



A DESIGN-BUILD PROJECT

# I-64 Exit 91 Interchange Improvements

From: 0.429 Miles West of Route 285  
To: 0.438 Miles East of Route 285  
Augusta County, Virginia



June 29, 2012

## VOLUME I: TECHNICAL PROPOSAL

submitted to



State Project No: 0064-007-111, P101, R-201, C-501, B-627  
Federal Project No: NH-064-2(152)  
Contract ID Number: C00075877DB47

prepared by



**American  
Infrastructure™**

in association with



**ATTACHMENT 4.0.1.1**  
**I-64 Exit 91 Interchange Improvements**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Offerors shall furnish a copy of this Technical Proposal Checklist, including page references, with the Technical Proposal.

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	Inside front cover Vol. I
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Appendix 3.6
<b>Letter of Submittal</b>	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Offeror's official representative information	NA	Section 4.1.1	yes	2
Authorized representative's original signature	NA	Section 4.1.1	yes	2
Declaration of intent	NA	Section 4.1.2	yes	2
120 day declaration	NA	Section 4.1.3	yes	2
Principal Officer information	NA	Section 4.1.4	yes	2
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.5	no	Appendix 4.1.5
<b>Offeror's Qualifications</b>	NA	Section 4.2		
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2	yes	3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2	yes	3

**ATTACHMENT 4.0.1.1**

**I-64 Exit 91 Interchange Improvements**

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Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2	yes	N/A
<b>Design Concept</b>	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1	yes	Description: 4 Plans: Vol. II
Conceptual Structural Plans, description, and renderings	NA	Section 4.3.2	yes	Description: 7 Plans: Vol. II
<b>Project Approach</b>	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	9
Utilities	NA	Section 4.4.2	yes	10
Geotechnical	NA	Section 4.4.3	yes	11
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	14
<b>Construction of Project</b>	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	22
Transportation Management Plan	NA	Section 4.5.2	yes	26
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	Appendix 4.6
Proposal Schedule Narrative	NA	Section 4.6	no	Appendix 4.6

**ATTACHMENT 4.0.1.1**

**I-64 Exit 91 Interchange Improvements**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	Inside front cover Vol. I (Original)
<b>Disadvantaged Business Enterprises (DBE)</b>	NA	Section 4.7		
Written statement of percent DBE participation	NA	Section 4.7	yes	30
DBE subcontracting narrative	NA	Section 4.7	yes	30



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June 29, 2012

Mr. Bill Arel, P.E.  
Virginia Department of Transportation  
1401 East Broad Street  
Richmond, VA 23219

**Letter of Submittal/Technical Proposal Submission:  
I-64 Exit 91 Interchange Improvements  
Project No.: 0064-007-111, P101, R-201, C-501, B-627  
Contract ID Number: C00075877DB47**

Dear Mr. Arel:

American Infrastructure-VA, Inc. (AI-VA) is pleased to submit our technical proposal for the Virginia Department of Transportation (VDOT) I-64 Exit 91 Interchange Improvements in Augusta County, Virginia.

As presented in our Statement of Qualifications, AI-VA is one of the largest and most respected contractors in the Mid-Atlantic Region. AI-VA has recently been *named the Associated Builders and Contractors National Contractor of the Year in 2011*. AI-VA is an award-winning design builder, having also recently been *recognized by the Design Build Institute of America as the only recipient of the Merit Award for Infrastructure in 2011*.

AI-VA also brings to the table a history of aggressive project scheduling that has contributed to our success as a design builder. Through our understanding of the design build delivery method, innovative mind-set, and detailed planning and scheduling processes, the AI-VA team *finished the Richmond Airport Connector Design Build Project three months ahead of schedule, and the Route 29 Tye River Design Build Project eleven months ahead of schedule*.

In order to maintain our reputation for delivering quality projects, on time and on budget, we have committed to exceeding performance expectations, introducing innovations that address complex project issues like Maintenance-of-Traffic demands and stakeholder involvement, and creating a project site that promotes the safety of the public as well as the workers. We understand the need to alleviate congestion on Route 285, improve accessibility to Augusta Health, and increase deceleration and acceleration length along I-64, and have assembled a team with a strong design build background to meet these goals.

AI-VA, along with our design partner, Rinker Design Associates, PC (RDA), and our key subconsultants, will be referred to as “The AI Team” throughout this Technical Proposal. The synergy between AI-VA and RDA has evolved from mutual experience on projects like VDOT’s Middle Ground Boulevard Extension Design Build project in Newport News, VA and the recently awarded I-581/Elm Avenue Interchange Improvements Design Build project in Roanoke, VA. *Our similar philosophies regarding quality, performance, accelerated scheduling, and open, effective lines of communication are assets that will benefit the I-64 Exit 91 Interchange Improvements project.*



The AI Team offers the following information to address the Request for Proposal (RFP) response criteria:

**4.1.1** David Nardon is the official representative and Point of Contact for The AI Team relative to this Proposal. In his role as the Design Build Project Manager, he will be responsible for the oversight of the entire AI Team. The required contact information is as follows:

David Nardon	804.290.8500 (Telephone)
Design-Build Project Manager	610.222.4351 (Fax)
301 Concourse Boulevard – Suite 300	443.876.6367 (Cell)
Glen Allen, VA 23059	david.nardon@americaninfrastructure.com

**4.1.2** AI-VA will enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

**4.1.3** The offer represented by the Technical Proposal submitted by AI-VA will remain in full force and effect for one hundred twenty (120) days after the Technical Proposal submission date on June 29, 2012.

**4.1.4** The principal officer of American Infrastructure- VA, Inc. with whom a Design Build contract with VDOT would be written is:

Aaron Myers	804.290.8500 (Telephone)
Vice President/General Manager	804.418.7935 (Fax)
301 Concourse Boulevard – Suite 300	aaron.myers@americaninfrastructure.com
Glen Allen, VA 2305	

**4.1.5** AI-VA has included an executed Proposal Payment Agreement (Attachment 9.3.1) which is included as Appendix 4.1.5.

Our team is 100% committed to this project and to delivering a successful quality product to VDOT, on time and on budget. We trust you will find our commitment to VDOT is focused and we look forward to partnering with you on this challenging and unique project.

Respectfully,

  
 \_\_\_\_\_  
 Aaron T. Myers, VP/GM  
 American Infrastructure – VA, Inc.

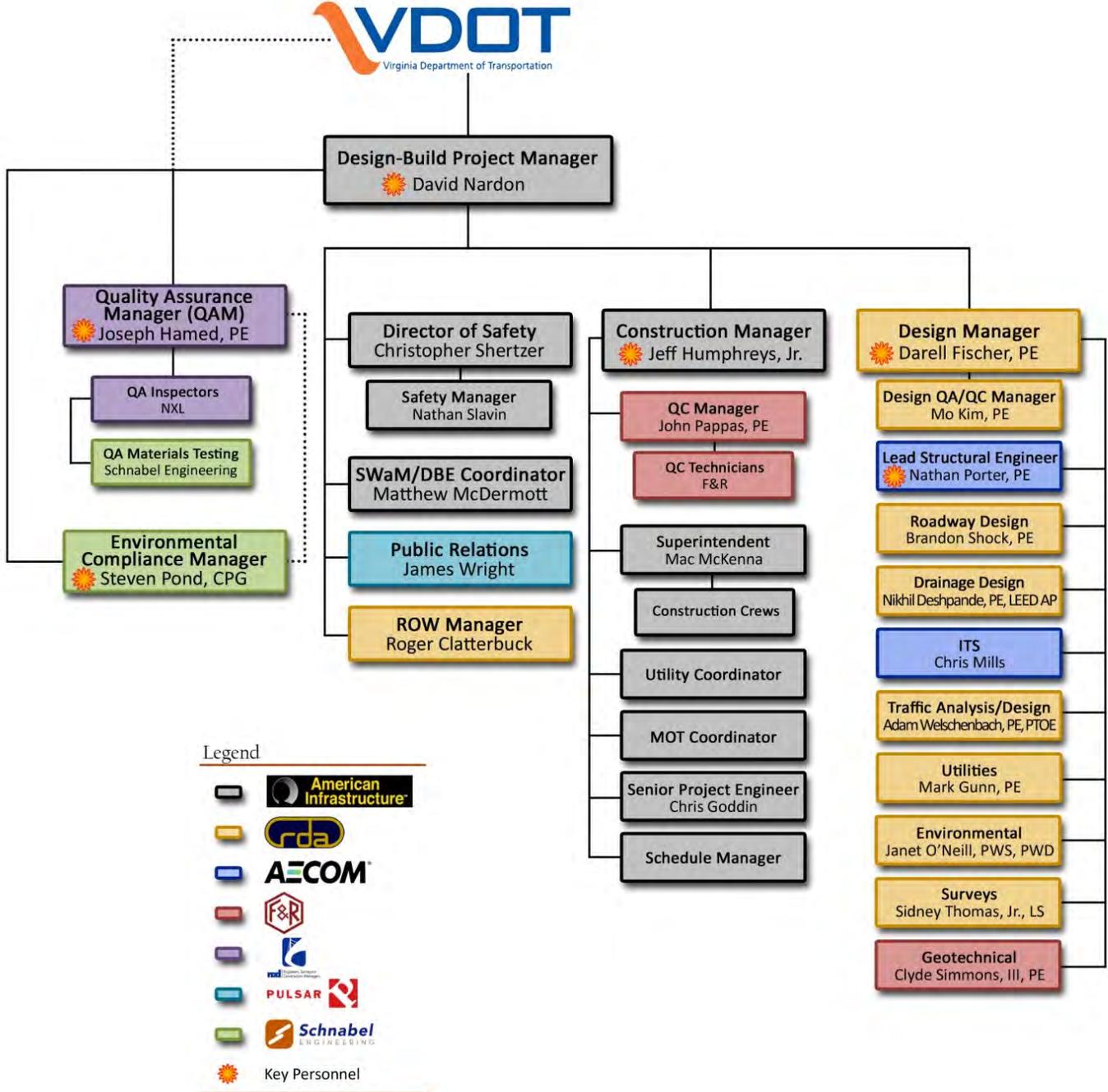
  
 \_\_\_\_\_  
 J. David Nardon, DBPM  
 American Infrastructure – VA, Inc.



The AI Team confirms that the information contained in our Statement of Qualifications (January 6, 2012) remains unchanged, true, and accurate in accordance with Section 11.4. All applicable DPOR license expiration dates have been renewed to maintain compliance with Section 11.8, and can be found in **APPENDIX 11.8-ADMINISTRATIVE REQUIREMENTS**.

**The AI Team**

The functional structure of our team remains unchanged since the submission of our Statement of Qualifications. The AI Team is structured with the intent to promote integration and streamlined communication between team members while providing VDOT with a single, direct point of contact for the entire Design Build Team.







The AI Team has thoroughly evaluated the plans provided in the RFP Information Package prepared by VDOT. As a result, we investigated numerous alternative designs with two goals in mind:

- ✓ Operations are improved
- ✓ Cost is equal to or less than VDOT’s budget.

The design prepared by VDOT works quite well and we found few opportunities for betterment. However, there are some recommendations that we have incorporated into our design that we feel will enhance the project. These elements are as follows:

DESIGN ENHANCEMENTS	
Recommendation	Benefit
Shift Route 285	Simplifies MOT Build bridge in a single phase Reduces future maintenance Provides safer work zones Accommodates emergency vehicles
Slightly realign Ramp C	Provides sufficient super transition lengths between reverse curves Aligns better with Ramp D
Tighten curve on Route 636 at tie to Route 285	Provides adequate super transition Facilitates constructability
Develop new profile for Route 640	Provides a smooth connection that meets design speed
Construct safety slope on Expo Road	Eliminates guardrail Only changes c/f limits slightly

In order to meet our two stated goals above, we felt that construction duration would need to be shorter and our sequencing of traffic would need to be simplified. As a result, we developed an alternative that accomplishes both of these factors.

The AI Team’s design predominantly follows the RFP Plans. The areas where changes were made are discussed below so VDOT understands our concept through graphics and narrative. However, as a reaffirmation of our full commitment to VDOT’s RFP requirements and design criteria, we are explicitly stating that ***our design meets or exceeds all of the requirements of the RFP and the design criteria*** established in Tables 2.4.A and 2.4.B located in Part 2 of the RFP.

### 4.3.1 CONCEPTUAL ROADWAY PLANS

The AI Team’s conceptual roadway plan was developed to ***expedite construction, maximize flexibility, reduce cost and provide safe passage for motorists and emergency vehicles.*** In conjunction with our Exhibits contained in Volume II, the following narratives describe our concept.

#### ROADWAY DESIGN

From a roadway design perspective, it is important to look at each road individually. Although the project is identified as an I-64 project, the bulk of the improvements are being done to Route 285. Our concept design for Route 285 establishes the corridor to which the other roads will tie.

***Route 285 (Tinkling Springs Road)*** – The AI Team’s concept for Route 285 differs from VDOT’s conceptual plan. In order to simplify MOT, reduce impacts to the motorists and traveling public, and maintain uninterrupted flow for Emergency Response Vehicles (ERV), we have shifted our alignment through the interchange limits. Our design provides a centerline shift of approximately 42’ west to allow for a five foot separation between the proposed bridge and the existing bridge. This will allow us to build the entire proposed bridge in a single phase, thereby minimizing shifts in traffic and resulting in significant schedule and cost savings. Our concept requires no additional right-of-way, other than indicated by VDOT’s concept.

The horizontal curve leading into the shifted alignment south of I-64 has a radius of 1775’ and a super of 2.8%. The super is then transitioned from 2.8% down to 2% (reverse crown) which we hold across the proposed bridge. On the north side of the structure, we introduce reverse, 5000’ radius curves which do not require any super.

As the alignment proceeds northward, we adjusted the medians at the dedicated left turn pockets/acceleration lanes for the Service Road entrance (Shell Station) and Tinkling Springs Drive. The lane widths, throughout the corridor, are a minimum of 12 feet with the acceleration lanes at these locations utilizing a 15 foot width.

The remainder of the Route 285 corridor is substantially unchanged from VDOT’s concept. We



made minor adjustments to turn lanes, tapers and lane transitions in order to meet the RFP, required turning radii, and our pavement marking plan. See our Technical Proposal, Volume II for plan details.

**I-64** – Construction along I-64 consists of modifications to the acceleration (accel) and deceleration (decel) lanes for the on- and off-ramps respectively. The accel lanes are designed to be 780’ in length while the decel lanes are designed to be 390’ in length. Both accel and decel lanes are 12’ wide with 17’ shoulders in fill (12’ paved), 14’ shoulders in cut (12’ paved) and 300’ long tapers to tie to I-64 mainline. The grade along I-64 is approximately 1% and will be matched through a spline grade to provide the necessary widening for the accel and decel lanes. The improvements along I-64 will be identical to VDOT’s concept. See Volume II for plan details.

**Ramp A** – Ramp A presented the biggest challenge of the interchange ramps. As a result of our alignment shift along Route 285, which shifts towards Ramp A approximately 25 feet, we have additional pavement buildup of about six inches. See Volume II for plan and profile.

**Ramp B** – The mainline shift away from Ramp B and towards Ramp A provides little impact to the design of this ramp beyond the obvious plan adjustments and minor profile tweaks. See Volume II for plan and profile.

**Ramp C** – Despite the Route 285 alignment shift towards Ramp C, it is similar to VDOT’s concept plan. However, in order to accommodate super transition due to the reverse curvature of the ramp, the AI Team adjusted the alignment to provide the proper tangent length between the curves. Additionally, we modified the tie point to Route 285 in order to provide adequate tangent for transition from the grade of Route 285 to the opposite super on the ramp. See Volume II for plan and profile.

**Ramp D** – Similar to Ramp B, the mainline shift toward Ramp C presents minor changes to Ramp D. See Volume II for plan and profile.

**Route 636 (Goose Creek Road)** – As specified on the RFP plans; Route 636 requires adjustments to the design in order to tie to the existing roadway

based on updated survey data. As a result, the RFP design had to be shifted by 14.5’. Furthermore, the AI Team’s concept modifies the radius on the centerline curve from 2500’ to 2000’ to allow for better transition from a super elevated section to the right through the curve, to a super elevated section to the left to match the grade of Route 285. See Volume II for plan and profile.

**Route 640 (Goose Creek Road)** – Goose Creek Road to the south of Route 285 is not changed from VDOT’s concept plan which widens Goose Creek Road to provide the required storage and taper lengths shown in the RFP. The proposed profile fixes a deficient existing profile. See Volume II [for plan and profile](#).

**Route 935 (Expo Road)** – The design of Expo Road widens the roadway to accommodate the required storage and taper lengths while utilizing a spline grade to match the existing profile. Our unique design eliminates the need for guardrail by providing safety slope to the clear zone limit. See Volume II [for plan and profile](#).

**Tinkling Springs Drive** – Tinkling Springs Drive is the access road to the Tinkling Springs Presbyterian Church and will be on new location. The realignment is necessitated by the close proximity to the intersection with Goose Creek Road and the church’s need to maintain left-in/left-out access. See Volume II [for plan and profile](#).

#### **DRAINAGE DESIGN**

The AI Team’s drainage design concept was developed for both storm flow conveyance and for stormwater management. Our conveyance design utilizes predominantly closed storm drainage systems designed in accordance with VDOT’s *Drainage Manual* (last revised 09/11). Our design layout can be seen on the roadway exhibits and resembles the VDOT concept in many respects. However, based on our detailed analysis there are a couple of areas where we envision the design a bit differently. The most significant change is to the drainage along Route 636. The RFP concept captures the water along Route 636 in a storm drain system which ties in to the proposed system along Route 285. In order to make this work, the system

would be approximately 15 feet in the ground. Conversely, our design drains Route 636 to the Goose Creek tributary that outlets under Route 636 (Station 22+00 RT). However, to ensure that MS-19 requirements are met, we established the point along Route 636 where we calculated a zero increase to the outfall. The remainder of the roadway – the approach to the intersection with Route 285 – is captured and drains to the system along Route 285 which outlets to Goose Creek.

The vast majority of the project drains to the two outfalls described above. The remainder of the project drains to one of two outfalls under I-64 (unnamed tributaries to Goose Creek). Based on analysis, both of these outfalls are adequate to handle the minor increases in flows generated by our improvements, thereby meeting MS-19.

Water Quality for the project, as stipulated in the RFP, will be addressed on a predetermined implementation rate of the new regulations for storm water management (SWM). Through preliminary analysis, VDOT has determined that a rate of 7 lbs/year removal of phosphorus would satisfy the requirements for the project. If full requirements of the regulations were implemented, the project would have to provide for over 24 lbs/year of phosphorus removal. In order to benefit from a project wide analysis vs. outfall by outfall, the Performance Based Criteria was used. As identified by VDOT, the removal of Old Ladd Road will provide a significant portion of the phosphorus removal. The remainder of pollutant removal is accomplished through an extended detention basin shown on our plans in Volume II.

**TRAFFIC ENGINEERING AND TRAFFIC CONTROL DEVICES**

Design of the traffic control devices (signs and signals) is a key element to the functionality of the interchange. Furthermore, traffic control devices are critical to the successful implementation of a pedestrian access program. Volume II shows the pedestrian ramps and crosswalks incorporated into our concept design.

**Signals** – Five signals are impacted by the redesign of Route 285. Our design concept for the signals

focuses on maximizing the concepts developed by VDOT and improving upon them where feasible. In most cases, moving the signal poles outside of clear zones was the extent of our improvements.

The signals at Expo/Ladd Road and the interchange ramps on either side of the bridge use typical pole and mast arm arrangements, similar to VDOT’s concept design. Therefore, no specific exhibits were prepared. However, the plan exhibits in Volume II of this Technical Proposal generally depict the location of poles and mast arms. The signal at Midway Lane/Wilson Boulevard may require modification in the southwest quadrant by relocating the pole and traffic box to the west.

Unlike the other signals, the signal at Goose Creek Road presented some interesting challenges due to the skew and lane configuration requirements. The VDOT concept plan shows a five pole arrangement with a single mast arm on each. The fifth pole facilitates the dual right turn movement from eastbound Goose Creek Road to southbound Route 285. The AI Team’s signal design at this location maximizes the use of a four span arrangement, eliminating the pole in the southeast quadrant. As a result, a specific exhibit for this signal was developed (see Volume II).

**Signing** – Our design will follow the guidance identified in the RFP. For instance, the design of new, non-standard signage will be developed using GUIDESIGN. An example of these types of signs would be the ground mount signs directing the traffic on Route 285, approaching the interchange. From the south, the ground mount sign might be as shown below (left). From the north, the sign would be the opposite (below right).





## TMP/SOC/MOT

The driving force behind our team’s concept plan is TMP. The simpler we make it; the quicker we build it; the safer it will be. By shifting our alignment, allowing for the new structure to be built in a single phase, we accomplish all three. We will have *fewer traffic shifts during construction and a shorter duration* due to the expedited bridge construction. Both of these *inherently provide a safer environment for motorists, ERV, and pedestrians*. Our TMP/SOC/MOT approach is described in detail in **SECTION 4.5 CONSTRUCTION OF THE PROJECT**.

## STAKEHOLDER COORDINATION

Upon award, the AI Team will assume responsibility of stakeholder coordination. We believe that a strong public involvement process must be integrated into both design and construction. *Understanding the importance of maintaining and fostering good relations with the project stakeholders, we have included a specialized communications firm on the AI Team* to support these efforts. Pulsar Advertising, a certified DBE and strategic communications firm specializing in public relations, public affairs, crisis communications, advertising and advocacy, and government affairs, will lead our efforts in this regard being sensitive to local and regional events that occur, such as those at the Expo Center.

**Approach** – Our approach to the project would encourage “two-way communications,” a method that provides information to the public and seeks feedback. This will help ease concerns and avoid potential issues by giving voice to those who will be affected and creating community buy-in on project timetables and milestones. The AI Team will have Pulsar’s professional communications staff available to respond quickly and effectively to any issues that arise.

**Audiences** – The stakeholder community affected by this project is primarily commercial (e.g. McDonalds, Sheetz, Shell, and Hampton Inn). However, the Augusta Health Hospital and several churches will also have a keen interest in the project as they will be indirectly affected.

**Strategy** – Pulsar will facilitate communications among project stakeholders and the community. In order to maximize community participation and provide meaningful opportunities for engagement, the tactical components of the communications plan will be characterized in three ways:

- ✓ **Communication Channels**
- ✓ **Personalized Access**
- ✓ **Access for All**

Each of these strategies will cater to different sub sects of the audience; whereas, the aggregate will reach the whole.

## 4.3.2 CONCEPTUAL STRUCTURAL PLANS

### BRIDGE B627 OVER I-64

The AI Team proposes to carry Route 285 (Tinkling Spring Road) over I-64 by constructing a 211’-6” long, 2-span continuous bridge. A preliminary plan and elevation view of the proposed bridge is presented in Volume II. An alternate alignment has been chosen for Route 285 which will allow construction of the bridge superstructure and substructure in one phase. This eliminates the need for construction joints in the deck and substructure.

*The bridge type, location, layout and materials were selected to provide an economical, low maintenance, readily constructible solution*, which will meet all present and future horizontal and vertical clearance criteria established by VDOT.

VDOT Standard prestressed concrete bulb-T beams (PCBT-61) fabricated with 8000 psi concrete will be used to maximize the long-term durability of the bridge. The arrangement of concrete beams supporting a composite deck is shown in the Transverse Section in Volume II. Although traffic would permit the use of BR27D railing, the AI team will provide BR27C railing adjacent to vehicular traffic as required by the RFP. Additionally, Type B Pedestrian Fence (black vinyl-coated) will be provided along both sides of the bridge.

The full-integral abutments shown in Volume II will be founded on steel H-pile sections socketed into the Ordovician Martinsburg black slate bedrock. Given that the relatively shallow bedrock is overlain by weathered rock at the site, the AI Team recommends pre-drilling through the existing



overburden and rock-socketing the piles. This ensures the piles can develop the flexural capacity necessary to resist the anticipated lateral forces on the structure. As per the RFP, structural approach slabs will not be incorporated in the bridge.

At each abutment, a mechanically stabilized earth (MSE) wall will be built parallel to I-64. The majority of the MSE walls will be built in Phase I, concurrent with the new bridge, and will support the roadway fill at the abutment and side slopes west of the proposed bridge. A combination of temporary shoring and MSE wire wall will be constructed parallel to Route 285 to facilitate Phase I construction. Once traffic is shifted and demolition of the existing structure is complete, the remaining portion of the MSE wall supporting the side slopes east of the proposed structure will be constructed in Phase II.

A multi-column bridge pier will be constructed in the center of the I-64 median as shown in Volume II. To simplify construction, the AI Team will design and construct the pier cap without an expansion joint. As a result, the design of the column and footings will include the appropriate longitudinal thermal effects of the pier cap. Laminated elastomeric bearings will be used to support beams at the pier. The beam ends will be cast into a continuity diaphragm. Pier columns will be supported by spread footings founded on shallow bedrock. During construction, the AI Team will have its geotechnical engineer on site to evaluate the suitability of foundation material as required by Section 401 of the *Road & Bridge Specifications*.

To enhance the long-term durability of the bridge, low permeability concrete and corrosion resistant

reinforcement will be utilized in the superstructure and abutment network in accordance with VDOT *Road & Bridge Specifications* and *Structure and Bridge Division I&IM-81.4*. Precast bulb-T girders are being proposed for the superstructure both for their economy and to eliminate the need for initial and future bridge painting. ***The elimination of periodic bridge painting is a recognized value in terms of life cycle costs and impact on the traveling public.***

Deck drainage systems are costly to detail, fabricate, install, and maintain. In addition, they present maintenance challenges over the life of the structure. The AI Team plans to maintain acceptable spreads by locating drain inlets on the approach roadway in order to eliminate the need for a deck drainage system. The ingress of salt-laden roadway drainage through leaking joints is a well-known maintenance issue in bridge design, accelerating the deterioration of the deck, beam ends, bearing devices and substructure. To address this, the AI Team has proposed continuous spans to eliminate the expansion joint at the pier and full-integral abutments to eliminate joints at the ends of the bridge. The proposed total bridge length, bridge type and skew angle fall well within the limits established for full-integral abutments in Chapter 17 of the *Manual of the Structure and Bridge Division* (Volume V-Part 2).

***The bridge type, location, layout and materials selected by the AI Team results in a more cost-effective bridge, requiring less long term maintenance that will be delivered on a faster schedule than the preliminary RFP plans.***





The AI Team has developed an overall approach to managing, designing, and constructing the I-64 Exit 91 Interchange Improvement Project that will safely deliver this critical project on-time and on-budget by:

- Providing extensive oversight with highly experienced personnel
- Expediting coordination with utility companies
- Developing strategies for delay mitigation
- Minimizing disruption to traffic through simplified phasing
- Offering a collaborative environment to resolve issues and develop solutions together

The AI Team is comprised of highly skilled, experienced professionals who are committed to delivering a project that, upon completion, will be viewed as a prime example of the high quality product that can be achieved by VDOT's Design Build Program. In the true spirit of the design build process, we have developed an innovative approach which will provide VDOT a best value project. We look forward to the opportunity to carry our approach and concept design through to completion.

The following sections expand in detail our approach to this critical project. Through extensive up-front design and coordination efforts during the proposal phase, we have developed a comprehensive understanding of the project's requirements, challenges, and risks. We believe the biggest challenge to be phased construction, and the primary risk to the project is negatively impacting or impeding traffic. As you will see in our proposal, the *AI Team has meticulously prepared a concept plan that minimizes risk* by avoiding impacts where possible and simplifying the construction sequencing of the project. The AI Team's previous performance on other projects demonstrates our ability to manage risks that do exist, particularly in areas such as MOT, environmental management, utility relocation, and the construction phase. We are confident that our approach to this important design build project will deliver the vision VDOT has developed for the I-64 Exit 91 Interchange over the years.

#### 4.4.1 ENVIRONMENTAL MANAGEMENT

VDOT has already completed the NEPA and other environmental processes for the project as described in this RFP. There are no 4(f) issues or (based on the current project design) impacts on known cultural resources, and no impacts on threatened or endangered species, based on the current project description. There are no recognized environmental conditions in terms of hazardous wastes or contamination within the project area. The role of the Environmental Compliance Manager (ECM) in this project will be to mitigate environmental risk through continuous monitoring of construction and any design changes that require a re-evaluation of the NEPA document, or re-coordination with the resource agencies, and to keep the VDOT Environmental Point of Contact (POC) apprised of these changes. More specifically, *the ECM will ensure that the project scope stays within the envelope evaluated by VDOT in its Categorical Exclusion (CE) and coordination process.* If the scope changes, our ECM (Steven Pond) will:

- Ensure a CE re-evaluation is completed, coordinated with the FHWA through the VDOT Environmental POC, and approved prior to completion the EQ-200 forms (Environmental Document Re-evaluation at PS&E Authorization and Environmental Re-evaluation for Right-of-Way Authorization). The CE re-evaluation will be performed by RDA's Environmental Manager (Janet O'Neill).
- Coordinate with the Virginia Department of Historic Resources (VDHR) to determine if scope changes will change the impacts on the Tinkling Springs Presbyterian Church property, or introduce impacts on the Caldwell House (100 Tinkling Springs Road) or the Augusta Chamber of Commerce (30 Ladd Road).
- Provide additional delineation of state and federal waters/wetlands, and obtain a jurisdictional determination from the USACE.
- Conduct an additional Phase 1 Environmental Site Assessment (ESA) to ensure there are no areas of previously unknown petroleum or other contamination that may impact or be impacted by the construction activity.



The ECM will also coordinate and participate with RDA's Environmental Manager to:

- Obtain an USACE State Program General (SPGP) permit (12-SPGP-01) and VDEQ Virginia Water Protection (VWP) permit (WP3) pertaining to impacts to jurisdictional waters of the US, including wetlands. Alternatively, because the site has obtained a Categorical Exclusion (CE) under NEPA, the site may be a candidate for a USACE Nationwide 23, which could benefit the project by streamlining the permitting and shortening the process.
- Re-coordinate the project with the natural resources agencies (US Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, and the Virginia Department of Conservation and Recreation Natural Heritage Program) prior to construction to update threatened and endangered species information. We will continue to ensure that such species will not be impacted.
- Ensure that the air quality requirements for construction projects near Prevention of Significant Deterioration (PSD) areas are incorporated into the construction documents as specifications. ***Because of the site's proximity to the Shenandoah National Park, we will proactively employ strict dust prevention control measures during construction.*** In addition to adhering to appropriate VDEQ air regulations, a water truck and operator will be employed during construction activities at the site and general care exercised with respect to VOC and NOx emissions.
- Ensure that the VDOT site specific Storm Water Management (SWM) performance based criteria of 7 pounds of phosphorus per year is realized through the design and construction. We acknowledge that the removal of road surface at Old Ladd Road is a required SWM measure, and that extended detention at Old Ladd Road is a recommended measure. Neither SWM measure is anticipated to impede the project construction schedule. Although not planned, should Filterra Manufactured BMPs be considered for project use, we must obtain explicit approval from

VDOT prior to incorporation into final design. Provide the Virginia Stormwater Management Program permit registration and ensure that a stormwater pollution prevention plan (SWPPP) is onsite when construction begins.

- Provide monitoring of VSMP permit conditions during construction through weekly and post-storm inspections.
- Because potential HAZMAT sites exist within the project corridor, we will exercise diligence during construction activities. Should soils or groundwater suspected of being contaminated be encountered, we will stop work in the area and immediately notify appropriate VDOT project team members prior to conducting further assessment and characterization. We are prepared to work with VDEQ regulatory agencies should contaminated media be encountered. To the extent practical, should low level contaminated soils be found to exist at the site, we will work with the VDEQ to obtain beneficial site uses for impacted soils.

The Design Manager (Darell Fischer) will inform the RDA Environmental Manager (Janet O'Neil) whenever a change in scope is being considered, so that it can be evaluated for potential impacts on schedule and costs.

#### 4.4.2 UTILITIES

Utility coordination and preparation of utility relocation plans must be planned and expedited, right-of-way must be identified, and procurement initiated. Our utility coordination team has a combined ***18 years of experience working directly with the types of utilities affected by this project*** and is familiar with the policies and procedures outlined in the *VDOT Utility Manual*. Communication with the utilities will be the key to mitigating unexpected utility conflicts and avoiding unnecessary project delays due to conflicts. The lines of communication between our utility coordination team and the utilities involved in this project will be open and free-flowing from start to finish. Utility meetings will be scheduled in advance throughout the project schedule, including the Utility Field Inspection (UFI) and Pre-UFI meetings, and will also minimize the possibility of



delays. In addition, early coordination, assessment and design advancement will allow our team to minimize any potential slippages. ***Early understanding of the betterments requested by the Augusta County Service Authority (ACSA) has been addressed and will help our team reduce any possible delays due to their requests.*** Additionally, should unidentified, non-located utilities be discovered during the construction phase, their relocation will be expedited safely and without conflict to the project or other utilities. The manner in which our design and construction phasing is implemented may offer opportunities to remove utilities from the critical path, ultimately providing a positive impact on schedule. ***Our schedule and approach to the project provide maximum flexibility to account for utility delays*** by subdividing the project into five sections (as discussed in **SECTION 4.5** and **APPENDIX 4.6**) which allows construction to proceed in sections where delays do not occur. In areas where utility impacts are unavoidable, the experience of our utility coordination team will allow us to minimize the impacts on the project schedule, the necessary rights-of-way, and the other utilities in the area.

The utilities impacted by this project will include telephone (Verizon and Lumos), cable (Comcast), fiber optics (Lumos), power (Dominion and Shenandoah Valley Electric Cooperative), water and sewer (both ACSA), each with differing levels of projected relocations. Our team has already identified locations as having the potential for moderate to significant utility relocations. Along Expo Road, Lumos has communications and fiber optic lines that will likely be impacted that are not currently being shown on the plans. These facilities, along with Verizon, Dominion, and ACSA will be impacted at the intersection of Expo Road and Route 285. Along Route 285, West of Interstate 64, there will be impacts on ACSA's sanitary line, Verizon, and Lumos' communication lines, while east of I-64 there will be impact on ACSA's 12" water line and Dominion's overhead lines. The relocation of the entrance to Route 627, Tinkling Spring Drive, will have impacts on

Dominion's underground lines and Verizon's communications.

Along the Northwestern stretch of Goose Creek Road there will be impacts on all of the utilities listed above with the exception of Shenandoah Valley Electric Cooperative, while on the Southeast side, across Route 285, there will only be impacts on Lumos' fiber optic lines and ACSA's water line. The intersection of Route 285 and Goose Creek Road will have impacts on all of the utilities listed above with the exception of Comcast. Some of the impacts identified by our team will be able to be mitigated, and ***where impacts cannot be avoided, our team will make every effort to minimize them.***

#### **Utilities Risk Management Strategies:**

- Early utility designating/locating/coordination
- Communication to understand existing and proposed facilities
- Early coordination with ACSA to fully accommodate betterments
- Pre-UFI (immediately after NTP)/UFI meeting early in the design process
- Design support for out-of-plan utilities

#### **4.4.3 GEOTECHNICAL**

Our technical approach was developed based on Froehling & Robertson's (F&R) extensive familiarity of the project area and their understanding of the subsurface conditions encountered at the site as described in the RFP's Final Geotechnical Data Report (GDR). F&R's experience in the vicinity of the project site includes geotechnical design and QC testing for construction of the nearby Augusta Health complex (formerly Augusta Medical Center), located about 0.5 miles north of the project site. Those structures are typically supported on rock, either using shallow foundations or deep foundations (depending on the depth to rock), which will be similar to our approach on this project.

**GEOLOGY** - The proposed project lies within the Valley and Ridge Physiographic province of Virginia and is underlain by Ordovician-aged rocks of the Martinsburg Formation. The underlying Martinsburg Formation is composed of a dark-gray to black calcareous slate with isolated intervals of



argillaceous limestone. The mineral residues remaining after the parent slate has weathered are known as residual soils and can frequently consist of medium to highly plastic silts and clays. Transitional zones of partially weathered rock of varying thickness may occur between the residual soils and the underlying bedrock.

Carbonate rocks (such as limestone) are susceptible to dissolution in the presence of acidic groundwater. Although carbonate rock are not mapped on this site, they are known to be present in the area. F&R's experience in the area of the project site is that continued subsurface dissolution of the carbonate bedrock leads to a highly irregular rock profile. This includes open voids and/or discontinuities (open or soil-filled) within the underlying bedrock as well as very soft, wet, and highly plastic soil immediately above the bedrock surface. The presence of caves is not uncommon with the Valley and Ridge Physiographic Province. One such cave (referred to as "Cave Hill") has been documented approximately ½ mile south of the project site.

**SUBSURFACE EXPLORATION AND LABORATORY TESTING PROGRAM** - A final subsurface exploration and geotechnical engineering program will be developed to supplement the information provided in the RFP GDR and, to provide a complete exploration program that meets or exceeds the minimum recommendations provided in VDOT's *Manual of Instructions* (Chapter III). The associated field activities will incorporate traffic control measures developed in accordance with the 2011 edition of the VDOT *Work Area Protection Manual*. In addition, we will communicate/coordinate with the Northwest Region Operations Transportation Operations Center (NWRO TOC) prior to and concerning our exploration operations. Considering the documented karst features in the vicinity of the project site, including the nearby area referred to as "Cave Hill", the final subsurface exploration will include geophysical testing to further evaluate the presence of karst features in the area of the existing bridge (B-627) that may exist below planned structures. More specifically, the final subsurface exploration will incorporate

electrical resistivity survey imaging that will portray continuous cross-sectional images of the subsurface conditions between test boring locations in specific areas of the project site. When utilized in conjunction with standard test borings, resistivity imaging can reveal soil-filled voids or large air-filled voids. Resistivity imaging can also reveal other important features such as the top-of-bedrock surface, which is expected to be irregular across the project site.

***A laboratory testing program will be included as part of the final geotechnical evaluation*** that will include soil property testing, soil and rock shear strength testing, and soil chemical tests on selected samples. As applicable, additional laboratory testing will be performed to evaluate potential property and strength characteristics of soils obtained from offsite borrow sources. Laboratory testing will be performed by AASHTO accredited labs unless otherwise approved by VDOT.

#### **GEOTECHNICAL ANALYSES, DESIGN AND CONSTRUCTION -**

***General*** - The design of new structures will include consideration of challenges associated with site constraints (including consideration of construction and continued operation of structures immediately adjacent to new construction) as well as those associated with the geologic conditions underlying the project site (such as possible highly-plastic soils that oftentimes exhibit wet and soft properties, variable bedrock conditions, and potential karst features). Geotechnical design of structural foundations and retaining walls will be performed in accordance with the current *AASHTO LRFD Bridge Design Specifications*, while other geotechnical evaluations such as selection of soil parameters, slope stability, and embankment settlement and bearing capacity will be performed incorporating reliability assessment as recommended by the following reference: Duncan, J.M., "Factors of Safety and Reliability in Geotechnical Engineering", April 2000, *Journal of Geotechnical and Geoenvironmental Engineering*.

Preliminary design of the project includes deep foundation support for new bridge abutments, shallow foundation support for a new bridge pier,



Mechanically Stabilized Earth (MSE) retaining walls, asphalt pavements, soil embankment and cut slopes, culvert and drain pipe improvements, and storm water management basins.

**Bridge Foundation Design** - Support of the new bridge is expected to be developed based on a design approach that will provide flexibility and reliability required due to anticipated variable bedrock conditions. The new bridge abutments will be supported by pre-drilled, rock-socketed H-piles to facilitate the use of a uniform deep foundation system at the abutments, and to provide lateral stability. F&R will develop a rock-socketed pile installation Project Special Provision for review and approval by VDOT prior to submittal of final construction documents. In addition to the two abutments, the new bridge will have a pier at its approximate center that will be designed for shallow foundation support on bedrock. Foundation design and construction of the new bridge will be performed in accordance with the requirements and guidelines stipulated in applicable sections of the *AASHTO LRFD Bridge Design Specifications*, the Additional Substructure and Foundation Criteria attachment to the RFP, the *VDOT Structure & Bridge Manual, Vol. V*, and applicable special provisions.

***The existing bridge foundation is anticipated to be founded on rock or weathered rock, which presents little concern regarding undermining while working in close proximity to construct the new foundations.*** Currently, our plan is to use temporary shoring to support the existing structure and a temporary wire wall for the proposed roadway fill on approach to the new bridge abutment. Should conditions bear differently, a temporary structural wall will be explored in lieu of the temporary shoring previously discussed.

Test probes will be performed prior to pile installation to further evaluate the presence of voids, soil seams, or solution features and the depth of the supporting bedrock at each drilled-in pile location. The test probe data will be used to determine final drilled-in pile tip elevations. In addition, the drilled hole cleanliness, as well as dimensions and alignment, will be verified by Quality Assurance

(QA)/ Quality Control (QC) representatives at the time of construction.

**Embankment/Fill Design and Construction** - It is anticipated that the earth embankments will be constructed on 2:1 (H:V) slopes or flatter, which will have a minimum safety factor 1.5 against a sliding failure. Where design will require an increase in embankment height and/or width, new earthwork will be continuously benched into the existing embankment/slope. Benching will consist of horizontal cuts with a minimum width of 6 feet that will begin at the intersection of the original ground and continue at each vertical intersection of the previous cut.

The embankments will be constructed in accordance with VDOT requirements (Section 303 of the *Road and Bridge Specifications*) and as stipulated in the Special Provision for “Density Control of Embankments and Backfill.” The project team’s Quality Assurance Inspector and a QC technician will be on site on a full-time basis to observe and test fill placement.

Maximum total settlements associated with the embankments are estimated to be less than 2 inches at the deepest depths (adjacent to the MSE wall bridge abutments) and diminish gradually to a negligible amount at the low ends of the embankments. The estimated settlements are expected to consist of immediate elastic settlement. The total post construction/paving settlements will be limited to less than one inch within 100 feet of the bridge, as well as along the remainder of the embankment alignment.

**Retaining Wall Design and Construction** - The reinforced MSE walls for the bridge abutments are expected to undergo total settlement magnitudes of less than 2 inches and consist primarily of immediate elastic settlements. Therefore, a settlement monitoring program is not anticipated. However, further analyses of the planned MSE wall settlement and thus the need for a settlement monitoring program will be performed as part of F&R’s final geotechnical evaluation. The MSE wall design and construction will conform to applicable sections of the *VDOT Structure & Bridge Manual, Vol. V* and the applicable special provisions.



**Pavement Design and Construction** - The pavement design will be based on additional geotechnical data (soil boring and CBR laboratory test data), data provided in the RFP, and the 1993 *AASHTO Guide for the Design of Pavement Structures* and will meet or exceed the minimum required pavement sections stipulated in the RFP. Earthwork construction activities will be performed in accordance with the Special Provisions for Section 303 of VDOT's *Road and Bridge Specifications*. Subgrade preparation, undercutting and removal of unsuitable materials, fill placement and compaction, asphalt placement, and construction quality control will be performed in accordance VDOT's specifications. Areas of "unsuitable material" were reported in the RFP GDR and will be further evaluated as part of F&R's exploration program. Earthwork recommendations will include remediation of anticipated unsuitable materials based on the subsurface explorations.

#### **4.4.4 QUALITY ASSURANCE/ QUALITY CONTROL (QA/QC)**

Quality Management is establishing, monitoring, and improving the effectiveness of quality assurance and quality control. ***Our plan and approach, as detailed below, will minimize additional QA/QC effort needed by VDOT.*** The construction of the project will be performed in accordance with VDOT's *Road and Bridge Specifications* and other reference documents provided in the RFP. The AI Team will develop a Quality Management Plan (QMP) for this project. The QMP is composed of the organizational structure, the Design QA/QC Plan, and the Construction QA/QC Plan. The AI Team has established an organizational structure, showing distinct and independent clear lines of reporting, (as required) to provide all required services, thereby controlling, and assuring quality.

The AI Team will be made up of several key subconsultants to manage and ensure QA and QC for both the design and construction elements of the Project. NXL Construction Services, Inc. (NXL) will manage the QA for construction and provide QA inspection. Rinker Design Associates (RDA) will appoint an independent design quality

assurance manager to be responsible for design QA. This individual will not be involved with the design process. F&R will support the QC activities during construction to verify that field conditions are consistent with assumptions made during design. Field modifications to original geotechnical recommendations will be documented and presented by F&R at the time of the specific field inspection.

This structure provides for verification of compliance with the quality requirements contained in VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public Private Transportation Act Projects* (January 2012) (aka QA/QC Manual) by qualified individuals who operate independently of design and construction staff with no direct responsibility for performing the work.

As demonstrated by the organizational structure, ***there is a clear and independent separation between construction QA and QC specifically to maintain the integrity of the QA/QC process.*** The AI Team believes this QMP will provide confidence to VDOT that construction will be carried out in accordance with the specifications with minimal VDOT oversight in the form of Quality Assurance Manager Independent Assurance (QAM IA) & Quality Assurance Manager Independent Verification, Sampling, and Testing (QAM IVST) testing and periodic monitoring.

The AI Team's QMP is specifically designed to meet or exceed the following goals:

- Produce a quality product that consistently exceeds VDOT expectations.
- Foster a team environment of continuous improvement and cooperation.
- Encourage communication across the project's borders.
- Provide opportunities for client feedback.
- Create opportunities for design improvements.
- Propose a method for documenting comments, responses, and quality assurance records.

These goals will be achieved through the development of the Project QA/QC Plan, which includes the Design QA/QC Plan, the Construction QA/QC Plan, the Project Management Plan (PMP),



setup of the Project’s central file, quality audits, client feedback and project closeout procedures.

**QA/QC EFFECTIVENESS** - AI-VA has developed and successfully utilized this QMP on our recently completed Airport Connector Road Design Build (D-B) project and the Tye River D-B Project, and is currently utilizing the same QMP on the AI-VA led Middle Ground Boulevard Extension D-B project in Newport News. This method has resulted in quick resolution of quality issues and good communication and coordination between VDOT and the QA and QC teams. RDA is implementing these Design QA/QC procedures for their Route 36 Improvements D-B Project, and the Middle Ground D-B with AI-VA. Their procedures are proving extremely beneficial in minimizing the efforts required by VDOT during their review component.

#### **QA/QC STAFF ROLES & RESPONSIBILITIES -**

**Design Team** - The design team is lead by Darell Fischer, PE, who will serve as the Design Manager (DM) and report directly to David Nardon, the Design Build Project Manager (DBPM). Mr. Fischer will manage all design disciplines associated with the project as shown on the organizational chart in **SECTION 4.2**. His primary function will be to *ensure that all design features are coordinated with utilities, MOT operations, and environmental permitting activities*. Mr. Fischer will manage the various disciplines through weekly design coordination meetings, which will focus on technical issue identification and resolution. Mo Kim, PE, will serve as Design QA Manager and report directly to Mr. Fischer. Mr. Kim is responsible for design adherence to VDOT specifications and standards and independent review of the design for each discipline. Nathan Porter (AECOM) will coordinate structural designs with other design disciplines and report directly to Mr. Fischer. Clyde Simmons, III will report directly to Mr. Fischer for geotechnical design and indirectly to Mr. Nardon for construction. Mr. Simmons will oversee the geotechnical investigation and analysis of the site and provide assistance to the team in the construction phase of the project. Janet O’Neill (RDA) will report directly to Mr. Fischer for environmental design issues. Mark Gunn will

coordinate all utilities through Mr. Fischer. Roger Clatterbuck (RDA) will be responsible for right-of-way acquisitions.

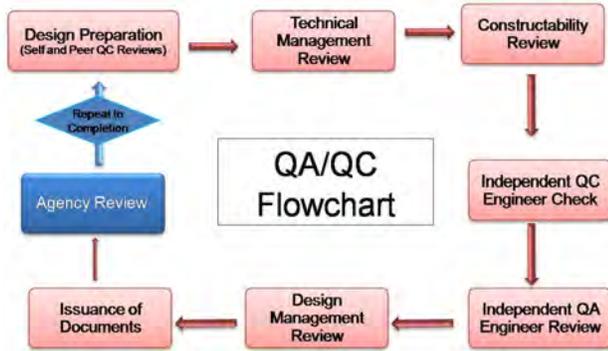
**Construction QC Team** - The Construction Team is led by Construction Manager (CM) Jeff Humphreys, who will report directly to Mr. Nardon. He will have overall responsibility of the day-to-day operations for the Project and will be located on-site full time. The QC Program will be performed under the direction of Mr. Humphreys, supported by the Quality Control Manager (QCM), John Pappas, PE, from Froehling & Robertson (F&R). Mr. Pappas will oversee the QC effort and provide inspection and testing technicians. At all times, the number of QC technicians will be appropriate to the available work sites, number of crews and shifts of work. The Construction Superintendent, Utility Coordinator, Senior Project Engineer, and Schedule Coordinator will also report directly to Mr. Humphreys, who will *ensure a collaborative framework for construction and quality control*. The Construction Superintendent is responsible for oversight of AI-VA’s production force crews and any subcontractors on the Project. The Public Outreach Coordinator, James Wright (Pulsar), will work hand-in-hand with Mr. Humphreys and the VDOT Public Affairs Office to implement the Project communication plan.

**Construction QA Team** - The QA Program for construction is led by Quality Assurance Manager (QAM) Joseph Hamed, PE (NXL), who will report directly to Mr. Nardon and indirectly to VDOT’s Project Manager to provide open lines of communication between VDOT and the AI Team. He will be responsible for independent QA oversight for all construction activities, and for providing documentation and reporting to VDOT, minimizing VDOT’s QA activities. He will be supported by QA Inspectors and by Schnabel Engineering (Schnabel) for QA Materials Testing. In accordance with VDOT’s QA/QC Manual, the QA organization is “distinct and separate from the design and production staff” and “all key personnel performing QA or QC functions” will “be exclusively designated as such,” and will “not be assigned to perform conflicting duties or production

work.” Mr. Hamed will have the authority to stop any work not meeting contract requirements. This critical position will provide a strong link back to Mr. Nardon on the effectiveness of the Project’s QMP and will ensure VDOT maintains its required oversight of the Project.

**DESIGN QA/QC PROGRAM** - The Project’s Design QA/QC Plan will establish criteria to verify the following:

- Conformity of design documents
- Technical accuracies
- Reviewing procedures
- Stamping, signing and dating requirements
- Coordination between design disciplines
- Constructability reviews



Mr. Fischer will have responsibility for implementation of QC and QA processes for the design portion of the project. The Design QA and QC Plans address procedures and responsibilities to ensure the project design is correct and consistent with appropriate standards and specifications. Each design submittal will be subject to an independent quality review of both Design QA and Design QC functions. Each review is finalized by a review summary form, which indicates by signature that the reviewer has completed the review and that the DM has confirmed that all review comments have been incorporated. The review set of documents becomes a permanent part of the project files.

Design QC reviews will occur at a detail level to verify accuracy and completeness of calculations/plans and conformance to VDOT standards and contract requirements. This process makes use of standardized checklists, including VDOT LD-436, and document controls developed in-house. Design QA reviews will look at the “big

picture” to verify completeness and reasonableness of the design solution. The plan will also include conformance with contract requirements for each design discipline.

Additionally, the DM will look at constructability, traffic maintenance issues, and interdisciplinary coordination. RDA and all design team members will work directly with AI-VA’s construction personnel and the QAM to complete the constructability reviews of the plans to ensure that all portions of the project can be physically constructed in a safe manner. The DM will carry out his responsibilities by ensuring all QA and QC reviews are performed appropriately and by conducting monthly design meetings for specific issues and concerns.

The DM has the overall responsibility of managing and reviewing designs by all subconsultants. The DM will task discipline managers for the various design components to provide direct oversight and quality assurance reviews of all subconsultants.

Any necessary field changes or other deviations to the approved construction documents will be subject to the same design QA and QC measures and procedures. The requested change will be logged for tracking and will be sent to the Design Engineer who performed the original design. Once the change has been reviewed and the appropriate QC Engineer check performed, the requested change will be forwarded to the QA Engineer for review and DM for approval. Once the DM has approved the change, it will be sent to the Design Builder (AI-VA) and ultimately to VDOT and/or other entity, as needed, with a recommendation for approval. Following approval, the field change will be incorporated into the as-built plans.

Our Team’s specific approach to managing this process is defined below.

**Responsibility**

**Project Management** - Project management aspects of the design process are the responsibility of the DM. Subconsultants will be responsible to the DM for the project management of their assigned portions of the project.



**Technical Management** - Technical aspects of the design process are the responsibility of each design team's technical discipline management, and reviewed by the Technical Advisory Panel, referenced in **SECTION 4.5**.

### Planning

**Project Scope and Criteria** - The project scope and criteria are established in the Contract Documents provided by VDOT and in the Agreement between AI-VA and RDA.

**Manpower and Scheduling** - The project design will be performed in accordance with the Project CPM schedule provided by AI-VA. Each Design Lead is to maintain a production control and management system to assist project management and technical management in evaluating the status of the work, the adequacy of the manpower assigned to the project and compliance with the project schedule.

**Quality Oversight** - The DM has oversight of the design control process and performs audits to confirm that quality functions take place and both the internal design team and all subconsultants follow the prescribed design processes. The Design QC and QA Plan outlines the procedures required for effective design quality management during the development of design documents.

### Input

**Contract Documents** - The plans, specifications, and other Contract Documents provided by VDOT are the baseline input for the project design.

**Project Work Plan (PWP)** - The DM shall prepare a PWP or equivalent project control design document and update it as information changes. The document shall be reviewed, at a minimum, on a monthly basis to ensure that it is up to date. This document is to convey to the design staff of each team all necessary information to ensure that the contract requirements are correctly translated from the Contract Documents into the drawings and specifications used for procurement, manufacturing, construction, testing, startup, and operation of the project. The DM evaluates the various project control design documents to ensure that the design input conforms to the Contract Documents, includes

new design information, and complements existing field conditions. This document is intended to compliment the Contract Documents by providing a compilation of all pertinent information necessary for designers in a single document. As a resource only, it does not replace or add new information beyond the Contract Documents.

**Initial Design Conference** - The Design Team is to attend a pre-design conference (kick-off meeting) with the Design Builder to ensure that all team members have a clear understanding of the project scope, criteria, schedule, deliverables, and other issues applicable to the design of the project. Minutes of the meeting are to be prepared, distributed to all participants, and placed in the project files. A copy of the minutes will be provided to the VDOT PM.

**Periodic Design Conferences** - The DM holds weekly design conferences with AI-VA and with the Design Team to foster coordination with the Design Builder and between disciplines, to monitor progress and deliverable schedule, to identify information needed from others, and to resolve problems that arise. Copies of all meeting minutes are to be distributed internally to design team members and each subconsultant. A copy of meeting minutes will be provided to the VDOT PM.

**Project CPM Schedule** - The Design Builder will prepare the design and construction schedules required by the Contract Documents and distribute to the Design Team. Each member of the Design Team is to provide required designer input to these schedules and assist the DM in maintaining the schedule and in reporting progress.

### Output

**Deliverables** - Deliverables include intermediate and final submissions of planning documents, reports, drawings, specifications, design calculations, and other items that are required by the Contract Documents. All deliverables are to be prepared in accordance with the Contract Documents and approved project procedures.

### Verification

Verification is the action component of the QA/QC Plan. It involves technical and procedural reviews.



To best describe the process, a specific element or example will be used. Please see the section immediately following **CONSTRUCTION QA/QC PROGRAM** shown below.

**CONSTRUCTION QA/QC PROGRAM** – The AI Team’s approach to Construction QA and QC will be organized, developed and executed in accordance with *VDOT’s Minimum Requirements for Quality Assurance and Quality Control on Design Build and Public-Private Transportation Act Projects, January 2012* (Requirements for QA/QC). QA and QC will be separate organizations and will utilize separate and independent testing laboratories accredited by AASHTO.

The QA organization will be independent, distinct, and separate from production forces. In order to maintain complete independence and objectivity, the QA staff and/or associated companies shall not and will not be involved with the construction activities. These two well-defined requirements will ensure that the QA organization will maintain complete independence to uphold the integrity of the QA/QC process.

The ECM is also an important member of the QA organization. This individual is responsible for assuring compliance with project environmental commitments.

***QA/QC Approach, Operation and Interface:***

Following NTP, the QAM will work with the AI Team to complete development of the project’s QA/QC Plan for design and construction. The Construction portion of the Plan will address the five levels of testing and inspection activities and responsibilities as required by *Requirements for QA/QC*. The Plan will be developed in conjunction with the Contractor’s Proposed Schedule where identified work packages will be broken down into their respective construction activities. Detailed checklists will be employed to document the performance of inspection activities, clearly describing the procedures and criteria applicable to both QA and QC.

Prior to the start of a work activity, the QAM will lead a Preparatory Inspection Meeting (PIM). Attendees will include production personnel,

subcontractors, QA personnel, QC personnel, Designers, and the VDOT’s Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) personnel. The PIM is an excellent forum to review and discuss topics including relevant specifications, special provisions, drawings, means and methods, QC requirements, etc. The Preparatory Inspection process will verify that required permits, safety procedures, approved drawings, approved shop drawings, material approvals, and scheduled inspections have been completed. The QAM will also review the location, type, and frequency of tests and inspections as outlined in *Requirements for QA/QC*. The team will also identify and discuss Hold Points or Witness Points associated with the work, and identify an appropriate action plan for their resolution.

***Once construction commences, QA and QC personnel will provide inspection and testing to ensure that the work meets the requirements of the applicable Contract Documents*** including plans, specifications, special provisions, etc. The QAM will establish and monitor testing frequencies throughout the life of the project to assure that all five levels of testing and inspection established by *Requirements for QA/QC* are satisfied. These levels include QC, QAM IA, QAM IVST, OIA, and OVST. A QC inspector will be assigned to each work activity. Each QC inspector is responsible for performing the required inspections and testing. In similar fashion, QA inspectors are responsible for the QAM IA and QAM IVST inspections and testing. Inspectors will submit a Daily Work Report (DWR) documenting the results of their work, and at a minimum, detailing nine key points outlined in *Requirements for QA/QC*. In addition to the performance of QC oversight and independent QA testing and inspection, the QA organization will keep the VDOT PM informed of the scheduled OIA and OVST tests, Witness Points, and Hold Points during the course of construction.

A key element to a successful QA/QC Plan is the ability to identify quality deficiencies at a time when corrective measures can be employed. The QA/QC manual will establish a Quality Assurance Auditing and Non-Conformance Recovery Plan in



accordance with Requirements for QA/QC. This plan will establish the uniform process for reporting, controlling, and correction of non-conformance issues. The process will include, but not be limited to, the issuance of a Non-Conformance Report, documenting an approved recovery plan, and consultation-concurrence with both the Designer and VDOT.

The QAM is required to review and approve monthly invoices before they are submitted to the Department. All work associated with a Work Package, including documentation, must be complete before final payment authorization will be provided by the QAM.

**Document Control and Maintenance:**

The QAM will monitor the efforts of the QC team to ensure appropriate records are prepared and submitted daily; including DWR’s and tests reports. A master set of QA documents, to include all QC documentation, will be maintained by the QAM and his team. These documents include meeting minutes, daily diaries, QA tests reports, OIA/OVST test reports, photographs and materials documentation including the project’s Materials Notebook and Design Build Materials Tracking information. Both a paper (hard copy file) and parallel electronic filing system with appropriate backup will be employed for the project documents including the scanning of paper documents for electronic storage and backup. Project documentation will be available for the Department’s review and inspection at all times.

All of these steps will serve to address QA/QC in a proactive manner, providing VDOT with the assurance that the respective QA and QC team members are executing their tasks in clearly defined terms of responsibility and accountability.

The AI Team; including QA/QC, and production crews; is committed to providing a high quality successful project — a project where VDOT is assured they will not be placed in the position of having to provide additional levels of QA/QC or Contract Administration.

**QA/QC PROCEDURES FOR TRANSPORTATION MANAGEMENT PLAN (TMP) IMPLEMENTATION (DESIGN AND CONSTRUCTION)**

In developing our design and approach to constructing this project, we have evaluated and analyzed all of the critical elements. Those elements which are most critical (shown below) were further evaluated to select the single most critical element which our team deemed necessary to discuss with regards to QA and QC procedures.

Critical Design Elements	Critical Construction Elements
TMP	MOT/TMP
Floodplain Analysis	Karst topography
Clear zone protection	Stream protection for culvert extensions
Signal design	Supportive excavation for phased construction
SWM design	Sliver cuts/sliver fills

TMP was selected due to a number of specific issues (i.e. high truck volumes, event traffic, and emergency vehicle traffic). In the AI Team’s RFQ proposal *we identified TMP as one of our three risk items, citing these very same issues to challenge us to develop a program that is simple, efficient and safe.* A quality TMP starts with design and ends when the road is fully open to traffic. To mitigate this risk, the AI Team has developed a unique phasing plan whereby the new bridge will be built in a single phase and will allow continuous Emergency Response Vehicle (ERV) movement as discussed in SECTION 4.5.

Design QA/QC for TMP follows RDA’s established procedures and is described in detail below:

Early in the project initiation, key elements of the TMP will be identified and construction phasing visually depicted. Once plan elements of the TMP are developed following all applicable design standards and references, the design is put through the review process established for QC and QA. Mr. Darell Fischer, Design Manager, will notify the entire design QC and QA team that the plan reviews are being initiated.



**Technical Management Review** – Upon notification by Mr. Fischer, Brandon Shock, PE (Roadway Design lead), will perform a technical QC review of the plan’s relevant supporting data which may include: cross sections, auto turn analyses, lane shift profiles, etc. His review will focus on the appropriateness of the identified temporary control devices, protection of clear zones, plan accuracy, plan clarity and effectiveness of the plan to maintain traffic.

**Independent QC Engineer (e.g., Technical Discipline) Check** - Upon completion of the Technical Management Review, Mr. Shock will forward the revised plans, incorporating his mark-ups for an independent check by senior designers who have not previously participated in the development of the TMP to be checked. Records of the technical discipline check using RDA’s Review Forms will be maintained by Mr. Shock until project completion.

**Constructability Review** – Simultaneous to the above reviews, AI-VA construction staff will review the TMP, specifications, etc. to identify elements that may conflict with their intended means, materials and methods. Through a collaborative effort, the plans will be modified to ensure design criteria is preserved while accommodating construction preferences.

Upon completion of these changes, the plans will circulate back through the Technical Management Review and the Independent QC Engineer Check to ensure that QC processes have been followed.

**Independent QA Engineer Review** – Once the plans are deemed “QC checked”, they will be sent to RDA’s independent QA engineer, Erik Shively, PE. Mr. Shively will be responsible for ensuring that all QC review comments are incorporated or have been adequately addressed. He will perform an added contract compliance review to ensure that all requirements and conditions of the RFP are met. Upon his satisfaction, the plans will be released back to Mr. Fischer.

**Design Management Review** – Mr. Fischer will perform the final review of the plan package and relevant supporting data for completeness and

general conformance with the Contract Documents, identify and require correction of any deficiencies, confirm that the appropriate QC and QA measures have been implemented, and then deliver them to AI-VA for submission.

**Issuance of Documents** – Upon submission of the TMP to AI-VA, the *Release of Deliverable* form will be completed by Mr. Fischer, Mr. Hamed (QAM), Mr. Shively (Design QA) and Mr. Nardon (DBPM) indicating that the design, drawings, and specifications are in compliance with the requirements of the Design QC and QA Plan and that the documents may be released to VDOT for review and/or to AI-VA for construction.

**Agency Review** - Reviews by VDOT and others will be performed at each submission stage as defined in the CPM Schedule. These reviews will commence upon delivery of plan documents to VDOT and will be completed within the stipulated 21 calendar days.

**Comments/Comment Resolution** - Comments received as a result of the reviews performed under “Agency Review” will be addressed in writing and a Comment Resolution meeting will be held for the TMP design in order to determine the final disposition of each comment. Accordingly, comments requiring design changes will be incorporated into the plans and subjected to the same QA/QC process described above.

Once the TMP has been released for construction, the plans will begin their journey through the QA/QC process for construction. As currently designed (see SECTION 4.5 for specific details), it is anticipated that the work on Route 285 will require three phases to complete. The TMP must accommodate high traffic volumes including ERVs en route to nearby Augusta Health Hospital. Prior to installation of traffic control devices, the Design Build Team will meet with the VDOT PM and a representative of the NWRO TOC to establish communication protocols.

The QAM will hold a Traffic Management PIM to address traffic management before signs and other devices associated with the TMP are installed. Because safety is paramount in everything we do and this will likely be the first PIM, this meeting



will have a strong emphasis on traffic safety and personal safety. Installing traffic control devices in the correct location and sequence will reduce the likelihood of traffic incidents. Personal protective equipment, such as vests and hardhats, are mandatory at all times. Production supervisors and inspectors will be provided with a list of emergency phone numbers including the NWRO TOC, and contact numbers for emergency responders.

The Traffic Management PIM will also identify the relevant contract documents such as the TMP sheets, material specifications, standard drawings, the MUTCD, and the *Virginia Work Area Protection Manual*. QA/QC inspection requirements will be discussed, including the relevant forms and checklists. Procedures for notification of the TOC and VDOT PM will be distributed to production supervisors and inspectors.

A QC Inspector will be assigned to each crew installing traffic control devices or switching traffic. The Inspector will interface with the production supervisor to ensure devices are installed correctly with attention to detail, and he or she will complete the relevant check lists and the DWR.

Following installation of devices, regular inspection is the key to maintaining a safe and efficient work zone. A QC Inspector will review the work zone daily, documenting their findings. Deficiencies in signs, barrier, striping, channelizing devices, etc.

will be reported to production forces for immediate correction. QA will review the work zone on a weekly basis, documenting findings on VDOT Form TE 97001. QA and QC will conduct periodic nighttime reviews. Furthermore, inclement weather inspections will be performed after all events, and prior to any hurricane event. In this manner, the Department and the AI Team will be assured of a safe and efficient work zone with a reduced likelihood of accidents.

### **EFFECTIVENESS OF APPROACH BASED ON PAST EXPERIENCE**

AI-VA's QA/QC program has been highly successful on similar projects following the Design Build/PPTA process. This program evolved from our completed Richmond Airport Connector Road Design Build project for Transurban, with VDOT oversight. AI-VA recently completed the VDOT Route 29 Approaches and Bridge over Tye River, a Design Build Project located in Amherst-Nelson Counties, where we implemented our established QA/QC procedures. The finished project was of high quality and had no non-conforming items. The VDOT Lynchburg District was extremely pleased and provided adulations regarding the quality and early completion of the project.

This process has proved so effective in the past that American Infrastructure has opted to utilize it company-wide, on all design build projects.





Successful design build delivery requires management and collaboration that will foster productive relationships among the design team, construction team, VDOT, FHWA, liaisons with local government and citizen advisory groups. The AI Team offers just this type of management, combined with successful VDOT and design build experience. ***The result of our experience, concise planning, functional design, and execution will be the complete success of this project for VDOT and the citizens of Augusta County.***

The AI Team members have invaluable experience gained through participation in previous successful highway design build projects, PPTA projects, and other high-profile, time-critical VDOT projects, as detailed in our Statement of Qualifications. This experience demonstrates that our team is uniquely capable of delivering this project on budget and within schedule. The final design and construction of this project is a natural fit for our design build team. Our collaborative approach to design build delivery provides the opportunity for all stakeholders to assist and participate in the process.

#### **4.5.1 SEQUENCE OF CONSTRUCTION**

As a contractor, building roadways is what we do. How we mitigate the risks associated with that construction determines how successful we are. Understanding those risks and all of the elements that must integrate into one seamless system is our “means and methods” to fulfilling our goal of success. The AI Team has a well-established system, described below, to ensure that our construction activities and sequencing of work is of the highest quality. As you will see, we have addressed the following items of potential risk, and developed a solid design and construction plan to mitigate potential risks and delays and accelerate the project:

- Safety and Operations
- Geotechnical Constraints
- Environmental Impacts
- ROW Acquisition
- Staging and Storage Areas
- Public Involvement (see SECTION 4.5.2)
- Schedule

#### **PLAN PREPARATION**

A quality constructed project begins with a quality design. We will immediately begin design upon receipt of Notice to Proceed (NTP). To avoid delays, we have allowed time in our initial project schedule for plan reviews, comment resolution, and agency approvals. Plan reviews will be scheduled in advance so as not to place an unnecessary burden on agency resources.

In order to create quality plans that meet VDOT approval, the AI Team will hold early coordination meetings with all review agencies including, but not limited to, VDOT, FHWA, and Augusta County. We will present our design concepts to the review agency representatives, clearly define the information included in each milestone plan submission, and confirm the design requirements.

The AI team will conduct “over-the-shoulder” reviews during the design phase to accelerate final package submission and approval. ***We will invite VDOT staff to participate in “over-the-shoulder” reviews, which will take place periodically throughout design, between planned submittals.*** This informal process will help our team understand critical concerns that the stakeholders may have and provide insight that will be instrumental to mitigating risk as the work is being designed prior to submission for formal review/approval. They will also allow VDOT to observe our progress and initiate discussion regarding plan elements.

RDA’s extensive experience with VDOT will enable us to prepare quality design packages that meet all applicable standards and requirements, without extensive revisions. We will implement our QA/QC program detailed in SECTION 4.4.4 to ensure that each milestone submission made to VDOT or any other review agency is complete and accurate. This initial thoroughness will minimize the need for VDOT oversight, streamline design review and approval, and allow us to smoothly transition from design to construction.

#### **TECHNICAL ADVISORY PANEL (TAP)**

The ***mitigation of project risks*** and challenges is the key to controlling costs and streamlining a transportation project’s schedule. The AI Team has assembled a group of very qualified design and



construction professionals to act as task leads for all aspects of the I-64 Interchange Improvements Project. These task leads have reviewed available data and determined what they believe to be the biggest project risks and challenges. ***We believe the biggest challenge on this project to be the effective management of vehicular and pedestrian traffic.***

In addition to the “A” team we have assembled to perform and be in responsible charge of the project, we have identified experts in the highest-risk areas to form a Technical Advisory Panel (TAP). These independent experts often offer advice, input, and problem solving for our projects. Upon award, the AI Team will call upon the task leads and experts from the TAP for a brainstorming session. Here appropriate, innovative solutions will be applied to the project’s design, scheduling, and construction challenges. This strategy allows us to make use of the most current technologies available to the industry. The TAP also provides an objective, independent look at particular components within the project and uses its expertise to offer new perspectives on a problem. We believe that seeking out solutions to the biggest challenges early in the project will reduce the overall project costs.

This TAP will serve as a resource to the design and construction teams for the duration of the project, especially if any new methods or technologies are implemented. The AI Team feels that this process accelerates project planning, design, and construction. ***By having this early input (the same principle that the design build alternative delivery method is founded on), the project will save on cost and schedule,*** and VDOT will benefit in receipt of the ultimate rewards of this new process.

**RIGHT-OF-WAY ACQUISITION**

The right-of-way needed for construction presented by the AI Team is consistent with the RFP Plans. RDA will provide comprehensive right-of-way acquisition services as described in the RFP for the AI Team. The Right-of-Way Manager (ROWM) will report directly to the Design Build Project Manager (DBPM). This structure allows the ROWM to work directly with the DBPM to resolve any issues as they arise during the acquisition process. Given that timely acquisition of right-of-

way and easements is critical to the project schedule and requires significant VDOT involvement for reviews and authorization of documents, the DBPM and ROWM will work closely with VDOT staff on the approval and implementation of our right-of-way acquisition procedure, described below.

Following NTP, the AI Team will submit our formal procedures for right-of-way acquisition on the Project. It will identify the steps and workflow required for each affected parcel including efforts and procedures for certified title reports, appraisals, appraisal reviews, negotiations, acquisition, relocations, and parcel closing. The procedures include VDOT reviews and authorizations at required milestones. Throughout the project duration, right-of-way activities for each parcel will be tracked using VDOT’s Right-of-Way and Utilities Management System (RUMS) and updated a minimum of once per week.

**INTERFACE BETWEEN DESIGN & CONSTRUCTION**

We will begin the integration of project design and construction by bringing the AI Team together to formulate a policy for communication between VDOT, project stakeholders, and our design and construction core personnel. We will conduct design collaboration meetings at bi-weekly or monthly intervals, depending on the element under design, to ensure communication and project constructability. Experience with design build projects that require agency decisions for phased approvals and early release packages has shown that ***consistent and sustained communication efforts with affected parties will improve the process and minimize rework on the board and in the field.*** Issues will be documented using a standardized, numerically dated format similar to the RFI system. As issues arise, they will be forwarded by the design team to the appropriate person and copied to the DBPM, who will enforce a three working day response time within the AI Team to ensure quick resolution.

A comprehensive project schedule incorporating all project activities, including regularly scheduled reviews, will enable the AI Team to focus on the critical path sequences for design and construction. The full benefit of the design build method of construction will be realized through the



acceleration of the project schedule. Construction has been phased to allow for early activities in areas without utility and right-of-way dependence. Our approach will advance the identification and acquisition of right-of-way and easements on critical parcels, allowing the team to initiate utility relocation early. This will *minimize risk* for the later, utility-dependent, construction phases. ***Early and frequent coordination with utility companies and other stakeholders will allow for continuous monitoring of overall project schedule.***

Construction team members will play a key role during the design phase. Experience has taught us that incorporating the input from the whole team produces a better final product, so we will use full-team reviews to develop our design. This allows the plans to accurately represent and facilitate the construction team’s intended methods of executing the work, and ensures that features such as access in and out of the work areas, storage areas, and adequate work spaces are provided in each phase of construction. By directly incorporating AI-VA’s needs into the plan, RDA will develop a plan that improves safety during construction.

Similarly, the design team will play a key role during construction. Should field issues or other needs arise, the design team will immediately leap into action, reviewing working drawings, obtaining critical certifications, performing quality control checks, and resolving issues. By bringing all project participants to a common table, our experience has shown that decision-making is streamlined and a continuous flow of work maintained. This improves quality and schedule performance in construction.

The design build process has allowed us to carefully put together a team that has a documented history of great success working together. This past working experience among our team members allows us to embrace a fully open-door policy with rapid response time to potential issues. Each team member understands their role, and the respective roles of other team members, resulting in positive team chemistry, enhanced communication and a streamlined design build process.

The AI Team’s design build management approach is a proven process developed through prior success

in design, local market construction knowledge, and history with VDOT. Together, these qualities translate into real-time construction knowledge which, combined with project innovations, enables our team to develop a management plan that will not only result in a successful VDOT project, but early delivery of the final product.

### **GENERAL CONSTRUCTION SEQUENCING**

The AI Team has developed a unique and innovative approach to the construction of this project. Specifically, we plan to construct the bridge in one phase, simplifying sequencing and effectively minimizing traffic disruption and traffic pattern changes. This approach will:

- improve long-term maintenance
- eliminate the longitudinal construction joint
- accelerate the project schedule
- reduce cost
- simplify demolition

The result of this innovative plan is a safer work zone, improved traffic operation during construction, a significant reduction in construction activity, and a shorter overall construction time.

A conceptual construction phasing plan is presented in Volume II of this proposal.

### **PROJECT PHASING**

The project will have three phases. We will divide Phases I and II into sections A, B, C, D, and E, streamlining the development of design packages and allowing construction to begin sooner. ***To support our construction phasing, we have identified several areas for staging and storage*** (see Exhibits). Most notably, Old Ladd Road’s roadbed and right-of-way will be used to store equipment and materials as well as potentially house construction trailers. Additionally, leasable space next to Sheetz is being considered to expand available space. Staging at each project specific location will be implemented; however, equipment stored in these active areas will NOT block entrances to businesses, impact line of sight for signage, or obstruct drivers' view of traffic. Should geotechnical constraints arise or utility relocations be delayed, our segmenting of the project into five



sections will allow us to expedite construction in areas other than where these constraints arise.

Before any construction begins, AI will use orange construction fence to designate all wetlands which are to remain protected and undisturbed. Additionally, all crews will be briefed on the importance of protecting these resources and the consequences of the failure to do so.

The widening of the roadway to the west of Route 285 will occur in Phase I. Sections A and B will involve the widening of Route 285 south of the bridge, including work on the eastbound I-64 off-ramp and Expo Road (Route 935). The new Route 285 bridge over I-64 will be constructed in Section C. In Sections D and E, widening will take place north of the existing bridge. This will include work on the westbound I-64 on-ramp and Route 636.

Work on the existing Route 285 roadway will take place in Phase II. In Sections A and B, reconstruction of the existing Route 285 roadway will take place to the south of the bridge. This will include the work related to the eastbound I-64 on-ramp. In Section C, the existing Route 285 bridge over I-64 will be demolished and the remaining MSE walls for the proposed bridge will be completed. Sections D and E will involve the reconstruction of the existing Route 285 north of the bridge, including the westbound I-64 off-ramp, Tinkling Springs Drive, and Route 640.

The median island construction, final surfacing, final pavement markings, and signage will be completed in Phase III across all sections.

**BRIDGE CONSTRUCTION**

The AI Team plans to minimize disruptions to the traveling public by designing the bridge to be constructed in a single phase. The new bridge will be constructed to the west of the existing one, allowing uninterrupted flow of traffic across the existing bridge. We believe that this approach will save 3 months on the overall schedule, resulting in a cost savings to the Department and less impact to the traveling public. Single-phase construction will eliminate the need for a longitudinal construction joint. This, combined with the use of concrete girders, will provide the additional benefit of a very

low-maintenance structure. *The bridge's foundations will be designed to be adaptable to expected variations in subsurface conditions.*

**SAFETY**

In support of our focus on the traveling public and project safety, it is important to mention AI-VA's exceptional safety record and major corporate and local commitment to creating and maintaining safe work zones for their employees and the traveling public. AI's strong safety culture promotes "Home Safe Tonight."



AI-VA believes that "Everyone Has a Voice." We conduct two daily meetings with each crew, one before we start work, and one after we finish for the day. All employees are encouraged to openly address safety concerns during these meetings. Also, every employee and stakeholder within the project has the right to stop work if there is a safety issue. A project is not a success unless the goal of zero accidents is achieved; it will be the policy of The AI Team to perform all work in the safest manner possible consistent with good construction practices.

**MOT AND CONSTRUCTION**

The AI Team has evaluated the phasing and traffic requirements for the project and has developed the following MOT and construction plan.

**Phase I – Widening**

Prior to the start of construction, *we will maintain/install temporary preemption signal receivers to allow Emergency Response Vehicles (ERVs) unimpeded access to and from Augusta Health* through the project. By shifting the new bridge structure to the west, the majority of the Route 285 widening will be constructed offline from existing Route 285, thus allowing for better traffic flow.

In Phase I, MOT will consist of establishing the limits of work for this phase. Existing traffic will be maintained in its current configuration during the widening of Route 285 to the west of existing Route 285. AI-VA crews will work in all sections concurrently. Permanent traffic signals and



preemption signal receivers will be installed during this phase to accommodate ERVs in Phases II & III.

**Phase II – Reconstruction**

The Phase II MOT will consist of shifting traffic to the widened portion of Route 285, and onto the new bridge. Pedestrian traffic will be maintained on a temporary shared use path on both approaches to the bridge, and in its final location on the new bridge. Reconstruction of existing Route 285 will

occur in this phase, with AI-VA crews working in Sections A, B, D, and E. The demolition of the existing bridge (Section C) will occur in this phase.

**Phase III– Finishing**

Phase III will include median island construction, final surfacing, and final pavement markings and signage. Vehicular traffic will be managed and shifted temporarily during this phase to accommodate these final activities.

CONSTRUCTION SEQUENCE SUMMARY	
<b>Phase I</b>	
Traffic Impacts	Existing traffic will remain in its current configuration.
Construction	The new bridge will be fully constructed in one phase along the west side of the existing structure as well as construction of the new southbound Route 285 widening and all other plan features along the southbound lanes and associated ramp construction.
<b>Phase II</b>	
Traffic Impacts	Traffic will be shifted to the new bridge and new widening.
Construction	Reconstruction of existing lanes and remaining ramps will occur in this phase. The demolition of the existing bridge will occur in this phase.
<b>Phase III</b>	
Traffic Impacts	Traffic will remain on the newly constructed widening while final surfacing is completed on existing, then shifted temporarily to facilitate final surface course on the new widening.
Construction	Final median construction, surfacing, final striping and signage will occur in this phase.

**4.5.2 TRANSPORTATION MANAGEMENT PLAN**

Our Transportation Management Plan (TMP) has a number of key components. In developing design concepts, the AI Team evaluated the TMP for the Project and found that a three phase approach would be appropriate. This approach can be implemented as described below, maintaining eleven foot minimum lane widths and a one foot offset to temporary barrier service or traffic control devices for all roadways except I-64, which will require twelve foot minimum lanes with a two foot offset.

The preliminary TMP has considered the constructability of each phase and has broken the Project into logical work sequences providing adequate access and work zones for safe construction practices and effectively maintaining safe passage through the project area for all users of the roadway, motorists and pedestrians. Our plan will address and comply with the time-of-day and work hour restrictions as defined in the RFP.

The AI Team’s TMP phasing diagram is presented in Volume II. Following NTP, the AI Team will meet with VDOT’s Traffic Engineering Office, FHWA, and VDOT’s Project Manager to coordinate

the scope and approval/acceptance process for the TMP development and implementation. The AI Team will prepare a detailed TMP Type B Project (Category III) Plan in accordance with VDOT I&IM 241.5 and TED-351.2. The TMP will include all necessary traffic analyses required to demonstrate sufficient traffic operation during all phases of construction. The TMP will also include a detailed Public Communications Plan, described below, to be implemented during construction to ensure that safe and efficient operation of adjacent public transportation facilities and state highways is maintained throughout the construction phase.

During construction, weekly updates to the TMP will be provided to VDOT, the FHWA, and Augusta County to identify upcoming activities including lane closures and work areas.

**ASSESSMENT OF WORK ZONE (WZ) TRAFFIC IMPACT** – Traffic analysis and modeling supporting the AI Team’s proposed TMP will be provided following coordination with VDOT Traffic Engineering, the FHWA and Augusta County to determine the required level and limits of analysis. Our analysis will be developed using Quick Zone,



CORSIM or Synchro, depending on the level of analysis required.

**TEMPORARY TRAFFIC CONTROL PLAN (TTCP)** – Within the TMP, the TTCP will address each phase and sub-phase of construction. *Plans will include all necessary signage, traffic control devices and temporary signal designs, including preemption signal receivers to facilitate uninterrupted ERV movement.* Plans will address all forms of traffic through the project area, including motorists, pedestrians and ERVs.

Additionally, the TTCP will identify staging areas for each phase of construction and identify routes and time of day restrictions for the delivery of materials and equipment to the site to minimize the impact of construction traffic on the overall project area operations. Development of the TTCP will involve both the design team from RDA and AI-VA’s construction team. By involving the construction team, who will be implementing the plan in the field during the design phase, the AI Team’s approach ensures that the TTCP accurately depicts AI-VA’s procedures for performing the work. This approach has been successful on past projects and minimizes field adjustments and revisions to the TTCP.

Also, during the construction phase, the TTCP designers will participate in AI-VA’s regular construction progress meetings. This will allow for the identification of any changes to the TTCP necessary for the project’s upcoming activities and allows RDA the proper time to prepare TTCP revisions when necessary. The TTCP will address construction access to the site, as well as equipment and material movement within the site. The AI Team will develop the TTCP in coordination with VDOT; in conformance with the *Virginia Work Area Protection Manual (VWAPM)*; and with necessary typical sections, profiles, and special details. Route 285 sequencing establishes the sequencing of all other roadways. In order to provide a simpler and safer work zone, our unique design shifts the alignment away from the existing bridge in order to construct the new bridge over I-64 in a single phase. The remaining pieces will be constructed in subsequent phases. These are

generally described below and depicted in Volume II of this proposal.

All references to left side or right side are based on roadway stationing.

### PHASE I

**Route 285** – The left side of Route 285 will be constructed in five sections, substantially outside of traffic impact. All entrances and roadway connections will be maintained throughout construction. Each section of the project is discussed below.

- *Section A – southern terminus through Expo Road intersection*

In order to build this section of roadway, we anticipate some lane closures while maintaining a single lane in each direction and a left turn lane at the intersection with Expo Road. However, in order to make the final tie-in to existing, we may further utilize flagging operations. The full signal at Expo Road will be built for use in Phase II.

- *Section B – Expo Road intersection to the new bridge (including Ramp A)*

Section B will be substantially constructed outside of the existing roadway footprint with the exception of sawcut lines to dovetail the pavement construction. The full signal at the intersection with Ramp A/B will be built and functional for Phase II.

- *Section C – Proposed Bridge*

The proposed bridge will be constructed to include the MSE walls along I-64 west. Temporary shoring and a wire wall will be constructed between the new and existing structure for support of excavation.

- *Section D – from the new bridge to Goose Creek Road (including the intersection and Ramp C)*

Section D will be constructed in the same manner as Section B. The signal at the intersection with Ramp C/D will be implemented in phases. The west side poles and mast arms will be built and operational for Phase I. The remainder of the signal will be constructed and operational for Phase II.



- **Section E – from the intersection of Goose Creek Road to Midway Lane**

Section E will be constructed primarily outside of the existing roadway and with minor impacts to traffic. The existing pavement has ample width to provide for a single, eleven foot lane in each direction and a left turn lane during construction.

The left side drainage systems will be built and existing pipes and box culverts will be extended. The storm water management facility at Old Ladd Road will be built and utilized as a sediment basin during construction.

**Expo Road** – The left side of Expo Road will be constructed first while maintaining eleven foot minimum lane widths. Some lane closures with flagging operations are anticipated in order to build-up existing pavement and to tie to existing. Once the left side construction is complete, traffic will be shifted and the right side will be constructed. Access to all businesses (e.g. McDonalds) will be maintained at all times.

**Ramp A** – Ramp A will be phased construction similar to Expo Road. However, we will use some temporary widening along the right side in order to facilitate the construction of the left side. Traffic will then be shifted to the left and the right side will be constructed. No lane closures are anticipated and a minimum width of twelve feet will be maintained along the tangent portions of the ramp. A sixteen foot minimum will be maintained through the curve. Minor flagging operations for short term speed reductions are anticipated in order to provide pavement overlays/build-ups and tie-ins.

**Ramp C** – The left side of Ramp C will be built first while maintaining a minimum width of twelve feet along the tangent portion of the ramp and sixteen feet through the curve. Minor flagging operations for short term speed reductions are anticipated in order to provide pavement overlays/build-ups and tie-ins. Traffic will then be shifted on to the newly constructed widening and the right side of the ramp will be built. No lane closures are anticipated.

**Route 636 (Goose Creek Road – west)** – Goose Creek Road to the west of Route 285 has sufficient pavement width to maintain a single, eleven foot lane in each direction as well as a center turn lane. While maintaining this configuration, the right side of Route 636 will be built. Traffic will then be shifted and the left side will be built.

### PHASE II

**Route 285** – Traffic will be shifted onto the newly constructed roadway and bridge through all “sections” of the project. Access to all businesses, churches and roadway connections will be maintained at all times. Although additional pavement will be in place, a minimum of one, eleven foot lane in each direction with a left turn lane will be maintained. However, *to address ERVs we will provide shoulder width in each direction to facilitate vehicle pull off when ERVs are moving through the corridor.* This, in addition to the use of preemption signal receivers will allow the ERVs to move smoothly through the corridor. See typical insets on our TMP Exhibit for ERV scheme.

The existing bridge will be demolished in this phase and the remaining sections of the new MSE walls will be completed. The remainder of the drainage systems along the right side will be constructed to include pipe and box culvert extensions. Any median drainage will be covered and buried for final implementation during Phase III.

**Ramp B** – The right side of Ramp B will be constructed first while maintaining a minimum width of twelve feet along the tangent portion of the ramp and sixteen feet through the curve. Flagging operations for short term speed reductions are anticipated in order to provide pavement overlays and tie-ins. Traffic will be shifted to the right and the left side will be completed.

**Ramp D** – Ramp D will be constructed in the same manner as Ramp B. However, two lanes will be maintained at the intersection (left and thru/right). No lane closures are anticipated; however, flagging will be used as described above.



**Tinkling Springs Drive** – The entire roadway will be built while maintaining traffic on the existing roadway. Upon completion, the traffic will be shifted and the old road will be demolished.

**Route 640 (Goose Creek Road – east)** – Goose Creek Road (east) will require temporary pavement widening along the left in order to build the new, smoother profile on top of the existing profile. Once completed, traffic will be shifted left and the right side of the road will be built. Traffic will then be shifted right to build the remainder. A single lane in each direction will be maintained during most activities. However, in order to construct the widening and tie-ins, flagging will be used for short duration lane closures.

**PHASE III**

While maintaining a minimum of a single lane in each direction with left turn lanes, all medians will be constructed along with any median drainage systems and final paving will be performed.

**PUBLIC COMMUNICATIONS PLAN** – The Public Communication Plan developed with the TMP will be incorporated into the AI Team’s overall Public Involvement Plan, which is described in more detail below. *Through this plan, we will maintain multiple channels of communication with the traveling public, VDOT, Augusta County, Augusta Health Center fire and rescue, local residents, churches, businesses, and other stakeholders.* These open channels of communication will be used throughout the life of the project to disseminate project information, including TMP information such as lane closures and traffic pattern changes.

Advance notification of construction activities will be provided to the public to minimize and mitigate the disruption to travelers through the project area. We anticipate that the construction phases will introduce driver unfamiliarity particularly due to the high volume of truck traffic in this vicinity. We will address this as best as possible with proper signage and notification, as stated above, but it will require some exposure to the traffic pattern to complete the

education and to normalize traffic movement. As required, all steps to schedule significant construction events will be taken to use off-peak times for construction activities. Likewise, strict attention will be paid to construction activities being normalized during peak hours.

**TRANSPORTATION OPERATIONS PLAN** – The AI Team will coordinate with VDOT to develop protocols for the implementation of incident management. We will develop the necessary list of contacts for any emergency action required and will develop plans to address incident scenarios. Such plans will include the use of strategically placed variable message signs to assist motorists. These plans may include recommended alternative routes and procedures for emergency lane closures or hazard protection. Plans may also include recommended signal timing changes at affected intersections as well as possible turn movement restrictions by the installation of cones or drums to be placed as may be reflected in the plan.

**Incident Management** – To facilitate the clearing of any incidents, the AI Team will use Safety Service Patrol (SSP) services in accordance with the RFP. In addition to planning for incidents occurring within the immediate project limits, it is also appropriate to consider the effect of an incident outside the project boundary. The AI Team will develop protocols and procedures for various incidents that could affect travel patterns in and around the project area. AI-VA will have on hand: variable message sign boards, signs, and channelizing devices to immediately deploy for incident management. In addition, we will develop a Traffic Incident Management pocket guidebook that will include the contact information for emergency alert, including all critical personnel on the AI Team, Augusta County, and VDOT essential personnel, and emergency services contacts. This approach will allow AI-VA to be prepared for, and react quickly and appropriately to, any incident affecting travel through and around the Project.



The AI Team is committed to achieving a twelve percent (12%) DBE participation goal during design and construction of the I-64 Exit 91 Interchange Improvements Project. The following DBE participation plan outlines how the AI Team will achieve this goal during design and construction.

### **DBE SUBCONTRACTING PLAN**

AI-VA will be utilizing their standard DBE subcontracting plan for this project to ensure the goal of twelve percent (12%) is met. A summary of the plan is provided below, specifying the means of soliciting DBE firms during the pre-construction phase. Our SWaM/DBE Coordinator will be responsible for assisting our estimating department in the solicitation of DBE firms and the compliance to the DBE goals and standards set forth by the Commonwealth.

### **OVERVIEW**

For each project with contract-mandated DBE requirements, AI will:

- Identify a pool of DBE subcontractors/suppliers certified by the Owner/governing agency.
- Validate the qualifications and assess the expertise of certified DBE subcontractors/suppliers to verify that they are able to perform the scopes of work identified in the contract.
- Direct and assist certified and capable DBE subcontractors/suppliers to complete the AI subcontractor pre-qualification process if they are not already prequalified through previous projects with AI.
- Solicit price/scope quotes from certified and capable DBE subcontractors/ suppliers while determining AI pre-qualification status.
- Document the DBE solicitation process for Good Faith purposes, including all modes of communication such as phone, fax, email, visits and pre-bid solicitation meetings.
- The project's Lead Estimator, in cooperation with the SWaM/DBE Coordinator, is responsible for:
  - Ensuring DBE participation is solicited, recorded, and documented in accordance with AI Minority/DBE Compliance and Utilization Policy-defined procedures.

- Investigating all contract provisions to identify all requirements to satisfy Municipal, County, State or Federal obligations, including training and reporting.
- Reviewing all addenda and correspondence for impact or changes to DBE requirements.
- Ensuring AI's commitment to proactively utilizing certified DBEs and to using all reasonable efforts to meet or exceed mandated DBE requirements is upheld.

### **DBE MENTORING**

AI has mentored DBE firms on numerous occasions, including Blue Lake Crane, C. Jones Trucking, and Court One Corporation (a Virginia Business). We coach these firms on topics like training, safety, and equipment fleet management. We also ensure weekly paycheck disbursements and job site mechanical service assistance. AI has helped DBE firms broaden their prequalification scope and status in the past, and will continue these efforts in the future.

- AI personnel, including Estimators, Project Managers, and Purchasing, have conducted several mentoring sessions with Court One Corporation (COC)'s president, project managers, estimators, and other key players to maximize efficiency in their areas of expertise and introduce them to new scopes of work that AI might otherwise self-perform. We have taken scopes of work similar to COC's typical ROW and Pedestrian Fence scopes, such as Bridge Railing, mentored them on crew make-up and production, and introduced them to new material suppliers. We have conducted detailed post-bid reviews on projects where COC's pricing was not as competitive as other Offerors,' to help make them more competitive in the future. In addition, AI has worked with COC to begin expanding into complex scopes of work, like the installation of timber bridge decking and soundwall construction, in an effort to increase COC's capabilities and allow them to be a more competitive and efficient subcontractor across multiple disciplines of highway construction.



## DBE SOLICITATION

The AI Estimating Team solicits price/scope quotes from certified and capable DBE subcontractors/suppliers while determining jurisdictional pre-qualification status. Certified and capable DBE subcontractors/suppliers will be identified through searching DBE Directory web sites, attending project pre-bid meeting, and mass advertisements. The following elements will be included in the solicitation, or in any advertisement placed as a general solicitation to DBEs:

- A description of the work for which the bid is being solicited.
- The date, time and location where bids are to be submitted.
- How to respond to the solicitation.
- The name of the Lead Estimator, SWaM/DBE Coordinator or other individual from within AI who will be available to answer questions about the project.
- The location where bid documents may be reviewed.
- Any special requirements.

## GENERAL GUIDELINES

- Solicit, through all reasonable and available means (e.g.; attendance at pre-bid meetings, advertising and/or written notices), the interest of all certified DBEs who have the capability to perform the work of the contract. The Estimating Team must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The AI Estimating Team procedure includes submission of solicitations at least two weeks prior to the bid opening, and determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.
- Proper documentation is completed to ensure all DBEs are solicited via telephone calls. This includes, but is not limited to, follow up calls to DBEs who do not respond to the initial solicitation to ensure receipt and elicit reasons for not responding to earlier solicitations (i.e.;

not interested, bidding other projects, already have sufficient work, etc.). If calls are not answered during normal business hours, call again during off-business hours in an attempt to make contact.

- Select portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when AI might otherwise prefer to perform these work items with their own forces. Document why the solicited areas of work were chosen and why un-solicited areas of work were not chosen.
- Provide interested DBEs with adequate information about the plans, specifications and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- Negotiate in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractor and suppliers and to select those portions of work or material needs consistent with the available DBE subcontractor and suppliers, so as to facilitate DBE participation. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration.
- Do not reject DBEs for being unqualified without sound reasons, based on a thorough investigation of their capabilities. Document any DBEs solicited who were found to be unqualified and list the reasons they have been found to be unqualified.
- Make efforts to mentor interested DBEs in obtaining equipment, supplies, materials, bonding, lines of credit, or insurance as required by the State in which you are working.
- Actively participate with federal, state and local efforts in the recruiting and training of DBEs.





The AI Team is committed to achieving a twelve percent (12%) DBE participation goal during design and construction of the I-64 Exit 91 Interchange Improvements Project. The following DBE participation plan outlines how the AI Team will achieve this goal during design and construction.

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- The date, time and location where bids are to be submitted.
- How to respond to the solicitation.
- The name of the Lead Estimator, SWaM/DBE Coordinator or other individual from within AI who will be available to answer questions about the project.
- The location where bid documents may be reviewed.
- Any special requirements.

## GENERAL GUIDELINES

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- Proper documentation is completed to ensure all DBEs are solicited via telephone calls. This includes, but is not limited to, follow up calls to DBEs who do not respond to the initial solicitation to ensure receipt and elicit reasons for not responding to earlier solicitations (i.e.;

not interested, bidding other projects, already have sufficient work, etc.). If calls are not answered during normal business hours, call again during off-business hours in an attempt to make contact.

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- Provide interested DBEs with adequate information about the plans, specifications and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- Negotiate in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractor and suppliers and to select those portions of work or material needs consistent with the available DBE subcontractor and suppliers, so as to facilitate DBE participation. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration.
- Do not reject DBEs for being unqualified without sound reasons, based on a thorough investigation of their capabilities. Document any DBEs solicited who were found to be unqualified and list the reasons they have been found to be unqualified.
- Make efforts to mentor interested DBEs in obtaining equipment, supplies, materials, bonding, lines of credit, or insurance as required by the State in which you are working.
- Actively participate with federal, state and local efforts in the recruiting and training of DBEs.

Appendix 3.6—Acknowledgement of  
RFP, Revisions and/or Addenda

**ATTACHMENT 3.6****COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

RFQ NO. C00075877DB47  
PROJECT NO.: 0064-007-111, P101, RW201, C501, B627

**ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA**

Acknowledgement shall be made of receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Letter of Submittal submission date shown herein. Failure to include this acknowledgement in the Letter of Submittal may result in the rejection of your proposal.

By signing this Attachment 3.6, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of March 28, 2012 - RFP  
(Date)
2. Cover letter of June 1, 2012 - RFP Addendum #1  
(Date)
3. Cover letter of June 21, 2012 – RFP Addendum #2  
(Date)

  
SIGNATURE

6-29-12  
DATE

Appendix 4.1.5—Attachment 9.3.1  
Proposal Payment Agreement

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**ATTACHMENT 9.3.1**  
**PROPOSAL PAYMENT AGREEMENT**

**THIS PROPOSAL PAYMENT AGREEMENT** (this "Agreement") is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the Virginia Department of Transportation ("VDOT"), and \_\_\_\_\_ ("Offeror").

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's **November 3, 2011** Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-64 Exit 91 Interchange Improvements, Project No. 0064-007-111, P101, R201, C501, B627** ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

**WHEREAS**, as part of the procurement process for the Project, Offeror has already provided and/or furnished to VDOT, and may continue to provide and/or furnish to VDOT, certain intellectual property, materials, information and ideas, including, but not limited to, such matters that are: (a) conveyed verbally and in writing during proprietary meetings or interviews; and (b) contained in, related to or associated with Offeror's proposal, including, but not limited to, written correspondence, designs, drawings, plans, exhibits, photographs, reports, printed material, tapes, electronic disks, or other graphic and visual aids (collectively "Offeror's Intellectual Property"); and

**WHEREAS**, VDOT is willing to provide a payment to Offeror, subject to the express conditions stated in this Agreement, to obtain certain rights in Offeror's Intellectual Property, provided that Offeror submits a proposal that VDOT determines to be responsive to the RFP ("Offeror's Proposal"), and either (a) Offeror is not awarded the Design-Build Contract; or (b) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror; and

**WHEREAS**, Offeror wishes to receive the payment offered by VDOT, in exchange for granting VDOT the rights set forth in this Agreement.

**NOW, THEREFORE**, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

1. **VDOT's Rights in Offeror's Intellectual Property.** Offeror hereby conveys to VDOT all rights, title and interest, free and clear of all liens, claims and encumbrances, in Offeror's Intellectual Property, which includes, without restriction or limitation, the right of VDOT, and anyone contracting with VDOT, to incorporate any ideas or information from Offeror's Intellectual Property into: (a) the Design-Build Contract and the Project; (b) any other contract awarded in reference to the Project; or (c) any subsequent procurement by VDOT. In receiving all rights, title and interest in Offeror's Intellectual Property, VDOT is deemed to own all intellectual property rights, copyrights, patents, trade secrets, trademarks, and service marks in Offeror's Intellectual Property, and Offeror agrees that it shall, at the request of VDOT, execute all papers and perform all other acts that may be necessary to ensure that VDOT's rights, title and interest in Offeror's Intellectual Property are protected. The rights conferred herein to VDOT include, without limitation, VDOT's ability to use Offeror's Intellectual Property without the obligation to notify or seek permission from Offeror.

2. **Exclusions from Offeror's Intellectual Property.** Notwithstanding Section 1 above, it is understood and agreed that Offeror's Intellectual Property is not intended to include, and Offeror does not convey any rights to, the Escrow Proposal Documents submitted by Offeror in accordance with the RFP.

3. **Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **Thirty Thousand and 00/100 Dollars (\$30,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

4. **Payment Due Date.** Subject to the conditions set forth in this Agreement, VDOT will make payment of the Proposal Payment to the Offeror within forty-five (45) days after the later of: (a) notice from VDOT that it has awarded the Design-Build Contract to another Offeror; or (b) notice from VDOT that the procurement for the Project has been cancelled and that there will be no Contract Award.

5. **Effective Date of this Agreement.** The rights and obligations of VDOT and Offeror under this Agreement, including VDOT's ownership rights in Offeror's Intellectual Property, vests upon the date that Offeror's Proposal is submitted to VDOT. Notwithstanding the above, if Offeror's Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.

6. **Indemnity.** Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity ("Claims") of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or wilful misconduct of Offeror or any of its agents, officers, employees, representatives or subcontractors; or (b) breach of any of Offeror's obligations under this Agreement, including its representation and warranty under Section 8 hereof. This indemnity shall not apply with respect to any Claims caused by or resulting from the sole negligence or wilful misconduct of VDOT, or its agents, directors, officers, employees, representatives or contractors.

7. **Assignment.** Offeror shall not assign this Agreement, without VDOT's prior written consent, which consent may be given or withheld in VDOT's sole discretion. Any assignment of this Agreement without such consent shall be null and void.

8. **Authority to Enter into this Agreement.** By executing this Agreement, Offeror specifically represents and warrants that it has the authority to convey to VDOT all rights, title, and interest in Offeror's Intellectual Property, including, but not limited to, those any rights that might have been vested in team members, subcontractors, consultants or anyone else who may have contributed to the development of Offeror's Intellectual Property, free and clear of all liens, claims and encumbrances.

9. **Miscellaneous.**

a. Offeror and VDOT agree that Offeror, its team members, and their respective employees are not agents of VDOT as a result of this Agreement.

b. Any capitalized term used herein but not otherwise defined shall have the meanings set forth in the RFP.

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto.

d. It is understood and agreed by the parties hereto that if any part, term, or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the Commonwealth of Virginia, validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.

e. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

**IN WITNESS WHEREOF**, this Agreement has been executed and delivered as of the day and year first above written.

VIRGINIA DEPARTMENT OF TRANSPORTATION

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

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

Title: \_\_\_\_\_

*[Insert Offeror's Name]*  
By:  \_\_\_\_\_

Name: Aaron Myers \_\_\_\_\_

Title: Vice President/General Manager





#### 4.6 PROPOSAL SCHEDULE DEVELOPMENT

The American Infrastructure – VA (AI) Team has thoroughly evaluated the Project RFP documents, performed site visits of the existing interchange, attended pre-proposal meetings, and performed internal brainstorming sessions to fully assess the associated design, right-of-way impacts, utility relocations, construction, and environmental challenges. While performing these activities, we paid special attention to the VDOT stated schedule milestones included in Section 2.4.1, specifically final completion of the Project by August 31, 2015. This narrative explains how the AI Team plans to maximize the benefits of the Design-Build delivery method to mitigate risks of future uncertainties, manage the environmental requirements, minimize impacts to the travelling public, and deliver of the Project ahead of VDOT’s anticipated schedule. The proposal schedule in its entirety can be found in Exhibit 4.6.b.

#### WORK BREAKDOWN STRUCTURE & ACTIVITY CODING

The baseline plan integrates all design disciplines into a Work Breakdown Structure (WBS) that addresses the milestones of the I-64 Exit 91 Interchange Improvements Project. This WBS, found in Exhibit 4.6.a, reflects the AI Team’s approach to dividing the project into manageable groups such as: Work Package, Area, Sub-Areas, Phasing, and Responsibility.

#### MOT APPROACH & PHASING

The AI Team’s approach for five construction areas will allow for better control and management of the Project. The AI Team believes that construction of the Project can advance more efficiently and ultimately finish sooner by performing work in each of the five construction areas with a three-phase MOT plan. Additionally, within these five sections AI-VA will utilize multiple crews within each discipline to expedite the work progress. Using Activity Coding in Primavera, AI has also divided the project into seven major phases, described below. As is typical with the Design-Build delivery method, some of the preconstruction phases will overlap with the construction phases to shorten the overall duration of the project.

**00 – Entire Project:** This phase of the schedule captures Contract Milestones and Intermediate Milestones valued by the AI Team and general management activities for the project. This section is important to the schedule because it provides snapshot indicators of the current status of the project.

**P1 – Preconstruction – Design:** This phase of the schedule captures activities associated with Design, and Enabling Work. These tasks must take place for construction to proceed. The Design activities have been grouped into Work Packages which mirror the expected Design Packages that will be submitted for VDOT’s approval. Although the goal of the “over-the-shoulder” review process is to minimize review cycles, for most design packages AI included two review cycles in the schedule. Thorough coordination with reviewing parties may allow the second cycle to be eliminated or review time to be reduced, which would shorten the duration of the design phase. Also included in the Design Phase is the coordination with Private Utility and Infrastructure companies such as Dominion, Columbia Gas, Comcast Cable, Verizon, and ACSA.

**P2 – Preconstruction – Submittals:** This section of the schedule captures activities associated with Contract Submittals and Construction Working Drawings. AI paid special attention to which submittals would need to be approved by VDOT or RDA as the review times are different for each.

**P3 – Preconstruction – Procurement:** To maximize the efficiency of the Design-Build delivery method, AI will be performing procurement activities in packages that correlate to the design packages. As each plan set is released for construction, AI-VA will procure all vendors (materials and subcontractors) needed to complete that work. This section of the schedule also captures activities associated fabrication and delivery times for materials that historically have long lead times. AI will work closely with its vendors to manage and minimize these lead times.



**C1 – Construction Phase 1:** The primary focus of the first phase of construction will be to build the improvements to the proposed southbound lanes on Rte. 285, Expo Road, Ramp A, Ramp C, and Goose Creek Road (west of Rte. 285). This includes construction of the new bridge over I-64 (B-627) in its entirety. The first Phase of Construction also includes project-wide activities that must be completed prior to commencement of the core construction activities, such as installation of construction signs, Erosion and Sediment Control measures and initial traffic control needed for Phase 1 Construction. In addition, most of the required Preparatory meetings that will be needed for the project in accordance with the QA/QC Program are anticipated to be completed in the first phase.

AI's intent is that the southbound lanes of Rte. 285 will be able to be constructed with little impact to the existing traffic patterns. AI will develop its operation plan for Expo Road, Ramps (A & C) and Goose Creek Road to create sub-phases that will maintain traffic flow on the Ramps to I-64, to the Expo Center, and to the Augusta Health Center. AI will also coordinate the operations on Expo Road with the event schedule for the Expo Center so as to minimize impacts to event traffic.

Upon completion of construction of the proposed southbound Rte. 285, B-627, Expo Road, Ramp A, Ramp C and Goose Creek Road, AI will reconfigure the signalization on the project, install temporary striping and switch two-way traffic from the existing Rte. 285 to the future southbound Rte. 285 lanes. Traffic will then utilize the new lanes and new bridge during Construction Phase 2.

**C2 – Construction Phase 2:** During Phase 2 Construction, AI-VA will be widening the roadway on Rte. 285 in the northbound direction. As previously mentioned, Maintenance of Traffic will be designed to provide two lanes for traffic in each direction on the future southbound lanes that were constructed during Phase 1 Construction. Phase 2 Construction will also include improvements to Ramp B, Ramp D, and Goose Creek Road (east of Rte. 285).

As with the first phase of construction, AI's intent is

that the northbound lanes of Rte. 285 will be able to be constructed with almost no impact to the travelling public since the traffic will now be utilizing the roadway and bridge constructed in the first phase. In this phase, AI will again develop its operation plan for the Ramps (B & D) and Goose Creek Road to create sub-phases that will maintain traffic flow on the Ramps to I-64 and on Goose Creek Road east of Rte. 285.

Upon completion of construction of the proposed northbound Rte. 285, Ramp B, Ramp D and Goose Creek Road, AI will reconfigure the signalization on the project, install temporary striping and switch traffic. For the Phase 2 traffic switch, AI will only be moving the northbound traffic from the proposed southbound lanes to the outside lane of the newly constructed northbound Rte. 285. This will provide a traffic pattern that has the travelling public in the outside lanes in both directions and will allow AI to utilize the center lanes to construct the concrete median on Rte. 285 and B-627 during Phase 3.

**C3 – Construction Phase 3:** During Phase 3 Construction, AI will be constructing the center median on Rte. 285 and B-627. In addition, AI will complete all project finishes such as surface pavement, permanent signs, permanent striping, and final signal configuration. For the construction of the center median, AI will utilize the inside lanes in both directions as a work zone while the public utilizes the outside lanes for travel. AI will need to utilize daily lane closures to install the final surface asphalt and pavement markings.

#### **AREAS**

AI has utilized the Schedule Work Breakdown Structure (WBS) to divide the project into five work areas, described below. The entire WBS can be found in Exhibit 4.6.a.

**SA – Section A:** This area includes all work from the south terminus of the project to and including the Expo Road Intersection on Rte. 285.

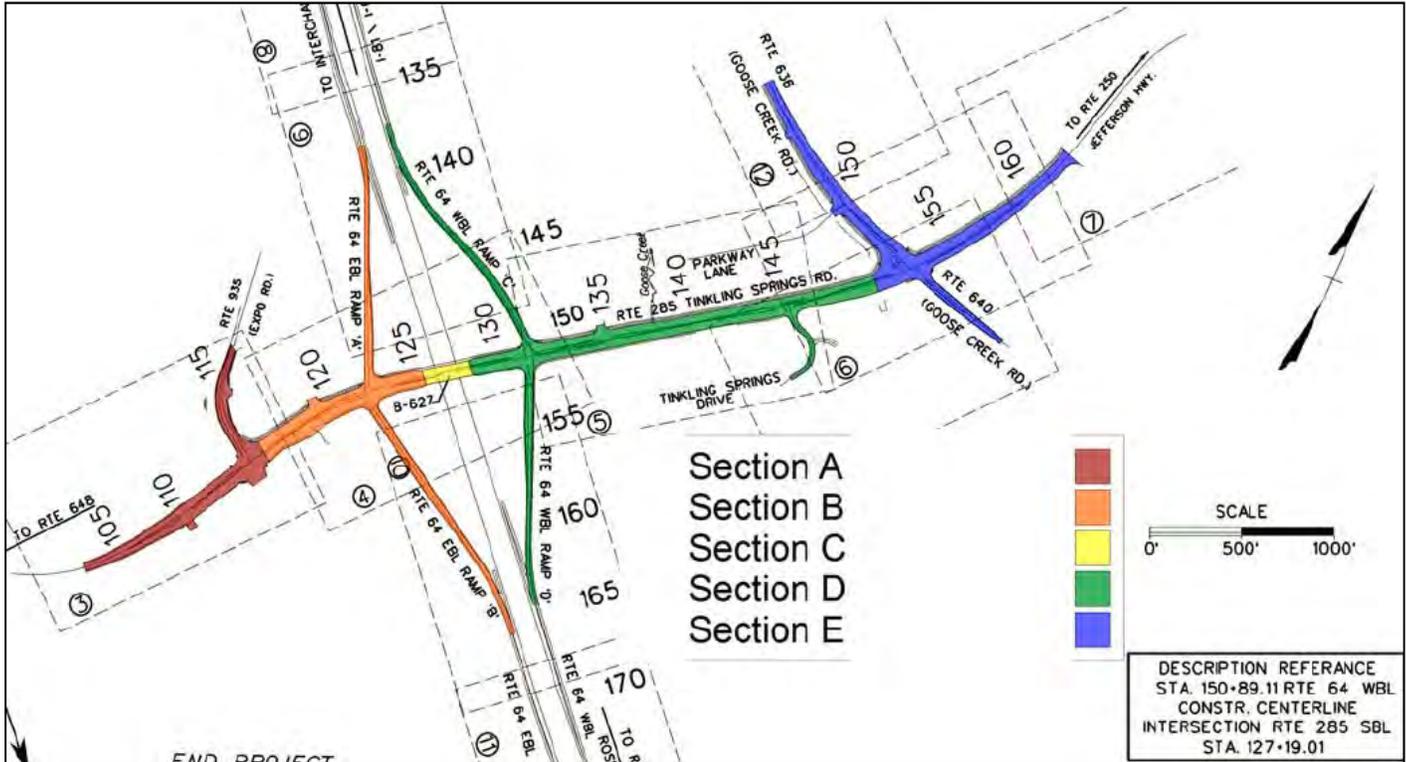
**SB – Section B:** This area includes all work on Rte. 285 from the Expo Road intersection to Bridge B627, including Ramp A and Ramp B.

**SC – Section C:** This area includes all work associated with Bridge B627 including demolition, substructure and superstructure operations.

**SD – Section D:** This area includes all work on Rte. 285 from Bridge B627 to the intersection of

Goose Creek Road, including Ramp C and Ramp D.

**SE – Section E:** This area includes all work on Rte. 285 from and including the Goose Creek Intersection to the north terminus of the project.



**CALENDARS:**

Based on past experiences with construction scheduling, the AI Team has utilized three calendars for the purposes of the Proposal Schedule. All calendars take State Holidays and AI Employee Holidays into account. Upon award of the contract, these calendars would be further tailored to the specific restrictions of each traffic area per the contract documents and any operation-specific considerations.

**BASE 5-DAY CALENDAR WITH HOLIDAYS**

This calendar is a base calendar showing work taking place five days per week every week except where restricted by standard State Holidays and AI Employee Holidays. AI’s durations during the construction phases are based on getting five days of production per week. If weather impacts the schedule Monday through Friday, Saturdays would

be utilized to recover the lost weather days.

**7-DAY REVIEW/CURE**

This calendar allows work to take place every day of the year. However, it has only been applied to activities such as submittal reviews and concrete curing periods where the durations are primarily based on calendar days instead of working days.

**NIGHT WORK**

This Night work calendar is based on the 5-day calendar with Holidays but simply represents that the activity will most likely be restricted to be performed during night hours.

**PROPOSAL SCHEDULE SOURCE DOCUMENTS:**

Included in the Technical Proposal submission (Copy 1) is a CD associated specifically with Appendix 4.6. This CD contains a PDF of the Schedule Narrative, including all Exhibits and a



backup file (.XER) of the Schedule. The schedule was created using Primavera v6.2.1. Also provided are the layout files correlating to the Exhibits which can be imported into Primavera for review purposes. The scheduling settings used in Primavera along with a list of Acronym Definitions used in the schedule are provided in Exhibit 4.6.c.

#### **PROPOSAL SCHEDULE DEVELOPMENT AND APPROACH:**

The success of a project is measured by a number of different factors. One very important factor is the efficiency and speed in which the work can be done – our Project Schedule. We schedule our work by taking into account certain possibilities in hopes that they do not become eventualities. Our schedule narrative that follows is a discussion of the design and construction process, the key elements to maintaining our schedule and a breakdown of the schedule components. In preparing for and developing this detailed proposal, a significant amount of work has already been performed. The level of detail that we have analyzed and developed the design to is not only necessary to position ourselves to win but also to jump start our schedule once NTP is provided.

The AI Team has taken into account the requirements of the Article 6 of the General Conditions of Contract (Part 4) when developing the WBS list of activities. The AI team will provide correlation between the WBS and the project costs with our submission of the Price Proposal by matching the Schedule of Values and Proposed Monthly Payment Schedule to the WBS. Upon award, a cost and resource loaded project schedule will be provided by the AI Team within the timeframe required in the RFP and will be maintained by our Scheduling Manager.

The AI Team evaluated various contributing factors for each area of the project. Focused attention was applied in the areas of public impact, environmental protection, and schedule acceleration. By breaking the project into Areas, as previously described, the schedule of each area could be assessed in terms of traffic management, environmental concerns, and operation flow. Many Areas of the project have sub-areas and sub-phasing that are a direct result of

these assessments. The ultimate goal is to have consistent work flow without delays through the project.

#### **DESIGN OVERVIEW:**

Although the official kickoff to our schedule is NTP, our team understands the importance of hitting the ground running. Therefore, we intend to utilize the time between Notice of Intent to Award and NTP to advance those elements of work that can be advanced and to establish all of our controls in executing the work according to our schedule. To control schedule during the design phase, the AI Team plans to expedite the design of the Project into sub packages: 1) Right-of-Way; 2) Utility Field Inspection Plans; 3) Erosion and Sediment Control Phase 1 Plans; 4) Grading and Drainage; 5) In-plan Utilities; 6) Transportation Management Plan and MOT Plans; 7) Bridge TS&L Plan; 8) Complete Bridge Design Plans. However, for efficiency and acceleration of schedule, we may develop the bridge design as a substructure package and a superstructure package. Furthermore, packages such as Grading and Drainage and TMP may break down into packages that mirror our Area designations.

The design will be developed in a systematic and logical manner. Design-Build projects succeed by designing in a layering approach. Typically, the first layer after supplemental surveys and utility designations/locations will be an approved E&S plan to allow MOT and demolition operations to begin. Perimeter controls will be designed to function throughout all phases of construction where feasible. In order to realistically accommodate this approach, the SWM design will need to be substantially addressed. In several areas of this project, the E&S operations cannot proceed without appropriate MOT Controls. MOT design will require sufficient detail to establish proper controls. Since the project overlays existing roadways, MOT will need to be approved prior to implementation of the E&S or G&D plan at those locations. The second layer will be Grading and Drainage (G&D) design. This will be our detailed design up to finished grade including pavement design.



Simultaneously, we will develop our in-plan utility relocations design. These designs will continually integrate updated information from other disciplines/designs but will be developed as a separate package to facilitate review and construction once approved. The Design-Build team plans to proactively coordinate with the local municipalities during the Design process to prevent delay or impacts.

Also building upon the G&D design will be the Signals, Signing and Marking plan. Although construction of these elements cannot be completed until the final pavement section design is established, having them completed and approved removes any concerns or potential schedule conflicts associated with these elements. In addition, these elements tend to have longer lead times for submittals and fabrication. Early approval of this package will allow other preconstruction tasks to commence such that construction can take place as soon as the final pavement section design is approved.

A parallel and integrated, yet independent set of documents is the bridge design (B627). The bridge will be developed in two packages: TS&L and final design. The Design-Build team may have an acceleration opportunity if the foundation design can be submitted as a separate package after the TS&L plans are approved. This would allow AI's field forces to begin construction of the foundation widening prior to the entire package being completed. By developing the plans from the ground up rather than from the top down, construction can begin prior to the final approval of the superstructure plan. Conventional design would develop the plans in reverse thereby forcing construction to wait for final approval of all elements before beginning.

### **COST & SCHEDULE SAVING DESIGN**

The AI Team has completed our analysis and has determined the most economical designs in schedule, construction cost, and long-term maintenance cost. The new Route 285 bridge over I-64 will consist of prestressed concrete girder spans. For the Route 285 bridge, the AI Team evaluated the options defined in the RFP and

determined that prestressed concrete was the most cost effective and feasible option, and would most effectively reduce long-term maintenance costs for VDOT. The bridge will be constructed using VDOT standard Bulb-T beams to meet RFP requirements. The alignment of the bridge has been shifted slightly to allow for single-phase bridge construction, shortening the schedule and improving the durability of the structure.

**Right-of-Way:** Given the uncertain nature of right-of-way negotiations, we have allotted time in our schedule to absorb some of this risk.

**Environmental Compliance:** As design progresses and the final impacts to environmental resources are realized, coordination with external agencies for review, approval and permitting will be finalized. We believe there are opportunities in our design to minimize the impacts that have been identified thereby making the approval/permitting process easier and more palatable.

**Hazardous Materials Services:** The potential exists for encountering hazardous materials during demolition of structures. As described in the RFP, the Potential Environmental Hazards associated with this project includes the presence of asbestos. There may also be lead-based paint on the existing steel bridge girders.

**Utilities:** Utilities along the project are characterized as in-plan and private. In-plan utilities include water and sewer adjustments or relocations. As these services are prepared and constructed by our Team, we generally control their impact on our schedule. However, private utilities are under no obligation to expedite. Fortunately, we have excellent relationships with the utility companies affected by this Project and anticipate a cooperative attitude. In the proposal schedule we have separated critical relocations, including Verizon, Lumos, Comcast, Dominion Power, and the Shenandoah Valley Electrical Cooperative, into individual activities. Since the relocation should not require information from the final design, the Design-Build team plans to meet with the affected utilities to begin relocation coordination very early in the project – as close to NTP as possible



### CONSTRUCTION:

The Construction Team will work closely with the Design Team to monitor progress of Right-of-Way Acquisitions and Design Approvals. Regular Coordination meetings will allow the Construction Team to proactively monitor which project areas will become available first.

In general, the Team intends to focus on preconstruction activities necessary to access and begin the construction of the bridge foundations and fabrication of superstructure elements. A major aspect of the design will be to provide a Maintenance of Traffic plan that will allow for single-phase bridge construction. This will reduce the overall project duration and greatly minimize impacts to the travelling public. For the Construction Team, this will mean that detailed operations planning can focus on increasing efficiencies of the road and bridge construction with the advantage of the designed project phasing. The Team will also be evaluating the sub-phasing of the Ramps and roads adjacent to Rte. 285. Traffic must be maintained on these roads during construction so the Team will develop plans that will maximize efficiency in construction and minimize safety hazards to the travelling public.

Another focus for the Construction Team will be the demolition operations of the existing bridge. This operations present many risks such as worker safety, public safety, and schedule risk. AI-VA will maximize its planning and quality control efforts to optimize these operations in all phases.

Finally, the Construction Team will be evaluating concrete pour schedules and cure times to maximize the utilization of resources and acceleration opportunities. For the purposes of the Proposal Schedule, cure times are clearly shown as separate activities in the CPM.

### CRITICAL ACTIVITIES AND POTENTIAL CONSTRAINTS:

A schedule layout showing only near critical activities is provided in Exhibit 4.6.d. Near critical activities were defined as having less than twenty days float. The critical path starts with the survey

verification and right-of-way acquisition activities. This is followed by the Bridge Design which affects bridge related shop drawings and the fabrication of B-627 girders. A parallel path that has a low float is the road construction in Phase 1. AI plans to allocate crews to the bridge and roadway work concurrently. Once traffic is switched to Phase 2, AI's focus will be roadway reconstruction in the northbound direction and demolition of the existing bridge. The major goal will be to complete base and intermediate paving prior to Winter 2014/15. This will allow AI to focus on non-weather dependent project finishes such as signing, signalization and punchout over the winter. Once adequate temperatures can be achieved in Spring 2015, AI will finish out the project with surface paving and final striping.

The greatest schedule risk and unknown will be right-of-way acquisitions and utility relocations, primarily because both of these activities require coordination with third-parties. The Team plans to use its previous design-build experience to mitigate these risks.

### SCHEDULE MANAGEMENT

The project schedule will be utilized not only for management of the project sequencing and duration, but also as a key tool in Team Development and Coordination. The visual representation of the project will provide a method for key stakeholders to initiate "make certain" checklists to identify key tasks to be done by accountable parties. Similarly, the schedule will provide a long-term look ahead to plan for design workshops, over-the-shoulder reviews and design-build coordination meetings. These meetings will contribute to timely constructability reviews and intermediate feedback from VDOT through over-the-shoulder review meetings. The AI Team will also hold formal partnering meetings on a quarterly basis for issue resolution, follow-up, and look-ahead reviews of upcoming work and potential "rocks-in-the-road", allowing the Team ample time to develop a mitigation plan, if needed. Further, AI's construction team will be able to streamline the development of operation based work packages from the project schedule. These work packages



will include short-term scheduling, QA/QC coordination and any methods of addressing all remaining constraints. As our standard schedule management process, the Project Schedule will be the driving force behind all long-term and short-term planning to provide the opportunity to recognize and mitigate risks as early as possible in the project.

**SCHEDULE ACCELERATION / COST SAVING ELEMENT**

The AI Team has spent extensive time reviewing

the VDOT-provided information associated with this Project. Our review of the materials suggests that there are some areas where, through additional study and design efforts, potential positive schedule and cost saving recommendations may be realized. At a minimum, we will consider: Permitting, Environmental Mitigation, constructability, and long-term maintenance; the AI Team will proactively attack the work to complete the project ahead of schedule.

## EXHIBIT 4.6.A Work Breakdown Structure

WBS Code	WBS Name	Start	Finish	Total Activities
C00075877DB47	VDOT I-64 Exit 91 Fishersville (AI #1127071)	18-Oct-12	24-May-15	384
C00075877DB47.G0	Entire Project	18-Oct-12	24-May-15	198
C00075877DB47.G0.0	Milestones	18-Oct-12	24-May-15	9
C00075877DB47.G0.6	MOT/Traffic Switches	29-Apr-13	30-Mar-15	13
C00075877DB47.G0.7	Project Wide Activities	12-Jun-13	21-Jan-14	8
C00075877DB47.G0.1	Design	18-Oct-12	01-Oct-13	63
C00075877DB47.G0.2	Preconstruction Activities	18-Oct-12	09-Apr-14	54
C00075877DB47.G0.3	Project Support	18-Oct-12	24-May-15	43
C00075877DB47.G0.4	Project Finishes	07-Jan-15	25-Mar-15	5
C00075877DB47.G0.5	Project Closeout	24-Feb-15	24-May-15	3
C00075877DB47.SA	Section A - South Terminus to Expo Road Intx	01-Apr-14	02-Oct-14	27
C00075877DB47.SA.1	Below Subgrade	01-Apr-14	11-Sep-14	9
C00075877DB47.SA.2	Above Subgrade	23-Jul-14	02-Oct-14	18
C00075877DB47.SB	Section B - Expo Road to B-627	21-Mar-14	20-Oct-14	29
C00075877DB47.SB.1	Below Subgrade	21-Mar-14	24-Sep-14	12
C00075877DB47.SB.2	Above Subgrade	01-Jul-14	20-Oct-14	17
C00075877DB47.SC	Section C - Bridge B-627 over I-64	30-Aug-13	11-Nov-14	54
C00075877DB47.SC.1	Substructure	30-Aug-13	31-Oct-14	27
C00075877DB47.SC.2	Superstructure	10-Jan-14	07-Jul-14	21
C00075877DB47.SC.0	Demolition of Existing	26-Aug-14	11-Nov-14	6
C00075877DB47.SD	Section D - B-627 to Goose Creek Road	07-Feb-14	19-Dec-14	40
C00075877DB47.SD.1	Below Subgrade	07-Feb-14	31-Oct-14	15
C00075877DB47.SD.2	Above Subgrade	30-May-14	19-Dec-14	25
C00075877DB47.SE	Section E - Goose Creek Intx to North Terminus	22-Jan-14	24-Dec-14	36
C00075877DB47.SE.1	Below Subgrade	22-Jan-14	25-Nov-14	12
C00075877DB47.SE.2	Above Subgrade	05-Feb-14	24-Dec-14	24



**EXHIBIT 4.6.B**  
**Proposal Schedule**

Activity ID	Activity Name	Original Duration	Total Float	Start	Finish	Calendar	2013												2014												2015											
							N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
<b>VDOT I-64 Exit 91 Fishersville (AI #1127071)</b>							24-M																																			
<b>1127071 - Phase: Entire Project</b>							24-M																																			
<b>WBS: Entire Project</b>							24-M																																			
<b>WBS: Milestones</b>							24-M																																			
G000NTP	Notice to Proceed	0	0	18-Oct-12		1127071 - 7-day Review/Cure	Notice to Proceed																																			
G000030	Begin Bridge B627 Construction	0	131	20-Jun-13		1127071 - 7-day Review/Cure	◆ Begin Bridge B627 Construction																																			
G000010	Construction Start	0	15	02-Oct-13		1127071 - 7-day Review/Cure	◆ Construction Start																																			
G000399	Substantial Completion of Bridge B627 Completion	0	24		07-Jul-14	1127071 - 7-day Review/Cure	◆ Substantial Completion of Bridge B627 Completion																																			
G000599	Project Substantial Completion (RFP = 31-AUG-2015)	0	0		25-Mar-15	1127071 - 7-day Review/Cure	◆ Project Substantial Completion (RFP = 31-AUG-2015)																																			
G000999	Project Final Completion (RFP = 31-AUG-2015)	0	0		24-May-15	1127071 - 7-day Review/Cure	◆ Project Final Completion (RFP = 31-AUG-2015)																																			
<b>WBS: Preconstruction Activities</b>							29-May-13, WBS: Preconstruction Activities																																			
G020010	Mobilization Payment 1	30	188	18-Oct-12	30-Nov-12	1127071 - Base 5-day with Holidays	■ Mobilization Payment 1																																			
G020030	Scope Validation Period	120	98	18-Oct-12	16-Apr-13	1127071 - Base 5-day with Holidays	■ Scope Validation Period																																			
G020020	Mobilization Payment 2	30	188	03-Dec-12	21-Jan-13	1127071 - Base 5-day with Holidays	■ Mobilization Payment 2																																			
G020040	Scope Validation Negotiations	30	98	17-Apr-13	29-May-13	1127071 - Base 5-day with Holidays	■ Scope Validation Negotiations																																			
G020050	Scope Validation Agreement Reached	0	98		29-May-13	1127071 - Base 5-day with Holidays	◆ Scope Validation Agreement Reached																																			
<b>WBS: Project Support</b>							24-M																																			
G030010	General Conditions: Survey through Substantial Completion	889	0	18-Oct-12	25-Mar-15	1127071 - 7-day Review/Cure	■ General Conditions: Survey through Substantial Completion																																			
G030020	General Conditions: Project Management through Final Completion	949	0	18-Oct-12	24-May-15	1127071 - 7-day Review/Cure	■ General Conditions: Project Management through Final Completion																																			
G030030	General Conditions: QA/QC through Final Completion	949	0	18-Oct-12	24-May-15	1127071 - 7-day Review/Cure	■ General Conditions: QA/QC through Final Completion																																			
G030460	Set Up Project Offices	20	228	18-Oct-12	14-Nov-12	1127071 - Base 5-day with Holidays	■ Set Up Project Offices																																			
G030470	Mobilization	10	11	02-Oct-13	15-Oct-13	1127071 - Base 5-day with Holidays	■ Mobilization																																			
<b>WBS: Project Closeout</b>							24-M																																			
G050010	Punchlist/Cleanup for Substantial Completion	30	0	24-Feb-15	25-Mar-15	1127071 - 7-day Review/Cure	■ Punchlist/Cleanup for Substantial Completion																																			
G050020	Final Punchlist/Demobilization	60	0	26-Mar-15	24-May-15	1127071 - 7-day Review/Cure	■ Final Punchlist/Demobilization																																			
G050030	Closeout Documentation	60	0	26-Mar-15	24-May-15	1127071 - 7-day Review/Cure	■ Closeout Documentation																																			
<b>1127071 - Phase: Preconstruction - Design</b>							01-Oct-13, 1127071 - Phase: Preconstruction - Design																																			
<b>WBS: Entire Project</b>							01-Oct-13, WBS: Entire Project																																			
<b>WBS: Design</b>							01-Oct-13, WBS: Design																																			
G010010	Design Start	0	28	18-Oct-12		1127071 - Base 5-day with Holidays	▶ Design Start																																			
G010030	Send Survey Notification Letters	10	0	18-Oct-12	31-Oct-12	1127071 - Base 5-day with Holidays	■ Send Survey Notification Letters																																			
G010080	Property/ROW Research	10	28	18-Oct-12	31-Oct-12	1127071 - Base 5-day with Holidays	■ Property/ROW Research																																			
G010020	Recover Survey Control	3	0	01-Nov-12	05-Nov-12	1127071 - Base 5-day with Holidays	■ Recover Survey Control																																			
G010150	Prepare Soil Boring Plan	10	21	01-Nov-12	14-Nov-12	1127071 - Base 5-day with Holidays	■ Prepare Soil Boring Plan																																			
G010040	Supplemental Field survey	5	0	06-Nov-12	12-Nov-12	1127071 - Base 5-day with Holidays	■ Supplemental Field survey																																			
G010050	Supplemental Utility Designation/Location	5	0	13-Nov-12	19-Nov-12	1127071 - Base 5-day with Holidays	■ Supplemental Utility Designation/Location																																			
G010160	Perform Soil Borings	15	21	15-Nov-12	07-Dec-12	1127071 - Base 5-day with Holidays	■ Perform Soil Borings																																			
G010060	Topo Verification (SWM Basin, Roadway Tie-ins)	5	0	20-Nov-12	28-Nov-12	1127071 - Base 5-day with Holidays	■ Topo Verification (SWM Basin, Roadway Tie-ins)																																			
G010070	Computer Work and DTM Preparation	10	0	29-Nov-12	12-Dec-12	1127071 - Base 5-day with Holidays	■ Computer Work and DTM Preparation																																			
G010170	Lab Work	10	21	10-Dec-12	21-Dec-12	1127071 - Base 5-day with Holidays	■ Lab Work																																			
G010090	Prepare Right of Way Acquisition Plan	20	0	13-Dec-12	17-Jan-13	1127071 - Base 5-day with Holidays	■ Prepare Right of Way Acquisition Plan																																			
G010140	VSMP Permit Registration	20	57	13-Dec-12	17-Jan-13	1127071 - Base 5-day with Holidays	■ VSMP Permit Registration																																			
G010310	Prepare TMP & Design Maintenance of Traffic Plans	20	57	13-Dec-12	17-Jan-13	1127071 - Base 5-day with Holidays	■ Prepare TMP & Design Maintenance of Traffic Plans																																			
G010360	Prepare B627 TS&L and Demo/Erection Plans	20	28	13-Dec-12	17-Jan-13	1127071 - Base 5-day with Holidays	■ Prepare B627 TS&L and Demo/Erection Plans																																			
G010390	Verify/Review RFP Design	20	57	13-Dec-12	17-Jan-13	1127071 - Base 5-day with Holidays	■ Verify/Review RFP Design																																			





















## EXHIBIT 4.6.C Schedule Settings & Acronyms

### Scheduling/Leveling Settings:

#### General

Scheduling .....	Yes
Leveling .....	No
Ignore relationships to and from other projects .....	Yes
Make open-ended activities critical .....	Yes
Use Expected Finish Dates .....	No
Schedule automatically when a change affects dates .....	No
Level resources during scheduling .....	No
Recalculate assignment costs after scheduling .....	No
When scheduling progressed activities use .....	Retained Logic
Calculate start-to-start lag from .....	Early Start
Define critical activities as Total Float less than or equal to..	0
Compute Total Float As .....	Finish Float
Calculate float based on finish date of .....	Each project
Calendar for scheduling Relationship Lag .....	Predecessor Activity

#### Calendar

#### Advanced

Calculate multiple float paths.....	No
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### Acronyms:

SFA	Submit for Approval
R/A	Review and Approve
A/C	Additions and Corrections
E&S	Erosion and Sediment Control
ACSA	Augusta County Service Authority
RDA	Designer
MOT	Maintenance of Traffic
F/R/P	Form/Reinforce/Pour
SB	Southbound
NB	Northbound
TMP	Traffic Management Plan



**EXHIBIT 4.6.D**  
**Near Critical Activities**



Activity ID	Activity Name	Original Duration	Total Float	Start	Finish	Calendar	2013												2014												2015											
							J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M							
<b>1127071 - Phase: Preconstruction - Procurement</b>							▼ 18-Jul-13, 1127071 - Phase: Preconstruction - Procurement																																			
<b>WBS: Entire Project</b>							▼ 18-Jul-13, WBS: Entire Project																																			
<b>WBS: Preconstruction Activities</b>							▼ 18-Jul-13, WBS: Preconstruction Activities:																																			
G020620	Procure Bridge B627 Material Vendors	20	19	20-Jun-13	18-Jul-13	1127071 - Base 5-day with Holidays	■ Procure Bridge B627 Material Vendors																																			
<b>1127071 - Phase: Construction - Phase 1</b>							▶ 27-Jan-15																																			
<b>WBS: Entire Project</b>							▶ 27-Jan-15																																			
<b>WBS: Milestones</b>							▼ 20-Aug-14, WBS: Milestone																																			
G000220	Phase 1 Construction Complete	0	11	20-Aug-14	20-Aug-14	1127071 - Base 5-day with Holidays	◆ Phase 1 Construction Complete																																			
<b>WBS: MOT/Traffic Switches</b>							▼ 25-Aug-14, WBS: MOT/Traffic Switches																																			
G060100	Remove/Replace Temporary Striping for Phase 2	2	11	21-Aug-14	22-Aug-14	1127071 - Night Work	Remove/Replace Temporary Striping for Phase 2																																			
G060110	Reconfigure Temporary Signals for Phase 2	2	11	21-Aug-14	22-Aug-14	1127071 - Night Work	Reconfigure Temporary Signals for Phase 2																																			
G060130	Switch Traffic for Phase 2	1	11	25-Aug-14	25-Aug-14	1127071 - Night Work	Switch Traffic for Phase 2																																			
<b>WBS: Project Wide Activities</b>							▶ 21-Jan-14, WBS: Project Wide Activities																																			
G070020	Install Ph. 1 E&S Controls	10	11	16-Oct-13	29-Oct-13	1127071 - Base 5-day with Holidays	■ Install Ph. 1 E&S Controls																																			
G070010	Excavate & Grade SWM Basin	15	11	30-Oct-13	19-Nov-13	1127071 - Base 5-day with Holidays	■ Excavate & Grade SWM Basin																																			
G070030	Install Ph. 1 E&S Storm Drainage	5	11	01-Nov-13	07-Nov-13	1127071 - Base 5-day with Holidays	■ Install Ph. 1 E&S Storm Drainage																																			
G070080	Install/Relocate Water & Sanitary Improvements	45	11	08-Nov-13	21-Jan-14	1127071 - Base 5-day with Holidays	■ Install/Relocate Water & Sanitary Improvements																																			
<b>WBS: Project Support</b>							▶ 27-Jan-15																																			
G030040	Preparatory Meeting - Erosion & Sedimentation Control	1	11	01-Oct-13	01-Oct-13	1127071 - Base 5-day with Holidays	Preparatory Meeting - Erosion & Sedimentation Control																																			
G030050	Preparatory Meeting - Clear & Grub	1	11	01-Oct-13	01-Oct-13	1127071 - Base 5-day with Holidays	Preparatory Meeting - Clear & Grub																																			
G030090	Preparatory Meeting - Stabilization & Embankment	1	11	15-Oct-13	15-Oct-13	1127071 - Base 5-day with Holidays	Preparatory Meeting - Stabilization & Embankment																																			
G030080	Preparatory Meeting - Storm Drainage	1	11	17-Oct-13	17-Oct-13	1127071 - Base 5-day with Holidays	Preparatory Meeting - Storm Drainage																																			
G030160	Preparatory Meeting - Girder Erection	1	19	09-Jan-14	09-Jan-14	1127071 - Base 5-day with Holidays	Preparatory Meeting - Girder Erection																																			
G030150	Preparatory Meeting - Bridge Deck	1	19	12-Feb-14	12-Feb-14	1127071 - Base 5-day with Holidays	Preparatory Meeting - Bridge Deck																																			
G030110	Preparatory Meeting - Signalization	1	11	27-Jan-15	27-Jan-15	1127071 - Base 5-day with Holidays	Preparatory Meeting - Signalization																																			
<b>WBS: Section A - South Terminus to Expo Road Intx</b>							▼ 20-Aug-14, WBS: Section A																																			
<b>WBS: Below Subgrade</b>							▼ 22-Jul-14, WBS: Below Subgrade																																			
SA10040	Fine Grade Subgrade - Rte 285(A) SB	3	11	15-Jul-14	17-Jul-14	1127071 - Base 5-day with Holidays	Fine Grade Subgrade - Rte 285(A) SB																																			
SA10090	Fine Grade Subgrade - Expo Rd	3	11	18-Jul-14	22-Jul-14	1127071 - Base 5-day with Holidays	Fine Grade Subgrade - Expo Rd																																			
<b>WBS: Above Subgrade</b>							▼ 20-Aug-14, WBS: Above Subgrade																																			
SA20020	Install Stone & Grade for Curb - Rte 285(A) SB	5	11	23-Jul-14	29-Jul-14	1127071 - Base 5-day with Holidays	Install Stone & Grade for Curb - Rte 285(A) SB																																			
SA20030	Install Curb & Sidewalk - Rte 285(A) SB	4	16	30-Jul-14	04-Aug-14	1127071 - Base 5-day with Holidays	Install Curb & Sidewalk - Rte 285(A) SB																																			
SA20170	Install Stone & Grade for Curb - Expo Rd	5	11	30-Jul-14	05-Aug-14	1127071 - Base 5-day with Holidays	Install Stone & Grade for Curb - Expo Rd																																			
SA20040	Backfill Curb & Grade Green Areas - Rte 285(A) SB	2	16	05-Aug-14	06-Aug-14	1127071 - Base 5-day with Holidays	Backfill Curb & Grade Green Areas - Rte 285(A) SB																																			
SA20180	Install Curb & Sidewalk - Expo Rd	4	11	06-Aug-14	11-Aug-14	1127071 - Base 5-day with Holidays	Install Curb & Sidewalk - Expo Rd																																			
SA20050	Install Base & Intermediate Asphalt - Rte 285(A) SB	2	17	07-Aug-14	08-Aug-14	1127071 - Paving	Install Base & Intermediate Asphalt - Rte 285(A) SB																																			
SA20070	Install Lighting and Electrical - Rte 285(A) SB	5	16	07-Aug-14	13-Aug-14	1127071 - Base 5-day with Holidays	Install Lighting and Electrical - Rte 285(A) SB																																			
SA20060	Install Guardrail - Rte 285(A) SB	2	17	11-Aug-14	12-Aug-14	1127071 - Base 5-day with Holidays	Install Guardrail - Rte 285(A) SB																																			
SA20190	Backfill Curb & Grade Green Areas - Expo Rd	2	11	12-Aug-14	13-Aug-14	1127071 - Base 5-day with Holidays	Backfill Curb & Grade Green Areas - Expo Rd																																			
SA20200	Install Base & Intermediate Asphalt - Expo Rd	2	12	14-Aug-14	15-Aug-14	1127071 - Paving	Install Base & Intermediate Asphalt - Expo Rd																																			
SA20220	Install Lighting and Electrical - Expo Rd	5	11	14-Aug-14	20-Aug-14	1127071 - Base 5-day with Holidays	Install Lighting and Electrical - Expo Rd																																			
SA20210	Install Guardrail - Expo Rd	2	12	18-Aug-14	19-Aug-14	1127071 - Base 5-day with Holidays	Install Guardrail - Expo Rd																																			
<b>WBS: Section B - Expo Road to B-627</b>							▶ 11-Aug-14, WBS: Section B																																			
<b>WBS: Below Subgrade</b>							▼ 30-Jun-14, WBS: Below Subgrade																																			
SB10090	Fine Grade Subgrade - Rte 285(B) SB	2	11	24-Jun-14	25-Jun-14	1127071 - Base 5-day with Holidays	Fine Grade Subgrade - Rte 285(B) SB																																			







Appendix 1.1.8—Administrative  
Requirements

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA

EXPIRES ON  
12-31-2013

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER  
0405000502

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
PROFESSIONAL CORPORATION REGISTRATION

PROFESSIONS: ENG, LS

RINKER DESIGN ASSOCIATES PC  
9300 WEST COURTHOUSE RD  
STE 300  
MANASSAS, VA 22110



*Gordon N. Dixon*  
Gordon N. Dixon, Director

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA

EXPIRES ON

02-28-2014

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER

0410000220

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
PROFESSIONAL CORPORATION BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

RINKER DESIGN ASSOCIATES PC  
301 CONCOURSE BLVD, STE 120  
GLEN ALLEN, VA 23059



*Gordon N. Dixon*  
Gordon N. Dixon, Director

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA

EXPIRES ON

06-30-2014

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER

0402023296

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
PROFESSIONAL ENGINEER LICENSE

DARELL LEE FISCHER  
14101 SPRING GATE TERRACE  
MIDLOTHIAN, VA 23112



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Gordon N. Dixon, Director

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(POCKET CARD)

COMMONWEALTH OF VIRGINIA

BOARD FOR APPELSCIDLA  
PROFESSIONAL ENGINEER LICENSE  
NUMBER: 0402023296 EXPIRES: 06-30-2014

DARELL LEE FISCHER  
14101 SPRING GATE TERRACE  
MIDLOTHIAN, VA 23112



(fold)

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DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
9960 Mayland Dr., Suite 400, Richmond, VA 23233

**DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA**

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

EXPIRES ON  
02-28-2014

NUMBER  
0411000681

**BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS**  
**BUSINESS ENTITY BRANCH OFFICE REGISTRATION**

**PROFESSIONS: LS, ENG**

**AECOM TECHNICAL SERVICES INC  
1315 FRANKLIN ROAD, SW  
ROANOKE, VA 24016**



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Gordon N. Dixon, Director

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BOARD FOR APELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000681 EXPIRES: 02-28-2014  
PROFESSIONS: LS, ENG  
AECOM TECHNICAL SERVICES INC  
1315 FRANKLIN ROAD, SW  
ROANOKE, VA 24016



DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
9960 Mayland Dr., Suite 400, Richmond, VA 23233

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA

EXPIRES ON

06-30-2014

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER

0402036861

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
PROFESSIONAL ENGINEER LICENSE

NATHAN MATTHEW PORTER  
14143 RIVERDOWNS N TERRACE  
MIDLOTHIAN, VA 23113



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Gordon N. Dixon, Director

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COMMONWEALTH OF VIRGINIA

EXPIRES ON  
02-28-2014

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Telephone: (804) 367-8500

NUMBER  
0411000678

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG, LS

NXL CONSTRUCTION CO INC  
NXL CONSTRUCTION SERVICES INC.  
2870-C SOUTH MAIN ST.  
HARRISONBURG, VA 22801



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Gordon N. Dixon, Director

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BOARD FOR APELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000678 EXPIRES: 02-28-2014  
PROFESSIONS: ENG, LS  
NXL CONSTRUCTION CO INC NXL CONSTRUCTION  
SERVICES INC.  
2870-C SOUTH MAIN ST.  
HARRISONBURG, VA 22801



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COMMONWEALTH OF VIRGINIA**

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02-28-2014

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0402039327

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
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BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
PROFESSIONAL ENGINEER LICENSE

JOSEPH ROY HAMED  
110 WENN DRIVE  
CHRISTIANSBURG, VA 24073



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Gordon N. Dixon, Director

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EXPIRES ON  
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NUMBER  
0411000052

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

FROEHLING & ROBERTSON, INC  
6181 ROCKFISH GAP TURNPIKE  
CROZET, VA 22932



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Gordon N. Dixon, Director

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BOARD FOR APELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000052 EXPIRES: 02-28-2014  
PROFESSIONS: ENG  
FROEHLING & ROBERTSON, INC  
6181 ROCKFISH GAP TURNPIKE  
CROZET, VA 22932



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COMMONWEALTH OF VIRGINIA

02-28-2014  
EXPIRES ON

0411000698  
NUMBER

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

SCHNABEL ENGINEERING CONSULTANTS, INC  
480 FOUR SEASONS DRIVE  
CHARLOTTESVILLE, VA 22901



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(POCKET CARD) COMMONWEALTH OF VIRGINIA  
BOARD FOR APPELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000698 EXPIRES: 02-28-2014  
PROFESSIONS: ENG  
SCHNABEL ENGINEERING CONSULTANTS, INC  
480 FOUR SEASONS DRIVE  
CHARLOTTESVILLE, VA 22901



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COMMONWEALTH OF VIRGINIA

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02-28-2014

NUMBER  
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PROFESSIONS: ENG

SCHNABEL OPERATIONS,LLC  
SCHNABEL ENGINEERING LLC  
480 FOUR SEASONS DRIVE  
CHARLOTTESVILLE, VA 22901



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Gordon N. Dixon, Director

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BOARD FOR APPELSCIDLA  
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PROFESSIONS: ENG  
SCHNABEL OPERATIONS,LLC SCHNABEL ENGINEERING  
LLC  
480 FOUR SEASONS DRIVE  
CHARLOTTESVILLE, VA 22901



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NUMBER

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BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

SCHNABEL OPERATIONS, LLC  
SCHNABEL ENGINEERING, LLC  
1 WEST CARY STREET  
RICHMOND, VA 23220



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Gordon N. Dixon, Director

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COMMONWEALTH OF VIRGINIA

BOARD FOR AP/ELSC/DLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000322 EXPIRES: 02-28-2014  
PROFESSIONS: ENG  
SCHNABEL OPERATIONS, LLC SCHNABEL ENGINEERING, LLC  
1 WEST CARY STREET  
RICHMOND, VA 23220



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COMMONWEALTH OF VIRGINIA

EXPIRES ON  
02-28-2014

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER  
0411000700

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

SCHNABEL ENGINEERING CONSULTANTS, INC  
ONE CARY STREET  
RICHMOND, VA 23220



*Gordon N. Dixon*  
Gordon N. Dixon, Director

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COMMONWEALTH OF VIRGINIA  
BOARD FOR AP/ELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000700 EXPIRES: 02-28-2014  
PROFESSIONS: ENG  
SCHNABEL ENGINEERING CONSULTANTS, INC  
ONE CARY STREET  
RICHMOND, VA 23220



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DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
COMMONWEALTH OF VIRGINIA

EXPIRES ON  
02-28-2014

9960 Mayland Dr., Suite 400, Richmond, VA 23233  
Telephone: (804) 367-8500

NUMBER  
0411000696

BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS, CERTIFIED INTERIOR DESIGNERS  
AND LANDSCAPE ARCHITECTS  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION

PROFESSIONS: ENG

SCHNABEL DAM ENGINEERING, INC  
ONE WEST CARY STREET  
RICHMOND, VA 23220



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Gordon N. Dixon, Director

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BOARD FOR APPELSCIDLA  
BUSINESS ENTITY BRANCH OFFICE REGISTRATION  
NUMBER: 0411000696 EXPIRES: 02-28-2014  
PROFESSIONS: ENG  
SCHNABEL DAM ENGINEERING, INC  
ONE WEST CARY STREET  
RICHMOND, VA 23220



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DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION  
9960 Mayland Dr., Suite 400, Richmond, VA 23233



A DESIGN-BUILD PROJECT

# I-64 Exit 91

## Interchange Improvements

From: 0.429 Miles West of Route 285  
To: 0.438 Miles East of Route 285  
Augusta County, Virginia



June 29, 2012

VOLUME II: TECHNICAL PROPOSAL

submitted to



State Project No.: 0064-007-111, P101, R-201, C-501, B-627  
Federal Project No.: NH-064-2(152)  
Contract ID Number: C00075877DB47

prepared by



**American Infrastructure**

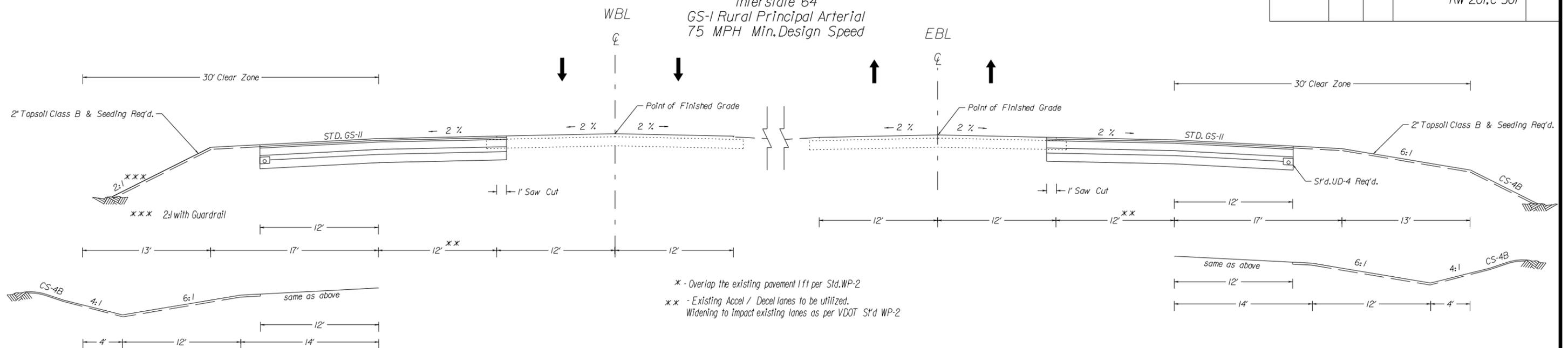
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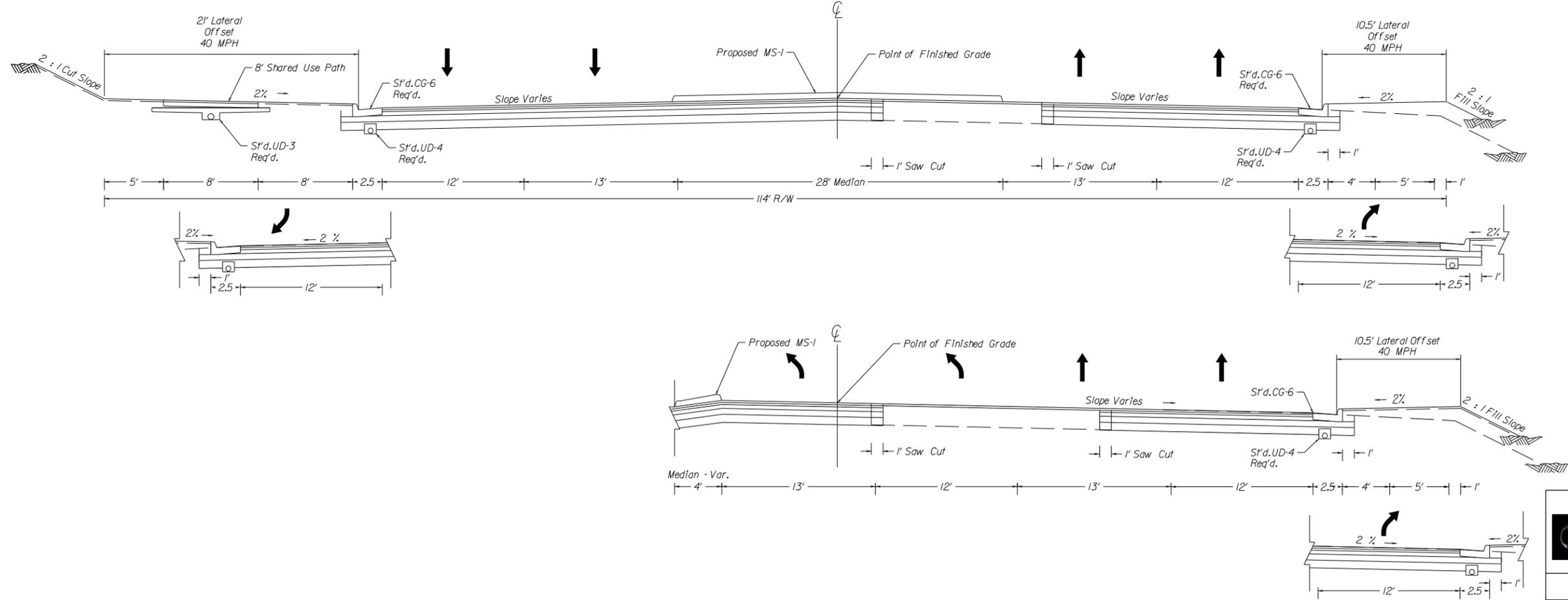
# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	1

Interstate 64  
 GS-1 Rural Principal Arterial  
 75 MPH Min. Design Speed



Route 285  
 Tinkling Springs Road  
 GS-6 Urban Minor Arterial  
 40 MPH Min. Design Speed



Not to Scale

The AI Team Concept Plan

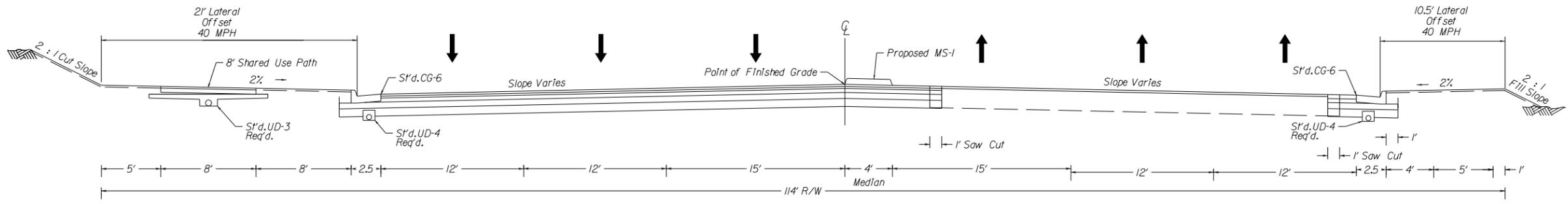
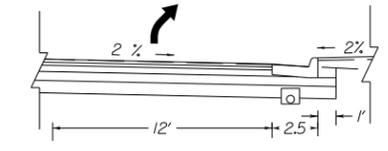
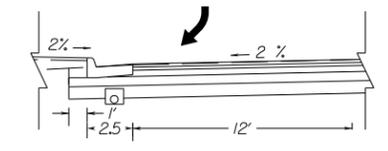
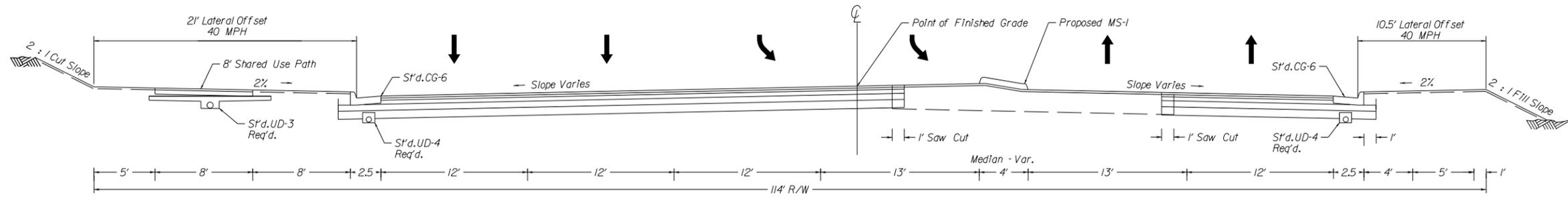
Typical Section Sheet 1

Page	32
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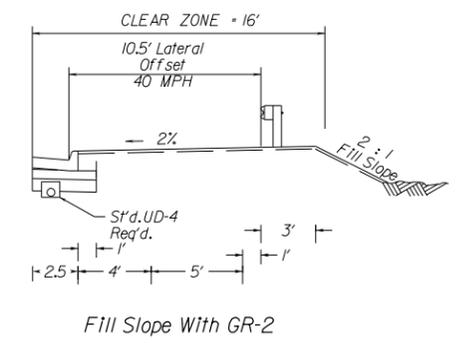
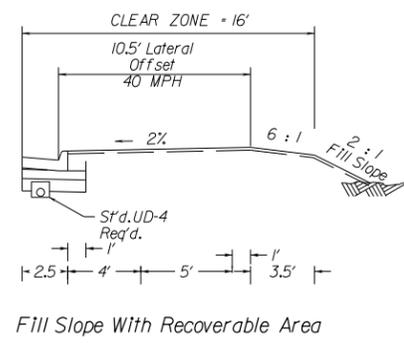
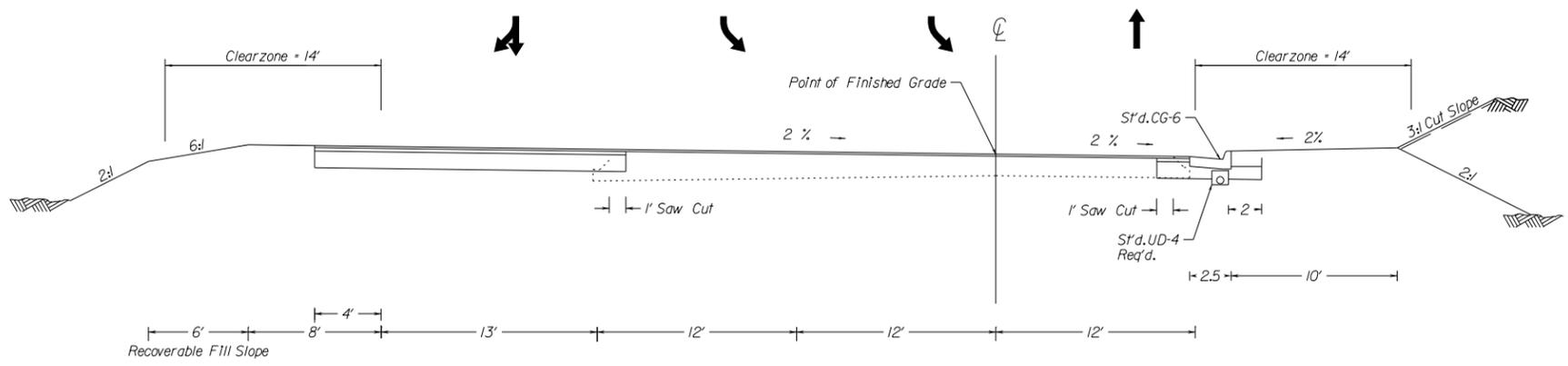
# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	2

Route 285  
Tinkling Springs Road  
GS-6 Urban Minor Arterial  
40 MPH Min. Design Speed



Route 935 Expo Rd.  
GS-8 Urban Local - 35 MPH Min. Design Speed






The AI Team Concept Plan  
Typical Section Sheet 2

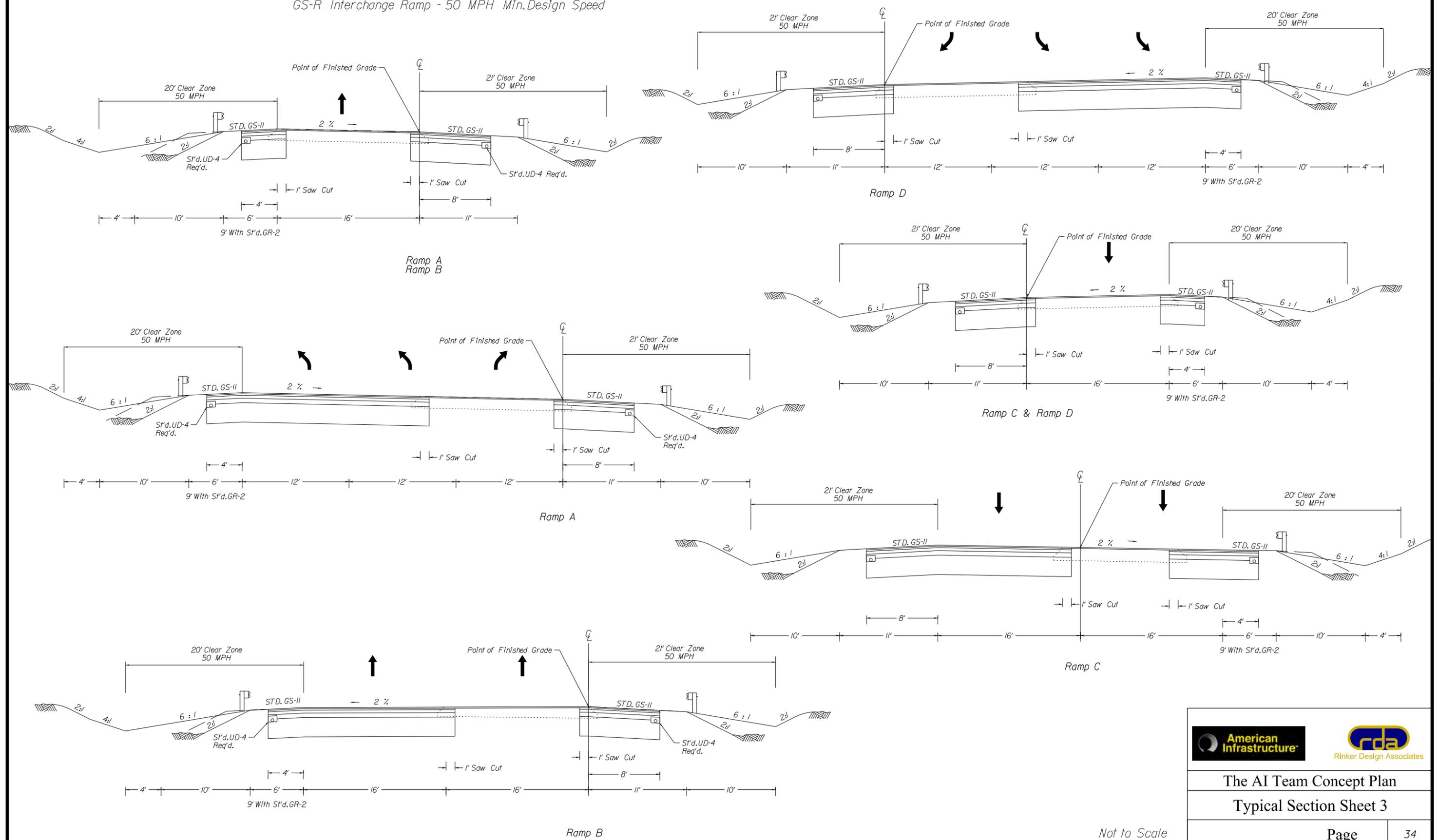
Not to Scale
Page 33

# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	3

Interstate 64 Ramps A and B  
GS-R Interchange Ramp - 50 MPH Min. Design Speed

Interstate 64 Ramps C and D  
GS-R Interchange Ramp - 50 MPH Min. Design Speed



Not to Scale

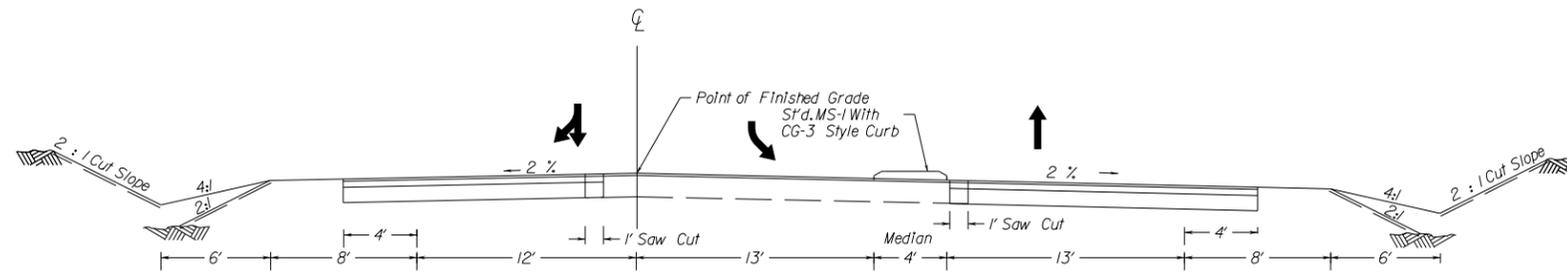


The AI Team Concept Plan  
Typical Section Sheet 3

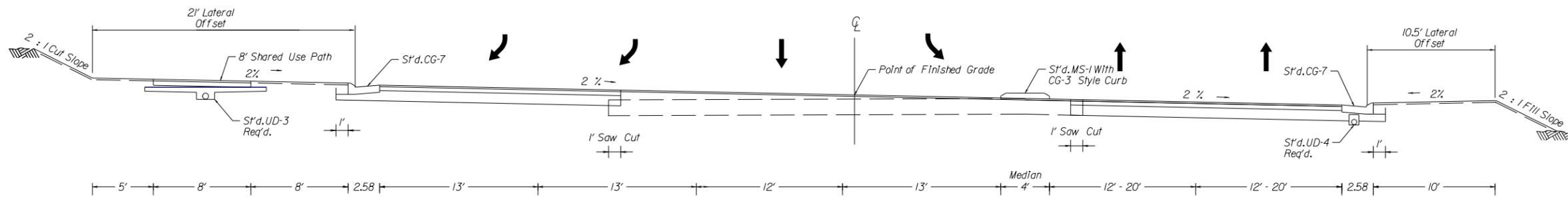
# TYPICAL SECTIONS

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	4

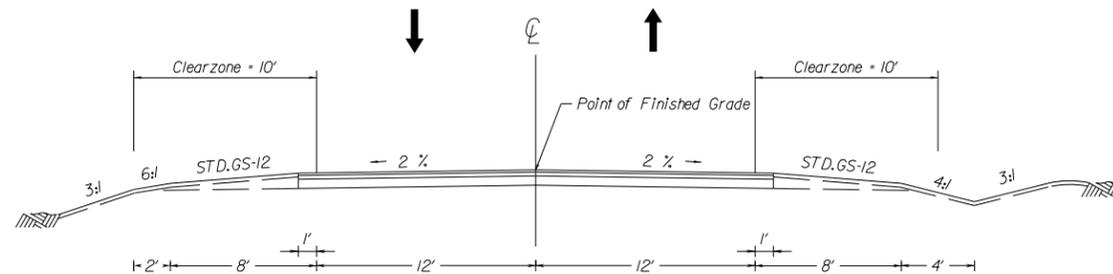
Route 640 - Goose Creek Road  
GS-7 Urban Collector - 50 MPH Min.Design Speed



Route 636 - Goose Creek Road  
GS-7 Urban Collector - 50 MPH Min.Design Speed



Tinkling Spring Dr.  
GS-8 Urban Local - 20 MPH Min.Design Speed



Not to Scale



The AI Team Concept Plan

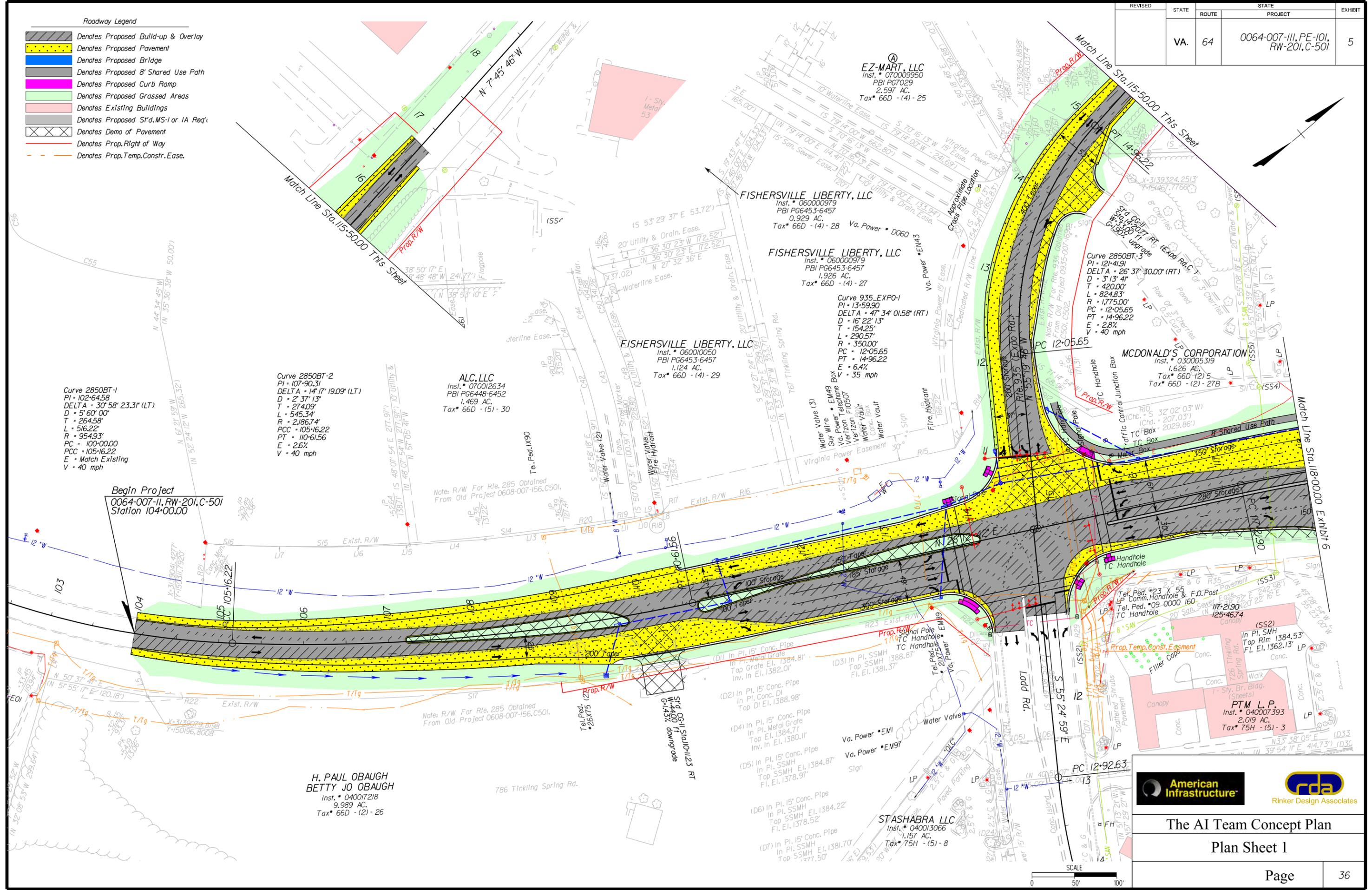
Typical Section Sheet 4

Page

35

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	5

- Roadway Legend**
- Denotes Proposed Build-up & Overlay
  - Denotes Proposed Pavement
  - Denotes Proposed Bridge
  - Denotes Proposed 8' Shared Use Path
  - Denotes Proposed Curb Ramp
  - Denotes Proposed Grassed Areas
  - Denotes Existing Buildings
  - Denotes Proposed St'd. MS-I or IA Req'd
  - Denotes Demo of Pavement
  - Denotes Prop. Right of Way
  - Denotes Prop. Temp. Constr. Easement



**American Infrastructure**

**rda**  
 Rinker Design Associates

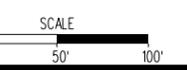
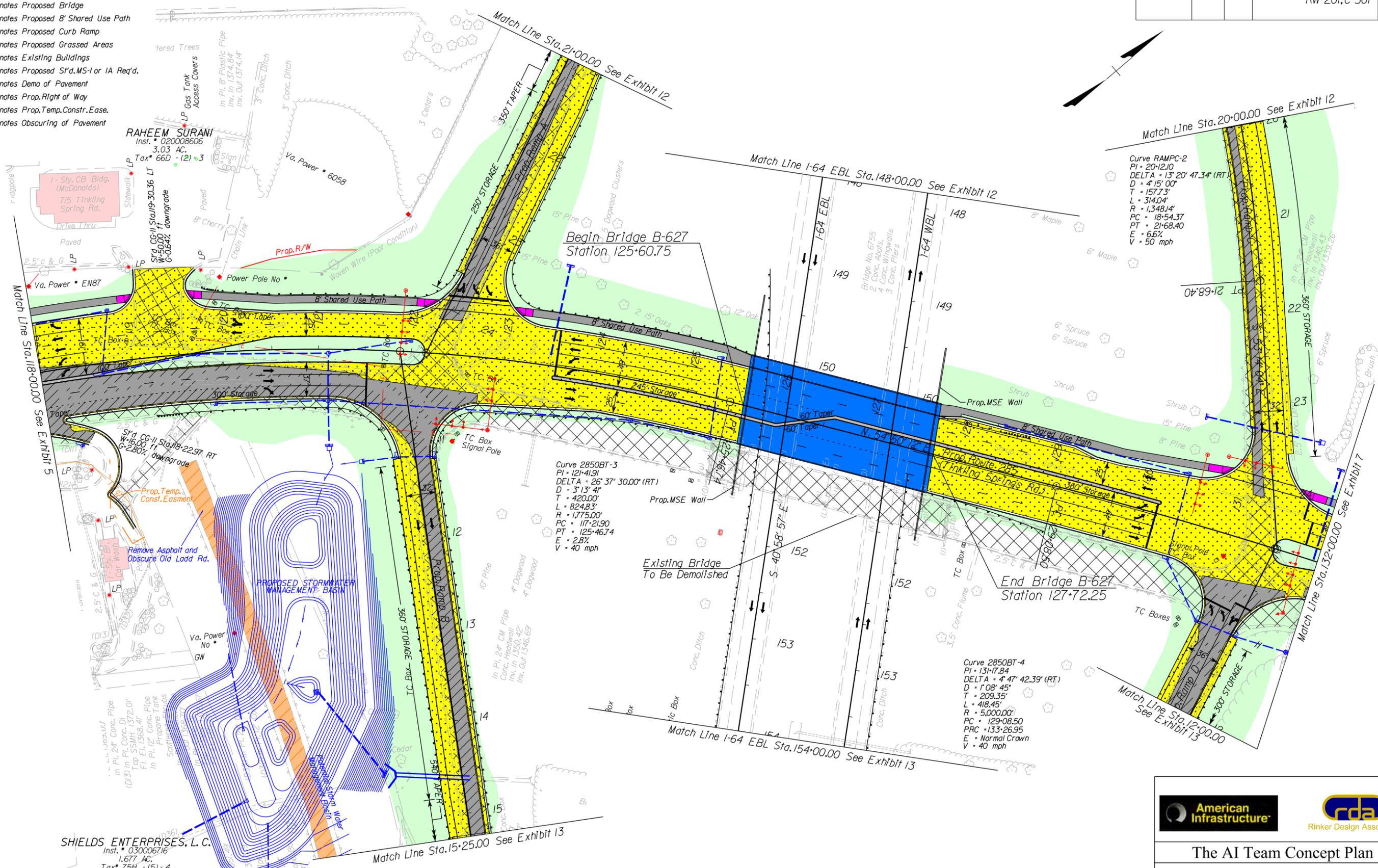
**The AI Team Concept Plan**

**Plan Sheet 1**

Page 36

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	6

- Roadway Legend**
- Denotes Proposed Build-up & Overlay
  - Denotes Proposed Pavement
  - Denotes Proposed Bridge
  - Denotes Proposed 8' Shared Use Path
  - Denotes Proposed Curb Ramp
  - Denotes Proposed Grassed Areas
  - Denotes Existing Buildings
  - Denotes Proposed S'd. MS-1 or IA Req'd.
  - Denotes Demo of Pavement
  - Denotes Prop. Right of Way
  - Denotes Prop. Temp. Constr. Easement
  - Denotes Obscuring of Pavement



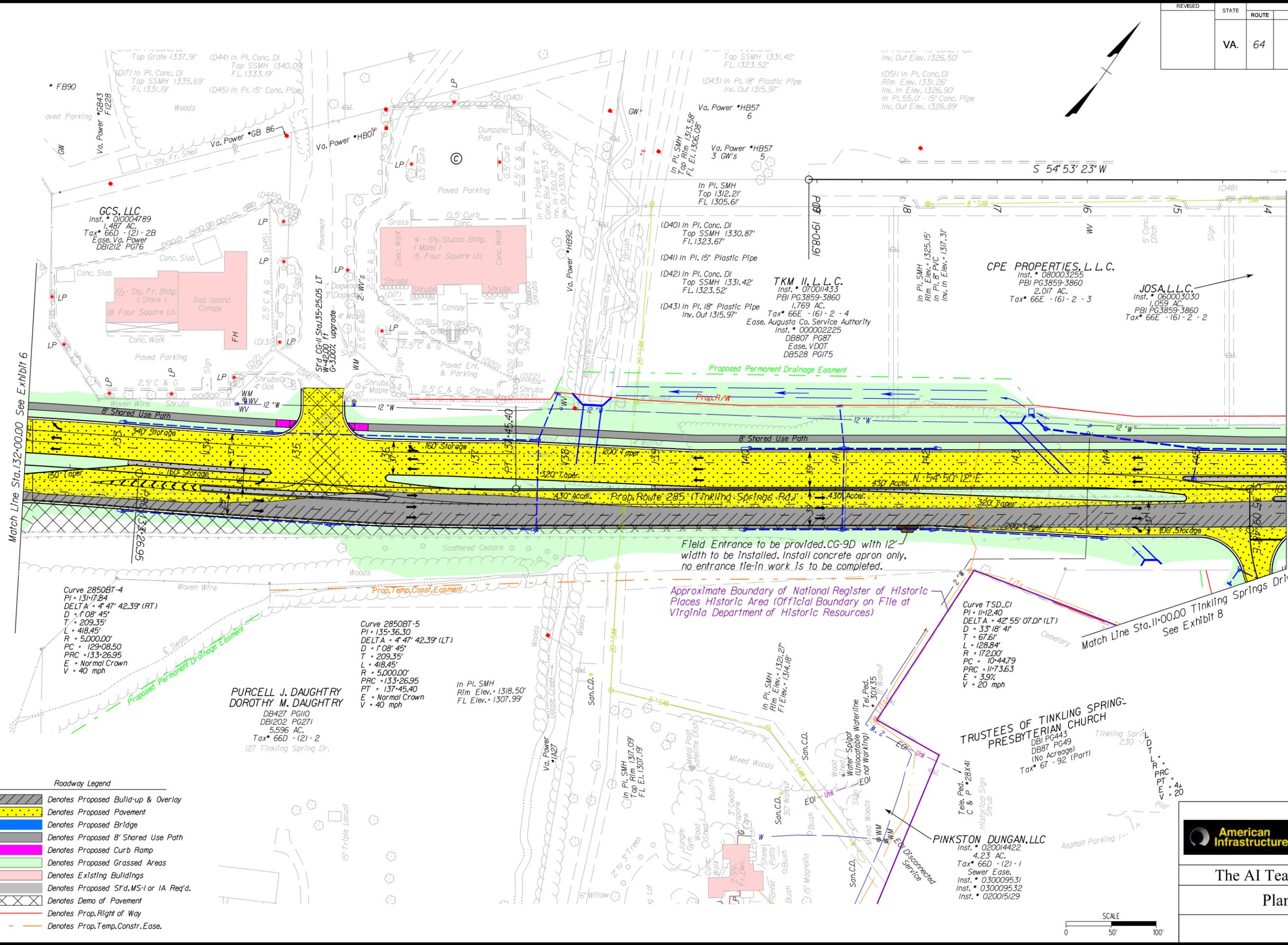



**The AI Team Concept Plan**

**Plan Sheet 2**

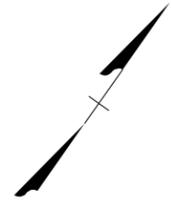
Page	37
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REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	7



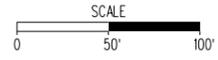
Match Line Sta. 132+00.00 See Exhibit 6

Match Line Sta. 146+00.00 See Exhibit 9



**Roadway Legend**

- Denotes Proposed Build-up & Overlay
- Denotes Proposed Pavement
- Denotes Proposed Bridge
- Denotes Proposed 8' Shared Use Path
- Denotes Proposed Curb Ramp
- Denotes Proposed Grassed Areas
- Denotes Existing Buildings
- Denotes Proposed Str'd, MS-1 or IA Req'd.
- Denotes Demo of Pavement
- Denotes Prop. Right of Way
- Denotes Prop. Temp. Constr. Ease.

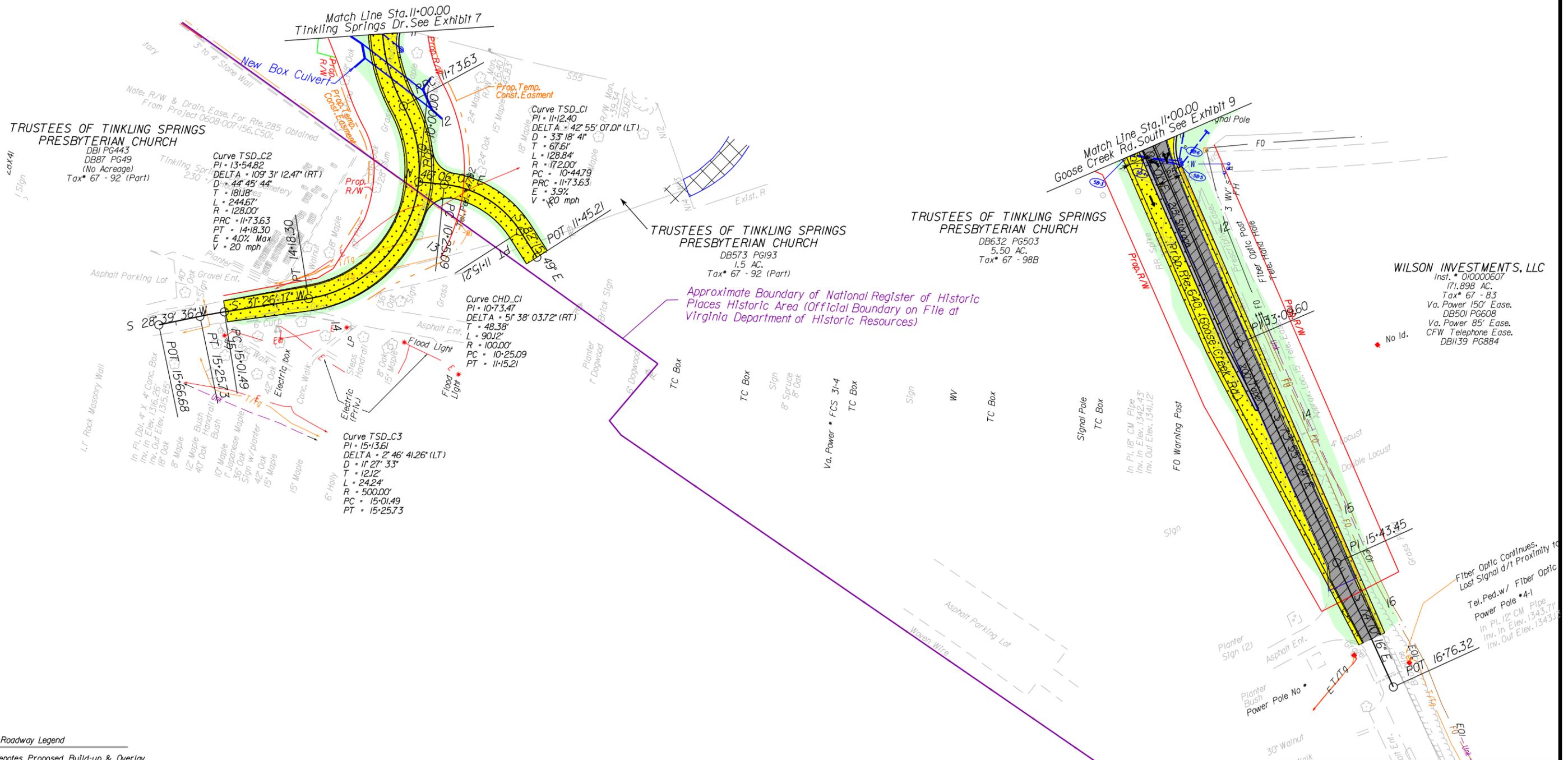
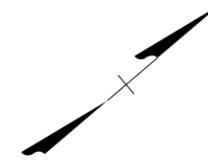


The AI Team Concept Plan

Plan Sheet 3

Page	38
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REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	8



Approximate Boundary of National Register of Historic Places Historic Area (Official Boundary on File at Virginia Department of Historic Resources)

Roadway Legend

	Denotes Proposed Build-up & Overlay
	Denotes Proposed Pavement
	Denotes Proposed Bridge
	Denotes Proposed 8' Shared Use Path
	Denotes Proposed Curb Ramp
	Denotes Proposed Grassed Areas
	Denotes Existing Buildings
	Denotes Proposed St'd, MS-1 or IA Req'd.
	Denotes Demo of Pavement
	Denotes Prop. Right of Way
	Denotes Prop. Temp. Constr. Ease.

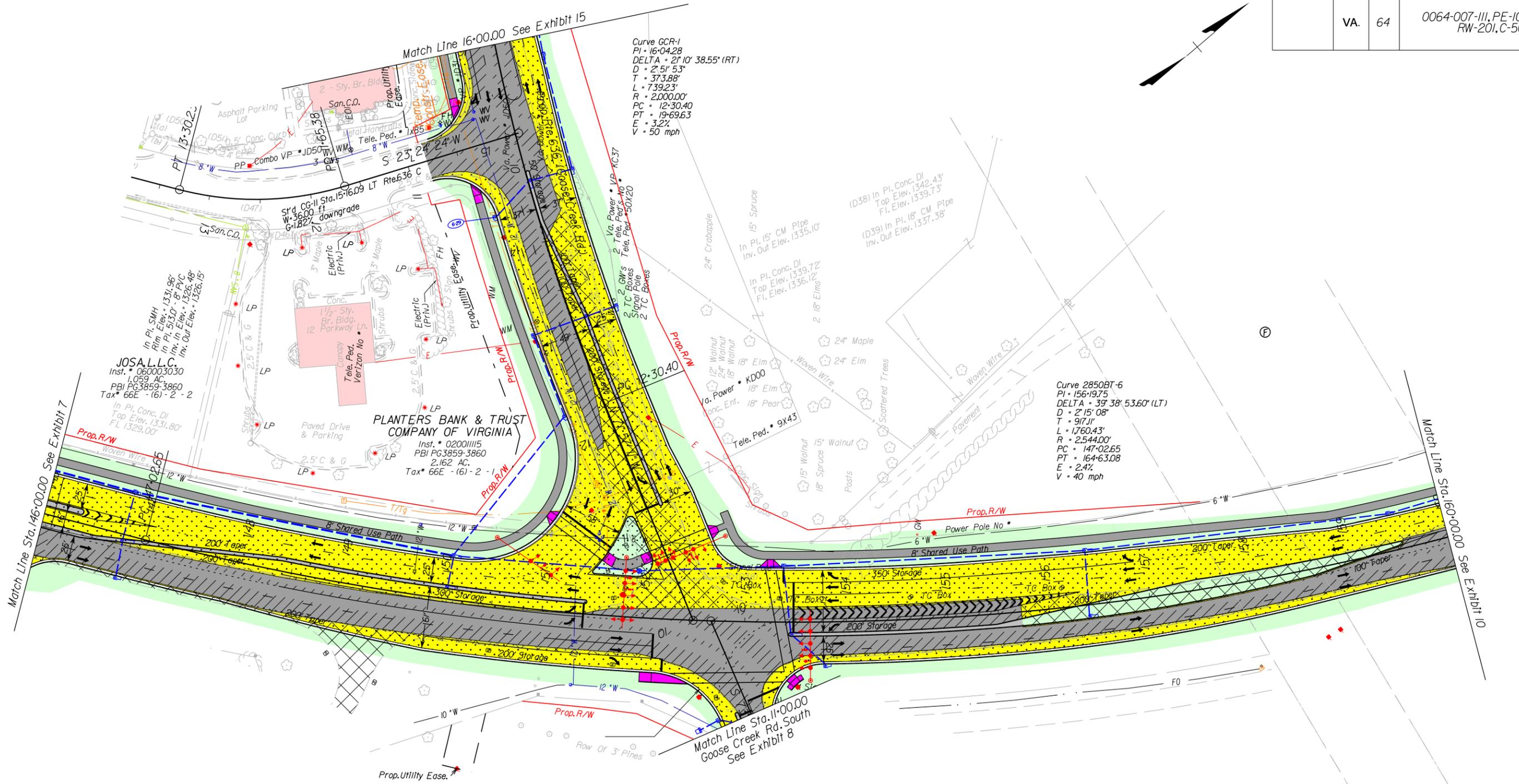
**WILSON INVESTMENTS, LLC**  
 Inst. # 010000607  
 171,898 AC.  
 Tax# 67 - 83  
 Va. Power 150' Easement  
 DB501 PG608  
 Va. Power 85' Easement  
 CFW Telephone Easement  
 DB1139 PG884



The AI Team Concept Plan

Plan Sheet 4

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	9



Curve GCR-1  
 PI = 16+04.28  
 DELTA = 27°10' 38.55" (RT)  
 D = 2' 51' 53"  
 T = 373.88'  
 L = 739.23'  
 R = 2,000.00'  
 PC = 12+30.40  
 PT = 19+69.63  
 E = 3.2%  
 V = 50 mph

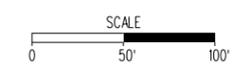
Curve 2850BT-6  
 PI = 156+19.75  
 DELTA = 39° 38' 53.60" (LT)  
 D = 2' 15' 08"  
 T = 917.11'  
 L = 1,760.43'  
 R = 2,544.00'  
 PC = 147+02.65  
 PT = 164+63.08  
 E = 2.4%  
 V = 40 mph

JOSA, L.L.C.  
 Inst. # 060003030  
 1.059 AC.  
 PBI PG3859-3860  
 Tax# 66E - (6) - 2 - 2  
 In Pl. Conc. DI  
 Top Elev. 1331.80'  
 FL 1329.00'

PLANTERS BANK & TRUST  
 COMPANY OF VIRGINIA  
 Inst. # 020011115  
 PBI PG3859-3860  
 2.162 AC.  
 Tax# 66E - (6) - 2 - 1

Roadway Legend

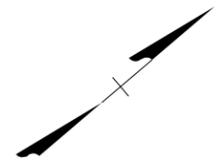
- Denotes Proposed Build-up & Overlay
- Denotes Proposed Pavement
- Denotes Proposed Bridge
- Denotes Proposed 8' Shared Use Path
- Denotes Proposed Curb Ramp
- Denotes Proposed Grassed Areas
- Denotes Existing Buildings
- Denotes Proposed St'd. MS-1 or IA Req'd.
- Denotes Demo of Pavement
- Denotes Prop. Right of Way
- Denotes Prop. Temp. Constr. Ease.



The AI Team Concept Plan

Plan Sheet 5

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	10



**WILSON INVESTMENTS, LLC**  
 Inst. # 020012265  
 PBI PG6108  
 3,504 AC.  
 Tax\* 67 - 81A  
 Va. Power 85' Easement  
 DB528 PG13  
 DB525 PG513  
 Va. Power 150' Easement  
 DB501 PG608

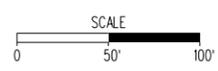
Curve 2850BT-7  
 PI = 171+0.62  
 DELTA = 32° 27' 07.15" (RT)  
 D = 8° 00' 00"  
 T = 208.43'  
 L = 405.65'  
 R = 716.20'  
 PC = 169+02.20  
 PT = 173+07.85

**End Project**  
 0064-007-II, RW-201, C-501  
 Station 163+22.00

LP\*  
 Curve 2850BT-6  
 PI = 156+19.75  
 DELTA = 39° 38' 53.60" (LT)  
 D = 2° 15' 08"  
 T = 917.11'  
 L = 1760.43'  
 R = 2544.00'  
 PC = 147+02.65  
 PT = 164+63.08  
 E = 2.4%  
 V = 40 mph

**EAVERS TIRE & LUBE CENTER, INC.**  
 Inst. # 050009131  
 Tax\* 67N - (I) - 29  
 2,696 AC.  
 Tax\* 67N (I) 30  
 2,952 AC.  
 Va. Power 150' Easement  
 DB506 PG286  
 Va. Power 85' Easement  
 DB525 PG513  
 Stormwater Agreement  
 Inst. # 0400117931  
 CFW Telephone Easement  
 DB1139 PG884

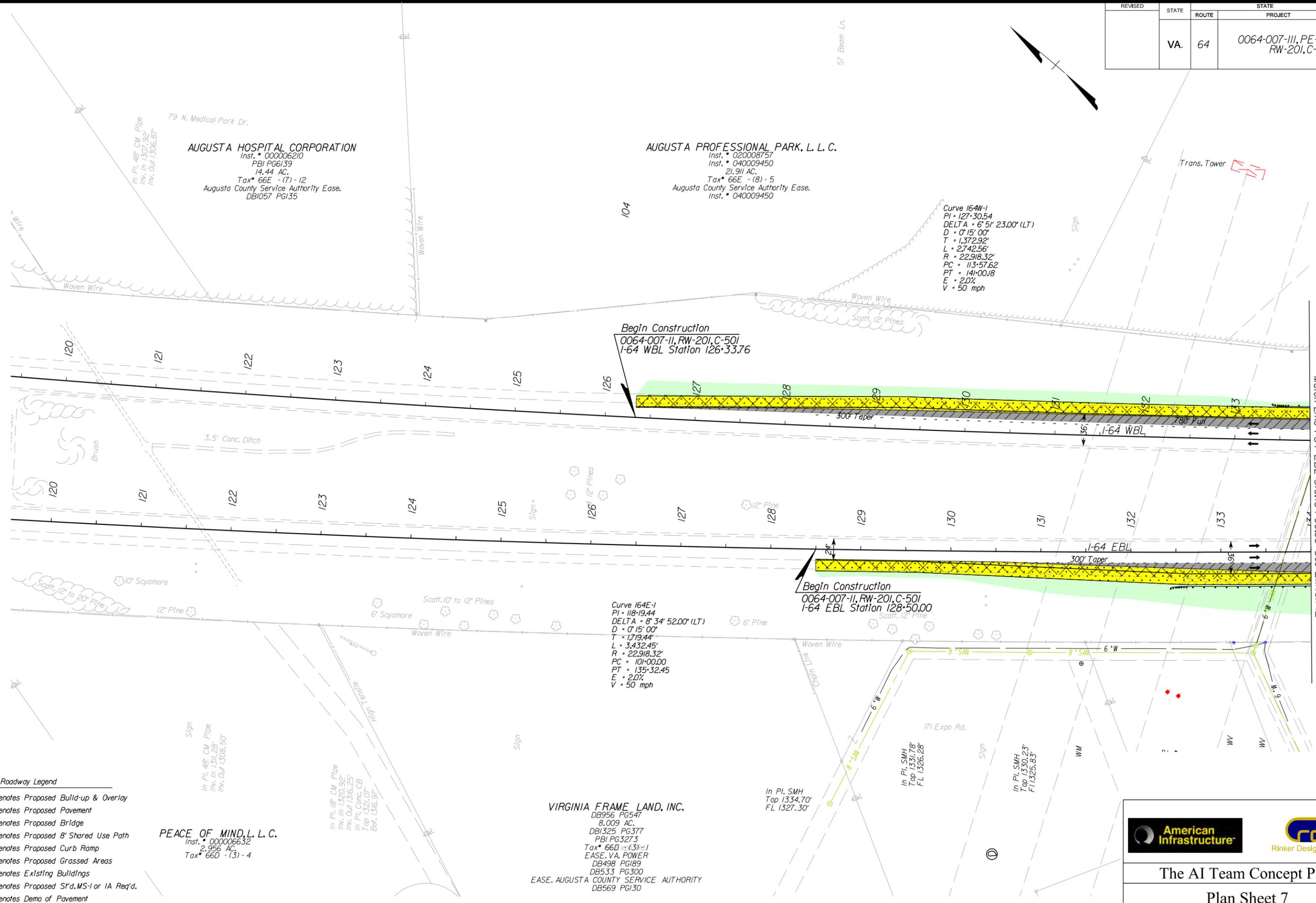
- Roadway Legend**
- Denotes Proposed Build-up & Overlay
  - Denotes Proposed Pavement
  - Denotes Proposed Bridge
  - Denotes Proposed 8' Shared Use Path
  - Denotes Proposed Curb Ramp
  - Denotes Proposed Grassed Areas
  - Denotes Existing Buildings
  - Denotes Proposed St'd. MS-1 or IA Req'd.
  - Denotes Demo of Pavement
  - Denotes Prop. Right of Way
  - Denotes Prop. Temp. Constr. Ease.



The AI Team Concept Plan

Plan Sheet 6

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	11



**Roadway Legend**

	Denotes Proposed Build-up & Overlay
	Denotes Proposed Pavement
	Denotes Proposed Bridge
	Denotes Proposed 8' Shared Use Path
	Denotes Proposed Curb Ramp
	Denotes Proposed Grassed Areas
	Denotes Existing Buildings
	Denotes Proposed St'd, MS-1 or IA Req'd.
	Denotes Demo of Pavement
	Denotes Prop. Right of Way
	Denotes Prop. Temp. Constr. Ease.

**PEACE OF MIND, L.L.C.**  
 Inst. # 000006632  
 2.956 AC.  
 Tax # 66D - (3) - 4

**VIRGINIA FRAME LAND, INC.**  
 DB956 PG547  
 8.009 AC.  
 DBI325 PG377  
 PBI PG3273  
 Tax # 66D - (3) - 1  
 EASE, VA. POWER  
 DB498 PG189  
 DB533 PG300  
 EASE, AUGUSTA COUNTY SERVICE AUTHORITY  
 DB569 PG130

Curve 164W-1  
 PI = 127+30.54  
 DELTA = 6° 51' 23.00" (LT)  
 D = 0° 15' 00"  
 T = 1,372.92'  
 L = 2,742.56'  
 R = 22,918.32'  
 PC = 113+57.62  
 PT = 141+00.18  
 E = 2.0%  
 V = 50 mph

Begin Construction  
 0064-007-II, RW-201, C-501  
 I-64 WBL Station 126+33.76

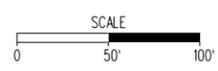
Begin Construction  
 0064-007-II, RW-201, C-501  
 I-64 EBL Station 128+50.00

Curve 164E-1  
 PI = 118+19.44  
 DELTA = 8° 34' 52.00" (LT)  
 D = 0° 15' 00"  
 T = 1,719.44'  
 L = 3,432.45'  
 R = 22,918.32'  
 PC = 101+00.00  
 PT = 135+32.45  
 E = 2.0%  
 V = 50 mph

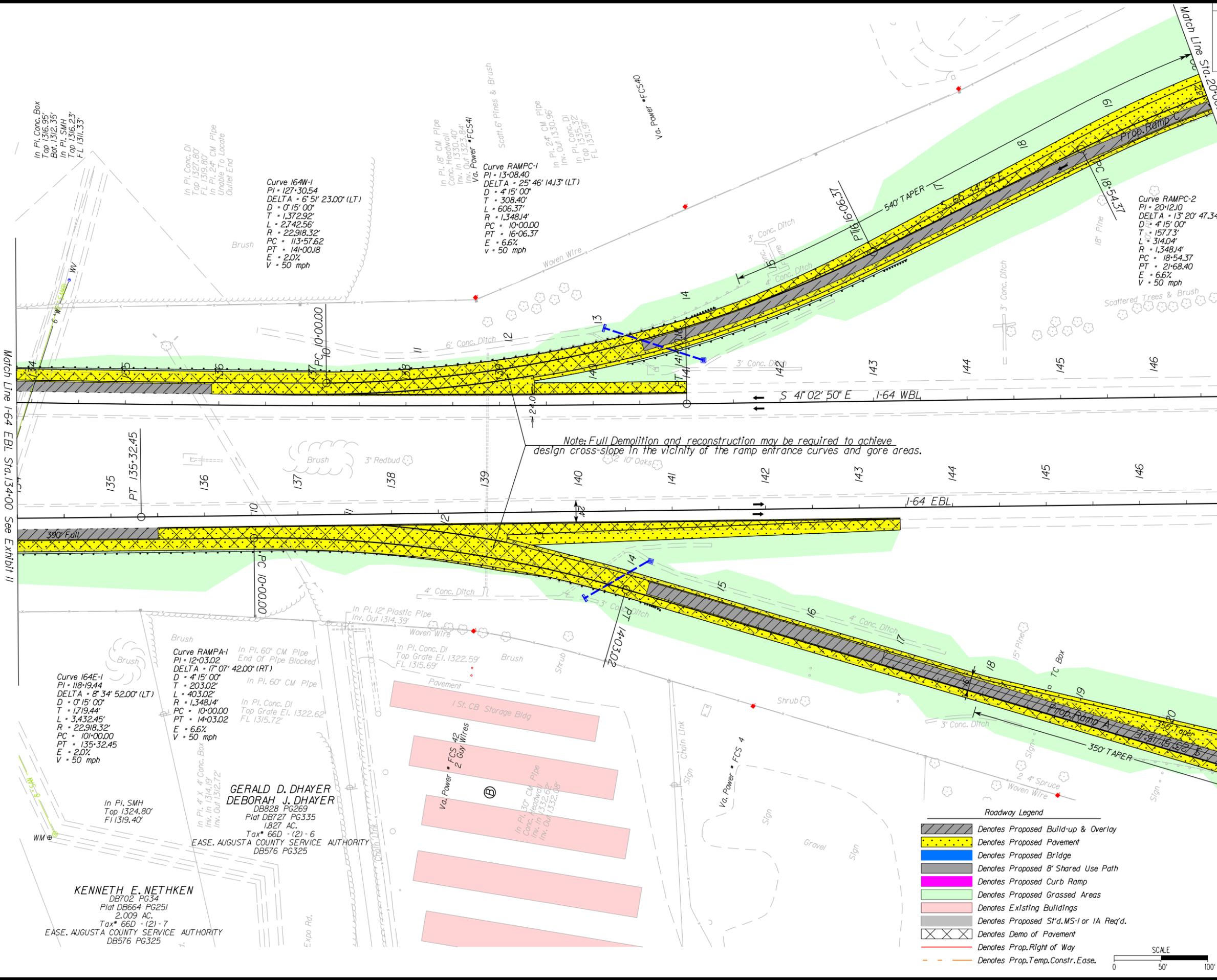


The AI Team Concept Plan

Plan Sheet 7



REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	12



Note: Full Demolition and reconstruction may be required to achieve design cross-slope in the vicinity of the ramp entrance curves and gore areas.

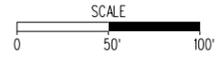
Curve I64E-1  
 PI = 118+19.44  
 DELTA = 8° 34' 52.00" (LT)  
 D = 0' 15' 00"  
 T = 1719.44'  
 L = 3432.45'  
 R = 22918.32'  
 PC = 10+00.00  
 PT = 135+32.45  
 E = 2.0%  
 V = 50 mph

Curve RAMP A-1  
 PI = 12+03.02  
 DELTA = 17° 07' 42.00" (RT)  
 D = 4' 15' 00"  
 T = 203.02'  
 L = 403.02'  
 R = 1,348.14'  
 PC = 10+00.00  
 PT = 14+03.02  
 E = 6.6%  
 V = 50 mph

**GERALD D. DHAYER**  
**DEBORAH J. DHAYER**  
 DB828 PG269  
 Plat DB727 PG335  
 1.827 AC  
 Tax\* 66D - (2) - 6  
 EASE, AUGUSTA COUNTY SERVICE AUTHORITY  
 DB576 PG325

**KENNETH E. NETHKEN**  
 DB702 PG34  
 Plat DB664 PG251  
 2.009 AC  
 Tax\* 66D - (2) - 7  
 EASE, AUGUSTA COUNTY SERVICE AUTHORITY  
 DB576 PG325

- Roadway Legend
- Denotes Proposed Build-up & Overlay
  - Denotes Proposed Pavement
  - Denotes Proposed Bridge
  - Denotes Proposed 8' Shared Use Path
  - Denotes Proposed Curb Ramp
  - Denotes Proposed Grassed Areas
  - Denotes Existing Buildings
  - Denotes Proposed St'd. MS-1 or IA Req'd.
  - Denotes Demo of Pavement
  - Denotes Prop. Right of Way
  - Denotes Prop. Temp. Constr. Ease.






**The AI Team Concept Plan**

**Plan Sheet 8**

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REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	13

Roadway Legend

- Denotes Proposed Build-up & Overlay
- Denotes Proposed Pavement
- Denotes Proposed Bridge
- Denotes Proposed 8' Shared Use Path
- Denotes Proposed Curb Ramp
- Denotes Proposed Grassed Areas
- Denotes Existing Buildings
- Denotes Proposed Std. MS-1 or IA Req'd.
- Denotes Demo of Pavement
- Denotes Prop. Right of Way
- Denotes Prop. Temp. Constr. Easement
- Denotes Obscuring of Pavement

Curve RAMPD-1  
 PI = 22+67.67  
 DELTA = 18° 21' 35.00" (LT)  
 D = 4' 15" 00"  
 T = 217.86'  
 L = 431.99'  
 R = 1,348.14'  
 PC = 20+49.80  
 PT = 24+81.80  
 E = 6.6%  
 V = 50 mph

Curve 16-4W-2  
 PI = 181+69.00  
 DELTA = 11° 57' 58.00" (LT)  
 D = 0' 22" 30"  
 T = 1,601.31'  
 L = 3,190.37'  
 R = 15,278.91'  
 PC = 165+67.68  
 PT = 197+58.66  
 E = 2.0%  
 V = 50 mph

Note: Full demolition and reconstruction may be required to achieve design cross-slope in the vicinity of the ramp entrance curves and gore areas.

STAGING & STORAGE

Remove Asphalt and Obscure Old Load Rd.

Potential Lease Area for Additional Staging and Storage

Curve RAMPB-1  
 PI = 23+54.16  
 DELTA = 17° 01' 03.00" (RT)  
 D = 4' 15" 00"  
 T = 201.69'  
 L = 400.41'  
 R = 1,348.14'  
 PC = 21+52.47  
 PT = 25+52.89  
 E = 6.6%  
 V = 50 mph



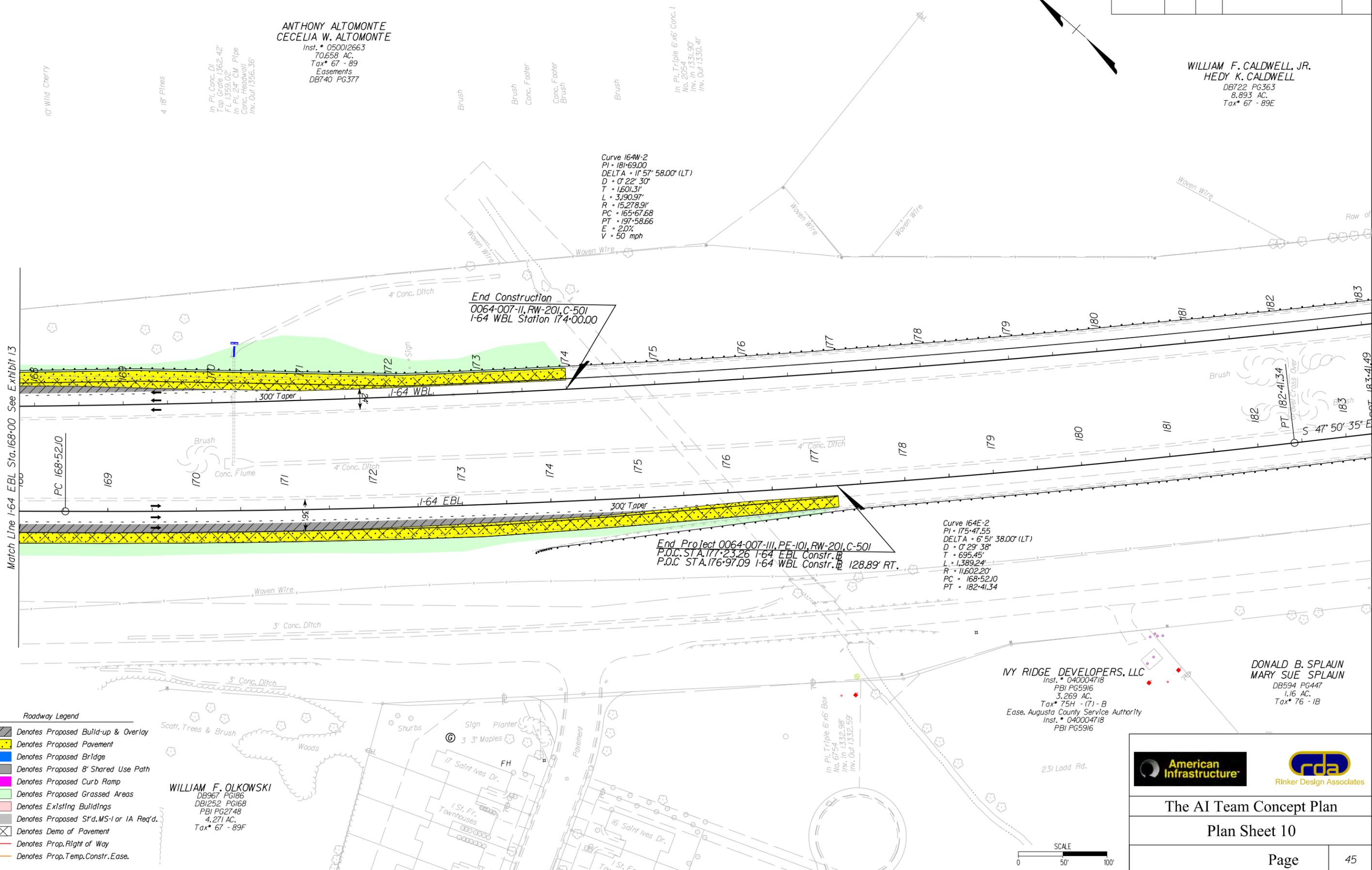
The AI Team Concept Plan

Plan Sheet 9

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	14

ANTHONY ALTOMONTE  
CECELIA W. ALTOMONTE  
Inst. # 050012663  
70,658 AC.  
Tax # 67 - 89  
Easements  
DB740 PG377

WILLIAM F. CALDWELL, JR.  
HEDY K. CALDWELL  
DB722 PG363  
8,893 AC.  
Tax # 67 - 89E



Match Line I-64 EBL Sta. 168+00 See Exhibit 13

End Construction  
0064-007-II, RW-201, C-501  
I-64 WBL Station 174+00.00

End Project 0064-007-III, PE-101, RW-201, C-501  
P.O.C. STA. 177+23.26 I-64 EBL Constr. B  
P.O.C. STA. 176+97.09 I-64 WBL Constr. B 128.89' RT.

Curve I64E-2  
PI - 175+47.55  
DELTA - 6° 51' 38.00" (LT)  
D - 0° 29' 38"  
T - 695.45'  
L - 1,389.24'  
R - 11,602.20'  
PC - 168+52.10  
PT - 182+41.34

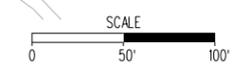
Curve I64W-2  
PI - 181+69.00  
DELTA - 11° 57' 58.00" (LT)  
D - 0° 22' 30"  
T - 1,601.31'  
L - 3,190.97'  
R - 15,278.91'  
PC - 165+67.68  
PT - 197+58.66  
E - 2.0%  
V - 50 mph

IVY RIDGE DEVELOPERS, LLC  
Inst. # 040004718  
PBI PG5916  
3,269 AC.  
Tax # 75H - (7) - B  
Ease. Augusta County Service Authority  
Inst. # 040004718  
PBI PG5916

DONALD B. SPLAUN  
MARY SUE SPLAUN  
DB594 PG447  
1.16 AC.  
Tax # 76 - 1B

WILLIAM F. OLKOWSKI  
DB967 PG186  
DB1252 PG168  
PBI PG2748  
4.271 AC.  
Tax # 67 - 89F

- Roadway Legend
- Denotes Proposed Build-up & Overlay
  - Denotes Proposed Pavement
  - Denotes Proposed Bridge
  - Denotes Proposed 8' Shared Use Path
  - Denotes Proposed Curb Ramp
  - Denotes Proposed Grassed Areas
  - Denotes Existing BuildUps
  - Denotes Proposed St'd, MS-1 or IA Req'd.
  - Denotes Demo of Pavement
  - Denotes Prop. Right of Way
  - Denotes Prop. Temp. Constr. Ease.



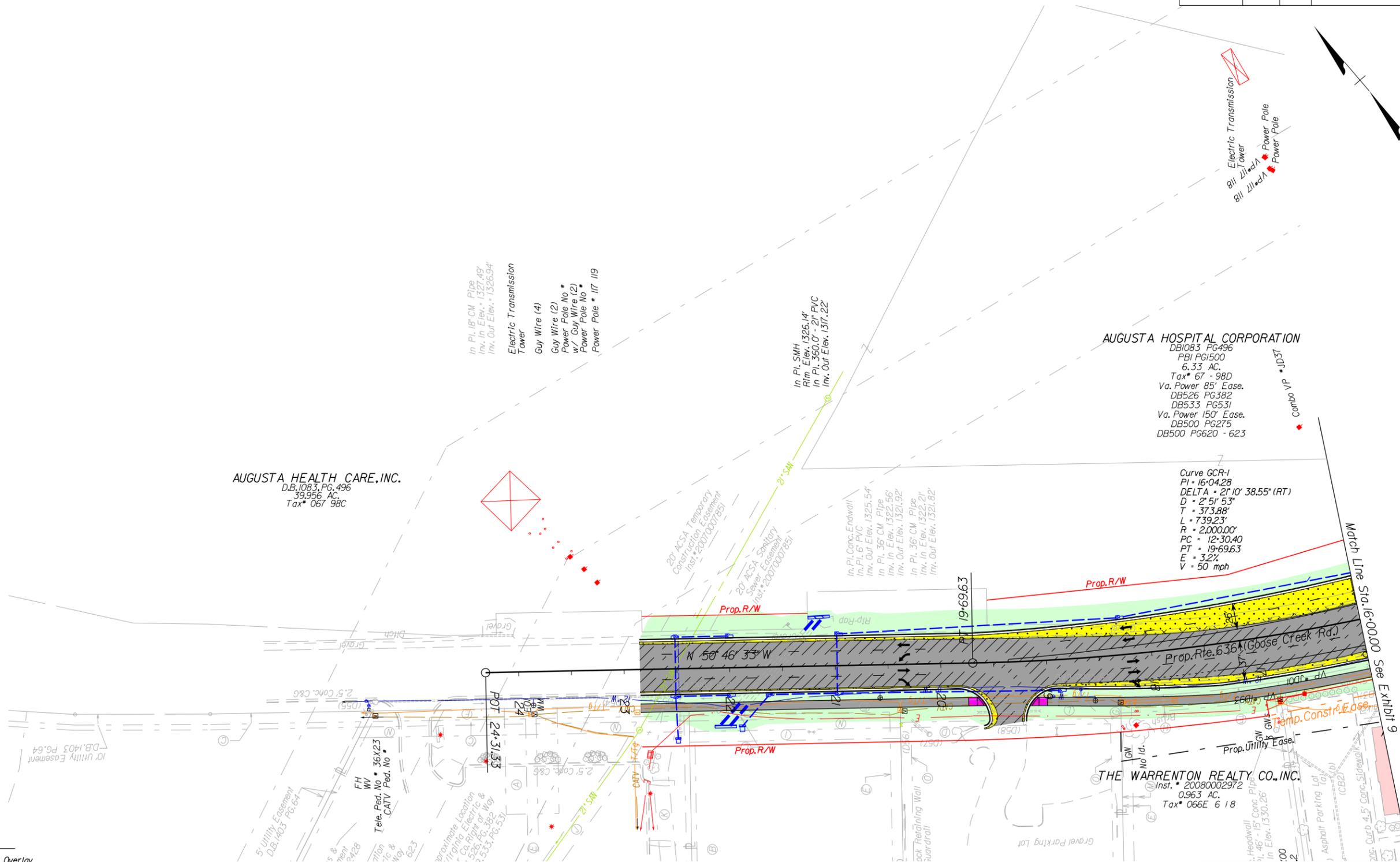



**The AI Team Concept Plan**

**Plan Sheet 10**

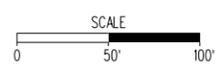
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REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	15



**Roadway Legend**

	Denotes Proposed Build-up & Overlay
	Denotes Proposed Pavement
	Denotes Proposed Bridge
	Denotes Proposed 8' Shared Use Path
	Denotes Proposed Curb Ramp
	Denotes Proposed Grassed Areas
	Denotes Existing Buildings
	Denotes Proposed S'd, MS-1 or IA Req'd.
	Denotes Demo of Pavement
	Denotes Prop. Right of Way
	Denotes Prop. Temp. Constr. Ease.






**The AI Team Concept Plan**

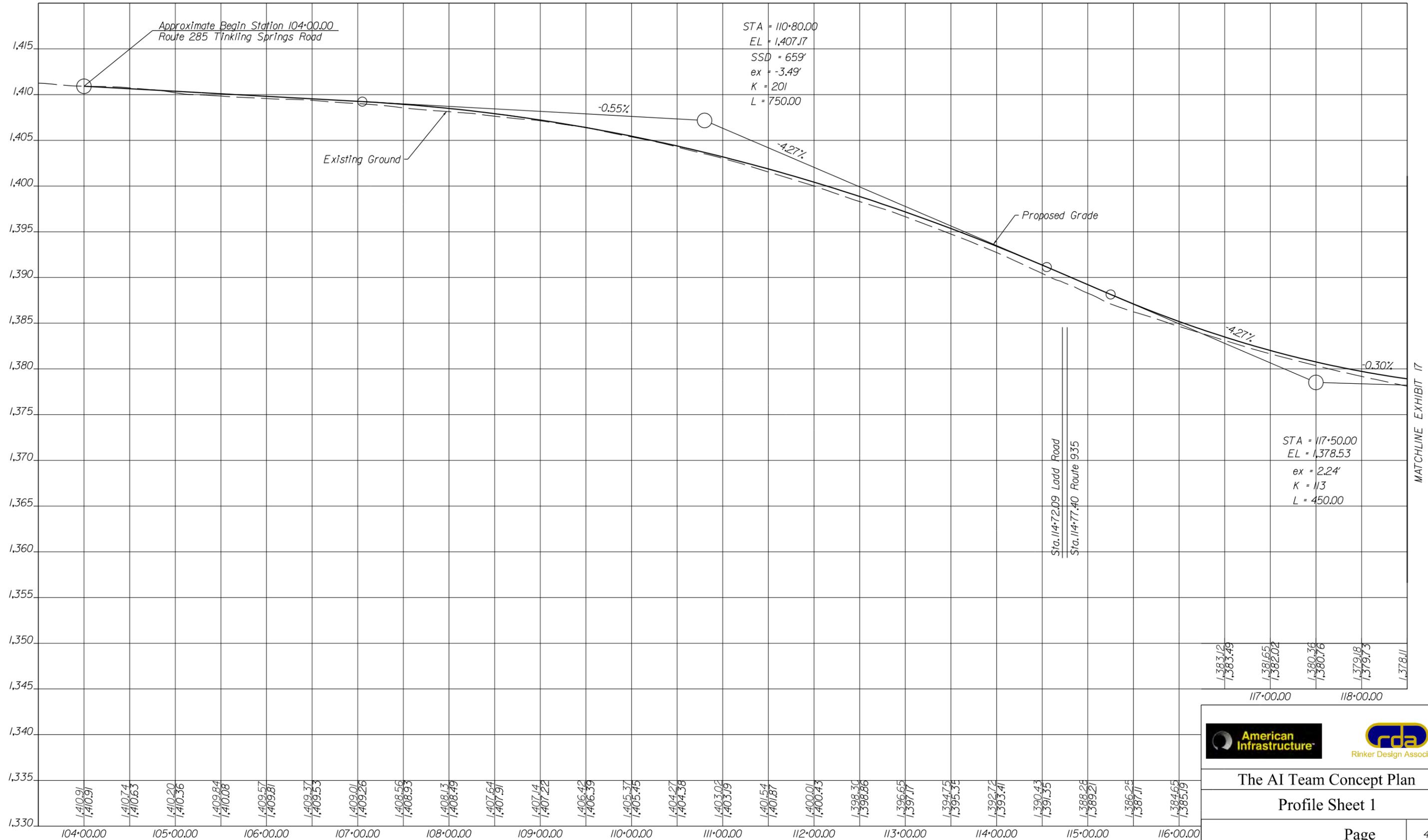
**Plan Sheet 11**

Page	46
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# TINKLING SPRING ROAD (ROUTE 285) PROFILE

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	16

Scale: 1"=100' Horizontal  
1"=10' Vertical






**The AI Team Concept Plan**

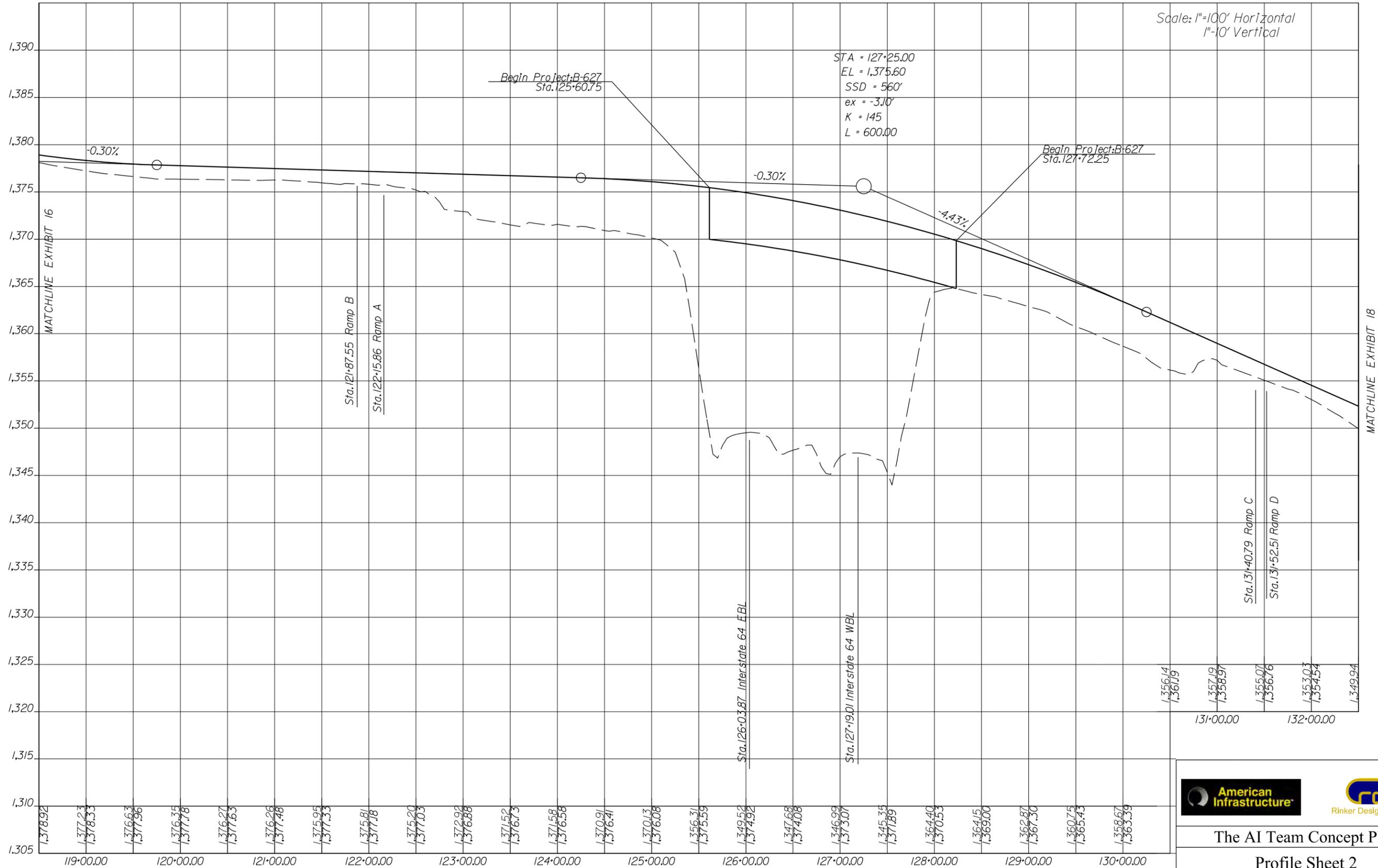
**Profile Sheet 1**

Page 47

TINKLING SPRING ROAD (ROUTE 285) PROFILE

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	17

Scale: 1"=100' Horizontal  
1"=10' Vertical



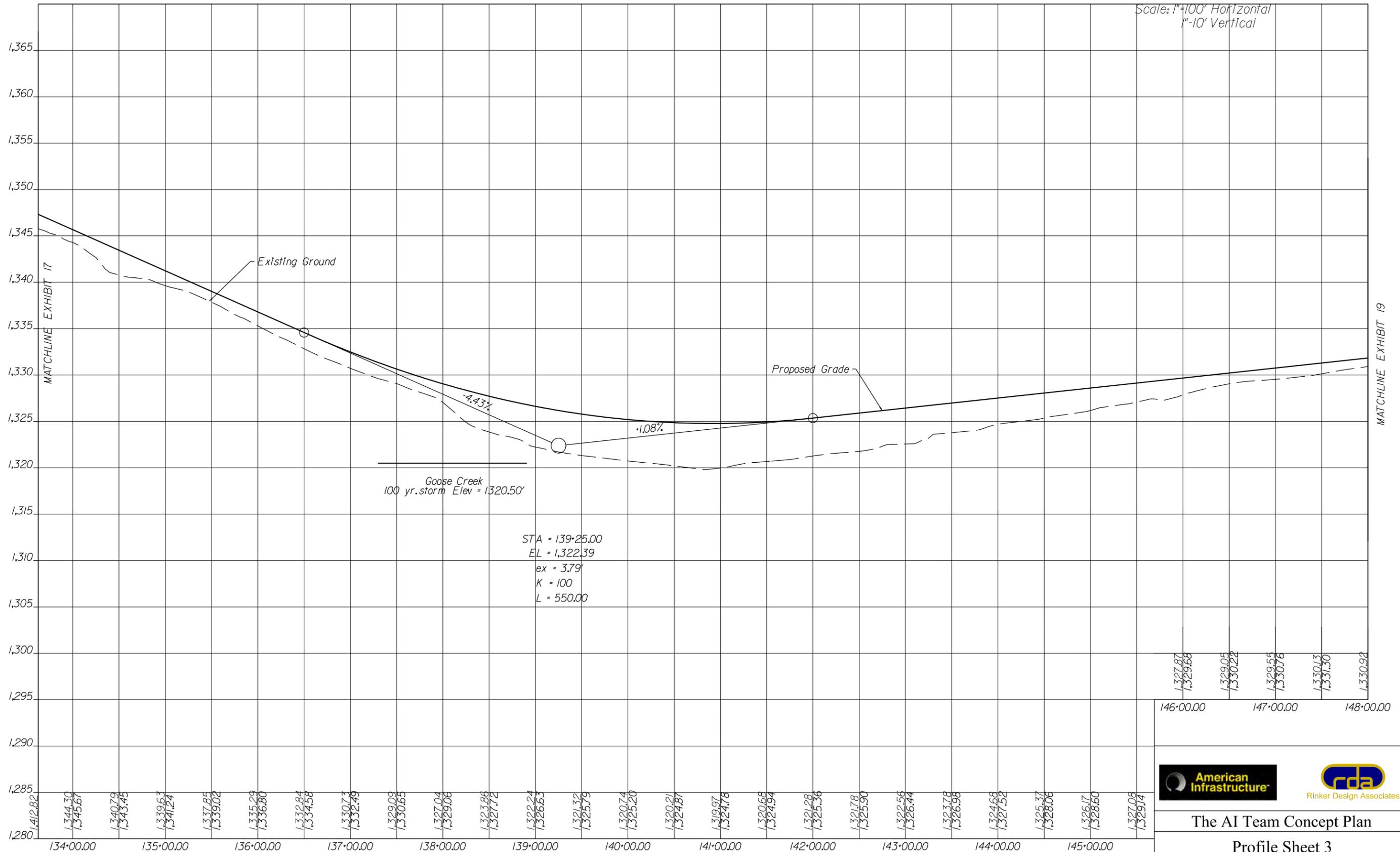
The AI Team Concept Plan

Profile Sheet 2

TINKLING SPRING ROAD (ROUTE 285) PROFILE

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	18

Scale: 1"=100' Horizontal  
1"=10' Vertical



The AI Team Concept Plan

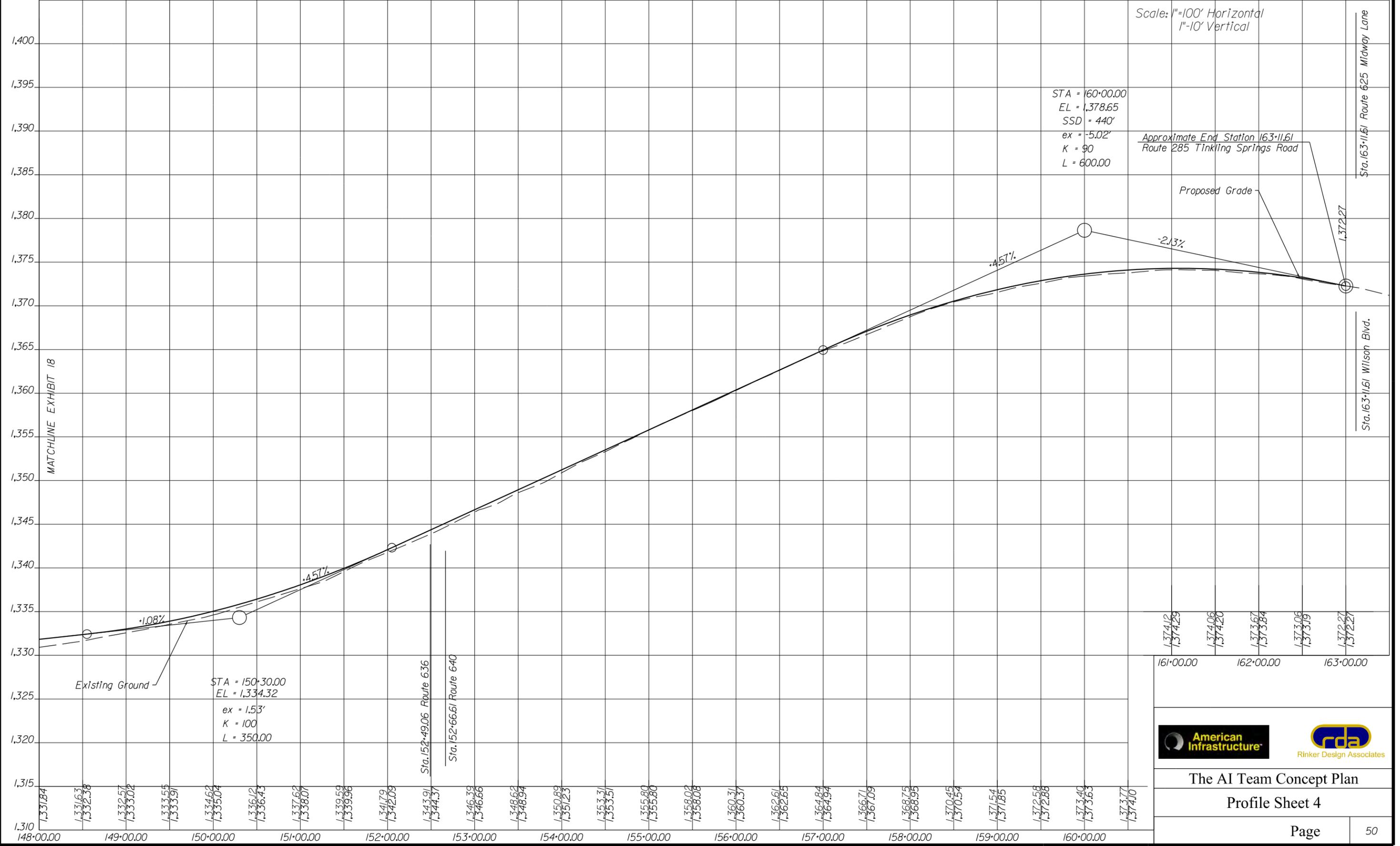
Profile Sheet 3

Page	49
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# TINKLING SPRING ROAD (ROUTE 285) PROFILE

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	19

Scale: 1"=100' Horizontal  
1"=10' Vertical



1,374.12	1,374.29	1,374.06	1,374.20	1,373.67	1,373.84	1,373.06	1,373.19	1,372.27	1,372.27
161+00.00	162+00.00	162+00.00	162+00.00	162+00.00	162+00.00	162+00.00	162+00.00	163+00.00	163+00.00



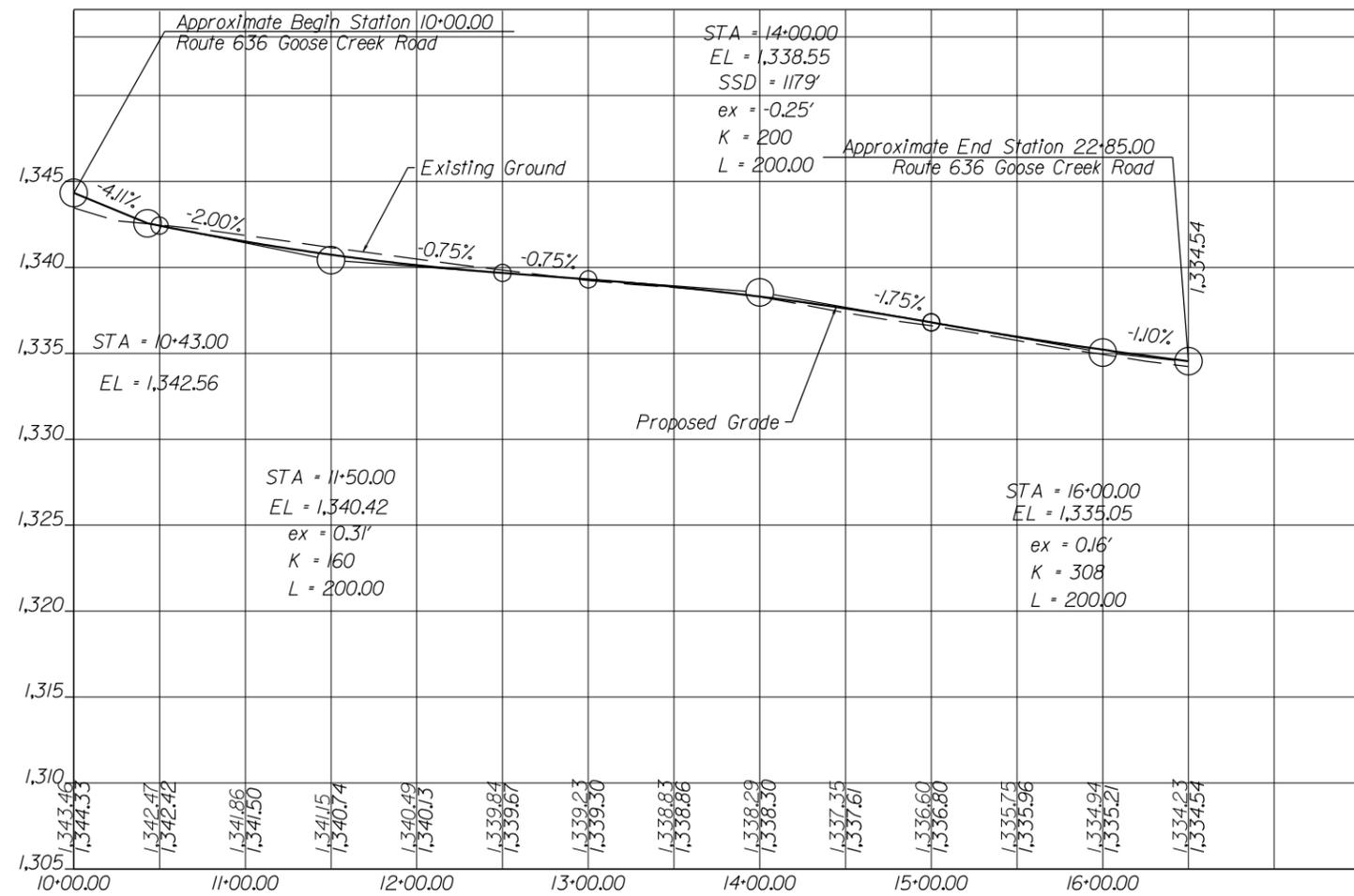
The AI Team Concept Plan

Profile Sheet 4

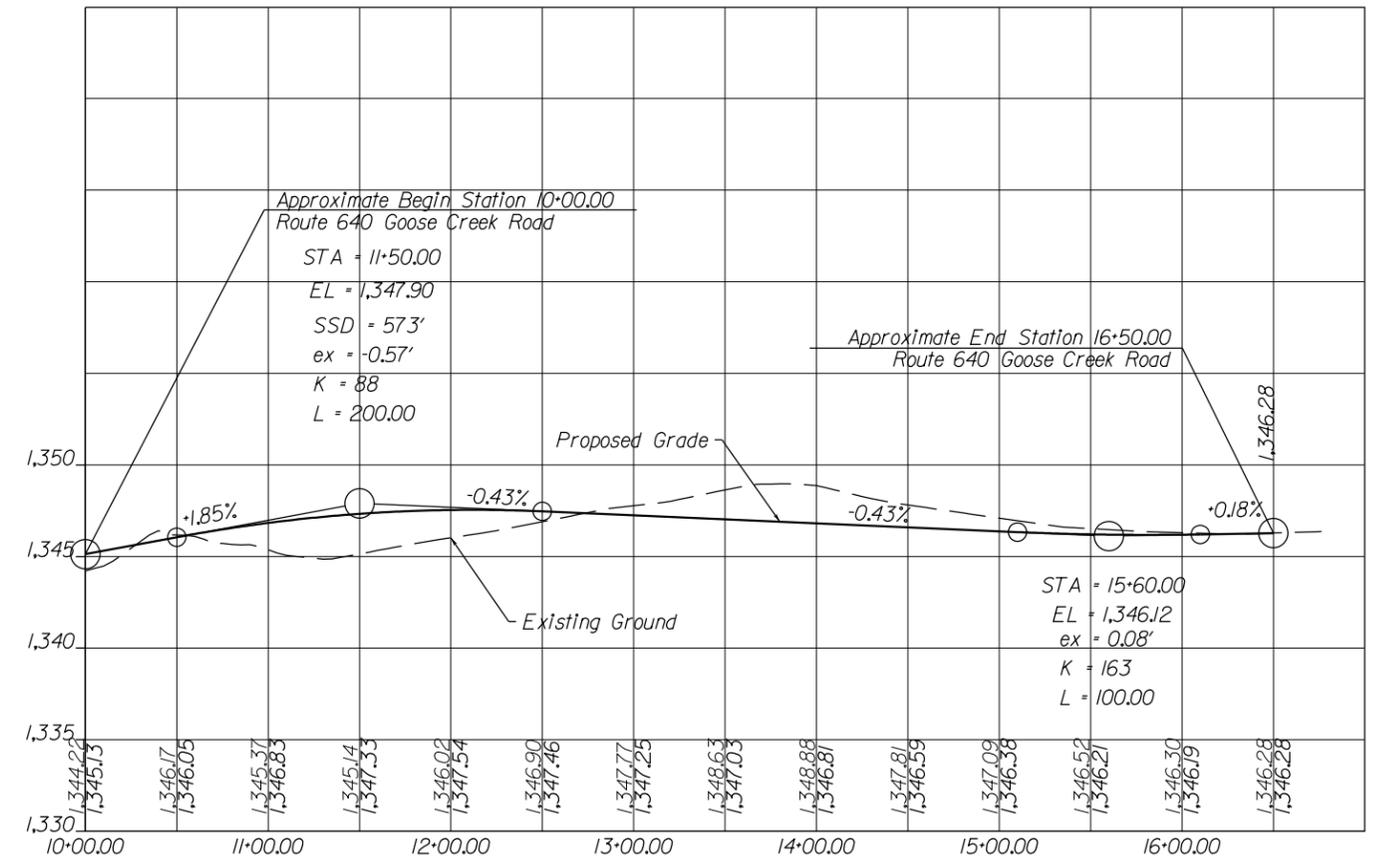
REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	20

Scale: 1"=100' Horizontal  
1"=10' Vertical

GOOSE CREEK ROAD (ROUTE 636) PROFILE



GOOSE CREEK ROAD  
(ROUTE 640) PROFILE



The AI Team Concept Plan

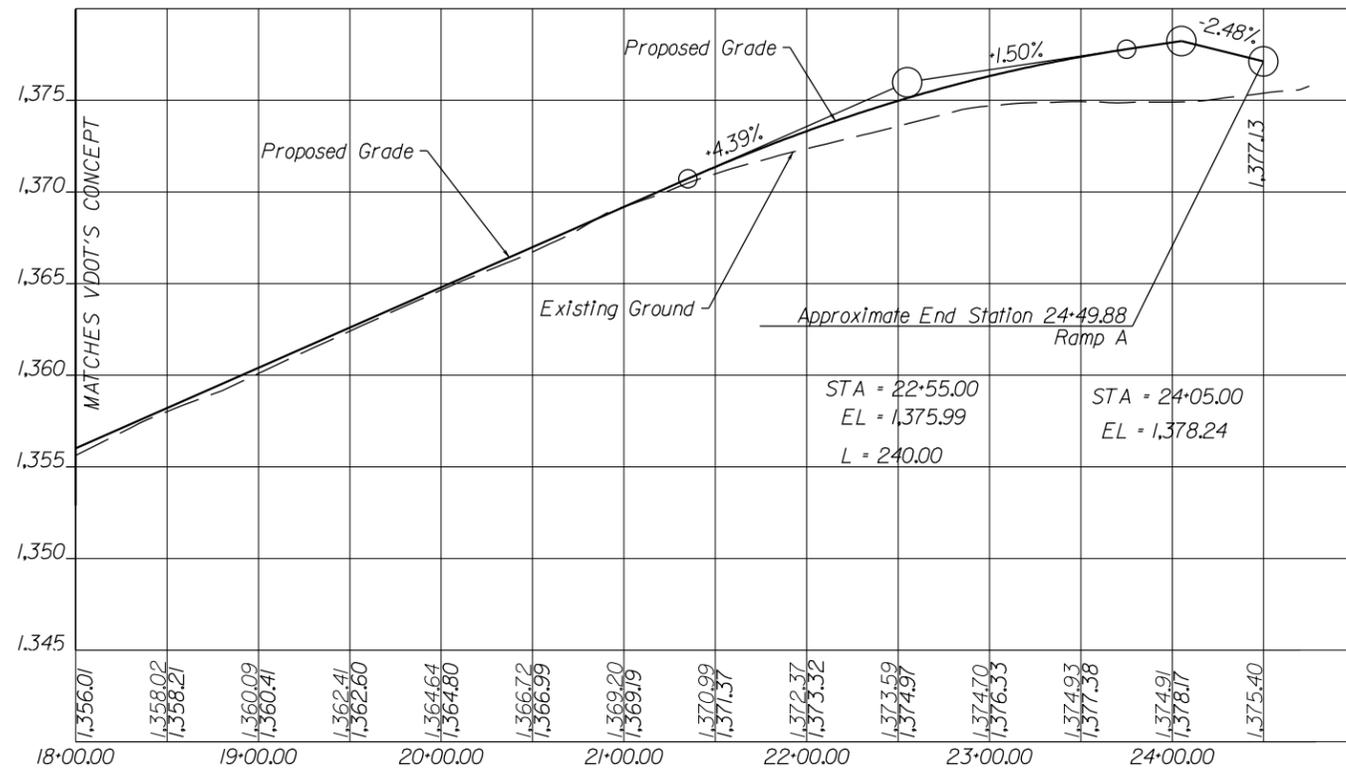
Profile Sheet 5

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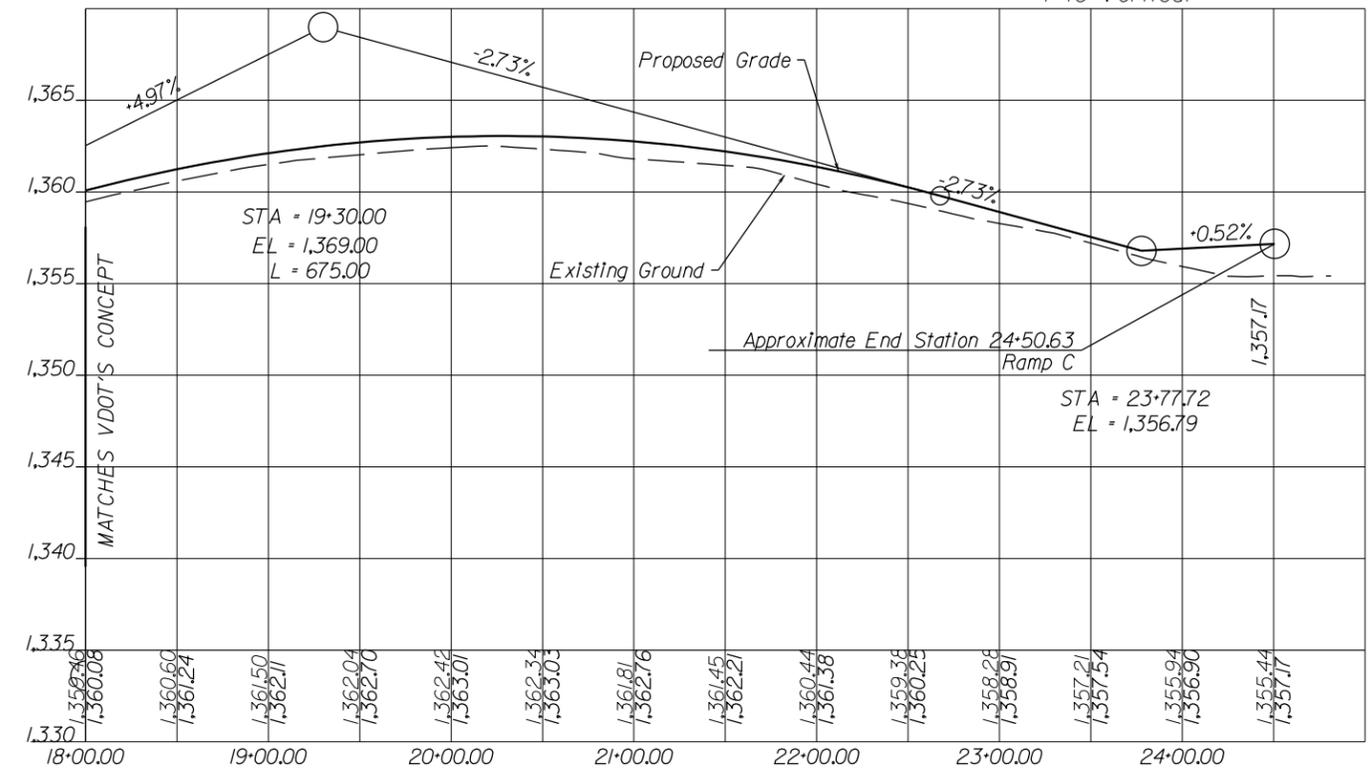
51

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	21

RAMP A PROFILE

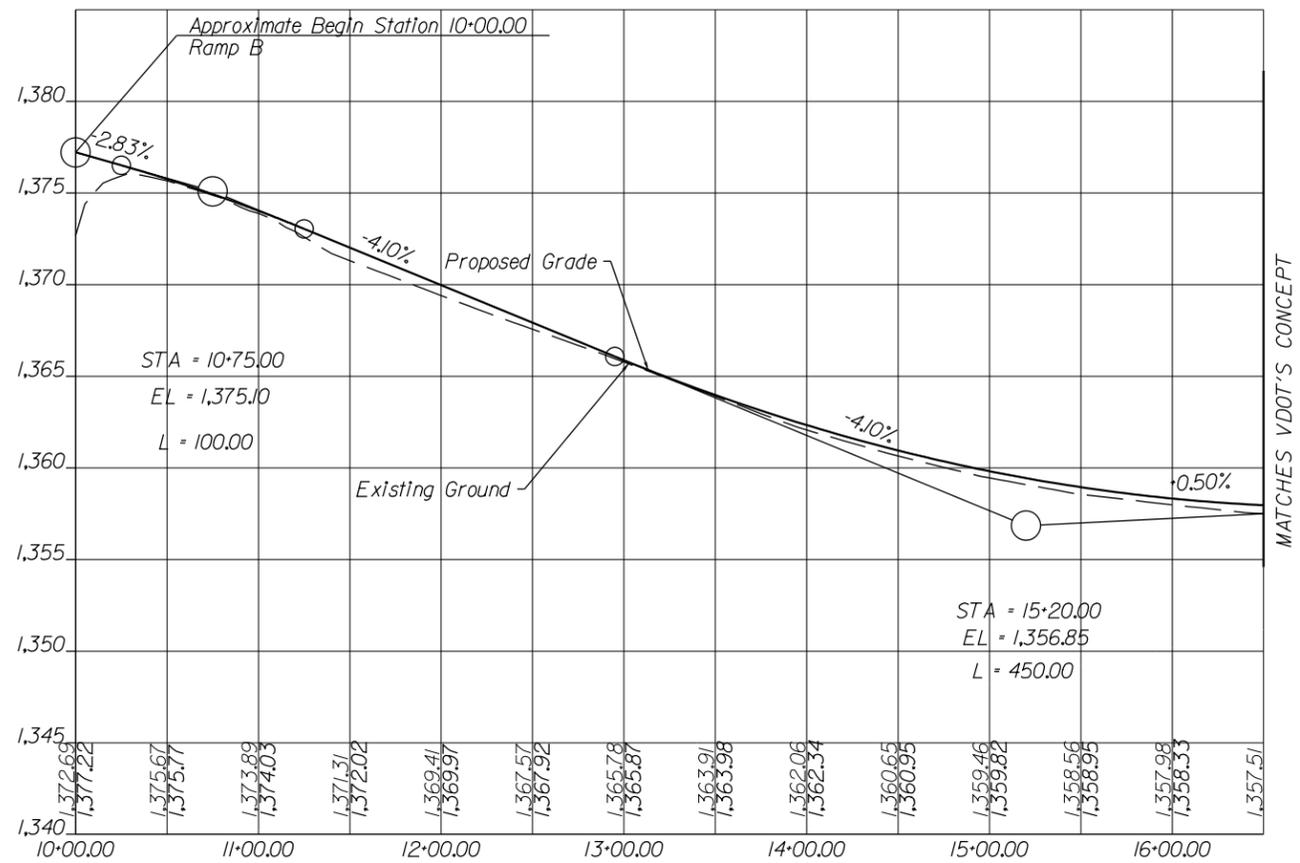


RAMP C PROFILE

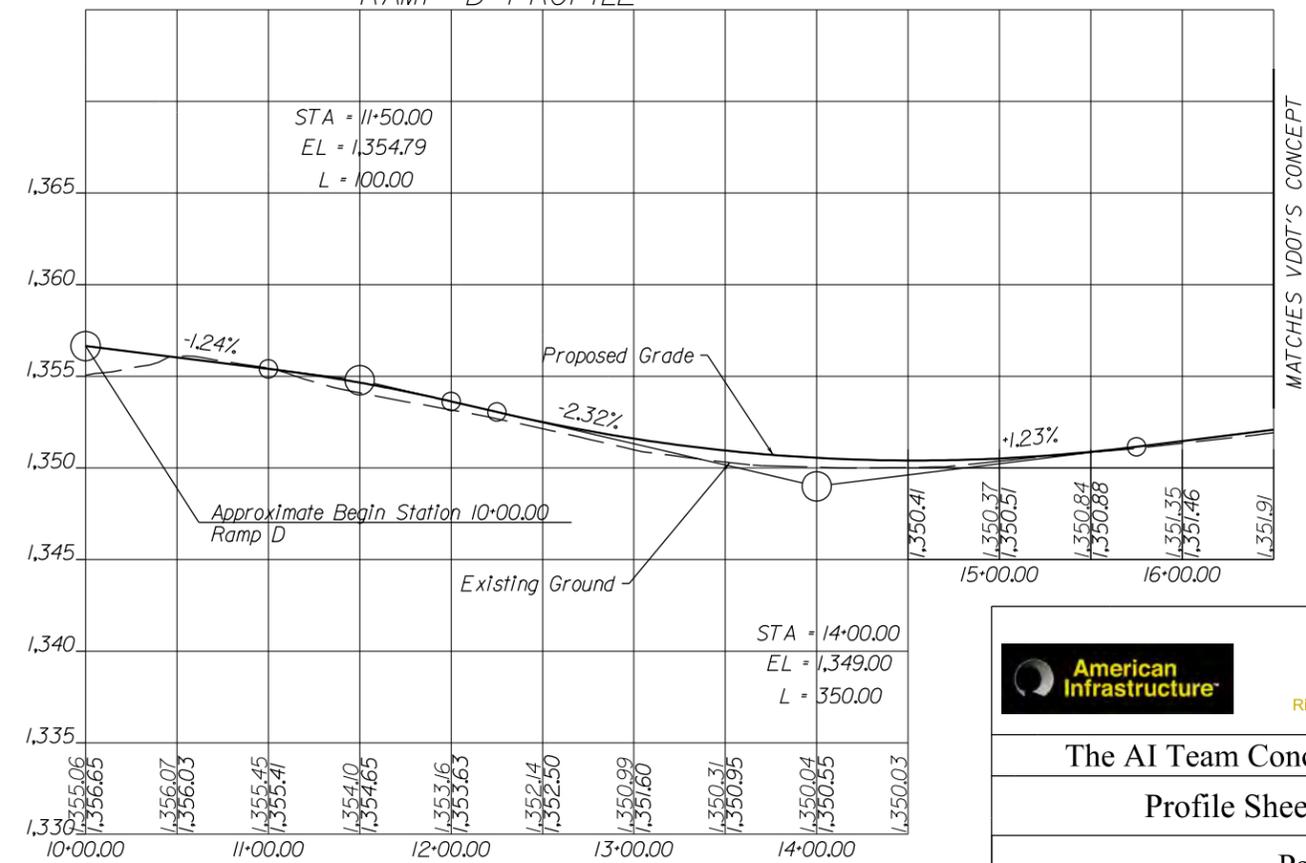


Scale: 1"=100' Horizontal  
1"=10' Vertical

RAMP B PROFILE



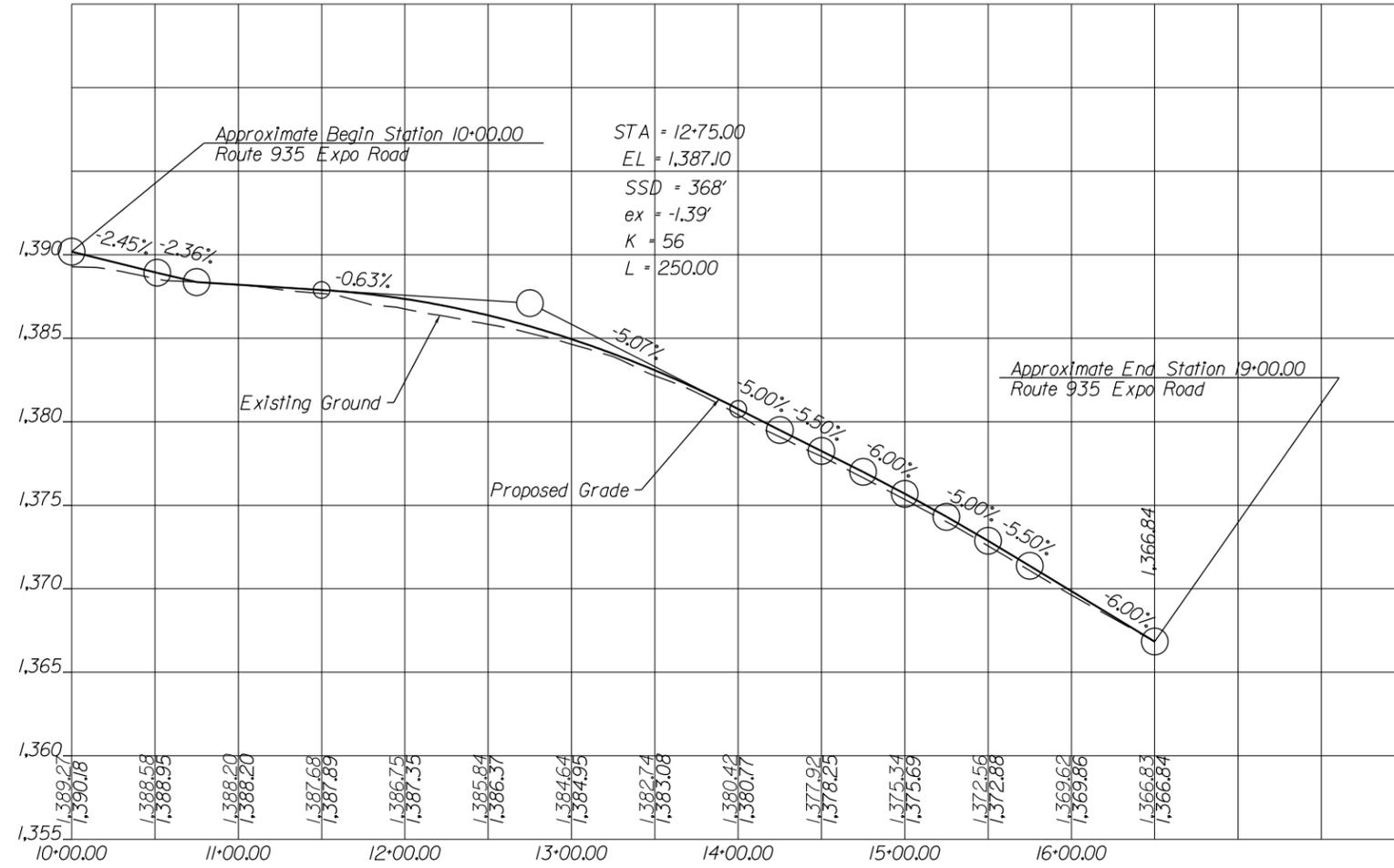
RAMP D PROFILE



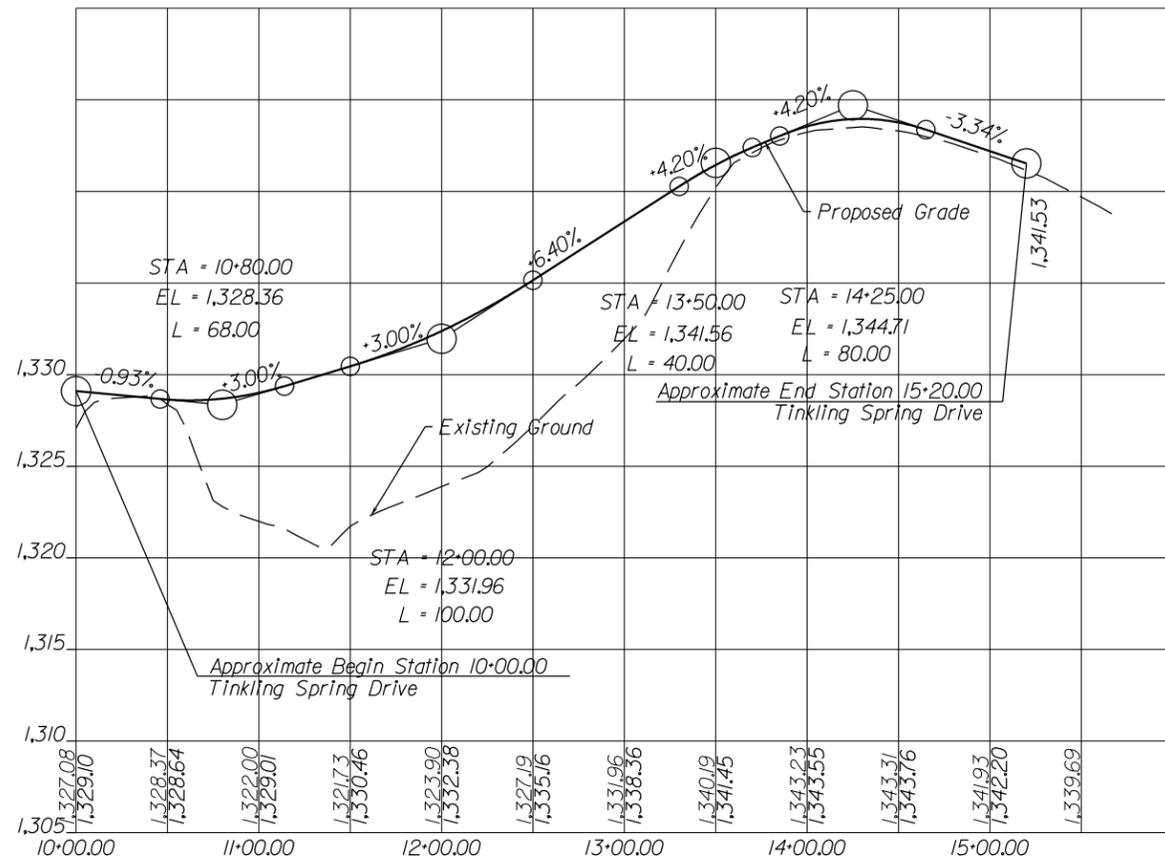
The AI Team Concept Plan

Profile Sheet 6

EXPO ROAD (ROUTE 935) PROFILE



TINKLING SPRING DRIVE PROFILE



REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	22

Scale: 1"=100' Horizontal  
1"=10' Vertical



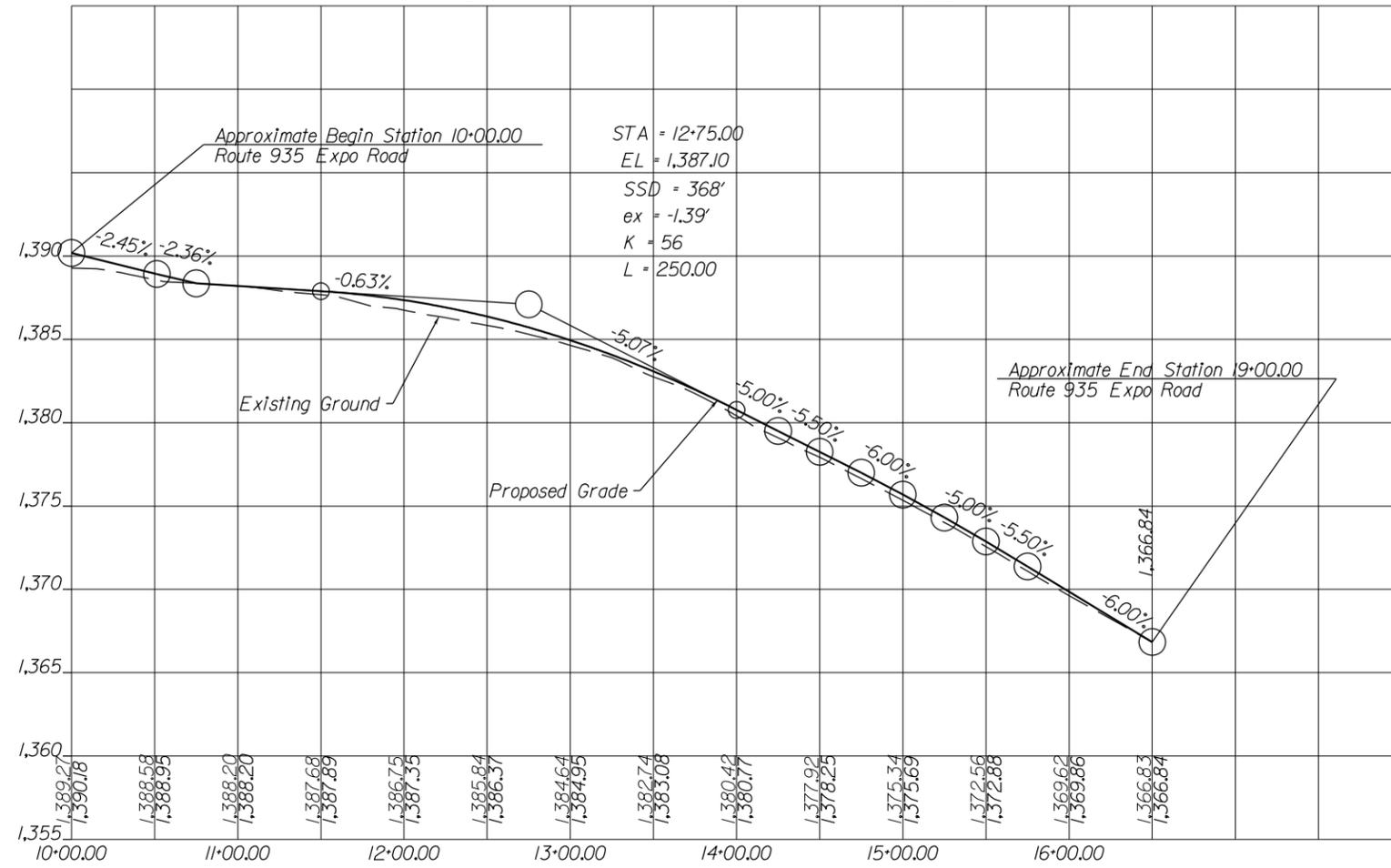
The AI Team Concept Plan

Profile Sheet 7

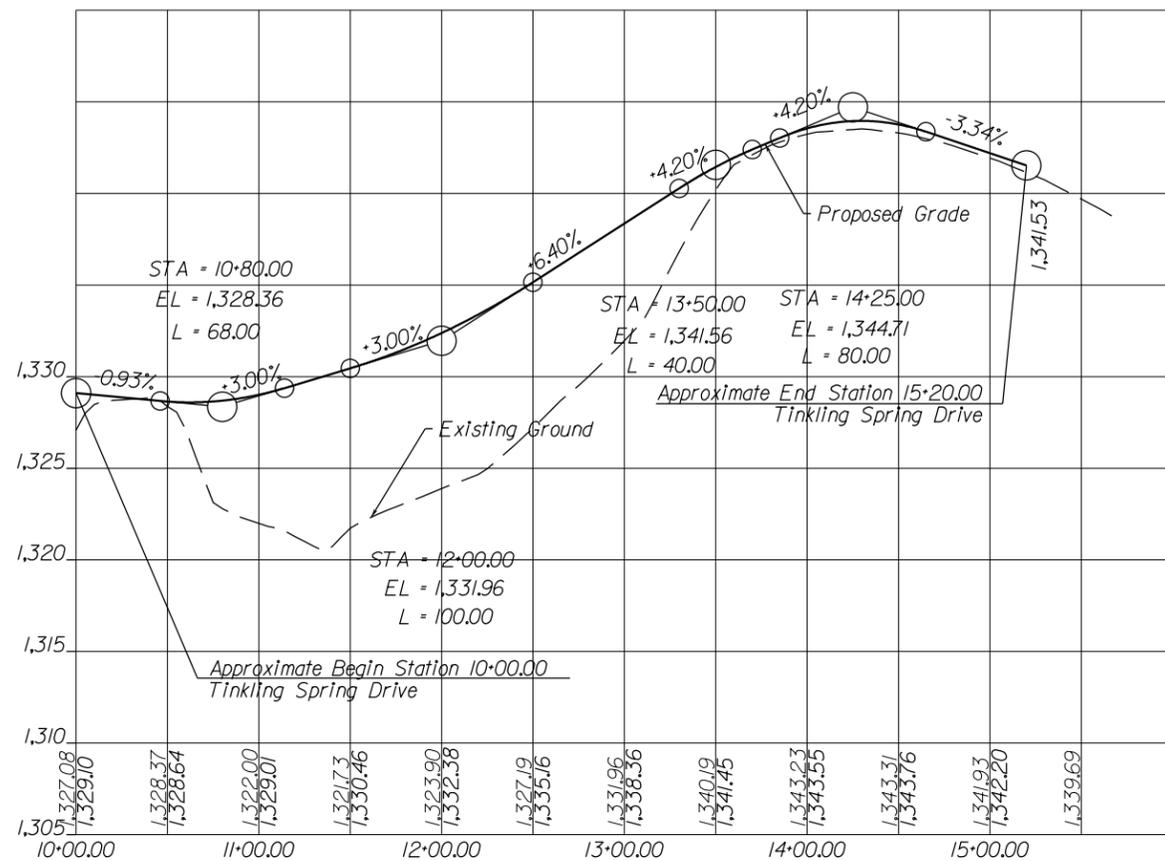
Page

53

EXPO ROAD (ROUTE 935) PROFILE



TINKLING SPRING DRIVE PROFILE



REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	22

Scale: 1"=100' Horizontal  
1"=10' Vertical

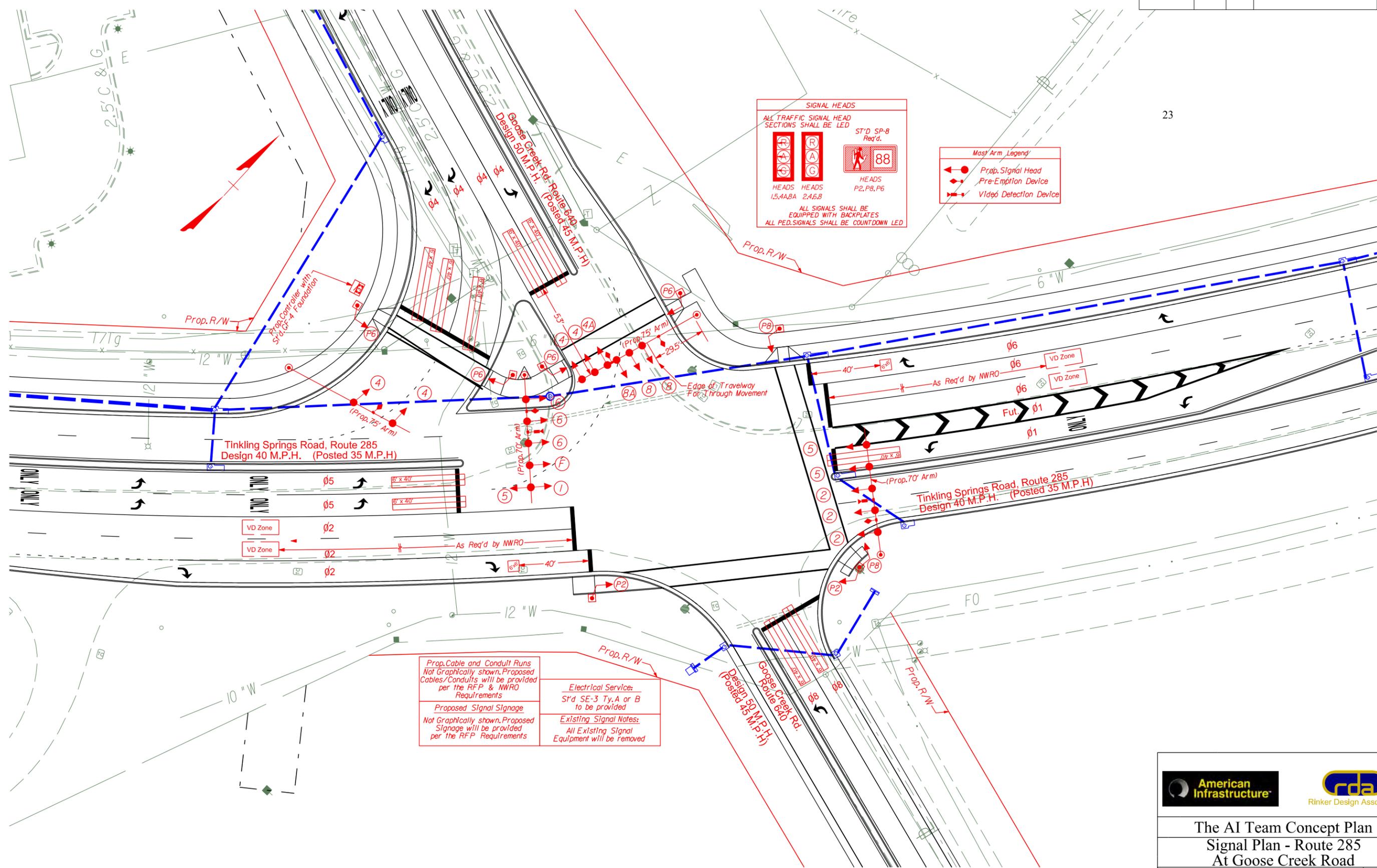


The AI Team Concept Plan

Profile Sheet 7

Page

53



**SIGNAL HEADS**  
 ALL TRAFFIC SIGNAL HEAD SECTIONS SHALL BE LED

HEADS 15, 4A, 8A	HEADS 2, 4, 6, 8	HEADS P2, P8, P6

ST'D SP-8 Req'd.

ALL SIGNALS SHALL BE EQUIPPED WITH BACKPLATES  
 ALL PED. SIGNALS SHALL BE COUNTDOWN LED

**Mast Arm Legend**

- Prop. Signal Head
- Pre-Emption Device
- Video Detection Device

Prop. Cable and Conduit Runs  
 Not Graphically shown. Proposed  
 Cables/Conduits will be provided  
 per the RFP & NWRO  
 Requirements

Proposed Signal Signage  
 Not Graphically shown. Proposed  
 Signage will be provided  
 per the RFP Requirements

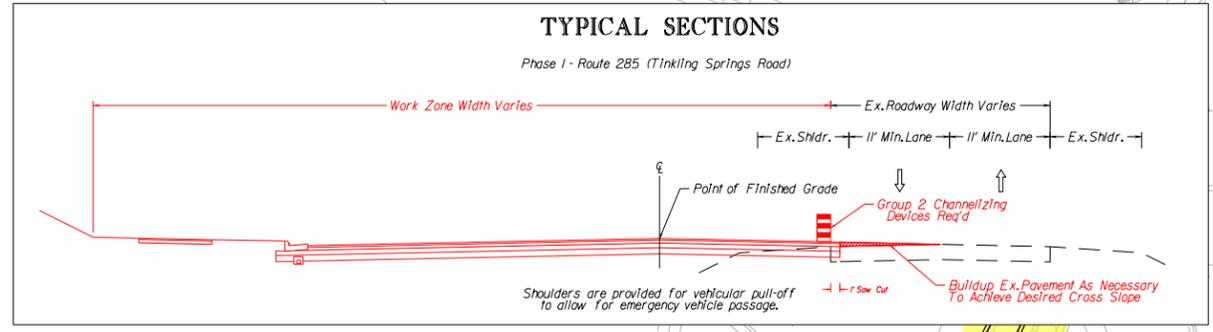
Electrical Service:  
 St'd SE-3 Ty. A or B  
 to be provided

Existing Signal Notes:  
 All Existing Signal  
 Equipment will be removed

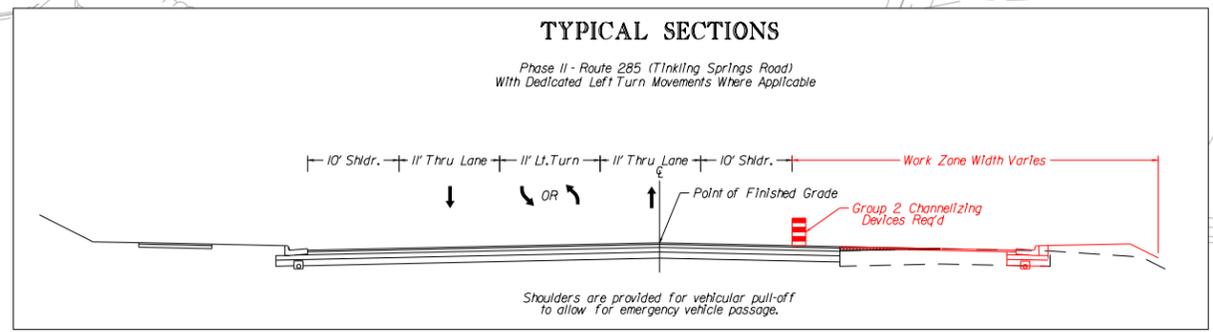
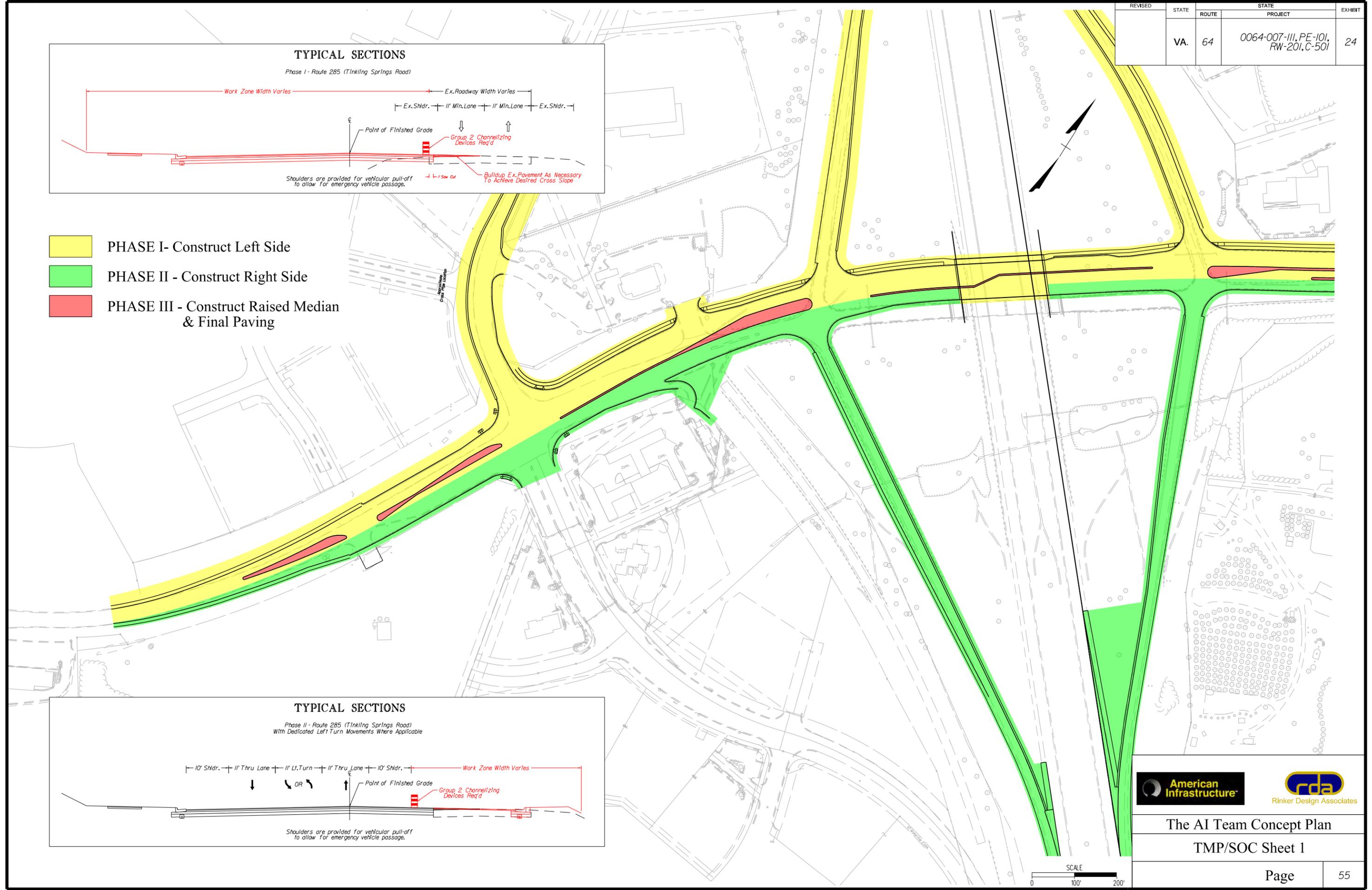
Not to Scale

<b>The AI Team Concept Plan</b> <b>Signal Plan - Route 285</b> <b>At Goose Creek Road</b>	
Page	54

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	24

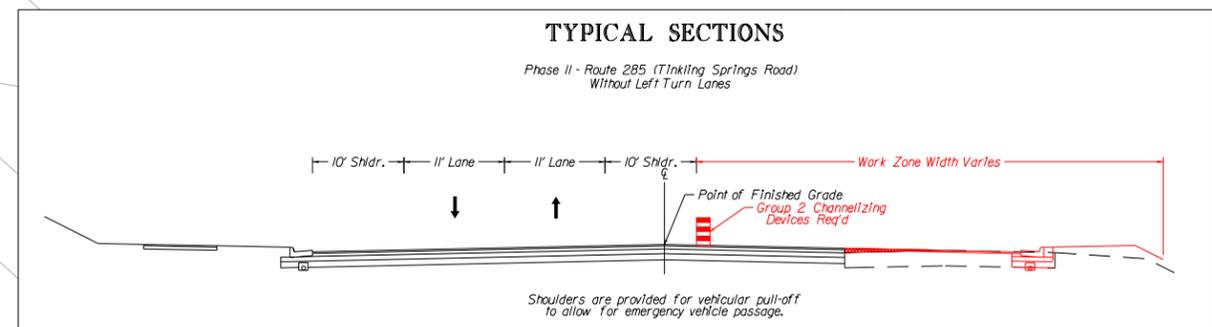
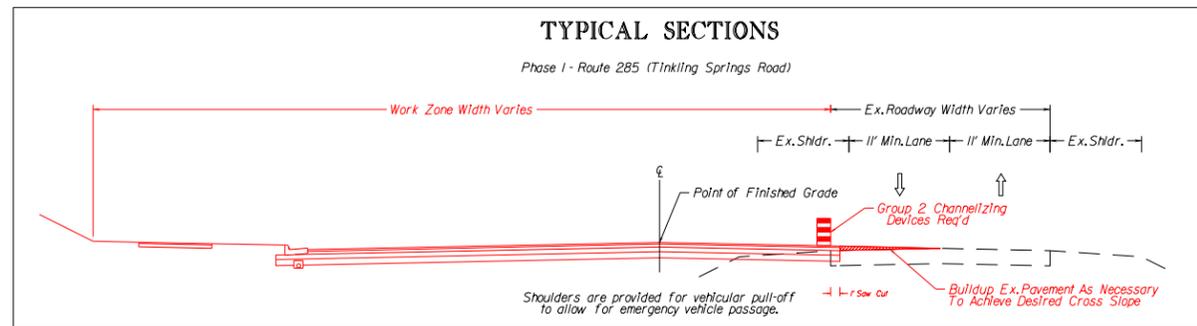


- PHASE I- Construct Left Side
- PHASE II - Construct Right Side
- PHASE III - Construct Raised Median & Final Paving



The AI Team Concept Plan  
TMP/SOC Sheet 1

REVISED	STATE	ROUTE	STATE PROJECT	EXHIBIT
	VA.	64	0064-007-III, PE-101, RW-201, C-501	25



- PHASE I - Construct Left Side
- PHASE II - Construct Right Side
- PHASE III - Construct Raised Median & Final Paving



The AI Team Concept Plan

TMP/SOC Sheet 2



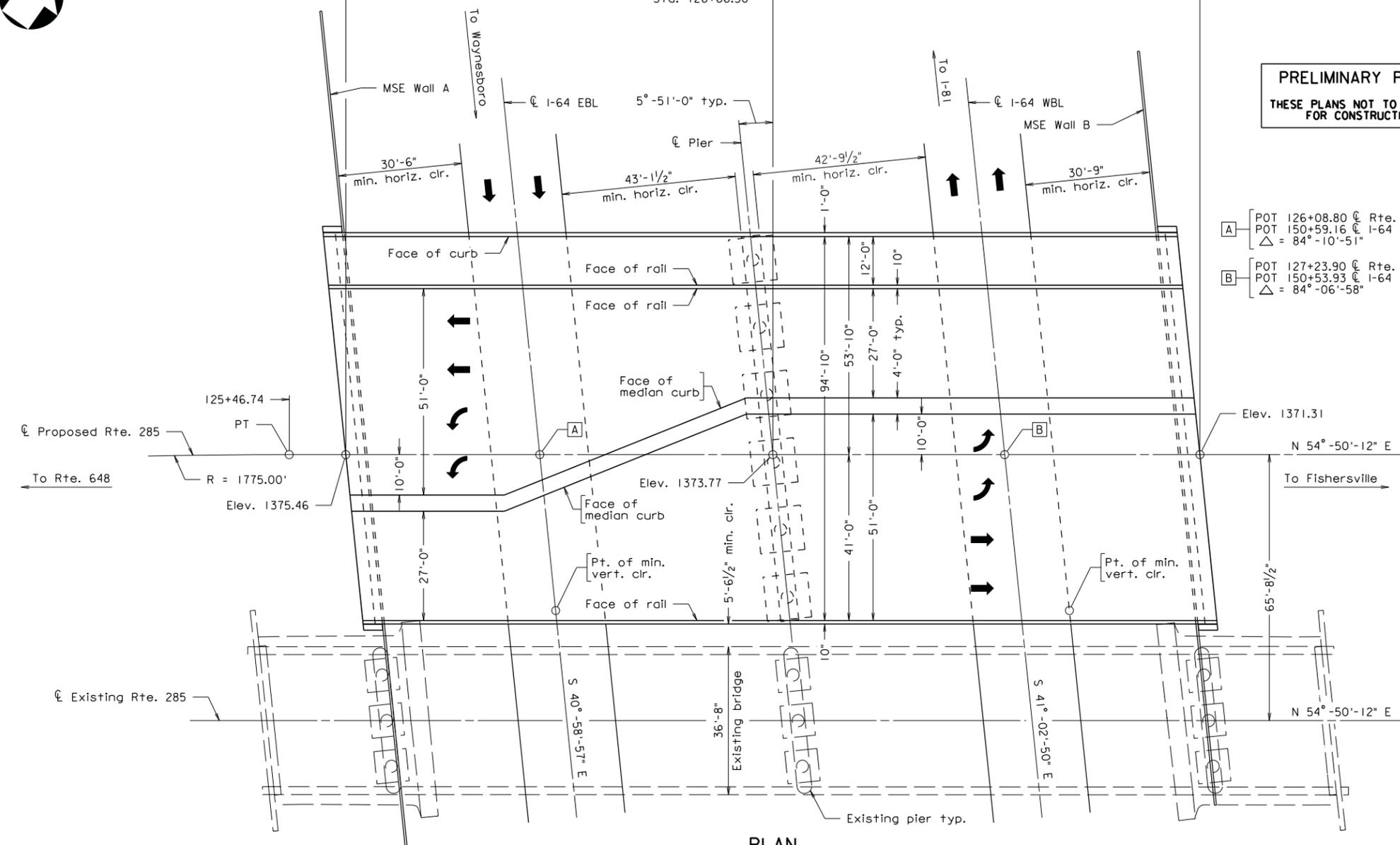
Back of integral abutment  
Abutment A  
Sta. 125+60.75

105'-9"  
Span a

Sta. 126+66.50

105'-9"  
Span b

Back of integral abutment  
Abutment B  
Sta. 127+72.25

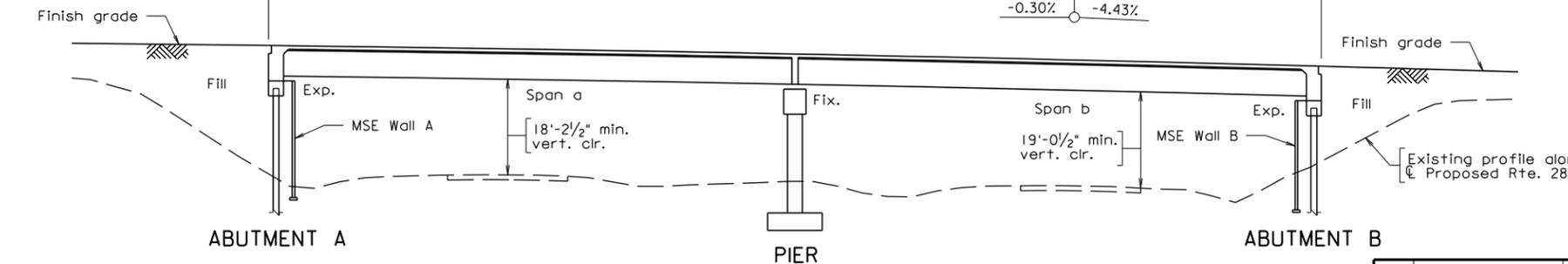


**PRELIMINARY PLANS**  
THESE PLANS NOT TO BE USED  
FOR CONSTRUCTION

- A [ POT 126+08.80 @ Rte. 285  
POT 150+59.16 @ I-64 EBL  
Δ = 84°-10'-51"
- B [ POT 127+23.90 @ Rte. 285  
POT 150+53.93 @ I-64 WBL  
Δ = 84°-06'-58"

PLAN

Beginning of bridge  
Back of integral abutment  
Sta. 125+60.75



DEVELOPED SECTION ALONG C

Scale: 1/16" = 1'-0"

STATE	FEDERAL AID	STATE	SHEET NO.
VA.	PROJECT	ROUTE	PROJECT
		285	0064-007-111, B627
NBIS Number: 00000000029276		UPC No.	75877
Federal Oversight Code: F0		FHWA Construction and Scour Code: X781-SN	

**DESIGN EXCEPTION(S):**

None.

**GENERAL NOTES:**

Width: 12'-0" shared use path, 10" railing, 51'-0" to 27'-0" varying roadway, 4'-0" median, 27'-0" to 51'-0" varying roadway. Overall width 94'-10" face-to-face of outside rail/curb.

Span layout: 105'-9" - 105'-9" prestressed concrete 61" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.

Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

Design loading includes 20 psf allowance for construction tolerances and construction methods.

Concrete in prestressed members shall be Class A5. Concrete in superstructure including rails, terminal walls, curbs, medians, continuity diaphragm and integral backwalls shall be class A4; in abutments and pier, Class A3

Low permeability concrete shall be used in this project.

Prestressed concrete in 61" deep bulb-T beams shall be Class A5 having a minimum compressive cylinder strength at 28 days equal to 8000 psi and a minimum compressive cylinder strength at time of release of strands equal to XXXX psi.

All reinforcing steel shall be deformed and shall conform to ASTM A615, Grade 60 except for reinforcing steels noted as CRR (corrosion resistant reinforcing) which shall conform to applicable specifications noted in the special provision. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

Corrosion resistant reinforcing (CRR) steels shall conform to one or more of the three types (low carbon/chromium, stainless clad and solid stainless) listed in the special provision. The minimum yield strength shall be: 100 ksi for low carbon/chromium and 60 ksi for stainless clad steel and solid stainless steel. The type(s) of CRR steel(s) required on this project is/are noted on the plan sheets and in the reinforcing steel schedule.

Prestressing strands shall be uncoated, seven-wire, low-relaxation steel strands conforming to ASTM A416 Grade 270.

The existing structure is designated a Type B structure in accordance with Sec. 411.

Bridge No. of existing bridge is 6755. Plan No. is 205-13.



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED BRIDGE ON

RTE. 285 (TINKLING SPRINGS ROAD) OVER I-64  
AUGUSTA CO.  
PROJ. 0064-007-111, B627

Recommended for Approval: \_\_\_\_\_  
State Structure and Bridge Engineer Date

Approved: \_\_\_\_\_  
Chief Engineer Date

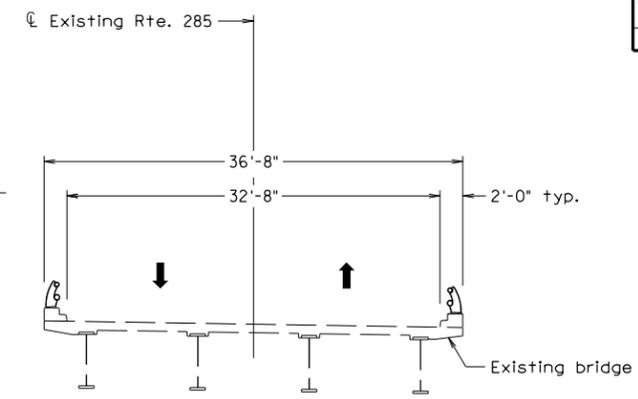
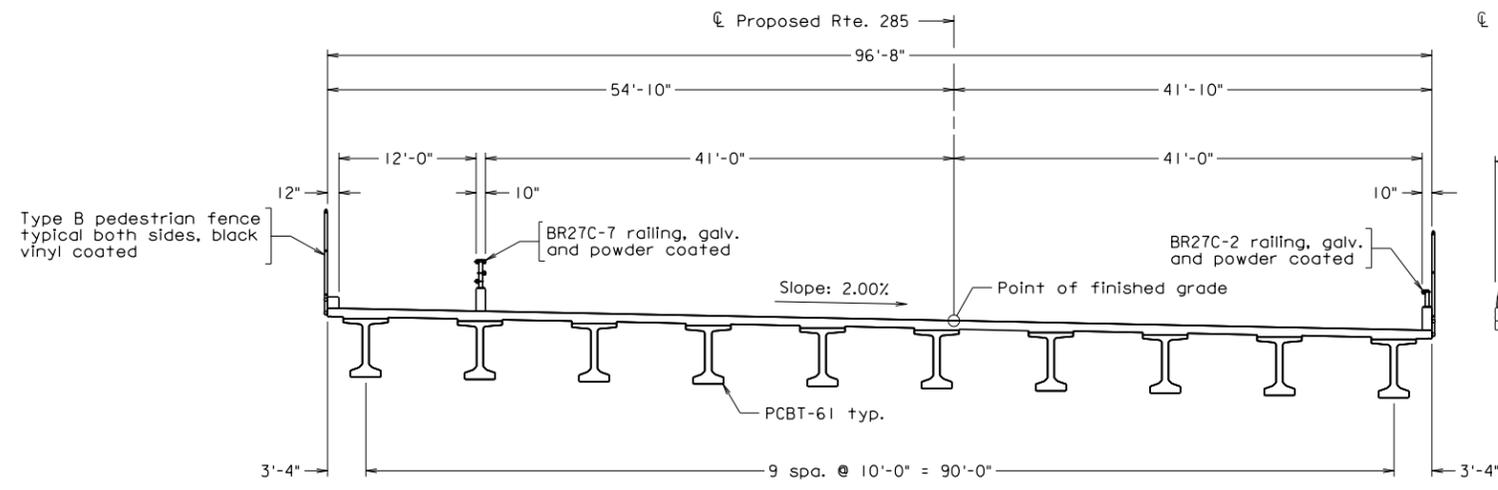
Date: \_\_\_\_\_ © 2011, Commonwealth of Virginia

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
VDOT S&B DIVISION RICHMOND, VA STRUCTURAL ENGINEER
PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:

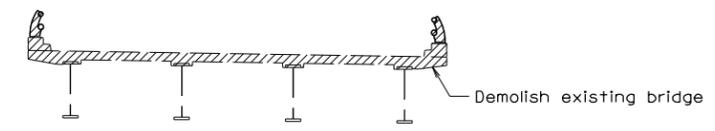
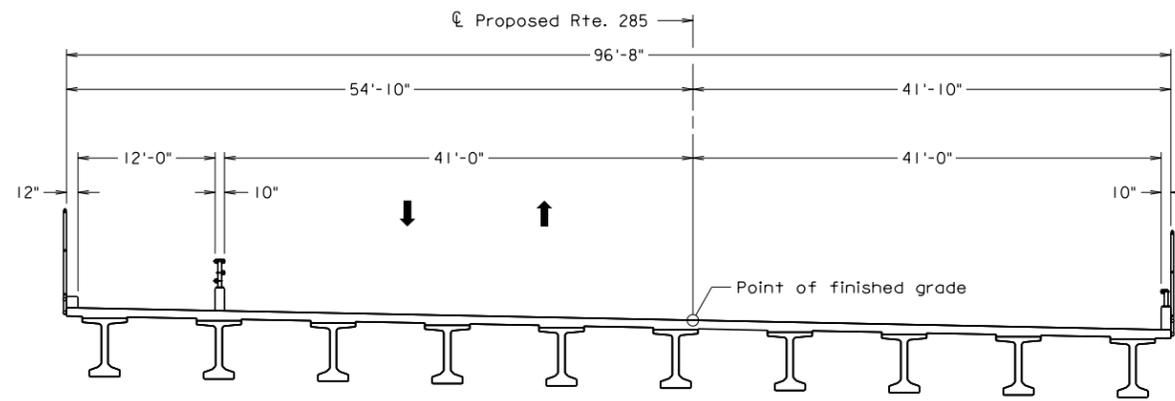
No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		

STATE	FEDERAL AID	STATE	SHEET NO.
VA.	PROJECT	ROUTE 285	0064-007-111, B627

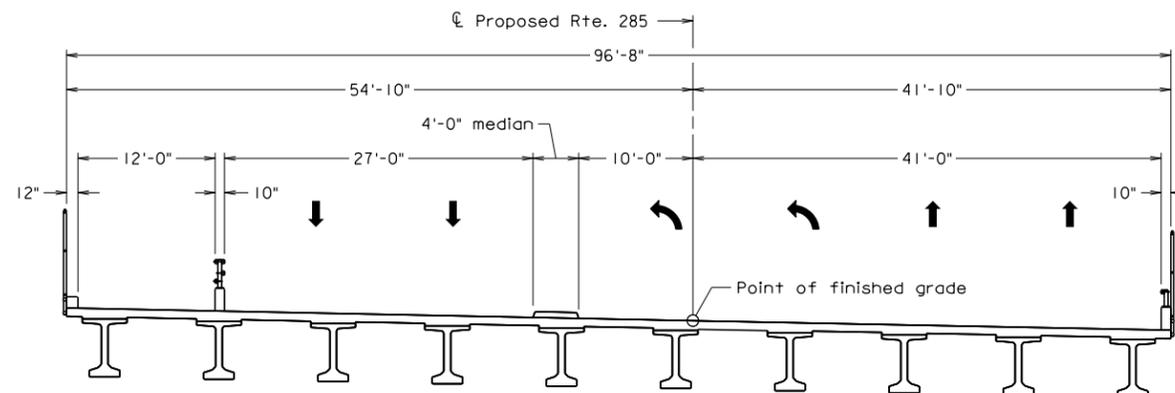
**PRELIMINARY PLANS**  
 THESE PLANS NOT TO BE USED FOR CONSTRUCTION



PHASE I



PHASE II



PHASE III

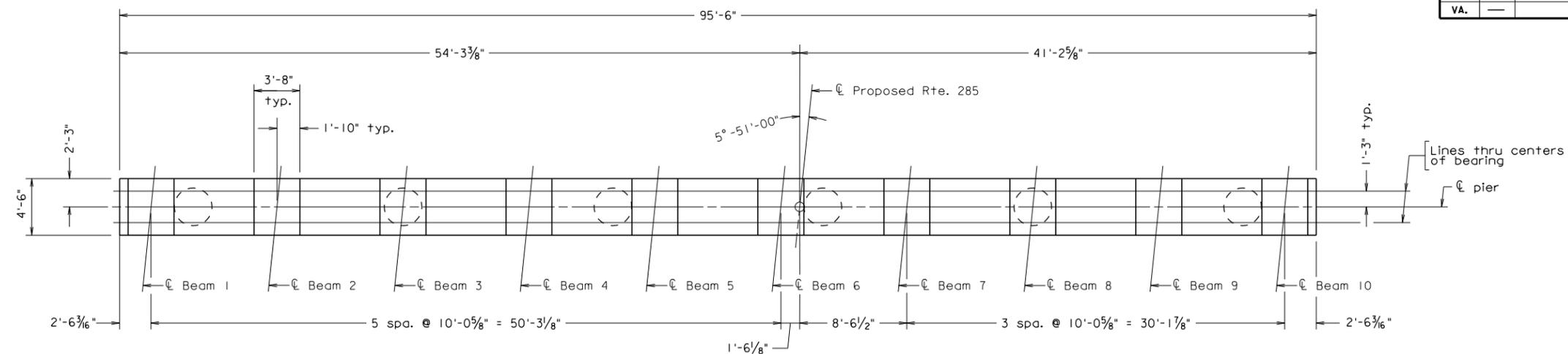
TRANSVERSE SECTION @ STA. 126+66.50

- CONSTRUCTION SEQUENCE / MAINTENANCE OF TRAFFIC NOTES:
- PHASE I - Maintain two lanes of traffic on existing bridge. Construct proposed bridge and portion of MSE wall.
  - PHASE II - Shift two lanes of traffic to proposed bridge and demolish the existing bridge. Complete construction of MSE wall.
  - PHASE III - Construct median and shift traffic to final configuration.

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
<b>TRANSVERSE SECTION &amp; CONSTRUCTION SEQUENCE</b>			
No.	Description	Date	Designed: .....
			Drawn: .....
			Checked: .....
			Date
			Plan No.
			Sheet No.
Revisions			<b>Page 58</b>

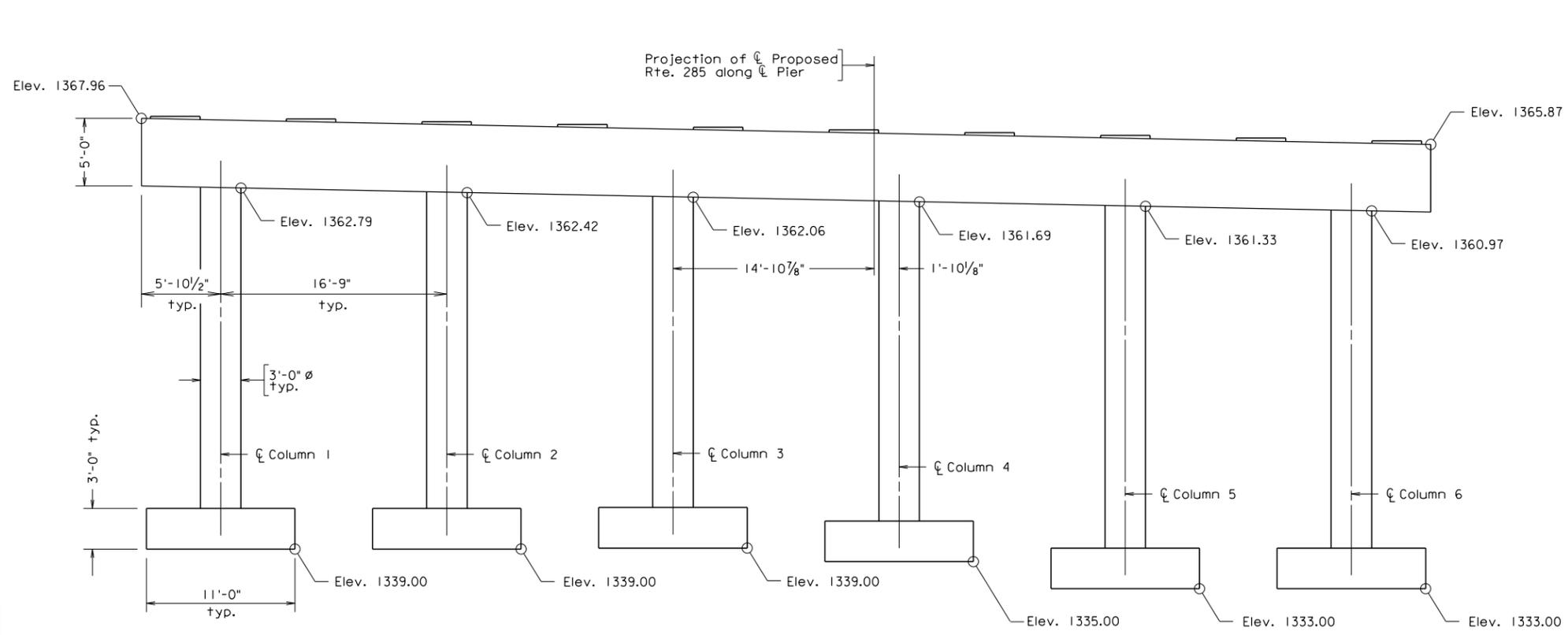
b75877 - Bridge Exhibit 2 - Transverse Section & MDT.dgn

STATE	FEDERAL AID	STATE	SHEET NO.
ROUTE	PROJECT	ROUTE	PROJECT
VA.		285	0064-007-111, B627

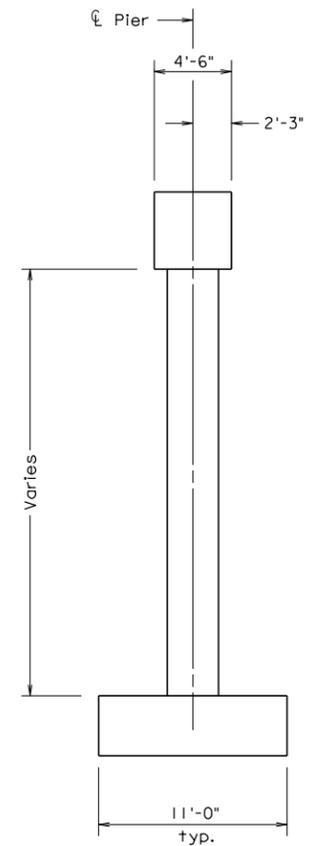


PLAN OF CAP

**PRELIMINARY PLANS**  
 THESE PLANS NOT TO BE USED  
 FOR CONSTRUCTION



ELEVATION



END VIEW

Notes:

1. Dimensions of pier elements are preliminary and shown for estimating purposes only.
2. See Transverse Section & Construction Sequence for notes pertaining to construction sequence / maintenance of traffic.
3. Bottom of footing elevations shown are based on a preliminary review of geotechnical data and are provided for estimating purposes only.

Scale: 3/16" = 1'-0"

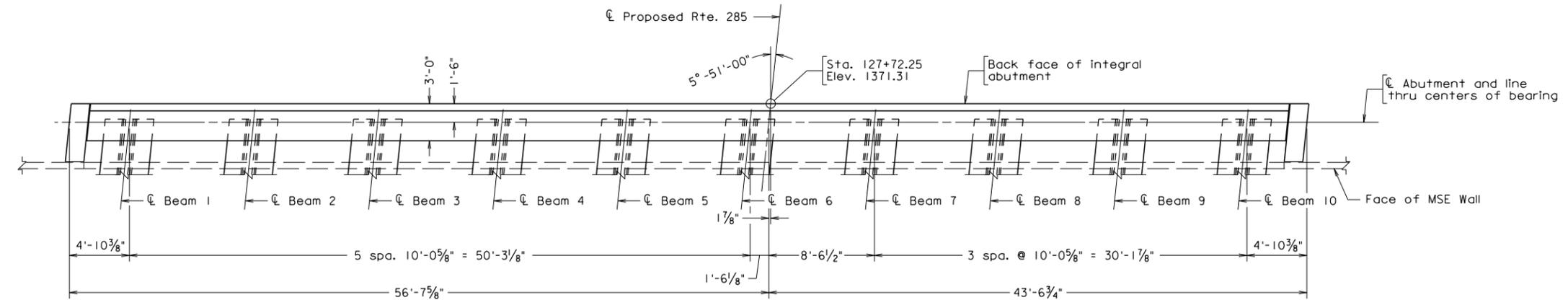
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b75877 - Bridge Exhibit 3 - Pier Details.dgn

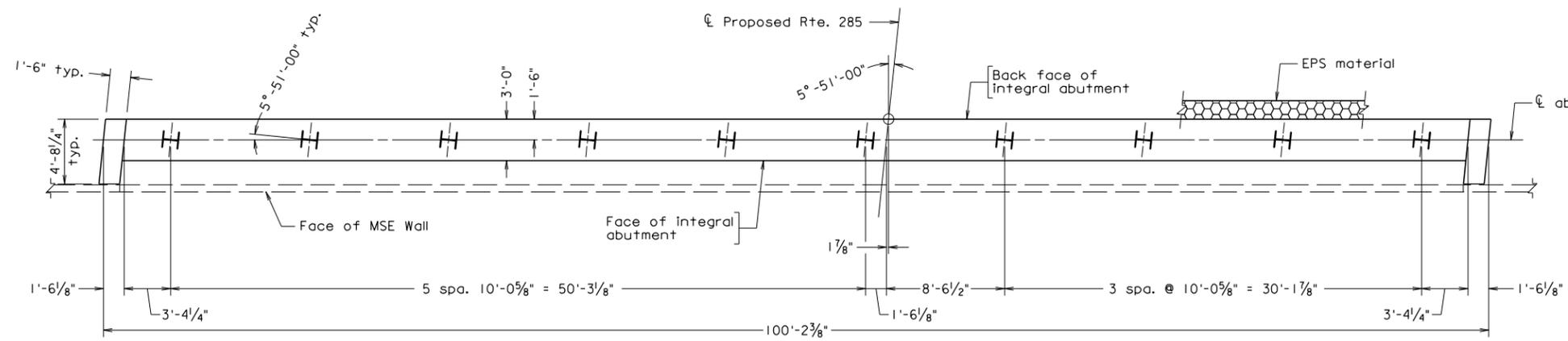
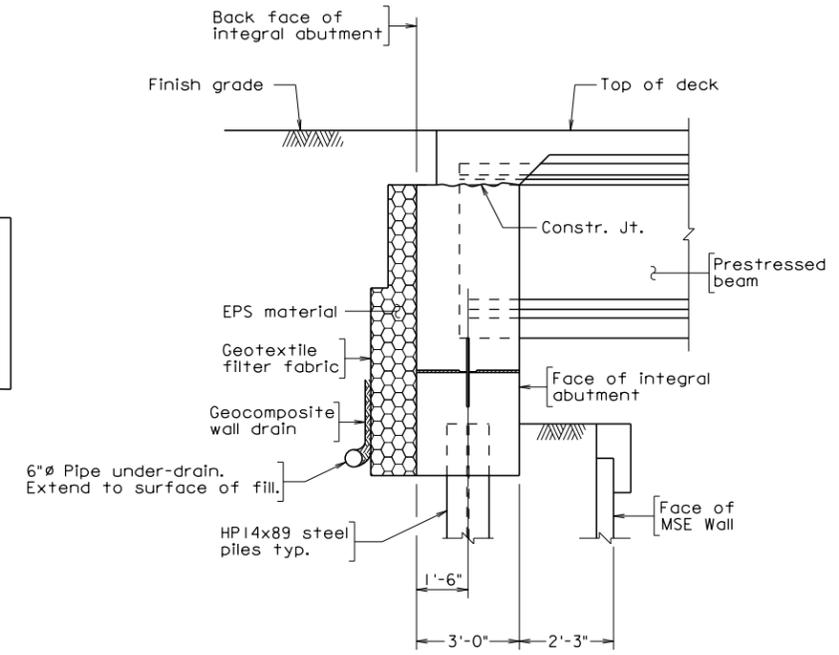
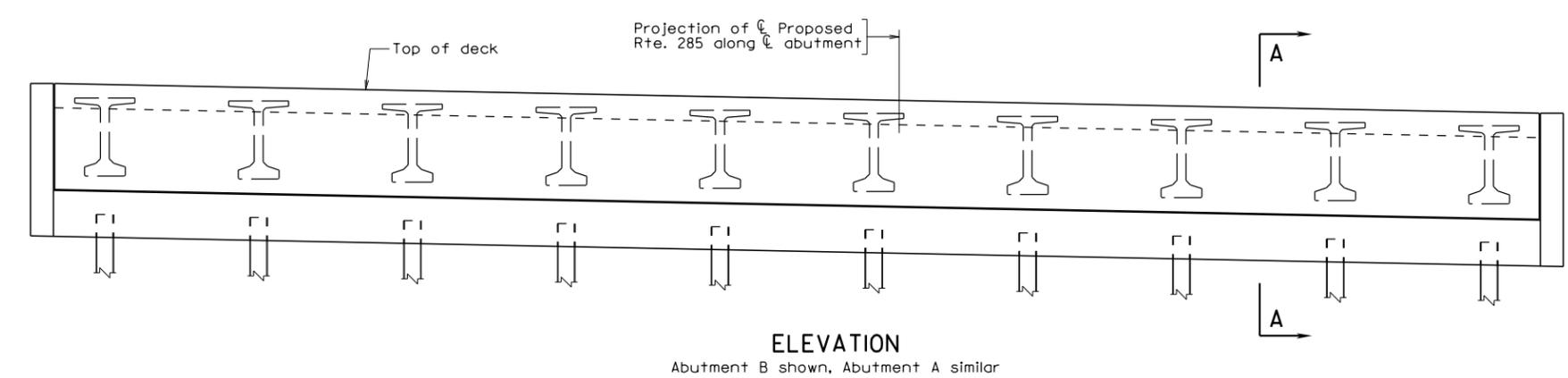
VDOT S&B DIVISION  
 RICHMOND, VA  
 STRUCTURAL ENGINEER

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION			
<b>PIER DETAILS</b>			
No.	Description	Date	Designed: .....
			Drawn: .....
			Checked: .....
			Date
			Plan No.
			Sheet No.
Revisions			<b>Page 59</b>





**PRELIMINARY PLANS**  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION



- Notes:
- Dimensions of abutment elements are preliminary and shown for estimating purposes only.
  - See Transverse Section & Construction Sequence for notes pertaining to construction sequence / maintenance of traffic.

Scale: 3/16" = 1'-0" unless otherwise noted

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COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
<b>ABUTMENT DETAILS</b>			
No.	Description	Date	Designed: .....
			Drawn: .....
			Checked: .....
	Revisions		
		Date	Plan No.
			Sheet No.

b75877 - Bridge Exhibit 4 - Abutment Details.dgn