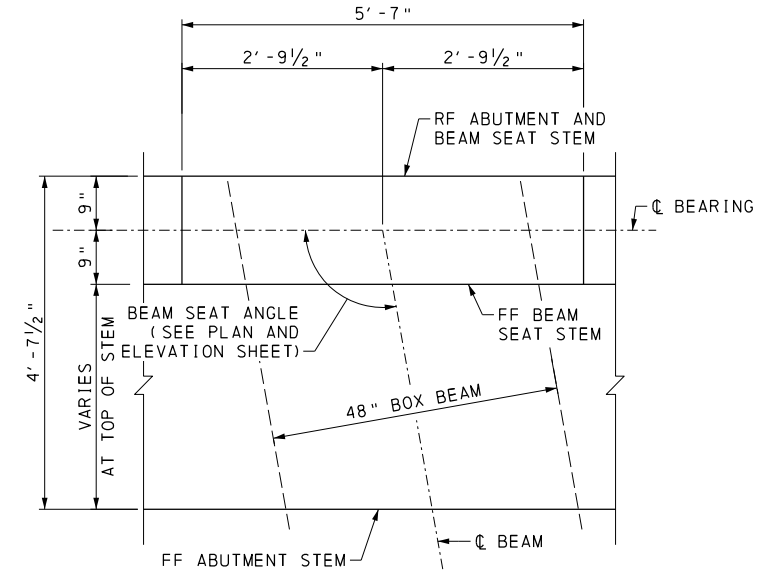
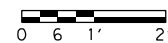
LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 1 PLAN AND ELEVATION-2
 DRAWN: DMB
 CHECKED: WRB
 DATE: 9/11/2024
 FILE NO: BR0027858
 DRAWING NUMBER: PC-1.60 23 16
 SCALE POST: PC 1.60



SECTION A1-A1

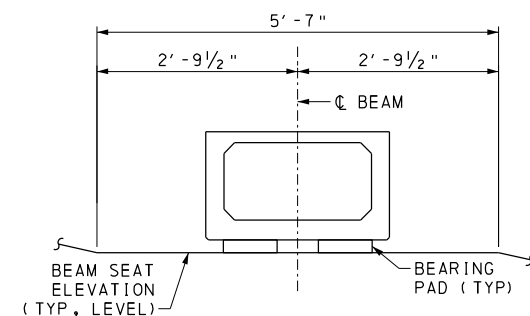


SECTION A2-A2



BEAM SEAT PLAN VIEW

NOT TO SCALE



BEAM SEAT ELEVATION VIEW

NOT TO SCALE

LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

REFERENCES:

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2	15 - 16
6. ABUTMENT 1 SECTIONS - 2 - 3	18 - 19
7. ABUTMENT 1 DETAILS	20
8. GENERAL ABUTMENT DETAILS	21
9. ABUTMENT 1 REINFORCING SCHEDULE	22

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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
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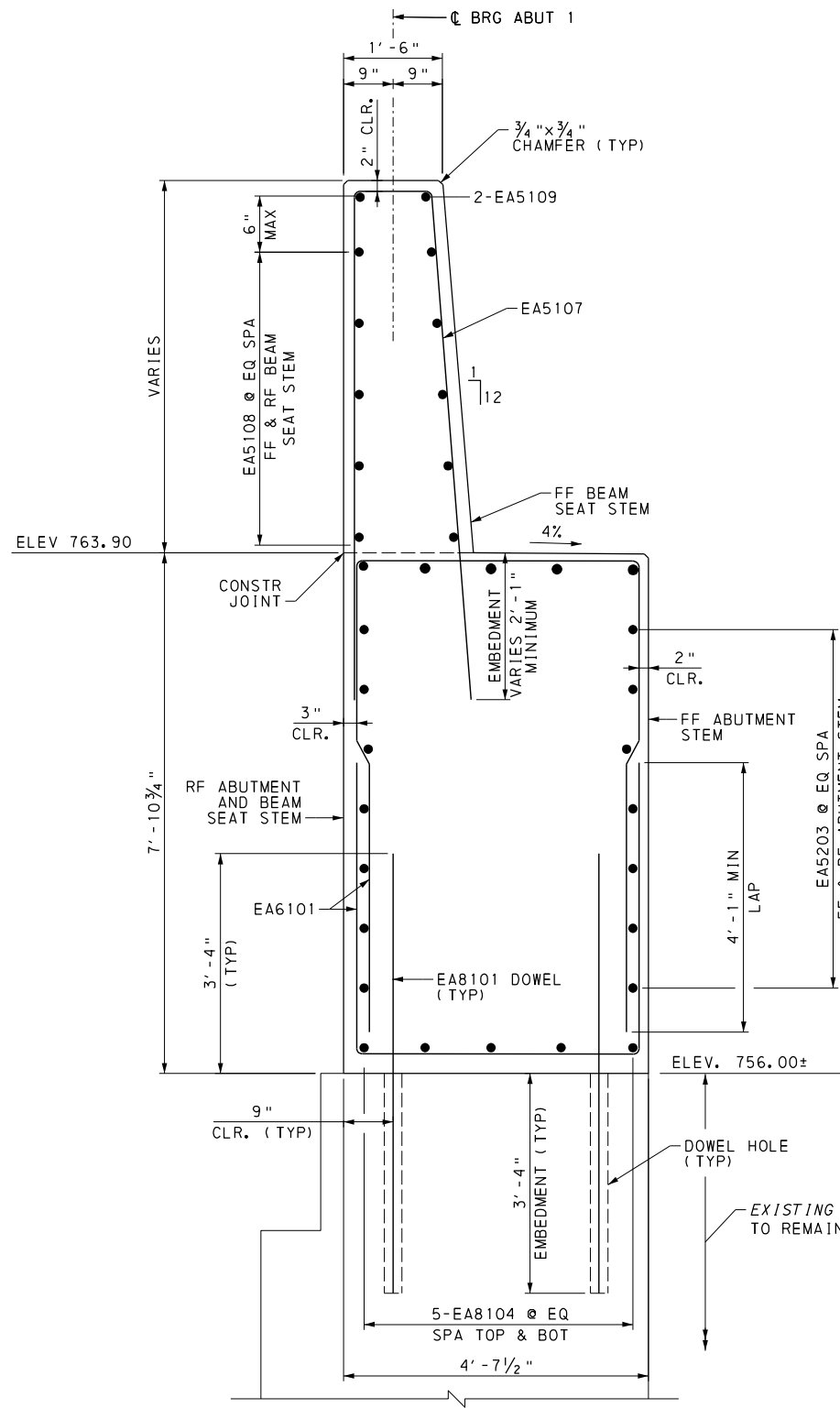
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 1 SECTIONS - 1			
DRW	DMB	PD/No	DATE
DRW	WRB	FILE No	SCALE POST
CHK	ABC	DATE	PC 1.60

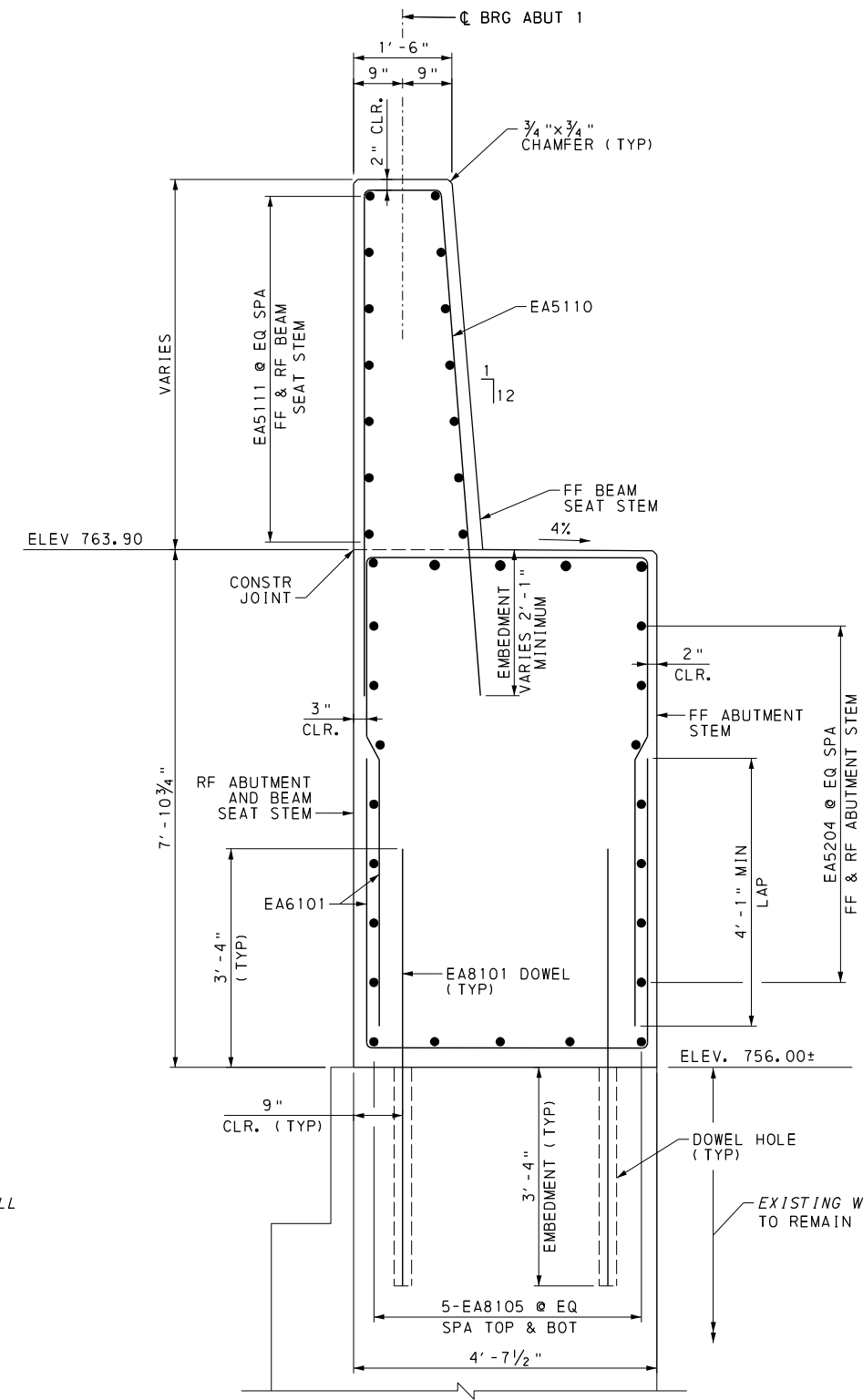
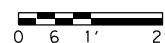
PC-1.60 23 17

SHEET NO. 17 OF 83

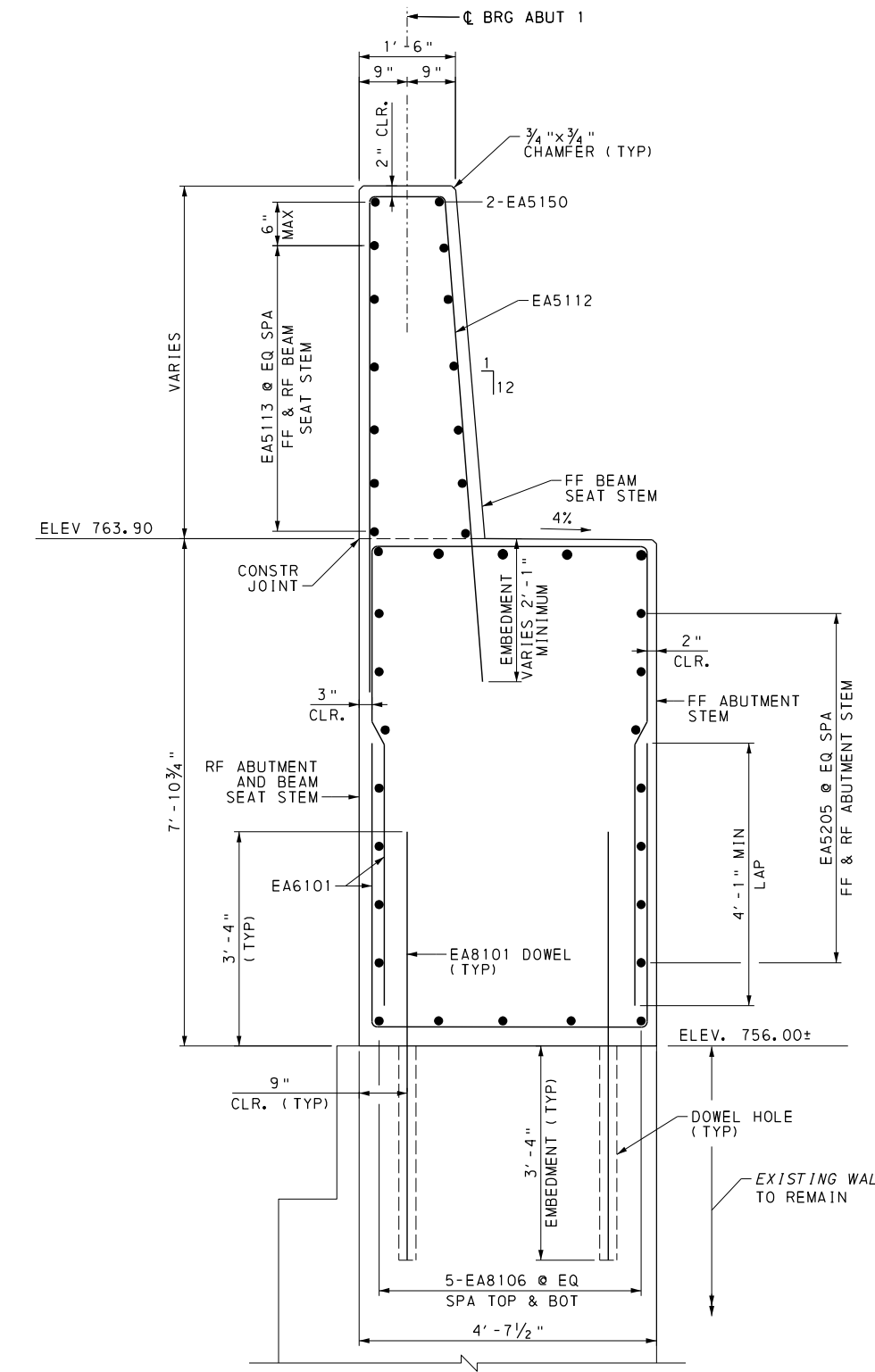
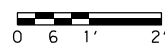
NS_NorTh_Abutment1-2.dgn 9/11/2024 2:55:24 PM



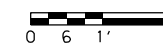
SECTION A3-A3



SECTION A4-A4



SECTION A5-A5



REFERENCES:

1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2	15 - 16
6. ABUTMENT 1 SECTIONS - 1 & 3	17 & 19
7. ABUTMENT 1 DETAILS	20
8. GENERAL ABUTMENT DETAILS	21
9. ABUTMENT 1 REINFORCING SCHEDULE	22

SHEET:

LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL

NOTES:

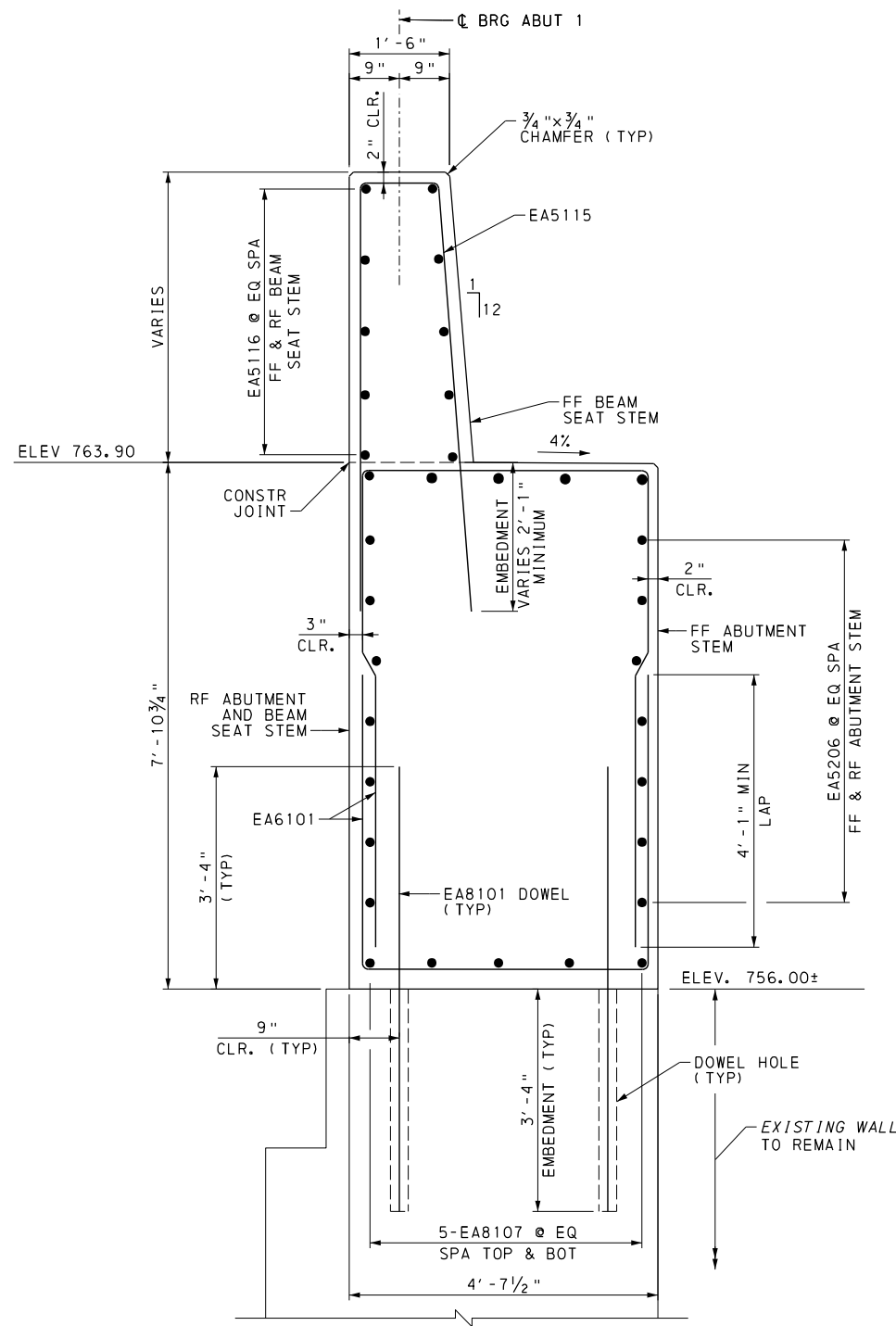
1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

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 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
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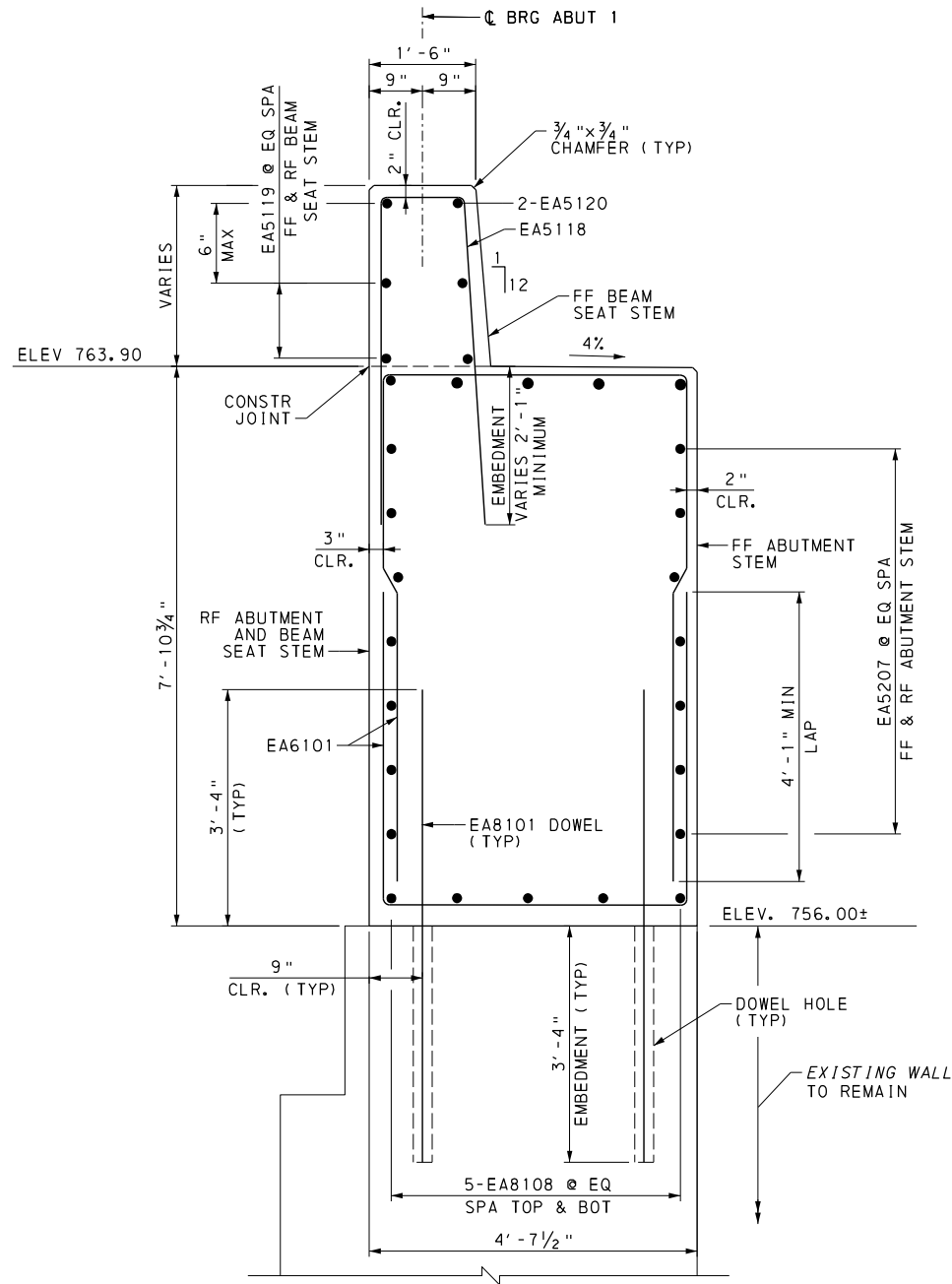
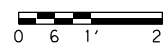
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NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 1 SECTIONS - 2			
DRAWN	DMB	FILE NO.	DATE
CHKD	WRB	DATE	SCALE
PC-1.60 23 18			PC 1.60
9/11/2024			PC-1.60 23 18

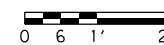
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SECTION A6-A6



SECTION A7-A7



REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2
6. ABUTMENT 1 SECTIONS - 1 - 2
7. ABUTMENT 1 DETAILS
8. GENERAL ABUTMENT DETAILS
9. ABUTMENT 1 REINFORCING SCHEDULE

SHEET:

- | |
|---------|
| 02 |
| 03 |
| 04 |
| 08 |
| 15 - 16 |
| 17 - 18 |
| 20 |
| 21 |
| 22 |

LEGEND:

- | | |
|----|------------|
| FF | FRONT FACE |
| RF | REAR FACE |
| EF | EACH FACE |
| EQ | EQUAL |

NOTES:

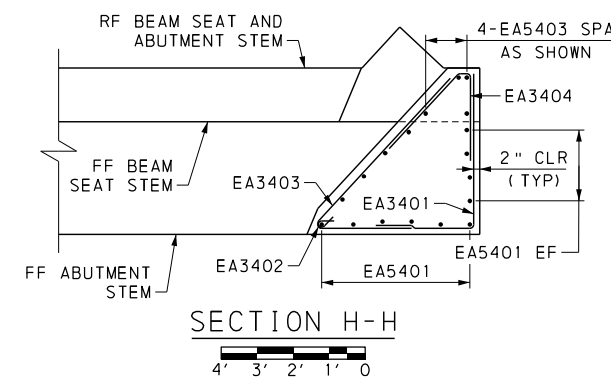
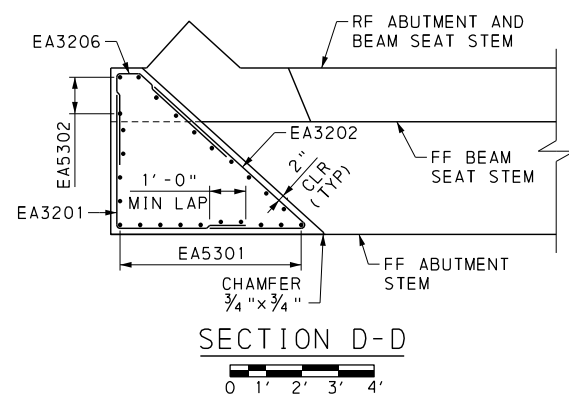
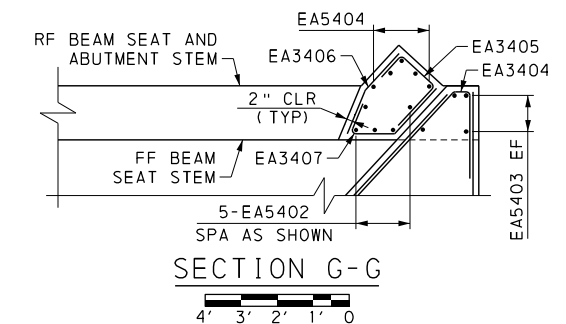
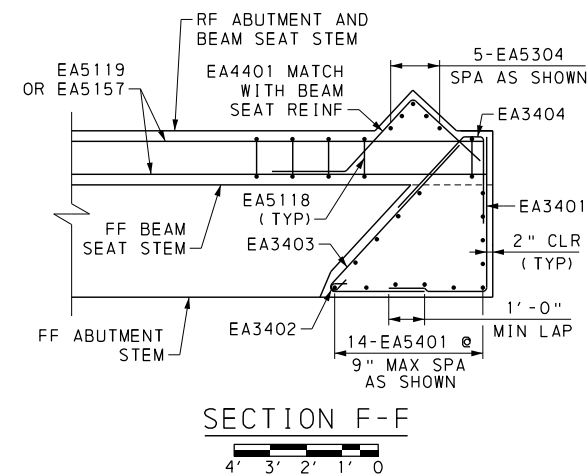
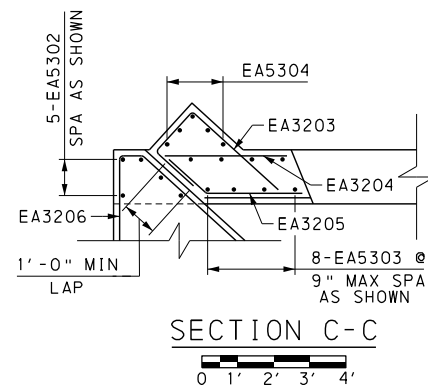
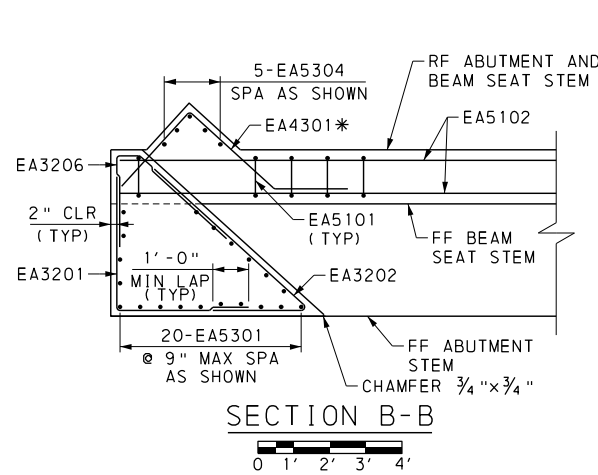
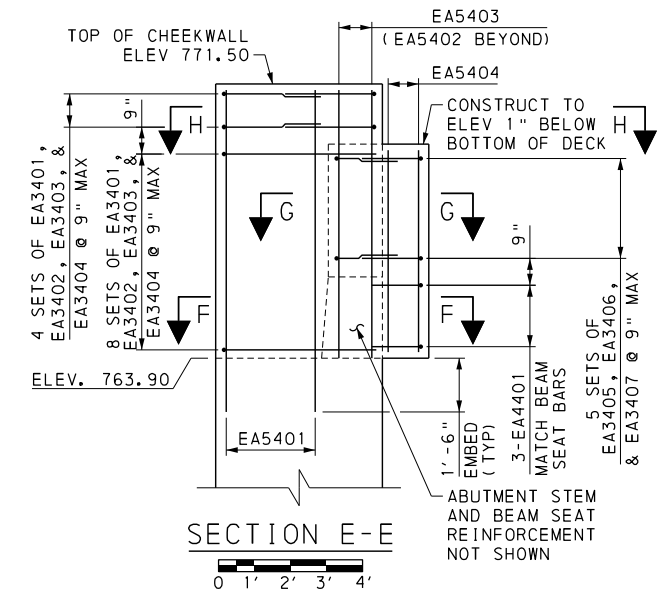
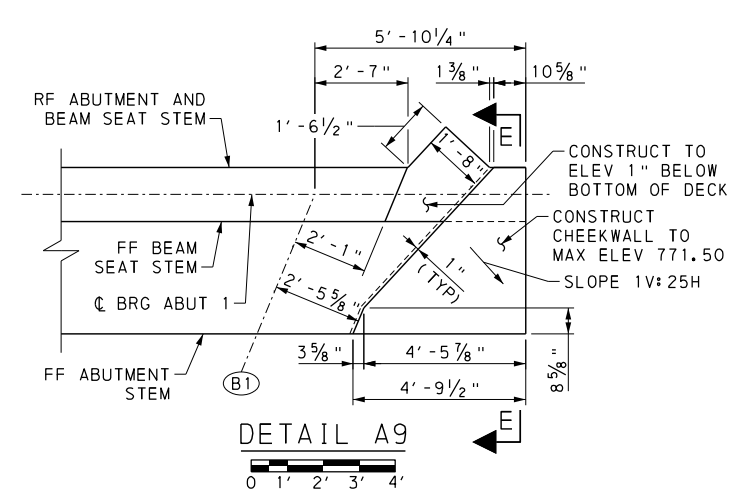
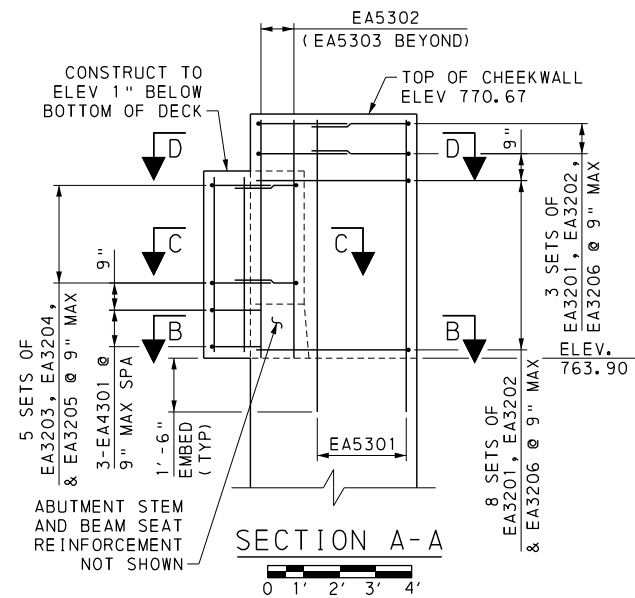
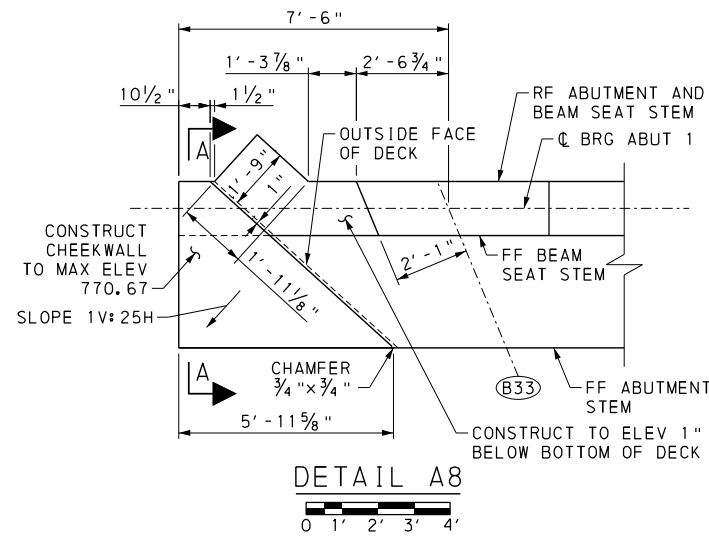
1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

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 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 1 SECTIONS - 3			
DWG	DMB	PD No	DATE
CHK	WRB	FILE No	BR0227858
DATE	9/11/2024		
DRAWING NUMBER			PC-1.60 23 19

9/11/2024 2:55:45 PM NS_Northern-Abutment1-2b.dgn



LEGEND:
 FF FRONT FACE
 RF REAR FACE
 EF EACH FACE
 EQ EQUAL
 * MATCH WITH BEAM SEAT REINFORCEMENT

NOTES:
 1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2	15 - 16
6. ABUTMENT 1 SECTIONS - 1 - 3	17 - 19
7. GENERAL ABUTMENT DETAILS	21
8. ABUTMENT 1 REINFORCING SCHEDULE	22

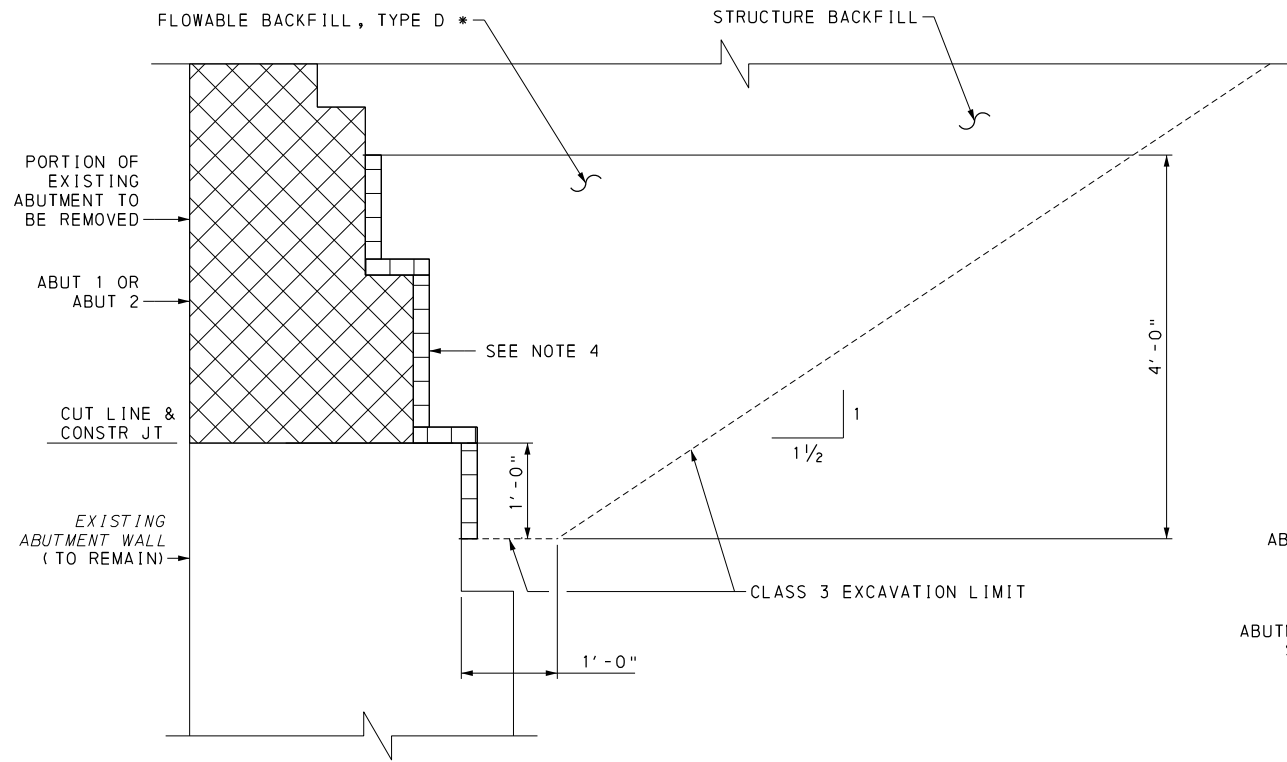
9/11/2024 2:45:35PM NS_Nor-th_Abutment1-3.dgn

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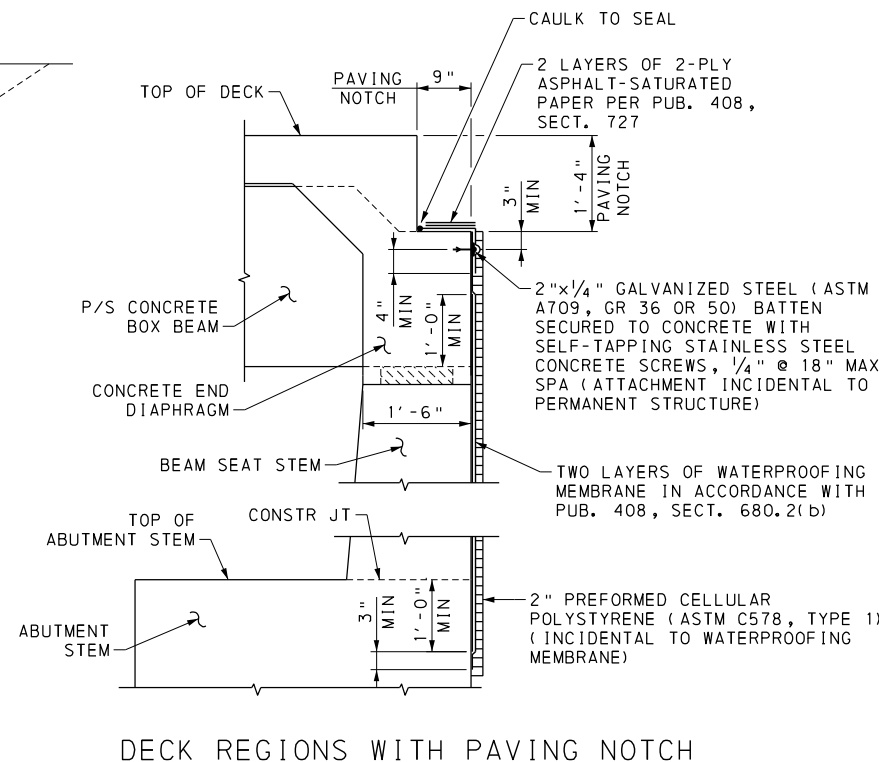
REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 1 DETAILS
 DRAWN: DMB
 CHECKED: WRB
 DATE: 9/11/2024
 SCALE: PC 1.60
 DRAWING NUMBER: BR0027858
 SHEET NUMBER: PC-1.60 23 20



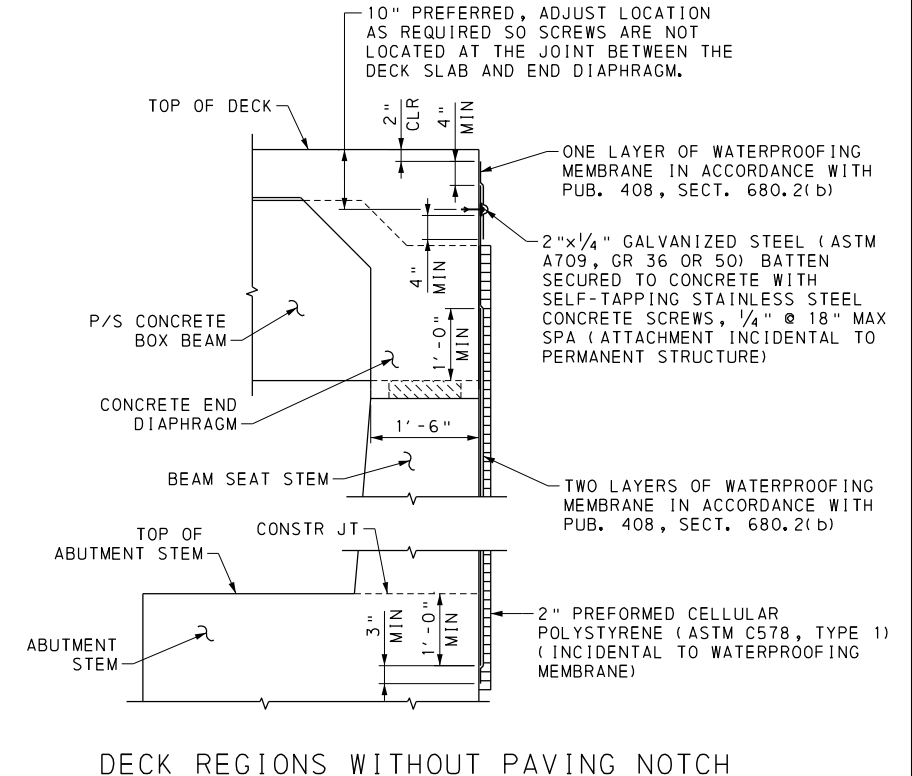
ABUTMENT REMOVAL,
EXCAVATION & BACKFILL SECTION

NOT TO SCALE



DECK REGIONS WITH PAVING NOTCH

0 6 1' 2'



DECK REGIONS WITHOUT PAVING NOTCH

0 6 1' 2'

WATERPROOFING DETAILS AT ABUTMENTS

SEE BC-788M FOR ADDITIONAL INFORMATION

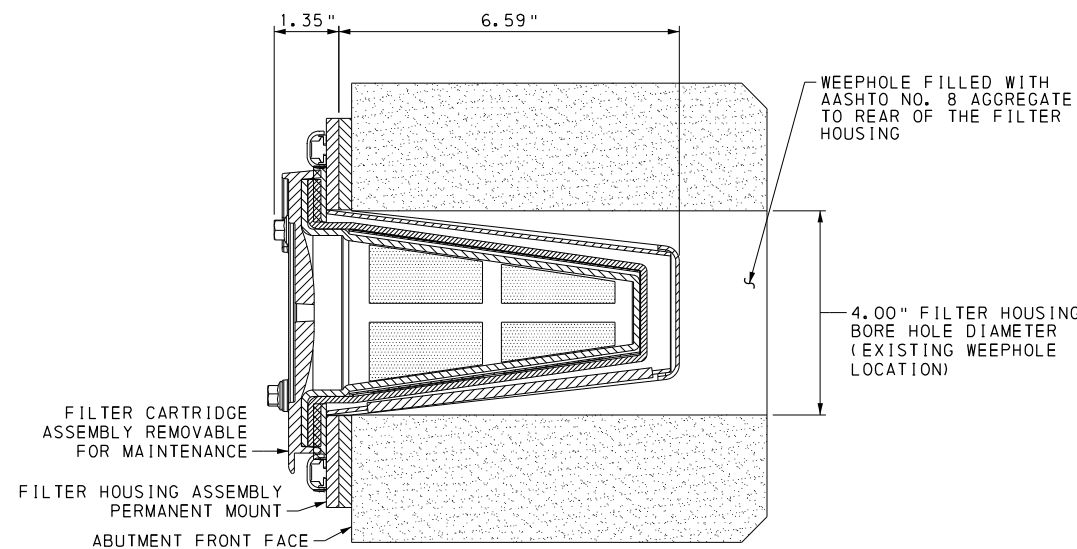
LEGEND:

▨ LIMITS OF REMOVAL

* COORDINATE LIMITS OF FLOWABLE BACKFILL, TYPE D WITH THE PROPOSED WING C RETAINING WALL FOOTING AT ABUTMENT 2. SEE ABUTMENT 2 DETAILS FOR ADDITIONAL INFORMATION.

ABUTMENT MODIFICATION NOTES:

- EXCAVATE BEHIND ABUTMENT 1 & 2 TO REMOVE LATERAL EARTH PRESSURE AGAINST BACK FACE AS SHOWN IN ABUTMENT REMOVAL, EXCAVATION & BACKFILL SECTION AND GENERALLY IN ACCORDANCE WITH RC-12M. UNLOAD THE LATERAL EARTH PRESSURE UNIFORMLY AT BOTH ABUTMENTS, SUCH THAT THE ELEVATION OF THE EXPOSED SUBGRADE DIRECTLY BEHIND ONE ABUTMENT STEM IS WITHIN 2 FEET OF THE ELEVATION OF THE EXPOSED SUBGRADE DIRECTLY BEHIND THE OPPOSING ABUTMENT STEM. EXCAVATE TO THE SPECIFIED MINIMUM EXCAVATION DEPTH. SETBACK THE TOE OF THE TEMPORARY EXCAVATION GENERALLY 1' HORIZONTALLY FROM THE EXPOSED STEM OF SUBSTRUCTURE, TO FACILITATE PLACEMENT AND COMPACTION OF NEW STRUCTURE BACKFILL. LAYBACK THE TEMPORARY EXCAVATION AT GENERALLY 1.5H:1V, UNLESS A FLATTER SLOPE IS REQUIRED TO MAINTAIN GLOBAL STABILITY FOR THE TEMPORARY EXCAVATION SLOPE. IN AREAS WHERE BURIED UTILITIES INTERFERE WITH THE SPECIFIED ABUTMENT EXCAVATION LIMITS, COORDINATE SUPPORT WITH THE AFFECTED UTILITY.
- DEWATER TEMPORARY EXCAVATION. DO NOT ALLOW FREE STANDING PONDED WATER.
- WHEN PLACING NEW STRUCTURE BACKFILL, DO NOT EXCEED A 2-FOOT DIFFERENCE IN FILL ELEVATION BETWEEN ABUTMENT 1 & 2 DURING STRUCTURE BACKFILL PLACEMENT (DO NOT BACKFILL UNTIL SUPERSTRUCTURE IS PLACED ON THE SUBSTRUCTURE).
- PROVIDE 2" PREFORMED CELLULAR POLYSTYRENE AND PREFABRICATED FILTER DRAINS TO THE BASE OF THE EXCAVATION. PROVIDE PREFABRICATED FILTER DRAINS CONFORMING TO PUB. 408 SECTION 610.2(a) 9 AT 15'-0" MAX. SPACING.



MAINTAINABLE WEEPHOLE FILTER

NOT TO SCALE

REFERENCES:

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 1 PLAN AND ELEVATION - 1 - 2	15 - 16
6. ABUTMENT 1 SECTIONS - 1 - 3	17 - 19
7. ABUTMENT 1 DETAILS	20
8. ABUTMENT 1 REINFORCING SCHEDULE	22
9. ABUTMENT 2 PLAN AND ELEVATION - 1 - 2	23 - 24
10. ABUTMENT 2 SECTIONS - 1 - 3	25 - 27
11. ABUTMENT 2 DETAILS	28
12. ABUTMENT 2 REINFORCING SCHEDULE	29
13. FOUNDATION DRAIN DETAILS	30

9/11/2024
NS_Northern_Abutment1-3a.dgn
2:55:57 PM

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AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT GENERAL ABUTMENT DETAILS			
DRN	DMB	PD/No	WVN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

SCALE POST: PC 1.60
DRAWING NUMBER: PC-1.60 23 21

ABUTMENT 1 REINFORCEMENT BAR SCHEDULE

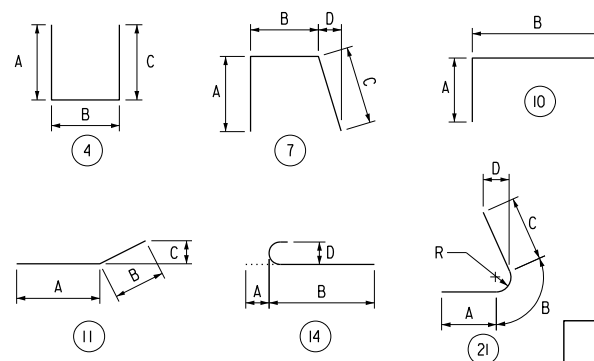
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EA3201	3	11	8'-2"	10	4'-2"	4'-0"					
EA3202	3	11	8'-8 3/4"	21	3'-0"	2 3/4"	5'-6"	3'-10 1/2"		1 1/8"	
EA3203	3	5	6'-7"	4	3'-7"	1'-6"	1'-6"				
EA3204	3	5	3'-2"	STR							
EA3205	3	5	4'-3"	STR							BEND IN FIELD
EA3206	3	11	5'-10"	7	2'-6"	8"	2'-8"	1'-10 1/2"			
EA3401	3	12	7'-2"	10	4'-2"	3'-0"					
EA3402	3	12	3'-5"	14	5"	3'-0"					
EA3403	3	12	4'-5"	14	5"	4'-0"					
EA3404	3	12	4'-8"	7	2'-0"	8"	2'-0"	1'-4 1/2"			
EA3405	3	5	3'-1"	4	1'-0"	1'-4"	9"				KINK IN FIELD
EA3406	3	5	2'-3"	STR							BEND IN FIELD
EA3407	3	5	3'-6"	STR							BEND IN FIELD
EA4301	4	3	8'-6"	STR							BEND IN FIELD
EA4401	4	3	7'-6"	STR							BEND IN FIELD
EA5101	5	58	10'-8 1/4"	7	4'-10"	1'-0"	4'-10 1/4"	5"			VARY EMBEDMENT (2'-1" MIN)
EA5102	5	4	42'-4"	STR							
EA5103	5	2	13'-3 3/4"	STR							
EA5104	5	53	13'-4 1/2"	7	6'-2"	1'-0"	6'-2 1/2"	6 1/4"			VARY EMBEDMENT (2'-1" MIN)
EA5105	5	8	42'-9 1/2"	STR							
EA5106	5	2	26'-4"	STR							
EA5107	5	53	15'-2 3/4"	7	7'-1 1/4"	1'-0"	7'-1 1/2"	7 1/4"			VARY EMBEDMENT (2'-1" MIN)
EA5108	5	10	38'-11"	STR							
EA5109	5	2	31'-0"	STR							
EA5110	5	42	16'-0 3/8"	7	7'-6"	1'-0"	7'-6 3/8"	7 1/2"			VARY EMBEDMENT (2'-1" MIN)
EA5111	5	14	34'-2"	STR							
EA5112	5	42	16'-1 1/8"	7	7'-6 1/2"	1'-0"	7'-6 5/8"	7 1/2"			VARY EMBEDMENT (2'-1" MIN)
EA5113	5	12	31'-0"	STR							
EA5114	5	2	23'-4"	STR							
EA5115	5	53	14'-10 1/4"	7	6'-11"	1'-0"	6'-11 1/4"	7"			VARY EMBEDMENT (2'-1" MIN)
EA5116	5	10	43'-0"	STR							
EA5117	5	2	15'-6"	STR							
EA5118	5	55	12'-9 1/2"	7	5'-7 3/4"	1'-0"	5'-8"	5 3/4"			VARY EMBEDMENT (2'-1" MIN)
EA5119	5	4	40'-9"	STR							
EA5120	5	2	31'-3"	STR							
EA5121	5	2	15'-6"	STR							

ABUTMENT 1 REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EA5150	5	10	8'-6"	10	10"	7'-8"					BEAM B3, B8, B11, B27, B31 SEATS
EA5151	5	2	7'-4"	10	10"	6'-6"					BEAM B29 SEAT
EA5152	5	2	7'-4"	10	10"	6'-6"					BEAM B24 SEAT
EA5153	5	2	15'-2"	10	10"	14'-4"					BEAM B19 SEAT
EA5154	5	2	8'-7"	STR							BEAM B23 SEAT
EA5155	5	2	7'-4"	10	10"	6'-6"					BEAM B10 SEAT
EA5156	5	2	7'-4"	10	10"	6'-6"					BEAM B5 SEAT
EA5157	5	2	14'-6"	STR							BEAM B1 SEAT
EA5201	5	14	42'-4"	STR							
EA5202	5	14	42'-9 1/4"	STR							
EA5203	5	14	38'-11"	STR							
EA5204	5	14	34'-2"	STR							
EA5205	5	14	31'-0"	STR							
EA5206	5	14	43'-0"	STR							
EA5207	5	14	40'-9"	STR							
EA5301	5	20	8'-1"	STR							
EA5302	5	5	6'-6"	STR							
EA5303	5	8	2'-8"	STR							
EA5304	5	5	4'-0"	STR							FIELD TRIM IF REQD
EA5401	5	14	8'-11"	STR							
EA5402	5	5	6'-6"	STR							
EA5403	5	4	2'-8"	STR							
EA5404	5	5	4'-8"	STR							FIELD TRIM IF REQD
EA6101	6	712	15'-10 1/2"	4	5'-10"	4'-2 1/2"	5'-10"				
EA8101	8	352	6'-8"	STR							
EA8102	8	10	42'-4"	STR							
EA8103	8	10	44'-8"	STR							
EA8104	8	10	38'-11"	STR							
EA8105	8	10	37'-0"	STR							
EA8106	8	10	31'-0"	STR							
EA8107	8	10	44'-10"	STR							
EA8108	8	10	40'-9"	STR							
D8901	8	45	4'-3"	STR							STAINLESS STEEL DOWEL

REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.



REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- ABUTMENT 1 PLAN AND ELEVATION - 1 - 2
- ABUTMENT 1 SECTIONS - 1 - 3
- ABUTMENT 1 DETAILS
- GENERAL ABUTMENT DETAILS

SHEET:

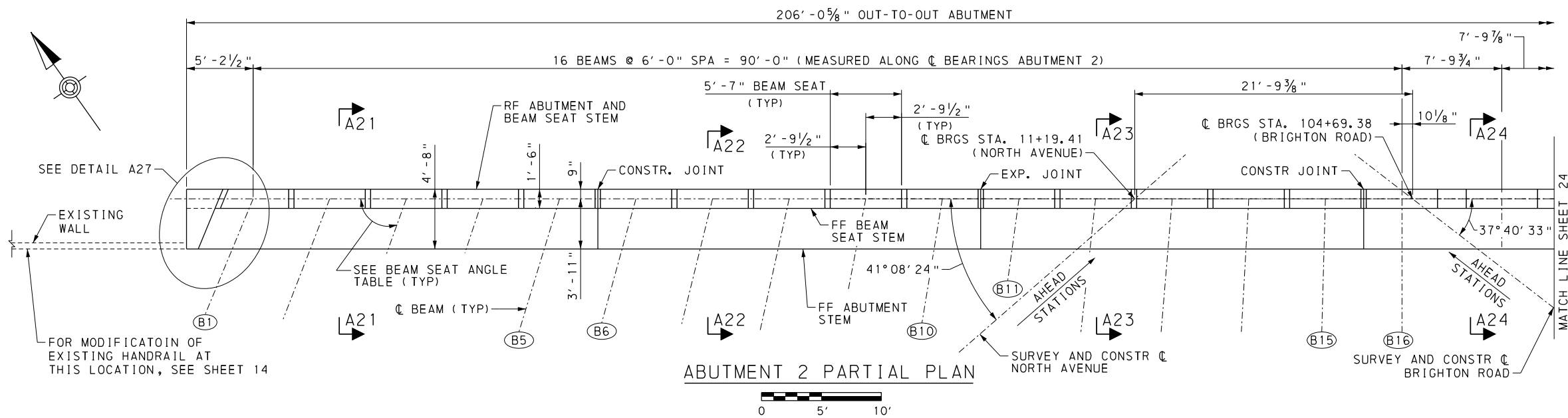
- | |
|---------|
| 02 |
| 03 |
| 04 |
| 08 |
| 15 - 16 |
| 17 - 19 |
| 20 |
| 21 |

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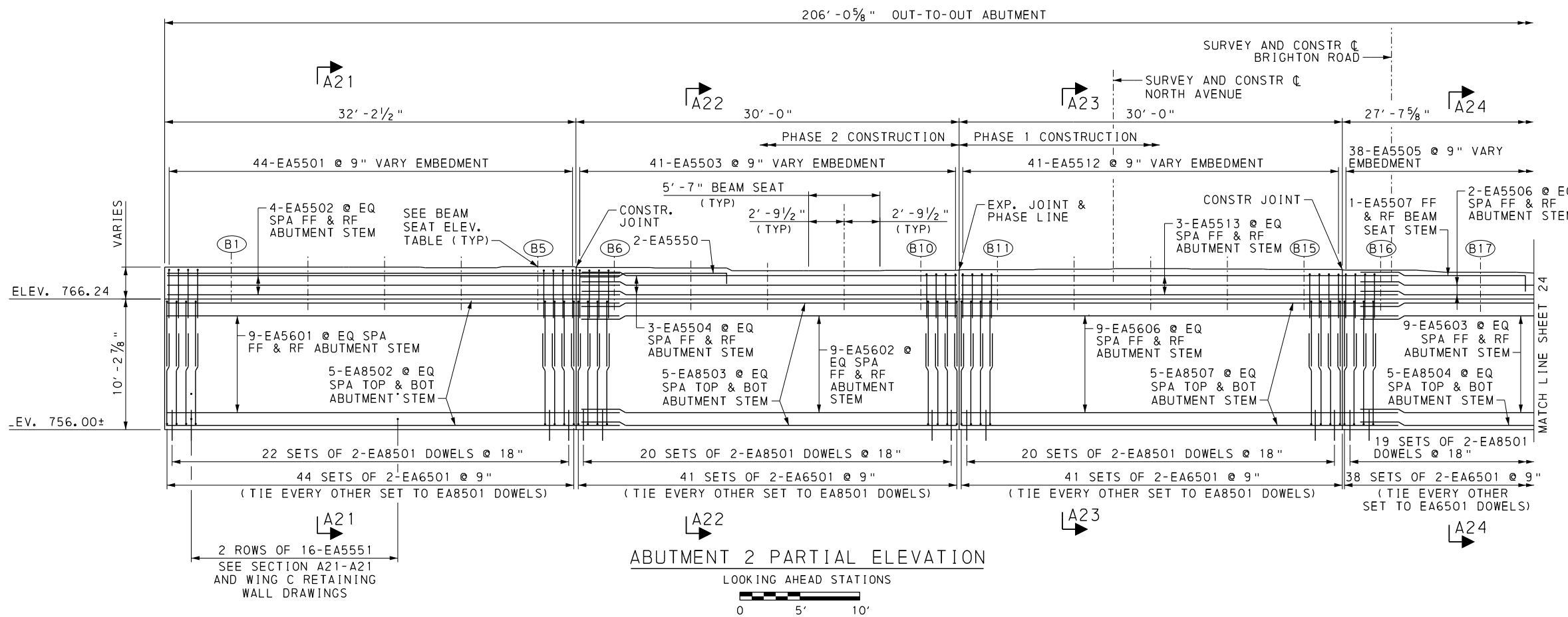
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REV	BY	DATE	DESCRIPTION
			PITTSBURGH, PENNSYLVANIA
TITLE			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 1 REINFORCING SCHEDULE			
DWG	DMB	PO No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 22



BAR LAPS	
REBAR	MINIMUM BAR LAP
#5	3' - 10"
#8	5' - 8"



NOTES:

- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
- WORK THIS SHEET WITH SHEET 24.
- A PORTION OF THE EXISTING ABUTMENT STEM REINFORCEMENT TO REMAIN AS SHOWN ON SHEET 14.
- PROPOSED DOWEL BARS NOT SHOWN FOR CLARITY. REFER TO THE PROPOSED ABUTMENT SECTIONS.
- SHEAR BLOCK BARS NOT SHOWN FOR CLARITY. SEE ABUTMENT DIAPHRAGM SECTIONS AND ABUTMENT 2 DETAILS.

LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL
- (B1) BEAM NUMBER

REFERENCES:

- | | |
|--------------------------------------|---------|
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. INDEX OF DRAWINGS | 08 |
| 5. GENERAL ABUTMENT DETAILS | 21 |
| 6. ABUTMENT 2 PLAN AND ELEVATION - 2 | 24 |
| 7. ABUTMENT 2 SECTIONS - 1 - 3 | 25 - 27 |
| 8. ABUTMENT 2 DETAILS | 28 |
| 9. ABUTMENT 2 REINFORCING SCHEDULE | 29 |

SHEET:

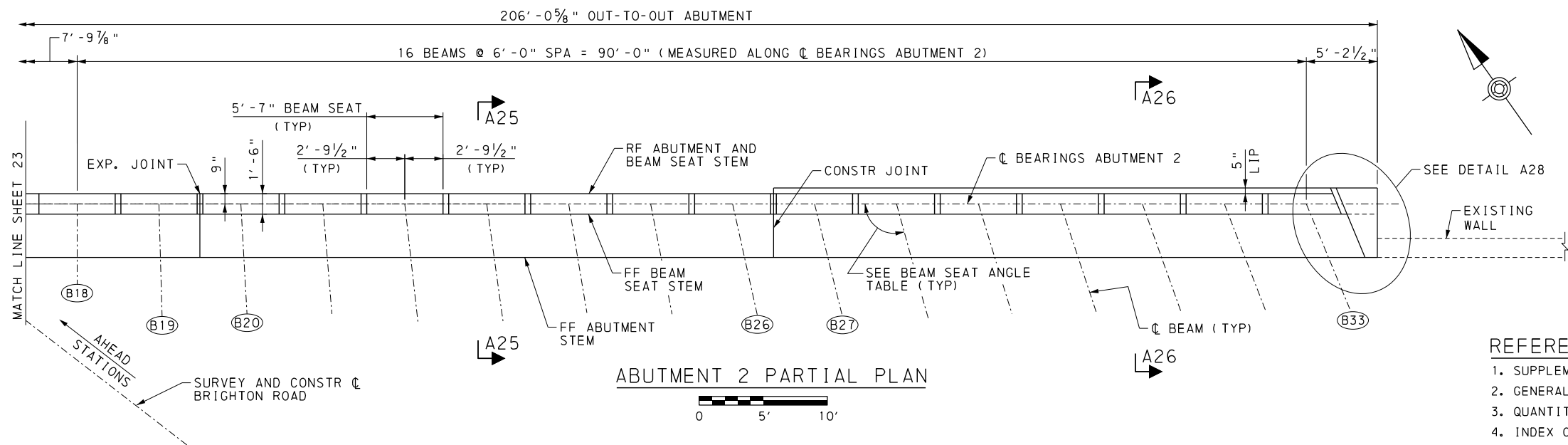
BEAM SEAT ELEVATION AT ABUTMENT 2																	
BEAM NO.	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
ELEV.	768.74	768.75	768.73	768.69	768.77	768.71	768.67	768.45	768.46	768.49	768.54	768.57	768.62	768.59	768.55	768.51	768.34
ANGLE (DEG)	67° 28' 32"	68° 50' 25"	70° 13' 51"	71° 38' 45"	73° 05' 04"	74° 32' 43"	76° 01' 37"	77° 31' 41"	79° 02' 49"	80° 34' 53"	82° 07' 46"	83° 41' 22"	85° 15' 31"	86° 50' 06"	88° 24' 59"	90° 00' 00"	90° 00' 00"

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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 2 PLAN AND ELEVATION - 1			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 23

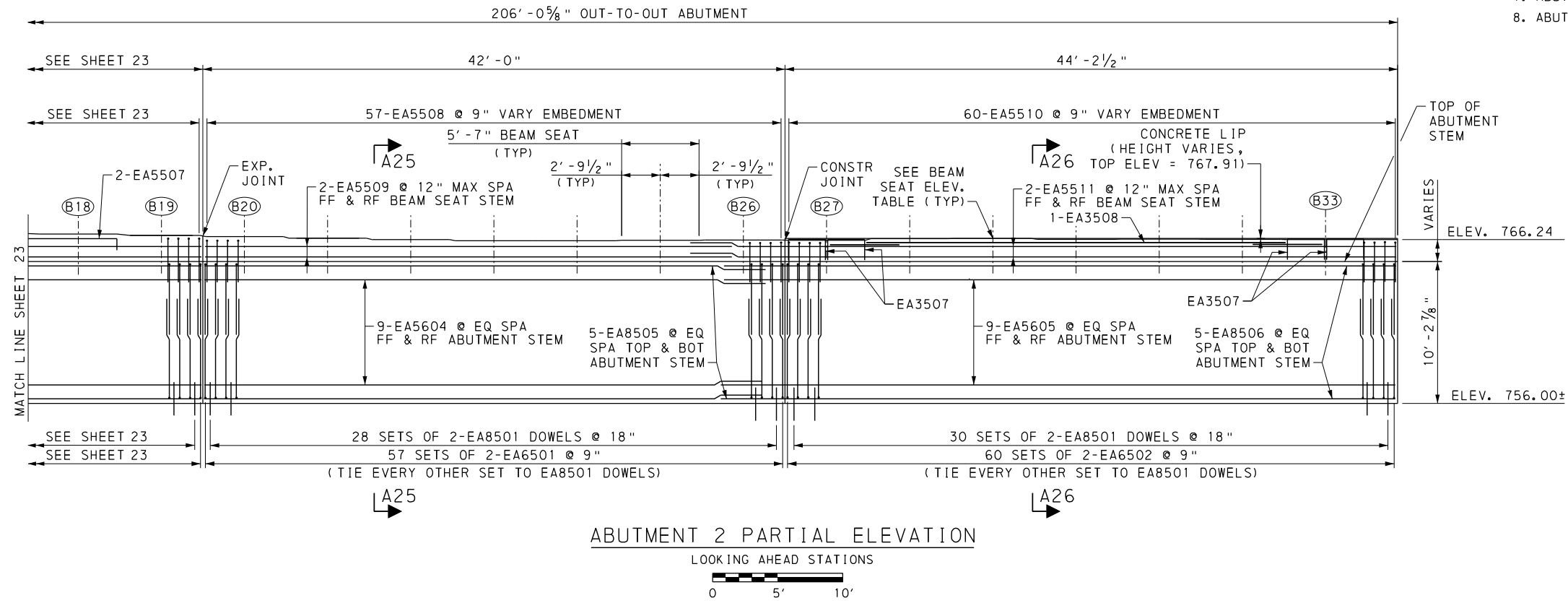


REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- ABUTMENT 2 PLAN AND ELEVATION - 1
- ABUTMENT 2 SECTIONS - 1 - 3
- ABUTMENT 2 DETAILS
- ABUTMENT 2 REINFORCING SCHEDULE

SHEET:

02
03
04
08
23
25 - 27
28
29



BAR LAPS

REBAR	MINIMUM BAR LAP
#5	3' - 10"
#8	5' - 8"

- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - WORK THIS SHEET WITH SHEET 23.
 - A PORTION OF THE EXISTING ABUTMENT STEM REINFORCEMENT TO REMAIN AS SHOWN ON SHEET 14.
 - PROPOSED DOWEL BARS NOT SHOWN FOR CLARITY. REFER TO THE PROPOSED ABUTMENT SECTIONS.
 - SHEAR BLOCK BARS NOT SHOWN FOR CLARITY. SEE ABUTMENT DIAPHRAGM SECTIONS AND ABUTMENT 2 DETAILS.

- LEGEND:**
- FF FRONT FACE
 - RF REAR FACE
 - EF EACH FACE
 - EQ EQUAL
 - (B1) BEAM NUMBER

BEAM SEAT ELEVATION AT ABUTMENT 2

BEAM NO.	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33
ELEV.	768.22	768.13	768.03	767.93	767.83	767.74	767.75	767.77	767.78	767.77	767.89	767.91	767.84	767.85	767.85	767.83
ANGLE (DEG)	90° 00' 00"	91° 35' 01"	93° 09' 54"	94° 44' 29"	96° 18' 38"	97° 52' 14"	99° 25' 07"	100° 57' 11"	102° 28' 19"	103° 58' 23"	105° 27' 17"	106° 54' 56"	108° 21' 15"	109° 46' 09"	111° 09' 35"	112° 31' 28"

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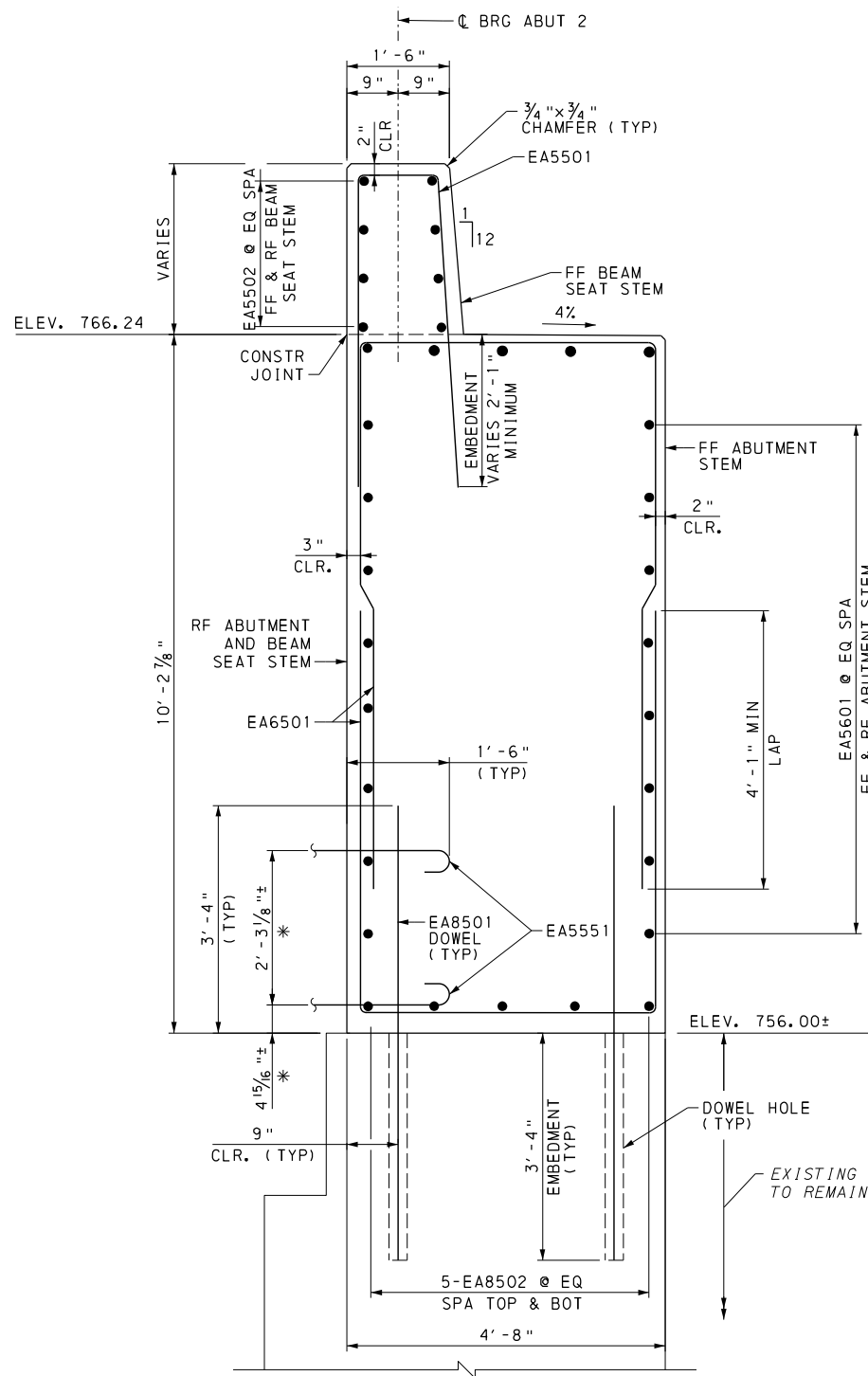
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REV	BY	DATE	DESCRIPTION

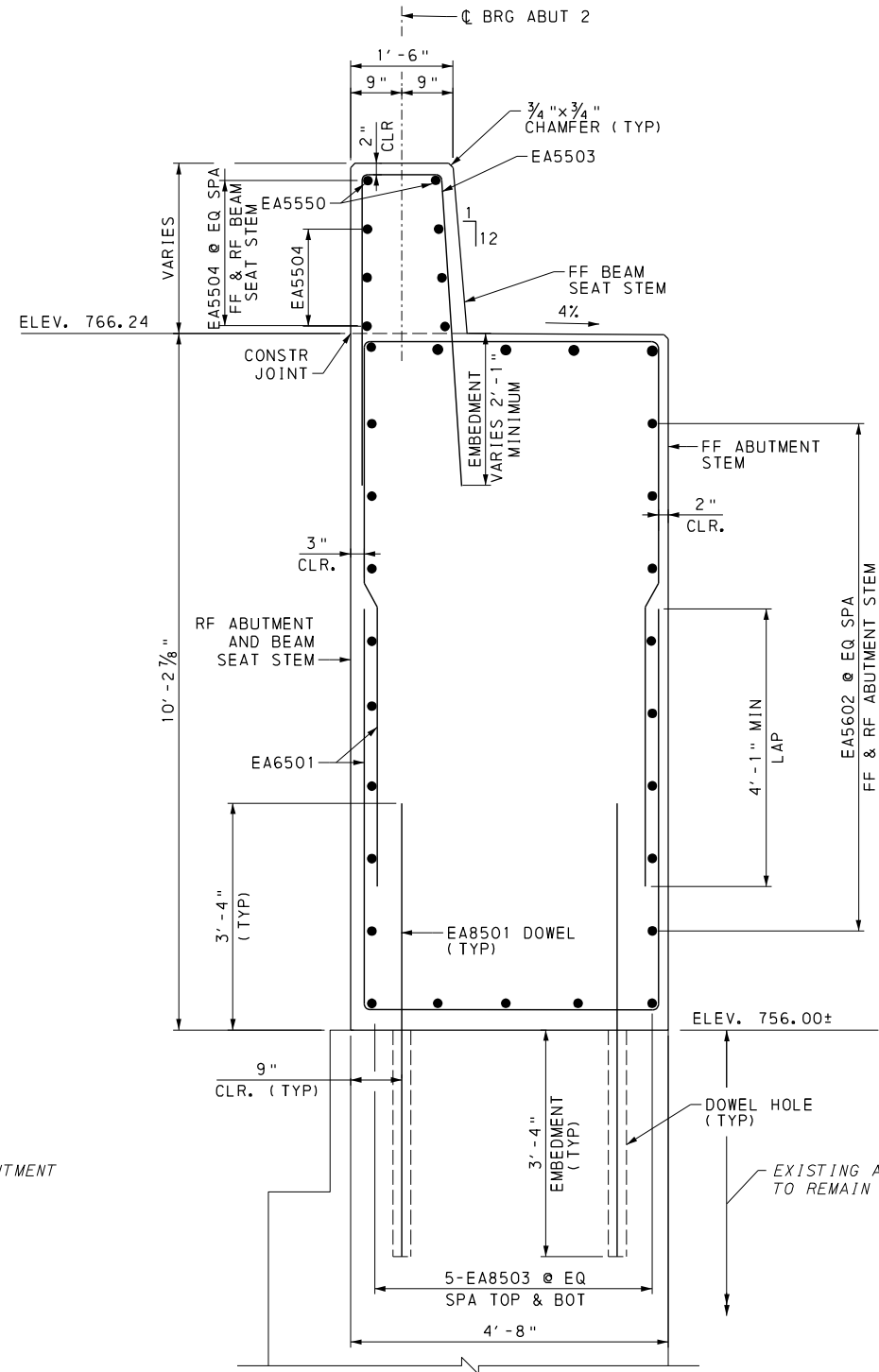
LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 2 PLAN AND ELEVATION - 2

OWN	DMB	PD/No			SCALE POST	PC 1.60
OWN	WRB	FILE No	BR0027858	DRAWING NUMBER		
CHK	ABC	DATE	9/11/2024			

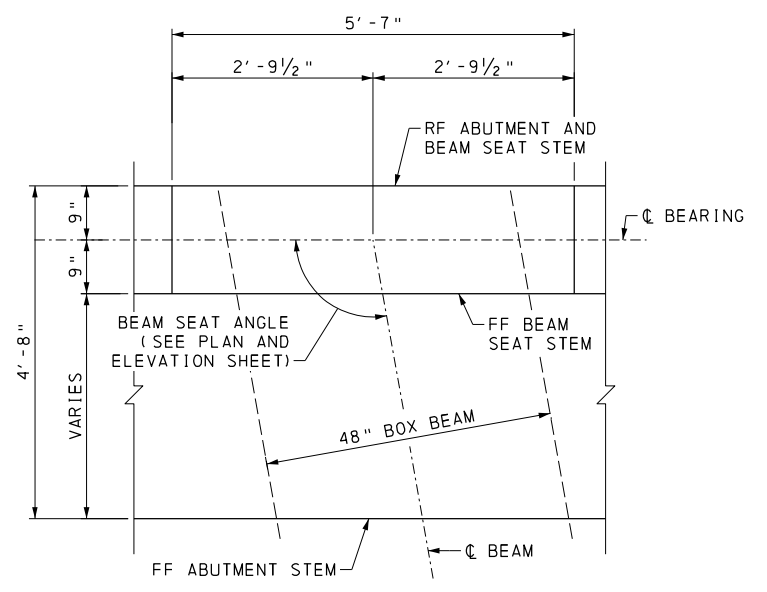
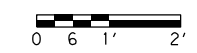
PC-1.60 23 24



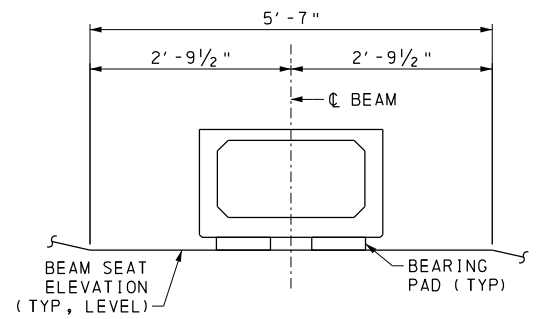
SECTION A21-A21



SECTION A22-A22



BEAM SEAT PLAN VIEW
NOT TO SCALE



BEAM SEAT ELEVATION VIEW
NOT TO SCALE

LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL
- * LAP WITH WING C
- RETAINING WALL EF5 BARS

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

REFERENCES:

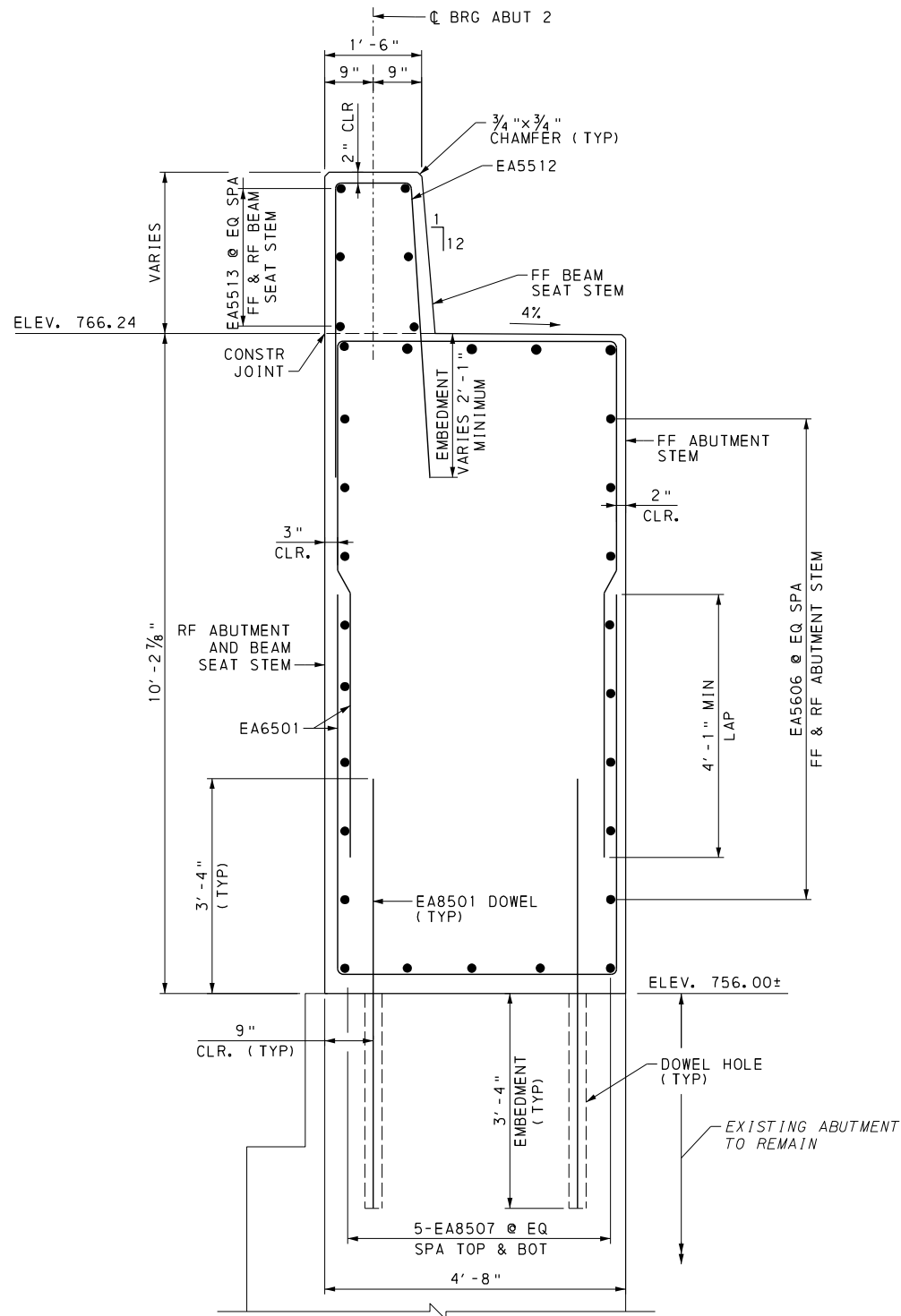
REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 2 PLAN AND ELEVATION - 1 - 2	23 - 24
6. ABUTMENT 2 SECTIONS - 2 - 3	26 - 27
7. ABUTMENT 2 DETAILS	28
8. ABUTMENT 2 REINFORCING SCHEDULE	29

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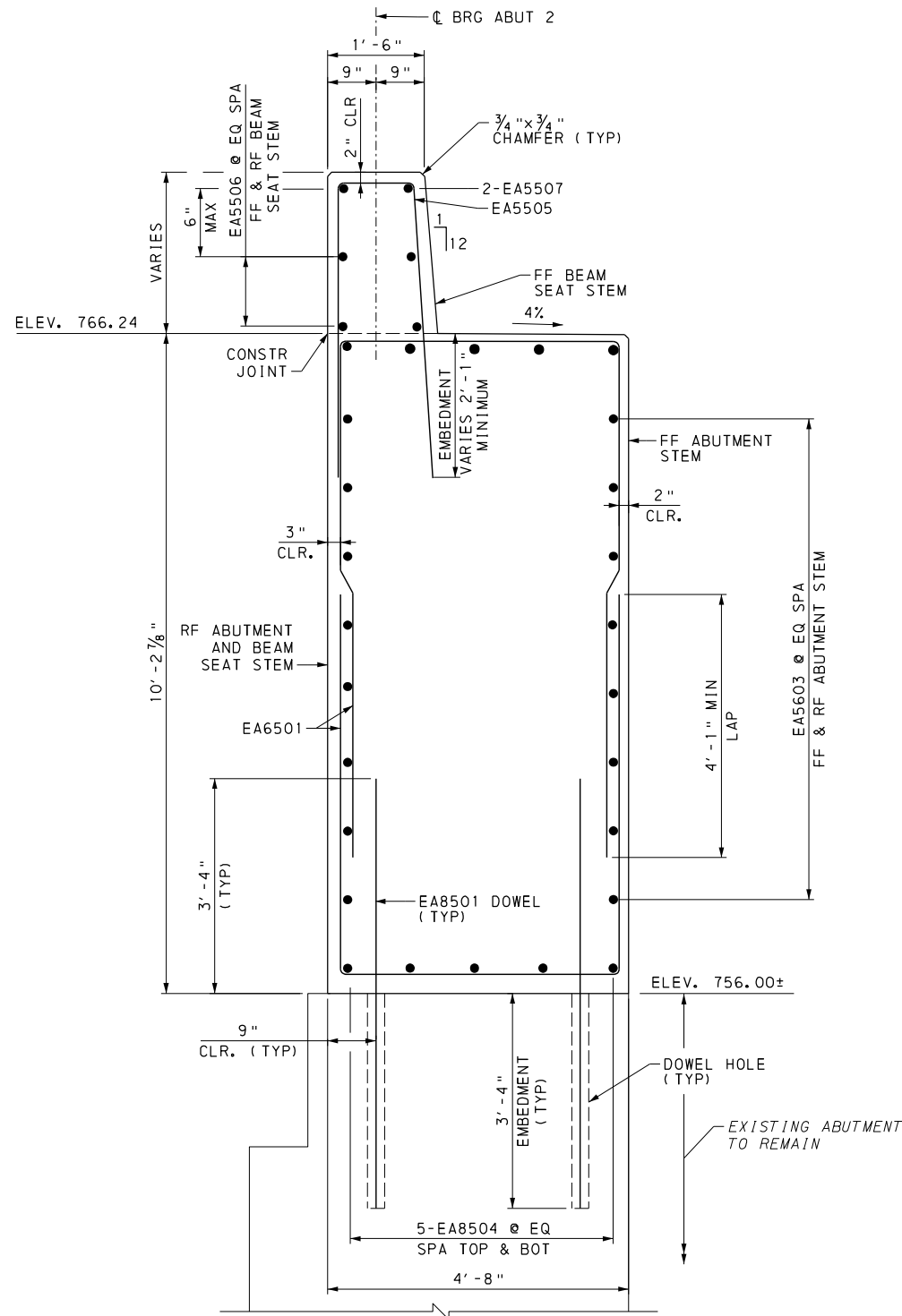
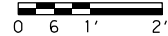
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 2 SECTIONS - 1			
DRN	DMB	PD/No	VERN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			PC-1.60 23 25

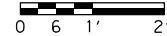
9/11/2024
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SECTION A23-A23



SECTION A24-A24



LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS
5. ABUTMENT 2 PLAN AND ELEVATION - 1 - 2
6. ABUTMENT 2 SECTIONS - 1 & 3
7. ABUTMENT 2 DETAILS
8. ABUTMENT 2 REINFORCING SCHEDULE

SHEET:

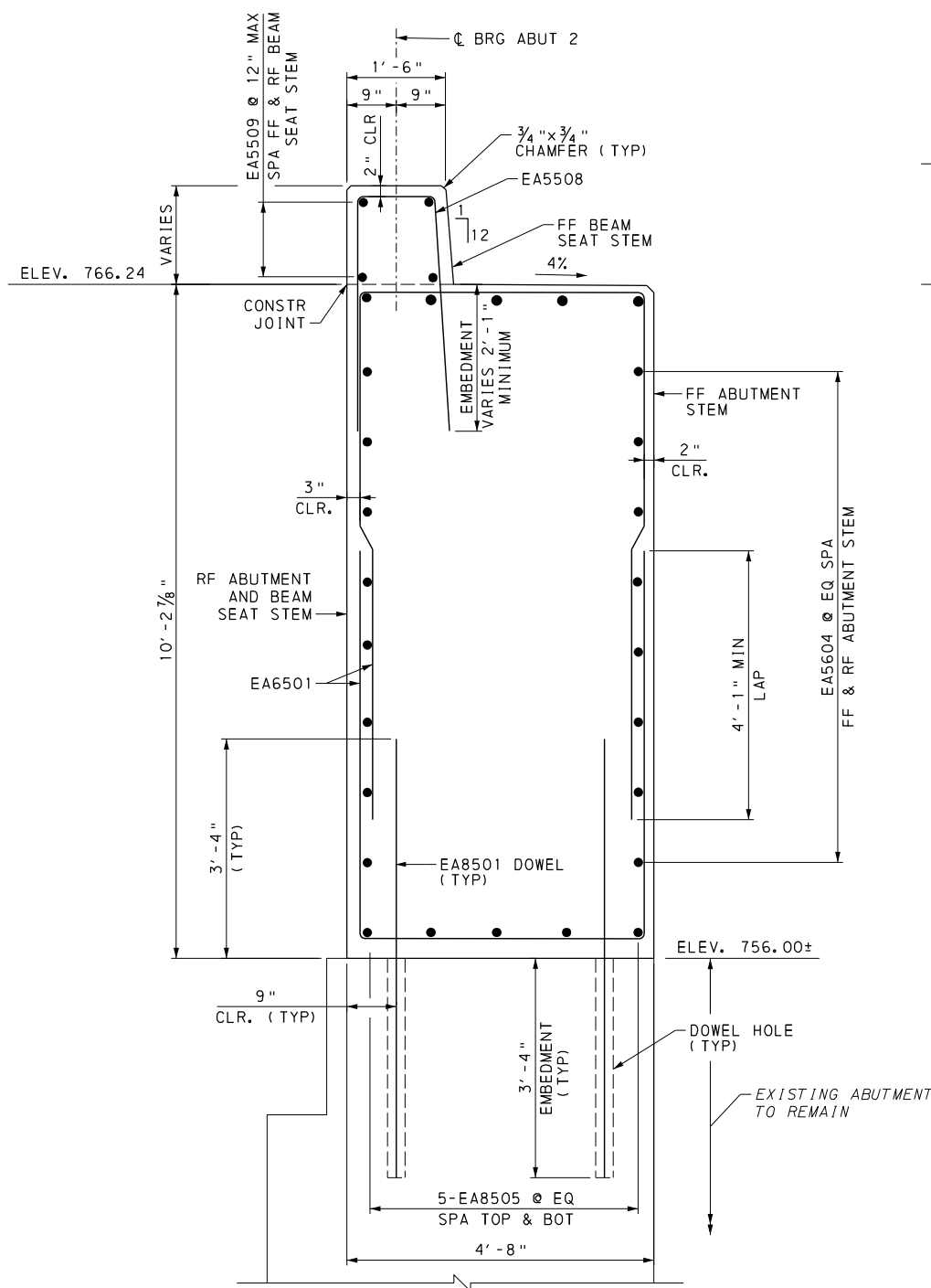
- 02
- 03
- 04
- 08
- 23 - 24
- 25 & 27
- 28
- 29

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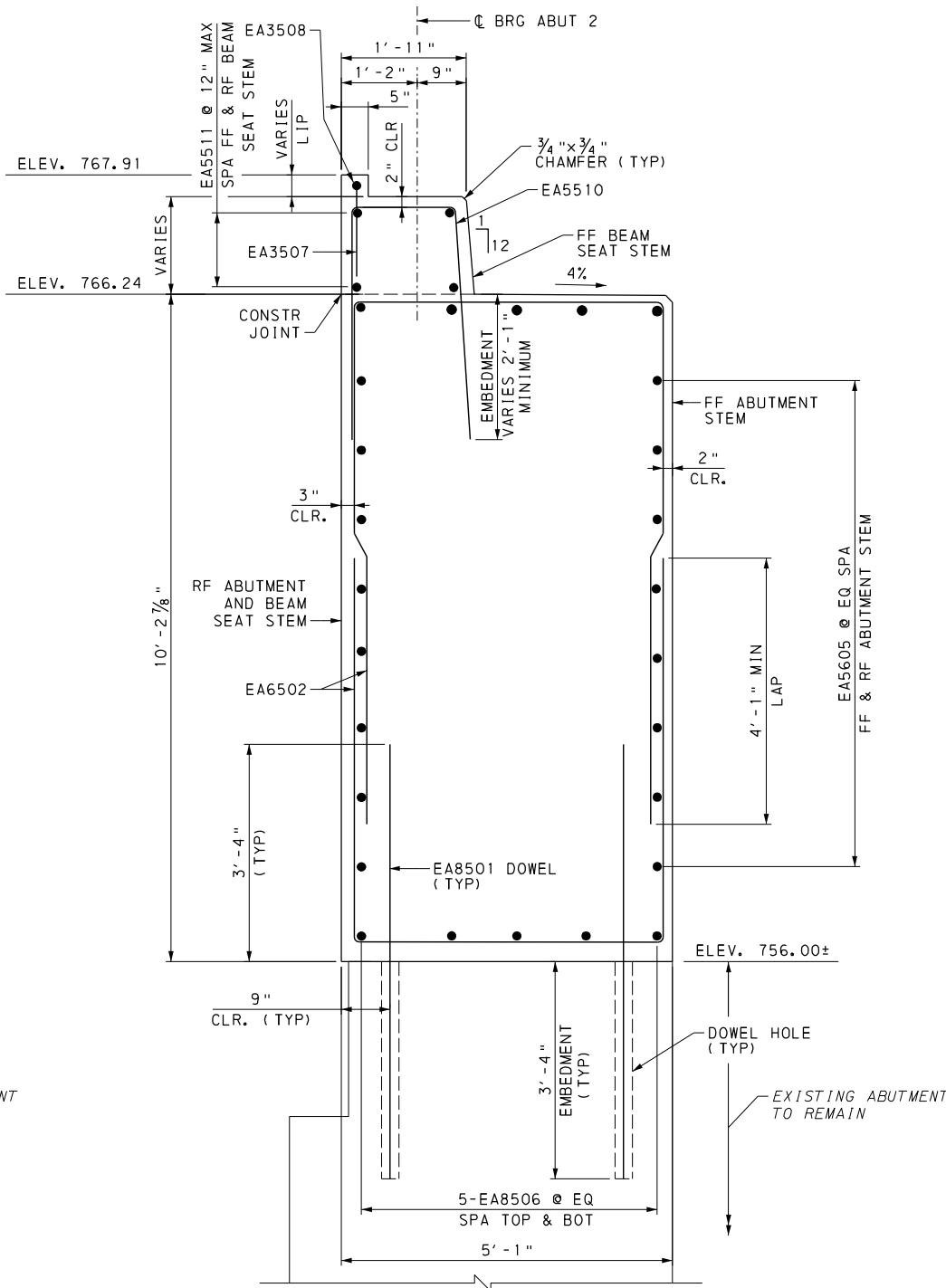
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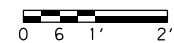
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PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 2 SECTIONS - 2			
DWG	DMB	PD No	DATE
DWG	WRB	FILE No	BR0027858
CHK	ARC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 26



SECTION A25-A25



SECTION A26-A26



LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. LIMITS OF FLOWABLE BACKFILL AND STRUCTURE BACKFILL NOT SHOWN. SEE SHEET 21 FOR DETAILS.

REFERENCES:

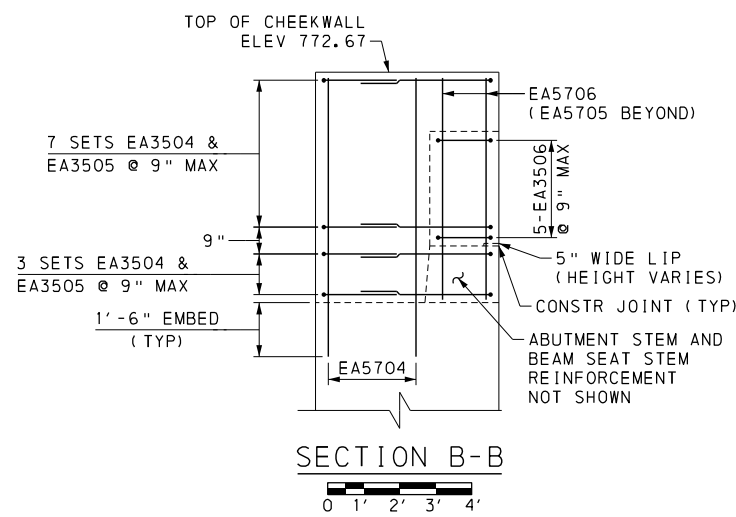
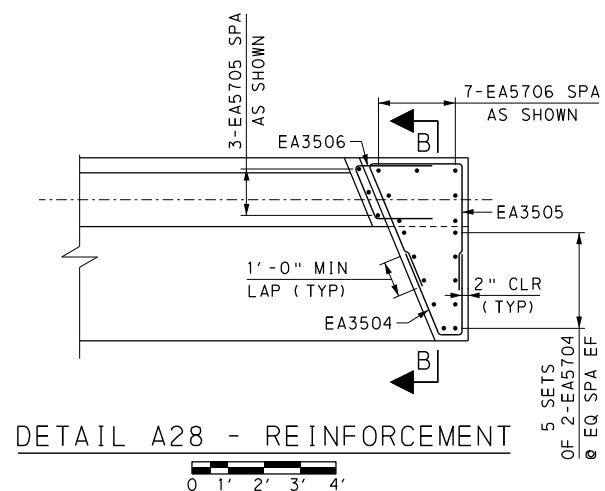
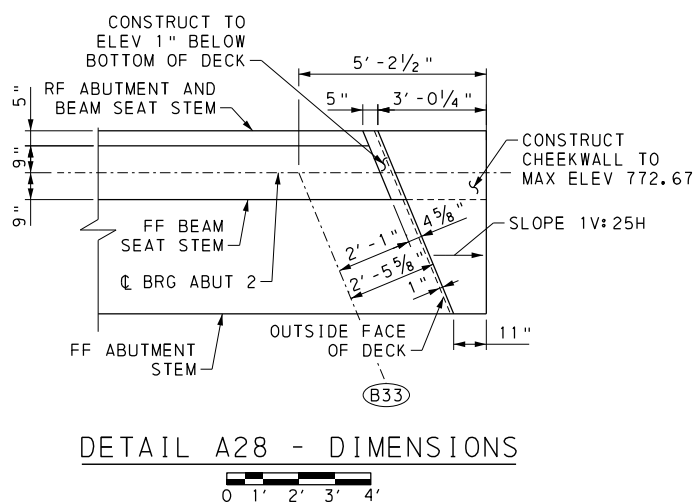
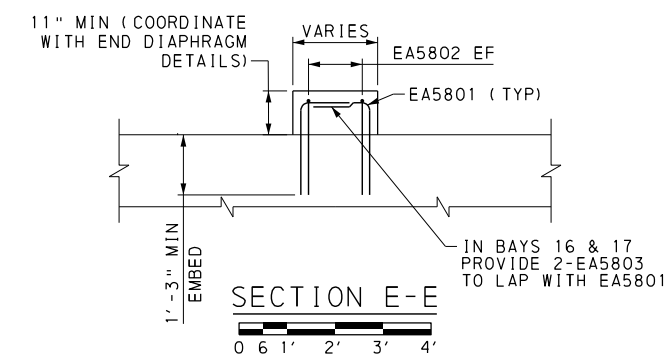
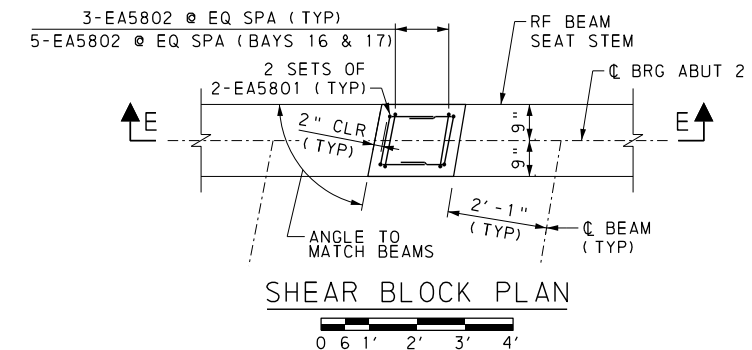
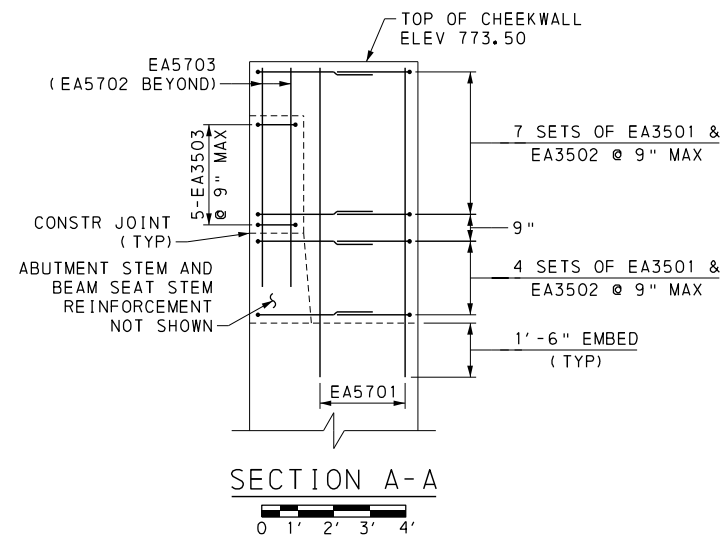
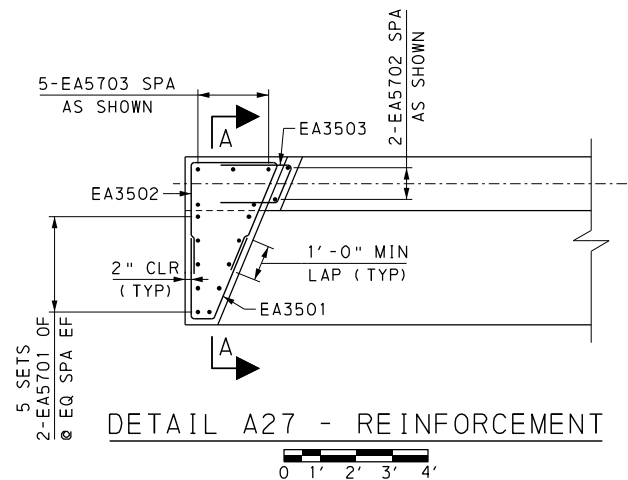
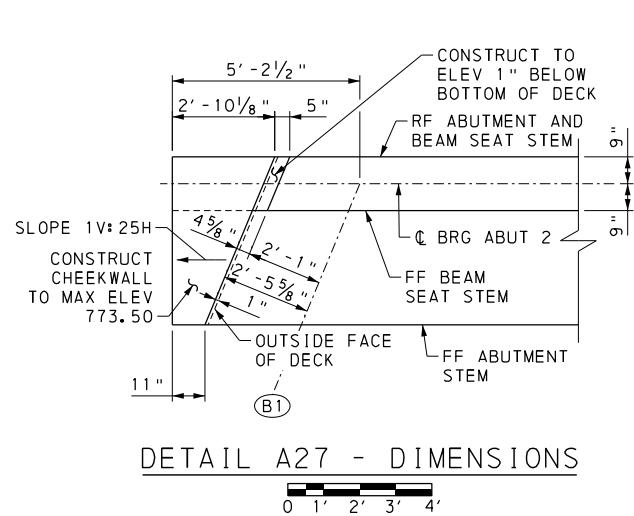
REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. ABUTMENT 2 PLAN AND ELEVATION - 1 - 2	23 - 24
6. ABUTMENT 2 SECTIONS - 1 - 2	25 - 26
7. ABUTMENT 2 DETAILS	28
8. ABUTMENT 2 REINFORCING SCHEDULE	29

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 100 AIRSIDE DRIVE
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REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 2 SECTIONS - 3			
DRN	DMB	RD No	VERN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER			PC 1.60
DRAWING NUMBER			PC-1.60 23 27

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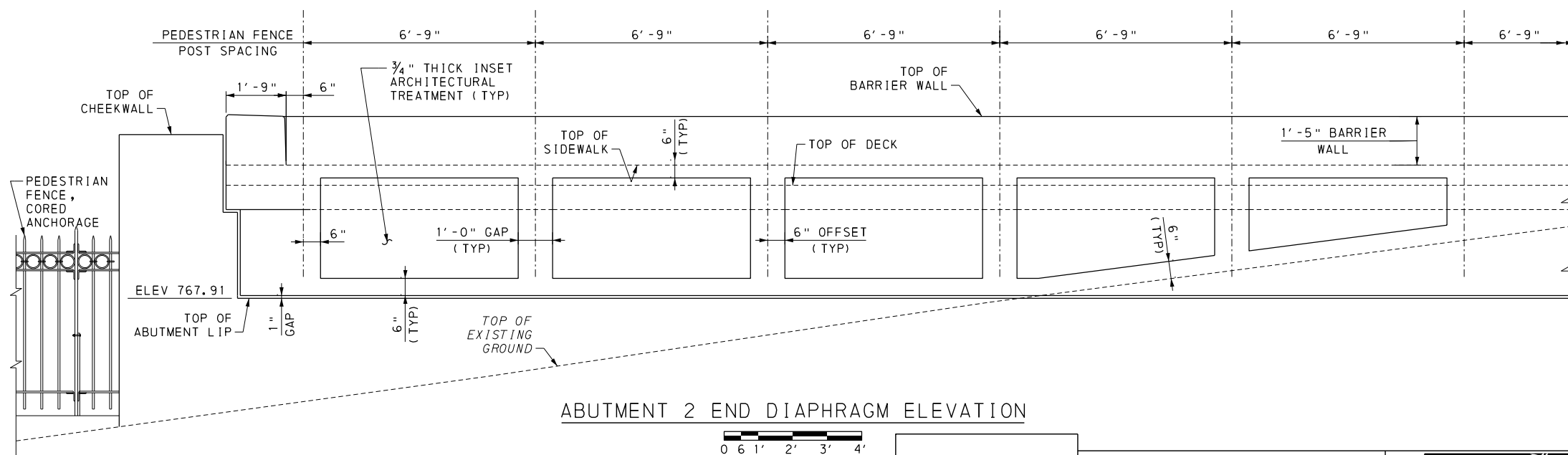
- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- EQ EQUAL

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
2. SHEAR BLOCKS ARE LOCATED IN BAYS 9 - 23, INCLUSIVE.

REFERENCES:

NO.	DESCRIPTION	SHEET:
1.	SUPPLEMENTAL DRAWINGS	02
2.	GENERAL NOTES	03
3.	QUANTITIES	04
4.	INDEX OF DRAWINGS	08
5.	ABUTMENT 2 PLAN AND ELEVATION - 1 - 2	23 - 24
6.	ABUTMENT 2 SECTIONS - 1 - 3	25 - 27
7.	ABUTMENT 2 REINFORCING SCHEDULE	29



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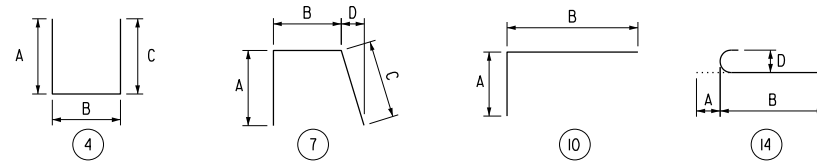
NORFOLK SOUTHERN
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 PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT ABUTMENT 2 DETAILS			
DRW	DMB	PD/No	VERN
DRW	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 28

ABUTMENT 2 REINFORCEMENT BAR SCHEDULE												ABUTMENT 2 REINFORCEMENT BAR SCHEDULE												
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS	MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS	
EA3501	3	11	6'-1"	7	2'-9"	7"	2'-9"	*			* BEND LEG IN FIELD	EA5701	5	10	8'-6"	STR								
EA3502	3	11	8'-0"	7	2'-9"	2'-6"	2'-9"	*			* BEND LEG IN FIELD	EA5702	5	2	3'-10"	STR								
EA3503	3	5	4'-2"	4	1'-6"	1'-2"	1'-6"					EA5703	5	5	6'-0"	STR								
EA3504	3	10	6'-1"	7	2'-9"	7"	2'-9"	*			* BEND LEG IN FIELD	EA5704	5	10	7'-8"	STR								
EA3505	3	10	9'-2"	7	3'-3"	2'-8"	3'-3"	*			* BEND LEG IN FIELD	EA5705	5	3	3'-10"	STR								
EA3506	3	5	4'-7"	4	1'-6"	1'-7"	1'-6"					EA5706	5	7	6'-0"	STR								
EA3507	3	4	5'-8"	4	1'-6"	2'-8"	1'-6"				ABUTMENT LIP													
EA3508	3	1	43'-10 1/2"	STR							ABUTMENT LIP	EA5801	5	60	3'-4"	10	2'-0"	1'-4"					SHEAR BLOCKS	
												EA5802	5	49	5'-2"	4	2'-0"	1'-2"	2'-0"					SHEAR BLOCKS
EA5501	5	44	10'-0"	7	4'-5"	1'-0"	4'-7"	4 1/2"			VARY EMBEDMENT (2'-1" MIN)	EA5803	5	4	3'-6"	STR							SHEAR BLOCKS BAYS 16 & 17	
EA5502	5	8	35'-11"	STR																				
EA5503	5	41	10'-0"	7	4'-5"	1'-0"	4'-7"	4 1/2"			VARY EMBEDMENT (2'-1" MIN)	EA6501	6	442	18'-3"	4	7'-0"	4'-3"	7'-0"					
EA5504	5	6	29'-8"	STR								EA6502	6	120	18'-8"	4	7'-0"	4'-8"	7'-0"					
EA5505	5	38	10'-0"	7	4'-5"	1'-0"	4'-7"	4 1/2"			VARY EMBEDMENT (2'-1" MIN)													
EA5506	5	4	27'-5 1/2"	STR								EA8501	8	278	6'-8"	STR								
EA5507	5	2	15'-0"	10	10"	14'-2"					BEAM B16 & B17 BEAM SEAT	EA8502	8	10	37'-9"	STR								
EA5508	5	57	8'-8"	7	3'-9"	1'-0"	3'-11"	3 3/4"			VARY EMBEDMENT (2'-1" MIN)	EA8503	8	10	29'-8"	STR								
EA5509	5	4	41'-8"	STR								EA8504	8	10	27'-5 1/2"	STR								
EA5510	5	60	9'-1"	7	3'-9"	1'-5"	3'-11"	3 3/4"			VARY EMBEDMENT (2'-1" MIN)	EA8505	8	10	41'-8"	STR								
EA5511	5	4	47'-10 1/2"	STR								EA8506	8	10	49'-8 1/2"	STR								
EA5512	5	41	10'-0"	7	4'-5"	1'-0"	4'-7"	4 1/2"			VARY EMBEDMENT (2'-1" MIN)	EA8507	8	10	35'-6"	STR								
EA5513	5	6	33'-8"	STR																				
EA5550	5	2	12'-5"	10	10"	11'-7"					BEAM B6 & B7 BEAM SEAT													
EA5551	5	32	5'-11"	14	10"	5'-1"					WING C RET WALL FTG DOWELS													
EA5601	5	18	35'-11"	STR																				
EA5602	5	18	29'-8"	STR																				
EA5603	5	18	27'-5 1/2"	STR																				
EA5604	5	18	41'-8"	STR																				
EA5605	5	18	47'-10 1/2"	STR																				
EA5606	5	18	33'-8"	STR																				

REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.



REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- ABUTMENT 2 PLAN AND ELEVATION - 1 - 2
- ABUTMENT 2 SECTIONS - 1 - 3
- ABUTMENT 2 DETAILS

SHEET:

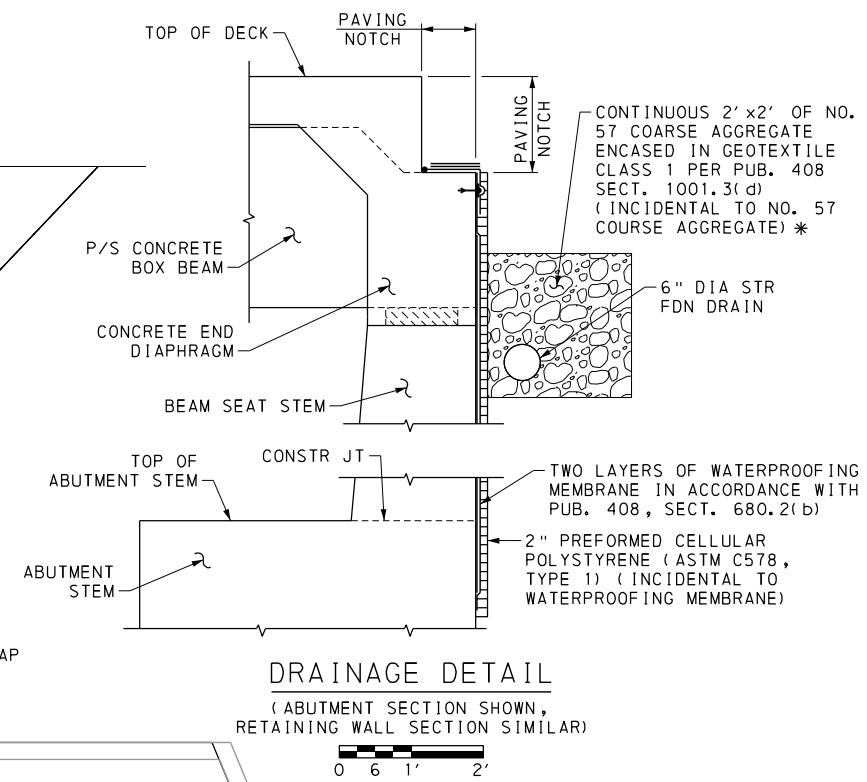
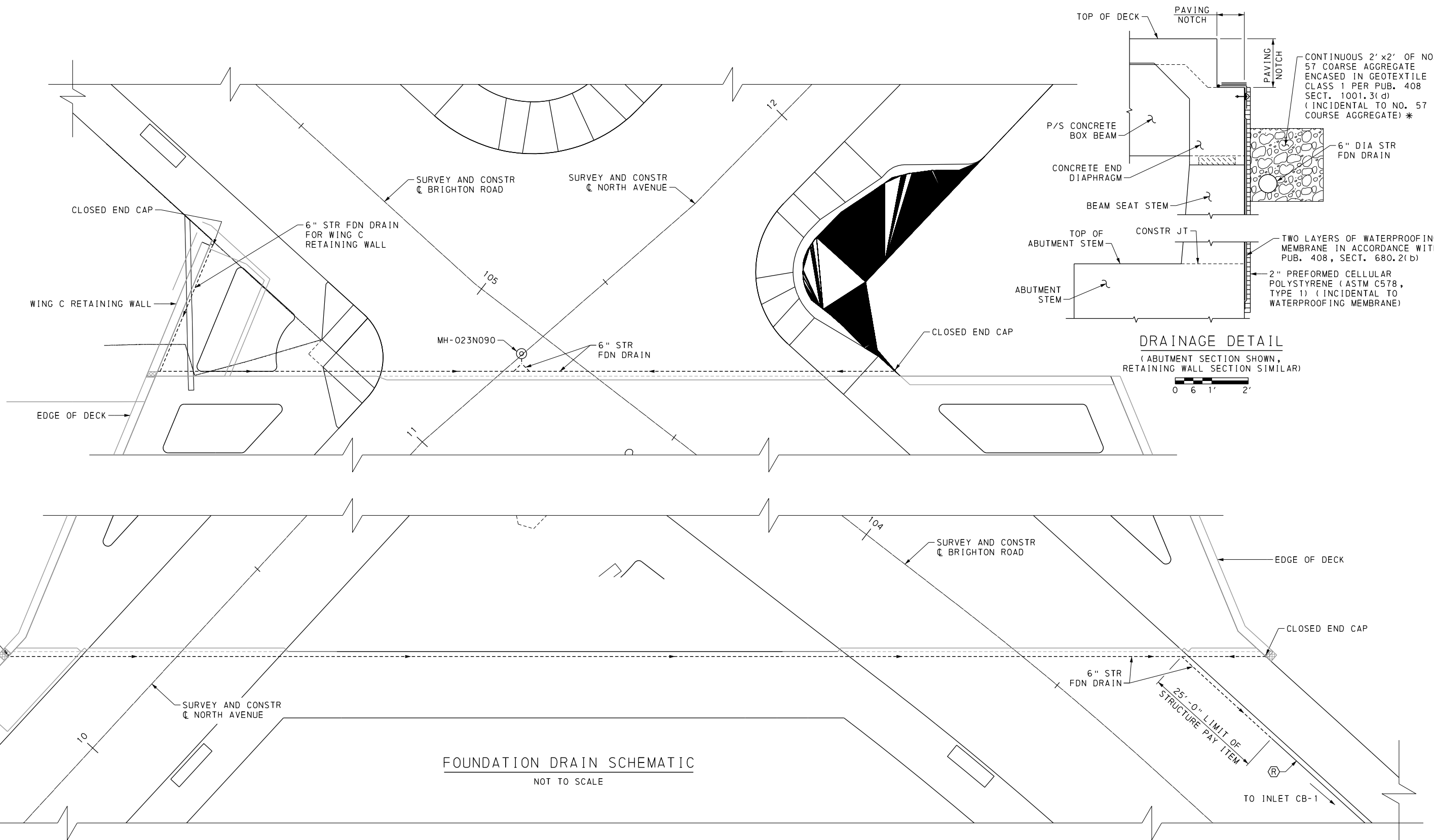
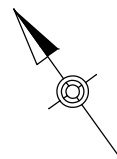
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- 25 - 27
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OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
ABUTMENT 2 REINFORCING SCHEDULE			
DWG	DMB	PD No.	DATE
DWG	WRB	FILE No.	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER			PC 1.60
DRAWING NUMBER			PC-1.60 23 29



FOUNDATION DRAIN SCHEMATIC
NOT TO SCALE

LEGEND:

- FOUNDATION DRAIN
- (R) ROADWAY ITEM
- FLOW DIRECTION (SLOPE DRAIN MIN. 1/8" /FT.)
- * NO. 57 AGGREGATE ENCASED IN GEOTEXTILE NOT REQUIRED IF NO. 57 AGGREGATE IS USED FOR STRUCTURE BACKFILL

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS

SHEET:

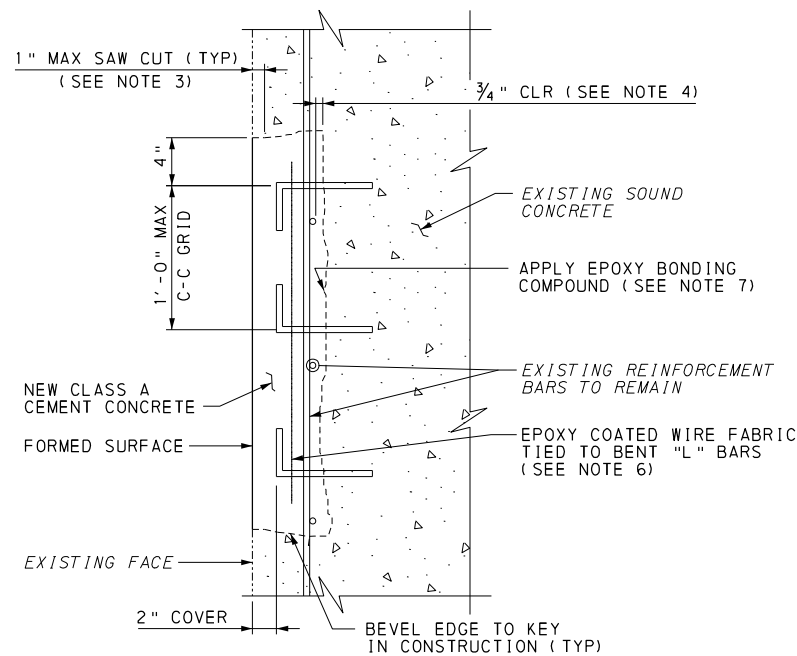
- 02
- 03
- 04
- 08

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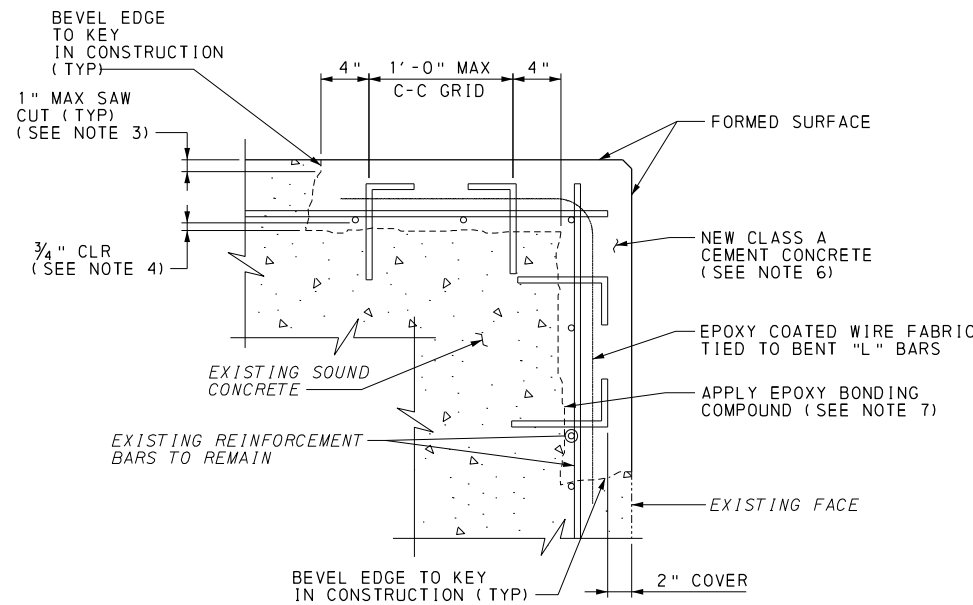
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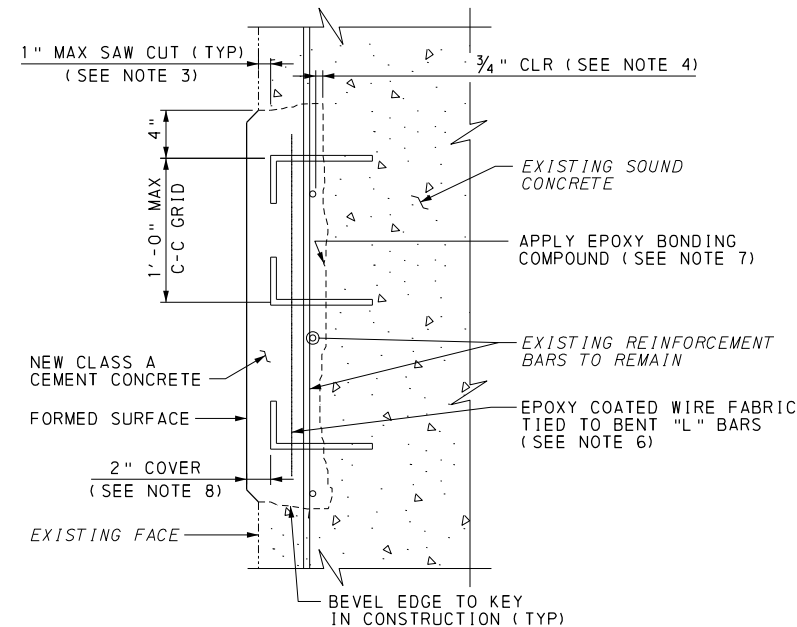
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
FOUNDATION DRAIN DETAILS			
DRN	DMB	PD/No	WVN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 30



TYPICAL REPAIR DETAIL
NOT TO SCALE



TYPICAL CORNER REPAIR DETAIL
NOT TO SCALE



**REPAIR FOR LESS THAN 2\"/> (AS DIRECTED BY PROJECT ENGINEER)
NOT TO SCALE**

CONSTRUCTION PROCEDURE FOR ITEM 9000-0610

1. PROVIDE SATISFACTORY PROTECTIVE SHIELDING BELOW ALL REPAIR AREAS. PROTECTIVE SHIELDING IS INCIDENTAL TO ALL WORK ASSOCIATED WITH ITEM 9000-0610.
2. THE REPRESENTATIVE WILL DETERMINE THE EXTENT OF THE REPAIR AREAS.
3. OUTLINE THE EDGE OF THE DESIGNATED REPAIR AREAS WITH A 1\"/>
- 4. WITHIN THE OUTLINED REPAIR AREAS, REMOVE THE DETERIORATED CONCRETE TO A DEPTH OF 3/4\"/>
- 5. AFTER THE REMOVAL OPERATIONS ARE COMPLETE, CLEAN ALL REMAINING DEBRIS AND LOOSE MATERIALS FROM THE REPAIR AREAS BY SANDBLASTING. SANDBLAST EXPOSED REINFORCEMENT BARS TO CLEAN WHITE METAL. EPOXY COAT THE EXPOSED REINFORCEMENT BARS. SPLICE ANY DAMAGED OR HEAVILY CORRODED REINFORCEMENT BARS IN ACCORDANCE WITH STANDARD DRAWING BC-736M. IF ENOUGH SPLICE LENGTH IS NOT AVAILABLE, DRILL NEW DOWEL HOLES AND PLACE DOWEL BAR BARS AS DIRECTED.
- 6. PLACE EPOXY COATED NO. 4 BENT "L" REINFORCEMENT BARS IN A 1'-0" CENTER-TO-CENTER MAXIMUM SPACED GRID. ANCHOR INTO SOUND CONCRETE WITH EPOXY ANCHORING SYSTEM. ATTACH WELDED WIRE FABRIC TO THE BENT "L" REINFORCEMENT BARS WITH ANNEALED IRON WIRE AT A MAXIMUM SPACING OF 1'-0" IN EACH DIRECTION.
- 7. SET FORMS TO PROVIDE MINIMUM CONCRETE COVER AS REQUIRED. MAINTAIN ALL CHAMFERS. AIR BLAST ALL REPAIR AREAS WITH OIL-FREE COMPRESSED AIR TO PROTECT AGAINST ANY CONTAMINANT DETRIMENTAL TO THE BOND OF THE NEW CONCRETE. APPLY EPOXY BONDING COMPOUND TO THE REPAIR AREA. WHILE THE EPOXY BONDING COMPOUND IS STILL TACKY, PLACE CLASS A CONCRETE WITH NUMBER 8 COARSE AGGREGATE. DO NOT PLACE CONCRETE IF THE COMPOUND IS NO LONGER TACKY OR IF THE COMPOUND HAS HARDENED. RECOAT ANY COMPOUND THAT IS NO LONGER TACKY. WIRE BRUSH OR SANDBLAST ANY COMPOUND THAT HAS HARDENED AND RECOAT REPAIR AREA.
- 8. PROVIDE A MINIMUM COVER OF 2" ON REINFORCEMENT BARS. IF ENOUGH CONCRETE COVER ON THE EXISTING REINFORCEMENT BARS IS NOT AVAILABLE, HAUNCH THE REPAIR OUTWARD.
- 9. REPAIR ANY CONCRETE DAMAGED DURING THE OPERATIONS TO THE SATISFACTION OF THE REPRESENTATIVE AT NO ADDITIONAL COST TO THE DEPARTMENT.

NOTES:

1. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS

SHEET:

- 02
- 03
- 04
- 08

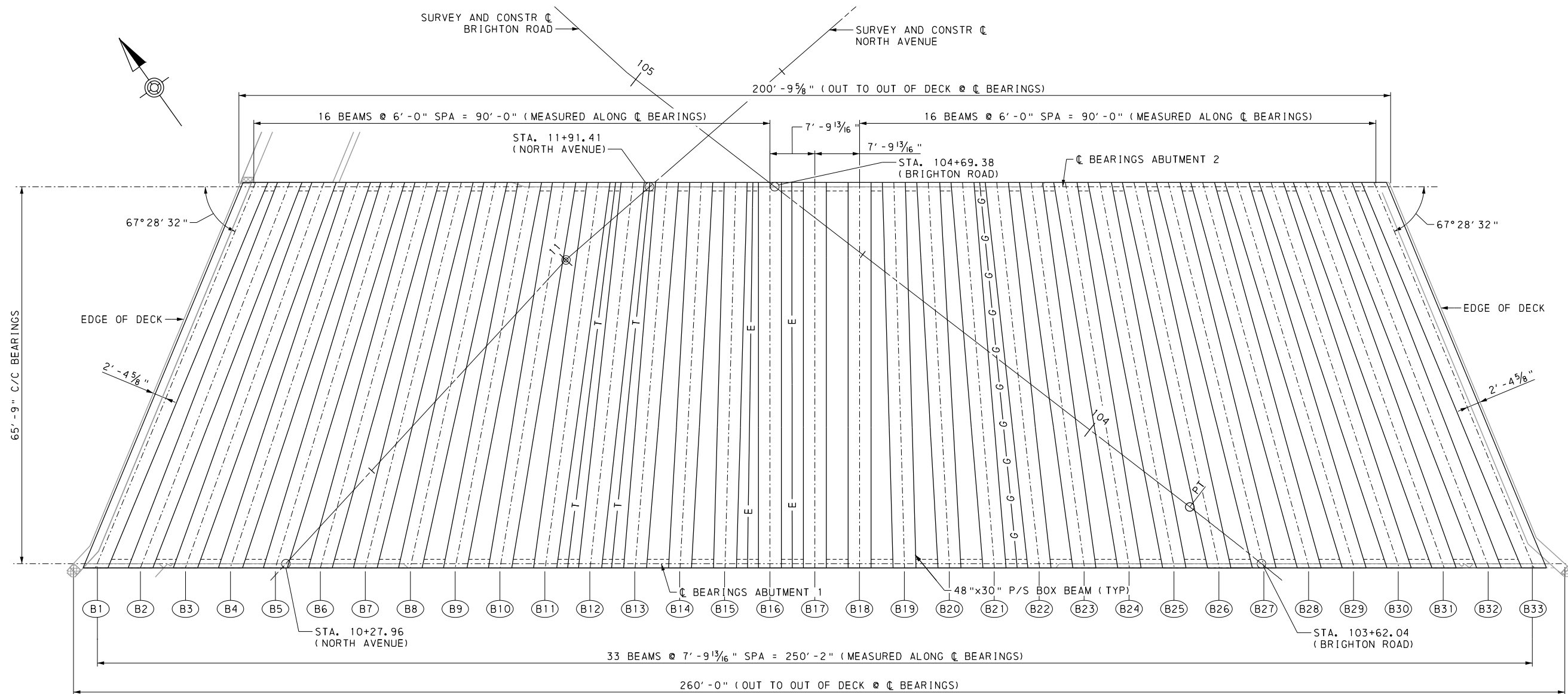
ITEM 9000-0610 - "CLASS A CEMENT CONCRETE REPAIRS" (PER SHEET 4)	
(THIS ITEM INCLUDES PAYMENT FOR THE FOLLOWING MATERIALS AND THEIR INSTALLATION)	
CLASS A CEMENT CONCRETE	SECTION 704 EXCEPT USE NO. 8 COARSE AGGREGATE
FORMS	SECTION 1001.2(h)
EPOXY ANCHORING SYSTEM	BULLETIN 15 & MANUFACTURERS RECOMMENDATIONS
WELDED WIRE FABRIC (EPOXY COATED OR GALVANIZED)	ASTM A-185 4x4-10x10 (10 GAUGE) [OR EQUIVALENT STEEL AREAS (IN. ²) PER SQUARE FOOT WITH MAX. GRID SPACING OF 4"]
ANNEALED IRON WIRE	ASTM-A684
EPOXY BONDING COMPOUND	ASTM C881 TYPE 11, GRADE 2
REINFORCEMENT BARS	SECTION 709.1
DOWEL HOLES	SECTION 1003, DIAMETER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION

NOTE: ANY ADDITIONAL REINFORCING STEEL WILL BE CONSIDERED INCIDENTAL TO ITEM 9000-0610.

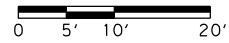
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT SUBSTRUCTURE CONCRETE REPAIR DETAILS			
DWG	DMB	FD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 31



FRAMING PLAN



REFERENCES:

- 1. SUPPLEMENTAL DRAWINGS
- 2. GENERAL NOTES
- 3. QUANTITIES
- 4. INDEX OF DRAWINGS
- 5. DECK ELEVATIONS - 1 - 2
- 6. BEAM FABRICATION DETAILS - 1 - 2

SHEET:

- 02
- 03
- 04
- 08
- 09 - 10
- 33 - 34

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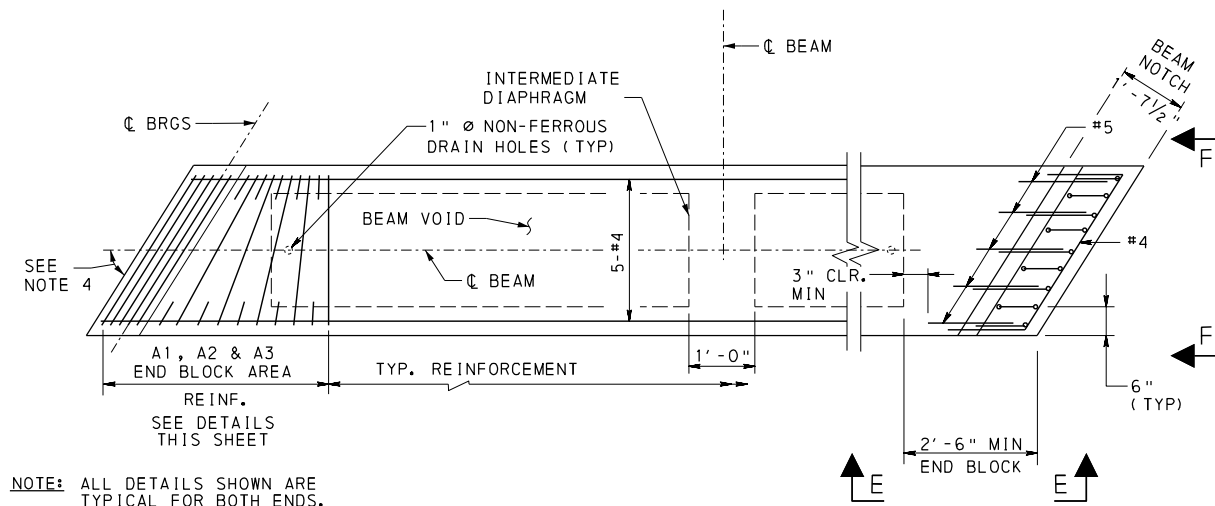
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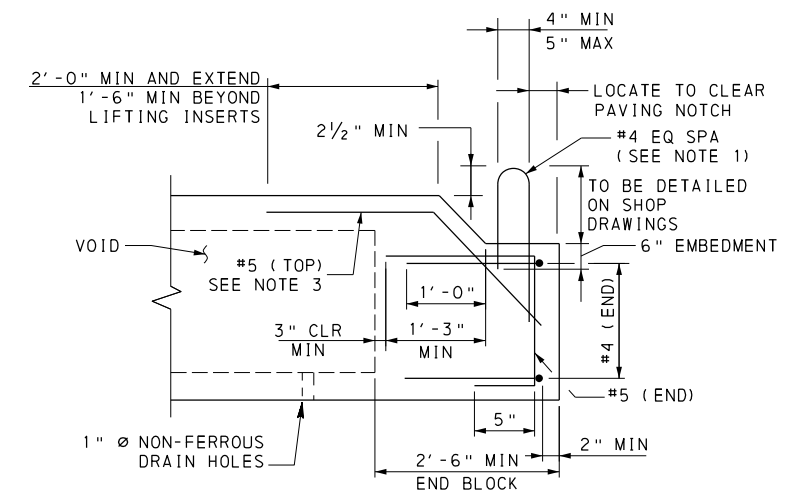
REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT FRAMING PLAN			
OWN	DMB	PD No	VERN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER: PC-1.60 23 32			SCALE POST: PC 1.60

NOTES:

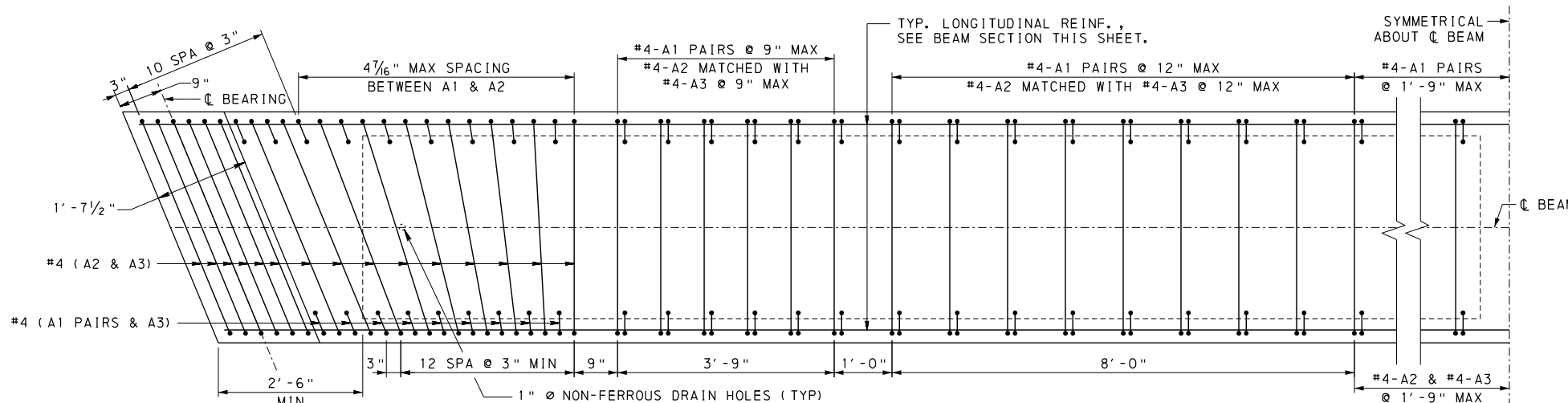
1. BARS MAY BE ROTATED PARALLEL TO BEAM END ALONG CENTERLINE OF BEARINGS.
2. BARS TO TERMINATE 1/4" ABOVE THE TOP OF THE BOTTOM SLAB OR 1'-3" BELOW BEAM NOTCH, WHICHEVER IS LESS.
3. BARS TO TERMINATE TO PROVIDE 2" MIN. COVER TO BEAM REAR FACE OR 1'-3" BELOW BEAM NOTCH, WHICHEVER IS LESS.
4. SEE ABUTMENT PLAN AND ELEVATION FOR BEAM ANGLES.



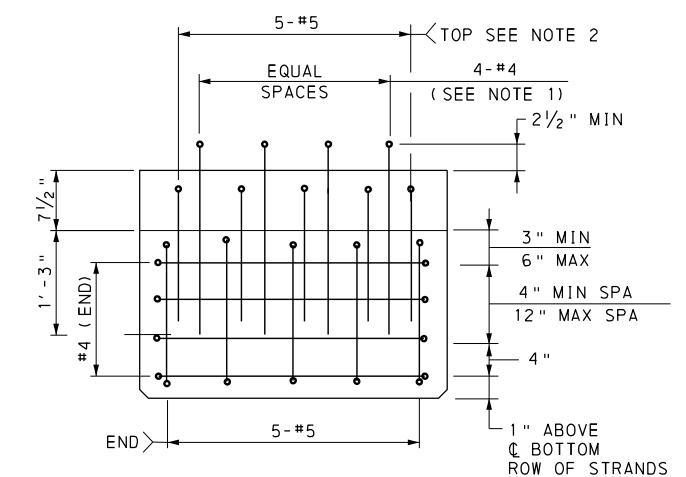
BEAM END TRANSVERSE REINFORCEMENT



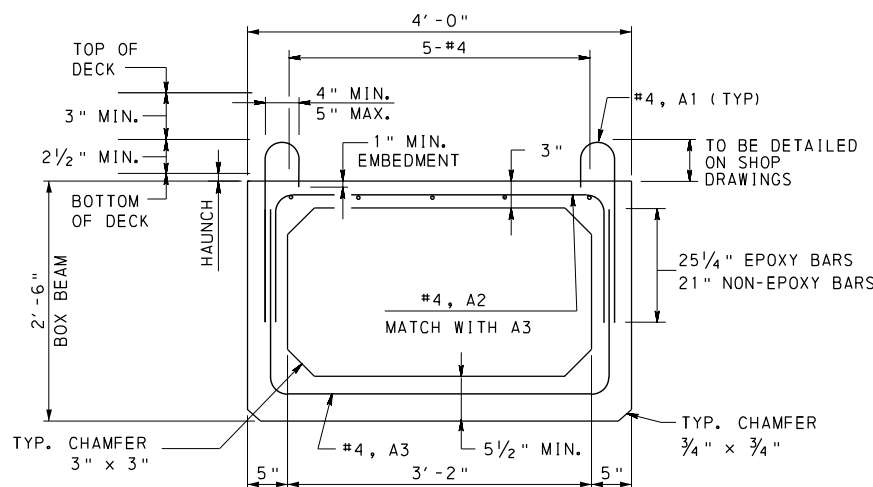
**VIEW E-E
END ELEVATION**



END BLOCK REINFORCEMENT



VIEW F-F



TYPICAL BEAM SECTION

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS
5. BEAM FABRICATION DETAILS - 2
6. ELASTOMERIC BEARING DETAILS - 1 - 2
7. END DIAPHRAGMS - 1 - 3
8. UTILITY HANGER DETAILS

SHEET:

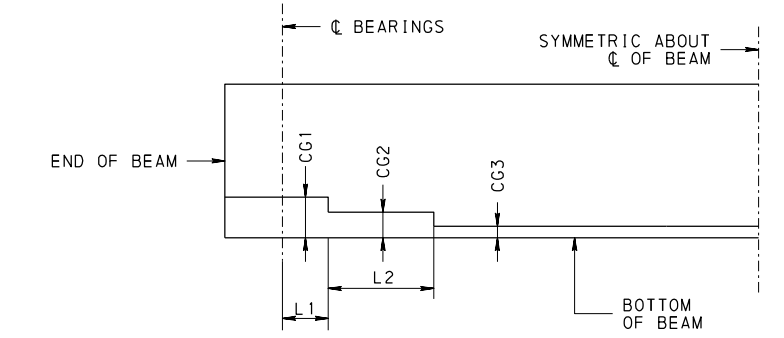
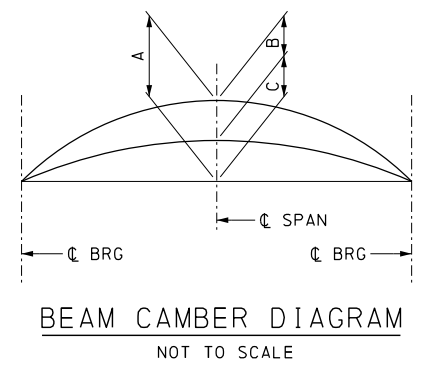
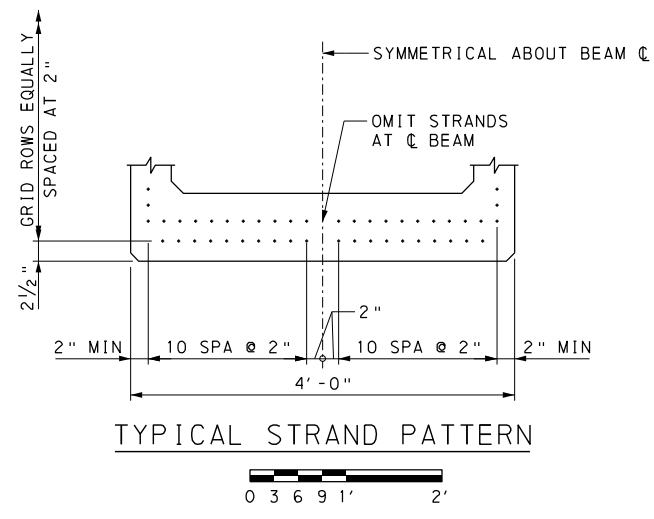
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
BEAM FABRICATION DETAILS - 1			
DRAWN	DMB	FILE NO	DATE
CHK	ABC	DATE	
DRAWING NUMBER			SCALE POST
PC-1.60 23 33			PC 1.60
9/11/2024			



A = ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO DEAD LOAD OF BEAM TIMES CREEP FACTOR (CHECK IN FIELD).
 B = DEFLECTION DUE TO ALL DEAD LOAD EXCEPT BEAM WEIGHT AND FUTURE WEARING SURFACE.
 C = A-B = NET FINAL CAMBER
 THE THICKNESS OF THE CONCRETE HAUNCH SHALL BE VARIED TO ACHIEVE THE REQUIRED VERTICAL GEOMETRY AND TO COMPENSATE FOR ANY INACCURACIES IN BEAM CAMBER.

A, B AND C ARE THEORETICAL VALUES AND MAY VARY WITH ACTUAL CONCRETE STRENGTH (AGE), VARIOUS PRESTRESSING CONDITIONS, CREEP FACTOR AND PRESTRESS LOSSES.

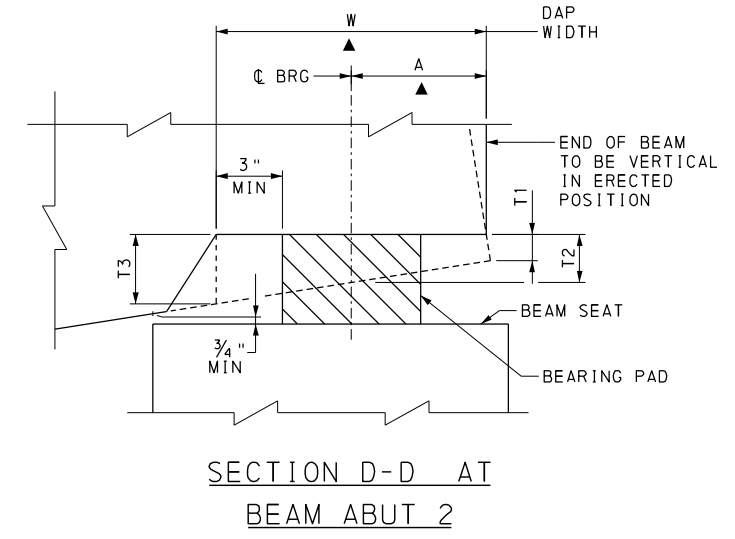
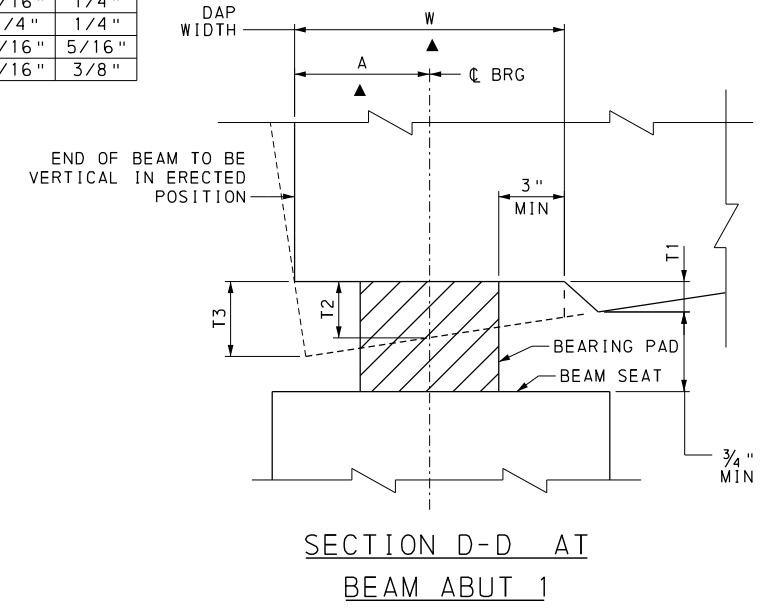
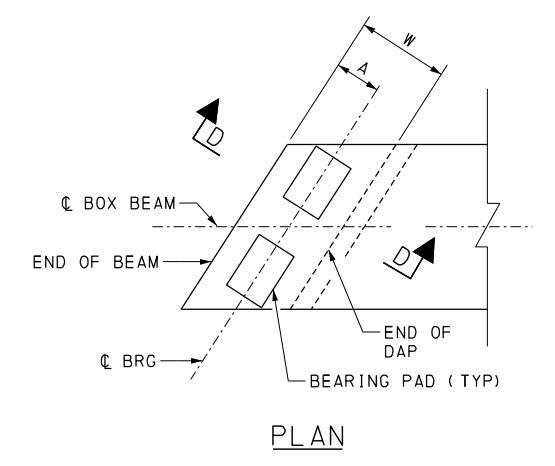
USE A CREEP FACTOR EQUAL TO 1.60 AND P/S LOSS EQUAL TO 10%.

PRESTRESSING DATA
 CONCRETE STRENGTH AT STRAND RELEASE (f'ci) 6.8 ksi
 CONCRETE STRENGTH AT 28 DAYS (f'c) 8 ksi
 JACKING PRESTRESS 202.5 ksi
 270 ksi LOW RELAXATION STRANDS,
 1/2" DIA, 0.167 in² STRAND AREA

DAP INFORMATION										
BEAM NO.	ABUTMENT 1					ABUTMENT 2				
	W	A	T1	T2	T3	W	A	T1	T2	T3
5	1'-5"	9"	1/4"	7/16"	11/16"	1'-5"	9"	1/4"	5/16"	3/8"
6	1'-4 7/8"	9"	1/4"	7/16"	5/8"	1'-4 7/8"	9"	1/4"	5/16"	5/16"
7	1'-4 7/8"	9"	1/4"	3/8"	9/16"	1'-4 7/8"	9"	1/4"	1/4"	1/4"
8	1'-4 3/4"	9"	1/4"	5/16"	7/16"	1'-4 3/4"	9"	3/8"	5/16"	1/4"
9	1'-4 3/4"	9"	1/4"	5/16"	3/8"	1'-4 3/4"	9"	7/16"	5/16"	1/4"
10	1'-4 5/8"	9"	1/4"	1/4"	5/16"	1'-4 5/8"	9"	1/2"	3/8"	1/4"
11	1'-4 5/8"	9"	1/4"	1/4"	1/4"	1'-4 5/8"	9"	9/16"	3/8"	1/4"
12	1'-4 5/8"	9"	1/4"	3/8"	1/2"	1'-4 5/8"	9"	1/4"	1/4"	5/16"
13	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	5/8"	7/16"	1/4"
14	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	5/8"	7/16"	1/4"
15	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	5/8"	7/16"	1/4"
16	1'-4 1/2"	9"	5/16"	5/16"	1/4"	1'-4 1/2"	9"	5/8"	7/16"	1/4"
17	1'-4 1/2"	9"	3/8"	5/16"	1/4"	1'-4 1/2"	9"	5/8"	7/16"	1/4"
18	1'-4 1/2"	9"	3/8"	5/16"	1/4"	1'-4 1/2"	9"	5/8"	7/16"	1/4"
19	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	5/8"	7/16"	1/4"
20	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	5/8"	7/16"	1/4"
21	1'-4 5/8"	9"	5/16"	5/16"	1/4"	1'-4 5/8"	9"	9/16"	3/8"	1/4"
22	1'-4 5/8"	9"	1/4"	1/4"	1/4"	1'-4 5/8"	9"	9/16"	3/8"	1/4"
23	1'-4 5/8"	9"	1/4"	1/4"	1/4"	1'-4 5/8"	9"	1/2"	3/8"	1/4"
24	1'-4 5/8"	9"	1/4"	1/4"	5/16"	1'-4 5/8"	9"	1/2"	3/8"	1/4"
25	1'-4 3/4"	9"	1/4"	5/16"	5/16"	1'-4 3/4"	9"	7/16"	5/16"	1/4"
26	1'-4 3/4"	9"	1/4"	5/16"	7/16"	1'-4 3/4"	9"	3/8"	5/16"	1/4"
27	1'-4 7/8"	9"	1/4"	3/8"	1/2"	1'-4 7/8"	9"	5/16"	1/4"	1/4"
28	1'-4 7/8"	9"	1/4"	3/8"	9/16"	1'-4 7/8"	9"	1/4"	5/16"	5/16"
29	1'-5"	9"	1/4"	7/16"	11/16"	1'-5"	9"	1/4"	5/16"	3/8"

CAMBER AND PRESTRESS TABLE					
BEAM NO.	TOTAL NUMBER OF STRANDS	JACKING PRESTRESS FORCE	A	B	C
1-4	54	1826.1	3.49	1.74	1.75
5-29	46	1555.6	3.05	1.36	1.69
30-33	54	1826.1	3.49	1.74	1.75

PRESTRESS DEBONDING TABLE					
BEAM NO.	LENGTH	DEBONDING DETAIL LOCATION	CENTER OF GRAVITY (CG)	NO. STRANDS BONDED	
1-4	L1	6'-6"	CG1	5.80"	46
	L2	6'-0"	CG2	5.42"	52
	--	--	CG3	5.31"	54
5-29	L1	4'-0"	CG1	4.83"	36
	L2	1'-0"	CG2	4.50"	42
	--	--	CG3	4.33"	46
30-33	L1	6'-6"	CG1	5.80"	46
	L2	6'-0"	CG2	5.42"	52
	--	--	CG3	5.31"	54



- NOTES:**
- DO NOT PLACE MORE THAN ONE COLUMN OF PRESTRESSING STRANDS IN THE WEBS.
 - DO NOT PLACE PRESTRESSING STRANDS AT CORNER LOCATION IN BOTTOM ROW.

LEGEND:
 ▲ MEASURED NORMAL TO C BEARINGS

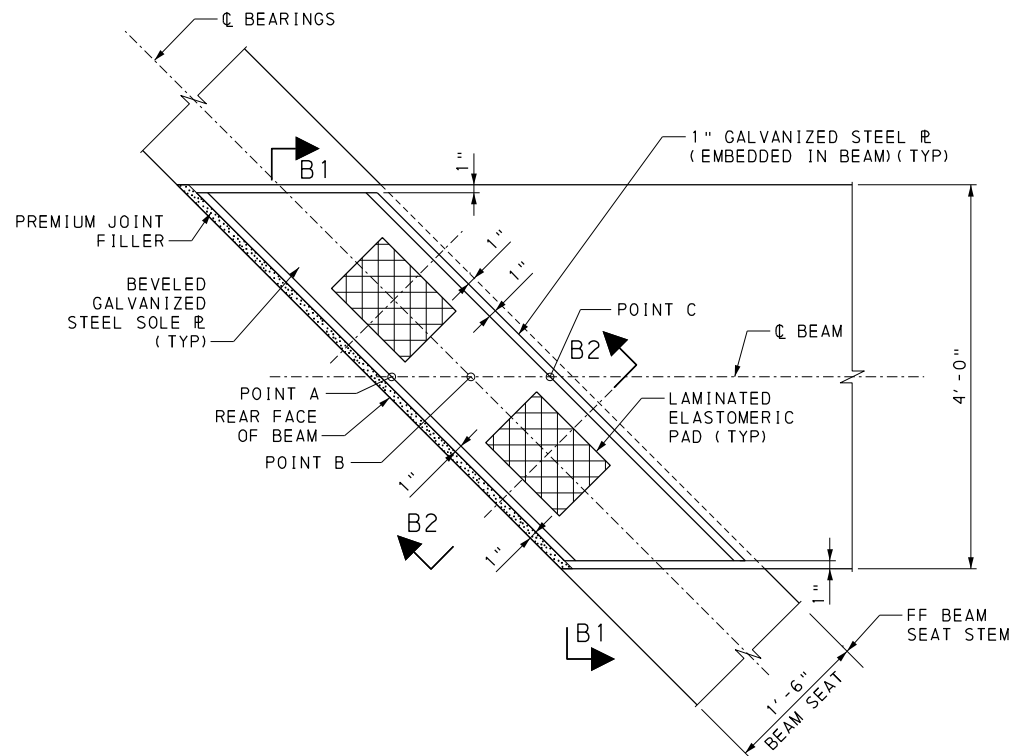
- REFERENCES:**
- SUPPLEMENTAL DRAWINGS 02
 - GENERAL NOTES 03
 - QUANTITIES 04
 - INDEX OF DRAWINGS 08
 - BEAM FABRICATION DETAILS - 1 33
 - ELASTOMERIC BEARING DETAILS - 1 - 2 35 - 36
 - END DIAPHRAGMS - 1 - 3 37 - 39
 - UTILITY HANGER DETAILS 40

BEAM DAP DETAILS
 NOT TO SCALE

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 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
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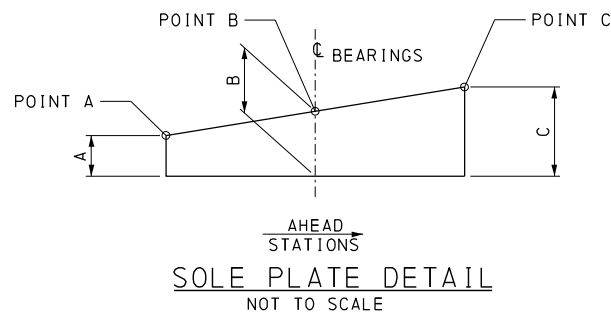
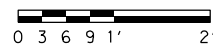
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 PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
BEAM FABRICATION DETAILS - 2			
DWG	DMB	PD/No	VRN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 34



TYPICAL BEARING DETAIL

(WATERPROOFING NOT SHOWN FOR CLARITY)

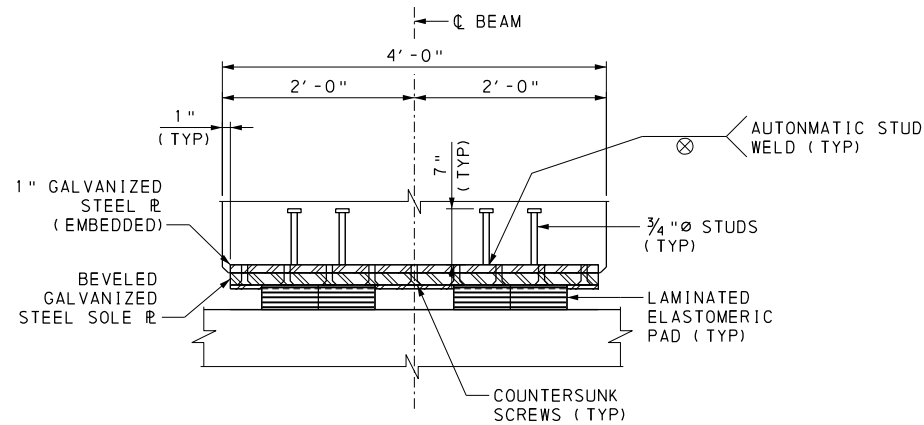


SOLE PLATE DETAIL

NOT TO SCALE

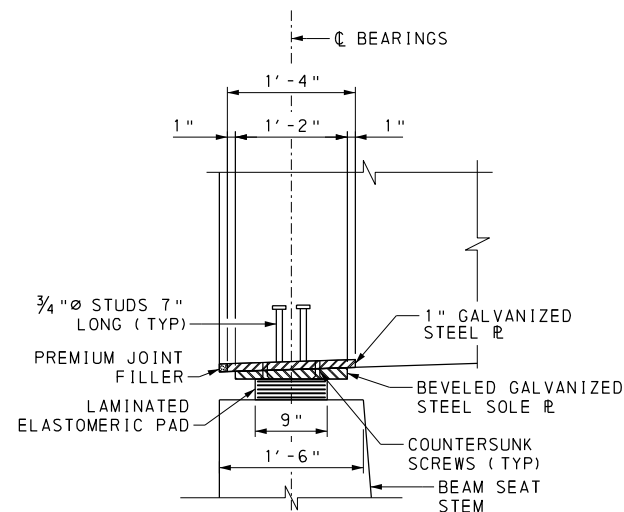
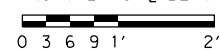
BEVELED SOLE PLATE THICKNESS

BEAM NO.	LOCATION	A	B	C
1	ABUT 1	1"	1 3/8"	1 11/16"
	ABUT 2	1"	1 1/4"	1 7/16"
2	ABUT 1	1"	1 5/16"	1 5/8"
	ABUT 2	1"	1 3/16"	1 3/8"
3	ABUT 1	1"	1 1/4"	1 9/16"
	ABUT 2	1"	1 3/16"	1 5/16"
4	ABUT 1	1"	1 1/4"	1 1/2"
	ABUT 2	1"	1 1/8"	1 3/16"
30	ABUT 1	1"	1 1/4"	1 1/2"
	ABUT 2	1"	1 1/8"	1 3/16"
31	ABUT 1	1"	1 1/4"	1 1/2"
	ABUT 2	1"	1 1/8"	1 1/4"
32	ABUT 1	1"	1 5/16"	1 9/16"
	ABUT 2	1"	1 3/16"	1 5/16"
33	ABUT 1	1"	1 5/16"	1 5/8"
	ABUT 2	1"	1 3/16"	1 3/8"



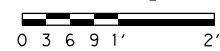
SECTION B1-B1

(NORMAL TO CL BEAM)



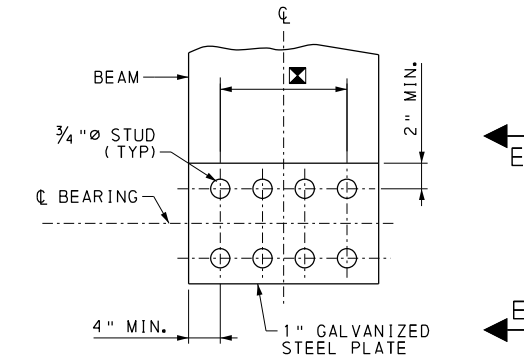
SECTION B2-B2

(NORMAL TO CL BEAM)



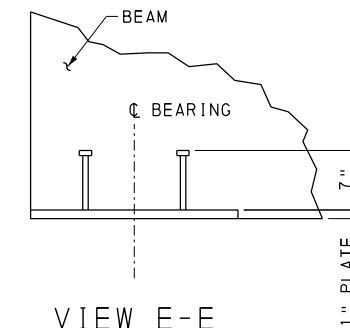
NOTES:

1. PROVIDE STRUCTURAL STEEL FOR SOLE PLATES CONFORMING TO AASHTO M270 (ASTM A709) GRADE 36.
2. FOR ADDITIONAL INFORMATION, SEE BC-755M.



ALTERNATE ANCHOR DETAIL

(NOT TO SCALE)



VIEW E-E

(NOT TO SCALE)

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL NOTES
3. QUANTITIES
4. INDEX OF DRAWINGS
5. BEAM FABRICATION DETAILS - 1 - 2
6. ELASTOMERIC BEARING DETAILS - 2
7. END DIAPHRAGMS - 1 - 3

SHEET:

- 02
- 03
- 04
- 08
- 33 - 34
- 36
- 37 - 39

LEGEND:

- L BEARING PAD LENGTH
- W BEARING PAD WIDTH
- T BEARING PAD THICKNESS
- B BEAM FLANGE WIDTH
- P SOLE PLATE LENGTH
- PT SOLE PLATE THICKNESS
- ☒ SPACED AS REQUIRED TO MISS STRAND PATTERN

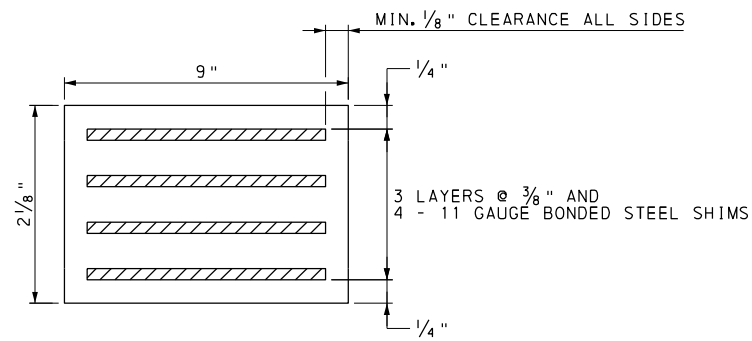
9/11/2024 NS_Nor-th_BearIngl.dgn 3:03:18 PM

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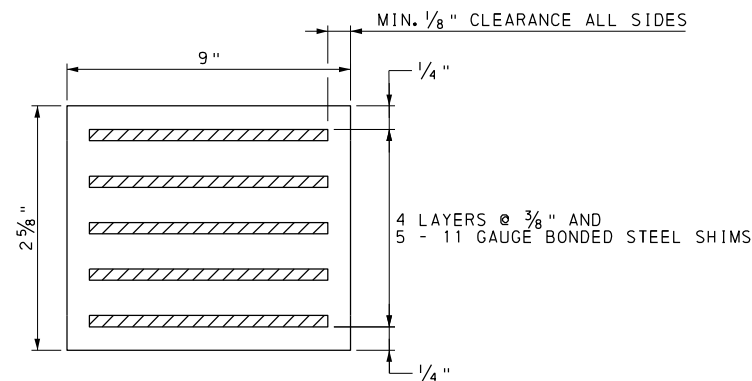
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			NORTH AVENUE BRIDGE REPLACEMENT
			ELASTOMERIC BEARING DETAILS - 1
DIV	DMB	PD No	DATE POSTED
DIV	WRB	FILE No	PC 1.60
CHK	ABC	DATE	9/11/2024

ELASTOMERIC BEARING PADS					
ABUTMENT	BEAM NOS.	BEARING TYPE	ITEM DESCRIPTION	SIZE (T x L x W)	NUMBER REQUIRED
ABUT 1	1-8 & 26-33	EXP	LAMINATED PADS	2 5/8" x 9" x 13"	32 *
ABUT 1	9-25	FIX	LAMINATED PADS	2 1/8" x 9" x 13"	34 *
ABUT 2	1-33	EXP	LAMINATED PADS	2 5/8" x 9" x 13"	66 *



ELASTOMERIC BEARING PAD SECTION
ABUTMENT 1 (REGIONS 2 & 3)

NOT TO SCALE



ELASTOMERIC BEARING PAD SECTION
ABUTMENT 2 (REGIONS 1, 2, 3 & 4)
AND ABUTMENT 1 (REGIONS 1 & 4)

NOT TO SCALE

BEARING NOTES:

- SMOOTH CUT AND DEBURR METAL SHIMS.
- GRIT BLAST AND DEGREASE METAL SHIMS.
- MANUFACTURE ALL BEARINGS IN ACCORDANCE WITH THE COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PLANS AND SPECIFICATIONS (PUB. 408) SECTION 1113.02 AND DESIGN MANUAL - PART 4.
- ALL BEARING PADS ARE TO BE MOLDED TO DESIGN DIMENSIONS. CUTTING TO SIZE AFTER FABRICATION IS PROHIBITED.
- PROVIDE NEOPRENE 50 +/-5 DUROMETER.
- PROVIDE MINIMUM LOW-TEMPERATURE NEOPRENE GRADE 3.
- PROVIDE INTERNAL SHIMS AS PER ASTM A36/A36M GRADE 36.
- VULCANIZE PATCH PIN GROOVES.
- BEARING PADS WILL BE SAMPLED FOR TESTING ACCORDING TO PTM #312.
- FABRICATOR MAY USE CONTRACT DRAWINGS TO FABRICATE BEARING PADS.
- SEE BC-755M FOR DETAILS NOT SHOWN.

DESIGN CRITERIA:

- TEMPERATURE RANGE FOR BEARING DESIGN = 80 DEGREES F
- TEMPERATURE RANGE FOR SUBSTRUCTURE DESIGN = 58 DEGREES F
- CONSTRUCTION TOLERANCE ABOUT TRANSVERSE AXIS OF PAD = 0.003 RAD
- CONSTRUCTION TOLERANCE ABOUT LONGITUDINAL AXIS OF PAD = 0.000 RAD

LEGEND:

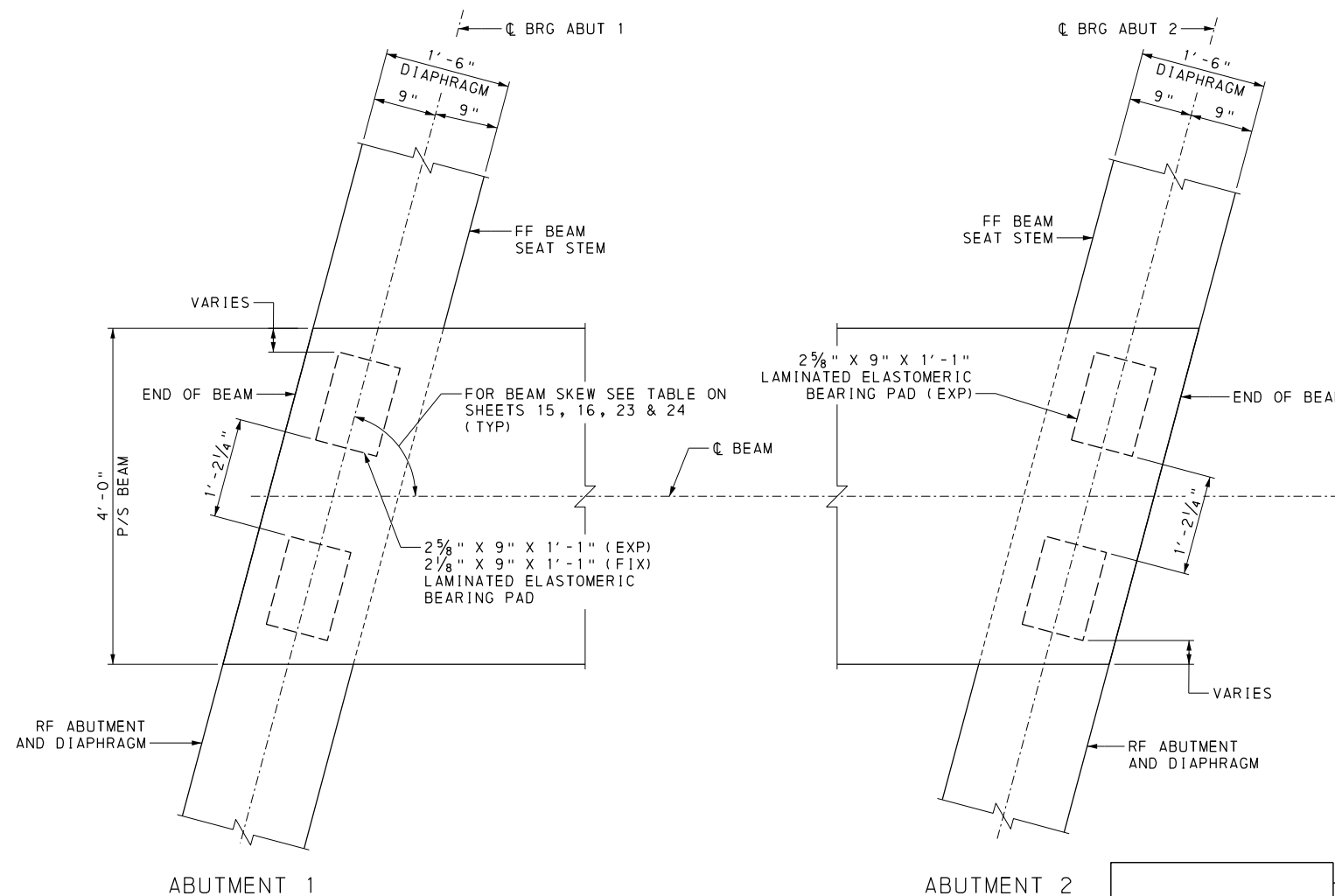
- FF FRONT FACE
- RF REAR FACE
- FIX FIXED BEARINGS
- EXP EXPANSION BEARINGS
- * 2 BEARING PADS PER BEAM

REFERENCES:

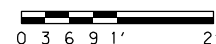
- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- BEAM FABRICATION DETAILS - 1 - 2
- ELASTOMERIC BEARING DETAILS - 1
- END DIAPHRAGMS - 1 - 3

SHEET:

- | |
|---------|
| 02 |
| 03 |
| 04 |
| 08 |
| 33 - 34 |
| 35 |
| 37 - 39 |



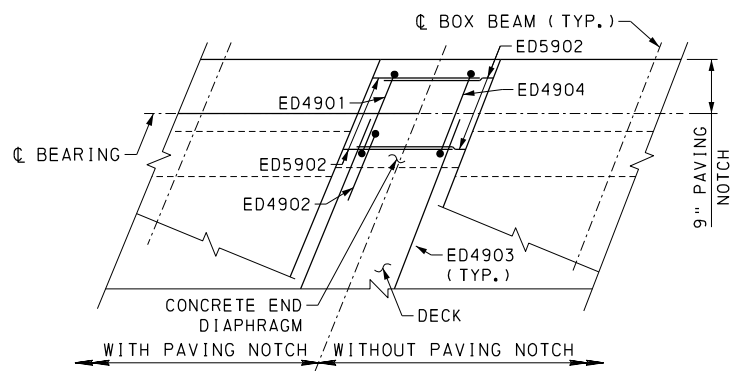
BEARING PAD PLACEMENT DETAIL



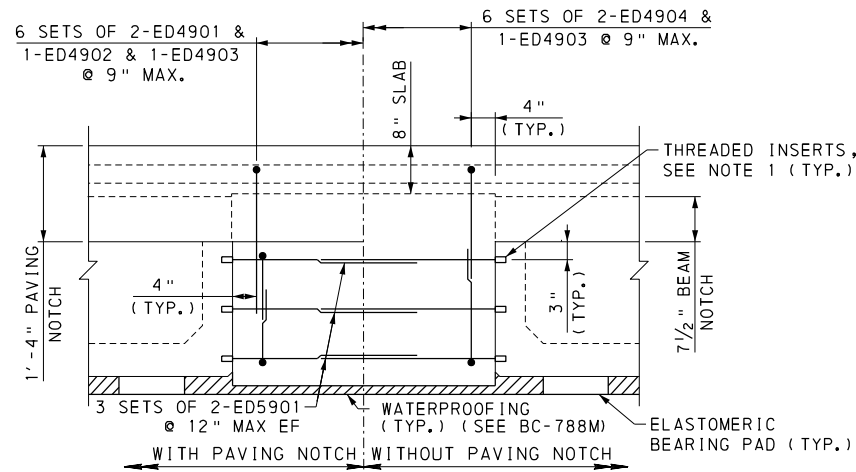
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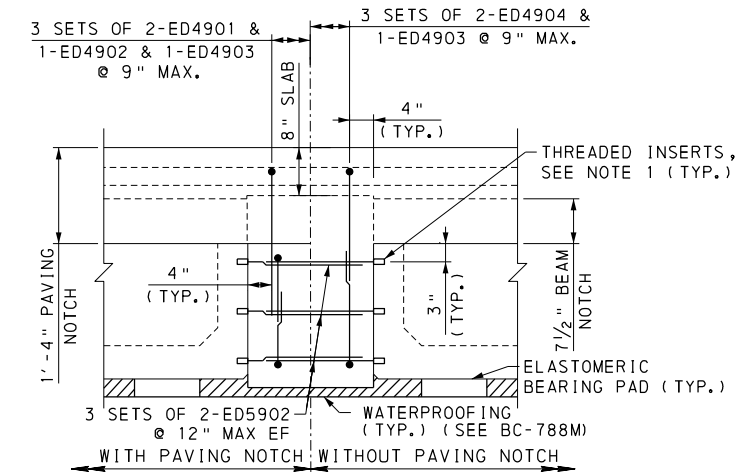
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NORTH AVENUE BRIDGE REPLACEMENT			
ELASTOMERIC BEARING DETAILS - 2			
DWG	DMB	PD No.	DATE
DWG	ADM	FILE No.	DATE
CHK	ABC	DATE	DATE
DRAWING NUMBER			SCALE POST
PC-1.60 23 36			PC 1.60
9/11/2024			



PLAN OF FULL DEPTH END DIAPHRAGM
@ ABUTMENT 2
(BAY 1-8 & 24-32)
0 6 1' 2'

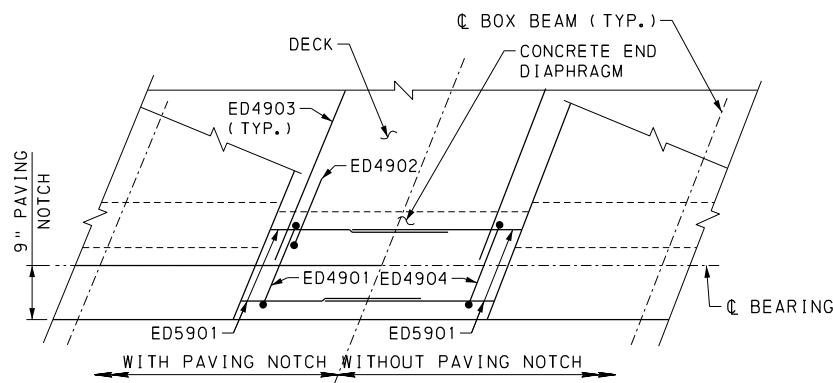


END DIAPHRAGM @ ABUTMENT 1
(BAY 1-8 & 24-32)
0 6 1' 2'

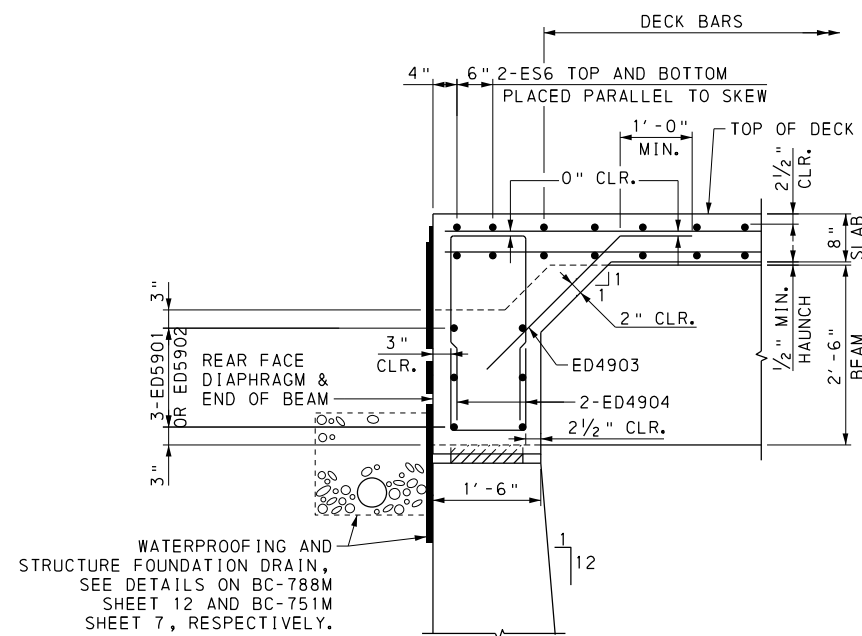


END DIAPHRAGM @ ABUTMENT 2
(BAY 1-8 & 24-32)
0 6 1' 2'

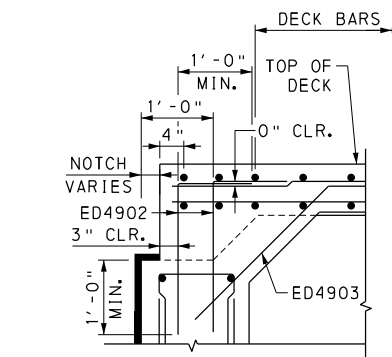
ELEVATION OF FULL DEPTH END DIAPHRAGM @ ABUTMENTS
(LOCATIONS AS NOTED)



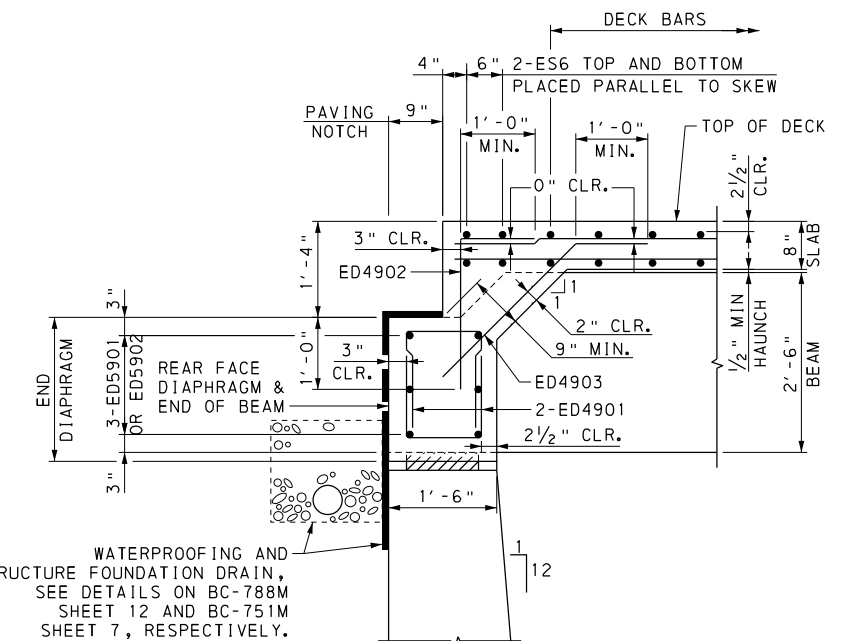
PLAN OF FULL DEPTH END DIAPHRAGM
@ ABUTMENT 1
(BAY 1-8 & 24-32)
0 6 1' 2'



FULL-DEPTH END DIAPHRAGM
(ABUT. 1 BAY 8 AND ABUT. 2 BAYS 1-7 & 24-32)
0 6 1' 2'

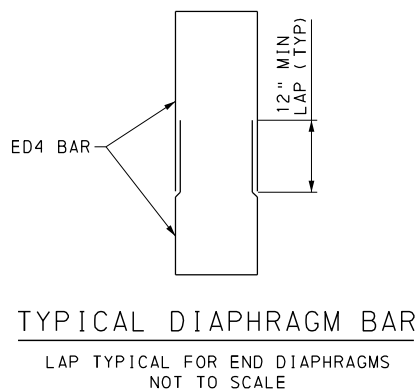


VARYING NOTCH WIDTH
END DIAPHRAGM
(ABUT. 1 BAY 2 & 31 AND ABUT. 2 BAY 8 & 23, SEE NOTE 2)
0 6 1' 2'



NOTCHED END DIAPHRAGM
(ABUT. 1 BAY 1, 3-7, 24-30 & 32)
0 6 1' 2'

SECTION OF FULL DEPTH END DIAPHRAGM @ FREE END ABUTMENTS
(LOCATIONS AS NOTED)



TYPICAL DIAPHRAGM BAR
LAP TYPICAL FOR END DIAPHRAGMS
NOT TO SCALE

REFERENCES:

1. BEAM FABRICATION DETAILS - 1 - 2
2. ELASTOMERIC BEARING DETAILS - 1 - 2
3. END DIAPHRAGMS - 2 - 3
4. END DIAPHRAGM REINFORCEMENT BAR SCHEDULE

SHEET:

- 33 - 34
- 35 - 36
- 38 - 39
- 48

NOTES:

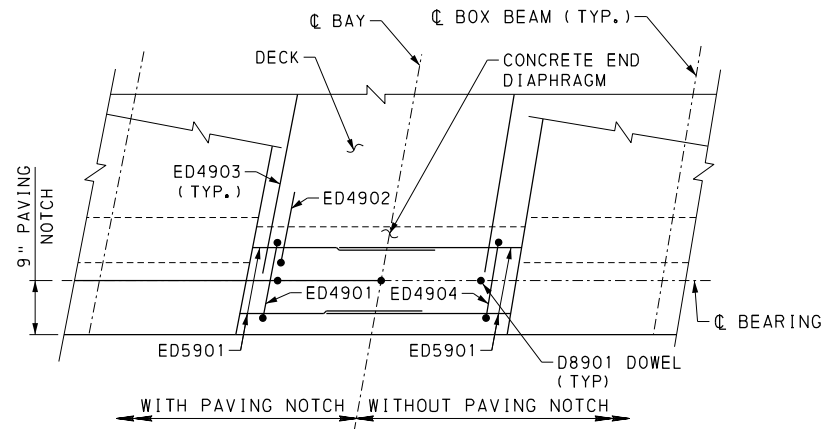
1. USE ONE SIZE SMALLER INSERT FOR DEFORMED BARS. THE MINIMUM LENGTH OF THE INSERT IS 3". INSERT TO BE GALVANIZED OR COMPLETELY ZINC-ELECTROPLATED. (TYP.)
2. SEE NOTCHED END DIAPHRAGM SECTION VIEW FOR DETAILS NOT SHOWN.

9/11/2024 NS-NorTh_Diaphragm.dgn 3:03:27 PM

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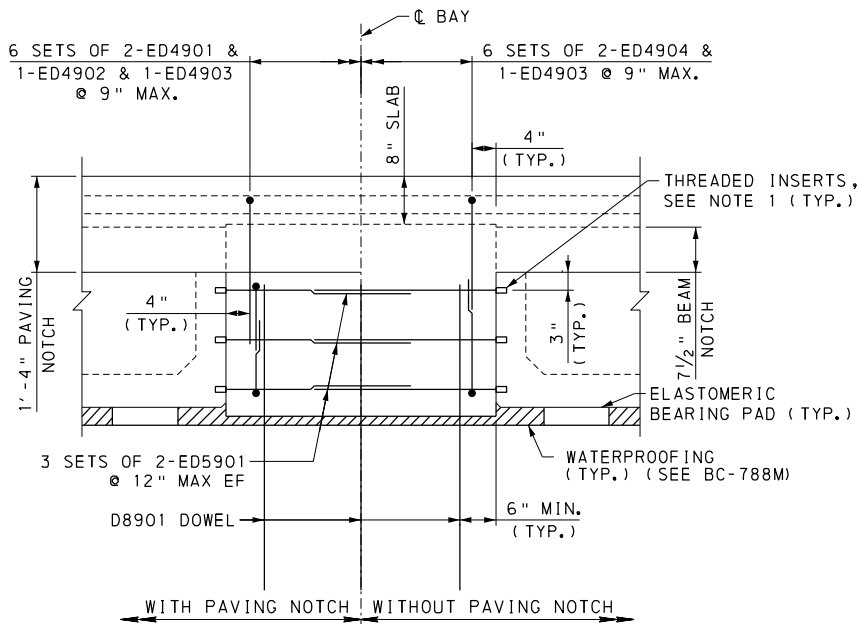
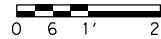
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
END DIAPHRAGMS - 1			
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	SCALE POST
CHK	ABC	DATE	DRAWING NUMBER
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			BR0027858
		9/11/2024	PC-1.60 23 37



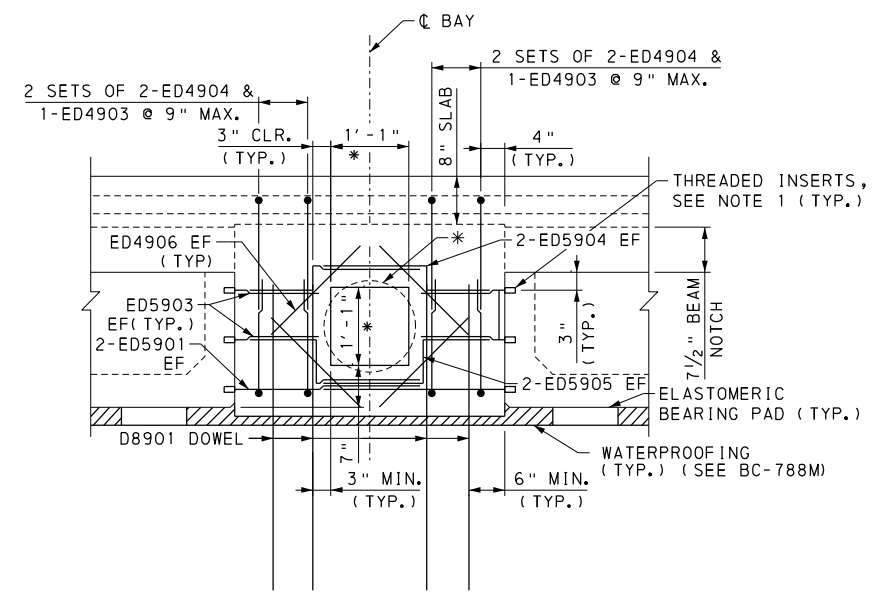
PLAN OF TYPICAL FULL DEPTH END DIAPHRAGM @ ABUTMENT 1

(BAY 9, 10, 13, 14, 17, 18, 19, 20, 22 & 23)



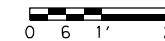
TYPICAL END DIAPHRAGM

(BAY 9, 10, 13, 14, 17, 18, 19, 20, 22 & 23)



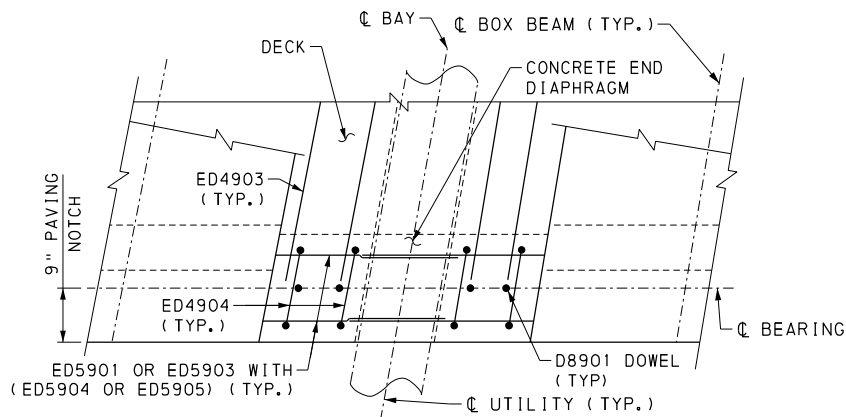
END DIAPHRAGM WITH UTILITY BLOCKOUT

(BAY 11, 12, 15, 16 & 21)



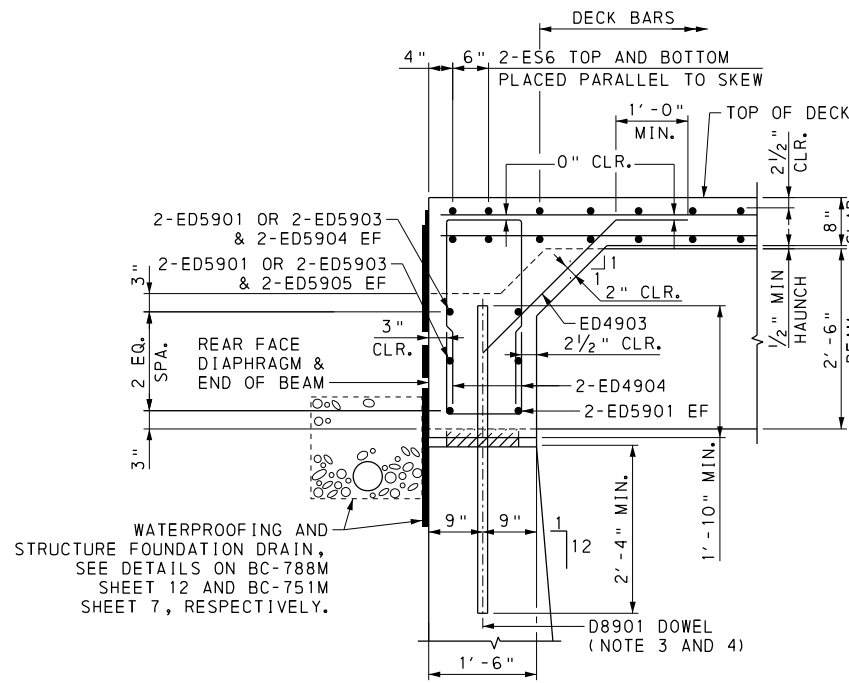
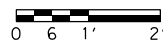
ELEVATION OF FULL DEPTH END DIAPHRAGM @ ABUTMENT 1

(LOCATIONS AS NOTED)



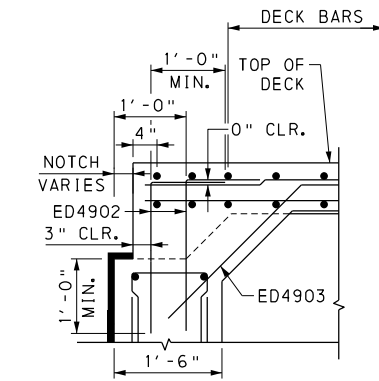
PLAN OF FULL DEPTH END DIAPHRAGM WITH UTILITY BLOCKOUT @ ABUTMENT 1

(BAY 11, 12, 15, 16 & 21)



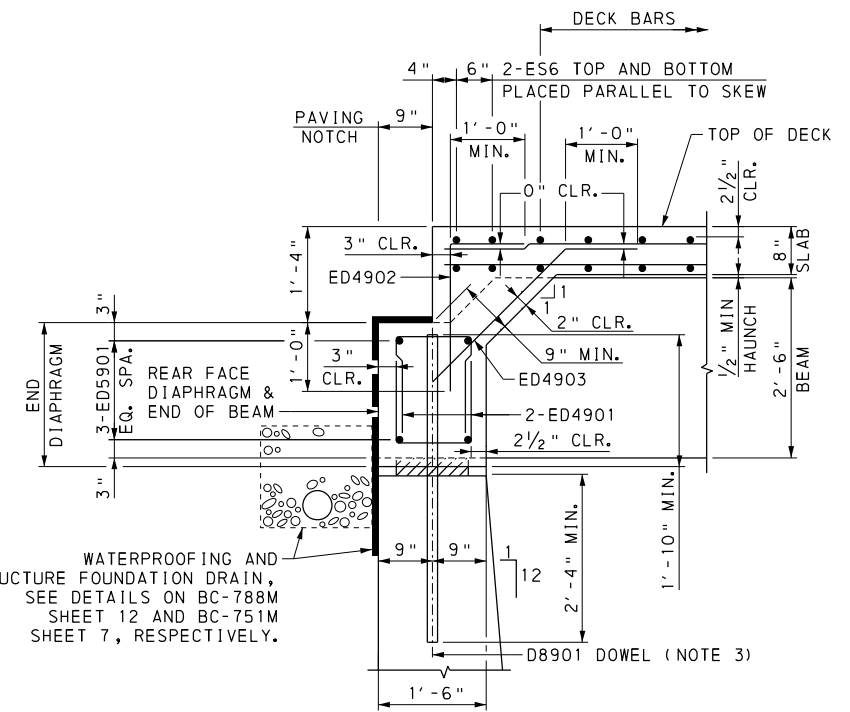
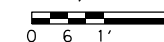
FULL-HEIGHT END DIAPHRAGM

(BAYS 9-21)



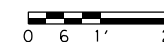
VARYING NOTCH WIDTH END DIAPHRAGM

(BAY 22, SEE NOTE 2)



NOTCHED END DIAPHRAGM

(BAY 23)



SECTION OF FULL DEPTH END DIAPHRAGM @ ABUTMENT 1

(LOCATIONS AS NOTED)

LEGEND:

- * 15 1/4" DIA SLEEVE FOR 12" DIA (NOMINAL) GAS LINE IN BAY 21

NOTES:

1. USE ONE SIZE SMALLER INSERT FOR DEFORMED BARS. THE MINIMUM LENGTH OF THE INSERT IS 3". INSERT TO BE GALVANIZED OR COMPLETELY ZINC-ELECTROPLATED. (TYP.)
2. SEE NOTCHED END DIAPHRAGM SECTION VIEW FOR DETAILS NOT SHOWN.
3. USE STAINLESS STEEL DOWEL BARS PER PUB 408 SECTION 709.1 (f).
4. DOWELS USED FOR BAYS 9-23 ONLY.

REFERENCES:

1. BEAM FABRICATION DETAILS - 1 - 2
2. ELASTOMERIC BEARING DETAILS - 1 - 2
3. END DIAPHRAGMS - 1 & 3
4. END DIAPHRAGM REINFORCEMENT BAR SCHEDULE

SHEET:

- 33 - 34
- 35 - 36
- 37 & 39
- 48

9/11/2024 3:03:33 PM NS-Nor-th-Diaphragm2.dgn

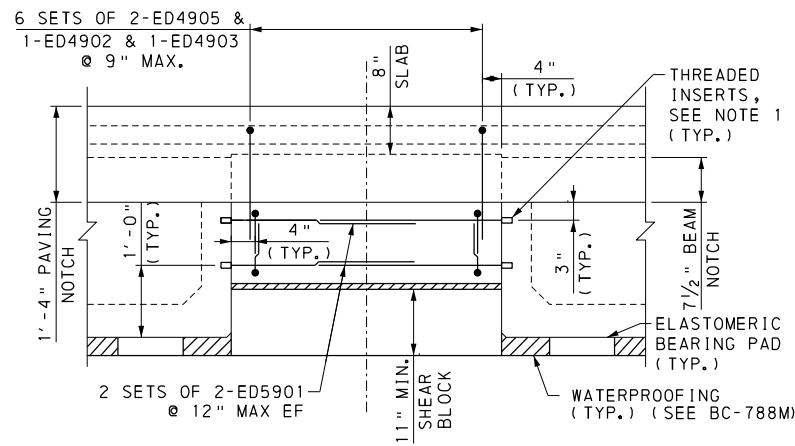
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PITTSBURGH

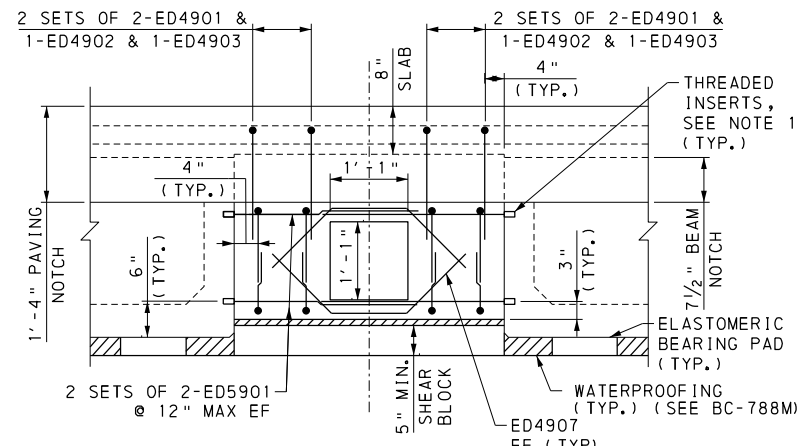
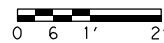
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			NORTH AVENUE BRIDGE REPLACEMENT
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DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

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DRAWING NUMBER: PC-1.60 23 38
SHEET NO. 38 OF 83



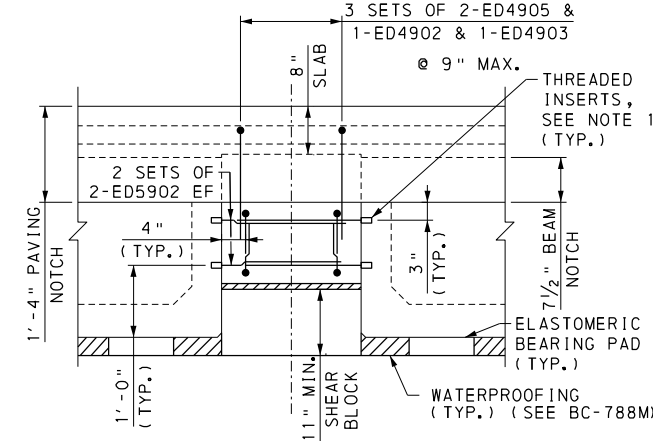
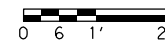
END DIAPHRAGM

(BAY 17)



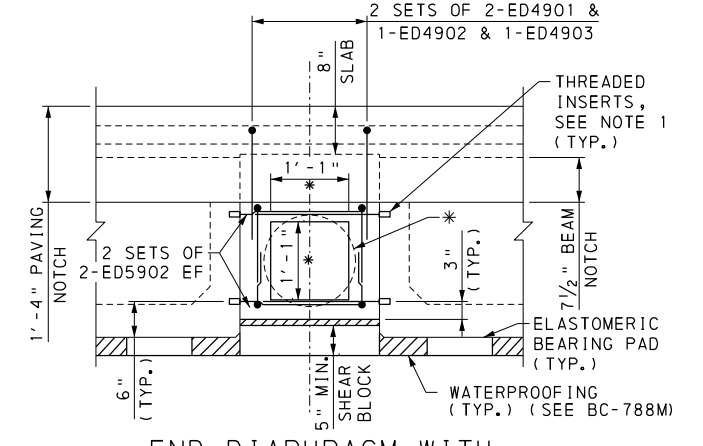
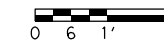
END DIAPHRAGM WITH UTILITY

(BAY 16)



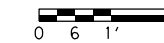
TYPICAL END DIAPHRAGM

(BAY 9, 10, 13, 14, 18-20, 22, 23)



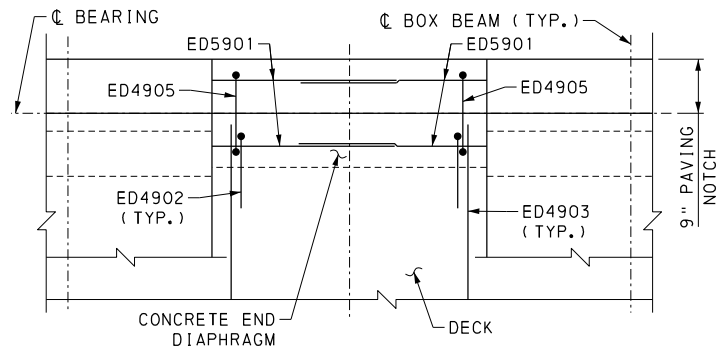
END DIAPHRAGM WITH UTILITY BLOCKOUT

(BAY 11, 12, 15 & 21)



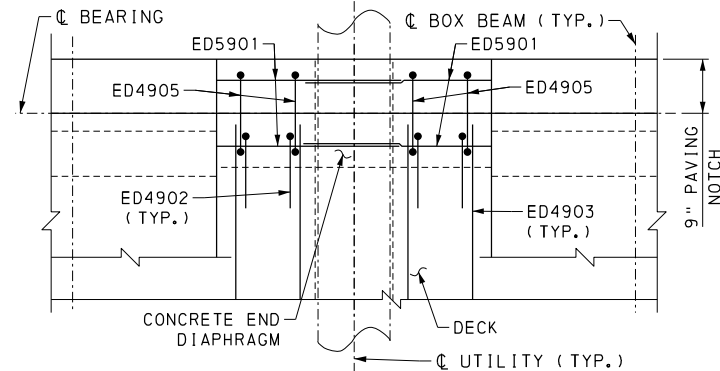
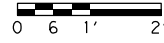
ELEVATIONS OF PARTIAL DEPTH END DIAPHRAGMS @ ABUTMENT 2

(LOCATIONS AS NOTED)



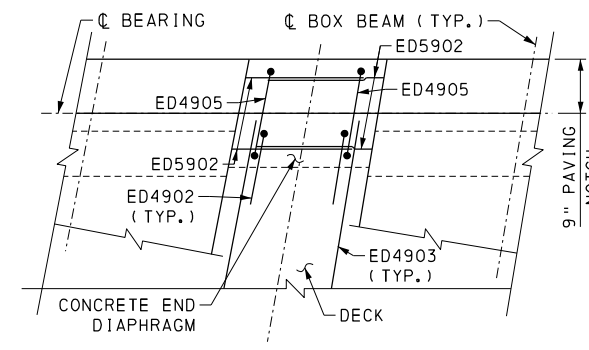
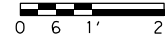
END DIAPHRAGM

(BAY 17)



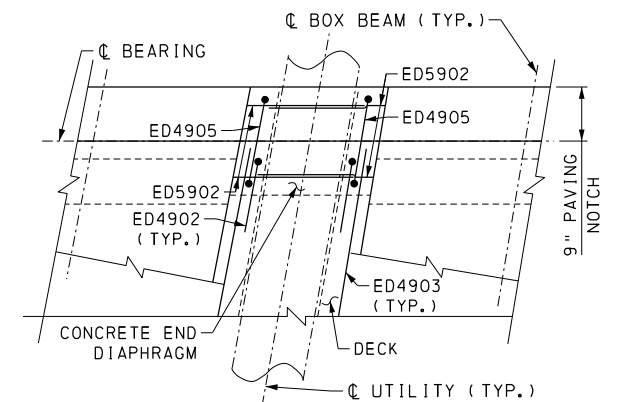
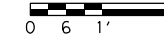
END DIAPHRAGM WITH UTILITY

(BAY 16)



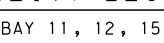
TYPICAL END DIAPHRAGM

(BAY 9, 10, 13, 14, 18-20, 22, 23)



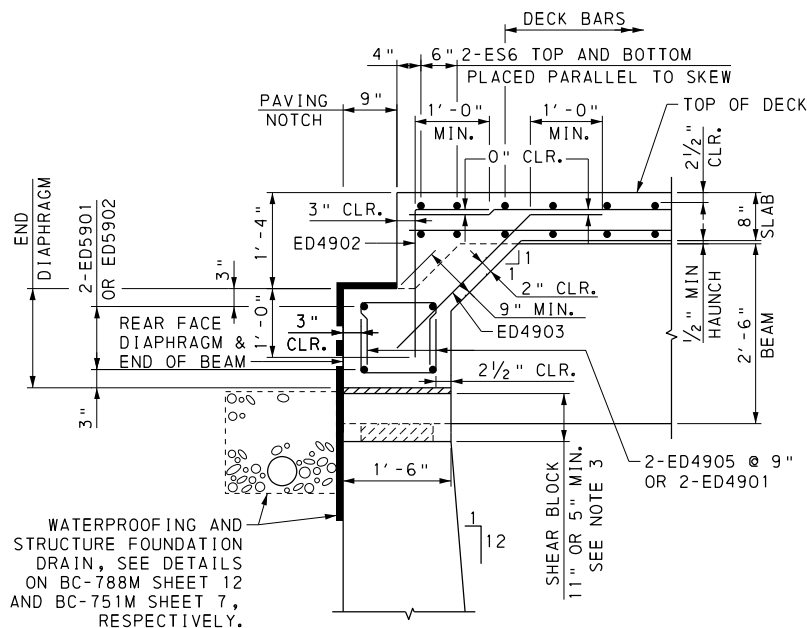
END DIAPHRAGM WITH UTILITY BLOCKOUT

(BAY 11, 12, 15 & 21)



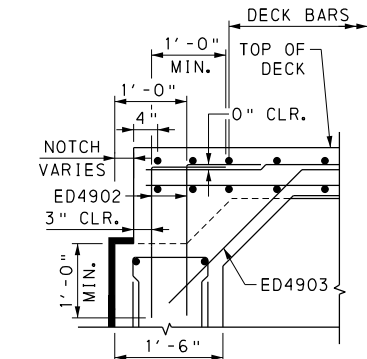
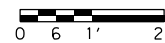
PLANS OF PARTIAL DEPTH END DIAPHRAGMS @ ABUTMENT 2

(LOCATIONS AS NOTED)



NOTCHED END DIAPHRAGM

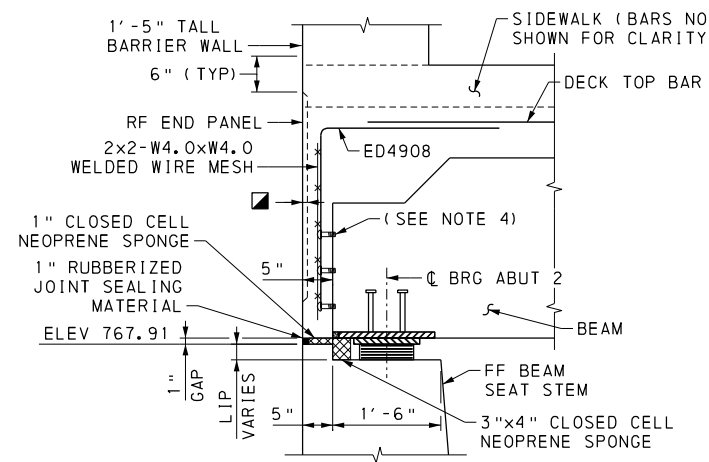
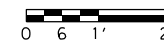
(BAY 9-22)



VARYING NOTCH WIDTH END DIAPHRAGM

(BAY 23, SEE NOTE 2)

(SEE NOTE 3)



ABUT 2 BEAM END ARCHITECTURAL FACING DETAIL

(SEE NOTE 4)



LEGEND:

* 15 1/4" DIA SLEEVE FOR 12" DIA (NOMINAL) GAS LINE IN BAY 21

■ 3/4" ARCHITECTURAL TREATMENT (SEE SHEET)

NOTES:

1. USE ONE SIZE SMALLER INSERT FOR DEFORMED BARS. THE MINIMUM LENGTH OF THE INSERT IS 3". INSERT TO BE GALVANIZED OR COMPLETELY ZINC-ELECTROPLATED. (TYP.)
2. SEE NOTCHED END DIAPHRAGM SECTION VIEW FOR DETAILS NOT SHOWN.
3. SEE ABUTMENT DETAIL DRAWINGS FOR SHEAR BLOCK DETAILS.
4. PLACE THREADED INSERTS FOR 7/8" @ BOLTS DURING BEAM CASTING ON A PATTERN OF 6"± VERTICAL AND 12"± HORIZONTAL. STAGGER HORIZONTAL SPACING BY 6".

REFERENCES:

1. BEAM FABRICATION DETAILS - 1 - 2	33 - 34
2. ELASTOMERIC BEARING DETAILS - 1 - 2	35 - 36
3. END DIAPHRAGMS - 1 - 2	37 - 38
4. END DIAPHRAGM REINFORCEMENT BAR SCHEDULE	48

SHEET:

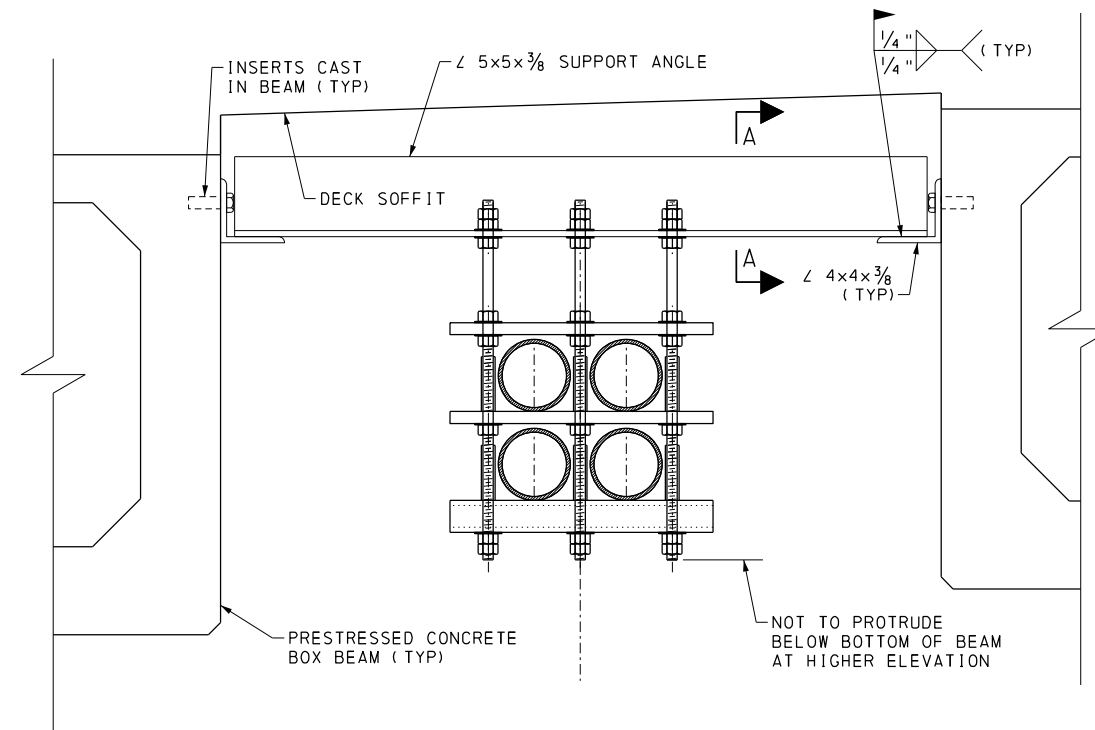
33 - 34
35 - 36
37 - 38
48

NS_Nor-th_Diaphragm3.dgn 9/11/2024 3:03:41 PM

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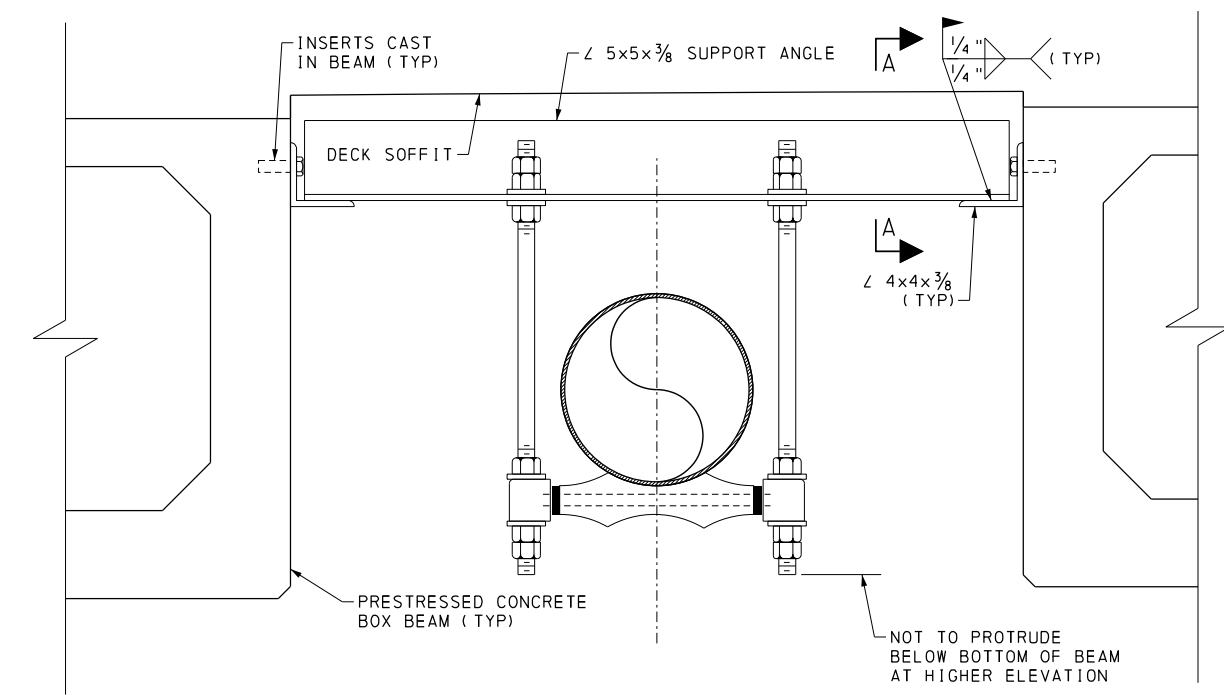
NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
END DIAPHRAGMS - 3			
DWG	DMB	PD/No	VRN
DWG	WRB	FILE/No	BR0027858
CHK	ABC	DATE	9/11/2024
			PC 1.60
			PC-1.60 23 39



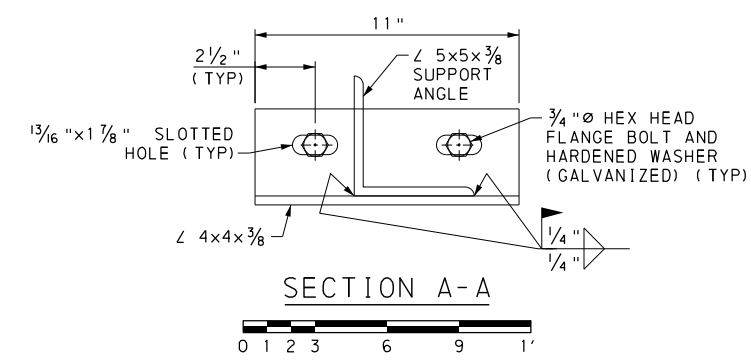
COMMUNICATION AND ELECTRICAL
DUCTS TYPICAL HANGER DETAIL

NOT TO SCALE



12" STEEL GAS MAIN HANGER DETAIL

NOT TO SCALE

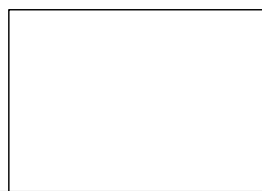


SECTION A-A

- NOTES:
1. SEE THE PROJECT UTILITY RELOCATION PLAN FOR SPACING OF UTILITY BRACKETS.
 2. PROVIDE STRUCTURAL STEEL FOR UTILITY HANGERS CONFORMING TO AASHTO M270 (ASTM A709) GRADE 36. GALVANIZE ALL MATERIAL ACCORDING TO ASTM A123.
 3. GALVANIZE ALL CAST-IN BEAM INSERTS.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08

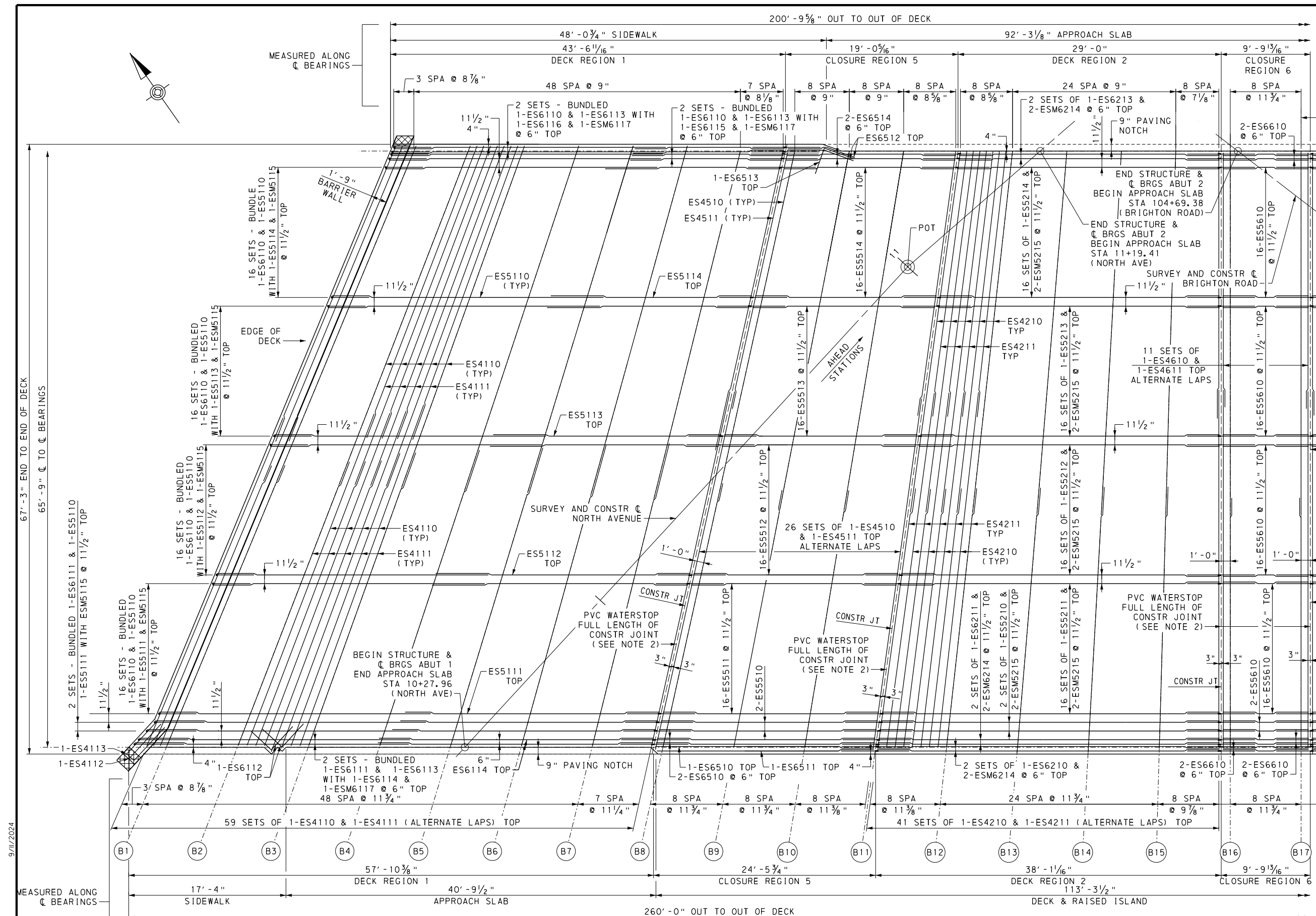
NS_Nor-th_Utility_Hanger_Details.dgn 9/11/2024 3:03:45 PM



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REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE NORTH AVENUE BRIDGE REPLACEMENT UTILITY HANGER DETAILS			
DWG	DMB	PD No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 40



BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1' - 11"
#5	3' - 0"
#6	3' - 7"

- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - PROVIDE SPLIT-FLANGE PVC WATERSTOPS FULL LENGTH OF THE DECK CONSTRUCTION JOINTS. PROVIDE SINGLE PIECE SEALS, FIELD SPLICING OF WATERSTOPS IS NOT PERMITTED. SEE DETAIL ON SHEET 44. PVC WATERSTOPS ARE INCIDENTAL TO ITEM 8010-0001.

MATCH LINE
SEE SHEET 42

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. DECK ELEVATIONS	09 - 10
6. FRAMING PLAN	32
7. END DIAPHRAGMS 1-3	37 - 39
8. DECK PLAN - 2 - 4	42 - 44
9. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1	45
10. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2	46
11. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49
12. DECK BARRIER AND SIDEWALK PLAN	51
13. RAISED ISLAND PLAN	52
14. BARRIER AND RAILING POST LAYOUT - 1 - 3	53 - 55

DECK REGION 1 AND 2 PLAN
TOP REINFORCEMENT



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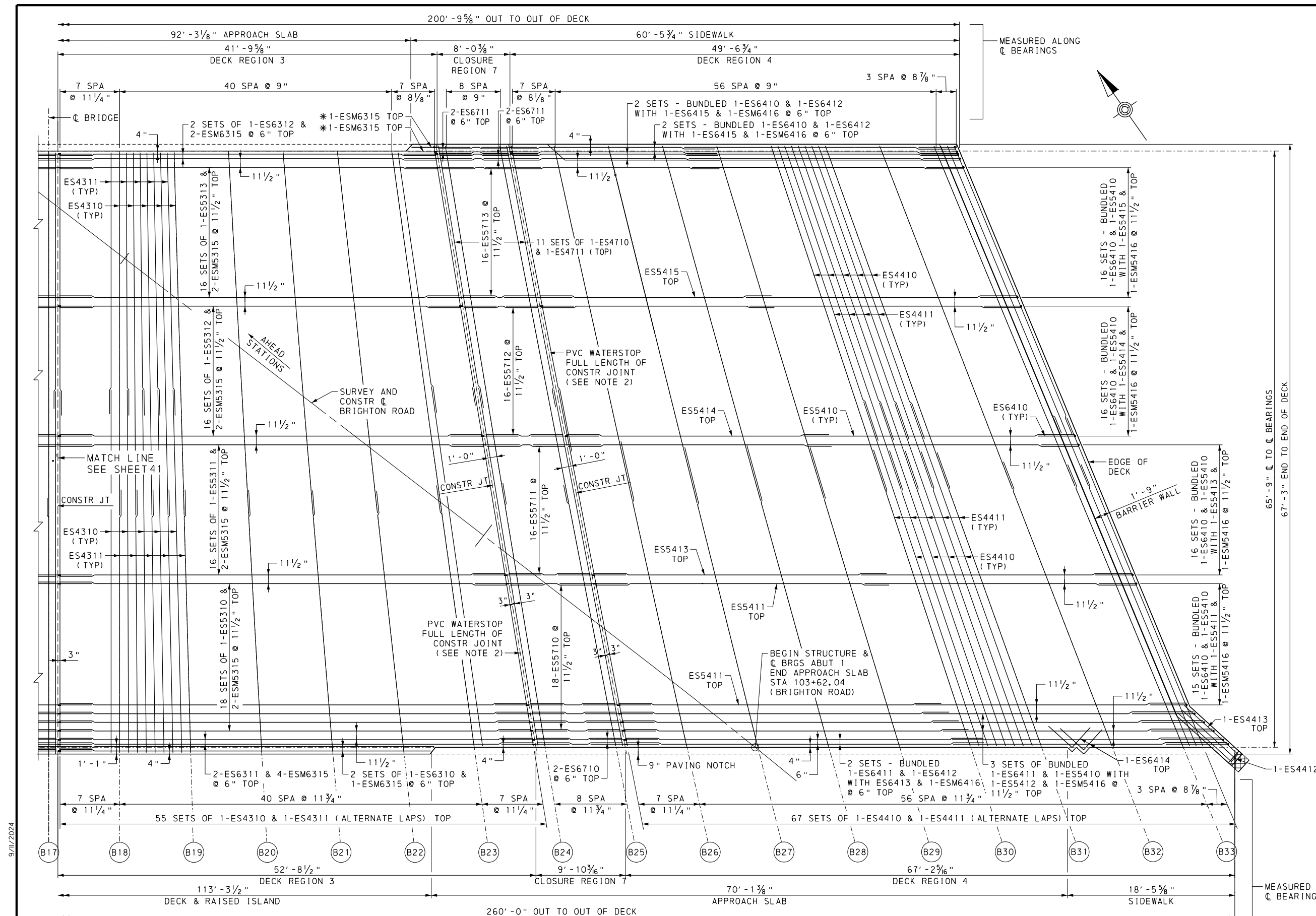


REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
TITLE: NORTH AVENUE BRIDGE REPLACEMENT DECK PLAN - 1

OWN	DMB	PD/No			

DATE: 9/11/2024
DRAWING NUMBER: BR0027858
SCALE POST: PC 1.60
SHEET NO. 41 OF 83



BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1' - 11"
#5	3' - 0"
#6	3' - 7"

- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - PROVIDE SPLIT-FLANGE PVC WATERSTOPS FULL LENGTH OF THE DECK CONSTRUCTION JOINTS. PROVIDE SINGLE PIECE SEALS, FIELD SPLICING OF WATERSTOPS IS NOT PERMITTED. SEE DETAIL ON SHEET 44. PVC WATERSTOPS ARE INCIDENTAL TO ITEM 8010-0001.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. DECK ELEVATIONS	09 - 10
6. FRAMING PLAN	32
7. END DIAPHRAGMS - 1 - 3	37 - 39
8. DECK PLAN - 1	41
9. DECK PLAN - 3 - 4	43 - 44
10. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1	45
11. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2	46
12. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49
13. DECK BARRIER AND SIDEWALK PLAN	51
14. RAISED ISLAND PLAN	52
15. BARRIER AND RAILING POST LAYOUT - 1 - 3	53 - 55

LEGEND:

* TRIM ESM6315 BARS IN FIELD TO SUIT PAVING NOTCH GEOMETRY

DECK REGION 3 AND 4 PLAN
TOP REINFORCEMENT



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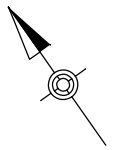
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LOCATION: PITTSBURGH, PENNSYLVANIA

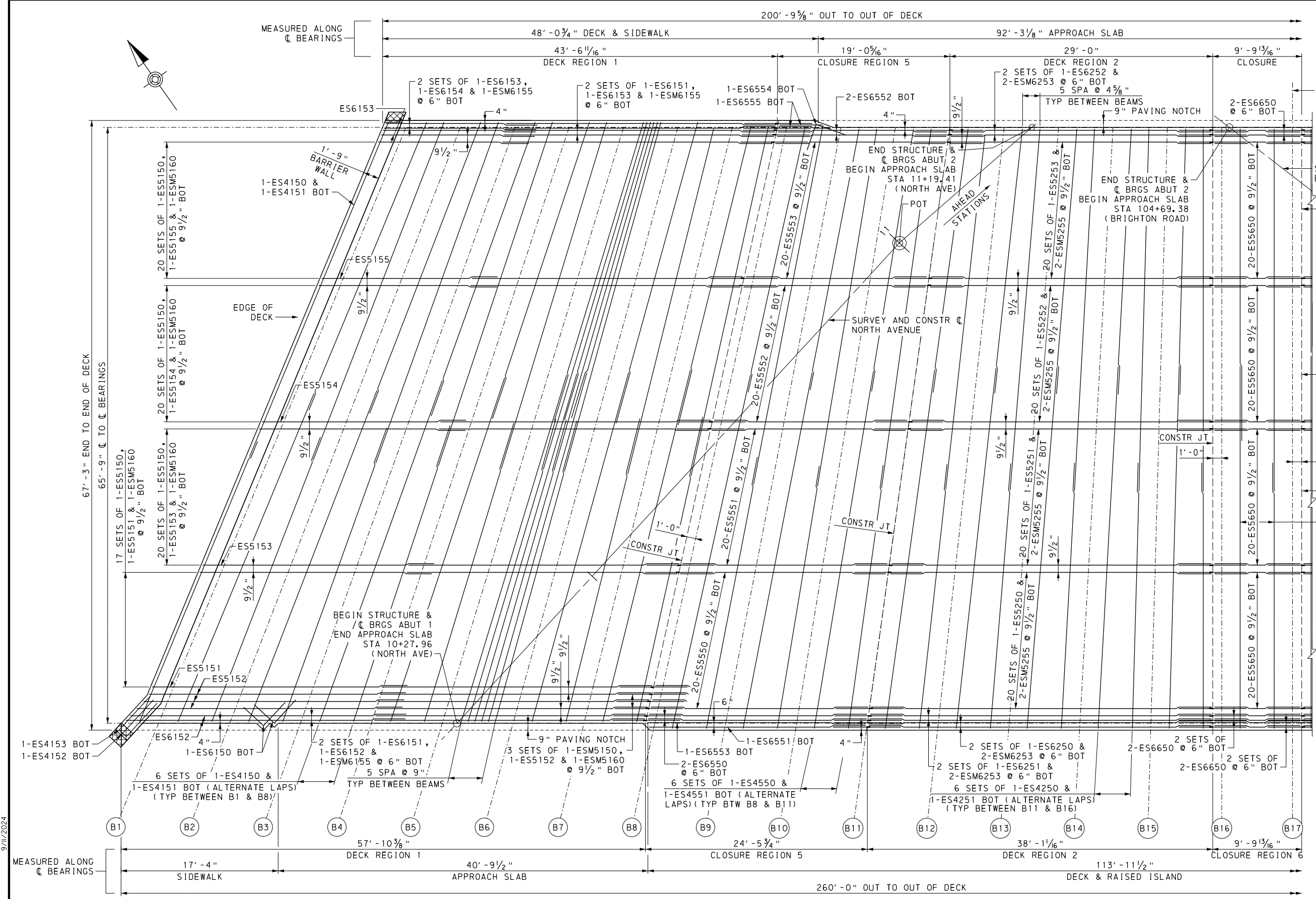
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OWN	DMB	PD/No	VRN	SCALE POST	PC 1.60
DWN	WRB	FILE No	BR0027858	DRAWING NUMBER	PC-1.60 23 42
CHK	ABC	DATE	9/11/2024		

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BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1'-11"
#5	3'-0"
#6	3'-7"



- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - PROVIDE SPLIT-FLANGE PVC WATERSTOPS FULL LENGTH OF THE DECK CONSTRUCTION JOINTS. PROVIDE SINGLE PIECE SEALS, FIELD SPLICING OF WATERSTOPS IS NOT PERMITTED. SEE DETAIL ON SHEET 44. PVC WATERSTOPS ARE INCIDENTAL TO ITEM 8010-0001.

PVC WATERSTOP FULL LENGTH OF CONSTR JT (NOT SHOWN FOR CLARITY) (TYP) (SEE NOTE 2)

6 SETS OF 1-ES4650 & 1-ES4651 @ 9" BOT

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. DECK ELEVATIONS	09 - 10
6. FRAMING PLAN	32
7. END DIAPHRAGMS - 1 - 3	37 - 39
8. DECK PLAN - 1 - 2	41 - 42
9. DECK PLAN - 4	44
10. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1	45
11. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2	46
12. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49
13. DECK BARRIER AND SIDEWALK PLAN	51
14. RAISED ISLAND PLAN	52
15. BARRIER AND RAILING POST LAYOUT - 1 - 3	53 - 55

DECK REGION 1 AND 2 PLAN
BOTTOM REINFORCEMENT

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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

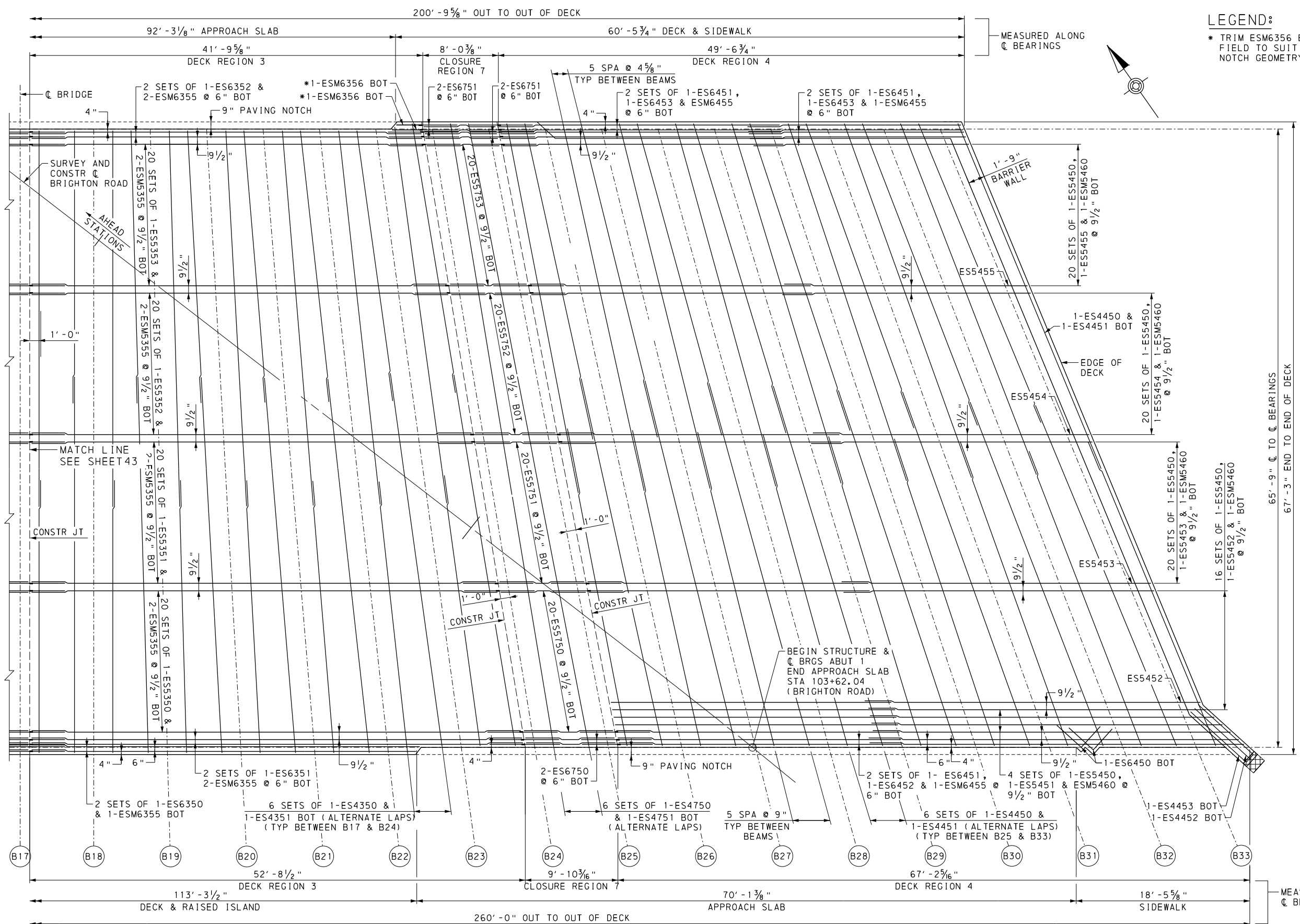
REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
TITLE: NORTH AVENUE BRIDGE REPLACEMENT DECK PLAN - 3

OWN	DMB	PD/No			

SCALE POST: PC 1.60
DRAWING NUMBER: BR0027858
DATE: 9/11/2024
PC-1.60 23 43

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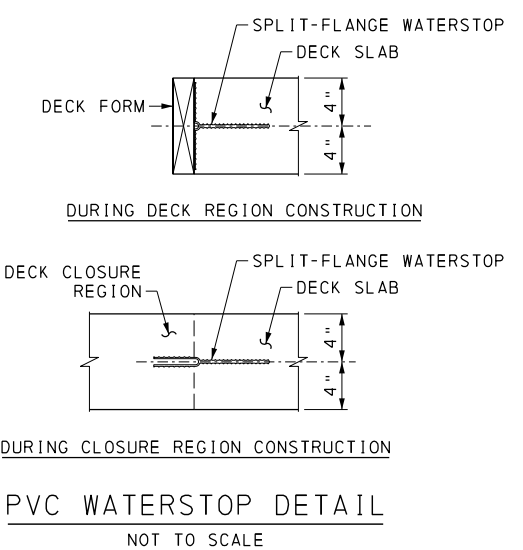


LEGEND:
 * TRIM ESM6356 BARS IN FIELD TO SUIT PAVING NOTCH GEOMETRY

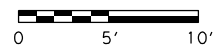
BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1' - 11"
#5	3' - 0"
#6	3' - 7"

- NOTES:**
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 - PROVIDE SPLIT-FLANGE PVC WATERSTOPS FULL LENGTH OF THE DECK CONSTRUCTION JOINTS. PROVIDE SINGLE PIECE SEALS, FIELD SPLICING OF WATERSTOPS IS NOT PERMITTED. SEE DETAIL ON SHEET 44. PVC WATERSTOPS ARE INCIDENTAL TO ITEM 8010-0001.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. DECK ELEVATIONS	09 - 10
6. FRAMING PLAN	32
7. END DIAPHRAGMS - 1 - 3	37 - 39
8. DECK PLAN - 1 - 3	41 - 43
9. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1	45
10. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2	46
11. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49
12. DECK BARRIER AND SIDEWALK PLAN	51
13. RAISED ISLAND PLAN	52
14. BARRIER AND RAILING POST LAYOUT - 1 - 3	53 - 55



DECK REGION 3 AND 4 PLAN
 BOT REINFORCEMENT



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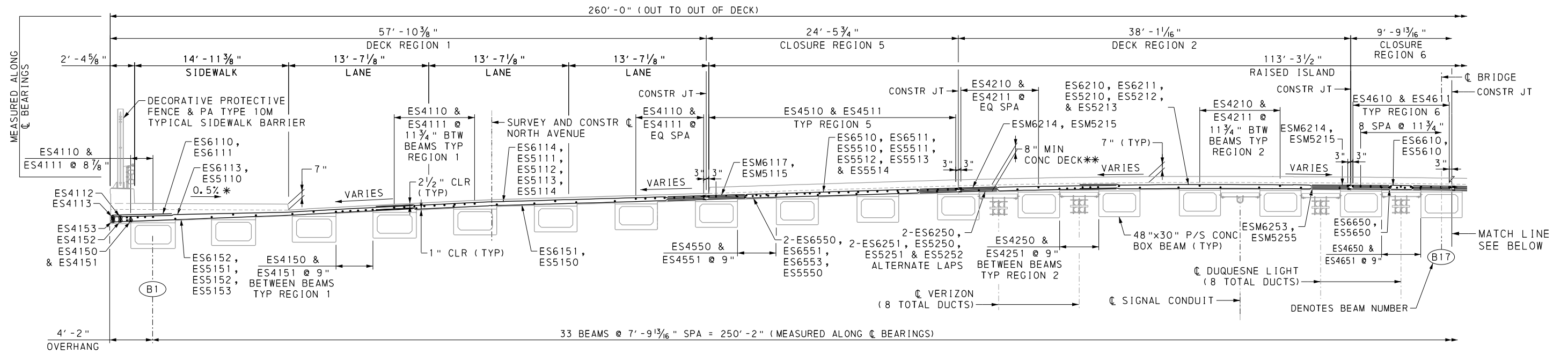
NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
 OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
 TITLE: NORTH AVENUE BRIDGE REPLACEMENT DECK PLAN - 4

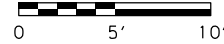
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OWN	WRB	FILE No	BR0027858						PC 1.60
CHK	ABC	DATE	9/11/2024						PC-1.60 23 44

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DECK REGIONS 1 & 2 AND CLOSURE REGIONS 5 & 6 TYPICAL SECTION
ALONG CL BEARINGS ABUTMENT 1

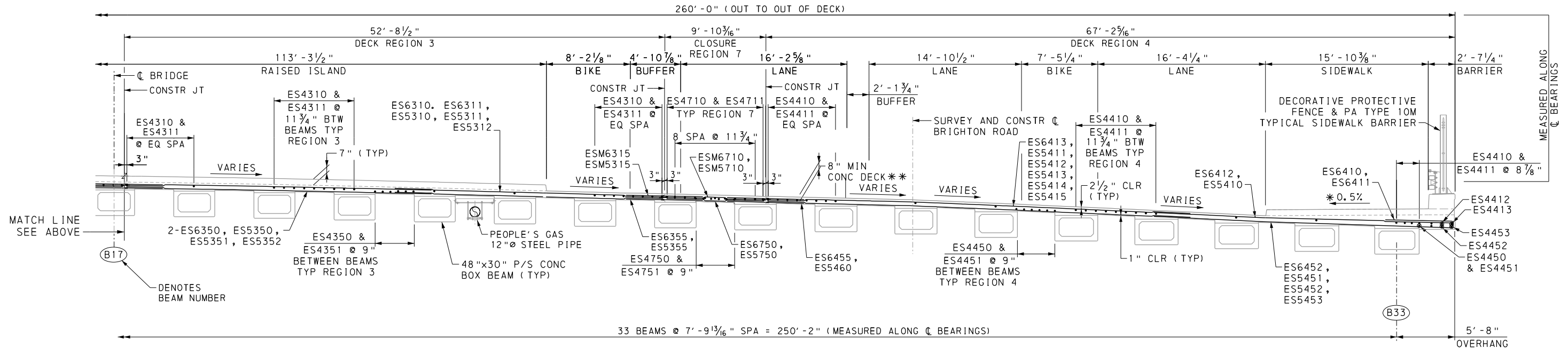
(DIAPHRAGMS NOT SHOW FOR CLARITY)
(LOOKING AHEAD STATIONS)



BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1' - 11"
#5	3' - 0"
#6	3' - 7"

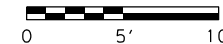
NOTES:

- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.



DECK REGIONS 3 & 4 AND CLOSURE REGION 7 TYPICAL SECTION
ALONG CL BEARINGS ABUTMENT 1

(DIAPHRAGMS NOT SHOW FOR CLARITY)
(LOOKING AHEAD STATIONS)



LEGEND:

- * NORMAL TO GUTTERLINE
- ** INCLUDES 1/2" INTEGRAL WEARING SURFACE

REFERENCES:

- GENERAL NOTES
- INDEX OF DRAWINGS
- DECK ELEVATIONS
- FRAMING PLAN
- END DIAPHRAGMS - 1 - 3
- DECK PLAN - 1 - 4
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2
- DECK REINFORCING SCHEDULE - 1 - 3

SHEET:

- 03
- 08
- 09 - 10
- 32
- 37 - 39
- 41 - 44
- 46
- 47 - 49

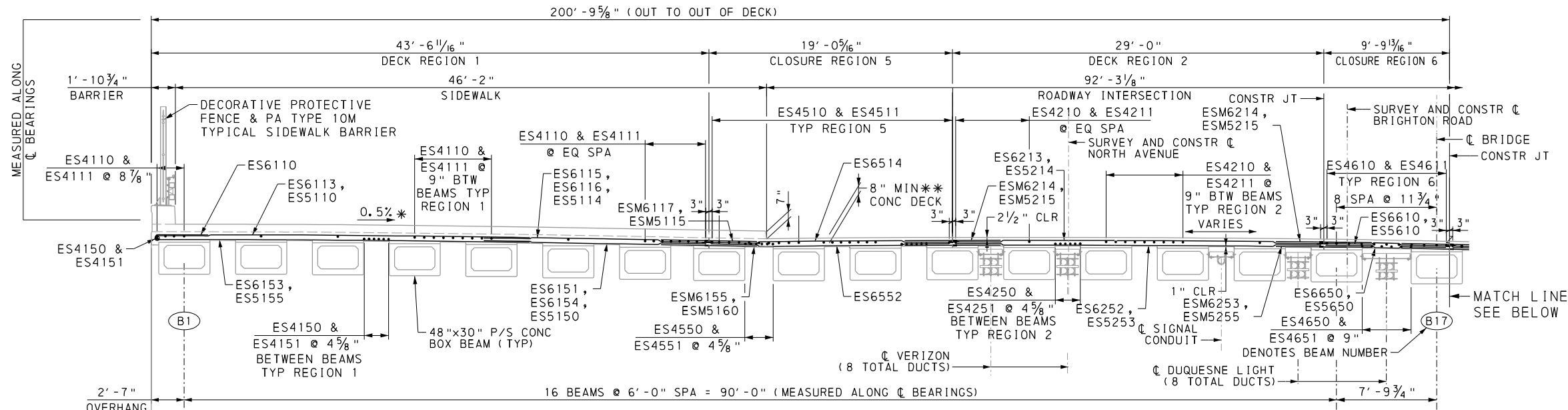
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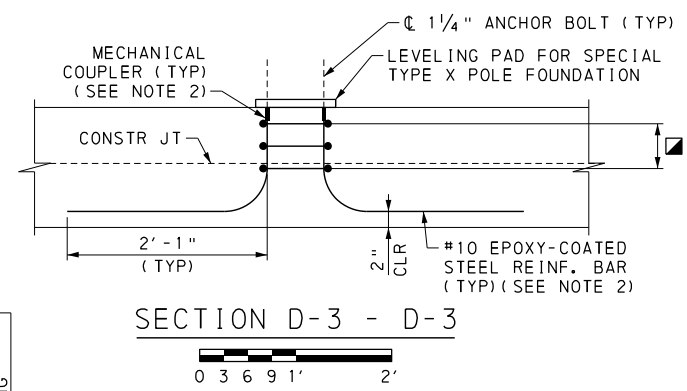
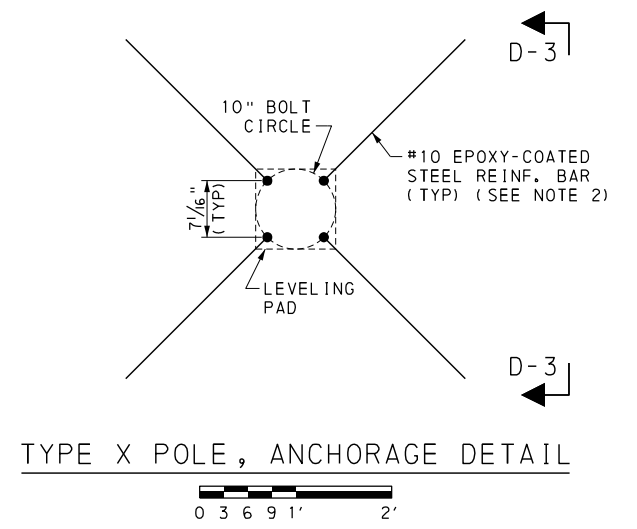
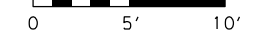
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1			
DRN	DMB	FD/No	VRN
DRN	WRB	FILE No	DATE POST
CHK	ABC	DATE	DRAWING NUMBER

PC-1.60 23 45
9/11/2024

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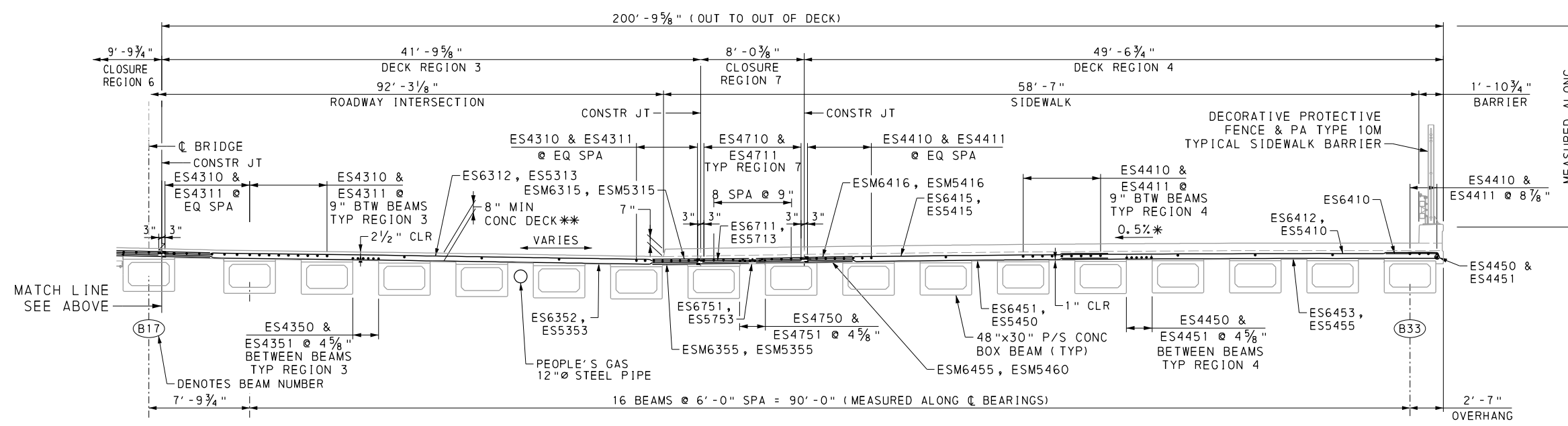
DECK REGIONS 1 & 2 AND CLOSURE REGIONS 5 & 6
TYPICAL SECTION ALONG CL BEARINGS ABUTMENT 2
(DIAPHRAGMS NOT SHOW FOR CLARITY)
(LOOKING AHEAD STATIONS)



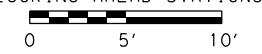
- NOTES:**
1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 2. MECHANICAL COUPLERS, # & # EPOXY-COATED REINFORCING BARS ARE INCIDENTAL TO THE TYPE X POLE ANCHORAGE

REFERENCES:

1. GENERAL NOTES	03
2. INDEX OF DRAWINGS	08
3. DECK ELEVATIONS	09 - 10
4. FRAMING PLAN	32
5. END DIAPHRAGMS - 1 - 3	37 - 39
6. DECK PLAN - 1 - 4	41 - 44
7. TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1	45
8. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49



DECK REGIONS 3 & 5 AND CLOSURE REGION 7
TYPICAL SECTION ALONG CL BEARINGS ABUTMENT 2
(DIAPHRAGMS NOT SHOW FOR CLARITY)
(LOOKING AHEAD STATIONS)



- LEGEND:**
- * NORMAL TO GUTTERLINE
 - ** INCLUDES 1/2" INTEGRAL WEARING SURFACE
 - 3-#4 CLOSED HOOPS WITH 135° HOOKS, @ EQ SPA

BAR LAPS	
REBAR	MINIMUM BAR LAP
#4	1' - 11"
#5	3' - 0"
#6	3' - 7"

9/11/2024 NS-North_Deck6.dgn 3:04:44 PM

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AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2			
DWG	DMB	FD/No	VRN
DWG	WRB	FILE/No	BR0027858
CHK	ABC	DATE	9/11/2024
			PC-1.60
			PC-1.60 23 46

REGION 1 AND 5 DECK REINFORCEMENT BAR SCHEDULE

REGION 1 AND 5 DECK REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
REGION 1 TOP BARS											
ES4110	4	59	40'-0"	STR							
ES4111	4	59	34'-5"	STR							
ES4112	4	1	5'-0"	STR							
ES4113	4	1	11'-1"	4	5'-0"	1'-1"	5'-0"				
ES5110	5	66	30'-7"	14	7"	30'-0"					
ES5111	5	16	28'-2"	100A	28'-2"						* MECHANICAL COUPLER
ES5112	5	2	29'-1"	100A	29'-1"						* MECHANICAL COUPLER
ES5113	5	16	25'-2"	100A	25'-2"						* MECHANICAL COUPLER
ES5114	5	16	22'-3"	100A	22'-3"						* MECHANICAL COUPLER
ES5115	5	16	19'-3"	100A	19'-3"						* MECHANICAL COUPLER
ES6110	6	68	4'-10"	14	8"	4'-2"					
ES6111	6	4	6'-3"	14	8"	5'-7"					
ES6112	6	3	6'-6"	10	3'-6"	3'-0"					
ES6113	6	6	30'-8"	14	8"	30'-0"					
ES6114	6	2	30'-4"	100A	30'-4"						* MECHANICAL COUPLER
ES6115	6	2	16'-10"	100A	16'-10"						* MECHANICAL COUPLER
ES6116	6	2	8'-11"	STR							
CLOSURE REGION 5 TOP BARS											
ES4510	4	11	40'-0"	STR							
ES4511	4	11	29'-9"	STR							
ES5510	5	132	6'-5"	100B	6'-5"						** THREADED ONE END
ES6510	6	8	6'-9"	100B	6'-9"						** THREADED ONE END
ES6511	6	1	9'-3"	100B	9'-3"						** THREADED ONE END
ES6512	6	1	9'-11"	100B	9'-11"						** THREADED ONE END
ES6513	6	1	6'-6"	10	3'-6"	3'-0"					
REGION 1 BOTTOM BARS											
ES4150	4	43	40'-0"	STR							
ES4151	4	43	34'-5"	STR							
ES4152	4	1	5'-0"	STR							
ES4153	4	1	11'-1"	4	5'-0"	1'-1"	5'-0"				
ES5150	5	80	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5151	5	17	28'-4"	STR							
ES5152	5	3	29'-5"	STR							
ES5153	5	20	25'-9"	STR							
ES5154	5	20	22'-8"	STR							
ES5155	5	20	19'-7"	STR							
ES6150	6	3	6'-6"	10	3'-6"	3'-0"					
ES6151	6	4	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES6152	6	2	30'-11"	STR							
ES6153	6	4	17'-2"	STR							
ES6154	6	2	22'-2"	STR							

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
CLOSURE REGION 5 BOTTOM BARS											
ES4550	4	6	40'-0"	STR							
ES4551	4	6	30'-6"	STR							
ES5550	5	160	6'-6"	100B	6'-6"						** THREADED ONE END
ES6550	6	4	6'-9"	100B	6'-9"						** THREADED ONE END
ES6551	6	1	9'-3"	100B	9'-3"						** THREADED ONE END
ES6552	6	4	5'-10"	100B	5'-10"						** THREADED ONE END
ES6553	6	1	9'-11"	100B	9'-11"						** THREADED ONE END
ES6554	6	1	6'-6"	10	3'-6"	3'-0"					
REGION 1 SIDEWALK BARS											
EC4101	4	45	37'-0"	STR							
EC4102	4	14	5'-1" TO 35'-1 3/4"	STR							VARY EA BAR BY 2'-3 3/4"
EC4103	4	10	1'-8 3/8" TO 29'-7"	STR							VARY EA BAR BY 3'-1 1/8"
EC4104	4	1	35'-8"	STR							
EC4105	4	2	39'-10"	STR							
EC4106	4	1	14'-3"	10	3'-0"	11'-3"					
EC4107	4	1	8'-3"	4	3'-6"	1'-3"	3'-6"				
EC4108	4	1	3'-6"	STR							
EC4109	4	1	7'-6"	10	4'-0"	3'-6"					
EC4110	4	1	13'-3"	4	6'-0"	1'-3"	6'-0"				
EC4111	4	1	6'-0"	STR							
EC4112	4	10	35'-10"	STR							
EC4113	4	2	7'-8"	11	5'-4"	2'-4"	9 5/8"				
EC4114	4	1	7'-6 1/2"	11	5'-2 1/2"	2'-4"	9 5/8"				
EC4115	4	2	7'-5"	11	5'-1"	2'-4"	9 5/8"				
EC5101	5	67	7'-7"	14	7"	7'-0"		3 3/4"			
EC5102	5	54	8'-10" TO 35'-10 5/8"	STR							VARY EA BAR BY 6 1/8"
EC5103	5	3	8'-9"	STR							
EC5104	5	7	25'-10" TO 34'-10"	STR							VARY EA BAR BY 1'-6"
EC5105	5	2	24'-11" TO 25'-5"	STR							VARY EA BAR BY 6"
EC5106	5	1	30'-0"	STR							
ES5101	5	66	10'-10 5/8"	12	7'-0"	11 5/8"	2'-11"	1 5/8"	11 1/2"		
ES5102	5	69	8'-2"	6	1'-0"	2'-7"	1'-4"	2'-3"	1'-0"		
ES5103	5	6	7'-5"	1	2'-7"	1'-4"	2'-3"	1'-3"			

LEGEND:

* MECHANICAL COUPLER IS INCLUDED IN THE OVERALL LENGTH OF BAR. BAR FABRICATOR TO ADJUST LENGTH ACCORDINGLY.

** THREAD LENGTH IS NOT INCLUDED IN THE OVERALL LENGTH OF BAR. BAR FABRICATOR TO ADJUST LENGTH ACCORDINGLY.

REINFORCEMENT NOTES:

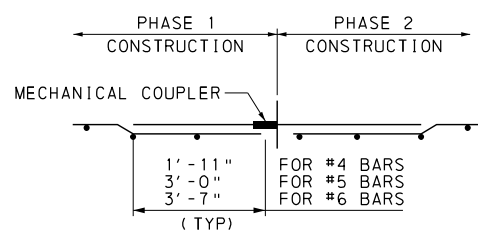
- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.

REFERENCES:

- GENERAL NOTES
- INDEX OF DRAWINGS
- DECK PLAN - 1 - 4
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2

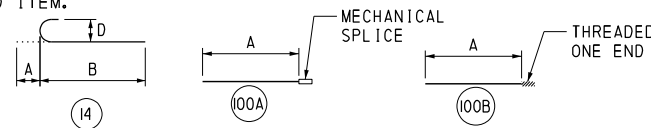
SHEET:

- 03
- 08
- 41 - 44
- 45
- 46



MECHANICAL SPLICE NOTES:

- EACH MECHANICAL SPLICE SYSTEM CONSISTS OF 2 REINFORCEMENT BARS AND ONE MECHANICAL COUPLER. THE REINFORCEMENT BARS ARE INCIDENTAL TO THE MECHANICAL SPLICE SYSTEM.
- THE MECHANICAL COUPLERS ARE PAID FOR UNDER THE MECHANICAL SPLICE SYSTEM. THE REINFORCEMENT BARS THAT HAVE MECHANICAL COUPLERS ARE INCLUDED UNDER THE REINFORCEMENT BARS, EPOXY COATED ITEM.



Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT DECK REINFORCING SCHEDULE - 1			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE/No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 47

REGION 2 AND 6 DECK REINFORCEMENT BAR SCHEDULE

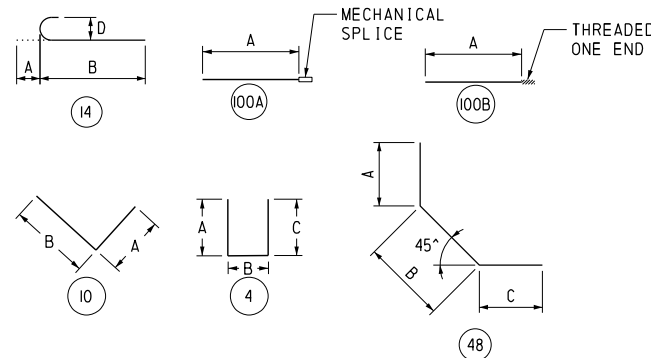
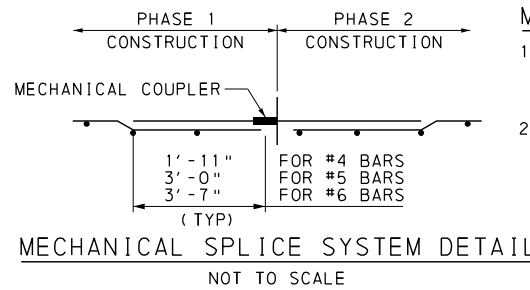
REGION 4 SIDEWALK BARS

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
REGION 2 TOP BARS											
ES4210	4	55	40'-0"	STR							
ES4211	4	55	29'-4"	STR							
ES5210	5	66	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5211	5	18	25'-2"	100A	25'-2"						* MECHANICAL COUPLER
ES5212	5	16	21'-10"	100A	21'-10"						* MECHANICAL COUPLER
ES5213	5	16	18'-10"	100A	18'-10"						* MECHANICAL COUPLER
ES5214	5	16	15'-10"	100A	15'-10"						* MECHANICAL COUPLER
ES6210	6	8	28'-0"	100A	28'-0"						* MECHANICAL COUPLER
ES6211	6	4	21'-8"	100A	21'-8"						* MECHANICAL COUPLER
CLOSURE REGION 6 TOP BARS											
ES4610	4	11	40'-0"	STR							
ES4511	4	11	28'-3"	STR							
ES5610	5	132	6'-5"	100B	6'-5"						** THREADED ONE END
ES6610	6	12	6'-9"	100B	6'-9"						** THREADED ONE END
REGION 2 BOTTOM BARS											
ES4250	4	42	40'-0"	STR							
ES4251	4	42	29'-4"	STR							
ES5250	5	80	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5251	5	20	25'-2"	100A	25'-2"						* MECHANICAL COUPLER
ES5252	5	20	22'-1"	100A	22'-1"						* MECHANICAL COUPLER
ES5253	5	20	19'-0"	100A	19'-0"						* MECHANICAL COUPLER
ES5254	5	20	15'-11"	100A	15'-11"						* MECHANICAL COUPLER
ES6250	6	8	28'-0"	100A	28'-0"						* MECHANICAL COUPLER
ES6251	6	4	21'-8"	100A	21'-8"						* MECHANICAL COUPLER
CLOSURE REGION 6 BOTTOM BARS											
ES4650	4	6	40'-0"	STR							
ES4651	4	6	28'-1"	STR							
ES5650	5	160	6'-5"	100B	6'-5"						** THREADED ONE END
ES6650	6	12	6'-9"	100B	6'-9"						** THREADED ONE END

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EC4401	4	48	37'-0"	STR							
EC4402	4	20	4'-3" TO 36'-8 1/2"	STR							VARY EA BAR BY 1'-8 1/2"
EC4403	4	16	11'-5 9/16" TO 37'-2"	STR							VARY EA BAR BY 1'-8 9/16"
EC4404	4	4	1'-1 3/8" TO 9'-0 3/8"	STR							VARY EA BAR BY 2'-7"
EC4405	4	3	32'-10"	STR							
EC4406	4	1	7'-1"	10	4'-9"	2'-4"					
EC4407	4	1	7'-6"	10	3'-6"	4'-0"					
EC4408	4	1	17'-3"	4	8'-0"	1'-3"	8'-0"				
EC4409	4	1	8'-0"	STR							
EC4410	4	10	35'-2"	STR							
EC4411	4	2	10'-3"	11	7'-11"	2'-4"	11 1/8"				
EC4412	4	1	10'-1 1/2"	11	7'-9 1/2"	2'-4"	11 1/8"				
EC4413	4	2	10'-0"	11	7'-8"	2'-4"	11 1/8"				
EC5401	5	67	7'-7"	14	7"	7'-0"		3 3/4"			
EC5402	5	58	10'-5" TO 49'-7 1/4"	STR							VARY EA BAR BY 8 1/4"
EC5403	5	5	9'-10"	STR							
EC5404	5	4	45'-3" TO 49'-3"	STR							VARY EA BAR BY 1'-4"
ES5401	5	67	10'-10 5/8"	12	7'-0"	11 5/8"	2'-11"	1 5/8"	11 1/2"		
ES5402	5	68	8'-2"	6	1'-0"	2'-7"	1'-4"	2'-3"	1'-0"		
ES5403	5	8	7'-5"	1	2'-7"	1'-4"	2'-3"	1'-3"			
END DIAPHRAGM REINFORCEMENT BAR SCHEDULE											
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
ED4901	4	226	3'-7"	4	1'-3"	1'-1"	1'-3"				
ED4902	4	162	3'-1"	10	1'-0"	2'-1"					
ED4903	4	261	3'-8"	11	2'-8"	1'-0"	8 1/2"				
ED4904	4	230	4'-11"	4	1'-11"	1'-1"	1'-11"				
ED4905	4	66	3'-1"	4	1'-0"	1'-1"	1'-0"				
ED4906	4	20	1'-9"	STR	1'-9"						
ED4907	4	2	3'-6"	48	1'-2"	1'-2"	1'-2"				
ED4908	4	67	5'-0"	10	2'-6"	2'-6"					
ED5901	5	360	2'-5"	100B	2'-5"						
ED5902	5	308	1'-6"	100B	1'-6"						
ED5903	5	40	1'-1"	100B	1'-1"						
ED5904	5	20	2'-8"	22	1'-4"	4"	1'-0"				
ED5905	5	20	2'-11 1/4"	22	1'-4"	7 1/4"	1'-0"				

MECHANICAL SPLICE NOTES:

- EACH MECHANICAL SPLICE SYSTEM CONSISTS OF 2 REINFORCEMENT BARS AND ONE MECHANICAL COUPLER. THE REINFORCEMENT BARS ARE INCIDENTAL TO THE MECHANICAL SPLICE SYSTEM.
- THE MECHANICAL COUPLERS ARE PAID FOR UNDER THE MECHANICAL SPLICE SYSTEM. THE REINFORCEMENT BARS THAT HAVE MECHANICAL COUPLERS ARE INCLUDED UNDER THE REINFORCEMENT BARS, EPOXY COATED ITEM.



REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.

LEGEND:

- * MECHANICAL COUPLER IS INCLUDED IN THE OVERALL LENGTH OF BAR. BAR FABRICATOR TO ADJUST LENGTH ACCORDINGLY.
- ** THREAD LENGTH IS NOT INCLUDED IN THE OVERALL LENGTH OF BAR. BAR FABRICATOR TO ADJUST LENGTH ACCORDINGLY.

REFERENCES:

- GENERAL NOTES 03
- INDEX OF DRAWINGS 08
- END DIAPHRAGMS 37 - 39
- DECK PLAN - 1 - 4 41 - 44
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1 45
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2 46

SHEET:

- 03
08
37 - 39
41 - 44
45
46

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Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
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PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT DECK REINFORCING SCHEDULE - 2			
DWG	DMB	PD/No	DATE
DWG	WRB	FILE No	BR0227858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 48

REGION 3 AND 7 DECK REINFORCEMENT BAR SCHEDULE

REGION 4 DECK REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
REGION 3 TOP BARS											
ES4310	4	55	40'-0"	STR							
ES4311	4	55	29'-0"	STR							
ES5310	5	66	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5311	5	18	25'-2"	100A	25'-2"						* MECHANICAL COUPLER
ES5312	5	16	22'-4"	100A	22'-4"						* MECHANICAL COUPLER
ES5313	5	16	19'-9"	100A	19'-9"						* MECHANICAL COUPLER
ES5314	5	16	17'-3"	100A	17'-3"						* MECHANICAL COUPLER
ES6310	6	6	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES6311	6	2	15'-0"	STR							
ES6312	6	2	25'-11"	100A	25'-11"						* MECHANICAL COUPLER
ES6313	6	2	15'-4"	100A	15'-4"						* MECHANICAL COUPLER
ES6314	6	1	3'-0"	100A	3'-0"						* MECHANICAL COUPLER
ES6315	6	1	2'-5"	100A	2'-5"						* MECHANICAL COUPLER
CLOSURE REGION 7 TOP BARS											
ES4710	4	11	40'-0"	STR							
ES4711	4	11	29'-9"	STR							
ES5710	5	132	6'-5"	100B	6'-5"						** THREADED ONE END
ES6710	6	12	6'-9"	100B	6'-9"						** THREADED ONE END
REGION 3 BOTTOM BARS											
ES4350	4	42	40'-0"	STR							
ES4351	4	42	29'-0"	STR							
ES5350	5	80	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5351	5	20	25'-2"	100A	25'-2"						* MECHANICAL COUPLER
ES5352	5	20	22'-7"	100A	22'-7"						* MECHANICAL COUPLER
ES5353	5	20	19'-11"	100A	19'-11"						* MECHANICAL COUPLER
ES5354	5	20	17'-4"	100A	17'-4"						* MECHANICAL COUPLER
ES6350	6	6	27'-11"	100A	27'-11"						* MECHANICAL COUPLER
ES6351	6	2	17'-1"	STR							
ES6352	6	4	22'-7"	100A	22'-7"						* MECHANICAL COUPLER
ES6353	6	1	2'-5"	100A	2'-5"						* MECHANICAL COUPLER
ES6354	6	1	3'-0"	100A	3'-0"						* MECHANICAL COUPLER
CLOSURE REGION 7 BOTTOM BARS											
ES4750	4	6	40'-0"	STR							
ES4751	4	6	29'-9"	STR							
ES5750	5	160	6'-5"	100B	6'-5"						** THREADED ONE END
ES6750	6	8	6'-9"	100B	6'-9"						** THREADED ONE END

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
REGION 4 TOP BARS											
ES4410	4	67	40'-0"	STR							
ES4411	4	67	34'-4"	STR							
ES4412	4	1	8'-0"	STR							
ES4413	4	1	17'-1"	4	8'-0"	1'-1"	8'-0"				
ES5410	5	66	30'-7"	14	7"	30'-0"					
ES5411	5	15	35'-8"	100A	35'-8"						* MECHANICAL COUPLER
ES5412	5	3	38'-1"	100A	38'-1"						* MECHANICAL COUPLER
ES5413	5	16	32'-5"	100A	32'-5"						* MECHANICAL COUPLER
ES5414	5	16	29'-0"	100A	29'-0"						* MECHANICAL COUPLER
ES5415	5	16	25'-8"	100A	25'-8"						* MECHANICAL COUPLER
ES6410	6	67	4'-10"	14	8"	4'-2"					
ES6411	6	5	7'-8"	14	8"	7'-0"					
ES6412	6	6	30'-8"	14	8"	30'-0"					
ES6413	6	2	39'-6"	100A	39'-6"						* MECHANICAL COUPLER
ES6414	6	2	6'-6"	10	3'-6"	3'-0"					
ES6415	6	4	22'-10"	100A	22'-10"						* MECHANICAL COUPLER
REGION 4 BOTTOM BARS											
ES4450	4	49	40'-0"	STR							
ES4451	4	49	34'-4"	STR							
ES4452	4	1	8'-0"	STR							
ES4453	4	1	17'-1"	4	8'-0"	1'-1"	8'-0"				
ES5450	5	80	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES5451	5	16	35'-10"	STR							
ES5452	5	4	38'-3"	STR							
ES5453	5	20	33'-1"	STR							
ES5454	5	20	29'-7"	STR							
ES5455	5	20	26'-1"	STR							
ES6450	6	2	6'-6"	10	3'-6"	3'-0"					
ES6451	6	6	29'-9"	100A	29'-9"						* MECHANICAL COUPLER
ES6452	6	2	39'-11"	STR							
ES6453	6	4	23'-2"	STR							

LEGEND:

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- ** THREAD LENGTH IS NOT INCLUDED IN THE OVERALL LENGTH OF BAR. BAR FABRICATOR TO ADJUST LENGTH ACCORDINGLY.

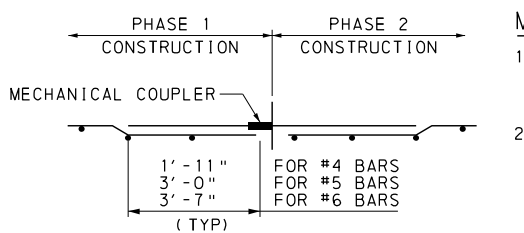
REINFORCEMENT NOTES:

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- NUMBERS IN CIRCLES DENOTE TYPES.
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- "E" PREFIX DENOTES EPOXY COATED BARS.

REFERENCES:

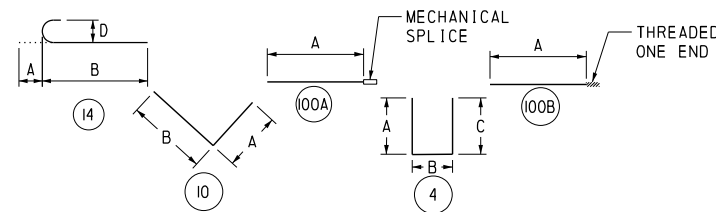
- GENERAL NOTES 03
- INDEX OF DRAWINGS 08
- DECK PLAN - 1 - 4 41 - 44
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 1 45
- TYPICAL DECK SECTION ALONG CL BEARINGS ABUT 2 46

SHEET:



MECHANICAL SPLICE NOTES:

- EACH MECHANICAL SPLICE SYSTEM CONSISTS OF 2 REINFORCEMENT BARS AND ONE MECHANICAL COUPLER. THE REINFORCEMENT BARS ARE INCIDENTAL TO THE MECHANICAL SPLICE SYSTEM.
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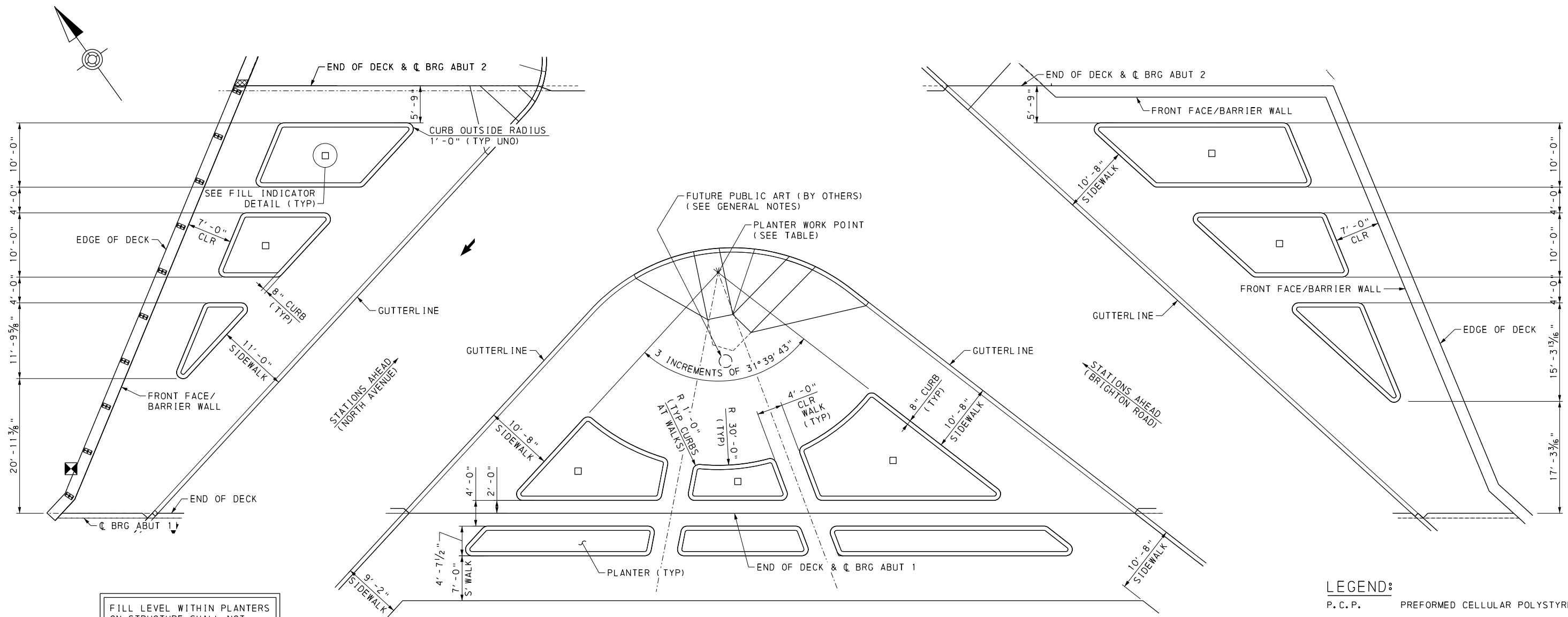


Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
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OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT DECK REINFORCING SCHEDULE - 3			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 49

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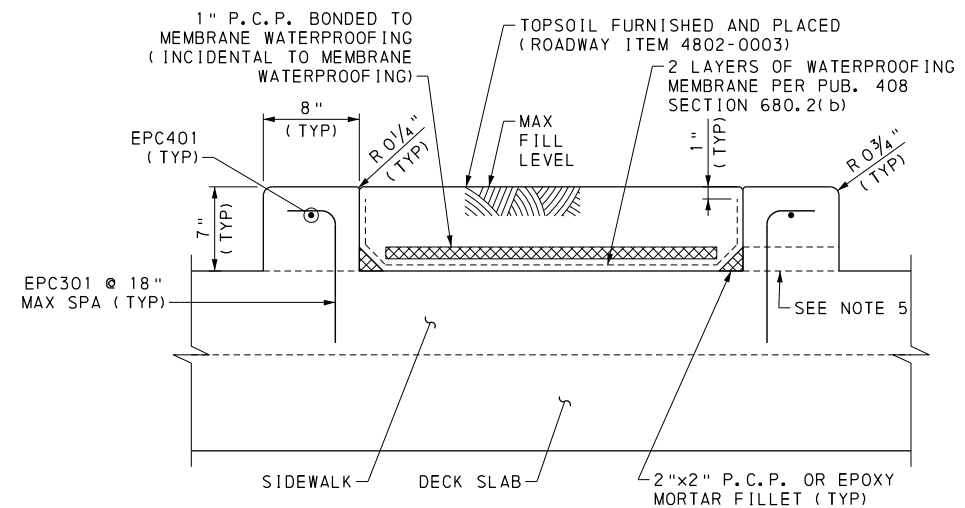
FILL LEVEL WITHIN PLANTERS ON STRUCTURE SHALL NOT EXCEED 6 INCHES

STRUCTURE LANDSCAPING PLAN

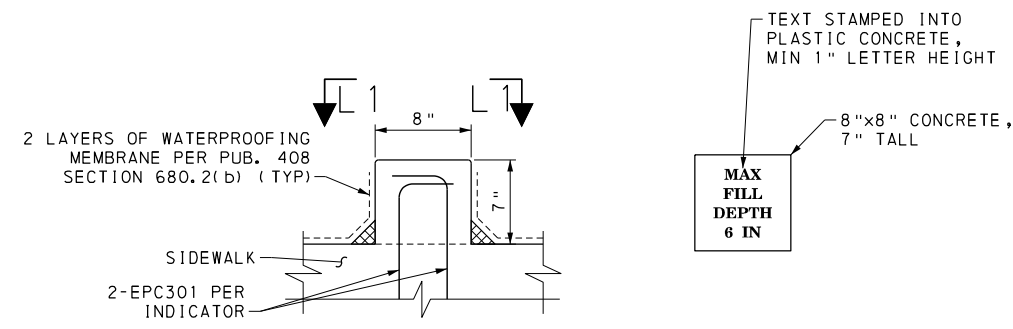
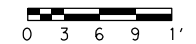


LEGEND:
P.C.P. PREFORMED CELLULAR POLYSTYRENE

- NOTES:**
1. PROVIDE CLASS AA CEMENT CONCRETE IN ALL LANDSCAPING CURBS ON STRUCTURE.
 2. SEE SIDEWALK AND RAISED ISLAND PLANS FOR PLANTER CURB REINFORCEMENT LAYOUT.
 3. SEE GENERAL NOTES FOR ADDITIONAL LANDSCAPING NOTES.
 4. SEE ROADWAY DRAWINGS FOR PLANTER DETAILS OFF STRUCTURE.
 5. PROVIDE 2-2" DIA. PVC WEEPHOLES WITH VERMIN SCREENING PER PLANTER. LOCATE WEEPHOLES ON THE DOWN-GRADE SIDE OF EACH PLANTER EVENLY SPACED ALONG THE CURB. CONFIRM WEEPHOLE LOCATIONS WITH THE REPRESENTATIVE PRIOR TO PLACING PLANTER CURBS. INSTALL WEEPHOLES AND VERMIN SCREENING PER THE "MEMBRANE DRAIN DETAIL AT CURB" ON STD. DWG. BC-788M SHEET 9.

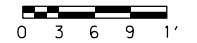


TYPICAL SECTION THRU PLANTER ON STRUCTURE



ELEVATION VIEW L1-L1

FILL DEPTH INDICATOR DETAIL



PLANTER WORK POINT DATA		
SURVEY C	STATION	OFFSET
NORTH	11+04.79	25.80' RT
BRIGHTON	104+64.15	32.67' LT

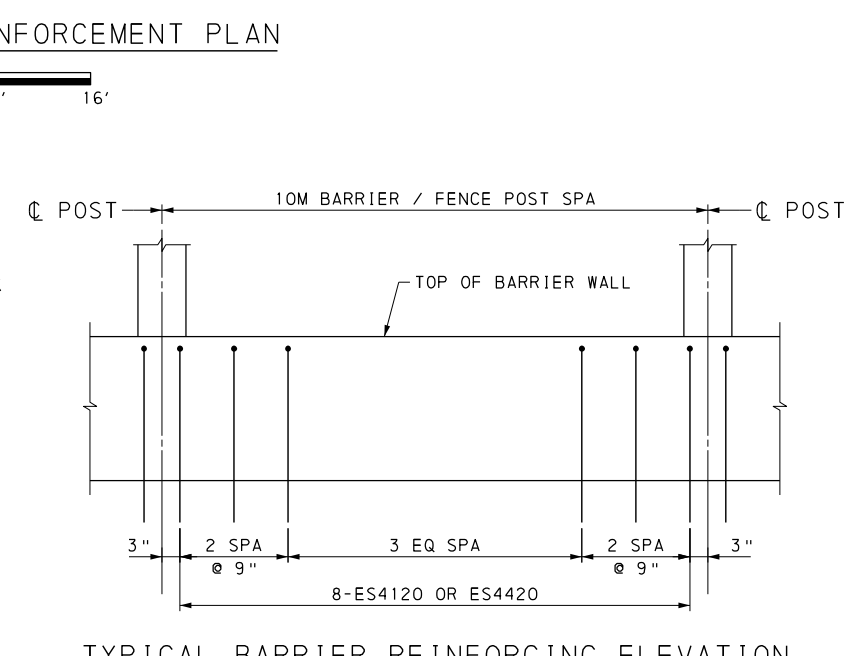
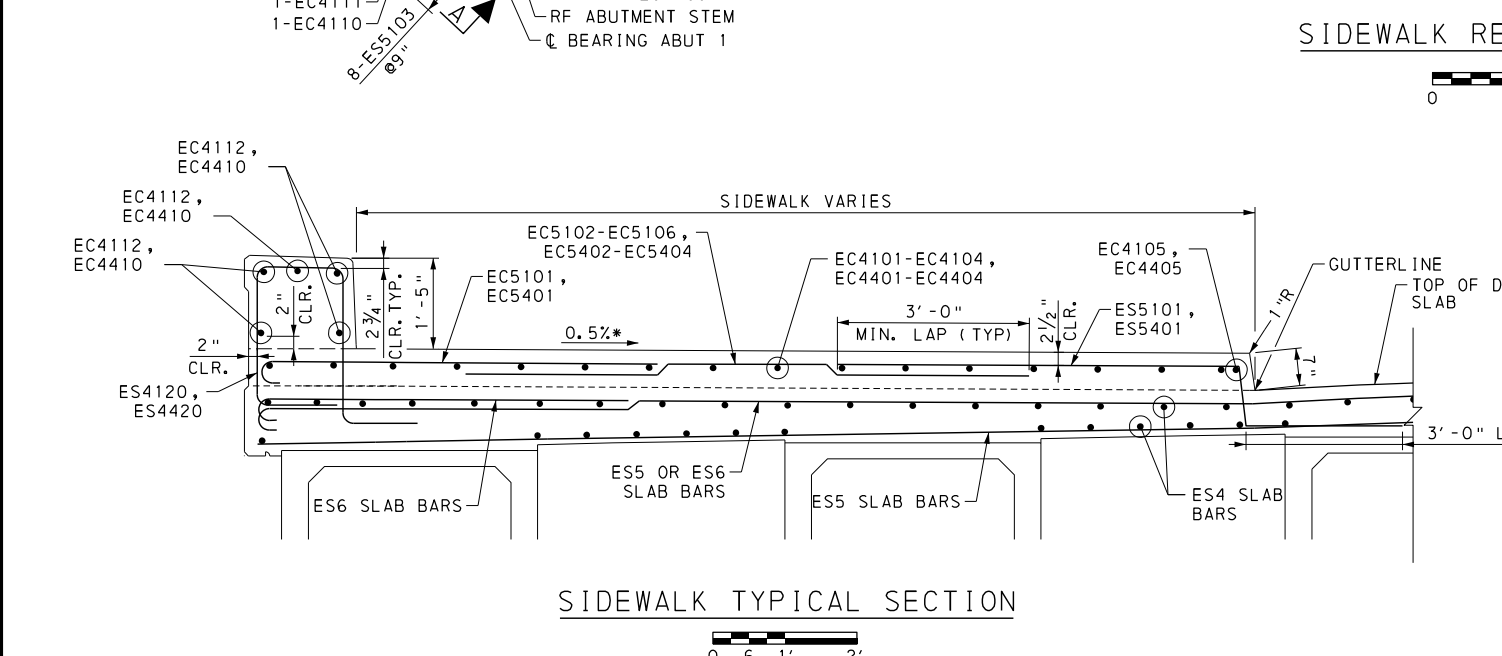
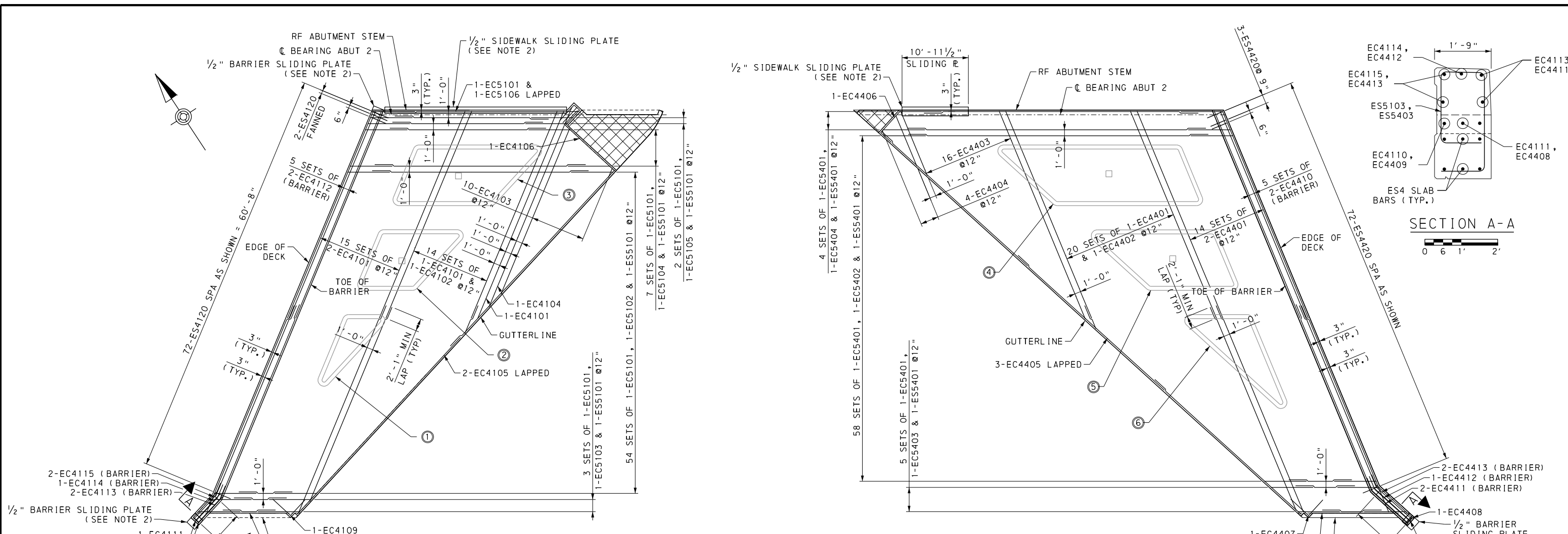
NS_North_Landscapel.dgn 9/11/2024 3:05:04 PM

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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
LANDSCAPING PLAN			
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

SCALE POST PC 1.60
DRAWING NUMBER PC-1.60 23
SHEET NO. 50 OF 83



REFERENCES:

1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. DECK ELEVATIONS - 1 - 2	09 - 10
6. FRAMING PLAN	32
7. LANDSCAPING PLAN	50
8. RAISED ISLAND PLAN	52
9. DECK REINFORCING SCHEDULE - 1 - 3	47 - 49

REINFORCING LEGEND:

①	24-EPC301 & 2-EPC401 **
②	33-EPC301 & 2-EPC401 **
③	42-EPC301 & 2-EPC401 **
④	54-EPC301 & 2-EPC401 **
⑤	41-EPC301 & 2-EPC401 **
⑥	34-EPC301 & 2-EPC401 **

LEGEND:

RF REAR FACE

HATCHED AREAS TO BE POURED AND DETAILED SEPARATELY FROM SIDEWALKS PER CURB RAMP DETAIL SHEETS IN ROADWAY DRAWING.

* MEASURED NORMAL TO BARRIER

** CUT AND BEND EPC401 BARS TO SUIT PLANTER SHAPE IN FIELD. MIN LAP = 2'-1"

NOTES:

1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.

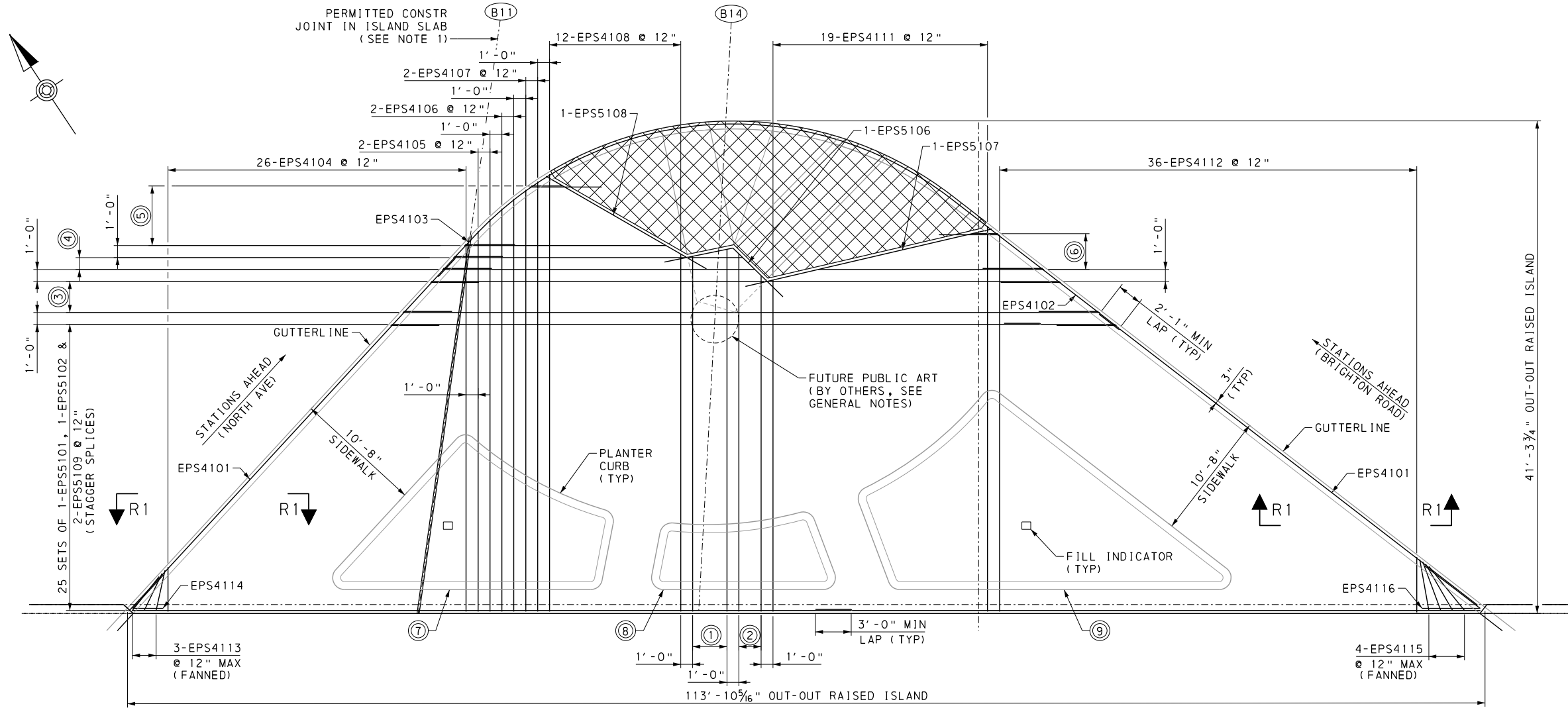
2. CONTRACTOR TO DETAIL AND PROVIDE 1/2" BARRIER AND SIDEWALK SLIDING PLATES PER BC-766M. RECESS SLIDING PLATES IN SIDEWALKS AND BARRIERS. STOP SIDEWALK SLIDING PLATES AT EDGE OF CURB RAMP.

9/11/2024 NS_Northern_Sidewalk.dgn 3:05:19 PM

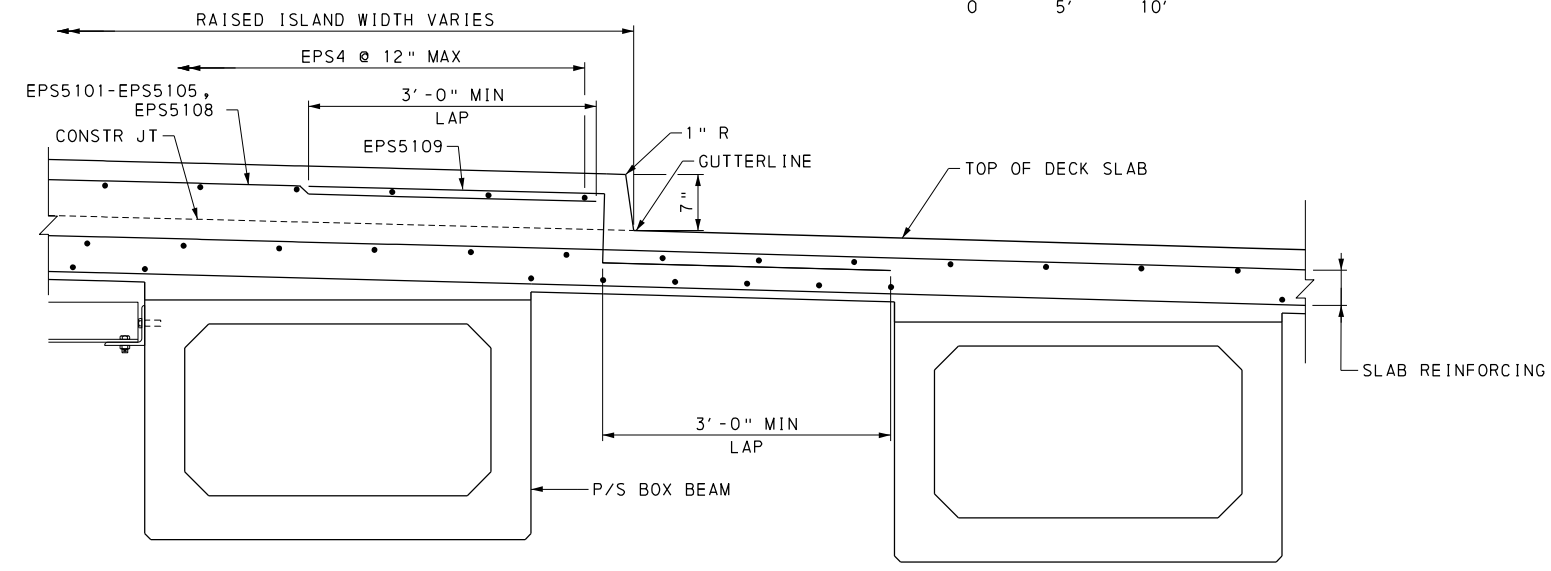
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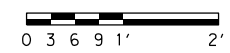
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT DECK BARRIER AND SIDEWALK PLAN			
OWN	DMB	FD/N	WVN
DRN	WRB	FILE#	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST
			PC 1.60
			DRAWING NUMBER
			PC-1.60 23 51



ISLAND REINFORCEMENT PLAN



SECTION R1-R1



LEGEND:

- HATCHED AREAS TO BE POURED AND DETAILED SEPARATELY FROM SIDEWALKS PER CURB RAMP DETAIL SHEETS IN ROADWAY DRAWINGS.
- ① 4-EPS4109 @ 12"
- ② 3-EPS4110 @ 12"
- ③ 4 SETS OF 1-EPS5103 & 2-EPS5109 @ 12"
- ④ 2 SETS OF 1-EPS5104 & 2-EPS5109 @ 12"
- ⑤ 6 SETS OF 1-EPS5105 & 1-EPS5109 @ 12" (TRIM IN FIELD TO FIT)
- ⑥ 4 SETS OF 1-EPS5108 & 1-EPS5109 @ 12" (TRIM IN FIELD TO FIT)
- ⑦ 42-EPC301 & 3-EPC401 *
- ⑧ 26-EPC301 & 2-EPC401 *
- ⑨ 54-EPC301 & 3-EPC401 *
- * CUT AND BEND EPC401 BARS IN FIELD TO SUIT PLANTER SHAPE. MIN LAP = 2'-1".

NOTES:

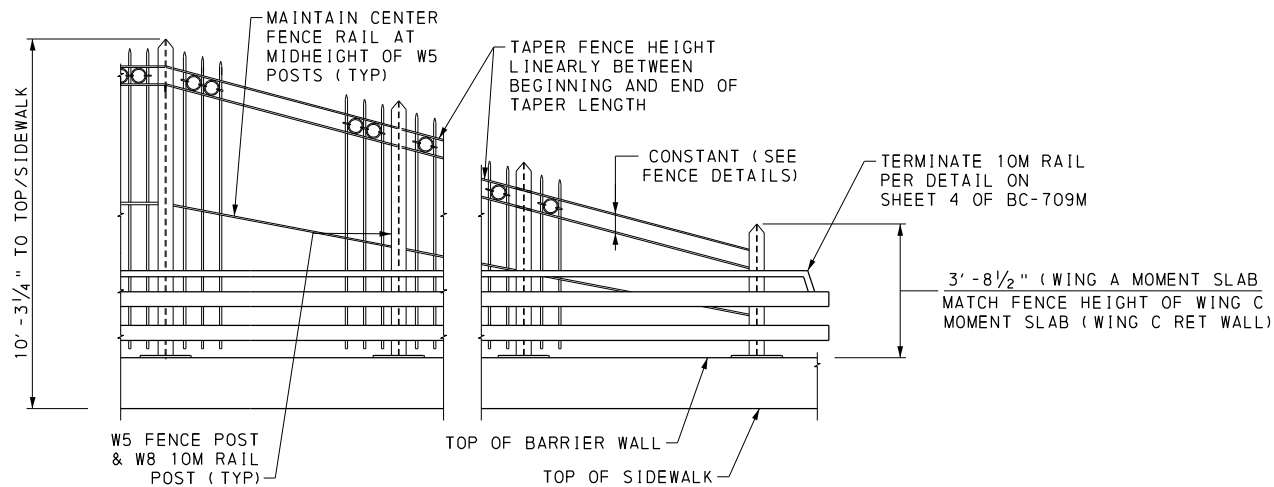
1. A CONSTRUCTION JOINT IS PERMITTED IN THE RAISED ISLAND ALONG THE BEAM B11 CENTERLINE AS INDICATED ON THIS SHEET AND ON SHEET 6. REINFORCEMENT ON THIS SHEET IS DETAILED ASSUMING THAT THE RAISED ISLAND IS PLACED ALL AT ONCE. IF THE CONSTRUCTION JOINT IS USED, ADJUST THE EPS4 BARS IN THIS AREA SO THAT NO EPS4 BARS PASS THRU THE JOINT. SEAL THE JOINT WITH HMMW RESIN AFTER CONCRETE CURING IS COMPLETE (INCIDENTAL TO AA CEMENT CONCRETE).
 2. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
 3. SEE SHEET 50 FOR ADDITIONAL PLANTER CURB REINFORCING DETAILS.
- | | |
|--------------------------------------|---------------|
| REFERENCES: | SHEET: |
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. INDEX OF DRAWINGS | 08 |
| 5. DECK ELEVATIONS - 1 - 2 | 09 - 10 |
| 6. FRAMING PLAN | 32 |
| 7. LANDSCAPING PLAN | 50 |
| 8. DECK REINFORCING SCHEDULE - 1 - 3 | 47 - 49 |

9/11/2024 NS_NorTh_Sidewalk2.dgn 3:05:25 PM

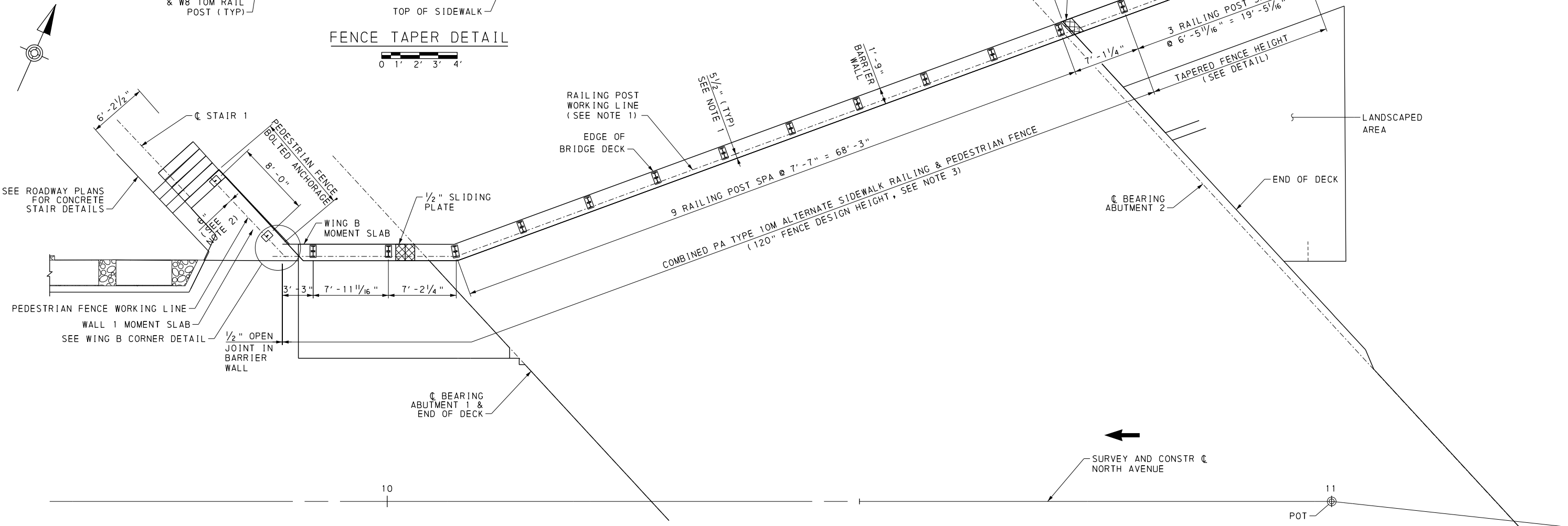
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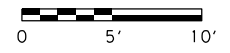
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT RAISED ISLAND PLAN			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 52



FENCE TAPER DETAIL
0 1' 2' 3' 4'



PARTIAL PLAN - RAILING & FENCE POST LAYOUT
(WALL 1 FENCE, WING B RAILING, NORTH BRIDGE RAILING, AND WING C RETAINING WALL RAILING SHOWN)



- NOTES:**
1. PA TYPE 10M RAILING POSTS ARE SPACED ALONG THE RAILING POST WORKING LINE (5 1/2" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
 2. PEDESTRIAN FENCE POSTS ARE SPACED ALONG THE FENCE POST WORKING LINE (6" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
 3. FENCE DESIGN HEIGHT IS TAKEN AS DISTANCE FROM TOP OF SIDEWALK/ROADWAY TO TOP OF TYPICAL FENCE PICKET.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. BARRIER AND RAILING POST LAYOUT - 2 - 3	54 - 55
6. WING C CORNER DETAIL	74
7. RAILROAD PROTECTIVE FENCE DETAILS	56
8. PEDESTRIAN FENCE, BOLTED ANCHORAGE DETAILS	57
9. PEDESTRIAN FENCE, CORED ANCHORAGE DETAILS	58

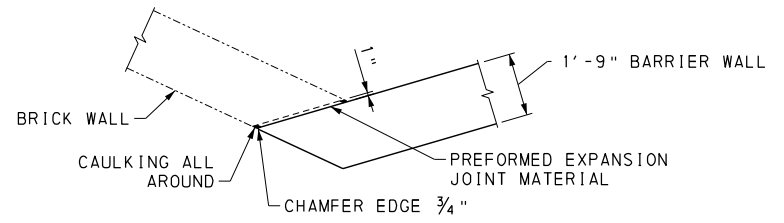
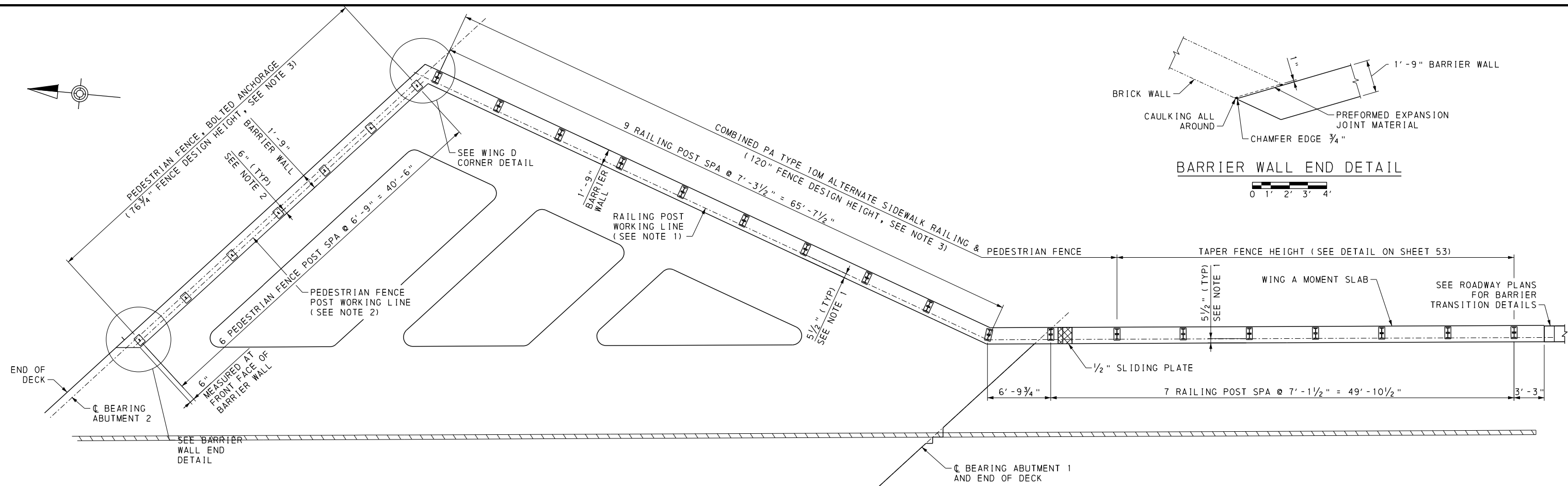
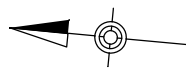
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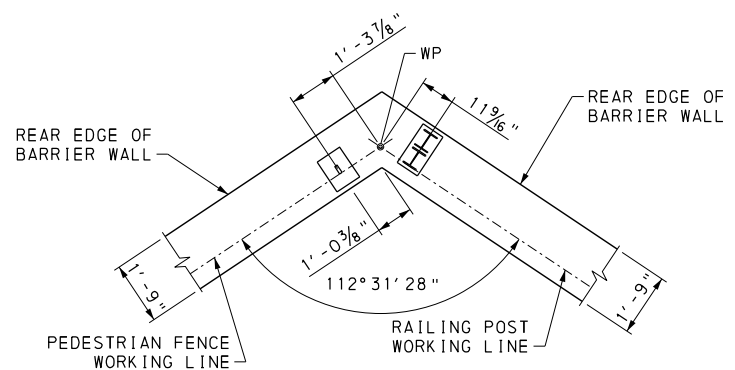
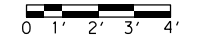
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT BARRIER AND RAILING POST LAYOUT - 1			
DRN	DMB	FD/No	VERN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

SCALE POST: PC 1.60
DRAWING NUMBER: PC-1.60 23 53

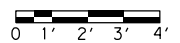
9/11/2024 3:05:29 PM NS_North_Barrier1.dgn



BARRIER WALL END DETAIL

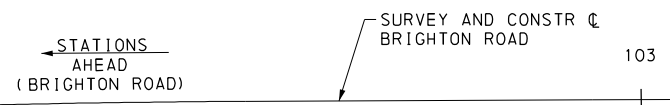
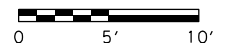


WING D CORNER DETAIL



PARTIAL PLAN - RAILING & FENCE POST LAYOUT

(SOUTH BRIDGE RAILING & WING A RAILING SHOWN)



NOTES:

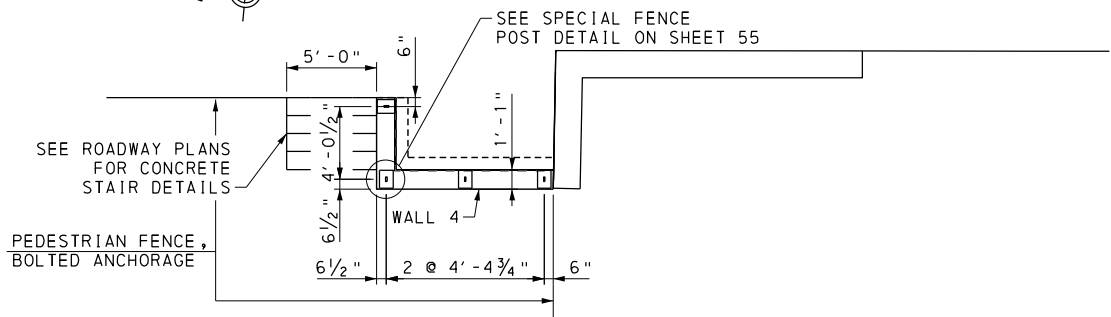
1. PA TYPE 10M RAILING POSTS ARE SPACED ALONG THE RAILING POST WORKING LINE (5 1/2" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
2. PEDESTRIAN FENCE POSTS ARE SPACED ALONG THE FENCE POST WORKING LINE (6" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
3. FENCE DESIGN HEIGHT IS TAKEN AS DISTANCE FROM TOP OF SIDEWALK/ROADWAY TO TOP OF TYPICAL FENCE PICKET.

REFERENCES:

- | | |
|---|---------|
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. INDEX OF DRAWINGS | 08 |
| 5. BARRIER AND RAILING POST LAYOUT - 1 & 3 | 53 & 55 |
| 6. RAILROAD PROTECTIVE FENCE DETAILS | 56 |
| 7. PEDESTRIAN FENCE, BOLTED ANCHORAGE DETAILS | 57 |
| 8. PEDESTRIAN FENCE, CORED ANCHORAGE DETAILS | 58 |

SHEET:

- | |
|---------|
| 02 |
| 03 |
| 04 |
| 08 |
| 53 & 55 |
| 56 |
| 57 |
| 58 |



PARTIAL PLAN - FENCE POST LAYOUT

(WALL 4 RAILING)

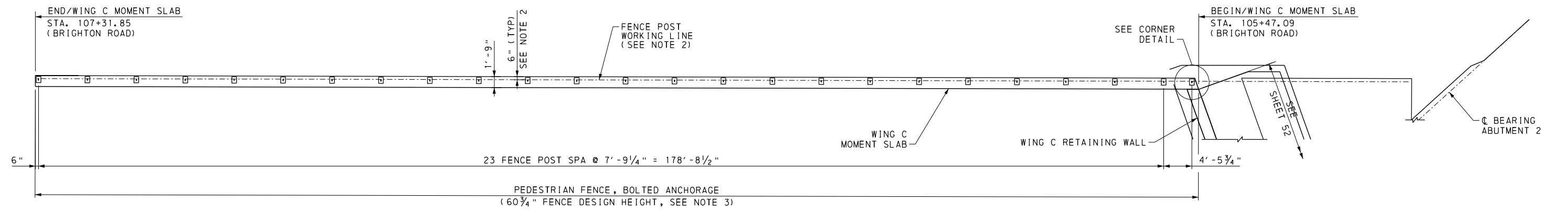
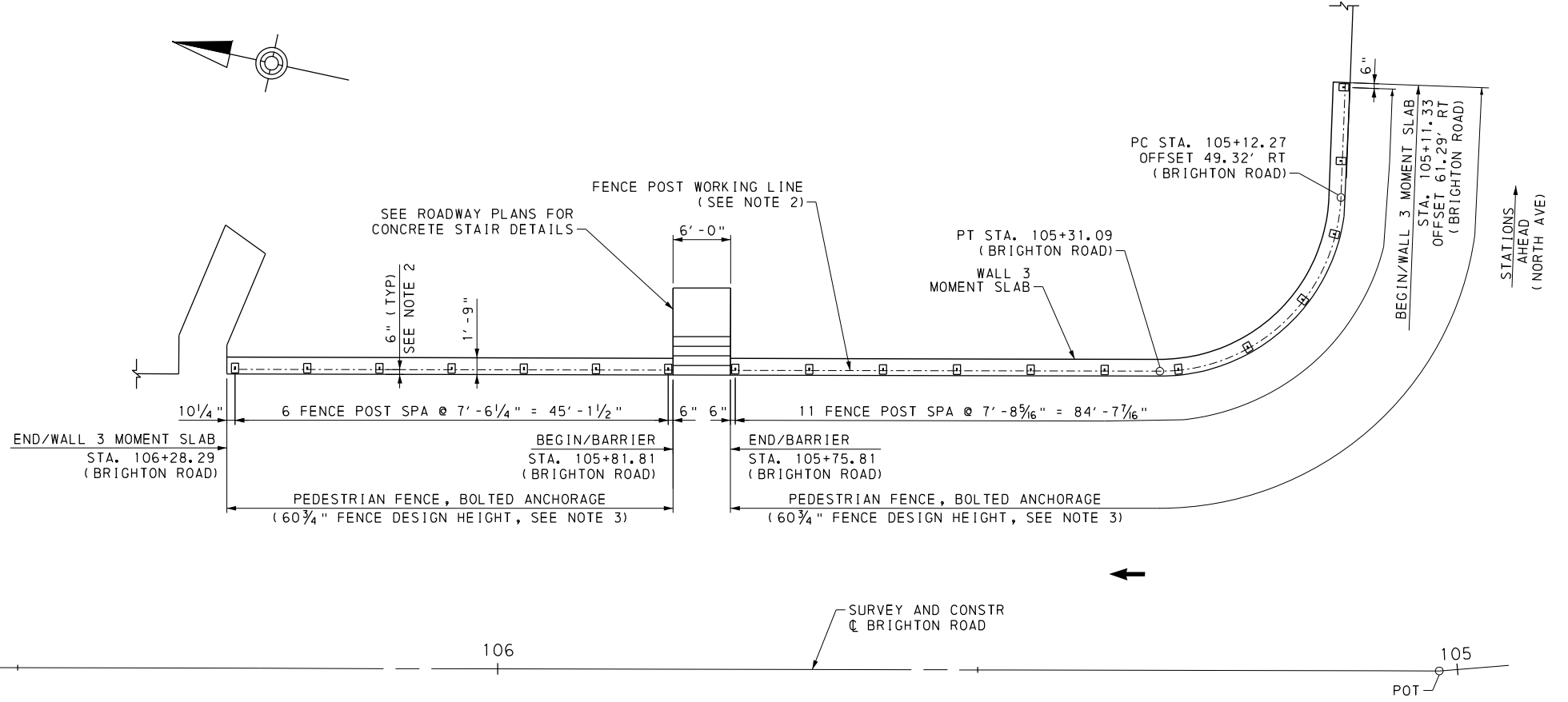
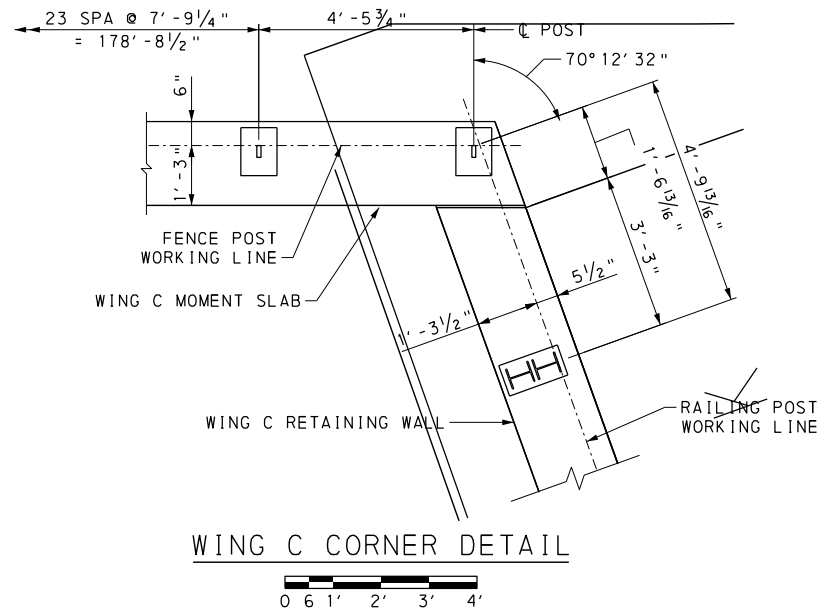


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OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT BARRIER AND RAILING POST LAYOUT - 2			
DRN	DMB	PD No	VERN
DWN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 54



PARTIAL PLAN - RAILING POST LAYOUT
(WALL 3 AND WING C RAILING SHOWN)

- NOTES:**
1. PA TYPE 10M RAILING POSTS ARE SPACED ALONG THE RAILING POST WORKING LINE (5 1/2" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
 2. PEDESTRIAN FENCE POSTS ARE SPACED ALONG THE FENCE POST WORKING LINE (6" FROM FRONT FACE OF BARRIER WALL/GUTTERLINE).
 3. FENCE DESIGN HEIGHT IS TAKEN AS DISTANCE FROM TOP OF SIDEWALK/ROADWAY TO TOP OF TYPICAL FENCE PICKET.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. BARRIER AND RAILING POST LAYOUT - 1 - 2	53 - 54
6. RAILROAD PROTECTIVE FENCE DETAILS	56
7. PEDESTRIAN FENCE, BOLTED ANCHORAGE DETAILS	57
8. PEDESTRIAN FENCE, CORED ANCHORAGE DETAILS	58

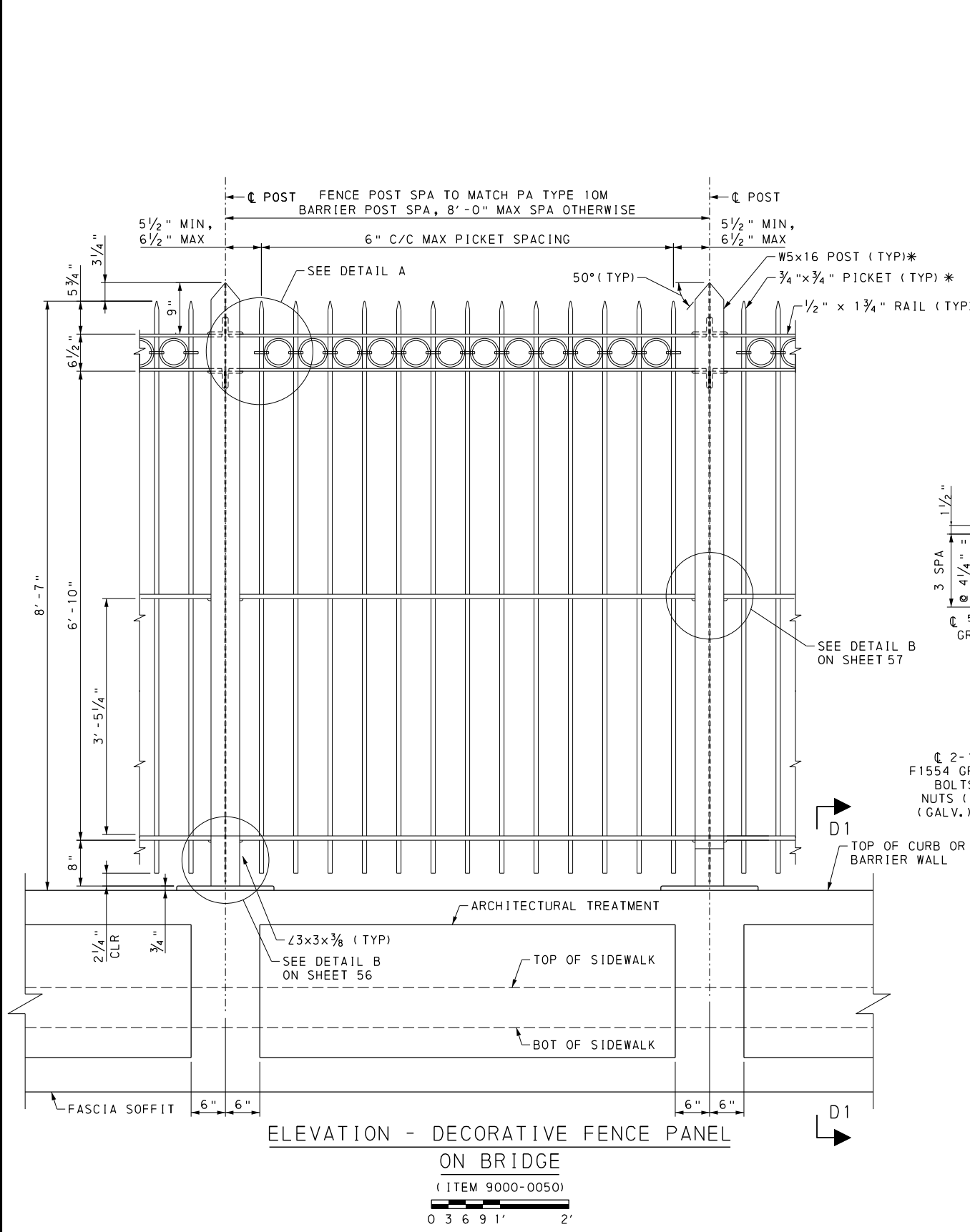
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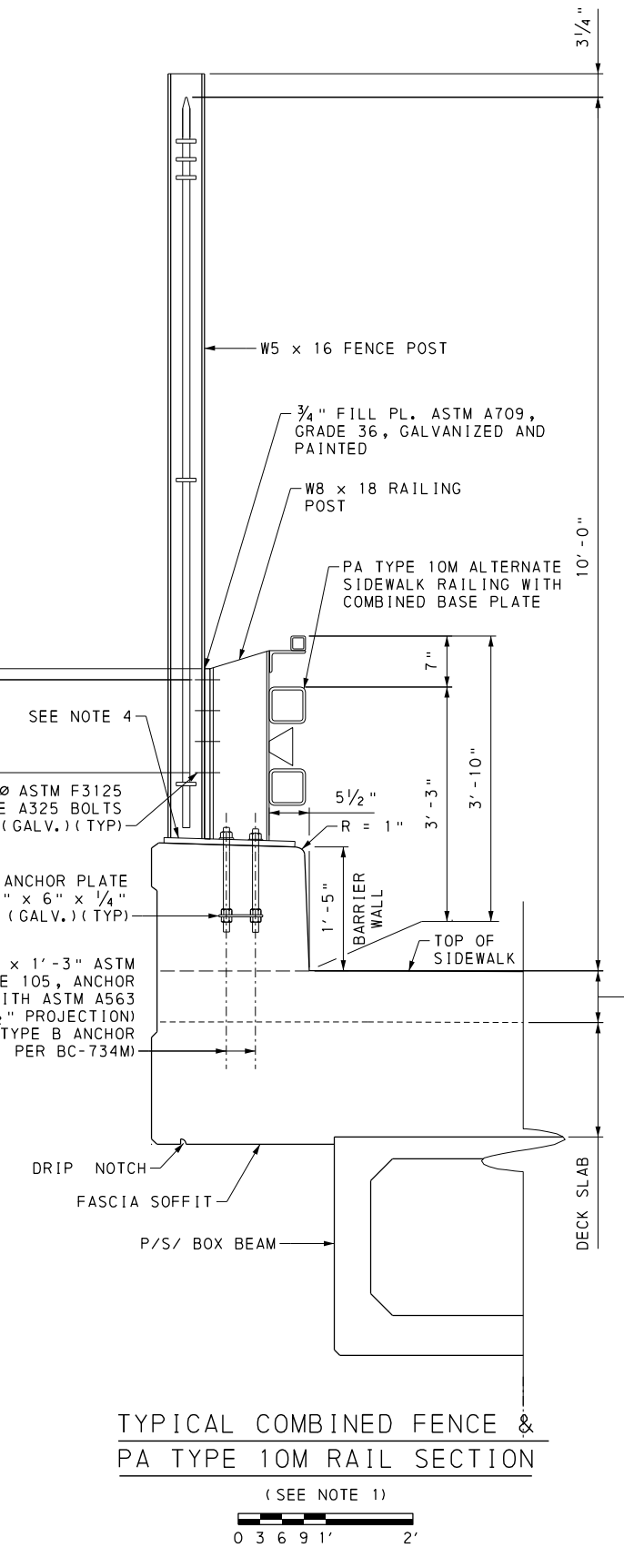
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT BARRIER AND RAILING POST LAYOUT - 3			
DRN	DMB	PD/No	WVN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

SCALE POST PC 1.60
DRAWING NUMBER PC-1.60 23 55
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

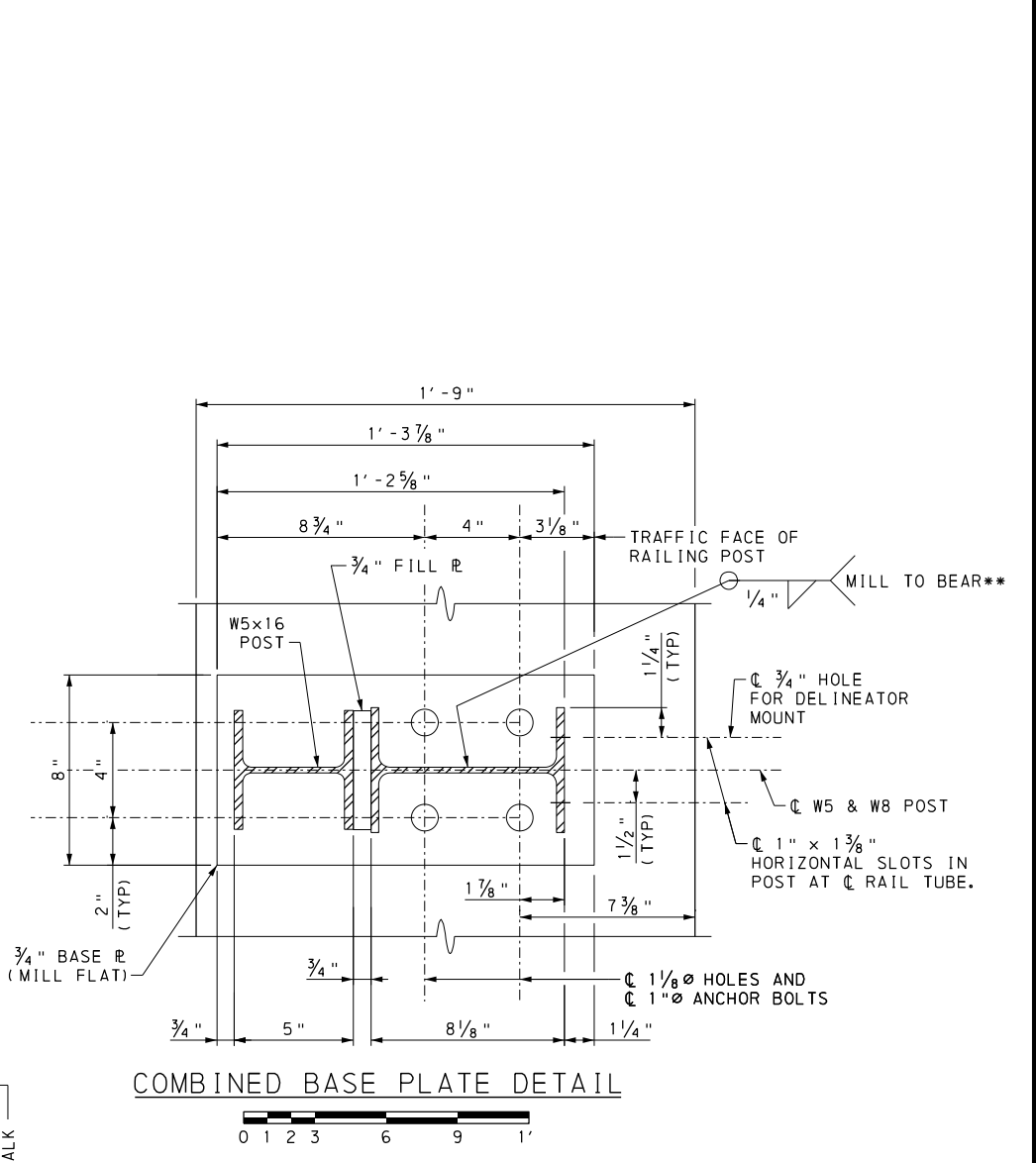
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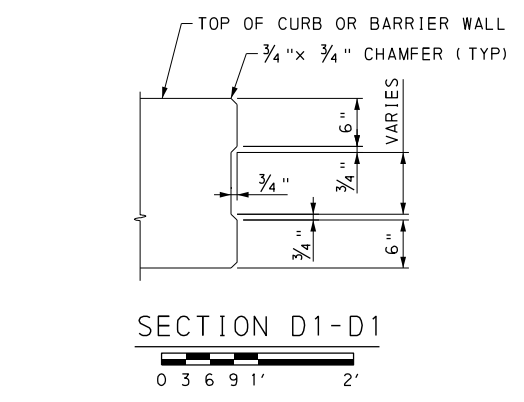
ELEVATION - DECORATIVE FENCE PANEL ON BRIDGE
(ITEM 9000-0050)
0 3 6 9 1' 2'



TYPICAL COMBINED FENCE & PA TYPE 10M RAIL SECTION
(SEE NOTE 1)
0 3 6 9 1' 2'



COMBINED BASE PLATE DETAIL
0 1 2 3 6 9 1'



SECTION D1-D1
0 3 6 9 1' 2'

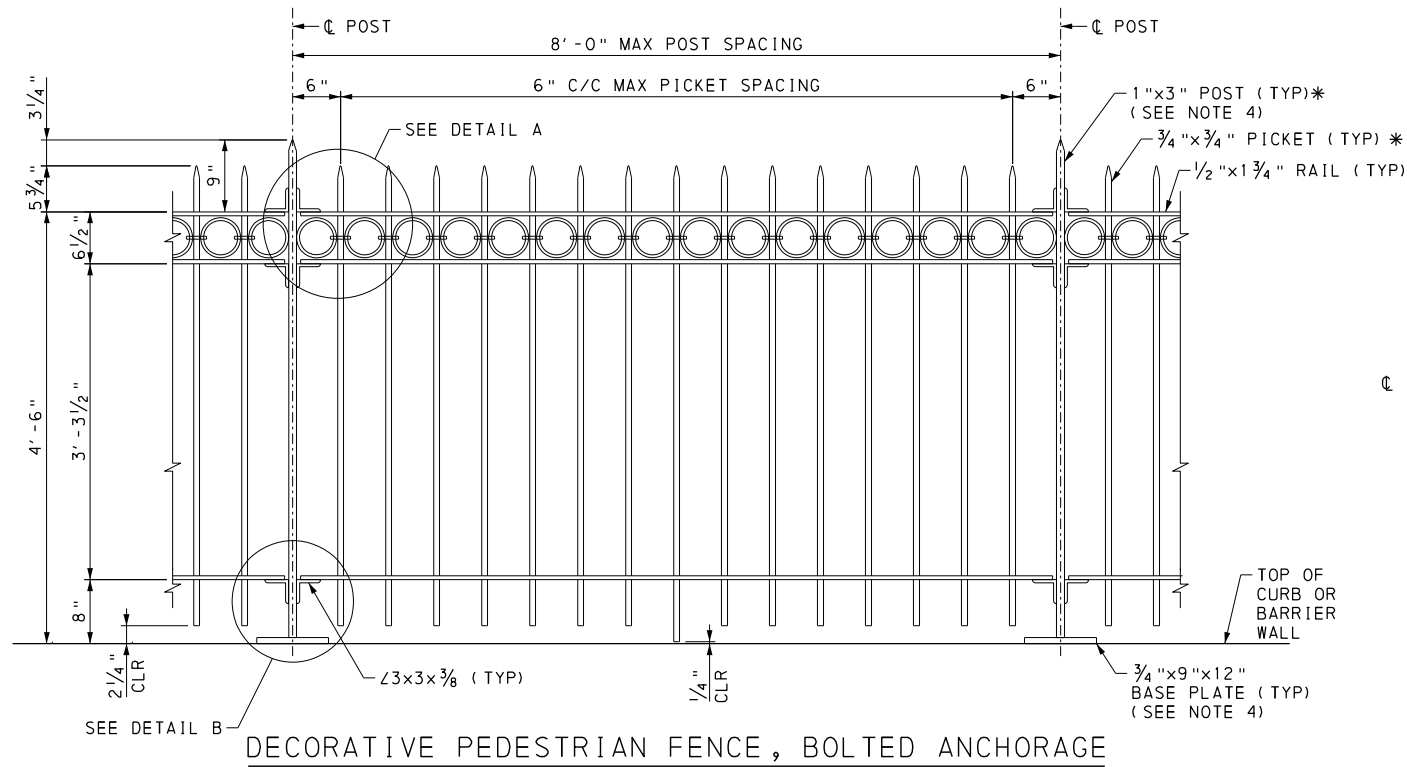
- NOTES:**
- FOR FENCE AND RAILING DETAILS NOT SHOWN, SEE BC-701M, BC-709M, AND BC-716M.
 - FOR DETAILS A & B SEE SHEET 57.
 - CUT 3/4" FILL PLATE TO CLEAR POST FILLET WELDS. INSTALL CAULKING BETWEEN WELD LINES AND FILL PLATE TO SEAL.
 - W5x16 FENCE POST TO FIT FLUSH TO 3/4" BASE PLATE. CAULK GAPS USING CAULKING COMPOUND COMPATIBLE WITH THE CHOSEN PAINT SYSTEM.
- LEGEND:**
- * POSTS AND PICKETS TO BE FABRICATED PLUMB VERTICAL
 - ** KEEP WELD 3/8" CLEAR OF ANCHOR BOLT HOLES.

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. BARRIER AND RAILING POST LAYOUT - 1 - 3	53 - 55
6. DECORATIVE PEDESTRIAN FENCE, BOLTED ANCHORAGE	57
7. DECORATIVE PEDESTRIAN FENCE, CORED ANCHORAGE	58

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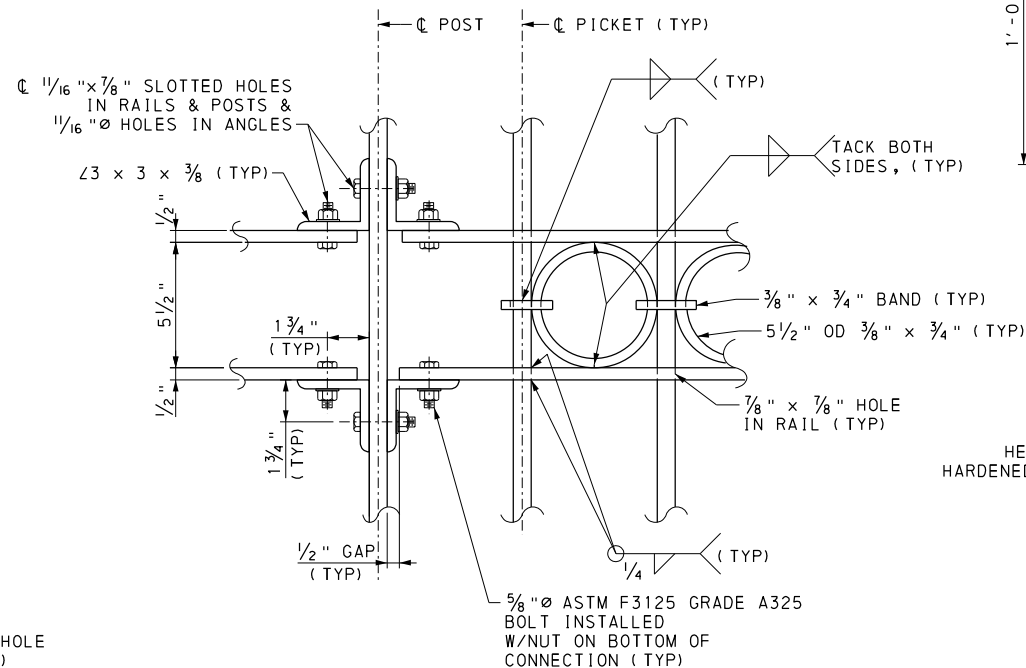
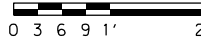
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PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT DECORATIVE RAILROAD PROTECTIVE FENCE			
DWG	DMB	FD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 56

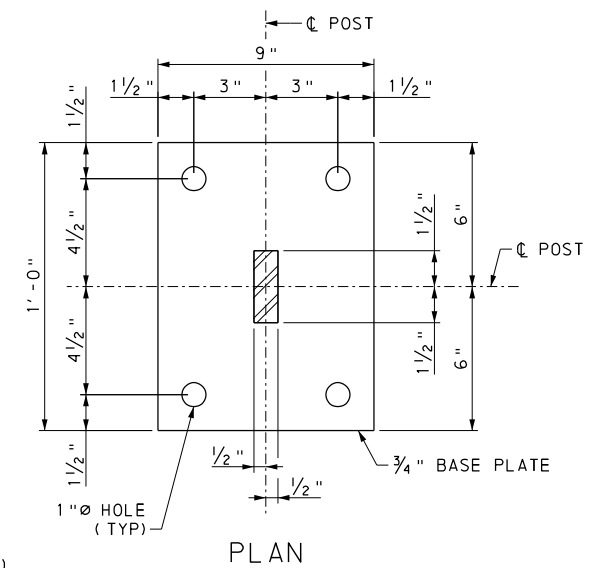


DECORATIVE PEDESTRIAN FENCE, BOLTED ANCHORAGE

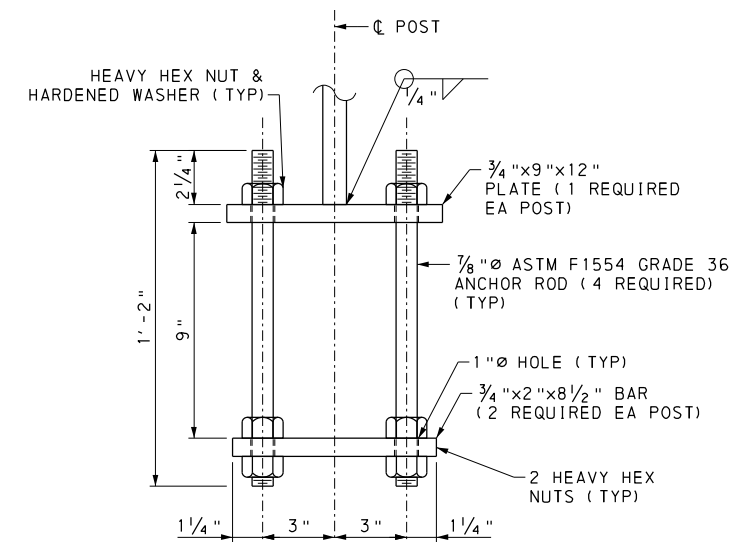
(ITEM 9000-0051)



DETAIL A

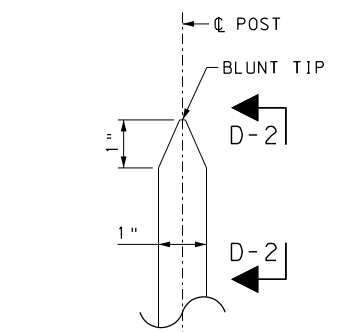
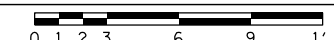


PLAN

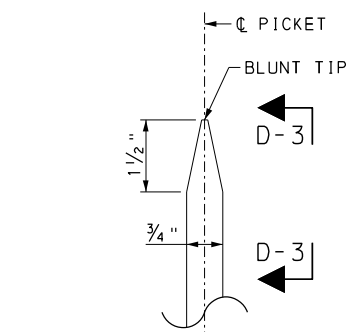


ELEVATION

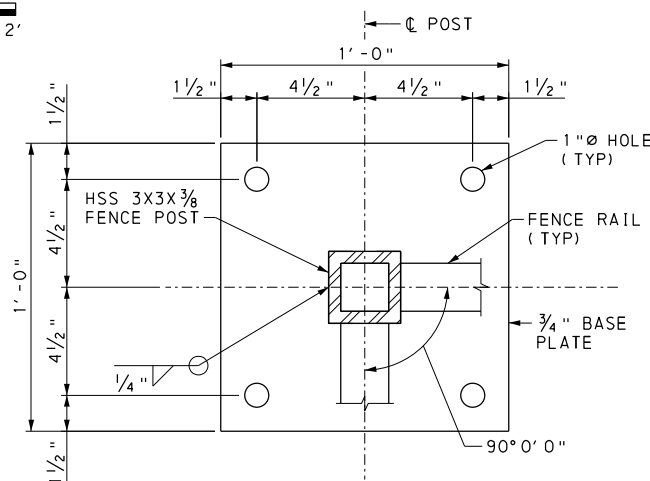
POST ANCHORAGE DETAIL



TOP OF POST DETAIL
NOT TO SCALE

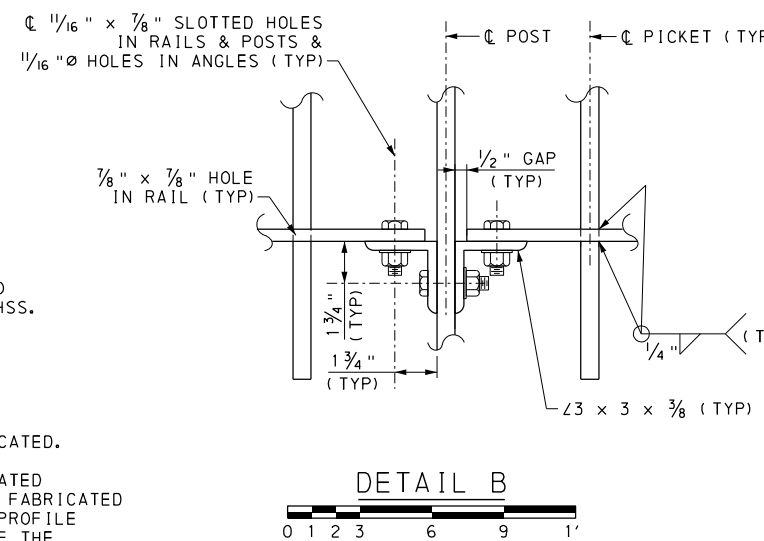
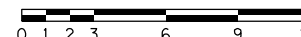


TOP OF PICKET DETAIL
NOT TO SCALE



SPECIAL FENCE POST PLAN

(SEE NOTE 5)



DETAIL B



NOTES:

1. PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270 (ASTM A709) GRADE 36 FOR ALL MATERIAL OTHER THAN HSS. PROVIDE HSS CONFORMING TO ASTM A500 GRADE B.
2. PROVIDE ASTM F3125 GRADE A325 BOLTS WITH PLAIN WASHERS AND HEX NUTS, UNLESS NOTED OTHERWISE.
3. PROVIDE ANCHOR RODS CONFORMING TO ASTM F1554 GRADE 36, GALVANIZED, WITH HEAVY HEX NUTS AS INDICATED.
4. PROVIDE A SPECIAL FENCE POST, HSS 3x3x3/8 AS INDICATED AT THE WALL 4 FENCE CORNER ON SHEET 53. PROVIDE A FABRICATED OR CAST TIP ON TOP OF THIS POST TO MATCH THE PROFILE OF THE ADJACENT FENCE POST TOPS. SUBMIT DETAILS OF THE PROPOSED FENCE POST AND POST TOP FOR REVIEW AND APPROVAL.
5. ANCHORAGE DETAILS SIMILAR TO TYPICAL FENCE POST ANCHORAGE DETAIL, EXCEPT PROVIDE 3/4" x 2" x 1 1/2" BARS.

LEGEND:

- * POSTS AND PICKETS TO BE FABRICATED PLUMB VERTICAL

REFERENCES:

- | | |
|---|---------|
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. INDEX OF DRAWINGS | 08 |
| 5. BARRIER AND RAILING POST LAYOUT - 1 - 3 | 53 - 55 |
| 6. RAILROAD PROTECTIVE FENCE DETAILS | 56 |
| 7. DECORATIVE PEDESTRIAN FENCE, CORED ANCHORAGE DETAILS | 58 |

SHEET:

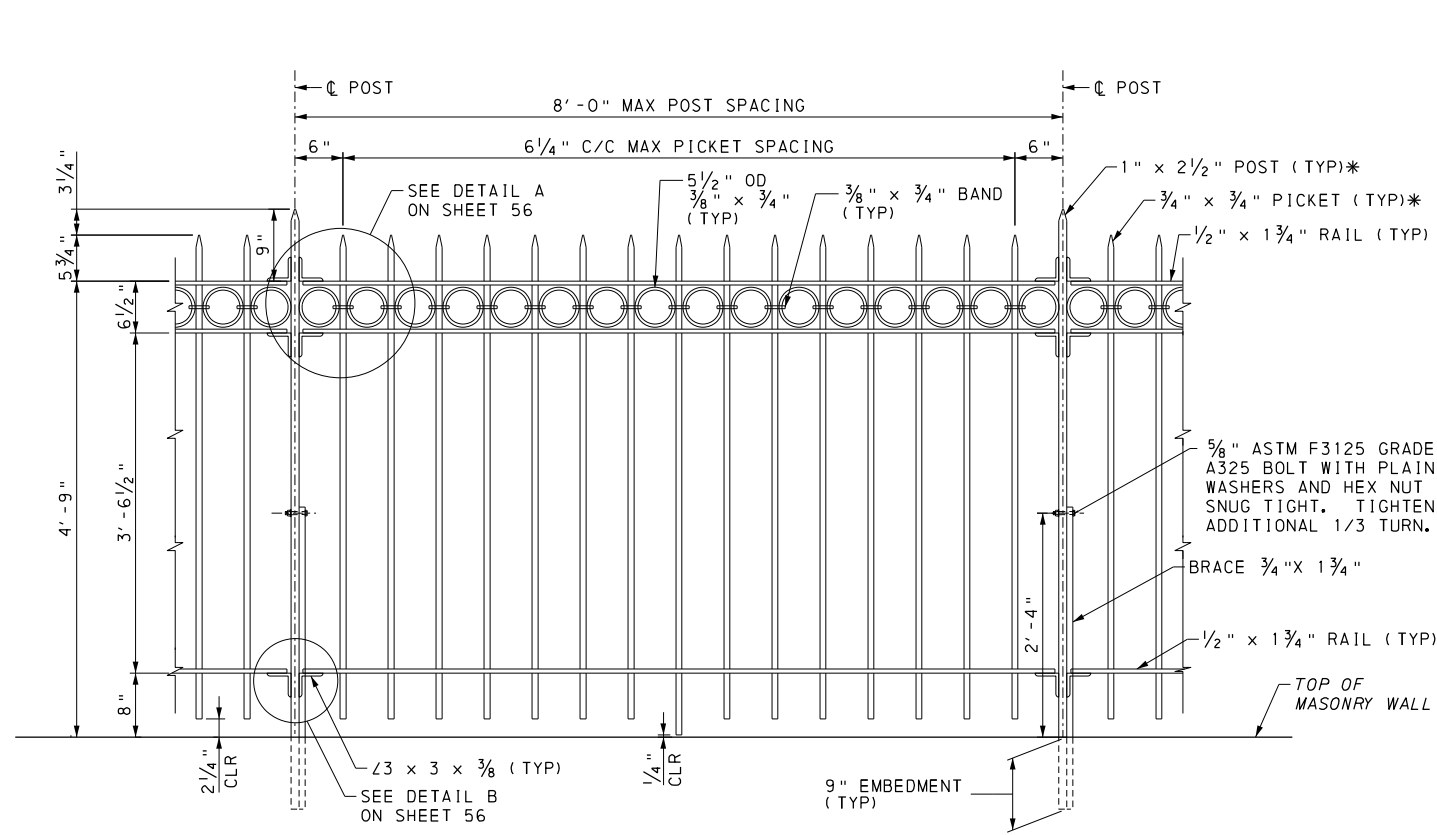
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| 58 |

NS_North_Fence2.dgn 9/11/2024 3:05:48 PM

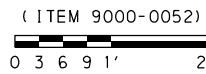
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PHONE: (412) 269-6300
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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE NORTH AVENUE BRIDGE REPLACEMENT DECORATIVE PEDESTRIAN FENCE, BOLTED ANCHORAGE			
DRW	DMB	FD/No	DRW
DRW	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 57



DECORATIVE PEDESTRIAN FENCE, CORED ANCHORAGE



NOTES:

- LIMITS OF DECORATIVE PEDESTRIAN FENCE, CORED ANCHORAGE DESIGNATED FOR REPLACEMENT ARE TENTATIVE AND APPROXIMATE. FINAL LIMITS OF PEDESTRIAN FENCE REMOVAL AND REPLACEMENT ARE BE DETERMINED IN THE FIELD BY THE REPRESENTATIVE. REMOVE AND REPLACE PEDESTRIAN FENCE IN WHOLE PANELS. REMOVING AND REPLACING PORTIONS OF PANELS IS NOT PERMITTED. SEE THE CONTRACT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270 (ASTM A709) GRADE 36, UNLESS NOTED OTHERWISE.
- PROVIDE ASTM F3125 GRADE A325 BOLTS WITH PLAIN WASHERS AND HEX NUTS, UNLESS NOTED OTHERWISE.
- SEE SHEET 56 FOR DETAILS A & B.

LEGEND:

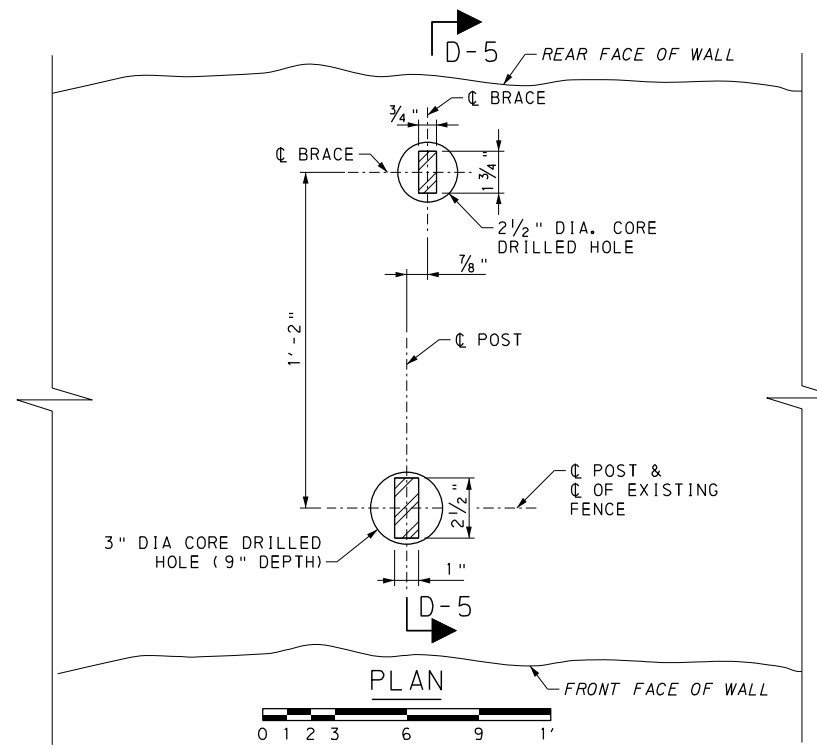
* POSTS AND PICKETS TO BE FABRICATED PLUMB VERTICAL

REFERENCES:

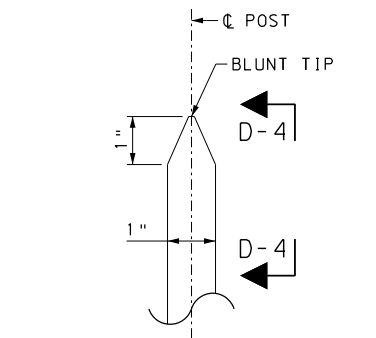
- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- BARRIER AND RAILING POST LAYOUT - 1 - 3
- DECORATIVE RAILROAD PROTECTIVE FENCE
- DECORATIVE PEDESTRIAN FENCE, BOLTED ANCHORAGE

SHEET:

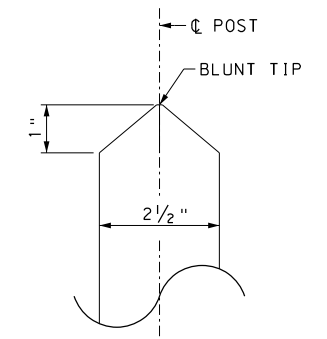
- 02
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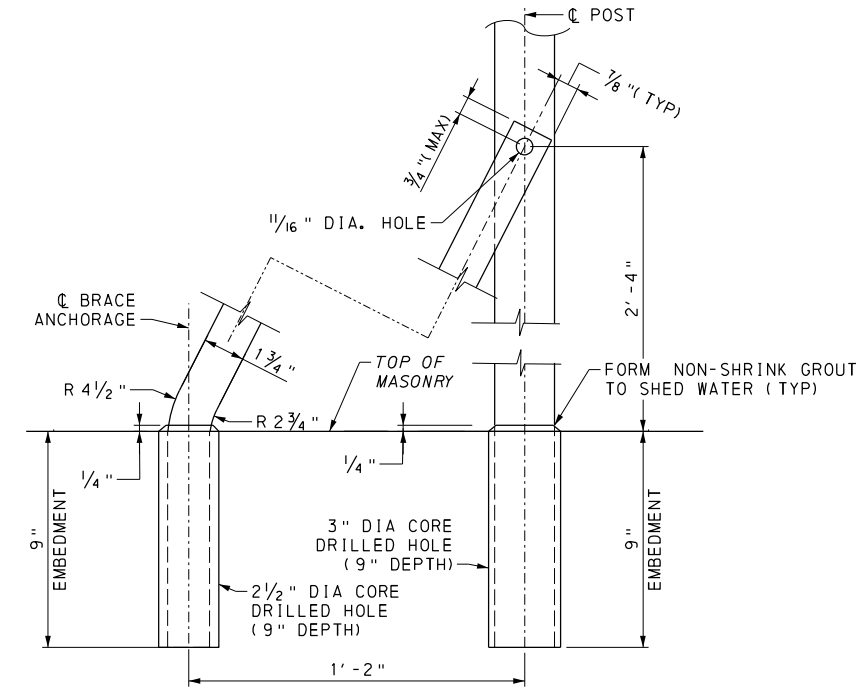
PLAN



TOP OF POST DETAIL
NOT TO SCALE



VIEW D-4-D-4
NOT TO SCALE



SECTION D-5-D-5 BRACE DETAIL

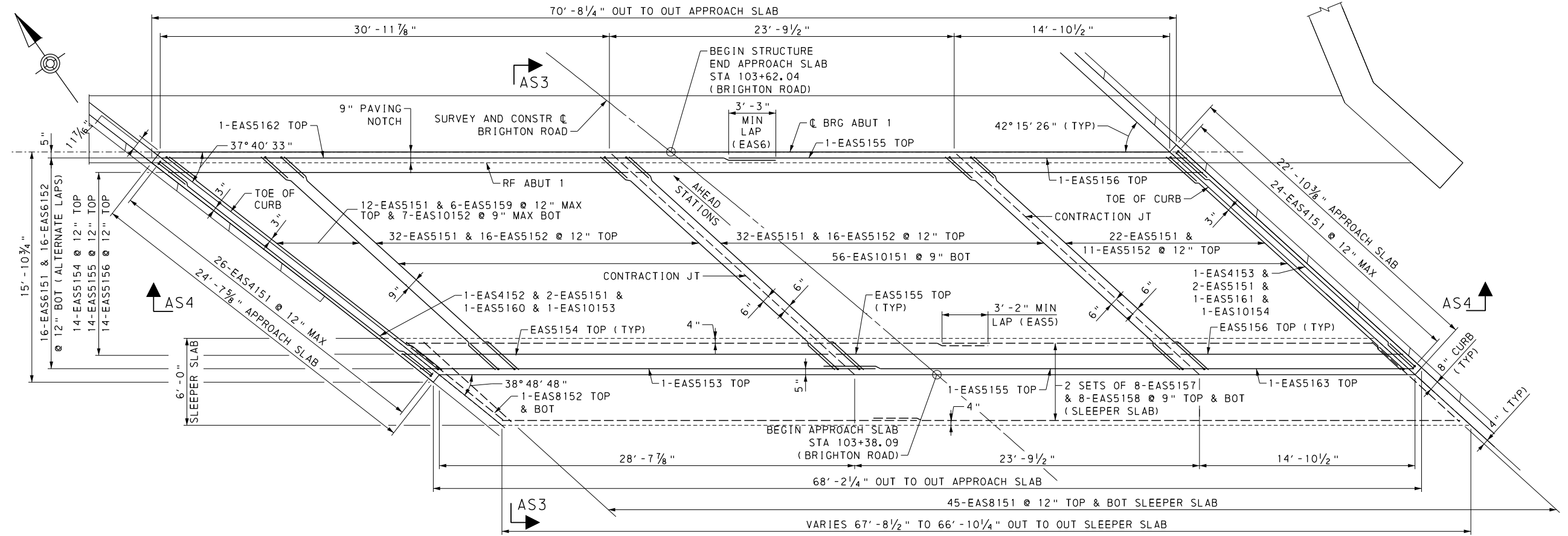


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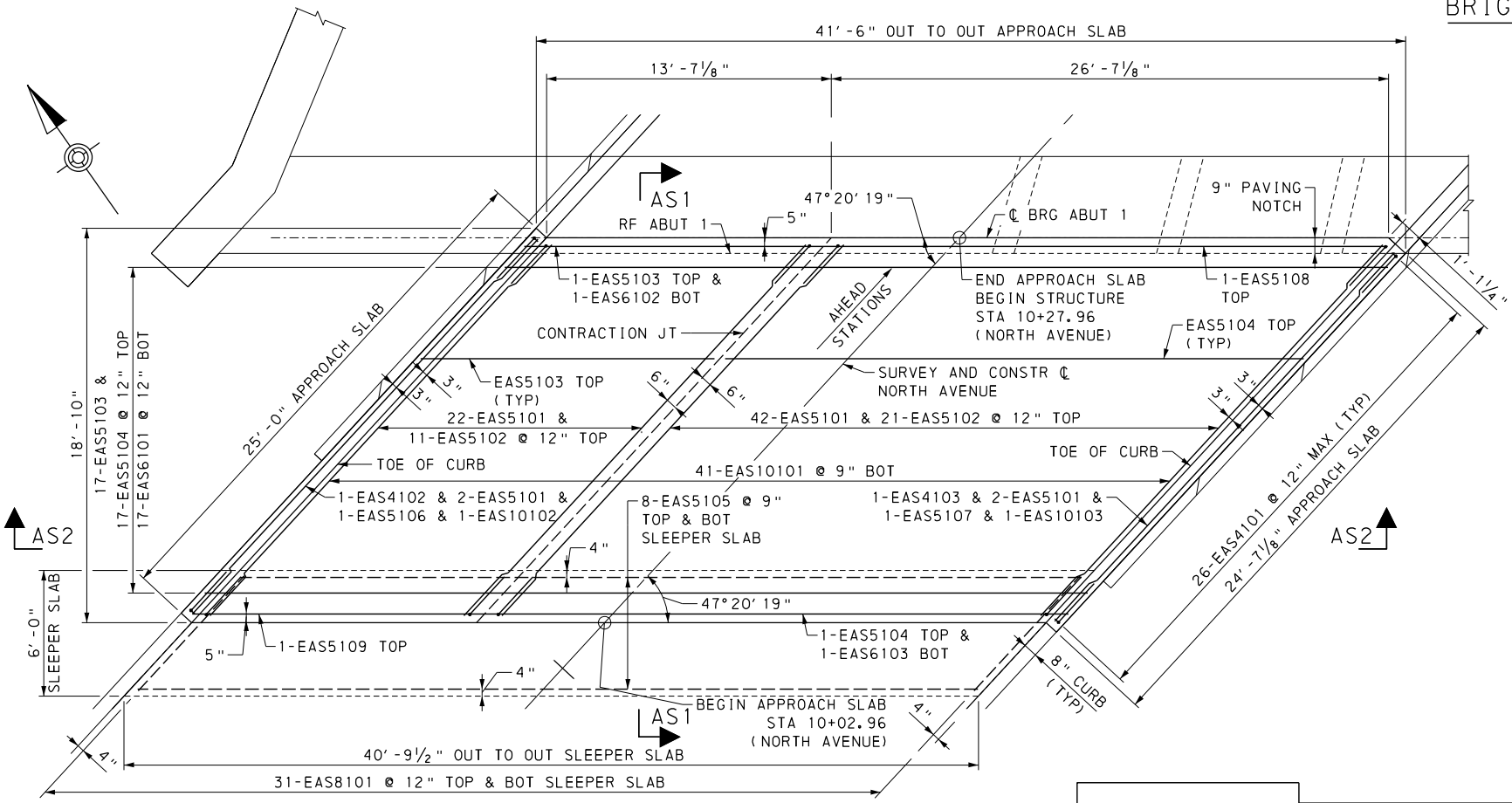
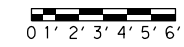
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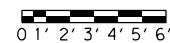
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
DECORATIVE PEDESTRIAN FENCE, CORED ANCHORAGE			
DRN	DMB	FD/No	VRN
DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER			PC 1.60
SHEET NO.			58 OF 83



BRIGHTON ROAD APPROACH SLAB 1
AT ABUTMENT 1



NORTH AVENUE APPROACH SLAB 1
AT ABUTMENT 1



LEGEND:
RF REAR FACE

- REFERENCES:
- SUPPLEMENTAL DRAWINGS
 - GENERAL NOTES
 - QUANTITIES
 - INDEX OF DRAWINGS
 - APPROACH SLAB 1 ELEVATIONS
 - APPROACH SLAB 1 DETAILS
 - APPROACH SLAB 1 REINFORCING SCHEDULE

NOTES:
1. ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.

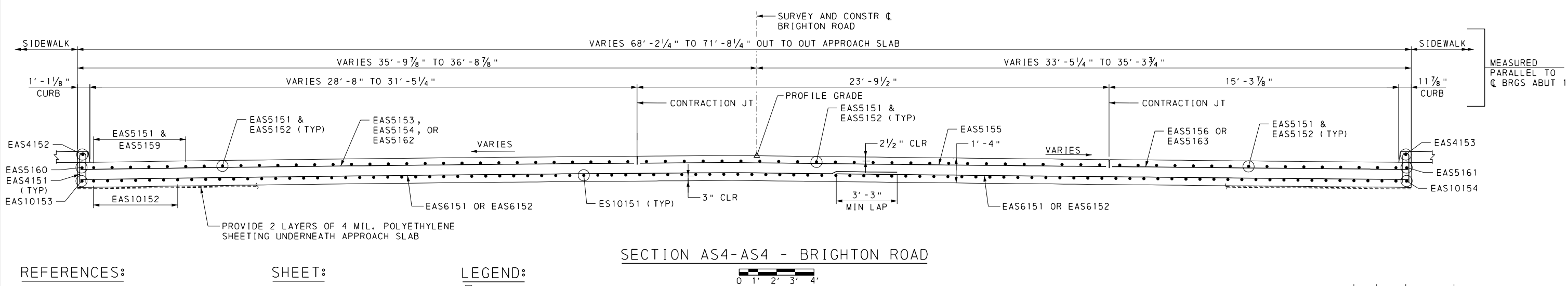
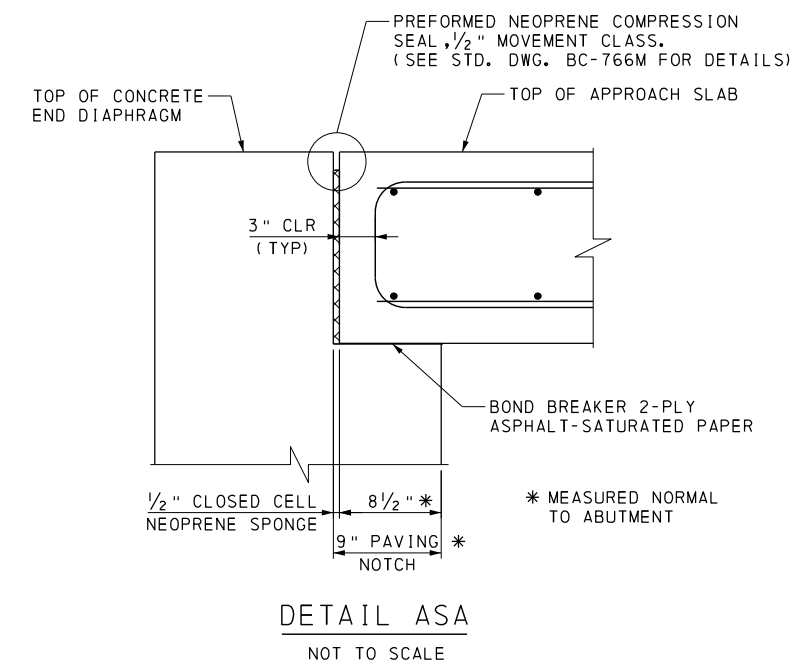
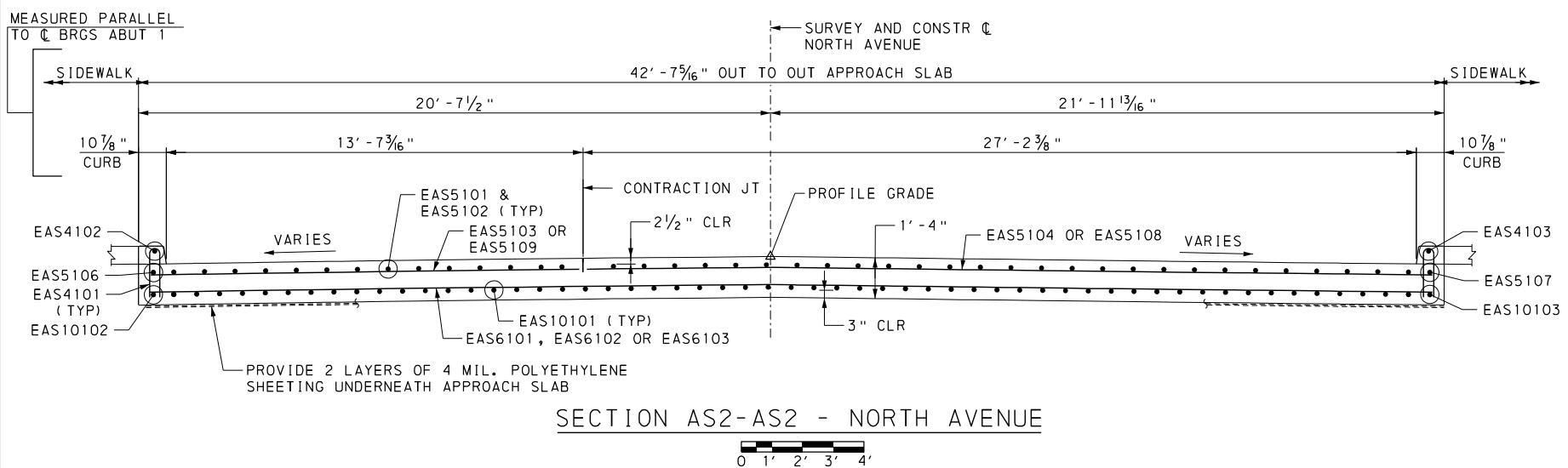
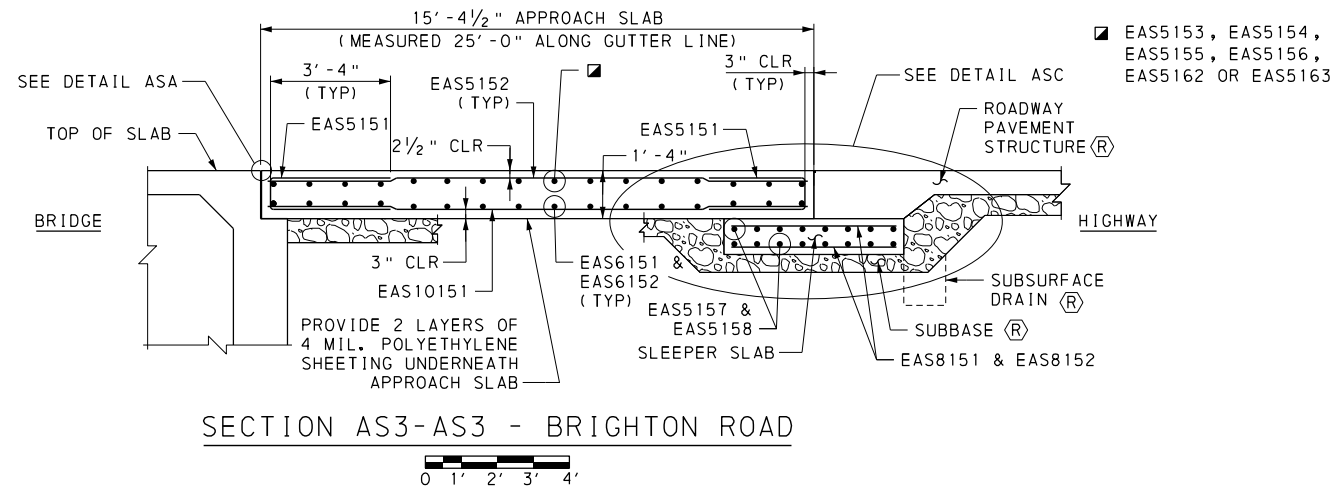
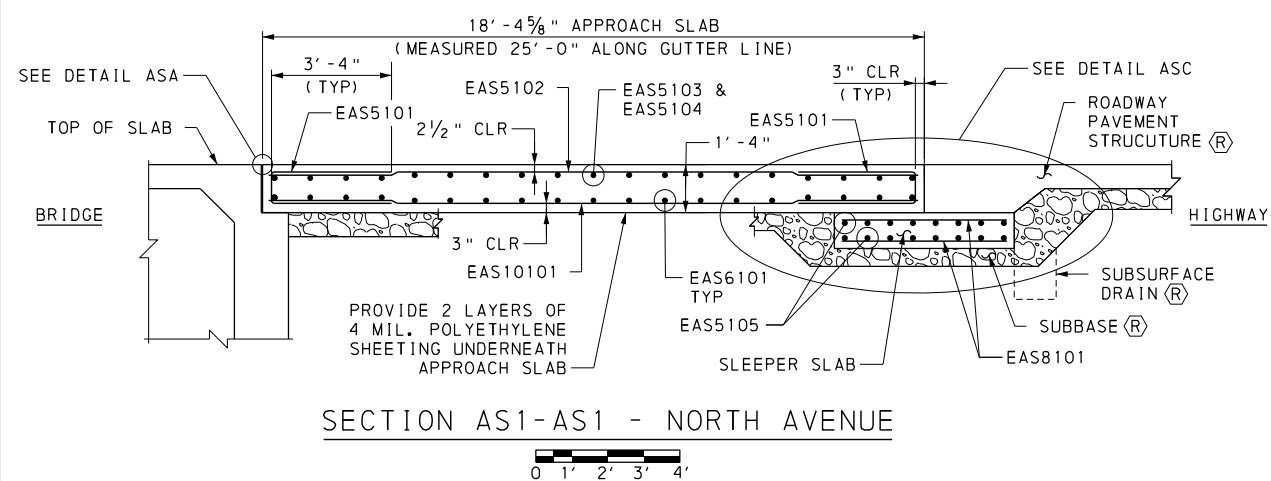
- SHEET:
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 1 PLAN			
OWN	DMB	PD/No	VERN
OWN	WRB	FILE No	BR0227858
CHK	ABC	DATE	9/11/2024
			SCALE POST
			PC 1.60
			DRAWING NUMBER
			PC-1.60 23 59



REFERENCES:

- 1. SUPPLEMENTAL DRAWINGS
- 2. GENERAL NOTES
- 3. QUANTITIES
- 4. INDEX OF DRAWINGS
- 5. APPROACH SLAB 1 ELEVATIONS
- 6. APPROACH SLAB 1 PLAN
- 7. APPROACH SLAB 1 REINFORCING SCHEDULE

SHEET:

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LEGEND:

(R) ROADWAY ITEM

NOTES:

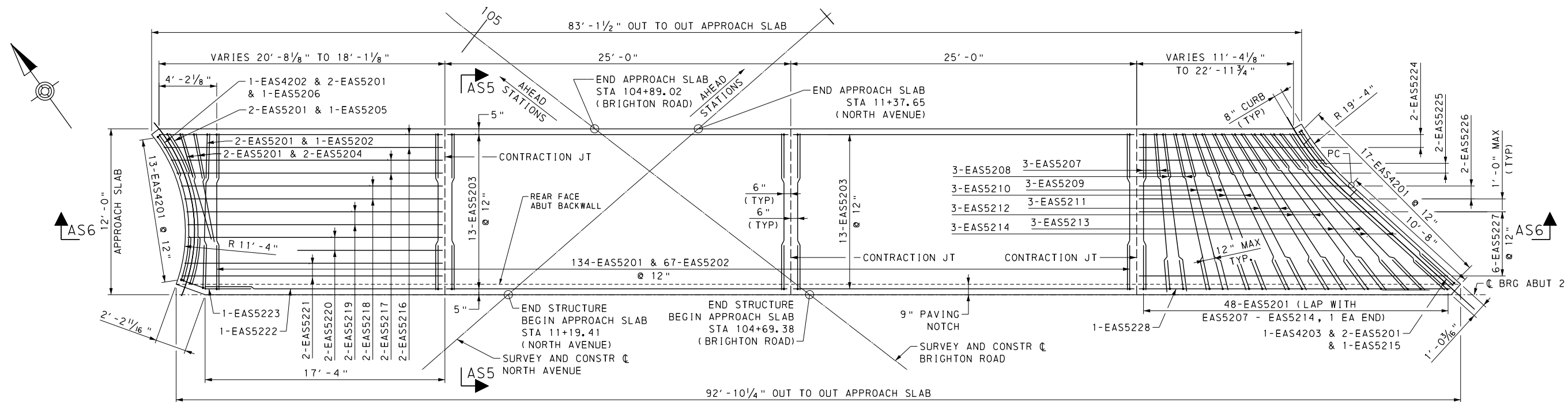
- 1. BARS CALLED OUT IN SECTION VIEWS ARE TYPICAL BARS. REFER TO APPROACH SLAB PLAN VIEWS FOR FANNED BAR LOCATIONS.

9/11/2024 NS_NorTh_Approach2.dgn 3:06:16 PM

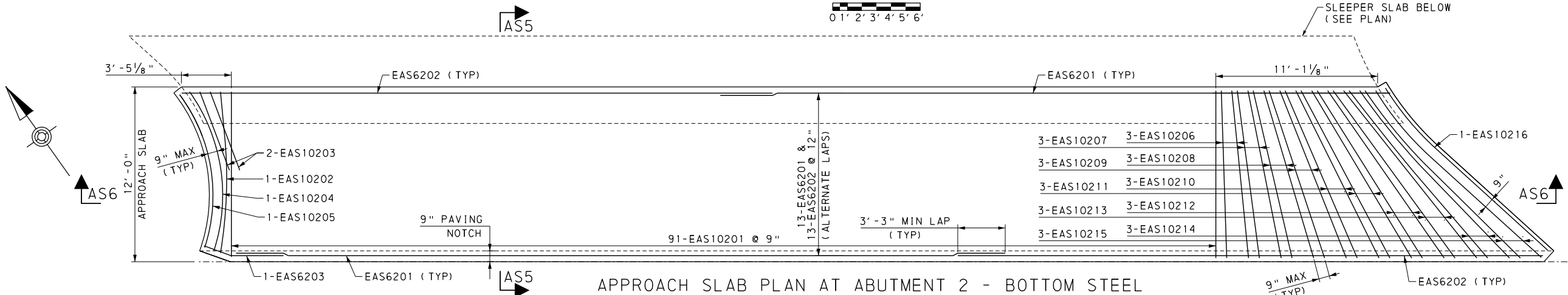
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 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
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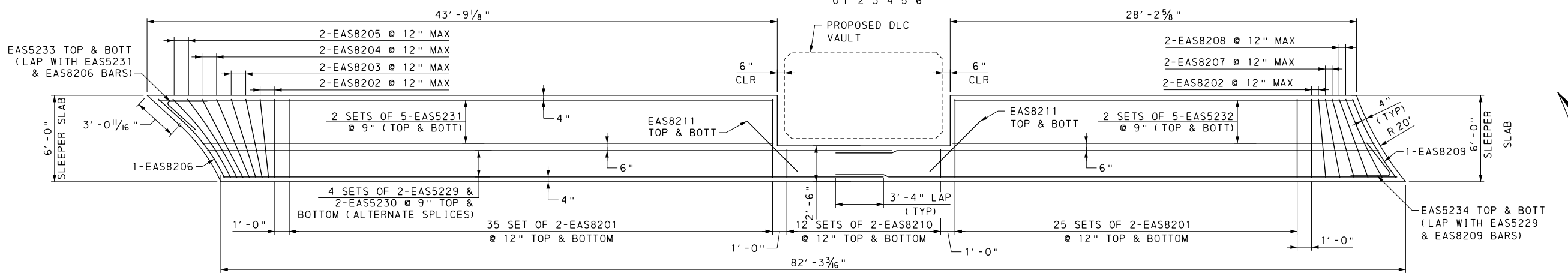
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LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT APPROACH SLAB 1 DETAILS			
DRN	DMB	PD/No	VERN
DWN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 60



APPROACH SLAB PLAN AT ABUTMENT 2 - TOP STEEL



APPROACH SLAB PLAN AT ABUTMENT 2 - BOTTOM STEEL



ABUTMENT 2 SLEEPER SLAB PLAN

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- APPROACH SLAB 2 ELEVATIONS
- APPROACH SLAB 2 DETAILS
- APPROACH SLAB 2 REINFORCING SCHEDULE

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NOTES:

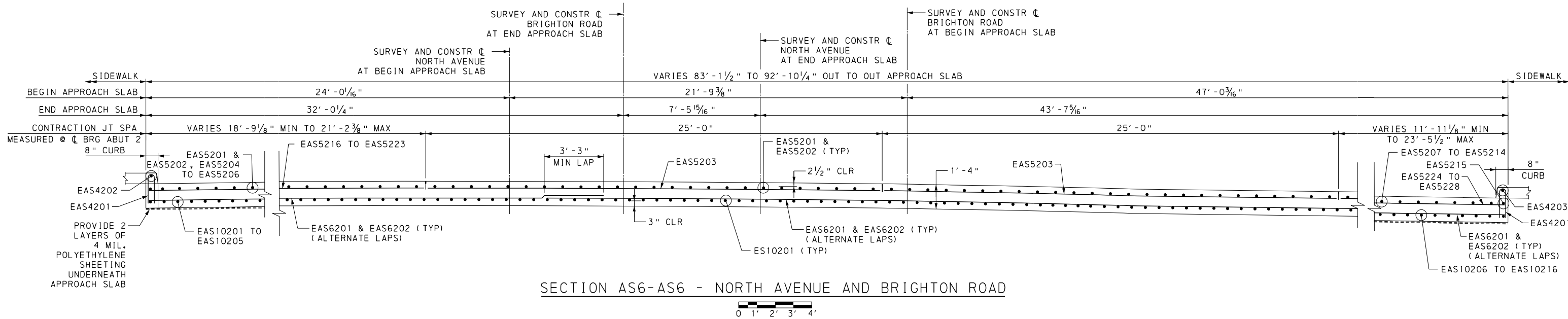
- ALL BAR SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.

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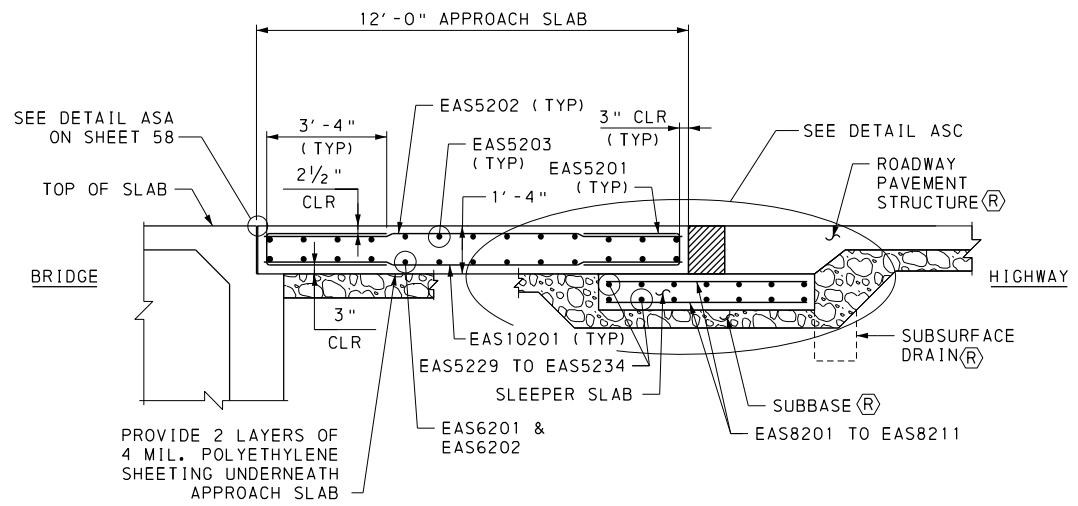
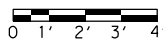
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 2 PLAN			
DRN	DMB	PD/No	VRN
WRB	FILE/No	BR0027858	DATE POST
CHK	ABC	DATE	9/11/2024
			PC-1.60
			PC-1.60 23 61

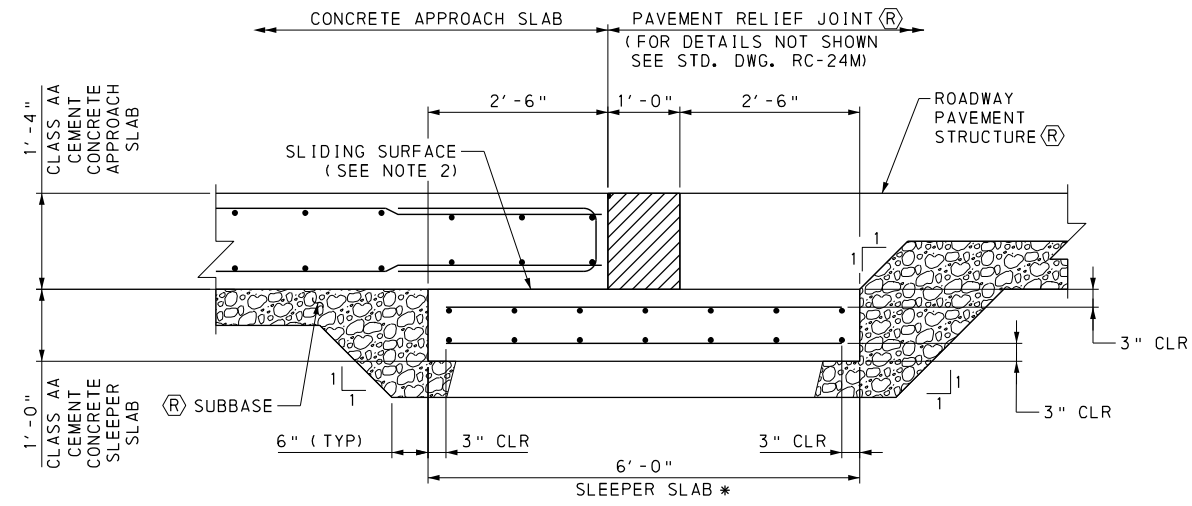
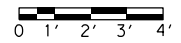
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SECTION AS6-AS6 - NORTH AVENUE AND BRIGHTON ROAD



SECTION AS5-AS5
NORTH AVENUE AND BRIGHTON ROAD



DETAIL ASC
NOT TO SCALE

LEGEND:

(R) ROADWAY ITEM

* 2'-6" AT PROPOSED DLC VAULT
SEE SHEET 59 FOR DETAILS

NOTES:

1. BARS CALLED OUT IN SECTION VIEWS ARE TYPICAL BARS. REFER TO APPROACH SLAB PLAN VIEWS FOR FANNED BAR LOCATIONS.
2. TROWEL SMOOTH AND PLACE 2 LAYERS OF 4 MIL. POLYETHYLENE SHEETING AS BOND BREAKER.

REFERENCES:

1. SUPPLEMENTAL DRAWINGS 02
2. GENERAL NOTES 03
3. QUANTITIES 04
4. INDEX OF DRAWINGS 08
5. APPROACH SLAB 2 ELEVATIONS 13
6. APPROACH SLAB 2 PLAN 61
7. APPROACH SLAB 2 REINFORCING SCHEDULE 64

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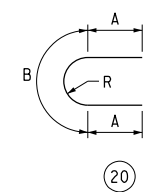
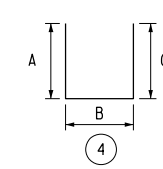
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PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 2 DETAILS			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 62

APPROACH SLAB REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
NORTH AVENUE AT ABUTMENT 1											
EAS4101	4	52	3' - 4 1/4"	20	1' - 3"	10 1/4"				3"	
EAS4102	4	1	24' - 6"	STR							
EAS4103	4	1	24' - 1"	STR							
EAS5101	5	68	7' - 6 1/2"	4	3' - 4"	10 1/2"	3' - 4"				
EAS5102	5	32	24' - 1"	STR							
EAS5103	5	18	14' - 0"	STR							
EAS5104	5	18	27' - 7"	STR							
EAS5105	5	16	40' - 4"	STR							SLEEPER SLAB
EAS5106	5	1	24' - 4"	STR							
EAS5107	5	1	23' - 11"	STR							
EAS5108	5	1	26' - 8"	STR							
EAS5109	5	1	13' - 8"	STR							
EAS6101	6	17	42' - 1"	STR							
EAS6102	6	1	41' - 2"	STR							
EAS6103	6	1	41' - 9"	STR							
EAS8101	8	62	7' - 5"	STR							SLEEPER SLAB
EAS10101	10	41	24' - 1"	STR							
EAS10102	10	1	24' - 4"	STR							
EAS10103	10	1	23' - 11"	STR							
BRIGHTON ROAD AT ABUTMENT 1											
EAS4151	4	50	3' - 4 1/4"	20	1' - 3"	10 1/4"				3"	
EAS4152	4	1	24' - 1 5/8"	STR							
EAS4153	4	1	22' - 4 3/8"	STR							
EAS5151	5	102	7' - 6 1/2"	4	3' - 4"	10 1/2"	3' - 4"				
EAS5152	5	43	22' - 1 1/2"	STR							
EAS5153	5	1	22' - 5"	STR							
EAS5154	5	14	29' - 5" TO 31' - 8 5/8"	STR							VARY EA BAR BY 2 1/8"
EAS5155	5	16	23' - 3"	STR							
EAS5156	5	15	15' - 4"	STR							
EAS5157	5	16	30' - 4 1/2"	STR							SLEEPER SLAB
EAS5158	5	16	40' - 0"	STR							SLEEPER SLAB
EAS5159	5	6	21' - 10" TO 23' - 11"	STR							VARY EA BAR BY 5"
EAS5160	5	1	24' - 1 5/8"	STR							
EAS5161	5	1	22' - 4 3/8"	STR							
EAS5162	5	1	31' - 1"	STR							
EAS5163	5	1	15' - 0"	STR							
EAS6151	6	16	40' - 0"	STR							
EAS6152	6	16	34' - 8"	STR							
EAS8151	8	90	8' - 2"	STR							SLEEPER SLAB
EAS8152	8	2	8' - 9"	STR							SLEEPER SLAB
EAS10151	10	56	22' - 1 1/2"	STR							
EAS10152	10	7	22' - 1 1/2" TO 24' - 1 1/2"	STR							VARY EA BAR BY 3 1/2" (-)
EAS10153	10	1	24' - 1 3/8"	STR							
EAS10154	10	1	22' - 4 3/8"	STR							

REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.



REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- APPROACH SLAB 1 ELEVATIONS
- APPROACH SLAB 1 PLAN
- APPROACH SLAB 1 DETAILS

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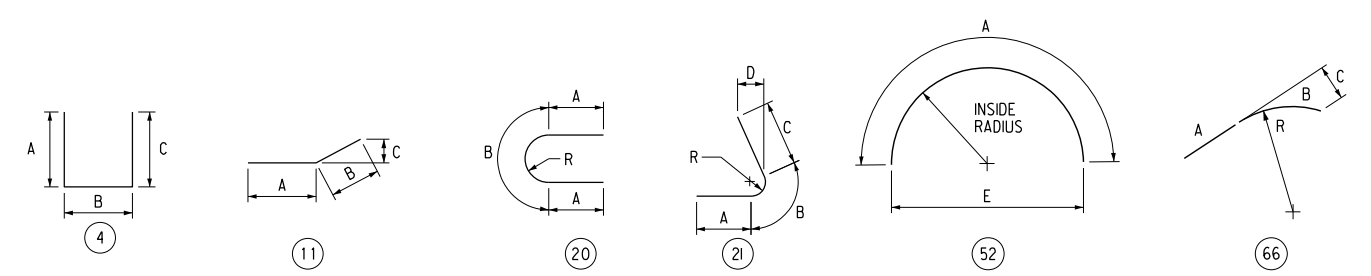
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PITTSBURGH

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 1 REINFORCING SCHEDULE			
DWG	DMB	RD No	DATE
DWG	WRB	FILE No	SCALE
CHK	ABC	DATE	PC 1.60
DRAWING NUMBER			PC-1.60 23 63
DATE			9/11/2024

APPROACH SLAB AT ABUTMENT 2

APPROACH SLAB AT ABUTMENT 2

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS	MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS				
EAS4201	4	30	3' - 4 1/4"	20	1' - 3"	10 1/4"				3"		EAS8210	8	24	2' - 0"	STR								SLEEPER SLAB			
EAS4202	4	1	11' - 0"	STR							BEND IN FIELD TO SUIT CURB	EAS8211	8	4	5' - 0"	STR									SLEEPER SLAB		
EAS4203	4	1	15' - 9"	STR							BEND IN FIELD TO SUIT CURB																
EAS5201	5	192	7' - 6 1/2"	4	3' - 4"	10 1/2"	3' - 4"					EAS10201	10	91	11' - 6"	STR											
EAS5202	5	68	11' - 6"	STR								EAS10202	10	1	11' - 3"	STR											
EAS5203	5	26	24' - 6"	STR								EAS10203	10	2	8' - 0"	STR											
EAS5204	5	2	8' - 0"	STR								EAS10204	10	1	11' - 5 3/8"	52	11' - 5 3/8"				11' - 0 7/16"	12' - 3"					
EAS5205	5	1	11' - 7 1/2"	STR								EAS10205	10	1	11' - 0 1/2"	52	11' - 0 1/2"				10' - 7 3/8"	11' - 7"					
EAS5206	5	1	11' - 0"	STR								EAS10206	10	3	11' - 6" TO 11' - 6 1/2"	STR									VARY EA BAR BY 1/4"		
EAS5207	5	3	11' - 4"	STR								EAS10207	10	3	11' - 7" TO 11' - 8 1/2"	STR										VARY EA BAR BY 3/4"	
EAS5208	5	3	11' - 7" TO 11' - 9"	STR							VARY EA BAR BY 1"	EAS10208	10	3	11' - 9 5/8" TO 11' - 11 1/8"	STR										VARY EA BAR BY 1 1/8"	
EAS5209	5	3	11' - 10 1/2" TO 12' - 2"	STR							VARY EA BAR BY 1 3/4"	EAS10209	10	3	12' - 1 3/8" TO 12' - 4 1/2"	STR											VARY EA BAR BY 1 9/16"
EAS5210	5	3	12' - 4 1/2" TO 12' - 8"	STR							VARY EA BAR BY 1 3/4"	EAS10210	10	3	12' - 6 1/4" TO 12' - 10"	STR											VARY EA BAR BY 1 1/8"
EAS5211	5	3	12' - 11" TO 13' - 5"	STR							VARY EA BAR BY 3"	EAS10211	10	3	13' - 0" TO 13' - 4 1/2"	STR											VARY EA BAR BY 2 1/4"
EAS5212	5	3	13' - 8" TO 14' - 2 3/4"	STR							VARY EA BAR BY 3 3/8"	EAS10212	10	3	13' - 7" TO 14' - 0"	STR											VARY EA BAR BY 2 1/2"
EAS5213	5	3	14' - 6 1/2" TO 15' - 2"	STR							VARY EA BAR BY 3 3/4"	EAS10213	10	3	14' - 2 1/2" TO 14' - 8"	STR											VARY EA BAR BY 2 3/4"
EAS5214	5	3	15' - 6" TO 16' - 2"	STR							VARY EA BAR BY 4"	EAS10214	10	3	14' - 11" TO 15' - 5 1/4"	STR											VARY EA BAR BY 3 1/8"
EAS5215	5	1	15' - 9"	STR								EAS10215	10	3	15' - 8 1/2" TO 16' - 2 1/4"	STR											VARY EA BAR BY 2 7/8"
EAS5216	5	2	20' - 0" TO 20' - 5"	STR							VARY EA BAR BY 5"	EAS10216	10	1	16' - 4 1/2"	66	10' - 4"	6' - 0 1/2"	9' - 0 1/8"				19' - 7"				
EAS5217	5	2	19' - 1" TO 19' - 6"	STR							VARY EA BAR BY 5"																
EAS5218	5	2	18' - 6" TO 18' - 9"	STR							VARY EA BAR BY 3"																
EAS5219	5	2	18' - 4" TO 18' - 6"	STR							VARY EA BAR BY 2"																
EAS5220	5	2	18' - 4"	STR																							
EAS5221	5	2	18' - 6" TO 18' - 8 1/2"	STR							VARY EA BAR BY 2 1/2"																
EAS5222	5	1	17' - 0"	STR																							
EAS5223	5	1	5' - 4"	11	3' - 4"	2' - 0"	8"																				
EAS5224	5	2	12' - 0" TO 12' - 8"	STR							VARY EA BAR BY 8"																
EAS5225	5	2	13' - 4 3/4" TO 14' - 2 3/4"	STR							VARY EA BAR BY 10"																
EAS5226	5	2	15' - 2" TO 16' - 2"	STR							VARY EA BAR BY 12"																
EAS5227	5	6	17' - 0 1/2" TO 22' - 1 3/4"	STR							VARY EA BAR BY 12" (+)																
EAS5228	5	1	22' - 6"	STR																							
EAS5229	5	8	40' - 0"	STR							VARY LAP WITH EAS5230 *																
EAS5230	5	8	44' - 10 3/4"	STR							VARY LAP WITH EAS5229 *																
EAS5231	5	10	39' - 8 3/4" TO 42' - 9 1/4"	STR							VARY EA BAR BY 9 1/8"																
EAS5232	5	10	27' - 10" TO 29' - 2 3/4"	STR							VARY EA BAR BY 4 3/16"																
EAS5233	5	2	5' - 6 1/2"	21	2' - 7"	4 1/2"	2' - 7"	1' - 11"		1 7/8"	SLEEPER SLAB																
EAS5234	5	2	5' - 6 3/16"	21	2' - 7"	4 3/16"	2' - 7"	1' - 7 1/16"		1 7/8"	SLEEPER SLAB																
EAS6201	6	13	60' - 0"	STR							VARY LAP WITH EAS6202 **																
EAS6202	6	13	33' - 1 1/2"	STR							VARY LAP WITH EAS6201 **																
EAS6203	6	1	5' - 3"	11	3' - 3"	2' - 0"	8"																				
EAS8201	8	120	5' - 6"	STR																							
EAS8202	8	8	5' - 6" TO 5' - 6 1/4"	STR							VARY EA BAR BY 1/4"																
EAS8203	8	4	5' - 7 1/2" TO 5' - 9 1/4"	STR							VARY EA BAR BY 1 3/4"																
EAS8204	8	4	5' - 11 1/2" TO 6' - 2 1/2"	STR							VARY EA BAR BY 3"																
EAS8205	8	4	6' - 6" TO 6' - 10 1/4"	66	1' - 10 1/2"	***	***			17' - 4"	***																
EAS8206	8	2	7' - 2 7/8"	66	2' - 3 7/8"	4' - 11"	11 5/8" (*)			12' - 4"																	
EAS8207	8	4	5' - 7" TO 5' - 8 1/2"	STR							VARY EA BAR BY 1 1/2"																
EAS8208	8	4	5' - 10 1/4" TO 6' - 0 3/4"	STR							VARY EA BAR BY 2 1/2"																
EAS8209	8	2	6' - 3 3/4"	52	6' - 3 3/4"				6' - 3 7/16"	20' - 4"																	



REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- APPROACH SLAB 2 ELEVATIONS
- APPROACH SLAB 2 PLAN
- APPROACH SLAB 2 DETAILS

SHEET:

- | |
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| 02 |
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| 08 |
| 13 |
| 61 |
| 62 |

LEGEND:

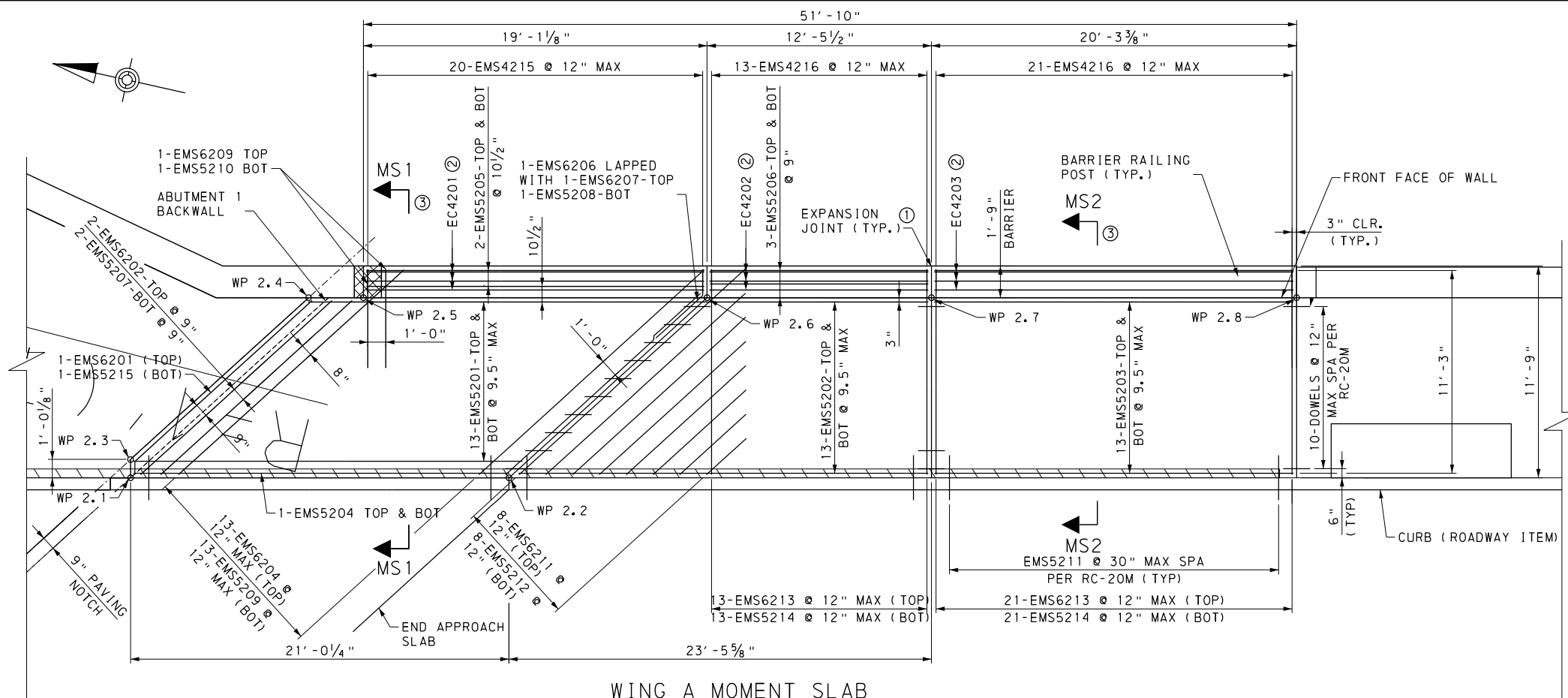
- * MINIMUM LAP 3' - 4"
- ** MINIMUM LAP 3' - 3"
- *** "B"=4' - 7 1/2" TO 4' - 11 3/4", VARY EA BY 4 1/4"
- *** "C"=6 7/8" TO 9 7/8", VARY EA BAR BY 3"

9/11/2024 3:07:16 PM NS_NorTh_Approach6.dgn

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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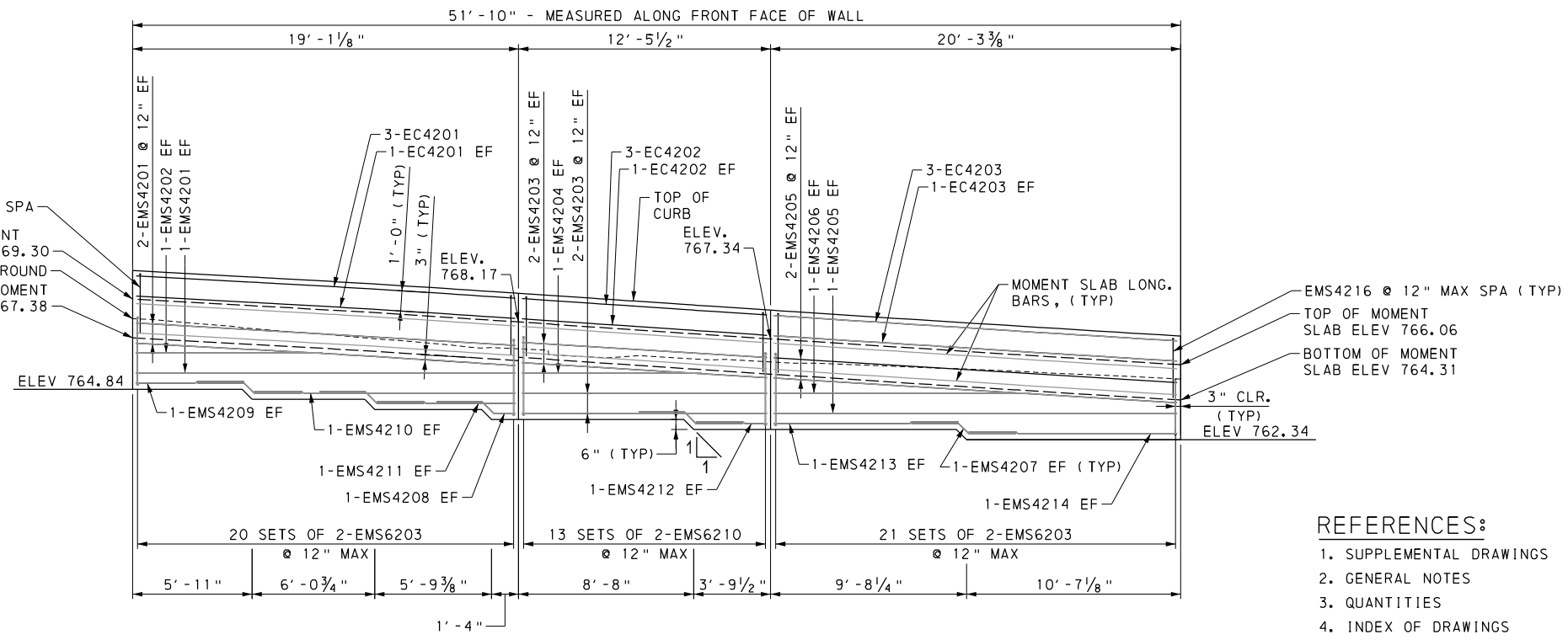
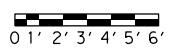
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TITLE			
NORTH AVENUE BRIDGE REPLACEMENT			
APPROACH SLAB 2 REINFORCING SCHEDULE			
DWG	DMB	PO No.	VERN
DWG	WRB	FILE No.	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST PC 1.60
			DRAWING NUMBER PC-1.60 23 64



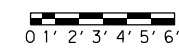
- NOTES:**
- ① 1/2" PREMOULDED EXPANSION JOINT MATERIAL
 - ② SEE ELEVATION BELOW FOR REINFORCEMENT PLACEMENT
 - ③ SEE SHEET 68 FOR MOMENT SLAB SECTION VIEWS

MOMENT SLAB WORK POINTS (WING A)			
WORK POINT	STATION	OFFSET	LOCATION
2.1	103+34.30	22.78 RT	PROPOSED MOMENT SLAB AND APPROACH SLAB POINT
2.2	103+13.68	22.67 RT	PROPOSED MOMENT SLAB AND APPROACH SLAB POINT
2.3	103+34.28	23.79 RT	PROPOSED MOMENT SLAB AND BRIDGE DECK
2.4	103+24.68	32.67 RT	PROPOSED MOMENT SLAB AND BRIDGE DECK
2.5	103+21.76	32.67 RT	PROPOSED MOMENT SLAB AND BARRIER
2.6	103+02.67	32.67 RT	PROPOSED MOMENT SLAB AND BARRIER
2.7	102+90.21	32.67 RT	PROPOSED MOMENT SLAB AND BARRIER
2.8	102+69.93	32.67 RT	PROPOSED MOMENT SLAB AND BARRIER

WING A MOMENT SLAB



WING A MOMENT SLAB WALL ELEVATION



- REFERENCES:**
1. SUPPLEMENTAL DRAWINGS
 2. GENERAL NOTES
 3. QUANTITIES
 4. INDEX OF DRAWINGS
 5. MOMENT SLAB TYPICAL SECTIONS
 6. MOMENT SLAB REINFORCING SCHEDULE - 2

- SHEET:**
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| 72 |

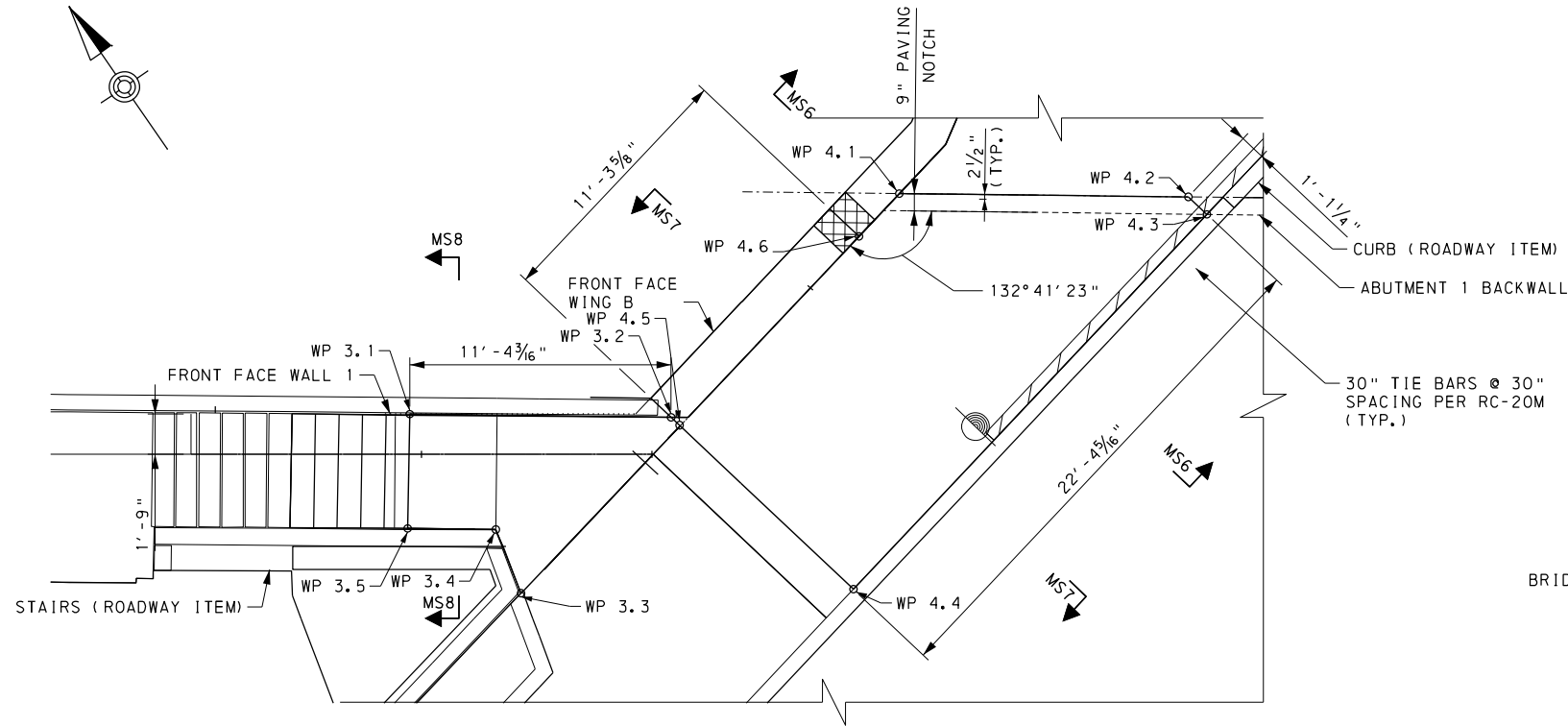
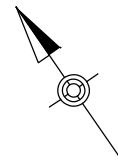
- LEGEND:**
- | | |
|----|-------------------|
| FF | FRONT FACE |
| RF | REAR FACE |
| EF | EACH FACE |
| E | EPOXY COATED BARS |

NS_North_Moment4 - Wing A.dgn 9/11/2024 3:07:30 PM

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 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 M.BAKER@INTL.COM

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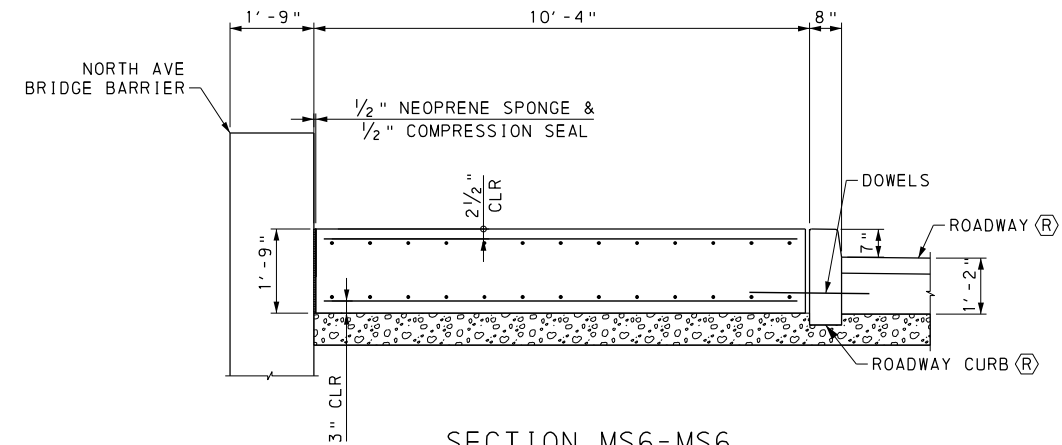
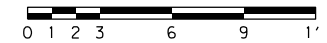
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TITLE: NORTH AVENUE BRIDGE REPLACEMENT MOMENT SLAB WING A			
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DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 65



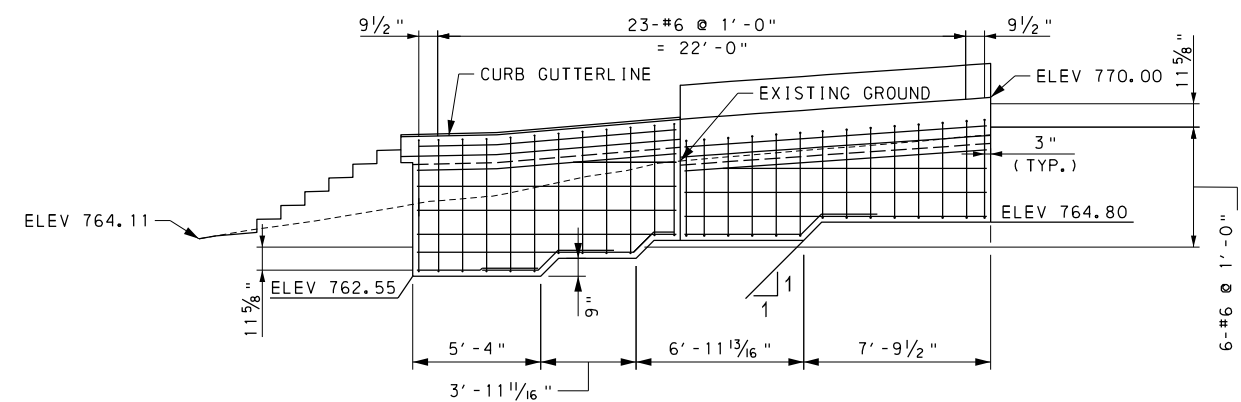
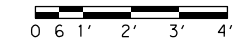
MOMENT SLAB WORK POINTS (WING B)				
WORK POINT	SURVEY \018	STATION	OFFSET	LOCATION
4.1	NORTH	10+04.47	25' - 5 7/8" LT	PROPOSED MOMENT SLAB & PAVING NOTCH
4.2	NORTH	10+12.96	16' - 3 1/4" LT	PROPOSED MOMENT SLAB & PAVING NOTCH
4.3	NORTH	10+12.96	15' - 2" LT	PROPOSED MOMENT SLAB & ABUT 1 BACKWALL
4.4	NORTH	9+90.60	15' - 2" LT	PROPOSED MOMENT SLAB & SIDEWALK
4.5	NORTH	9+90.60	25' - 6 1/2" LT	PROPOSED MOMENT SLAB & WALL 1 MOMENT SLAB
4.6	NORTH	10+01.83	25' - 6" LT	PROPOSED MOMENT SLAB ALONG BARRIER

MOMENT SLAB WORK POINTS (WALL 1)				
WORK POINT	SURVEY \018	STATION	OFFSET	LOCATION
3.1	NORTH	9+82.92	34' - 4 1/16" LT	PROPOSED MOMENT SLAB AT STEPS
3.2	NORTH	9+90.60	26' - 0 1/2" LT	PROPOSED MOMENT SLAB & WING B MOMENT SLAB
3.3	NORTH	9+80.58	25' - 6 1/2" LT	PROPOSED MOMENT SLAB & SIDEWALK
3.4	NORTH	9+81.84	28' - 2 13/16" LT	PROPOSED MOMENT SLAB ALONG BARRIER
3.5	NORTH	9+79.25	31' - 0 5/8" LT	PROPOSED MOMENT SLAB AT STEPS

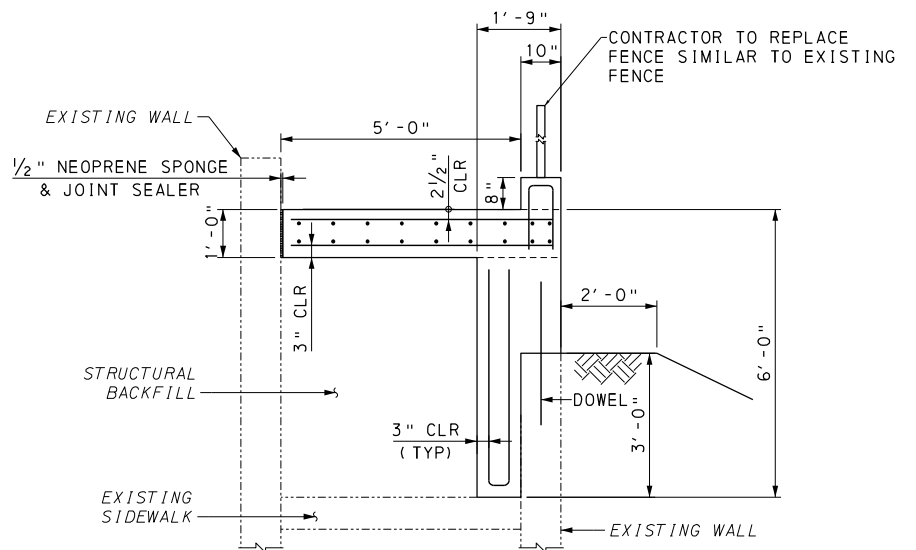
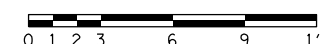
WALL B MOMENT SLAB



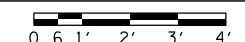
SECTION MS6-MS6



WALL 1 MOMENT SLAB WALL ELEVATION



SECTION MS8-MS8



NOTES:

- ① 1/2" PREMOULDED EXPANSION JOINT MATERIAL
- ② SEE ELEVATION BELOW FOR REINFORCEMENT PLACEMENT

REFERENCES:

- 1. SUPPLEMENTAL DRAWINGS
- 2. GENERAL NOTES
- 3. QUANTITIES
- 4. INDEX OF DRAWINGS
- 5. MOMENT SLAB TYPICAL SECTIONS
- 6. MOMENT SLAB REINFORCING SCHEDULE - 1

SHEET:

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- 71

LEGEND:

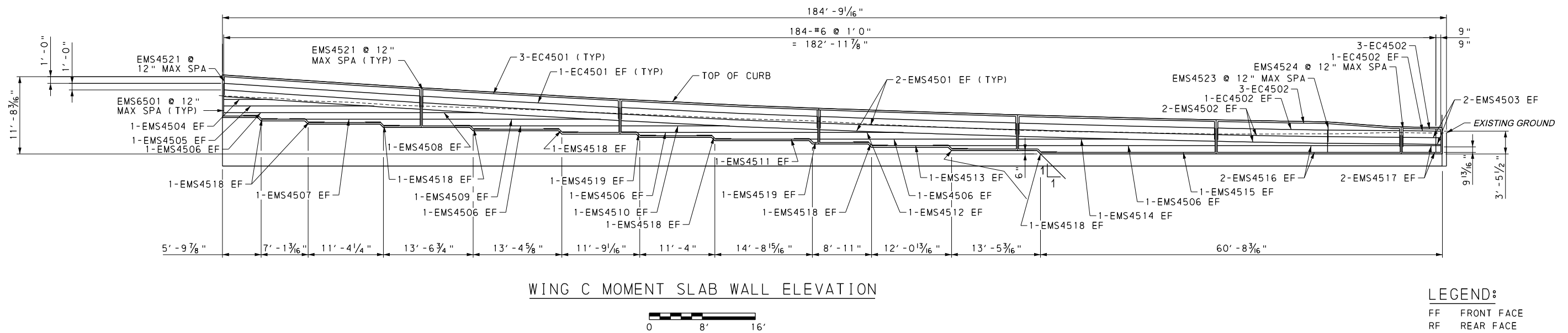
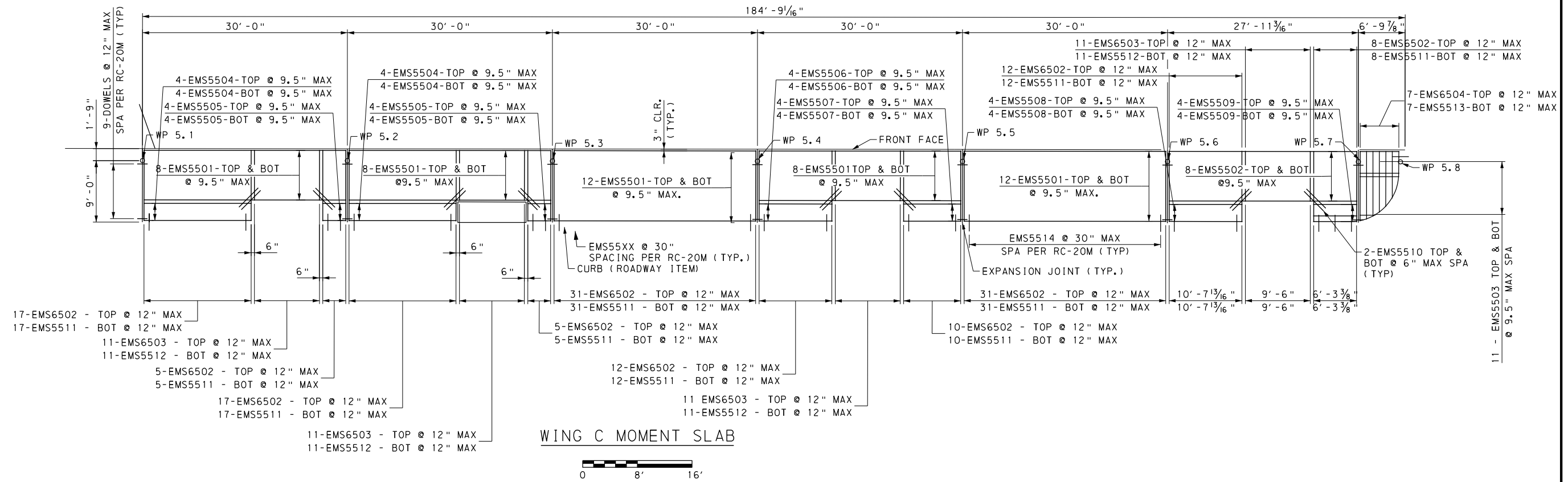
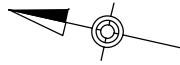
- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- E EPOXY COATED BARS
- UTILITY POLE

9/11/2024 NS_Northern_Moment1 - Wall.dgn 3:07:59 PM

Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 MBAKERINTL.COM

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REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT MOMENT SLAB WALL 1			
DWG	DMB	PD/No	VRN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 66



REFERENCES:

1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. MOMENT SLAB TYPICAL SECTIONS	70
6. MOMENT SLAB REINFORCING SCHEDULE - 2	72

SHEET:

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- NOTES:**
- 1/2" PREMOULDED EXPANSION JOINT MATERIAL
 - SEE ELEVATION BELOW FOR REINFORCEMENT PLACEMENT
- LEGEND:**
- FF FRONT FACE
 - RF REAR FACE
 - EF EACH FACE
 - E EPOXY COATED BARS
 - UTILITY POLE

9/11/2024 NS-North_Moments - Wing C.dgn 3:08:03 PM

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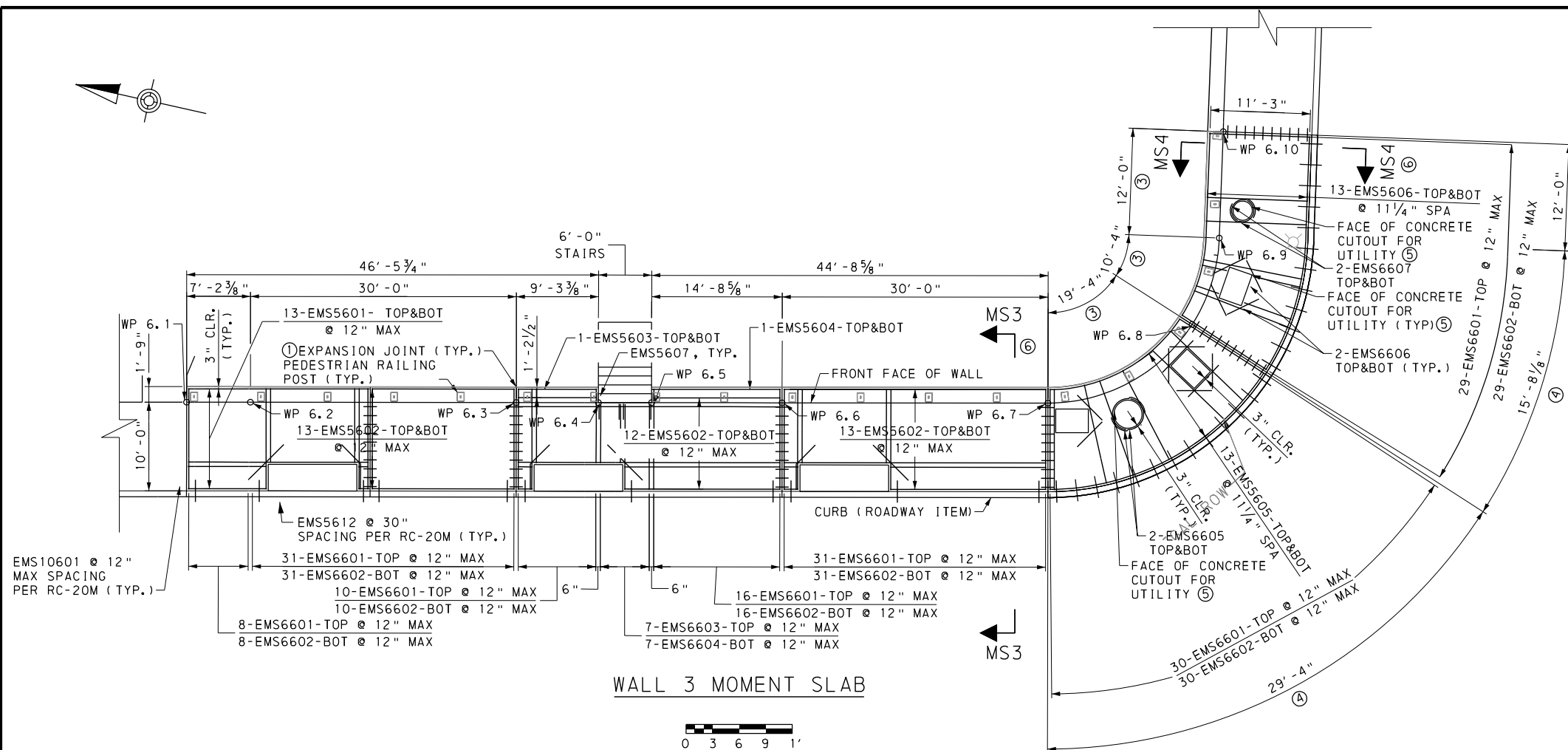
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 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
 OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
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TITLE: NORTH AVENUE BRIDGE REPLACEMENT MOMENT SLAB WING C			
DWG	DMB	PD/No	DATE
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST: PC 1.60			DRAWING NUMBER: PC-1.60 23 67



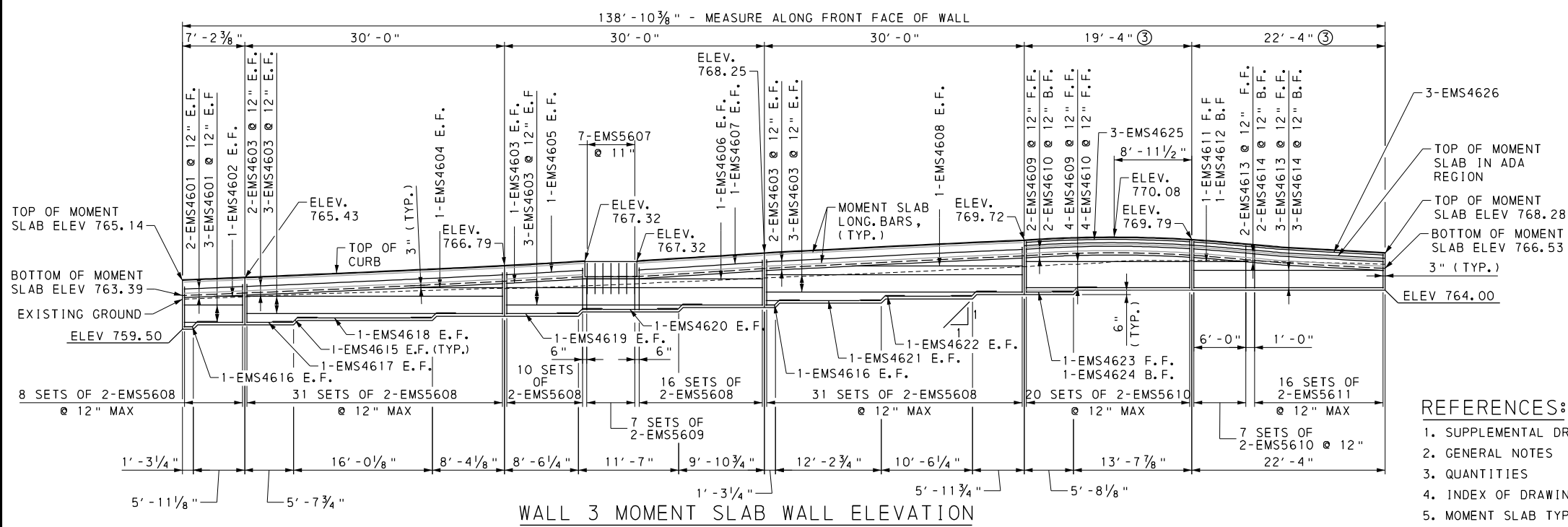
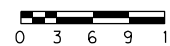
NOTES:

- ① 1/2" PREMOULDED EXPANSION JOINT MATERIAL
- ② SEE ELEVATION BELOW FOR REINFORCEMENT PLACEMENT
- ③ MEASURED ALONG FRONT FACE OF WALL
- ④ MEASURED ALONG JOINT BETWEEN MOMENT SLAB AND CURB
- ⑤ CLIP LONGITUDINAL AND TRANSVERSE MOMENT SLAB BARS AS NEEDED WITHIN TIE BARS TO ALLOW UTILITIES TO PASS THROUGH SLAB.
- ⑥ SEE SHEET 68 FOR MOMENT SLAB SECTION VIEWS

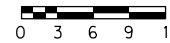


MOMENT SLAB WORK POINTS (WALL 3)			
WORK POINT	STATION	OFFSET	LOCATION
6.1	106+28.29	30.67 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL AT EXIST STR.
6.2	106+21.09	30.67 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL
6.3	105+91.09	30.67 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL
6.4	105+81.81	30.67 RT	MOMENT SLAB AND STAIR CORNER
6.5	105+75.81	30.67 RT	MOMENT SLAB AND STAIR CORNER
6.6	105+61.09	30.67 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL
6.7	105+31.09	30.67 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL P. T.
6.8	105+14.82	39.55 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL
6.9	105+11.77	49.30 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL P. C.
6.10	105+11.33	61.29 RT	MOMENT SLAB AND FRONT FACE OF PED. RAIL AT EXIST STR.

WALL 3 MOMENT SLAB



WALL 3 MOMENT SLAB WALL ELEVATION



REFERENCES:

- 1. SUPPLEMENTAL DRAWINGS
- 2. GENERAL NOTES
- 3. QUANTITIES
- 4. INDEX OF DRAWINGS
- 5. MOMENT SLAB TYPICAL SECTIONS
- 6. MOMENT SLAB REINFORCING SCHEDULE - 1

SHEET:

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LEGEND:

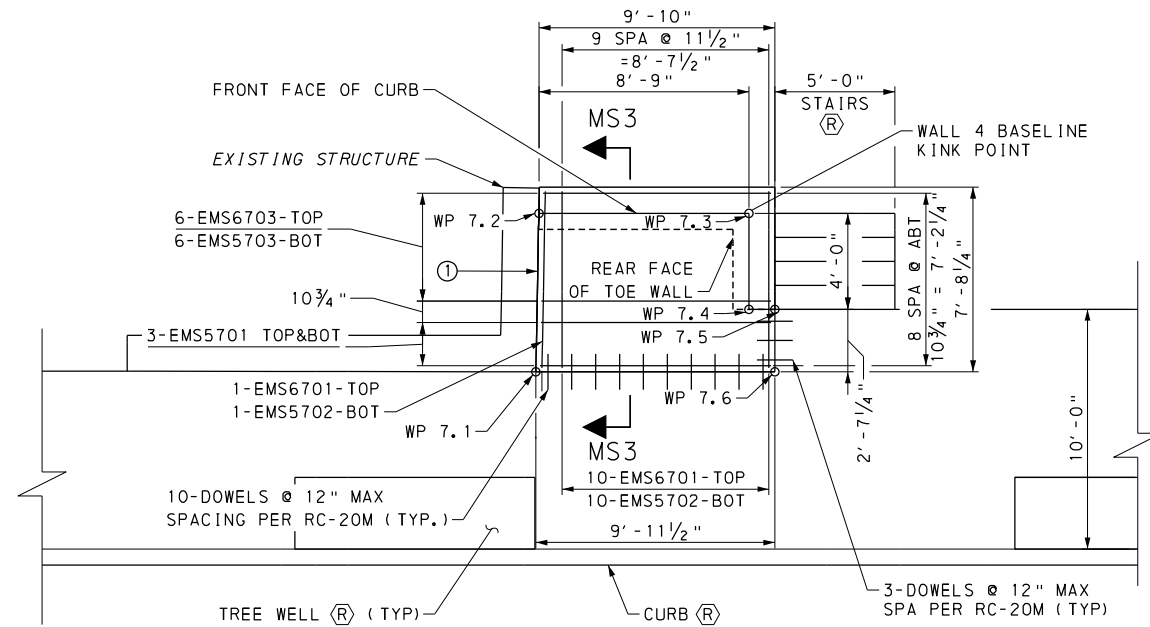
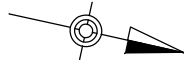
- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- E EPOXY COATED BARS

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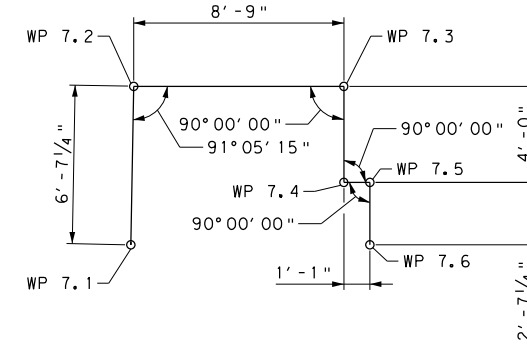
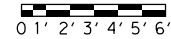
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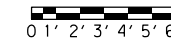
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DRN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23 68



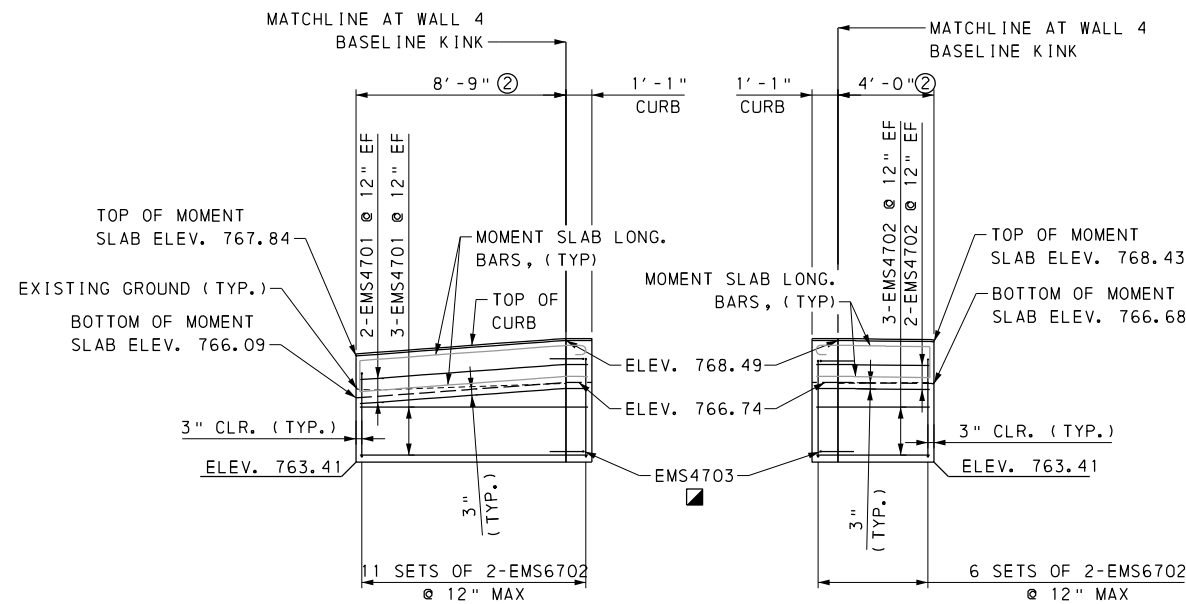
WALL 4 MOMENT SLAB PLAN



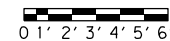
WALL 4 BASELINE PLAN



MOMENT SLAB WORK POINTS (WALL 4)					
WORK POINT	SURVEY C	STATION	OFFSET	LOCATION	
7.1	BRIGHTON	102+97.04	30.06' LT	EXISTING STRUCTURE & PROPOSED MOMENT SLAB	
7.2	BRIGHTON	102+97.16	36.67' LT	PROPOSED MOMENT SLAB AND FRONT OF CURB	
7.3	BRIGHTON	103+05.92	36.67' LT	PROPOSED MOMENT SLAB AND FRONT OF CURB	
7.4	BRIGHTON	103+05.92	32.67' LT	PROPOSED MOMENT SLAB AND FRONT OF CURB	
7.5	BRIGHTON	103+07.00	32.67' LT	PROPOSED MOMENT SLAB AND STAIR CORNER	
7.6	BRIGHTON	103+07.00	30.06' LT	PROPOSED MOMENT SLAB CORNER	



WALL 4 MOMENT SLAB ELEVATION



REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- MOMENT SLAB TYPICAL SECTIONS
- MOMENT SLAB REINFORCING SCHEDULE - 2

SHEET:

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LEGEND:

- EF EACH FACE
- UTILITY POLE
- ROADWAY ITEM
- 10-EMS4703 (LAP WITH EMS4701 & EMS4702)

9/11/2024 3:08:12 PM NS_North_Moment3 - Wall 4.dgn

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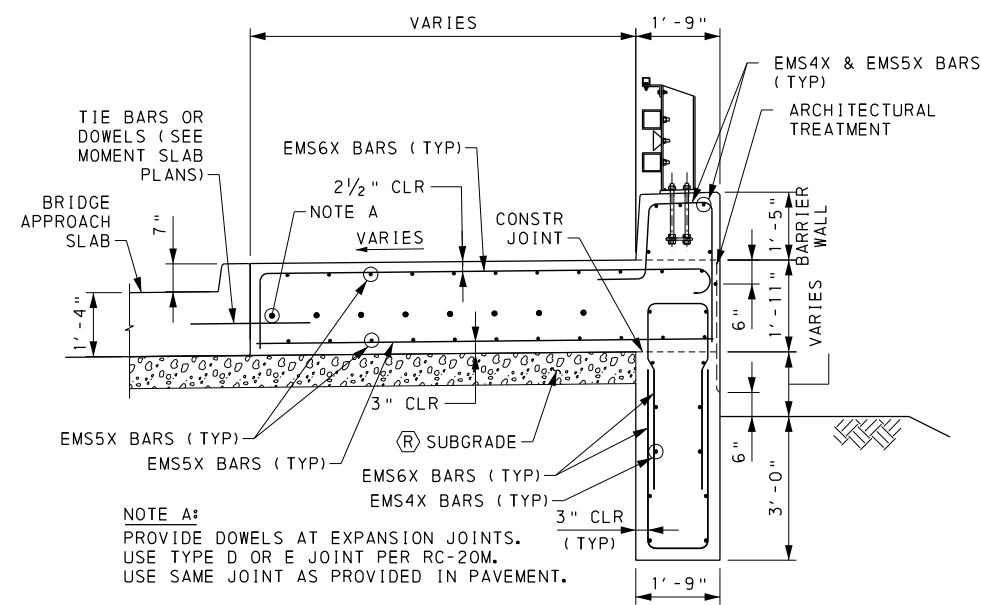
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100 AIRSIDE DRIVE
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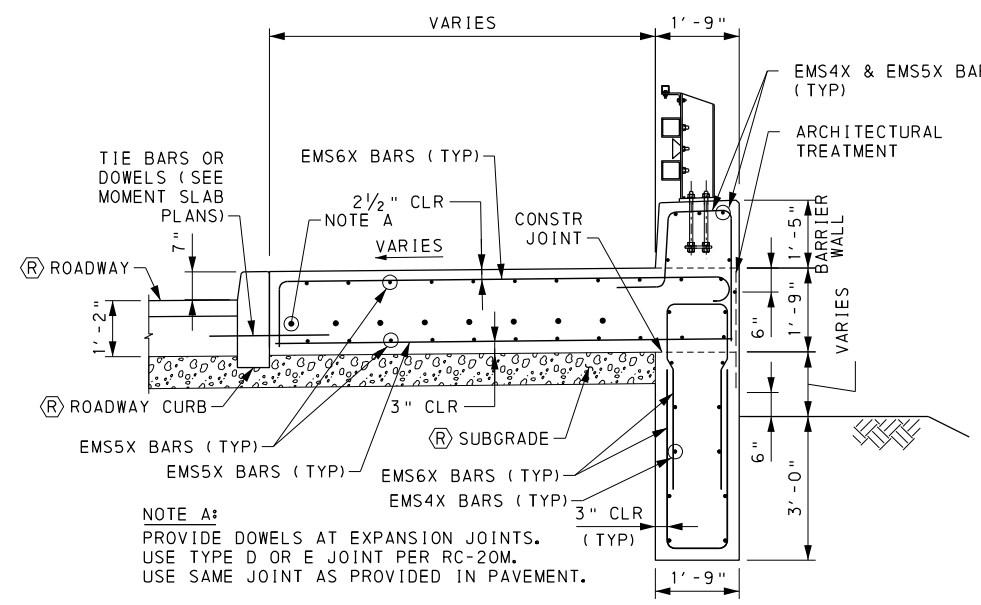
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
MOMENT SLAB WALL 4			
DRN	DMB	PD/No	VRN
DRN	WRB	FILE No	SCALE POST
CHK	ABC	DATE	

PC 1.60
BR0227858
9/11/2024
PC-1.60 23 69

REINFORCEMENT DESIGNATION	
MOMENT SLAB	X-BAR DESIGNATION
WING A	2
WALL 1	3
WING B	4
WING C	5
WALL 3	6
WALL 4	7



SECTION MS1-MS1
(SEE TABLE OF REINFORCEMENT "X" DESIGNATIONS)
0 6 1' 2' 3' 4'



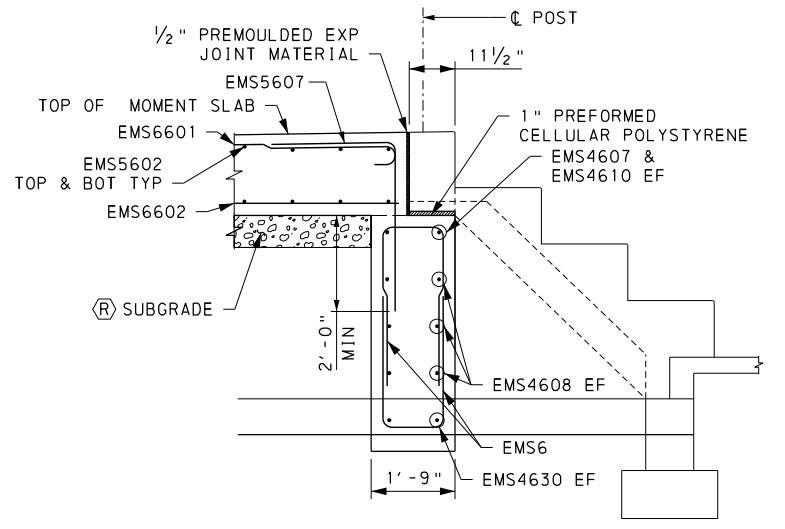
SECTION MS2-MS2
(SEE TABLE OF REINFORCEMENT "X" DESIGNATIONS)
0 6 1' 2' 3' 4'

REFERENCES:

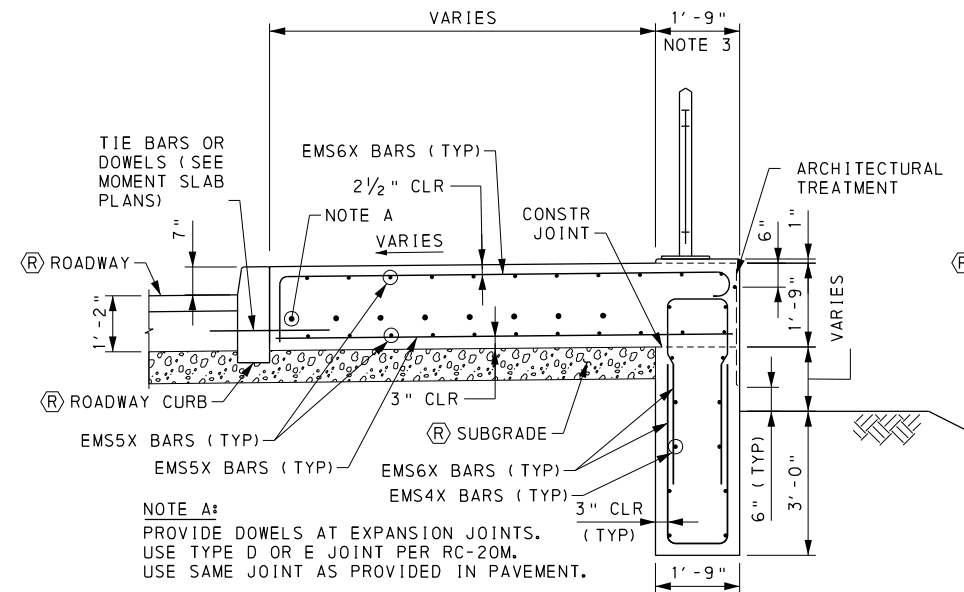
- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- MOMENT SLAB WING A
- MOMENT SLAB WALL 1 & WING B
- MOMENT SLAB WING C
- MOMENT SLAB WALL 3
- MOMENT SLAB WALL 4
- MOMENT SLAB REINFORCING SCHEDULE - 1
- MOMENT SLAB REINFORCING SCHEDULE - 2

SHEET:

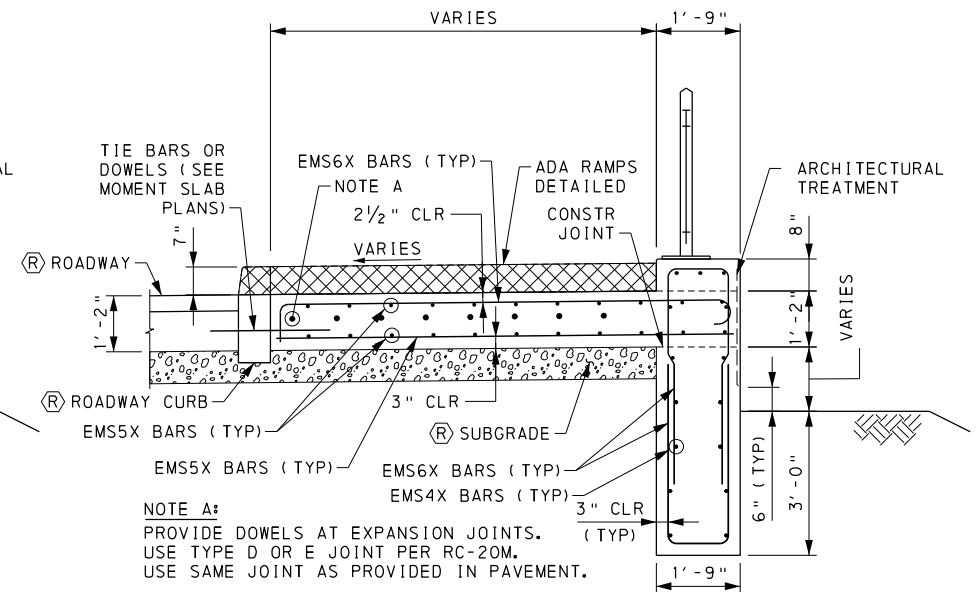
02
03
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72



SECTION MS5-MS5
0 6 1' 2' 3' 4'



SECTION MS3-MS3
(SEE TABLE OF REINFORCEMENT "X" DESIGNATIONS)
0 6 1' 2' 3' 4'



SECTION MS4-MS4
(SEE TABLE OF REINFORCEMENT "X" DESIGNATIONS)
0 6 1' 2' 3' 4'

LEGEND:
EF EACH FACE
(R) ROADWAY ITEM

- NOTES:**
- A HIGHER CLASS CONCRETE MAY BE SUBSTITUTED FOR A LOWER CLASS CONCRETE AT NO ADDITIONAL COST TO THE OWNER.
 - SEE SHEETS 63-67 FOR SPECIFIC BAR DESIGNATIONS IN EACH MOMENT SLAB.
 - DIMENSION IS 1'-1" IN WALL 4.

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT MOMENT SLAB TYPICAL SECTIONS			
OWN	DMB	PO/No	VERN
OWN	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 70

NS-North_Moment6 - Details.dgn 9/11/2024 3:08:17 PM

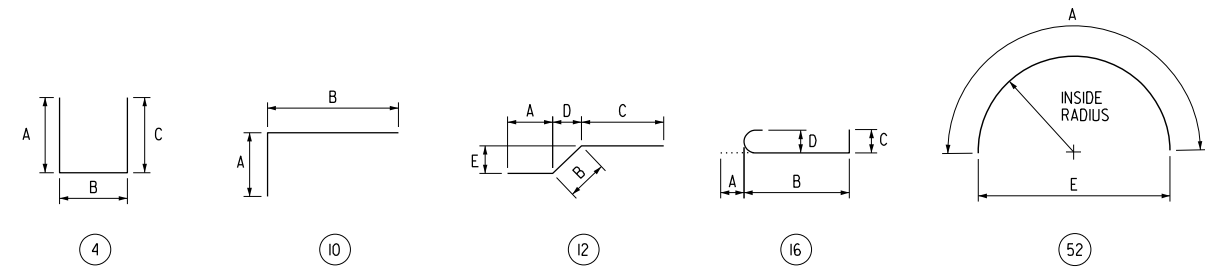
WALL 1 MOMENT SLAB REINFORCEMENT BAR SCHEDULE

WALL 3 MOMENT SLAB REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS	MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS				
												EMS4601	4	10	6' - 10"	STR											
												EMS4602	4	2	3' - 4"	STR											
												EMS4603	4	28	29' - 8"	STR											
												EMS4604	4	2	10' - 5"	STR											
												EMS4605	4	2	8' - 11"	STR											
												EMS4606	4	2	20' - 9"	STR											
												EMS4607	4	2	14' - 5"	STR											
												EMS4608	4	2	19' - 9"	STR											
												EMS4609	4	6	18' - 8"	STR											
												EMS4610	4	6	17' - 7"	STR											
												EMS4611	4	1	6' - 3"	STR											
												EMS4612	4	1	5' - 10"	STR											
												EMS4613	4	5	21' - 10"	STR											
												EMS4614	4	5	21' - 2"	STR											
												EMS4615	4	14	5' - 4 1/6"	12	2' - 3 1/6"	8 1/2"	2' - 4"	6"	6"						
												EMS4616	4	4	4' - 0 1/2"	12	1' - 0"	8 1/2"	2' - 4"	6"	6"						
												EMS4617	4	2	5' - 4"	STR											
												EMS4618	4	2	15' - 7"	STR											
												EMS4619	4	2	8' - 3"	STR											
												EMS4620	4	2	11' - 1"	STR											
												EMS4621	4	2	13' - 2"	STR											
												EMS4622	4	2	10' - 0"	STR											
												EMS4623	4	1	5' - 3"	STR											
												EMS4624	4	1	4' - 11"	STR											
												EMS4625	4	3	17' - 7" TO 18' - 8"	STR									VARY EA BAR BY 6 1/2"		
												EMS4626	4	3	21' - 2" TO 21' - 10"	STR									VARY EA BAR BY 4"		
												EMS5601	5	26	6' - 10"	STR											
												EMS5602	5	76	29' - 8"	STR											
												EMS5603	5	2	8' - 11"	STR											
												EMS5604	5	2	14' - 4"	STR											
												EMS5605	5	26	17' - 7" TO 28' - 7 1/6"	STR									VARY EA (SET OF 2) BARS BY 11 1/6"		
												EMS5606	5	26	21' - 2" TO 27' - 2"	STR									VARY EA (SET OF 2) BARS BY 6"		
												EMS5607	5	7	6' - 6 1/2"	10	3' - 6 1/2"	3' - 0"									
												EMS5608	5	192	9' - 5"	4	4' - 1"	1' - 3"	4' - 1"								
												EMS5609	5	14	7' - 9"	4	3' - 3"	1' - 3"	3' - 3"								
												EMS5610	5	54	10' - 1"	4	4' - 5"	1' - 3"	4' - 5"								
												EMS5611	5	32	8' - 9"	4	3' - 9"	1' - 3"	3' - 9"								
												EMS5612	5	68	2' - 6"	STR									Tie-Bars		
												EMS6601	6	155	13' - 10 1/2"	16	8"	11' - 5"	1' - 3 1/2"	6"							
												EMS6602	6	155	11' - 5"	STR											
												EMS6603	6	7	13' - 0 1/2"	16	8"	10' - 7"	1' - 3 1/2"	6"							
												EMS6604	6	7	10' - 7"	STR											
												EMS6605	6	4	11' - 5"	52	7' - 9"						3' - 8"				
												EMS6606	6	12	9' - 4"	4	3' - 1"	3' - 2"	3' - 1"								
												EMS6607	6	4	8' - 10"	52	6' - 2"						2' - 8"				
												EMS10601	10	70	1' - 6"	STR										Dowel Bars	

NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWINGS BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180°HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180°HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.



REFERENCES:

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
3. QUANTITIES	04
4. INDEX OF DRAWINGS	08
5. MOMENT SLAB WALL 1	66
6. MOMENT SLAB WALL 3	68
7. MOMENT SLAB TYPICAL SECTIONS	70

Michael Baker INTERNATIONAL
 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300
 MBAKERINTL.COM

NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
			PITTSBURGH, PENNSYLVANIA
			NORTH AVENUE BRIDGE REPLACEMENT
			MOMENT SLAB REINFORCING SCHEDULE - 1
DWN	DMB	PD No.	DATE POSTED
DWN	WRB	FILE No.	PC 1.60
CHK	ABC	DATE	9/11/2024
			PC-1.60 23 71

WALL 4 MOMENT SLAB REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EMS4701	4	10	9' - 6"	STR							TOE WALL
EMS4702	4	10	4' - 9"	STR							TOE WALL
EMS5701	5	6	9' - 7"	STR							
EMS6702	6	34	8' - 5"	4	3' - 7"	1' - 3"	3' - 7"				TOE WALL, VARY LAP (3' - 1" MIN)
EMS6701	6	11	9' - 3 3/4"	16	8"	7' - 4 1/4"	1' - 3 1/2"	6"			
EMS5702	5	11	7' - 4"	STR							
EMS6703	6	6	11' - 5 1/2"	16	8"	9' - 6"	1' - 3 1/2"	6"			
EMS5703	5	6	9' - 6"	STR							1 1/2" X 18" LOAD TRANSFER TOE WALL DOWELS
EMS4703	4	10	4' - 2"	10	2' - 1"	2' - 1"					

WING C MOMENT SLAB REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EC4502	4	5	27' - 7 1/8"	STR							
EC4503	4	5	6' - 5 7/8"	STR							
EMS4501	4	20	29' - 8"	STR							
EMS4502	4	4	27' - 7 1/8"	STR							
EMS4503	4	4	6' - 5 7/8"	STR							
EMS4504	4	2	5' - 10"	STR							
EMS4505	4	2	21' - 10"	STR							
EMS4506	4	10	29' - 8"	STR							
EMS4507	4	2	23' - 7 3/4"	STR							
EMS4508	4	2	9' - 3"	STR							
EMS4509	4	2	26' - 11"	STR							
EMS4510	4	2	18' - 4"	STR							
EMS4511	4	2	15' - 2"	STR							
EMS4512	4	2	15' - 7"	STR							
EMS4513	4	2	21' - 7"	STR							
EMS4514	4	2	19' - 10"	STR							
EMS4515	4	2	26' - 0"	STR							
EMS4516	4	4	27' - 7 1/8"	STR							
EMS4517	4	4	6' - 5 7/8"	STR							
EMS4518	4	18	6' - 6 1/2"	12	2' - 8"	8 1/2"	2' - 8"	6"	6"		
EMS4519	4	2	6' - 2 1/2"	12	2' - 4"	8 1/2"	2' - 8"	6"	6"		
EMS4520	4	2	4' - 6"	12	2' - 8"	8 1/2"	7 1/2"	6"	6"		
EMS4521	4	172	6' - 11"	43	3' - 0"	1' - 2"	2' - 9"	2' - 8"			
EMS4522	4	1	7' - 3 1/4"	43	3' - 0"	1' - 6 1/4"	2' - 9"	2' - 10"			
EMS4523	4	12	5' - 5" TO 6' - 11"	43	2' - 3" TO 3' - 0"	1' - 2"	2' - 0" TO 2' - 9 8"				VARY EA "A" AND "C" DIMENSION BY 3/4"
EMS4524	4	7	5' - 5"	43	2' - 3"	1' - 2"	2' - 0"	2' - 8"			
EMS5501	5	96	29' - 8"	STR							
EMS5502	5	8	27' - 7 1/4"	STR							
EMS5503	5	11	2' - 3" TO 5' - 11"	STR							VARY LENGTH TO FIT CURB
EMS5504	5	16	15' - 8 3/4"	STR							
EMS5505	5	16	3' - 5 3/4"	STR							
EMS5506	5	8	10' - 9"	STR							
EMS5507	5	8	8' - 5 1/4"	STR							
EMS5508	5	8	10' - 8 3/4"	STR							
EMS5509	5	8	6' - 5"	STR							
EMS5510	5	32	4' - 0"	STR							
EMS5511	5	148	10' - 3 3/4"	STR							
EMS5512	5	44	7' - 4 1/4"	STR							
EMS5513	5	7	3' - 1 3/4" TO 10' - 3 3/4"	STR							VARY LENGTH TO FIT CURB TIE-BARS
EMS5514	5	61	2' - 6"	STR							
EMS6501	6	185	7' - 5"	4	3' - 1"	1' - 3"	3' - 1"				
EMS6502	6	148	12' - 4 1/2"	16	8"	10' - 5"	1' - 3 1/2"	6"			
EMS6503	6	44	9' - 3 1/2"	16	8"	7' - 4"	1' - 3 1/2"	6"			
EMS6504	6	7	5' - 1 1/4" TO 12' - 3 1/4"	16	8"	3' - 1 3/4" TO 10' - 3 3/4"	1' - 3 1/2"	6"			VARY 'B' LENGTH TO FIT CURB
		63									1 1/2" DIAMETER X 18" LOAD TRANSFER COATED DOWELS

WING A MOMENT SLAB REINFORCEMENT BAR SCHEDULE

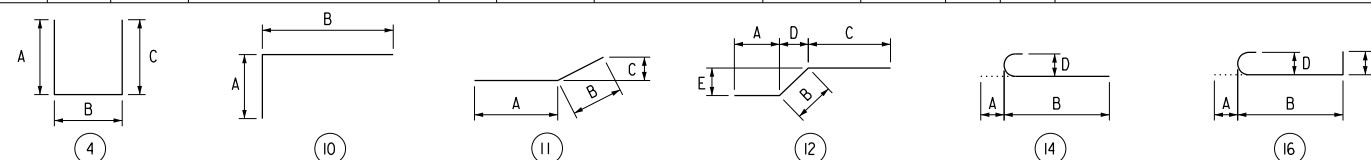
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EC4201	4	5	18' - 9"	STR							
EC4202	4	5	12' - 1 1/2"	STR							
EC4203	4	5	19' - 11 3/8"	STR							
EMS4201	4	6	18' - 9 1/4"	STR							
EMS4202	4	2	9' - 2"	STR							
EMS4203	4	8	12' - 1"	STR							
EMS4204	4	2	8' - 10"	STR							
EMS4205	4	6	19' - 11 3/8"	STR							
EMS4206	4	2	12' - 8"	STR							
EMS4207	4	8	6' - 0 1/2"	12	2' - 8"	8 1/2"	2' - 8"	6"	6"		
EMS4208	4	2	4' - 5 1/4"	12	1' - 0 3/4"	8 1/2"	2' - 8"	6"	6"		
EMS4209	4	2	5' - 3"	STR							
EMS4210	4	2	12' - 11"	STR							
EMS4211	4	2	6' - 10"	STR							
EMS4212	4	2	3' - 6"	STR							
EMS4213	4	2	9' - 0"	STR							
EMS4214	4	2	9' - 11"	STR							
EMS4215	4	20	9' - 8"	43	2' - 10 1/2"	1' - 3"	2' - 10 1/2"	2' - 8"			
EMS4216	4	34	9' - 4"	43	2' - 8 1/2"	1' - 3"	2' - 8 1/2"	2' - 8"			
EMS5201	5	26	20' - 7"	STR							
EMS5202	5	26	12' - 3 1/2" TO 22' - 11"	STR							VARY EA (SET OF 2) BARS BY 9 13/16"
EMS5203	5	26	19' - 11"	STR							
EMS5204	5	2	22' - 1 3/16"	STR							
EMS5205	5	6	18' - 9"	STR							
EMS5206	5	6	12' - 1"	STR							
EMS5207	5	2	14' - 4 1/2"	STR							
EMS5208	5	1	16' - 3"	11	14' - 9 3/8"	1' - 5 5/8"	1' - 1"				
EMS5209	5	13	16' - 10 7/8"	STR							
EMS5210	5	2	5' - 6"	STR							
EMS5211	5	28	2' - 6"	STR							TIE-BARS
EMS5212	5	8	3' - 0" TO 17' - 0"	STR							
EMS5214	5	34	11' - 5"	STR							VARY EA BAR BY 2' - 0"
EMS5215	5	1	13' - 11 3/4"	11	13' - 3"	8 3/4"	6 1/2"				
EMS6201	6	1	13' - 11 3/4"	11	13' - 3"	8 3/4"	6 1/2"				
EMS6202	6	2	15' - 10"	10	1' - 5 1/2"	14' - 4 1/2"					
EMS6203	6	82	9' - 6 1/2"	4	4' - 1 3/4"	1' - 3"	4' - 1 3/4"				
EMS6204	6	13	19' - 0 3/8"	16	8"	16' - 10 7/8"	1' - 5 1/2"	6"			
EMS6206	6	1	4' - 11 5/8"	11	3' - 6"	1' - 5 5/8"	1' - 1"				
EMS6207	6	1	16' - 2 7/8"	10	14' - 9 3/8"	1' - 5 1/2"					
EMS6209	6	2	6' - 2"	14	8"	5' - 6"		6"			
EMS6210	6	26	9' - 3 1/2"	4	4' - 0 1/4"	1' - 3"	4' - 0 1/4"				
EMS6211	6	8	4' - 11 1/2" TO 18' - 11 1/2"	16	8"	3' - 0" TO 17' - 0"	1' - 3 1/2"	6"			VARY EA BAR BY 2' - 0"
EMS6213	6	34	13' - 4 1/2"	16	8"	11' - 5"	1' - 3 1/2"	6"			1 1/2" DIAMETER X 18" LOAD TRANSFER COATED DOWELS*

NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.

LEGEND:

* COATED DOWELS PER PUB 408 SECTION 705.3



REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- MOMENT SLAB WING A
- MOMENT SLAB WING C
- MOMENT SLAB WALL 4
- MOMENT SLAB TYPICAL SECTIONS

SHEET:

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- 04
- 08
- 65
- 67
- 69
- 70

LEGEND:

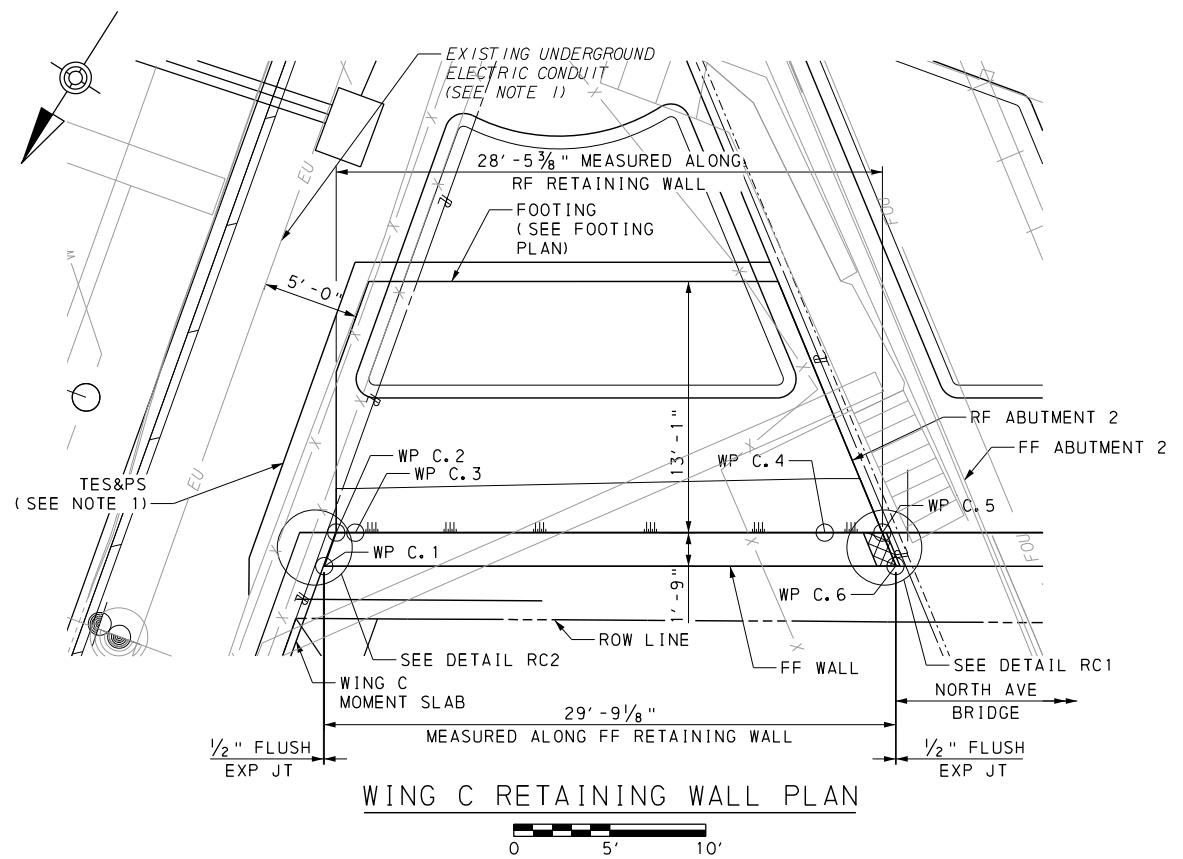
* COATED LOAD TRANSFER DOWELS PER PUB. 408 SECTION 705.3 AND STD. DWG. RC-20M

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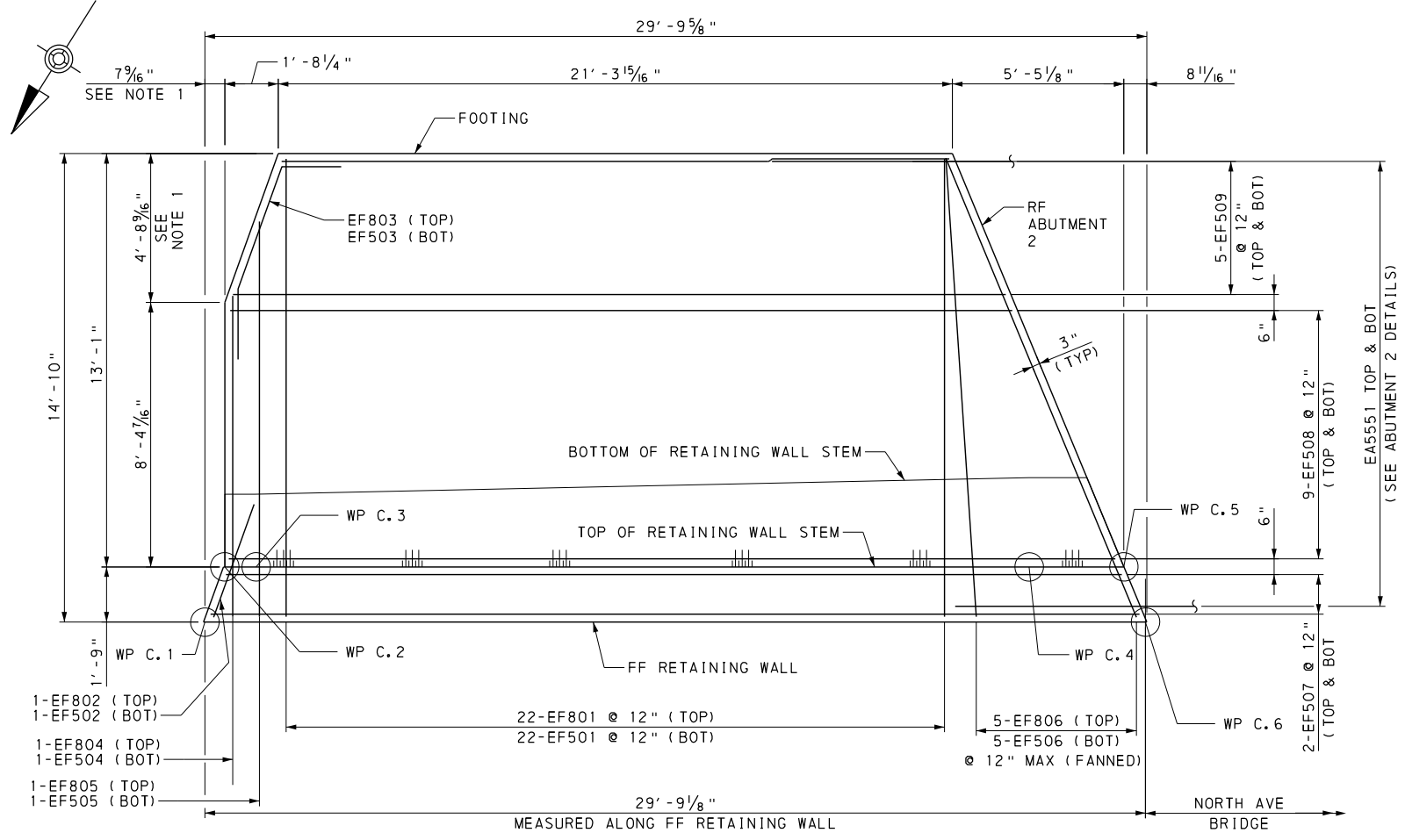
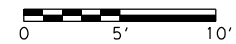
Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

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PITTSBURGH
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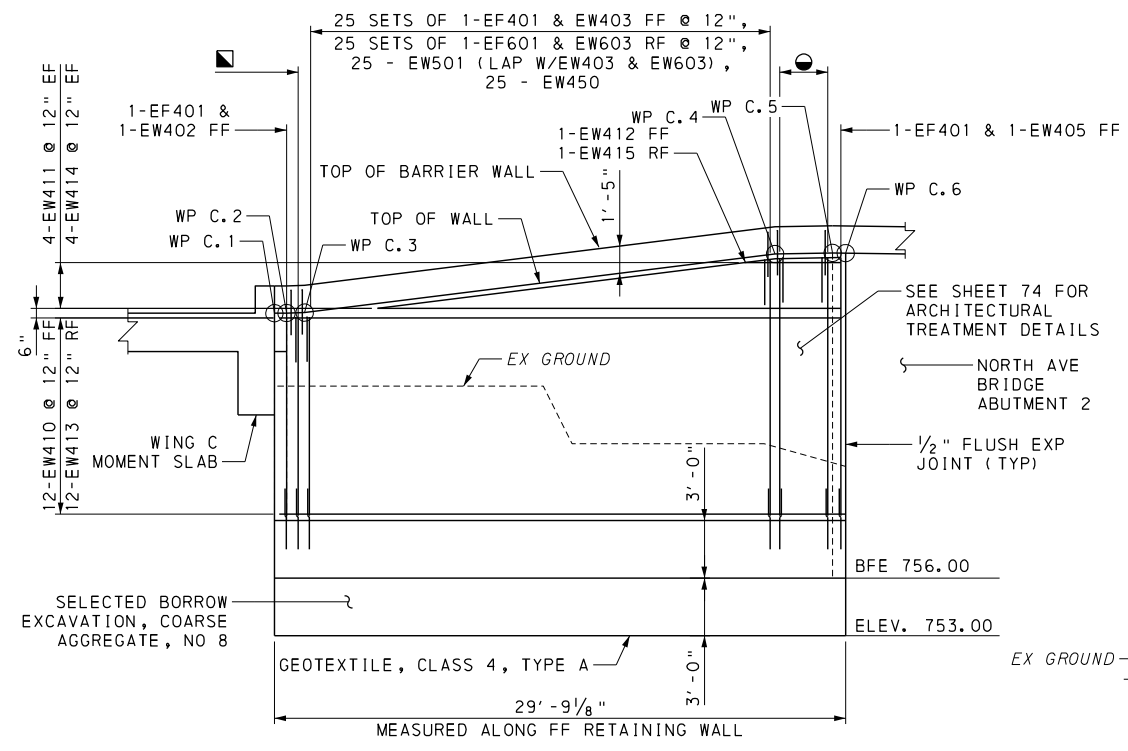
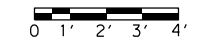
REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE NORTH AVENUE BRIDGE REPLACEMENT MOMENT SLAB REINFORCING SCHEDULE - 2			
DRW	DMB	FD/No	VERN
CHK	WRB	FILE No	BRO027858
DATE	9/11/2024		SCALE POST PC 1.60
DRAWING NUMBER	PC-1.60 23 72		



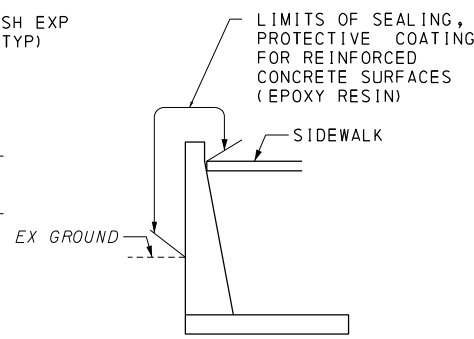
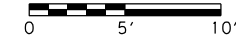
WING C RETAINING WALL PLAN



FOOTING PLAN



WING C RETAINING WALL ELEVATION



WING C RETAINING WALL SEALING LIMITS

NOT TO SCALE

WING C RETAINING WALL WORK POINTS				
POINT	SURVEY C	STATION	OFFSET	ELEV.
C. 1	BRIGHTON	105+48.94	31.46' LT	769.80
C. 2	BRIGHTON	105+47.08	31.46' LT	769.81
C. 3	BRIGHTON	105+46.76	32.35' LT	769.83
C. 4	NORTH	10+75.61	50.51' LT	772.88
C. 5	NORTH	10+72.84	49.49' LT	772.94
C. 6	NORTH	10+71.55	50.88' LT	772.93

REFERENCES:	SHEET:
1. SUPPLEMENTAL DRAWINGS	02
2. GENERAL NOTES	03
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9. WING C RETAINING WALL DETAILS	74
10. WING C RETAINING WALL REINFORCING SCHEDULE	75

LEGEND:

- BFE BOTTOM OF FOOTING ELEVATION
- EF EACH FACE
- FF FRONT FACE
- RF REAR FACE

NOTES:

1. BEFORE INSTALLING TEMPORARY EXCAVATION SUPPORT & PROTECTION SYSTEM (TES&PS), PERFORM VACUUM TEST PIT EXCAVATION TO DETERMINE LOCATION OF EXISTING ELECTRIC CONDUIT IN THIS LOCATION. CLIP THE CORNER OF THE PROPOSED FOOTING TO MAINTAIN A MINIMUM 1 FT CLEARANCE FROM THE EDGE OF THE CONDUIT BANK ENCASUREMENT TO THE EDGE OF THE FOOTING. ADJUST REINFORCING BARS TO SUIT THE FINAL GEOMETRY OF THE FOOTING. THE CONTRACTOR IS PERMITTED TO USE TES&PS IN THIS LOCATION AS THE FOOTING FORMWORK AND ABANDON TES&PS IN PLACE. CUT OFF TES&PS A MINIMUM OF 3'-0" BELOW FINISHED GRADE, OR TO THE EXTENTS REQUIRED TO NOT INTERFERE WITH PROPOSED CONSTRUCTION.
2. MINOR ADJUSTMENTS TO WEEPHOLE LOCATIONS ARE PERMITTED TO AVOID INTERFERENCE WITH RETAINING WALL STEM REINFORCING.
3. ALL SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
4. PROVIDE VERTICAL V-NOTCH IN CONCRETE BELOW ALL WEEPHOLES.
5. PROVIDE 1/2" FLUSH EXPANSION JOINTS BETWEEN WING C RETAINING WALL STEM AND WING C MOMENT SLAB AND NORTH AVENUE BRIDGE.
6. LAP EF507 THRU EF509 BARS WITH EA5561 BARS IN ABUTMENT 2 STEM. MINIMUM LAP = 3'-7".

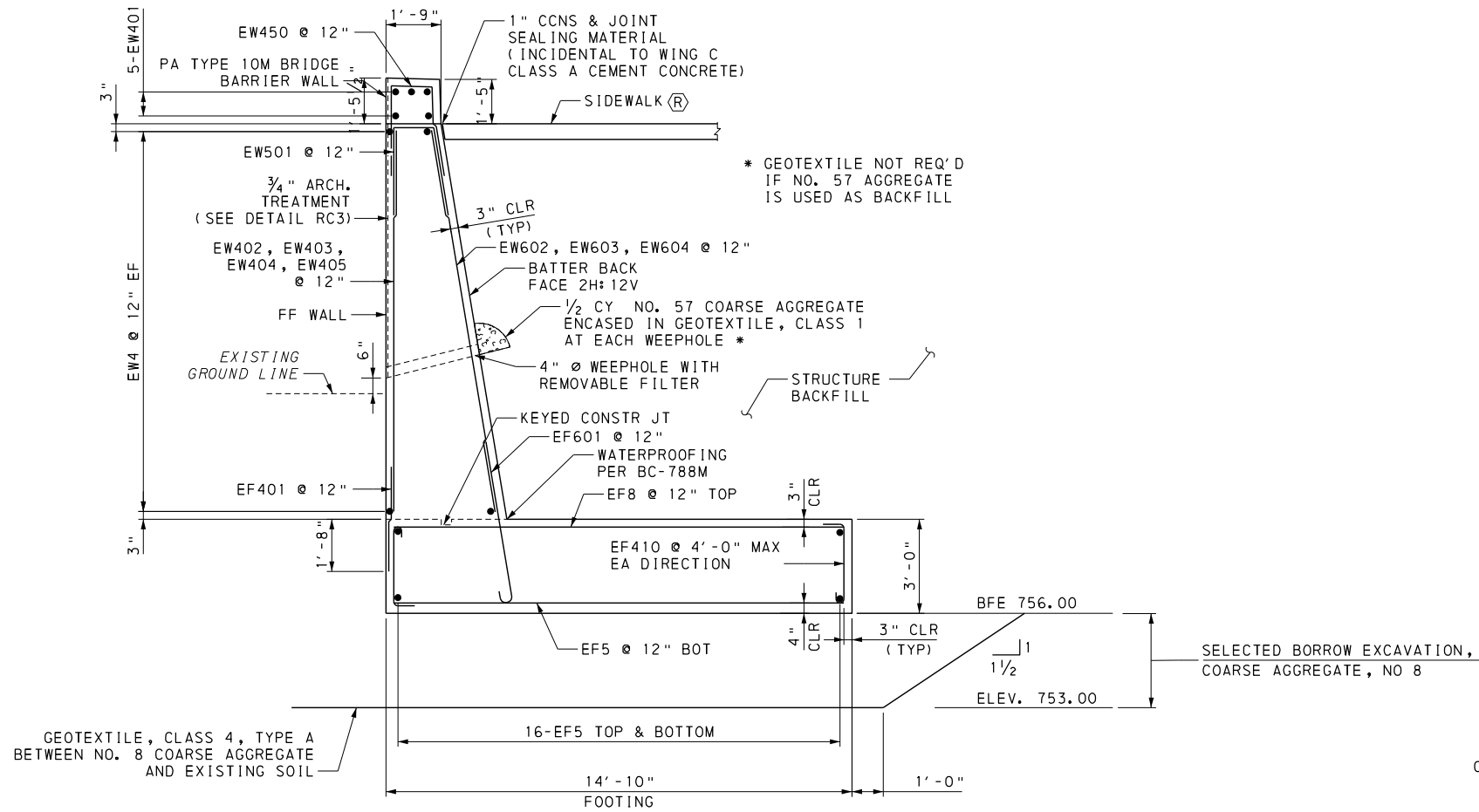
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- 1-EF401 & 1-EW403 FF, 1-EF601 & 1-EW602 RF, 1-EW501 (LAPPED W/ EW403 & EW602), & 1-EW450
- 3 SETS OF 1-EF401 & 1-EW404 FF, 1-EF601 & 1-EW604 RF, 1-EW501 (LAPPED W/ EW404 & EW604), & 1-EW450

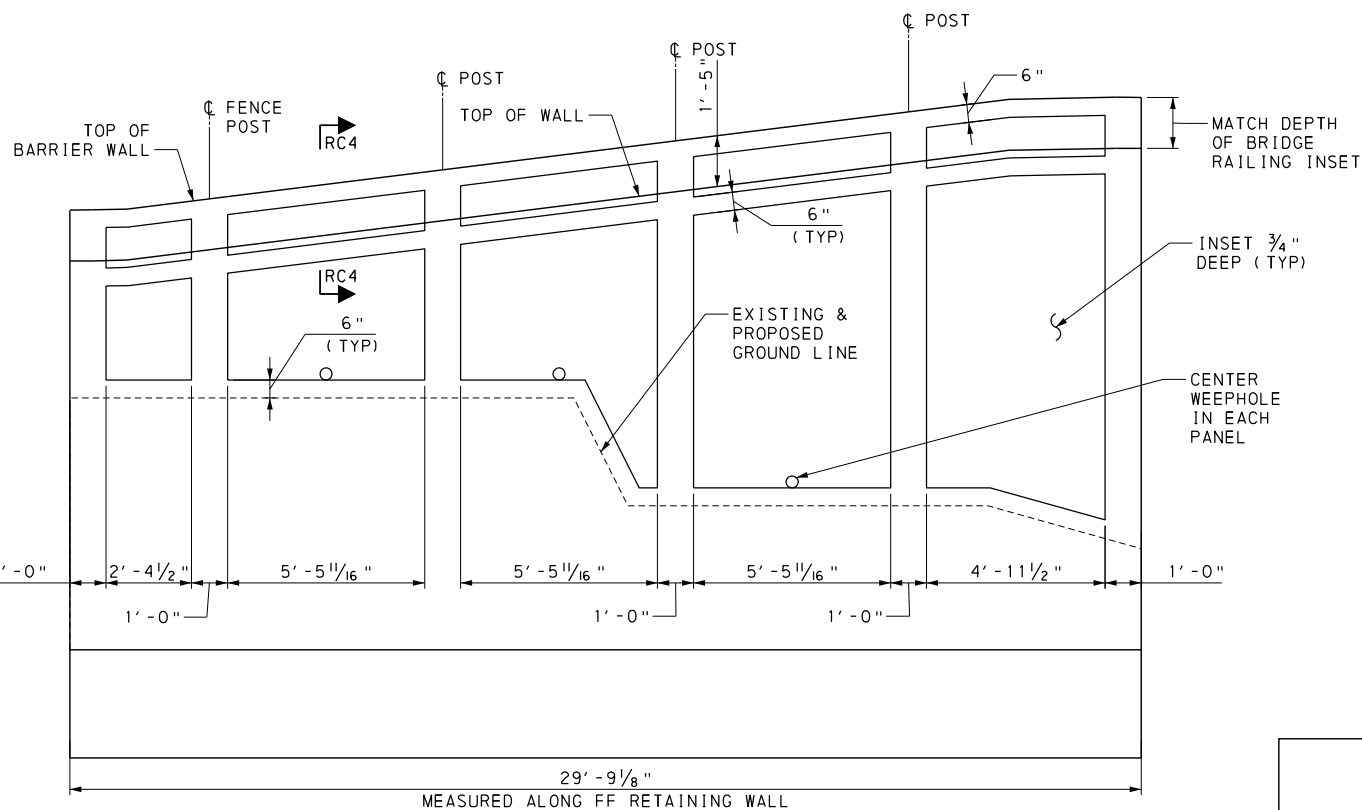
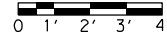
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
WING C RETAINING WALL PLAN & ELEVATION			
DWG	DMB	PO/NO	DATE
DWG	WRB	FILE NO	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23



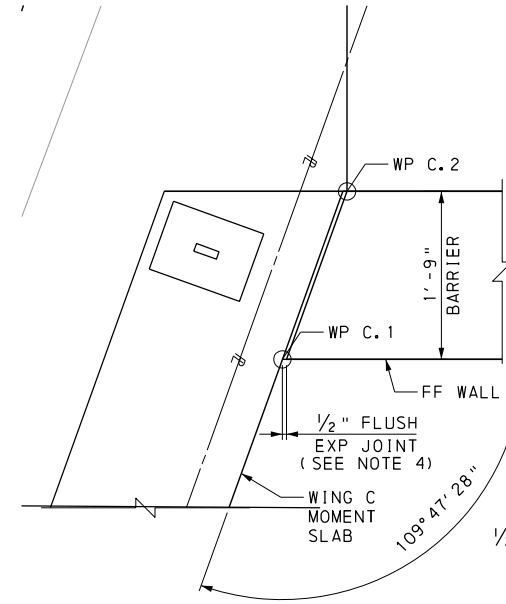
WING C RETAINING WALL SECTION



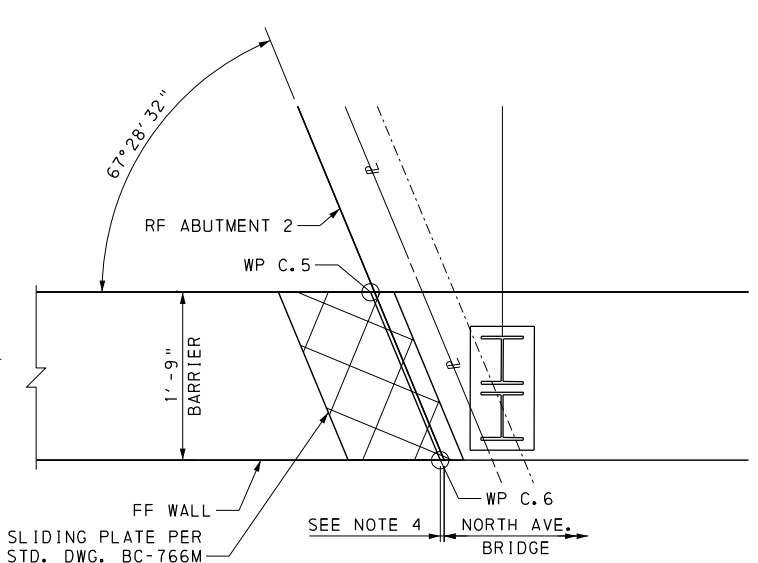
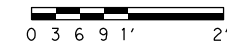
DETAIL RC3



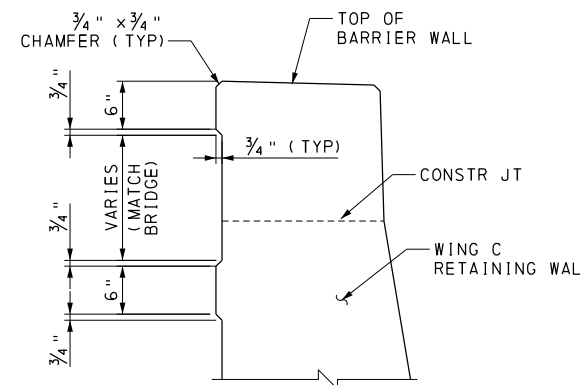
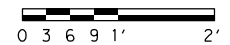
NOTE: FOR DETAILS NOT SHOWN, SEE SHEET 55.



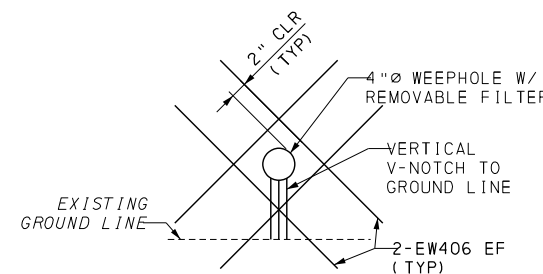
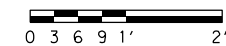
DETAIL RC2



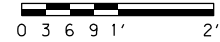
DETAIL RC1



PARTIAL SECTION RC4-RC4



WEEP HOLE DETAIL



LEGEND:

- BFE BOTTOM OF FOOTING ELEVATION
- EF EACH FACE
- FF FRONT FACE
- RF REAR FACE
- (R) ROADWAY ITEM

REFERENCES:

- | | |
|--|----|
| 1. SUPPLEMENTAL DRAWINGS | 02 |
| 2. GENERAL NOTES | 03 |
| 3. QUANTITIES | 04 |
| 4. INDEX OF DRAWINGS | 08 |
| 5. ABUTMENT REMOVAL DETAILS | 14 |
| 6. ABUTMENT 2 DETAILS | 28 |
| 7. ABUTMENT 2 REINFORCING SCHEDULE | 29 |
| 8. BARRIER AND RAILING POST LAYOUT - 1 | 53 |
| 9. WING C RETAINING WALL PLAN & ELEVATION | 73 |
| 10. WING C RETAINING WALL REINFORCING SCHEDULE | 75 |

NOTES:

1. MINOR ADJUSTMENTS TO WEEP HOLE LOCATIONS ARE PERMITTED TO AVOID INTERFERENCE WITH RETAINING WALL STEM REINFORCING.
2. ALL SPACINGS INDICATED ARE MAXIMUMS CENTER TO CENTER OF BARS.
3. PROVIDE VERTICAL V-NOTCH IN CONCRETE BELOW ALL WEEP HOLES.
4. PROVIDE 1/2" FLUSH EXPANSION JOINTS BETWEEN WING C RETAINING WALL STEM AND WING C MOMENT SLAB AND NORTH AVENUE BRIDGE.
5. PROVIDE 1" OPEN JOINT IN BARRIER AND RECESS BARRIER CONCRETE PER STD. DWG. BC-709M.

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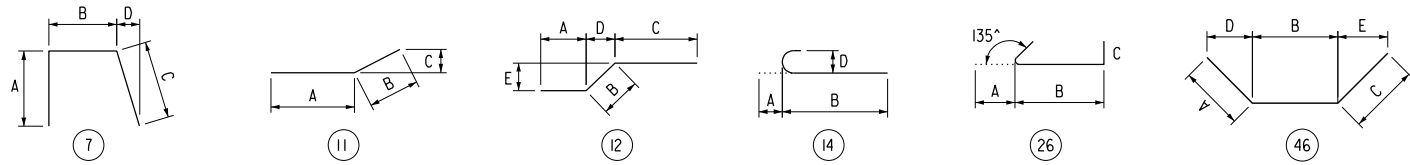
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PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
WING C RETAINING WALL DETAILS			
DRW	DMB	PO/NO	VERN
DRW	WRB	FILE NO	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC-1.60
DRAWING NUMBER			PC-1.60 23

WING C RETAINING WALL REINFORCEMENT BAR SCHEDULE

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EF401	4	31	3' - 4"	STR							
EF410	4	44	3' - 5 1/2"	26	4 1/2"	2' - 5"	8"				FOOTING TIE BARS
EF501	5	22	14' - 4"	STR							
EF502	5	1	3' - 4"	STR							
EF503	5	1	8' - 8 1/4"	46	2' - 1"	4' - 6 1/4"	2' - 1"	8 7/16"	1' - 11 3/16"		
EF504	5	1	10' - 5"	STR							
EF505	5	1	12' - 6 1/4"	STR							
EF506	5	5	14' - 6 1/2" TO 15' - 8 3/4"	STR							VARY EA BAR BY 2 7/8"
EF507	5	4	28' - 1 3/4" TO 29' - 1 3/8"	STR							VARY EA SET OF 2 BARS BY 11 5/8"
EF508	5	18	24' - 6 5/8" TO 27' - 9 7/8"	STR							VARY EA SET OF 2 BARS BY 4 3/8"
EF509	5	10	20' - 11 5/8" TO 24' - 3"	STR							VARY EA SET OF 2 BARS BY 7 7/8"
EF601	6	29	5' - 11"	14	8"	5' - 3"					
EF801	8	22	14' - 4"	STR							
EF802	8	1	3' - 4"	STR							
EF803	8	1	11' - 2 1/4"	46	3' - 4"	4' - 6 1/4"	3' - 4"	1' - 1 1/2"	3' - 1 5/8"		
EF804	8	1	10' - 5"	STR							
EF805	8	1	12' - 6 1/4"	STR							
EF806	8	18	14' - 6 1/2" TO 15' - 8 3/4"	STR							VARY EA BAR BY 2 7/8"
EW401	4	5	29' - 7 1/4"	12	1' - 5"	24' - 8 1/4"	3' - 6"	24' - 6"	3' - 0 5/8"		BARRIER WALL
EW402	4	2	10' - 7 3/4"	STR							
EW403	4	25	10' - 8" TO 13' - 8 1/2"	STR							VARY EA BAR BY 1 1/2" (-)
EW404	4	3	13' - 8 1/2" TO 13' - 9"	STR							VARY EA BAR BY 1/4"
EW405	4	1	13' - 9"	STR							
EW406	4	24	3' - 8"	STR							WEEPHOLES
EW410	4	12	29' - 3 1/8"	STR							
EW411	4	4	5' - 0 1/4" TO 24' - 11 1/16"	STR							VARY EA BAR BY 4' - 9 3/8" (-)
EW412	4	1	24' - 3 1/16"	11	20' - 10 1/16"	3' - 5"	2' - 7"				
EW413	4	12	27' - 11 1/2"	STR							
EW414	4	4	4' - 4 1/4" TO 23' - 5 1/16"	STR							VARY EA BAR BY 4' - 9 3/8" (-)
EW415	4	1	23' - 7 1/16"	11	20' - 10 1/16"	2' - 9"	2' - 7"				
EW450	4	29	9' - 6 1/2"	7	4' - 0 1/2"	1' - 4"	4' - 2"	8"			BARRIER WALL
EW501	5	29	6' - 11"	7	2' - 9"	1' - 5"	2' - 9"	5 7/16"			
EW602	6	1	10' - 9 3/4"	STR							
EW603	6	25	10' - 10" TO 13' - 10 1/2"	STR							VARY EA BAR BY 1 1/2" (-)
EW604	6	3	13' - 10 1/2" TO 13' - 11"	STR							VARY EA BAR BY 1/4"



REINFORCEMENT NOTES:

- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- NUMBERS IN CIRCLES DENOTE TYPES.
- "D" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" ON STANDARD 135° AND 180° HOOKS, AND "R" WHICH IS TO THE INSIDE OF THE BAR.
- "E" PREFIX DENOTES EPOXY COATED BARS.

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL NOTES
- QUANTITIES
- INDEX OF DRAWINGS
- WING C RETAINING WALL PLAN & ELEVATION
- WING C RETAINING WALL DETAILS

SHEET:

- 02
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PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT			
WING C RETAINING WALL REINFORCING SCHEDULE			
DWG	DMB	PO No.	VERN
DWG	WRB	FILE No.	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER			PC-1.60
DRAWING NUMBER			PC-1.60 23

GENERAL NOTES

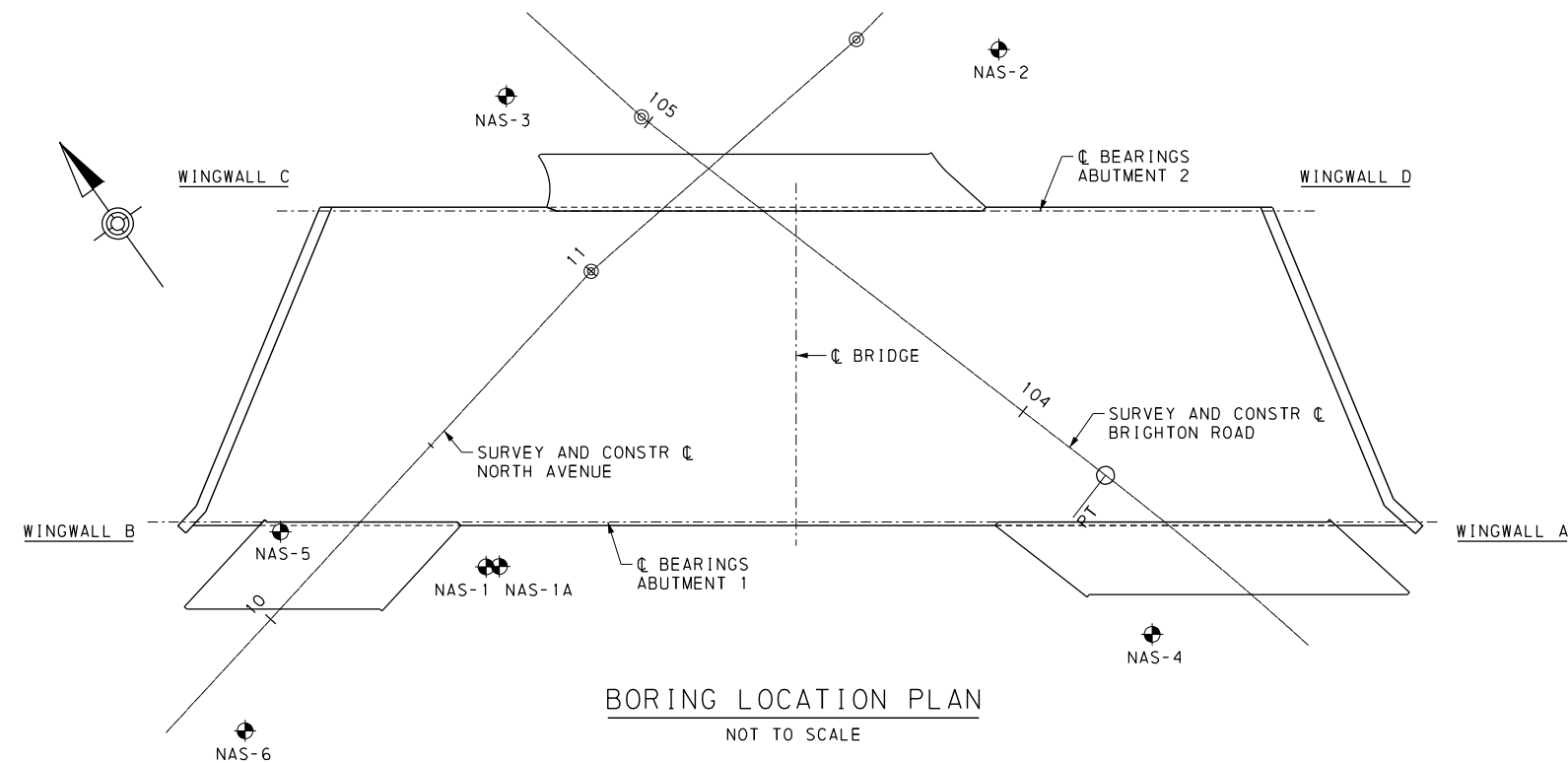
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FOR ADDITIONAL SOIL AND ROCK DESCRIPTIONS SEE PUBLICATION 222.

THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SUBSURFACE CONDITIONS MAY DIFFER FROM THE CONDITIONS REPORTED AT THE SPECIFIC LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE OF CONDITIONS AT THE BORING LOCATIONS.

LEGEND

- PP POCKET PENETROMETER
- T TORVANE
- NTS NOT TO SCALE



BORING LOCATION PLAN
NOT TO SCALE

THE DESCRIPTIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

[Signature]

THE SUBSURFACE EXPLORATION DATA THAT ARE PRESENTED ON THESE DRAWINGS (INCLUDING BORING LOGS, EARTH SAMPLES, ROCK CORES, CLASSIFICATION OF MATERIALS AND DEPTH OF BORINGS) ACCURATELY REPRESENT THE CONDITIONS ENCOUNTERED BY THE TEST BORING PROGRAM AT EACH BORING LOCATION.

[Signature] 06/09/2023
 GEOTECHNICAL ENGINEER/ENGINEERING GEOLOGIST DATE:

LEGEND - GEOTECHNICAL GRAPHIC SYMBOLS

SOIL

- S-G SAND-GRAVEL
- S-Gsl SAND-GRAVEL WITH SLT
- S-Gc SAND-GRAVEL AND CLAY
- S-Gc SAND-GRAVEL WITH CLAY
- SL SILT
- Cs-g CLAY WITH SAND-GRAVEL

ROCK

- | | | | | | |
|---------------------|------------------------|----------------------|-------------------|-------------|-----------|
| ARGILLITE | COAL | IGNEOUS ROCK | METAMORPHIC ROCK | SHALE | OTHER |
| BITUMINOUS CONCRETE | CONCRETE / MASONRY | INTERBEDDED ROCK | OTHER SEDIMENTARY | SILTSTONE | UNSAMPLED |
| CLAYSTONE | CONGLOMERATE / BRECCIA | LIMESTONE / DOLOMITE | SANDSTONE | NO RECOVERY | VOID |

REFER TO PENNDOT PUBLICATION 222 FOR GRAPHIC SYMBOLS AND DESCRIPTIONS USED TO REPRESENT SOIL AND ROCK.

AS-DRILLED CORE BORINGS

BORING	SURVEY C	STATION	OFFSET (FT)	TOP OF HOLE ELEV
NAS- 1	NORTH	10+39.0	26.0' RT	767.9
NAS- 1A	NORTH	10+41.0	28.0' RT	768.0
NAS- 2	NORTH	11+94.0	23.0' RT	766.7
NAS- 3	BRIGHTON	105+26.0	16.0' LT	767.0
NAS- 4	BRIGHTON	103+48.0	20.0' LT	767.3
NAS- 5	NORTH	10+15.0	11.0' LT	768.0
NAS- 6	NORTH	9+79.0	12.0' RT	766.3

LEGEND

- CORE BORING LOCATION

REFERENCES:

- | | |
|-----------------------|----|
| 1. CORING BORINGS - 2 | 79 |
| 2. CORING BORINGS - 3 | 80 |
| 3. CORING BORINGS - 4 | 81 |
| 4. CORING BORINGS - 5 | 82 |
| 5. CORING BORINGS - 6 | 83 |

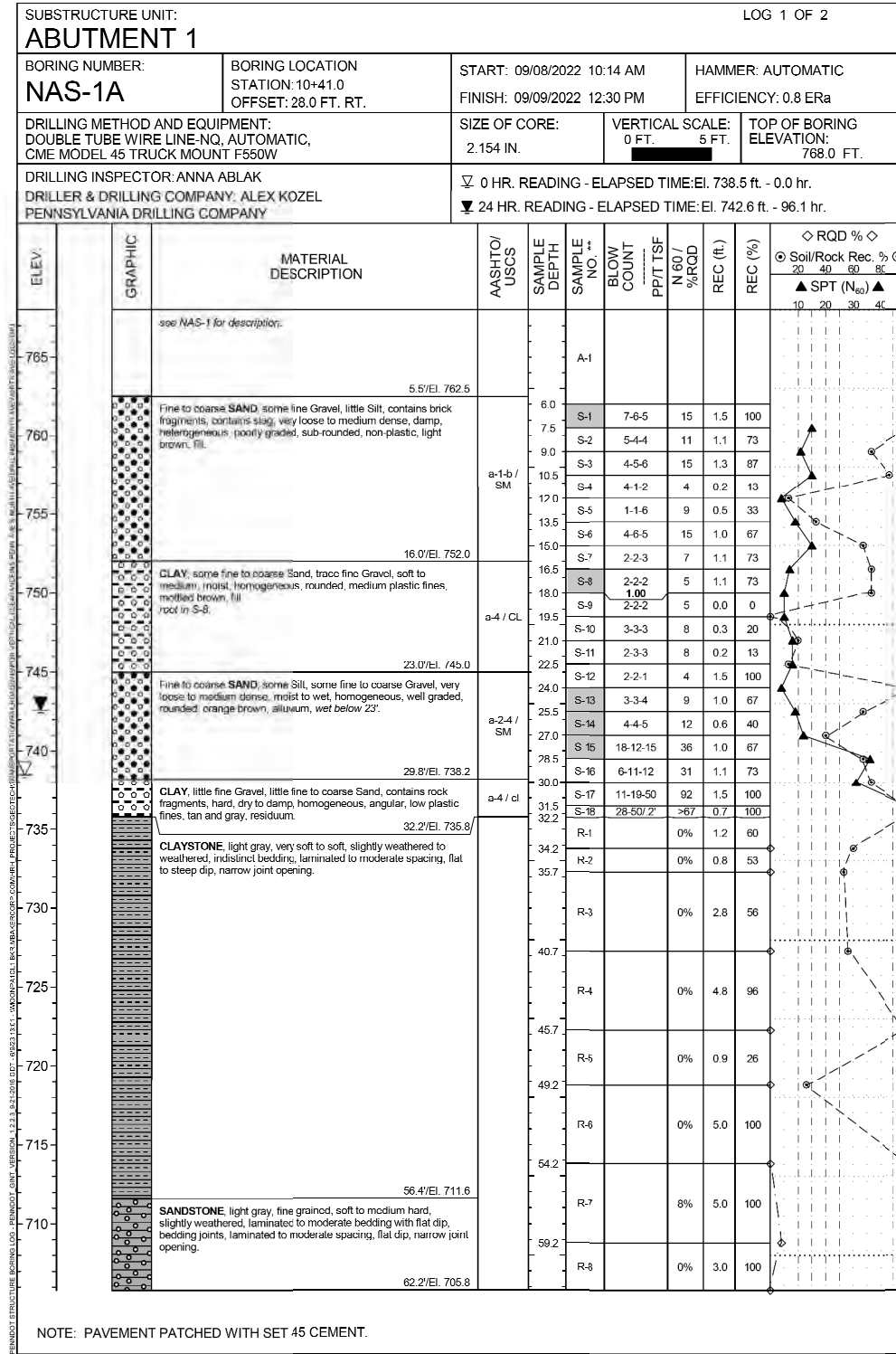
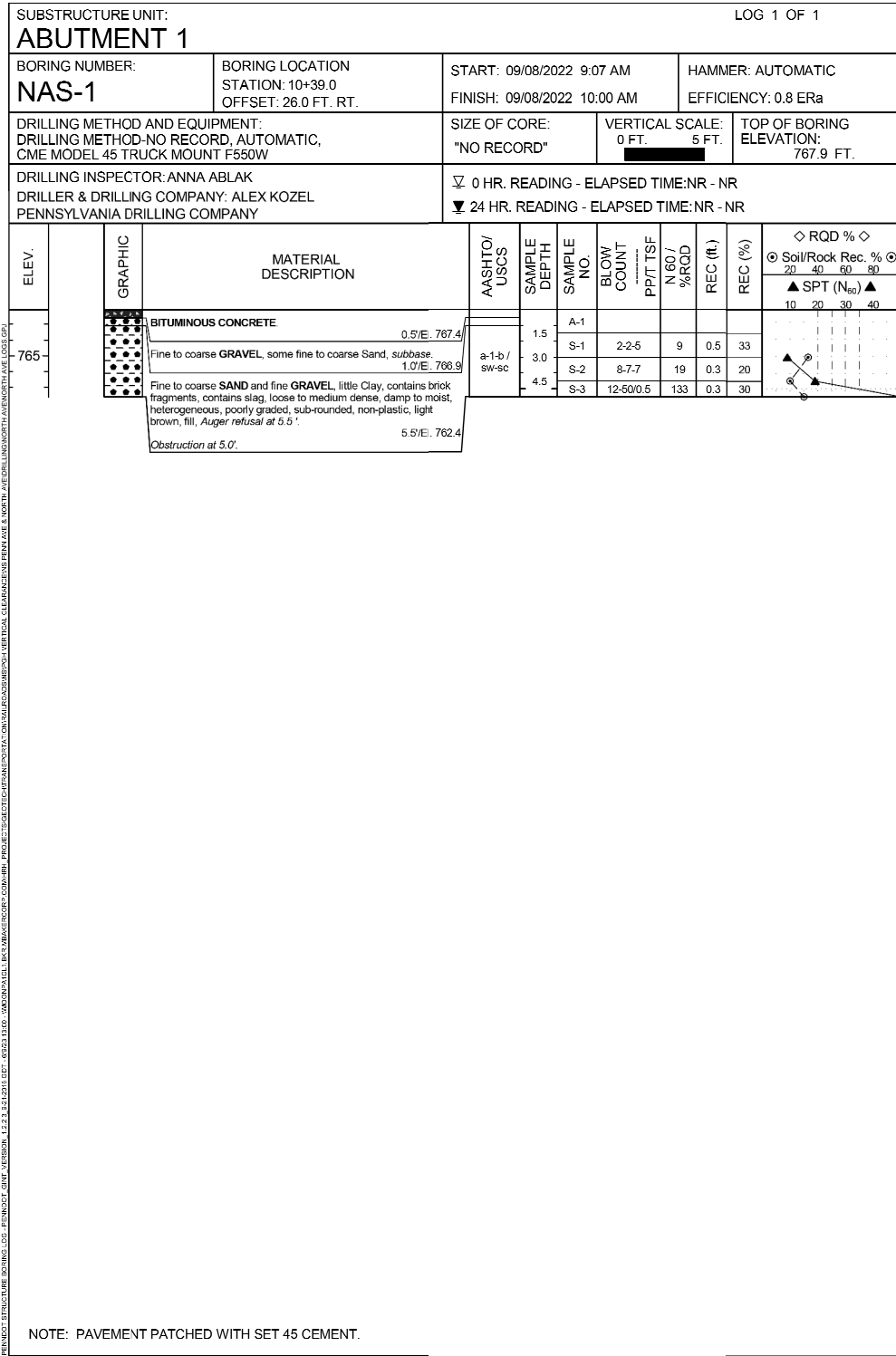
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PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
CORE BORINGS - 1			
DIV	DMB	PD No	DATE
DIV	WRB	FILE No	SCALE POST
CHK	ABC	DATE	DRAWING NUMBER
		9/11/2024	PC 1.60
			BR0027858
			PC-1.60 23 78



GENERAL NOTES

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FOR ADDITIONAL SOIL AND ROCK DESCRIPTIONS SEE PUBLICATION 222.

THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SUBSURFACE CONDITIONS MAY DIFFER FROM THE CONDITIONS REPORTED AT THE SPECIFIC LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE OF CONDITIONS AT THE BORING LOCATIONS.

LEGEND

PP POCKET PENETROMETER
T TORVANE
NTS NOT TO SCALE

THE DESCRIPTIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

SD

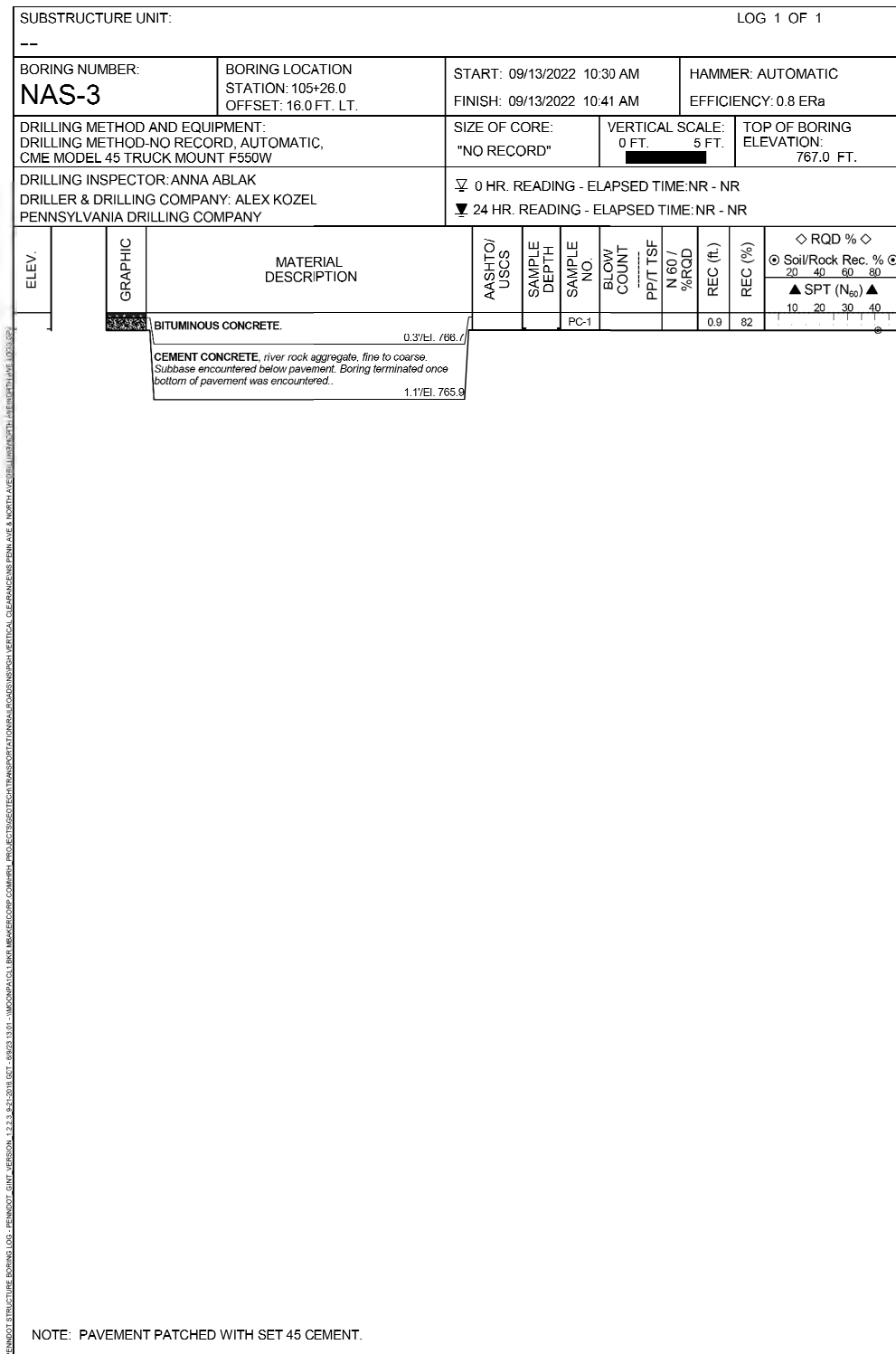
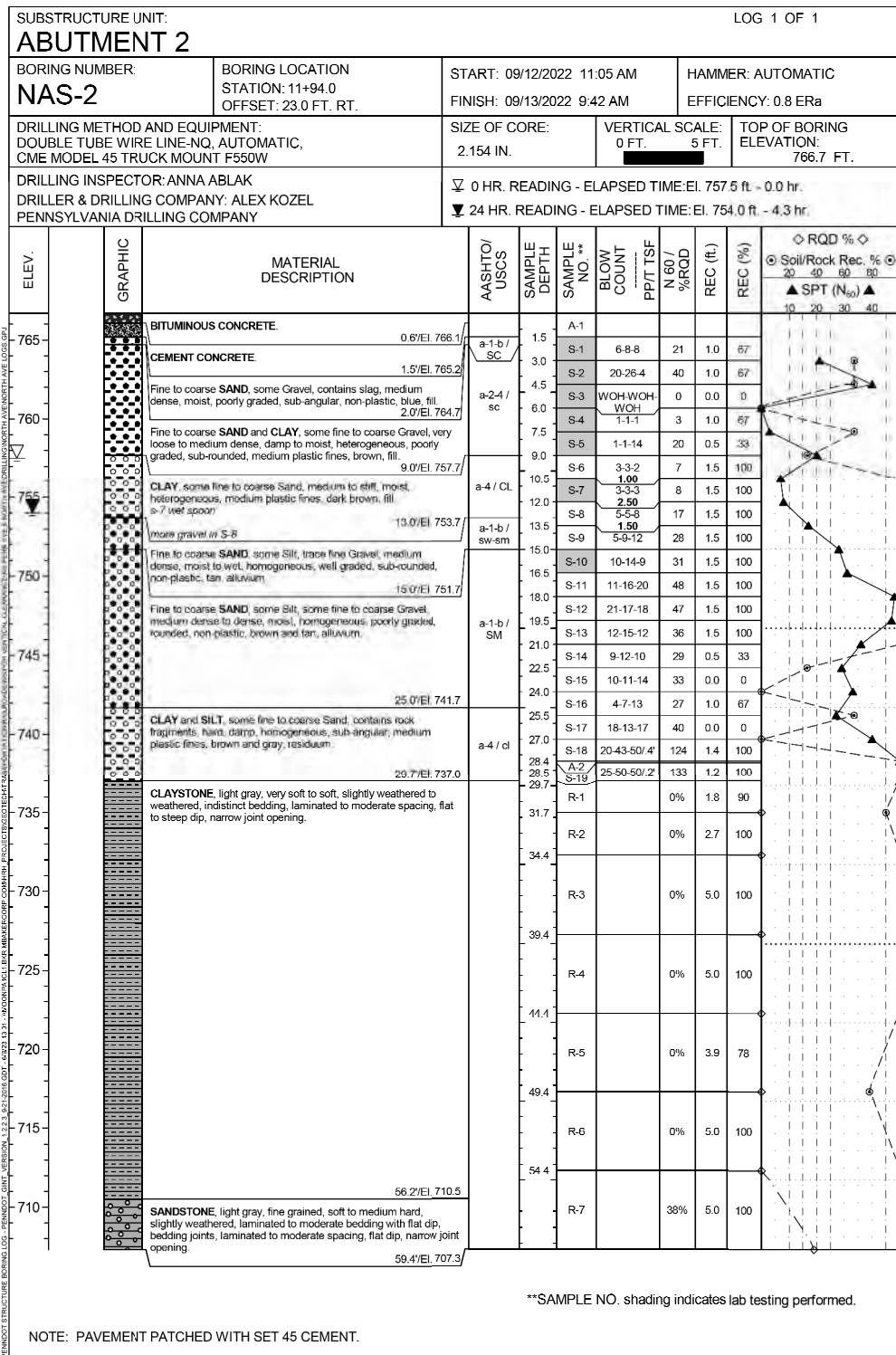
- REFERENCES:**
- CORING BORINGS - 1
 - CORING BORINGS - 3
 - CORING BORINGS - 4
 - CORING BORINGS - 5
 - CORING BORINGS - 6
- SHEET:**
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			PITTSBURGH, PENNSYLVANIA
TITLE			
NORTH AVENUE BRIDGE REPLACEMENT			
CORE BORINGS - 2			
DWG	DMB	PD No	VRN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024

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LEGEND

PP POCKET PENETROMETER
T TORVANE
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THE DESCRIPTIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

SD

REFERENCES:

1. CORING BORINGS - 1	78
2. CORING BORINGS - 2	79
3. CORING BORINGS - 4	81
4. CORING BORINGS - 5	82
5. CORING BORINGS - 6	83

SHEET:

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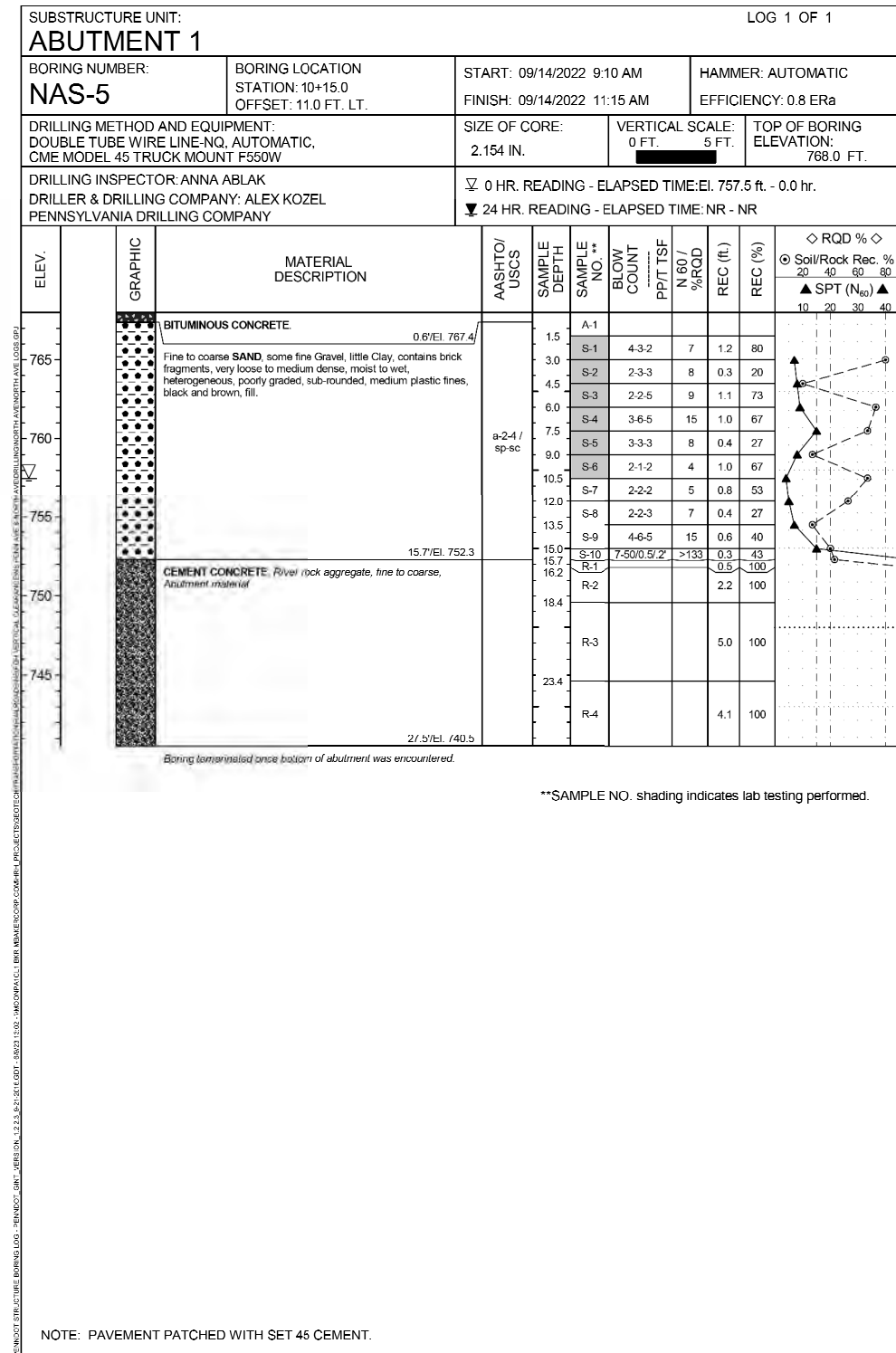
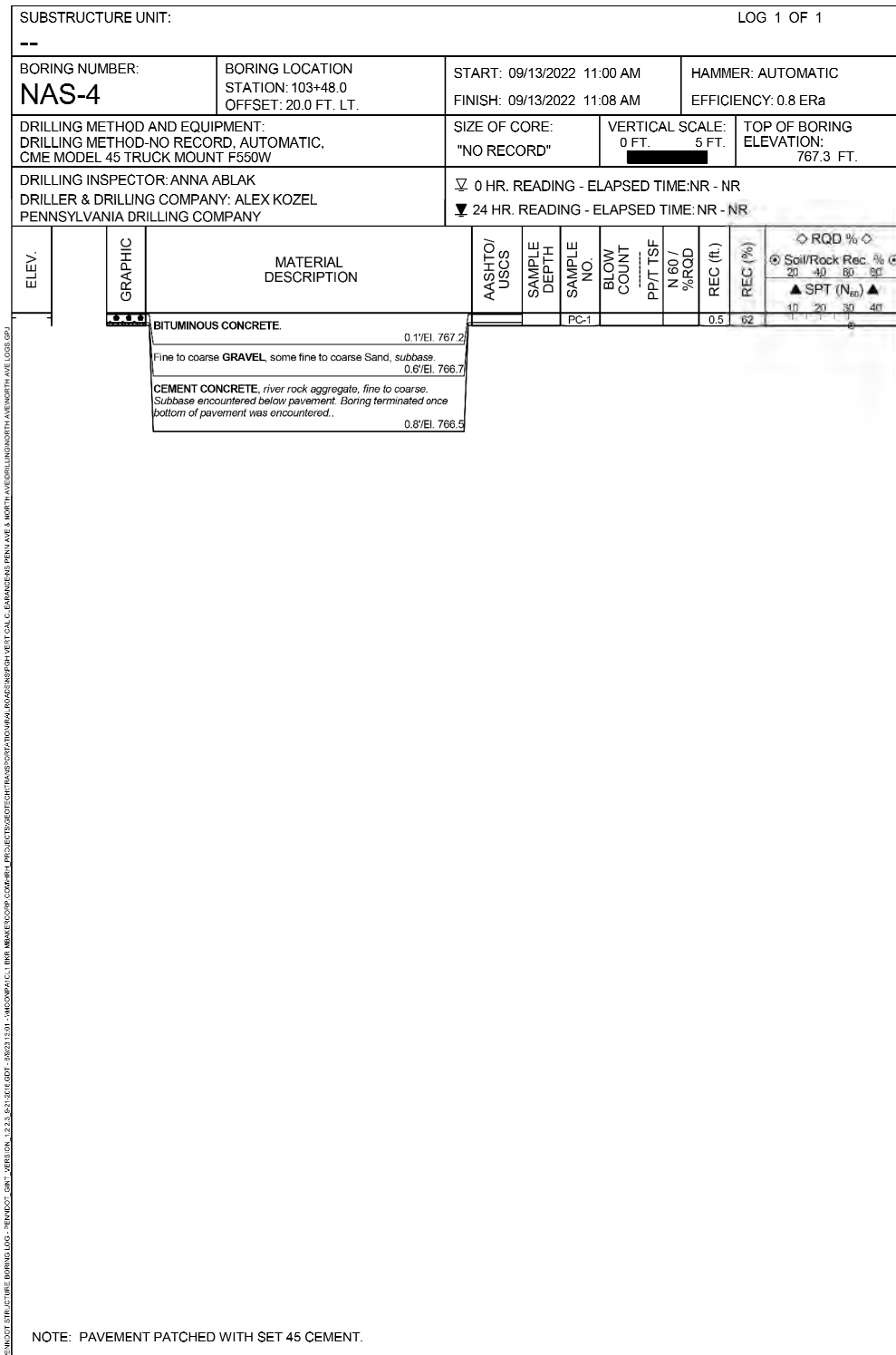
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
CORE BORINGS - 3			
OWN	DMB	RD No	DATE POST
OWN	WRB	FILE No	PC 1.60
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T TORVANE
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THE DESCRIPTIONS OF THE MATERIALS ENCOUNTERED HAVE BEEN VERIFIED.

SD

REFERENCES:

1. CORING BORINGS - 1
2. CORING BORINGS - 2
3. CORING BORINGS - 3
4. CORING BORINGS - 5
5. CORING BORINGS - 6

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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
CORE BORINGS - 4			
DRN	DMB	RD No	VRN
DRN	WRB	FILE No	BR0027858
CHK	ARC	DATE	9/11/2024
DRAWING NUMBER			PC-1.60
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GENERAL NOTES

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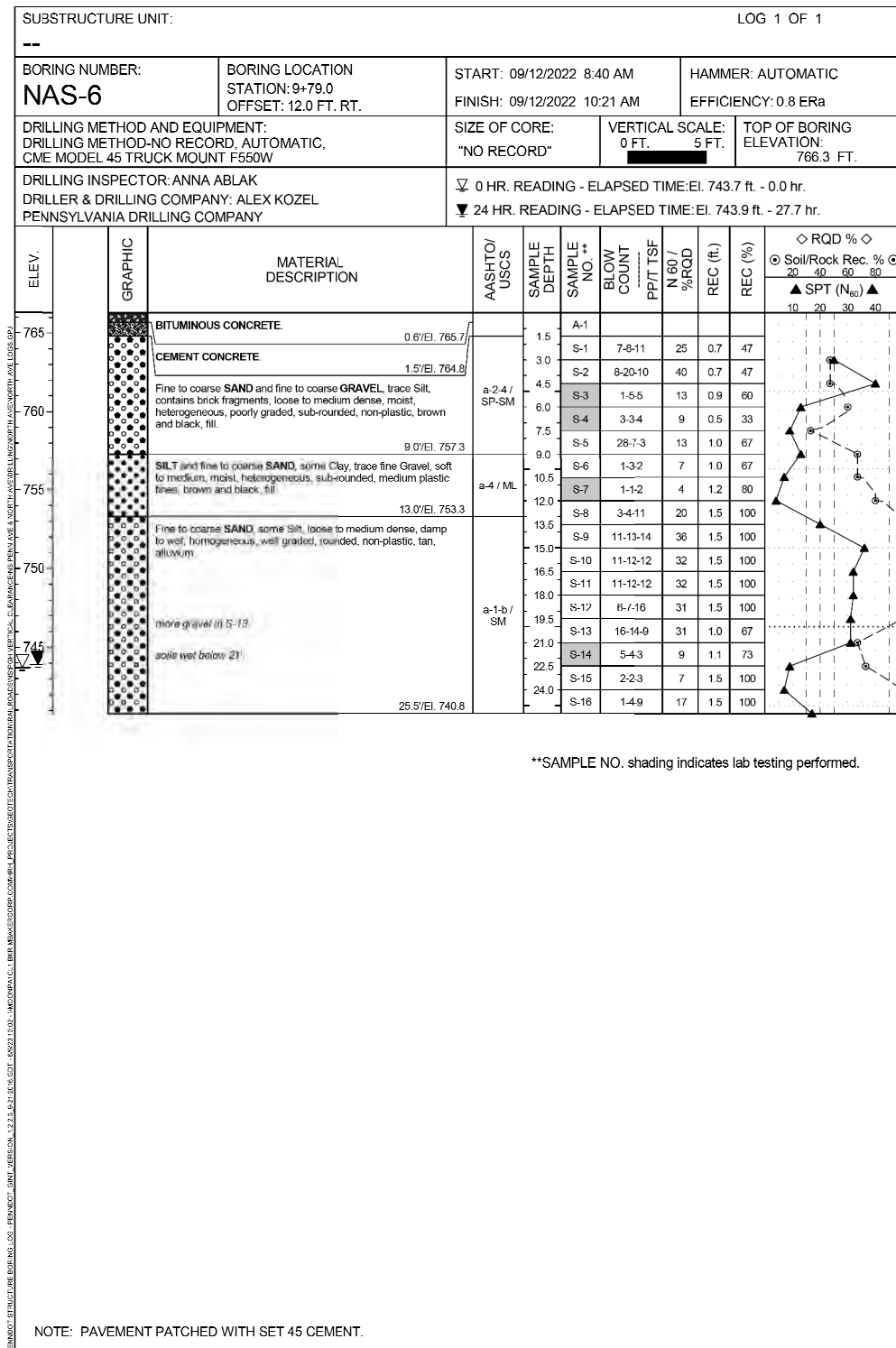
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- T TORVANE
- NTS NOT TO SCALE

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REFERENCES:

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3. CORING BORINGS - 3
4. CORING BORINGS - 4
5. CORING BORINGS - 6

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REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT CORE BORINGS - 5			
DWG	DMB	PD No.	VERN
DWG	WRB	FILE No.	BR0027858
CHK	ABC	DATE	9/11/2024
DRAWING NUMBER			PC-1.60
DRAWING NUMBER			PC-1.60 23 82

LABORATORY TEST SUMMARY - SOILS

BORING NUMBER	STATION & OFFSET	SAMPLE #	TEST DEPTH (FT.)	NATURAL MOISTURE %	% GRAIN SIZE DISTRIBUTION (AASHTO)							CLASSIFICATION		PLASTICITY PARAMETERS			SHEAR STRENGTH					
					GRAVEL %	SAND %	COARSE SAND %	FINE SAND %	SILT %	CLAY %	AASHTO	USCS	S.G.	LIQUID LIMIT	PLASTIC LIMIT	P. I.	C (TSF)	φ (DEG.)	C' (TSF)	φ' (DEG.)	TEST METHOD	
NAS-1A	10+41.0 28 ft. RT.	A-1	6.0 to 7.5	9.1	27.6	54.8			17.6				SM									
NAS-1A	10+41.0 28 ft. RT.	S-8	16.5 to 18.0	22.7	5.2	33.4			61.4				CL	34	13	21						
NAS-1A	10+41.0 28 ft. RT.	S-13 to 14	24.0 to 27.0	16.0	21.6	54.1			24.3				SM									
NAS-1A	10+41.0 28 ft. RT.	S-15	27.0 to 28.5	14.9																		
NAS-2	11+94.0 23 ft. RT.	S-1 to 5	1.5 to 9.0	12.3	22.8	36.7			40.5				SC	29	17	12						
NAS-2	11+94.0 23 ft. RT.	S-7	10.5 to 12.0	18.0	0.5	23.0			76.5				CL	37	13	24						
NAS-2	11+94.0 23 ft. RT.	S-10	15.0 to 16.5	10.6	22.6	53.2			24.2				SM									
NAS-6	9+79.0 12 ft. RT.	S-3 to 4	4.5 to 7.5	10.3	32.5	57.7			9.8				SP-SM									
NAS-6	9+79.0 12 ft. RT.	S-7	10.5 to 12.0	23.7	5.5	37.2			57.3				ML	36	16	20						
NAS-6	9+79.0 12 ft. RT.	S-14	21.0 to 22.5	22.5	0.0	65.4			34.6				SM									

GENERAL NOTES

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. REFER TO PUBLICATION 408 SECTION 102.05 FOR FURTHER INFORMATION.

FOR ADDITIONAL SOIL AND ROCK DESCRIPTIONS SEE PUBLICATION 222.

THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SUBSURFACE CONDITIONS MAY DIFFER FROM THE CONDITIONS REPORTED AT THE SPECIFIC LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE OF CONDITIONS AT THE BORING LOCATIONS.

LEGEND

PP POCKET PENETROMETER
T TORVANE
NTS NOT TO SCALE

LABORATORY TEST SUMMARY - ROCK CORE

BORING NUMBER	STATION & OFFSET	SAMPLE #	TEST DEPTH (FT.)	TEST	STRENGTH	JAR SLAKE TEST PERFORMED?	SLAKE DURABILITY INDEX & TYPE	ROCK RECOVERY %	RQD %	BEDROCK LITHOLOGY	STRATIGRAPHIC UNIT
NAS-2	11+94.0 23 ft. RT.	R-7	59.0 to 59.4	UNCONFINED COMPRESSIVE TEST	10670.0 PSI / 768.2 TSF	NO		100	38	SANDSTONE	GLENSHAW FORMATION

LABORATORY TEST SUMMARY - ELECTROCHEMICAL

BORING NUMBER	STATION & OFFSET	SAMPLE #	TEST DEPTH (FT.)	SAMPLE SOURCE	pH	MINIMUM RESISTIVITY (ohm-cm)	CHLORIDE CONTENT (ppm)	SULFATE CONTENT (ppm)	HIGH ORGANIC CONTENT?	CORROSIVE FOR CONCRETE?	CORROSIVE FOR STEEL?
NAS-5	10+15.0 11 ft. LT.	S-1 to 6	1.5 to 10.5	SOIL	9.2	1,200	403	1,035	No	Yes	Sulfates, Resistivity

Potentially Corrosive Environments per DM-4

Soil: Resistivity < 2,000 ohm-cm
2,000 ohm-cm < Resistivity < 5000 ohm-cm with sulfate concentration > 200 ppm
2,000 ohm-cm < Resistivity < 5000 ohm-cm with chloride concentration > 100 ppm
pH < 5.5
5.5 < pH < 8.5 in soils with high organic content
Sulfate > 1,000 ppm

Water: Chloride Content > 1000 ppm
Sulfate Content > 150 ppm
High Organic Content
pH < 5.5

Corrosive for Concrete: pH < 4 or Sulfates > 1000ppm

Refer to DM-4 for landfill and cinder fills, soils subject to mine or industrial drainage, and mixtures of high resistivity and low resistivity high alkaline soils

REFERENCES:

- CORING BORINGS - 1
- CORING BORINGS - 2
- CORING BORINGS - 3
- CORING BORINGS - 4
- CORING BORINGS - 5

SHEET:

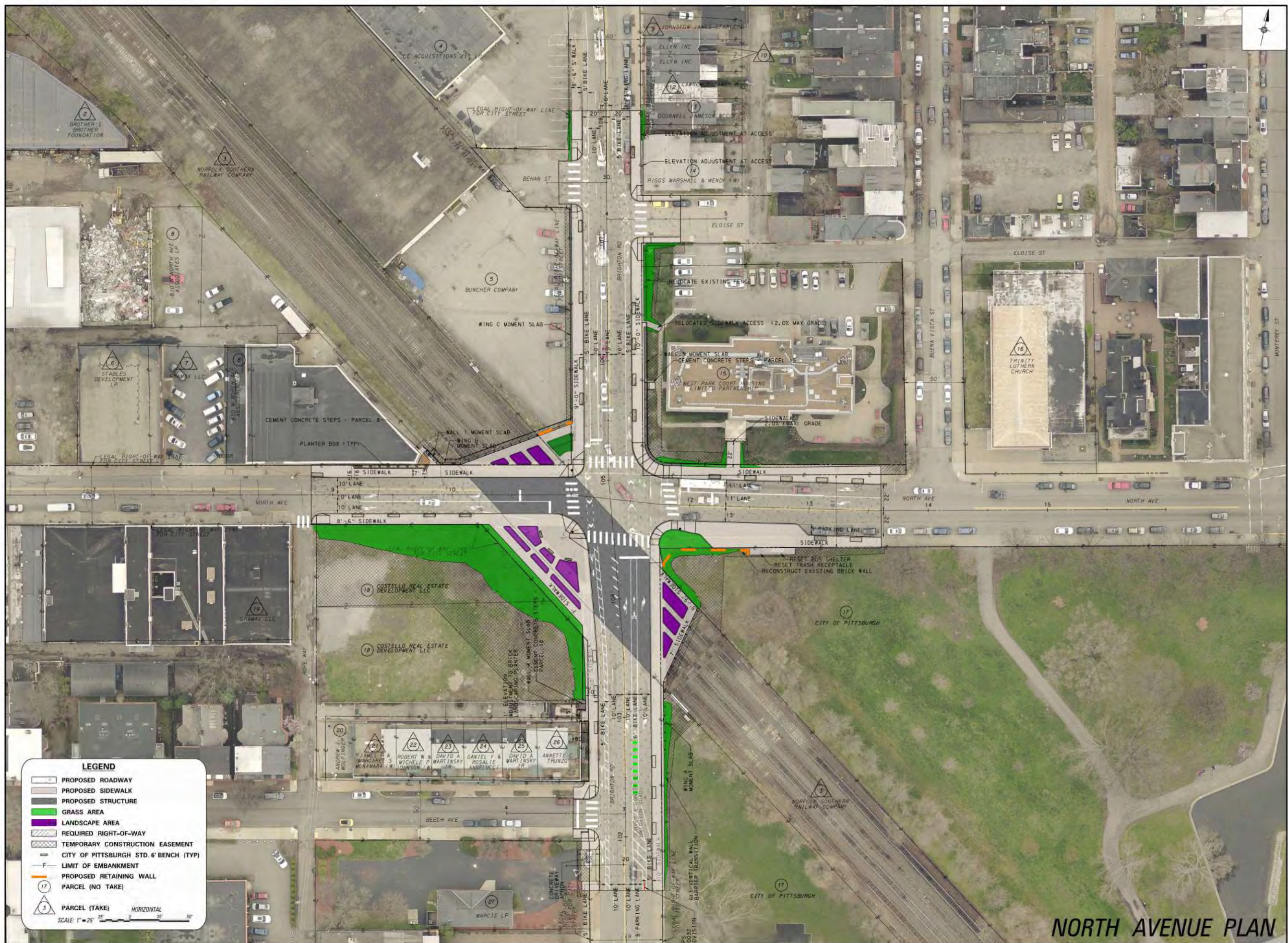
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- 79
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- 82

9/11/2024
NS_North_core_borings_06.dgn
3:00:02 PM

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM



REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE NORTH AVENUE BRIDGE REPLACEMENT CORE BORINGS - 6			
DWG	DMB	RD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/11/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23 83



LEGEND

- PROPOSED ROADWAY
- PROPOSED SIDEWALK
- PROPOSED STRUCTURE
- GRASS AREA
- LANDSCAPE AREA
- REQUIRED RIGHT-OF-WAY
- TEMPORARY CONSTRUCTION EASEMENT
- CITY OF PITTSBURGH STD. 6' BENCH (TYP)
- LIMIT OF EMBANKMENT
- PROPOSED RETAINING WALL
- PARCEL (NO TAKE)
- PARCEL (TAKE)

SCALE: 1" = 25'

HORIZONTAL

NORTH AVENUE PLAN

**W. NORTH AVENUE OVER NSRC
CITY OF PITTSBURGH**



ARCHITECTURAL TREATMENT

DESCRIPTION—This work is the installation of recessed architectural panels on bridge, retaining wall, moment slab, and barrier surfaces, and treatment of concrete surfaces after form removal.

MATERIAL –

- Forms – Section 1001.

CONSTRUCTION—Perform this work in accordance with Sections 1001 and 1019, and as follows:

Forming and Surface Preparation

- Construct forms for the areas to receive architectural treatment in accordance with Section 1001. Use smooth, flat material to construct forms. Use a form release agent(s) which will not be interfere with future bond of concrete sealers.
- Construct panels in accordance with the details shown on the contract drawings. In general:
 - Architectural panels to be inset 3/4-inch, with a 3/4-inch by 3/4-inch chamfer all around the perimeter of the panel.
 - Edges of inset panels along existing or proposed ground lines to follow the proposed ground line. Top edges to follow the grade of the structural element. Edges along each side of each inset panel to be plumb vertical.
- After removal of concrete forms, provide a conventional finish per Section 1001.3(k)10.a within the inset panel areas.

Sealing

- Cure new concrete for a minimum of 28 curing days prior to applying sealers. Clean new and existing concrete surfaces of residual dirt, debris, curing agents, retarder/accelerator residues, form release agents, and any other residues detrimental to the bond of the sealer(s).
- Seal portions of the bridge superstructure and substructure, Wing C retaining wall, and moment slabs in accordance with the sealing diagrams provided in the contract drawings. Seal surfaces adjacent to the ground line to the bottom of the surface to be sealed or 3 feet below the proposed ground line, whichever is less.
- Provide tinted epoxy resin protective coatings as follows:
 - For barriers and moment slabs, provide a sandstone color which closely matches the concrete sealer color of the West Ohio Street Bridge to the southeast.
 - For exposed sides and bottoms of fascia beams, provide a dark gray color which closely matches the steel plate girder color of the West Ohio Street Bridge to the southeast.
 - Provide color samples on a minimum 6-inch by 6-inch surface to the Representative for the City's review and approval.
- Do not tint penetrating sealers to be used on superstructure and substructure surfaces.

Final Acceptance

- The Engineer and the Representative will perform a final inspection with the Contractor. The final inspection will be used to accept the final coating and identify any areas that require repair or additional treatment.
- Correct defects and deficiencies prior to final acceptance. Correct defects and deficiencies in accordance with the sealer manufacturers' recommendations.

MEASUREMENT AND PAYMENT –

This work is incidental to the lump sum structure item.

Estimated quantity is measured as the total area of exposed, formed area (not actual area of architectural inset panels).

Pollution control(s) required during application of sealers and coatings are incidental to the lump sum structure item.

ATTACHMENT 3

Project Specifications: Reconstruction of Missing Brick Garden Wall in Allegheny Commons Historic District

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GENERAL

METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND IMPLEMENTING THE NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT EACH STAGE OF CONSTRUCTION.

TEMPORARY BRACING, SHEETING, SHORING, ETC, REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY/STABILITY OF THE EXISTING BUILDINGS, SIDEWALKS, UTILITIES, ETC, DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR.

IMPLEMENTATION OF JOB SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

DO NOT SCALE DRAWINGS.

THIS STRUCTURAL SHEET GOVERNS THE WORK FOR STRUCTURAL FEATURES, UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ON PLANS AND DETAILS ARE TO GOVERN THE STRUCTURAL WORK. THE CONTRACTOR IS TO REFER TO THE FULL DRAWING PACKAGE FOR DIMENSIONS AND DETAILS NOT PROVIDED ON THIS SHEET. DIMENSIONAL CONFLICTS IN THE DOCUMENTS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, SPECIFICATIONS, DRAWINGS, OR WITHIN THESE DOCUMENTS, THE MOST STRINGENT REQUIREMENTS AS DETERMINED BY THE ENGINEER WILL GOVERN.

WORK NOT INDICATED ON A PART OF THE DRAWINGS, BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING LOCATIONS, IS TO BE REPEATED.

EXISTING WALL INFORMATION SHOWN IS BASED UPON EXISTING DOCUMENTS AND/OR FROM FIELD OBSERVATION. THE INFORMATION CONTAINED HEREIN MAY REQUIRE ADJUSTMENTS AND/OR MODIFICATIONS TO CONFORM TO EXISTING CONDITIONS. THE CONTRACTOR MUST FIELD VERIFY THE EXISTING WALL INFORMATION SHOWN IN ITS ENTIRETY (DIMENSIONS, ELEVATIONS, ETC) AND NOTIFY THE ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION OF STRUCTURAL COMPONENTS.

FOUNDATIONS

FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE INFORMATION SHOWN ON EXISTING BUILDING DRAWINGS. NO NEW GEOTECHNICAL REPORT AND RECOMMENDATIONS HAVE BEEN PROVIDED FOR THIS PROJECT.

FOUNDATIONS MUST BE PLACED ON UNDISTURBED SOIL OR COMPACTED FILL CONFORMING TO 95% STANDARD DENSITY PER ASTM D 698.

THE CONTRACTOR IS TO RETAIN THE SERVICES OF A PROFESSIONAL GEOTECHNICAL ENGINEER, SUBJECT TO THE APPROVAL OF THE OWNER, TO VERIFY THAT THE MATERIAL ON WHICH FOUNDATIONS BEAR HAS AT LEAST THE CAPACITY AS NOTED IN THE DESIGN CRITERIA. THE GEOTECHNICAL ENGINEER IS TO MAKE RECOMMENDATIONS FOR IMPROVING AREAS THAT DO NOT MEET THE DESIGN CRITERIA.

EXTERIOR FOOTINGS ARE TO BEAR A MINIMUM OF 42 INCHES BELOW FINISHED GRADE. ELEVATIONS SHOWN ON THE DRAWINGS AT WHICH FOUNDATIONS BEAR ARE APPROXIMATE AND MAY VARY TO SUIT SUBSURFACE SOIL CONDITIONS. STEP-IN FOOTING LOCATIONS SHOWN ON THE DRAWINGS MUST BE FIELD VERIFIED AND ADJUSTED SO THAT FOUNDATIONS BEAR ON MATERIAL OF AT LEAST THE CAPACITY NOTED ABOVE.

PRIOR TO PLACING CONCRETE, WATER PRESENT MUST BE PUMPED OUT FROM THE BOTTOM OF EXCAVATIONS.

REINFORCED CONCRETE

REINFORCED CONCRETE WORK MUST BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE - ACI 318" (LATEST EDITION) AND THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS- ACI 301" (LATEST EDITION).

MIXING, TRANSPORTING, PLACING AND TESTING OF CONCRETE MUST BE DONE IN ACCORDANCE WITH ACI 301.

PRIOR TO CONCRETE PLACEMENT, THE CONTRACTOR MUST SUBMIT CONCRETE MIX DESIGNS FOR EACH TYPE OF CONCRETE TO BE USED, PREPARED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, TO THE ENGINEER FOR REVIEW.

CAST-IN-PLACE CONCRETE MUST HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c) = 3000 PSI AND CEMENT CONFORMING TO ASTM C 150, TYPE I OR II.

THE SLUMP AT POINT OF PLACEMENT IS NOT TO EXCEED 4" ±1" AND THE WATER/CEMENT RATIO IS NOT TO EXCEED 0.45. IF ADDITIONAL SLUMP (UP TO 8") IS DESIRED FOR PUMPING, A SUPER-PLASTICIZER ADMIXTURE MAY BE ADDED.

REINFORCED CONCRETE (CONT' D)

THE SLUMP AT POINT OF PLACEMENT IS NOT TO EXCEED 4" ±1" AND THE WATER/CEMENT RATIO IS NOT TO EXCEED 0.45. IF ADDITIONAL SLUMP (UP TO 8") IS DESIRED FOR PUMPING, A SUPER-PLASTICIZER ADMIXTURE MAY BE ADDED.

CONCRETE SHALL BE AIR ENTRAINED IN ACCORDANCE WITH ACI RECOMMENDATIONS. AIR ENTRAINING ADMIXTURE MUST CONFORM TO ASTM C260.

REINFORCEMENT:
A. DEFORMED BARS: ASTM A615/A615M, GRADE 60

REINFORCEMENT MUST BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE ACI "DETAILING MANUAL NO. SP-66" (LATEST EDITION).

SPLICES (LAPS) OF REINFORCING BARS MUST BE CLASS 'B' TENSION LAPS PER ACI 318 (LATEST EDITION) UNLESS NOTED OTHERWISE.

PROVIDE 3" CONCRETE COVER AT FOUNDATIONS.

REINFORCEMENT MUST BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS WILL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR BARS WHERE NECESSARY DURING CONSTRUCTION.

HOOKEED BARS TO HAVE STANDARD ACI HOOKS UNLESS NOTED OTHERWISE.

SLEEVES, INSERTS, MECHANICAL OPENINGS, CONDUITS, PIPES, RECESSES, DEPRESSIONS, CURBS AND OTHER EMBEDDED ITEMS MUST BE PROVIDED AS SHOWN IN THESE DRAWINGS AND BY EQUIPMENT MANUFACTURERS. INSTALLATION OF THESE ITEMS MUST BE COORDINATED AND PROVIDED FOR PRIOR TO PLACING CONCRETE.

MASONRY

MASONRY WORK MUST BE IN CONFORMANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE FOR MASONRY STRUCTURES-ACI 530" (LATEST EDITION) AND THE "SPECIFICATIONS FOR MASONRY STRUCTURES-ACI 530.1" (LATEST EDITION).

MORTAR TO CONFORM TO ASTM C 270, TYPE M OR S.
A. PORTLAND CEMENT: ASTM C 150, TYPE I.
B. LIME: ASTM C 207

GROUT IS TO CONFORM TO ASTM C 476 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
A. SLUMP: 8 TO 10 INCHES.
B. MAXIMUM AGGREGATE SIZE: 3/8".

CONCRETE MASONRY TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF MASONRY (f'm) OF 2,000 PSI AND:
A. HOLLOW BLOCKS: ASTM C 90, NORMAL WT.
B. SOLID BLOCKS: ASTM C 90.

HORIZONTAL JOINT REINFORCING TO BE SPACED AT 16" OC IN WALLS UNO AND MUST BE GALVANIZED, STANDARD CLASS, LADDER TYPE, CONFORMING TO ASTM A951. SIDE RODS TO BE 3/16" WITH NO. 9 CROSS RODS UNO. PROVIDE LAP AS RECOMMENDED BY THE MANUFACTURER WITH A MINIMUM OF 6". DISCONTINUE HORIZONTAL JOINT REINFORCING AT CONTROL JOINTS.

MASONRY TO BE CONSTRUCTED USING A RUNNING BOND PATTERN AT CMU BLOCK AND FLEMISH BOND PATTERN AT BRICK VENEER. FULL BED AND HEAD JOINTS MUST BE USED.

REINFORCING TO BE DISCONTINUOUS AT MASONRY CONTROL JOINTS UNLESS NOTED OTHERWISE.

CONTROL JOINT SPACING IN MASONRY WALLS MUST BE PROVIDED A MAXIMUM OF 24'-0" ON CENTER.

DOWEL REINFORCED MASONRY WALLS TO FOUNDATION. SIZE DOWELS TO MATCH WALL REINFORCEMENT. LOCATE DOWELS IN CELLS TO CONTAIN WALL REINFORCEMENT. LAP DOWELS WITH WALL REINFORCEMENT A MINIMUM OF 48 BAR DIAMETERS UNO.

DURING CONSTRUCTION, COVER AND PROTECT THE TOPS OF MASONRY WALLS AT THE END OF EACH DAY.

CORNERS AND INTERSECTIONS TO BE TIED BY MASONRY BOND.

PROVIDE VERTICAL BRICK CONTROL JOINTS AS INDICATED IN THE DRAWINGS.

SPACE BRICK VENEER ANCHORS NO MORE THAN 16" OC VERTICALLY AND 24" OC HORIZONTALLY.

DESIGN CRITERIA

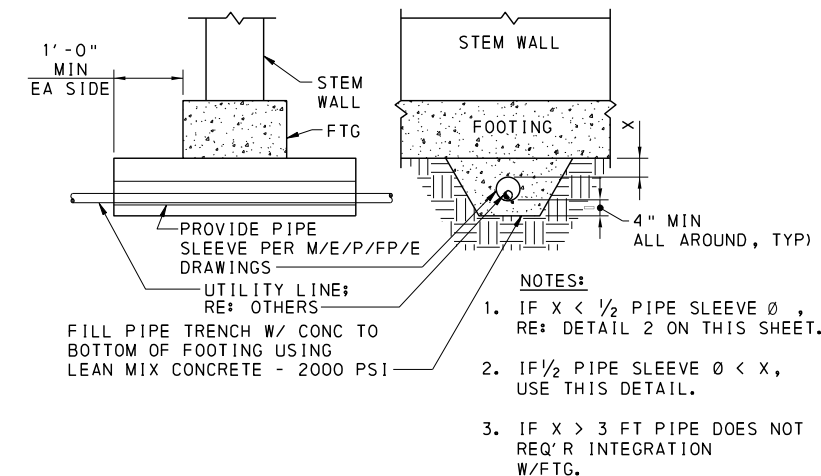
BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC) 2021

LATERAL LOAD DESIGN CRITERIA

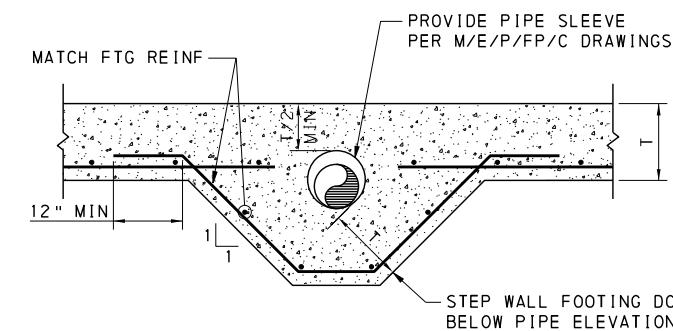
- A. RISK CATEGORY II
- B. WIND DESIGN CRITERIA
 - 1. BASIC DESIGN WIND SPEED (V) 110 MPH
 - 2. ALLOWABLE DESIGN WIND SPEED (VSD) 86 MPH
 - 3. EXPOSURE CATEGORY C
 - 4. SOLID FREESTANDING WALLS AND SOLID SIGNSQZ=22.4 PSF
 - 5. ANALYSIS METHOD: DIRECTIONAL PROCEDURE
- C. SEISMIC DESIGN CRITERIA
 - 1. SEISMIC IMPORTANCE FACTOR (IE) 1.0
 - 2. SITE CLASS (ASSUMED)
 - 3. SHORT PERIOD SPECTRAL ACCELERATION (SS) 0.110
 - 4. ONE SECOND SPECTRAL ACCELERATION (S1) 0.049
 - 5. SHORT PERIOD RESPONSE ACCELERATION (SDS) 0.095
 - 6. ONE SECOND RESPONSE ACCELERATION (SD1) 0.070
 - 7. SEISMIC DESIGN CATEGORY B

FOUNDATION DESIGN CRITERIA

- A. FOUNDATION DESIGN IS BASED UPON THE FOLLOWING SOIL PARAMETERS:
 - 1. NET ALLOWABLE SOIL BEARING PRESSURE:
 - A. CONTINUOUS FOOTINGS 3000 PSF
- B. FROST DEPTH: 42 INCHES

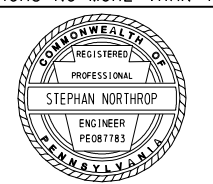


1 TYPICAL UTILITY PIPE UNDER WALL FTG
NOT TO SCALE



2 TYPICAL UTILITY PIPE THRU WALL FTG
NOT TO SCALE

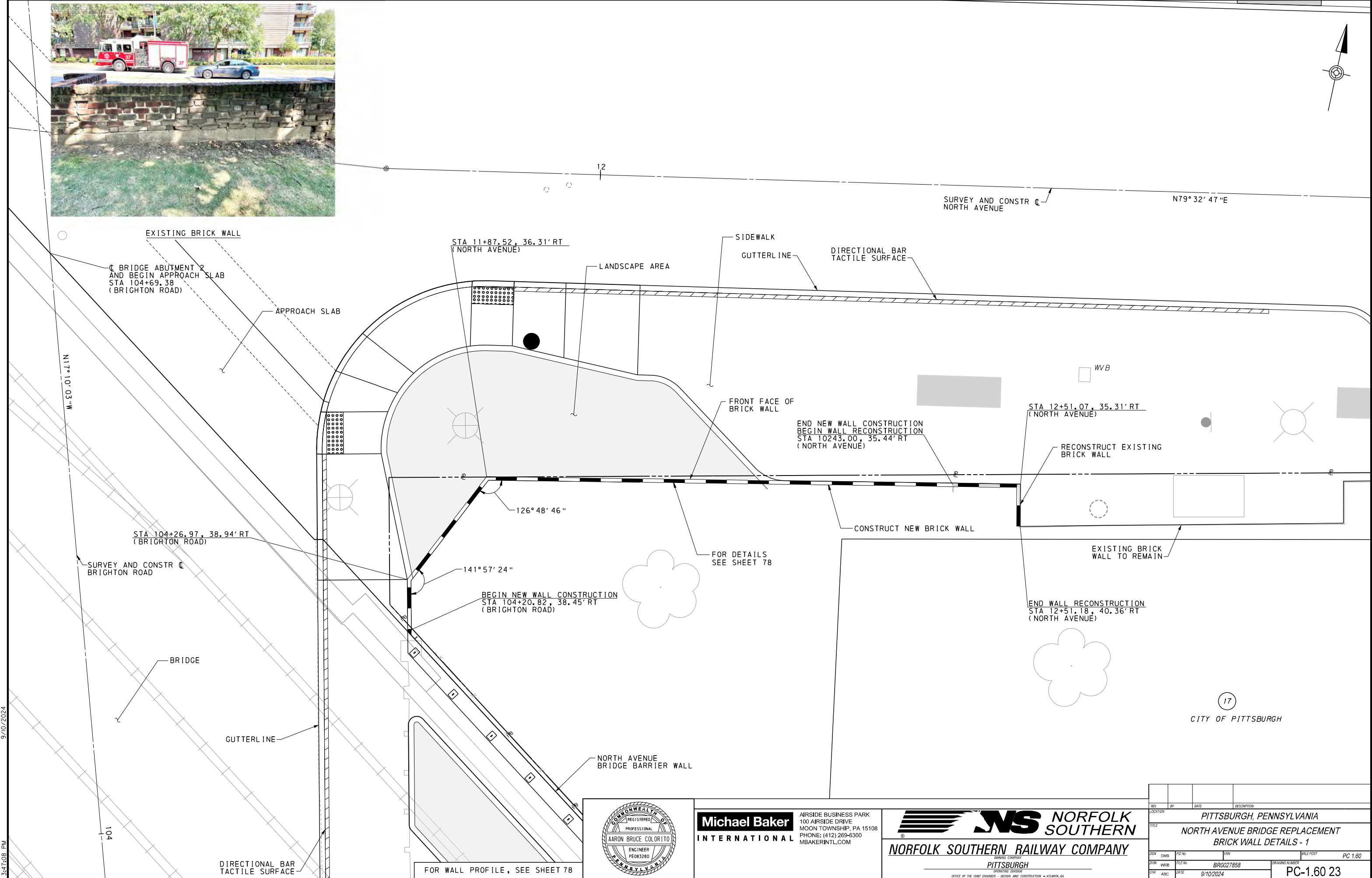
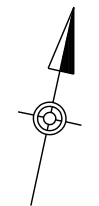
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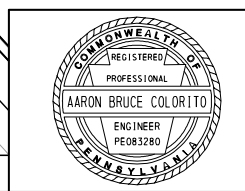
Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
MBAKERINTL.COM

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: NORTH AVENUE BRIDGE REPLACEMENT BRICK WALL GENERAL NOTES AND DETAILS			
DRW	DMB	FD/No	VERN
DRW	WRB	FILE No	BR0027858
CHK	SMN	DATE	9/10/2024
			SCALE POST: PC 1.60
			DRAWING NUMBER: PC-1.60 23



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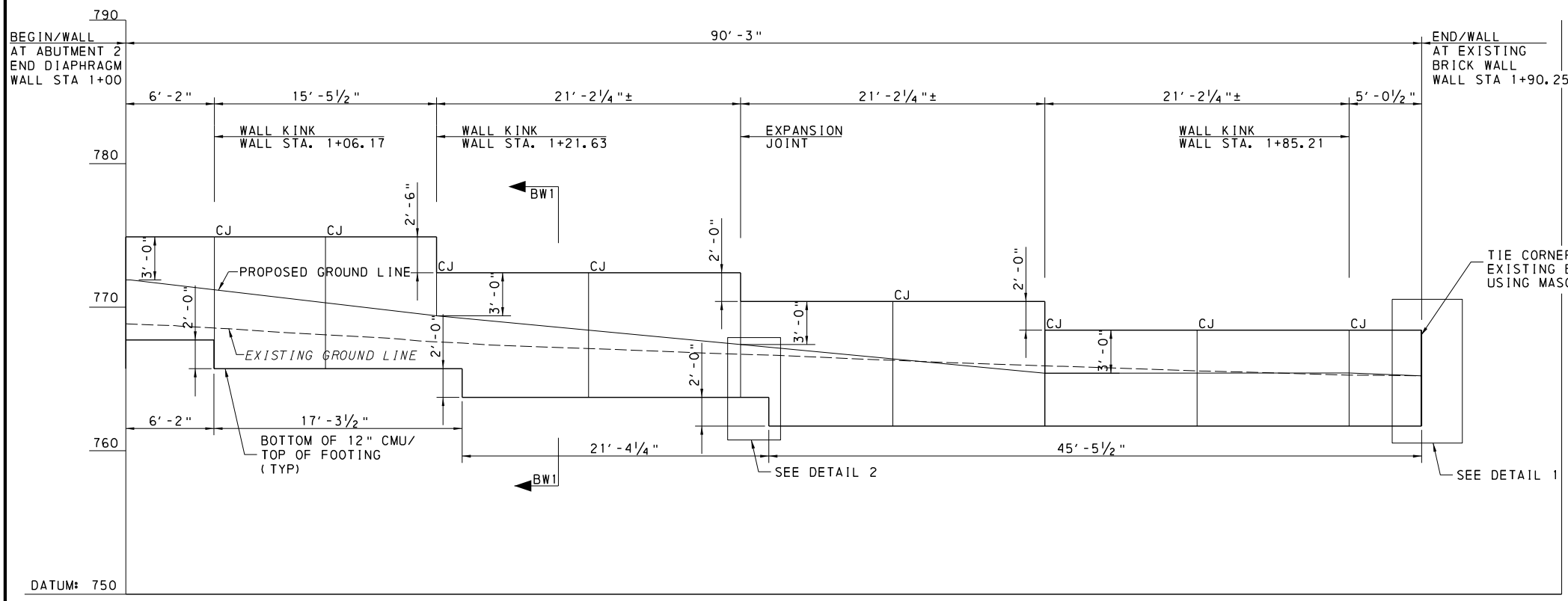


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 AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
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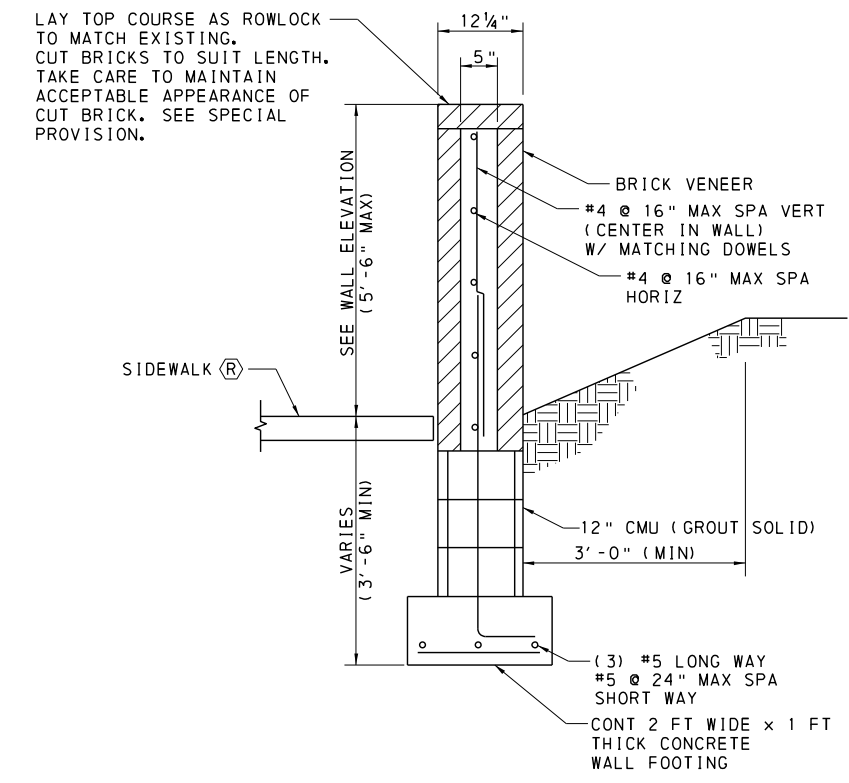


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TITLE NORTH AVENUE BRIDGE REPLACEMENT BRICK WALL DETAILS - 1			
DWG	DMB	PD/No	VERN
DWG	WRB	FILE No	BR0027858
CHK	ABC	DATE	9/10/2024
SCALE POST			PC 1.60
DRAWING NUMBER			PC-1.60 23

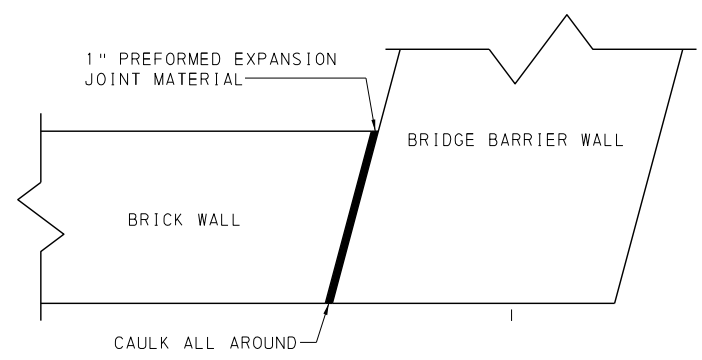
FOR WALL PROFILE, SEE SHEET 78



BRICK WALL DEVELOPED ELEVATION
NOT TO SCALE

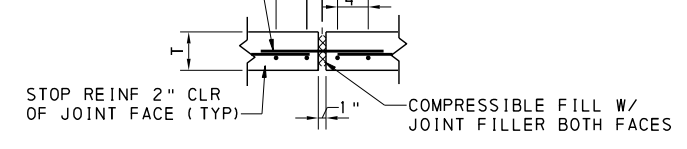


SECTION BW1-BW1
SCALE: 3/4" = 1'-0"



WALL END AT BRIDGE
NOT TO SCALE

DRILL & PLACE 1/2" DIA X 16" LG SMOOTH DOWELS INTO EXIST WALL @ 1'-0" O.C. GREASE END TO BE CAST, CENTER ON JOINT



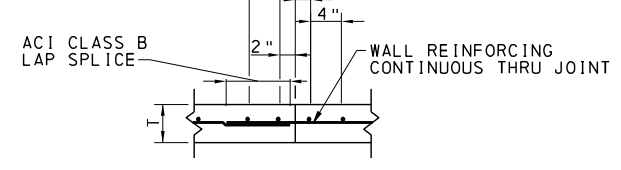
EXPANSION JOINT (@ 75'-0" MAX)



"U" JOINT

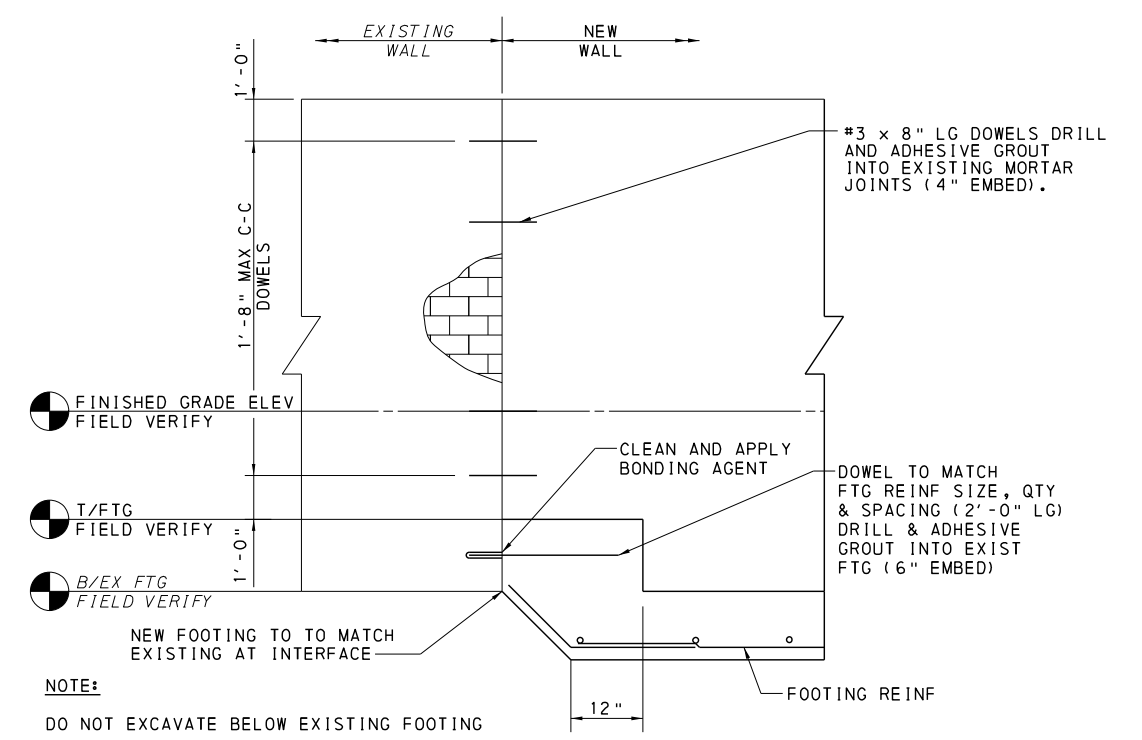
"U" JOINT BOTH SIDES & SEALANT (EXTERIOR ONLY) PROVIDE LAP ON CONT BAR WHEN USED AS A CONST JOINT

CONTROL JOINT (@ 25'-0" OC MAX)

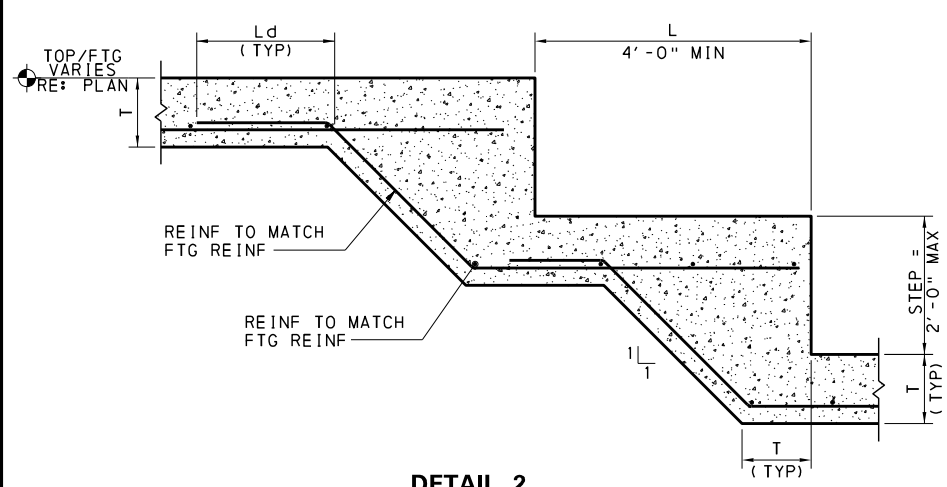


CONSTRUCTION JOINT

TYP CONC WALL JOINT DETAILS ("U" JOINT)
NOT TO SCALE



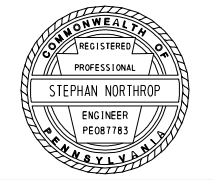
DETAIL 1
SCALE: 3/4" = 1'-0"



DETAIL 2 TYPICAL FOOTING STEP
NOT TO SCALE

- LEGEND:**
- CJ CONTROL JOINT
 - CNS REAR FACE
 - (R) ROADWAY ITEM

FOR WALL PLAN, SEE SHEET 77



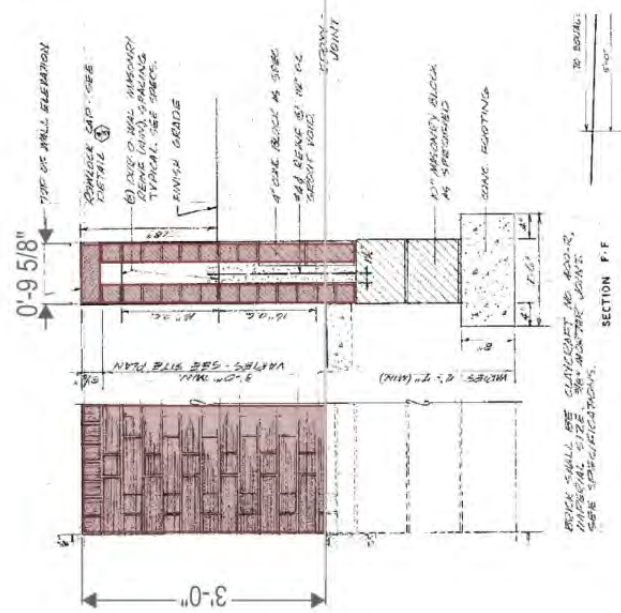
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300
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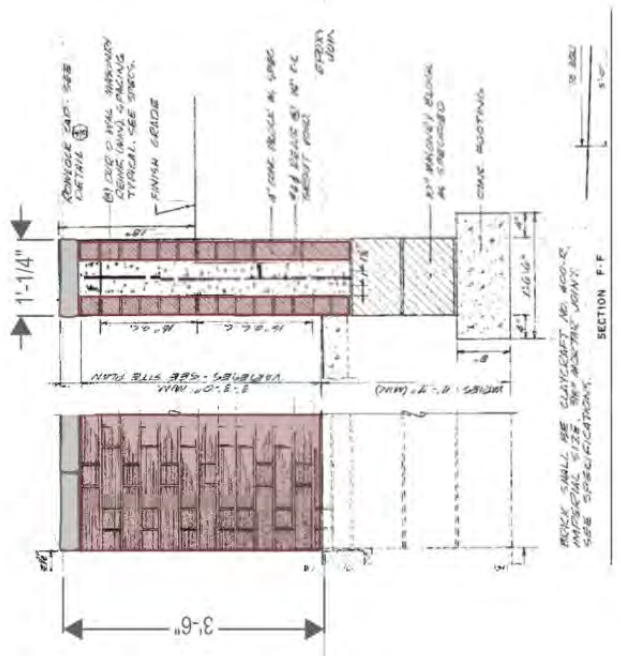
REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
NORTH AVENUE BRIDGE REPLACEMENT			
BRICK WALL DETAILS - 2			
OWN	DMB	PD/No	WVN
OWN	WRB	FILE No	BR0027858
CHK	SMN	DATE	9/10/2024
			SCALE POST
			PC 1.60
			DRAWING NUMBER
			PC-1.60 23

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EXISTING 36" HIGH X 9 5/8" THICK



PROPOSED 42" HIGH X 12 1/4" THICK

ITEM 9000-0002 – RECONSTRUCT EXISTING BRICK WALL

DESCRIPTION – This work is the partial reconstruction of the existing brick wall, and the construction of new brick wall in accordance with applicable portions of Sections 202, 205, 663, and 1001 within Parcel 17 as indicated and directed.

Excavation to expose existing footings and restoration of the ground surface to existing and proposed grades is incidental to this item.

Placement of sidewalks, subgrade, topsoil, and seeding is included in other items.

MATERIAL –

- Brick Masonry – Section 713.1(b).
 - Provide brick similar in size and appearance to the existing wall brick masonry units.
 - Submit samples of proposed brick masonry to the Representative for review and approval prior to ordering material.
 - Reclaimed brick is permitted with the approval of the Representative. Reclaimed brick must be free of defects and adhered material that would be detrimental to mortar bond.
- Concrete Masonry – ASTM C90, with a minimum 28-day unconfined compressive strength (f'_m), of 2,000 psi.
- Class A Cement Concrete – Section 704.
- Dowel Holes – Section 1003.
- Epoxy Anchoring System – Bulletin 15 and manufacturer's recommendations.
- Forms – Section 1001.2(h).
- Grout – ASTM C476, with a minimum slump of 8 inches, maximum aggregate size of 3/8-inch, and minimum unconfined compressive strength (f'_c) of 3,000 psi at 28 days.
- Horizontal Joint Reinforcement – ASTM A951, galvanized, standard class, ladder-type.
- Mortar – ASTM C270, Type M or S.
 - Color and texture similar to existing brick wall mortar.
 - Submit samples of proposed mortar to the Representative for review and approval prior to ordering material.
- Reinforcement Bars, Epoxy Coated – Section 709.
- Structure Backfill – Section 205.

CONSTRUCTION – Per the applicable portions of Sections 202, 205, 663, and 1001 and as follows:

- Excavate as indicated and directed to expose the ends of the existing brick wall and concrete wall footing. Perform excavation in accordance with Section 663.3(a).
- Remove portions of the existing brick wall as indicated in the contract plans. Carefully salvage existing brick and store on site for re-use. Completely remove brick masonry, concrete, and footings as indicated to neat lines.
- Form and place proposed brick wall footing to the line and grades indicated. Bottom of footing to be a minimum of 42 inches below existing and proposed ground lines. Adjustment of the footing steps is permitted with the permission of the Representative. Construct the footing in accordance with Section 1001.
- Place concrete and brick masonry units as indicated. Drill dowel holes and install dowels with epoxy anchoring system as indicated, per the epoxy anchoring system

manufacturer's recommendations between existing and proposed walls. Concrete masonry units to be fully below the proposed ground lines. Construct concrete and brick masonry portions of the wall with a running bond pattern. Point mortar joints in a manner matching the existing mortar joints.

- Grout wall solid and place rowlock brick masonry headers to completely encapsulate the wall with a brick masonry veneer.
- Cure the wall in accordance with Section 663.3(f).
- Backfill with Structure Backfill to the level of the bottom of the adjacent subgrade and/or topsoil.

MEASUREMENT AND PAYMENT – LUMP SUM.

This item includes all miscellaneous items required to perform this work, including required access equipment and any temporary support of the existing masonry wall.

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ATTACHMENT 4

Project Plans and Illustrations: Allegheny Commons Pedestrian Bridge

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**NORFOLK
SOUTHERN**

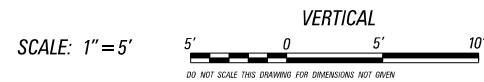
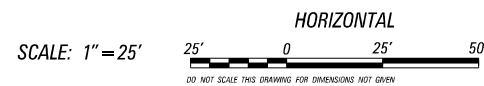
9/5/2024

5:57:30 PM

**DRAWING FOR CONSTRUCTION OF
PITTSBURGH SUBDIVISION VERTICAL CLEARANCE PROJECT
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE**

IN ALLEGHENY COUNTY
PEDESTRIAN WALKWAY
FROM STA 7+75.00 TO STA 12+50.00 LENGTH 318.99 FT 0.060 MI

PUC APPLICATION DOCKET NUMBER _____



**90%
SUBMISSION**

**Michael Baker
INTERNATIONAL**

AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-8300



REV	BY	DATE	DESCRIPTION
LOCATION PITTSBURGH, PENNSYLVANIA			
TITLE ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE TITLE SHEET			
DESIGNER	JAH	PRO No.	D2122
DATE	9/5/2024	PROJ No.	1290818-0477
SCALE	PC-1.50	DATE	9/5/2024
FILE No.	BR0027857	DATE	9/5/2024
DATE	9/5/2024	DATE	9/5/2024
DATE	9/5/2024	DATE	9/5/2024

LIST OF PUBLIC UTILITIES

LEGEND	UTILITY COMPANY	REPRESENTATIVE	TELEPHONE	MAILING ADDRESS
— CTV —	COMCAST CABLE COMMUNICATIONS, INC	JERRY FREEMAN jerry.freeman@comcast.com	412-999-0590	COMCAST CABLE COMMUNICATIONS, INC 300 CORLISS ST PITTSBURGH, PA 15220
— EU —	DUQUESNE LIGHT CO.	JIM RUNATZ jrunatz@duqlight.com	CELL: 412-855-9950 OFC: 412-393-6411	DUQUESNE LIGHT COMPANY 2841 NEW BEAVER AVENUE MAIL DROP N6-CS PITTSBURGH, PA 15233
— FOU —	LUMEN (FORMERLY CENTURY LINK LEVEL 3 AND OR QWEST COMMUNICATIONS)	ZAC BAIRD zbaird@networkconnex.com RICHARD WILLIAMS richard.l.williams@lumen.com	412-999-0726 717-917-6434	QUEST COMMUNICATIONS 100 W. STATION SQUARE DRIVE SUITE 1 PITTSBURGH, PA 15219
— FOU —	ELANTIC NETWORKS, INC.	JAY FERESE j.ferese@windstream.com	412-804-8295	ELANTIC NETWORKS, INC. ALLEGHENY CENTER MALL SUITE 108 PITTSBURGH, PA 15212
— G —	PEOPLES GAS COMPANY	GARY BAIRD gbaird@isse.com	724-837-1057 x104	PEOPLES GAS COMPANY 200 ALLEGHENY CENTER MALL PITTSBURGH, PA 15212
— W —	PITTSBURGH WATER AND SEWER AUTHORITY	BEN GRUNAUER bgrunauer@pgh2o.com	570-269-7130	PITTSBURGH WATER & SEWER AUTHORITY PENN LIBERTY PLAZA 1 1200 PENN AVENUE PITTSBURGH, PA 15222-4204
— S/L U —	CITY OF PITTSBURGH DEPARTMENT OF MOBILITY AND INFRASTRUCTURE	DEL MCELHANEY delmas.mcelhaneyp@pittsburghpa.gov	412-255-2871	PITTSBURGH CITY - DEPARTMENT OF PUBLIC WORKS 414 GRANT ST STE 301, PITTSBURGH, PA 15219
— FOU —	CROWN CASTLE (FORMERLY SUNESYS)	CHUCK VERI chuck.veri2@crowncastle.com	412-273-5385	CROWN CASTLE FIBER 1500 CORPORATE DR. CANONSBURG, PA 15317
— FOU —	T CUBED (WILLIAMS TELECOM)	NEAL BROWN Neal.Brown@nscorp.com MIKE BOREM Mike.Borem@nscorp.com	404-529-1349 770-344-8802	NORFOLK SOUTHERN RAILWAY 1200 PEACHTREE STREET NE BOX 142 ATLANTA, GEORGIA 30309
— FOU —	WINDSTREAM COMMUNICATIONS	JASON WOODYSHEK jason.woodyshek@windstream.com LISA ZINGULA lisa.zingula@windstream.com		WINDSTREAM ENTERPRISE 650 SMITHFIELD STE 800 PITTSBURGH PA 15222
— T —	VERIZON PENNSYLVANIA, INC.	GARY REDONDO gary.redondo@verizon.com	412-237-2293	VERIZON PENNSYLVANIA, INC. NETWORK ENGINEERING PITTSBURGH 201 STANWIX STREET 4TH FLOOR PITTSBURGH, PA 15222

PRELIMINARY NOTICE: ONE CALL SERIAL NO 298920220209 FOR CITY OF PITTSBURGH, 22ND WARD, ALLEGHENY COUNTY PENNSYLVANIA ONE CALL SYSTEMS INC 1-800-242-1776

FINAL NOTICE: ONE CALL SERIAL NO FOR CITY OF PITTSBURGH, 22ND WARD, ALLEGHENY COUNTY PENNSYLVANIA ONE CALL SYSTEMS INC 1-800-242-1776

TABULATION OF OVERALL LENGTH

PEDESTRIAN WALKWAY STA 7+75.00 TO STA 12+50.00 = 475.00 FT = 0.090 MI

TABULATION OF CONSTRUCTION LENGTH

PEDESTRIAN WALKWAY STA 8+53.06 TO STA 11+72.05 = 318.99 FT = 0.060 MI

LIST OF STATION EQUALITIES

NONE

DETAILS, OTHER THAN THOSE INDICATED, ARE ON THE FOLLOWING PENNDOT STANDARD DRAWINGS:

RC-10M	JUN	1, 2010	BC-701M	FEB	19, 2021
RC-11M	JUN	1, 2010	BC-709M	FEB	19, 2021
RC-12M	NOV	1, 2022	BC-721M	FEB	19, 2021
RC-13M	JUN	1, 2010	BC-735M	SEPT	30, 2016
RC-23M	FEB	8, 2019	BC-736M	JAN	31, 2019
RC-67M	FEB	19, 2021	BC-752M	FEB	19, 2021
RC-70M	FEB	8, 2019	BC-755M	JAN	31, 2019
RC-72M	FEB	8, 2019	BC-783M	JAN	31, 2019
RC-75M	JUN	1, 2010	BC-788M	JAN	31, 2019
RC-77M	DEC	17, 2019			

CITY OF PITTSBURGH

STANDARDS OF CONSTRUCTION:

SC-100	JUNE	01, 2017
SC-500	JUNE	01, 2017
SC-502	JUNE	01, 2017
SU-100	JULY	01, 1993
SU-101	JULY	01, 1993

GENERAL NOTES

SEED ALL SLOPES WITH SEEDING AND SOIL SUPPLEMENTS, FORMULA B, OR AS INDICATED ON THE PLAN.

ALL CURVE DATA IS BASED ON THE ARC DEFINITION UNLESS OTHERWISE NOTED.

THE HORIZONTAL CONTROL IS BASED ON NORTH AMERICAN DATUM OF 1983 (NAD83) PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, PA SOUTH ZONE 3702. THE COMBINED SCALE FACTOR FOR THE PROJECT IS 0.999928366922.

VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) (GEOID 12B).

ALL WORK DONE AND MATERIAL FURNISHED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS: THE CITY OF PITTSBURGH STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION, DATED NOVEMBER, 1938, AND JULY, 1955, WITH SUPPLEMENTS THERETO AND REVISIONS THEREOF, DATED MARCH, 1962; SUPPLEMENTAL SPECIFICATIONS FOR CONCRETE PAVEMENT AND BASE COURSE, DATED MARCH, 1978. THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408 DATED 2020 SPECIFICATIONS, LATEST ADDITIONS, AND SUPPLEMENTS THERETO; CURRENT CITY OF PITTSBURGH STANDARDS FOR CONSTRUCTION. THE PITTSBURGH WATER AND SEWER AUTHORITY WATERLINE AND SEWER SPECIFICATIONS AND CONTRACT DRAWINGS.

REFERENCE TO THE ENGINEER IN THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION'S STANDARDS, SPECIFICATIONS, SUPPLEMENTS OR BULLETINS MEANS THE DIRECTOR, DEPARTMENT OF MOBILITY AND INFRASTRUCTURE, CITY OF PITTSBURGH. REFERENCE TO THE DIRECTOR, MEANS THE DIRECTOR, DEPARTMENT OF MOBILITY AND INFRASTRUCTURE, CITY OF PITTSBURGH.

DO NOT INTERFERE WITH THE OPERATION OF ANY STREET LIGHT, TRAFFIC SIGNAL, FIRE HYDRANT, FIRE CALL BOX OR POLICE CALL BOX UNLESS APPROVED BY THE CITY OF PITTSBURGH.

THREE TO TEN WORKING DAYS PRIOR TO EXCAVATION BASED ON THE COMPLEXITY OF THE PROJECT, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM, INC., PHONE 1-800-242-1776, SERIAL NO. FOR CITY OF PITTSBURGH. ADDITIONAL INFORMATION IS AVAILABLE AT <https://www.pa1call.org/PA811/Public/>.

THE CONTRACTOR IS REQUIRED TO NOTIFY THE DEPARTMENT AND SUBMIT AN ALLEGED VIOLATION REPORT (AVR) TO THE PA PUBLIC UTILITY COMMISSION THROUGH THE PA ONE CALL SYSTEM, WWW.PA1CALL.ORG, WITHIN TEN (10) BUSINESS DAYS AFTER A UTILITY LINE IS STRUCK, DAMAGED, OR PREVIOUS DAMAGE IS DISCOVERED AS REQUIRED BY PENNSYLVANIA'S UNDERGROUND UTILITY LINE PROTECTION LAW ACT 50 (P.L.852, NO. 287 AMENDED OCT. 30, 2017).

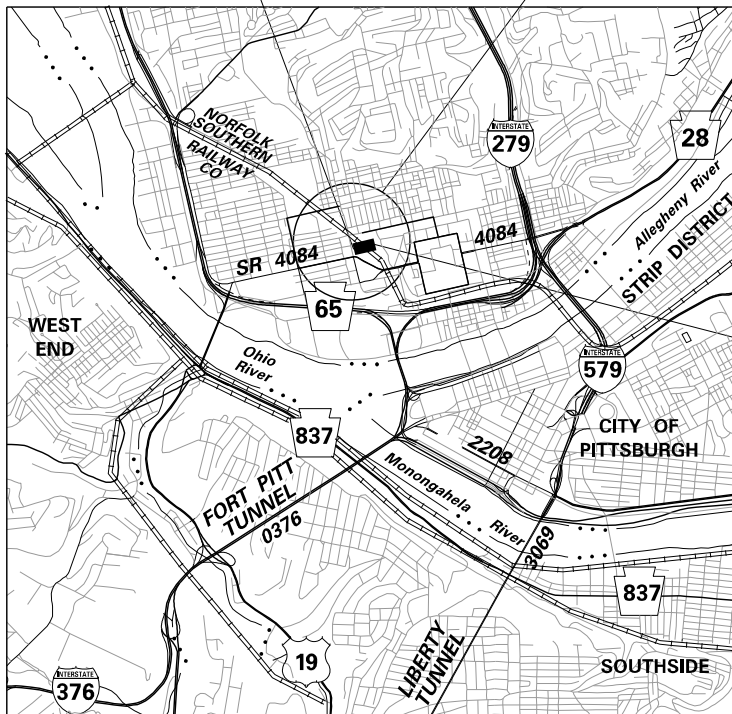
VERIFY DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES IN THE FIELD PRIOR TO START OF CONSTRUCTION.

THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY FIELD SURVEY AND SEARCHES OF AVAILABLE RECORDS. NORFOLK SOUTHERN RAILWAY COMPANY DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

SHEET INDEX BLOCK

DESCRIPTION	SHEET
TITLE SHEET	1
LOCATION MAP AND GENERAL NOTES	2
GEOMETRIC LAYOUT AND PROJECT COORDINATES	3
TYPICAL SECTIONS	4 TO 7
SPECIAL DETAILS	8 TO 12
SUMMARY SHEET	13
TABULATION SHEET	14 TO 17
PLAN SHEET	18
PROFILE SHEETS	19 TO 20
CONTOUR GRADING PLAN	21
SUPPLEMENTAL PLANS SHEETS	
EROSION AND SEDIMENT POLLUTION CONTROL PLAN	1 TO 4
LIGHTING PLAN	1
UTILITY RELOCATION PLAN	1
STRUCTURE PLAN L -XXX	1 TO 46
CROSS SECTIONS	1 TO 25

LIMIT OF WORK
STA 7+75.00
PEDESTRIAN WALKWAY
CITY OF PITTSBURGH
ALLEGHENY COUNTY



LOCATION MAP
0 .5 1 MILE

PROJECT LOCATION

LIMIT OF WORK
STA 12+50.00
PEDESTRIAN WALKWAY
CITY OF PITTSBURGH
ALLEGHENY COUNTY

LEGEND

	INTERSTATE ROUTE
	PROJECT
	STATE HIGHWAY
	CITY STREET
	RAILROAD
	STREAM/RIVER
	PROJECT

EARTHWORK SUMMARY ENTIRE PROJECT

THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE AS A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS.

CUBIC YARDS OF EXCAVATION				CUBIC YARDS OF COMPLETED EMBANKMENT	FOREIGN BORROW EXCAVATION	SELECTED BORROW EXCAVATION, STRUCTURE BACKFILL *	CUBIC YARDS OF WASTE
CLASS 1	CLASS 2	CLASS 3*	CLASS 4				
431	---	---	---	236	100	---	---

* PART OF LUMP SUM STRUCTURE ITEM

90%
SUBMISSION

Michael Baker
INTERNATIONAL

AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
LOCATION MAP AND GENERAL NOTES			
DESIGN	JAH	DATE: D2122	PROJECT NO: 1290818-OH77
PERM	WRB	DATE: BR0027857	MILE POST: PC 1.50
CHECK	WVB	DATE: 9/20/24	DATE: 9/20/24
SHEET NO. 24 OF 24			PC-1.50 24 02

5/25/2024

CURVE	N-1	N-2	N-3	N-4	N-5
PI STA	50+28.36	50+60.72	51+40.79	51+72.24	52+91.65
Δ	37°31'43" RT	28°38'52" LT	21°23'26" LT	16°02'34" RT	142°07'51" RT
D	114°35'30"	88°08'50"	76°23'40"	45°50'12"	163°42'08"
T	16.99'	16.60'	14.16'	17.62'	102.03'
L	32.75'	32.50'	28.00'	35.00'	86.82'
R	50.00'	65.00'	75.00'	125.00'	35.00'
E	2.81'	2.09'	1.33'	1.24'	72.86'
PC STA	50+11.38		51+26.63		
PRC STA	50+44.13	50+44.13	51+54.63	51+54.63	
PCC STA				51+89.63	51+89.63
PT STA		50+76.63			52+76.45

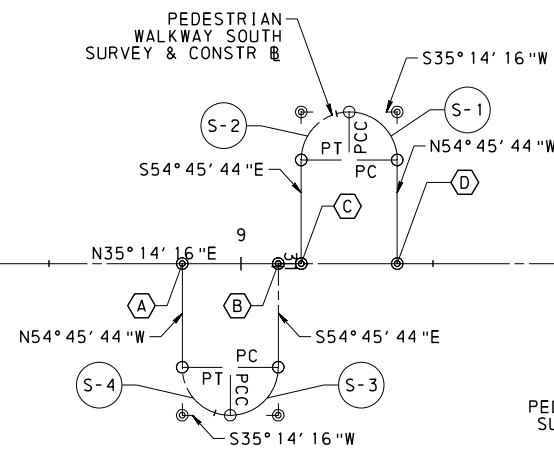
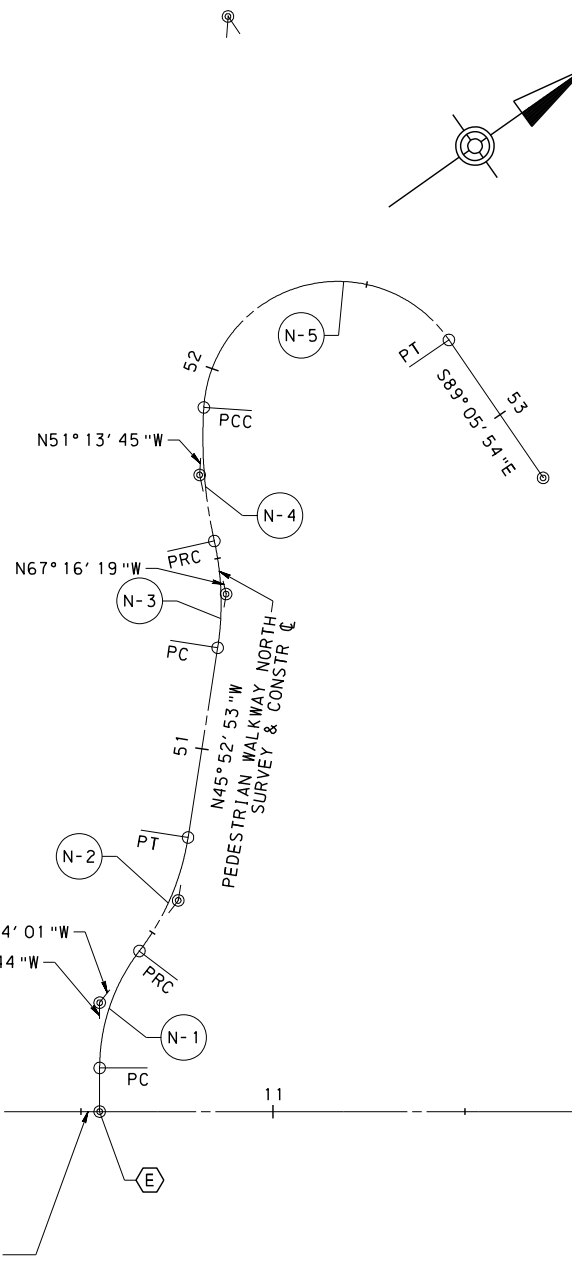
CURVE	S-1	S-2	S-3	S-4
PI STA	30+39.50	30+59.13	31+38.77	31+58.40
Δ	90°00'00" LT	90°00'00" LT	90°00'00" RT	90°00'00" RT
D	458°21'58"	458°21'58"	458°21'58"	458°21'58"
T	12.50'	12.50'	12.50'	12.50'
L	19.63'	19.63'	19.63'	19.63'
R	12.50'	12.50'	12.50'	12.50'
E	5.18'	5.18'	5.18'	5.18'
PC STA	30+27.00		31+26.27	
PCC STA	30+46.63	30+46.63	31+45.90	31+45.90
PRC STA				
PT STA		30+66.27		31+65.54

TABULATION OF PROJECT COORDINATES

BASED ON THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM (NAD83, SOUTH ZONE 3702)

ROUTE	STATION	POINT	COORDINATES		BEARING	
			NORTH	EAST		
PEDESTRIAN WALKWAY SURVEY & CONSTR C	7+00.00	POB	415674.8228	1338693.2406	N 35°14'16" E	
	13+00.00	POE	416164.8824	1339039.4220		
PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B	30+00.00	POB	415871.4057	1338832.1080	N 54°45'44" W	
	30+27.00	PC	415886.9838	1338810.0554		
	30+39.50	PI	415894.1960	1338799.8458		
	30+46.63	PCC	415883.9864	1338792.6337		
	30+59.13	PI	415873.7768	1338785.4216		
	30+66.27	PT	415866.5647	1338795.6311		
	30+93.27	PI	415850.9865	1338817.6838		
	30+99.27	PI	415846.0859	1338814.2220		
	31+26.27	PC	415830.5078	1338836.2747		
	31+38.77	PI	415823.2957	1338846.4843		
	31+45.90	PCC	415813.0861	1338839.2722		
	31+58.40	PI	415802.8765	1338832.0600		
PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR C	31+65.54	PT	415810.0886	1338821.8505	N 54°45'44" W	
	31+92.54	POE	415825.6668	1338799.7978		
	50+00.00	POB	415964.6727	1338897.9925		N 54°45'44" W
	50+11.38	PC	415971.2357	1338888.7017		
	50+28.36	PI	415981.0365	1338874.8276		
	50+44.13	PRC	415997.2606	1338869.7950		
	50+60.72	PI	416013.1127	1338864.8777		
	50+76.63	PT	416024.6667	1338852.9625		
	51+26.63	PC	416059.4740	1338817.0675		
	51+40.79	PI	416069.3348	1338806.8984		
51+54.63	PRC	416074.8075	1338793.8335			
51+72.24	PI	416081.6133	1338777.5861			
PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR C	51+89.63	PCC	416092.6441	1338763.8522	N 51°13'45" W	
	52+91.65	PI	416156.5333	1338684.3073		
	52+76.45	PT	416154.9277	1338786.3203		
	53+19.97	POE	416154.2429	1338829.8323		
						N 67°16'19" W
				N 17°14'01" W		
				N 45°52'53" W		

NOTE: FOUR (4) PLACE COORDINATES ARE USED FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY A PRECISION BEYOND TWO (2) PLACES.



TABULATION OF STATION TIES

- (A) POT STA 8+84.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 31.92.54 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
- (B) POT STA 9+09.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 30+99.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
- (C) POT STA 9+15.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 30+93.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
- (D) POT STA 9+40.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 30+00.00 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
- (E) POT STA 10+54.88 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 50+00.00 PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR C

90%
SUBMISSION

SCALE: 1" = 25'



Michael Baker INTERNATIONAL

AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY

DESIGNED BY: PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

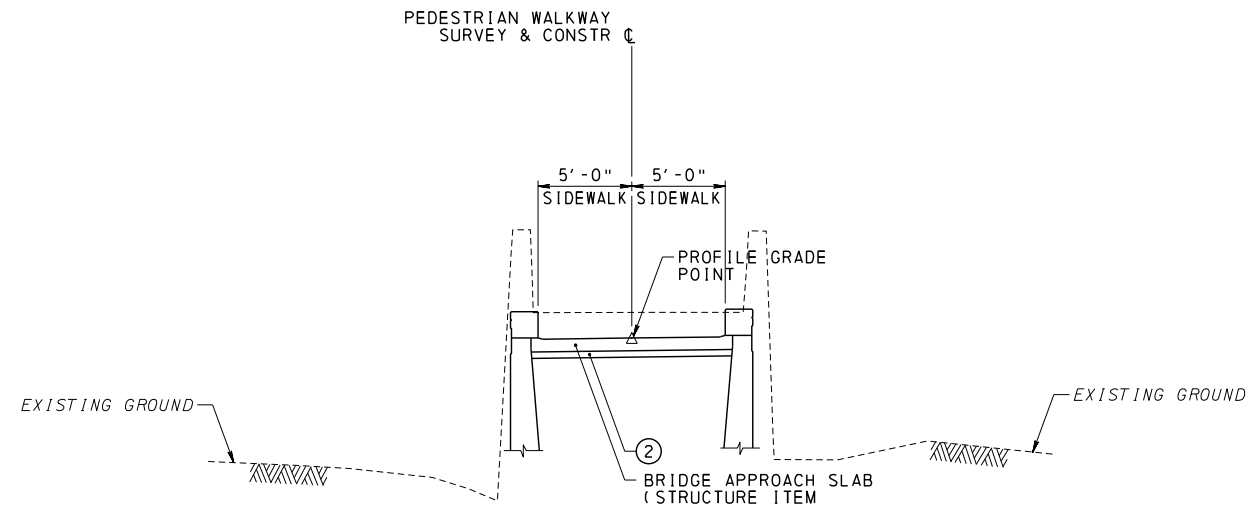
REV	BY	DATE	DESCRIPTION

LOCATION: PITTSBURGH, PENNSYLVANIA
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE
GEOMETRIC LAYOUT AND PROJECT COORDINATES

DESIGNER: JAH	PROJECT NO: D2122	DATE: 12/20/2023	MILE POST: PC 1.50
DRAWN: WRB	FILE NO: BR0027857	DATE: 9/5/2024	
CHECK: WWB			

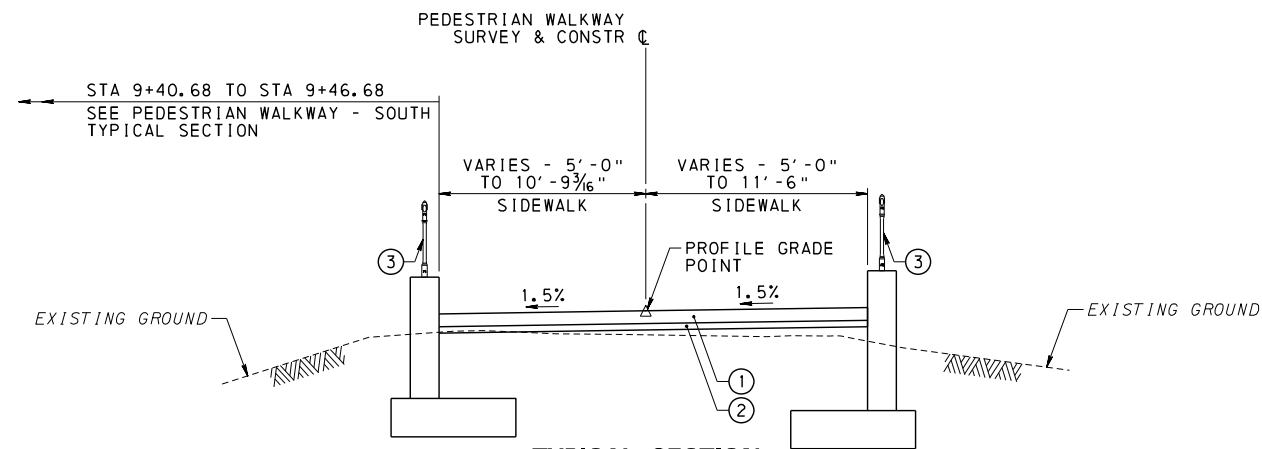
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952024



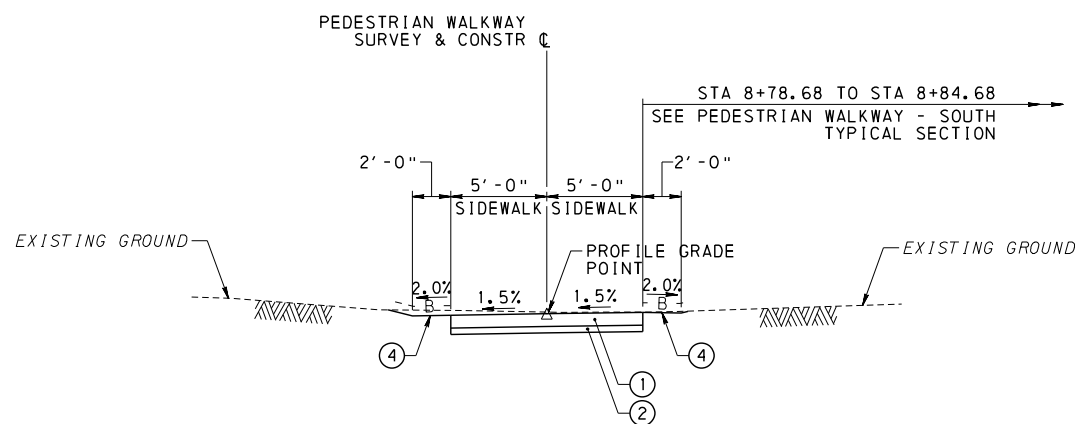
TYPICAL SECTION

PEDESTRIAN WALKWAY
 STA 9+50.18 TO STA 9+64.30
 STA 10+35.71 TO STA 10+48.38
 NOT TO SCALE



TYPICAL SECTION

PEDESTRIAN WALKWAY
 STA 9+37.18 TO STA 9+50.18
 NOT TO SCALE



TYPICAL SECTION

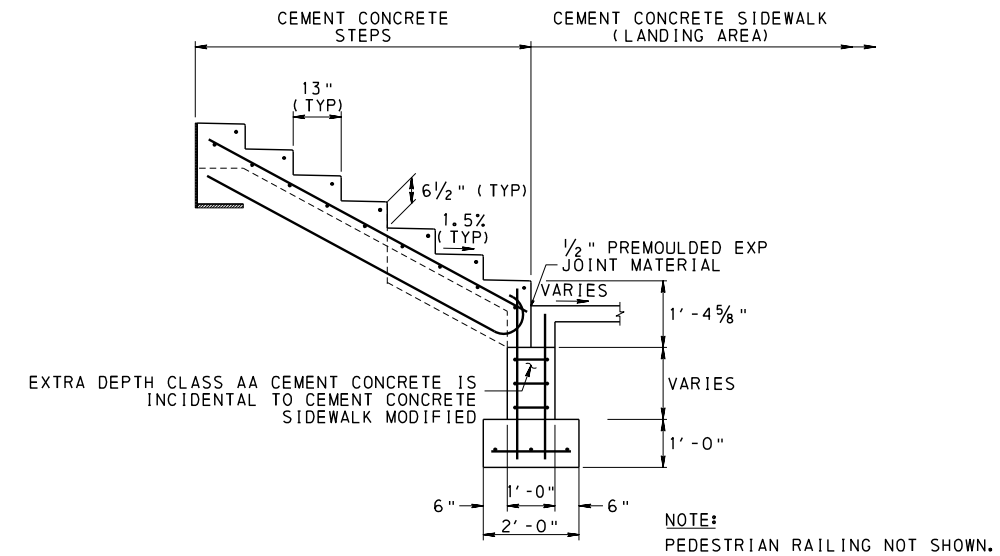
PEDESTRIAN WALKWAY
 STA 8+53.06 TO STA 8+98.18
 STA 9+05.77 TO STA 9+28.02
 STA 9+35.60 TO STA 9+37.18
 NOT TO SCALE

PAVEMENT LEGEND

- ① CEMENT CONCRETE SIDEWALK, 6" DEPTH (ITEM 4676-0001)
- ② SUBBASE 4" DEPTH (NO. 2A) (ITEM 0350-0104)
- ③ PEDESTRIAN RAILING (ITEM 9000-0002)
- ④ PLACING STOCKPILED TOPSOIL (ITEM 0803-0001)

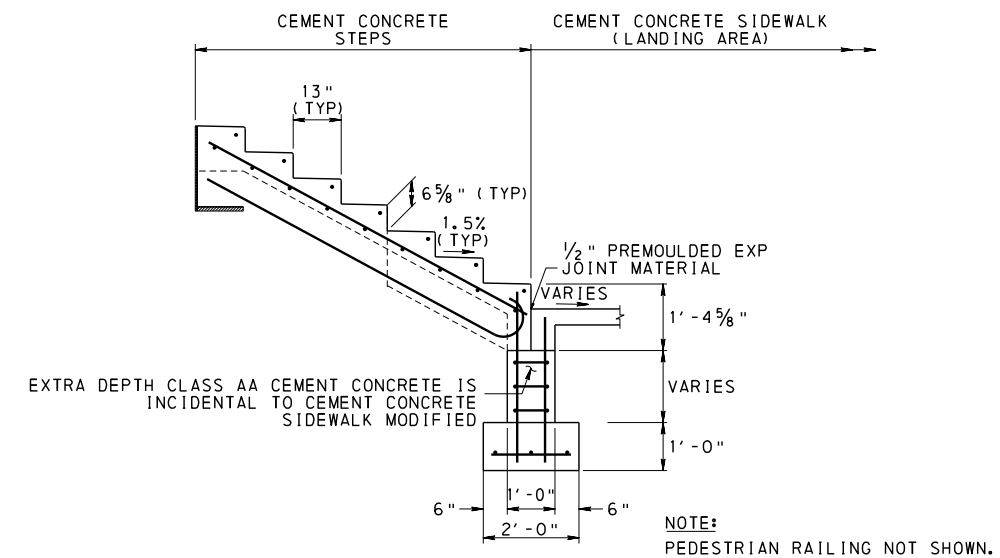
SEEDING LEGEND

- B --- B --- SEEDING AND SOIL SUPPLEMENTS - FORMULA B RESIDENTIAL MIX, INCLUDING MULCH (ITEM 0804-0025)



TYPICAL STAIRWAY PROFILE

PEDESTRIAN WALKWAY
 STA 9+28.02 TO STA 9+35.60
 NOT TO SCALE



TYPICAL STAIRWAY PROFILE

PEDESTRIAN WALKWAY
 STA 8+98.18 TO STA 9+05.77
 NOT TO SCALE

90%
SUBMISSION

Michael Baker INTERNATIONAL

AIRSIDE BUSINESS PARK
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 Phone: (412) 269-6300

NORFOLK SOUTHERN

NORFOLK SOUTHERN RAILWAY COMPANY

OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
TYPICAL SECTIONS			
DESIGN	JAH	PID No. D2122	RSN 1290818-OH77
PERM	WRB	FILE No. BR0027857	MILE POST PC 1.50
CHECK	WVB	DATE 9/5/2024	DRAWING TOLERANCE PC-1.50 24 04
CADD FILE: NS_24_Park_Bridge.dwg			

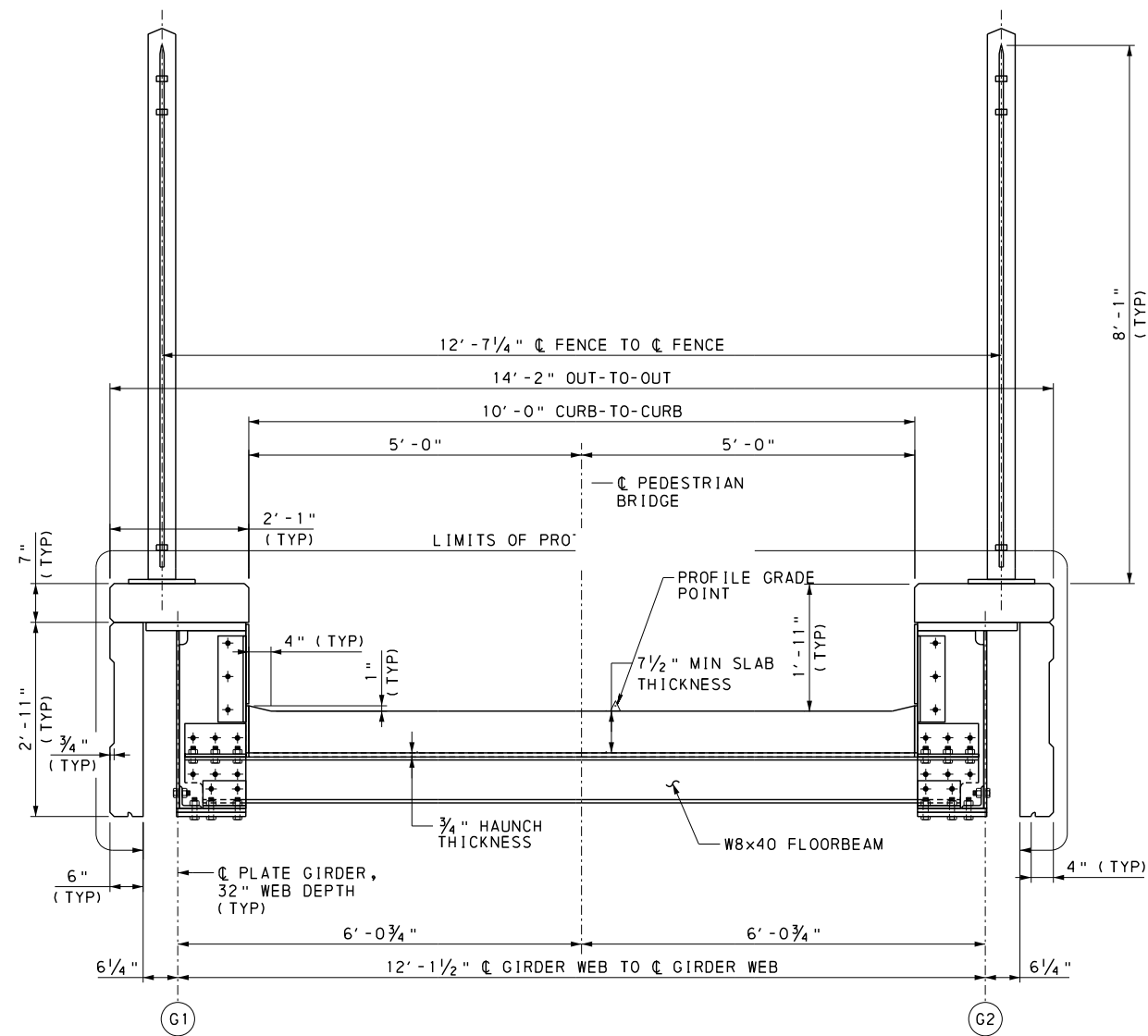
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PAVEMENT LEGEND

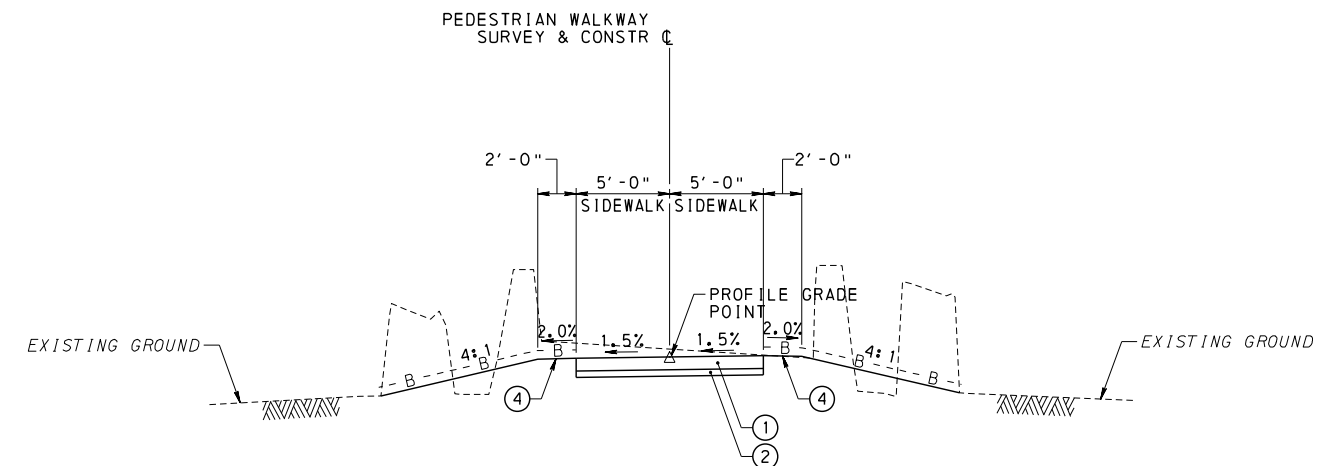
- ① CEMENT CONCRETE SIDEWALK, 6" DEPTH
(ITEM 4676-0001)
- ② SUBBASE 4" DEPTH (NO. 2A)
(ITEM 0350-0104)
- ③ PEDESTRIAN RAILING
(ITEM 9000-0002)
- ④ PLACING STOCKPILED TOPSOIL
(ITEM 0803-0001)

SEEDING LEGEND

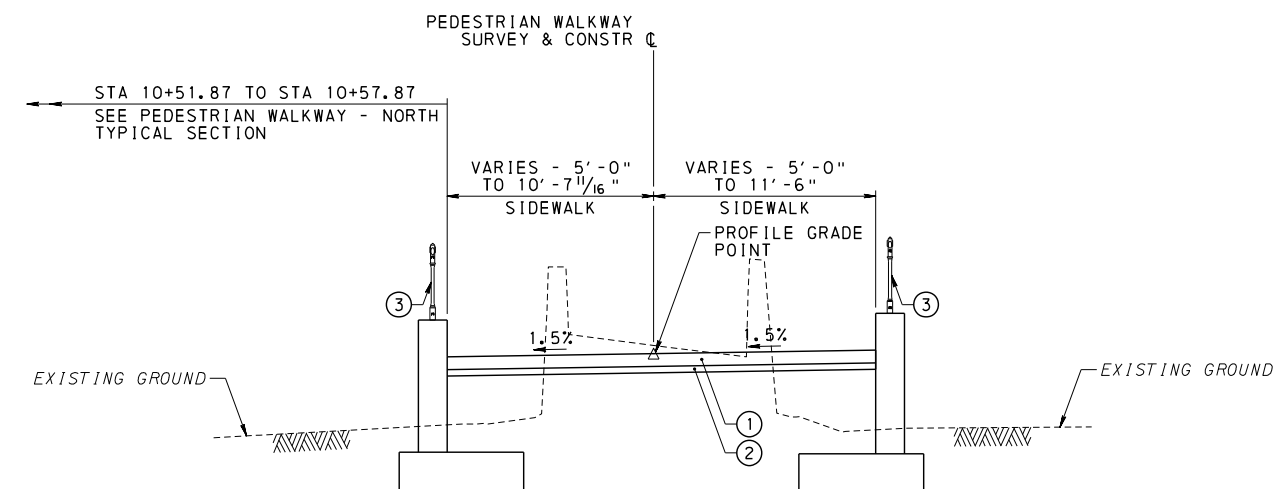
- B --- B --- SEEDING AND SOIL SUPPLEMENTS - FORMULA B
RESIDENTIAL MIX, INCLUDING MULCH
(ITEM 0804-0025)



TYPICAL BRIDGE SECTION
PEDESTRIAN WALKWAY
STA 9+64.30 TO STA 10+35.71
NOT TO SCALE



TYPICAL SECTION
PEDESTRIAN WALKWAY
STA 10+61.38 TO STA 10+62.38
NOT TO SCALE



TYPICAL SECTION
PEDESTRIAN WALKWAY
STA 10+48.38 TO STA 10+61.38
NOT TO SCALE

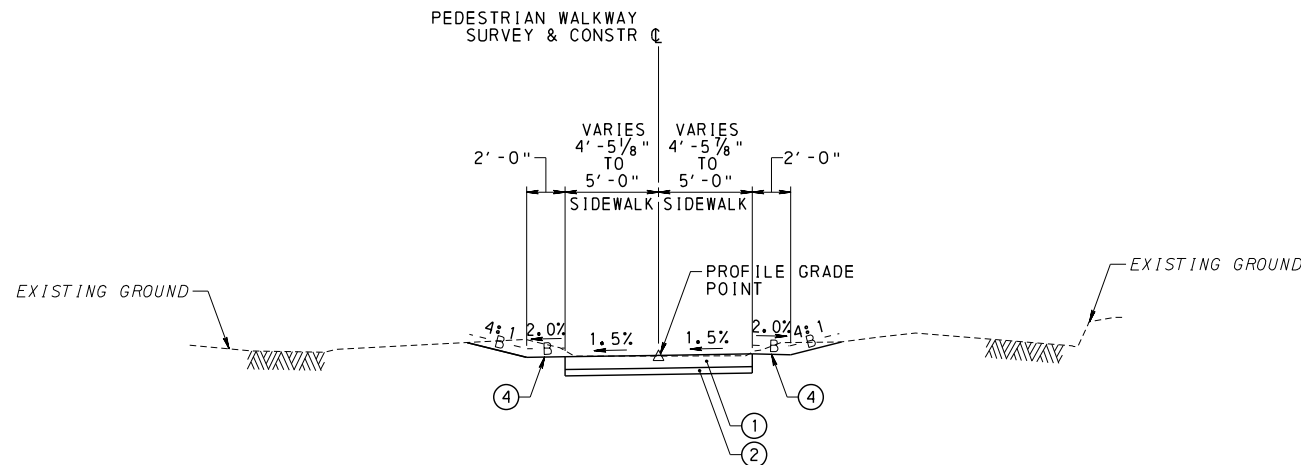
90%
SUBMISSION

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-6300

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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
TYPICAL SECTIONS			
DESIGN	JAH	DATE: D2122	REVISION: 1290818-OH77
PERMITS	WRB	FILE No: BR0027857	MILE POST: PC 1.50
CHECK	WVB	DATE: 9/11/2024	DATE: PC-1.50 24 05
CADD FILE: NS_24_Park_Ped_Bridge.dwg			

952024



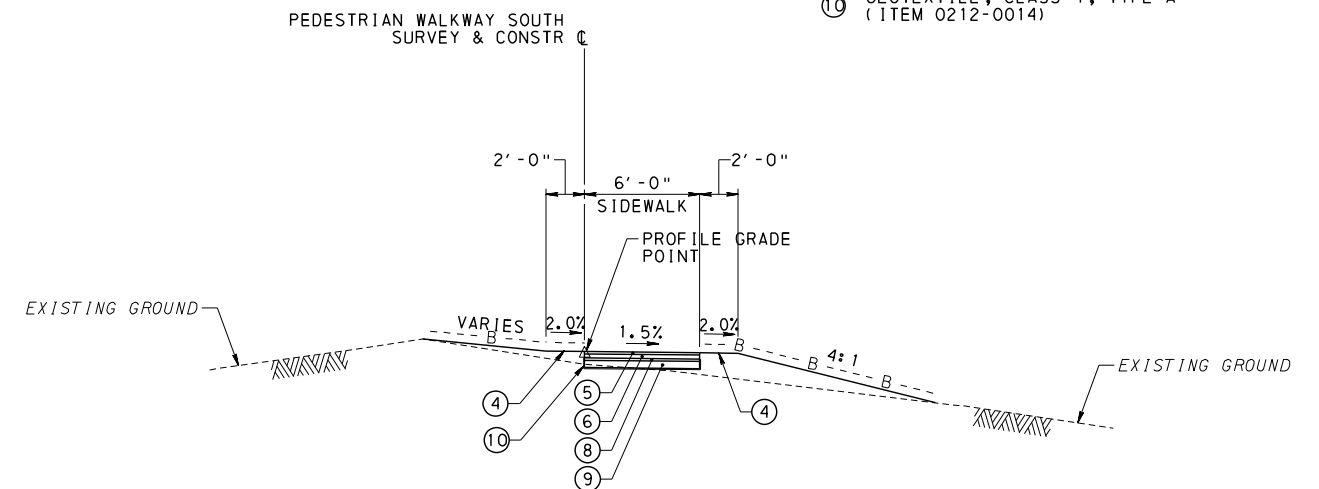
TYPICAL SECTION
 PEDESTRIAN WALKWAY
 STA 10+67.38 TO STA 10+74.75
 NOT TO SCALE

SEEDING LEGEND

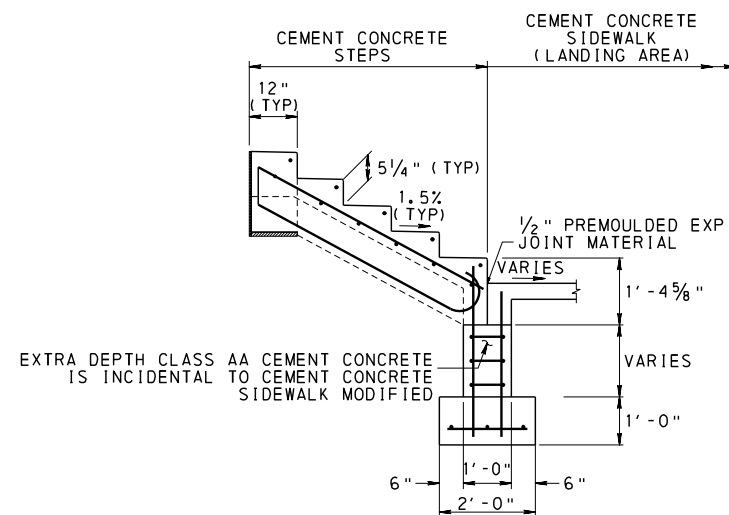
-- B --- B --- SEEDING AND SOIL SUPPLEMENTS - FORMULA B
 RESIDENTIAL MIX, INCLUDING MULCH
 (ITEM 0804-0025)

PAVEMENT LEGEND

- ① CEMENT CONCRETE SIDEWALK, 6" DEPTH (ITEM 4676-0001)
- ② SUBBASE 4" DEPTH (NO. 2A) (ITEM 0350-0104)
- ③ PEDESTRIAN RAILING (ITEM 9000-0002)
- ④ PLACING STOCKPILED TOPSOIL (ITEM 0803-0001)
- ⑤ 1 1/2" PERVIOUS 9.5MM WEARING COURSE (ITEM 0420-0001)
- ⑥ 2 1/2" PERVIOUS 19.0MM BINDER COURSE (ITEM 0420-0010)
- ⑧ SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 57 (1" MIN DEPTH) (ITEM 0205-0285)
- ⑨ SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 3 (4" MIN DEPTH) (ITEM 0205-0282)
- ⑩ GEOTEXTILE, CLASS 4, TYPE A (ITEM 0212-0014)

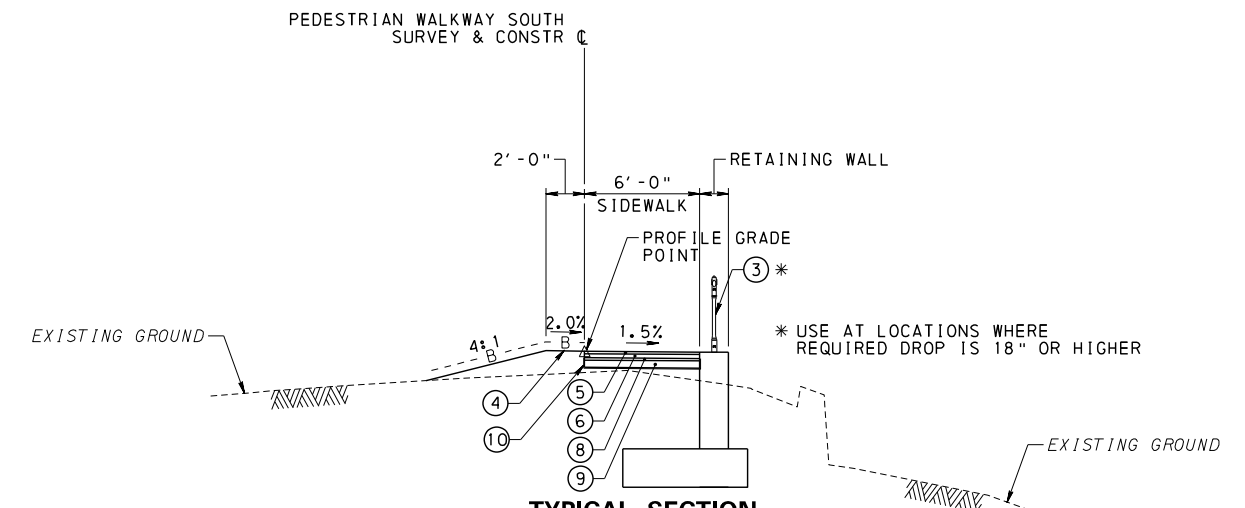


TYPICAL SECTION
 PEDESTRIAN WALKWAY SOUTH
 STA 30+46.63 TO STA 30+88.27
 NOT TO SCALE



TYPICAL STAIRWAY PROFILE
 PEDESTRIAN WALKWAY
 STA 10+62.38 TO 10+67.38
 NOT TO SCALE

NOTE:
 PEDESTRIAN RAILING NOT SHOWN.



TYPICAL SECTION
 PEDESTRIAN WALKWAY SOUTH
 STA 30+12.86 TO STA 30+46.63
 NOT TO SCALE

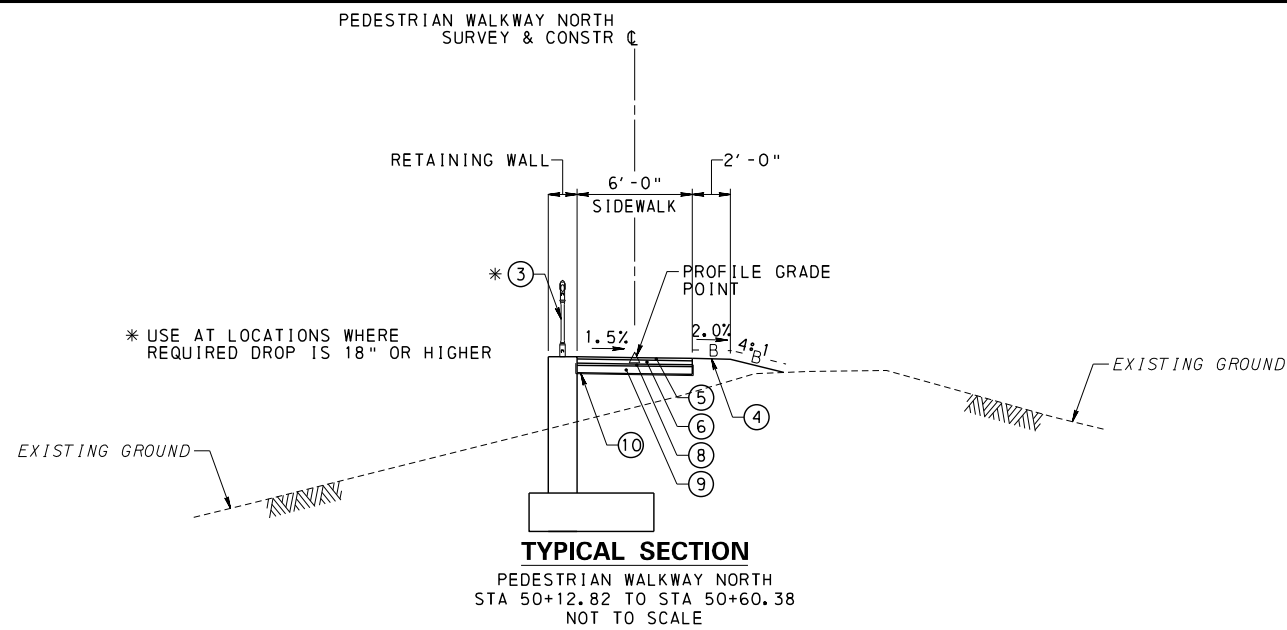
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REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
TYPICAL SECTIONS			
DESIGN	JAH	02122	1290818-OH77
PERMITS	WRB	BR0027857	
DATE	WB	9/5/2024	
SHEET NO. 6 OF 21			PC-1.50 24 06

952024

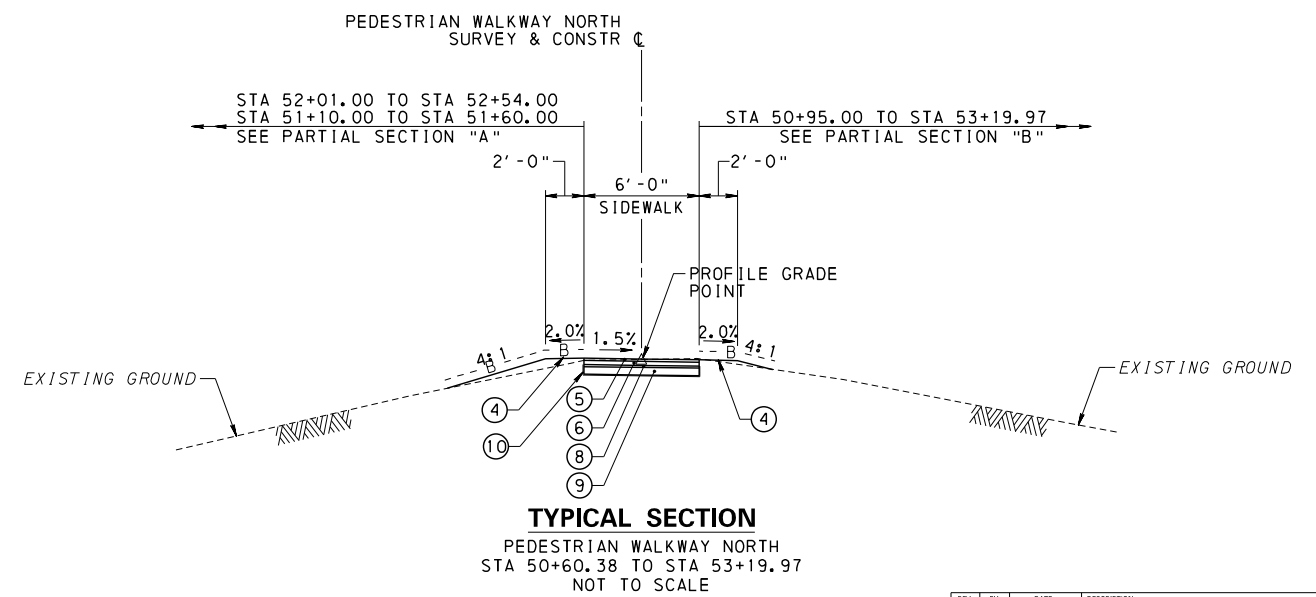
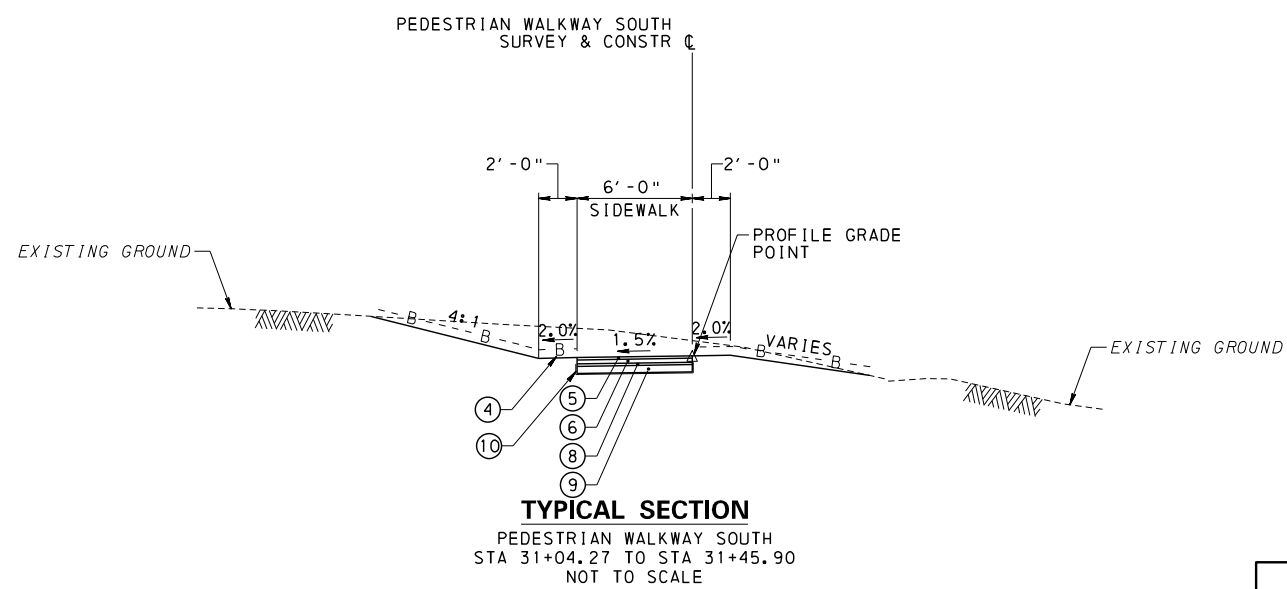
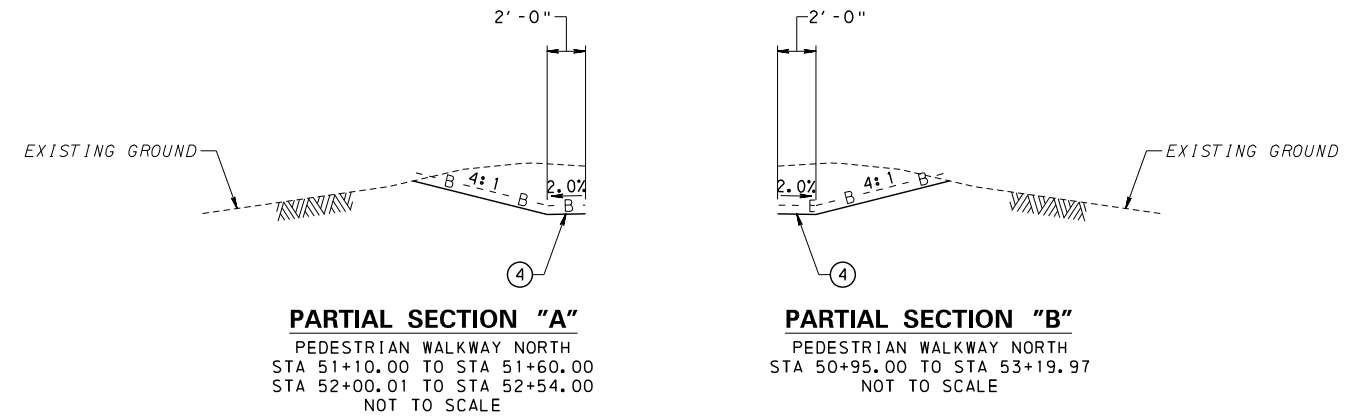
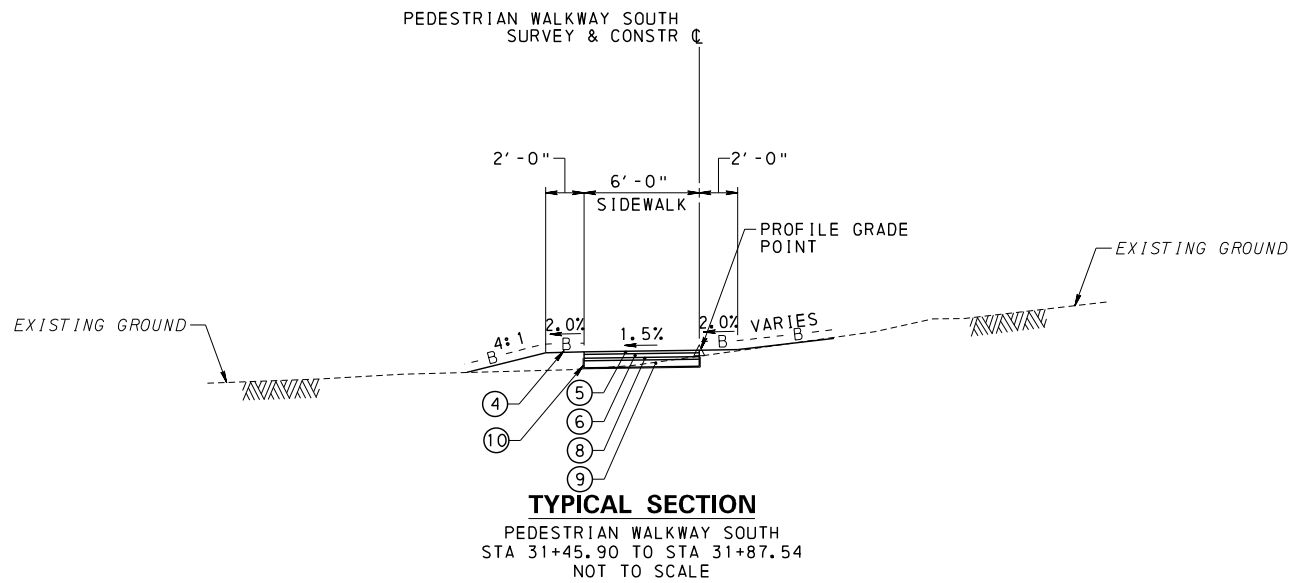


SEEDING LEGEND

-- B --- B -- SEEDING AND SOIL SUPPLEMENTS - FORMULA B
RESIDENTIAL MIX, INCLUDING MULCH
(ITEM 0804-0025)

PAVEMENT LEGEND

- ④ PLACING STOCKPILED TOPSOIL (ITEM 0803-0001)
- ⑤ 1 1/2" PERVIOUS 9.5MM WEARING COURSE (ITEM 0420-0001)
- ⑥ 2 1/2" PERVIOUS 19.0MM BINDER COURSE (ITEM 0420-0010)
- ⑧ SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 57 (1" MIN DEPTH) (ITEM 0205-0285)
- ⑨ SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 3 (4" MIN DEPTH) (ITEM 0205-0282)
- ⑩ GEOTEXTILE, CLASS 4, TYPE A (ITEM 0212-0014)



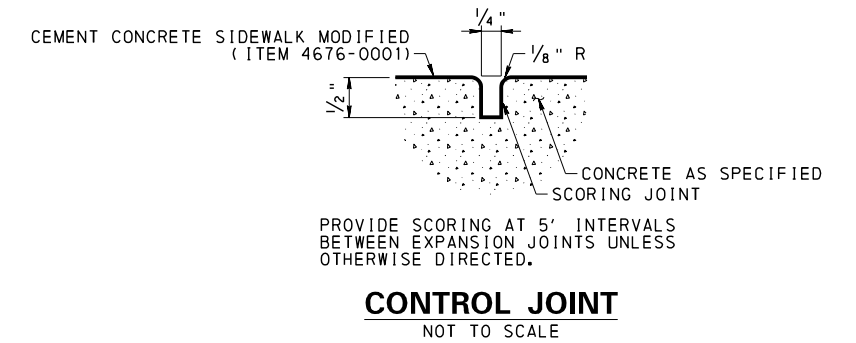
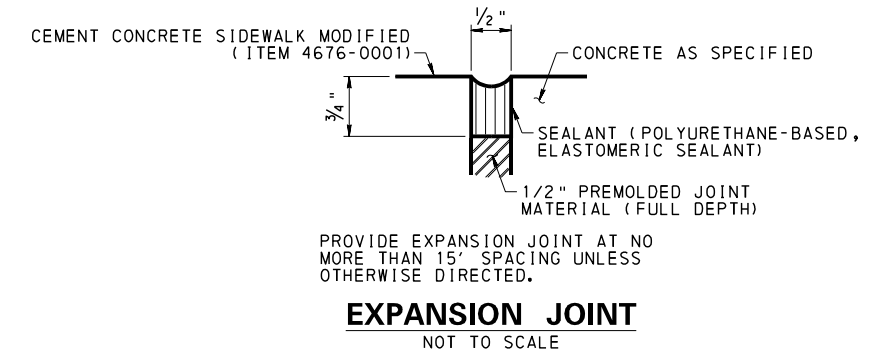
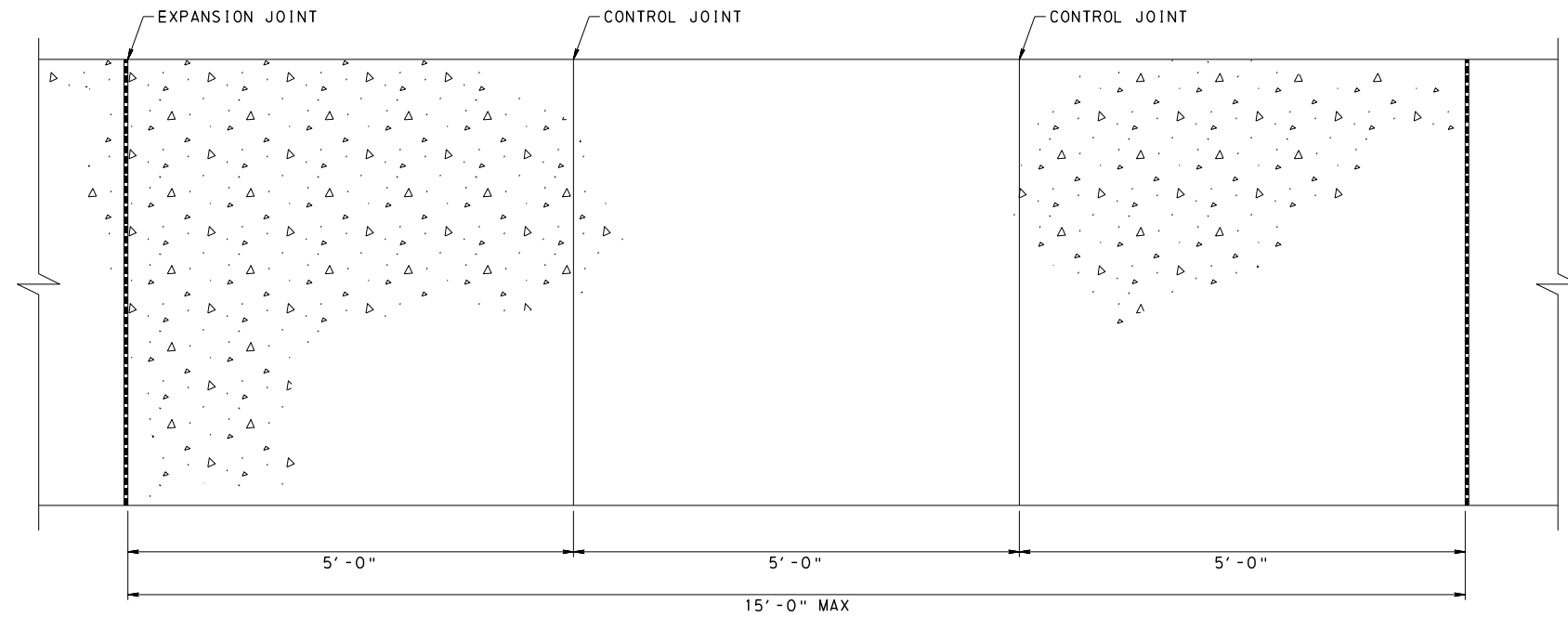
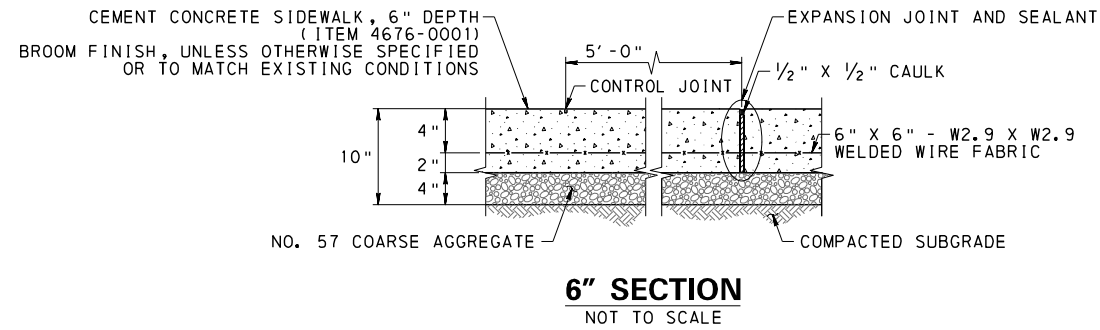
**90%
SUBMISSION**

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PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
TYPICAL SECTIONS			
DESIGN	JAH	DATE: D2122	REVISION: 1290818-OH77
PERMIT	WRB	FILE NO: BR0027857	DRAWING NUMBER: PC-1.50
CHECK	WVB	DATE: 9/5/2024	SCALE: 1" = 4'
CADD FILE: NS_24_Park_Bridge.dwg			

5/4/18 PM
9/5/2024



NOTES:

1. 6" REINFORCED SIDEWALK REQUIRED IN AREAS OF PERSONAL VEHICLE LOADING AND/OR TRAFFIC, OR WHERE SUCH USE ARE EXPECTED, OR WHERE DIRECTED.
2. ALL PAVEMENT JOINTS SHALL EXTEND THROUGH CURB WHEN COINCIDENTAL WITH CURB JOINT.
3. EACH PAD SHALL NOT EXCEED 36.0 SF.

CEMENT CONCRETE SIDEWALK MODIFIED

STA 8+53.06 TO STA 8+96.00
 STA 9+04.67 TO STA 9+27.42
 STA 9+35.00 TO STA 9+50.18
 STA 10+48.38 TO STA 10+62.38
 STA 10+67.38 TO STA 10+74.75
 (ITEM 4676-0001)
 NOT TO SCALE

**90%
SUBMISSION**

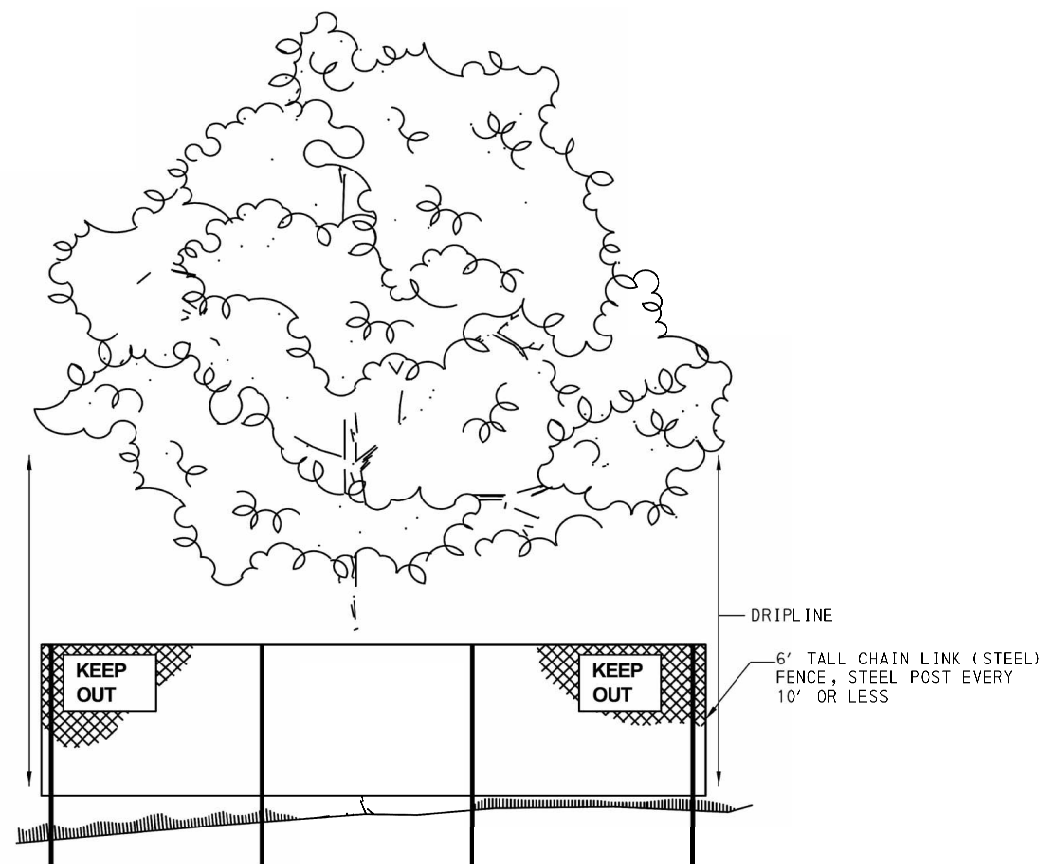
**Michael Baker
INTERNATIONAL**

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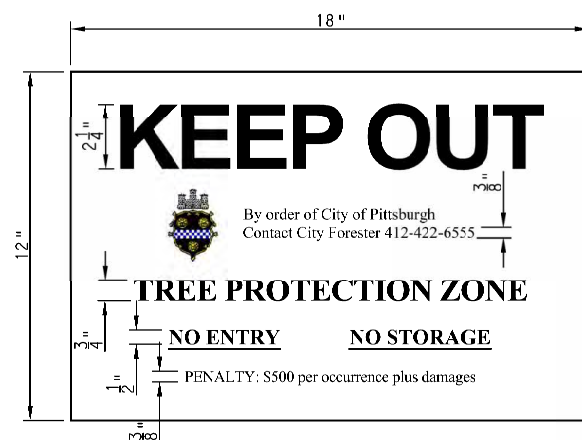
NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH
 OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE SPECIAL DETAILS			
DESIGN	JAH	PIB No. D2122	ISSN 1290818-OH77 MILE POST PC 1.50
PERM	WRB	FILE No. BR0027857	DATE/ISSUE
CHK	WVB	DATE 9/5/2024	PC-1.50 24 08
CADD FILE: NS_Air_Park_Bridge_Details.dwg			

5:44:19 PM
9/5/2024



SIGN CONTENT SHALL BE AS IN EXAMPLE BELOW OR AS OTHERWISE PROVIDED BY CITY FORESTER. SIGNS SHALL MEASURE NO LESS THAN 8 1/2" X 11", ON A CONSTRUCTION ORANGE BACKGROUND, PLACED AT 50' INTERVALS.



TEMPORARY PROTECTIVE FENCE, CHAIN LINK

(ITEM 4811-0003)
NOT TO SCALE

90%
SUBMISSION

Michael Baker
INTERNATIONAL

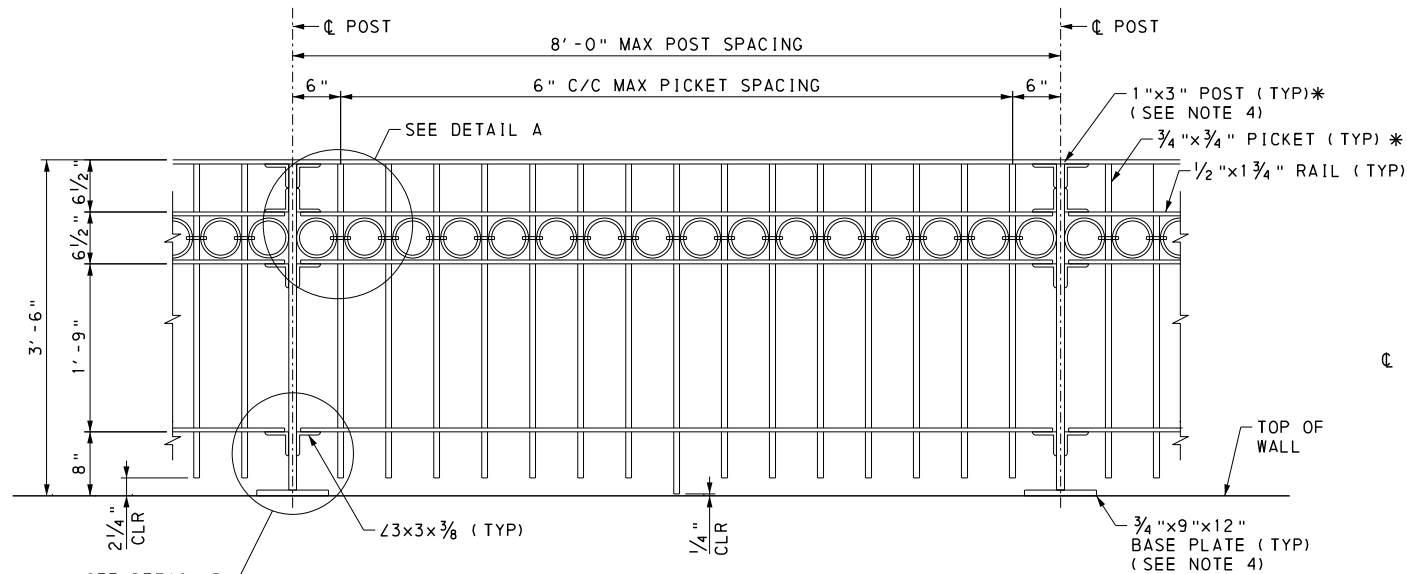
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NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY

OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

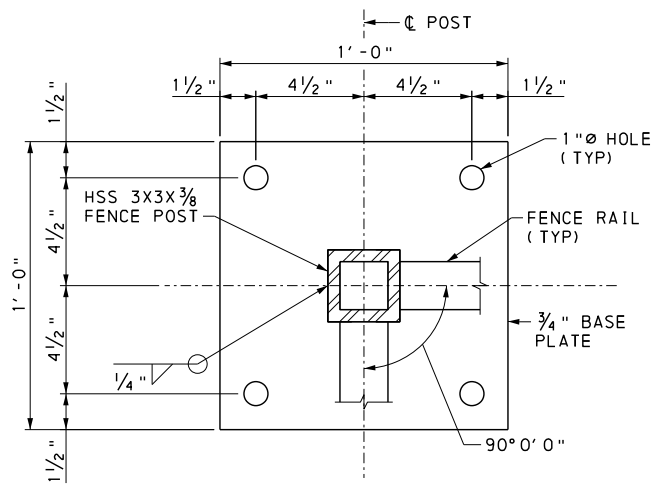
REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
SPECIAL DETAILS			
DESIGNER: JAH	PROJECT NO.: D2122	PROJECT NO.: 1290818-OH77	MILE POST: PC 1.50
DRAWN: WRB	FILE NO.: BR0027857	DRAWING NUMBER:	
CHECK: WVB	DATE: 9/5/2024	PC-1.50 24 09	
CADD FILE: NS_24_Park_Ped_Bridge_details.dwg			

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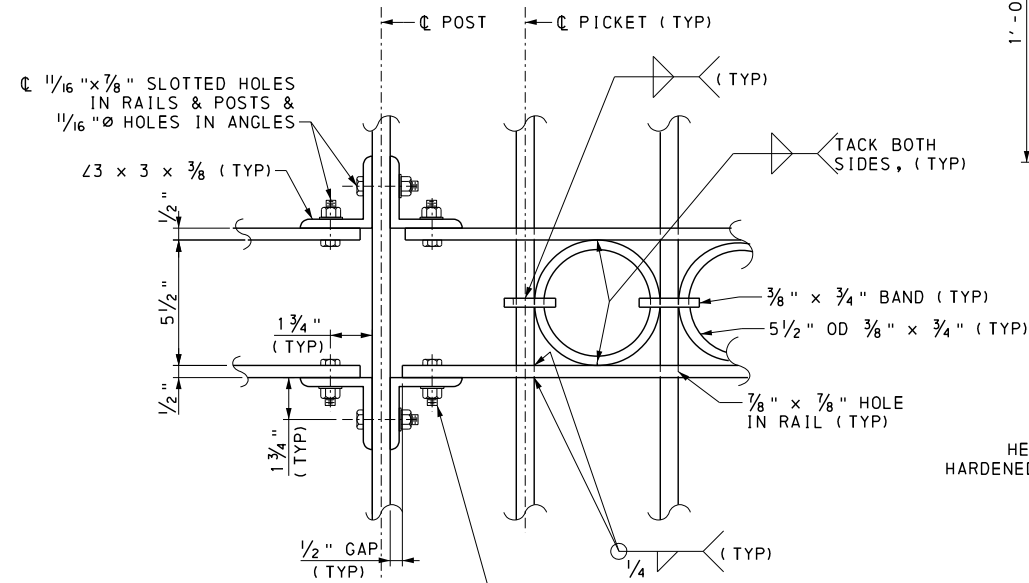
PEDESTRIAN RAILING

(ITEM 9000-0002)
0 3 6 9 1' 2'



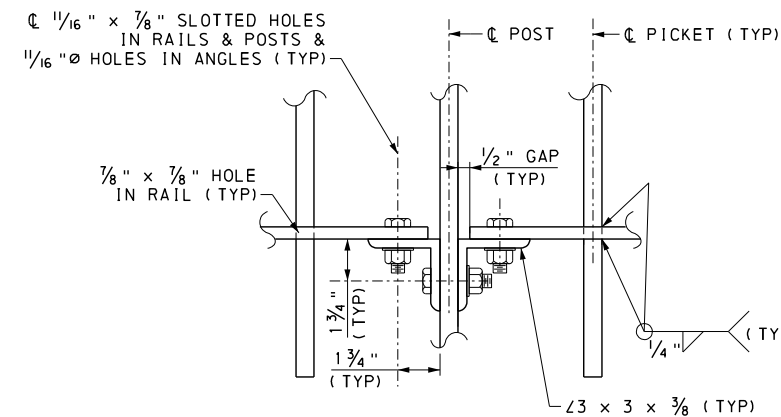
SPECIAL FENCE POST PLAN

(SEE NOTE 5)
0 1 2 3 6 9 1'



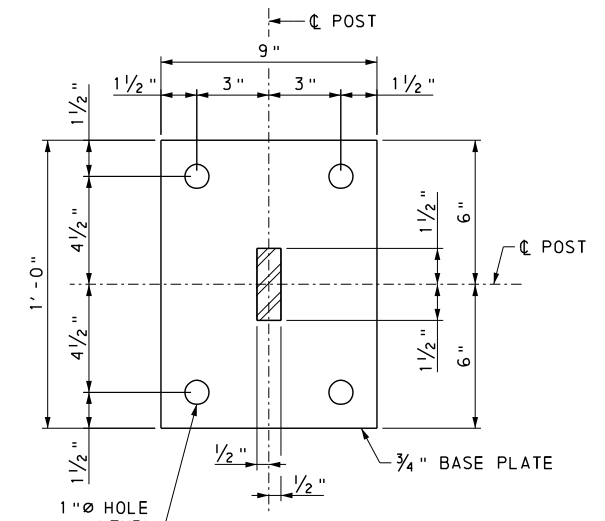
DETAIL A

0 1 2 3 6 9 1'

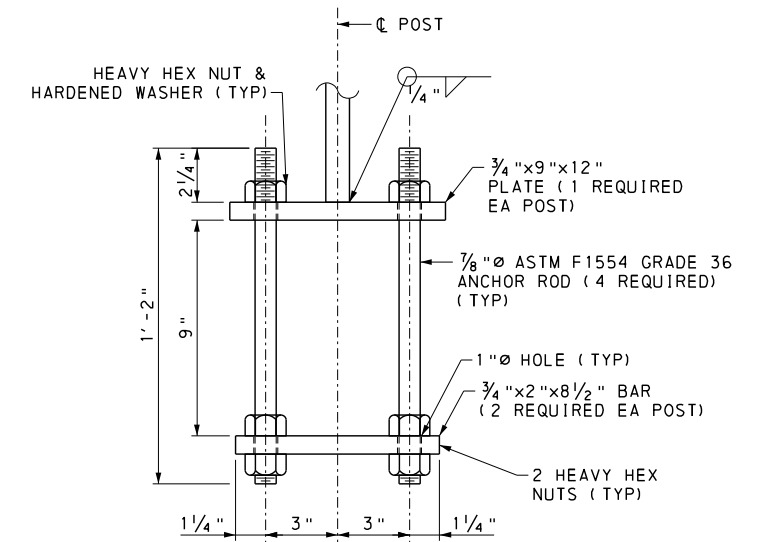


DETAIL B

0 1 2 3 6 9 1'



PLAN



ELEVATION

POST ANCHORAGE DETAIL

0 1 2 3 6 9 1'

NOTES:

1. PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270 (ASTM A709) GRADE 36 FOR ALL MATERIAL OTHER THAN HSS. PROVIDE HSS CONFORMING TO ASTM A500 GRADE B.
2. PROVIDE ASTM F3125 GRADE A325 BOLTS WITH PLAIN WASHERS AND HEX NUTS, UNLESS NOTED OTHERWISE.
3. PROVIDE ANCHOR RODS CONFORMING TO ASTM F1554 GRADE 36, GALVANIZED, WITH HEAVY HEX NUTS AS INDICATED.
4. PROVIDE A SPECIAL FENCE POST, HSS 3x3x3/8 AS INDICATED AT THE WALL 4 FENCE CORNER ON SHEET 53. PROVIDE A FABRICATED OR CAST TIP ON TOP OF THIS POST TO MATCH THE PROFILE OF THE ADJACENT FENCE POST TOPS. SUBMIT DETAILS OF THE PROPOSED FENCE POST AND POST TOP FOR REVIEW AND APPROVAL.
5. ANCHORAGE DETAILS SIMILAR TO TYPICAL FENCE POST ANCHORAGE DETAIL, EXCEPT PROVIDE 3/4" x 2" x 11 1/2" BARS.

LEGEND:

- * POSTS AND PICKETS TO BE FABRICATED PLUMB VERTICAL

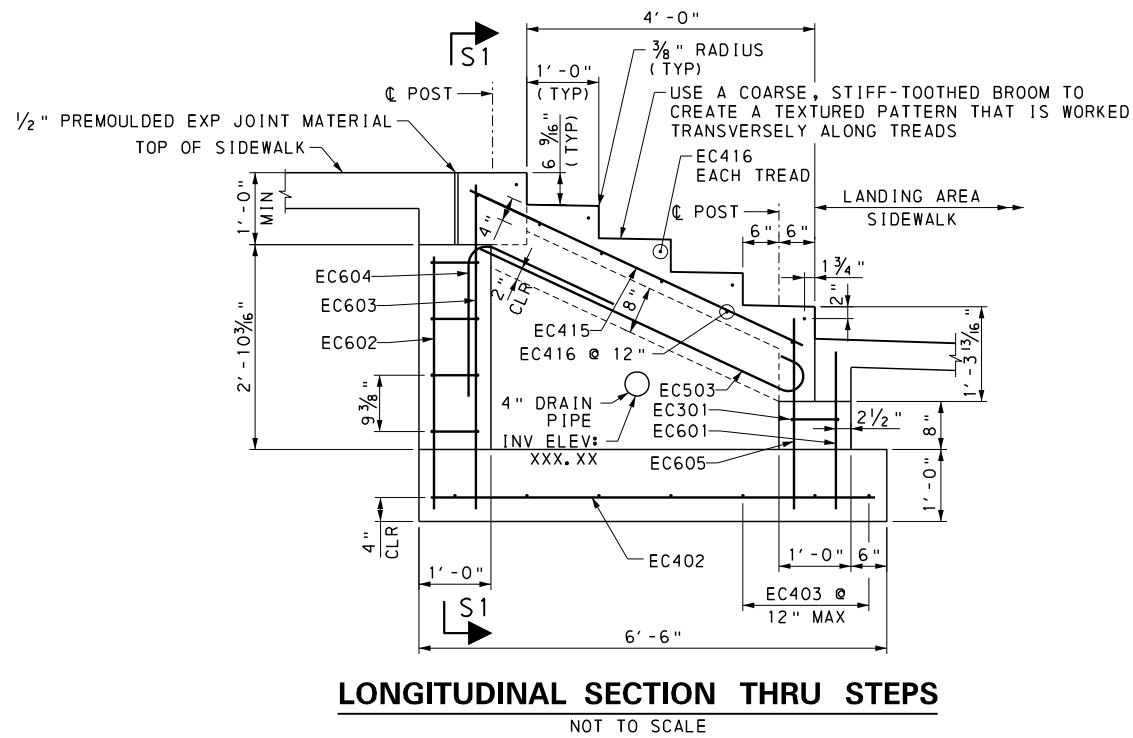
90% SUBMISSION

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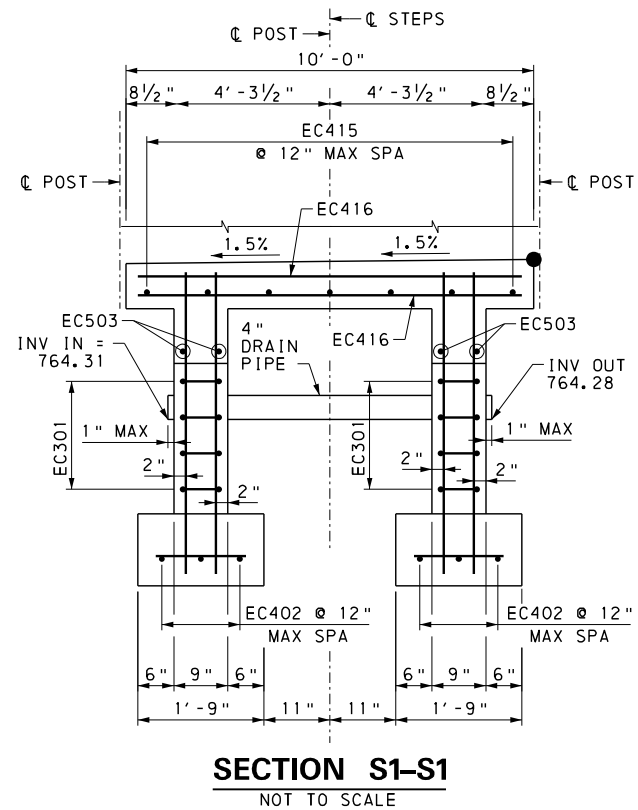
REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE SPECIAL DETAILS			
DESIGN	JAH	DATE	PC 1.50
DRW	WRB	FILE No.	BR0027857
CHK	WVB	DATE	9/5/2024
DRAWING TOLERANCE:			PC-1.50 24 10
CADD FILE: NS_S_Ped_Bridge_details.dgn			

952024

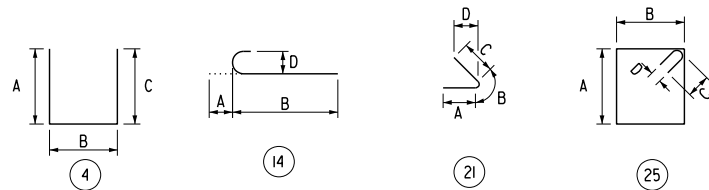


APPROXIMATE QUANTITIES - CEMENT CONCRETE STEPS				
ITEM NO	DESCRIPTION	UNIT	TOTAL	
9000-0003	CEMENT CONCRETE STEPS	(1) (2)	LS	LS
(1)	CLASS A CEMENT CONCRETE, INCREASED COMPRESSIVE STRENGTH	(2)	CY	XX
(1)	REINFORCEMENT BARS, EPOXY COATED		LB	XX
(1)	PEDESTRIAN RAILING FOR STEPS	(2)	LF	XX
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE SUPERSTRUCTURE)	(3)	SY	XX

- (1) ITEMS IN CEMENT CONCRETE STEPS LUMP SUM ITEM 9000-0003 - GIVEN FOR INFORMATION ONLY
- (2) SEE CONTRACT SPECIAL PROVISIONS
- (3) ONLY APPLY PROTECTIVE COATING IF CONCRETE IS POURED BETWEEN SEPTEMBER 1 AND MARCH 1 PER PUBLICATION 408, SECTION 1001.3(K) 6



CONCRETE STEP REINFORCEMENT BAR SCHEDULE											
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
EC301											
EC401											
EC402											
EC403											
EC415											
EC416											
EC503											
EC601											
EC602											
EC603											
EC604											
EC605											



NOTE:
SEE SHEET 12 FOR HANDRAIL DETAILS

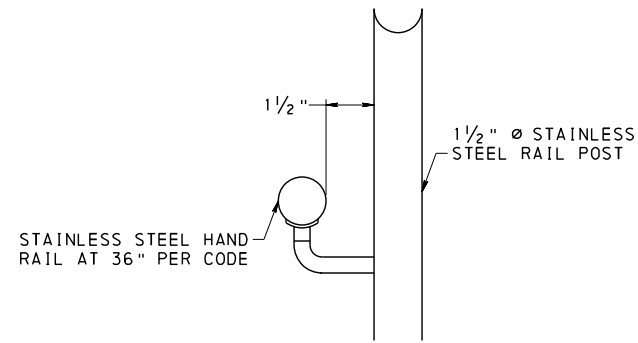
90%
SUBMISSION

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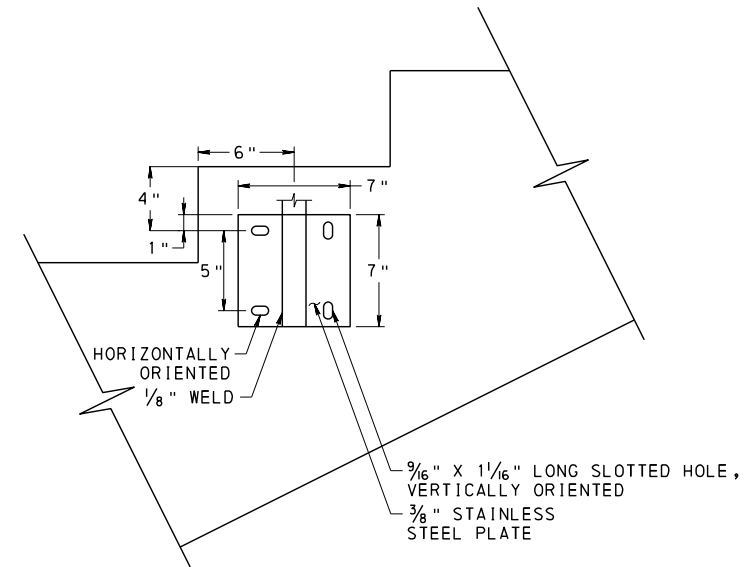
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
SPECIAL DETAILS			
DESIGNER: JAH	PROJECT: D2122	DATE: 1290818-OH77	MILE POST: PC 1.50
DRAWN: WRB	FILE NO: BR0027857	DRAWING NUMBER:	
CHECK: WWB	DATE: 9/5/2024		PC-1.50 24 11
CADD FILE: NS_24_Park_Ped_Bridge_details.dwg			

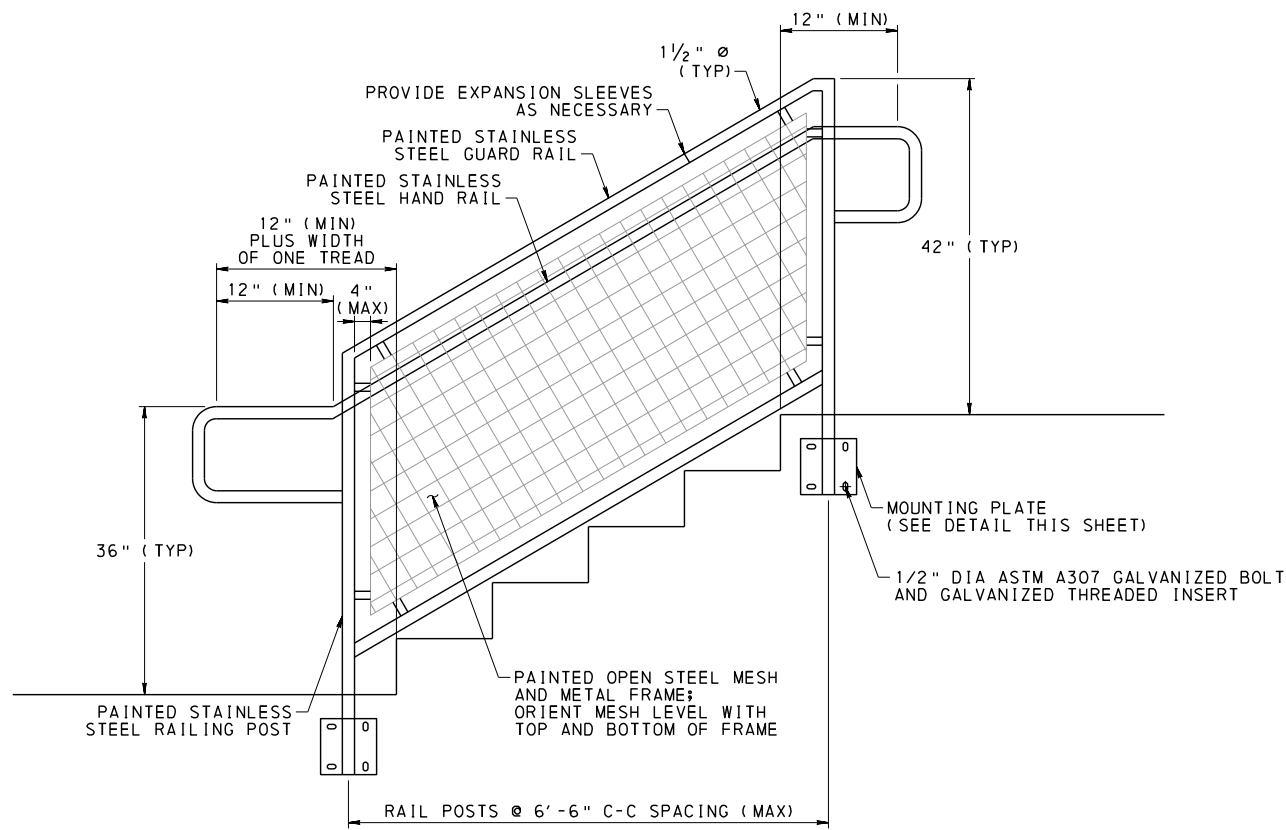
952024



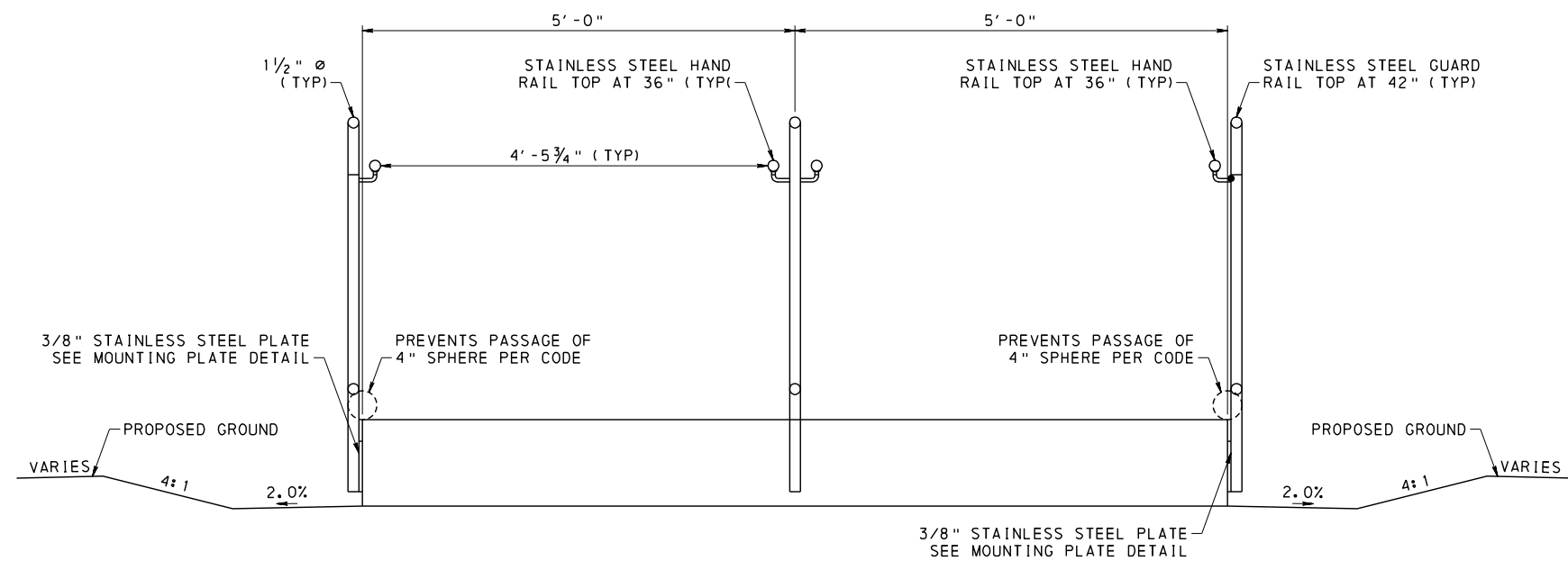
HANDRAIL DETAIL
NOT TO SCALE



MOUNTING PLATE
NOT TO SCALE



ELEVATED STEPS RAILING
NOT TO SCALE



TYPICAL STEPS SECTION
NOT TO SCALE

STANDARD RAILING
NOT TO SCALE

90%
SUBMISSION

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REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
DESIGN	JAH	PIB No. D2122	ISSN 1290818-OH77 MILE POST PC 1.50
PERM	WRB	FILE No. BR0027857	DRAWING NUMBER
CHK	WVB	DATE 9/5/2024	PC-1.50 24 12
CADD FILE: NS_AE_Park_Bridge_details.dwg			

SUMMARY

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				11	ALLEGHENY	PED BRIDGE		13 OF 21

◆ - SEE SPECIAL PROVISIONS

QUANTITY	ITEM NO	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET
	UNIT					UNIT					UNIT					UNIT			
	0201 0001 LS	CLEARING AND GRUBBING		NO TAB	1	0855 0003 EACH	PUMPED WATER FILTER BAG		17	8	9000 0021 EACH	DECORATIVE TWIN ARM LUMINAIRE		LP					
438	0203 0001 CY	CLASS 1 EXCAVATION		14-16	3	0860 0000 EACH	INLET FILTER BAG FOR TYPE M INLET		17		9000 0022 LS	REMOVE EXISTING LIGHTING		LP					
100	0205 0100 CY	FOREIGN BORROW EXCAVATION		14-16	500	0867 0012 LF	COMPOST FILTER SOCK, 12" DIAMETER		17	4	9000 0023 EACH	JUNCTION BOXES J.B-1, MODIFIED		LP					
37	0205 0282 CY	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 3		14-16	5000	0910 4116 LF	AWG 8 UNDERGROUND CABLE, COPPER, 1 CONDUCTOR		LP										
10	0205 0285 CY	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 57		14-16	800	0910 5055 LF	2" DIRECT BURIAL CONDUIT		LP										
205	0350 0104 SY	SUBBASE 4" DEPTH (NO. 2A)		14-16	200	0910 5175 LF	2" EXPOSED CONDUIT		LP										
325	0420 0001 SY	1 1/2" PERVIOUS 9.5MM WEARING COURSE		14-16	800	0910 6000 LF	TRENCH		LP										
325	0420 0010 SY	2 1/2" PERVIOUS 19.0MM BINDER COURSE		14-16	1	0910 7020 EACH	COMPLETE POWER SUPPLY SYSTEM		LP										
20	0504 0001 LF	PAVEMENT RELIEF JOINT		14-16		0910 7210 LS	TESTING OF ENTIRE LIGHTING SYSTEM		LP										
	0608 0001 LS	MOBILIZATION		NO TAB	EITHER	8100 0001 LS	BRIDGE STRUCTURE, AS DESIGNED		1	STR									
	0609 0003 LS	INSPECTOR'S FIELD OFFICE AND INSPECTION FACILITIES, TYPE B		NO TAB	AND 22410	1002 0052 LB	REINFORCEMENT BARS, EPOXY COATED		1	STR									
	0609 0009 LS	EQUIPMENT PACKAGE		NO TAB	AND	5018 0048 LS	REMOVAL OF PORTION OF EXISTING BRIDGE		1	STR									
144	4676 0001 SY	CEMENT CONCRETE SIDEWALK, 6" DEPTH		14-16	AND 400	9000 0004 SF	PRECAST FACADE PANELS		1	STR									
	0686 0020 LS	CONSTRUCTION SURVEYING, TYPE B		NO TAB	AND 263	9000 0005 LF	RETAINING WALLS		1	STR									
	0686 0050 LS	CONSTRUCTION SURVEYING, TYPE D		NO TAB	AND	9000 0014 LS	PRE AND POST CONSTRUCTION SURVEY		1	STR									
	0688 0020 LS	MICROCOMPUTER, TYPE C		NO TAB	AND 140	9000 0015 LF	RAILROAD DECORATIVE PROTECTIVE FENCE		1	STR									
	0689 0005 LS	CPM SCHEDULE, WITH UPDATES		NO TAB	AND 306	9000 9020 CF	REPAIR DETERIORATED CONCRETE		1	STR									
200	0803 0001 CY	PLACING STOCKPILED TOPSOIL		17	AND 100	9203 0101 SF	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM ABUTMENT 1		1	STR									
57	0804 0025 LB	SEEDING AND SOIL SUPPLEMENTS - FORMULA B RESIDENTIAL MIX, INCLUDING MULCH		17	AND 300	9203 0102 SF	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM ABUTMENT 2		1	STR									
1	0804 0032 LB	SEEDING - FORMULA T TEMPORARY GRASS MIX, INCLUDING MULCH		17	90000	9000 0001 DOLLA	UNFORSEEN SIDEWALK REPAIRS		14-16										
200	0806 0113 SY	TEMPORARY SHORT-TERM, ROLLED EROSION CONTROL PRODUCT, TYPE 2D		17	375	9000 0002 LF	PEDESTRIAN RAILING		14-16										
1632	4811 0003 LF	TEMPORARY PROTECTIVE FENCE, CHAIN LINK		14-16		9000 0003 LS	CEMENT CONCRETE STEPS		NO TAB 14-16										
2000	0845 0001 DOLLA	UNFORESEEN WATER POLLUTION CONTROL		NO TAB	2	9000 0010 EACH	ACCESS GATE		17										
2	0849 0010 EACH	ROCK CONSTRUCTION ENTRANCE		17	11	9000 0020 EACH	DECORATIVE POST TOP LUMINAIRE		LP										

TABULATION OF QUANTITIES ROADWAY

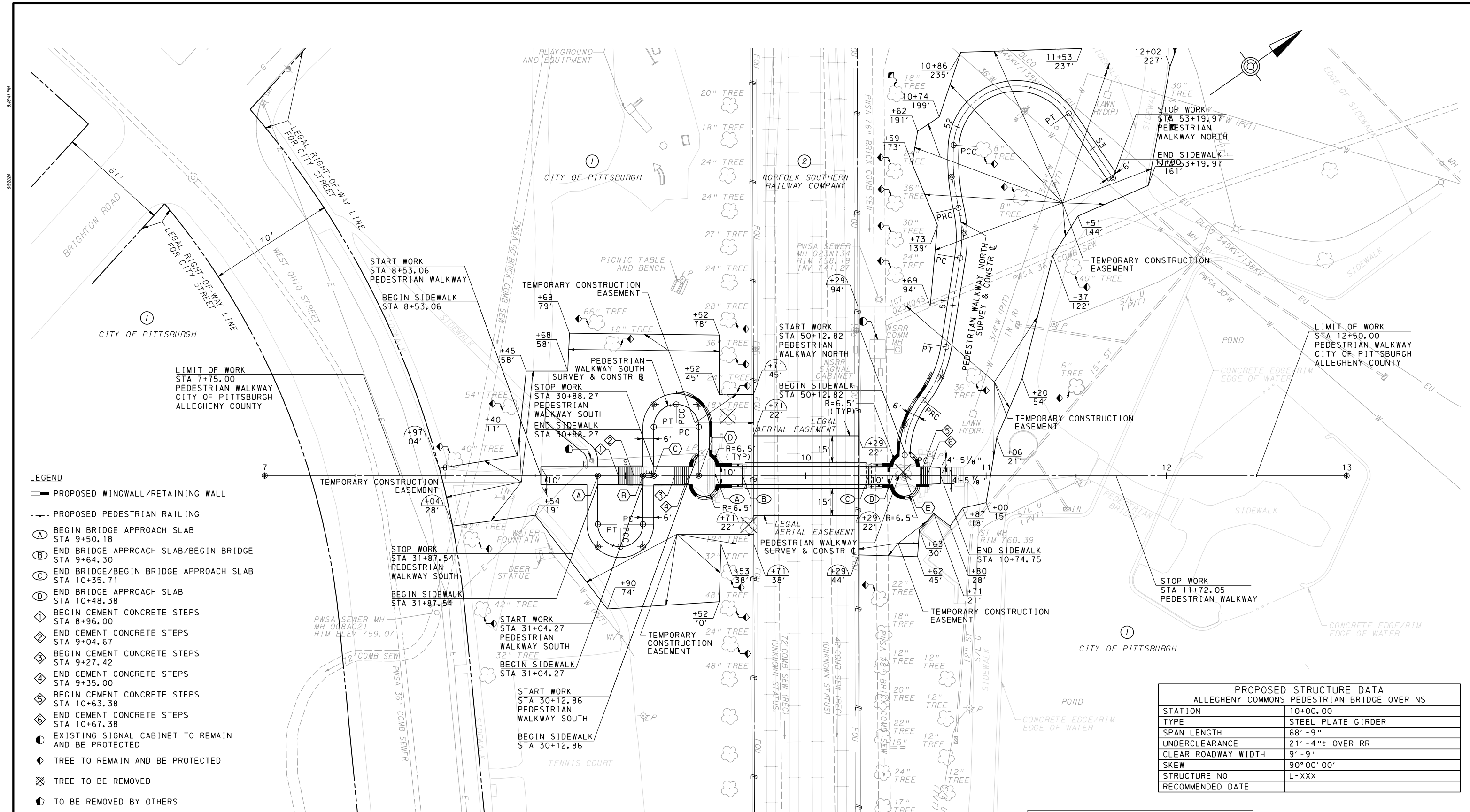
REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				11	ALLEGHENY	PED BRIDGE		14 OF 21

CLASS 1 EXCAVATION	FOREIGN BORROW EXCAVATION	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 3	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 57	SUBBASE 4" DEPTH (NO. 2A)	1 1/2" PERVIOUS 9.5MM WEARING COURSE	2 1/2" PERVIOUS 19.0MM BINDER COURSE	PAVEMENT RELIEF JOINT	CEMENT CONCRETE SIDEWALK, 6" DEPTH	TEMPORARY PROTECTIVE FENCE, CHAIN LINK	UNFORSEEN SIDEWALK REPAIRS	PEDESTRIAN RAILING	CEMENT CONCRETE STAIRS	EMBANKMENT (FOR INFORMATION ONLY)	REMARKS	SIDE	STATIONS	
0203 0001 CY	0205 0100 CY	0205 0282 CY	0205 0285 CY	0350 0104 SY	0420 0001 SY	0420 0010 SY	0504 0001 LF	4676 0001 SY	4811 0003 LF	9000 0001 DOLLA	9000 0002 LF	9000 0003 LS		ITEM NUMBER	UNIT		
	100									90000						WALKWAY	
																ENTIRE PROJECT	
									487							LT	7+89.78 to 9+26.46
									259							RT	8+05.25 to 8+62.43
				50				50								LT / RT	8+53.06 to 8+98.18
248													53			LT / RT	8+53.06 to 10+74.75
																LT / RT	8+96.68 to 9+04.68
										12						LT	8+96.68 to 9+08.68
										12						RT	8+96.68 to 9+08.68
				25				25								LT / RT	9+05.76 to 9+28.02
										20						LT	9+16.68 to 9+36.76
										20						RT	9+16.68 to 9+36.76
																LT / RT	9+26.52 to 9+34.52
									140							RT	9+33.19 to 2+72.21
				31				31								LT / RT	9+35.60 to 9+50.18
										7						LT	9+36.76 to 9+39.68
										22						RT	9+36.76 to 9+50.63
							10									LT / RT	9+37.18 to 9+50.18
									161							LT	9+40.71 to 9+70.25
										7						LT	9+47.68 to 9+50.63
				16												LT / RT	9+50.18 to 9+65.04
										15						LT	9+50.63 to 9+65.52
										15						RT	9+50.63 to 9+65.52
										13						RT	10+34.08 to 10+47.44
										13						LT	10+34.08 to 10+47.44
				15												LT / RT	10+34.96 to 10+48.38
										7						LT	10+47.44 to 10+50.87
										22						RT	10+47.44 to 10+62.31

TABULATION OF QUANTITIES ROADWAY

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				11	ALLEGHENY	PED BRIDGE		15 OF 21

CLASS 1 EXCAVATION	0203 0001 CY	FOREIGN BORROW EXCAVATION	0205 0100 CY	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 3	0205 0282 CY	SELECTED BORROW EXCAVATION, COARSE AGGREGATE, NO. 57	0350 0104 SY	SUBBASE 4" DEPTH (NO. 2A)	0420 0001 SY	1 1/2" PERVIOUS 9.5MM WEARING COURSE	0420 0010 SY	2 1/2" PERVIOUS 19.0MM BINDER COURSE	0504 0001 LF	PAVEMENT RELIEF JOINT	4676 0001 SY	CEMENT CONCRETE SIDEWALK, 6" DEPTH	4811 0003 LF	TEMPORARY PROTECTIVE FENCE, CHAIN LINK	9000 0001 DOLLA	UNFORSEEN SIDEWALK REPAIRS	9000 0002 LF	PEDESTRIAN RAILING	9000 0003 LS	CEMENT CONCRETE STAIRS	EMBANKMENT (FOR INFORMATION ONLY)	CY	REMARKS	SIDE	STATIONS	ITEM	NUMBER	UNIT				
	10																														13 FT AHEAD OF APPROACH SLAB	LT / RT	10+48.37 to 10+51.37			
								30																								LT / RT	10+48.38 to 10+62.38			
								30					30																			LT / RT	10+48.38 to 10+62.38			
																							7									LT	10+58.88 to 10+62.31			
																							6									LT	10+62.31 to 10+68.41			
																							6									RT	10+62.31 to 10+68.41			
																																LT / RT	10+63.38 to 10+67.38			
								8					8																			LT / RT	10+67.38 to 10+74.75			
																							6									LT	10+68.41 to 10+74.79			
																							6									RT	10+68.41 to 10+74.83			
																																	SOUTH RAMP			
																							10									LT	30+10.74 to 30+20.74			
																							47									RT	30+10.74 to 30+46.64			
					7	2				58	58																						LT / RT	30+12.86 to 30+88.27		
44																								153									LT / RT	30+25.00 to 31+75.00		
																							10									LT	30+77.27 to 30+87.27			
																							10									RT	30+77.27 to 30+87.27			
					7	2				62	62																						LT / RT	31+04.27 to 31+87.54		
																							10									LT	31+05.27 to 31+15.27			
																							10									RT	31+05.27 to 31+15.27			
																																		NORTH RAMP		
																							10									RT	50+11.22 to 50+22.08			
																							52									LT	50+11.22 to 50+60.38			
146																									25								LT / RT	50+25.00 to 53+00.00		
																		150														RT	50+51.71 to 50+86.05			
																		195														LT	50+92.98 to 52+10.39			
					23	6				205	205																						LT / RT	51+12.82 to 53+19.97		
																		60														RT	51+47.67 to 51+61.27			



- LEGEND**
- PROPOSED WINGWALL/RETAINING WALL
 - - - PROPOSED PEDESTRIAN RAILING
 - (A) BEGIN BRIDGE APPROACH SLAB
STA 9+50.18
 - (B) END BRIDGE APPROACH SLAB/BEGIN BRIDGE
STA 9+64.30
 - (C) END BRIDGE/BEGIN BRIDGE APPROACH SLAB
STA 10+35.71
 - (D) END BRIDGE APPROACH SLAB
STA 10+48.38
 - ◇ BEGIN CEMENT CONCRETE STEPS
STA 8+96.00
 - ◇ END CEMENT CONCRETE STEPS
STA 9+04.67
 - ◇ BEGIN CEMENT CONCRETE STEPS
STA 9+27.42
 - ◇ END CEMENT CONCRETE STEPS
STA 9+35.00
 - ◇ BEGIN CEMENT CONCRETE STEPS
STA 10+63.38
 - ◇ END CEMENT CONCRETE STEPS
STA 10+67.38
 - EXISTING SIGNAL CABINET TO REMAIN
AND BE PROTECTED
 - ◆ TREE TO REMAIN AND BE PROTECTED
 - ⊗ TREE TO BE REMOVED
 - ⬇ TO BE REMOVED BY OTHERS

- TABULATION OF STATION TIES**
- (A) POT STA 8+84.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =
POT STA 31.92.54 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
 - (B) POT STA 9+09.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =
POT STA 30+99.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
 - (C) POT STA 9+15.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =
POT STA 30+93.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
 - (D) POT STA 9+40.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =
POT STA 30+00.00 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
 - (E) POT STA 10+54.88 PEDESTRIAN WALKWAY SURVEY & CONSTR C =
POT STA 50+00.00 PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR C

NOTE:
ALL TREES TO REMAIN UNLESS OTHERWISE NOTED.

PROPOSED STRUCTURE DATA ALLEGHENY COMMONS PEDESTRIAN BRIDGE OVER NS	
STATION	10+00.00
TYPE	STEEL PLATE GIRDER
SPAN LENGTH	68' - 9"
UNDERCLEARANCE	21' - 4" ± OVER RR
CLEAR ROADWAY WIDTH	9' - 9"
SKEW	90° 00' 00"
STRUCTURE NO	L-XXX
RECOMMENDED DATE	

FOR CURVE DATA AND ALIGNMENT BEARINGS, SEE SHEET 3
FOR PROFILE, SEE SHEETS 19 & 20
FOR CONTOUR GRADING PLAN, SEE SHEETS 21

**90%
SUBMISSION**

SCALE: 1" = 25'
DO NOT SCALE THIS DRAWING FOR DIMENSIONS NOT GIVEN

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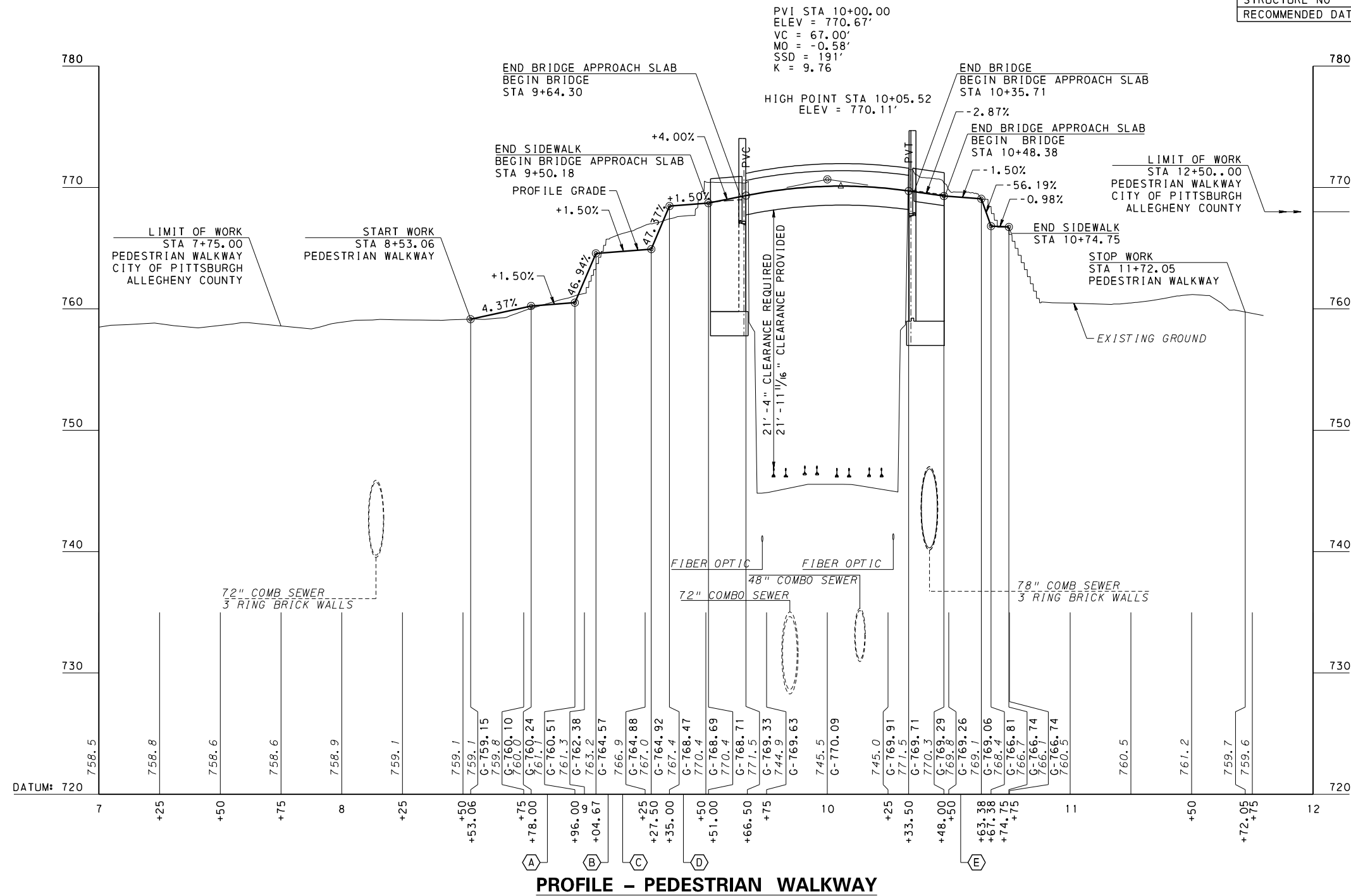
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE PLAN			
DESIGN	JAH	REV	D2122
PERM	WRB	FILE NO.	BR0027857
CHK	WVB	DATE	9/5/2024
SHEET NO.			18 OF 21
MILE POST			PC 1.50
DRAWING NUMBER			PC-1.50 24 18

SURVEY BOOK NO NS MBI PED BRIDGE 1

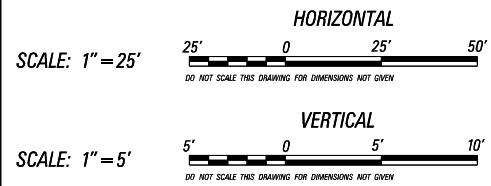
952024

PROPOSED STRUCTURE DATA ALLEGHENY COMMONS PEDESTRIAN BRIDGE OVER NS	
STATION	10+00.00
TYPE	STEEL PLATE GIRDER
SPAN LENGTH	68' - 9"
UNDERCLEARANCE	21' - 4"± OVER RR
CLEAR ROADWAY WIDTH	9' - 9"
SKEW	90° 00' 00"
STRUCTURE NO	L-XXX
RECOMMENDED DATE	



TABULATION OF STATION TIES

- (A) POT STA 8+84.68 PEDESTRIAN WALKWAY SURVEY & CONSTR \mathcal{C} = POT STA 31.92.54 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR \mathcal{B}
- (B) POT STA 9+09.68 PEDESTRIAN WALKWAY SURVEY & CONSTR \mathcal{C} = POT STA 30+99.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR \mathcal{B}
- (C) POT STA 9+15.68 PEDESTRIAN WALKWAY SURVEY & CONSTR \mathcal{C} = POT STA 30+93.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR \mathcal{B}
- (D) POT STA 9+40.68 PEDESTRIAN WALKWAY SURVEY & CONSTR \mathcal{C} = POT STA 30+00.00 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR \mathcal{B}
- (E) POT STA 10+54.88 PEDESTRIAN WALKWAY SURVEY & CONSTR \mathcal{C} = POT STA 50+00.00 PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR \mathcal{C}



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SURVEY BOOK NO NS MBI PED BRIDGE 1

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100 AIRSIDE DRIVE
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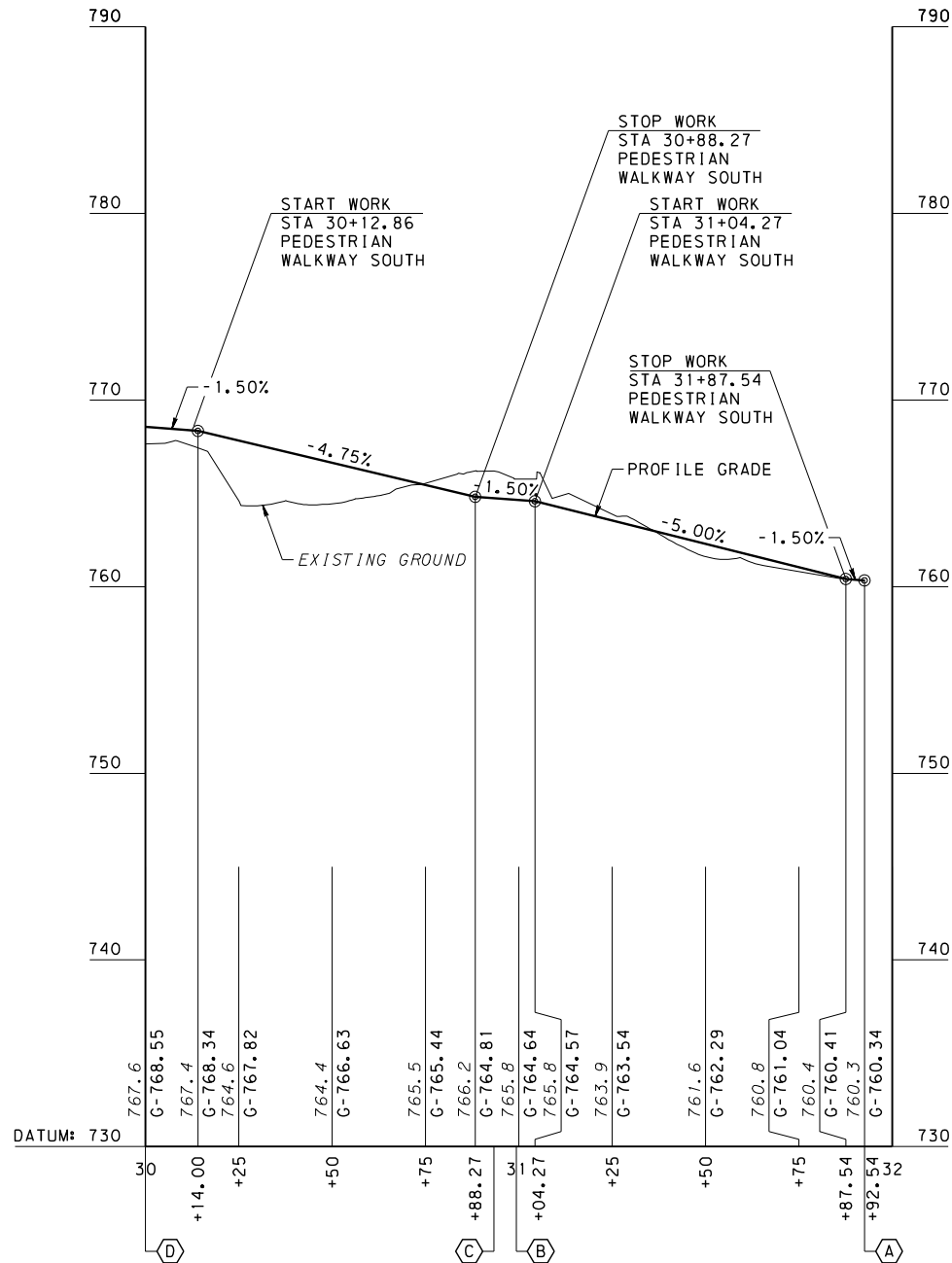
FOR PLAN, SEE SHEET 18

NORFOLK SOUTHERN

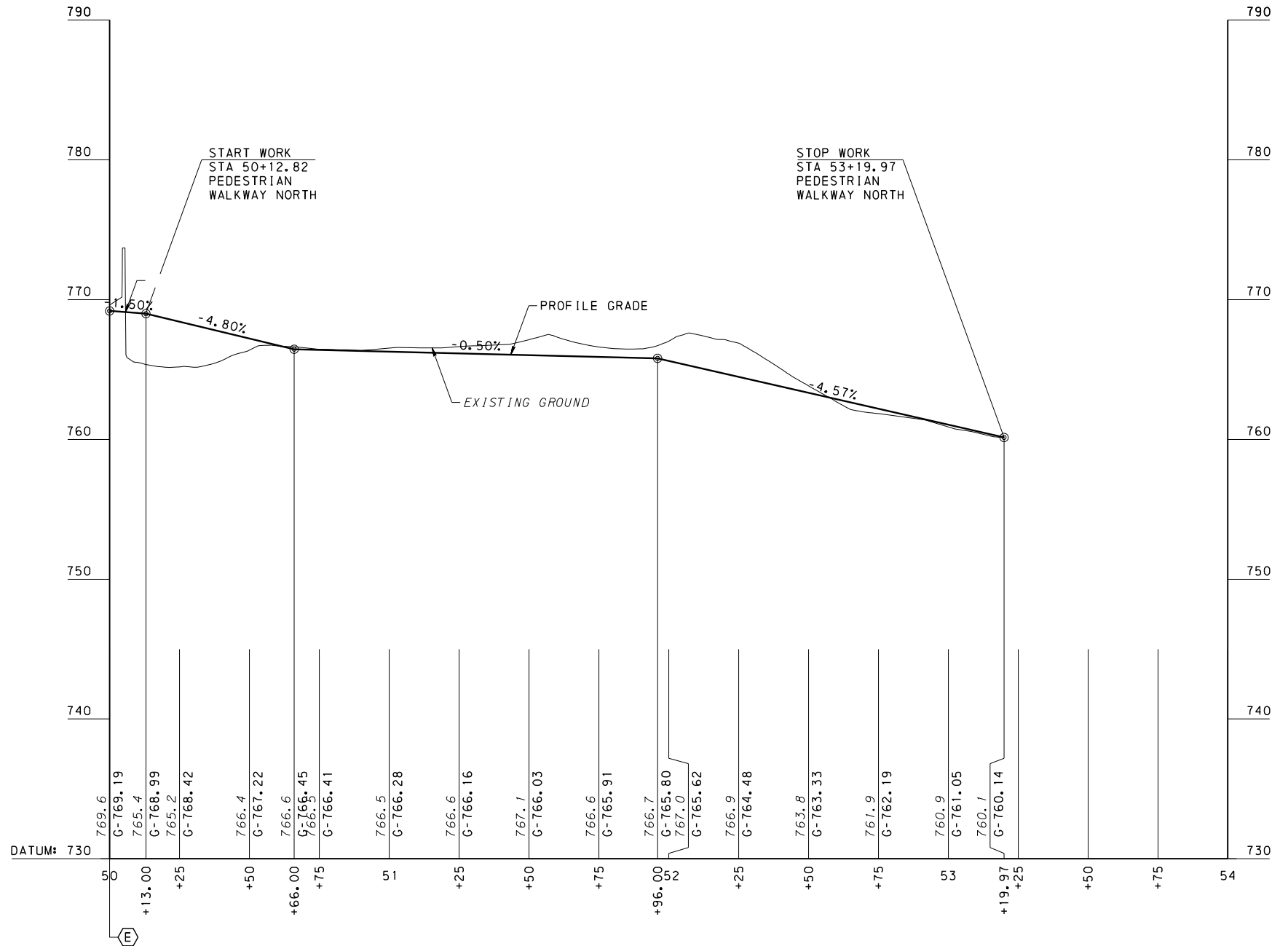
NORFOLK SOUTHERN RAILWAY COMPANY

PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
PROFILE - PEDESTRIAN WALKWAY			
CSN	JAH	D2122	1290818-OH77
SPW	WRB	BR0027857	
CHK	WVB	9/5/2024	
MILE POST			PC 1.50
DRAWING NUMBER			PC-1.50 24 19



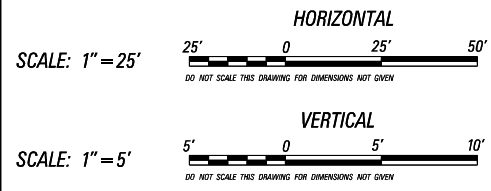
PROFILE - PEDESTRIAN WALKWAY SOUTH



PROFILE - PEDESTRIAN WALKWAY NORTH

TABULATION OF STATION TIES

(A)	POT STA 8+84.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =	POT STA 31.92.54 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR C
(B)	POT STA 9+09.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =	POT STA 30+99.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR C
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(D)	POT STA 9+40.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C =	POT STA 30+00.00 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR C
(E)	POT STA 10+54.88 PEDESTRIAN WALKWAY SURVEY & CONSTR C =	POT STA 50+00.00 PEDESTRIAN WALKWAY NORTH SURVEY & CONSTR C



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SURVEY BOOK NO NS MBI PED BRIDGE 1

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100 AIRSIDE DRIVE
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FOR PLAN, SEE SHEET 18

NORFOLK SOUTHERN

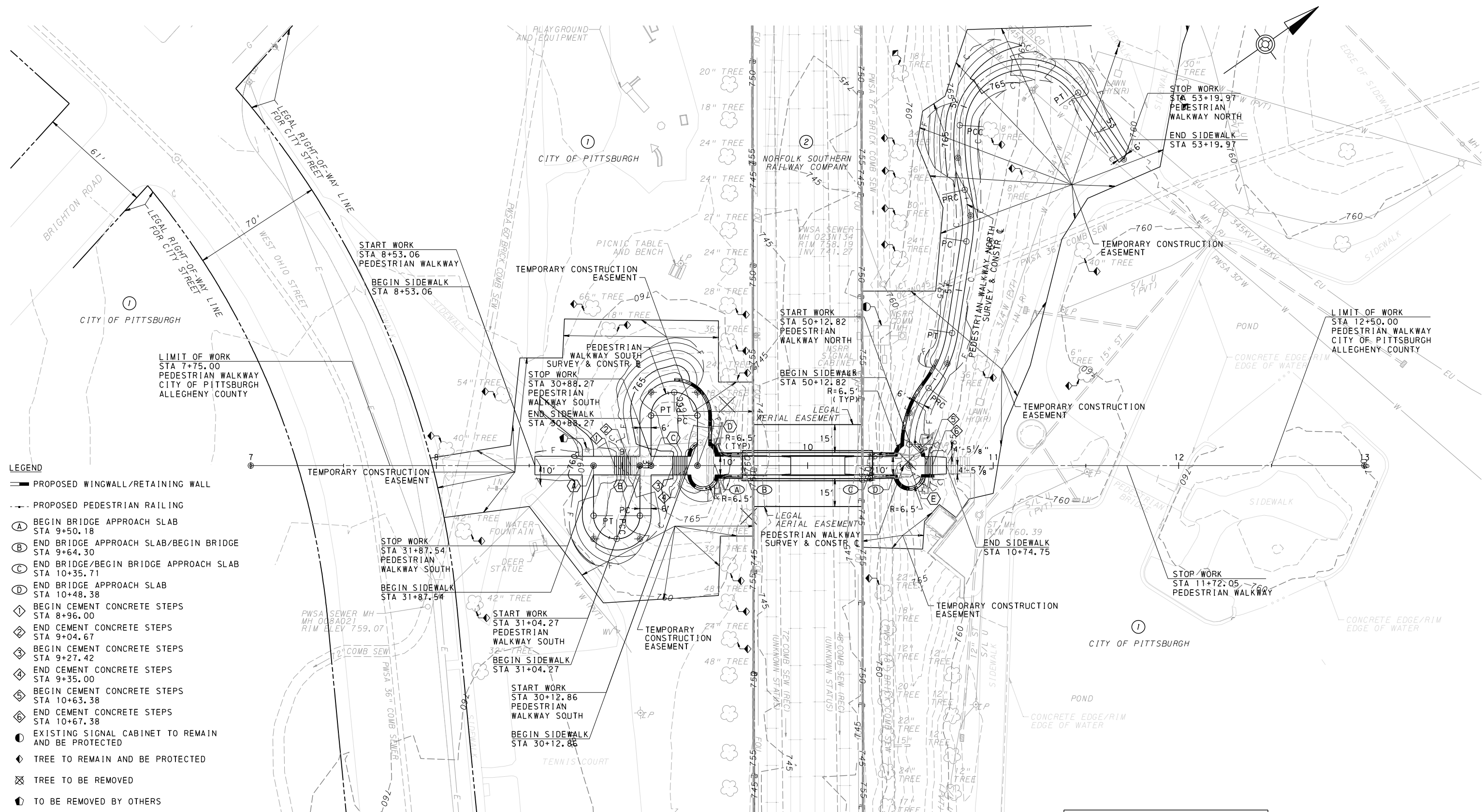
NORFOLK SOUTHERN RAILWAY COMPANY

OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE PROFILES - PEDESTRIAN WALKWAY SOUTH AND PEDESTRIAN WALKWAY NORTH			
DESIGN	JAH	DATE: 02/22	SCALE: 1"=25'
DRAWN	WRB	DATE: 02/22	SCALE: 1"=25'
CHECK	WVB	DATE: 02/22	SCALE: 1"=25'
SHEET NO. 20 OF 21			PC-1.50 24 20

952024

NS_Ped_Bridge_Grading



- LEGEND**
- PROPOSED WINGWALL/RETAINING WALL
 - - - PROPOSED PEDESTRIAN RAILING
 - (A) BEGIN BRIDGE APPROACH SLAB STA 9+50.18
 - (B) END BRIDGE APPROACH SLAB/BEGIN BRIDGE STA 9+64.30
 - (C) END BRIDGE/BEGIN BRIDGE APPROACH SLAB STA 10+35.71
 - (D) END BRIDGE APPROACH SLAB STA 10+48.38
 - ◇ BEGIN CEMENT CONCRETE STEPS STA 8+96.00
 - ◇ END CEMENT CONCRETE STEPS STA 9+04.67
 - ◇ BEGIN CEMENT CONCRETE STEPS STA 9+27.42
 - ◇ END CEMENT CONCRETE STEPS STA 9+35.00
 - ◇ BEGIN CEMENT CONCRETE STEPS STA 10+63.38
 - ◇ END CEMENT CONCRETE STEPS STA 10+67.38
 - EXISTING SIGNAL CABINET TO REMAIN AND BE PROTECTED
 - ◆ TREE TO REMAIN AND BE PROTECTED
 - ⊗ TREE TO BE REMOVED
 - ⬇ TO BE REMOVED BY OTHERS

TABULATION OF STATION TIES

- (A) POT STA 8+84.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 31.92.54 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
- (B) POT STA 9+09.68 PEDESTRIAN WALKWAY SURVEY & CONSTR C = POT STA 30+99.27 PEDESTRIAN WALKWAY SOUTH SURVEY & CONSTR B
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NOTE:
ALL TREES TO REMAIN UNLESS OTHERWISE NOTED.

**90%
SUBMISSION**

SCALE: 1" = 25'
DO NOT SCALE THIS DRAWING FOR DIMENSIONS NOT GIVEN

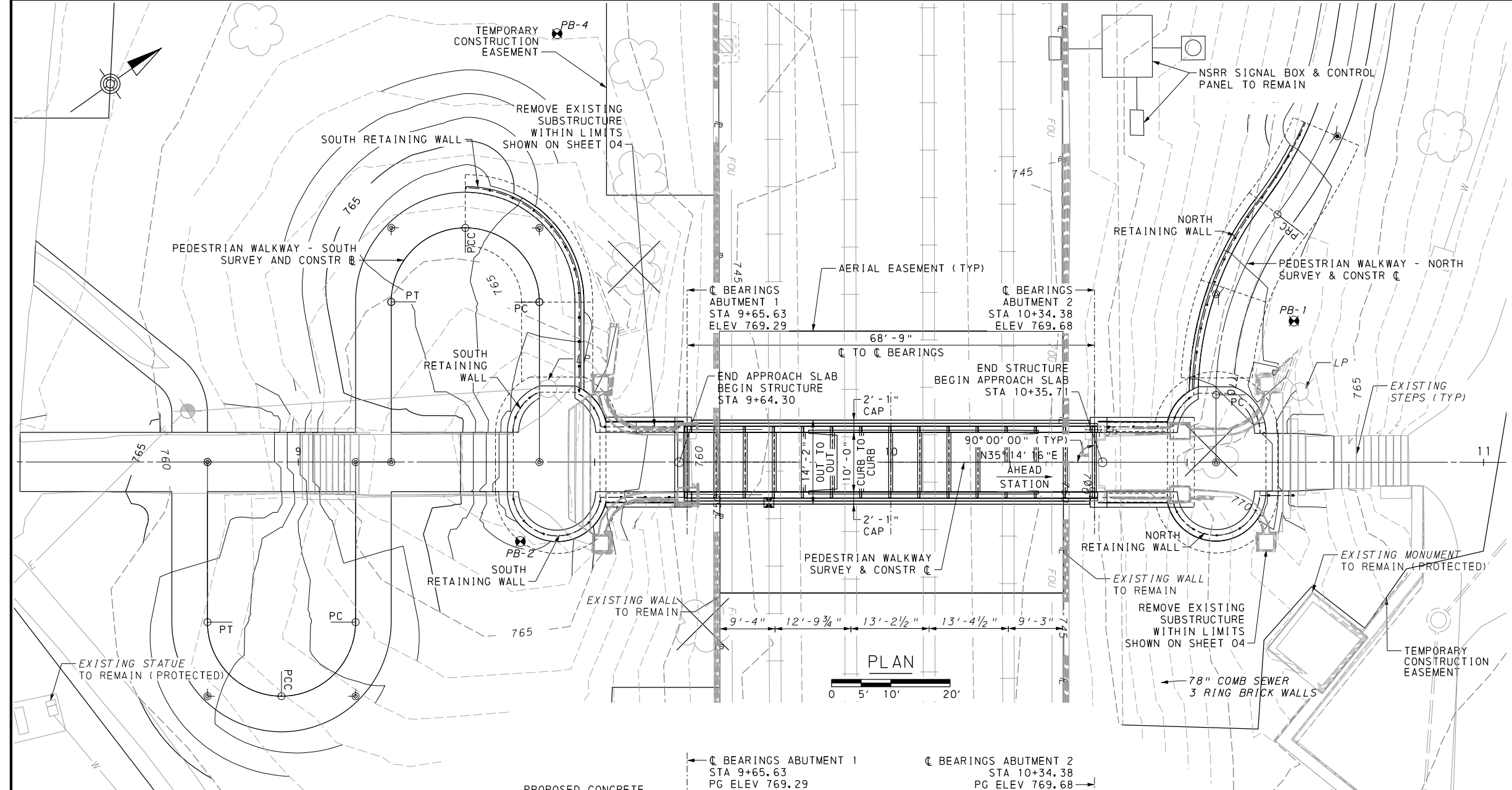
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
Phone: (412) 269-6300

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NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

FOR CURVE DATA AND ALIGNMENT BEARINGS, SEE SHEET 3
FOR PLAN, SEE SHEET 18
FOR PROFILE, SEE SHEETS 19 & 20

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
PROJECT: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
DRAWING TITLE: CONTOUR GRADING PLAN			
DESIGN	JAH	DATE	02/22
PERMIT	WRB	DATE	02/22
CHECK	WRB	DATE	02/22
CADD FILE	NS_Ped_Bridge_Grading		
MILE POST			PC 1.50
DRAWING NUMBER			PC-1.50 24 21

SURVEY BOOK NO NS MBI PED BRIDGE 1



TRACK ELEVATIONS	
TRACK NO.	ELEVATION (FT)
TR1	746.09
TR2	746.10
TR3	746.05
TR4	746.06
TR5	746.22
TR6	746.22
TR7	746.09
TR8	746.07

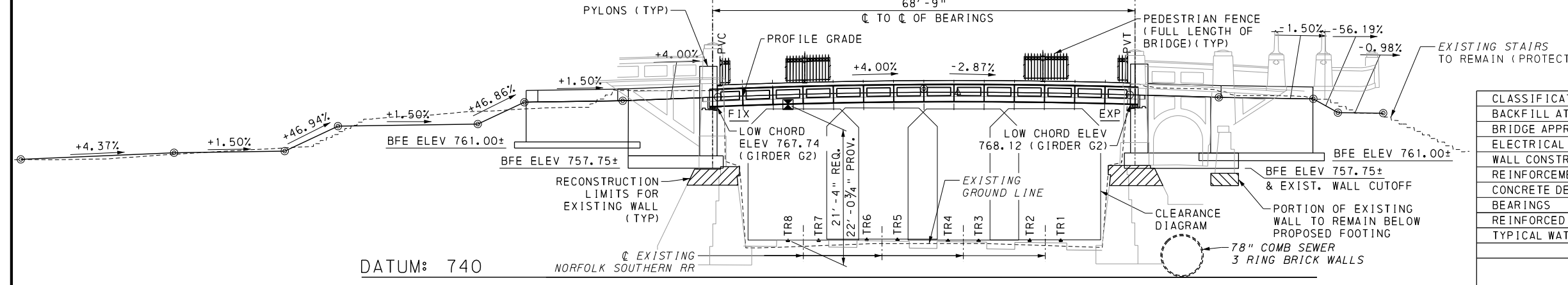
NOTE: TRACK ELEVATIONS TAKEN UNDER BRIDGE CENTERLINE

LEGEND:

- ⊠ POINT OF MINIMUM VERTICAL CLEARANCE
- EXP EXPANSION BEARINGS
- FIX FIXED BEARINGS
- ⊕ CORE BORING/TEST PIT
- W PWSA WATER LINE
- EU ELECTRIC LINE UNDERGROUND
- PROPOSED CONTOURS
- - - EXISTING CONTOURS
- STORM SEWER
- - - COMBINATION SEWER
- FOU FIBER OPTIC

AS DRILLED CORE BORINGS			
NUMBER	NORTHING	EASTING	ELEVATION
PB-1	415989.1510	1338886.1170	767.30
PB-2	415861.0760	1338841.2090	766.90
PB-3*	416031.9970	1338839.4990	766.00
PB-4	415915.5270	1338774.8090	760.70

* BORING LOCATION NOT SHOWN, OUTSIDE OF PLAN AREA



CLASSIFICATION OF EARTHWORK FOR STRUCTURES	RC-11M	06/01/2010
BACKFILL AT STRUCTURES	RC-12M	11/01/2022
BRIDGE APPROACH SLAB	RC-23M	02/08/2019
ELECTRICAL DETAILS	BC-721M	02/19/2021
WALL CONSTRUCTION AND EXPANSION JOINT DETAILS	BC-735M	09/30/2016
REINFORCEMENT BAR FABRICATION DETAILS	BC-736M	11/23/2022
CONCRETE DECK SLAB DETAILS	BC-752M	11/23/2022
BEARINGS	BC-755M	01/31/2019
REINFORCED CONCRETE REPAIR	BC-783M	01/31/2019
TYPICAL WATERPROOFING AND EXPANSION DETAILS	BC-788M	11/23/2022
DESCRIPTION	DWG. NO.	APP. DATE

SUPPLEMENTAL DRAWINGS

HORIZONTAL CURVE DATA

TANGENT	
---------	--

VERTICAL CURVE DATA

TANGENT	+4.00%	-2.87%
PVI STA	= 10+00.00	
PVI ELEV	= 770.67	
VC	= 67.00'	
MO	= -0.58	



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 MOON TOWNSHIP, PA 15108
 PHONE: (412) 269-6300

NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 PITTSBURGH

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
GENERAL PLAN & ELEVATION			
DRW	FILE NO.	DATE	DESCRIPTION
DRW	FILE NO.	DATE	DESCRIPTION
CHK	DATE	DESCRIPTION	
			PC-1.50 24 01
			MARCH 22, 2024

9/10/2024 7:43:08 PM NS_INL_PED_LDFE.dgn

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION 2017, AND AS SUPPLEMENTED BY PENNDOT DESIGN MANUAL, PART 4, STRUCTURES, DECEMBER 2019 EDITION (INCLUDING LATEST REVISIONS).

AASHTO LRFD GUIDE DESIGN SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, DECEMBER 2009 EDITION WITH 2015 INTERIM REVISIONS.

LIVE LOAD DISTRIBUTION TO FLOORBEAMS IS BASED UPON DM-4 LEVER RULE.

DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

GENERAL:

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS PUBLICATION 408/2020, ANSI/AASHTO/AWS D1.5/D1.5M: 2008 BRIDGE WELDING CODE, AND THE CONTRACT SPECIAL PROVISIONS (USE AASHTO/AWS D1.1/D1.1M: 2008 FOR WELDING NOT COVERED IN AASHTO/AWS D1.5/D1.5M: 2008) AND CONTRACT SPECIAL PROVISIONS.

STATIONS AND ELEVATIONS ARE GIVEN IN FEET UNLESS OTHERWISE NOTED.

ALL DIMENSIONS SHOWN ARE HORIZONTAL, EXCEPT AS NOTED.

SUPERSTRUCTURE DIMENSIONS SHOWN ARE FOR A NORMAL TEMPERATURE OF 68 DEGREES F.

SITE CLASS IS NOT CLASS E.

PLACE ABUTMENT BACKWALLS UP TO A CONSTRUCTION JOINT BELOW THE LEVEL OF THE BOTTOM OF THE DECK SLAB PRIOR TO CONSTRUCTION OF THE DECK.

PLACE CHEEKWALL AND BACKWALL CONCRETE AFTER GIRDERS ARE SET IN POSITION.

DO NOT USE ADHESIVE ANCHORS IN TENSION APPLICATION FOR PERMANENT INSTALLATIONS.

DO NOT USE ADHESIVE ANCHORS IN A SUSTAINED TENSION APPLICATION FOR TEMPORARY INSTALLATIONS, INCLUDING DURING CONSTRUCTION.

CONCRETE:

PROVIDE 2 INCHES CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.

USE CLASS AACP CEMENT CONCRETE IN DECK SLAB.

USE CLASS AA CEMENT CONCRETE IN BARRIERS, CAP CONCRETE, AND WEB INFILL CONCRETE.

USE CLASS AA CEMENT CONCRETE ABUTMENT BACKWALLS AND CHEEKWALLS.

USE CLASS A CONCRETE IN ABUTMENTS AND WINGWALLS.

SUBSTITUTE A HIGHER CLASS CONCRETE FOR A LOWER CLASS CONCRETE AT NO ADDITIONAL COST TO THE RAILROAD, IF APPROVED BY THE RAILROAD'S REPRESENTATIVE.

PREPARE BEARING AREAS AS SPECIFIED IN PUBLICATION 408, SECTION 1001.3(k)9.

ALTERNATE DECK PLACEMENT SEQUENCES ARE NOT PERMITTED.

USE EITHER PERMANENT METAL FORMS OR REMOVABLE FORMS TO CONSTRUCT THE DECK SLAB.

RAKE-FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.

CHAMFER EXPOSED CONCRETE EDGES 3/4 INCH BY 3/4 INCH, EXCEPT AS NOTED.

APPLY PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS), IN ACCORDANCE WITH SECTION 1019, TO THE EXPOSED CONCRETE ROADWAY SURFACES, BARRIER FACES AND DOWN TO THE DECK DRIP NOTCH ON THE SUPERSTRUCTURE. LIMITS OF THE APPROACH SLAB INCLUDE THE EXPOSED ROADWAY SURFACES INCLUDING THE OUTSIDE EXPOSED SURFACE TO THE GROUND LINE, ABUTMENTS, AND WINGS.

PROVIDE EPOXY BONDING COMPOUND IN ACCORDANCE WITH PUBLICATION 408, SECTIONS 706.1 AND 1001.3(m).

SET ANCHOR BOLTS TO TEMPLATE OR IN PREFORMED HOLES. DO NOT DRILL UNLESS SPECIFICALLY INDICATED ON PLANS. FILL THE PREFORMED HOLES WITH NON-SHRINK GROUT. FILL THE CLEARANCE BETWEEN ANCHOR BOLTS AND HOLES IN MASONRY PLATES WITH APPROVED NON-HARDENING CAULKING COMPOUND CONFORMING TO PUBLICATION 408, SECTION 705.7.

REINFORCEMENT:

PROVIDE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A615, A996, OR A706. DO NOT WELD GRADE 60 REINFORCING STEEL BARS UNLESS SPECIFIED. DO NOT USE RAIL STEEL ASTM A996 REINFORCEMENT BARS IN BRIDGE PIERS, ABUTMENTS, FOOTINGS, PILES, BARRIERS OR WHERE BENDING OR WELDING OF THE REINFORCEMENT BARS IS INDICATED.

USE EPOXY-COATED REINFORCEMENT BARS IN THE DECK SLAB, BARRIERS, SIDEWALKS, ABUTMENT BACKWALLS, CHEEKWALLS, U-WINGS ABOVE THE CONSTRUCTION JOINT, AND ABUTMENT SEAT BARS. EPOXY-COAT J-BAR REINFORCEMENT IN SUBSTRUCTURE UNITS AND EPOXY-COAT OTHER SUBSTRUCTURE REINFORCEMENT BARS AS INDICATED.

SUBSTITUTE GALVANIZED REINFORCEMENT BARS FOR EPOXY COATED REINFORCEMENT BARS AT NO ADDITIONAL COST TO THE RAILROAD.

WELDING OF REINFORCEMENT BARS DURING FABRICATION OR CONSTRUCTION IS NOT PERMITTED UNLESS SPECIFIED.

PROVIDE MINIMUM EMBEDMENT AND SPLICE LENGTHS IN ACCORDANCE WITH STANDARD DRAWING BC-736M, UNLESS OTHERWISE INDICATED.

REPAIR THE EPOXY COATING AS PER PUB 408 SECTION 1002.

STEEL NOTES:

PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M 270/M 270M GRADE 50 (ASTM A709/A709M GRADE 50) EXCEPT WHEN NOTED OTHERWISE.

FABRICATE ALL MEMBERS OR MEMBER COMPONENTS DESIGNATED AS FRACTURE CRITICAL MEMBERS (FCM) TO CONFORM TO THE REQUIREMENTS OF DESIGN MANUAL, PART 4, SECTION 6, ARTICLE D6.6.2, AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 6.6.2, AND PUBLICATION 408, SECTIONS 1105.02(c)5 AND 1105.03(m)9. MEET THE BASE METAL CHARPY V-NOTCH (CVN) REQUIREMENTS FOR ZONE 2.

DETAIL AND FABRICATE THE STEEL SUPERSTRUCTURE FOR STEEL DEAD LOAD FIT (SDLF).

DO NOT WELD TO THE GIRDERS UNLESS NOTED ON THE DRAWINGS.

FIELD SPLICES ARE NOT PERMITTED.

COAT ALL STEEL STRUCTURAL ELEMENTS IN ACCORDANCE WITH PUBLICATION 408 SECTION 1060.2(f).

PERFORM CHARPY V-NOTCH (CVN) TESTS AS INDICATED AS SPECIFIED IN PUBLICATION 408, SECTION 1105.02(c)5.

DO NOT USE FORM SUPPORT SYSTEMS THAT WILL CAUSE UNACCEPTABLE OVERSTRESS OR DEFORMATION TO PERMANENT BRIDGE MEMBERS.

PROVIDE A CLASS B SLIP COEFFICIENT FOR THE CONTACT AREA OF BOLTED PARTS.

EXCLUDE BOLT THREADS FROM SHEAR PLANES UNLESS OTHERWISE NOTED. WHERE FEASIBLE PLACE BOLTS SO THAT THE THREADED ENDS ARE PROTECTED FROM THE WEATHER.

PROVIDE SWEDGE ANCHOR BOLTS CONFORMING TO ASTM F1554 WITH SWEDGES PRESSED (STAMPED) OR ROLLED IN. "ALL-THREAD" BOLTS ARE NOT PERMITTED.

THE COST TO FURNISH AND INSTALL ALL NUTS, BOLTS AND WASHERS IS INCIDENTAL TO THE FABRICATED STRUCTURAL STEEL ITEM.

ALL FAYING SURFACES ARE CONSIDERED SLIP CRITICAL UNLESS OTHERWISE INDICATED.

PROVIDE WELDED STUD SHEAR CONNECTORS MANUFACTURED FROM STEEL CONFORMING TO ASTM A108. INSTALL SHEAR CONNECTORS IN THE FIELD AFTER INSTALLATION OF THE DECK FORMS.

ALL FASTENERS ARE 7/8 INCH DIAMETER AASHTO M164 (ASTM A325), TYPE 1 BOLTS. MECHANICALLY GALVANIZE HIGH STRENGTH BOLTS IN ACCORDANCE WITH AASHTO M298 (ASTM B695) CLASS 50. PERFORM TENSION TEST OF GALVANIZED NUTS AND WASHERS USING THE SAME PROCESS AS THE BOLTS.

WELDING NOTES:

MAKE TACK WELDS WITH THE SAME TYPE OF ELECTRODE AND INCORPORATE IN THE FINAL WELD. NO OTHER TACK WELDING IS PERMITTED.

DO NOT MAKE WELDS BY MANUAL SHIELDED METAL ARC PROCESS FOR FLOORBEAM, SUCH AS FLANGE-TO-WEB WELDS OR FOR SHOP SPLICES OF WEBS AND FLANGES.

DO NOT WELD WHEN SURFACES PREPARED FOR WELDING ARE MOIST OR EXPOSED TO RAIN, SNOW, OR WIND, OR WHEN WELDERS ARE EXPOSED TO INCLEMENT CONDITIONS THAT WILL ADVERSELY AFFECT THE QUALITY OF THE WORK.

DO NOT WELD OR BURN WHEN THE TEMPERATURE IS BELOW 0 DEGREES FAHRENHEIT. PREHEAT AND MAINTAIN THE TEMPERATURE OF THE METAL TO AT LEAST 70 DEGREES FAHRENHEIT WHEN THE TEMPERATURE OF THE METAL IS BETWEEN 0 DEGREES FAHRENHEIT AND 32 DEGREES FAHRENHEIT DURING WELDING OR BURNING.

PREHEAT THE STEEL TO THE SPECIFIED MINIMUM TEMPERATURE FOR A DISTANCE EQUAL TO THE THICKNESS OF THE PART BEING WELDED, BUT NOT LESS THAN 3 INCHES IN ALL DIRECTIONS FROM THE POINT OF WELDING.

REMOVE ANY MOISTURE PRESENT AT POINT OF WELD BY APPLICATION OF HEAT. PROVIDE WINDBREAKS FOR PROTECTION FROM DIRECT WIND.

THOROUGHLY CLEAN ALL PORTIONS OF NEW SURFACES TO RECEIVE WELDS OF ALL FOREIGN MATTER, FOR A DISTANCE OF 2 INCHES FROM EACH SIDE OF THE OUTSIDE LINES OF WELD PRIOR TO PLACING WELD.

TEST COMPLETED WELDS USING VISUAL AND NONDESTRUCTIVE METHODS IN ACCORDANCE WITH AASHTO/AWS.D1.5M/D1.5 BRIDGE WELDING CODE CHAPTER 6.

FIELD WELDING, EXCEPT FOR THE SHEAR CONNECTORS AND STAY-IN-PLACE FORMS, IS NOT PERMITTED UNLESS APPROVED BY THE RAILROAD'S REPRESENTATIVE.

DO NOT WELD PERMANENT METAL DECK FORMS OR OTHER ATTACHMENTS TO FLOORBEAM TOP FLANGES IN TENSION AREAS. (TENSION AREAS OF TOP FLANGES ARE DESIGNATED ON THE PLANS). THREADED STUDS FOR THE SUPPORT OF THE OVERHANG DECK FORMING BRACKET ARE PERMITTED PROVIDING THE THREADED STUD IS ATTACHED WITH THE SAME WELDING PROCESSING AS THE SHEAR STUDS.

EXISTING BRIDGE NOTES:

DISPOSE OF ALL EXISTING CONCRETE REMOVED FROM THE STRUCTURE, OFF SITE, TO THE SATISFACTION OF THE RAILROAD'S REPRESENTATIVE.

REMOVE THE PORTION OF THE EXISTING BRIDGE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

DO NOT CONSIDER ANY OF THE DATA ON THE EXISTING BRIDGE SUPPLIED IN THE ORIGINAL DESIGN DRAWINGS OR MADE AVAILABLE TO YOU BY THE RAILROAD OR ITS AUTHORIZED AGENTS AS POSITIVE REPRESENTATIONS OF ANY OF THE CONDITIONS THAT YOU WILL ENCOUNTER IN THE FIELD.

THE INFORMATION SHOWN ON THE PLANS FOR THE EXISTING BRIDGE IS NOT PART OF THE PLANS, PROPOSAL, OR CONTRACT AND IS NOT CONSIDERED A BASIS FOR COMPUTATION OF THE UNIT PRICES USED FOR BIDDING PURPOSES. THERE IS NO EXPRESSED OR IMPLIED AGREEMENT THAT INFORMATION IS CORRECTLY SHOWN. THE BIDDER IS NOT TO RELY ON THIS INFORMATION, BUT IS TO ASSUME THE POSSIBILITY THAT CONDITIONS AFFECTING THE COST AND/OR QUANTITIES OF WORK TO BE PERFORMED MAY DIFFER FROM THOSE INDICATED.

VERIFY ALL DIMENSIONS AND GEOMETRY OF THE EXISTING STRUCTURE IN THE FIELD AS NECESSARY FOR PROPER FIT OF THE PROPOSED CONSTRUCTION.

BIDDERS ARE ADVISED TO FIELD-VERIFY INFORMATION PRESENTED. THE DATA SHOWN HEREIN IS NOT A PART OF THE PLANS, PROPOSAL, OR CONTRACT, AND IS NOT CONSIDERED AS A BASIS FOR COMPUTATION FOR ANY PURPOSE.

CLOSE MONITORING OF THE EXISTING SUBSTRUCTURES AND A DETAILED DEMOLITION PLAN WILL BE REQUIRED FOR REMOVAL OF THE EXISTING SUBSTRUCTURE AND PORTIONS OF THE SUBSTRUCTURE. MONITOR THE EXISTING STRUCTURE DURING DEMOLITION IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

EXISTING DRAWINGS:

ORIGINAL PLANS, 1 SHEET, DATED AUGUST 13, 1928.

ERECTION:

CONTRACTOR IS RESPONSIBLE FOR TEMPORARY BRACING OF THE TRUSSES AND FLOORBEAMS.

MAINTAIN THE STABILITY OF THE STRUCTURE DURING ALL STAGES OF CONSTRUCTION.

IN ACCORDANCE WITH PUBLICATION 408 SECTION 1050.3(c)3, SUBMIT AN ERECTION PLAN SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA FOR REVIEW AND APPROVAL. DO NOT ERECT ANY STEEL UNTIL THE ERECTION PLAN IS APPROVED.

THE CONTRACTOR IS TO MAINTAIN STABILITY OF PARTIAL MEMBERS AND COMPLETE MEMBERS DURING ERECTION, UNTIL ALL MEMBERS AND ARE IN-PLACE AND BOLTS ARE PROPERLY INSTALLED. THE CONTRACTOR IS TO EVALUATE ERECTION LOADS INCLUDING SELF WEIGHT OF THE STEEL MEMBERS, WIND LOADING AND CONSTRUCTION LIVE LOAD EFFECTS FOR STABILITY, STRESSES AND DEFLECTIONS ON THE STEEL MEMBERS DURING ANY STAGE OF ERECTION AND DURING THE CONCRETE PLACEMENT.

FALSEWORK OVER THE RAILROAD IS NOT PERMITTED.

THE COST FOR FALSEWORK, TEMPORARY BENTS, WIND BRACING AND ALL OTHER TEMPORARY SUPPORT SYSTEMS REQUIRED DURING ANY STAGES OF CONSTRUCTION IS INCIDENTAL TO THE FABRICATED STRUCTURAL STEEL ITEM.

EARTHWORK NOTES:

CLASS 3 EXCAVATION IS UNSUITABLE FOR USE AS EMBANKMENT MATERIAL.

BLASTING IS NOT PERMITTED FOR FOUNDATION EXCAVATION.

THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EMBANKMENTS AND EXCAVATED SLOPES. DIVERT ALL SURFACE RUNOFF AWAY FROM EMBANKMENTS IN THE CONSTRUCTION AND EXCAVATIONS IN ACCORDANCE WITH PUBLICATION 408, SECTION 206, AND OSHA REQUIREMENTS AS APPROPRIATE.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT DEWATERING SO THAT THE EXCAVATIONS ARE DRY ENOUGH TO BE INSPECTED BY THE RAILROAD'S GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.

REFERENCES: SHEET:
1. GENERAL NOTES AND QUANTITIES - 2 03

3/22/2024

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<p>60% SUBMISSION</p>	<p>Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300</p>	 <p>NORFOLK SOUTHERN RAILWAY COMPANY</p> <p><small>OWNING COMPANY</small> PITTSBURGH <small>OPERATING DIVISION</small> <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA GA</small></p>	<p>REV _____ BY _____ DATE _____ DESCRIPTION _____</p> <p>LOCATION: PITTSBURGH, PENNSYLVANIA</p> <p>TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</p> <p>GENERAL NOTES AND QUANTITIES - 1</p> <table border="1"> <tr> <td>DESIGN</td> <td>FILE No</td> <td>DATE</td> <td>SCALE</td> <td>DATE</td> </tr> <tr> <td>XXXXX</td> <td>XXXXXX</td> <td>XXXXXX</td> <td>XXXXXX</td> <td>XXXXXX</td> </tr> <tr> <td>DRAWN</td> <td>FILE No</td> <td>DATE</td> <td>DRAWING NUMBER</td> <td></td> </tr> <tr> <td></td> <td>XXXXXX</td> <td></td> <td>PC-1.50 24 02</td> <td></td> </tr> <tr> <td>CHECK</td> <td>DATE</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>MARCH 22, 2024</td> <td></td> <td></td> </tr> </table>	DESIGN	FILE No	DATE	SCALE	DATE	XXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	DRAWN	FILE No	DATE	DRAWING NUMBER			XXXXXX		PC-1.50 24 02		CHECK	DATE						MARCH 22, 2024		
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GENERAL NOTES (CONT'D)

PORTIONS OF THE EXISTING ABUTMENTS ARE TO REMAIN. ANY DAMAGE TO THE PORTIONS OF THE STRUCTURE TO REMAIN DURING EXCAVATION OR REMOVAL IS THE RESPONSIBILITY OF THE CONTRACTOR. ANY DAMAGES ARE TO BE REPAIRED AT THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.

UTILITY NOTES:

COORDINATE, LOCATE, AND CONDUCT ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH PUBLICATION 408, SECTIONS 105.06 AND 107.12.

COORDINATE THE REQUIREMENTS FOR PROTECTION AND/OR RELOCATION OF UTILITIES WITH THE UTILITY OWNER PRIOR TO STARTING WORK. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK. CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES ARE NOT DISRUPTED OR ENDANGERED AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. NORFOLK SOUTHERN RAILROAD DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS OR LIABILITY FOR ACCURACY OF TYPE, SIZE AND LOCATION OF ANY UTILITY.

PRIOR TO ANY EXCAVATION OR DEMOLITION WORK, CONTACT THE PA ONE CALL SYSTEM, INC. AT 1-800-242-1776 AND COMPLY WITH THE PROVISIONS OF PA ACT 287 OF 1994 AS AMENDED BY ACT 187 OF 1996. IDENTIFY ALL OVERHEAD LINES AND NOTIFY AND COMPLY WITH THE APPLICABLE UTILITY OWNER'S CLEARANCE REQUIREMENTS.

RAILROAD NOTES:

THE CONTRACTOR SHALL PROVIDE OPEN ACCESS ALONG THE NORFOLK SOUTHERN MAINTENANCE WAY THROUGHOUT CONSTRUCTION.

TEMPORARY RAILROAD CLEARANCES:

- 21'-4" VERTICAL ABOVE TOP OF HIGHEST RAIL
- 13'-0" HORIZONTAL FROM Q TANGENT TRACK
- DO NOT REDUCE EXISTING CLEARANCES WITHOUT WRITTEN PERMISSION FROM NORFOLK SOUTHERN CORPORATION.

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ALTERNATE STRUCTURE ITEMS		
ITEM NO	ITEM	TOTAL
8100-0001	BRIDGE STRUCTURE, AS DESIGNED	(2) LS

APPROXIMATE QUANTITIES - BRIDGE STRUCTURE, AS DESIGNED									
ITEM NO	ITEM	UNIT	ABUT 1	ABUT 2	SUPER-STRUCTURE	SOUTH APPROACH	NORTH APPROACH	TOTAL	
8100-0001	BRIDGE STRUCTURE, AS DESIGNED	(1) LS							LS
(1)	CLASS 3 EXCAVATION	CY							
(1)	STRUCTURE BACKFILL	(2) CY							
(1)	CLASS AAAP CEMENT CONCRETE	(6) CY			24				24
(1)	CLASS AA CEMENT CONCRETE	(4) CY	10	12	9				31
(1)	CLASS A CEMENT CONCRETE	(5) CY	43	38					81
(1)	MEMBRANE WATERPROOFING	SY							
(1)	PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (PENETRATING SEALERS, BRIDGE	SY							
(1)	NEOPRENE STRIP SEAL DAM, (4" MOVEMENT)	LF	14	14					28
(1)	ABUTMENT DOWELS, 24" DEPTH	EA	36	36					72
(1)	FABRICATED STRUCTURAL STEEL	(3) LB			39894				39894
(1)	LAMINATED NEOPRENE BEARING PAD	EA	2	2					4
(1)	SHEAR CONNECTORS	(7) EA							
(1)	SHEAR CONNECTORS	(8) EA							
1002-0052	EPOXY COATED REINFORCEMENT STEEL	LB	5805	5130	7425	1800	2250		22410
AND									
5018-0048	REMOVAL OF PORTION OF EXISTING BRIDGE	LS							LS
AND									
9000-0004	PRECAST FACADE PANELS	(2) SF			400				400
AND									
9000-0005	RETAINING WALLS	(2) LF				171	92		263
AND									
9000-0014	PRE AND POST CONSTRUCTION SURVEY	(2) LS							LS
AND									
9000-0015	RAILROAD DECORATIVE PROTECTIVE FENCE	(2) LF			140				140
AND									
9000-9020	REPAIR DETERIORATED CONCRETE	(2) CF	153	153					306
AND									
9203-0101	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM ABUTMENT 1	(2) SF	100						100
AND									
9203-0102	TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEM ABUTMENT 2	(2) SF		300					300

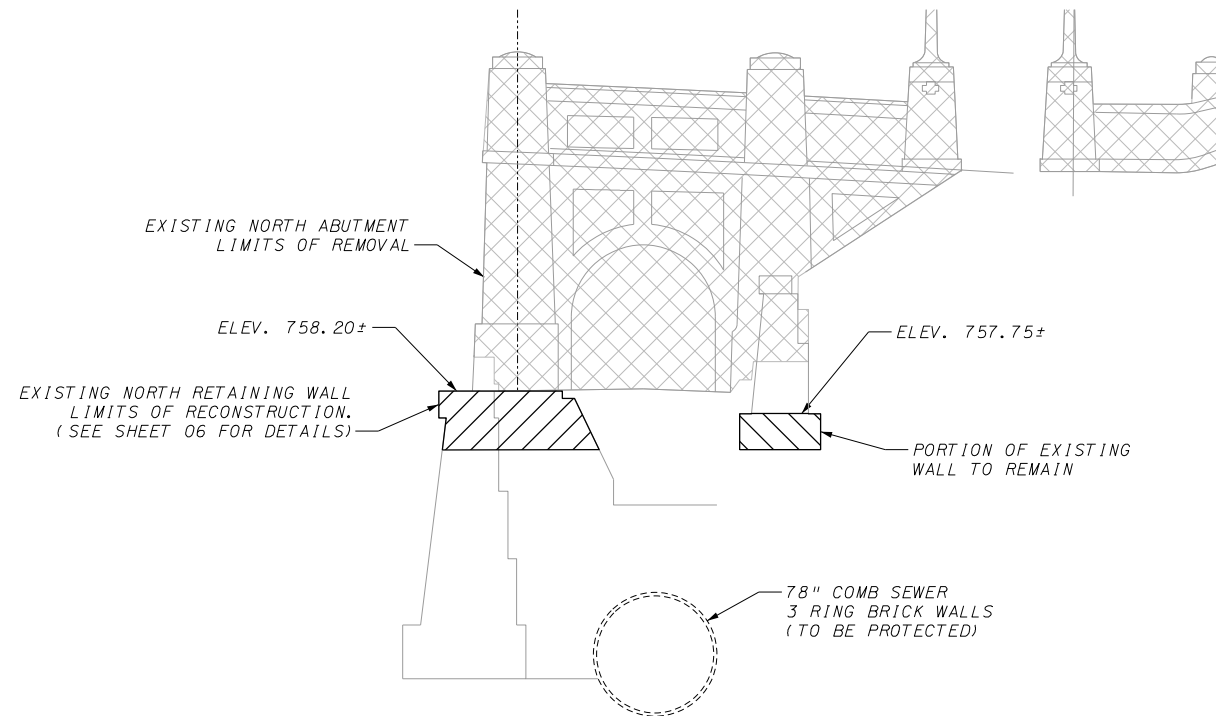
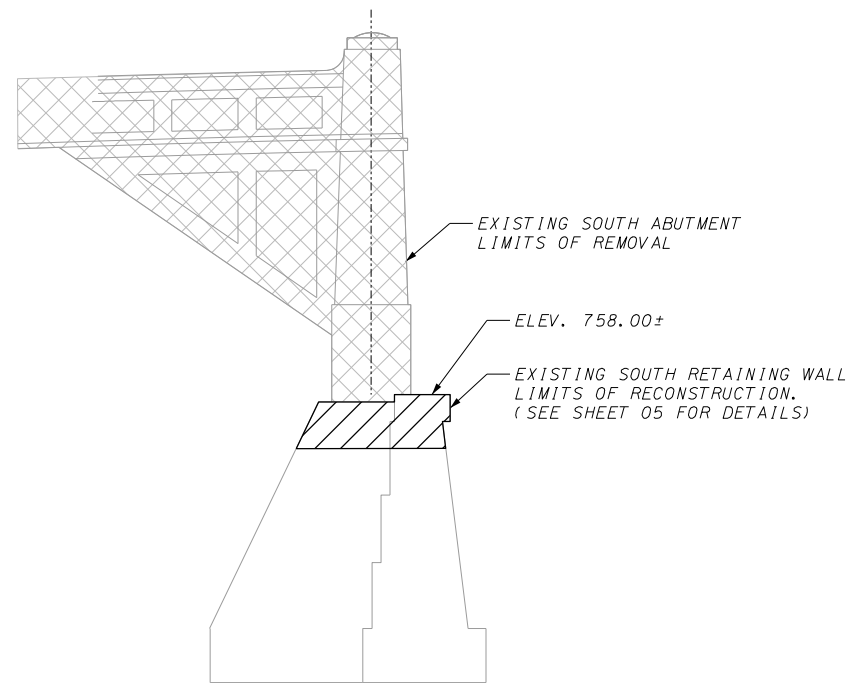
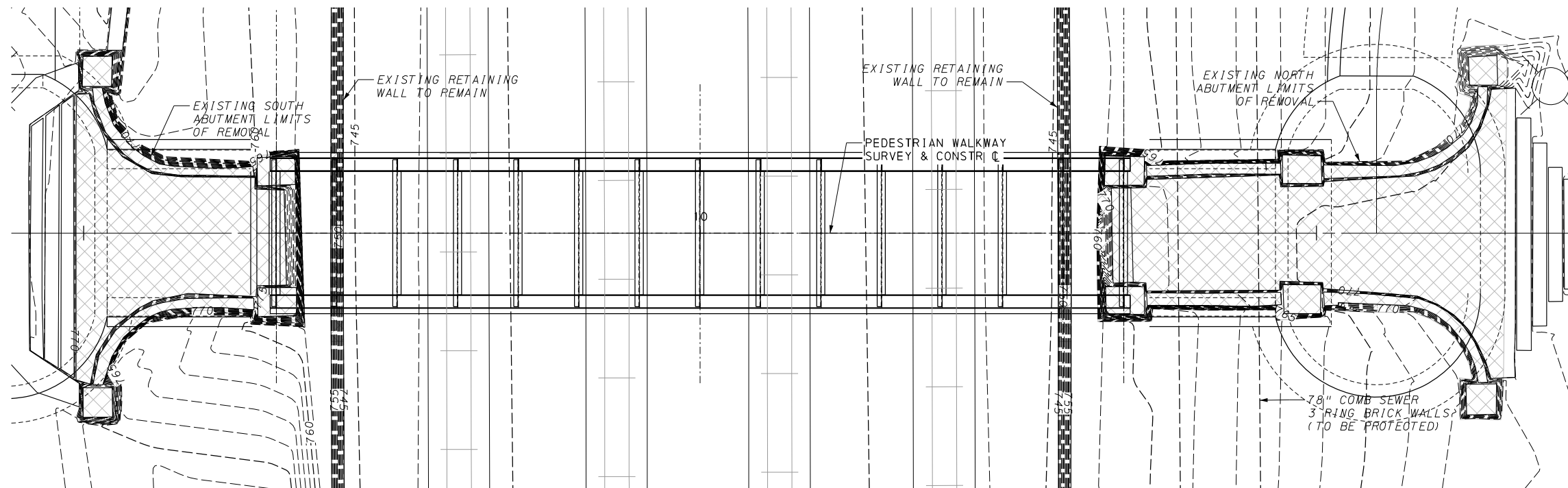
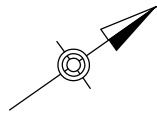
NOTES:

- (1) ITEMS IN BRIDGE LUMP SUM ITEM 8100-0001 ARE GIVEN FOR INFORMATION ONLY
- (2) SEE THE CONTRACT SPECIAL PROVISIONS
- (3) HIGH STRENGTH BOLTS, NUTS, AND WASHERS ARE INCIDENTAL TO FABRICATED STRUCTURAL STEEL
- (4) INCLUDES CLASS AA CONCRETE IN SIDEWALKS, BARRIERS, ABUTMENT BACKWALLS, AND APPROACH SLABS
- (5) INCLUDES CLASS A CEMENT CONCRETE IN ABUTMENT FOOTINGS, ABUTMENT STEMS, AND WINGWALLS
- (6) 0.3 CY INCLUDED FOR THE VOLUME OF CONCRETE IN THE SIP FORM VALLEYS
- (7) REFERS TO 7/8" DIAMETER SHEAR CONNECTORS
- (8) REFERS TO 1/2" DIAMETER SHEAR CONNECTORS

REFERENCES: SHEET: 1. GENERAL NOTES AND QUANTITIES - 1 02

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60% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION, ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
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ELEVATION - REMOVAL LIMITS

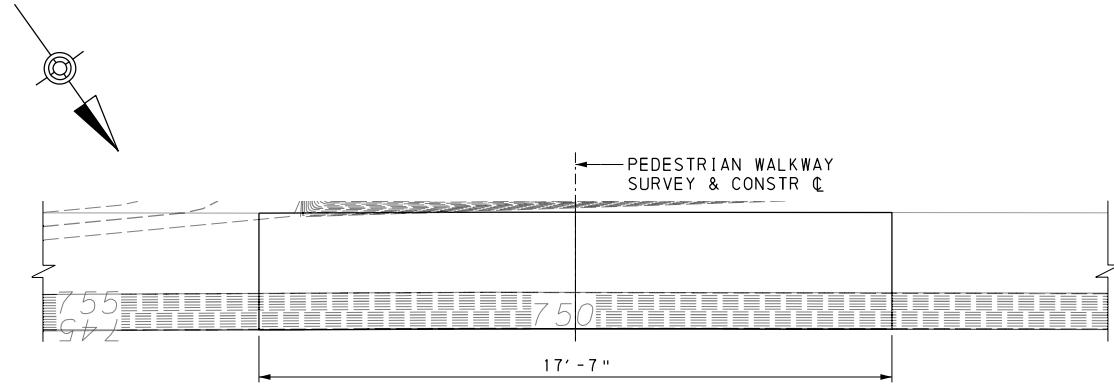
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**90%
SUBMISSION**

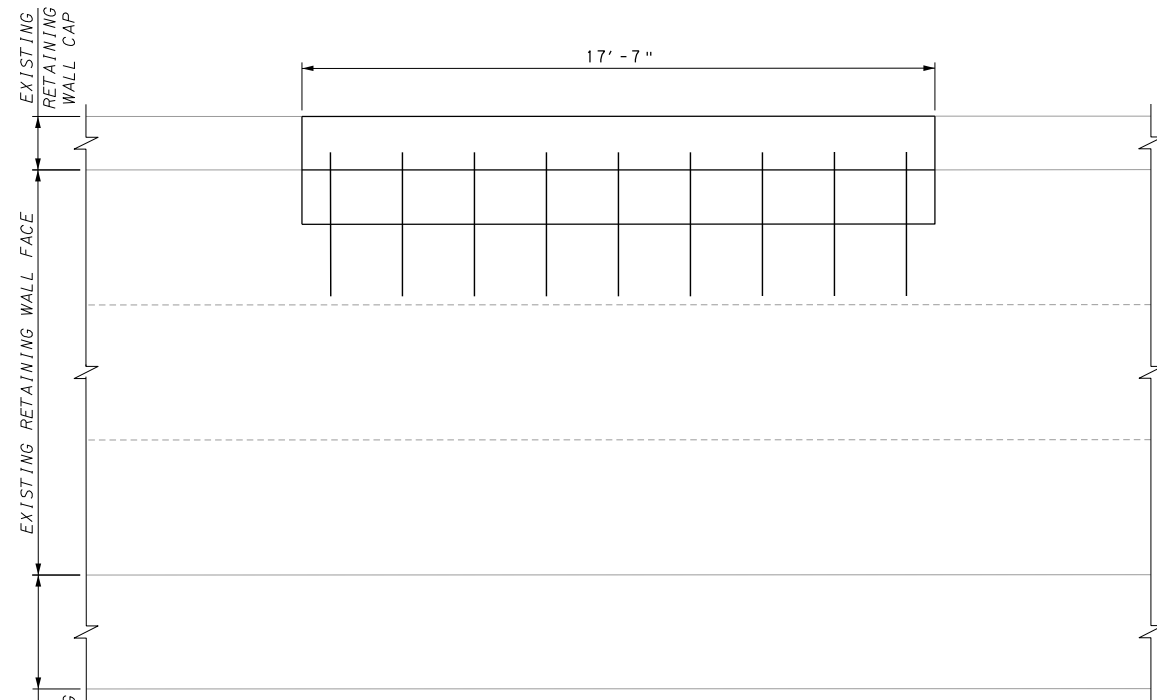
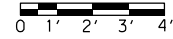
**Michael Baker
INTERNATIONAL**
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

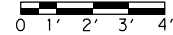
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SOUTH ABUTMENT WALL
RECONSTRUCTION PLAN

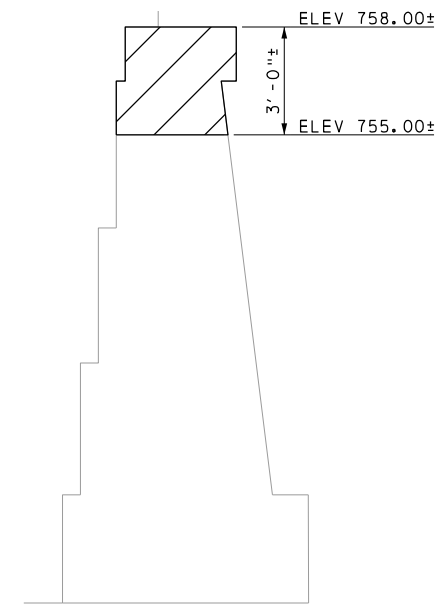


SOUTH ABUTMENT WALL
RECONSTRUCTION ELEVATION
(LOOKING BACKSTATION)

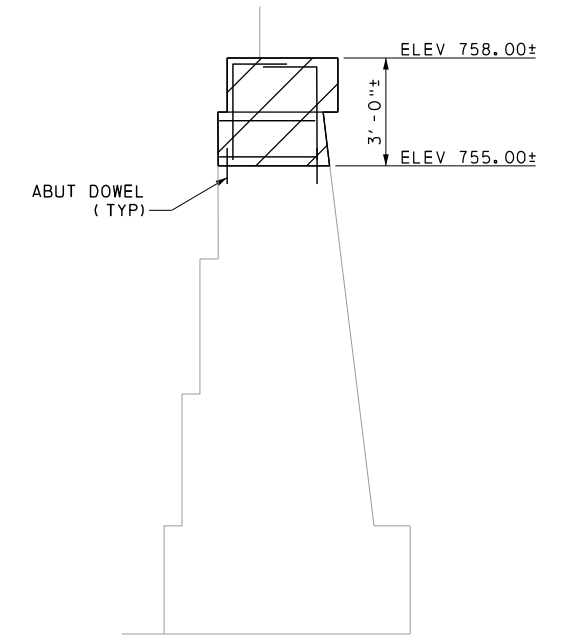
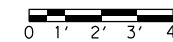


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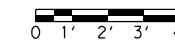
1. VERIFY IN FIELD DEPTH AND WIDTH OF STONE MASONRY COURSES. REMOVE STONE MASONRY COURSES WITHIN RETAINING WALL LIMITS TO EQUAL REMOVAL DEPTH OF ABUTMENT.
2. WORK WITH REPRESENTATIVE TO DEFINE LIMITS OF REMOVAL IN FIELD BASED ON AS-BUILT CONDITIONS.



SECTION - ABUTMENT WALL REMOVAL



SECTION - ABUTMENT WALL CONSTRUCTION



3/22/2024

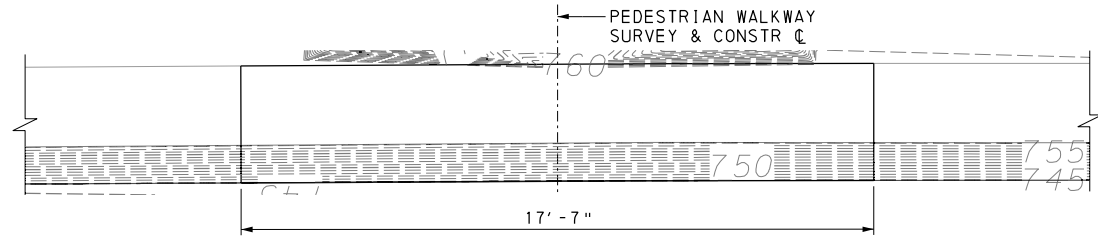
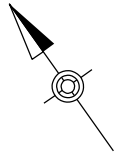
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SUBMISSION

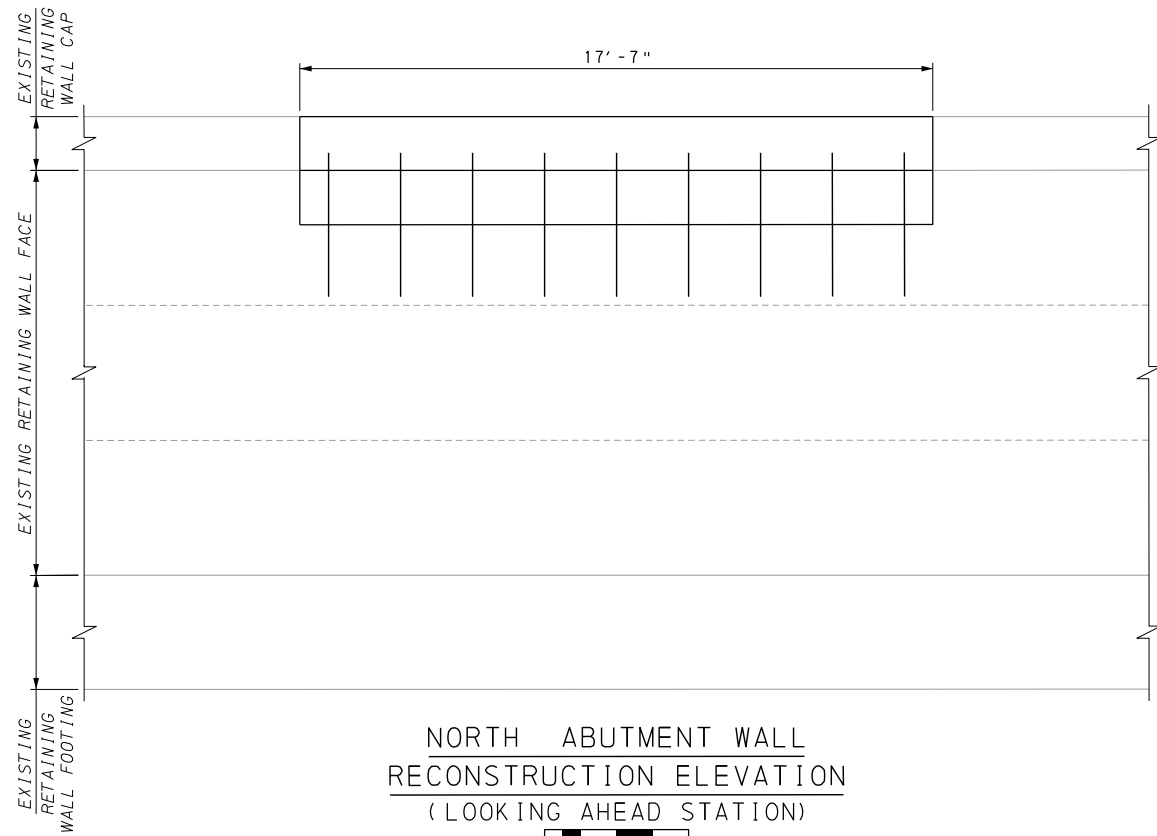
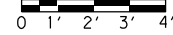
Michael Baker
INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

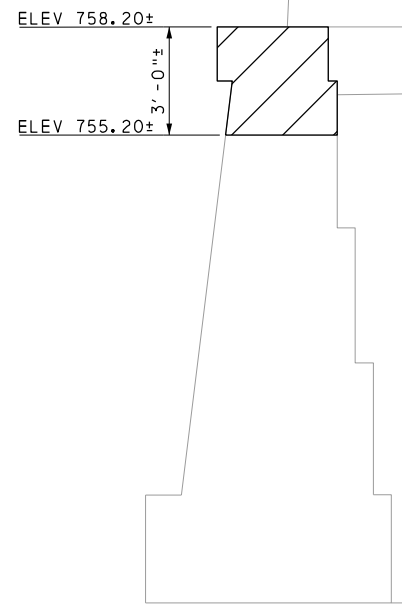
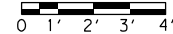
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ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
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DATE	MARCH 22, 2024	XXXXXX	PC-1.50 24 05



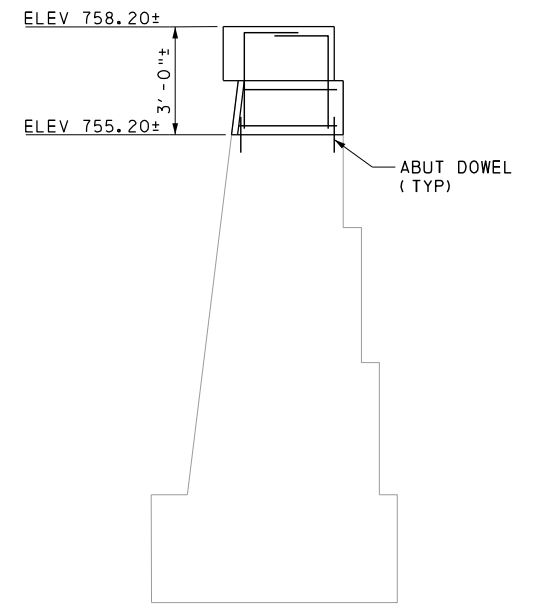
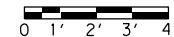
NORTH ABUTMENT WALL
RECONSTRUCTION PLAN



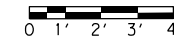
NORTH ABUTMENT WALL
RECONSTRUCTION ELEVATION
(LOOKING AHEAD STATION)



SECTION - ABUTMENT WALL REMOVAL



SECTION - ABUTMENT WALL CONSTRUCTION



3/22/2024

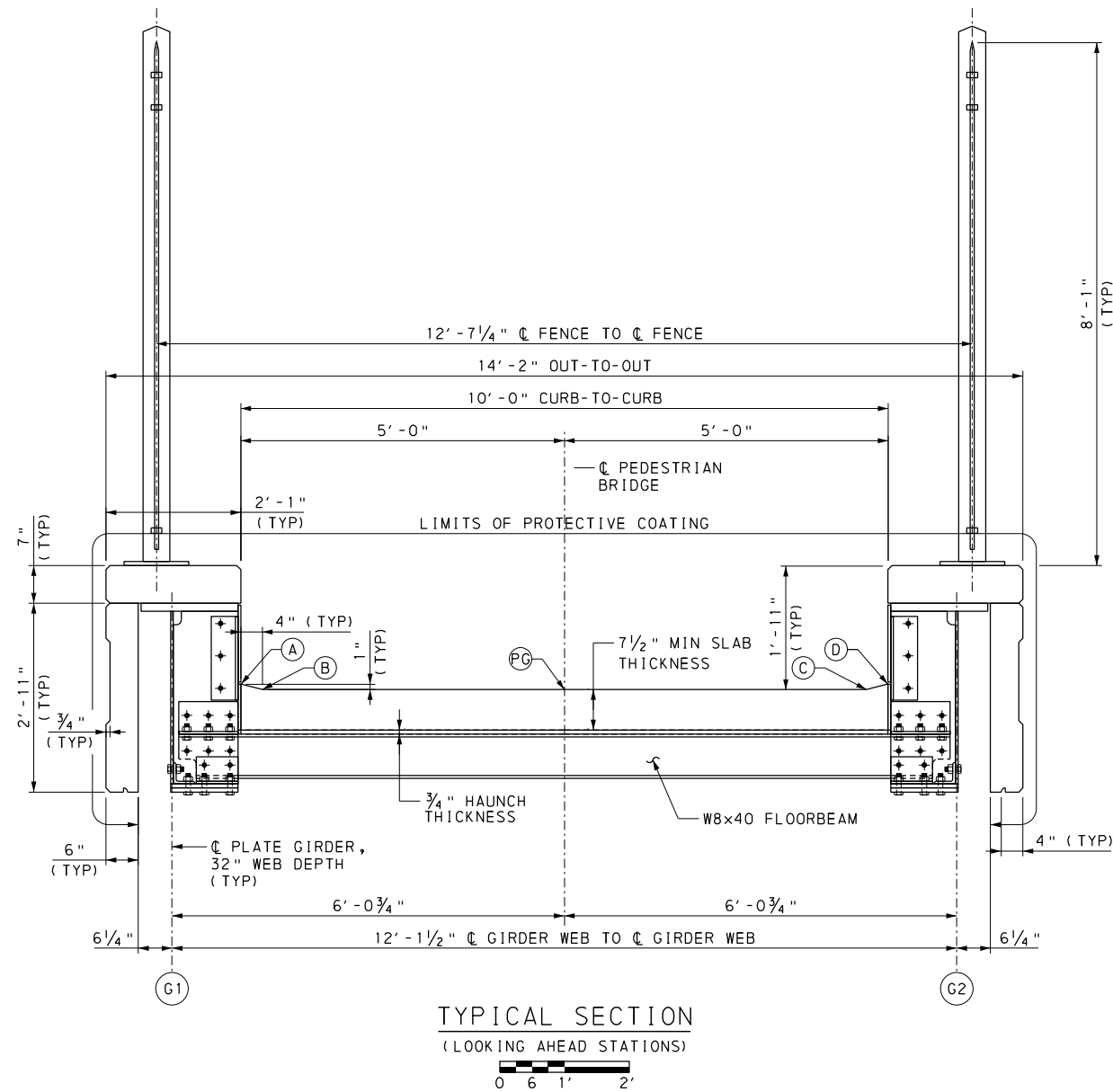
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60%
SUBMISSION

Michael Baker
INTERNATIONAL
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
ABUTMENT RECONSTRUCTION DETAILS 3			
DRWN	FILE No	DATE	DESCRIPTION
CHK	FILE No	DATE	DESCRIPTION
DRAWING NUMBER			DATE
PC-1.50 24 06			MARCH 22, 2024



LEGEND:

- (G1) GIRDER NUMBER
- (A) DECK ELEVATION KEY POINT

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. GENERAL PLAN & ELEVATION
3. INDEX OF DRAWINGS

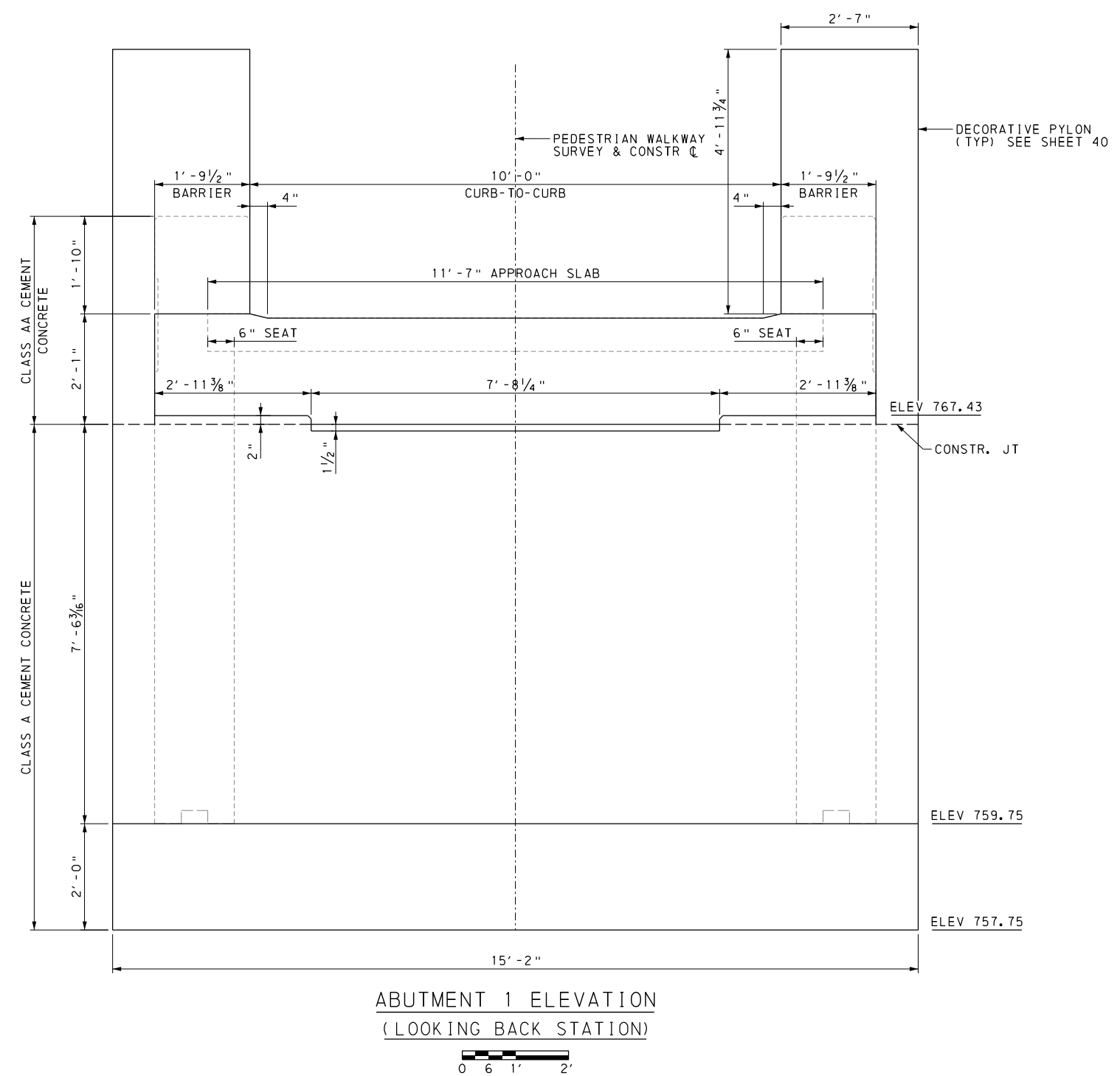
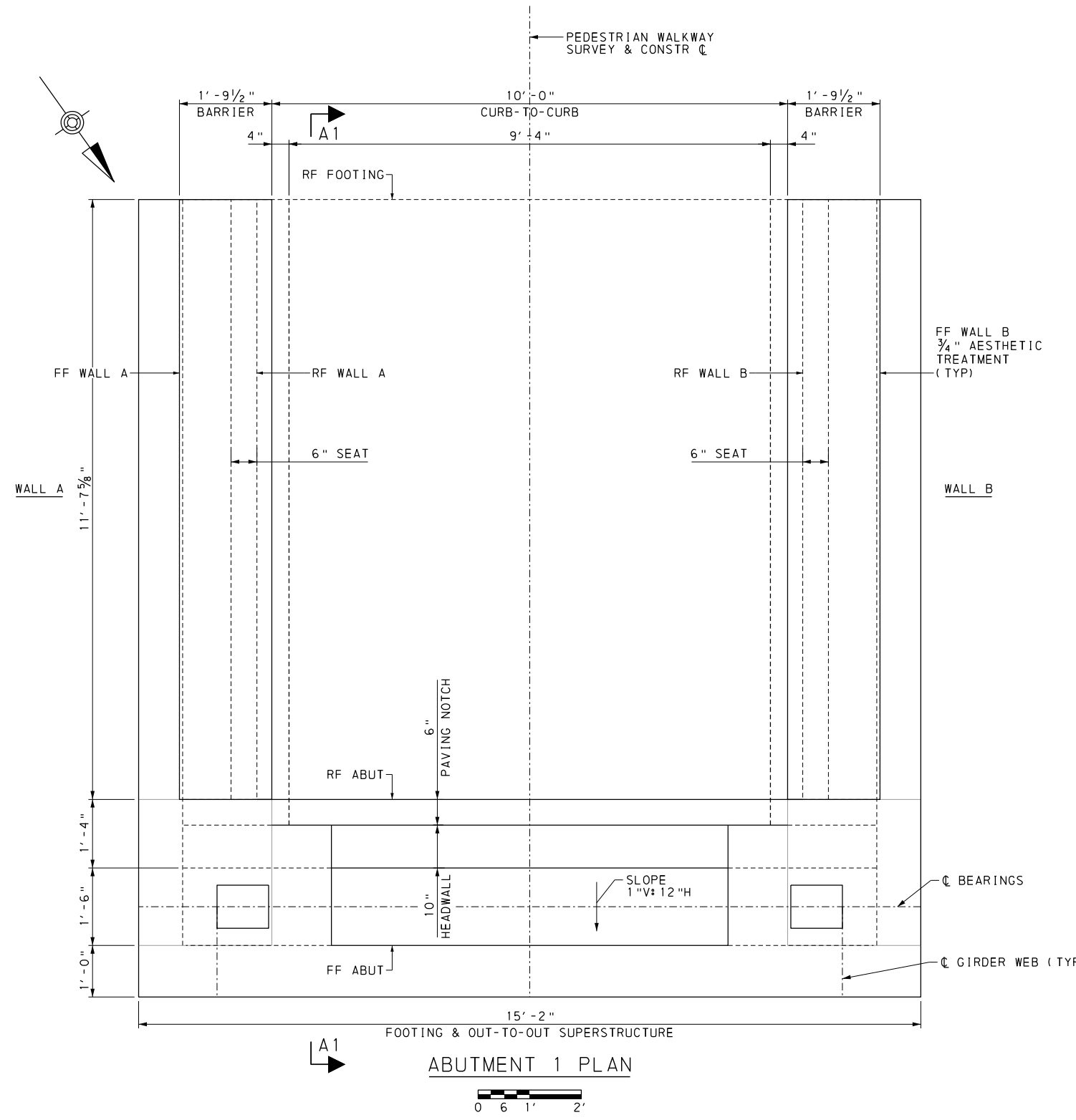
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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>REV</td> <td>BY</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td colspan="4" style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</td> </tr> <tr> <td colspan="4" style="text-align: center;">TYPICAL SECTION & DECK ELEVATIONS</td> </tr> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXX</td> <td>DATE POST</td> </tr> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXXX</td> <td>XXXXXX</td> </tr> <tr> <td>CHK</td> <td>DATE</td> <td>MARCH 22, 2024</td> <td>DRAWING NUMBER</td> </tr> <tr> <td colspan="3"></td> <td style="text-align: right;">PC-1.50 24 07</td> </tr> </table>	REV	BY	DATE	DESCRIPTION	PITTSBURGH, PENNSYLVANIA				ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE				TYPICAL SECTION & DECK ELEVATIONS				DRW	FILE No	XXXXX	DATE POST	DRW	FILE No	XXXXXX	XXXXXX	CHK	DATE	MARCH 22, 2024	DRAWING NUMBER				PC-1.50 24 07
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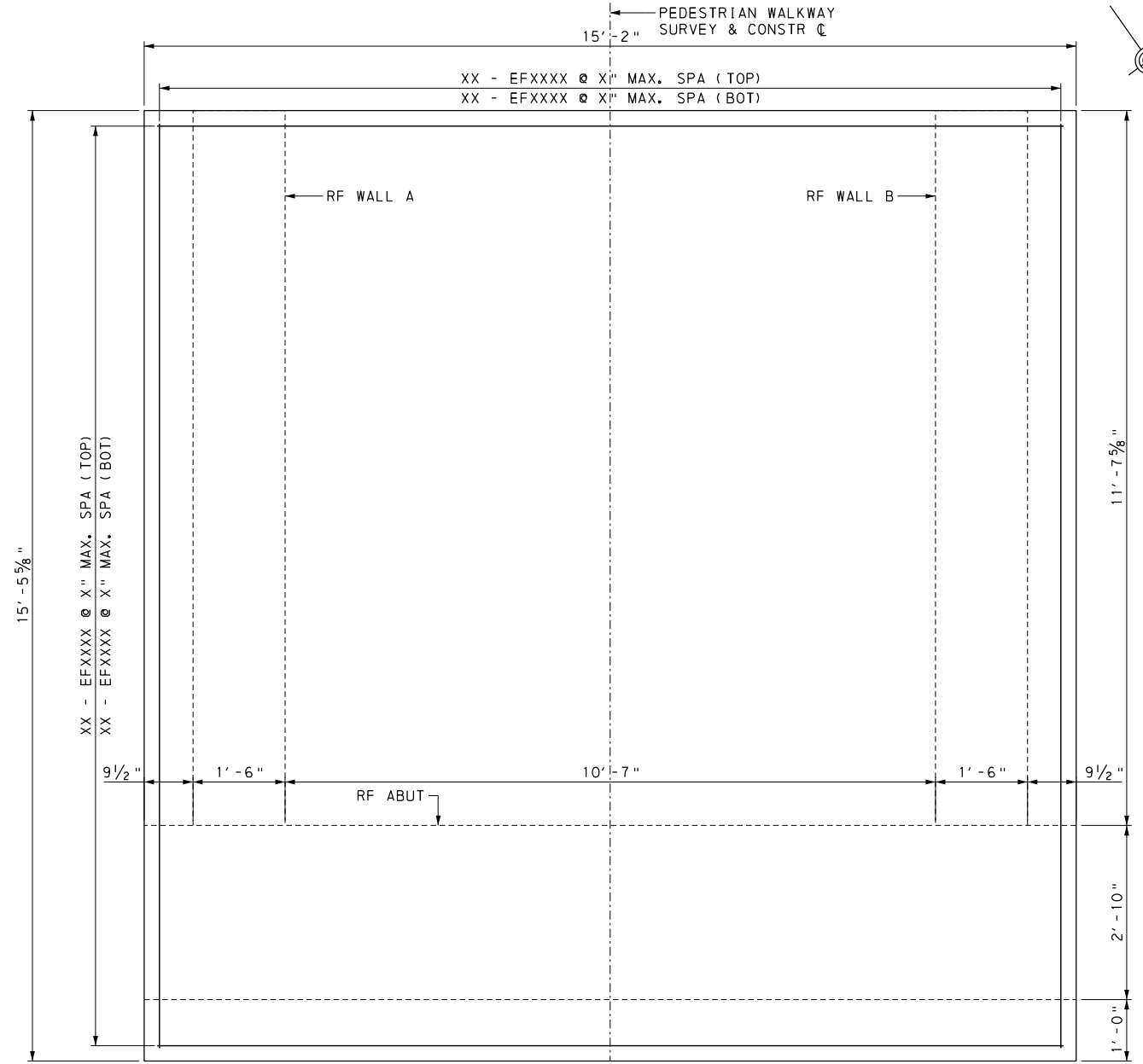
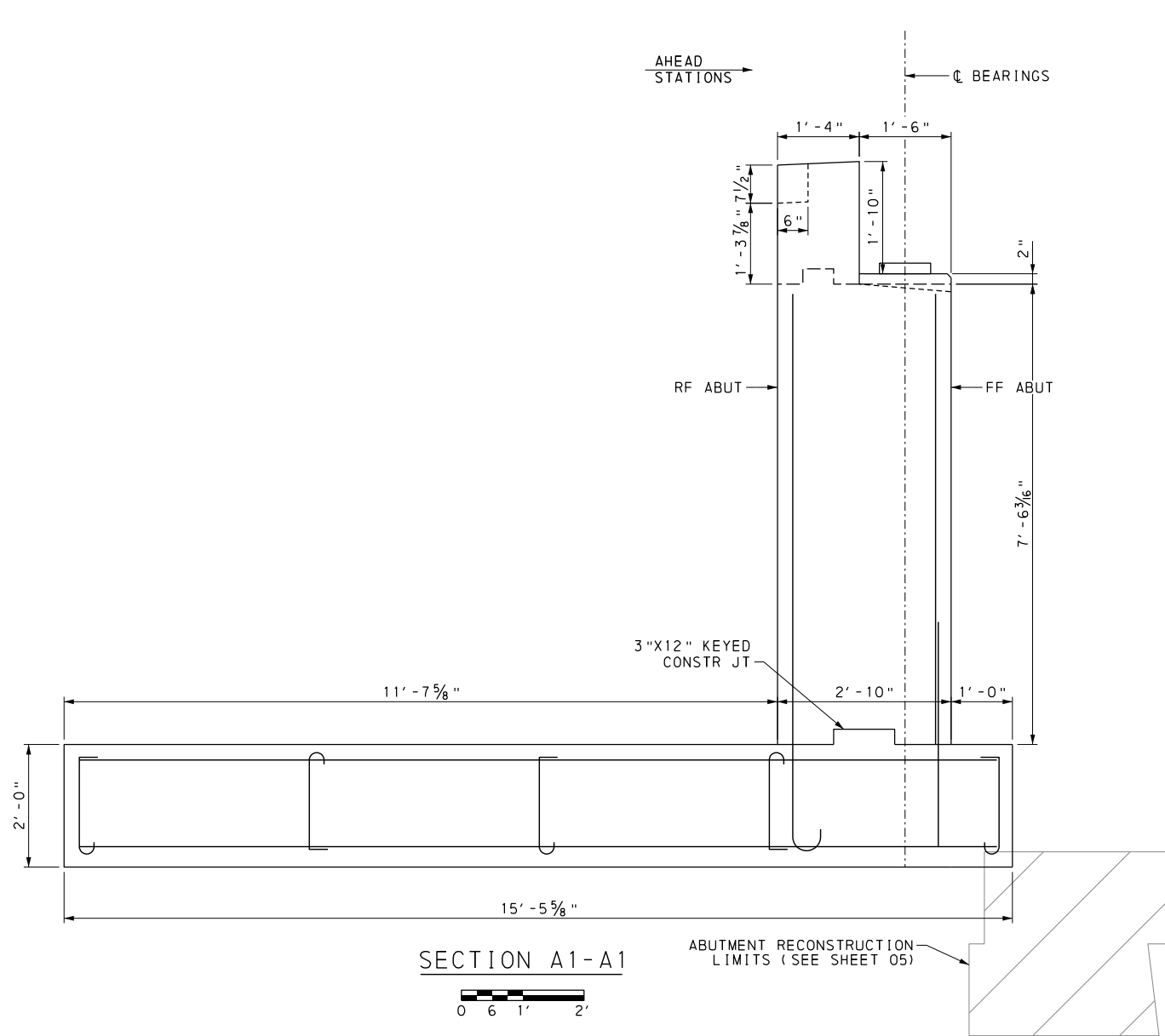
LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- E EPOXY COATED BARS

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- INDEX OF DRAWINGS
-

90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
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			CHK	DATE	XXXXXX	XXXXXX
						PC-1.50 24 09
						MARCH 22, 2024



ABUTMENT 1 FOOTING PLAN

LEGEND:
 FF FRONT FACE
 RF REAR FACE
 EF EACH FACE
 E EPOXY COATED BARS

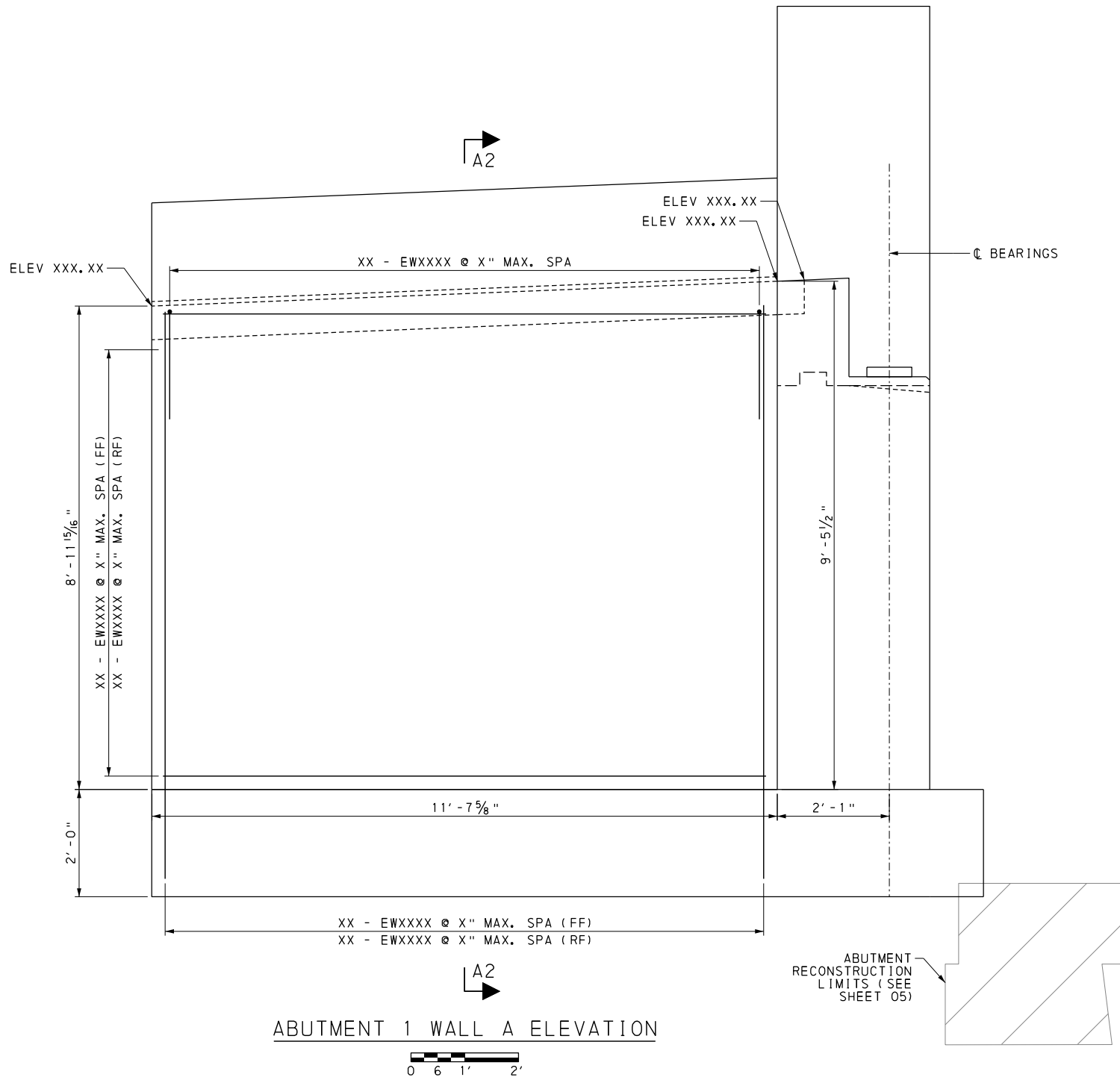
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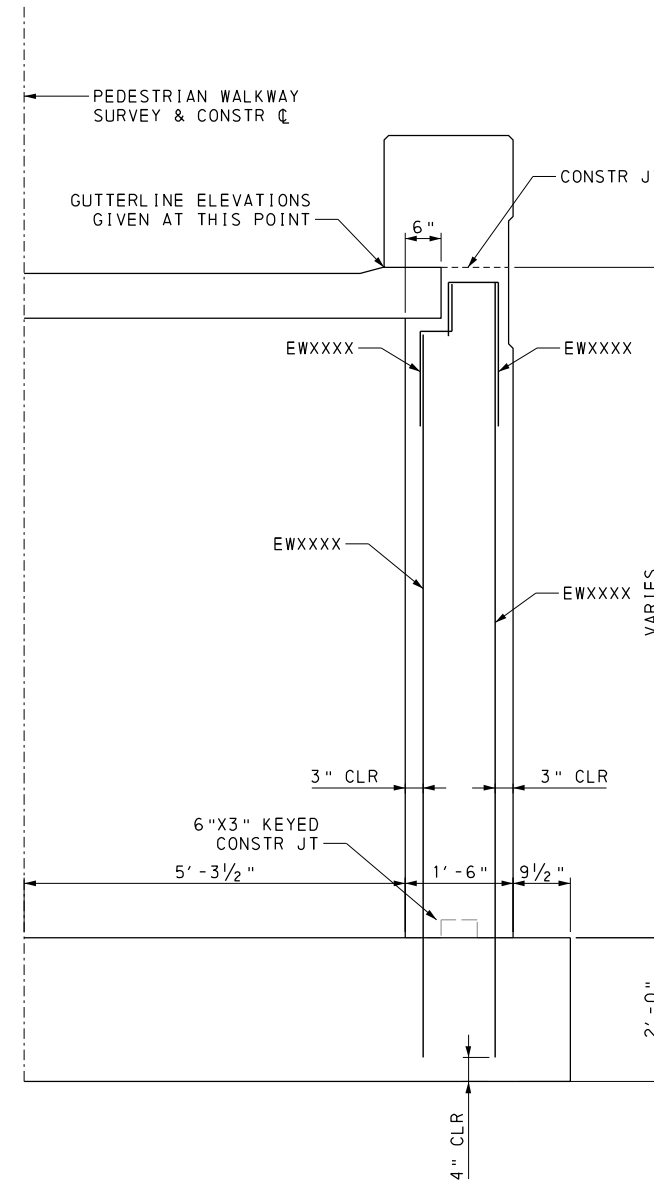
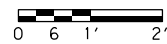
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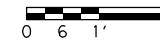
90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV	BY	DATE	DESCRIPTION					PITTSBURGH, PENNSYLVANIA ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE ABUTMENT 1 - SECTIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXX</td> <td>DATE</td> <td>XXXXXX</td> <td>SCALE</td> <td>POST</td> <td>XXXXXX</td> </tr> <tr> <td>CHK</td> <td>DATE</td> <td>XXXXXX</td> <td>DRAWING NUMBER</td> <td colspan="4">PC-1.50 24 10</td> </tr> <tr> <td colspan="3">MARCH 22, 2024</td> <td colspan="5"> </td> </tr> </table>	DRW	FILE No	XXXXX	DATE	XXXXXX	SCALE	POST	XXXXXX	CHK	DATE	XXXXXX	DRAWING NUMBER	PC-1.50 24 10				MARCH 22, 2024							
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MARCH 22, 2024																																				



ABUTMENT 1 WALL A ELEVATION



SECTION A2-A2



LEGEND:

- FF FRONT FACE
- RF REAR FACE
- EF EACH FACE
- E EPOXY COATED BARS

REFERENCES:

1. SUPPLEMENTAL DRAWINGS
2. INDEX OF DRAWINGS
- 3.

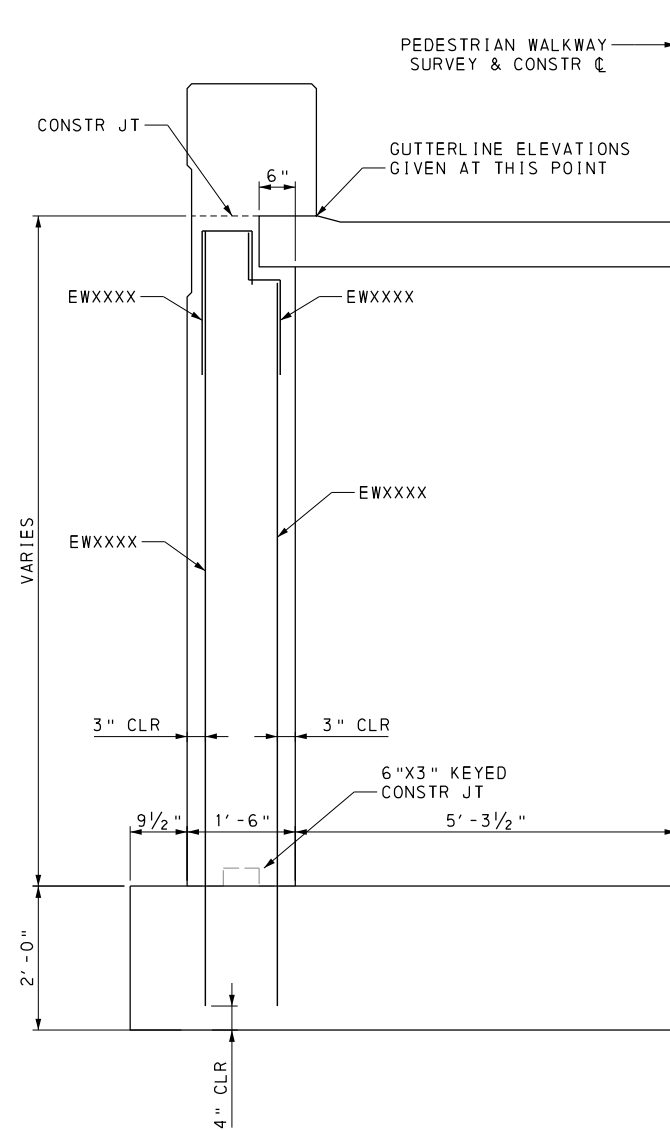
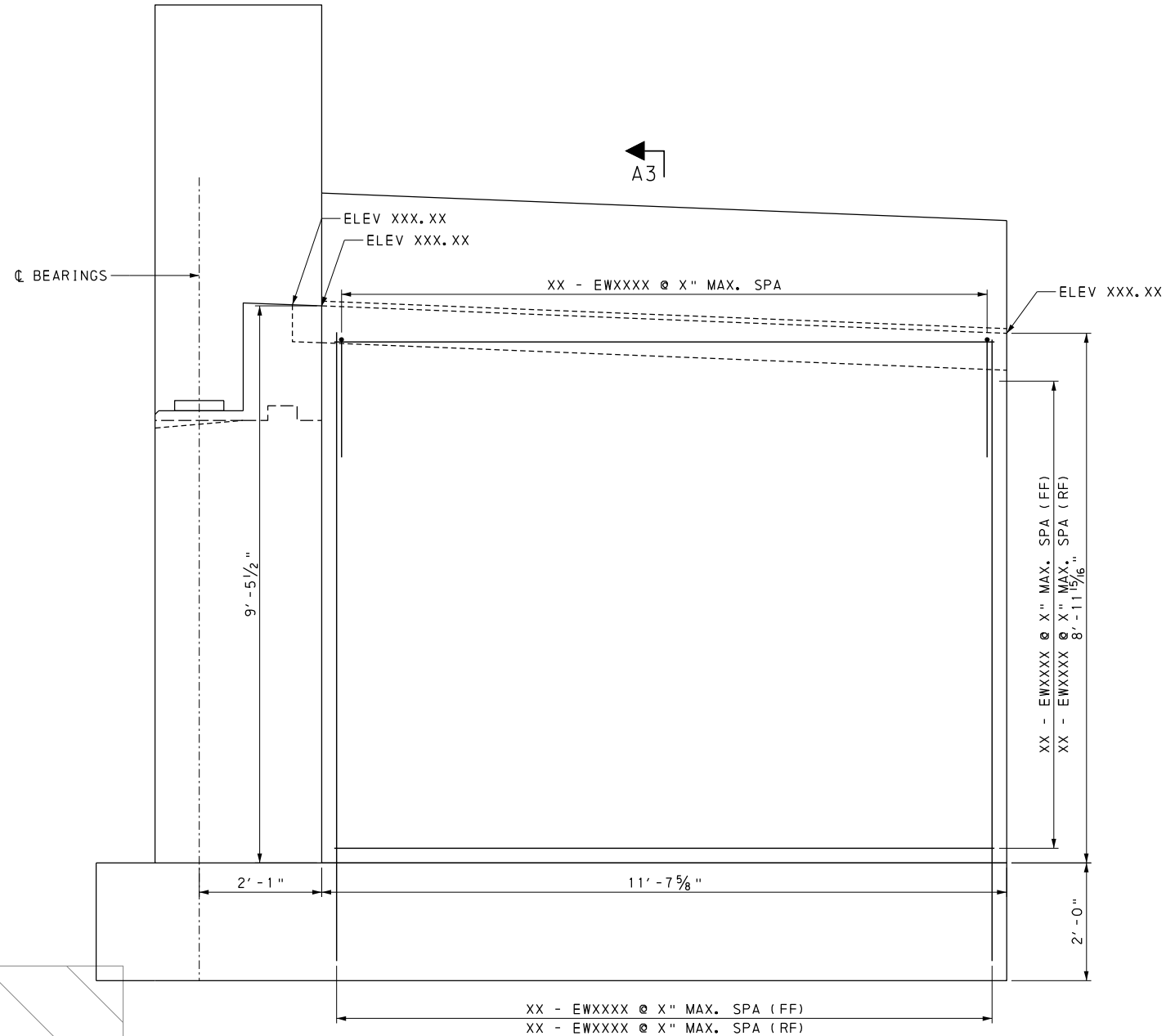
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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV	BY	DATE	DESCRIPTION				
REV	BY	DATE	DESCRIPTION								
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NO.	DATE	BY	DESCRIPTION								



ABUTMENT 1 WALL B ELEVATION

SECTION A3-A3

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 - RF REAR FACE
 - EF EACH FACE
 - E EPOXY COATED BARS

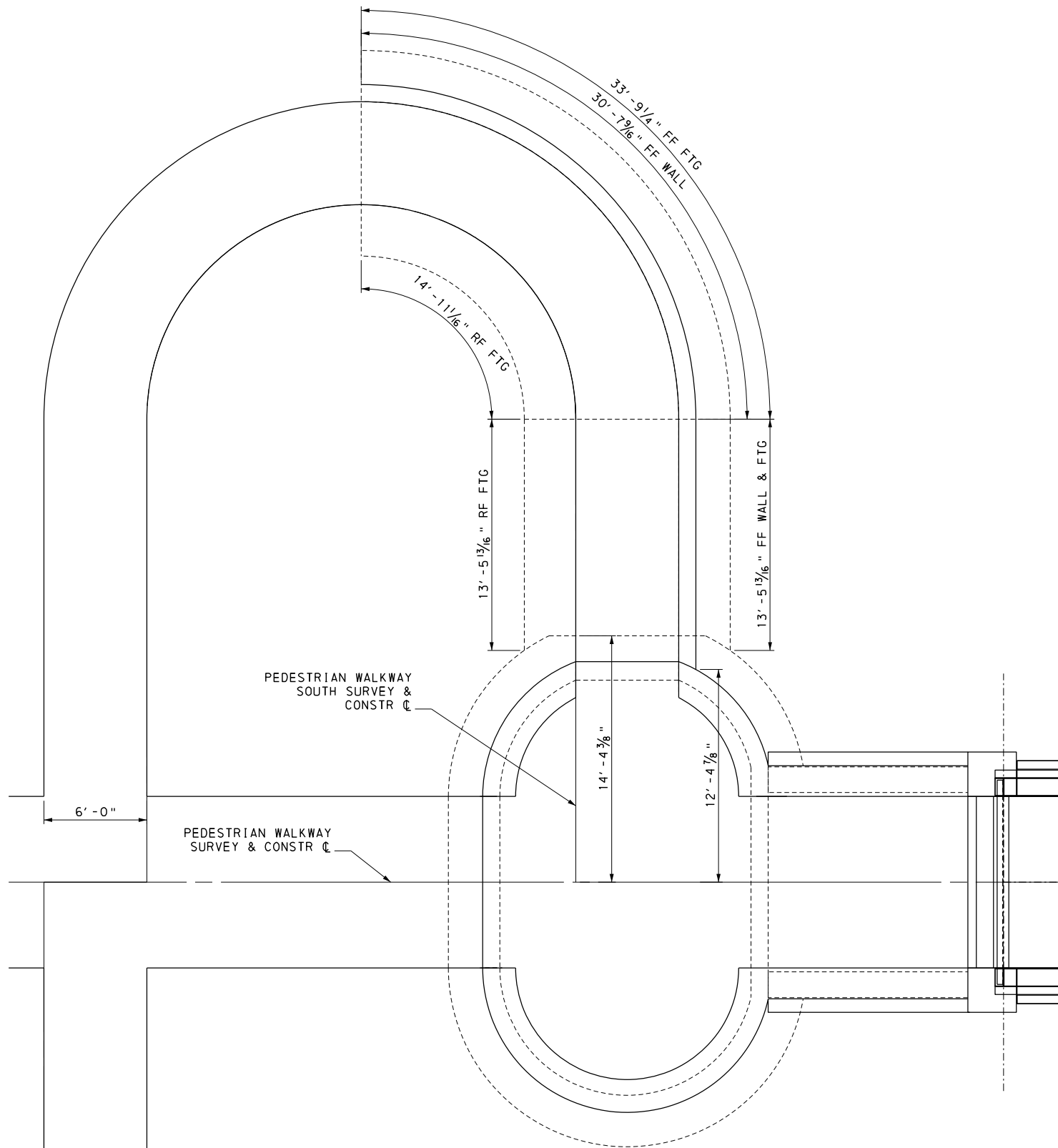
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 2. INDEX OF DRAWINGS
 - 3.

- NOTES:**
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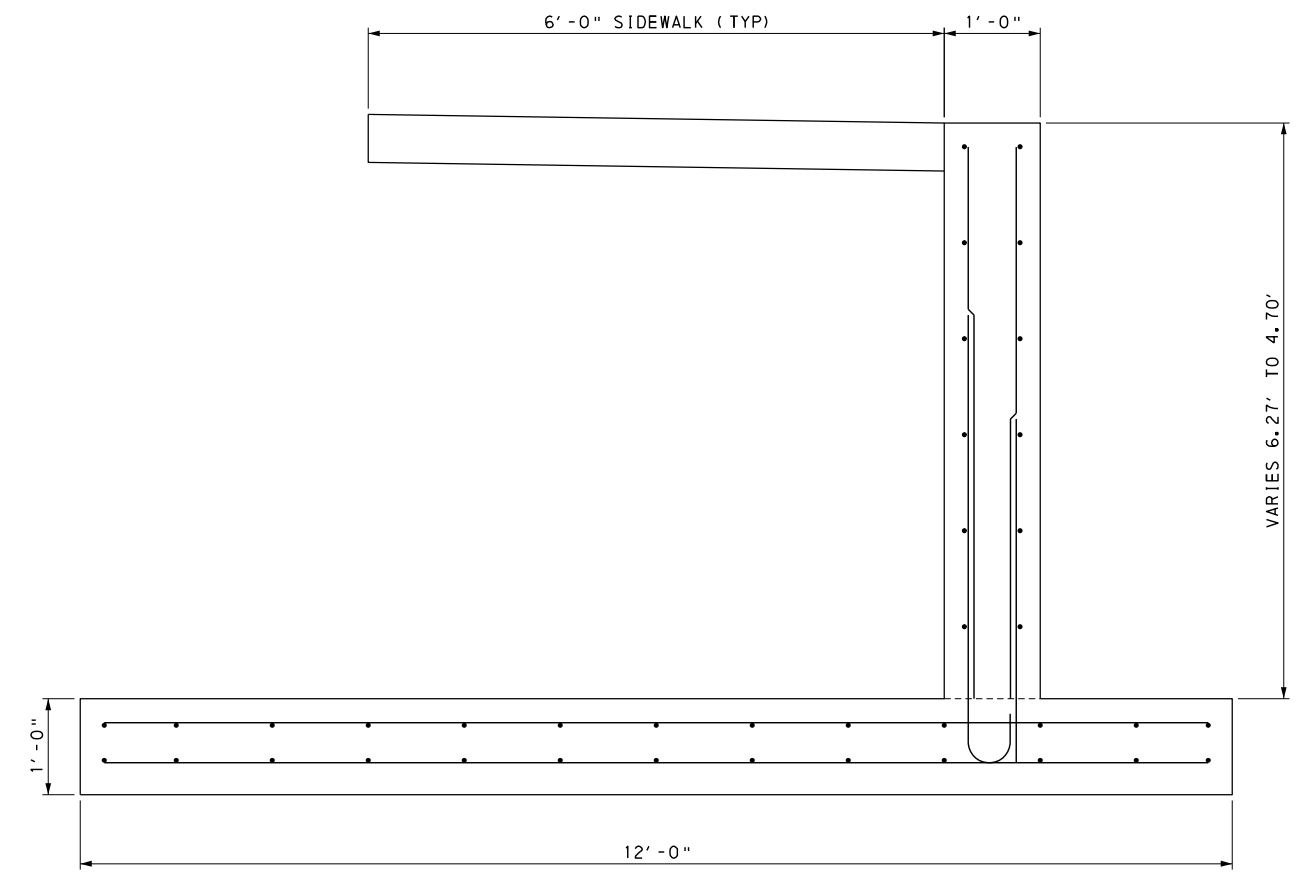
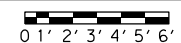
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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td colspan="4" style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</td> </tr> <tr> <td colspan="4" style="text-align: center;">ABUTMENT 1 - WINGWALLS 2</td> </tr> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXX</td> <td>DATE POST</td> </tr> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXXX</td> <td>DATE POST</td> </tr> <tr> <td>CHK</td> <td>DATE</td> <td>MARCH 22, 2024</td> <td>DRAWING NUMBER</td> </tr> <tr> <td colspan="3"></td> <td style="text-align: center;">PC-1.50 24 12</td> </tr> </table>	REV	BY	DATE	DESCRIPTION	PITTSBURGH, PENNSYLVANIA				ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE				ABUTMENT 1 - WINGWALLS 2				DRW	FILE No	XXXXX	DATE POST	DRW	FILE No	XXXXXX	DATE POST	CHK	DATE	MARCH 22, 2024	DRAWING NUMBER				PC-1.50 24 12
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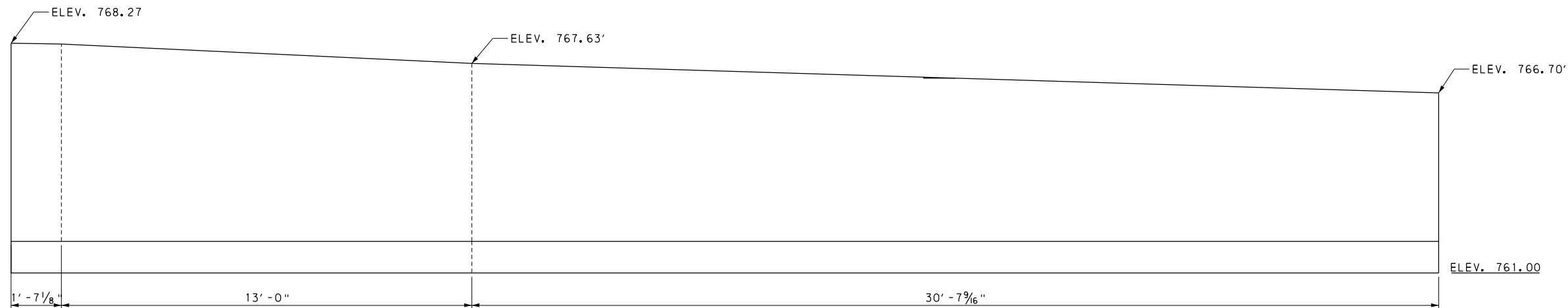
SOUTH PLAZA WALL PLAN



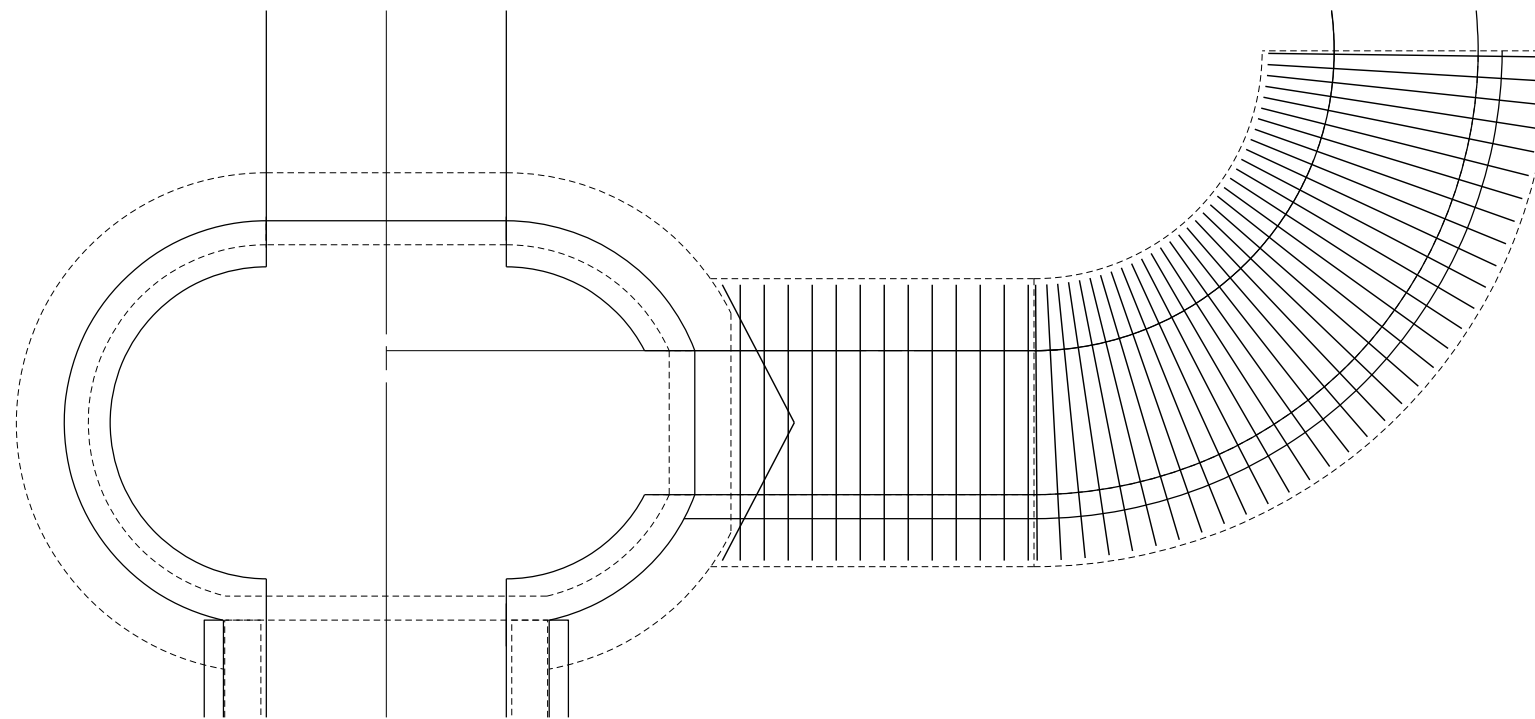
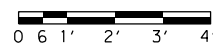
TYPICAL WALL SECTION



90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p style="text-align: center;">PITTSBURGH, PENNSYLVANIA</p> <p style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</p> <p style="text-align: center;">SOUTH PLAZA WALL SECTION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DRW</td> <td>FILE No</td> <td>XXXXX</td> <td>DATE</td> <td>XXXXXX</td> <td>SCALE</td> <td>POST</td> <td>XXXXXX</td> </tr> <tr> <td>CHK</td> <td>FILE No</td> <td>XXXXXX</td> <td>DATE</td> <td>XXXXXX</td> <td>SCALE</td> <td>POST</td> <td>XXXXXX</td> </tr> <tr> <td colspan="3">DRAWING NUMBER</td> <td colspan="5">PC-1.50 24 13</td> </tr> <tr> <td colspan="3">DATE</td> <td colspan="5">MARCH 22, 2024</td> </tr> </table>	REV	BY	DATE	DESCRIPTION					DRW	FILE No	XXXXX	DATE	XXXXXX	SCALE	POST	XXXXXX	CHK	FILE No	XXXXXX	DATE	XXXXXX	SCALE	POST	XXXXXX	DRAWING NUMBER			PC-1.50 24 13					DATE			MARCH 22, 2024				
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DEVELOPED SOUTH PLAZA WALL



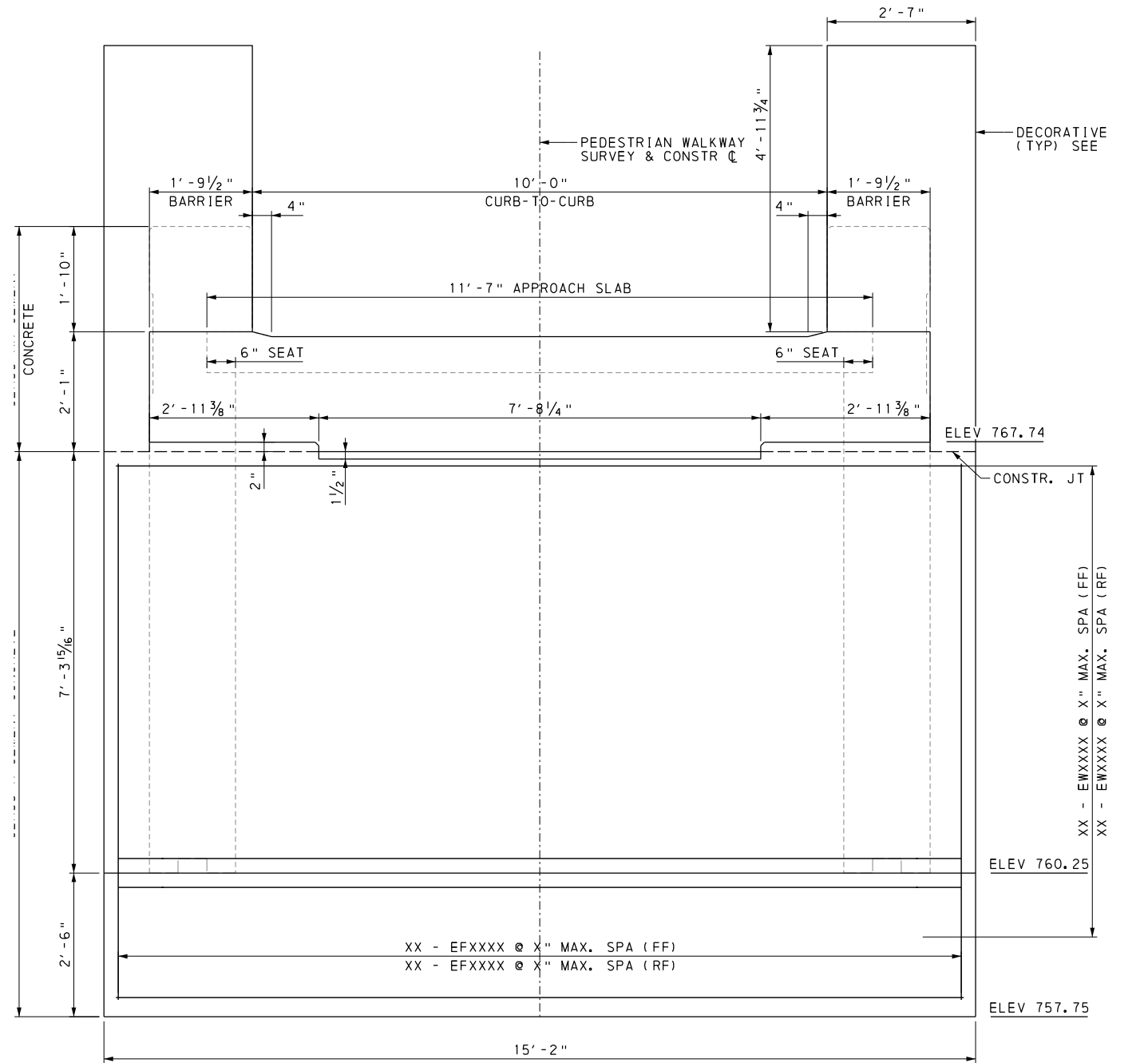
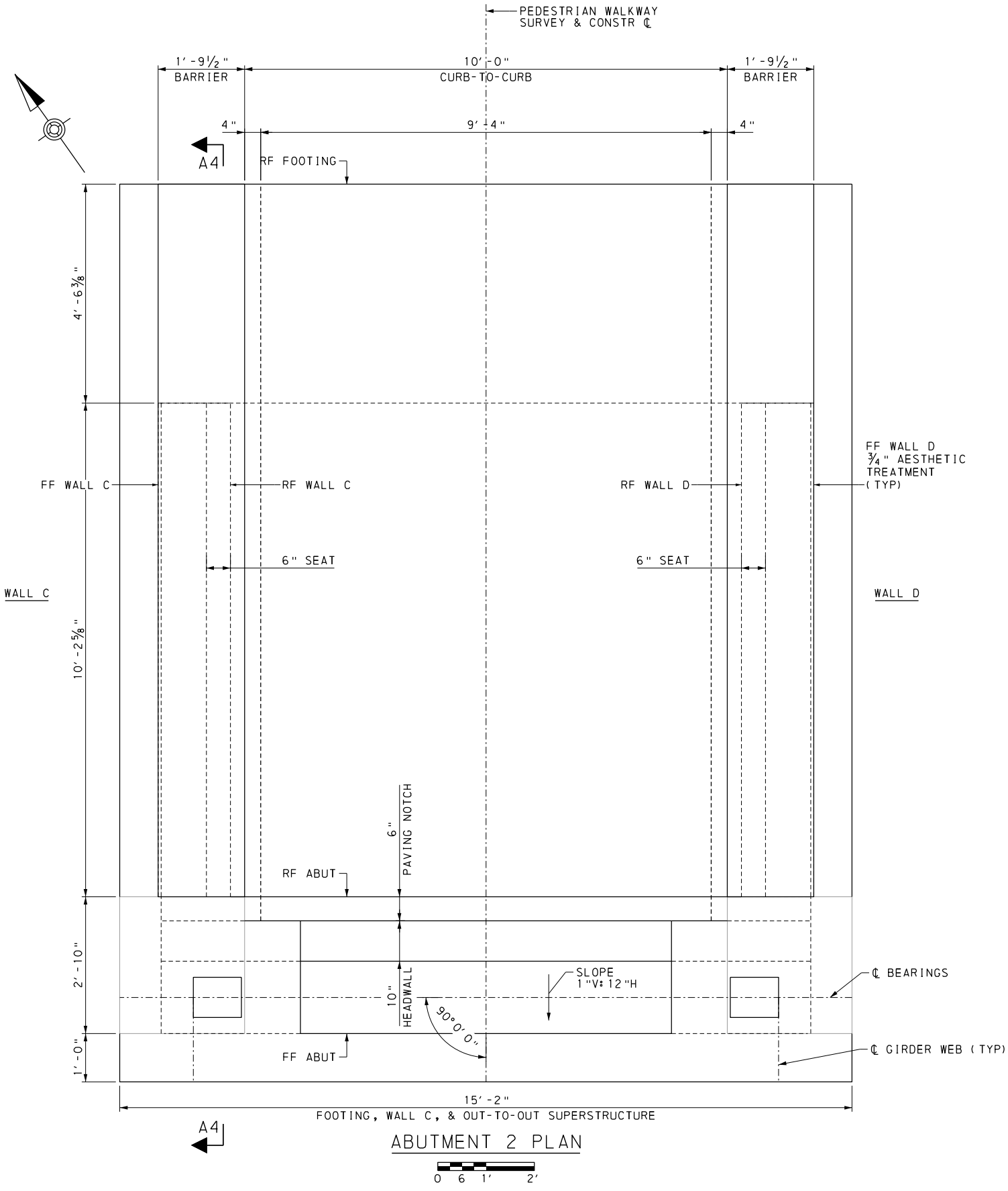
SOUTH PLAZA WALL FOOTING PLAN

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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>REV</td> <td>BY</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td>DRW</td> <td>FILE No</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>CHK</td> <td>FILE No</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV	BY	DATE	DESCRIPTION					PITTSBURGH, PENNSYLVANIA				DRW	FILE No	DATE	DESCRIPTION					CHK	FILE No	DATE	DESCRIPTION				
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SOUTH PLAZA WALL DETAILS

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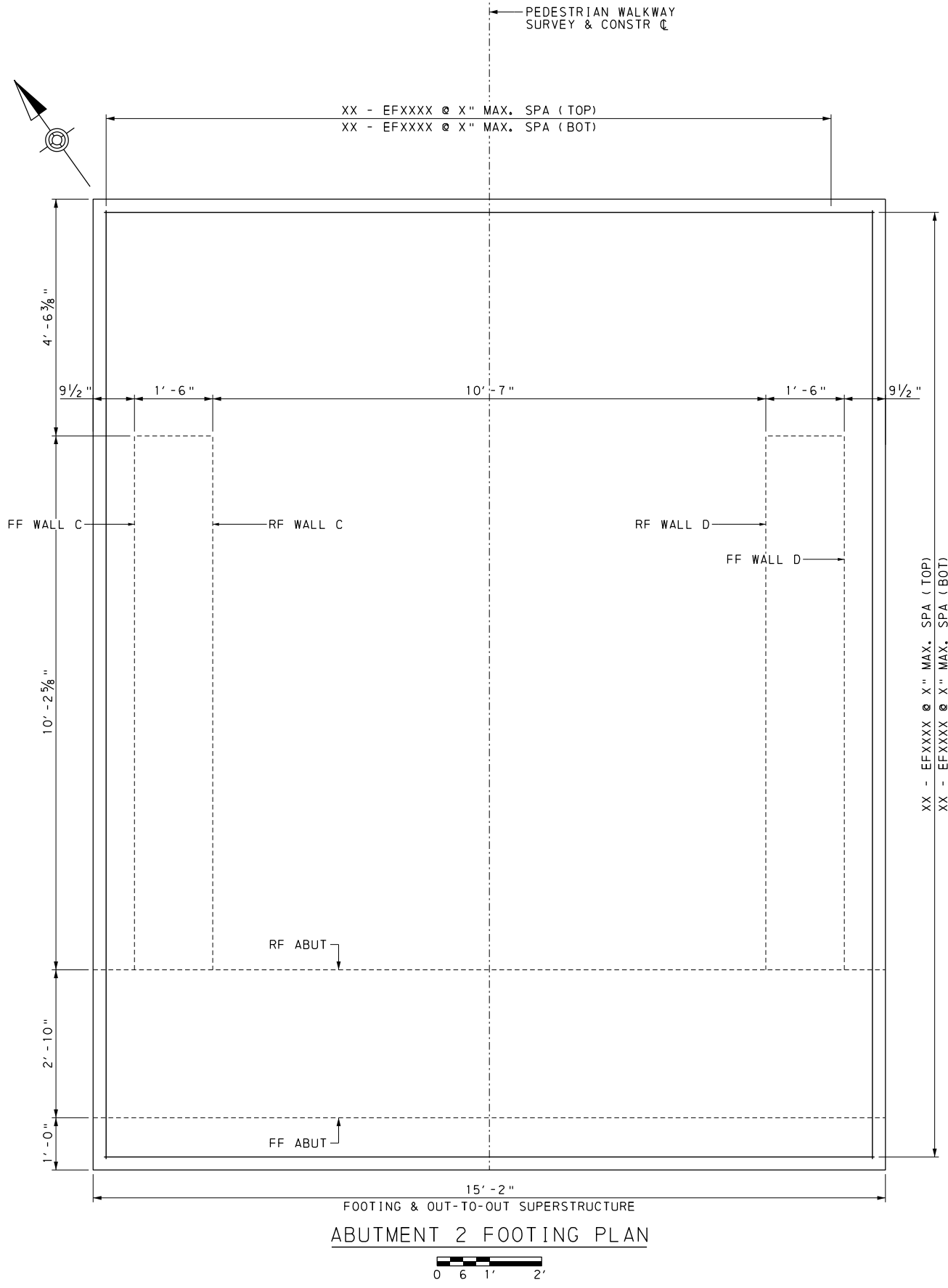


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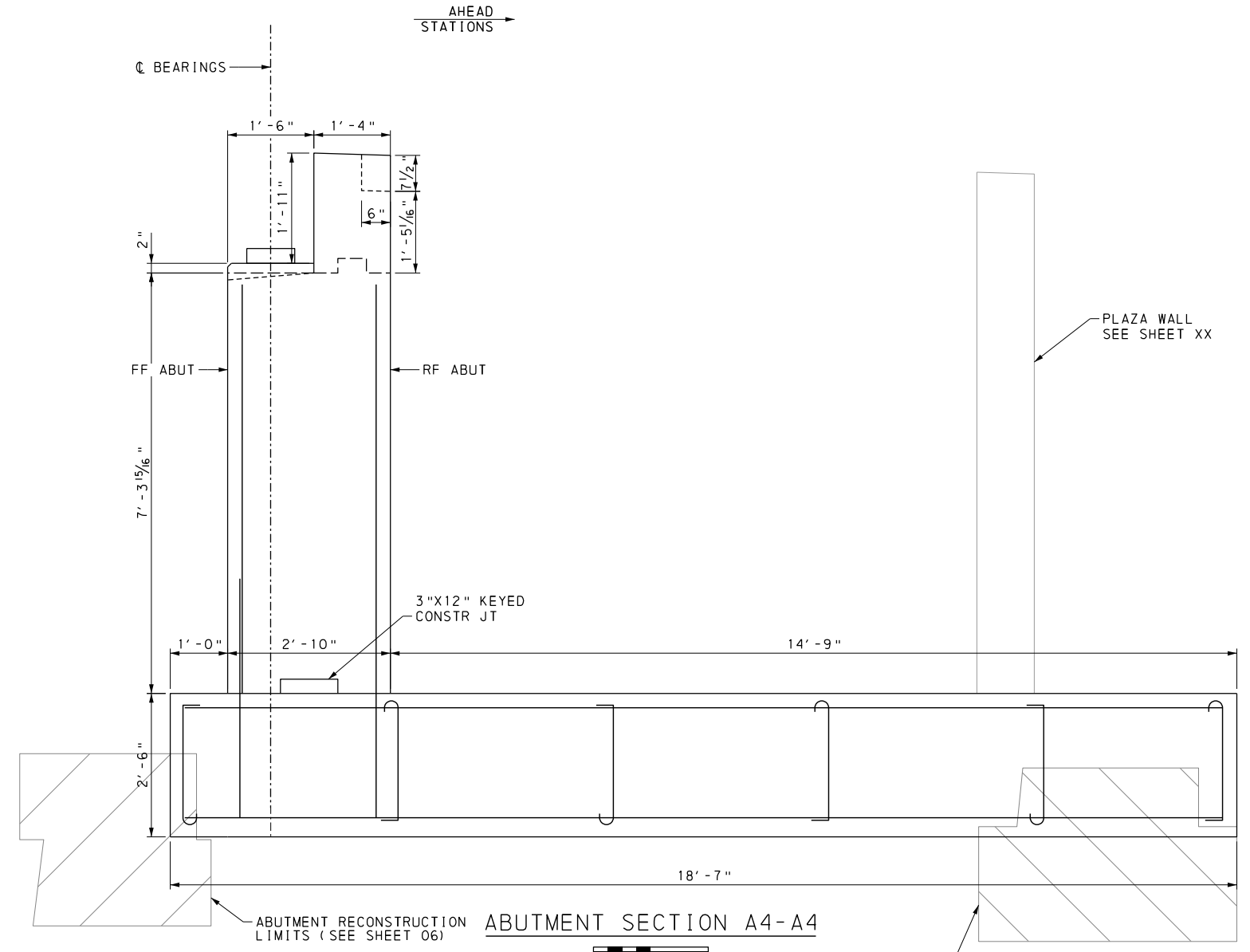
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 EF EACH FACE
 E EPOXY COATED BARS

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 1. SUPPLEMENTAL DRAWINGS
 2. INDEX OF DRAWINGS
 3.

<p>90% SUBMISSION</p>	<p>Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300</p>	<p>NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small></p>	REV	BY	DATE	DESCRIPTION
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ABUTMENT 2 FOOTING PLAN



ABUTMENT SECTION A4-A4

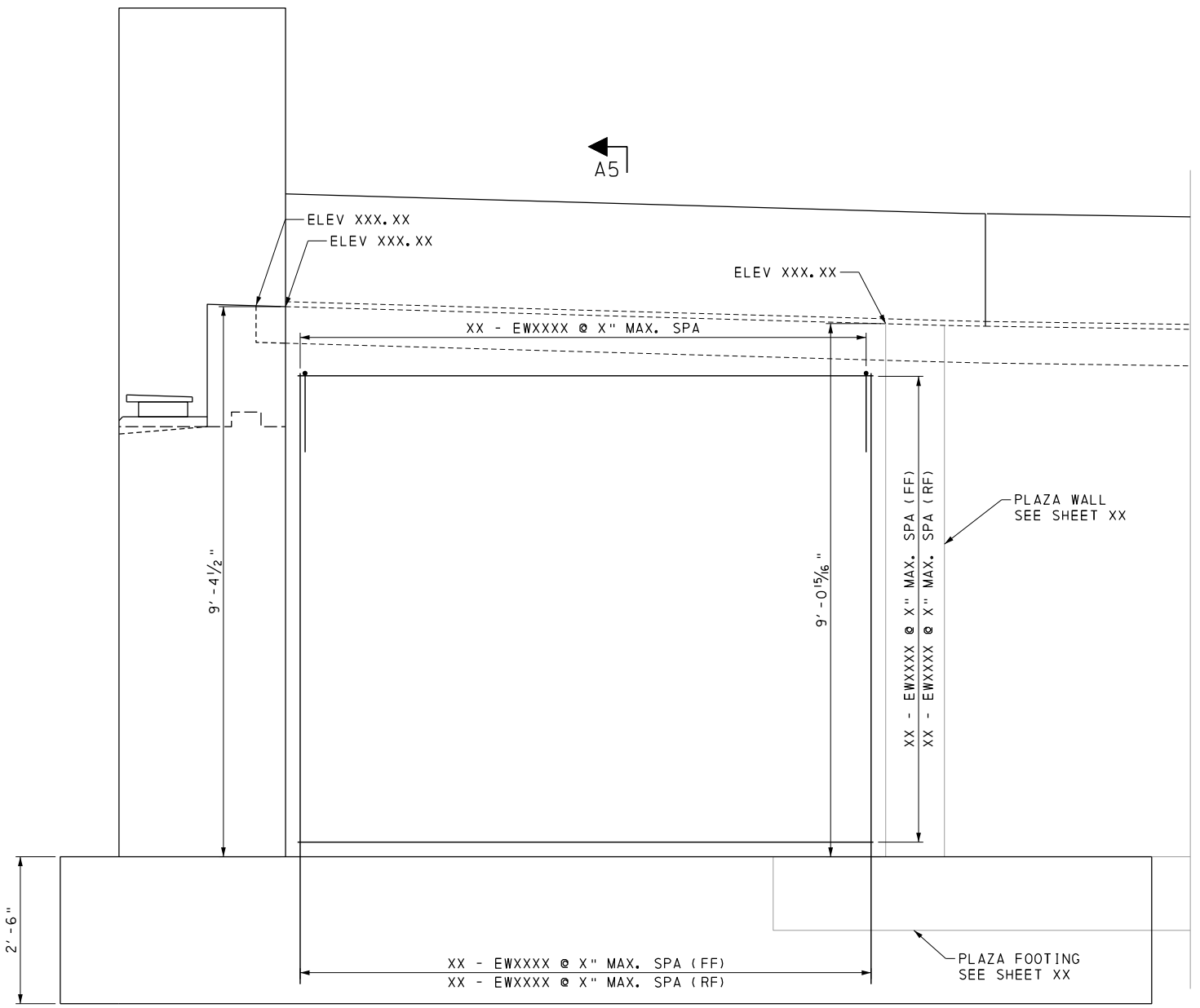
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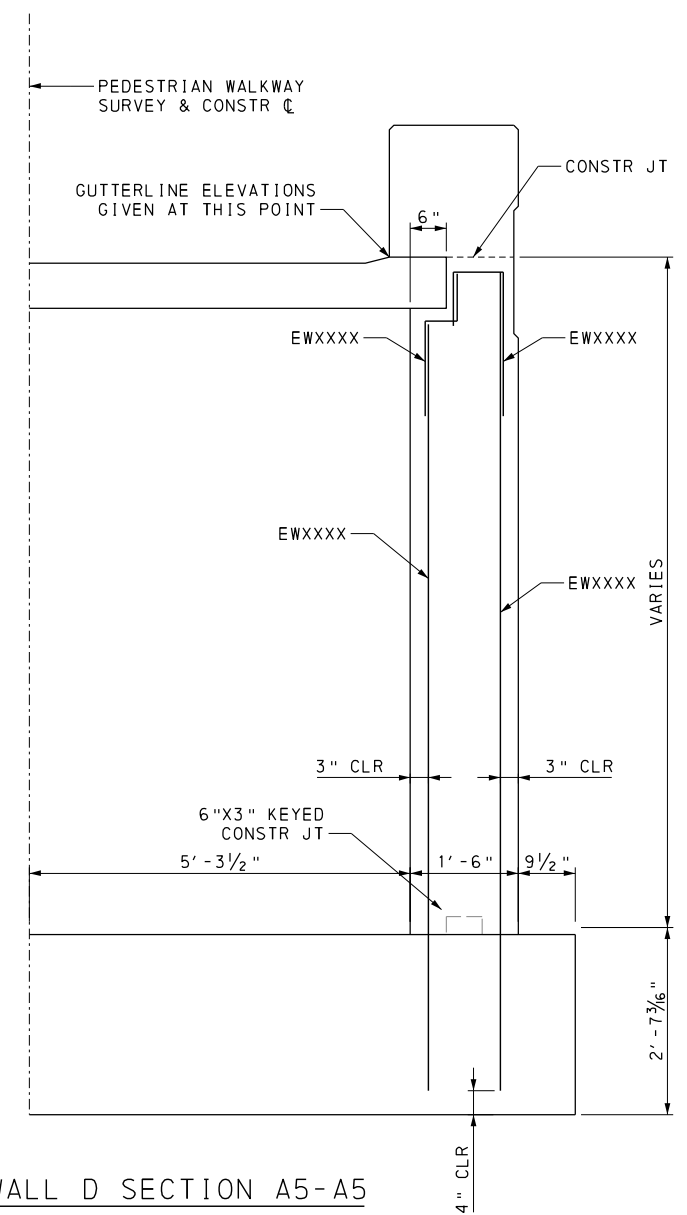
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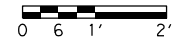
90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV	BY	DATE	DESCRIPTION												
REV	BY	DATE	DESCRIPTION																
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WALL D ELEVATION



WALL D SECTION A5-A5



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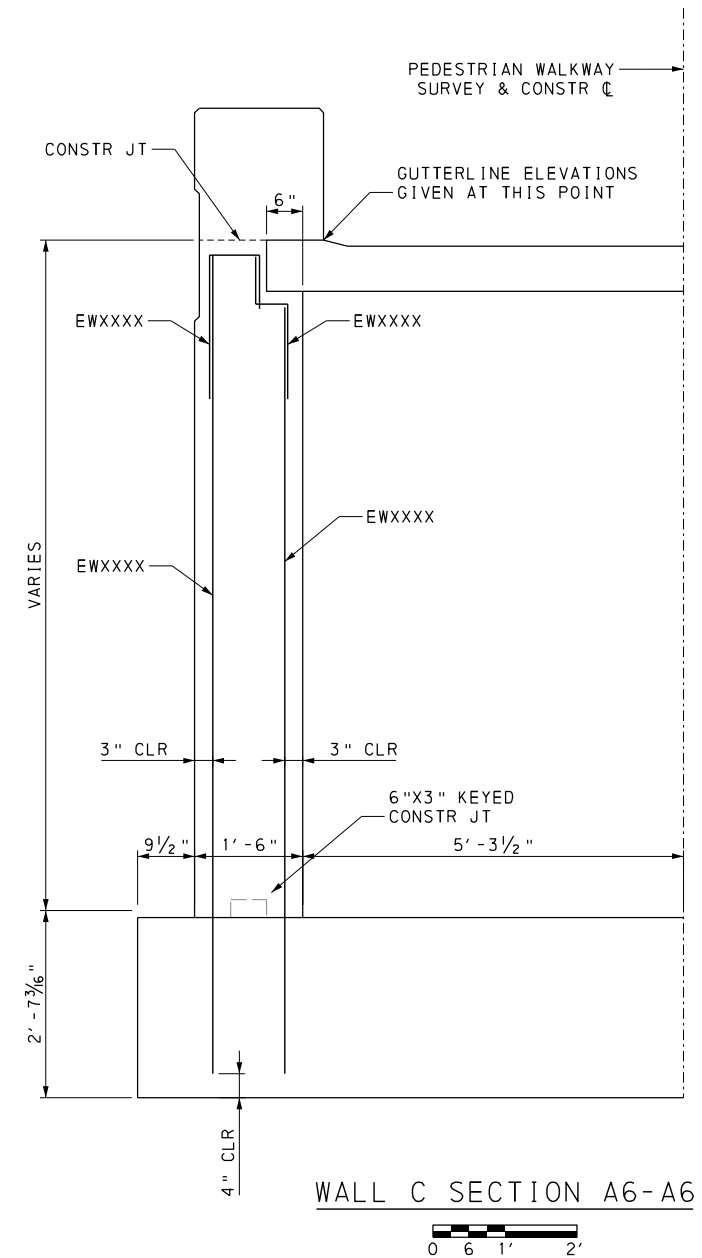
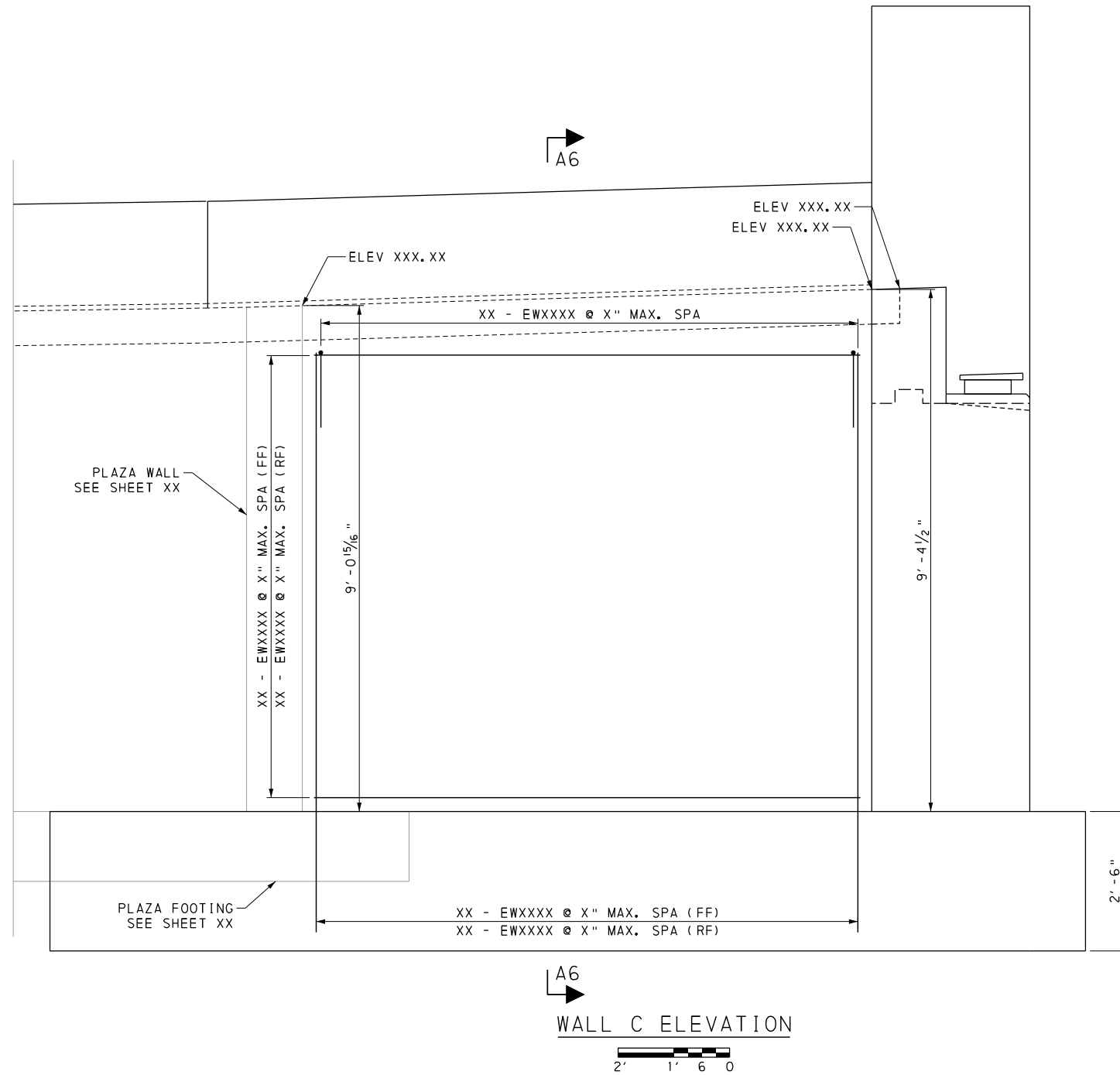
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RF REAR FACE
EF EACH FACE
E EPOXY COATED BARS

REFERENCES:
1. SUPPLEMENTAL DRAWINGS
2. INDEX OF DRAWINGS
3.

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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>REV</td> <td>BY</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td colspan="4" style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</td> </tr> <tr> <td colspan="4" style="text-align: center;">ABUTMENT 2 - WINGWALLS 1</td> </tr> <tr> <td>DRWN</td> <td>FILE No</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td>CHK</td> <td>FILE No</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td colspan="2"></td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td colspan="2"></td> <td>MARCH 22, 2024</td> <td></td> </tr> </table>	REV	BY	DATE	DESCRIPTION	PITTSBURGH, PENNSYLVANIA				ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE				ABUTMENT 2 - WINGWALLS 1				DRWN	FILE No	DATE	DESCRIPTION	CHK	FILE No	DATE	DESCRIPTION			DATE	DESCRIPTION			MARCH 22, 2024	
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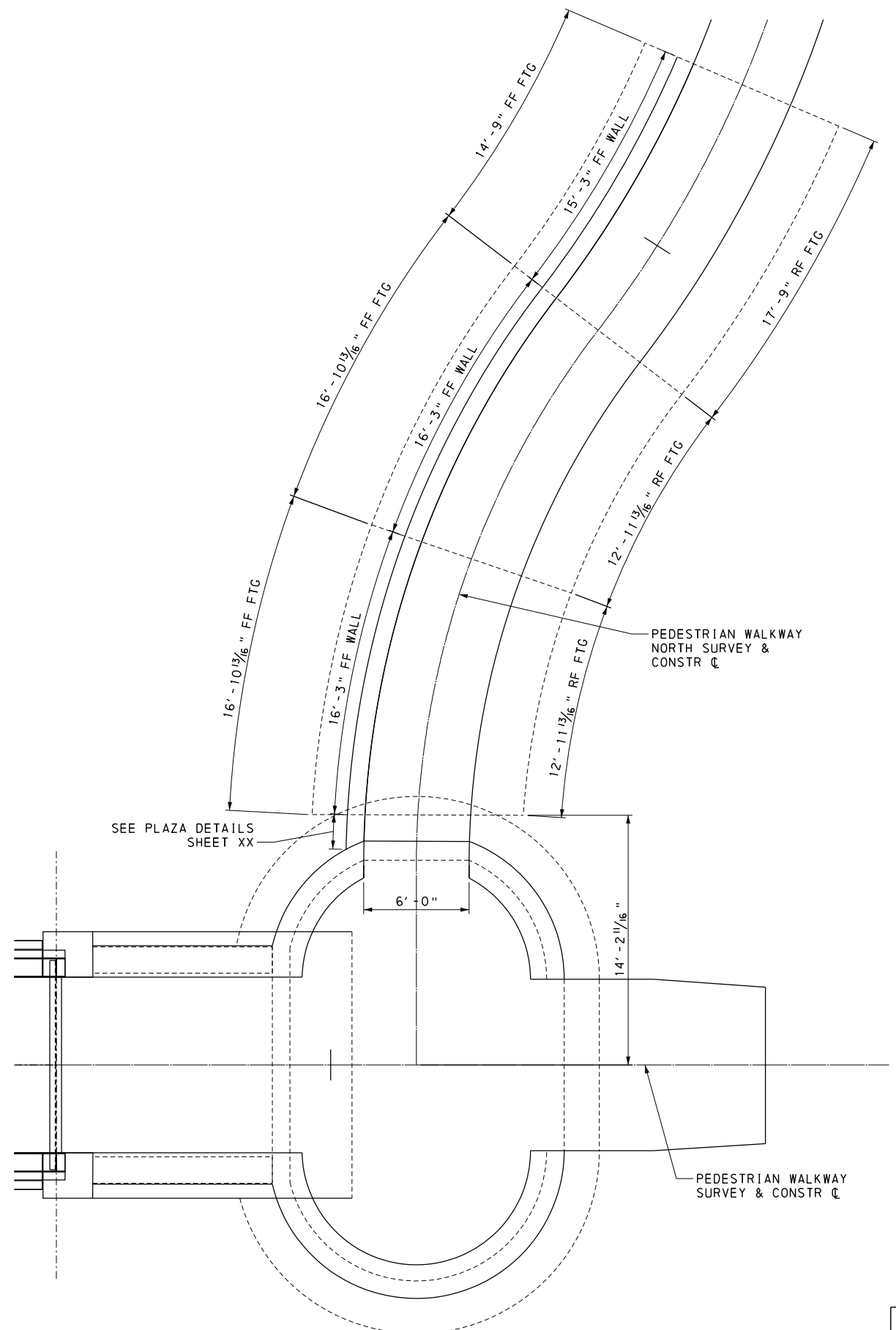
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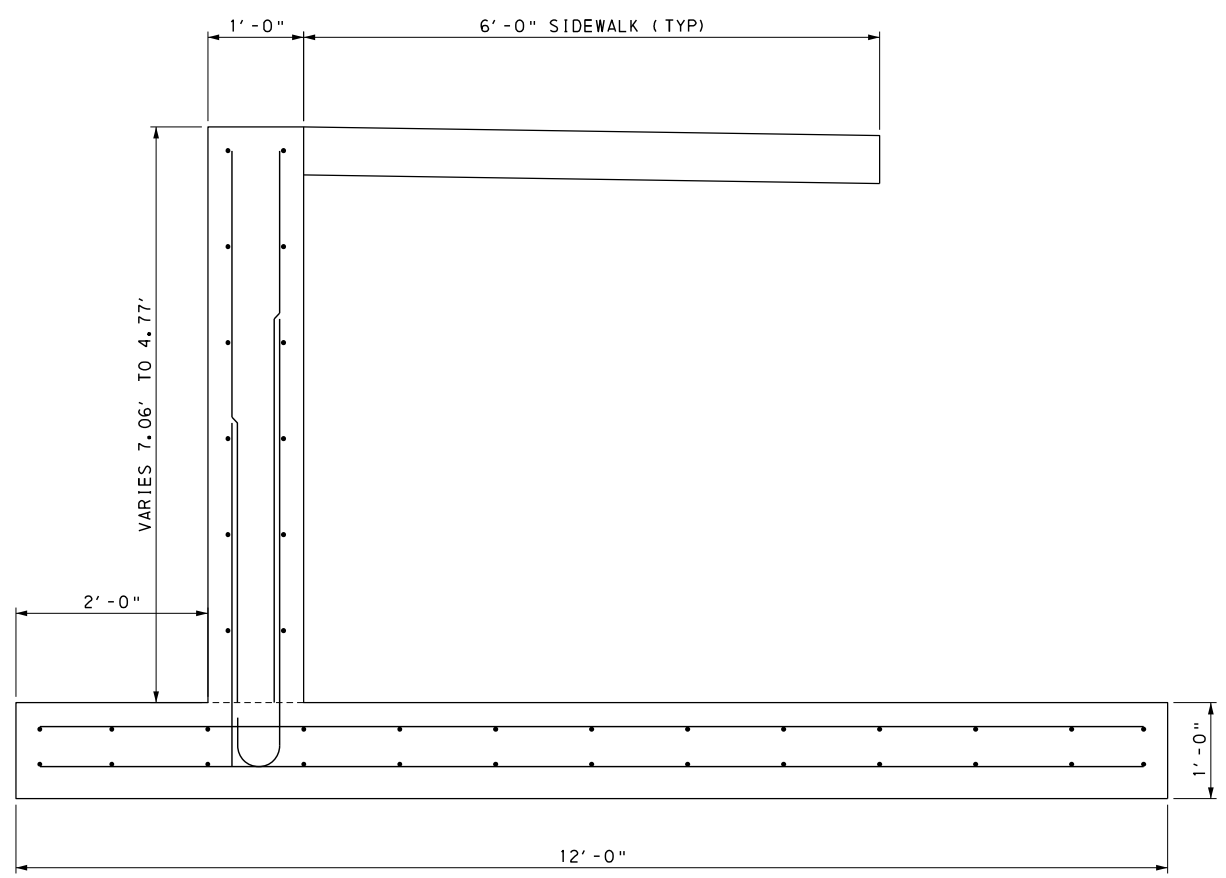
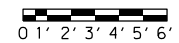
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 1. SUPPLEMENTAL DRAWINGS
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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>REV</td> <td>BY</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td colspan="4" style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</td> </tr> <tr> <td colspan="4" style="text-align: center;">ABUTMENT 2 - WINGWALLS 2</td> </tr> <tr> <td>DRN</td> <td>FILE No</td> <td>XXXXX</td> <td>DATE POST</td> </tr> <tr> <td>DRN</td> <td>FILE No</td> <td>XXXXXX</td> <td>DATE POST</td> </tr> <tr> <td>CHK</td> <td>DATE</td> <td>MARCH 22, 2024</td> <td>DRAWING NUMBER</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">PC-1.50 24 18</td> </tr> </table>	REV	BY	DATE	DESCRIPTION	PITTSBURGH, PENNSYLVANIA				ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE				ABUTMENT 2 - WINGWALLS 2				DRN	FILE No	XXXXX	DATE POST	DRN	FILE No	XXXXXX	DATE POST	CHK	DATE	MARCH 22, 2024	DRAWING NUMBER				PC-1.50 24 18
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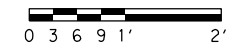
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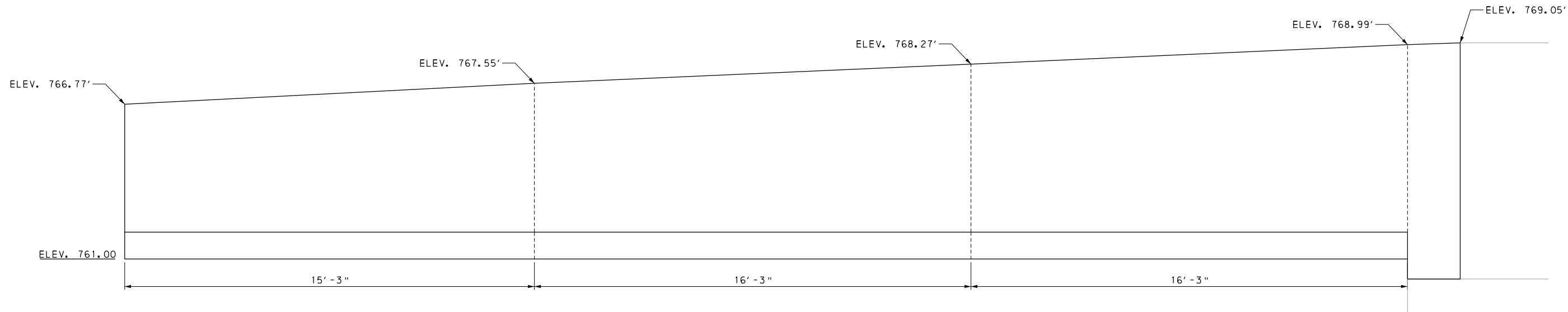
NORTH PLAZA WALL PLAN



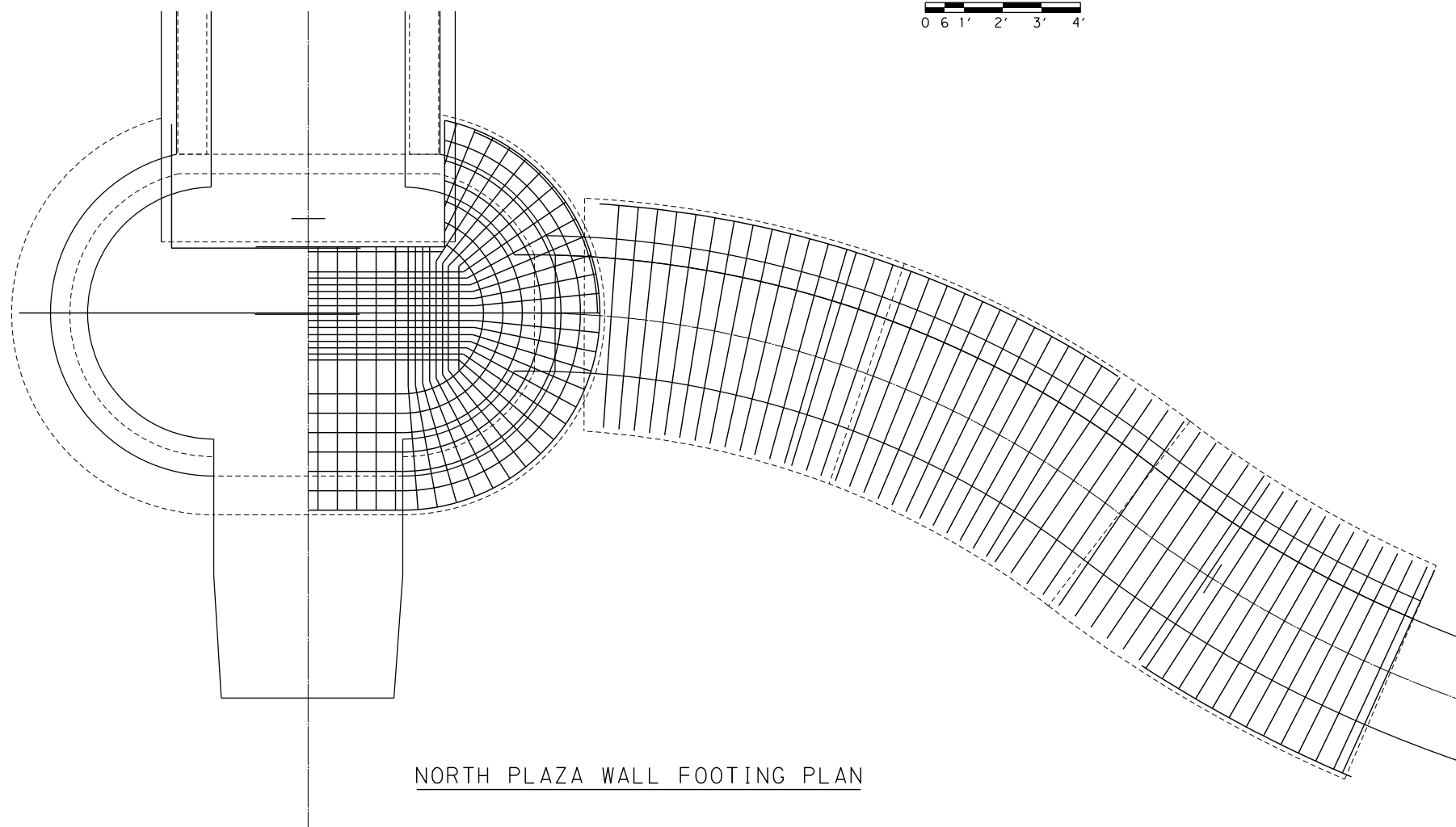
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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
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ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE						
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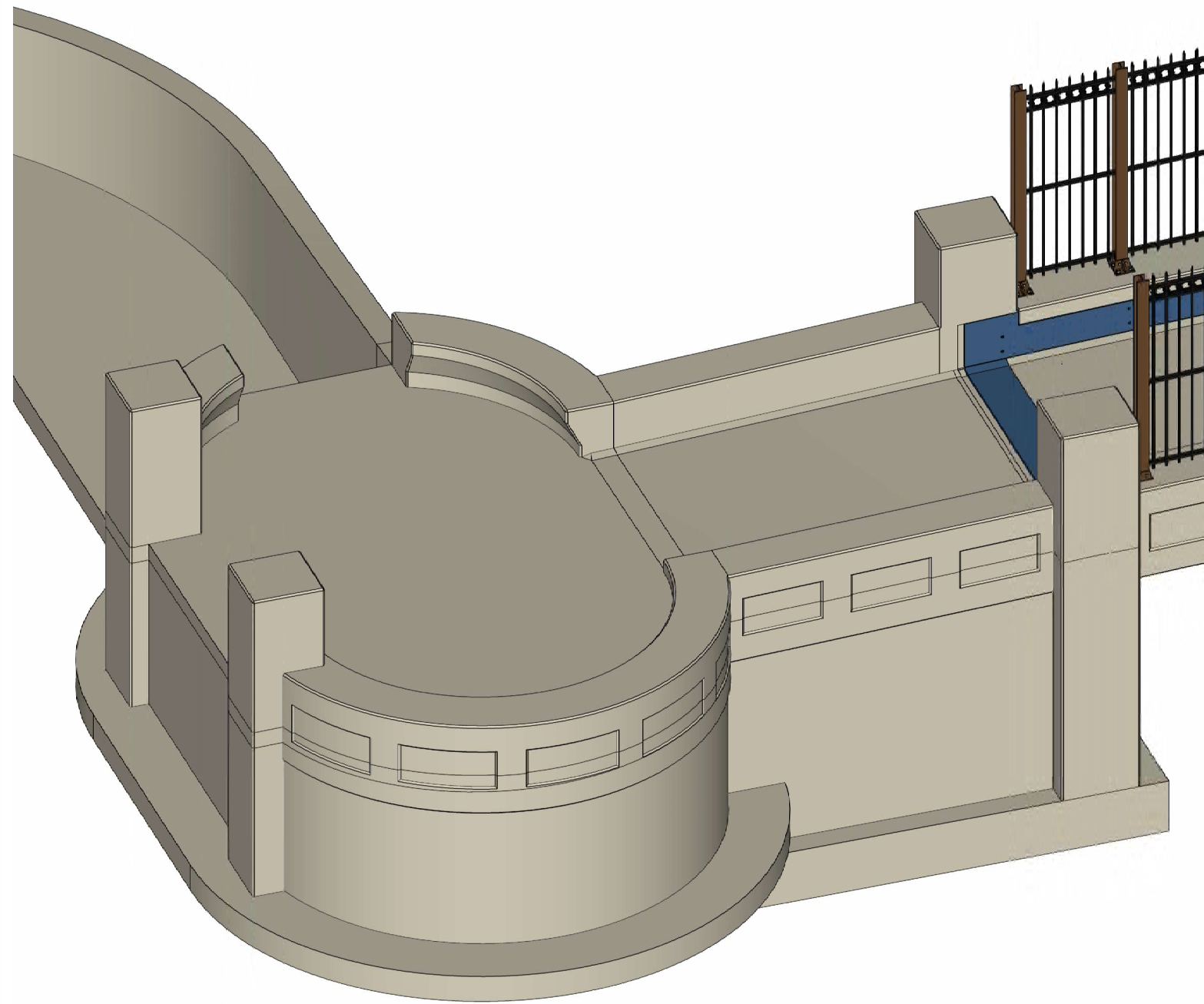
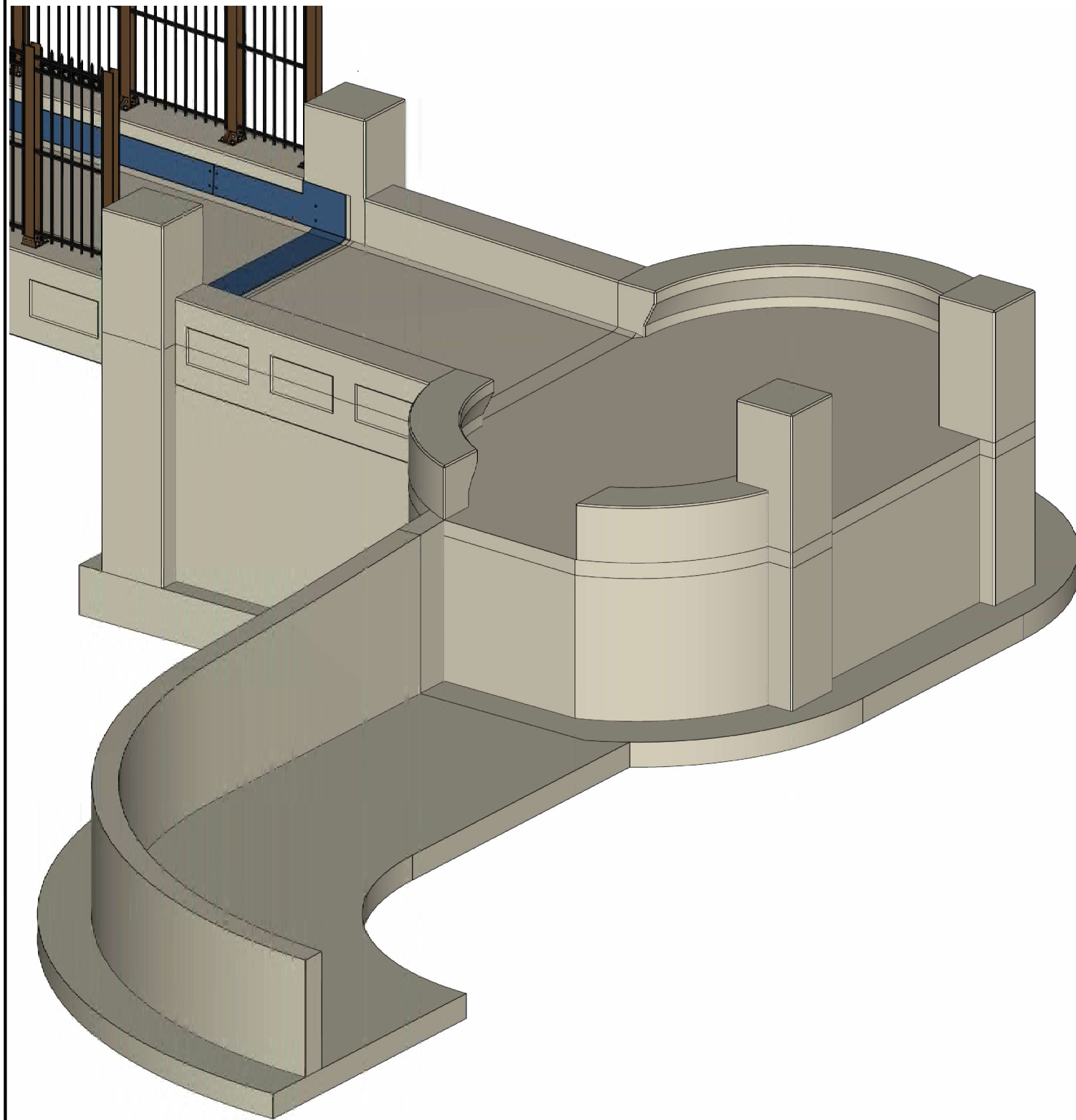


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90% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY CO. <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
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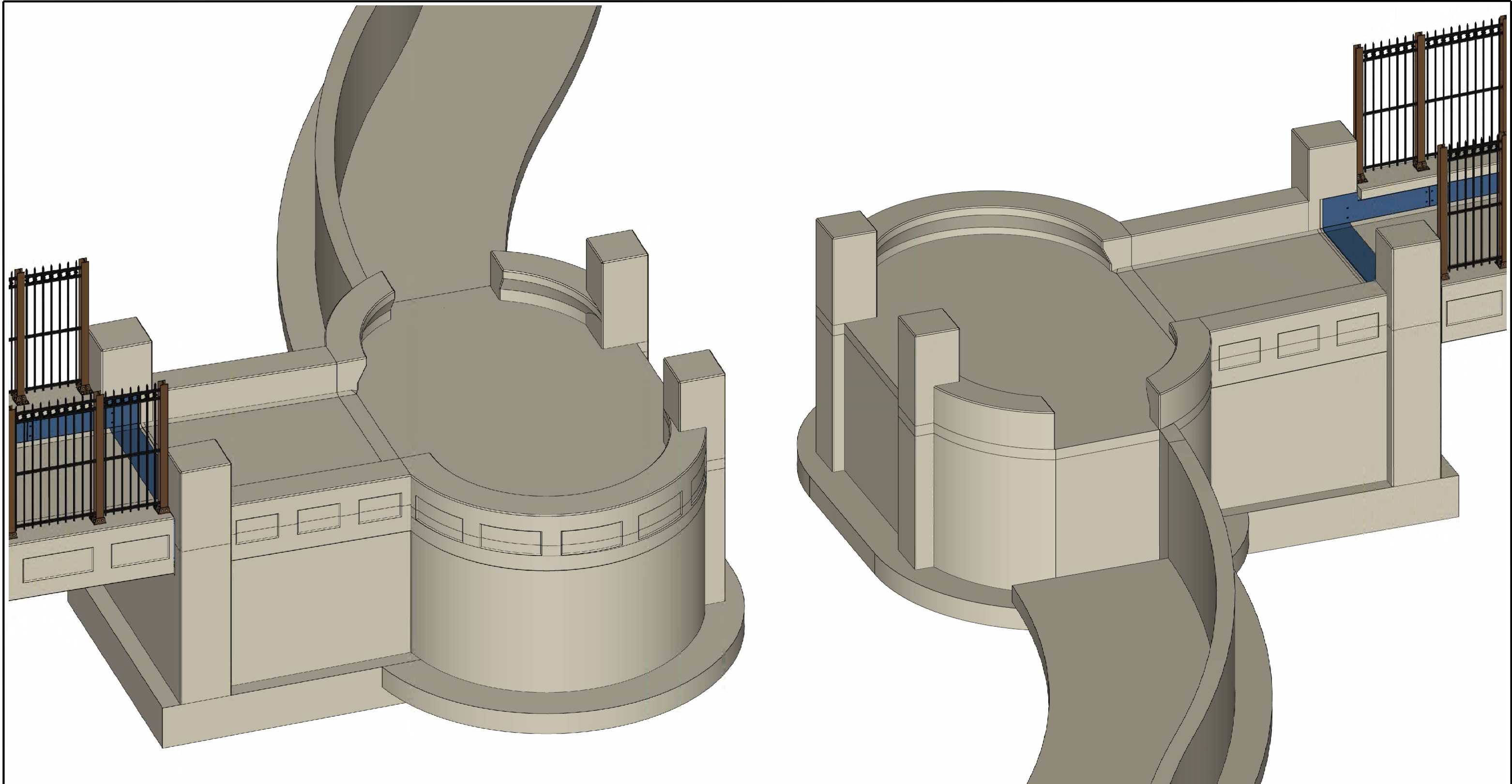
**60%
SUBMISSION**

**Michael Baker
INTERNATIONAL**
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

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**60%
SUBMISSION**

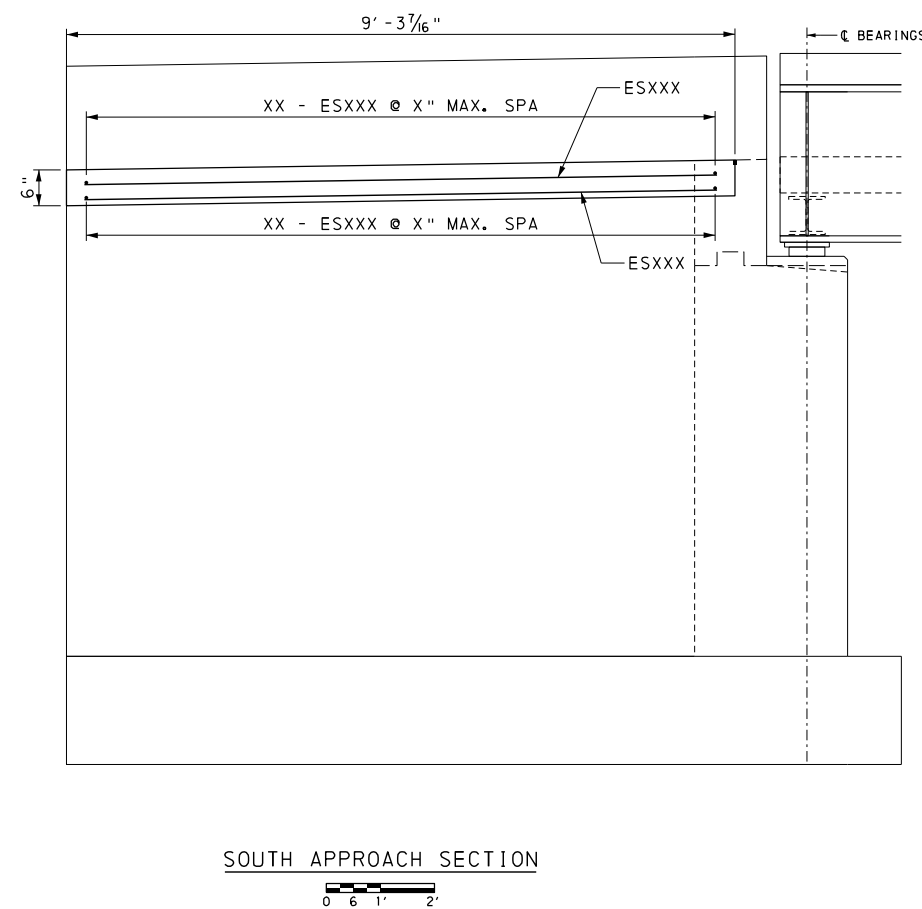
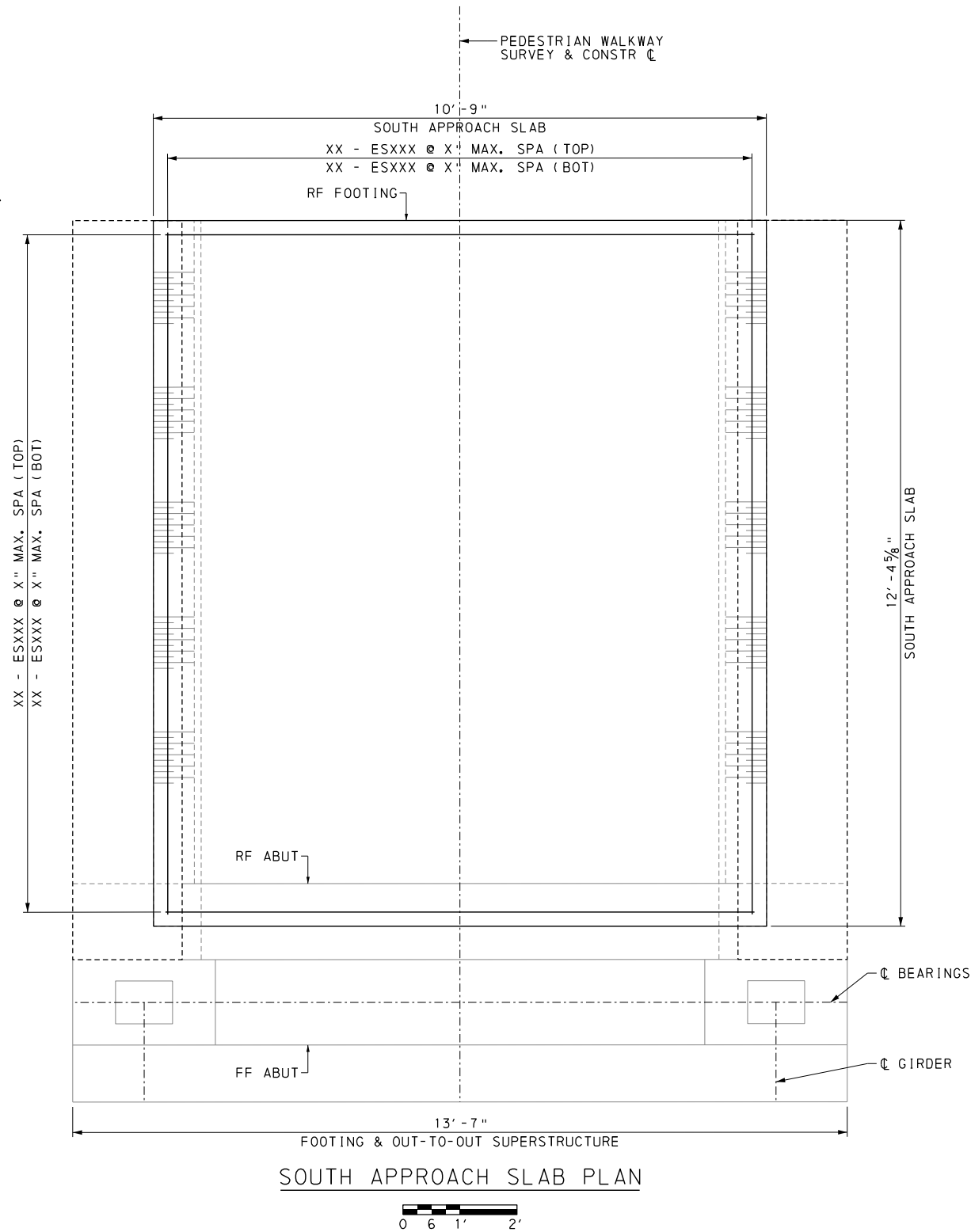
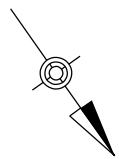
**Michael Baker
INTERNATIONAL**
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

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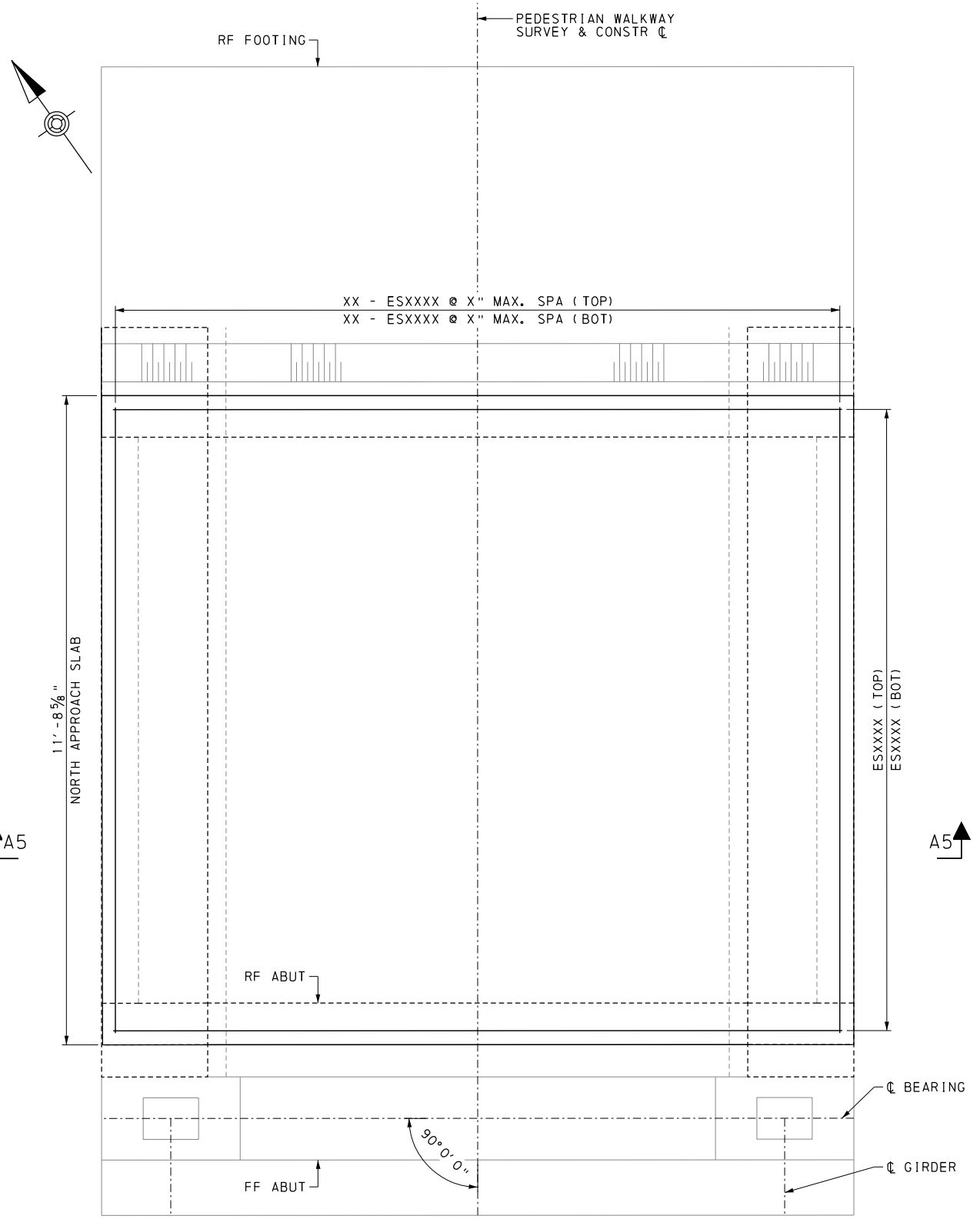
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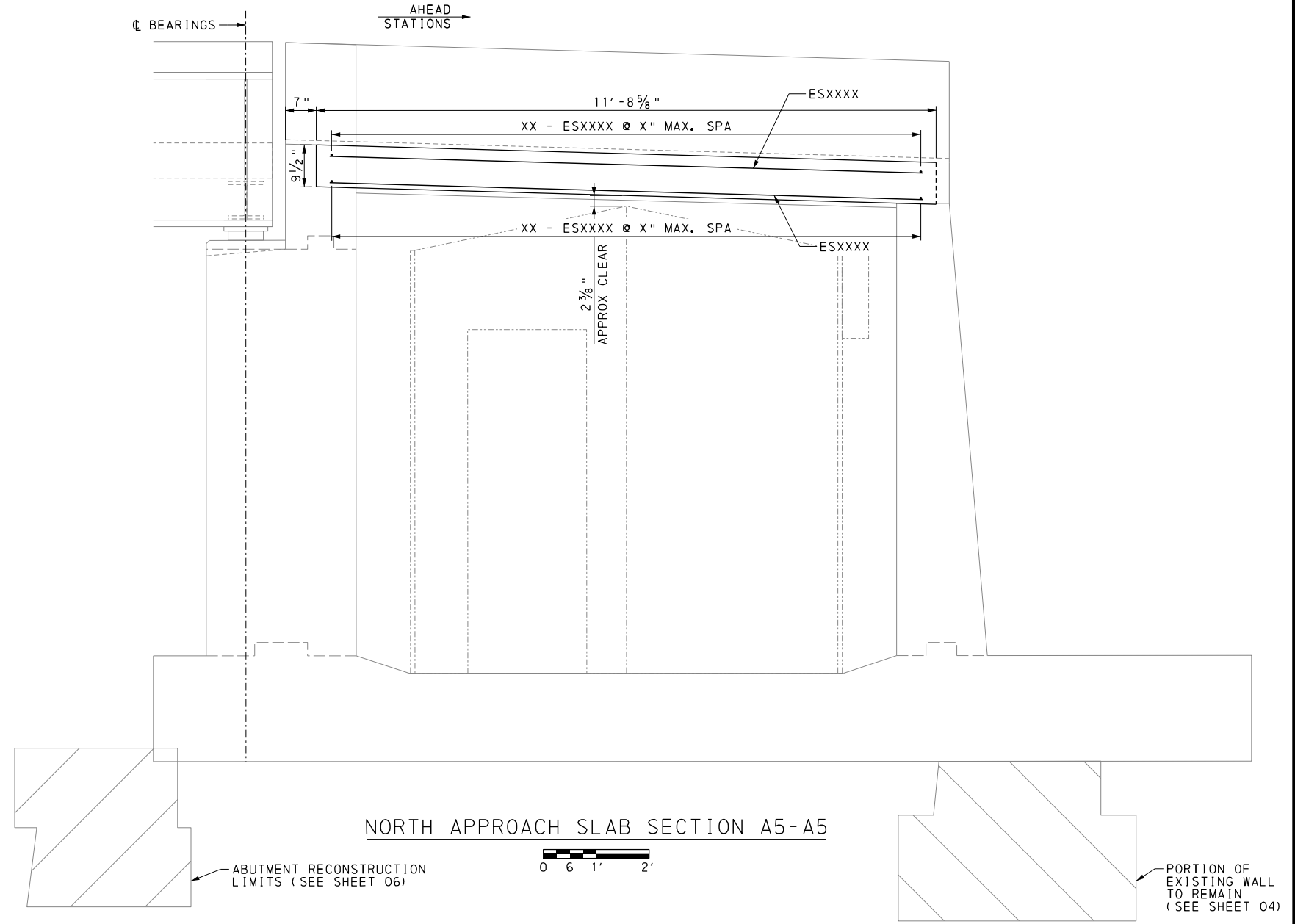
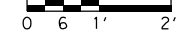
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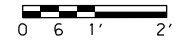
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NORTH APPROACH SLAB PLAN



NORTH APPROACH SLAB SECTION A5-A5

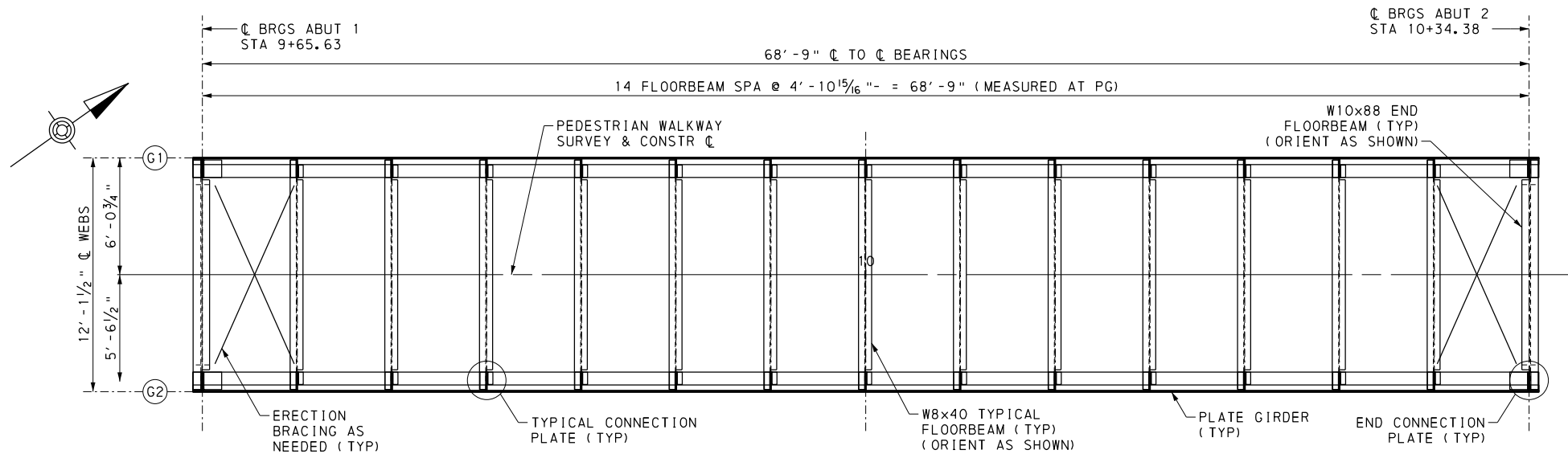


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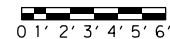
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E EPOXY COATED BARS

REFERENCES:
1. SUPPLEMENTAL DRAWINGS
2. INDEX OF DRAWINGS
3.

60% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OWNING COMPANY</small> PITTSBURGH <small>OPERATING DIVISION</small> <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
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ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE						
PATH APPROACH SLAB - NORTH						
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DRAWING NUMBER						PC-1.50 24 27
DATE						MARCH 22, 2024



FRAMING PLAN



LEGEND:

(G2) GIRDER NUMBER

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- GENERAL PLAN & ELEVATION
- INDEX OF DRAWINGS
- GENERAL NOTES
- GIRDER DETAILS

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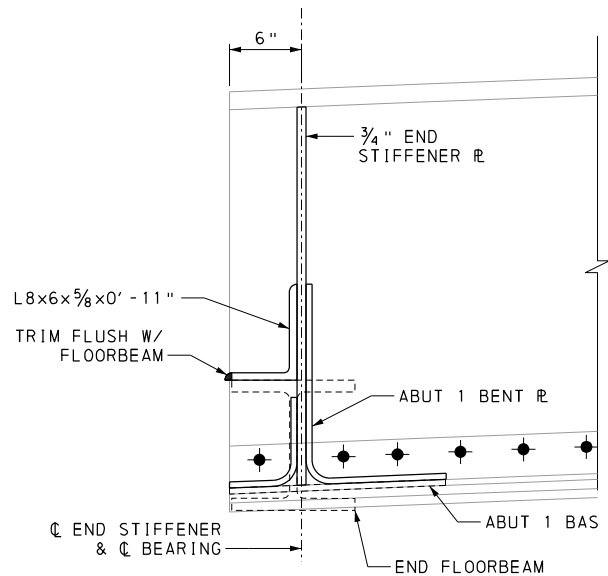
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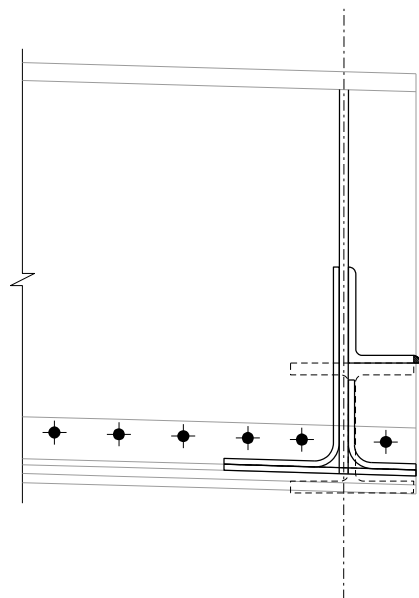
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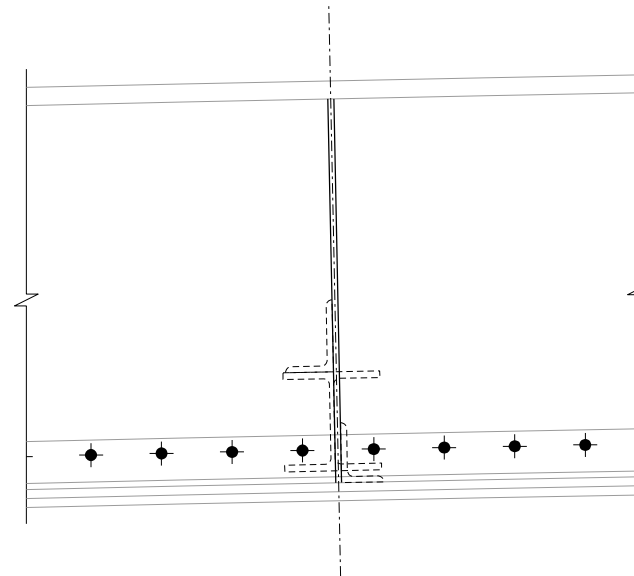
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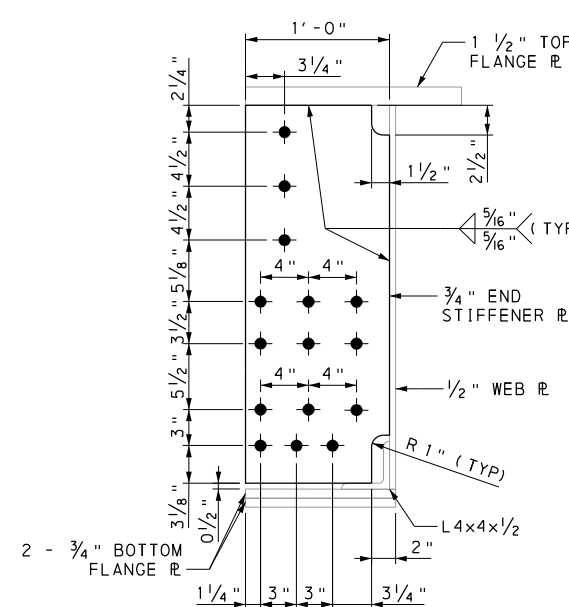
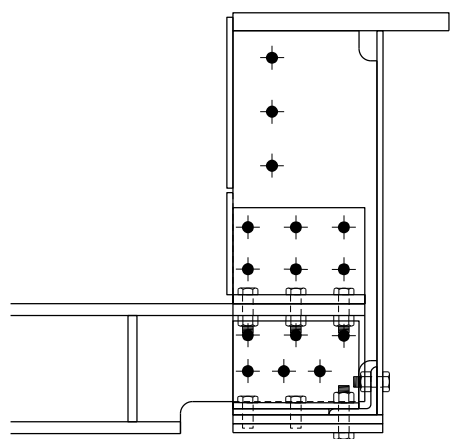
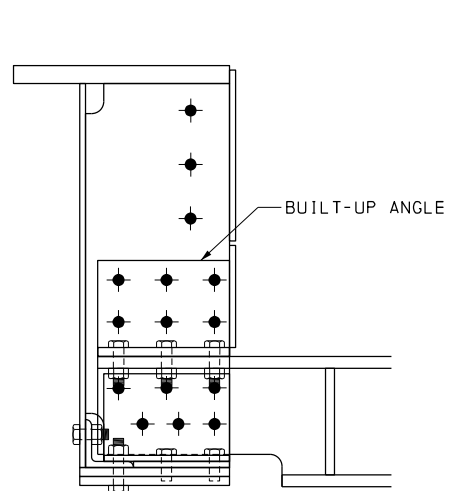
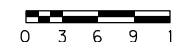
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(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



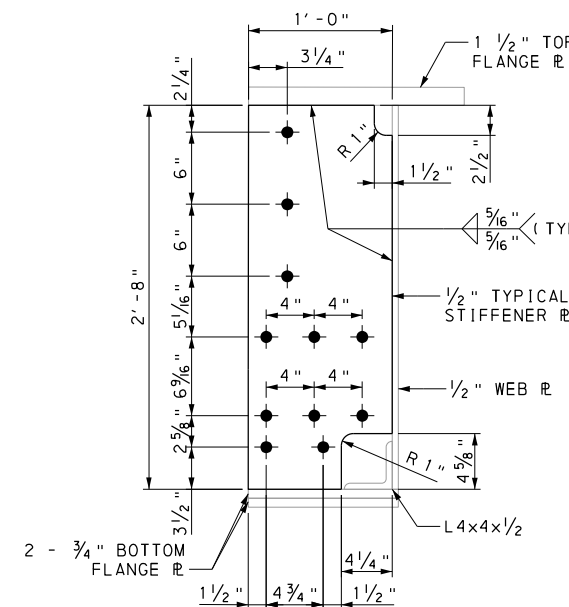
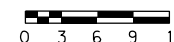
ABUT 2 STIFFENER ELEVATION
(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



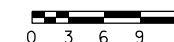
TYPICAL STIFFENER ELEVATION
(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



END STIFFENER DETAIL
(LOOKING AHEAD STATION)



TYPICAL STIFFENER DETAIL
(LOOKING AHEAD STATION)



9/11/2024

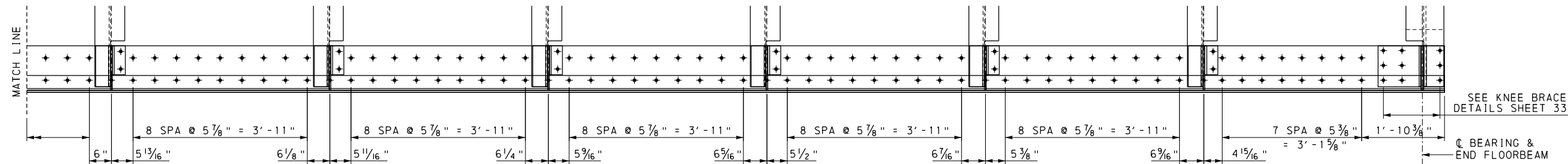
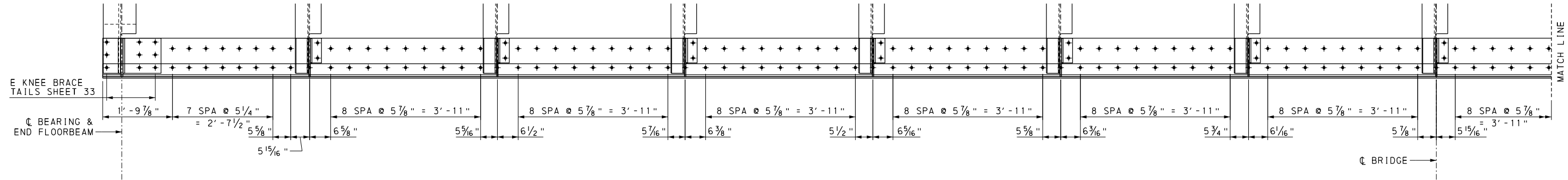
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**90%
SUBMISSION**

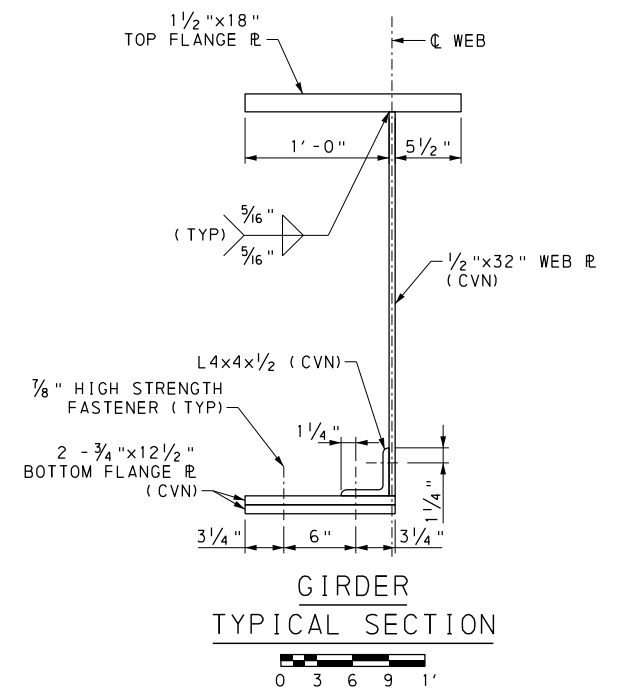
**Michael Baker
INTERNATIONAL**
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
KNEE BRACE DETAILS			
DRW	PO No.	XXXXX	DATE POST
DRW	FILE No.	XXXXXX	XXXXXX
CHK	DATE	MARCH 22, 2024	PC-1.50 24 33



GIRDER BOTTOM FLANGE VIEW G1-G1
 (LOOKING DOWN AT TOP OF BOTTOM FLANGE GIRDER G2,
 GIRDER G1 SIMILAR BY OPPOSITE HAND)



GIRDER SECTION PROPERTIES								
GIRDER NUMBER	GIRDER SEGMENT	SEGMENT LENGTH (FT)	AREA STEEL (IN ²)	DEPTH STEEL SECTION (IN)	DISTANCE TO NEUTRAL AXIS FROM BOTTOM (IN)	MOMENT OF INERTIA (IN ⁴)	SECTION MODULUS, BOTTOM OF BEAM (IN ³)	SECTION MODULUS, TOP OF BEAM (IN ³)
					NON-COMP	NON-COMP	NON-COMP	NON-COMP
G1 & G2	A							

GIRDER CAMBER ORDINATES - "Y" INCHES												
GIRDER NUMBER	TYPE OF CAMBER	CL BRG ABUT 1	SPAN 1									CL BRG PIER 1
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
G1 & G2	STEEL DEAD LOAD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	DECK DEAD LOAD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GEOMETRIC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- REFERENCES:**
- SUPPLEMENTAL DRAWINGS
 - INDEX OF DRAWINGS
 -

SHEET:
 2
 1

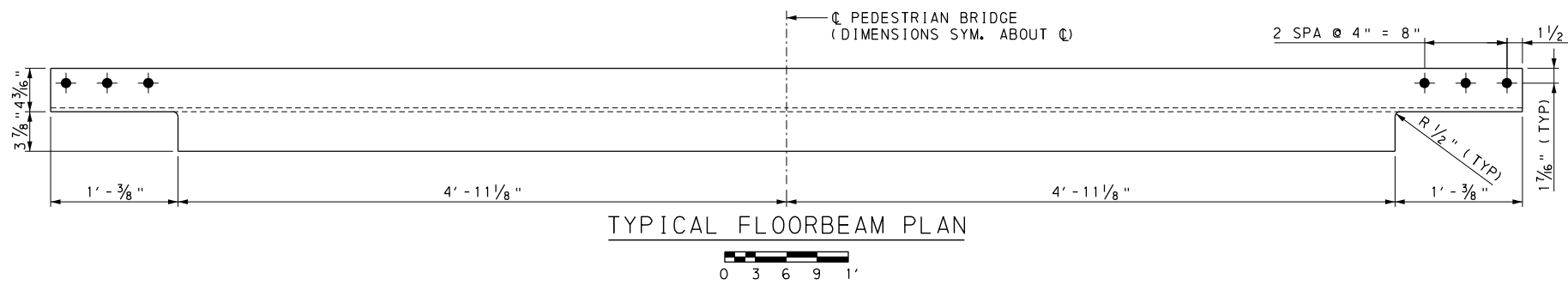
90% SUBMISSION

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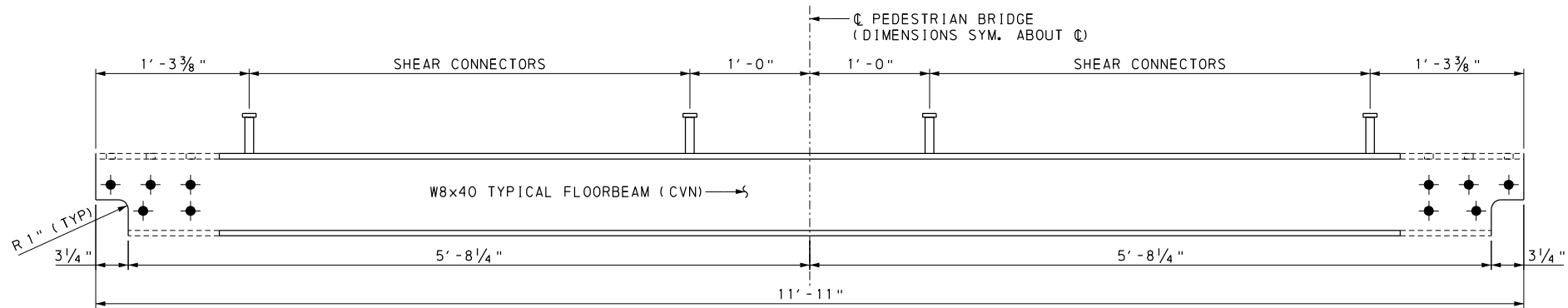
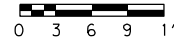
NORFOLK SOUTHERN
 NORFOLK SOUTHERN RAILWAY COMPANY
 DIVISION OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION, ATLANTA, GA

REV	BY	DATE	DESCRIPTION
LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
GIRDER DETAILS 2			
DN	PD No.	XXXXX	DATE POST
DN	FILE No.	XXXXXX	DRAWING NUMBER
DN	DATE	MARCH 22, 2024	PC-1.50 24 31

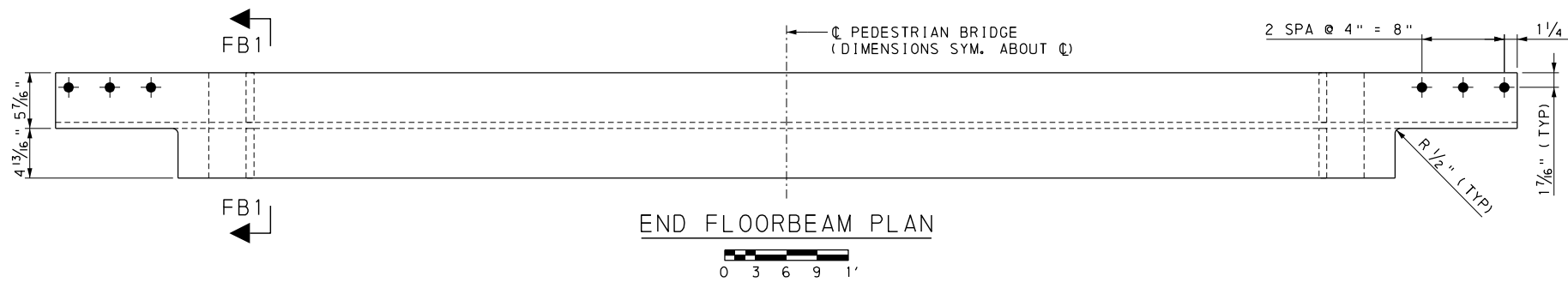
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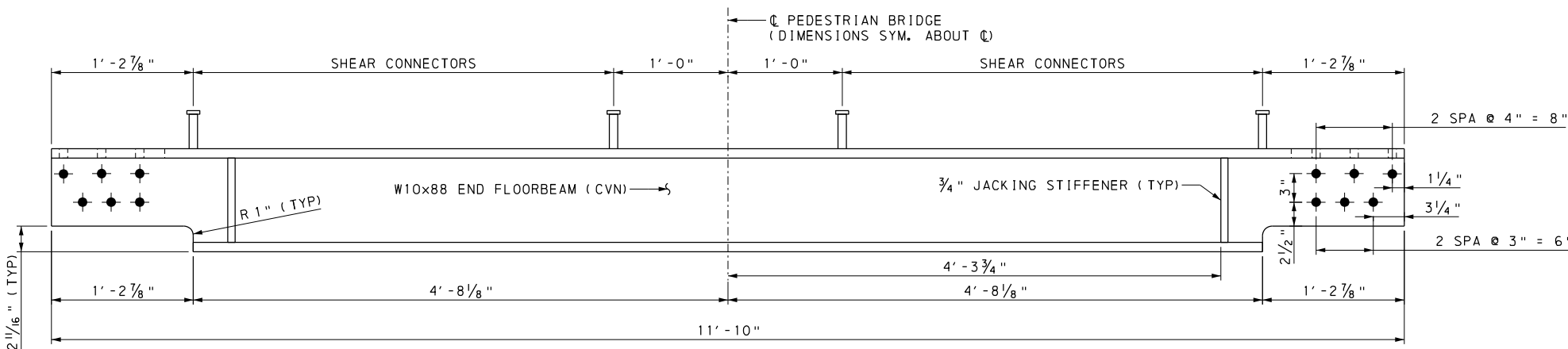
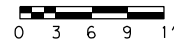
TYPICAL FLOORBEAM PLAN



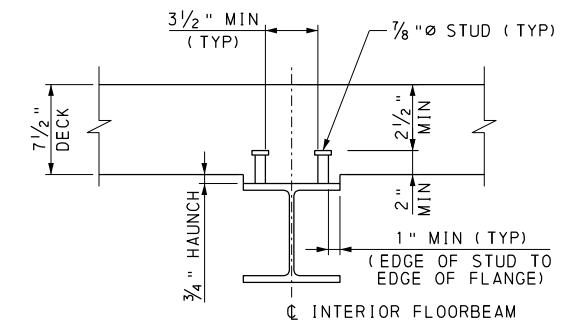
TYPICAL FLOORBEAM ELEVATION
(LOOKING AHEAD STATION)



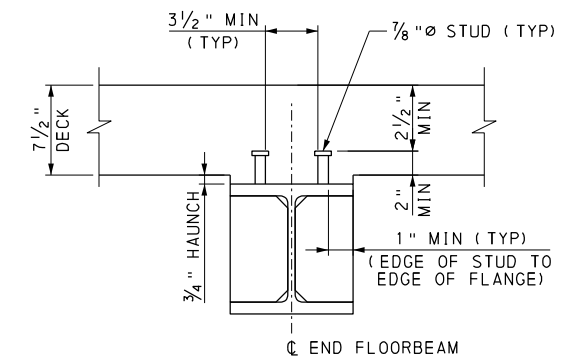
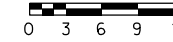
END FLOORBEAM PLAN



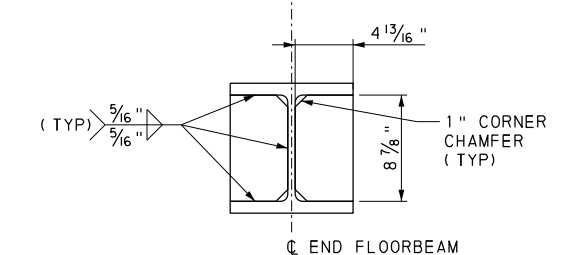
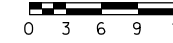
END FLOORBEAM ELEVATION
(LOOKING AHEAD STATION)



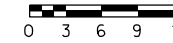
TYPICAL FLOORBEAM SECTION



END FLOORBEAM SECTION



SECTION FB1-FB1



NOTES:

1. FOR INTERIOR FLOORBEAM CONNECTION DETAILS, SEE SHEET X.
2. FOR END FLOORBEAM DETAILS, SEE SHEET X.
3. BEAMS SHALL BE PLACED WITH ANY MILL CAMBER UP; THE CONTRACTOR SHALL CONSIDER AND COMPENSATE FOR DEAD LOAD DEFLECTION, DUE TO THE WEIGHT OF THE CONCRETE, WHEN FORMING AND CONSTRUCTING THE SLAB.

LEGEND:
CVN CHARPY V-NOTCH

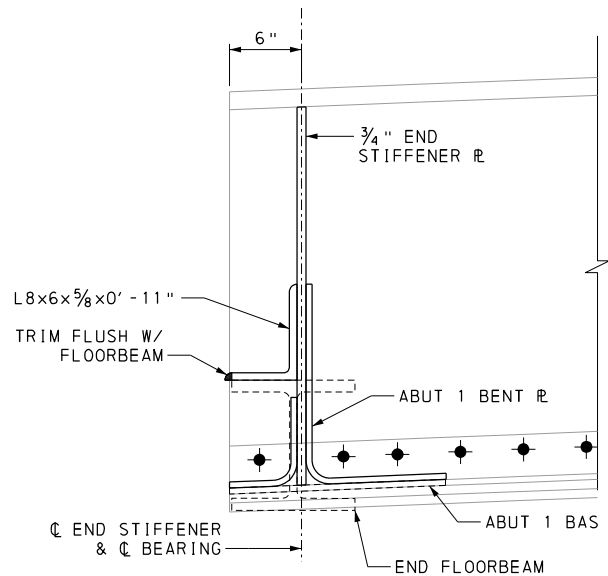
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90%
SUBMISSION

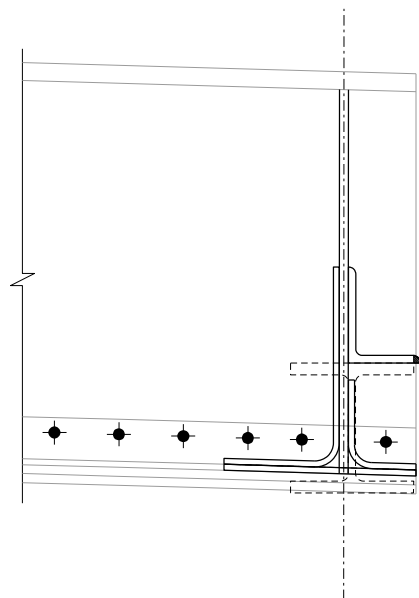
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INTERNATIONAL
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100 AIRSIDE DRIVE
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PHONE: (412) 269-6300

NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

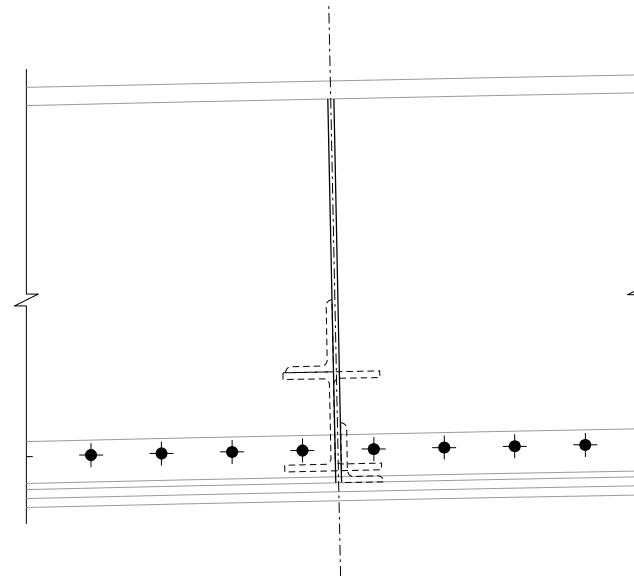
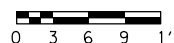
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LOCATION: PITTSBURGH, PENNSYLVANIA			
TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
FLOORBEAM DETAILS			
DRW	FILE No	DATE	SCALE
CHK	DATE	FILE No	SCALE
DRAWING NUMBER: PC-1.50 24			32
DATE: MARCH 22, 2024			



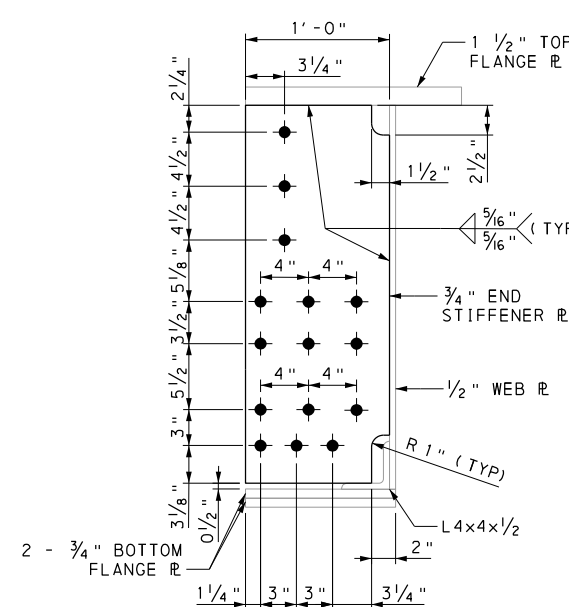
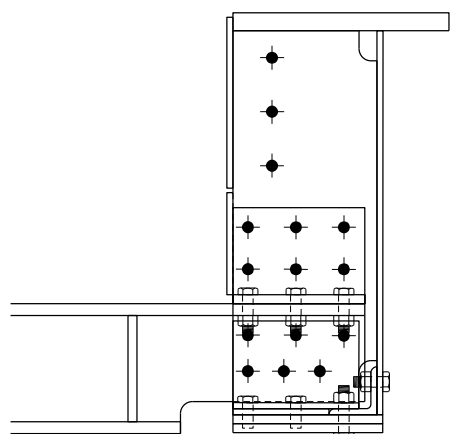
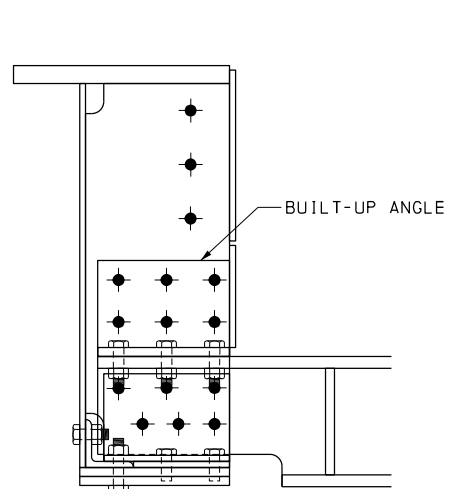
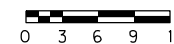
ABUT 1 STIFFENER ELEVATION
(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



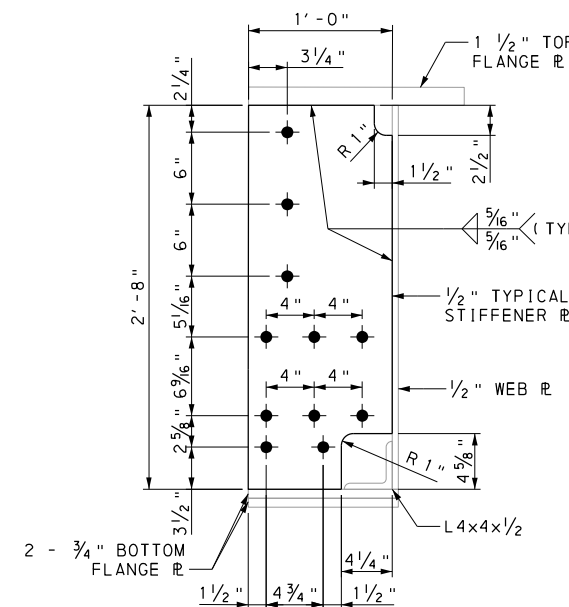
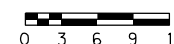
ABUT 2 STIFFENER ELEVATION
(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



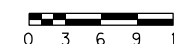
TYPICAL STIFFENER ELEVATION
(LOOKING INSIDE GIRDER A,
GIRDER B SIMILAR BY OPPOSITE HAND)



END STIFFENER DETAIL
(LOOKING AHEAD STATION)



TYPICAL STIFFENER DETAIL
(LOOKING AHEAD STATION)



9/11/2024

8:03:24 AM
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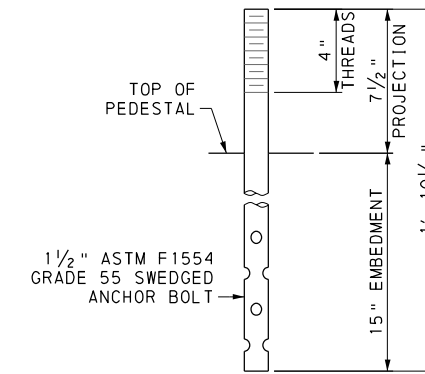
**90%
SUBMISSION**

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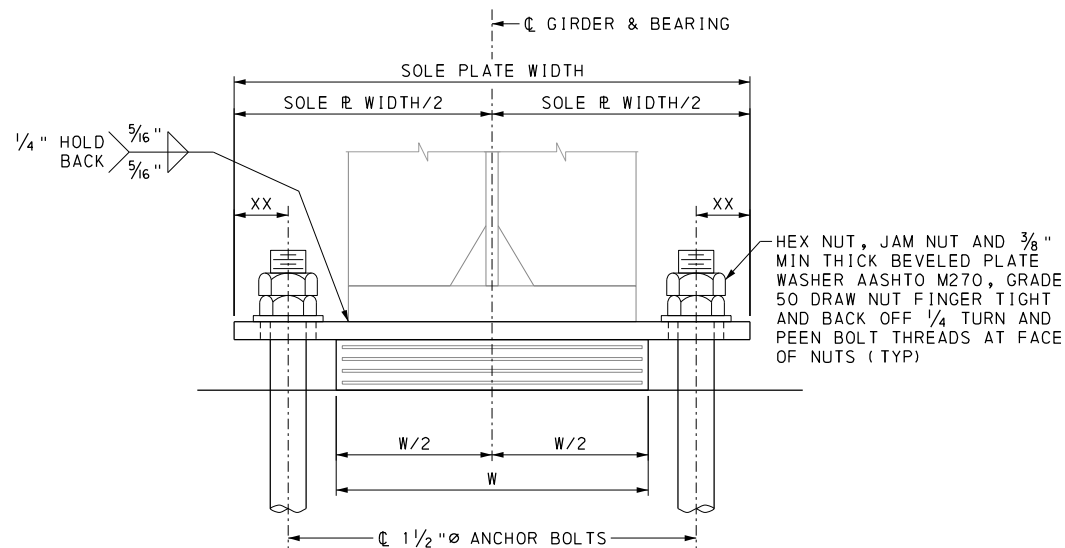
NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

REV	BY	DATE	DESCRIPTION
PITTSBURGH, PENNSYLVANIA			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE			
KNEE BRACE DETAILS			
DRW	PO No.	XXXXX	DATE POST
DRW	FILE No.	XXXXXX	XXXXXX
CHK	DATE	MARCH 22, 2024	PC-1.50 24 33

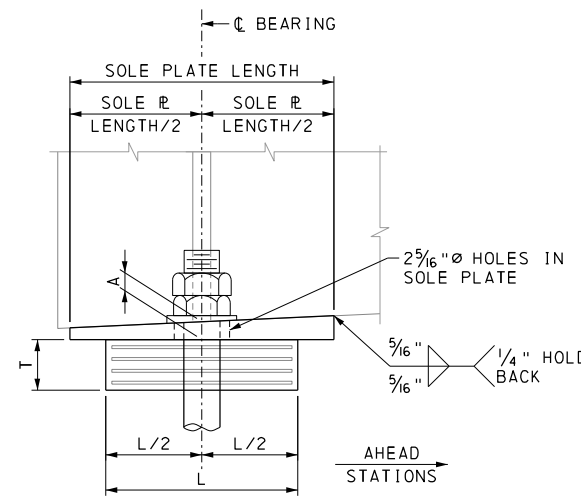
LAMINATED NEOPRENE BEARING PAD DIMENSIONS																
LOCATION	TYPE	LAMINATED NEOPRENE BEARING PAD DIMENSIONS						SOLE PLATE DIMENSIONS			TOTAL BEARING HEIGHT (INCLUDING SOLE PLATE THICKNESS)	TOTAL BEARINGS PER LOCATION	DESIGN GIRDER REACTIONS (KIPS) (UNFACTORED, W/O IMPACT)			
		WIDTH W	LENGTH L	COVER LAYER	INTERNAL LAYER	NO. OF INTERNAL LAYERS	NO. OF SHIMS	TOTAL THICKNESS T	WIDTH	LENGTH			THICKNESS A	MAX DL	MIN DL	LL
ABUT 1	FIX	12"	10"	0.25"	0.375"	3	4	2.1034"					2	51.00	51.00	32.00
ABUT 2	EXP	12"	10"	0.25"	0.375"	5	6	3.0926"					2	51.00	51.00	32.00



ANCHOR BOLT DETAIL
NOT TO SCALE



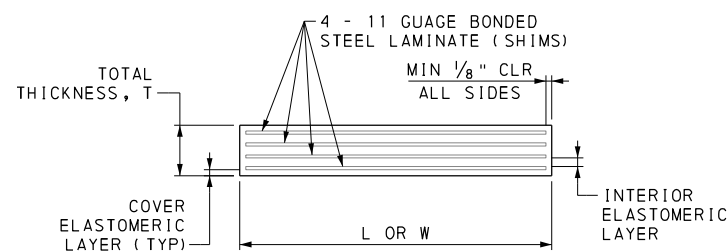
ELEVATION
NOT TO SCALE



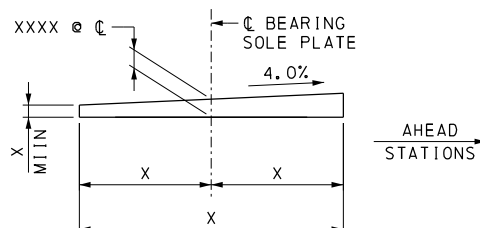
ELEVATION
NOT TO SCALE

NOTES:

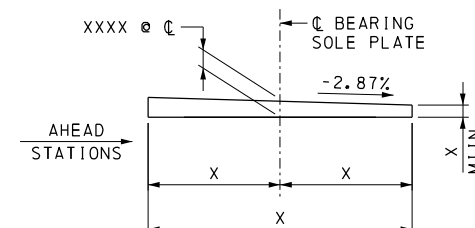
- FABRICATOR MAY USE CONTACT DRAWINGS TO FABRICATE THE ELASTOMERIC PADS.
- USE RAW ELASTOMERIC NEOPRENE WITH A DUROMETER HARDNESS OF 50(+/-)5.
- MATERIAL SPECIFICATIONS FOR ELASTOMERIC BEARINGS WILL MEET THE REQUIREMENTS OF CURRENT AASHTO AS LISTED UNDER SUBSECTION "MATERIALS AND TESTING".
- FOR ADDITIONAL BEARING NOTES, SEE BC-755M.
- MANUFACTURE ALL BEARINGS IN ACCORDANCE WITH THE COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PLANS AND SPECIFICATIONS (PUBLICATION 408) SECTION 1113.02 AND DESIGN MANUAL-PART 4.
- MOLD ALL BEARINGS PADS TO DESIGN DIMENSIONS. CUTTING TO SIZE AFTER FABRICATION IS PROHIBITED.
- PROVIDE MINIMUM LOW-TEMPERATURE NEOPRENE GRADE 3.
- AT THE ABUTMENT, BLOCK THE AREAS UNDER THE GIRDERS NOT IN CONTACT WITH THE BEARING PADS USING 1" THICK BACKER RODS.
- HOLES ARE NOT PERMITTED IN ELASTOMERIC BEARINGS.
- VULCANIZE PATCH PIN GROOVES.
- BEARING AREAS: PROVIDE BOTTOM FLANGE IN A TRUE HORIZONTAL PLANE IN TRANSVERSE DIRECTION AND IN A TRUE PLANE LONGITUDINALLY OVER DIMENSION "L", WHERE L=LENGTH OF BEARING +6" AHEAD AND BACK, WHERE APPLICABLE. UNIFORMLY STRESS EACH BEARING AFTER ALL DEAD LOAD IS PLACED. MAKE NECESSARY SHOP AND/OR FIELD ADJUSTMENTS TO PROVIDE UNIFORM BEARING STRESS UNDER ALL DEAD LOADS.
- GROUT ANCHOR BOLTS WITH NON-SHRINK GROUT IN PREFORMED HOLES.
- SOLE PLATE THICKNESS AND TOTAL BEARING HEIGHT FOUND IN THE TABLE ABOVE ARE BASED UPON THE SOLE PLATE THICKNESS AT C OF BEARING.



LAMINATED NEOPRENE ELASTOMERIC PAD
NOT TO SCALE



BEVELED SOLE PLATE FIXED
NOT TO SCALE



BEVELED SOLE PLATE EXPANSION
NOT TO SCALE

3/22/2024 12:33:02 PM NS_M_PED.Dwg det l.dgn

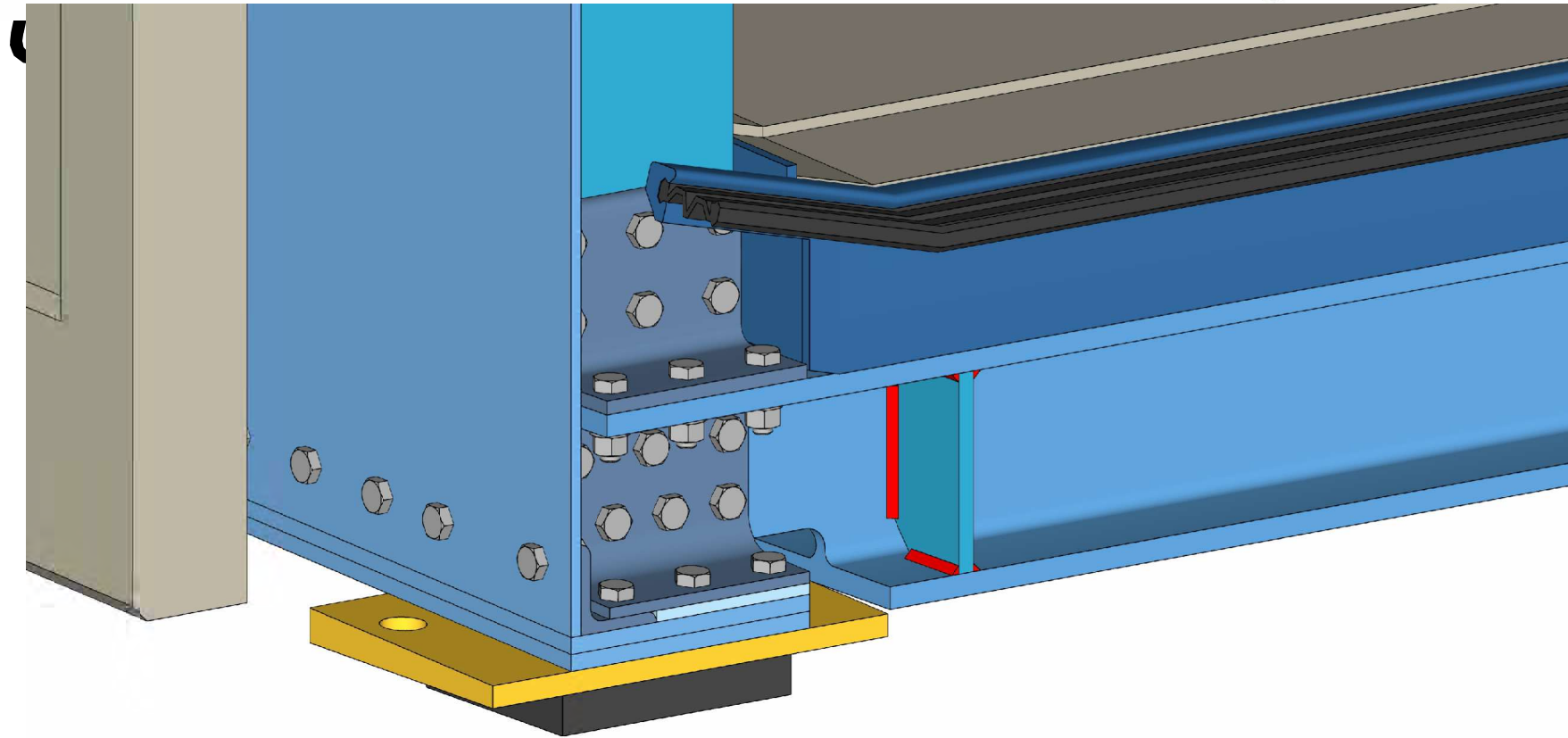
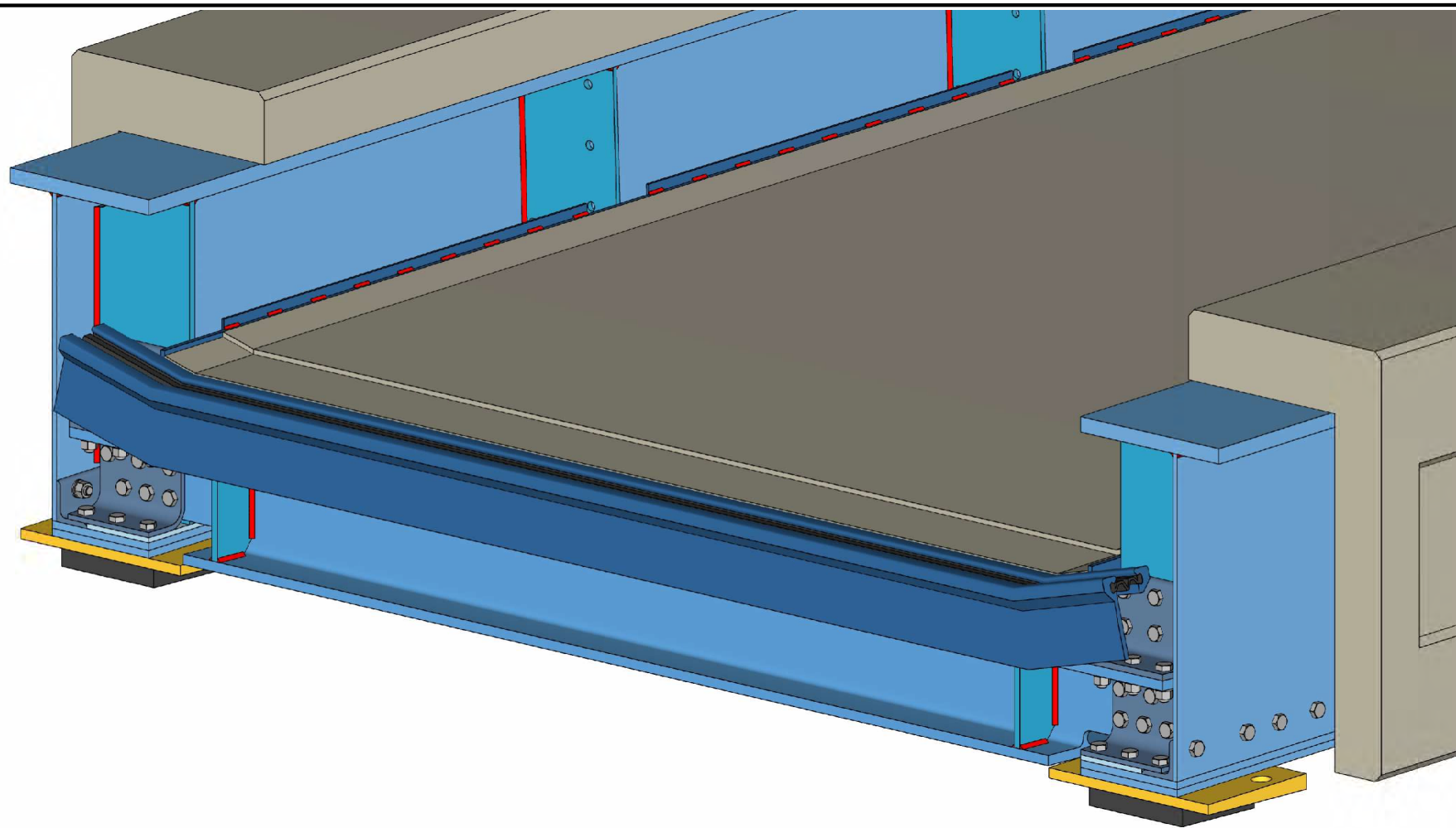
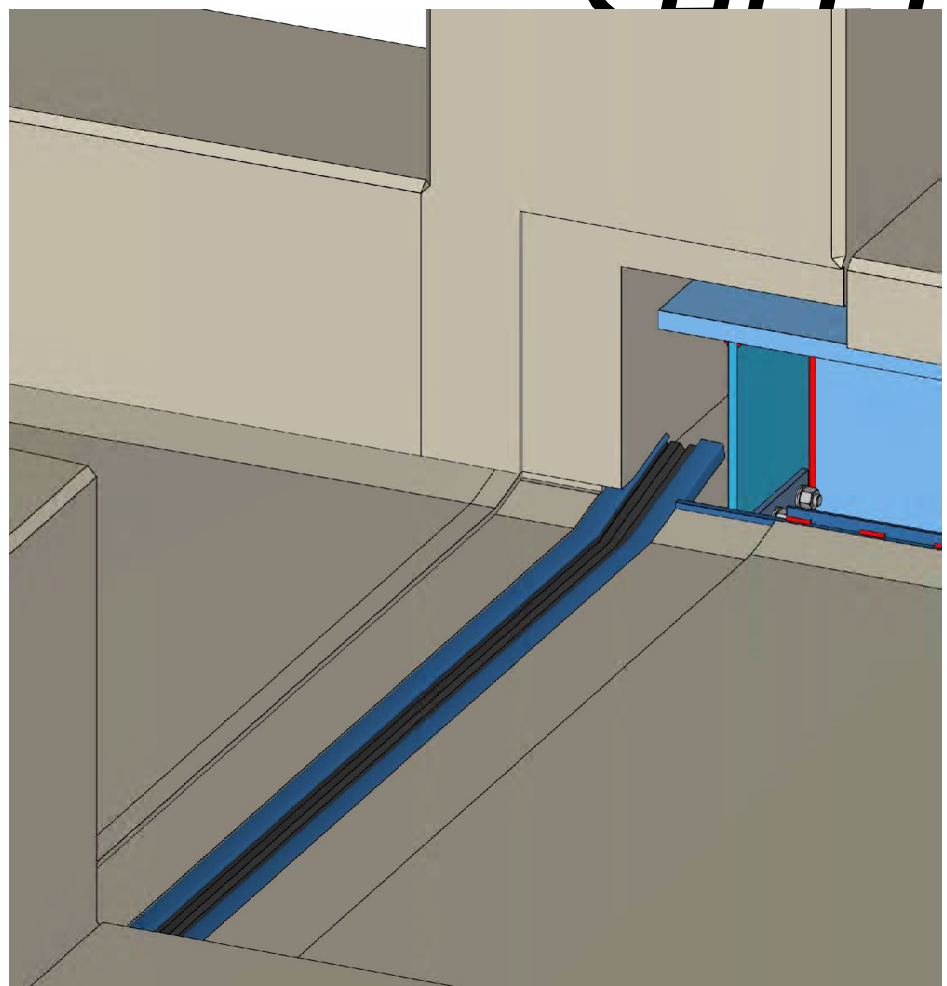
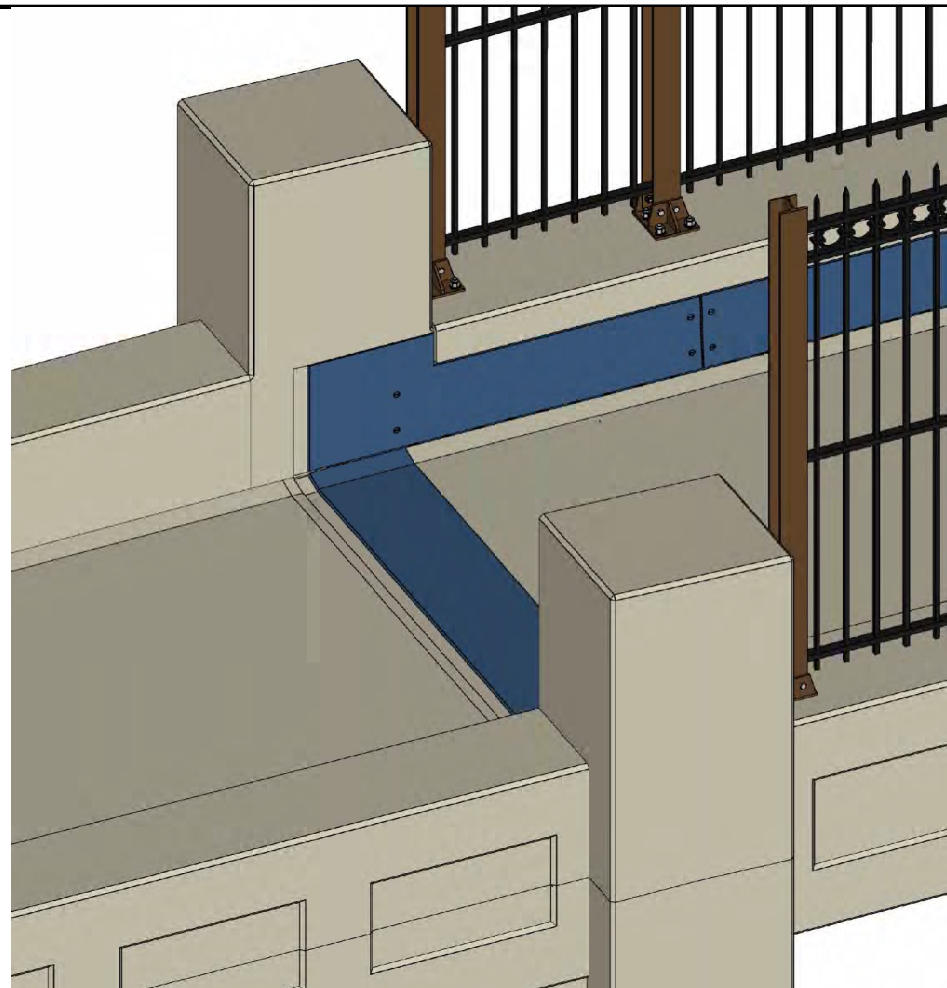
60% SUBMISSION

Michael Baker INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH

REV	BY	DATE	DESCRIPTION
			PITTSBURGH, PENNSYLVANIA
			ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE
			ELASTOMERIC BEARING DETAILS 1
DRN	FILE No	DATE	DESCRIPTION
	XXXXXX	XXXXXX	XXXXXX
DWN	FILE No	DATE	DESCRIPTION
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CHK	DATE		
	MARCH 22, 2024		

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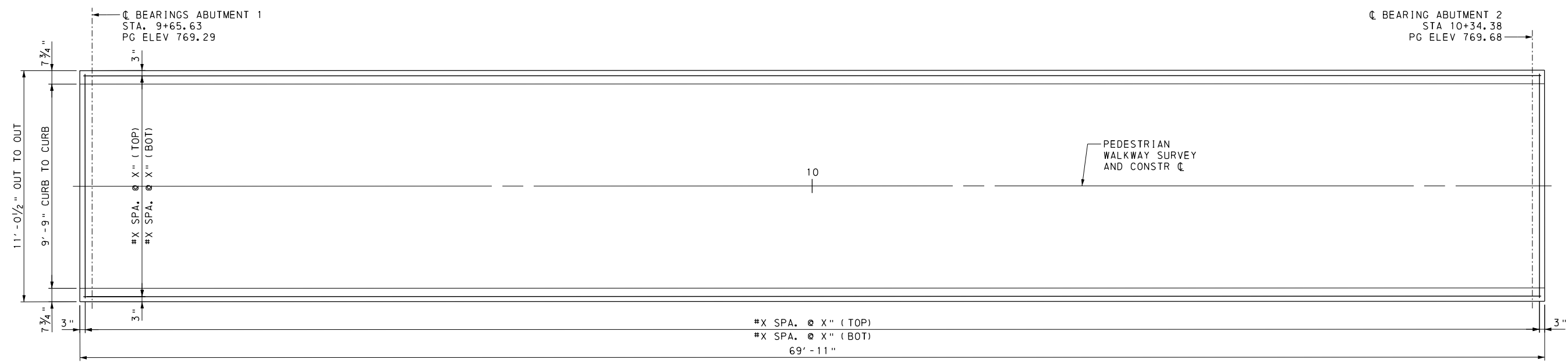
60%
SUBMISSION

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NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

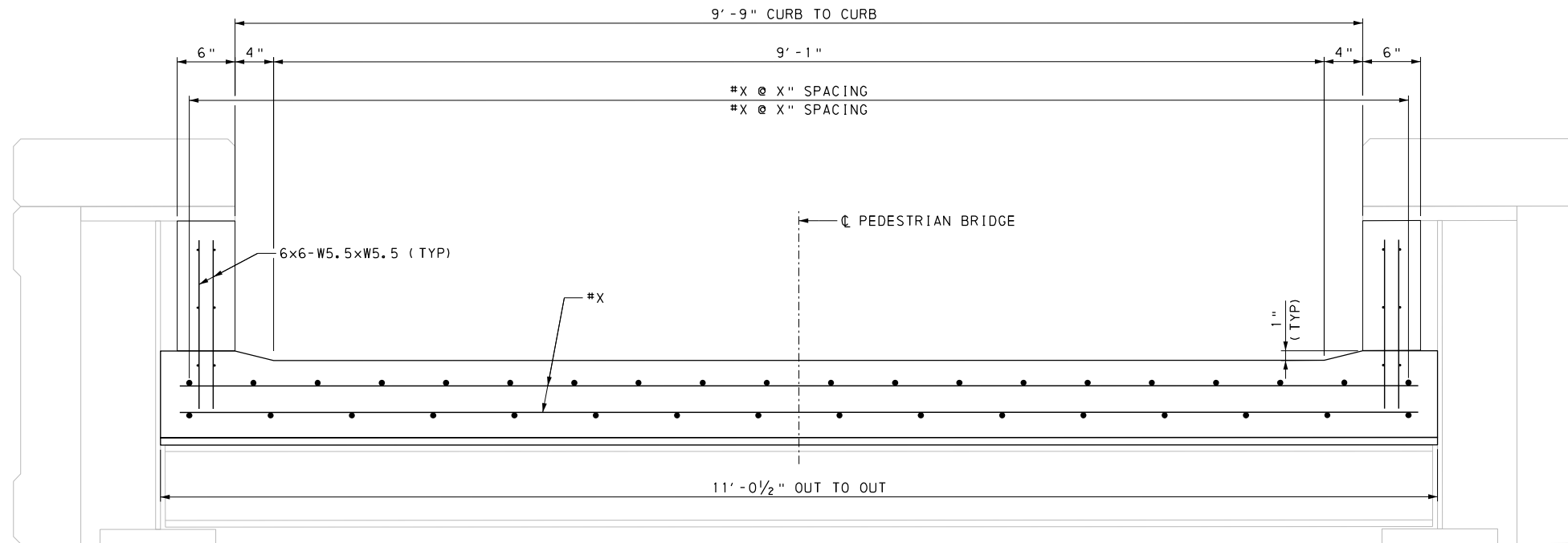
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PITTSBURGH, PENNSYLVANIA			
STRIP SEAL DETAILS			
DRW	FILE NO	DATE	DESCRIPTION
CHK	FILE NO	DATE	DESCRIPTION
PC-1.50 24			35
MARCH 22, 2024			

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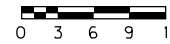


DECK SLAB

60% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	REV	BY	DATE	DESCRIPTION
			LOCATION: PITTSBURGH, PENNSYLVANIA TITLE: ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE DECK PLAN			
			DESIGN	FILE NO	DATE	DESCRIPTION
			CHK	FILE NO	DATE	DESCRIPTION
			DRAWING NUMBER: PC-1.50 24 36		MILE POST: XXXXXX DATE: MARCH 22, 2024	SHEET NO. 36 OF 46

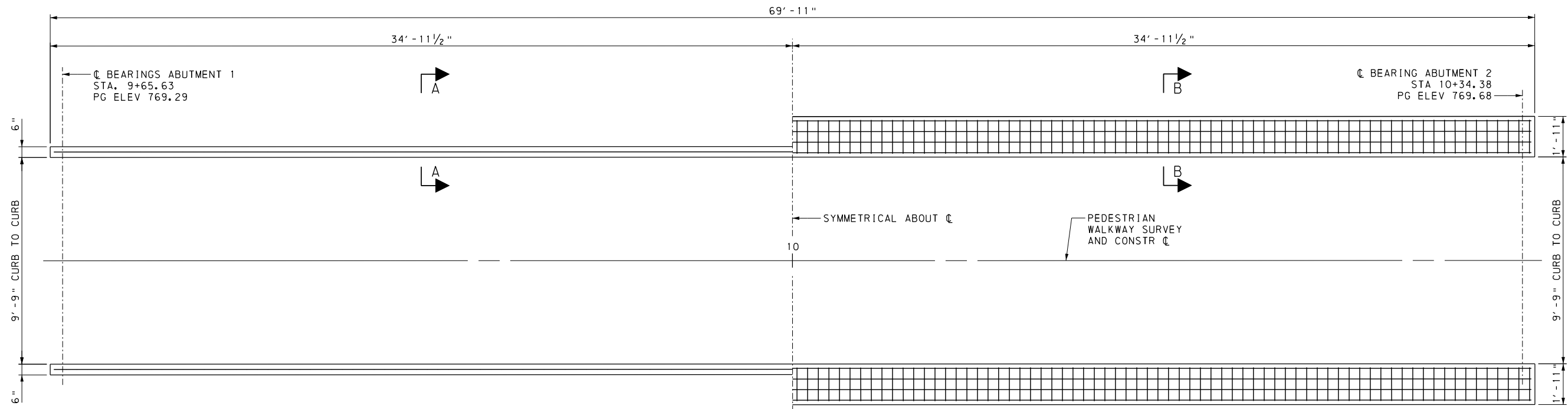


PROPOSED TYPICAL SECTION
(LOOKING AHEAD STATION)



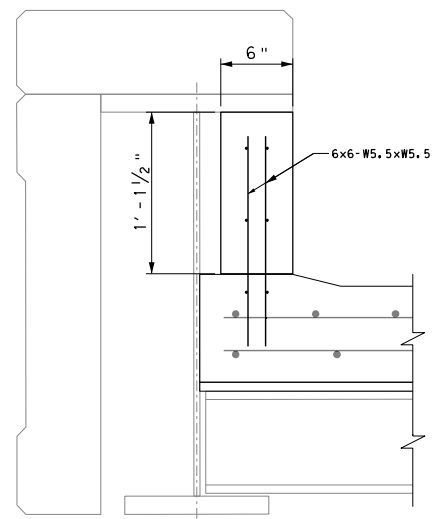
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60% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">REV</td> <td style="width: 10%;">BY</td> <td style="width: 10%;">DATE</td> <td style="width: 70%;">DESCRIPTION</td> </tr> <tr> <td colspan="4" style="text-align: center;">PITTSBURGH, PENNSYLVANIA</td> </tr> <tr> <td colspan="4" style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</td> </tr> <tr> <td colspan="4" style="text-align: center;">TYPICAL DECK SECTION & DETAILS</td> </tr> <tr> <td>DESIGN</td> <td>FILE NO</td> <td>DATE</td> <td>DESCRIPTION</td> </tr> <tr> <td>XXXXX</td> <td>XXXXX</td> <td>XXXXXX</td> <td>XXXXXX</td> </tr> <tr> <td colspan="3">DRAWING NUMBER</td> <td>PC-1.50 24 37</td> </tr> <tr> <td colspan="3">DATE</td> <td>MARCH 22, 2024</td> </tr> </table>	REV	BY	DATE	DESCRIPTION	PITTSBURGH, PENNSYLVANIA				ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE				TYPICAL DECK SECTION & DETAILS				DESIGN	FILE NO	DATE	DESCRIPTION	XXXXX	XXXXX	XXXXXX	XXXXXX	DRAWING NUMBER			PC-1.50 24 37	DATE			MARCH 22, 2024
REV	BY	DATE	DESCRIPTION																																
PITTSBURGH, PENNSYLVANIA																																			
ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE																																			
TYPICAL DECK SECTION & DETAILS																																			
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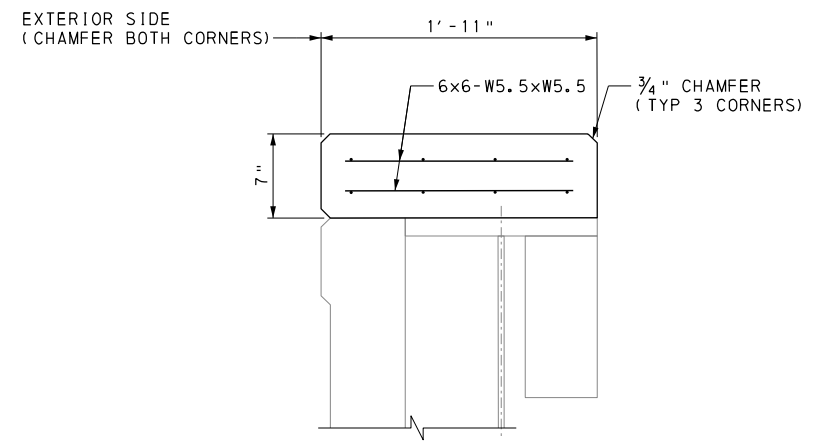


HALF PLAN AT GIRDER IN-FILL

HALF PLAN AT GIRDER CAP



SECTION A-A
IN-FILL SECTION

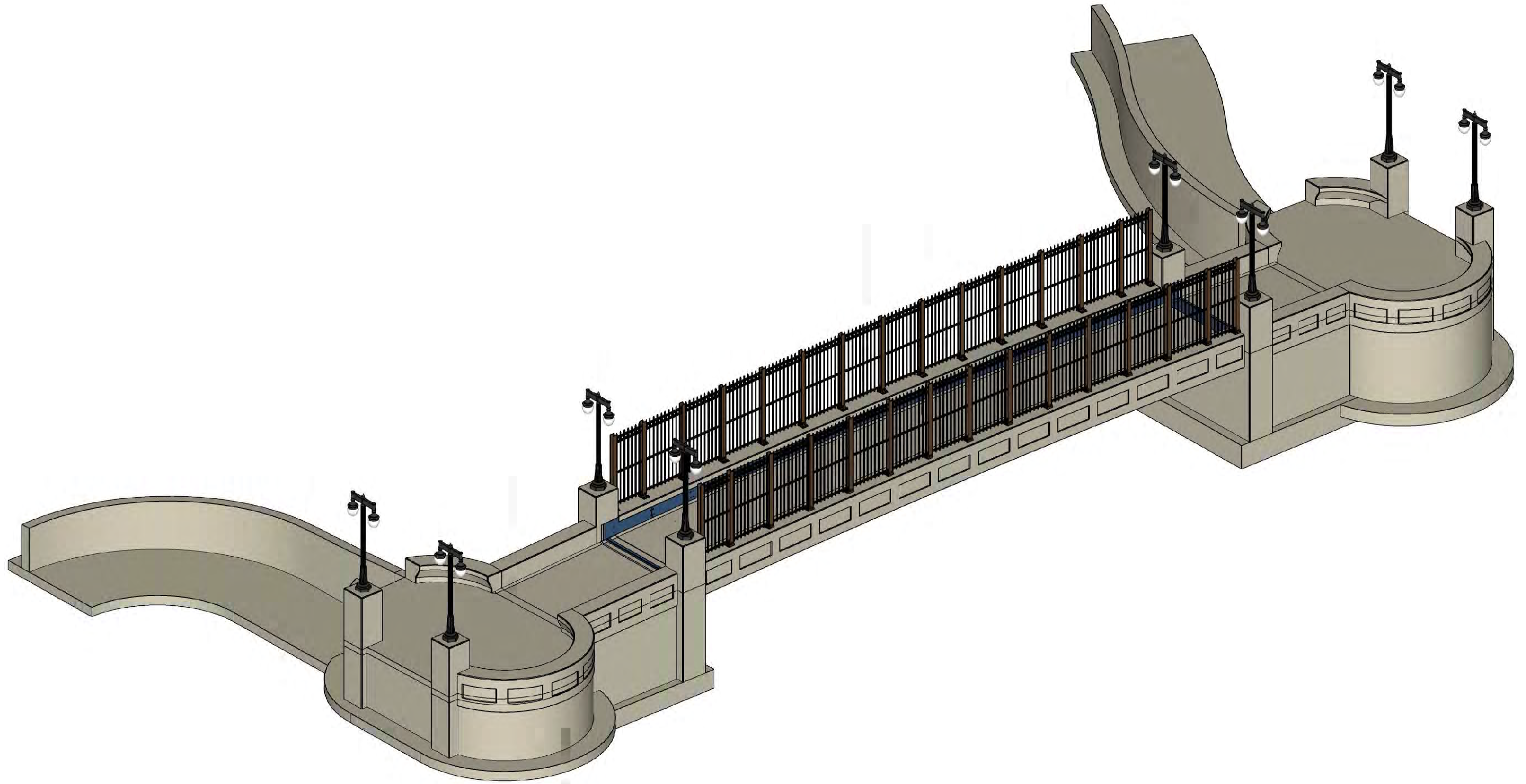


SECTION B-B
GIRDER CAP SECTION

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60% SUBMISSION	Michael Baker INTERNATIONAL AIRSIDE BUSINESS PARK 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 PHONE: (412) 269-6300	 NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY <small>OPERATING DIVISION</small> PITTSBURGH <small>OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>BY</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p style="text-align: center;">PITTSBURGH, PENNSYLVANIA</p> <p style="text-align: center;">ALLEGHENY COMMONS PARK PEDESTRIAN BRIDGE</p> <p style="text-align: center;">BARRIER PLAN & DETAILS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGN</td> <td>FILE NO</td> <td>DATE</td> <td>SCALE</td> <td>POST</td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p style="text-align: right;">DRAWING NUMBER PC-1.50 24 38</p> <p style="text-align: right;">DATE MARCH 22, 2024</p>	REV	BY	DATE	DESCRIPTION					DESIGN	FILE NO	DATE	SCALE	POST							
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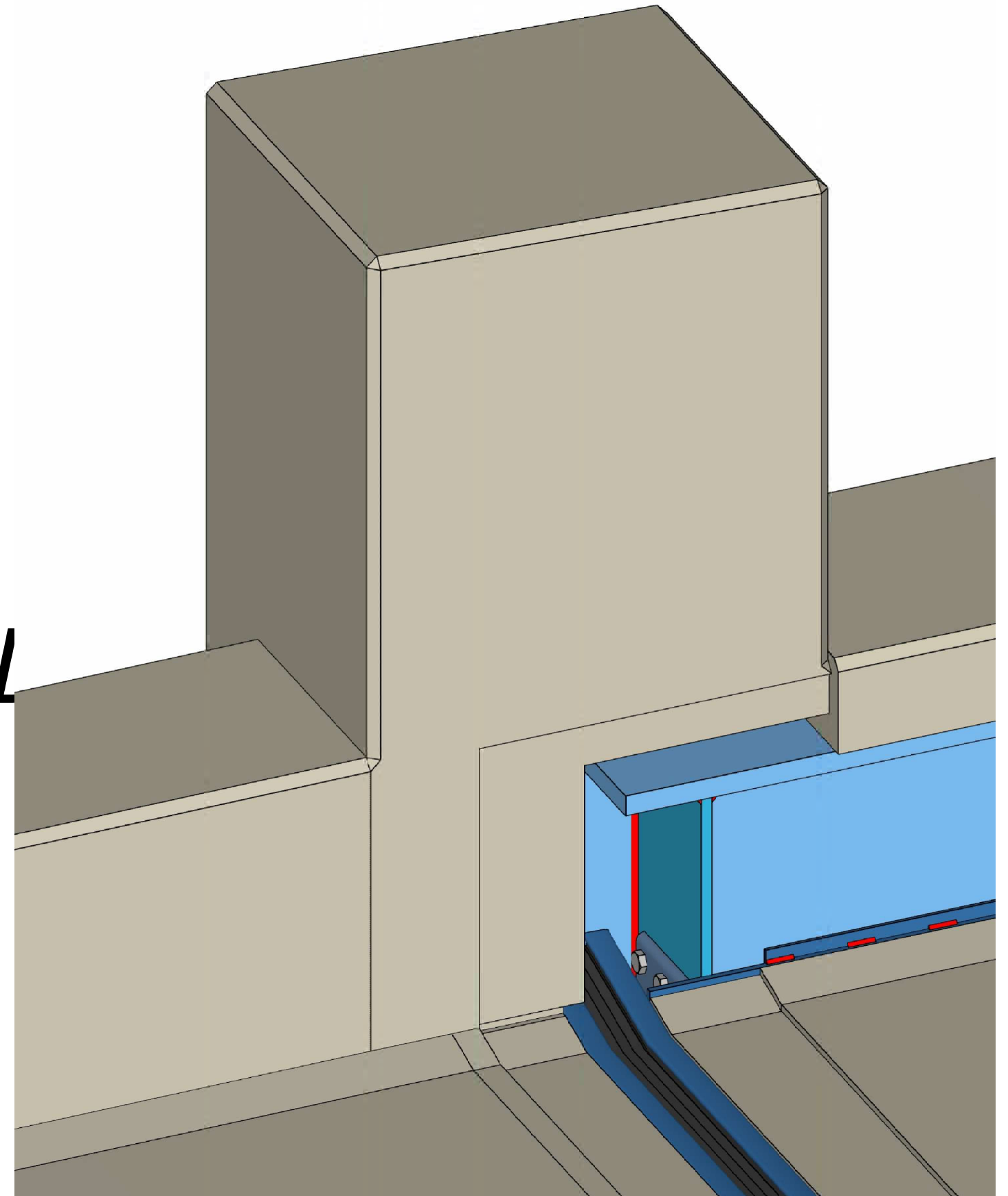
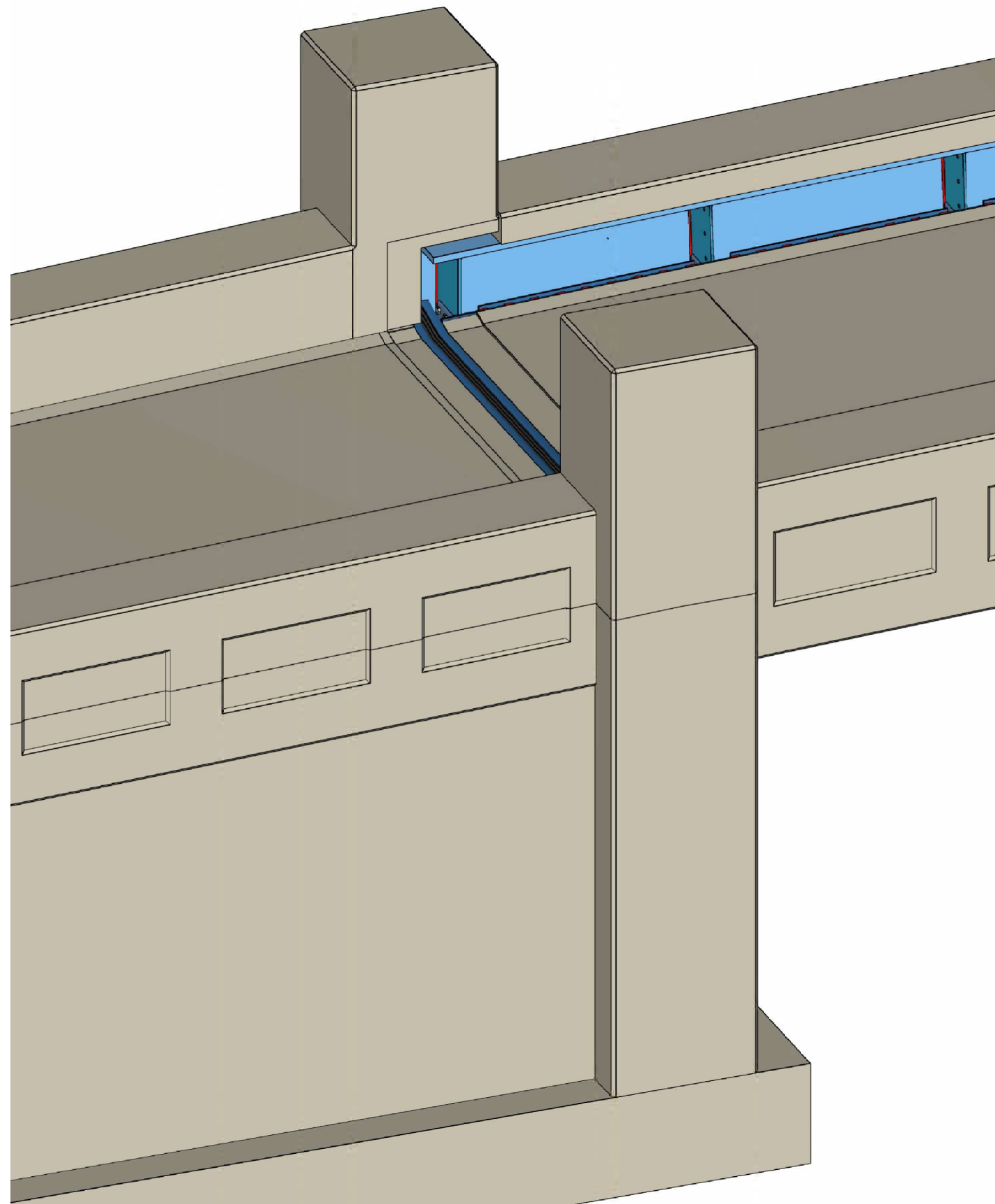
Michael Baker
INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

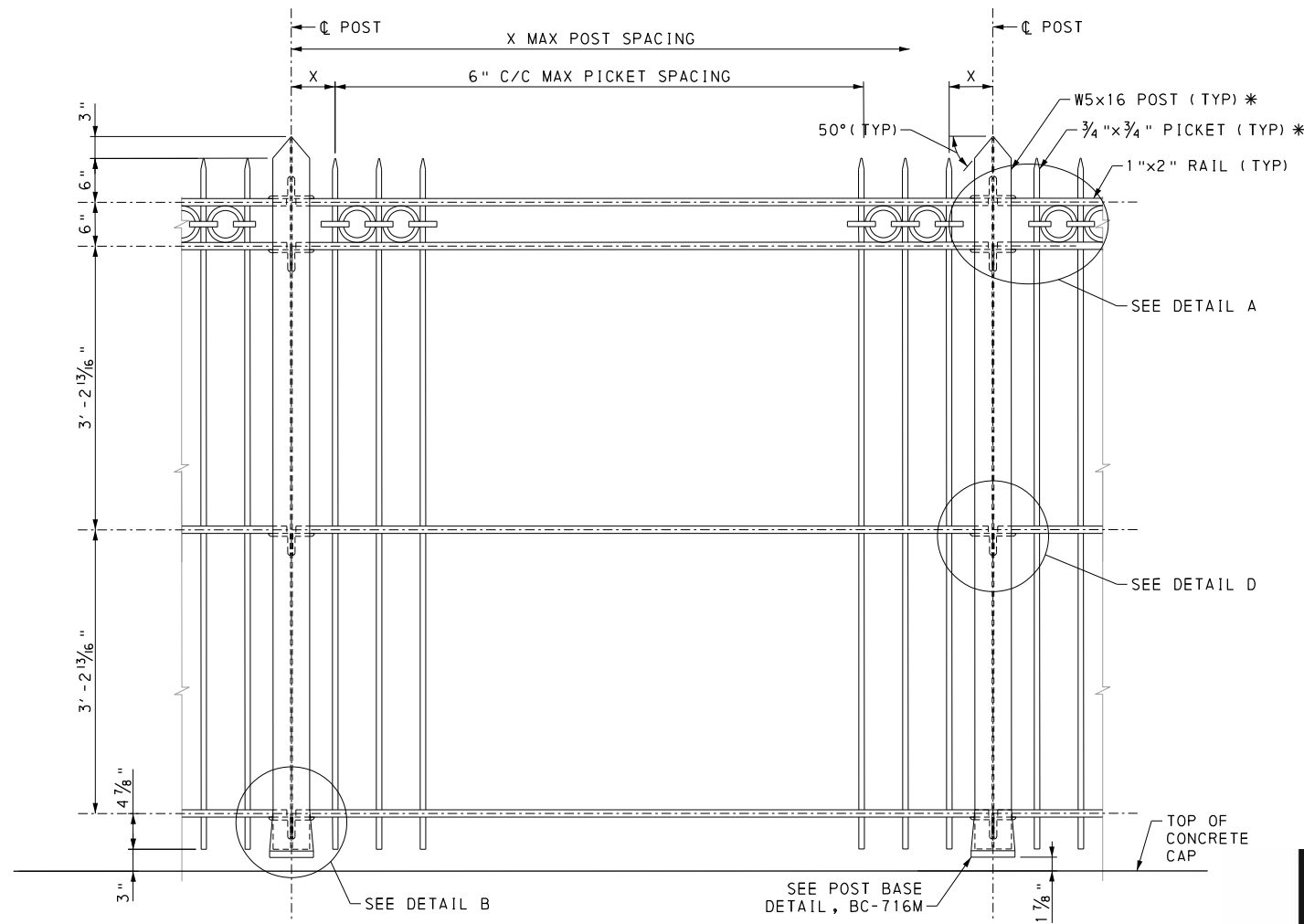
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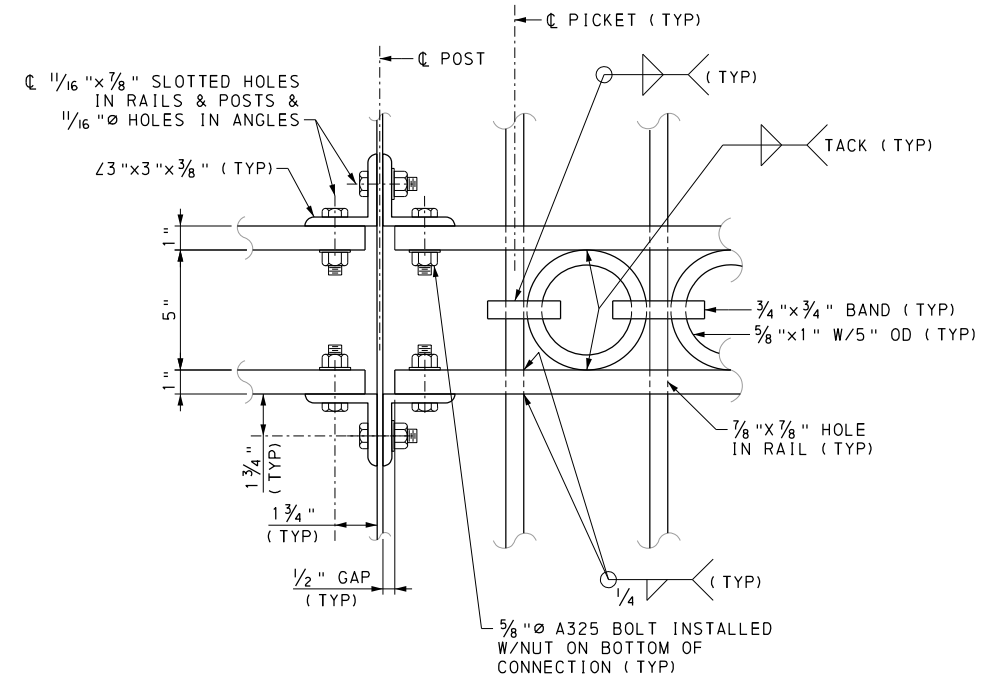
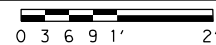
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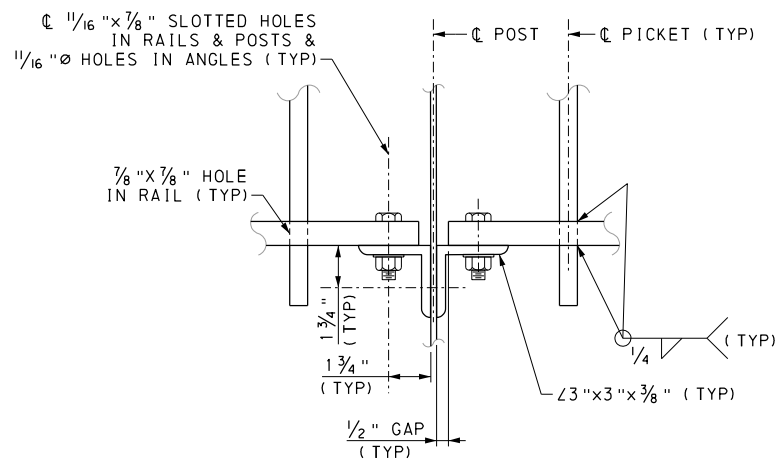
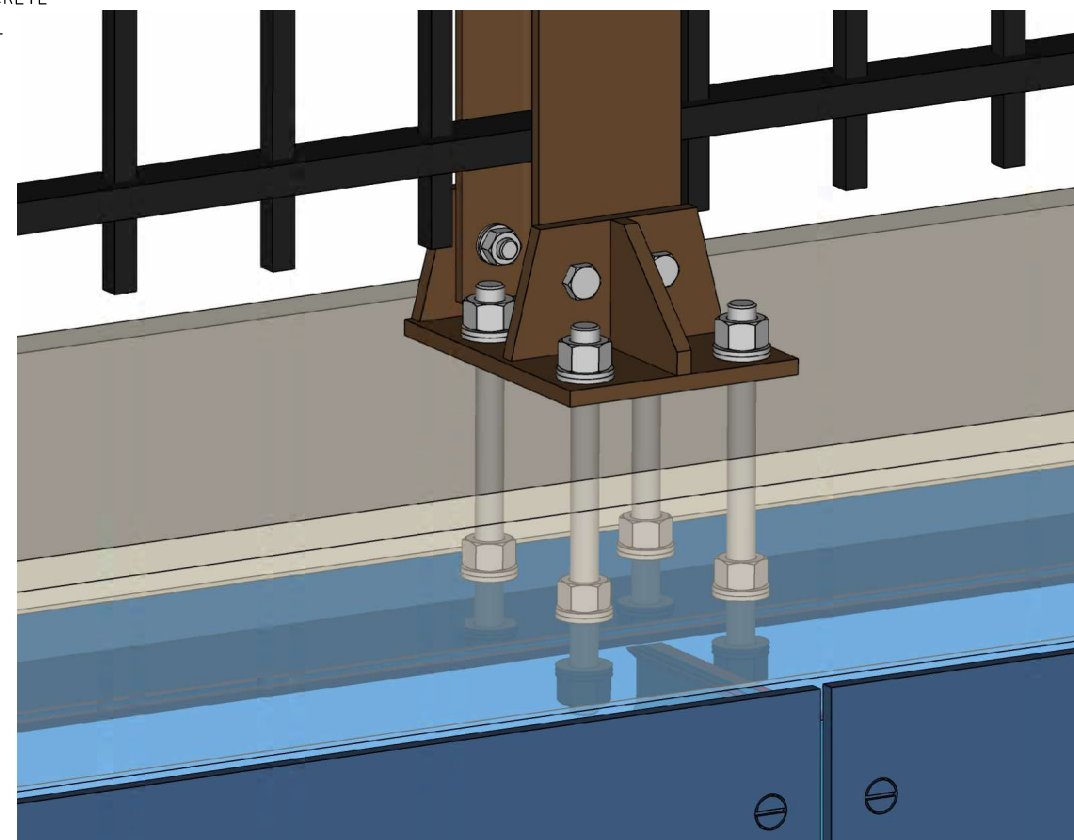
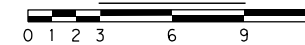
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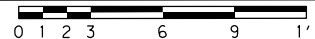
ELEVATION - FENCE PANEL ON BRIDGE



DETAIL A



DETAIL B (SHOWN)
DETAIL D (SIMILAR)



LEGEND:

- * POSTS AND PICKETS TO BE FABRICATED AND INSTALLED PLUMB VERTICAL AFTER THE APPLICATION OF ALL DEAD LOADS (FINAL CONDITION).

REFERENCES:

- SUPPLEMENTAL DRAWINGS
- INDEX OF DRAWINGS
-

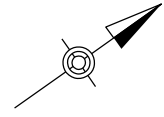
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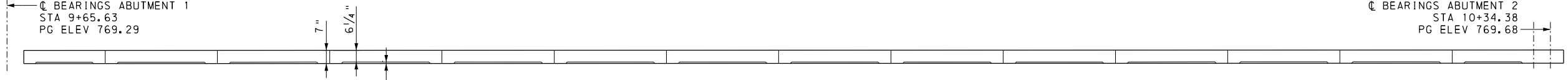
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60% SUBMISSION	Michael Baker INTERNATIONAL	NORFOLK SOUTHERN NORFOLK SOUTHERN RAILWAY COMPANY	REV	BY	DATE	DESCRIPTION																																																				
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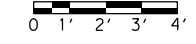


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 PG ELEV 769.29

CL BEARINGS ABUTMENT 2
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 PG ELEV 769.68

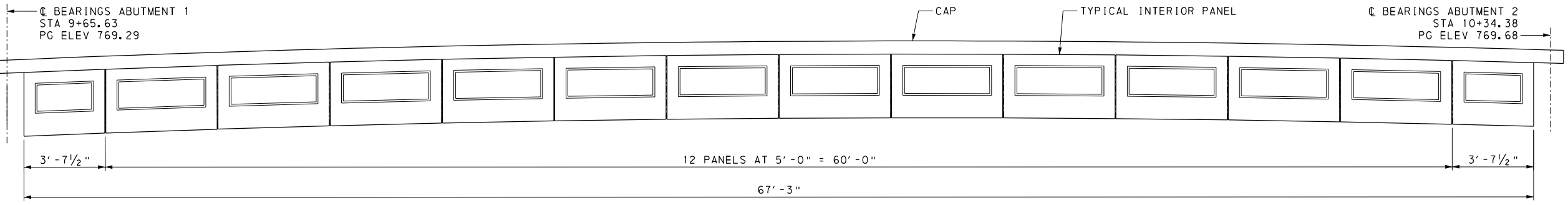


PANEL LAYOUT PLAN
 (SOUTH SIDE SHOWN, NORTH SIDE SIMILAR BY OPPOSITE HAND)

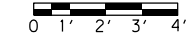


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PANEL LAYOUT ELEVATION

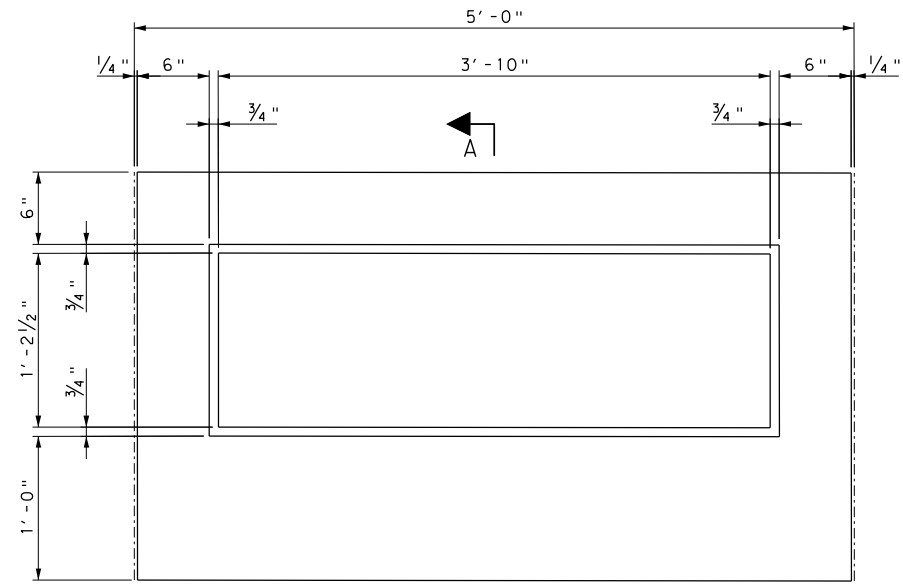


P/C ARCH FACADE PANEL AND CONNECTION NOTES:

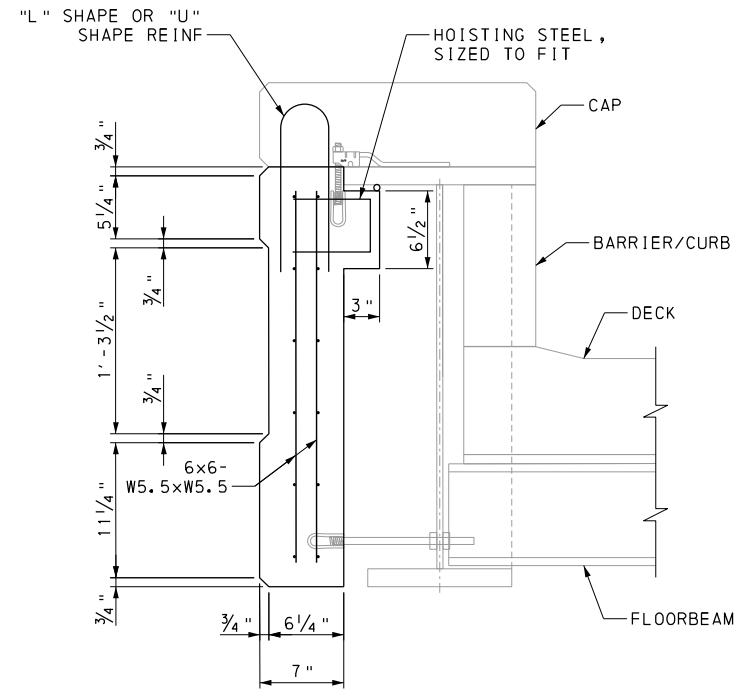
- ALL PANEL HARDWARE INCLUDING EMBEDDED PLATES, STUDS, INSERTS & BOLTS TO BE STAINLESS STEEL. (SEE GENERAL NOTES AND PROJECT SPECIAL PROVISIONS)
- SHOW PANEL PLAN, ELEVATION, SECTIONS, ALL REINFORCEMENT AND CONNECTION DETAILS ON SHOP DRAWINGS.
- AS PER PROJECT SPECIAL PROVISION, CONTRACTOR SHALL ASSURE (WITH STAMPED CALCULATION) THAT PANEL REINFORCEMENT AND CONNECTIONS ARE ADEQUATE FOR WIND LOADS OF 40 PSF + SELF WEIGHT + AN ALLOWANCE FOR WEIGHT OF CONCRETE STRIP ABOVE THE PANEL (110#/FT) AS WELL AS ALL SHIPPING AND HANDLING LOADS.
- VERTICAL CONNECTION SHOULD ONLY TAKE VERTICAL LOAD V=XX KIPS (UNFACTORED) XX KIPS (FACTORED).
- HORIZONTAL CONNECTION SHOULD HAVE A MINIMUM OF 2 1/2" ADJUSTMENT IN THE VERTICAL, HORIZONTAL & LONGITUDINAL DIRECTIONS & HAVE A SAFE WORKING LOAD CAPACITY OF XX KIPS WITH SF=3.
- PREMANUFACTURED ADJUSTABLE INSERTS MUST HAVE 2 1/2" VERTICAL ADJUSTMENT AND HAVE A SAFE WORKING LOAD CAPACITY OF XX KIPS WITH SF=3.
- TOP OF PANELS ARE LINEAR WITH EACH CORNER HELD AT A NOMINAL XX" TO T/DECK EDGE. PANELS NEED NOT BE SHIMMED TO MAINTAIN THIS DIMENSION. SHIMMING SHOULD BE FOR KEEPING TOP OF PANELS LINED UP ALONG TOP AND BOTTOM OF VERTICAL JOINTS.
- P/C PANELS MUST BE SET PLUMB WITH THE EDGE OF DECK AND JOINTS BETWEEN PANELS MUST BE TRULY VERTICAL AND THE SURFACES ADJOINING PANELS EVEN ACROSS THE JOINT.
- INSTALL PANELS ONLY AFTER DECK IS POURED.
- POUR CAP CONCRETE AFTER PANELS ARE INSTALLED.
- SEE SHEET 01 FOR GENERAL CONSTRUCTION SEQUENCE.

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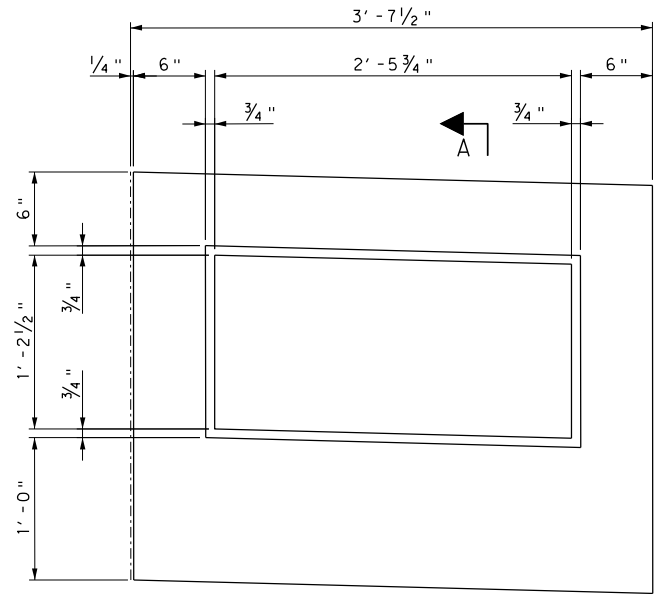
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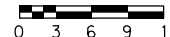
TYPICAL PANEL ELEVATION



SECTION A-A



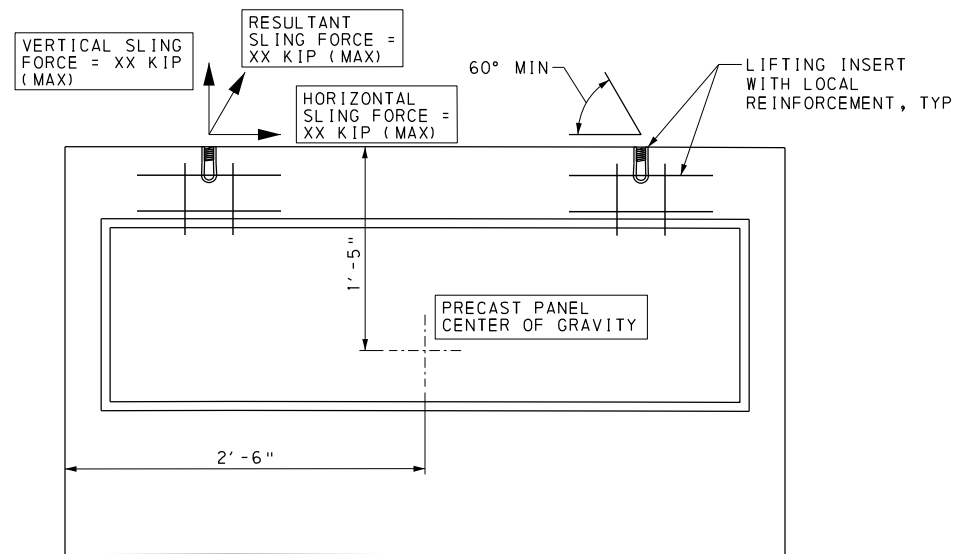
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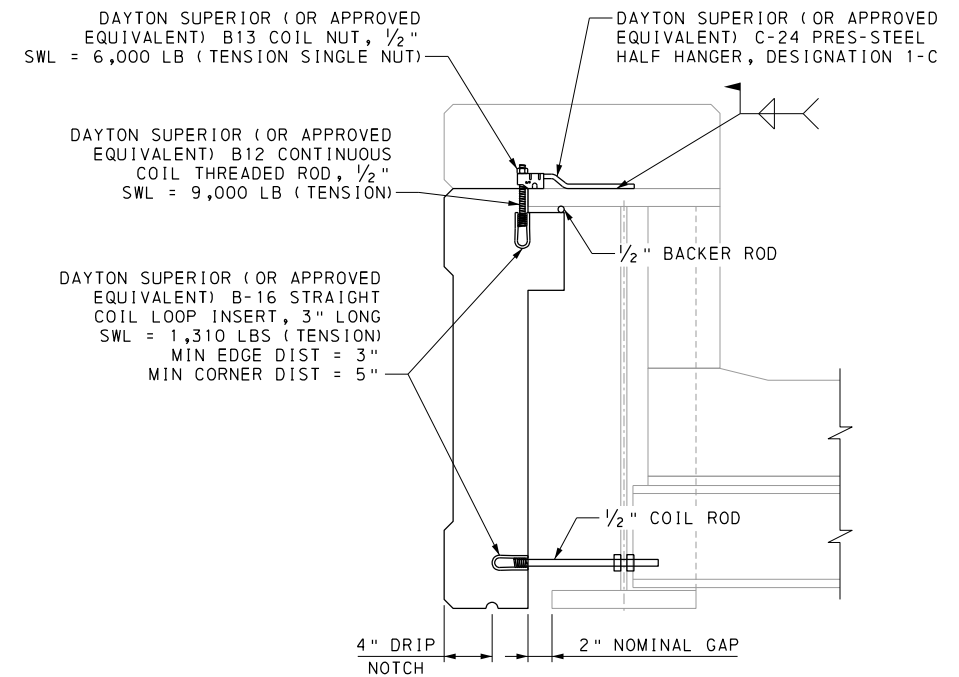
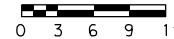
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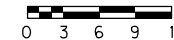
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			PROJECT	P/C ARCH. FACADE PANEL DETAILS 1		
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			DATE	MARCH 22, 2024		



TYPICAL PANEL ELEVATION



FACADE PANEL SUPPORT DETAIL



NOTES:

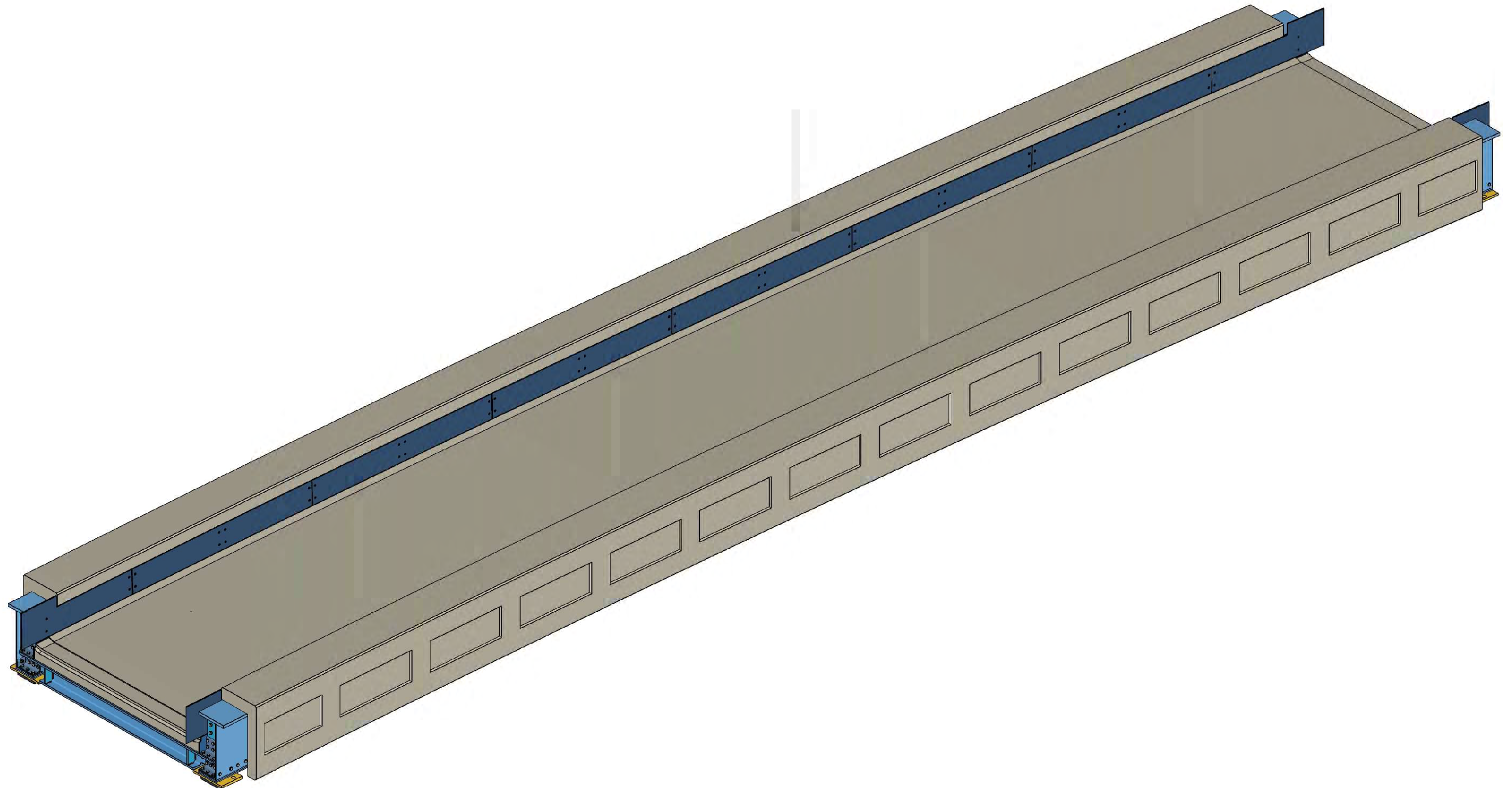
- FOR DRIP NOTCH DETAILS, SEE BC-775M.

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SUBMISSION

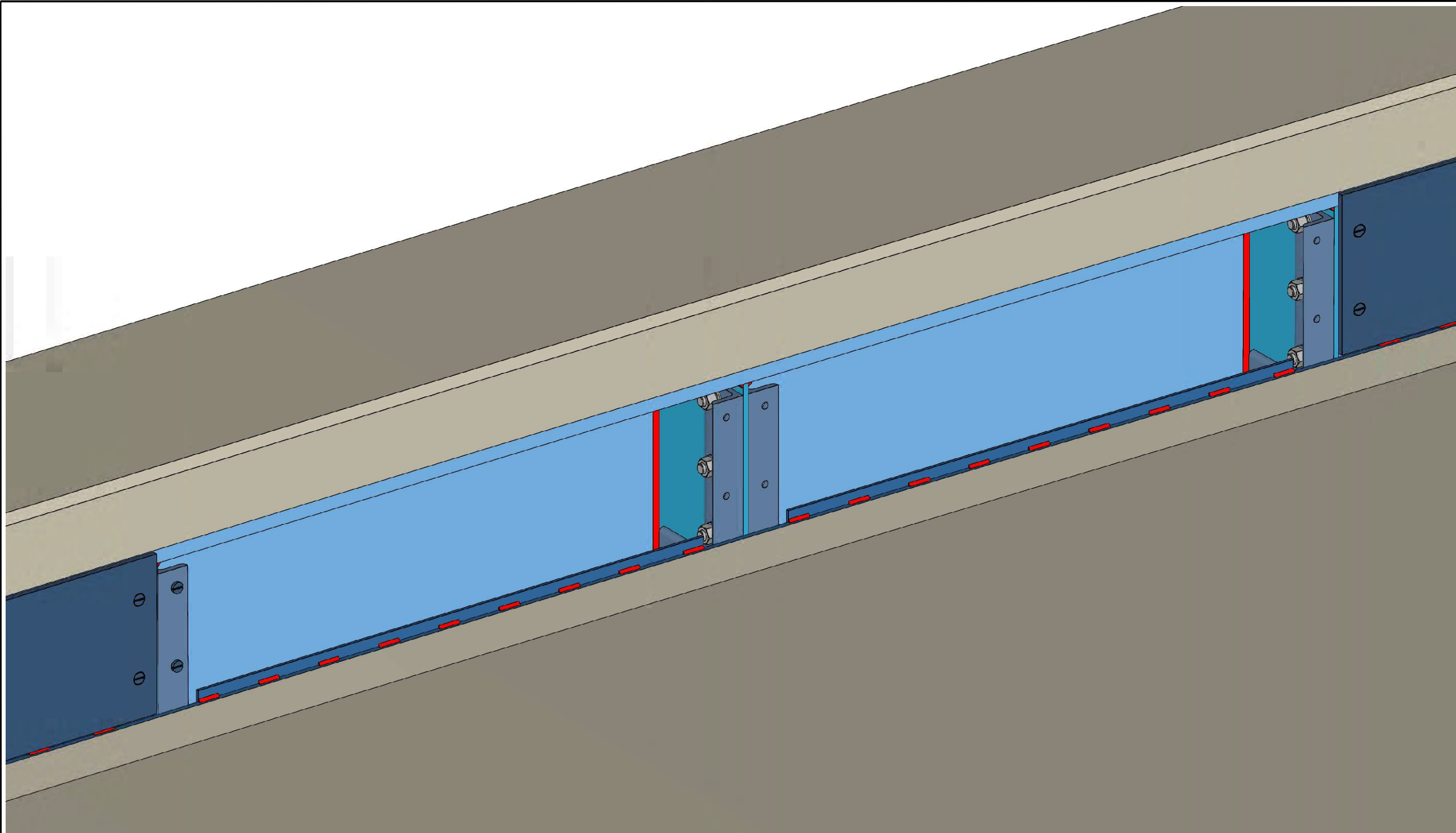
Michael Baker
INTERNATIONAL
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

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COVER PLATE DETAILS

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**60%
SUBMISSION**

**Michael Baker
INTERNATIONAL**
AIRSIDE BUSINESS PARK
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
PHONE: (412) 269-6300

NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY COMPANY
PITTSBURGH
OFFICE OF THE CHIEF ENGINEER, DESIGN AND CONSTRUCTION - ATLANTA, GA

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001	FILE No	XXXXXX	DRAWING NUMBER
001	DATE	MARCH 22, 2024	PC-1.50 24 46

COVER PLATE DETAILS

ATTACHMENT 5

Project Specifications: Decorative Fence Repair and Painting

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ITEM 9000-0050 – DECORATIVE RAILROAD PROTECTIVE FENCE

ITEM 9000-0051 – DECORATIVE PROTECTIVE FENCE, BOLTED ANCHORAGE

DESCRIPTION—This work is the detailing, fabrication, galvanizing, shop painting, supply and erection of new structural steel fence systems in accordance with Section 1050, 1060, and applicable portions of Section 1022 and as indicated.

MATERIAL –

- Structural Steel- Section 1105 and AASHTO M270, Grade 50 (ASTM A709, Grade 50), minimum, designation unless noted otherwise on the Contract Drawings.
- Bolts - High strength bolts conforming to AASHTO M 164 (ASTM A325) Type 3, with compatible nuts and washers.
- Galvanizing - Section 1105
- Caulking Compound - Section 705.8
- Anchor Bolts- ASTM A307 with compatible nuts and washers.
- Paint- In accordance with Section 1060, as indicated and as follows:
 - Paint applied over galvanized surfaces must be manufacturer certified as applicable for this application and must be compatible with paint specified for final field finish paint specified for structural steel.
 - Final finish paint shall be black in color. FS 17038.

CONSTRUCTION—Perform this work in accordance with Section 1060, Section 1105, and as indicated.

- Perform paint application in the fabrication shop
 - Prepare galvanized surface for painting and apply first coat of paint that is compatible with application over galvanized surfaces and compatible with the final finish paint of black in color. Apply final finish coat in the shop.
- Submit the proposed methods for erection of structural steel to the Representative for review.
- Shop Drawings - Prior to submitting shop drawings, visit the site and review all details of work. Review existing field conditions, as-built conditions and dimensions. Submit, including but not limited to, field set railing post anchor bolt locations. Submit site conditions preventing fabrication or installation of the structural steel railing system to the Representative for review. No additional payment will be allowed because of lack of knowledge of any existing conditions discernible from observation at the site.
- Submit shop drawings in accordance with the requirements of Section 105. Do not begin work until the shop drawings have been received and reviewed with no exceptions taken, and approved by the Representative.
- Railing fabrication and installation must comply with the ADAAG Standards, dated 2002.
- To prevent loosening/removal, field weld the railing anchor bolts after appropriately tightened.
- After the steel railings have been installed, the contractor shall inspect for, and repair paint system damage in accordance with 1060.2(b).

MEASUREMENT AND PAYMENT - Linear Feet of railing system complete in place including anchors, mounting details, handrail, and all necessary appurtenances.

ITEM 9000-0052 – DECORATIVE PROTECTIVE FENCE, CORED ANCHORAGE

DESCRIPTION—This work is the detailing, fabrication, galvanizing, shop painting, supply and erection of new structural steel railing systems in accordance with Section 1050, 1060, and applicable portions of Section 1022 and as indicated.

MATERIAL –

- Structural Steel- Section 1105 and AASHTO M270, Grade 50 (ASTM A709, Grade 50), minimum, designation unless noted otherwise on the Contract Drawings.
- Bolts - High strength bolts conforming to AASHTO M 164 (ASTM A325) Type 3, with compatible nuts and washers.
- Galvanizing - Section 1105
- Caulking Compound - Section 705.8
- Anchor Rods - ASTM F1554 with compatible nuts and washers.
- Paint- In accordance with Section 1060, as indicated and as follows:
 - Paint applied over galvanized surfaces must be manufacturer certified as applicable for this application and must be compatible with paint specified for final field finish paint specified for structural steel.
 - Final finish paint shall black in color. FS 17038.

CONSTRUCTION—Perform this work in accordance with Section 1060, Section 1105, and as indicated on the drawings. Each Panel is assumed to include at least one end post per panel.

- Before construction, determine and designate panels to be replaced in coordination with the Representative.
- Perform paint application in the fabrication shop
 - Prepare galvanized surface for painting and apply first coat of paint that is compatible with application over galvanized surfaces and compatible with the final finish paint of black in color. Apply final finish coat in the shop.
- Submit the proposed methods for erection of structural steel to the Engineer for review.
- Shop Drawings - Prior to submitting shop drawings, visit the site and review all details of work. Review existing field conditions, as-built conditions and dimensions. Submit, including but not limited to, field set railing post anchor bolt locations. Submit site conditions preventing fabrication or installation of the structural steel railing system to the Engineer for review. No additional payment will be allowed because of lack of knowledge of any existing conditions discernible from observation at the site.
- Submit shop drawings in accordance with the requirements of Section 105. Do not begin work until the shop drawings have been received and reviewed with no exceptions taken, and approved by the Engineer.
- Railing fabrication and installation must comply with the ADAAG Standards, dated 2002.
- To prevent losing/removal, field weld the railing anchor bolts after appropriately tightened.
- After the steel railings have been installed, inspect for, and repair paint system damage.

MEASUREMENT AND PAYMENT - Linear Feet of railing system complete in place including end post, anchors, mounting details, and all necessary appurtenances.

Appendix F

Qualifications of Preparers

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Timothy G. Zinn Architectural Historian

Mr. Zinn is the Historic Preservation Department Manager for the Pittsburgh office. He serves as both principal investigator and project/task manager for cultural resources investigations across the country in compliance with Section 106 of the National Historic Preservation Act, NEPA, and other state and federal laws governing cultural resources. He is skilled in the preparation of National Register of Historic Places (NRHP) nominations, historic resources surveys, state inventory forms, NRHP eligibility determinations, criteria of effect/adverse effect evaluations, MOAs/MOUs, programmatic agreements, public involvement coordination, archival records research, deed research, and Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation. For 13 years, Mr. Zinn was also an Instructor at the University of Pittsburgh, Department of Anthropology where he taught a course on Cultural Resources Law and Practice.

Mr. Zinn meets the requirements of 36 C.F.R. § 61 (Appendix A) for Architectural Historian as he has a Master of Arts in Historic Preservation from Middle Tennessee State University (1996) and 37 years of applicable experience.

Jesse Belfast Architectural Historian

Mr. Belfast has extensive experience in Section 106 compliance, including historic properties surveys and determination of eligibility studies, determination of effect evaluations, memoranda of agreement preparation, and public/consulting party coordination. Mr. Belfast is also experienced in the preparation a wide range of historical documentation, including historical context reports, HABS/HAER documentation, National Register nominations, state historic structure inventory forms, land use histories, and deed research. His project involvement includes numerous federal, state, municipal, and private-sector clients, including the Department of Homeland Security (with surveys in 15 states), the U.S. Coast Guard, and more than a dozen state departments of transportation.

Mr. Belfast meets the requirements of 36 C.F.R. § 61 (Appendix A) for *Historian* and *Architectural Historian* as he has a Master of Arts degree in History from Carnegie Mellon University (2001) and 21 years of applicable experience.

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