Final Design Concept Report
(Volume 1 of 2)

SR 24, GATEWAY FREEWAY
(SR 202L – Ironwood Road)

ADOT CONTRACT NO. 05-26
PROJECT NO. 024 MA 000 H6867 01L
FEDERAL ID NO. NH-802-A(AUG)

Prepared For:

Arizona Department of Transportation

Prepared By:

AECOM

2777 E. Camelback Road, Suite 200
Phoenix, Arizona 85016

APRIL 2011

ON THE MOVE
PARTNERS IN PROGRESS

ARIZONA DEPARTMENT OF TRANSPORTATION

OFFICE MEMO

INTERMODAL TRANSPORTATION DIVISION

April 25, 2011

TO: STEVE BEASLEY, VALLEY PROJECT MANAGEMENT, EM01
JULIE KLIEWER, PHOENIX CONSTRUCTION DISTRICT, E700
TIM WOLFE, PHOENIX MAINTENANCE DISTRICT, PM04
LARRY LANGER, ASSISTANT STATE ENGINEER, EM01
MARY VIPARINA, ASSISTANT STATE ENGINEER, 611E

FROM: RON MCCALLY, VALLEY PROJECT MANAGEMENT, EM01

SUBJECT: DESIGN MEMORANDUM
024 MA 000 H6867 01L
GATEWAY FREEWAY (SR 24)
SR 202L – IRONWOOD ROAD

This memorandum is prepared pursuant to Section 3.3 of the ADOT Action Plan for Federal-Aid Highway projects. The proposed major design features for this project are described in the attached Final Design Concept Report.

Your concurrence/approval on the proposed major design features is requested.

Stephen Beasley
STEVE BEASLEY, VALLEY PROJECT MANAGEMENT

Concurrence: Julie E. Kliewer
JULIE KLIEWER, PHOENIX CONSTRUCTION DISTRICT ENGINEER, E700
5/5/11
Date

Concurrence: Tim Wolfe
TIM WOLFE, PHOENIX MAINTENANCE DISTRICT ENGINEER, PM04
5/5/11
Date

Concurrence: Larry L Langer
LARRY LANGER, ASSISTANT STATE ENGINEER-
VALLEY PROJECT MANAGEMENT, EM01
4/29/11
Date

Approved: Mary Viparina 6/22/11
MARY VIPARINA, ASSISTANT STATE ENGINEER-ROADWAY, 611E
Date

CC: Environmental Planning Group, EM02
Roadway Design, 615E

Project ID:

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
24037
STEVEN D.
WILCOX
Date Signed 4/20/2011
ARIZONA, U.S.A.

ON THE MOVE
PARTNERS IN PROGRESS

Table of Contents

List of Figures

List of Tables

List of Appendices

Appendices C through G located in Volume 2

EXECUTIVE SUMMARY

Introduction

ADOT, in conjunction with the Federal Highway Administration (FHWA), is preparing an Environmental Assessment (EA) for the proposed new Williams Gateway Freeway (SR 802) corridor between the Santan Freeway (SR 202L) and Ironwood Road. SR 802 is part of the Maricopa Association of Governments (MAG) Regional Transportation Plan Freeway Program (RTPFP) and extends from SR 202L to the Maricopa County line at Meridian Road. The study limits were extended to Ironwood Road in Pinal County to provide a connection between SR 802 and this existing regional transportation corridor. The State Transportation Board recently redesignated this route as the Gateway Freeway with a route designation of SR 24. Due to the advanced status of the study, this document continues to reference this new freeway as the Williams Gateway Freeway (SR 802).

SR 802 will provide a high-capacity freeway corridor that will provide access between the Regional Freeway System and Phoenix-Mesa Gateway Airport (PMGA), the local communities, and significant commercial and residential development planned in southeastern Maricopa County and northern Pinal County. This segment of SR 802 is located in or adjacent to the cities of Mesa and Apache Junction and the towns of Gilbert and Queen Creek, in Maricopa and Pinal Counties in Arizona. The proposed project is within the Arizona Department of Transportation's (ADOT) Phoenix District. The study area limits consist of approximately 6 miles of the new SR 802 corridor from SR 202L to Ironwood Road and approximately 5.6 miles along State Route 202L (SR 202L) between Guadalupe Road (MP 32.1) and Recker Road (MP 37.7).

The goal of this study project is to explore and objectively evaluate all reasonable alternatives in order to develop a long-term master plan for this segment of the SR 802 corridor in accordance with the approved regional and local transportation plans. This study will also seek to optimize the traffic operations within the corridor for the projected Design Year 2030 traffic demand, to provide local access to the existing and planned arterial street system where feasible, and to minimize or mitigate impacts the improvements may have on the surrounding community. In conjunction with the EA, a Design Concept Report (DCR) and Implementation Plan will be developed in support of this study.

Regional Planning

The Maricopa Association of Governments (MAG), Regional Public Transportation Authority (Valley Metro) and ADOT have worked together for many years to develop a comprehensive plan for the Regional Freeway System that is included in the Regional Transportation Plan (RTP) that was adopted by the MAG Regional Council in November 2003.

The voters of Maricopa County passed Proposition 400 in November 2004, which authorized the continuation of the existing half-cent sales tax, originally passed with Proposition 300 in October 1985, for the next 20 years to be used for implementing the RTP. A portion of the revenues collected from the half-cent sales tax extension will be deposited into the Regional Area Road Fund (RARF) to fund the RTP Freeway Program (RTPFP) projects. This project is included in the RTPFP.

Previous and Current Planning Studies

Beginning in 2004, MAG initiated an *Alignment and Environmental Overview Study* for the future SR 802 to identify a preferred corridor within Maricopa County, which was adopted by the MAG Regional Council in July 2005.

Subsequent to the MAG study, ADOT conducted the *Williams Gateway Corridor Definition Study* (2006) that recommended that SR 802 continue further to the east into Pinal County and connect to US 60 or SR 79. This study also recommended a new North-South Freeway Corridor within Pinal County west of SR 79 that would extend from US 60 on the north to I-10 on the south. Both of these future transportation corridors are included in the *Building a Quality Arizona (bqAZ) Statewide Transportation Planning Framework, Final Report* (March 2010) that was adopted by the Arizona State Transportation Board in January 2010. ADOT has initiated design concept and environmental impact studies for both of these projects.

Programming

The Arizona Transportation Board has approved funding in the ADOT Five-Year Transportation Facilities Construction Program in Fiscal Year (FY) 2010 to begin the final design and right-of-way acquisition for the segment of SR 802 between SR 202L and Ellsworth Road. Construction funding for this project is currently included in the RTPFP in Phase 3 (FY 2016). However, the City of Mesa will advance the construction of this project to FY 2012 with local funds.

Current Projects in ADOT's 5-Year Construction Program (2011-2015)

Route	Begin MP	Location	Type of Work	Funding Source	Funding Amount ($000)	Fiscal Year
SR202L	0.0	SR202L, Santan – Ellsworth Rd, Ph 1	Design	State	12,000	2010
SR202L	0.0	SR202L, Santan – Ellsworth Rd, Ph 1	Right-of-Way	State	33,000	2010

Two additional projects are currently planned within or adjacent to the study corridor and are included in the RTPFP in Phases 3 (2016 - 2020) and 4 (2021 - 2025) as shown below.

Current Projects in the RTPFP Phases 3 and 4

Route	Freeway Segment	Type of Work	RTPFP Budget ($000)	RTPFP Phase	RTPFP Phase (years)
SR802	SR202L, Santan – Ellsworth Rd, Ph 1	Construction	148,200	3	2016 - 2020
SR202L	US60, Superstition – Gilbert Rd	HOV Lanes	52,300	4	2021 - 2025

Three additional projects are currently planned within or adjacent to the study corridor and are included in the RTPFP in Phase 5 (2026 - 2031) as shown below.

Current Projects in the RTPFP Phase 5

Route	Freeway Segment	Type of Work	RTPFP Budget ($000)	RTPFP Phase	RTPFP Phase (years)
SR202L	US60, Superstition System TI	HOV Ramp	42,100	5	2026 - 2031
SR202L	US60, Superstition – Val Vista Dr	GPL Lanes	104,000	5	2026 - 2031
SR802	Ellsworth Rd – Meridian Rd	New Freeway	259,500	5	2026 - 2031

Additional funding would need to be provided by Pinal County (or other sources) for the segment of SR 802 from Meridian Road to Ironwood Road, since that segment of the freeway is located outside of Maricopa County and is not eligible for RTP funds.

Transit

The MAG Regional Council adopted the recommendations of the *High Capacity Transit Plan* (HCTP) in June 2003. This study was conducted to develop a network of transit services to meet the growing travel demand in the MAG region. This long-range study considered projected travel demand in the MAG region with a forecast horizon year of 2040 and a projected population of over 7 million residents and is intended to provide a policy framework for transit technology investments in the future.

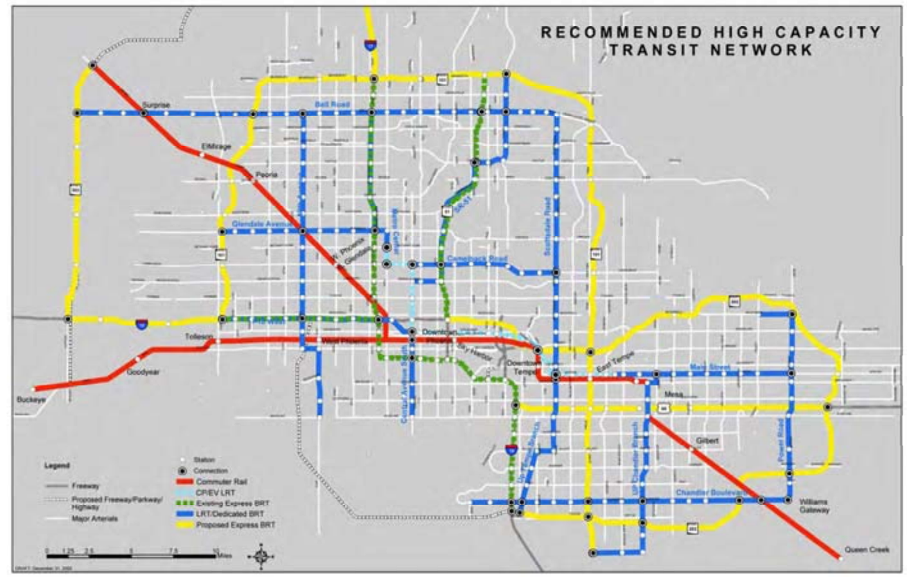
As shown on the following exhibit, the recommendations of the HCTP included Express Bus and Bus Rapid Transit (BRT) that would use the existing and planned High Occupancy Vehicle (HOV) lanes throughout the Regional Freeway System. The recommendations of the HCTP were included in the transit component of the RTP. These recommendations were recently confirmed with the completion of the *MAG Regional Transit Framework* that was adopted by the MAG Regional Council in March 2010.

The design of the SR 802 will provide sufficient width in the median to provide for the addition of HOV lanes in the future. The SR202L/SR802 TI will also be designed to allow for the future construction of an HOV directional ramp connection between SR 802 and SR 202L (to/from the west). The RTPFP does not identify funding for the SR 802 HOV lanes or the HOV directional ramp.

Phoenix-Mesa Gateway Airport

All improvements near the runways at Phoenix-Mesa Gateway Airport (PMGA) are controlled by a variety of runway airspace requirements and safety zone regulations. The Federal Aviation Administration (FAA) must be notified whenever their FAR Part 77 Runway Approach Surface may be penetrated with new construction planned in the vicinity of an airport, or if a new facility would extend into their Runway Projection Zone (RPZ) safety area. Objects that would penetrate the Part 77 surface or encroach into the RPZ must be evaluated and approved by the FAA. Land acquisition from PMGA must also be approved by the FAA.

The ADOT project team has been meeting regularly with representatives of the PMGA which has resulted in the development of the project improvements that are included with the Preferred Alternative. The Preferred Alternative includes a plan that sufficiently addresses runway safety requirements and is acceptable to ADOT, PMGA, MAG, FHWA and the FAA.



Source: MAG High Capacity Transit Plan

Alternatives Development and Screening

This report describes the development and evaluation of various SR 802 freeway corridor alternatives. A screening process was conducted by the Project Team that led to the initial identification of the Preferred Alternative. The Preferred Alternative was identified based on an evaluation of design criteria, traffic operational characteristics, environmental impacts, right-of-way impacts, and agency/public input. Public agencies that have been involved with this project include ADOT; FHWA; MAG; Flood Control District of Maricopa County (FCDMC); FAA; Arizona State Land Department (ASLD); PMGA; the Town of Queen Creek; and the City of Mesa.

A two-tiered multi-discipline screening process was used to determine which SR 802 corridor alternative should be identified as the Preferred Alternative. Section 4.0, Evaluation of Alternatives, summarizes the process and issues considered in making these recommendations.

Recommendation

The Project Team has identified Alternative A-2 to be recommended as the Preferred Alternative for implementation for this segment of SR 802. This recommendation is supported by the local agency stakeholders and the public. All alternatives, as well as the No-Build, were fully evaluated in the EA.

Additional Information

New Right-of-Way and Temporary Construction Easements (TCE's) will be required for the Preferred Alternative. The new right-of-way and easement locations will be determined during final design.

Coordination will be required with several public utility companies, the City of Mesa, MCDOT, the FCDMC, the U.S. Army Corps of Engineers (COE), PMGA, MAG, the FAA and the FHWA.

The Final EA includes all final mitigation and coordination requirements.

Additional reports prepared as part of this study include a Final EA and supporting technical documents, Drainage Concept Report and a Traffic Report.

Additional studies were conducted to evaluate various freeway profile options for the segment of SR 802 between Ellsworth Road and Meridian Road, an evaluation of a potential future HOV directional ramp at the SR202L/SR802 TI, an evaluation of a potential future braided ramp configuration for Ramp 'W-S' at the SR202L/SR802 TI, and an evaluation of the impact of additional traffic on this segment of SR 802 as this freeway is extended to the east in the future. These additional studies are included in the Appendix.

Implementation Plan

The funding identified in the MAG Area Life Cycle Program includes a total project budget of $463 million. The total project estimate includes approximately $471,474,000 for the segment of SR 802 within Maricopa County and $42,187,000 for the segment within Pinal County as shown below.

Implementation Plan Estimated Costs

Construction Phase	Estimated Design Cost (thousands)	Estimated Construction Cost (thousands)	Estimated Right-of-Way Cost (thousands)	Estimated Total Project Cost (thousands)
Phase 1	$9,045	$135,513	$50,800	$195,358
Phase 2	$14,011	$210,881	$51,255	$276,147
Phase 3	$1,769	$26,818	$13,600	$42,187

The Preferred Alternative will be constructed with three separate phases as described in Chapter 6.0 of this report. The Phase 1 project will build the majority of the elements of the ultimate SR202L/SR802 TI, widen SR 202L between Power Road and the SR202L/SR802 TI, realign Elliot Road Ramp 'A' and build a portion of the ultimate SR 802 mainline between SR 202L and Ellsworth Road. The construction of the Phase 1 improvements is currently scheduled to commence in 2016. However, the City of Mesa will advance the construction of this project to FY 2012 with local funds.

Phase 2 will complete the remaining elements of the SR202L/SR802 TI and associated widening required on SR 202L, and extend the ultimate SR 802 improvements to Meridian Road. This project is currently included in the RTPFP in Phase 5 (2026 - 2031).

Phase 3 will extend the SR 802 improvements from Meridian Road to Ironwood Road within Pinal County. This project is currently unfunded.

MITIGATION MEASURES

Mitigation measures have been defined to avoid or minimize the environmental impacts of the proposed project. The mitigation measures are listed in the Final EA and are not subject to change without prior written approval from the Federal Highway Administration.

Design Responsibilities

- During final design, the Arizona Department of Transportation will design the State Route 802 freeway to accommodate the future planned trails in the *Maricopa County Regional Trail System Plan* and *Pinal County Open Space and Trails Master Plan* that will intersect the freeway alignment.
- During final design, the Arizona Department of Transportation will evaluate strategies that reduce engine activity or reduce emissions per unit of operating time to reduce construction impacts on air quality.
- During final design, the Arizona Department of Transportation will coordinate relocation of utilities with the affected utility companies.
- If service disruption will be required for utility relocation, the Arizona Department of Transportation will coordinate with the utility companies to ensure customers are notified prior to service disruption.
- To reduce light spillover, shielded or cut-off light fixtures will be utilized wherever feasible.
- During final design the Arizona Department of Transportation will evaluate the feasibility of painting or adding visual elements to bridge and wall structures to reduce impacts to visual resources.

- During final design of each construction phase, the floodplain managers or Engineering Department with local jurisdiction will be provided an opportunity to review and comment on the design plans.

- All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.

Arizona Department of Transportation Environmental Planning Group Responsibilities:

- Prior to construction, a treatment plan will be developed and implemented to mitigate the adverse effects of the project on historic properties, as outlined in the project's programmatic agreement.

- During final design the Arizona Department of Transportation will prepare and submit an application to the US Army Corps of Engineers for a Clean Water Act Section 404 permit. No work will occur within jurisdictional waters of the US until the appropriate Clean Water Act Section 401 certification and 404 permits are obtained.

- During final design, the Arizona Department of Transportation will reevaluate potential project-related effects to species protected by the federal Endangered Species Act.

- During final design, the Arizona Department of Transportation, in coordination with the Federal Highway Administration and the Arizona Department of Transportation Biologist, will consider incorporating any existing US Fish and Wildlife Service recommendations to minimize roadway project impacts to the Tucson shovel-nosed snake.

- During the early stages of final design, the Arizona Department of Transportation will prepare a follow-up assessment (Preliminary Site Investigations - Phase I, II, and/or III) at the high-risk sites and moderate-risk sites to determine specific locations and severity of impacts to the design and construction of the project.

- The Arizona Department of Transportation will test for asbestos prior to the start of construction activities on any structures to be demolished or modified.

- If asbestos-containing materials are found, the Arizona Department of Transportation will contract with an asbestos consultant to provide full-time oversight for all abatement activities.

- The Arizona Department of Transportation will test for lead-based paint prior to the start of construction activities on any painted surfaces.

Arizona Department of Transportation Phoenix Construction District Responsibilities:

- Access to businesses in the project vicinity will be maintained during construction.

- Fugitive dust generated from construction activities will be controlled in accordance with Maricopa County Rule 310 and *ADOT Standard Specifications for Road and Bridge Construction, Section 104.08* (2000 Edition), special provisions, as well as other local rules and ordinances.

- Upon approval of the Storm Water Pollution Prevention Plan and Storm Water Monitoring Plan by the Arizona Department of Environmental Quality, the Arizona Department of Transportation will file a Notice of Intent to the Arizona Department of Environmental Quality. Upon final acceptance of the project, the Arizona Department of Transportation shall file a Notice of Termination for the project to the Arizona Department of Environmental Quality.

- The Engineer will submit the Contractors' Arizona Pollutant Discharge Elimination System Notice of Intent and the Notice of Termination to the Environmental Coordinator.

- If burrowing owls or active burrows are identified during the pre-construction surveys or during construction, no construction activities will take place within 100 feet of any active burrow until the owls are relocated.

- If asbestos-containing materials are found, the Engineer will review the National Emissions Standards for Hazardous Air Pollutants notification received from the contractor. The contractor cannot start work associated with the demolition or removal of asbestos-containing materials until 10 working days have passed since the submittal of the notification to the regulatory agencies.

Arizona Department of Transportation Right-of-Way Group Responsibilities:

- The Arizona Department of Transportation will perform any residential relocation in accordance with 42 U.S.C. Chapter 61 and the Real Property Acquisition Polices Act of 1970.

- All right-of-way acquisition will be implemented by the Arizona Department of Transportation's Right-of-Way Group in accordance with 42 U.S.C. Chapter 61 and the Real Property Acquisition Policies Act of 1970.

Arizona Department of Transportation Roadside Development Section Responsibility:

- Protected native plants within the project construction limits will be impacted by this project; therefore, the Arizona Department of Transportation Roadside Development Section will determine if Arizona Department of Agriculture notification is needed. If notification is needed, the Arizona Department of Transportation Roadside Development Section will send the notification at least 60 calendar days prior to the start of construction.

Contractor Responsibilities:

- Access to businesses in the project vicinity shall be maintained during construction.
- Any trails in place at the time of construction shall be kept open at all times through the duration of the construction project.
- Fugitive dust generated from construction activities shall be controlled in accordance with Maricopa County Rule 310 and *ADOT Standard Specifications for Road and Bridge Construction, Section 104.08* (2000 Edition), special provisions, as well as other local rules and ordinances.
- Equipment shall be maintained on a regular basis; new equipment should be subject to new product noise emission standards.
- Stationary equipment shall be located as far away from sensitive receivers as possible.
- The public shall be adequately notified of construction operations; methods such as construction alert publications shall be provided to handle complaints in an expeditious manner.
- The contractor shall obtain the most current copy of the Arizona Department of Transportation Best Management Practices for incorporation in the Storm Water Pollution Prevention Plan.
- The contractor shall implement a Storm Water Pollution Prevention Plan with Storm Water Monitoring Plan. The contractor shall also prepare a Notice of Intent and a Notice of Termination meeting the terms and conditions of the Arizona Pollutant Discharge Elimination System general permit.
- Upon approval of the Storm Water Pollution Prevention Plan with Storm Water Monitoring Plan by the Arizona Department of Environmental Quality, the Arizona Department of Transportation, and contractor shall each file a Notice of Intent to the Arizona Department of Environmental Quality. Upon final acceptance of the project by Arizona Department of Transportation, the Arizona Department of Transportation and the contractor shall each file a Notice of Termination for the project to the Arizona Department of Environmental Quality. The contractor shall provide copies of the completed final Storm Water Pollution Prevention Plan, Storm Water Monitoring Plan and contractor Notice of Intent and Notice of Termination to Arizona Department of Transportation.
- The contractor shall employ a biologist to complete a pre-construction survey for burrowing owls 96 hours prior to construction in all suitable habitat that will be disturbed. The biologist shall possess a burrowing owl survey-protocol training certificate issued by the Arizona Game and Fish Department. Upon completion of the surveys, the contractor shall contact the Arizona Department of Transportation Environmental Planning Group at (602.712.7767) to provide survey results.
- If any burrowing owls are located during preconstruction surveys or construction, the contractor shall employ a biologist holding a permit from the US Fish and Wildlife Service to relocate burrowing owls from the study area, as appropriate.
- If burrowing owls or active burrows are identified during the pre-construction surveys or during construction, no construction activities shall take place within 100 feet of any active burrow until the owls are relocated.
- If any Sonoran desert tortoises are encountered during construction, the contractor shall adhere to the attached Arizona Game and Fish Department's Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects (Revised October 23, 2007).
- All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.
- To prevent the introduction of invasive species seeds, all construction equipment shall be washed at the contractor's storage facility prior to entering the construction site.
- To prevent invasive species seeds from leaving the construction site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to allowing that equipment to leave the construction site.
- If asbestos-containing materials are found, no activities associated with the demolition or removal of asbestos-containing materials shall be allowed to occur until the Asbestos Removal and Disposal Plan is approved by the Arizona Department of Transportation.
- If asbestos-containing materials are found, the contractor shall complete a National Emissions Standards for Hazardous Air Pollutants notification for work associated with the demolition or removal of asbestos-containing materials and submit it to the Engineer for review. After Engineer approval, the notification shall be submitted to the Arizona Department of Transportation for a 5-working-day review and approval. Upon approval by the Arizona Department of Transportation, the contractor shall file the notification with the Maricopa County Air Quality Department at least 10 working days prior to demolition associated with the removal of asbestos-containing materials.
- If asbestos-containing materials are found, an approved contractor shall develop and implement an Asbestos Removal and Disposal Plan for the demolition and removal of asbestos-containing materials. The plan shall be submitted to the Arizona Department of Transportation for review and approval at least 10 working days prior to implementation. The contractor shall follow all applicable local, state, and federal codes and regulations related to the treatment, handling, and disposal of asbestos.
- If regulated amounts of asbestos are found, no demolition or removal of load-bearing concrete shall occur until the Asbestos Removal and Disposal Plan is approved and implemented.

- If lead-based paint is found on any surfaces that will be disturbed during construction, an approved contractor shall develop and implement a lead-based paint abatement plan for the removal of the lead based paint, Toxicity Characteristic Leaching Procedure testing of the generated waste stream, and proper disposal of the waste stream derived from the removal of the lead-based paint within the project construction limits. The contractor shall follow all applicable local, state and federal codes and regulations related to the treatment and handling of lead-based paint.

- If lead-based paint is found, the contractor shall submit a lead-based paint removal and disposal plan for the removal of lead-based paint within the project construction limits to the Engineer for review and approval at least 10 working days prior to disturbing the painted surface.

- No disturbance of the lead-based paint shall occur until the lead-based paint abatement plan is approved by the Department Hazardous Material Coordinator and implemented.

Standard Specifications included as Mitigation Measures:

- According to the Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 107 Legal Relations and Responsibility to Public, Subsection 05 Archaeological Features (2008 Edition), "When archaeological, historical, or paleontological features are encountered or discovered during any activity related to the construction of the project, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those features and notify the Engineer." The Arizona Department of Transportation Engineer will, in turn, notify the Arizona Department of Transportation Historic Preservation Team to evaluate the significance of the resources. If human remains are encountered during any phase of the project on non-federal land, all work must stop and the Engineer will contact Arizona Department of Transportation Historic Preservation Team and the Arizona State Museum.

- According to the Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 104 Scope of Work, Subsection 08 Prevention of Air and Noise Pollution (2008 Edition), "The contractor shall control, reduce, remove or prevent air pollution in all its forms, including air contaminants, in the performance of the contractor's work." Fugitive dust generated from construction activities shall be controlled in accordance with the Arizona Department of Transportation's Erosion and Pollution Control Manual for Highway Design and Construction, special provisions, and local rules or ordinances. The contractor shall comply with all applicable air pollution ordinances, regulations, and orders during construction. All dust-producing surfaces shall be watered or otherwise stabilized to reduce short-term impacts associated with an increase in particulate matter attributable to construction activity.

- According to the Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 104 Scope of Work, Subsection 08 Prevention of Air and Noise Pollution (2008 Edition), "The contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine used for any purpose on the work or related to the work shall be equipped with a muffler of a type recommended by the manufacturer."

- According to the Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 104 Scope of Work, Subsection 09 Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs (2008 Edition), "The contractor shall take sufficient precautions, considering various conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oils, bitumens, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to such streams, lakes or reservoirs."

- According to the Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 104 Scope of Work, Subsection 09 Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs (2008 Edition), "The contractor shall give special attention to the effect of its operations upon the landscape and shall take special care to maintain natural surroundings undamaged."

- According to Arizona Department of Transportation's *Standard Specifications for Road and Bridge Construction*, Section 107 Legal Relations and Responsibility to Public, Subsection 07 Sanitary, Health, and Safety Provisions (2008 Edition), "During construction operations, should material be encountered which the contractor believes to be hazardous or contaminated, the contractor shall immediately do the following: a) Stop work and remove workers within the contaminated area… b) Barricade the area and provide traffic control… and c) Notify the [Arizona Department of Transportation] Engineer." The Arizona Department of Transportation Engineer will arrange for proper assessment, treatment, or disposal of those materials. Such locations will be investigated and proper action implemented prior to the continuation of work in that location.

1.0 INTRODUCTION

1.1 PROJECT LOCATION

This Design Concept Report (DCR) describes the development and evaluation of the segment of the new State Route 802 (SR 802) Williams Gateway Freeway between the Santan Freeway (SR 202L) and Ironwood Road. This project is located in or adjacent to the cities of Mesa and Apache Junction and the towns of Gilbert and Queen Creek, in Maricopa and Pinal Counties in Arizona (Figure 1). The proposed project is within the Arizona Department of Transportation's (ADOT) Phoenix District.

The study area limits consist of approximately 6 miles of the new SR 802 corridor from SR 202L to Ironwood Road and approximately 5.6 miles along State Route 202L (SR 202L) between Guadalupe Road (MP 32.1) and Recker Road (MP 37.7). Figure 2 shows the defined study area for the SR 802 corridor study that encompasses these project limits.

The State Transportation Board recently designated this route as the Gateway Freeway with a route designation of SR 24. Due to the advanced status of the study, this document continues to reference this new freeway as the Williams Gateway Freeway (SR 802).

1.2 NEED FOR THE PROJECT

The Williams Gateway Freeway (SR 802) from SR 202L to Meridian Road is part of the Maricopa Association of Governments (MAG) Regional Transportation Plan Freeway Program (RTPFP). The study limits were extended to Ironwood Road in Pinal County to provide a connection between SR 802 and this existing regional transportation corridor. SR 802 will provide a high-capacity freeway corridor that will provide access between the Regional Freeway System and Phoenix-Mesa Gateway Airport, the local communities, and significant commercial and residential development planned in southeastern Maricopa County and northern Pinal County.

Beginning in 2004, MAG initiated an *Alignment and Environmental Overview Study* for the future SR 802 to identify a preferred corridor within Maricopa County, which was adopted by the MAG Regional Council in July 2005. The segment of SR 802 within Maricopa County would begin at SR 202L in the vicinity of Hawes Road and then continue in a southeasterly direction to approximately Crismon Road, and then travel on an east-west alignment to Ironwood Road.

Subsequent to the MAG study, ADOT conducted the *Williams Gateway Corridor Definition Study* (2006) that recommended that SR 802 continue further to the east into Pinal County and connect to US 60 or SR 79. This study also recommended a new North-South Freeway Corridor within Pinal County west of SR 79 that would extend from US 60 on the north to I-10 on the south. Both of these future transportation corridors are also included in the *Building a Quality Arizona (bqAZ) Statewide Transportation Planning Framework, Final Report* (March 2010) that was adopted by the Arizona State Transportation Board in January 2010. ADOT has initiated design concept and environmental studies for both of these projects.

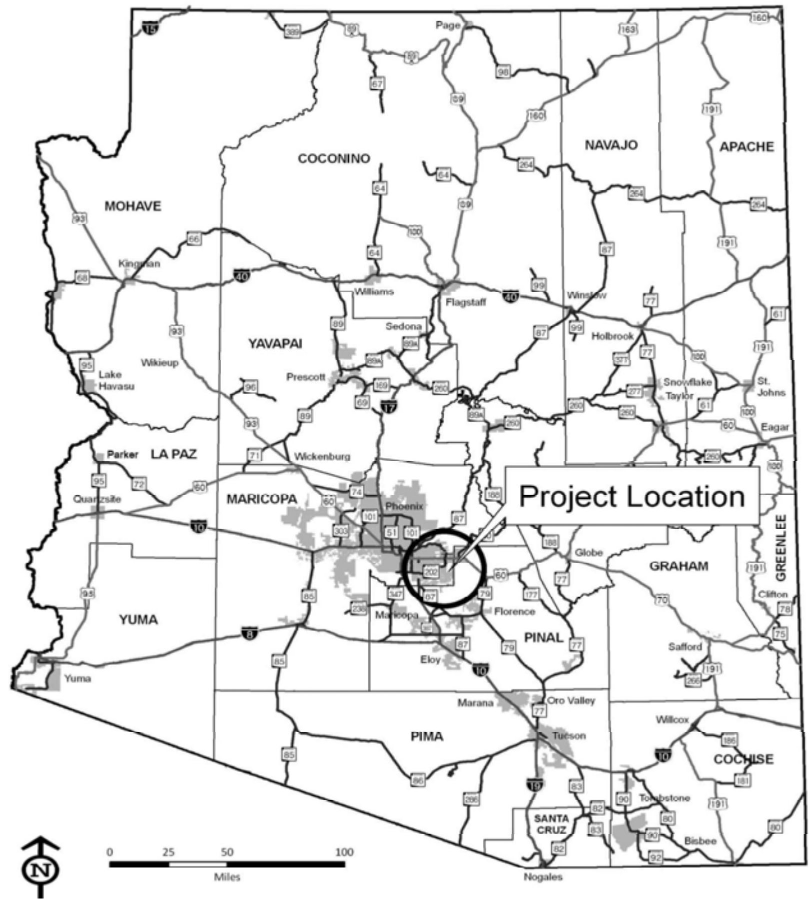


Figure 1 – Project Location Map

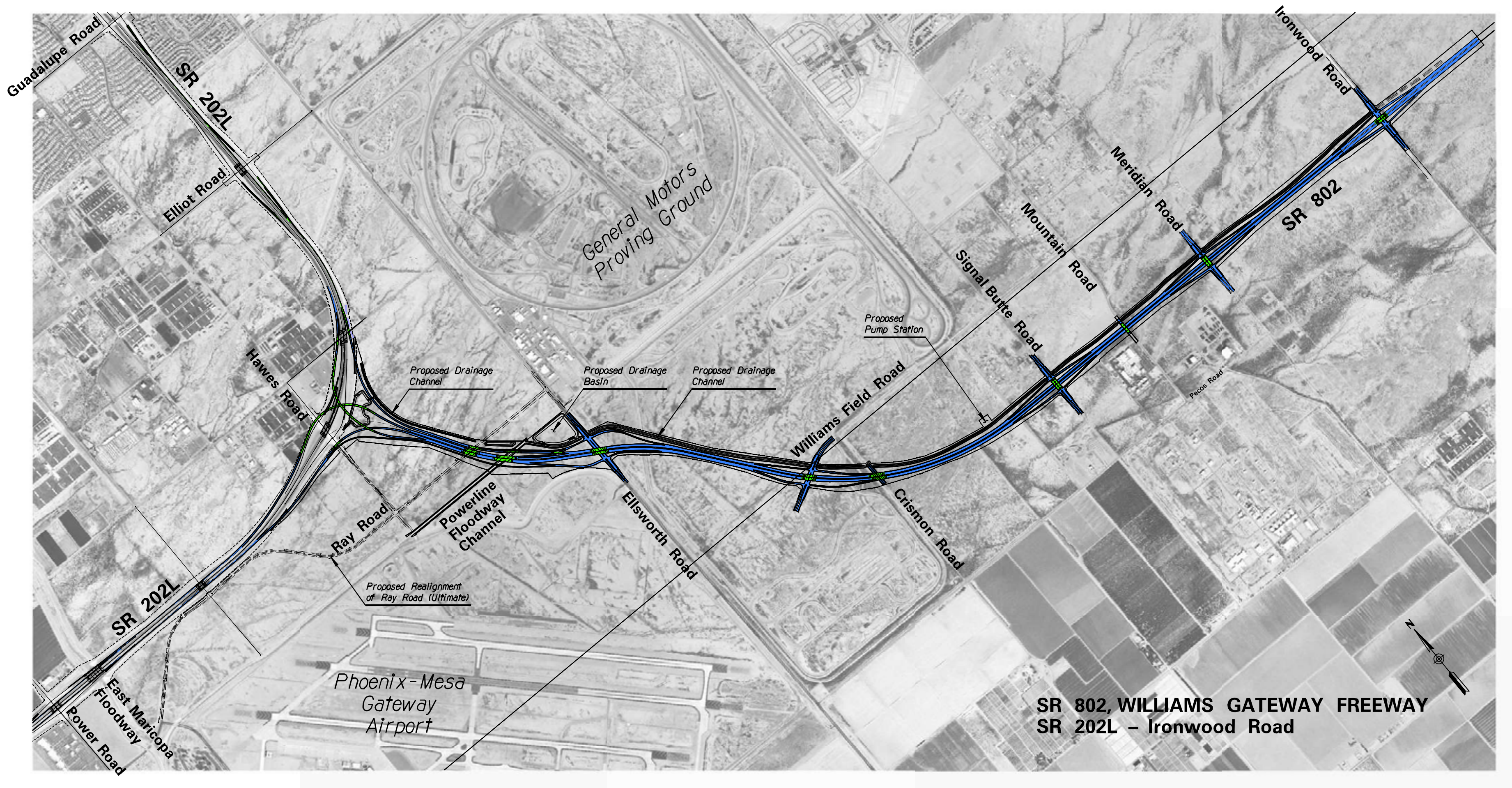


Figure 2 – Vicinity Map

ADOT, in conjunction with the Federal Highway Administration (FHWA), is preparing a Design Concept Report (DCR) and Environmental Assessment (EA) for the proposed SR 802 freeway corridor between SR 202L and Ironwood Road. This study is intended to continue to develop and evaluate alternative alignments and select a recommended SR 802 freeway alignment; develop a freeway concept that would operate efficiently with the projected Year 2030 travel demand; identify the configuration of the SR202L/SR802 TI that would provide efficient connections between SR 802 and SR 202L; identify the location and configuration of new service traffic interchanges needed to provide access between SR 802 and the existing/planned arterial street system; and prepare a phased implementation plan for programming staged construction projects.

The Arizona Transportation Board has approved funding in the ADOT Five-Year Transportation Facilities Construction Program in Fiscal Year (FY) 2010 to begin the final design and right-of-way acquisition for the segment of SR 802 between SR 202L and Ellsworth Road. Construction funding for this project is currently included in the Regional Transportation Plan Freeway Program (RTPFP) in FY 2016. However, the City of Mesa will advance the construction this project to FY 2012 with local funds.

The segment of SR 802 between Ellsworth Road and Meridian Road is included in Phase 5 (2026 - 2031) of the RTPFP. The segment of SR 802 between Meridian Road and Ironwood Road is located outside of Maricopa County and is therefore ineligible for RTPFP funds. Funding for the Meridian Road – Ironwood Road segment has not been identified at this time.

This report describes the development and evaluation of alternative SR 802 alignment options. The Preferred Alternative was selected based on an evaluation of design criteria, traffic operational characteristics, environmental impacts, right-of-way impacts, local access opportunities, constructability, project cost, and agency input. Public agencies that have been involved with this project include ADOT; FHWA; ASLD; MAG; MCDOT; FCDMC; NRCS, PMGA, FAA; the Town of Queen Creek; and the City of Mesa.

1.3 CHARACTERISTICS OF THE CORRIDOR

This segment of SR 802 will furnish a vital transportation artery in southeastern Maricopa County that will provide high capacity freeway access between the southeastern Maricopa and northern Pinal County communities to the Phoenix metropolitan area. This new freeway will also support the planned growth of Phoenix-Mesa Gateway Airport and the planned residential, commercial, industrial and warehouse/distribution center developments within the study area. SR 802 will also provide a vital link between the Regional Freeway System and the future State Highway System corridors that have been identified within Pinal County.

1.3.1 Roadway Characteristics

SR 202L is classified as a controlled access Urban Principal Freeway/Expressway with a posted speed limit of 65 mph. The existing number of lanes are depicted on Figure 3 (pages 10 and 11).

The eastbound and westbound roadways include three 12’ wide general-purpose lanes, an 8’ wide median shoulder, and a 10’ wide outside shoulder in each direction of travel that are separated by a 48’ wide open median. A median cable barrier separates the eastbound and westbound roadways.

SR 202L intersects with the Superstition Freeway (US 60) with a fully directional freeway-to-freeway system interchange (TI). Additional freeway lanes are provided on SR 202L approaching and departing the US60/SR202L TI to improve maneuverability for traffic approaching and departing this interchange. Auxiliary lanes are typically provided between successive interchange entrance and exit ramps.

Service interchanges provide full freeway access at Higley Road, Power Road, Hawes Road, Elliot Road, and Guadalupe Road. A half-diamond interchange is provided at Baseline Road (ramps to/from the south).

Freeway overpasses provide for existing and future local street connectivity at Recker Road, Sossaman Road, and Warner Road. Freeway overpasses are also provided at the Roosevelt Water Conservation District (RWCD) Canal and the East Maricopa Floodway (EMF).

SR 202L is depressed at Higley Road and transitions to an elevated freeway between Recker and Elliot Roads. The freeway then transitions to a short segment of depressed freeway at Guadalupe Road, and then transitions back to an elevated freeway between Baseline Road and the US60/SR202L TI. The freeway is generally bordered with noise walls, retaining walls, earthen berms, or a combination of berms and walls along residential developments.

Higley Road is classified as a six lane arterial street, but is currently a two lane roadway north of the Higley Road TI. At the Higley Road TI, the street section consists of three lanes in the northbound and southbound directions of travel, and two left-turn lanes for the northbound to westbound and southbound to eastbound traffic movements. One right-turn lane is provided for the northbound to eastbound and southbound to westbound traffic movements. The roadway is currently striped to provide one through lane in the northbound and southbound directions of travel through the interchange.

Recker Road is a four lane arterial street. The street section consists of two lanes in the northbound and southbound directions of travel separated by a striped median (two-way left-turn lane).

Power Road is classified as a six lane arterial street, but is currently a four lane roadway north and south of the Power Road TI. At the Power Road TI, the street section consists of three lanes in the northbound and southbound directions of travel, and two left-turn lanes for the northbound to westbound and southbound to eastbound traffic movements. One right-turn lane is provided for the northbound to eastbound and southbound to westbound traffic movements. The roadway is currently striped to provide two through lanes in the northbound and southbound directions of travel through the interchange.

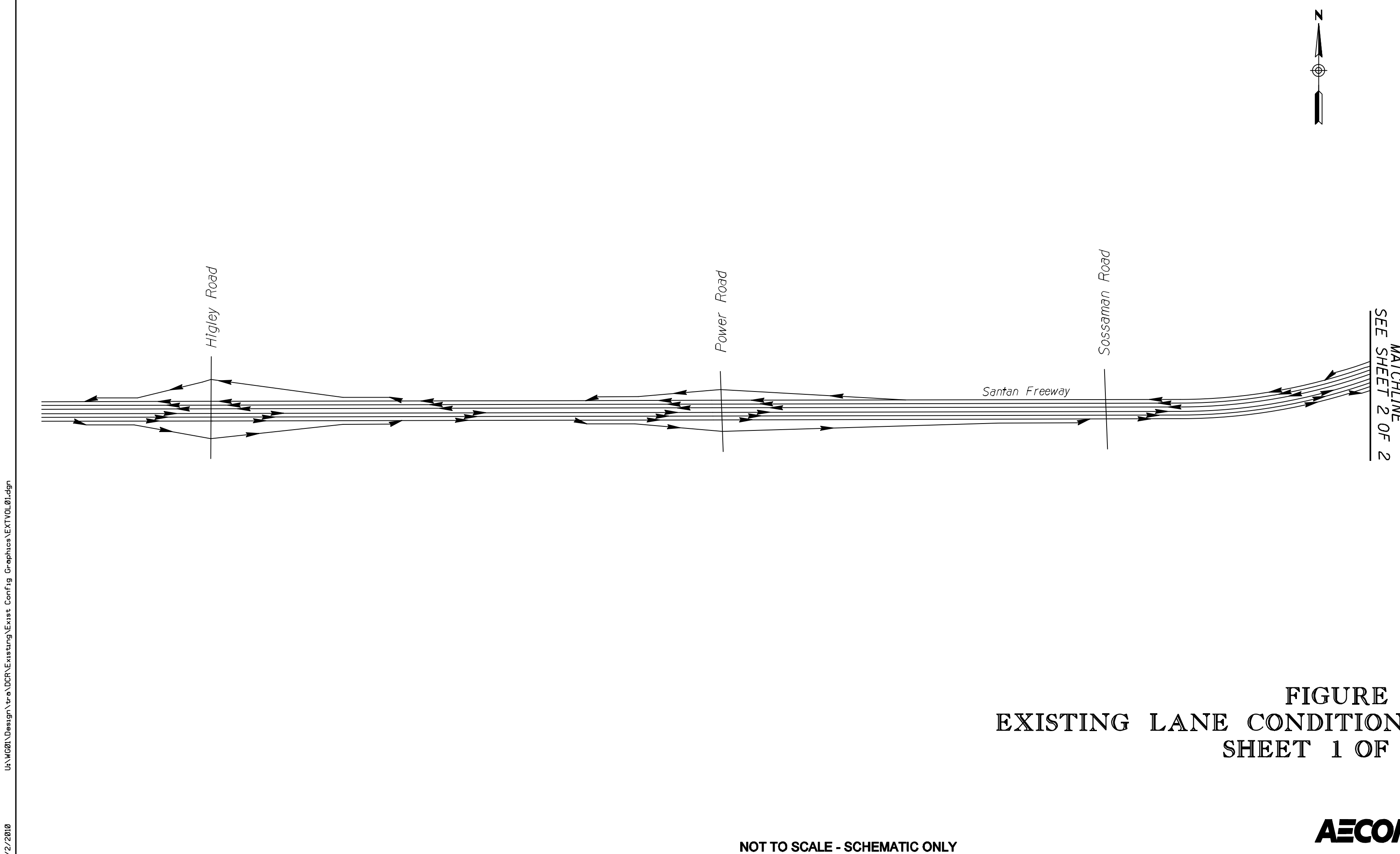


FIGURE 3
EXISTING LANE CONDITIONS
SHEET 1 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

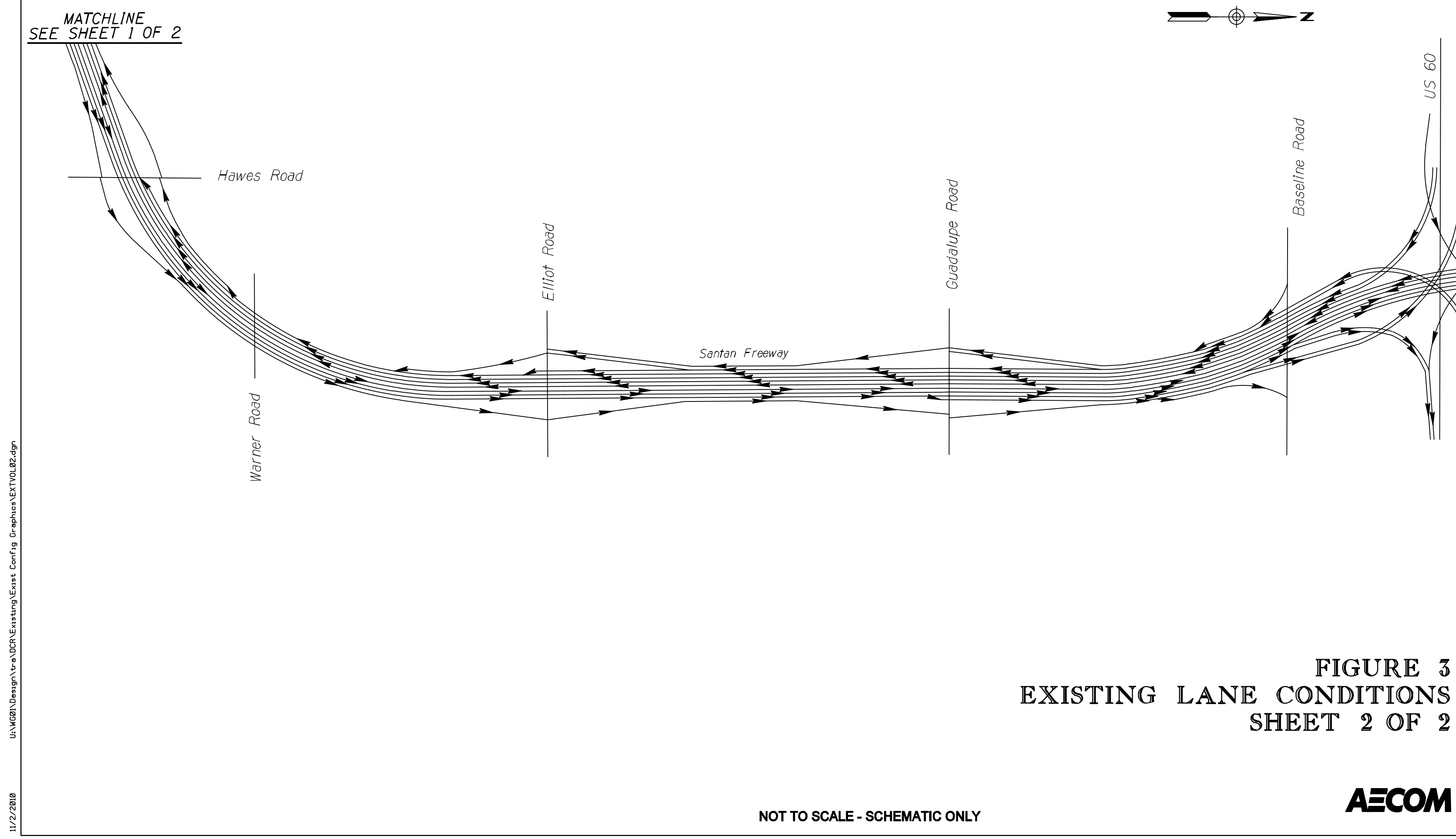


FIGURE 3
EXISTING LANE CONDITIONS
SHEET 2 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

Sossaman Road is classified as a four lane arterial street. Sossaman Road does not currently exist at the freeway overpass.

Hawes Road is classified as a six lane arterial street but is not currently open to traffic. At the Hawes Road TI, the street section consists of three lanes in the northbound and southbound directions of travel, and two left-turn lanes for the northbound to westbound and southbound to eastbound traffic movements. One right-turn lane is provided for the northbound to eastbound and southbound to westbound traffic movements.

The City of Mesa is currently extending Hawes Road to the south from SR 202L to Ray Road. At the completion of the construction project in fall 2010, Hawes Road will be an interim two lane roadway (south of SR 202L) and the Hawes Road TI will be opened to traffic at that time. The *City of Mesa 2025 Transportation Plan* identifies Hawes Road continuing to the north of SR 202L. Funding for the construction of Hawes Road between Broadway Road and SR 202L is identified in Phase 4 (2021 – 2025) of the RTP Arterial Streets Program.

Warner Road is classified as a four lane arterial street. The street section consists of two lanes in the westbound and eastbound directions of travel separated with a striped median. Warner Road is currently a two lane roadway east and west of SR 202L.

Elliot Road is classified as a six lane arterial street, but is currently a five lane roadway between SR 202L and Ellsworth Road (two lanes westbound and three lanes eastbound) and a two lane roadway west of SR 202L. At the Elliot Road TI, the street section consists of three lanes in the westbound and eastbound directions of travel, and two left-turn lanes for the westbound to southbound and eastbound to northbound traffic movements. One right-turn lane is provided for the westbound to northbound and eastbound to southbound traffic movements. The roadway is currently striped to provide two through lanes in the westbound direction of travel, and three lanes in the eastbound direction of travel through the interchange.

Guadalupe Road is a six lane arterial street. At the Guadalupe Road TI, the street section consists of three lanes in the westbound and eastbound directions of travel, and two left-turn lanes for the westbound to southbound and eastbound to northbound traffic movements. One right-turn lane is provided for the westbound to northbound and eastbound to southbound traffic movements.

Baseline Road is classified as a six lane arterial street, but is currently a four lane roadway east and west of SR 202L. At the Baseline Road TI, the street section consists of three lanes in the westbound and eastbound directions of travel, and two left-turn lanes for the westbound to southbound traffic movement. One right-turn lane is provided for the eastbound to southbound traffic movement. The roadway is currently striped to provide two through lanes in the westbound and eastbound directions of travel through the interchange.

Ray Road is classified as a six lane arterial street, with three lanes in the eastbound and westbound directions of travel separated by a raised median. The City of Mesa will provide an interim two lane roadway consisting of one lane in each direction of travel separated by a striped median. The interim two lane roadway will use the ultimate westbound lanes through the SR 802 right-of-way.

Ellsworth Road is classified as a six lane arterial street, with three lanes in the northbound and southbound directions of travel that are separated by a raised median. Ellsworth Road is currently a four lane roadway at the planned SR 802 interchange. Two lanes are currently provided in the northbound and southbound directions of travel that are separated by a raised median.

Williams Field Road is classified as a future six lane arterial street, with three lanes in the westbound and eastbound directions of travel separated by a raised median. Williams Field Road currently does not exist between Ellsworth and Signal Butte Roads, and is a two lane roadway between Signal Butte and Meridian Roads. Funding for Williams Field Road is not currently identified in the RTP Arterial Streets Program and would likely be constructed as adjacent development occurs in the area.

Crismon Road is classified as a future six lane arterial street, with three lanes in the northbound and southbound directions of travel separated by a raised median. Crismon Road does not currently exist in the vicinity of SR 802. Funding for the construction of Crismon Road is identified in Phase 3 (2016 - 2020) of the RTP Arterial Streets Program.

Signal Butte Road is classified as a future six lane arterial street, with three lanes in the northbound and southbound directions of travel separated by a raised median. Signal Butte Road does not currently exist in the vicinity of SR 802. Funding for the construction of Signal Butte Road is identified in Phase 4 (2021 - 2025) of the RTP Arterial Streets Program.

Mountain Road is classified as a four lane major collector street, with two lanes in the northbound and southbound directions of travel separated by a striped median. Mountain Road is currently a two lane roadway at the SR 802 crossing.

Meridian Road is classified as a future six lane arterial street, with three lanes in the northbound and southbound directions of travel separated by a raised median. Meridian Road does not currently exist in the vicinity of SR 802. Funding for the construction of Meridian Road is identified in Phase 4 (2021 - 2025) of the RTP Arterial Streets Program.

Ironwood Road is an existing four lane major arterial street with two lanes in the northbound and southbound directions of travel separated by an open median. Ironwood Road is classified as a Regionally Significant Road with a six lane roadway section. The *Pinal County Small Area Transportation Study* (SATS) identified Ironwood Road as a long-term priority for widening the existing roadway to a six lane facility.

1.3.2 Transit Facilities and Routes

The MAG Regional Council adopted the recommendations of the *High Capacity Transit Plan (HCTP)* in June 2003. This study was conducted to develop a network of transit services to meet the growing travel demand of the MAG region. This long range study considered projected travel demand in the MAG region with a forecast horizon year of 2040 and a projected population of over 7 million residents and is intended to provide the policy framework for transit technology investments in the future.

As shown on Figure 4, the recommendations of the HCTP included Express Bus and Bus Rapid Transit (BRT) that would use the existing and planned HOV lanes throughout the Regional Freeway System. The recommendations of this study were included in the transit component of the RTP. These recommendations were recently confirmed with the completion of the *MAG Regional Transit Framework* that was adopted by the MAG Regional Council in March 2010.

In concert with the HCTP, Valley Metro conducted their *Regional Transit System Study* (RTSS) that was adopted in the summer of 2003. The RTSS recommended improvements to the local bus network, regional connections, freeway BRT routes, bus service on arterial routes, and demand response service (dial-a-ride, rural service). The recommendations of this study were included in the bus transit component of the RTP.

The *MAG High Occupancy Lanes and Value Lanes Study* was adopted in March 2002. This study recommended the construction of HOV lanes for all freeways within the Maricopa County area, and included recommendations for HOV directional ramps at specific freeway-to-freeway traffic interchanges. MAG also completed their *Park and Ride Lots Location Study*, in January 2001.

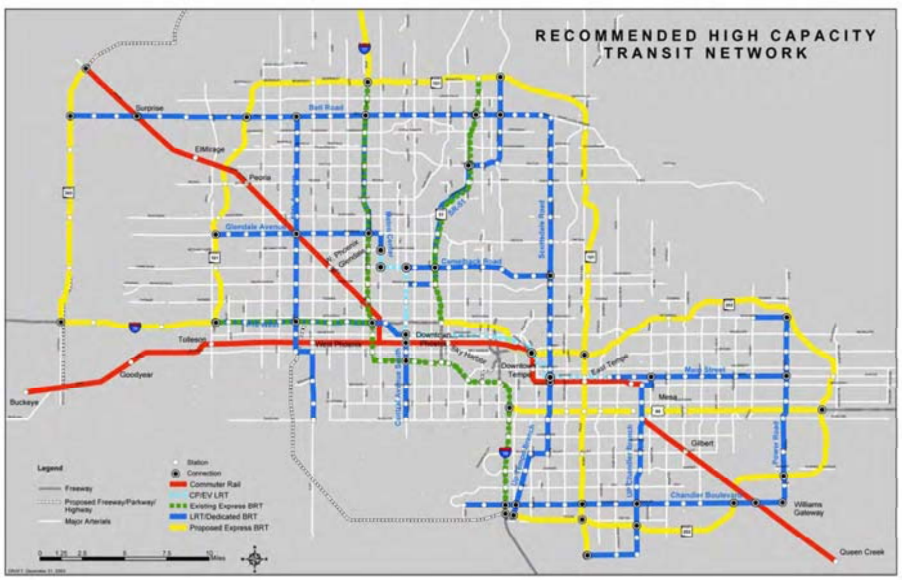


Figure 4 – MAG High Capacity Transit Plan Recommendations

The RTPFP does not identify funding for HOV lanes on SR 802, or provide funding for an HOV directional ramp at the SR202L/SR802 TI. However, the SR202L/SR802 TI and the SR 802 mainline will be designed to allow these facilities to be accommodated in the future.

Valley Metro currently plans to initiate a Bus Rapid Transit (BRT) route for Williams Field Road/Chandler Boulevard that would serve PMGA. A freeway express bus route is also planned (Santan Express) that would originate at PMGA and provide service to the Phoenix central business district. Both of these future routes are identified in the RTP but are currently unfunded.

1.3.3 Land Use

Jurisdiction and Ownership

Most land in the study area is privately owned. Large contiguous blocks of privately owned land include the Phoenix-Mesa Gateway Airport (PMGA) and the former General Motors Proving Grounds. The PMGA is owned by the Williams Gateway Airport Authority, a consortium of the Gila River Indian Community, the City of Mesa, the City of Phoenix, the Town of Gilbert and the Town of Queen Creek. Tenants of the PMGA include the Boeing Company (aircraft repair and modification facility and flight test programs), Native American Air Ambulance, Ratts Air Service (aircraft painting), Jetstrip (aircraft paint stripping), Airline Transport Professionals (flight training), Fighter Combat International (recreational and training flights), Chandler-Gilbert Community College (aircraft maintenance training), University of North Dakota (flight training), Mesa Pilot Development (flight training), L3 Communications, and U.S. Positioning. Education institutions at the PMGA include the Arizona State University Polytechnic Campus and a branch of the Chandler-Gilbert Campus of the Maricopa Community College System. The former General Motors Proving Grounds was sold to DMB Associates who intend to redevelop the land for mixed uses.

Portions of the study area are occupied by SR 202L, an existing highway facility that is located on state land managed by ADOT. There are also contiguous blocks of state land managed by the ASLD along SR 202L between Elliot and Warner Roads, and property located east of the Maricopa-Pinal County line.

Most of the study area is within the incorporated boundaries of the City of Mesa. A segment of the study area along SR 202L extends into the Town of Gilbert to the west of Power Road. The portion of the study area east of the Maricopa-Pinal county line is unincorporated, and is the jurisdiction of Pinal County.

Existing Land Use and Zoning

Land use can be defined as the existing physical use of the land, and in some cases, the designated non-use of the land such as nature preserves. Much of the land use within the study area consists of vacant land (undeveloped desert), residential, industrial (former General Motors Proving Grounds, Fuji Film, and TRW), water/utilities including the Powerline Floodway channel, and transportation (including SR 202L, local roads, and the PMGA).

Along the SR 202L portions of the study area, the land uses are mixed with residential development being dominant to the north and mixed residential and farmland to the west. Land is also being used for a large-scale dairy operation near the Hawes Road TI. The RWCD Canal that provides irrigation water for farms intersects SR 202L to the east of Power Road. The areas where the SR202L/SR802 TI and SR 802 freeway will be constructed are mostly vacant tracts of desert.

Within the City of Mesa, zoning along SR 202L is primarily residential with densities ranging from low to high (R1-43 low rural, R1-7 medium urban, R1-6 high urban) or mixed (R-4). There are also areas for commercial development (C-2 limited commercial) at the intersection of SR 202L and Guadalupe Road. Some parcels in this area are zoned for agriculture.

The Town of Gilbert is located west of Power Road and the zoning is comprised of multiple residential categories for single family and multiple family units (SF6, SF15, SF43, SFD, and MF/L), commercial (RC), light industrial (LI), and public (PFI).

The unincorporated portion of the study area within Maricopa County is divided into three zoning categories and includes limited industrial (M-1) general industrial (M-2) and agriculture (AG). Zoning data is not available for portions of the study area in Pinal County.

General Land Use Plans

The Mesa 2025 General Plan, Town of Gilbert General Plan (ongoing updates due to be finalized in 2011), the Maricopa County 2020 Comprehensive Plan, and the Pinal County Comprehensive Plan were used to develop a composite of future land uses and planning activities for the study area and adjacent lands. While Mesa does not have jurisdiction over the unincorporated Maricopa County lands within the project vicinity, the City of Mesa has included the county parcels within its planning area.

As identified in the Mesa 2025 General Plan, employment/office development is currently planned for the immediate area around the SR202L/SR802 TI. From the proposed interchange to the PMGA and the former GM Proving Grounds, parcels are planned for mixed use/employment development. The portion of the PMGA within the study area, as well as the area around the Meridian Road alignment, is planned for general industrial development. The southern portion of the former GM Proving Ground within the study area has been designated light industrial. Areas east of Ellsworth Road and north of Williams Field Road, also within the Proving Ground parcel, have been designated mixed use/employment, mixed use/residential, community commercial, and office. Areas within the PMGA are designated as educational use as part of the Arizona State University Polytechnic campus and the other educational institutions.

The City of Mesa has also recently adopted the *Mesa Gateway Strategic Development Plan* that promotes a long range plan for the mixed use development within the area bounded by Elliot Road on the north, Germann Road on the south, Power Road on the west and Meridian Road on the east. This plan outlines a series of objectives for the implementation of the future development within this area that also supports the future growth of the PMGA.

The Town of Gilbert adopted a general plan in 2001 and has made several updates. The latest update will be available in 2011. For the most part, plans for areas within the study area include more transition from rural to urban land uses and increased residential development.

The *Pinal County Comprehensive Plan* (December 2004) indicates that land east of the study area is “transitional”. This designation is for those areas currently rural in character, but which are anticipated for growth in the future. These areas could sustain uses consistent with the urban, industrial, rural, or foothills community designations. The purpose of the transitional area designation is to encourage the retention of existing parcels of land in large tracts for potential development.

1.3.4 Phoenix-Mesa Gateway Airport

PMGA is located adjacent to the south of SR 202L between Power and Ellsworth Roads. The *Airport Master Plan for Phoenix-Mesa Gateway Airport* was recently adopted by the Williams Gateway Airport Authority on December 15, 2008. This document recommended an updated airport master plan concept that identifies a number of airfield improvements to improve the capacity of the airport that includes improvements to the taxiways and extensions of the existing runways.

The airport master plan includes near and long term improvements to provide sufficient terminal and runway capacity for passenger and freight operations as the airport continues to grow in the future. Ultimately, a new terminal facility is planned on airport property located east of the runways, west of Ellsworth Road, west of the planned SR 802 alignment, and south of the Powerline Floodway.

Improvements near the airport runways are controlled by a variety of runway airspace requirements, safety zone regulations and flight operations procedures. The FAA must be notified whenever their Part 77 Runway Approach Surface may be penetrated with new construction planned in the vicinity of an airport, or if a new facility would extend into their Runway Projection Zone (RPZ) safety area. Objects that would penetrate the Part 77 surface or encroach into the RPZ must be evaluated and approved by the FAA.

The existing SR 202L roadways and lighting does not penetrate the Part 77 Surface for the existing and future runway conditions. The existing light poles do not penetrate the One Engine Inoperative (OEI) Surface for the existing runway condition, but may encroach into the OEI surface once the runways are extended toward SR 202L in the future. Continued coordination will be required with representatives of PMGA to identify and address runway safety and operational issues during project development

1.3.5 Utilities and Railroads

Existing utilities within the study area were identified based on information obtained from ADOT as-built drawings, as well as facility plans and quarter-section maps obtained from each local jurisdiction and utility company. These utilities are presented in Table 1 on the following page.

Table 1 – Existing Utility Crossings

Cross Street	Utility Description
SR202L – SANTAN FREEWAY	
Recker Road to Power Road	3-SRP underground electric conduits; SWG 6" gas line
Power Road to Roosevelt Canal	Gilbert water line; Qwest Underground telephone lines; Mesa 16" DIP water line, 18" VCP sanitary sewer, and 4" PE and 8" steel gas lines in Power Road
Roosevelt Canal to Sossaman Road	RWCD 30" irrigation pipeline in canal O&M Road; RWCD Canal; East Maricopa Floodway; Mesa 54" RGRCP sanitary sewer interceptor in a 78" sleeve; SRP underground electric conduits
Sossaman Road to Hawes Road	SRP underground electric conduits; Mesa 24" DIP water line in a 42" casing in Sossaman Road; SRP underground electric conduits
Hawes Road to Warner Road	Mesa 30" DIP water line in 48" steel sleeve in Hawes Road; SRP 12kV underground power lines in Hawes Road
Warner Road to Elliot Road	SRP underground electric conduits; Qwest underground telephone and fiber optic lines; Mesa 18" sanitary sewer and 16" DIP water line in 36" steel sleeve; SRP 69kV overhead power lines in Warner Road; SRP underground electric conduits
Elliot Road to Guadalupe Road	Mesa 42" RGRCP sewer and 10" sewer force main, 36" and 16" water line joint trench; SRP/Cox joint trench in Elliot Road; 500kV/230kV/69kV power line corridor; SRP/Cox joint trench; Mesa 24" VCP sanitary sewer
SR802 – WILLIAMS GATEWAY FREEWAY	
SR202L to Ellsworth Road	Mesa sleeved 16" and 20" DIP water lines, 30" RCP sanitary sewer and storm drain in realigned Ray Road; Powerline Floodway Channel
Ellsworth Road to Crismon Road	SRP 12kV overhead power line ; Qwest telephone lines; Mesa 16" water line, 10" sewer force main, and 12-2" conduits; Southwest Gas 10" gas line
Crismon Road to Signal Butte Road	SRP 12 kV overhead power line
Signal Butte Road to Mountain Road	SRP 12 kV overhead power line in Signal Butte Road
Mountain Road to Meridian Road	SRP 12kV underground power line (future); Southwest Gas 4" PE gas line; Mesa 12" PVC sanitary sewer and 16" ACP water line in Mountain Road
Meridian Road to Ironwood Road	SRP 12kV overhead power line; WAPA 230kV overhead power line on lattice towers; MediaCom CATV fiber optic line in Ironwood Road

1.3.6 Drainage

1.3.6.1 Offsite Drainage Systems

Offsite Drainage Systems

There are several existing drainage systems in the project area that will affect or be affected by the new SR 802 corridor. In 1998, the FCDMC conducted a drainage study of the east Mesa area to evaluate the existing drainage systems and identify areas where future drainage systems would be needed. The *East Mesa Area Drainage Master Plan (ADMP)*, contains the hydrologic analysis that is the basis of the hydrologic analysis performed for the SR 802 project.

The FCDMC has prepared an update to a portion of the existing condition hydrology from the *East Mesa ADMP*, and expects to complete a similar future conditions hydrologic model in 2011. The northern boundary of the revised hydrologic analysis is only the Santan Freeway (SR 202L) and Elliot Road. The original ADMP models extended to the north of US 60 and were designed to compute total flows in the EMF and the Santan Freeway (SR 202L) offsite channel.

The revised models were prepared using NOAA 14 rainfall values, whereas the original hydrologic analyses used the NOAA 2 Atlas rainfall values. Comparison of the precipitation values in the original and revised models shows very little difference (original ADMP 100-year, 24-hour rainfall depth = 3.60 inches; revised ADMP 100-year, 24-hour rainfall depth = 3.579 inches).

Since the updated FCDMC hydrologic models do not include the total watershed that drains into the EMF, a direct comparison of pre-project versus post-project flows in the EMF cannot be made using the new hydrologic models. This comparison is an important element in the SR 802 drainage system design, as the FCDMC has requested that the hydrologic analysis should demonstrate that the project would not increase the discharge flows and runoff volumes into the EMF. Therefore, the original *East Mesa ADMP* hydrologic models, which use NOAA 2 rainfall values, are recommended for the design of the SR 802 offsite drainage system.

The direction of offsite runoff approaching SR 802 is generally from east-northeast to west-southwest. The drainage area upstream of SR 802 extends to the east to the Central Arizona Project (CAP) Canal, approximately 3.5 miles east of Meridian Road. The watershed extends to the north to US 60, and extends to the west to SR 202L. Within the Pinal County portion of the watershed (east of Meridian Road), the existing land use is primarily undeveloped desert. In the Maricopa County portion of the watershed, the land use consists of low- and medium- density residential, agricultural, scattered light industrial, and commercial developments. Since the completion of the *East Mesa ADMP,* considerable development has occurred in the area and much more development is anticipated in the future.

One significant development that will impact the drainage conditions in the upstream watershed is the former General Motors Proving Grounds site. This property has been sold to a developer and is currently planned as a mixed-use (residential and commercial) development that may occur in the near term. A drainage master plan entitled *Master Drainage Report for Mesa Proving Grounds* has been prepared for this site.

The following paragraphs describe the key existing drainage features in the project area. See Figure 5 (page 17) for an illustration of existing drainage facilities in the project area. See Table 2 (page 16) for a summary of design flows of the various channels and storm drains near the SR 802.

Flood Retarding Structures

Three Flood Retarding Structures (FRS) are located upstream of the CAP Canal that are designed to provide flood protection to downstream areas in Maricopa and Pinal Counties. The Powerline FRS, Vineyard FRS, and the Rittenhouse FRS intercept runoff from a total watershed area of approximately 147 square miles and protects approximately 169 square miles of residential, commercial and agricultural properties from flooding. Each structure is designed to detain the 100-year runoff and pass greatly attenuated discharges through relatively small primary outlets (PO). Emergency spillways are located at one or both ends of each structure to pass larger magnitude storms. The PO of the Rittenhouse FRS drains to the flood pool of the Vineyard FRS. The POs of the Powerline and Vineyard FRS's each drain to a respective earthen outlet channel. The two channels then merge into a common channel just upstream of the CAP Canal. A rectangular overchute conveys the combined discharges westward over the CAP Canal and into the Powerline Floodway channel. The FCDMC operates and maintains these structures by agreement with the Natural Resources Conservation Services (NRCS).

The FCDMC is currently performing a new, independent study to evaluate the hydraulic and structural adequacy of each FRS. The study will produce recommendations for the rehabilitation of the structures that could include structural improvements to the dams or the replacement of the dams with channels, basins or other flood control facilities.

Powerline Floodway

The Powerline Floodway is a concrete-lined channel that extends from the Powerline FRS to the East Maricopa Floodway (EMF). This channel serves as a conveyance for primary outlet flows from the Powerline and Vineyard FRSs. The northeast-southwest alignment of the Powerline Floodway channel is perpendicular to the topographic contours until it reaches the Ray Road alignment east of the Mesa Proving Grounds site, where it turns towards the west and continues a westerly alignment until it reaches the EMF. Along the east-west alignment portion of the Powerline Floodway, the channel collects some off-site flows from the Mesa Proving Grounds site and from land north of the Ray Road alignment.

Since the Powerline Floodway is a critical flood control facility carrying flow from the upstream flood retarding structures, the Arizona Department of Dam Safety, NRCS, and the FCDMC must be involved in any proposed changes to the Powerline Floodway channel.

Santan Channel

The Santan Channel is the primary offsite drainage system for the existing SR 202L freeway. This channel system runs along the south and east sides of SR 202L, and collects the 100-year 24-hour offsite runoff approaching SR 202L from the east, and carries it to the EMF. The channel also serves as an outlet for the SR 202L onsite drainage systems.

East Maricopa Floodway

The East Maricopa Floodway (EMF) is located to the east of the Roosevelt Water Conservation District (RWCD) Canal and serves as a regional outfall for eastern Maricopa County. The EMF intercepts storm runoff from east of the RWCD Canal to the south of the Southern Canal near Thomas Road and Val Vista Drive. The EMF starts at Brown and Greenfield Roads, parallels the RWCD canal, and crosses the Maricopa County southern boundary into Pinal County to its outfall at the Gila River just east of I-10.

The alignment of the EMF near SR 202L is roughly north-northeast to south-southwest. In this area it also serves as an outlet for the Santan Channel and the Powerline Floodway.

The FCDMC has requested that the design of the freeway improvements be conducted to ensure that peak flow rates in the EMF do not increase as a result of the SR 802 project. In addition, since the EMF includes detention basins along its alignment, the FCDMC has also requested that the SR 802 offsite drainage design avoid increasing flow volumes into the EMF compared to the existing condition.

Ellsworth Road and Pecos Road Channels

The Ellsworth Road Channel runs along the west side of Ellsworth Road between Pecos Road and the Powerline Floodway. The FCDMC and the City of Mesa participated in the construction of the Ellsworth Channel to provide 100-year flood protection to areas west of Ellsworth Road including the Phoenix-Mesa Gateway Airport. The channel collects runoff approaching Ellsworth Road from the east, and discharges into the Powerline Floodway west of Ellsworth Road.

The Pecos Road channel was one of the proposed drainage improvements in the *East Mesa ADMP*. The channel was planned to run along Pecos Road from Meridian Road to Ellsworth Road, where it would drain into the Ellsworth Channel. However, once the proposed SR 802 freeway is constructed, the majority of the runoff that would have been collected with the Pecos Channel will be intercepted by the SR 802 offsite channel. The FCDMC has been advised of this situation and may reconsider the future of the Pecos Road Channel.

Currently there is a channel along Pecos Road between Ellsworth Road and Crismon Road, but it is part of a perimeter drainage channel around the former General Motors Proving Grounds site. This channel discharges into the Ellsworth Channel.

Table 2 – Existing Drainage Facility Design Flows Near SR 802

Drainage Facility	Design Flow (cfs)
Santan Channel	2,200
Ellsworth Channel	3,500
Powerline Floodway at confluence with Ellsworth Channel	3,935
East Maricopa Floodway at confluence with Powerline Floodway	8,460

1.3.6.2 Onsite Drainage Systems

SR 202L

The existing SR 202L drainage system consists mainly of small lateral storm drain systems that drain directly into the adjacent SR 202L offsite channel (Santan Channel). In several locations, storm drain trunk lines carry flows parallel to the SR 202L for short distances prior to discharging into the Santan Channel.

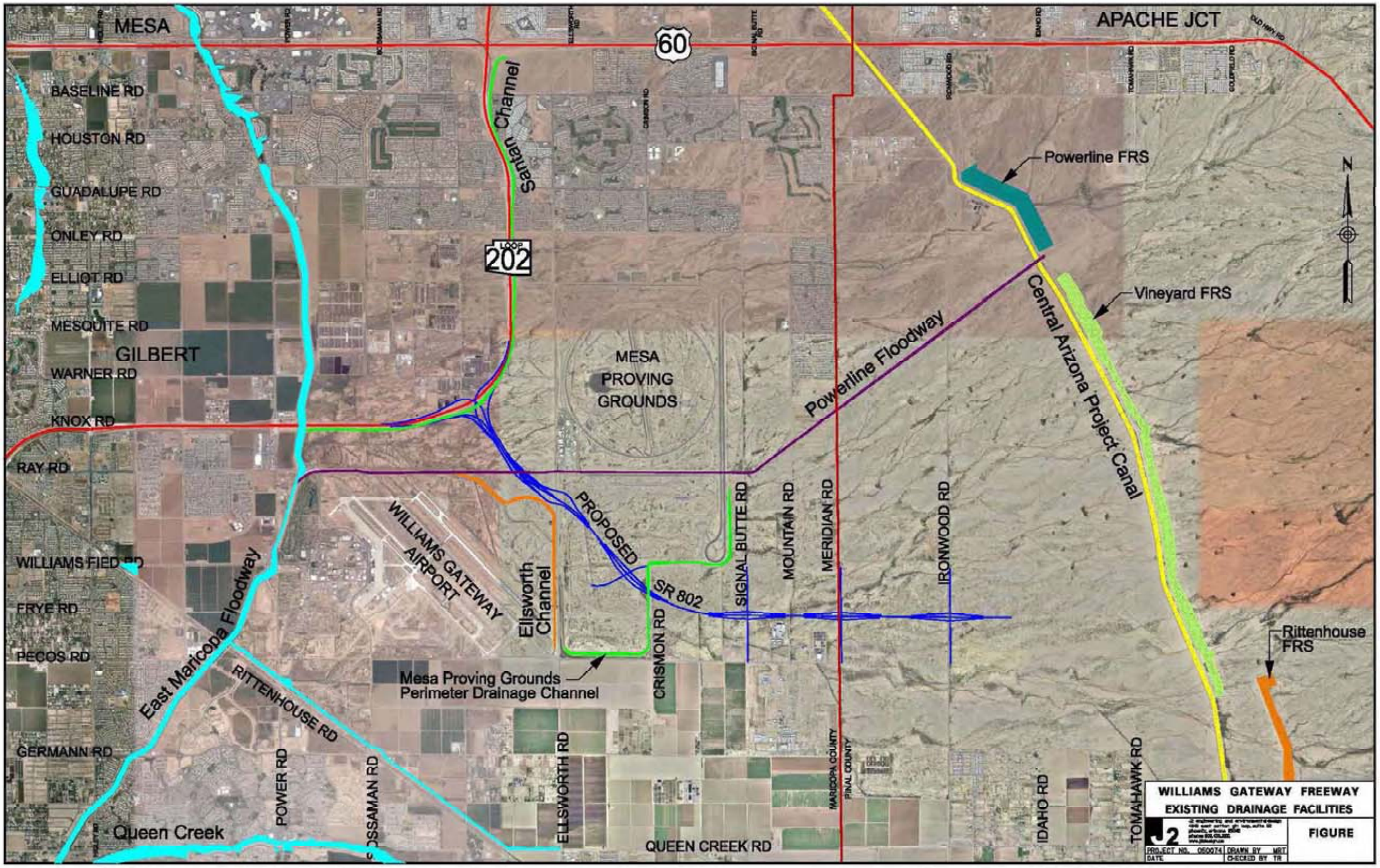


Figure 5 – Existing Drainage Improvements

Ellsworth Road

South of the Powerline Floodway channel, the Ellsworth Road drainage system consists mainly of curb inlets and short lateral storm drains that collect and convey runoff to the Ellsworth Road Channel. A storm drain trunk line in Ellsworth Road extends from approximately 450' south of the Powerline Floodway approximately 1,800' to the south, where it discharges into the Ellsworth Road Channel. This RGRCP trunk line varies from 24" to 30" in diameter.

1.3.7 Right-of-Way

The existing SR 202L right-of-way width varies from approximately 385' to several hundred feet. During the original right-of-way acquisition for SR 202L, ADOT and the adjacent property owner agreed that no additional right-of-way would be acquired from the property located north and west of SR 202L between Stations 3078+00 and 3115+00. All freeway improvements must be designed in a manner that will avoid this property.

1.3.8 Structures

1.3.8.1 Bridge Structures

The existing bridge structures within the project limits were built between the years of 2004 and 2006. The sufficiency of bridge vertical clearances is summarized in the AASHTO Criteria Report.

A summary of the existing bridges along SR 202L within the study area is provided by freeway corridor in Table 3. Vertical clearances shown below reflect the latest bridge inspection reports. Supplemental bridge survey elevations were obtained to measure minimum vertical clearances from roadways to the bottom of the superstructures; these values are shown in bold parentheses.

Table 3 – Existing SR 202L Bridge Summary

Structure Number	Milepost	Structure Name	Superstructure And Foundation Type(s)	Minimum Vertical Clearance (ft)
2712	32.07	Guadalupe Rd TIUP, Eastbound	Cast-in-place post-tensioned concrete box girders (5'-3" depth); Partial height abutments and pier on spread mat footings	17.72'
2724		Guadalupe Rd TIUP, Westbound		17.79'
2710	33.07	Elliot Road TIOP, Eastbound	Precast prestressed AASHTO Type V Modified concrete girders (6'-2" maximum depth); Stub abutments on drilled shaft foundations and pier on spread mat footings	16.78' **(17.32')**
2711		Elliot Road TIOP, Westbound		16.78' **(16.83')**
7148	34.08	Warner Road RCBC	3-cell 8'x7' cast-in-place reinforced concrete box culvert	N/A
2752	34.10	Warner Road OP, Eastbound	Cast-in-place post-tensioned concrete box girders (4'-6" depth); Stub abutments on drilled shaft foundations and pier on spread mat footings	19.10' **(19.68')**
2753		Warner Road OP, Westbound		16.74' **(17.57')**

Table 3 – Existing SR 202L Bridge Summary (continued)

Structure Number	Milepost	Structure Name	Superstructure And Foundation Type(s)	Minimum Vertical Clearance (ft)
2754	34.67	Hawes Road TIOP, Eastbound	Cast-in-place post-tensioned concrete box girders (4'-6" depth); Stub abutments on drilled shaft foundations and pier on individual spread footings	18.20' **(18.21')**
2755		Hawes Road TIOP, Westbound		16.91' **(16.88')**
2756	35.80	Sossaman Road OP, Eastbound	Cast-in-place post-tensioned concrete box girders (5'-6" depth); Stub abutments on drilled shaft foundations located behind MSE walls	N/A(1)
2757		Sossaman Road OP, Westbound		
2760	36.40	East Maricopa Floodway OP, Eastbound	Precast prestressed AASHTO Type V Modified concrete girders (6'-3 ¾" maximum depth); Stub abutments on drilled shaft foundations located in front of MSE walls with piers on individual drilled shaft foundations	N/A(2)
2761		East Maricopa Floodway OP, Westbound		N/A(3)
2762	36.40	Power Road Ramp 'C' OP	Precast prestressed AASHTO Type V concrete girders (6'-3 ¼" maximum depth); Stub abutments on drilled shaft foundations located in front of MSE walls with piers on individual drilled shaft foundations	27.62'(4)
2763	36.40	Power Road Ramp 'D' OP	Precast prestressed AASHTO Type V Modified concrete girders (6'-1 ½" maximum depth); Stub abutments on drilled shaft foundations located in front of MSE walls with piers on individual drilled shaft foundations	27.63'(5)
2758	36.65	Power Road TIOP, Eastbound	Cast-in-place post-tensioned concrete box girders (4'-0" depth); Stub abutments and pier on drilled shafts	17.65' (19.08')
2759		Power Road TIOP, Westbound		18.40' (19.16')
2780	37.65	Recker Road OP, Eastbound	Cast-in-place post-tensioned concrete box girders (4'-9" depth); Full-height abutments on spread footings	18.32'
2781		Recker Road OP, Westbound		17.45'
2779	38.65	Higley Road TIUP	Cast-in-place post-tensioned concrete box girders (5'-3" depth); Partial height abutments and pier on individual spread footings	16.93'

Notes:
(1) Sossaman Road is not currently built under the overpass. As-builts indicate an anticipated vertical clearance of 18'-7 ⅝" assuming the maximum elevation of Sossaman Road is 1343.00'.
(2) Supplemental bridge survey data shows 21.01' clearance to Roosevelt O&M road on west side of Roosevelt Canal, 20.44' over Roosevelt O&M road on east side, 20.98' over west bank of the East Maricopa Floodway, and 19.82' clearance to FCDMC O&M road at Abutment 2.
(3) Supplemental bridge survey data shows 20.81' clearance to Roosevelt O&M road on west side of Roosevelt Canal, 19.42' over Roosevelt O&M road on east side, 20.82' over west bank of the East Maricopa Floodway, and 19.21'clearance to FCDMC O&M road at Abutment 2.
(4) Supplemental bridge survey data shows15.70' clearance to Roosevelt O&M road on west side of Roosevelt Canal, 15.10' over Roosevelt O&M road on east side, 17.68' over west bank of the East Maricopa Floodway, and 18.52' clearance to FCDMC O&M road at Abutment 2.
(5) Supplemental bridge survey data shows 16.46' clearance to Roosevelt O&M road on west side of Roosevelt Canal, 16.59' over Roosevelt O&M road on east side, 18.04' over west bank of the East Maricopa Floodway, and 19.31' clearance to FCDMC O&M road at Abutment 2.

1.3.8.2 Retaining Walls

A review of the as-built plans indicate the majority of the existing retaining walls were built as Mechanically Stabilized Earth (MSE) walls. Existing wall types and locations along the SR 202L mainline are listed in Table 4. As-built stationing data is shown in the table unless noted otherwise. Sound walls constructed on top of retaining walls are noted as "combination walls."

Table 4 – Existing Retaining Walls

Route/General Location	Retaining Wall Description (Approximate Freeway Centerline Stationing Unless Noted Otherwise)	Retaining Wall Type
SR 202L, between Guadalupe Road and Baseline Road	WB wall located along right-of-way from Guadalupe Ramp C Station 1+32 to SR 202L Station 252+50	Masonry sound wall on spread footings, except for combination wall on spread footings or drilled shaft foundations between wall Stations 6+00 and 8+64
	WB wall located along edge of freeway/ramp from SR 202L Station 250+00 to Baseline Ramp A Station 19+09	Masonry sound wall on spread footings, except for combination wall on spread footings from wall Stations 7+20 and 17+04
	WB wall along west side of the freeway from SR 202L WB Station 265+00 to Ramp W-S Station 6+46	Combination wall except: (A) 569' of this wall measured from Station 265+00, and the last 228' of this wall is a masonry sound wall on spread footings; and (B) the portion of the wall located on the Baseline Road bridge overpass is a CIP wall
	EB Wall located along east side of freeway from Ramp N-W Station 0+79 to Ramp N-W Station 15+32	Combination wall except: (A) the first 211' of the wall measured from the south end; and the last 685' of this wall is a masonry sound wall on spread footings, and (B) the portion of the wall located on the Baseline Road bridge overpass is a CIP wall
SR 202L, East Maricopa Floodway	West side of East Maricopa Floodway bridge crossing (including Power Road Ramps C and D); The wall wraps behind the abutments of all three bridges to Station 2996+51 at the northwest corner and Station 2996+53 at the southwest corner	MSE wall
	East side of East Maricopa Floodway bridge crossing (including Power Road Ramps C and D); The wall wraps around behind the abutments of all three bridges to Station 3001+73 at the northeast corner and Station 3001+73 at the southeast corner	MSE wall
SR 202L, Sossaman Road Overpass	West side of bridge crossing; The wall wraps around the front of the abutment to Station 3035+27 at the southwest corner and station 3035+25 at the northwest corner	MSE wall
	East side of bridge crossing; The wall wraps around the front of the abutment to Station 3037+80 at the southeast corner and Station 3037+78 at the northeastern corner.	MSE wall

1.3.8.3 Noise Walls

Existing noise wall locations are presented in Table 5. Masonry walls are predominant along SR 202L. As-built stationing data is shown in the table unless noted otherwise. Noise walls constructed on top of retaining walls are noted as "combination walls."

Table 5 – Existing Noise Walls

Route/General Location	Retaining Wall Description (Approximate Freeway Centerline Stationing Unless Noted Otherwise)	Sound Wall Type
SR 202L, between Higley Road and Recker Road	EB wall along south edge of the top of freeway/ramp embankment transitioning to edge of freeway from SR 202L Station 2881+85 to Station 2931+70	Masonry wall on spread footing
	EB wall mounted on south side of Recker Road Overpass from SR 202L Station 2931+69 to Station 2934+15	Cast-in-place concrete wall
	WB wall along north edge of the top of freeway/ramp cut slope transitioning to edge of freeway from SR 202L Station 2899+92 to Station 2931+70	Masonry wall on spread footing
	WB wall mounted on north side of Recker Road Overpass from SR 202L Station 2931+69 to Station 2934+14	Cast-in-place concrete wall
SR 202L, between Recker Road and Power Road	EB wall along south side of the freeway from SR 202L Station 2934+15 to Station 2964+92	Masonry wall on spread footing
	WB wall along north side of the freeway from SR 202L Station 2934+14 to Station 2965+00	Masonry wall on spread footing
SR 202L, between Elliot Road and Guadalupe Road	WB wall along right-of-way from Station 3195+02 to Guadalupe Ramp A Station 16+84	Masonry wall on spread footing
	EB wall along right-of-way from Station 3200+14 to Guadalupe Ramp B Station 6+70	Masonry wall on spread footing
	EB wall along right-of-way from approximate Guadalupe Ramp B Station 6+70 up to Guadalupe Road (1)	Masonry wall on spread footing (1)
	WB wall located along edge of freeway/ramp from SR 202L Station 250+00 to Baseline Ramp A Station 19+09	Masonry sound wall on spread footings except for combination wall on spread footings from wall station 7+20 to Station 17+04
	WB wall located along right-of-way from Guadalupe Ramp C Station 1+32 to SR 202L Station 252+50	Combination wall on spread footings or drilled shaft foundations
	EB wall located along right-of-way from Guadalupe Ramp D Station 0+58 to SR 202L Station 3244+51	Masonry sound wall on spread footing
	EB wall located on the east side of SR 202L from Guadalupe Ramp D Station 17+04 to Baseline Road Ramp B Station 15+55	Masonry sound wall on spread footing

Table 5 – Existing Noise Walls (continued)

Route/General Location	Retaining Wall Description (Approximate Freeway Centerline Stationing Unless Noted Otherwise)	Sound Wall Type
SR 202L, between Elliot Road and Guadalupe Road (continued)	WB wall along west side of SR 202L from SR 202L WB Station 265+00 to Ramp W-S Station 6+46	Combination wall except: (A) 569' of this wall measured from Station 265+00 and the last 228' of this wall is a masonry sound wall on spread footings, and (B) the portion of the wall located on the Baseline Road crossing is a CIP wall
	EB wall located along east side of SR 202L from Ramp N-W Station 0+79 to Ramp N-W Station 15+32	Combination wall except: (A) the first 211' of the wall measured from the south end, and the last 685' of this wall is a masonry sound wall on spread footings, and (B) the portion of the wall located on the Baseline Road bridge overpass is a CIP wall
	EB wall located along outside edge of Baseline Ramp B from Baseline Ramp B Station 15+55 to Station 17+23	Masonry sound wall on spread footing

Notes:
(1) An additional sound barrier wall is noted as "constructed by others" in the as-builts for SR 202L – Baseline Road to Elliot Road. No as-built data for this wall has been found. Foundation type for this wall is unknown but is presumed to match the wall type adjacent to it.

1.3.9 Signing and Lighting

1.3.9.1 Guide Signs

The existing overhead freeway guide signs on SR 202L are mounted on bridge fascias, supported with cantilever sign supports or supported with tubular sign bridges. The majority of the existing overhead sign supports were not designed to accommodate future pavement widening associated with this project based on a review of the as-built plans. Table 6 identifies the existing overhead sign structures that would be required to be modified to support the additional lanes associated with this project.

Table 6 – Existing Sign Structures To Be Modified

Direction of Travel	Station	Sign Support Type
Eastbound	3041+85	Cantilever
Eastbound	3132+75	Cantilever
Eastbound	3145+95	Cantilever
Eastbound	3169+08	Sign Bridge
Eastbound	3194+60	Cantilever
Eastbound	3206+00	Cantilever
Westbound	3015+00	Sign Bridge
Westbound	3029+25	Cantilever
Westbound	3055+79	Cantilever
Westbound	3109+65	Sign Bridge
Westbound	3138+50	Cantilever
Westbound	3146+75	Cantilever

1.3.9.2 Freeway Lighting

The existing SR 202L freeway mainline lighting consists of horizontal mount, 400-watt, high pressure sodium fixtures on "I" poles with a 15' or 20' mast arm, along with underdeck fixtures at various locations.

The service interchange ramps utilize "G" poles and 250-watt, horizontal mount, high pressure sodium fixtures. The lighting is energized via 240/480 volt Type IV load centers at the interchanges. Table 7 lists the locations of the existing load centers and the limits of the lighting fixtures associated with each load center.

Table 7 – Existing Load Center Locations

Load Center Locations	Load Center Address	Western Limit (SR 202L Station)	Eastern Limit (SR 202L Station)
Recker Road, NW corner	1202 S. Recker Road	2907+20	2956+60
Power Road, NW corner	4798 S. Power Road	2984+00	3036+50
Warner Road, NW corner	8651 E. Warner Road	3038+20	3113+50
Warner Road, NW corner	8653 E. Warner Road	3113+75	3170+20
Elliot Road, NE corner	8836 E. Elliot Road	3172+00	3197+75
Guadalupe Road, NE corner	8835 E. Guadalupe Road	3200+20	3223+10

1.3.10 Freeway Management Systems

The existing Freeway Management System (FMS) consists of ramp loops and conduit for future ramp meters at various entrance ramps and detector loops as shown in Table 8.

The existing FMS ducts banks include three 3" conduits located along the shoulders of the eastbound and westbound roadways. The conduits are attached to or pass through the bridge structures at the overpasses.

Table 8 – Existing FMS System Components

Direction of Travel	SR 202L Station	FMS Element
Westbound	2929+00	System Loops
Westbound	2946+00	System Loops
Westbound	2963+00	System Loops
Westbound	2972+80	System Loops
Westbound	2972+80	Ramp Loops
Westbound	3024+00	System Loops
Westbound	3076+55	Ramp Loops
Westbound	3076+55	System Loops
Westbound	3121+00	System Loops
Westbound	3153+47	System Loops
Westbound	3153+47	Ramp Loops
Eastbound	2928+65	System Loops
Eastbound	2945+35	System Loops

Table 8 – Existing FMS System Components (continued)

Direction of Travel	SR 202L Station	FMS Element
Eastbound	2962+00	System Loops
Eastbound	2977+00	System Loops
Eastbound	3005+75	Ramp Loops
Eastbound	3005+75	System Loops
Eastbound	3055+55	System Loops
Eastbound	3106+20	Ramp Loops
Eastbound	3106+20	System Loops
Eastbound	3139+00	System Loops
Eastbound	3186+35	Ramp Loops
Eastbound	3186+35	System Loops
Eastbound	3248+50	System Loops
Eastbound	3201+00	System Loops
Eastbound	3216+40	System Loops

1.3.11 Geotechnical Conditions

1.3.11.1 Existing Subsurface Conditions

The project site is located in the Basin and Range Geologic Province of the southwestern United States. The Basin and Range Province is characterized by a modern landscape consisting of broad alluvial valleys interspersed with, and bounded by uplifted and fault-block mountain ranges, often with well-developed pediments and alluvial fans. Generally, the mountain ranges and valleys trend in a north-south to northwest-southeast direction. The modern landscape was formed by late Tertiary (Miocene-Pliocene) extensional tectonism and high-angle normal faulting, followed by subsequent erosion of the uplifted mountains and deposition of the sediments in the newly-formed basins.

The project site is underlain by basin fill sediments several thousand feet thick (Richards, 2000), and therefore encountering bedrock is not anticipated during construction. Surficial sediments encountered to the total depth of our test borings (136') consist of late Quaternary (Pleistocene-Holocene) alluvial materials. The generalized subsurface conditions for the project site area were determined based on review of previous geotechnical studies performed in the near site vicinity and the conditions encountered in test borings performed for this investigation. The subgrade materials along the project alignment generally consist of predominantly finer-grained, moderately firm to hard, lenticular alluvial deposits containing varying proportions of sand, silt, clay and gravel. The finer grained silty and clayey deposits vary from low to medium in plasticity whereas the cleaner sand with gravel layers is typically non-plastic.

The firmness of soils in this area is highly influenced by the land use. The soils in this general area that have not been disturbed or subjected to irrigation of crops are typically soft in the upper 3' to 4' of existing ground becoming firm to hard at relatively shallow depth.

The project site lies within an area which was subjected to significant groundwater withdrawal (100' to 500') due mainly to irrigation demands throughout the 1900's (Schumann & Genualdi, 1986). Earth fissures, known to have been caused by these large-scale withdrawals, are present both north and south of the proposed alignment. The trend lines of the fissures to the north run northwest to southeast and those located to the south appear to run generally east to west; with no apparent trends towards the project alignment. No earth fissures are known to have been mapped within the project limits upon review of fissure maps produced by the Arizona Geological Survey (AZGS) (AZGS, 2010).

It is not known to what extent ground subsidence, if any, may have occurred in the general site area in response to lowering of the groundwater table. Decreases in groundwater withdrawal resulting from residential development replacing farm land, and substantial recharge due to heavy rainfall in the early 1980's, typically resulted in local rises of the groundwater table. This rise has been observed from measurements of 1,150 wells in 1981 and 1991 (Hammet & Herther, 1992). A large portion of the East Salt River Valley, including most of Tempe, Mesa, Gilbert and Chandler lie within areas identified to have experienced rises in the groundwater level. However, subsidence in a portion of the basin northeast of the site (Hawk Rock Area near Baseline Road and Meridian Road) has been measured by Arizona Department of Water Resources (ADWR) (ADWR, 2010) in recent years on the order of several centimeters per year.

Since fissures are known to exist in the general vicinity, it would appear prudent to include ground subsidence and fissures among items to be addressed in more detail during the final design phase.

1.3.11.2 Pavement Structural Sections

The existing pavement structural sections were obtained from the as-built plans and available geotechnical investigation reports. The existing pavement structural sections that were constructed with the previous freeway projects are provided in Table 9.

Table 9 – Existing Pavement Structural Sections

Location	AR-ACFC (in)	PCCP (in)	AB (Class 2) (in)	AC (3/4) (in)	AC (Base Mix) (in)	Total Thickness (in)
SR 202L Mainline and Outside Shoulders	1.0	13.0	4.0	-	4.0(1)	18.0
SR 202L Median Shoulders	-	-	14.0	3.0	-	17.0
Ramps	1.0	10.0	4.0	-	4.0(1)	14.0

(1) Used in depressed freeway areas instead of AB (Class 2)

1.3.12 Previous Projects

The ADOT Milepost Strip Map shows the project listed in Table 10 below:

Table 10 – Previous Projects

Freeway Corridor	Project Number and/or TRACS Number	Milepost	As-Built Date	Description
SR 202L	STP-CM-202-C(003)B H5911 01C	36.68 - 41.27	2008	Frye Road to Power Road
SR 202L	STP-202-C(007)B H5913 01C	33.15 - 36.37	2007	Power Road to Elliot Road Higley Road Bridge
SR 202L	STP-202-C(005)B H5915 01C	31.02 - 33.17	2007	Elliot Road to Baseline Road

2.0 TRAFFIC AND CRASH DATA

2.1 CRASH ANALYSIS

The ADOT Traffic Studies Section provided crash data for the segment of SR 202L between Higley Road and the US60/SR202L TI. There were a total of 85 reported crashes within the study area between July 1, 2006 and December 31, 2008. The following is a summary of some key characteristics of the crash data:

- Of the 85 crashes reported, 55 resulted in property damage only (65%), 29 resulted in injuries (34%), and 1 resulted in a fatality (1%).
- 26% of the crashes involved another motor vehicle while 52% involved a fixed object. These two types of crashes accounted for 92% of the crashes.
- Of the 59 crashes reported that were single vehicle, 44% (26 crashes) involved a collision with a median barrier, and 31% (18 crashes) involved a collision with some other kind of fixed object.
- 62% of the crashes occurred during daylight hours, 5% occurred at dusk or dawn, and the remaining 33% occurred during hours of darkness.

This evaluation indicates that 69% of the crashes on this segment of the SR 202L are single vehicle collisions with 75% of those crashes involving a collision with a fixed object. This type of crash is commonly associated with low volume, high speed traffic conditions on a freeway. Table 11 presents the Freeway Crash Data Summary by individual freeway segments on SR 202L.

According to the *Regional Freeway Bottleneck Study* (MAG, 2006) the average crash rate on the Regional Freeway System was 0.78 crashes per million vehicle miles in 2000. This study also documented the 75th percentile as 1.41 crashes per million vehicle miles (cpmvm). All eight of the SR 202L calculated segment rates are less than the 75th percentile, and are also less than the average crash rates on the overall Regional Freeway System.

Table 11 – Freeway Crash Data Summary

Freeway Segment	Number of Crashes (January 2006 - December 2008)	Crash Rate (2006 - 2008) (Crash/Million Vehicle Miles)
Eastbound SR 202L		
Higley Road to Power Road	17	0.40
Power Road to Hawes Road	10	0.23
Hawes Road to Elliot Road	7	0.24
Elliot Road to Guadalupe Road	7	0.27
Westbound SR 202L		
Guadalupe Road to Elliot Road	5	0.19
Elliot Road to Hawes Road	7	0.22
Hawes Road to Power Road	13	0.28
Power Road to Higley Road	19	0.42

2.2 EXISTING TRAFFIC CONDITIONS

Historical traffic count data was obtained from the City of Mesa and ADOT Multi-Modal Planning Division (MPD) for 2006 and 2007. On average, the traffic count data provided by ADOT indicated approximately 29,000 vehicles per day (vpd) traveled on SR 202L during that time period. In addition, mainline traffic counts were conducted on the SR 202L mainline at several locations within the study area in March 2009. The existing daily (ADT) and peak hour volumes are shown on Figure 6 (page 24).

Based on the field counts, the existing SR 202L mainline daily traffic volumes vary from approximately 67,500 vpd north of Guadalupe Road to approximately 40,000 vpd west of Power Road. The Guadalupe Road TI ramps have the highest ramp traffic volumes (2,600 - 8,200 vpd).

Table 12 depicts the 2009 mainline traffic factors ('K' values and directional splits) on SR 202L by segment based on the field data collected in March 2009. The portion of Average Daily Traffic (ADT) occurring within the peak hour is approximately 7% to 8%, the directional distribution is approximately 50% to 60% in the peak direction of travel, and approximately 2% of the daily traffic is classified as commercial vehicles (trucks). The ADOT Arizona State Highway System Log does not include traffic data for this portion of the SR 202L.

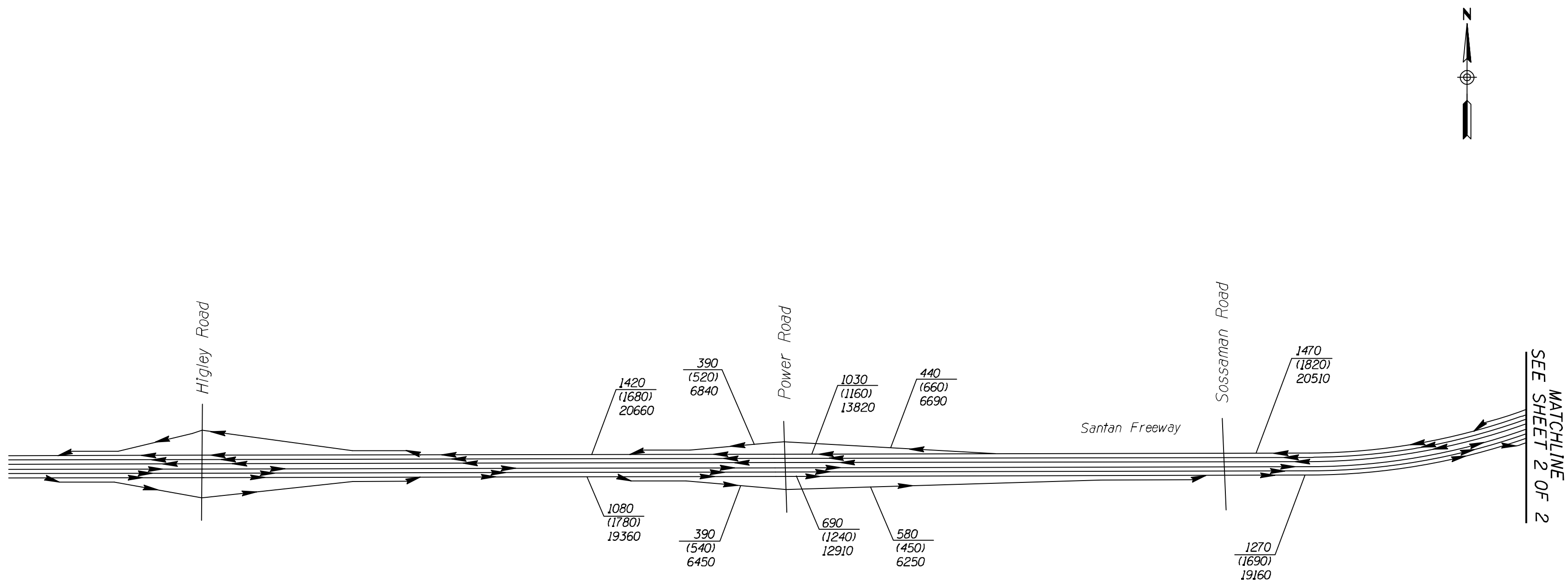
Table 12 – Mainline Traffic Factors

Freeway Segment	A.M. Peak Hour			P.M. Peak Hour		
		Directional Split			Directional Split	
	K value	WB	EB	K value	WB	EB
Baseline Road - Guadalupe Road	7%	34%	66%	8%	61%	39%
Guadalupe Road - Elliot Road	7%	41%	59%	8%	57%	43%
Elliot Road - Power Road	7%	53%	47%	8%	49%	51%
Power Road - Higley Road	6%	57%	42%	8%	45%	55%

2.3 OPERATIONAL ANALYSIS METHODOLOGY

2.3.1 SR202L/SR802 TI and SR 802 Mainline

An operational analysis was performed for all segments of the freeway mainlines, ramps, ramp junctions, and weave sections for the No-Build and Build alternatives. The CORSIM computer program was used to provide a simulation of the entire freeway system within the study area. CORSIM is a microscopic traffic simulation program that uses roadway geometry and traffic volume inputs to simulate operations of an entire freeway network. CORSIM has the ability to provide various measures of effectiveness for each link within the system. The vehicle density and speed outputs from CORSIM were used as the measure of effectiveness to relate to a level-of-service as established by the *Highway Capacity Manual* (HCM).



LEGEND
xxx - 2009 AM Peak Hour
(xxx) - 2009 PM Peak Hour
xxxx - 2009 Average Daily Traffic

FIGURE 6
2009 EXISTING VOLUMES ON SR 202L
SHEET 1 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

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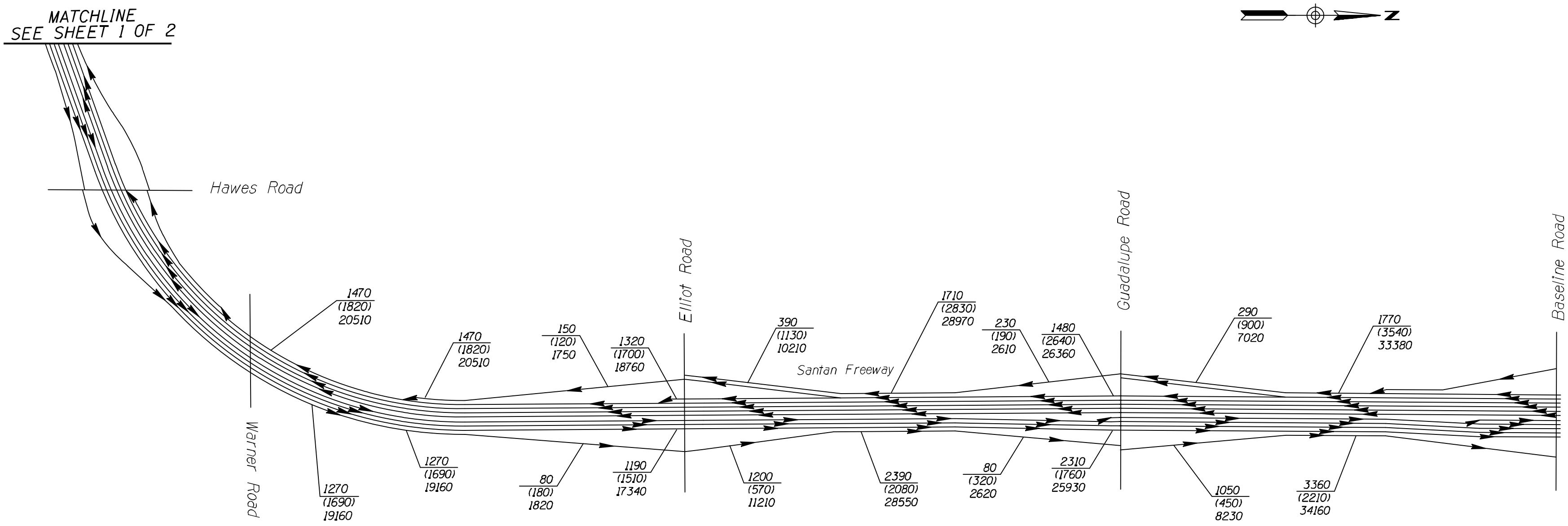


LEGEND

xxx - 2009 AM Peak Hour
(xxx) - 2009 PM Peak Hour
xxxx - 2009 Average Daily Traffic

FIGURE 6
2009 EXISTING VOLUMES ON SR 202L
SHEET 2 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

The concept of level-of-service (LOS) uses qualitative measures that characterize operational conditions within a stream of traffic. The descriptions of individual levels-of-service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Six levels of service are defined for each type of facility for which the analytical procedures are available. They are given letter designations from 'A' to 'F', with LOS 'A' representing the best operational conditions and LOS 'F' representing an over-capacity condition with a high degree of congestion. Each level of service represents a range of operating conditions.

Table 13 depicts the vehicle densities (vehicles per mile per lane) and corresponding levels-of-service established in the HCM:

Table 13 – Vehicle Densities and Corresponding Levels-of-Service

Level-of-Service	Density Range (pc/mi/ln)
A	0-11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45

Source: 2000 HCM, pg. 23-3

In order to verify the CORSIM output, additional analyses were performed using the Highway Capacity Software (HCS), which uses the procedures from the HCM to provide the traffic operational characteristics in terms of level-of-service. One of the major disadvantages of using HCS for analyzing a major freeway network is that it does not address the cumulative effects of delay on an entire system. HCS only allows for the evaluation of a single location within an overall system and does not take into account the effects of conditions upstream and downstream. For example, a severe upstream "bottleneck" may limit the amount of traffic reaching a downstream location. Similarly, a severe downstream "bottleneck" may cause queuing to such an extent that it effects an upstream location. Therefore, CORSIM was used to evaluate the entire system and HCS was used to verify the CORSIM results.

The following CORSIM model input assumptions were used for the operational analysis for the alternatives evaluation:

- Free flow speed of 65 mph for the mainline general-purpose lanes
- Free flow speed of 55 mph for the system interchange ramps
- Free flow speed of 50 mph for the service interchange ramps
- Commercial vehicle percentage was assumed to be 5% during peak hours

The commercial vehicle percentage is based on recent experience in observing the existing traffic conditions and performing operational analysis for projects on the Regional Freeway System, and not on the existing ADOT count data. The *Arizona State Highway System Log* does not include traffic data for the SR 202L within this study area. Recent traffic counts indicate that less than 5% of the vehicles in the peak hour would be classified as commercial vehicles. However, 5% was used for the operational analysis.

The objective of this analysis is to evaluate capacity improvements for the new SR 802 mainline, the SR202L/SR802 TI, and the SR 202L mainline. Therefore the operational analysis was constrained to the freeway mainline, ramps, ramp junctions, and weaving areas. All roadway elements should operate with LOS 'D' or better operational characteristics with the 2030 traffic demand.

2.3.2 Service Interchanges

2.3.2.1 Operational Analysis

Additional analyses were conducted to optimize the lane configurations for each service interchange proposed along the SR 802. The peak hour traffic volumes for this analysis were based on the 2030 traffic volume projections obtained from MAG.

Intersection LOS analyses were conducted using Synchro 7.0 in accordance with procedures outlined in the HCM. Table 14 below shows the control delays and corresponding levels-of-service established in the HCM for signalized intersections.

Table 14 – Intersection Delay and Corresponding Levels-of-Service

Level-of-Service	Control Delay (sec/veh)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	> 80

The goal of this analysis was to develop an interchange configuration where the overall interchange, and each intersection approach, would operate at LOS 'D' or better with the 2030 traffic demand.

The following assumptions/input parameters were used in the intersection analysis:

- Peak hour factor: 0.92
- Vehicle travel speed: 45 mph
- Intersection spacing: based on proposed roadway geometrics
- Percentage of heavy vehicles: 5%
- Lane widths: 12 feet
- Base saturation flow rate: 1,900 vphpl for all movements
- Right-turn on red movements: these traffic movements were included in the analysis and modeled in the software
- Cycle length: between 90 and 160 seconds

The 2030 traffic volume projections were adjusted by utilizing a 0.92 peak hour factor to provide an appropriate "safety factor" for the analysis. The resulting control delays obtained from the Synchro software for each approach movement were used to develop a cumulative average control delay for the total interchange.

The number of crossroad lanes was based on the ultimate number of lanes planned by the City of Mesa and Pinal County as shown on their adopted Street Classification Maps.

2.3.2.2 Turn Bay Storage Length Analysis

ADOT PGP 430 contains guidelines for the design and calculation of storage lengths for turn bays. Per the PGP, the storage length is a combination of the braking distance and the anticipated queue length. It is recommended in the PGP that the queue length allow for 1.5 to 2 times the average number of vehicles that will queue per cycle for periodic heavy demand in traffic flow. Due to the fact that these intersections will be signalized in an urban area, the minimum braking distance contained in the PGP was used in calculating the storage length requirements.

The PGP recommends calculating the queue lengths based on the expected queue length that is formed during a red indication assuming uniform vehicle arrival rates. The red indication time was calculated by multiplying the entire cycle length by one, minus the green to cycle (g/C) ratio. Using the g/C ratio values, as opposed to the red indication time, accounts for the signal loss times associated with start up and clearance intervals.

In addition to the guidelines contained in the PGP, the Synchro analysis reports the 50th and 95th percentile queue length for each movement. These three methods of queue estimation were used to develop recommendations for the storage lengths at the service interchanges. In addition, the potential for the through traffic queue to block turn lanes were also considered in the evaluation. The ADOT Phoenix Regional Traffic Group policy requires a minimum turn bay length of 300' for left-turn bays and 200' for right-turn bays.

2.4 SR202L/SR802 TI AND SR 802 MAINLINE ALTERNATIVES

2.4.1 Introduction

Section 3.0 of this report provides a detailed description of the SR202L/SR802 TI and SR 802 Mainline Alternatives that were evaluated for this study. The alternatives include the No-Build and Build alternatives.

Traffic operational analyses were conducted for each alternative based on the methodology discussed in Section 2.3. The following sections describe the alternatives and the analysis results.

2.4.2 No-Build Alternative

Description of Alternative

The No-Build Alternative includes the existing roadways and planned improvements that are currently programmed for construction or included in the RTPFP. The Year 2030 traffic volume projections and lane diagrams are shown in Figure 7 (page 28).

Under the No-Build Alternative, the SR 802 mainline and SR202L/SR802 TI would not be constructed. The SR 202L mainline would be improved to provide one HOV lane and one additional general-purpose lane in each direction of travel.

Operational Analysis Results

Figure 8 (page 30) and Figure 9 (page 32) summarize the level-of-service analysis results for the 2030 A.M. and P.M peak hours for the No-Build Alternative.

The results of the level-of-service analysis indicate that during the A.M. and P.M. peak hours nearly all segments of the SR 202L mainline would operate at LOS 'B' or better.

2.4.3 Build Alternative

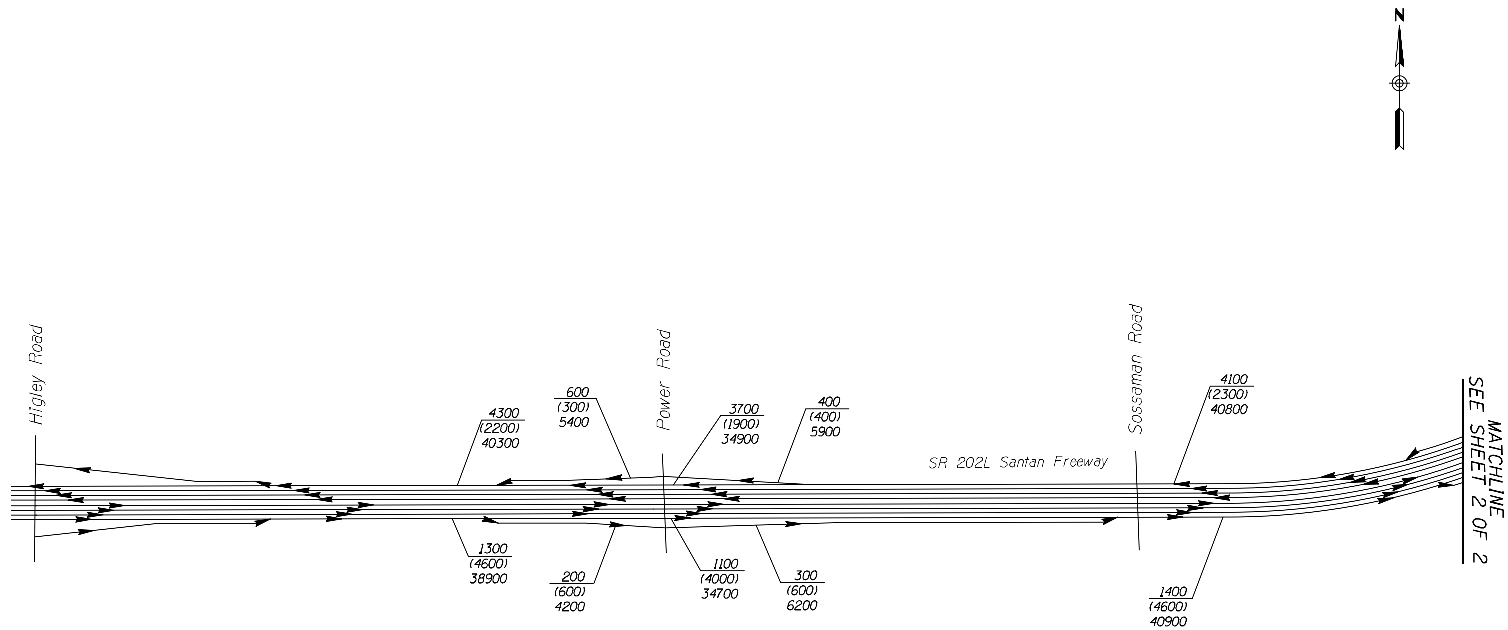
Description of Build Alternative

The SR202L/SR802 TI will be configured to provide a fully directional freeway-to-freeway system interchange with two lane ramps in all directions of travel. The existing Hawes Road TI will remain connected to SR 202L. Improvements will be made to SR 202L to provide additional lanes approaching and departing the SR202L/SR802 TI that transition into the ultimate SR 202L mainline configuration (four general-purpose lanes in each direction of travel).

SR 802 will be constructed to provide four general-purpose lanes in each direction of travel from between the SR202L/SR802 TI and Williams Field Road, and three general-purpose lanes in each direction of travel between Williams Field Road and Ironwood Road. Auxiliary lanes will generally be provided between service interchange entrance and exit ramps. The lane diagram and Year 2030 traffic volume projections are shown in Figure 10 (page 34).

Operational Analysis Results

The Build Alternative 2030 A.M. and P.M. peak hour LOS analysis results are shown in Figures 11 (page 38) and 12 (page 42), respectively. Under this scenario, all freeway segments and ramps on SR 202L and SR 802 are anticipated to operate at LOS 'D' or better.



LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOTE: HOV Lanes Not Shown.

FIGURE 7
2030 NO-BUILD VOLUMES
SHEET 1 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

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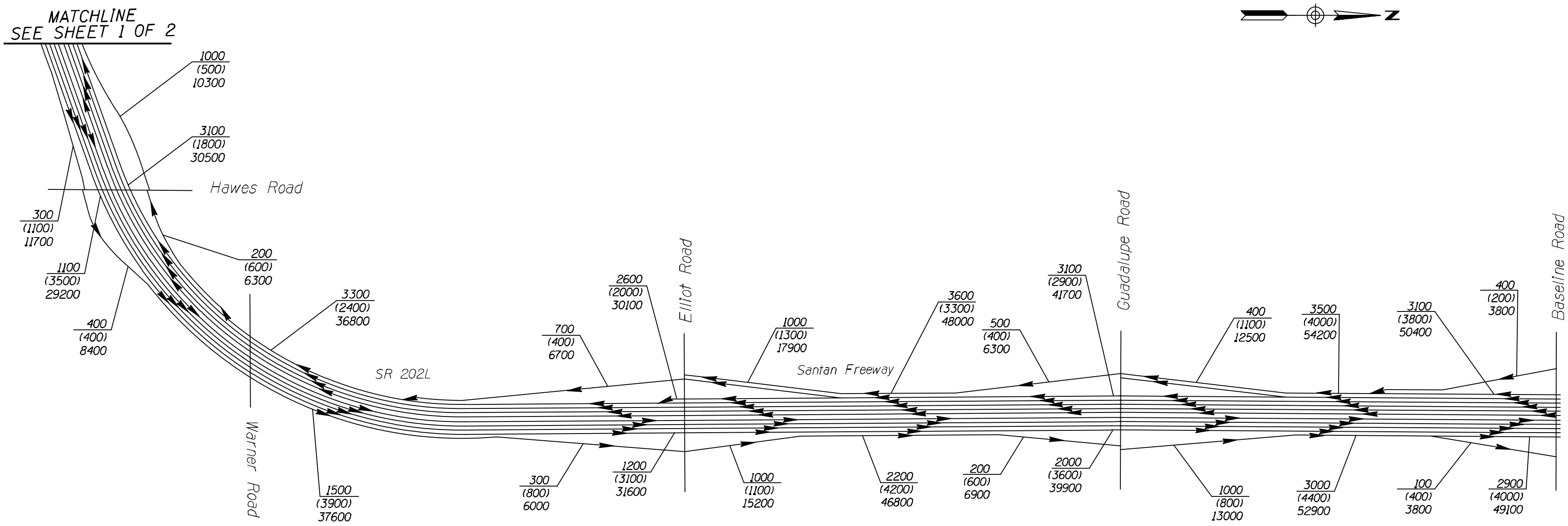
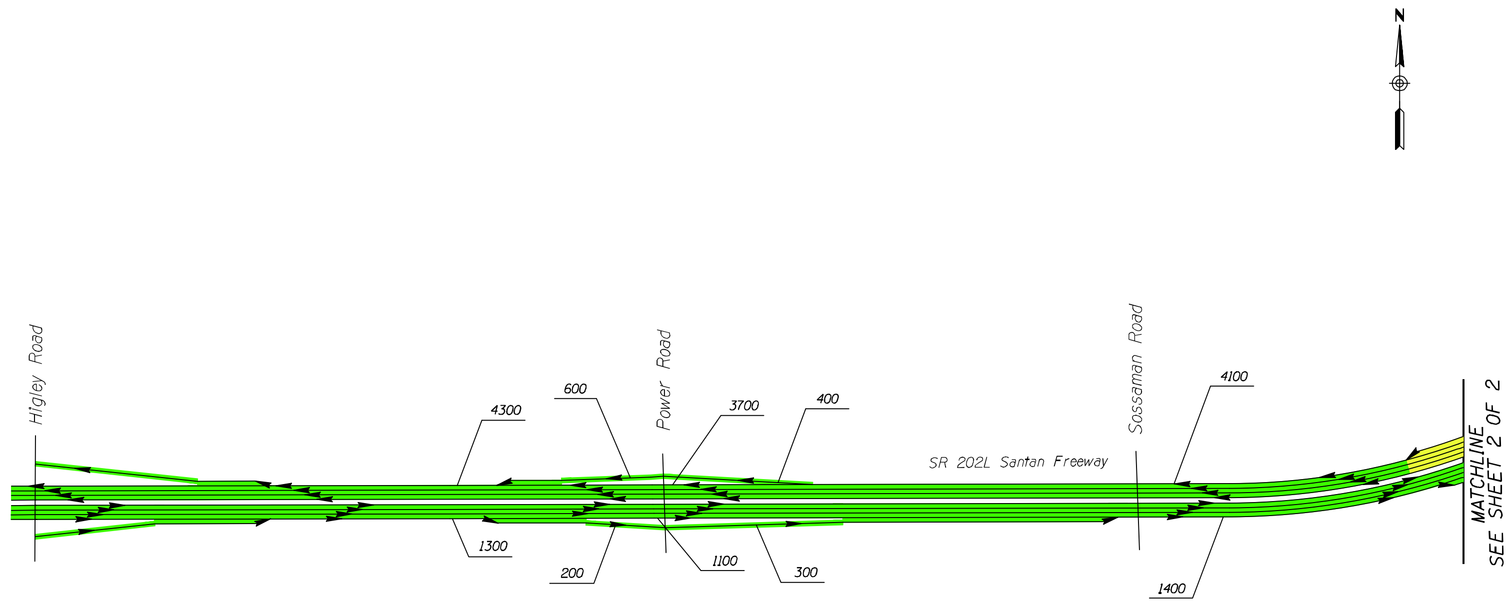


FIGURE 7
2030 NO-BUILD VOLUMES
SHEET 2 OF 2

NOT TO SCALE - SCHEMATIC ONLY



NOTES:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 AM Peak Hour

FIGURE 8
2030 NO-BUILD AM LEVEL OF SERVICE
SHEET 1 OF 2

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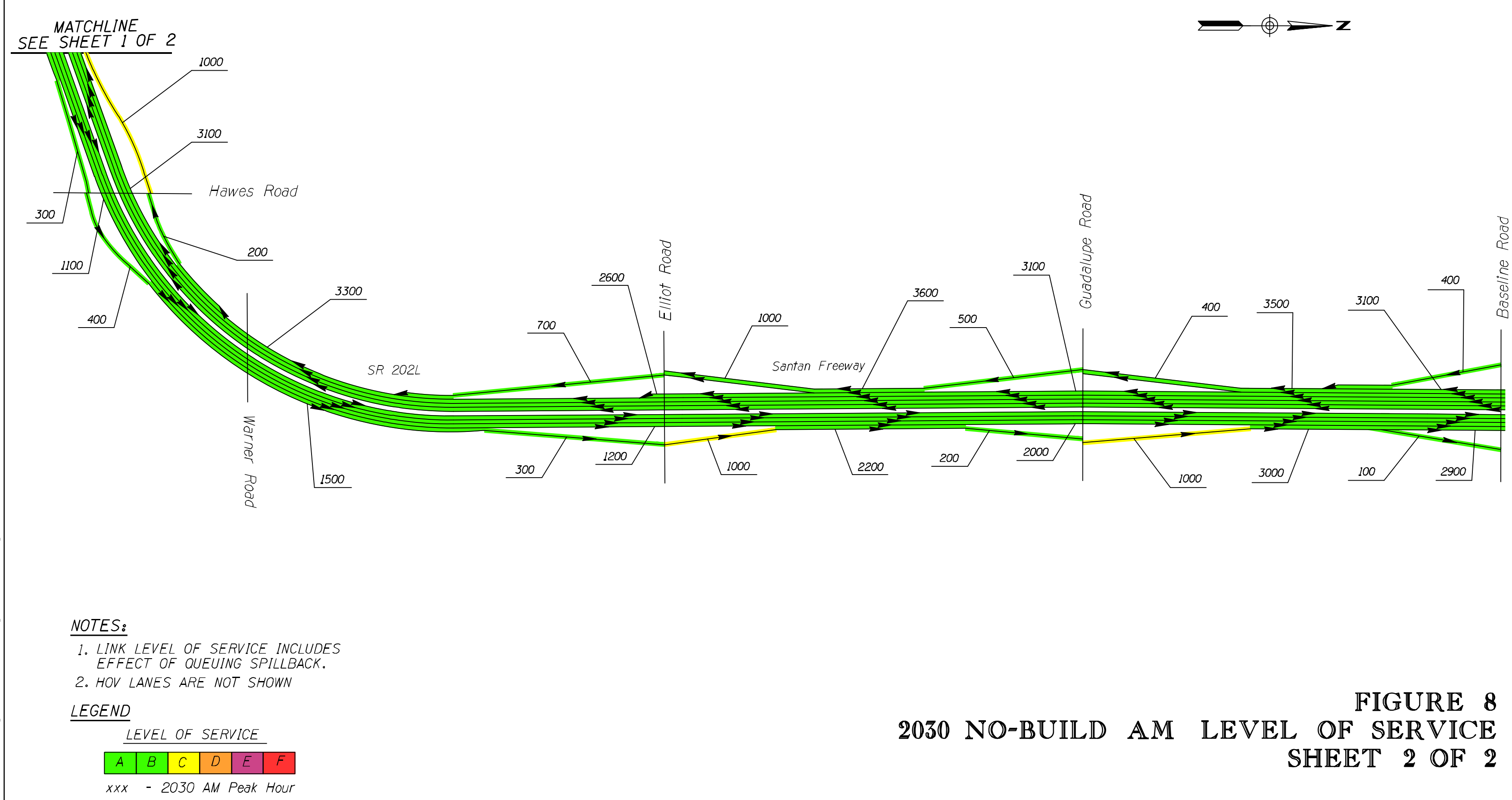

FIGURE 8
2030 NO-BUILD AM LEVEL OF SERVICE
SHEET 2 OF 2

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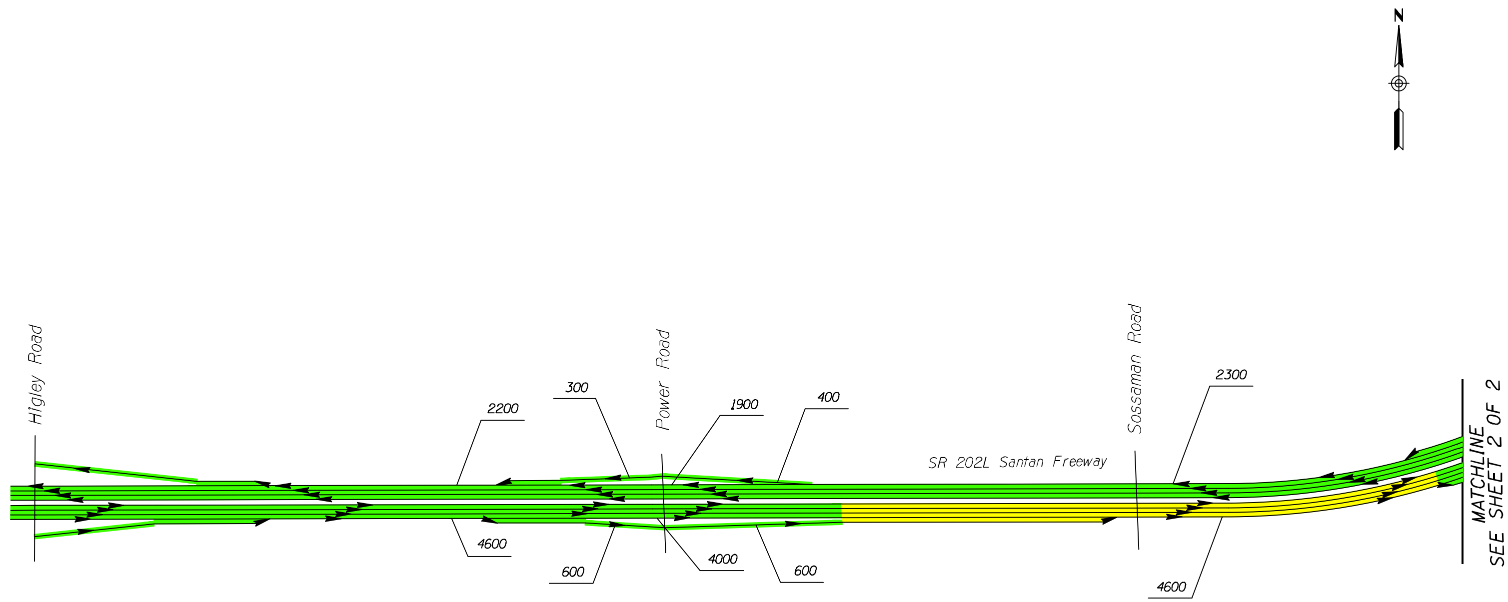

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11/3/2010

NOTES:

1. *LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.*
2. *HOV LANES ARE NOT SHOWN*

LEGEND

LEVEL OF SERVICE

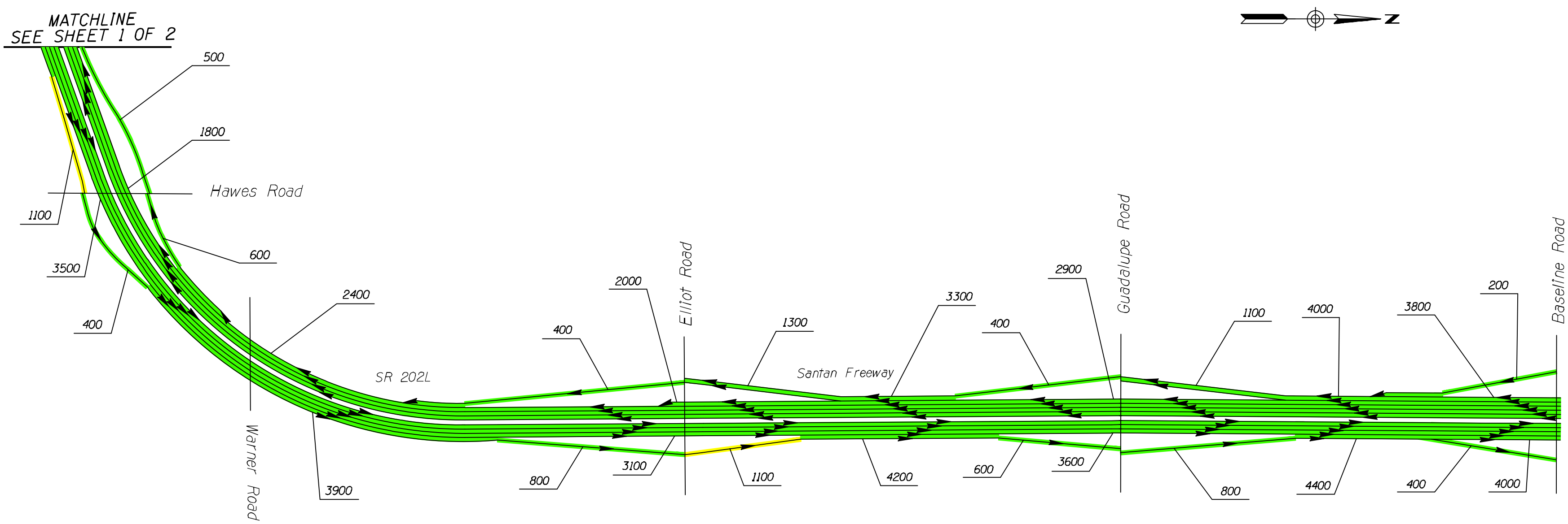
A	B	C	D	E	F

xxx - 2030 PM Peak Hour

FIGURE 9
2030 NO-BUILD PM LEVEL OF SERVICE
SHEET 1 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY



NOTES:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 PM Peak Hour

FIGURE 9
2030 NO-BUILD PM LEVEL OF SERVICE
SHEET 2 OF 2

AECOM

NOT TO SCALE - SCHEMATIC ONLY

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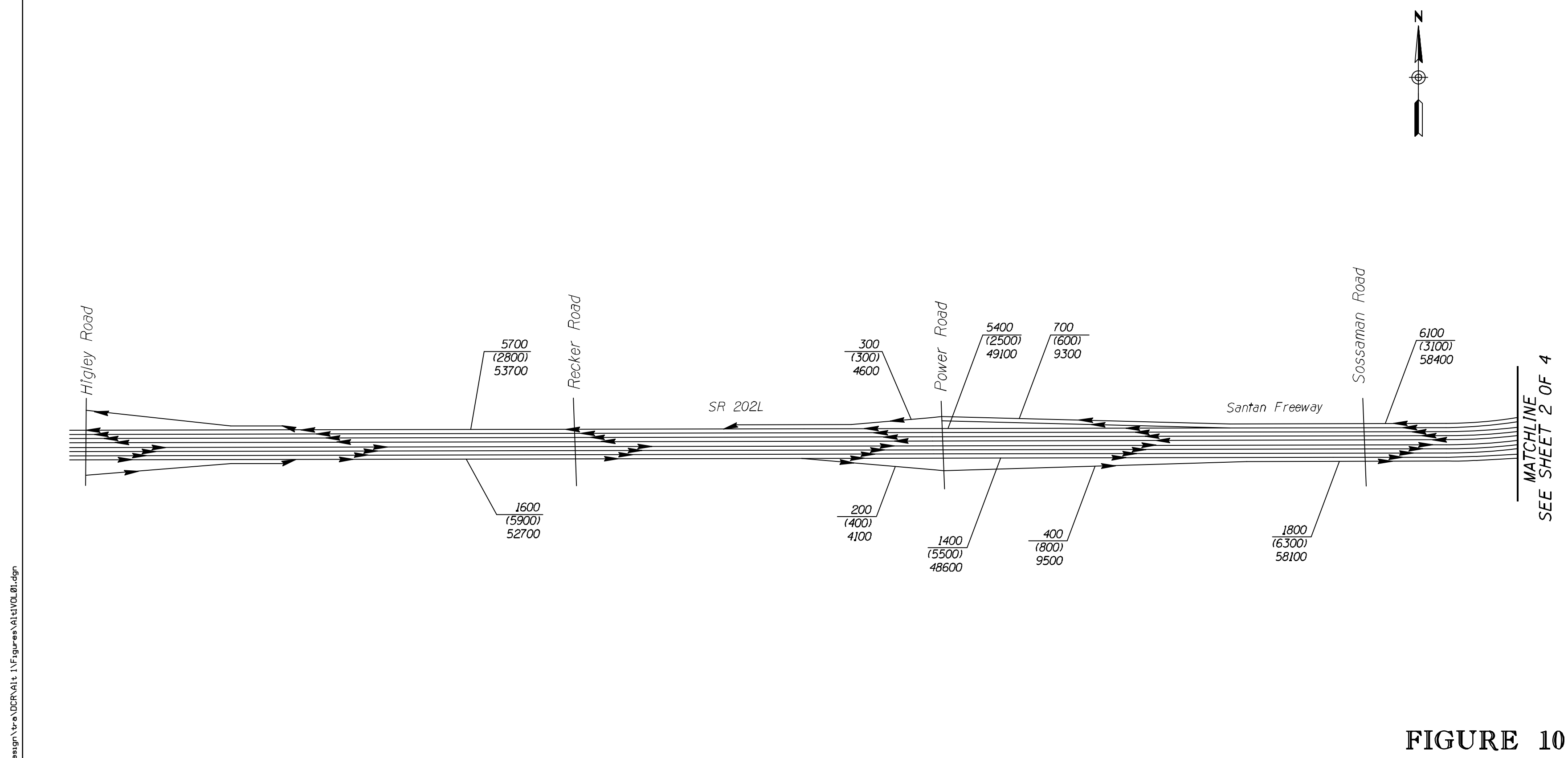

FIGURE 10
2030 BUILD ALTERNATIVE VOLUMES
SHEET 1 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

AECOM

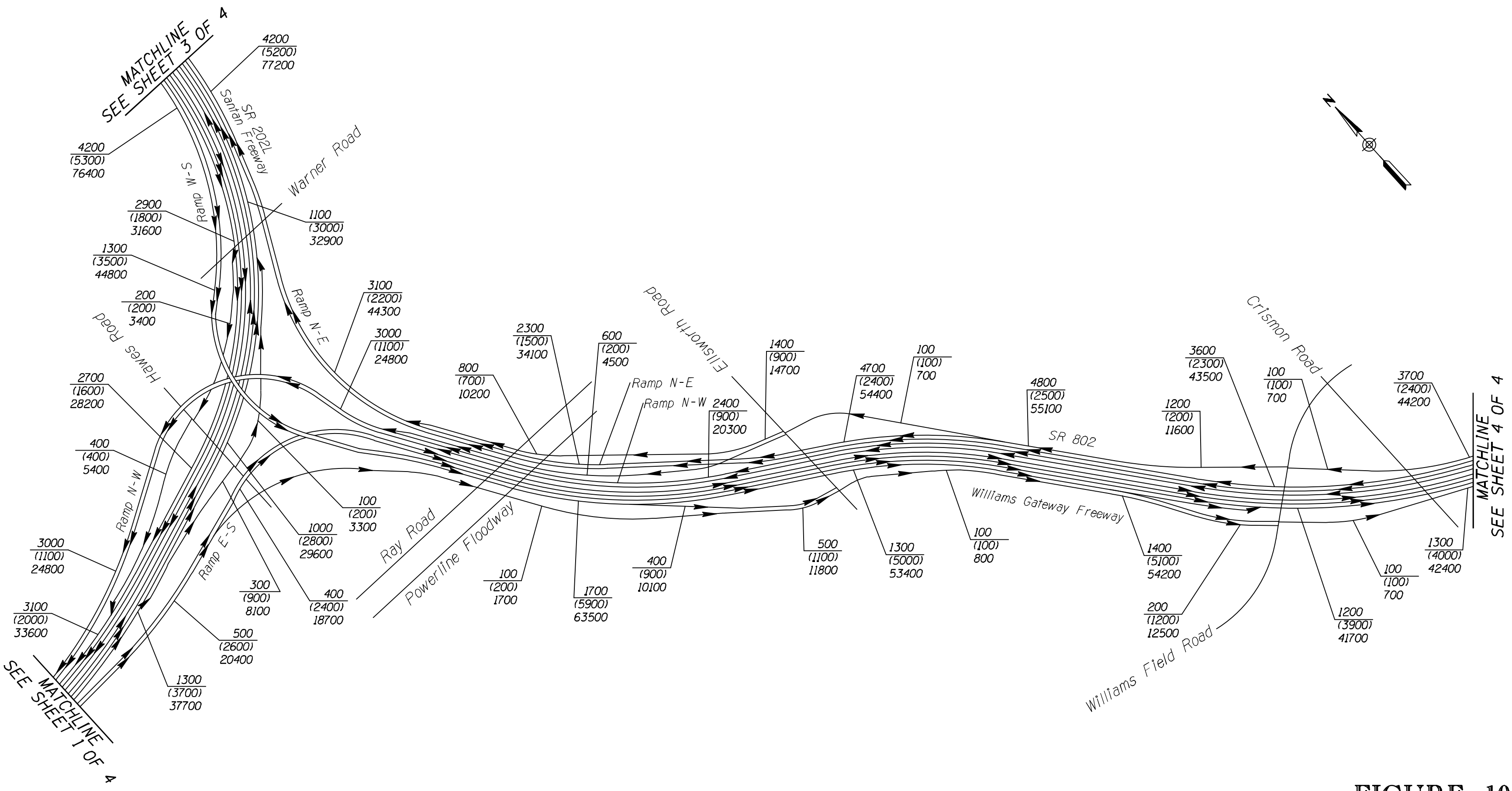

FIGURE 10
2030 BUILD ALTERNATIVE VOLUMES
SHEET 2 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND
xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

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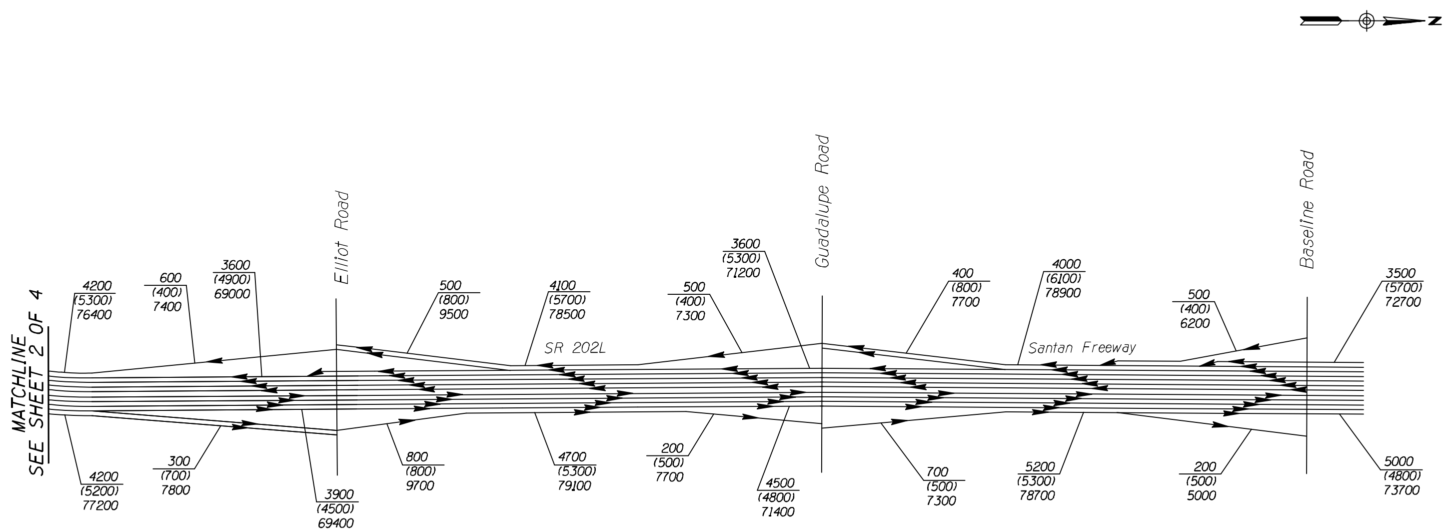

FIGURE 10
2030 BUILD ALTERNATIVE VOLUMES
SHEET 3 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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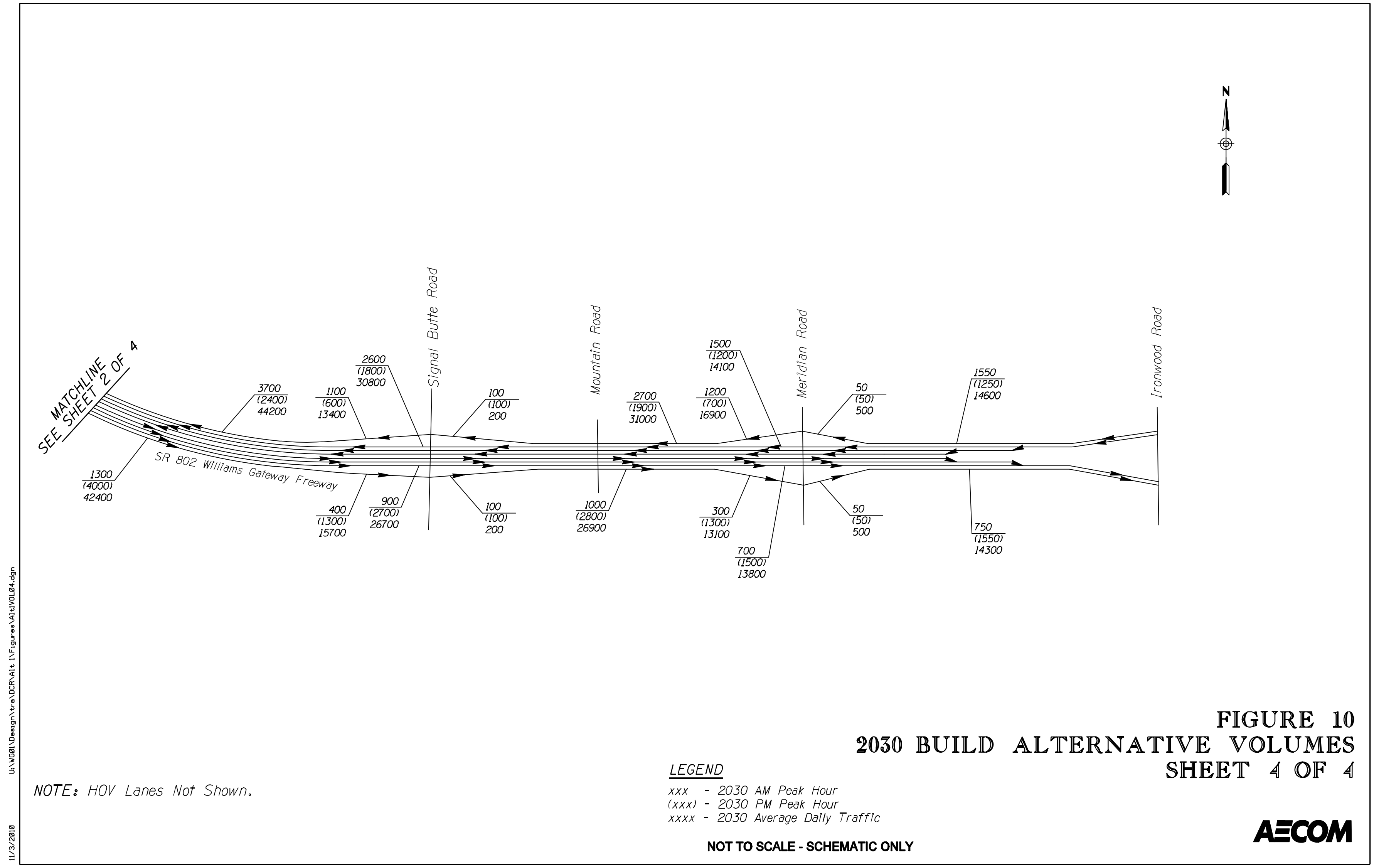


FIGURE 10
2030 BUILD ALTERNATIVE VOLUMES
SHEET 4 OF 4

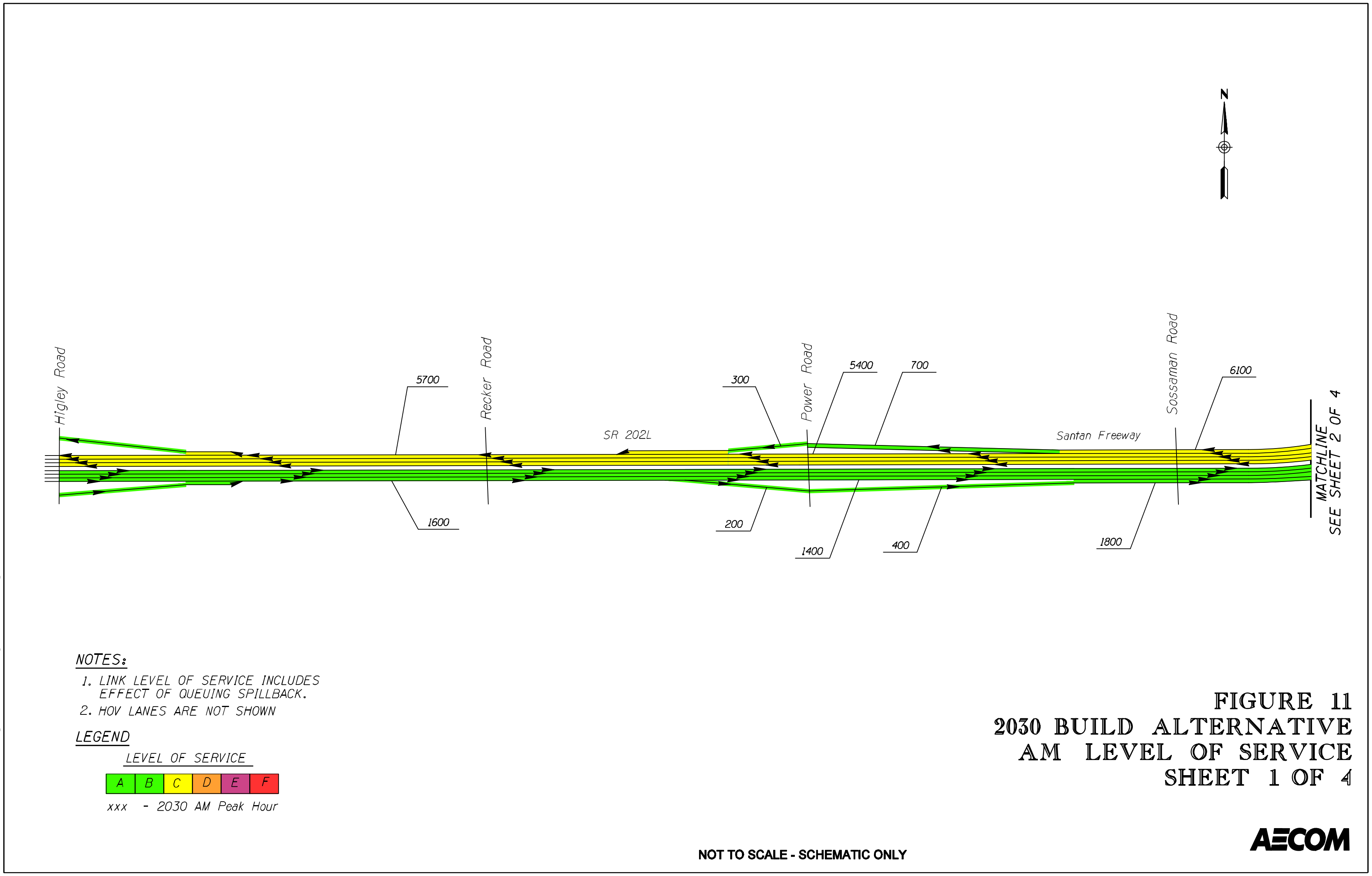
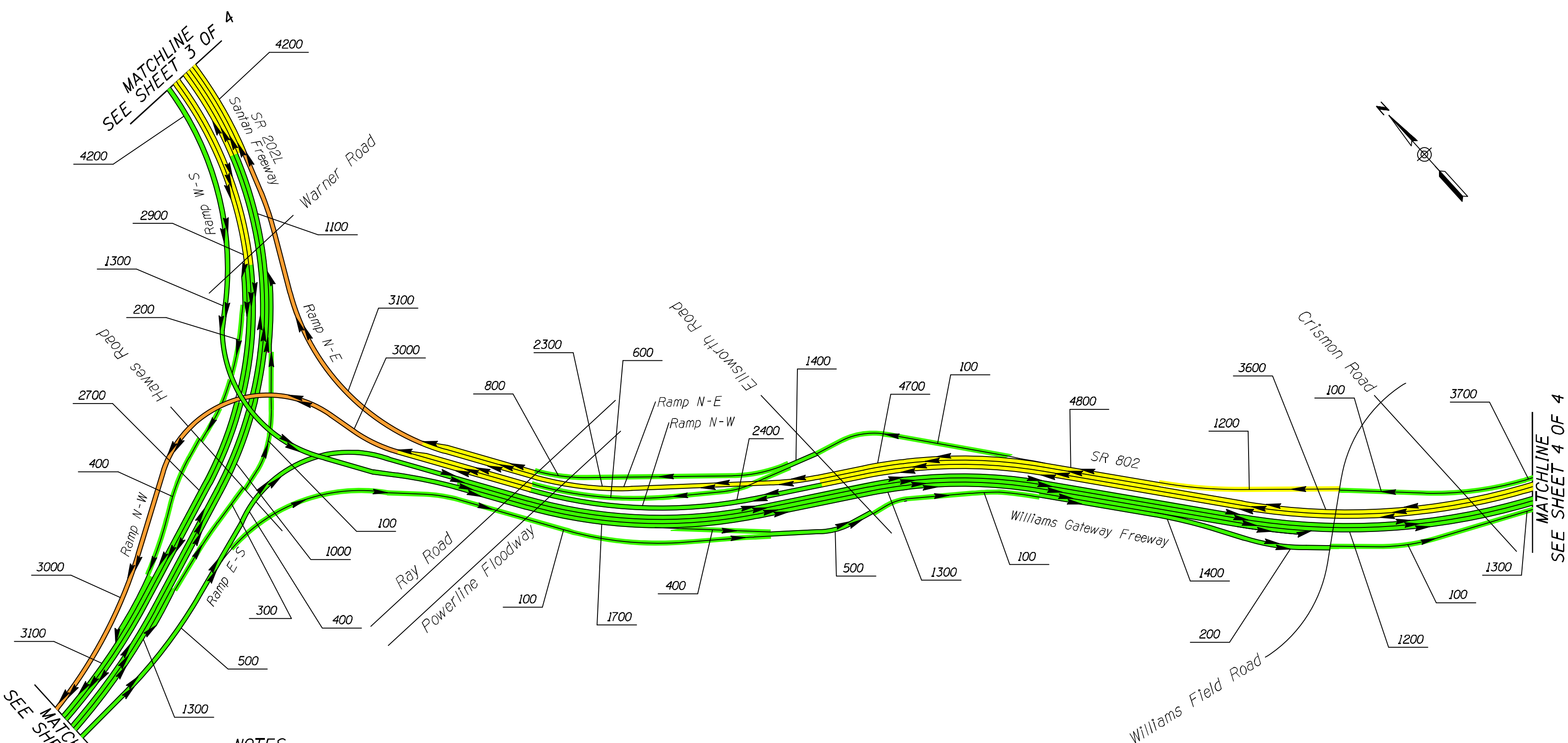


FIGURE 11
2030 BUILD ALTERNATIVE
AM LEVEL OF SERVICE
SHEET 1 OF 4



NOTES:
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 AM Peak Hour

FIGURE 11
2030 BUILD ALTERNATIVE
AM LEVEL OF SERVICE
SHEET 2 OF 4

AECOM

NOT TO SCALE - SCHEMATIC ONLY

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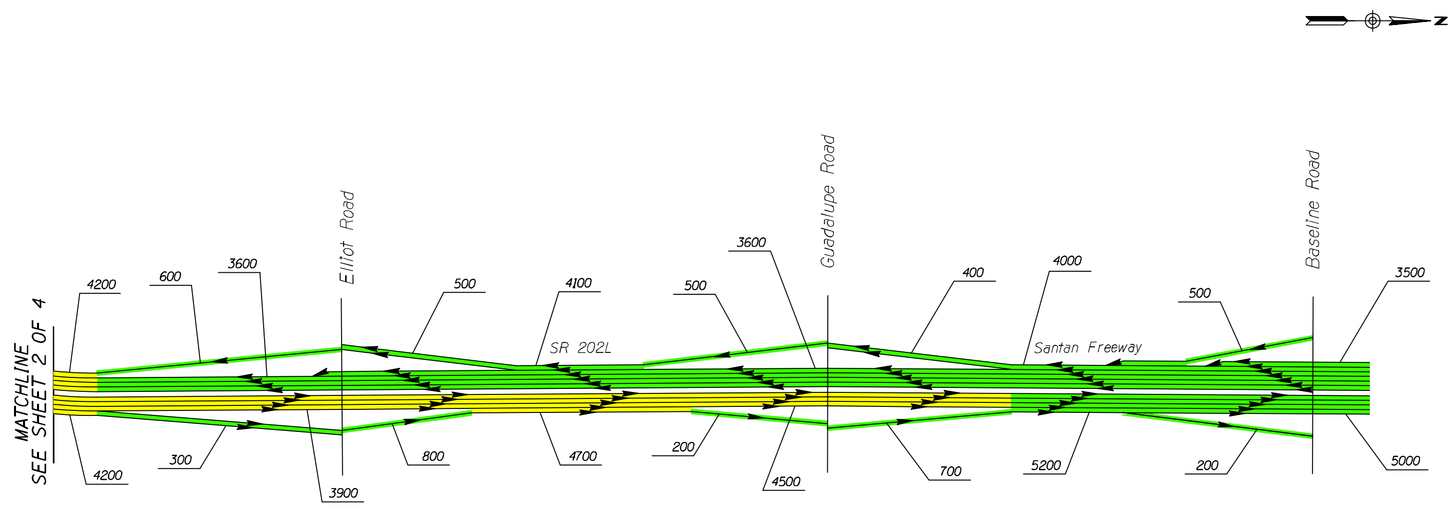

NOTES:
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 AM Peak Hour

FIGURE 11
2030 BUILD ALTERNATIVE
AM LEVEL OF SERVICE
SHEET 3 OF 4

AECOM

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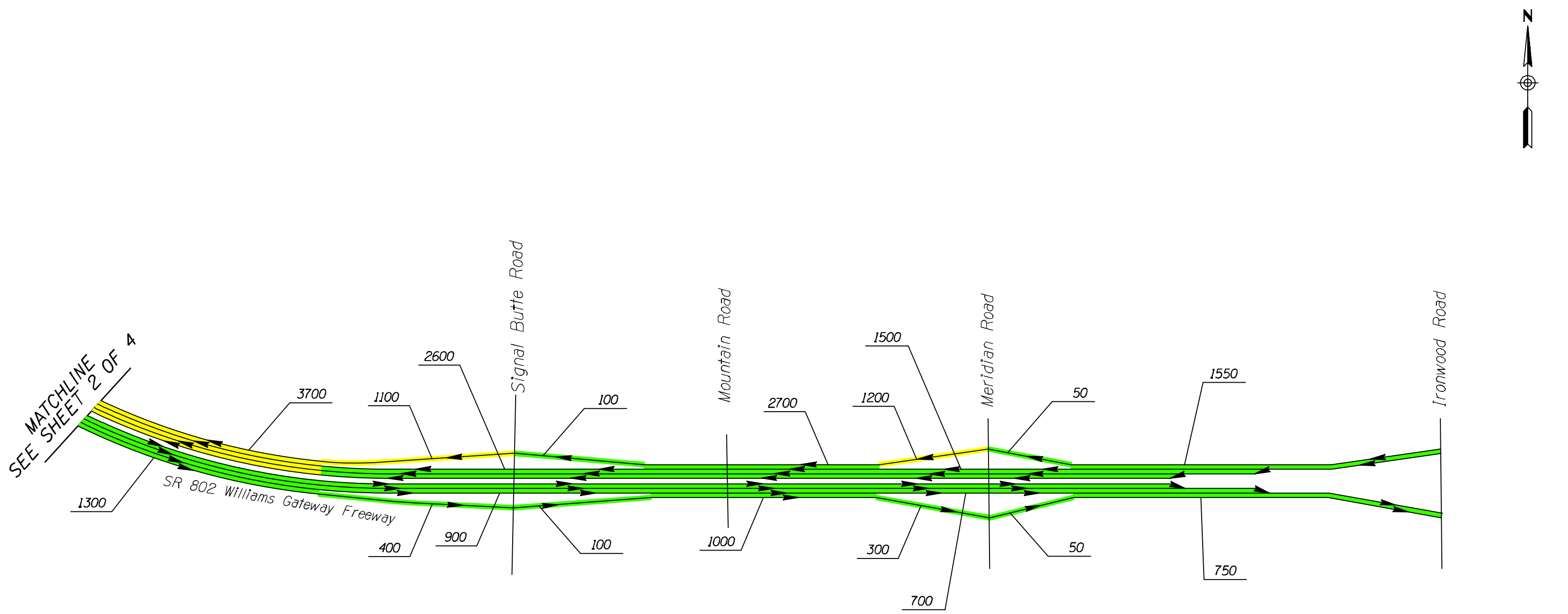

NOTES:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 AM Peak Hour

FIGURE 11
2030 BUILD ALTERNATIVE
AM LEVEL OF SERVICE
SHEET 4 OF 4

AECOM

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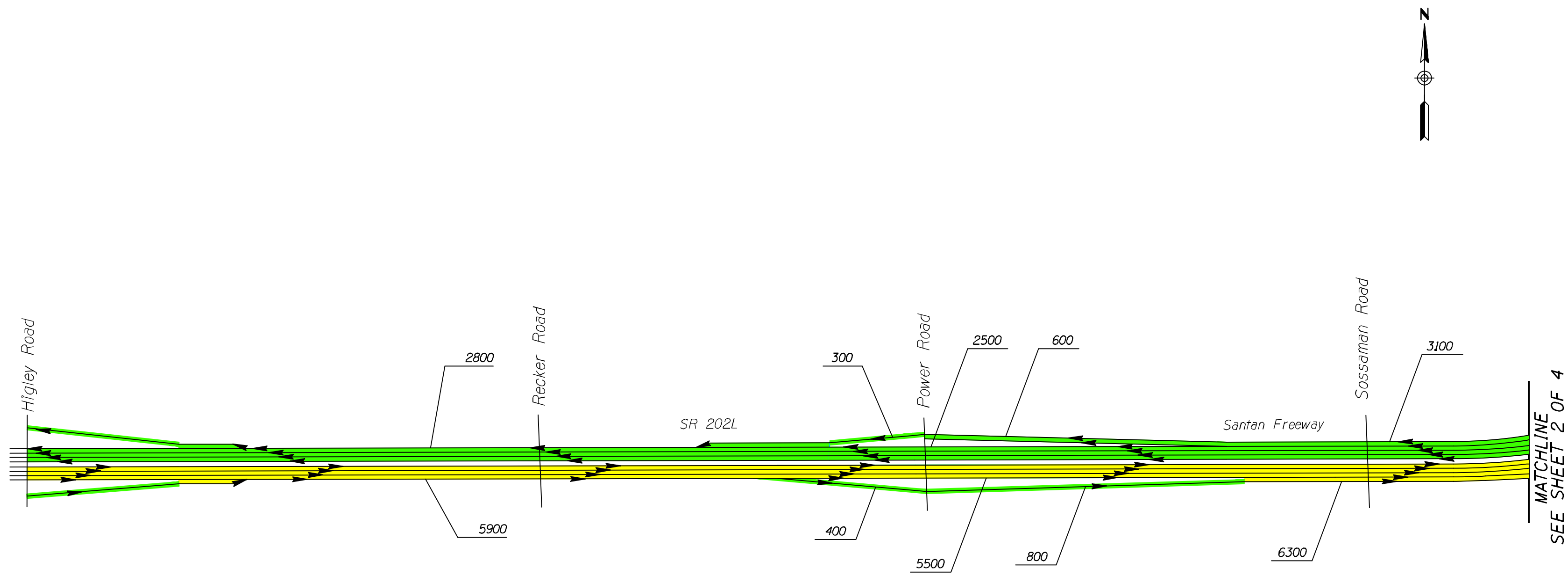


NOTES:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 PM Peak Hour

FIGURE 12
2030 BUILD ALTERNATIVE
PM LEVEL OF SERVICE
SHEET 1 OF 4

AECOM

NOT TO SCALE - SCHEMATIC ONLY

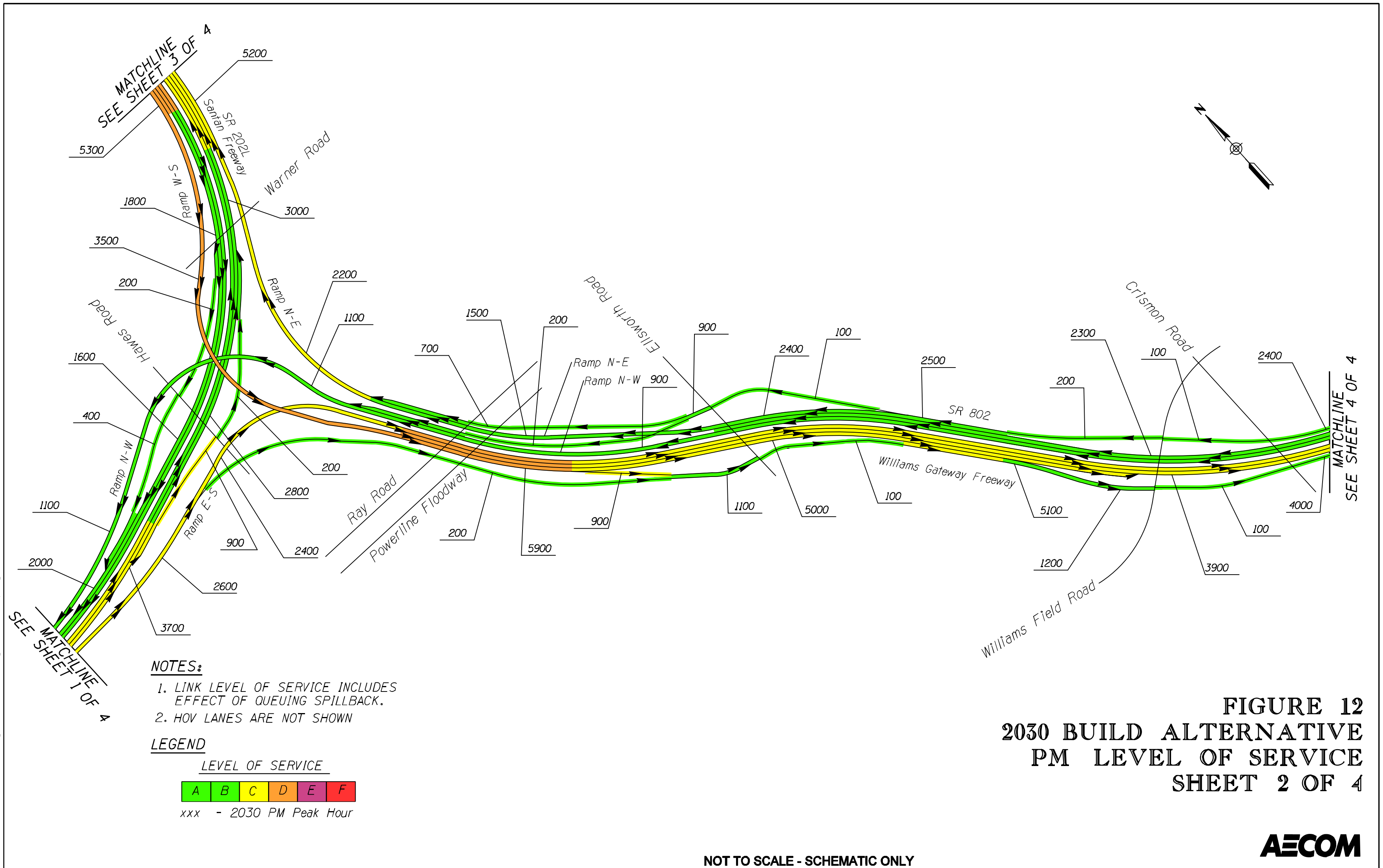
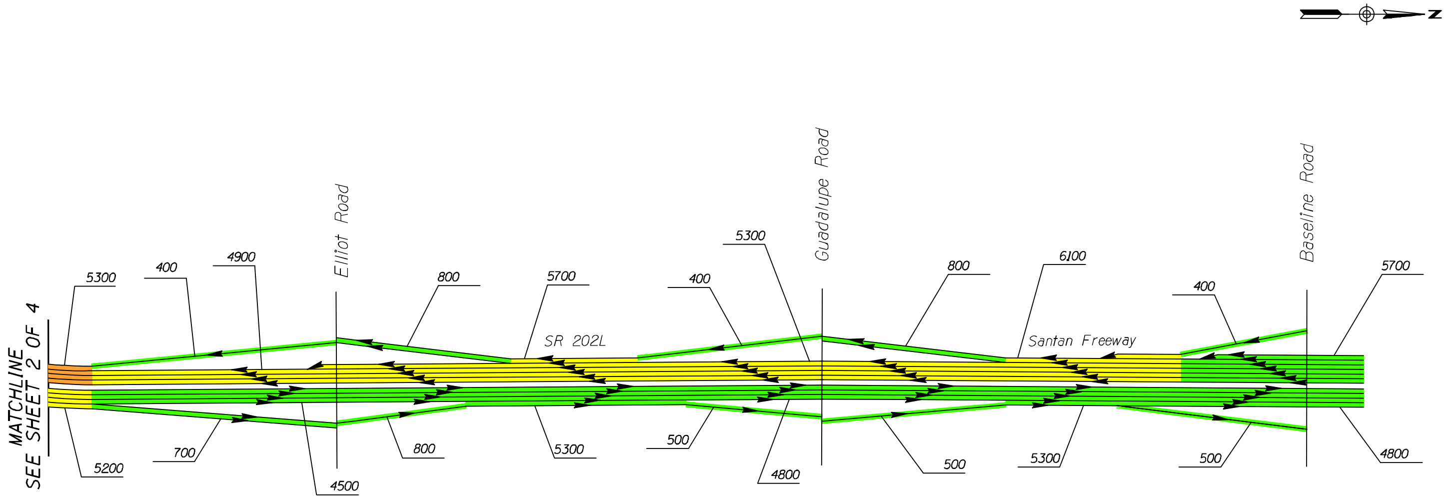


FIGURE 12
2030 BUILD ALTERNATIVE PM LEVEL OF SERVICE
SHEET 2 OF 4

AECOM

NOT TO SCALE - SCHEMATIC ONLY



NOTES:
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 PM Peak Hour

FIGURE 12
2030 BUILD ALTERNATIVE
PM LEVEL OF SERVICE
SHEET 3 OF 4

AECOM

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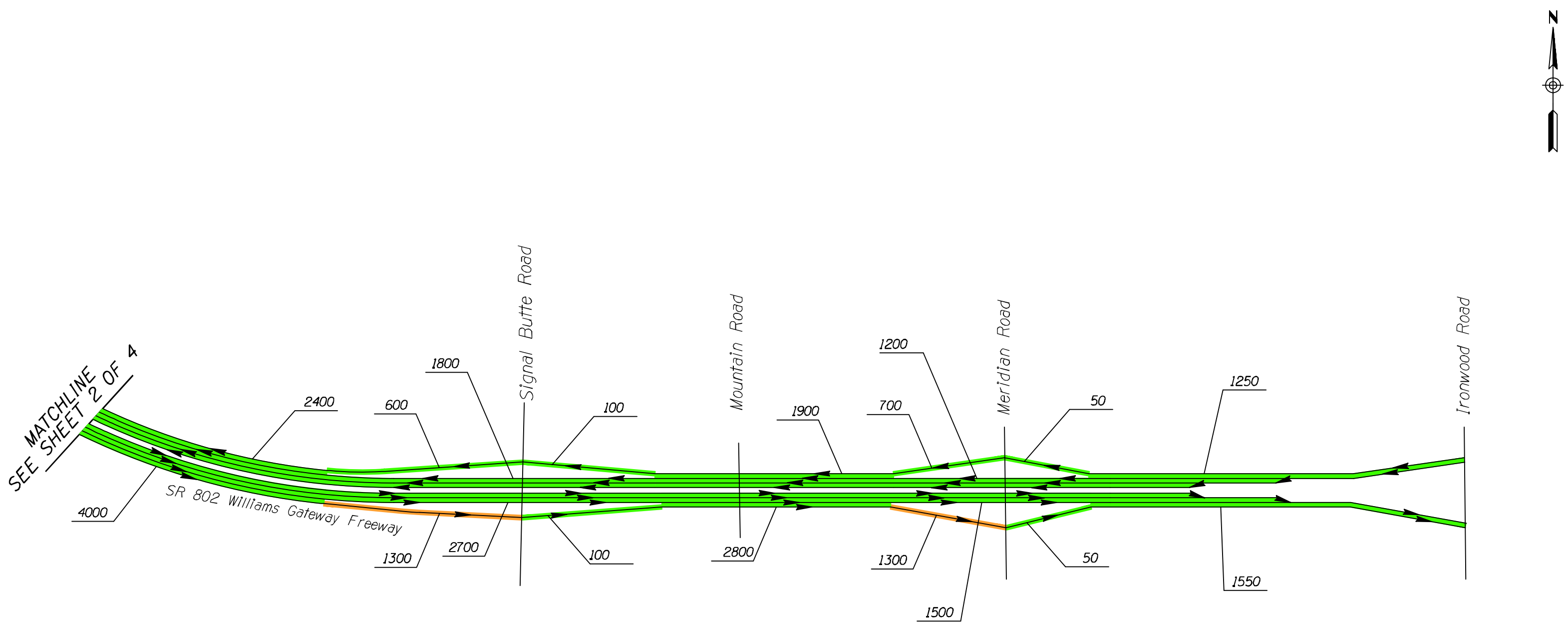

NOTES:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

xxx - 2030 PM Peak Hour

FIGURE 12
2030 BUILD ALTERNATIVE
PM LEVEL OF SERVICE
SHEET 4 OF 4

AECOM

NOT TO SCALE - SCHEMATIC ONLY

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2.5 SERVICE INTERCHANGES

2.5.1 Introduction

Traffic operational analyses were conducted for each service interchange based on the methodology discussed in Section 2.3. The following sections describe the analysis results.

In accordance with the goals established for the regional freeway system, each service interchange was evaluated to attempt to provide LOS 'D' or better operations for the overall interchange and each intersection approach. Individual movements within an intersection approach roadway may operate with a lower level-of-service.

Each new interchange that will be constructed as part of the SR 802 freeway improvements was evaluated. These interchanges included Ellsworth Road, Williams Field Road, Signal Butte Road, Meridian Road, and Ironwood Road.

The City of Mesa's *Street Classification Map* was used to determine the future number of lanes on each these crossroads within the City of Mesa. The *Pinal County Regionally Significant Routes for Safety and Mobility* was used to determine the future number of lanes on Ironwood Road.

2.5.2 Ellsworth Road Full Diamond TI

A full diamond interchange will be provided at Ellsworth Road with ramp connections to the SR 802 mainline to the east, and to the SR202L/SR802 TI ramps to the west. Full access to eastbound and westbound SR 202L will be provided to and from Ellsworth Road. The traffic analysis was performed with three through lanes in each direction of travel on Ellsworth Road within the interchange area. A four lane approach was analyzed on the eastbound and westbound exit ramps. Figure 13 presents the traffic volumes and lane configurations used for the analysis.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes, and including separate right-turn lanes on Ellsworth Road. Table 15 (page 47) presents the 2030 A.M. and P.M. peak hour delay and the corresponding level-of-service for each option. Based on the analysis, all scenarios would operate at LOS 'D' or better for the overall interchange and each intersection approach. However, the option with single left-turn lanes and without separate right-turn lanes would operate at LOS 'E' on at least one interchange approach.

The analysis indicates that the Ellsworth Road TI can achieve the operational goals with a single southbound left-turn lane, dual northbound left-turn lanes, and without separate right-turn bays once SR 802 extends from SR 202L to Ironwood Road, and all of the planned service TI's are operational along the route.

The Ellsworth Road TI was also evaluated as a half-diamond TI (ramps to/from the west) with an "end-of-freeway" condition. The results of this analysis are presented in Section 2.6.3, which should be considered when selecting the number of turning lanes at the Ellsworth Road TI.

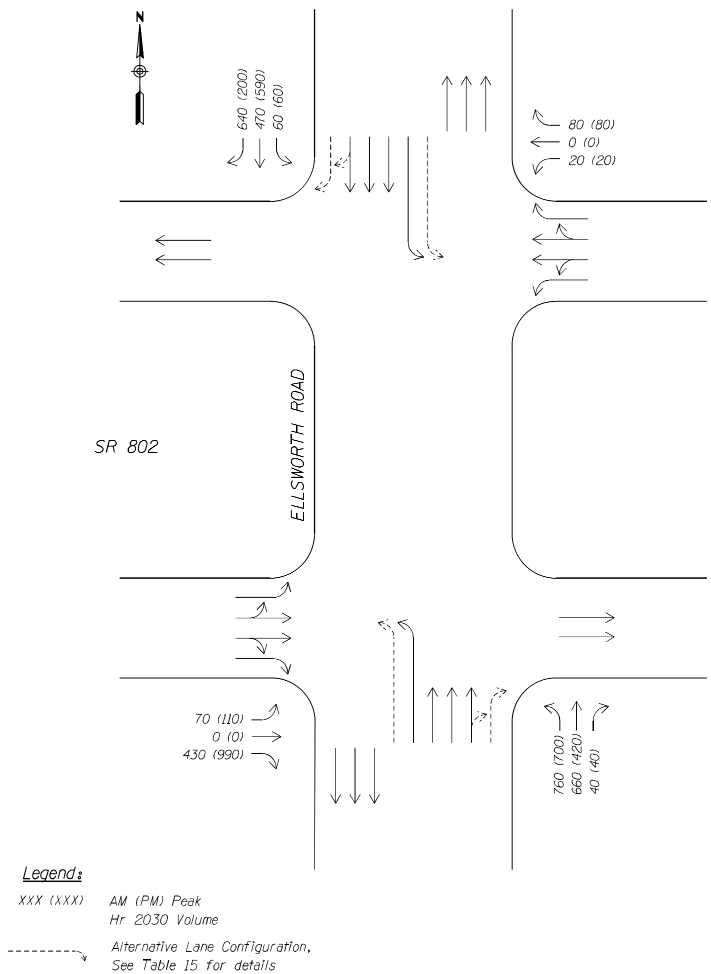

FIGURE 13
ELLSWORTH ROAD FULL DIAMOND TI
2030 TRAFFIC VOLUMES and LANE CONFIGURATION

Table 15 – Ellsworth Road Full Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	A.M.	47.0	D	94
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	P.M.	39.7	D	94
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	A.M.	25.2	C	90
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	P.M.	29.7	C	90
NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays	A.M.	23.7	C	90
NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays	P.M.	28.4	C	90

Table 16 provides the recommended left and right-turn lane storage lengths for each option.

Table 16 – Ellsworth Road Full Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)		
	NB & SB Single Left-Turn Lanes, No Right-Turn Bays	NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays
Westbound Left-Turn	300	300	300
Westbound Right-Turn	200	200	200
Eastbound Left-Turn	300	300	300
Eastbound Right-Turn	350	350	325
Northbound Left-Turn	300	350	300
Northbound Right-Turn	N/A	N/A	200
Southbound Left-Turn	300	300	300
Southbound Right-Turn	N/A	N/A	400

2.5.3 Williams Field Road Full Diamond TI

A full diamond interchange will be provided at Williams Field Road with ramp connections to the SR 802 mainline. The traffic analysis was performed with three through lanes in each direction of travel on Williams Field Road within the interchange area. A three lane approach was analyzed on each exit ramp approach. Figure 14 presents the traffic volumes and lane configurations used for the analysis.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes, and including separate right-turn lanes on Williams Field Road. Table 17 (page 48) presents the 2030 A.M. and P.M. peak hour delay and the corresponding level-of-service for each option. Based on the analysis, all scenarios would operate at LOS 'D' or better for the overall interchange and each intersection approach.

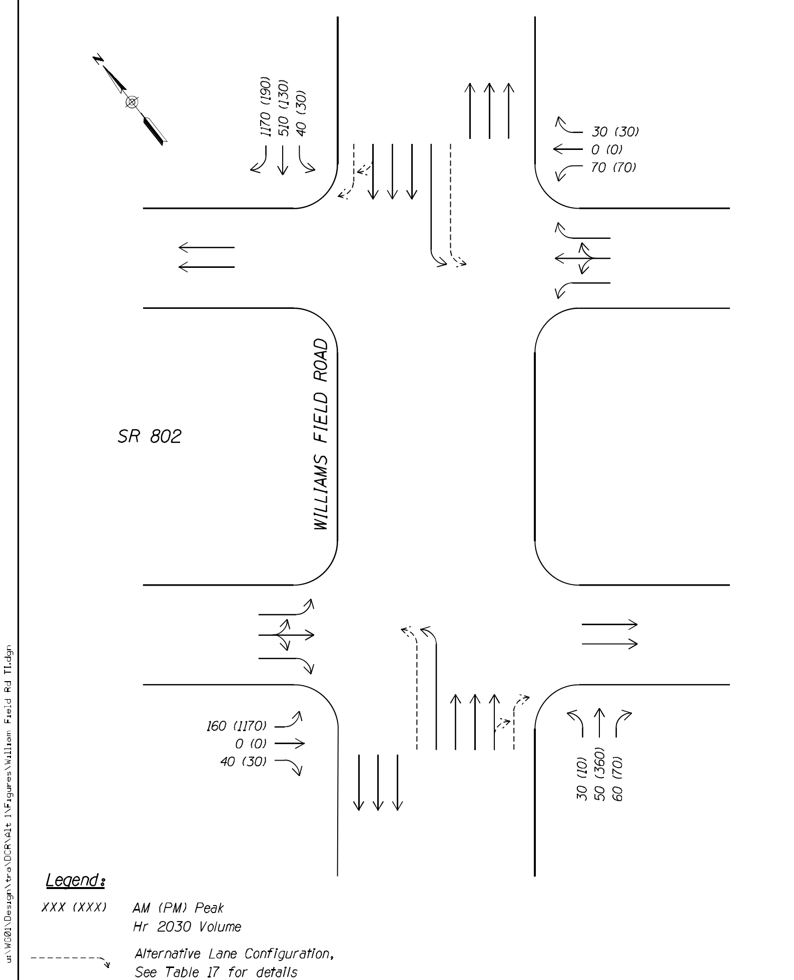

FIGURE 14
WILLIAMS FIELD ROAD FULL DIAMOND TI
2030 TRAFFIC VOLUMES and LANE CONFIGURATION

The analysis indicates that the Williams Field Road TI can achieve the operational goals with single left-turn lanes and without separate right-turn bays.

This interchange is currently planned to be constructed in Phase 5 (2026 - 2031) of the RTPFP when SR 802 is extended east of Ellsworth Road. This interchange should be evaluated again to determine the number of turning lanes that are warranted at that time.

Table 17 – Williams Field Road Full Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
EB & WB Single Left-Turn Lanes, No Right-Turn Bays	A.M.	17.8	B	90
EB & WB Single Left-Turn Lanes, No Right-Turn Bays	P.M.	23.0	C	90
EB Dual Left-Turn, WB Single Left-Turn, No Right-Turn Bays	A.M.	17.7	B	90
EB Dual Left-Turn, WB Single Left-Turn, No Right-Turn Bays	P.M.	22.7	C	90
EB & WB Dual Left-Turn Lanes, EB & WB Right-Turn Bays	A.M.	41.5	D	94
EB & WB Dual Left-Turn Lanes, EB & WB Right-Turn Bays	P.M.	20.8	C	90

Table 18 provides the recommended left and right-turn lane storage lengths for each option.

Table 18 – Williams Field Road Full Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)		
	EB & WB Single Left-Turn Lanes, No Right-Turn Bays	EB Dual Left-Turn, WB Single Left-Turn, No Right-Turn Bays	EB & WB Dual Left-Turn Lanes; EB & WB Right-Turn Bays
Westbound Left-Turn (from crossroad)	300	300	300
Westbound Right-Turn (from crossroad)	N/A	N/A	200
Eastbound Left-Turn (from crossroad)	300	300	300
Eastbound Right-Turn (from crossroad)	N/A	N/A	400
Northbound Left-Turn (from ramp)	300	300	300
Northbound Right-Turn (from ramp)	200	200	200
Southbound Left-Turn (from ramp)	325	375	325
Southbound Right-Turn (from ramp)	200	200	200

2.5.4 Signal Butte Road Full Diamond TI

A full diamond interchange will be provided at Signal Butte Road with ramp connections to the SR 802 mainline. The traffic analysis was performed with three through lanes in each direction of travel on Signal Butte Road within the interchange area. A three lane approach was analyzed for the eastbound and westbound exit ramps. Figure 15 (page 49) presents the traffic volumes and lane configurations used for the analysis.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes, and including separate right-turn lanes on Signal Butte Road. Table 19 presents the 2030 A.M. and P.M. peak hour delay and the corresponding level-of-service for each option. All scenarios operate at LOS ‘D’ or better except the option with the northbound and southbound single left-turn lane, with no right-turn bays, that would operate at LOS ‘F’ in the A.M. peak hour.

The analysis indicates that the Signal Butte Road TI can achieve the operational goals with a single southbound left-turn lane, dual northbound left-turn lanes, and without separate right-turn bays.

This interchange is currently planned to be constructed in Phase 5 (2026 - 2031) of the RTPFP when SR 802 is extended east of Ellsworth Road. This interchange should be evaluated again to determine the number of turning lanes that are warranted at that time.

Table 19 – Signal Butte Road Full Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	A.M.	92.4	F	94
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	P.M.	41.9	D	90
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	A.M.	25.0	C	90
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	P.M.	39.3	D	90
NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays	A.M.	24.1	C	90
NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays	P.M.	36.2	D	90

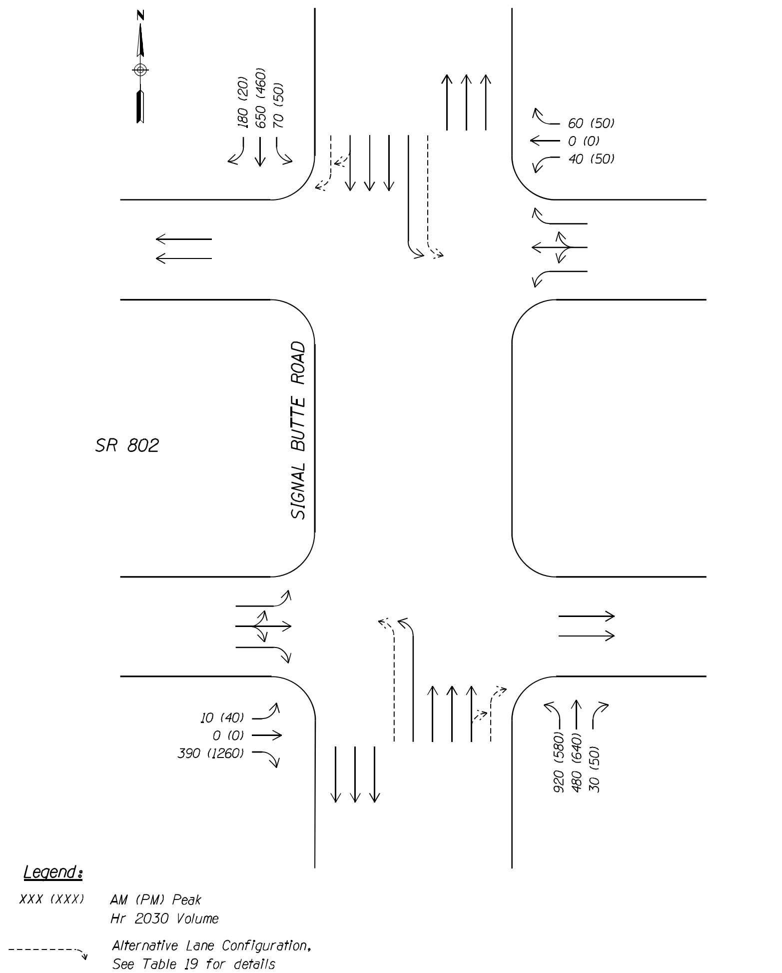

FIGURE 15
SIGNAL BUTTE ROAD FULL DIAMOND TI
2030 TRAFFIC VOLUMES and LANE CONFIGURATION

Table 20 provides the recommended left and right-turn lane storage lengths for each option.

Table 20 – Signal Butte Road Full Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)		
	NB & SB Single Left-Turn Lanes, No Right-Turn Bays	NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays
Westbound Left-Turn	300	300	300
Westbound Right-Turn	200	200	200
Eastbound Left-Turn	300	300	300
Eastbound Right-Turn	400	375	375
Northbound Left-Turn	300	300	300
Northbound Right-Turn	N/A	N/A	200
Southbound Left-Turn	300	300	300
Southbound Right-Turn	N/A	N/A	250

2.5.5 Meridian Road Full Diamond TI

A full diamond interchange will be provided at Meridian Road with ramp connections to the SR 802 mainline. The traffic analysis was performed with three through lanes in each direction of travel on Meridian Road within the interchange area. A four lane approach was analyzed for the eastbound exit ramp and a three lane approach was analyzed for the westbound exit ramp. Figure 16 (page 50) presents the traffic volumes and lane configurations used for this analysis.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes and including separate right-turn lanes on Meridian Road. Table 21 (page 50) presents the 2030 A.M. and P.M. peak hour delay and the corresponding level-of-service for each option. Based on the analysis, all options operate at LOS 'D' or better for the overall interchange, except the option with single left-turn lanes and without right-turn lanes would have at least one intersection approach that operates at LOS 'E'.

The analysis indicates that the Meridian Road TI can achieve the operational goals with a single southbound left-turn lane, dual northbound left-turn lanes, and without separate right-turn bays.

This interchange is currently planned to be constructed in Phase 5 (2026 - 2031) of the RTPFP when SR 802 is extended east of Ellsworth Road. This interchange should be evaluated again to determine the number of turning lanes that are warranted at that time.

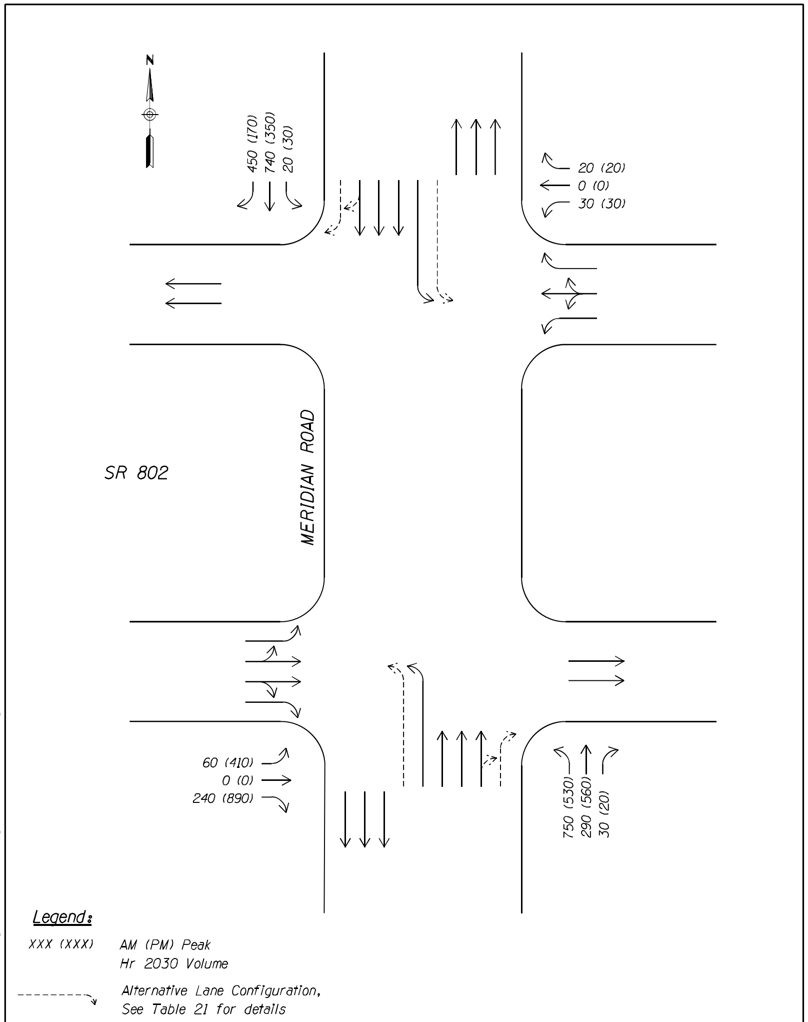

FIGURE 16
MERIDIAN ROAD FULL DIAMOND TI
2030 TRAFFIC VOLUMES and LANE CONFIGURATION

Table 21 – Meridian Road Full Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	A.M.	46.2	D	94
NB & SB Single Left-Turn Lanes, No Right-Turn Bays	P.M.	28.0	C	90
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	A.M.	23.8	C	90
NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	P.M.	25.2	C	90
NB & SB Dual Left-Turn Lanes NB & SB Right-Turn Bays	A.M.	22.3	C	90
NB & SB Dual Left-Turn Lanes NB & SB Right-Turn Bays	P.M.	24.7	C	90

Table 22 provides the recommended left and right-turn lane storage lengths for each option.

Table 22 – Meridian Road Full Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)		
	NB & SB Single Left-Turn Lanes, No Right-Turn Bays	NB Dual Left-Turn, SB Single Left-Turn, No Right-Turn Bays	NB & SB Dual Left-Turn Lanes; NB & SB Right-Turn Bays
Westbound Left-Turn	300	300	300
Westbound Right-Turn	200	200	200
Eastbound Left-Turn	300	300	300
Eastbound Right-Turn	300	300	300
Northbound Left-Turn	300	300	300
Northbound Right-Turn	N/A	N/A	200
Southbound Left-Turn	300	300	300
Southbound Right-Turn	N/A	N/A	400

2.5.6 Ironwood Road Half-Diamond TI

A half-diamond interchange will be provided at Ironwood Road with ramp connections to the SR 802 mainline (to/from the west). The traffic analysis was performed with two through lanes in each direction of travel on Ironwood Road within the interchange area. A four lane approach was analyzed for the eastbound exit ramp. Figure 17 (page 51) presents the traffic volumes and lane configuration used for the analysis.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes, and including separate right-turn lanes on Ironwood Road. Table 23 (page 51) presents the 2030 A.M. and P.M. peak hour delay and the corresponding level-of-service for each option. All of the options would operate at LOS 'C' or better except the option with the northbound single left-turn lane and no right-turn bay scenario that would operate at an unacceptable LOS 'F' during the A.M. peak hour.

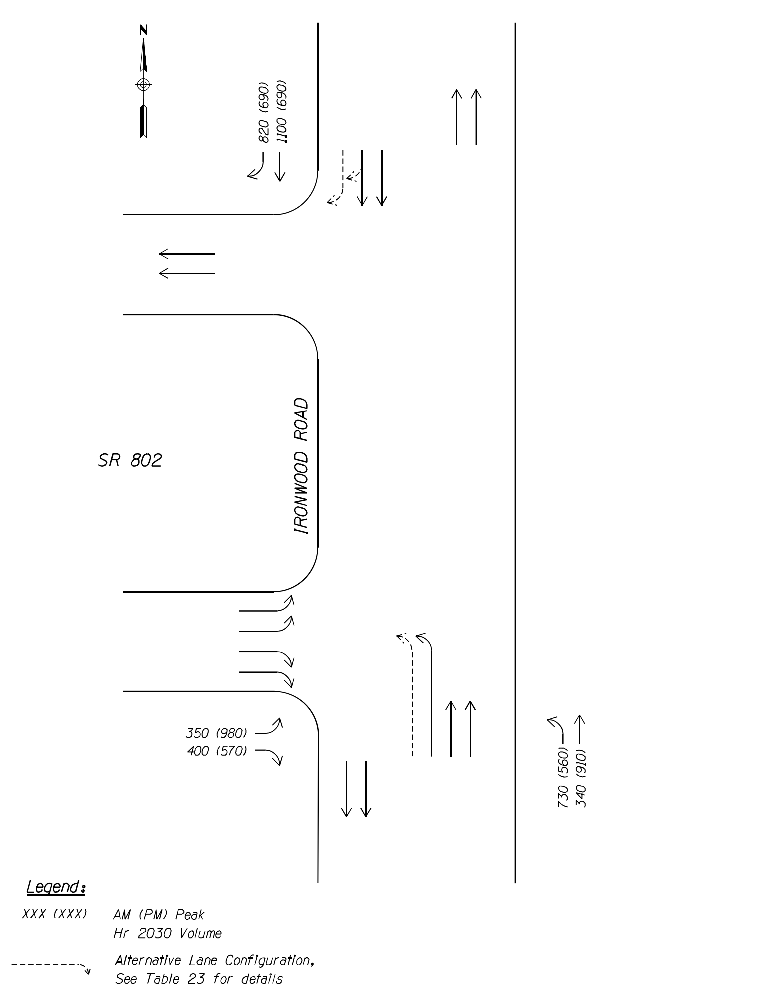

FIGURE 17
IRONWOOD ROAD HALF DIAMOND TI
2030 TRAFFIC VOLUMES and LANE CONFIGURATION

The analysis indicates that the Ironwood Road TI can achieve the operational goals with dual northbound left-turn lanes and without separate right-turn bays.

This interchange is not currently planned to be constructed until SR 802 is extended east of Ellsworth Road in Phase 5 (2026 - 2030) of the RTPFP. This interchange should be evaluated again to determine the number of turning lanes that are warranted at that time.

Table 23 – Ironwood Road Half-Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB Single Left-Turn Lane, No Right-Turn Bay	A.M.	98.5	F	140
NB Single Left-Turn Lanes, No Right-Turn Bay	P.M.	31.6	C	90
NB Dual Left-Turn, No Right-Turn Bay	A.M.	37.0	D	90
NB Dual Left-Turn, No Right-Turn Bay	P.M.	30.1	C	90
NB Dual Left-Turn Lanes, SB Right-Turn Bay	A.M.	25.7	C	90
NB Dual Left-Turn Lanes, SB Right-Turn Bay	P.M.	27.4	C	90

Table 24 provides the recommended left and right-turn lane storage lengths for each option.

Table 24 – Ironwood Road Half-Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)		
	NB Single Left-Turn Lane, No Right-Turn Bays	NB Dual Left-Turn, No Right-Turn Bays	NB Dual Left-Turn Lanes, SB Right-Turn Bays
Eastbound Left-Turn	375	375	375
Eastbound Right-Turn	250	275	250
Northbound Left-Turn	300	300	300
Southbound Right-Turn	N/A	N/A	400

2.6 INTERIM DESIGN YEAR

As discussed in Section 6.0, this project will be implemented in phases. The first phase will construct the SR202L/SR802 TI and a connection to Ellsworth Road. MAG transportation network simulation output was obtained for the Phase 1 project to evaluate how the interim freeway improvements and the Ellsworth Road half-diamond TI would operate as an "end-of-freeway" condition. The Year 2019 traffic volume projections and lane diagrams for the Phase 1 implementation are shown in Figure 18 (page 52).

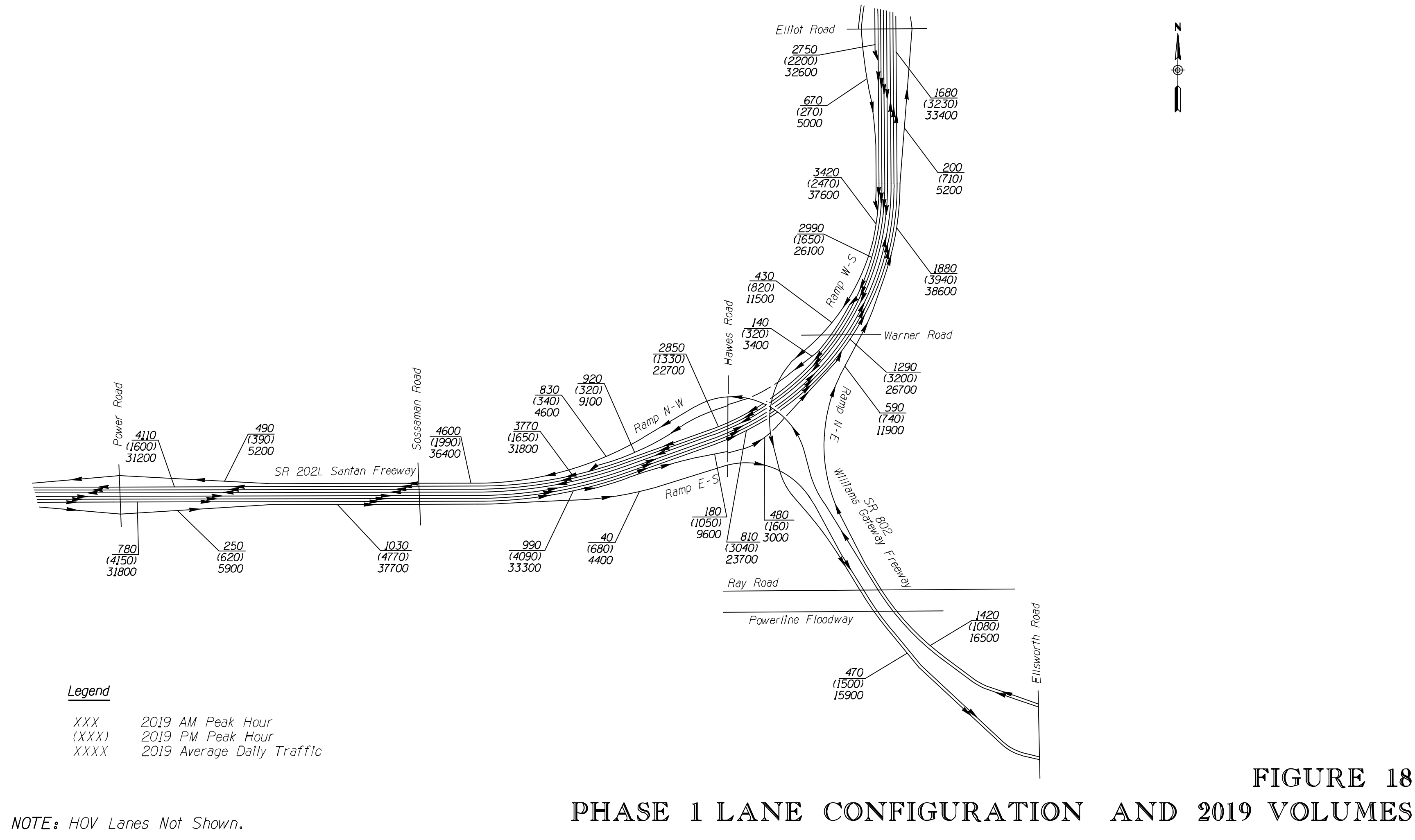

FIGURE 18
PHASE 1 LANE CONFIGURATION AND 2019 VOLUMES

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2.6.1 Analysis Methodology

Traffic operational analyses were conducted for the freeway mainline, directional ramps, and the Ellsworth Road TI based on the methodology presented in Section 2.3. The following sections describe the Phase I improvements and the analysis results.

In accordance with the goals established for the regional freeway system, the service interchange was evaluated to attempt to provide LOS 'D' or better for the overall interchange and each intersection approach. Individual movements within an intersection approach roadway may operate with a lower level-of-service.

2.6.2 Freeway Improvements

Description of Interim Build Alternative

The SR202L/SR802 TI will be configured to provide a fully directional freeway-to-freeway system interchange with two lane ramps in all directions. The two lane ramps will be striped to provide one travel lane on each of the directional ramps. The existing Hawes Road TI will remain connected to SR 202L. In the eastbound direction of travel, the SR 802 mainline will be created by the combination of the two ramps from SR 202L to provide two eastbound general-purpose lanes departing the system TI and connecting to Ellsworth Road. In the westbound direction of travel, the two lanes departing the Ellsworth Road TI will be split to provide one lane connecting in each direction to eastbound and westbound SR 202L.

Improvements will be made to SR 202L to provide additional lanes approaching and departing the SR202L/SR802 TI. The lane diagram and Year 2019 traffic volume projections are shown in Figure 18.

Operational Analysis Results

The 2019 A.M. and P.M. peak hour LOS analysis results are shown in Figures 19 (page 54) and 20 (page 55), respectively. Under this scenario, all segments and ramps on the SR 202L and SR 802 are anticipated to operate at LOS 'C' or better.

2.6.3 Ellsworth Road Half-Diamond Service Interchange

A half-diamond interchange will be provided at Ellsworth Road with ramp connections to the SR202L/SR802 TI ramps (to/from the west) to provide full access between SR 202L and Ellsworth Road. The traffic analysis was performed with three southbound through lanes and two northbound through lanes on Ellsworth Road within the interchange area. Figure 21 (page 56) presents the 2019 traffic volumes used for the analysis, and the lane configurations analyzed.

The traffic analysis was performed to compare the operational analysis results of including single left-turn lanes versus dual left-turn lanes and including separate right-turn lanes on Ellsworth Road. Table 25 presents the 2019 A.M. and P.M. peak hour delay with the corresponding level-of-service for each alternative.

Table 25 – Ellsworth Road Half-Diamond TI Analysis Results

Option	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB Single Left-Turn Lanes, No Right-Turn Bay	A.M.	97.6	F	94
NB Single Left-Turn Lanes, No Right-Turn Bay	P.M.	67.6	E	94
NB Dual Left-Turn, No Right-Turn Bay	A.M.	24.2	C	90
NB Dual Left-Turn, No Right-Turn Bay	P.M.	48.7	D	90
NB Dual Left-Turn Lane, SB Right-Turn Bay	A.M.	24.5	C	90
NB Dual Left-Turn Lanes, SB Right-Turn Bay	P.M.	47.7	D	90

Based on Table 25, dual left-turn lanes northbound, with or without a southbound right-turn bay, would have an overall interchange LOS of 'D' or better. However, both options would have one or more approaches that operate at LOS 'E'.

Therefore, more options were explored to develop a scenario that would achieve the operational goals. Figure 22 (page 56) and Table 26 present the 2019 recommended lane configuration based on this additional analysis.

Table 26 – Ellsworth Road End-of-Freeway Recommendations Analysis Results

Additional Option (Recommended)	Period	Average TI Delay (Sec/Veh)	Overall TI LOS	Cycle Length (Sec)
NB Dual Left-Turn Lanes, EB Free Right-Turn Lane	A.M.	22.3	C	90
NB Dual Left-Turn Lanes, EB Free Right-Turn Lane	P.M.	29.8	C	90

Table 27 provides the recommended left and right-turn lane storage lengths for each option.

Table 27– Ellsworth Road Half-Diamond TI Turn Bay Lengths

Approach Movement	Recommended Minimum Storage Length (ft)
Eastbound Left-Turn	300
Eastbound Right-Turn	200
Northbound Left-Turn	300
Southbound Right-Turn	300

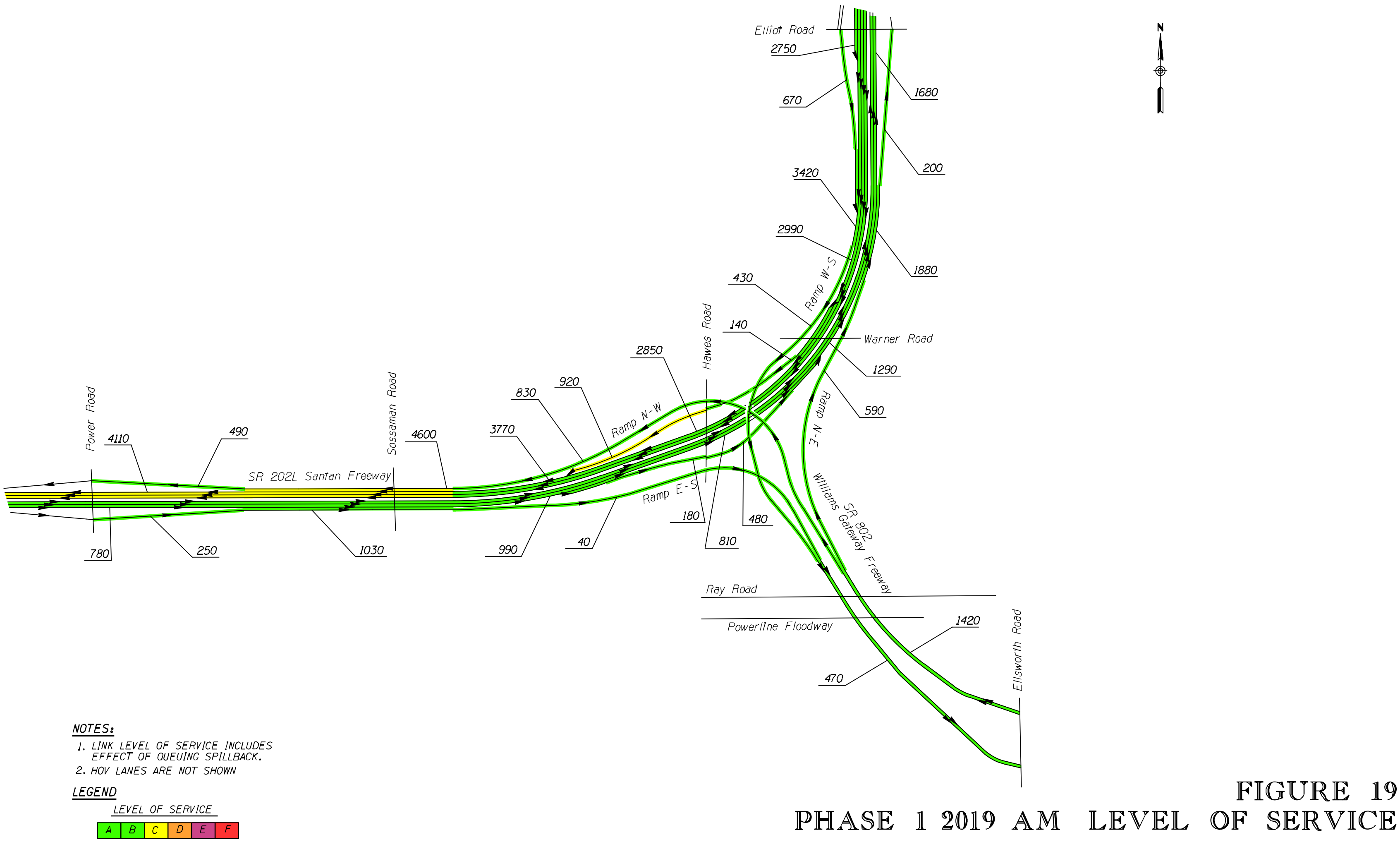

FIGURE 19
PHASE 1 2019 AM LEVEL OF SERVICE

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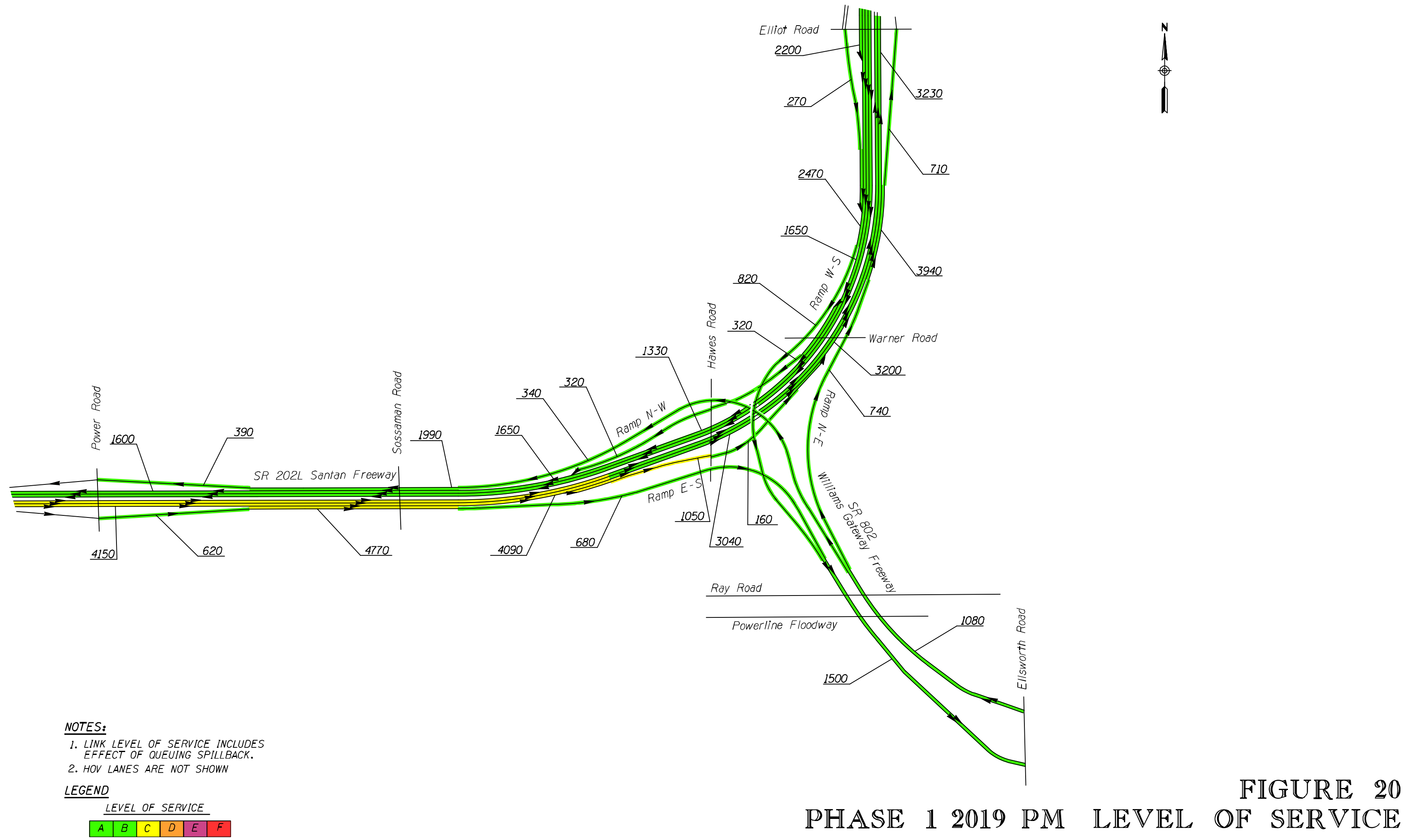

FIGURE 20
PHASE 1 2019 PM LEVEL OF SERVICE

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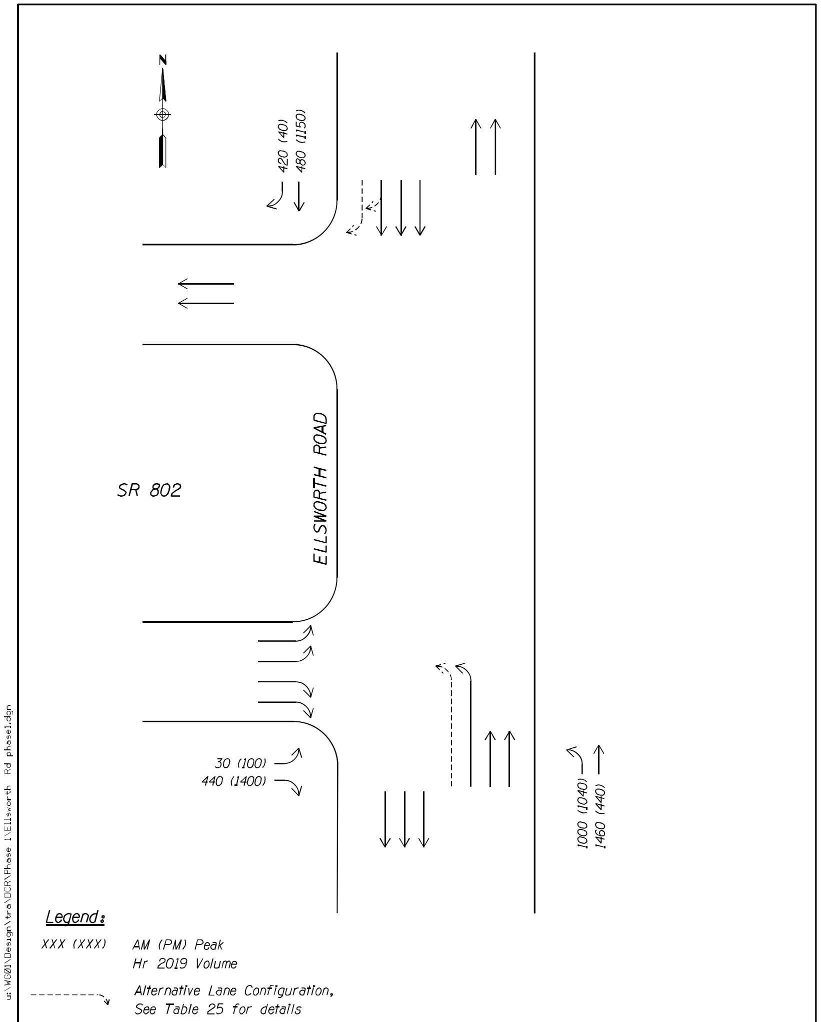


FIGURE 21
ELLSWORTH ROAD HALF DIAMOND TI
2019 TRAFFIC VOLUMES and LANE CONFIGURATION

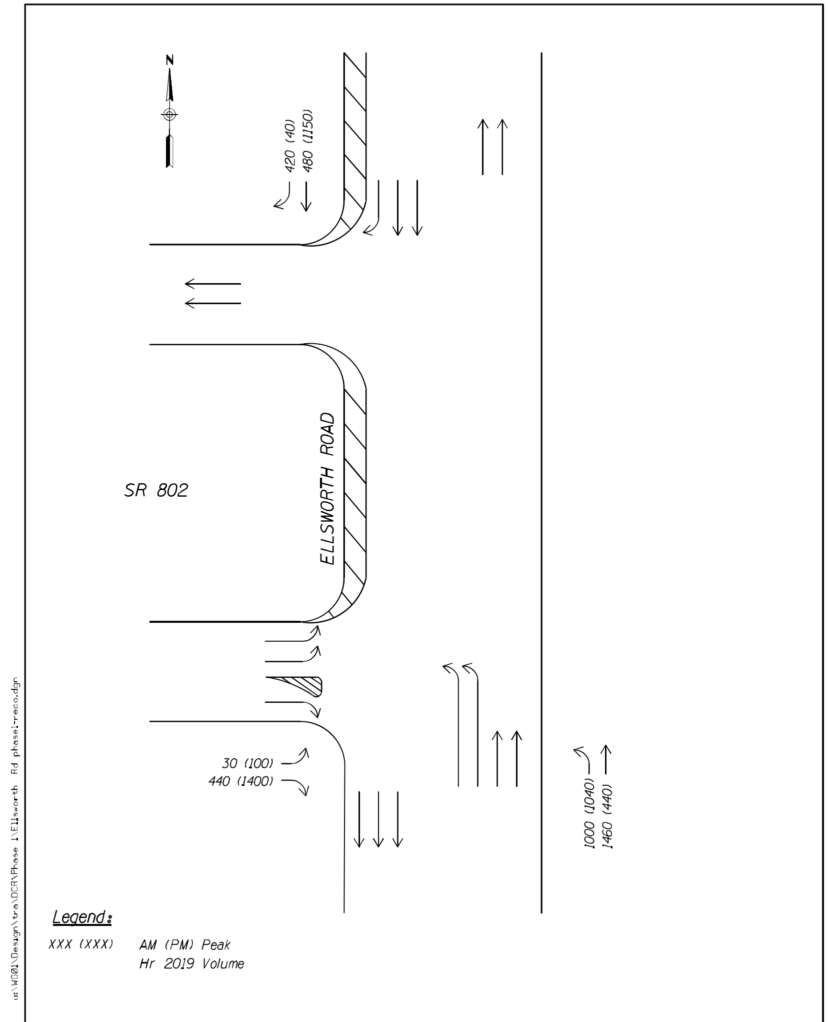


FIGURE 22
ELLSWORTH ROAD HALF DIAMOND TI RECOMMENDED
2019 TRAFFIC VOLUMES and LANE CONFIGURATION

3.0 EVALUATION OF ALTERNATIVES

3.1 BACKGROUND

Beginning in 2004, the Maricopa Association of Governments (MAG) initiated an *Alignment and Environmental Overview Study* for the future Williams Gateway Freeway corridor within Maricopa County. This study utilized a three-tier multidiscipline alternatives development, evaluation and screening process that resulted in the selection of a Recommended Alignment (Alternative 3) that would begin at SR 202L in the vicinity of Hawes Road, and then continue in a southeasterly direction to approximately Crismon Road. The freeway would then follow an east-west alignment between Crismon and Meridian Roads along the Frye Road section line.

The SR 802 would be configured to provide a fully directional freeway-to-freeway system interchange with ramp connections between SR 202L and SR 802. The SR202L/SR802 TI also would be designed to provide ramp connections between the freeway system and Ellsworth Road in all directions of travel. Service TIs would be provided on SR 802 at Ellsworth Road, Williams Field Road, Signal Butte Road and Meridian Road. Freeway overpasses and underpasses would also be constructed to provide local street connectivity at Ray Road, Crismon Road and Mountain Road. Additional freeway and ramp overpasses would be provided over the Powerline Floodway.

On July 27, 2005, the MAG Regional Council passed a motion to: “Select Alternative 3 - Frye Road as the preferred alignment for the Williams Gateway Freeway in Maricopa County, and recommend to ADOT that Alternative 7 - Ryan Road be considered in the design concept/environmental evaluation conducted by ADOT”. Therefore, these two corridor alternatives were the initial alternatives evaluated with this study.

The ADOT study limits were originally envisioned to begin at SR 202L and extend east to a logical destination in Pinal County. Since the SR 802 would traverse into both Maricopa and Pinal Counties, ADOT decided to separate the overall project into two separate studies with the Maricopa-Pinal County line as the dividing line. The Maricopa and Pinal County portions of the study were conducted concurrently to allow the SR 802 corridor alternatives in Maricopa and Pinal Counties to be discussed during the Tier 1 alternative development and evaluation process. At the completion of the Tier 1 process, the eastern limit of the Maricopa County study was extended to Ironwood Road to allow SR 802 to connect to this regional transportation corridor. The portion SR 802 study within Pinal County was put on-hold pending the development of initial corridor options for a future North-South Freeway in Pinal County.

ADOT, in conjunction with the FHWA, is currently preparing this Design Concept Report (DCR) and an Environmental Assessment (EA) for the proposed SR 802 freeway corridor between SR 202L and Ironwood Road. A two tiered multidiscipline alternatives development, evaluation and screening process was used to select the recommended freeway corridor for SR 802 between SR 202L and Ironwood Road.

3.2 ALTERNATIVES EVALUATION PROCESS - TIER 1

3.2.1 Introduction

The alternatives previously recommended by the MAG Regional Council were evaluated with the Tier 1 process. Alternatives 3 and 7 from the MAG study were renamed as Alternatives A and B for the Tier 1 evaluation.

In order to evaluate the viability of Alternatives A and B in Maricopa County, it became necessary to combine these two alternatives with the alternatives within Pinal County that were being considered by the Pinal County Study Team. Generally, each of the Pinal County alternatives were an extension of either Alternative A and B in Maricopa County.

The Tier 1 screening process qualitatively examined how well each alternative would address the primary objectives of the evaluation criteria.

3.2.2 Description of Alternatives

No-Build Alternative

The No-Build Alternative includes the existing roadways and planned improvements that are identified in the RTPFP, the RTP Arterial Street Life-Cycle Program, the City of Mesa and Town of Queen Creek Capital Improvement Program, or the *City of Mesa Street Classification Map*.

The RTPFP identifies the construction of HOV lanes, and one additional general-purpose lane in each direction, throughout the SR 202L corridor which are included in the No-Build scenario. The No-Build alternative also includes arterial street improvements that improve the existing arterial streets and construct new arterial streets based upon the adopted street classification maps.

Access to PMGA from SR 202L would continue to occur at the Power Road and Elliot Road TIs, and new access to the airport would be provided at the Hawes Road TI.

Alternative A

Alternative A would provide additional east-west capacity by constructing the new SR 802 freeway near the Frye Road alignment (approximately ½ mile south of Williams Field Road). Alternative A would begin at SR 202L in the vicinity of Hawes Road, and then continue in a southeasterly direction to approximately Crismon Road. The freeway would then follow an east-west alignment between Crismon and Meridian Roads along the Frye Road section line as shown on Figure 23 (page 59).

Freeway access to the arterial street system would be provided at service TIs at Ellsworth Road, Williams Field Road, Signal Butte Road and Meridian Road. Additional access to PMGA would be provided to and from SR 802 at the Ellsworth Road and Williams Field Road TI’s.

Alternative B

Alternative B would provide additional east-west capacity by constructing the new SR 802 freeway near the Ryan Road alignment (approximately ½ mile south of Germann Road). Alternative B would begin at SR 202L near Hawes Road and then continue in a southeasterly direction to Signal Butte Road. The freeway would then follow an east-west alignment between Signal Butte Road and Meridian Road along the Ryan Road section line alignment as shown on Figure 23.

Freeway access to the arterial street system would be provided at service TIs at Ellsworth Road, Pecos Road, Signal Butte Road and Meridian Road. Additional access to PMGA to and from SR 802 would be provided at the Ellsworth Road TI.

3.2.3 Evaluation Criteria

The project team identified four evaluation criteria that represent the project goals and objectives for this new freeway facility. The evaluation criteria included Mobility, Land Use, Environmental Compatibility and Community Input. A definition of each evaluation criteria, and the performance measures used for each evaluation criteria, are as follows:

- **Mobility:**
  - Consistency with the RTPFP: The alternatives should be compatible with the intent of the RTPFP as approved by the MAG Regional Council in 2003 and Maricopa County voters in 2004.
- **Land Use:**
  - Consistency with Regional and Local Comprehensive Plans: The alternatives should be compatible with the *Maricopa County Comprehensive Plan*, *Pinal County Comprehensive Plan*, and *City of Mesa General Plan*.
  - Compatibility with Local Development Plans: The alternatives should be compatible with the *Phoenix-Mesa Gateway Airport Master Plan*, *City of Mesa Williams Gateway Area Strategic Plan*, and approved master planned communities.
  - Supports existing employment land uses: The alternatives should support existing adjacent employment along the corridor.
  - Potential impacts to existing residential land uses: The alternatives should minimize direct impacts to existing residential land uses.
- **Environmental Compatibility:**
  - Natural environment (biological, geological, water resources)
  - Physical environment (cultural, historic, recreational, noise, hazardous materials)
  - Socio-economic environment (Environmental Justice)
- **Community Input:**
  - Public input
  - Agency input

3.2.4 Evaluation of Alternatives

The No-Build and Build Alternatives were evaluated in terms of their technical merits and environmental impacts when compared with the evaluation criteria and performance measures.

Mobility

Alternatives A and B would both be compatible with the intent of the RTPFP. Alternative A is identified in the *City of Mesa Transportation Plan* and is consistent with ongoing private development plans within the PMGA planning area. Alternative A is also consistent with the original recommendation by the MAG Regional Council in 2005.

Land Use

Alternative A is consistent with the *City of Mesa General Plan*, *Phoenix-Mesa Gateway Airport Master Plan*, *City of Mesa Gateway Area Strategic Development Plan*, and planned development within the City of Mesa. This alternative also supports existing and planned adjacent employment centers that would be located along the SR 802 corridor.

Alternatives A and B would both support the existing employment land uses within the area by providing enhanced access. Within the project limits, neither Alternative A nor B would have a substantial impact to existing residential development. However, Alternative B would have a direct impact to numerous existing land uses, including residential, if extended east of Ironwood Road in the future.

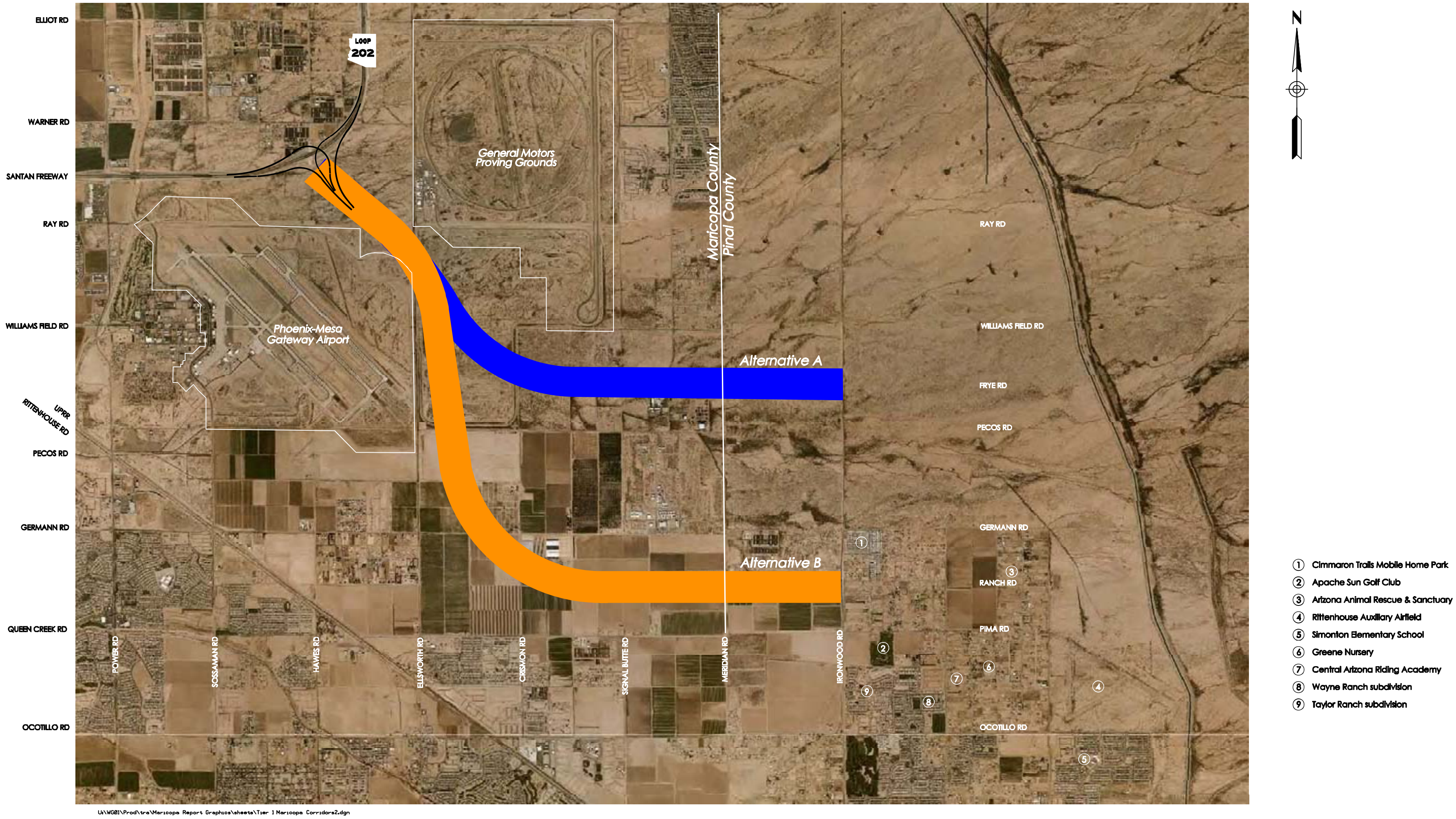
Alternative B would impact a park within the Town of Queen Creek as identified in their *Five Park Master Plan* that was adopted in 2007, and could conflict with flight operations and runway safety zone requirements at the east end of PMGA.

Environmental Compatibility

Both Alternative A and B could potentially impact cultural resource sites due to the fact that neither alternative has had comprehensive field surveys completed. However, Alternative B would directly impact one known large site. Other environmental considerations such as biological, water resources, air, and socioeconomic were relatively the same.

Community Input

Alternative A received substantially more public and agency support than Alternative B due to the compatibility of the proposed alignment with the adopted regional and local transportation and land use plans. The public also supported Alternative A due to the significant impacts Alternative B would have on existing residential development east of Ironwood Road.



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Scale in miles

Figure 23 – Tier 1 Alternatives

3.2.5 Recommendation

Alternative B was eliminated from further consideration since it would have direct impacts to existing land uses if extended east of Ironwood Road, and it did not receive support from the public.

Alternative A was recommended to be carried forward for further evaluation because this alignment is consistent with the adopted regional and local transportation and land use plans in the area, would be consistent with the future plans at PMGA, and was supported by the local agency representatives and the public.

3.3 ALTERNATIVES EVALUATION PROCESS - TIER 2

3.3.1 Introduction

Alternative A was carried forward for the Tier 2 analysis. Alignments A-1 and A-2 were developed within the Alternative A corridor. The Tier 2 evaluation process quantitatively examined how well each alignment alternative would address the primary objectives of the evaluation criteria.

3.3.2 Description of Alternatives

No-Build Alternative

The No-Build Alternative is described in Section 3.1.2.1.

Alternative A-1

Alternative A-1 would provide additional east-west capacity by constructing the new SR 802 freeway between the Williams Field Road and Frye Road alignments (approximately ¼ mile south of Williams Field Road). Alternative A-1 would extend from SR 202L in the vicinity of Hawes Road, and then continue in a southeasterly direction to approximately Crismon Road. The freeway would then follow an east-west alignment between Crismon and Meridian Roads approximately ¼ mile south of Williams Field Road section line as shown on Figure 24 (page 61).

Freeway access to the arterial street system would be provided at service TIs at Ellsworth Road, Williams Field Road, Signal Butte Road and Meridian Road. Additional access to PMGA to and from SR 802 would be provided at the Ellsworth Road and Williams Field Road TI's.

Alternative A-2

Alternative A-2 would provide additional east-west capacity by constructing the new SR 802 freeway near the Frye Road alignment (approximately ½ mile south of Williams Field Road). Alternative A would extend from SR 202L in the vicinity of Hawes Road, and then continue in a southeasterly direction to approximately Crismon Road. The freeway would then follow an east-west alignment between Crismon and Meridian Roads along the Frye Road section line as shown on Figure 24.

Freeway access to the arterial street system would be provided at service TIs at Ellsworth Road, Williams Field Road, Signal Butte Road and Meridian Road. Additional access to PMGA to and from SR 802 would be provided at the Ellsworth Road and Williams Field Road TI's.

3.3.3 Evaluation Criteria

The project team identified sixteen evaluation criteria that were used to evaluate the advantages and disadvantages of each alternative in achieving the goal of providing a new freeway facility while minimizing impacts to the local community and the environment.

The following final evaluation criteria that were selected to evaluate the SR 802 alternatives are as follows:

- Mobility
- System Linkage
- Geometry
- Local Access
- Infrastructure Compatibility
- Water Resources
- Utility Conflicts
- Right-of-Way
- Estimated Construction Cost
- Biological Resources
- Cultural Resources
- Geological Resources
- Socioeconomic
- Noise
- General Plan Consistency
- Agency Input
- Public Input

A description of each of the evaluation criteria was developed for the use of the Project Team in conducting the alternative evaluations.

- **Mobility**

The SR 802 corridor should provide seamless connections with existing and planned regional facilities (i.e. freeways, state highways and regional arterials), located to serve the larger, regional area for the short and long term needs. It should provide direct connections with existing and planned regional facilities, and should be compatible with long-range transportation plans.

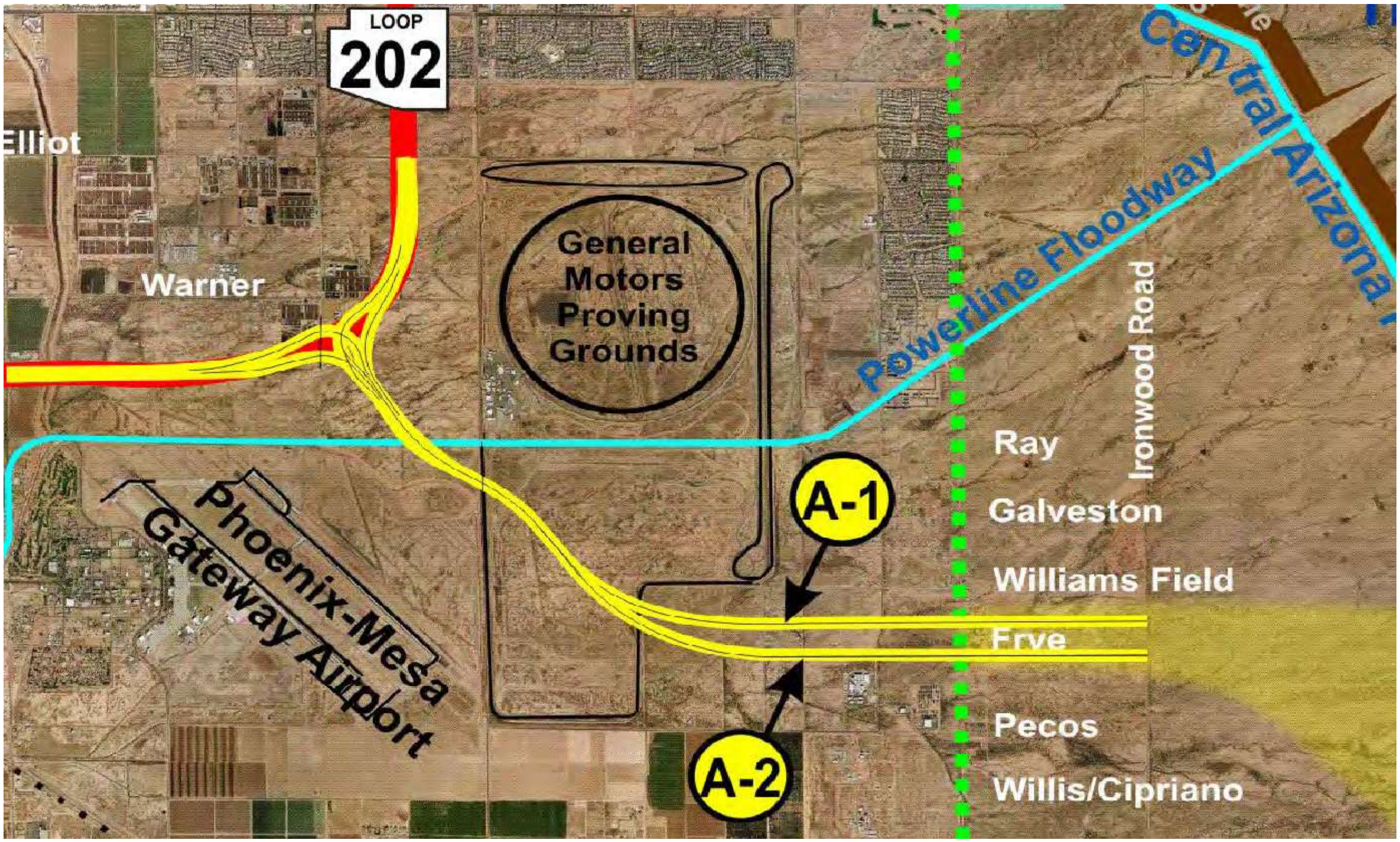


Figure 24 – Tier 2 Alternatives

- **System Linkage**

The SR 802 corridor should begin and end with connections to significant regional transportation facilities to increase regional mobility and reduce congestion on existing facilities.

- **Geometry**

The SR 802 corridor should minimize the skew angles at potential crossroad locations. In Maricopa County, the existing local streets and section lines will be used for comparison.

- **Local Access**

The SR 802 corridor should provide local access points to serve existing and future arterials and regionally significant roads.

- **Infrastructure Compatibility**

The SR 802 should be compatible with adopted transportation plans and planned local agency traffic management systems.

- **Water Resources**

The SR 802 corridor should minimize potential impacts to natural and man-made drainage features. This performance measure was quantified by reviewing United States Geological Survey (USGS) quad maps for "blue-line" (drainage ways shown as blue lines on the USGS quad maps) crossings, and by reviewing Federal Emergency Management Agency (FEMA) maps.

- **Utility Conflicts**

The SR 802 corridor should minimize potential impacts to major existing and planned utility facilities.

- **Right-of-Way**

The SR 802 corridor should minimize right-of-way acquisition impacts. This performance measure was quantified by assuming a 300' wide right-of-way corridor for each alternative. Both the number of acres and parcels impacted were quantified for each alternative.

- **Estimated Construction Cost**

The SR 802 corridor should be a cost-effective solution. This performance measure was quantified by using $35 million per mile for the construction of the SR 802 mainline, and an additional $20 million for each service TI. The estimated cost of the SR202L/SR802 TI was not included in the estimate for each corridor, as it was assumed it would be the same for both alternatives.

The construction cost estimates that were developed are intended to be used for a comparative analysis between each of the alternatives, and are not intended for any other purpose.

- **Biological Resources**

The SR 802 corridor should minimize potential impacts to biological resources such as wildlife and their habitats. This performance measure was quantified by reviewing aerial photos to identify areas of dense vegetation and estimating the acres of potential disturbance based on a 500' wide corridor.

- **Cultural Resources**

The SR 802 corridor should minimize potential impacts to cultural resources. This performance measure was quantified by reviewing maps/data available from the Arizona Archaeological Site and Survey Database (AZSITE) from the Arizona State Museum which identifies known cultural resource sites.

- **Geological Resources**

The SR 802 corridor should minimize potential impacts to known subsurface subsidence sites. This performance measure was quantified by reviewing maps available from Arizona Department of Water Resources.

- **Socioeconomic**

The SR 802 corridor should minimize potential socioeconomic impacts to the existing community. This performance measure was quantified by the number of buildings directly impacted by each alternative based on a 500' wide corridor.

- **Noise**

The SR 802 corridor should minimize potential noise impacts to sensitive receivers. This performance measure was quantified by reviewing aerial photos to identify potential receivers within 1,000' of the corridor.

- **General Plan Consistency**

The SR 802 corridor should be consistent with existing and future land uses. In general terms, a transportation facility better serves regional travel demand when located near commercial and industrial land uses (economic nodes) with higher densities of employment. The future land use information was obtained from regional land use/transportation planning agencies and/or municipal agencies with direct jurisdiction over proposed developments. The information was obtained from adopted general plans or other adopted studies/plans within the study area including transportation studies, strategic growth/land use studies or plans, and development/growth densities from metropolitan planning organizations.

- **Agency Input**

The evaluation criteria and alignment concepts were provided to the agency stakeholders for their evaluation and ranking. Each agency was asked to provide a single numeric score for each alternative. The agencies were not asked to score each individual criteria or performance measure, but instead provide a single score (1 through 5) for each alternative.

- **Public Input**

Two public meetings were conducted in December 2008 where over 100 comments were received. This performance measure will be based on a review of the comments received from the public.

3.3.4 Evaluation of Alternatives

The multi-discipline team compared each of the alternatives relative to each other for each evaluation criteria. A summary of the alternative comparison results is summarized below.

- **Mobility and System Linkage**

Alternatives A-1 and A-2 both connect to SR 202L on the west with a free-flow, system-to-system interchange at the same location near Hawes Road. Both alternatives also connect on the east to Ironwood Road, which is a major existing north-south regional transportation facility in western Pinal County. Both alternatives follow the same general corridor between Williams Field Road and Ironwood Road, and provide access to the local arterial street system at the same locations.

- **Geometry**

Alternatives A-1 and A-2 are both anticipated to have one skewed crossing at Ellsworth Road.

- **Local Access**

Alternatives A-1 and A-2 can both provide local access at a total of five locations including Ellsworth Road, Williams Field Road, Signal Butte Road, Meridian Road and Ironwood Road.

- **Infrastructure Compatibility**

Alternative A-1 is located ¼ mile south of Williams Field Road and would be less compatible than Alternative A-2 with the City of Mesa's planned arterial street grid system. The location of SR 802 ¼ mile south of Williams Field Road would not be compatible with the City of Mesa's future computerized traffic signal management system.

Alternative A-2 is located ½ mile south of Williams Field Road and ½ mile north of Pima Road, which is compatible with the City of Mesa's planned arterial street grid system. This location of SR 802 is also compatible with the City of Mesa's future computerized traffic signal management system.

- **Water Resources**

Alternative A-1 is anticipated to impact nine natural drainage features (9 USGS "blue-lines"). Alternative A-2 is anticipated to impact ten natural drainage features (10 USGS "blue-lines").

Alternatives A-1 and A-2 would both cross the Powerline Floodway and would not impact the Ellsworth Road Drainage Channel.

- **Utilities**

No significant impacts to major utilities are anticipated with either Alternative A-1 or A-2.

- **Right-of-Way**

Alternative A-1 is anticipated to require approximately 209 acres of new right-of-way and impact approximately 28 parcels. Alternative A-2 is anticipated to require approximately 213 acres of new right-of-way and impact approximately 29 parcels.

- **Construction Cost**

The estimated construction cost for Alternatives A-1 and A-2 are both approximately $250 million (excluding right-of-way and the SR202L/SR802 TI).

- **Biological Resources**

Alternatives A-1 and A-2 could both disturb approximately 45 acres of potential habitat.

- **Cultural Resources**

The following data is based on known cultural sites from previous surveys. The possibility of impacting unknown sites is fairly high since a majority of this area is unsurveyed.

Alternative A-1 could potentially impact one known site. Alternative A-2 could potentially impact two known sites.

- **Geological Resources**

Neither Alternative A-1 nor A-2 appear to impact known subsidence locations.

- **Socioeconomic**

Alternative A-1 could potentially directly impact eighteen buildings. Alternative A-2 could potentially directly impact seven buildings.

- **Noise**

Alternative A-1 could potentially affect 20 receivers. Alternative A-2 could potentially affect 16 receivers.

- **General Plan Consistency (Existing And Future Land Uses)**

Alternative A-1 is closer than Alternative A-2 to existing residential land uses and farther from industrial land uses.

Both Alternative A-1 and A-2 are compatible with the *Mesa 2025 General Plan*. However, Alternative A-2 is more compatible than Alternative A-1 with the *Mesa Gateway Area Strategic Plan*.

- **Agency Input**

Agency scores were received from six agencies including City of Mesa, Pinal County, Town of Apache Junction, Town of Florence, Arizona State Land Department, and Central Arizona Water Conservation District.

- **Public Input**

Public meetings were held in December 2008 at ASU Polytechnic Campus (at PMGA) and at Kathryn Sue Simonton Elementary School in Queen Creek. Approximately 96 people attended the meeting at ASU Polytechnic Campus and approximately 179 people attended at Kathryn Sue Simonton Elementary School. Based upon the comments received from the public meetings, the public indicated a slight preference for Alternative A-1 over Alternative A-2.

3.3.5 Evaluation Matrix

The scoring for each evaluation criterion was based on a range from 1.0 to 5.0, with 1.0 representing the lowest and 5.0 representing the highest scores. The multi-discipline team reviewed each alternative based on the evaluation criteria. The resultant score of each criterion was determined by group discussion and overall consensus by the evaluation team. The agency feedback scores are based on the average score received from the agencies. The composite alternative score is the sum of each individual evaluation criteria score. The final alternative scores are shown in the Table 28.

Table 28 – Alternative Screening Matrix

Criteria Description	Alternative A-1	Alternative A-2
Mobility & System Linkage	5	5
Geometry	4	4
Local Access	5	5
Infrastructure Compatibility	2	4
Water Resources	4	4
Utilities	5	5
Right-of-Way	4	3
Construction Cost	4	4
Biological Resources	4	4
Cultural Resources	3	3
Geological Resources	5	5
Socio-economic	1	3
Noise	1	2
Existing Land Use	2	4
Future Land Use	4	5
Agency Feedback (avg. score)	2	4
Total Score:	**55**	**64**

3.3.6 Recommendation

Based upon the Tier 2 alternatives evaluation and screening process results, the Project Team recommends the selection of the Alternative A-2 as the Preferred Alternative for this study.

The Tier 2 alternative evaluation and screening process recommendation was presented to representatives of ADOT, FHWA, ASLD, PMGA, the Town of Queen Creek, and the cities of Mesa and Apache Junction on July 27, 2009. At the conclusion of the meeting, all parties agreed that Alternative A-2 should be selected as the Preferred Alternative.

Public meetings were held in December 2009 at ASU Polytechnic Campus (at PMGA) and at Kathryn Sue Simonton Elementary School in Queen Creek. Based upon the comments received from the public meetings, the public supported the selection of Alternative A-2.

This recommendation was confirmed by agency stakeholders, and a review of the comments received from the public during the Public Hearing held on November 9, 2010 at the Queen Creek Branch Library. All alternatives, as well as the No-Build, have been fully evaluated in the EA.

4.0 MAJOR DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

4.1 INTRODUCTION

This section describes the design controls and design features for the Preferred Alternative for SR 802, SR 202L, the SR202L/SR802 TI, and the service interchanges within the study limits.

4.2 DESIGN CRITERIA

SR 802 is classified as a controlled access Urban Principal - Freeway/Expressway. A summary of the design controls for SR 802 is provided in Table 29.

Table 29 – Design Controls for SR 802

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	65 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Lane Width:	12 ft.
Shoulder Width:	
- Median:	12 ft.
- Outside:	12 ft.
Maximum Horizontal Curve:	3 degree, 27 minutes
Maximum Gradient:	3%
Taper Rate:	65:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.
- Pedestrian overpass:	17.5 ft.
- Powerline Floodway overpass:	15.0 ft.

SR 202L is classified as a controlled access Urban Principal - Freeway/Expressway. A summary of the design controls for the SR 202L mainline is provided in Table 30.

Table 30 – Design Controls for SR 202L

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	65 mph
Superelevation:	Match existing (0.06 ft/ft maximum)
Cross Slope:	Match existing (2.0%)
Lane Width:	12 ft.
Shoulder Width:	
- Median:	8 ft. (match existing)
- Median (Hawes Rd - Warner Rd):	11 ft. (adjacent to future HOV lane)
- Outside:	12 ft.

Table 30 – Design Controls for SR 202L (continued)

Description of Criteria	Values for Design
Maximum Horizontal Curve:	3 degree, 27 minutes
Maximum Gradient:	Not applicable
Taper Rate:	65:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.
- RWCD Canal overpass:	15.0 ft.
- East Maricopa Floodway overpass:	15.0 ft.

A summary of the design controls for the system interchange ramps is provided in Table 31.

Table 31 – Design Controls for System Interchange Ramps

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- At exit from freeway mainline:	65 mph
- Ramp body:	55 mph
- At entrance to freeway mainline:	55 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Two Lane Ramps:	36 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Shoulder Width:	
- Inside shoulder:	4 ft., plus 2 ft. offset to barrier
- Outside shoulder:	8 ft., plus 2 ft. offset to barrier
Maximum Horizontal Curve:	5 degree, 24 minutes
Maximum Gradient:	+4%, -5%
Taper Rate:	55:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.
- Powerline Floodway overpass:	15.0 ft.

A summary of design controls for the service interchange ramps is provided in Table 32.

Table 32 – Design Controls for Service Interchange Ramps

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- Nose of gore (exit ramps):	60 mph
- Nose of gore (entrance ramps):	55 mph
- Ramp body:	50 mph
- Ramp terminal:	35 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Single lane exit ramp:	22 ft., plus 2 ft. offset to barrier
- Two lane exit ramp:	34 ft., plus 2 ft. offset to barrier
- Entrance ramp:	28 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Maximum Horizontal Curve:	6 degree, 53 minutes
Maximum Gradient:	+4%, -5%
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.
- Pedestrian overpass:	17.5 ft.
- RWCD Canal overpass:	15.0 ft.
- East Maricopa Floodway overpass:	15.0 ft.
- Powerline Floodway overpass:	15.0 ft.

The local arterial streets will be designed in accordance with the local jurisdiction functional classification requirements.

4.3 SR 802 FREEWAY CONCEPT

Introduction

The Preferred Alternative was developed to provide the capacity needed for the projected 2030 traffic demand and to conform to current geometric design criteria and design practice. This alternative was also developed with consideration of the future HOV and general-purpose lane projects on SR 202L that are identified in the RTPFP. The Preferred Alternative plans are included in Appendix C.

The SR202L/SR802 TI will provide a fully directional freeway-to-freeway system interchange with all ramp connections between SR 202L and SR 802. At the SR202L/SR802 TI, the entrance and exit ramp connections with SR 202L are designed to conform to current ADOT methodology for lane continuity and operational efficiency.

The locations of the bridge structures, retaining walls, noise walls, drainage basins and other improvements included in this project account for the ultimate SR 202L and SR 802 facilities. The SR202L/SR802 TI directional ramp bridge piers have also been located to support a future HOV ramp connection between SR 802 and SR 202L (to/from the west).

SR 202L Eastbound Mainline

The improvement limits extend on eastbound SR 202L from Power Road on the west to Guadalupe Road on the north. Three general-purpose lanes and one future HOV lane are currently provided on eastbound SR 202L approaching the Power Road TI. No modifications to the Power Road eastbound exit ramp will occur with this project. One additional general-purpose lane will be developed just east of the Power Road exit ramp to provide four general-purpose lanes and one future HOV lane that continue to the east. The Power Road entrance ramp will be realigned with a parallel entrance configuration that transitions into an auxiliary lane that continues to the SR202L/SR802 TI Ramp ‘E-S’ exit, creating five general-purpose lanes and one future HOV lane approaching the system interchange.

Traffic destined to SR 802 will depart SR 202L on Ramp ‘E-S’, which will be designed as a two lane mandatory exit from the outside freeway lanes. Three general-purpose lanes and one future HOV lane will continue to the east through the SR202L/SR802 TI.

The Hawes Road exit ramp will be developed as a single-lane ramp with a parallel exit configuration. The Hawes Road entrance ramp will be realigned with a parallel entrance configuration that merges into the adjacent general-purpose lane prior to the SR202L/SR802 TI Ramp ‘N-E’ gore. Between Hawes and Warner Roads, the concrete pavement and barrier required to support the future HOV lane will be constructed within the median to provide protection for the SR202L/SR802 TI directional ramp bridge piers.

Ramp ‘N-E’ (2 lanes) will merge with the eastbound SR 202L mainline just north of Warner Road to develop five general-purpose lanes and one future HOV lane that continue to the north.

The Elliot Road exit ramp (2 lanes) will be realigned with a mandatory exit from the outside general-purpose lane, and the second lane designed as an optional lane with the SR 202L through movement. Four general-purpose lanes and one HOV lane will continue to the north between Elliot and Guadalupe Roads. The Elliot Road entrance ramp will be realigned with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Guadalupe Road exit ramp.

The Guadalupe Road exit ramp will be realigned with a mandatory exit from the auxiliary lane. Four general-purpose lanes and one HOV lane will continue to the north to match into the existing SR 202L mainline approaching the US60/SR202L TI.

SR 202L Westbound Mainline

The improvement limits extend on westbound SR 202L from Elliot Road on the north to Recker Road on the west. Five general-purpose lanes and one future HOV lane currently exists on SR 202L at Elliot Road. The outside general-purpose lane currently terminates with an AASHTO lane drop prior to the Elliot Road entrance ramp gore. Four general-purpose lanes and one future HOV lane continue to the south.

The Elliot Road entrance ramp will be realigned with a parallel entrance configuration that transitions into an auxiliary lane that continues to the SR202L/SR802 TI Ramp 'W-S' exit. Traffic destined to SR 802 will depart SR 202L on Ramp 'W-S', which will be designed as a two lane mandatory exit from the outside freeway lanes. Three general-purpose lanes and one future HOV lane will continue to the west through the SR202L/SR802 TI.

The Hawes Road exit ramp will be developed as a single-lane ramp with a parallel exit configuration. The Hawes Road entrance ramp will be realigned with a parallel entrance configuration that merges into the adjacent general-purpose lane prior to the SR202L/SR802 TI Ramp 'N-W' gore.

Between Warner and Hawes Roads, the pavement and barrier required to support the future HOV lane will be constructed within the median to provide protection for the SR202L/SR802 TI directional ramp bridge piers. The westbound freeway lanes will be shifted to the north to develop the median width needed for the directional ramp bridge piers.

Ramp 'N-W' (2 lanes) will merge with the westbound SR 202L mainline west of Hawes Road to develop five general-purpose lanes and one future HOV lane that continue to the west.

The Power Road exit ramp (2 lanes) will be realigned with a mandatory exit from the auxiliary lane, and the second lane designed as an optional lane with the SR 202L through movement. Four general-purpose lanes and one future HOV lane will continue to the west between Power Road and Recker Road. The Power Road entrance ramp will be realigned with a parallel entrance configuration that merges into the adjacent general-purpose lane. The outside general-purpose lane will then merge into the adjacent general-purpose lane prior to the Recker Road overpass to develop three general-purpose lanes and one future HOV lane that continue to the west.

The existing overpasses will be widened at Power Road, the RWCD Canal, the EMF, and Sossaman Road.

SR202L/SR802 System Interchange

The SR202L/SR802 TI will provide a fully directional freeway-to-freeway system interchange with all ramp connections between SR 202L and SR 802. At the SR202L/SR802 TI, the entrance and exit ramp connections with SR 202L are designed to conform to current ADOT methodology for lane continuity and operational efficiency.

The directional ramp from eastbound SR 202L to eastbound SR 802 (Ramp 'E-S') will depart SR 202L with a two lane mandatory exit from the outside freeway lanes. Ramp 'E-S' will braid under Ramp 'W-S', which will allow Ramp 'E-S' to become the inside general-purpose lanes on SR 802. A separate exit ramp for Ellsworth Road will depart Ramp 'E-S' near Hawes Road, and then continue to the south along the west side of SR 802 to Ellsworth Road.

The directional ramp from westbound SR 202L to eastbound SR 802 (Ramp 'W-S') will depart SR 202L with a two lane mandatory exit from the outside freeway lanes and pass over Warner Road, SR 202L, Ramp 'N-W' and Ramp 'E-S' to become the outside general-purpose lanes on SR 802 (to develop 4 general-purpose lanes and one future HOV lane). Access to Ellsworth Road (from Ramp 'W-S') will be provided from the SR 802 mainline via a single-lane ramp with a tapered exit configuration. The Ellsworth Road exit ramp will be designed with sufficient roadway width to support an "end of freeway" condition that will occur at this location with the phased construction of this new freeway corridor.

The directional ramp from westbound SR 802 to eastbound SR 202L (Ramp 'N-E') will depart SR 802 just west of Ellsworth Road with a two lane mandatory exit from the outside general-purpose lanes. Ramp 'N-E' will pass over the Ellsworth Road entrance ramp (to Ramp 'N-W') and continue to the north and east to merge with the eastbound SR 202L mainline near Warner Road.

The directional ramp from westbound SR 802 to westbound SR 202L (Ramp 'N-W') will be developed from the two inside general-purpose lanes on the SR 802 mainline. This ramp will pass over SR 202L and Hawes Road and merge with the westbound SR 202L mainline with a "lane-add" configuration.

Access from Ellsworth Road to SR 202L (both eastbound and westbound) will be provided at the system interchange. Ellsworth Road Ramp 'A' and the Ramp 'A' Connector will depart the north Ellsworth Road TI ramp intersection and bifurcate prior to the Ramp 'N-E' overpass. The Ellsworth Road Ramp 'A' Connector will then continue to the north and west and merge into Ramp 'N-E' just north of the Ray Road overpass with a parallel entrance design. Likewise, Ellsworth Road Ramp 'A' will continue to the west, pass beneath the Ramp 'N-E' overpass, and merge into Ramp 'N-W' just south of the Powerline Floodway overpass with as parallel entrance design.

Provisions for future HOV lanes on SR 202L and SR 802 are provided throughout the project area. The design of the SR202L/SR802 TI also includes the ability to add a HOV directional ramp connection between SR 802 and SR 202L (to/from the west) in the future. The concept design for the potential future HOV directional ramp is provided in Appendix E.

SR 802 Eastbound Mainline

Four general-purpose lanes and one future HOV lane will be provided in the eastbound direction of travel on SR 802 between Ellsworth Road and Williams Field Road. The Ellsworth Road entrance ramp will be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Williams Field Road exit ramp.

The Williams Field Road exit ramp (2 lanes) will be designed with a mandatory exit from the auxiliary lane, and the second lane designed as an optional lane with the SR 802 through movement. The outside general-purpose lane will be terminated with an AASHTO lane drop prior to the Williams Field Road entrance ramp gore, providing three general-purpose lanes and one future HOV lane that continue to the east to Ironwood Road. The Williams Field Road entrance ramp would be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Signal Butte Road exit ramp.

The Signal Butte Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. The Signal Butte Road entrance ramp will be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Meridian Road exit ramp.

The Meridian Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. This ramp will be designed with sufficient roadway width to support an “end of freeway” condition that will occur during the phased construction of this new freeway corridor. The Meridian Road entrance ramp will be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Ironwood Road exit ramp.

The Ironwood Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. This ramp will be designed with sufficient roadway width to support an “end of freeway” condition that will occur during the phased construction of this new freeway corridor.

SR 802 will be an elevated freeway between the SR202L/SR802 TI and Crismon Road, transitioning to a depressed freeway between Signal Butte Road and Meridian Road, and then transitioning back to an elevated freeway at Ironwood Road.

New overpasses will be provided at Ray Road, the Powerline Floodway, Ellsworth Road, Williams Field Road, Crismon Road and ultimately Ironwood Road. New freeway underpasses will be provided at Signal Butte Road, Mountain Road and Meridian Road.

SR 802 Westbound Mainline

The Ironwood Road entrance ramp (2 lanes) will be designed as a two lane entrance that transitions into the westbound general-purpose lanes until the freeway is extended to the east in the future. At that time the Ironwood Road entrance ramp will be reconfigured to a parallel entrance configuration that transitions into an auxiliary lane that continues to the Meridian Road exit ramp.

The Meridian Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. Three general-purpose lanes and one future HOV lane will be provided between Meridian Road and Williams Field Road. The Meridian Road entrance ramp will be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Signal Butte Road exit ramp.

The Signal Butte Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. The Signal Butte Road entrance ramp will be designed with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Williams Field Road exit ramp.

The Williams Field Road exit ramp (1 lane) will be designed with a mandatory exit from the auxiliary lane. The Williams Field Road entrance ramp will be designed with a parallel entrance configuration that transitions into an additional general-purpose lane (providing 4 general-purpose lanes and one future HOV lane) that continues to the SR202L/SR802 TI directional ramps.

The Ellsworth Road exit ramp (1 lane) will be designed as a tapered exit from the outside general-purpose lane. The Ramp ‘N-E’ exit will be configured as a two-lane mandatory exit from the outside general-purpose lanes. Two general-purpose lanes and a future HOV lane will continue to the north and transition into Ramp ‘N-W’.

4.4 SERVICE TRAFFIC INTERCHANGES AND GRADE SEPARATIONS

4.4.1 Introduction

The existing Power Road, Hawes Road, Elliot Road and Guadalupe Road service traffic interchanges will remain in their current configurations. The ramps will be realigned near the SR 202L mainline to accommodate the widened mainline pavement. Recker Road, Sossaman Road and Warner Road will also remain in their current configuration. The freeway overpasses will be widened as needed to support the planned freeway improvements.

New traffic interchanges will be provided on SR 802 to facilitate access to the existing and planned arterial street system at Ellsworth Road, Williams Field Road, Signal Butte Road, Meridian Road and Ironwood Road. Grade separated crossings will be provided at Ray Road, Crismon Road and Mountain Road to allow local street connectivity across the SR 802 freeway corridor.

The interchange configurations were developed to achieve the traffic operational level-of-service objectives and geometric design requirements, minimize right-of-way acquisition, and minimize environmental impacts. The number of through lanes on each crossroad was based upon a review of the adopted *City of Mesa Street Classification Map* and the *Pinal County Regionally Significant Routes Corridor Map*. The number of turning lanes is based on the results of the operational analysis.

4.4.2 Ray Road Grade Separation

Ray Road is planned as an ultimate six lane arterial street, consisting of three lanes in each direction of travel separated by a raised median. The City of Mesa has constructed an interim roadway that provides one lane in each direction of travel separated by a striped median. The interim facility utilizes the westbound lanes of the ultimate street section. The Ray Road horizontal and vertical alignment will remain consistent with the existing roadway.

Separate structures for the SR 802 mainline and ramp roadways will be provided at this location. The proposed overpass structures are anticipated to be two-span precast AASHTO girder superstructure bridges that will be built over traffic. The piers will be located within the future 16’ raised median on Ray Road.

Catch basins and storm drains will be provided by the City of Mesa to collect and convey onsite drainage to the west.

Existing and planned utilities may be impacted by the proposed improvements on Ray Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The freeway improvements at Ray Road are not anticipated to require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for the freeway would be required from the adjacent undeveloped properties.

4.4.3 Ellsworth Road Full Diamond TI

A tight diamond traffic interchange has been developed for the Ellsworth Road TI as depicted in Appendix C. Since Ellsworth Road is planned as an ultimate six lane arterial street, three through lanes will be provided in each direction of travel through the interchange.

The westbound entrance ramp will transition from two lanes on the ramp to a single-lane entrance with a parallel entrance configuration. The eastbound entrance ramp will transition from two lanes on the ramp to a single-lane entrance into an auxiliary lane.

The eastbound exit ramps (Ellsworth Road Ramp 'B' and Ramp 'B' Connector) will be single-lane ramps that merge together in advance of the ramp intersection with a frontage road type configuration. The eastbound intersection approach will flare to four lanes near the crossroad. The westbound exit ramp will consist of a single-lane exit (with a tapered exit configuration) flaring to four lanes near the crossroad.

The traffic operational analysis indicates the following turning lanes are warranted at this interchange to provide adequate capacity for the Design Year 2030 traffic demand:

- Northbound to westbound left-turn movement: 2 lanes.
- Southbound to eastbound left-turn movement: 1 lane.
- Northbound to eastbound right-turn movement: Not warranted.
- Southbound to westbound right-turn movement: Not warranted.

In discussions with ADOT and City of Mesa staff, agreement has been reached that additional turning lanes may be considered on a case-by-case basis.

To ensure this study adequately addresses all right-of-way and environmental impacts associated with this interchange, the concept has been developed to include two left-turn lanes for both the northbound to westbound and southbound to eastbound traffic movements. A right-turn lane has also been included for the northbound to eastbound and the southbound to westbound traffic movements.

The Ellsworth Road horizontal alignment will be coincident with the section line. The Ellsworth Road vertical alignment will generally follow the existing street profile.

Separate structures for the SR 802 eastbound and westbound roadways are anticipated at this location. The proposed overpass structures are anticipated to be two-span precast AASHTO girder superstructure bridges that will be built over traffic. The piers will be located within an 8' raised median on Ellsworth Road.

Catch basins and storm drains will be provided to collect and convey onsite drainage runoff to a new retention basin located at the northwest quadrant of the interchange. A new RCBC will be required to cross Ellsworth Road just north of the interchange to support the offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Ellsworth Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The Ellsworth Road TI will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Ellsworth Road will be required from the adjacent undeveloped properties east and west of the existing roadway.

4.4.4 Williams Field Road Full Diamond TI

A tight diamond traffic interchange has been developed for the Williams Field Road TI as depicted in Appendix C. Since Williams Field Road is planned as an ultimate six lane arterial street, three through lanes will be provided in each direction of travel through the interchange.

The westbound entrance ramp will transition from two lanes on the ramp to a single-lane entrance that will develop one additional general-purpose lane on the mainline with a "lane-add" design. The eastbound entrance ramp will transition from two lanes on the ramp to a single-lane entrance into an auxiliary lane.

The eastbound exit ramp (2 lanes) will consist of a mandatory exit from the auxiliary lane, and an optional lane with the SR 802 through movement. The ramp will then flare to three lanes near the crossroad. The westbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to three lanes near the crossroad.

The traffic operational analysis indicates the following turning lanes are warranted at this interchange to provide adequate capacity for the Design Year 2030 traffic demand:

- Northbound to westbound left-turn movement: 1 lane.
- Southbound to eastbound left-turn movement: 1 lane.
- Northbound to eastbound right-turn movement: Not warranted.
- Southbound to westbound right-turn movement: Not warranted.

In discussions with ADOT and City of Mesa staff, agreement has been reached that additional turning lanes may be considered on a case-by-case basis.

To ensure this study adequately addresses all right-of-way and environmental impacts associated with this interchange, the concept has been developed to include two left-turn lanes for both the northbound to westbound and southbound to eastbound traffic movements. A right-turn lane has also been included for the northbound to eastbound and the southbound to westbound traffic movements.

In discussions with representatives from the City of Mesa, Williams Field Road will be realigned to cross SR 802 on a skew to the south of the section line, and then continue to the west on a new horizontal alignment that has not been fully determined at this time. Williams Field Road will likely serve as one of the main entrances into the future Phoenix-Mesa Gateway Airport east terminal development.

Separate structures for the SR 802 eastbound and westbound roadways are anticipated at this location. The proposed overpass structures are anticipated to be two-span precast AASHTO girder superstructure bridges, or cast-in-place post-tensioned box girder bridges constructed on soffit fill. The piers will be located within an 8' raised median on Williams Field Road. The overpass structures at Williams Field Road may or may not be built over traffic. The feasibility of a detour will depend on the timing of the adjacent development that will occur in the area.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north drainage channel. A new RCBC will be required to cross Williams Field Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Williams Field Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The Williams Field Road TI will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Williams Field Road will be required from the adjacent undeveloped properties east and west of the existing roadway.

4.4.5 Crismon Road Grade Separation

A grade separation crossing has been developed for Crismon Road as depicted in Appendix C. Since Crismon Road is planned as an ultimate six lane arterial street, three lanes will be provided in each direction of travel separated by a raised median.

The Crismon Road horizontal alignment will be coincident with the section line. The vertical alignment will generally follow the existing ground surface.

Separate structures for the SR 802 eastbound and westbound roadways are anticipated at this location. The proposed overpass structures are anticipated to be two-span precast AASHTO girder superstructure bridges, or cast-in-place post-tensioned box girder bridges constructed on soffit fill. The piers will be located within a 16' raised median on Crismon Road. The overpass structures at Crismon Road may or may not be built over traffic. The feasibility of a detour will depend on the timing of the adjacent development that will occur in the area.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north drainage channel. A new RCBC will be required to cross Crismon Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Crismon Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The construction of Crismon Road will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Crismon Road will be required from the adjacent undeveloped properties east and west of the proposed roadway.

4.4.6 Signal Butte Road Full Diamond TI

A tight diamond traffic interchange has been developed for the Signal Butte Road TI as depicted in Appendix C. Since Signal Butte Road is planned as an ultimate six-lane arterial street, three through lanes will be provided in each direction of travel through the interchange.

The eastbound and westbound entrance ramps will transition from two lanes on the ramp to a single-lane entrance into an auxiliary lane.

The eastbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to three lanes near the crossroad. The westbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to three lanes near the crossroad.

The traffic operational analysis indicates the following turning lanes are warranted at this interchange to provide adequate capacity for the Design Year 2030 traffic demand:

- Northbound to westbound left-turn movement: 2 lanes.
- Southbound to eastbound left-turn movement: 1 lane.
- Northbound to eastbound right-turn movement: Not warranted.
- Southbound to westbound right-turn movement: Not warranted.

In discussions with ADOT and City of Mesa staff, agreement has been reached that additional turning lanes may be considered on a case-by-case basis.

To ensure this study adequately addresses all right-of-way and environmental impacts associated with this interchange, the concept has been developed to include two left-turn lanes for both the northbound to westbound and southbound to eastbound traffic movements. A right-turn lane has also been included for the northbound to eastbound and the southbound to westbound traffic movements.

The Signal Butte Road horizontal alignment will be coincident with the section line. The vertical alignment will generally follow the existing ground surface and then pass over the SR 802 mainline. The profile may be raised slightly at SR 802 to minimize the excavation required for the freeway.

The proposed underpass structure is anticipated to be a two-span cast-in-place post-tensioned box girder bridge constructed on soffit fill. The underpass structure will likely be built under traffic utilizing a detour.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north drainage channel. A new RCBC will be required to cross Signal Butte Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Signal Butte Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The Signal Butte Road TI will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Signal Butte Road will be required from the adjacent undeveloped properties north and south of the proposed roadway.

4.4.7 Mountain Road Grade Separation

A grade separation crossing has been developed for Mountain Road as depicted in Appendix C. Since Mountain Road is planned as an ultimate four lane collector street, two lanes will be provided in each direction of travel separated by a striped median.

The Mountain Road horizontal alignment will follow the current alignment. The vertical alignment will generally follow the existing ground profile. The profile may be raised slightly at SR 802 to minimize the excavation required for the freeway.

The proposed underpass structure is anticipated to be a two-span cast-in-place post-tensioned box girder bridge constructed on soffit fill. The underpass structure will likely be built under traffic utilizing a detour.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north drainage channel. A new RCBC will be required to cross Mountain Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Mountain Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

Mountain Road will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Mountain Road will be required from the adjacent undeveloped properties east and west of the proposed roadway.

4.4.8 Meridian Road Full Diamond TI

A tight diamond traffic interchange has been developed for the Meridian Road TI as depicted in Appendix C. Since Meridian Road is planned as an ultimate six lane arterial street, three through lanes will be provided in each direction of travel through the interchange.

In the ultimate condition, the eastbound and westbound entrance ramps will transition from two lanes on the ramp to a single-lane entrance into an auxiliary lane. During the period of time that the freeway terminates at Meridian Road, the westbound entrance ramp will be designed with two lanes on the ramp that develop the initial general-purpose lanes on the westbound freeway mainline.

In the ultimate condition, the westbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to three lanes near the crossroad. The eastbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to four lanes near the crossroad. During the period of time that the freeway terminates at Meridian Road, the eastbound exit ramp will be designed with two lanes on the ramp that flare to four lanes near the crossroad.

The traffic operational analysis indicates the following turning lanes are warranted at this interchange to provide adequate capacity for the Design Year 2030 traffic demand:

- Northbound to westbound left-turn movement: 2 lanes.
- Southbound to eastbound left-turn movement: 1 lane.
- Northbound to eastbound right-turn movement: Not warranted.
- Southbound to westbound right-turn movement: Not warranted.

In discussions with ADOT and City of Mesa staff, agreement has been reached that additional turning lanes may be considered on a case-by-case basis.

To ensure this study adequately addresses all right-of-way and environmental impacts associated with this interchange, the concept has been developed to include two left-turn lanes for both the northbound to westbound and southbound to eastbound traffic movements. A right-turn lane has also been included for the northbound to eastbound and the southbound to westbound traffic movements.

The Meridian Road horizontal alignment will be coincident with the section line. The vertical alignment will generally follow the existing ground surface and then pass over the SR 802 mainline. The profile may be raised slightly at SR 802 to minimize the excavation required for the freeway.

The proposed underpass structure is anticipated to be a two-span cast-in-place post-tensioned box girder bridge constructed on soffit fill. The underpass structure will likely be built under traffic utilizing a detour.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north offsite drainage channel. A new RCBC will be required to cross Meridian Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Meridian Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The Meridian Road TI will not require the acquisition of any developed properties. Right-of-way acquisition necessary for Meridian Road will be required from the adjacent undeveloped properties north and south of the proposed roadway.

4.4.9 Ironwood Road Full Diamond TI

A tight diamond traffic interchange has been developed for the Ironwood Road TI as shown in Appendix C. Since Ironwood Road is planned as an ultimate six lane roadway, three through lanes will be provided in each direction of travel through the interchange.

In the ultimate condition, the eastbound and westbound entrance ramps will transition from two lanes on the ramp to a single-lane entrance into an auxiliary lane. During the period of time that the freeway terminates at Ironwood Road, the westbound entrance ramp will be designed with two lanes on the ramp that develop the initial general-purpose lanes on the westbound freeway mainline.

In the ultimate condition, the westbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to three lanes near the crossroad. The eastbound exit ramp will consist of a single-lane exit from an auxiliary lane flaring to four lanes near the crossroad. During the period of time that the freeway terminates at Ironwood Road, the eastbound exit ramp will be designed with two lanes on the ramp that flare to four lanes near the crossroad.

The traffic operational analysis indicates the following turning lanes are warranted at this interchange to provide adequate capacity as a half-diamond configuration for the Design Year 2030 traffic demand until SR 802 is extended in the future:

- Northbound to westbound left-turn movement: 2 lanes.
- Southbound to westbound right-turn movement: Not warranted.

In discussions with ADOT and Pinal County staff, agreement has been reached that additional turning lanes may be considered on a case-by-case basis.

To ensure this study adequately addresses all right-of-way and environmental impacts associated with this interchange, the concept has been developed to include two left-turn lanes for both the northbound to westbound and southbound to eastbound traffic movements. A right-turn lane has also been included for the northbound to eastbound and the southbound to westbound traffic movements.

The Ironwood Road horizontal alignment will follow the existing centerline, and the vertical alignment will generally follow the existing roadway profile.

Separate structures for the SR 802 eastbound and westbound roadways are anticipated at this location. The proposed overpass structures are anticipated to be two-span precast AASHTO girder superstructure bridges. The piers will be located within an 8' raised median on Ironwood Road. The overpass structures at Ironwood Road are anticipated to be built over traffic.

Catch basins and storm drains will be provided to collect and convey onsite drainage to the north drainage channel. A new RCBC will be required to cross Ironwood Road just north of the interchange to support the north offsite drainage channel.

Existing and planned utilities may be impacted by the proposed improvements on Ironwood Road. Descriptions of the existing and planned utilities that may be impacted are described in Section 4.9.

The Ironwood Road TI will not require the acquisition of any developed properties at this time. Right-of-way acquisition necessary for Ironwood Road will be required from the adjacent undeveloped properties north and south of the proposed roadway.

4.5 ACCESS CONTROL

Access control already exists on SR 202L and will be maintained in accordance with ADOT and FHWA Access Control Policy requirements. Access control will be acquired for SR 802 in accordance with ADOT and FHWA Access Control Policy Requirements.

4.6 RIGHT-OF-WAY

The proposed right-of-way requirements are shown on the Preferred Alternative Concept Plans in Appendix C. The total estimated right-of-way acquisition required for this alternative is 544 acres, with a total anticipated cost of $116 million. New right-of-way acquired from PMGA will require the approval of the FAA.

Temporary Construction Easements (TCE's) will be required for the construction of the Preferred Alternative. The TCE locations and limits will be determined during final design.

4.7 DRAINAGE

4.7.1 Off-Site Drainage Systems

The purpose of the off-site drainage system is to protect the freeway from the stormwater generated by the contributing watershed that impacts or is impacted by the freeway, and to serve as an outlet for the on-site drainage system. Potential impacts to downstream areas, as a result of the proposed freeway construction, are also evaluated where appropriate. The major components of the offsite and onsite drainage systems are depicted on Figure 25 (page 74), and the technical analysis is provided in the *Drainage Design Concept Report*.

The proposed offsite drainage system for SR 802 consists of a concrete-lined collector channel along the north side of the freeway between the Powerline Floodway and Ironwood Road. The channel will collect and convey offsite runoff intercepted by the freeway and onsite flows collected with the onsite drainage systems. The channel will vary in depth from 4' to 9', have a bottom width varying from 8' to 20', and have 2:1 side slopes. At locations where the channel will cross the existing and planned arterial streets, box culverts varying in size from a 2-barrel 6' x 6' to a 4-barrel 10' x 8' will be required at each location. The SR 802 offsite channel will discharge into a new offline detention basin located west of Ellsworth Road. This basin will serve a dual purpose of a water quality basin and detention basin to reduce flows being discharged into the Powerline Floodway. An additional offline detention basin may be required at an undetermined location east of Ellsworth Road to further reduce the flows in the SR 802 offsite channel system and the Powerline Floodway. The hydrology should be updated in the future during the design of the Ellsworth Road – Meridian Road (Phase 2) project to account for additional development that may occur within the watershed.

In accordance with discussions with the FCDMC, the design of the modified portion of the Powerline Floodway (at the SR 802 crossing) should match the existing Powerline floodway channel capacity downstream of the Ellsworth Road Channel confluence. The new floodway channel and freeway overpasses have been developed in accordance with this requirement.

A small retention basin will be located east of SR 802, between Ray Road and the Powerline Floodway. An 18" bleedoff pipe will provide a connection between the basin and the floodway, with a flap gate installed at the channel connection to prevent the flows within the floodway to backup into the retention basin during large storm events.

A concrete-lined channel will be located on the east side of Ramp 'N-E' to collect runoff originated from the area west of Ellsworth Road and the freeway. The channel will discharge into a retention basin located within the SR202L/SR802 TI infield area via a RCBC. This basin will serve a dual purpose of a water quality basin and retention basin to reduce flows being discharged into the Santan Channel. New RCBC's will be constructed within the Santan Channel to facilitate the crossings by Ramp 'E-S' and Ramp 'N-E'.

Table 33 summarizes the initial discharges and SR 802 channel geometry requirements at various locations within the study limits.

4.7.2 On-Site Drainage Systems

The onsite drainage system is designed to collect and convey the onsite runoff originating within the new right-of-way corridor. Catch basins will connect to storm drain laterals that convey the flows either to the offsite drainage channels or to new storm drain trunk lines.

In locations where SR 802 will be an at-grade or elevated freeway, onsite runoff will be collected and conveyed to the offsite channel via storm drain laterals. Where the SR 802 profile is depressed, the onsite drainage will be collected in a storm drain trunk line varying in size from 24" to 60" in diameter that drains towards the low point in the freeway alignment west of Signal Butte Road. A pump station will then pump the onsite runoff into the offsite drainage channel.

Table 33 – Offsite Drainage Channel Summary

Channel Reach	HEC-1 Conc. Pt.	Q(100) (cfs)	Channel Slope, (%)	Bottom Width (feet)	Side Slopes (h:v)	Depth (feet)	Comments
Santan Connector (from infield basin)	76A1	611	0.2	8	2	6	Use sloping drops to keep Fr<0.86
Ramp 'N-E' North	76A1	278	0.2	10	2	4	
Ramp 'N-E' South 1	76A1	330	0.15	8	2	5	
Ramp 'N-E' South 2	76A1	165	0.15	8	2	4	
Powerline Floodway at SR 802 Crossing	CPPR2	2,692	0.43	55	1.5	9	Supercritical reach
Powerline Floodway to Williams Field Road	C79A1	2,457	0.2	20	2	9	Use sloping drops to keep Fr<0.86
Williams Field Road to Crismon Road	C78E1A	2,065	0.2	20	2	9	Use sloping drops to keep Fr<0.86
Crismon Road to Signal Butte Road	C78E1	1,401	0.2	10	2	9	Use sloping drops to keep Fr<0.86
Signal Butte Road to Mountain Road	C78D1	1,421	0.2	10	2	9	Use sloping drops to keep Fr<0.86
Mountain Road to Meridian Road	C78D1	1,436	0.2	10	2	9	Use sloping drops to keep Fr<0.86
Meridian Road to Ironwood Road	78F2	338	0.55	8	2	9	Supercritical reach

In anticipation of the future HOV lane construction in the SR 802 median, storm drain laterals will be designed to accommodate the runoff from the HOV lanes pavement. In the interim condition, ADOT Standard C-15.80 median catch basins will intercept runoff collected in the median ditches. The median inlets will be offset slightly from the SR 802 construction centerline to allow ADOT Standard C-15-80 inlets to be used in the future when the HOV lanes are constructed.

The design of the SR 802 onsite storm drain system should also include the capacity to convey the runoff from one additional general-purpose lane. The location of the new drainage trunk line within the depressed freeway section between Signal Butte Road and Meridian Road should be located outside of the future pavement limits.

A pump station will include a total of four pumps that will include a low-flow pump with a capacity of approximately 10 cfs, and three main pumps with capacities of approximately 50 cfs each, for a total pump station design discharge of 160 cfs. To prevent excessive pump on-off cycling, the pump station will also include approximately 1,000 linear feet of 8'x8' RCBC for storage. This box culvert will be located along the storm drain trunk line alignment within the sag area of the SR 802 mainline.

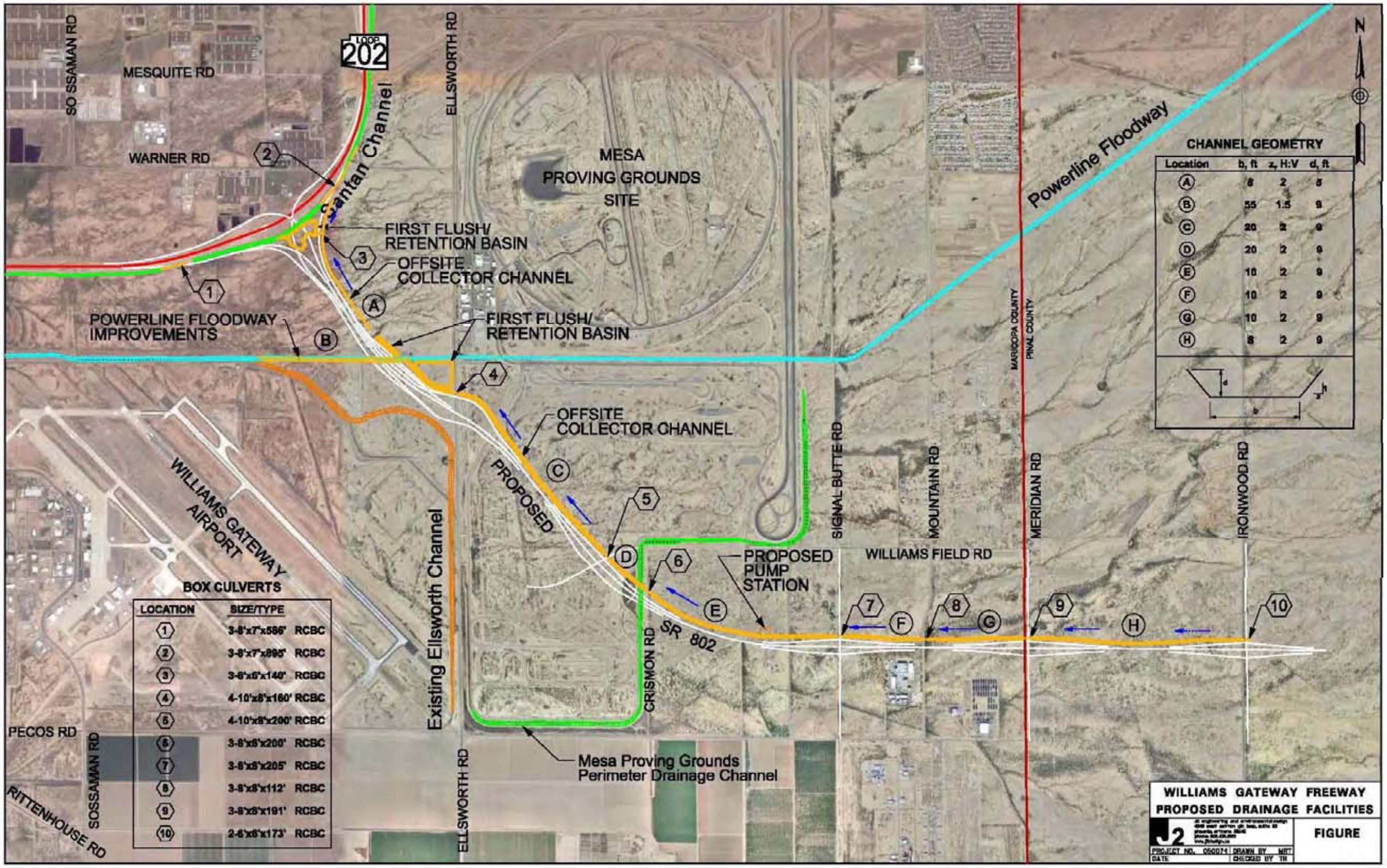


Figure 25 – Proposed Drainage Improvements

Along SR 202L, in areas where the existing pavement will be widened to support the new SR202L/SR802 TI directional ramps, the existing storm drain laterals will be extended to new catch basins placed along the new shoulders.

The onsite drainage system should be coordinated with the existing and future City of Mesa drainage system as identified in the *City of Mesa Storm Drain Master Plan (January 2010)*.

Water Quality

Onsite runoff is discharged into the offsite channel or retention/detention basins via storm drains and the new pump station. Online detention basins are proposed at two locations along the offsite channel system to improve the water quality being discharged into the Santan Channel, Powerline Floodway, and the EMF. The basins have been designed to store the "first flush" of onsite runoff and to attenuate offsite channel peak flows prior to discharging into the existing drainage facilities.

Following discussions with ADOT Office of Environmental Services and the FCDMC Water Quality Branch, it was agreed that the "first flush" that would need water quality treatment or storage will be defined as the first 0.5" of runoff generated from within the ADOT right-of-way. The proposed basins were designed to store this volume of runoff by designing the basins with the bottom elevations no more than 3' lower than the outlet channel elevation.

The largest basin is located at the northwest corner of the Ellsworth Road TI. This basin is designed to retain a "first flush" volume of approximately 16 acre-feet. The second basin is located within the SR202L/SR802 TI infield area, and is designed to retain a "first flush" volume of approximately 2.5 acre-feet.

A third, smaller retention basin is located east of SR 802, and between Ray Road and the Powerline Floodway. This basin will store a "first flush" volume of 0.625 acre-feet, and will also retain the onsite and offsite 100-year 24-hour runoff volumes. An 18" bleedoff pipe will ultimately connect this basin to the Powerline Floodway. A flap gate may be needed at the connection to the Powerline Floodway.

Additional information regarding the drainage system concept is included in the *Drainage Concept Report*.

4.8 STRUCTURES

This section describes the features of and recommends structural elements needed in support of the Preferred Alternative. These elements include recommendations for the new bridge structures, widening of existing bridge structures, retaining walls and noise walls.

4.8.1 New Bridge Structures

In recent history, the design and construction of bridges for the Maricopa County Regional Freeway System has produced a knowledge base of economical and constructible bridge configurations for system interchange directional ramps and freeway overpass/underpass structures. Typical bridge types considered in this Design Concept Report include:

- Cast-in-place post-tensioned concrete box girder
- Precast, prestressed concrete AASHTO girders
- Structural steel welded plate girders or welded steel box girders

Table 34 summarizes some of the representative characteristics and the advantages/ disadvantages of each of these structure types.

The use of concrete segmental and/or spliced girder bridges is not anticipated for this project at this stage of design development. Segmental construction requires special equipment and is not cost competitive for conditions on this project. Precast segmental construction becomes more cost competitive when large numbers of repetitive precast segments are required on a project. The use of spliced precast girders spanning directly over traffic in combination with a post-tensioned box girder bridge system has been successful on the Regional Freeway System and would be considered a viable option for longer spans.

Table 34 – Bridge Structure Types

Features	Cast-In-Place Post-Tensioned Concrete Box Girder	Precast, Prestressed Concrete AASHTO Girders	Structural Steel Welded Girders
Practical Span Limit	250'	140'(+/-) for AASHTO Super VI girders	300'
Corresponding Structure Depth	10'	7.5'	12'
Variable Depth	Haunches can be used as required	Commonly available precast girder types come in depth increments of 9" and are uniform in section throughout the length of the girder	Haunches can be used as required
Horizontal Geometry	Cast-in-place concrete can readily conform to any straight or curvilinear geometry and has very high torsional rigidity	Line girders are cast straight and result in chorded spans with eccentric arc-to-chord variations on curvilinear alignments; Girders have moderate torsional rigidity	Welded girders can be fabricated straight or curvilinear; Torsional factors become more critical for longer spans and/or smaller radius of curvature
Flares and Tapers, Gore Areas	Cast-in-place concrete can easily accommodate variable deck widths, ramp merge/diverge conditions, cross slope breaks, and superelevation transitions	Girder framing has limited flexibility in variable deck width, cross slope, and transitions	Girder framing has limited flexibility in variable deck width, cross slope, and transitions

Table 34 – Bridge Structure Types (continued)

Features	Cast-In-Place Post-Tensioned Concrete Box Girder	Precast, Prestressed Concrete AASHTO Girders	Structural Steel Welded Girders
Diaphragms and Pier Caps	Diaphragms and Pier Caps are internally integral with the superstructure	Diaphragms are integral with the superstructure; Pier caps are typically cast below the superstructure; However they can be made integral by using recessed girder ends supported on inverted-T pier caps	Diaphragms are integral with the superstructure; Pier caps are typically cast below the superstructure but can also be made integral
Economy	Very economical for both initial and life cycle cost	Very economical for both initial and life cycle cost	Historically, steel has been higher in initial cost due to lack of local suppliers and fabricators; Inspection and maintenance needs also increase total life cycle costs
Aesthetics and Visual Compatibility	Considered to be the most aesthetically pleasing of these three alternatives	Typically considered to be less aesthetically pleasing than a CIP P/T concrete box girder	Not currently used within the project limits; Steel plate girders are typically considered to be the least desirable; When painted to match concrete structures, steel box girders are considered acceptable in appearance
Constructability	Additional vertical separation is required to allow for falsework depth and to provide minimum construction vertical clearance when constructed over traffic	Can be erected quickly with minimum impacts to traffic; Short term, off-peak closures are necessary during girder erection and deck/barrier concrete placement	Can be erected quickly with minimum impacts to traffic; Short term off-peak closures are necessary during girder erection and deck/barrier concrete placement

Table 35 provides a summary of new bridge structures that would be constructed to support the Preferred Alternative.

Table 35 – New Bridge Structure Concepts

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Deck Width	Max. Superstructure Depth
SR202L/SR802 Ramp ‘W-S’ over Warner Road	243’	2	116.5’, 119.5’	43.17’	7.50’
SR202L/SR802 TI Ramp ‘W-S’ Flyover Ramp**	2,523’	20	8 at 130’, 139’, 3 at 130’, 139’, 130’, 100’, 139’, 2 at 90’, 2 at 130’	43.17’	7.50’
SR202L/SR802 TI Ramp ‘N-E’ over Warner Road	200’	2	97.5’, 96.5’	43.17’	7.50’
SR202L/SR802 TI Ramp ‘N-W’ Flyover Ramp**	2,535’	20	11 at 130’, 80’, 2 at 130’, 110’, 5 at 130’	43.17’	7.50’

Table 35 – New Bridge Structure Concepts (continued)

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Deck Width	Max. Superstructure Depth
SR202L/SR802 TI Ramp ‘E-S’ over Hawes Road	245’	2	105’, 135’	43.17’	7.50’
Ellsworth Road Ramp ‘B’ over Hawes Road	247’	2	120.5’, 120.5’	31.17’	7.50’
Ray Road Overpass (SR 802 EB)	247.5’	2	120’,120’	86.50’	7.00’
Ray Road Overpass (SR 802 WB)	247.5’	2	120’,120’	74.50’	7.00’
Ellsworth Road Ramp ‘B’ over Ray Road	235’	2	115.5’, 115.5’	29.17’	8.00’*
Ellsworth Road Ramp ‘A’/Ramp ‘N-E’ over Ray Road	253’	2	123’, 126’	Varies (63.9’ to 67.7’)	8.00’*
Powerline Floodway Overpass (SR 802 EB)	340.5’	3	100.5’, 132’, 101’	86.50’	7.50’
Powerline Floodway Overpass (SR 802 WB)	340.5’	3	100.5’, 132’, 101’	Varies (74.6’ to 82.8’)	7.50’
Ellsworth Road Ramp ‘B’ over Powerline Floodway	326’	3	96’, 122.5’, 100.5’	29.17’	7.50’
Ellsworth Road Ramp ‘A’ over Powerline Floodway	329’	3	89’, 143.5’, 89’	29.17’	7.50’***
SR202L/SR802 TI Ramp ‘N-E’ over Powerline Floodway	329’	3	89’, 143.5’, 89’	43.17’	7.50’***
Ramp ‘N-E’ over Ellsworth Road Ramp ‘A’	244’	2	120’, 120’	43.17’	7.50’
Ellsworth Road TI Overpass (SR 802 EB)	271’	2	132’, 132’	86.50’	7.50’
Ellsworth Road TI Overpass (SR 802 WB)	271’	2	132’, 132’	86.50’	7.50’
Williams Field Road TI Overpass (SR 802 EB)	226’	2	110’, 110’	86.50’	8.50’*
Williams Field Road TI Overpass (SR 802 WB)	226’	2	110’, 110’	74.50’	8.50’*
Crismon Road Overpass (SR 802 EB)	213’	2	103’, 103’	Varies (91.1’ to 109.4’)	8.50’*
Crismon Road Overpass (SR 802 WB)	213’	2	103’, 103’	Varies (98.3’ to 109.3’)	8.50’*
Signal Butte TI Underpass	283’	2	138.5’, 138’	143.33’	7.50’
Mountain Road Underpass	309’	2	151’, 152’	81.33’	6.50’
Meridian Road TI Underpass	285’	2	140.5’, 138.5’	152.33’	7.50’
Ironwood Road TI Overpass	227’	2	111’, 111’	74.50’	8.50’*

Note:
* Maximum structure depths include falsework.
** The piers for this structure have been located to accommodate a future SR202L/SR802 TI HOV ramp, and the SR 202L roadway widening required to accommodate the HOV connector.
*** A wider, inverted T-beam pier cap with dapped girder ends may be required to decrease the span length for AASHTO Type Super VI girder feasibility.

Special Design Consideration for Structures

Table 35 presents a feasible span configuration and maximum superstructure depth for each bridge. Additional bridge alternatives and vertical profile refinements should be investigated with the future Bridge Selection Reports evaluation, while considering the constraints and issues presented in this section.

ADOT Bridge Group has requested that all bridge structures within the vicinity of the SR202L/SR802 TI, including the widening of existing bridges, incorporate 42” F-shaped concrete half-barrier.

Coordination will also be required with the PMGA and the FAA to obtain any necessary permits required for the bridge and light pole construction activities that may impact the regulated runway airspace.

Specific design considerations and issues that should be considered for individual bridge crossings are provided in the following paragraphs.

Ramp ‘W-S’ and Ramp ‘N-W’ Flyover Ramps

Although a post-tensioned structure is feasible for these structures, the required long-term falsework needed to support this option would impact SR 202L mainline traffic significantly during the bridge construction activities. AASHTO Type Super VI precast girder construction is feasible for these bridges, and only shoulder closures would be needed to construct the piers that would be located adjacent to the SR 202L mainline. Overnight or weekend freeway closures would be needed occasionally for the girder erection and superstructure construction activities. The precast girder option is anticipated to be the recommended structural alternative, and Table 35 reflects the superstructure depth for this configuration.

Ramp ‘W-S’ over Warner Road

In order to minimize the retaining wall heights adjacent to this structure, the existing ADOT access control fence and gate would be relocated within the ADOT right-of-way at the southwest corner of the bridge. The relocation of the fence and gate would provide the required 25’ of horizontal clearance required around the existing APS 69 kV power pole located along the south side of Warner Road.

Powerline Floodway Overpasses

The FCDMC will require the hydraulic capacity of the new floodway channel to match the “bank full” capacity of the existing channel between Hawes Road and the EMF. In order to reduce the span lengths required over the floodway, the FCDMC has agreed to allow a three-span bridge at this location. The piers would be placed adjacent to the lining of the reconstructed channel, which would allow the center span to cross over the channel itself. The end spans would be configured with the abutments and slope paving placed a sufficient distance from the floodway channel to allow for a 15’ wide maintenance road on the north and south sides of the channel. The maintenance roads would include an aggregate base surface with a minimum 15’ of vertical clearance.

Williams Field Road and Crismon Road Overpasses

At the time of this report, it was not determined when these crossroads would be constructed when compared with the anticipated construction of the freeway. In the event the crossroads have been constructed and are operational prior to construction of the SR 802 mainline, these overpasses would be constructed on falsework or utilize a precast girder option to maintain traffic during construction. If the crossroads have not been constructed prior to the freeway project, a cast-in-place post-tensioned box girder bridge would likely be constructed on soffit fill.

Signal Butte TI, Mountain Road, and Meridian Road TI Underpasses

Signal Butte Road and Meridian Road are anticipated to be constructed and operational prior to the construction of the SR 802 mainline. Mountain Road is an existing two lane road across the SR 802 corridor. It is anticipated that a detour would be provided at each of these bridge locations during the bridge construction activities.

4.8.2 Widening of Existing Bridge Structures

Several bridge superstructure widening alternatives were considered for the existing structures that would be impacted by the proposed project.

Cast-in-Place Post-Tensioned Concrete Box Girder

Post-tensioned structures are utilized extensively on the Regional Freeway System. The advantages of utilizing post-tensioned box girders for the widening of the existing structures include:

- This superstructure configuration would be consistent with the majority of the existing bridges that would be widened with the project, and could match the aesthetics of the existing bridges.
- A similar superstructure configuration as the existing bridge would match the existing structural behavior.
- This superstructure configuration would accommodate various roadway geometric situations that occur at interchange ramp taper and gore areas.
- The widened portion of the bridge can be built on falsework above traffic. If the required falsework vertical clearance is not available, the superstructure could be built at the elevation needed to provide the minimum vertical clearance and then hydraulically lowered into the final position. Alternatively, a through-girder concept could be utilized to gain additional clearance.

The disadvantages of utilizing post-tensioned box girders for widening of existing structures include:

- Overpass structures located at crossroads would require the construction of the bridge with falsework in order to maintain traffic. The use of falsework would introduce the following issues for evaluation:
  - Reduced vertical clearances: A minimum of 16’ vertical clearance over active freeway traffic lanes, and 14.5’ over arterial streets, is required during construction. The falsework clearance has been reduced below this limit on previous projects by using overhead crash beams. However, the use of crash beams for sites with reduced vertical clearance is now discouraged due to safety and operational concerns. The minimum falsework clearance could be mitigated by constructing the widened portion of the bridge on falsework at an

elevation higher than the existing bridge, and then lowering the superstructure onto the abutments and piers by hydraulically jacking. However, this adds complexity to the bridge design and construction and increases the costs of the bridge.

- Traffic impacts during construction: The use of falsework may require additional falsework towers and reduce the number of open lanes during construction. Precast elements used in conjunction with cast-in-place alternatives can provide increased spans and reduce the number of or eliminate falsework towers. Typical falsework spans are generally limited to a maximum opening of 60'. Increasing the falsework spans beyond 60' is feasible; however, larger spans require larger falsework girders that may not be readily available to the contractor, which could increase the project cost and construction schedule duration. This type of bridge construction will also have an increased number of construction closures.
- Construction costs: Post-tensioned structures are typically more cost effective if constructed on soffit fill. Several of the bridge structures on this project support freeway crossings over arterial streets which will preclude a soffit fill construction method. At these locations, the widening of the existing bridge structures with this superstructure configuration would require the use of falsework, increasing the cost of construction.
- Reduced Safety: More construction activities will occur over and adjacent to traffic, thereby reducing worker and public safety.

- Construction duration: A cast-in-place post-tensioned superstructure would generally exceed the duration required for precast girder bridge construction by approximately 30 to 60 days. The construction duration for bridge structure widening post-tensioned after deck placement would also be increased by approximately 60 days to allow for creep and shrinkage in the widened structures to occur prior to placing a concrete deck closure pour. The total increase in construction duration by utilizing a post tensioned box girder option for the bridge structure widening compared to precast girders would be anticipated to be approximately 90 days.
- Multi-span bridges make the construction of falsework and lowering the superstructure into place by hydraulic jacking problematic. The hydraulic jacking of the superstructure must be sequenced carefully to ensure that unintentional redistribution of forces does not lead to overstressing the superstructure.
- The use of steel through-girders to mitigate temporary construction clearances would add additional cost of the bridge construction, because additional fabrication will be required for non-standard, welded steel plate girders.
- Matching the new and existing bridge decks: Many variables must be considered that affect the long and short term camber of a bridge including temperature, creep and shrinkage. Larger closure pours, the placement of additional deck thickness with subsequent deck milling, placement of an asphalt overlay, developing more detailed camber calculations, providing additional creep and shrinkage testing of the concrete mix, providing additional post-tensioning that can be tensioned or de-tensioned to adjust the bridge structure widening profile, using high performance concrete to reduce creep and shrinkage effects and providing higher construction quality control, are all techniques that can be utilized to ensure the existing and new bridge deck elevations will match at the interface.

Precast Prestressed Concrete Girders

A significant number of precast, prestressed concrete girder bridge structure widenings have been constructed throughout the Regional Freeway System. AASHTO girders or precast prestressed box beams are an excellent alternative structure type for the widening of both CIP post-tensioned concrete box girder and precast girder bridges.

The advantages of utilizing precast sections include:

- Reduced construction duration: The majority of the creep and shrinkage that would occur in the precast girders would be completed prior to the erection of the girder. Therefore, the widened portion of the bridge deck can be placed with one pour, eliminating the need for a closure pour.
- Falsework: The use of precast girders would eliminate the need for falsework, thereby reducing the impacts to traffic during the construction of the bridge. Crossroad closures would be required during the erection of the girders, placement of stay-in-place deck forms (if applicable), and concrete placement of the deck.

The disadvantages of utilizing precast sections include:

- Depth of superstructure: A precast girder bridge would generally require a deeper superstructure section, which could impact the vertical clearance over the crossroad.
- Roadway geometry: A precast girder superstructure is not as conducive as post-tensioned box girder bridges to accommodate unique roadway geometry situations that occur at traffic interchange ramp connections. Therefore, additional deck area—that would not be used to support traffic—may be necessary at certain locations.

Composite Steel Girders

Composite steel girders were considered for the bridge structure widenings associated with this project. However, steel girders react to temperature changes more abruptly than concrete structures. All of the structures that would be widened were originally constructed with precast, prestressed concrete girders and/or post-tensioned (PT) concrete box girders. Therefore, steel girders may experience greater expansion and contraction than concrete girders in a given day. This may lead to compatibility issues between the existing and widened structure. In addition, steel girders are not typically cost competitive in Arizona, require a long fabrication and delivery schedule, and require additional maintenance. Therefore, steel girder superstructure alternatives for existing concrete superstructures were conceptually eliminated from consideration.

Table 36 (page 79) provides a summary of the bridge structures that would be widened with this project. The widening of the existing bridge structures would to include the planned general-purpose lane widening in the vicinity of the SR202L/SR802 TI.

Table 36 – Bridge Structure Widening Concepts

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Approx Width of Widening*	Proposed Superstructure Depth	Existing Superstructure Type	Proposed Widening Concept
Power Road TI Overpass (SR 202L EB & WB)	214'	2	103.5', 105.5'	12' (each structure)	4'-0"	Post-tensioned box girder	Hydraulically jacked PT box or steel through girders for falsework could address temporary construction clearance issues and reduce the number of falsework towers.
EMF Overpass (SR 202L EB & WB)	396'	4	97', 98.5', 98.5', 97'	12' (each structure)	6'-3"	AASHTO Type V girder	AASHTO Type V girder
Power Road Ramp 'C' Overpass (over EMF)	396'	4	97', 98.5', 98.5', 97'	6'	6'-3"	AASHTO Type V girder	AASHTO Type V girder
Sossaman Road Overpass (EB & WB)	123.5'	1	119'	24' (each structure)	5'-6"	Post-tensioned Box girder	Match existing bridge

* Structural widening does not include the width associated with the partial removal of the existing deck.

Special Design Considerations for Bridge Structure Widenings

EMF Overpasses: The existing structures are founded on stub abutments located immediately in front of Mechanically Stabilized Earth (MSE) walls. The MSE walls already span the distance separating the mainline freeway from Power Road Ramps C and D. Therefore, new walls will not be required to accommodate the roadway widening. However, the final design details should closely match the as-built drawings for the abutment construction in front of the MSE walls. The existing structure utilizes a pier-type stub abutment with formed square columns founded on circular drilled shaft foundations. The abutment is separated by approximately 3" from the front face of the MSE walls through the use of expanded polystyrene and low strength concrete fill placed immediately above a recessed MSE wall notch at the bridge abutments. A 1' thick concrete ledge projecting from the abutment backwall spans over the MSE wall to provide support for the approach slab. Therefore, the existing MSE wall and the metal handrail located between the mainline and the ramps will require partial removal in order to accommodate a similar detail at the bridge structure widening. Careful attention should be given in furnishing temporary construction slopes and/or temporary shoring to accommodate MSE wall removal and stub abutment construction between the mainline and both of the Power Road ramps.

Power Road Ramp 'C' Overpass:

Supplemental survey for this structure at the EMF crossing reveals that the existing vertical clearance to the Roosevelt Water Conservation District (RWCD) canal east bank maintenance road is approximately 15.10'. Survey data obtained in the vicinity of the bridge widening indicates the existing maintenance road elevations are nearly level and the bridge widening may result in less than the 15' vertical clearance originally requested by RWCD (*Santan Freeway (202L) – Power Road To Elliot Road – Preliminary Bridge Selection Report (30% Design), (*DMJM+HARRIS, June 2002). Minor regrading of the maintenance road may be required and shall be coordinated with the RWCD.

A new retaining wall will also be required to support the Power Road Ramp 'C' widening. Since the ramp will only be widened by 6', MSE walls would not be feasible. A special wall design will be required to accommodate the widening.

Sossaman Road Overpass: The existing overpasses are founded on stub abutments located immediately behind the MSE walls. The widening of the bridge structures will require the partial removal of the MSE wall immediately adjacent to the existing stub abutment ends to accommodate the placement of the new stub abutment wall and drilled shaft foundations.

4.8.3 Retaining Walls

New retaining walls will be required throughout the corridor to accommodate the roadway widening. The retaining wall alternatives that could be considered for this project are cantilevered walls on spread footings, cantilevered walls on drilled shaft foundations, mechanically stabilized earth (MSE) walls, soil nailed walls, and soldier/tieback walls.

The design of the walls will utilize the *Standard Specifications for Highway Bridges, 17th Edition (2002)* and the ADOT *Bridge Practice Guidelines* until the *LRFD Bridge Design Specifications* are adopted by the Department.

New retaining walls along the corridor may require special design considerations due to the proximity of new walls and existing walls, or new walls in close proximity to right-of-way. At these locations, the following alternatives should be evaluated during final design:

- Offset the new wall from the existing wall to provide sufficient area to construct a new spread footing.
- Provide a specialty wall design that could be founded on:
  - L-shape spread footing.
  - single or multiple rows of drilled shaft foundations utilizing a shaft cap to transfer the loads from the wall to the shafts.
  - Tie-back or soil nail walls may be considered. However, the existing roadway embankment may not be suitable for lateral restraint.

An evaluation will be required during final design to determine the feasibility of each wall alternative. The evaluation criteria should include right-of-way constraints, construction access availability, the ability to maintain traffic during construction, and estimated construction costs.

Preliminary Recommendations:

For the purpose of this report, retaining walls are divided into three categories including standard cast-in-place walls, specialty walls, and combination walls. A summary of the retaining walls used for cost estimating purposes is provided in Table 37 (page 80). Any walls not requiring special treatment are being designated as standard walls. Standard walls are anticipated to be either ADOT standard cast-in-place walls or walls founded on similarly configured spread footing foundations. Walls that would require an unusual footing shape, would be founded on drilled shafts, or are tie-back/soil nail/MSE walls are designated as specialty walls. Other retaining walls along the corridor may require additional height to provide noise mitigation if indicated in the preliminary noise analysis. These walls are identified as combination walls. Unless specified as a combination/specialty wall, combination walls are also anticipated to be founded on spread footings. A detailed analysis should be performed during final design.

MSE walls should also be considered as a viable wall alternative at the locations where Standard CIP walls are noted in Table 37.

Table 37 – New Retaining Wall Summary

Alignment	Wall No.	Description	Approximate Station Limits	Approximate Wall Length	Average Wall Height/ Maximum Wall Height(1)	Wall Type(1)
SR 202L Mainline	R1	Edge of SR202L (EB), north of SR802/SR202L TI Ramp 'N-E'	Station 3132+00 to Station 3141+00	919'	4'/5'	Standard CIP wall
SR202L/SR802 TI Ramp 'N-W'	R2	North edge of Ramp 'N-W'	Station 26+50 to Station 37+08.50	1,055'	16'/28'	Standard CIP wall
	R3	South edge of Ramp 'N-W'	Station 35+00 to Station 37+08.50	209'	7'/11'	Standard CIP wall
SR202L/SR802 TI Ramp 'E-S'	R4	Between Ramp E-S and SR 202L EB, west of Hawes Road	Station 33+00 to Station 38+83.13	585'	14'/20'	Standard CIP wall
SR202L/SR802 TI Ramp 'W-S'	R5	West edge of Ramp 'W-S', south of Warner Road	Station 10+90 to Station 14+28.58	336'	8'/11'	Standard CIP wall
	R6	West edge of Ramp 'W-S', north of Warner Road	Station 16+92.34 to Station 19+65.89	273'	29'/32'	Specialty wall
	R7	East edge of Ramp 'W-S', south of the Ramp 'W-S' flyover bridge	Station 45+05.25 to Station 45+76.67	71'	10'/17'	Standard CIP wall
SR202L/SR802 TI Ramp 'N-E'	R8	East edge of Ramp 'N-E', north of Warner Road	Station 6+00 to Station 9+91.23	394'	16'/24'	Standard CIP wall
Ellsworth Road Ramp 'B'	R9	South edge of Ellsworth Road Ramp 'B', east of Hawes Road	Station 12+00 to Station 13+25	124'	8'/15'	Standard CIP wall
SR202L/SR802 TI Ramp 'N-E'	R10	East edge of Ramp 'N-E', between Ramp 'N-E' and Ellsworth Road Ramp 'A'	Station 77+50 to Station 83+31	581'	12'/21'	Standard CIP wall
SR202L/SR802 TI Ramp 'N-E'	R11	West edge of Ramp 'N-E', between Ramp 'N-E' and Ellsworth Road Ramp 'A'	Station 80+50 to Station 83+31	281'	13'/25'	Standard CIP wall

Table 37 – New Retaining Wall Summary (continued)

Alignment	Wall No.	Description	Approximate Station Limits	Approximate Wall Length	Average Wall Height/ Maximum Wall Height(1)	Wall Type(1)
SR 802 Mainline	R12	Westbound edge of SR 802, between SR 802 and Ellsworth Road Ramp 'A'	Station 44+75 to Station 52+45	762'	13'/21'	Standard CIP wall
SR802/SR202L TI Ramp 'N-E'	R13	East edge of Ramp 'N-E' at Ramp 'N-E' and SR 802 gore	Station 85+98 to Station 87+80	181'	17'/27'	Standard/specialty wall
SR 802 Mainline	R14	Eastbound edge of SR 802, between SR 802 and Ellsworth Road Ramp 'D'	Station 64+46 to Station 74+00	940'	11'/20'	Standard CIP wall
SR 802 Mainline	R15	Eastbound edge of SR 802, between SR 802 and Williams Field Road Ramp 'B'	Station 115+50 to Station 118+57	310'	5'/7'	Standard CIP wall
SR202L/SR802 TI Ramp 'N-E'	R16	East edge of Ramp 'N-E', south of Warner Road	Station 12+11.26 to Station 12+35	24'	9'/14'	Standard CIP wall
Ellsworth Road Ramp 'B'	R17	South edge of Ellsworth Road Ramp 'B', adjacent to R/W	Station 18+30 to Station 21+00	276'	5'/6'	Standard CIP wall
Ramp 'E-S'	R18	South edge of Ramp 'E-S', adjacent to box culvert	Station 9+34 to Station 11+20	186'	6'/8'	Standard CIP wall
Ramp 'E-S'	R19	North edge of Ramp 'E-S', adjacent to box culvert	Station 17+00 to Station 20+42	341'	9'/13'	Standard CIP wall

(1) Wall type may be impacted pending further noise analyses, structural analyses, and/or geotechnical investigations. MSE walls are a viable alternative to the Standard CIP walls at the locations noted in this table.

4.8.4 Noise Walls

A preliminary noise mitigation study was underway at the time of this report. The results of the noise study will be furnished in a separate document.

4.9 UTILITIES

During final design, each city and utility agency will receive and review the preliminary design plans for this project. Utility conflicts will be identified and resolved with cooperation from the affected agencies. Construction plans for the relocations or adjustments of the utilities will be developed by the responsible party.

The City of Mesa has water and sewer pipelines and communication conduits that will be impacted by the construction of the Ellsworth Road TI (16” water line and 10” sewer force main), and the Mountain Road underpass (16” water line and 12” sanitary sewer line). At the time of this report, the City of Mesa is installing new water, sewer and storm drain pipelines in Hawes and Ray Roads adjacent to and across the SR 202L and SR 802 corridors. This construction project also includes an 18” sewer stub-out, and 20” water line cap and curb stop, south of the Ray Road/Ellsworth Road intersection. A 20” water line is being planned along the west side of SR 802 between Ellsworth Road and Ray Road. City staff have indicated that this water line may extend west to Ray Road along the south side of Ellsworth Road Ramp ‘B’ either inside or just outside ADOT right-of-way. A 21” sanitary sewer is also planned along Ellsworth Road.

Other proposed City of Mesa utilities include an 18” sanitary sewer and 16” water line in Williams Field Road, a 20” water and a 24” water line in Crismon Road, a 12” water line in Signal Butte Road, and a 12” water line in Meridian Road.

The Salt River Project (SRP) has underground electric conduits that cross SR 202L throughout the study area. The freeway widening and SR202L/SR802 TI construction may impact some of these existing conduits located near Stations 2496+15, 2972+25, 3050+25, 3077+50, 3092+05, 3145+20, and 3200+10. The conduits at Station 3077+50 may need to be extended to the new right-of-way line.

The elevated portions of Ramps ‘W-S’ and ‘N-E’ will cross under the existing SRP 69kV overhead power lines that cross over the freeway corridor on the north side of Warner Road. Field survey of the two power poles at the crossing showed that the present height of the poles should be sufficient to maintain the minimum NESC vertical clearance requirements over the new roadways. Coordination with SRP regarding its maintenance access to the power poles at the freeway crossing must be conducted during final design. Execution of a *Consent to Use Agreement* with SRP is required prior to construction of the ramps.

Other SRP power lines that will be impacted by this project include the 12kV overhead distribution lines along Ellsworth Road, Signal Butte Road, and Meridian Road.

Three new power substations near the SR 802 corridor are in varying stages of planning, design and construction at the following locations: 1.) at the intersection of Mountain and Ray Roads; 2.) on the east side of Ellsworth Road just south of the mid-section line between Ray and Williams Field Roads; and, 3.) at the SW corner of Ellsworth and Williams Field Roads. The latter substation site is being planned primarily to service the Phoenix-Mesa Gateway Airport. A future 69kV transmission line is also being planned by SRP that would travel along Ellsworth Road and cross the SR 802 corridor.

Western Area Power Administration (WAPA) owns and operates a 230kV transmission power line on steel lattice towers that crosses the SR 802 corridor between Meridian Road and Ironwood Road. No conflict with this power line is anticipated.

The future storm water pump station along the north side of SR 802 will require electric and gas services. Electric service is available at Signal Butte Road from SRP. Presently, the nearest natural gas main is a Southwest Gas 4” steel high pressure main along Pecos Road. Southwest Gas staff has indicated that service to the pump station could be made available via the installation of a pressure reduction station at Pecos Road. Approximately 4,000’ of 4” gas line along Signal Butte Road would be required to service the pump station.

Utility survey (designation) and potholing will be required during final design to accurately locate the existing overhead and underground utilities within the project limits. Underground utilities along the cross streets may be impacted by the depressed portions of the freeway, as well as the proposed off-site drainage channel. In the event of horizontal or vertical conflicts, design modifications as well as utility relocations are the available options for their resolution.

4.10 EARTHWORK

Approximately 4.42 million cubic yards of excavation and 1.44 million cubic yards of borrow are anticipated to be needed for this project.

4.11 GEOTECHNICAL AND PAVEMENT DESIGN

4.11.1 Subsurface Conditions

In general, the predominantly firm to hard and weakly to moderately cemented finer-grained soils present throughout the alignment are considered suitable for supporting bridge and retaining wall structures with either spread-type foundations or drilled shaft foundations. Spread-type footing foundations typically are considered to be more economical than drilled shaft foundations, especially at relatively shallow excavation depths. Drilled shaft foundations are typically preferred in cases of high embankment fills or in cases where softer, moisture-sensitive soils are predominate at shallow depths. Drilled shafts will develop capacities predominantly in side shear resistance along the perimeters, with added capacity provided by end-bearing within the hard and cemented soils which are present at depth. Drilled shaft foundations may be the preferred foundation type for ramp bridges in the vicinity of the dairy operations located just north of the SR 202L at Hawes Road due to potential weakening of the near surface soils as a result of farming.

Consideration for needed subgrade modification of the near surface soils should be made for higher embankment fills or mechanically stabilized earth (MSE) walls which are constructed above existing site grades. The near-surface soils (upper 1’ to 3’) over most of the alignment are relatively soft, consisting of typical desert area unconsolidated surficial soils. Treatment of the near surface soils for at-grade and embankment fill roadway construction will likely be necessary for all mainline roadway, ramps, crossroad pavements and detours. Given the generally finer grained soils that are present near surface, relatively low design R-values are anticipated for subgrade support (likely 20 to 30).

Subsidence which has occurred within the project limits likely has been relatively broad and uniform. However, as fissures are known to exist in the general vicinity, ground subsidence and fissures should be addressed in more detail during the final design phase.

A topsoil evaluation was conducted for the segment of SR 802 between SR 202L and Ellsworth Road. The preliminary test results indicate the top 3'-5' of excavation would be suitable for use as topsoil plating with minor amendments. This should be considered during final design.

4.11.2 Pavement Structural Sections

The pavement used for the widening of SR 202, and the realignment of the ramps, will utilize the same pavement structural section as currently exists as shown in Table 9 on page 21.

The pavement structural sections for the SR 802 mainline, SR202L/SR802 TI directional ramps, and the SR 802 service interchange ramps, are provided in Table 38.

Table 38 – Pavement Structural Sections for SR 802

Item	AB-2 (in)	AC (Base Mix) (in)	Plain PCCP (in)	AR-ACFC (in)	Total Thickness (in)
Mainline SR 802: With At-Grade to Elevated Profile	4	-	13.0	1	18.0
Mainline SR 802: With Depressed Profile	-	4	13.0	1	18.0
SR 802 System and Service TI Ramps: With At-Grade to Elevated Profile	4	-	11.0	1	15.0
SR 802 Service TI Ramps With Depressed Profile	-	4	11.0	1	15.0
Ramp Gore Areas	4	-	11.0	-	15.0

4.12 FREEWAY SIGNING AND PAVEMENT MARKING

A signing concept plan was developed to ensure an effective guide signing plan could be developed for the Preferred Alternative. The goal of the signing plan is to provide clear advance guide signing for the SR 802 service TI's and the SR202L/SR802 TI, while maintaining the integrity of the existing signing schemes on the SR 202L. The concept signing plan is provided in Appendix C.

The existing signs and sign structures on SR 202L in conflict with SR 802 signing would be relocated or replaced. The final sign locations will be determined during the development of the final design plans and will consider existing and new locations of utilities, bridge structures, retaining and noise walls, drainage features, lighting standards, FMS components, and other appurtenances.

A pavement marking concept was also developed to incorporate the existing and new lane configurations for the general-purpose lanes, system interchange ramps, service interchange ramps, and local arterial streets and is included with the concept signing plan. The pavement marking design would be developed in accordance with applicable provisions of the current version of the ADOT *Signing and Marking Standard Drawings* that reference the requirements for lane lines, edge lines, gore striping, and intersection pavement markings.

4.13 LIGHTING AND TRAFFIC SIGNALS

The lighting concept was evaluated for the SR 202L/SR 802 TI, the SR 802 mainline, and the SR 802 TI's. The lighting concept is based on the *American National Standard Practice for Roadway Lighting*, ANSI/IES RP-8-00 (2000). This publication identifies nationally recognized design criteria for roadway lighting and has been adopted by ADOT. In addition, the following criteria listed in *An Informational Guide for Roadway Lighting*, AASHTO (1984) was used in the lighting analysis criteria:

- Average maintained horizontal illuminance for freeway lighting: 0.6 to 0.8 foot-candles (fc) on the roadway
- Minimum illuminance: 0.2 foot-candles
- Average to minimum uniformity ratio: 3:1 to 4:1
- Light loss factor (LLF) 0.81

The existing SR 202L freeway mainline lighting consists of horizontal mount, 400-watt, high pressure sodium fixtures on "I" poles with a 15' or 20' mast arm, along with underdeck fixtures at various locations. An exception to this typical lighting design exists in the vicinity of Phoenix-Mesa Gateway Airport, where the approach to Runway 12L crosses above SR 202L. Lower mounting heights and 150-watt high pressure sodium fixtures should be used in order to conform to FAA runway approach obstruction requirements.

The proposed lighting system concept for the SR 802 mainline will be based on using offset lighting along the outside in each direction of travel, and high mast lighting at the SR202L/SR802 TI and at the SR 802 service TI's. Additional poles and fixtures at the service interchanges will be needed to provide coverage of the ramps roadways. This lighting system would provide sufficient lighting levels for the roadway, while minimizing lighting impact on the surrounding communities.

Lighting analysis will also be required to evaluate the shadow effects of the freeway overpasses and underpasses, along with the use of underdeck lighting to enhance the roadway lighting beneath the bridge structures. Lighting design on the crossroads will conform to City of Mesa standards.

The design of the roadway lighting system for the segment of SR 202L adjacent to Phoenix-Mesa Gateway Airport will require special consideration. These light poles are subject to FAA requirements for runway approach surfaces. The height of the light poles must be evaluated to provide a lighting system that will meet the lighting requirements for the roadways, yet avoid penetrating into FAA regulated airspace for the runways. The lighting design at other locations is subject to FAA horizontal and conical surface requirements.

Traffic signals will be installed at each service interchange ramp intersection at Hawes Road, Ellsworth Road, Williams Field Road, Signal Butte Road, Meridian Road and Ironwood Road. The signal designs will conform to City of Mesa standards.

4.14 CONSTRUCTION PHASING AND TRAFFIC CONTROL

Traffic will be managed through detailed traffic control plans and by procedures and guidelines specified in Part VI of the *Manual of Uniform Traffic Control Devices* (MUTCD), 2003 Version, and by the Arizona Supplement to Part VI of the MUTCD. The final construction phasing and traffic control plans will be developed during final design.

The existing travel lanes and auxiliary lanes on SR 202L must remain open to traffic to the maximum extent possible. Limited weekend and night closures are preferred over obliteration and restriping of the travel lanes where practical. Existing mainline freeway traffic will be maintained with existing striping during construction to the maximum extent possible. All grading, drainage, pavement widening, bridge construction, sign structure foundations, and lighting system construction would be protected by temporary concrete barrier.

The service interchange ramps must remain open to traffic during construction, except for night and weekend closures.

The construction of the bridges at the new TI's may have an impact on the crossroad traffic. At these locations, the number of crossroad through and turning lanes would be required to be reduced during the bridge construction activities. Coordination will be required with the City of Mesa to determine the project phasing restrictions that will be used for this project. These restrictions could include limits to crossroad lane reductions due to City of Mesa concerns about arterial street capacity, freeway access, and emergency vehicle access.

Access to existing properties will be maintained at all times. The final construction phasing and traffic control plans will be prepared during final design.

4.15 FREEWAY MANAGEMENT SYSTEMS AND MULTIMODAL PLANNING DATA COLLECTION

Freeway Management System (FMS) components conforming to ADOT TTG standards will be installed in order to incorporate SR 802 into the planned FMS system. The roadway projects will install the FMS conduit duct banks, pull boxes and loop detectors. All other FMS telecommunications lines and devices will be provided with a separate ITS project in the future.

Traffic counting equipment and weigh-in-motion equipment conforming to ADOT MPD standards will be installed on SR 802 in order to facilitate traffic data collection.

4.15.1 FMS Communications and Trunk Line

A trunkline conduit system consisting of three 3" conduits will be installed along the eastbound and westbound roadways as close as practicable to the right-of-way lines. The new trunkline will connect to the existing conduit duct bank at the Hawes Road TI. The conduit duct bank will be installed parallel to the ramps and cross under the crossroad at each service interchange. The FMS telecommunications lines will be provided with a separate ITS project in the future.

4.15.2 FMS Devices

Pull boxes, junction boxes, detector loops, and pole foundations will be installed at each service interchange entrance ramp in support of ramp metering. Surveillance traffic detectors will be installed in the mainline traffic lanes every mile.

DMS signs will ultimately be installed on the approaches to the SR202L/SR802 TI, and on the SR 802 near Mountain Road.

CCTV cameras will ultimately be installed at the SR202L/SR802 TI and near each service interchange to provide video coverage of all freeway travel lanes.

The exact locations of the FMS devices will be determined during the final design process in coordination with ADOT TTG.

4.15.3 MPD Devices

Traffic counting loops will be installed in the SR 802 eastbound and westbound traffic lanes between each service interchange. Additional loops will be installed in each traffic lane on the SR202L/SR802 TI directional ramps.

MPD is evaluating the possibility of installing weigh-in-motion equipment on the SR 802 mainline between the Ellsworth Road TI and the Williams Field Road TI. The installation of this equipment will be funded by MPD.

4.16 PHOENIX-MESA GATEWAY AIRPORT COORDINATION

A portion of this project is located within the Federal Aviation Administration regulated airspace for the existing runways at Phoenix-Mesa Gateway Airport. An initial evaluation indicates that the existing and proposed freeway improvements would not occur within the Federal Aviation Regulation (FAR) Part 77 Navigable Airspace for the airport runways in either their current or ultimate configuration. The initial evaluation also indicates that the existing and proposed freeway improvements would not occur within the One-Engine Inoperative (OEI) surface for the airport runways in their current configuration. Eight existing light poles would penetrate into the OIE surface when the runways are extended in the future in accordance with the *Phoenix-Mesa Gateway Airport Master Plan* (2006).

Federal Aviation Administration (FAA) Form 7460-1 must be submitted to the FAA for their evaluation of any permanent or temporary penetrations of the Part 77 surface. All potential permanent and temporary encroachments into the Part 77 navigable airspace should be evaluated during the final design and construction phases of this project. The design of the freeway lighting and sign structures must also avoid penetrations of the OEI surface for the future runway conditions as presented in the airport master plan.

Significant coordination has occurred with representatives of PMGA during this study that has resulted in their support of the Preferred Alternative that includes the reconfiguration of the existing lighting system in consideration of the future expansion of the airport runways. This cooperative effort has also resulted in the FAA's "Determination of No Hazard" for this project.

Continued coordination with PMGA and the FAA will be required during the final design of this project to coordinate airspace, access, right-of-way acquisition, and construction phasing issues.

5.0 ITEMIZED ESTIMATE OF PROBABLE COSTS

5.1 OVERALL PROJECT COST ESTIMATE

The order of magnitude of project cost for the Preferred Alternative is $513,661,000 which includes $24,822,000 for design, $115,655,000 for right-of-way, and $373,184,000 for construction as shown in Table 39. The total project estimate includes approximately $471,474,000 for the segment of SR 802 within Maricopa County and $42,187,000 for the segment within Pinal County.

The funding identified in the MAG Area Life-Cycle Program (Phases 1 through 5) includes a total project budget of approximately $463 million for the segment of SR 802 within Maricopa County. Additional funding would need to be provided by Pinal County (or other sources) for the segment of SR 802 from Meridian Road to Ironwood Road, since that segment of the freeway is located outside of Maricopa County and is not eligible for RTP funds.

The estimated unit costs are based on the unit prices obtained from recent ADOT bid results. The estimated costs for right-of-way were provided by ADOT's Right-of-Way Group.

Recommended individual projects with their estimated costs are included in Chapter 6 with the Implementation Plan.

Table 39 – Estimate of Probable Project Cost for Preferred Alternative

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	31,292	6.00	187,800
2020027	REMOVAL OF CONCRETE BARRIER	L.FT.	17,636	10.00	176,400
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	28,422	15.00	426,400
2020034	REMOVAL OF SIGNS	L.SUM	1	10,800.00	10,800
2020053	REMOVE (ANNENUATORS)	EACH	10	3,000.00	30,000
2020071	REMOVE GUARDRAIL	L.FT.	2,500	5.00	12,500
2020201	SAW CUTTING	L.FT.	5,000	4.00	20,000
2030301	ROADWAY EXCAVATION	CU.YD.	3,675,219	6.00	22,051,400
2030401	DRAINAGE EXCAVATION	CU.YD.	364,588	3.00	1,093,800
2030451	CHANNEL EXCAVATION	CU.YD.	375,144	6.00	2,250,900
2030900	BORROW (IN PLACE)	CU.YD.	1,440,855	10.00	14,408,600
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	78,219	20.00	1,564,400
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	15,562	18.00	28,300
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	217,790	30.00	6,533,700
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	42,581	35.00	1,490,400
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12" PCCP OVER 4" AB)	SQ.YD.	24,277	40.00	971,100
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	266,777	40.00	10,671,100
4010023	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AC)	SQ.YD.	176,737	45.00	7,953,200
406XX01	ASPHALTIC CONCRETE (7" AC OVER 10" AB)	SQ.YD.	47,957	30.00	1,438,800
414XX02	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	565,771	5.00	2,828,900
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	895	110.00	98,500
5011024	PIPE, REINFORCED CONCRETE, CLASS IV, 24"	L.FT.	492	70.00	34,500
5011025	PIPE, REINFORCED CONCRETE, CLASS V, 24"	L.FT.	1,028	75.00	77,100
5011034	PIPE, REINFORCED CONCRETE, CLASS IV, 30"	L.FT.	198	75.00	14,900
5012524	STORM DRAIN PIPE, 24"	L.FT.	35,831	60.00	2,149,900
5012530	STORM DRAIN PIPE, 30"	L.FT.	2,305	80.00	184,400
5012536	STORM DRAIN PIPE 36"	L.FT.	1,544	100.00	154,400
5012548	STORM DRAIN PIPE, 48"	L.FT.	1,340	90.00	120,600
5012554	STORM DRAIN PIPE 54"	L.FT.	1,190	140.00	166,600
5012560	STORM DRAIN PIPE 60"	L.FT.	5,525	160.00	884,000
5014024	FLARED END SECTION, 24" (C-13.25)	EACH	14	400.00	5,600
5014030	FLARED END SECTION, 30" (C-13.25)	EACH	1	500.00	500
5014036	FLARED END SECTION, 36" (C-13.25)	EACH	1	500.00	500
5030021	CONCRETE CATCH BASIN (C-15.20)(ONE 3.5' WING, H=8' OR LESS)	EACH	57	3,200.00	182,400
5030023	CONCRETE CATCH BASIN (C-15.20)(ONE 7.5' WING, H=8' OR LESS)	EACH	2	3,500.00	7,000
5030142	CONCRETE CATCH BASIN (C=15.80)(H=8' OR LESS)	EACH	47	2,800.00	131,600
5030604	CONCRETE CATCH BASIN (C-15.91)(H=8' OR LESS)	EACH	172	3,200.00	550,400
5030606	CONCRETE CATCH BASIN (C-15.92)(H=8' OR LESS)	EACH	79	3,500.00	276,500
5050021	MANHOLE (C-18.10)(NO. 2)(FOR PIPES 6" TO 36")	EACH	31	3,500.00	108,500
5050024	MANHOLE (C-18.10)(NO. 2)(FOR PIPE OVER 36")	EACH	2	4,000.00	8,000
5050031	MANHOLE (C-18.10)(NO. 3)(FOR PIPES 6" TO 36")	EACH	48	3,500.00	168,000
5050032	MANHOLE (C-18.10)(NO. 3)(FOR PIPES OVER 36")	EACH	28	5,500.00	154,000
6060046	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 2F)	EACH	1	54,000.00	54,000
6060048	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	7	110,000.00	770,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' 1" TO 70')	EACH	9	15,000.00	135,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE(TAPERED TUBE)	EACH	18	7,500.00	135,000
6060076	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 2F)	EACH	2	7,500.00	15,000
6060079	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	14	8,000.00	112,000
6060133	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	6	40,000.00	240,000
6060134	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	25	41,000.00	1,025,000
6060256	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	6	7,500.00	45,000
6060257	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	25	4,900.00	122,500
6061001	SIGN MOUNT ASSEMBLY(FOR BRIDGE FASCIA)	EACH	3	3,000.00	9,000
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	861	25.00	21,600
6070006	BREAKAWAY SIGN POST W8x18	L.FT.	72	48.00	3,500
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	68	280.00	19,100
6070026	FOUNDATION FOR BREAKAWAY SIGN POST W8x18	EACH	4	700.00	2,800
6070038	SLIP BASE	EACH	91	150.00	13,700
6070040	SLIP BASE SIGN POST (P-2)	EACH	7	150.00	1,100
6070049	FOUNDATION FOR SIGN POST	EACH	30	180.00	5,400
6070057	SIGN POST (PERFORATED)(2 1/2 T)	L.FT.	1,547	12.00	18,600
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	95	180.00	17,100
6080004	REGULATORY, WARN, OR MARKER SIGN PANEL W/TYP VIII/IX/X SHEET	SQ.FT.	1,426	14.00	20,000
6080018	EXTRUDEDED ALUMINUM SIGN PANEL	SQ.FT.	9,954	18.00	179,200
6080064	EXTRUDED ALUMINUM SIGN PANEL WITH TYPE VIII/IX/X SHEET	SQ.FT.	4,154	18.00	74,800
6080105	RELOCATE SIGNS	EACH	1	2,000.00	2,000
7015041	TEMPORARY PAINTED MARKING (ARROW, SYMBOL OR LEGEND)	EACH	354	35.00	12,400
7015042	TEMPORARY PAINTED MARKING (STRIPE)	L.FT.	438,010	0.08	35,100
7015052	OBLITERATE PAINTED MARKING (STRIPE)	L.FT.	125,418	0.35	43,900

Table 39 – Estimate of Probable Project Cost for Preferred Alternative (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
7030095	MILEPOST MARKER (S-10)	EACH	20	220.00	4,400
7040070	PAVEMENT MARKING WHITE THERMOPLASTIC)(0.090")	L.FT.	596,825	0.20	119,400
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC)(0.090")	L.FT.	315,863	0.20	63,200
7040072	PAVEMENT MARKING (TRANSVERSE)(THERMOPLASTIC)(ALKYD)(0.090")	L.FT.	19,404	0.40	7,800
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC)(ALKYD)(0.090")	EACH	71	110.00	7,900
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC)(ALKYD)(0.090")	EACH	246	100.00	27,100
7050021	PAVEMENT MARKING PREFORMED, TYPE 1, YELLOW STRIPE	L.FT.	70,868	3.45	244,500
7050022	PAVEMENT MARKING PREFORMED, TYPE 1, WHITE STRIPE	L.FT.	380,341	3.45	1,312,200
7050029	PAVEMENT MARKING PREFORMED, TYPE 1, SYMBOL	EACH	63	250.00	15,800
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	23,582	3.25	76,700
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	7,672	2.75	21,100
7080001	PERMANENT PAVEMENT MARKING (PAINTED)(WHITE)	L.FT.	137,821	0.10	13,800
7080011	PERMANENT PAVEMENT MARKING (PAINTED)(YELLOW)	L.FT.	67,485	0.10	6,800
7080101	PERMANENT PAVEMENT MARKING (PAINTED SYMBOL)	EACH	26	28.00	800
7310162	POLE (TYPE T)(50 FT.)	EACH	110	3,000.00	330,000
7310170	POLE (TYPE U)	EACH	4	4,000.00	16,000
7310178	POLE (FOR 80 FT. HIGH MAST)	EACH	25	6,000.00	150,000
7310180	POLE (FOR 100 FT. HIGH MAST)	EACH	51	11,000.00	561,000
7310182	POLE (FOR 120 FT. HIGH MAST)	EACH	36	10,000.00	360,000
7310186	POLE (SPECIAL)(32 FT. POLE)	EACH	39	1,500.00	58,500
7310341	POLE FOUNDATION(TYPE T)(40 FT. THRU 55 FT.)	EACH	110	3,000.00	330,000
7310350	POLE FOUNDATION (TYPE U)	L.FT.	4	4,000.00	16,000
7310358	POLE FOUNDATION (FOR 80 FT. HIGH MAST)	EACH	25	10,000.00	250,000
7310360	POLE FOUNDATION (FOR 100 FT. HIGH MAST)	EACH	51	5,000.00	255,000
7310362	POLE FOUNDATION (FOR 120 FT. HIGH MAST)	EACH	36	12,000.00	432,000
7310371	POLE FOUNDATION (32 FT. POLE)	EACH	39	2,000.00	78,000
7310630	HIGH MAST RAISING AND LOWERING DEVICE	EACH	112	5,000.00	560,000
7310710	TWIN LUMINAIRE BRACKET	EACH	6	200.00	1,200
7320050	ELECTRICAL CONDUIT (2")(PVC)	L.FT.	88,430	10.00	884,300
7320055	ELECTRICAL CONDUIT (2")(PVC)(DIRECTIONAL DRILLED)	L.FT.	760	40.00	30,400
7320070	ELECTRICAL CONDUIT (3")(PVC)	L.FT.	1,600	10.00	16,000
7320072	ELECTRICAL CONDUIT (3 - 3")(PVC)	L.FT.	62,540	10.00	625,400
7320090	ELECTRICAL CONDUIT (4")(PVC)	L.FT.	40	20.00	800
7320410	PULL BOX(NO. 5)	EACH	279	400.00	111,600
7320421	PULL BOX (NO. 7)(WITH EXTENSION)	EACH	60	600.00	36,000
7320455	PULL BOX (NO. 9)	EACH	43	2,600.00	111,800
7320456	PULL BOX (BARRIER)	EACH	4	500.00	2,000
7320520	CONDUCTOR(NO. 8)	L.FT.	757,720	0.50	378,900
7320585	CONDUCTOR (INSULATED BOND)(NO. 8)	L.FT.	88,530	0.50	44,300
7330997	TRAFFIC SIGNAL (WILLIAMS FIELD RD TI)	L.SUM	1	233,000.00	233,000
7330998	TRAFFIC SIGNAL (SIGNAL BUTTE RD TI)	L.SUM	1	232,000.00	232,000
7330999	TRAFFIC SIGNAL (IRONWOOD RD TI)	L.SUM	1	228,000.00	228,000
7330999	TRAFFIC SIGNAL (MERIDIAN RD TI)	L.SUM	1	226,000.00	226,000
7330999	TRAFFIC SIGNAL (HAWES RD TI)	L.SUM	1	150,440.00	150,440
7330999	TRAFFIC SIGNAL (ELLSWORTH RD TI)	L.SUM	1	223,000.00	223,000
7360060	LUMINAIRE (VERTICAL MOUNT)(250 WATT)	EACH	39	500.00	19,500
7360070	LUMINAIRE (VERTICAL MOUNT)(400 WATT)	EACH	110	500.00	55,000
7360080	LUMINAIRE (HIGH MAST)(HPS 400 WATT)	EACH	454	600.00	272,400
7360235	LOAD CENTER CABINET (METER PEDESTAL)	EACH	2	5,000.00	10,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	2	1,000.00	2,000
7360241	LOAD CENTER CABINET (TYPE IV)(240/480 VOLT)	EACH	4	10,000.00	40,000
7360290	LOAD CENTER CABINET FOUNDATION	EACH	4	1,000.00	4,000
8040001	TOPSOIL PLATING	CU.YD.	503,239	10.00	5,032,400
8050021	SEEDING	ACRE	35	2,000.00	70,000
8080099	LANDSCAPING	ACRE	155	30,250.00	4,688,800
8082116	16" DUCTILE IRON PIPE, WATER LINE	L.FT.	950	200.00	190,000
8090186	10" DUCTILE IRON PIPE, SEWER FORCE MAIN	L.FT.	150	250.00	37,500
8090187	12" DUCTILE IRON PIPE, SEWER LINE	L.FT.	700	180.00	126,000
8090703	24" STEEL CASING	L.FT.	100	240.00	24,000
8090704	30" STEEL CASING	L.FT.	100	300.00	30,000
9020014	CHAIN LINK FENCE, TYPE 1 (72")	L.FT.	87,988	5.00	440,000
9040201	MEDIAN CABLE BARRIER	L.FT.	25,929	15.00	389,000
9040221	MEDIAN CABLE BARRIER ANCHOR	EACH	26	2,500.00	65,000
9040223	MEDIAN CABLE BARRIER END TERMINAL	EACH	26	2,500.00	65,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	38	4,000.00	152,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	38	4,500.00	171,000
9080084	CONCRETE CURB AND GUTTER	L.FT.	104,487	15.00	1,567,400
9080085	CONCRETE CURB AND GUTTER (TYPE D, STD C-05.20)	L.FT.	16,842	15.00	253,000
9080086	CONCRETE SINGLE CURB (TYPE A-1, STD C-05.10)	L.FT.	12,443	15.00	186,700
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220)	L.FT.	9,277	15.00	139,200
9080108	CONCRETE SINGLE CURB (MAG DET. 222)(TYPE A)	L.FT.	8,068	15.00	121,100
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	93,090	15.00	1,396,400
9080296	CONCRETE SIDEWALK RAMP TYPE B (C-05.30)	EACH	40	1,000.00	40,000
9080298	CONCRETE SIDEWALK RAMP TYPE F (C-05.30)	EACH	10	800.00	8,000

Table 39 – Estimate of Probable Project Cost for Preferred Alternative (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
9100000	CONCRETE BARRIER (SINGLE FACE WITH 2.5' GUTTER)	L.FT.	33,314	60.00	1,998,900
9100002	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	50,247	60.00	3,014,900
9100009	CONCRETE BARRIER (ADJACENT TO RETAINING WALL)(2.5' GUTTER)	L.FT.	3,115	75.00	233,700
9100012	CONCRETE BARRIER (ADJACENT TO RETAINING WALL)(4.5' GUTTER)	L.FT.	3,641	75.00	273,100
9100201	CONCRETE MEDIAN BARRIER	L.FT.	807	75.00	60,600
9110001	RIGHT-OF-WAY MARKER	EACH	191	1,000.00	191,000
9140153	RETAINING WALL (REGULAR)	SQ.FT.	84,396	55.00	4,641,800
9140155	RETAINING WALL (SPECIALTY)	SQ.FT.	15,568	75.00	1,167,600
9201006	CONCRETE CHANNEL LINING (6")	SQ. YD.	208,345	50.00	10,417,300
9240051	MISC. WORK (WASTEWATER BYPASS PUMPING OPERATIONS)	L.SUM	1	250,000.00	250,000
9240077	MISC. WORK (WATER SYSTEM LINE STOPPING & BYPASSING)	L.SUM	1	300,000.00	300,000
9240100	MISCELLANEOUS WORK (SIGNAL BUTTE LIFT STATION)	L.SUM	1	4,800,000.00	4,800,000
9240119	MISCELLANEOUS WORK (HIGH MAST POLE MAINTENANCE PAD)	EACH	54	2,000.00	108,000
9999903A	SIDE WEIR SPILLWAY INTO ELLSWORTH BASIN	L.SUM	1	309,400.00	309,400
9999903B	RCB CULVERT (4 -10' X 8' X 180')(ELLSWORTH RD)	L.SUM.	1	549,100.00	549,100
9999903C	RCB CULVERT (3 -8' X 7' X 586')(RAMP ES - SANTAN CHANNEL)	L.SUM.	1	1,020,122 .00	1,020,122
9999903D	RCB CULVERT (3 -8' X 7' X 895)(RAMP NE - SANTAN CHANNEL)	L.SUM.	1	1,407,200.00	1,407,200
9999903E	RCB CULVERT (3 -8 X 6' X 140')(RAMP NE)	L.SUM.	1	304,200.00	304,200
9999903F	RCD CULVERT (4 -10' X 4' X 65') ELLSWORTH BASIN)	L.SUM	1	151,600.00	151,600
9999903G	RCB CULVERT (3 -12' X 8' X 200')(WILLIAMS FIELD RD)	L.SUM.	1	563,400.00	563,400
9999903H	RCB CULVERT (3 -8' X 8' X 200')(CRISMON RD)	L.SUM.	1	371,600.00	371,600
9999903I	RCB CULVERT (3 -8' X 8' X 180') SIGNAL BUTTE RD)	L.SUM.	1	377,900.00	377,900
9999903J	RCB CULVERT (1 -8' X 8' X 1000')(SIGNAL BUTTE LIFT STATION STORAGE)	L.SUM.	1	805,000.00	805,000
9999903K	RCB CULVERT (3 -8' X 8' X 110')(MOUNTAIN RD)	L.SUM.	1	226,700.00	226,700
9999903L	RCB CULVERT (3 -8' X 8' X 191')(MERIDIAN RD)	L.SUM.	1	355,100.00	355,100
9999903M	RCB CULVERT (2 -8' X 6' X 173')(IRONWOOD RD)	L.SUM.	1	194,400.00	194,400
9999910A	SOSSAMAN OVERPASS EB (WIDEN)	L.SUM	1	375,300.00	375,300
9999910B	SOSSAMAN OVERPASS WB (WIDEN)	L.SUM	1	375,300.00	375,300
9999910C	RAMP E-S OVER HAWES ROAD	L.SUM	1	967,500.00	967,500
9999910D	RAMP N-W OVER SR 202L	L.SUM	1	8,108,800.00	8,108,800
9999910E	RAMP W-S OVER WARNER ROAD	L.SUM	1	1,196,200.00	1,196,200
9999910F	RAMP W-S OVER SR 202L	L.SUM	1	8,461,900.00	8,461,900
9999910G	RAMP N-E OVER WARNER ROAD	L.SUM	1	979,600.00	979,600
9999910H	RAY ROAD OVERPASS (SR 802 EB & WB)	L.SUM	1	4,011,700.00	4,011,700
9999910I	POWERLINE FLOODWAY OVERPASS (SR 802 EB & WB)	L.SUM	1	4,880,800.00	4,880,800
9999910J	POWER ROAD TIOP EB (WIDEN)	L.SUM	1	508,900.00	508,900
9999910K	POWER ROAD TIOP WB (WIDEN)	L.SUM	1	508,900.00	508,900
9999910L	POWER ROAD RAMP C (WIDEN)	L.SUM	1	557,700.00	557,700
9999910M	EAST MARICOPA FLOODWAY OVERPASS EB (WIDEN)	L.SUM	1	908,900.00	908,900
9999910N	EAST MARICOPA FLOODWAY OVERPASS WB (WIDEN)	L.SUM	1	908,900.00	908,900
9999910O	ELLSWORTH RAMP B CONNECTOR OVER HAWES RD	L.SUM	1	794,900.00	794,900
9999910P	ELLSWORTH RAMP B CONNECTOR OVER RAY RD	L.SUM	1	745,300.00	745,300
9999910Q	ELLSWORTH RAMP A CONNECTOR OVER RAY RD	L.SUM	1	1,871,600.00	1,871,600
9999910R	ELLSWORTH RAMP B CONNECTOR OVER POWERLINE FLOODWAY	L.SUM	1	1,036,500.00	1,036,500
9999910S	RAMP N-E OVER POWERLINE FLOODWAY	L.SUM	1	1,548,700.00	1,548,700
9999910T	ELLSWORTH RAMP A CONNECTOR OVER POWERLINE FLOODWAY	L.SUM	1	1,042,600.00	1,042,600
9999910U	RAMP N-E OVER ELLSWORTH RD RAMP A	L.SUM	1	1,147,000.00	1,147,000
9999910V	ELLSWORTH ROAD OVERPASS(SR 802 EB)	L.SUM	1	2,223,300.00	2,223,300
9999910W	ELLSWORTH ROAD OVERPASS (SR 802 WB)	L.SUM	1	2,223,300.00	2,223,300
9999910X	WILLIAMS FIELD ROAD TI OVERPASS	L.SUM	1	3,626,100.00	3,626,100
9999910Y	CRISMON ROAD OVERPASS	L.SUM	1	4,309,000.00	4,309,000
9999910Z	SIGNAL BUTTE ROAD TI UNDERPASS	L.SUM	1	3,739,400.00	3,739,400
9999910AA	MOUNTAIN ROAD UNDERPASS	L.SUM	1	2,387,600.00	2,387,600
9999910BB	MERIDIAN ROAD TI UNDERPASS	L.SUM	1	4,043,200.00	4,043,200
				ITEM TOTAL	**205,032,400**
PROJECT WIDE					
	Maintenance and Protection of Traffic (5%)	COST			10,252,000
	Dust and Water Palliative (2%)	COST			4,101,000
	Quality Control (2%)	COST			4,101,000
	Construction Surveying (4%)	COST			8,202,000
	Erosion Control (1%)	COST			2,051,000
	Mobilization (8% of all construction items)	COST			24,822,000
				PROJECT WIDE SUBTOTAL	**53,529,000**
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST			51,713,000
				PROJECT WIDE TOTAL	**105,242,000**

Table 39 – Estimate of Probable Project Cost for Preferred Alternative (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
OTHER COST					
	Construction Engineering (9%)	COST			27,925,000
	Construction Contingencies (5%)	COST			15,514,000
	Indirect Cost Allocation (5.19%)	COST			16,104,000
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST			24,822,000
	Environmental Mitigation (Unknown at this time)	COST			-
	PCCP Quality Incentive	COST			934,900
	AR-ACFC Smoothness Incentive	COST			841,300
	Right-of-Way	COST			115,655,373
	Utility Relocation	COST			1,590,000
				OTHER COST TOTAL	203,306,573

SUMMARY	
ITEM TOTAL	205,032,400
PROJECT WIDE	105,242,000
OTHER COST TOTAL	203,306,573
PROJECT COST TOTAL	513,660,973

5.2 ESTIMATE OF FUTURE MAINTENANCE COSTS

Table 40 – Estimate of Future Maintenance Costs for Preferred Alternative

Annual Maintenance Cost Per Lane Mile Using PeCoS Latest FY Data[1]	
Category	**Metropolitan Phoenix**
1. Paved Surfaces & Shoulders	600
2. Roadside	3,070
3. Drainage & Environmental	300
4. Rest Areas	
5. Traffic Operations - Signal & Lighting; Signing & Striping - ITS	1,030
6. Landscaping	6,720
7. Winter Storms	
8. Emergency Response	130
9. Miscellaneous Maintenance[2]	2,400
10. Support and Other Operating Expenses	3,150
11. Other Specialty Items[3]	
MCL = Maintenance Cost per Lane Mile	**$17,400**
Annual Maintenance Cost of Project at PA/DCR Phase	**Metropolitan Phoenix[6]**
PW = Total Pavement Width[4]	12
NL = Number of 12-ft Wide Miles	1
LP = Length of Project in Miles	57
PMC = Current Project Maintenance Cost	**$991,800**
Annual Maintenance Cost of Project at Beginning of Maintenance Phase	**Metropolitan Phoenix[6]**
IF = Inflation Factor[5]	1.058
N = Number of Years to Maintenance Phase	5
PMCI = Project Maintenance Cost including Inflation	**$1,314,778**

Notes:
1- Lane mile width is 12 ft, Total maintenance lane miles = 27,722 miles
Metropolitan Phoenix maintenance lane miles = 2016 miles, Other Locations = 25,706 miles
2- Miscellaneous maintenance include building and yard maintenance, work for other divisions, training, material handling, vegetation control and contract administration for categories not considered in the maintenance cost breakdown
3- For Other Specialty Items, contact Central Maintenance.
4- Total pavement width includes the main line, ramps and shoulders.
5- Based on increase in maintenance costs of 76% over the last 10 years

6.0 IMPLEMENTATION PLAN

6.1 INTRODUCTION

This Implementation Plan was developed to propose a logical sequence of construction projects that will systematically build the Preferred Alternative over time as funding becomes available. The individual projects will continue to allow the traveling public to use the facility yet minimize “throw-away” costs.

The Preferred Alternative will be constructed with three separate phases. The Phase 1 project will include the segment of SR 802 between SR 202L and Ellsworth Road, including the construction of most of the elements of the SR202L/SR802 TI. Phase 2 will construct the remaining elements of the SR202L/SR802 TI, and will extend the ultimate SR 802 improvements to Meridian Road. Phase 3 will extend the SR 802 improvements from Meridian Road to Ironwood Road within Pinal County.

The Arizona Transportation Board has approved funding in the ADOT Five-Year Transportation Facilities Construction Program in Fiscal Year (FY) 2010 to begin the final design and right-of-way acquisition for the segment of SR 802 between SR 202L and Ellsworth Road. Construction funding for this project is currently included in the RTPFP in FY 2016. However, the City of Mesa will advance the construction of this project to FY 2012 with local funds.

The funding identified in the MAG Area Life-Cycle Program includes a total project budget of \$203,300,000 (in RTPFP Phases 2-4) for the segment of SR 802 between SR 202L and Ellsworth Road. The extension of SR 802 from Ellsworth Road to Meridian Road is identified in the RTPFP in Phase 5 (2026 - 2031) with a total project budget of \$259,500,000. The segment of SR 802 from Meridian Road to Ironwood Road is located within Pinal County and is currently unfunded.

The total estimated design, construction and right-of-way costs for each of the implementation phases are summarized in Table 41.

Table 41 – Estimated Design, Construction and Right-of-Way Costs by Phase (Preferred Alternative)

Construction Phase	Estimated Design Cost (thousands)	Estimated Construction Cost (thousands)	Estimated Right-of-Way Cost (thousands)	Estimated Total Project Cost (thousands)
Phase 1	$9,045	$135,513	$50,800	$195,358
Phase 2	$14,011	$210,881	$51,255	$276,147
Phase 3	$1,769	$26,818	$13,600	$42,187

6.2 PHASE 1 – SR 202L TO ELLSWORTH ROAD

Description

The Phase 1 project will build the majority of the elements of the ultimate SR202L/SR802 TI, widen SR 202L between the east Power Road ramps and the SR202L/SR802 TI, realign the westbound Elliot Road entrance ramp, build a portion of the ultimate SR 802 mainline between SR 202L and Ellsworth Road, construct the Ellsworth Road TI Ramps ‘A’ and ‘B’, and reconstruct Ellsworth Road as depicted in Figure 26 (page 90). The goal of this project is to provide access between SR 202L and Ellsworth Road by maximizing the use of the ultimate freeway improvements.

The SR202L/SR802 TI directional ramps will be constructed to their ultimate two lane ramp widths. However, the directional ramps will operate as single-lane ramps until SR 802 is extended east to Meridian Road with the Phase 2 project. The directional ramps will be re-striped to provide two lane directional ramps at that time.

The ultimate offsite drainage system will be constructed north of the Powerline Floodway, including the ultimate infield grading within the SR202L/SR802 TI infield areas. The Ellsworth Road basin will also be constructed with the Phase 1 project, including the box culvert at Ellsworth Road that will support the future extension of the north drainage channel to the east.

No improvements will be made to the Powerline Floodway. Therefore, the Ellsworth Road basin will function as a retention basin at the completion of the Phase 1 project. The SR 202L mainline bridge structures that pass over the Powerline Floodway will be designed to accommodate the ultimate configuration of the Powerline Floodway channel.

Estimated Project Costs

The estimated construction cost for Phase 1 is approximately \$135,513,000. The order of magnitude cost estimate is provided in Table 42 (page 93).

Right-of-Way Requirements

The property acquisition for the Phase 1 project would include all of the new right-of-way required for the Preferred Alternative between SR 202L and Ellsworth Road. No right-of-way acquisition would occur from properties east of Ellsworth Road.

The new right-of-way needed for the Powerline Floodway Channel improvements would occur with the Phase 2 project to align with the channel construction activity.

The estimated right-of-way acquisition area is approximately 159 acres, with an estimated right-of-way cost is approximately \$50,800,000.

6.3 PHASE 2 – ELLSWORTH ROAD TO MERIDIAN ROAD

Description

The Phase 2 project will build the remaining elements of the ultimate SR202L/SR802 TI, widen SR 202L between Recker Road and the east Power Road ramps, widen SR 202L between the SR202L/SR802 TI and Guadalupe Road, and extend the SR 802 mainline improvements east to Meridian Road as depicted in Figure 27 (page 91).

The SR202L/SR802 TI directional ramps will be striped to their ultimate two lane ramp configurations to match the SR 802 mainline configuration heading to the east. The Ellsworth Road Connector Ramps 'A' and 'B' will be constructed to continue to provide full freeway access to Ellsworth Road.

The ultimate offsite drainage channel will be constructed north of SR 802 between the Powerline Floodway and Meridian Road. The Ellsworth Road basin will be modified to function as an off-line retention and water quality basin. A pump station will be provided to pump freeway on-site runoff into the north drainage channel. The Powerline Floodway will be widened to its ultimate configuration.

Estimated Project Costs

The estimated construction cost for Phase 2 is approximately $210,881,000. The order of magnitude cost estimate is provided in Table 43 (page 94).

Right-of-Way Requirements

The property acquisition for the Phase 2 project will include all of the new right-of-way required for the Preferred Alternative between Ellsworth Road and Meridian Road. The right-of-way needed for the Powerline Floodway Channel improvements will also be acquired with this project.

The estimated right-of-way acquisition area is approximately 304 acres, with an estimated right-of-way cost is approximately $51,255,000.

6.4 PHASE 3 – MERIDIAN ROAD TO IRONWOOD ROAD

Description

The Phase 3 project will extend the ultimate freeway improvements from Meridian Road to Ironwood Road as depicted in Figure 28 (page 92).

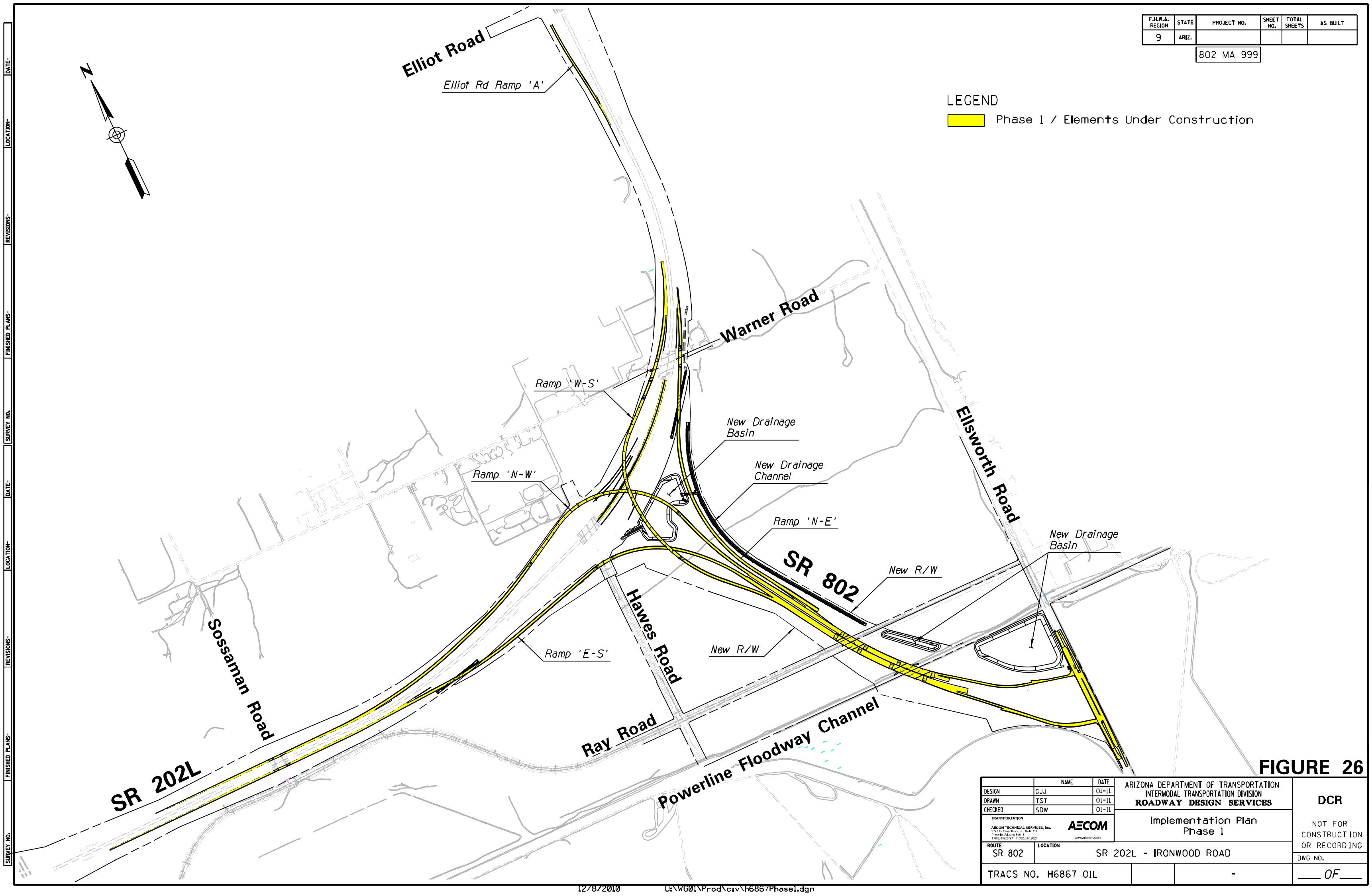
Estimated Project Costs

The estimated construction cost for Phase 3 is approximately $26,818,000. The order of magnitude cost estimate is provided in Table 44 (page 96).

Right-of-Way Requirements

The property acquisition for the Phase 3 project would include all of the new right-of-way required for the Preferred Alternative between Meridian Road and Ironwood Road.

The estimated right-of-way acquisition area is approximately 80 acres, with an estimated right-of-way cost is approximately $13,600,000.


F.H.W.A. REGION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
9
ARIZ.
802 MA 999
LEGEND
Phase 1 / Elements Under Construction
Elliot Road
Elliot Rd Ramp 'A'
Warner Road
Ramp 'W-S'
Ramp 'N-W'
New Drainage Basin
New Drainage Channel
Ramp 'N-E'
Ellsworth Road
SR 802
New R/W
New Drainage Basin
Ramp 'E-S'
New R/W
Hawes Road
Sossaman Road
Ray Road
Powerline Floodway Channel
SR 202L
FIGURE 26
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
DCR
AECOM
Implementation Plan
Phase 1
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO.
TRACS NO. H6867 01L
OF
12/8/2010
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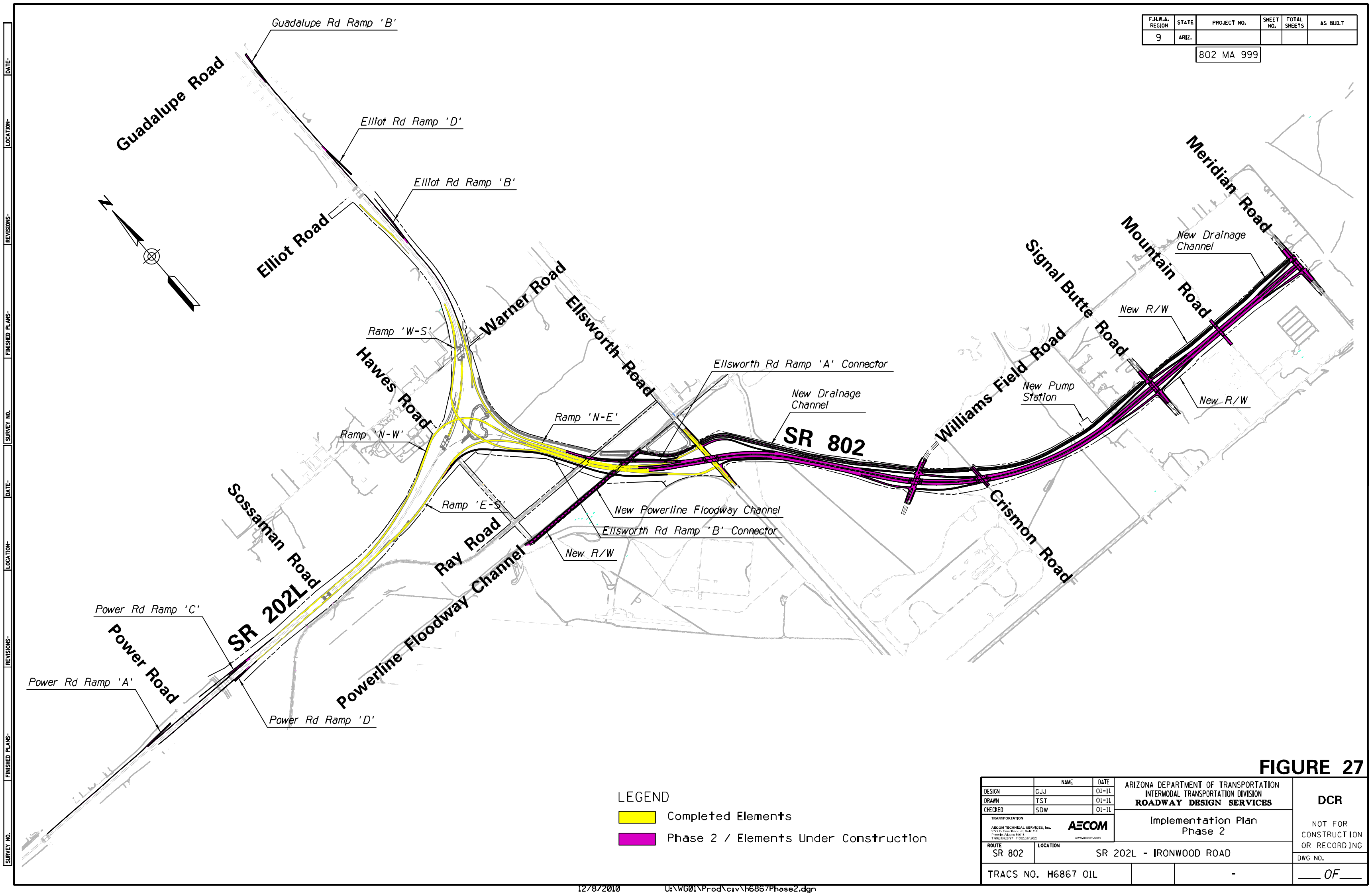
Guadalupe Rd Ramp 'B'
Guadalupe Road
Elliot Rd Ramp 'D'
Elliot Rd Ramp 'B'
Elliot Road
N
Warner Road
Ramp 'W-S'
Hawes Road
Ramp 'N-W'
Ellsworth Road
Ramp 'N-E'
Ellsworth Rd Ramp 'A' Connector
New Drainage Channel
SR 802
Williams Field Road
New Pump Station
Signal Butte Road
New R/W
Mountain Road
New Drainage Channel
Meridian Road
New R/W
Crismon Road
Sossaman Road
Ramp 'E-S'
Ray Road
New Powerline Floodway Channel
Ellsworth Rd Ramp 'B' Connector
New R/W
Powerline Floodway Channel
SR 202L
Power Rd Ramp 'C'
Power Road
Power Rd Ramp 'A'
Power Rd Ramp 'D'
LEGEND
Completed Elements
Phase 2 / Elements Under Construction
F.H.W.A. REGION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
9
ARIZ.
802 MA 999
FIGURE 27
NAME
DATE
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
DCR
AECOM
Implementation Plan
Phase 2
NOT FOR CONSTRUCTION OR RECORDING
ROUTE
SR 802
LOCATION
SR 202L - IRONWOOD ROAD
DWG NO.
TRACS NO. H6867 01L
OF
12/7/2010
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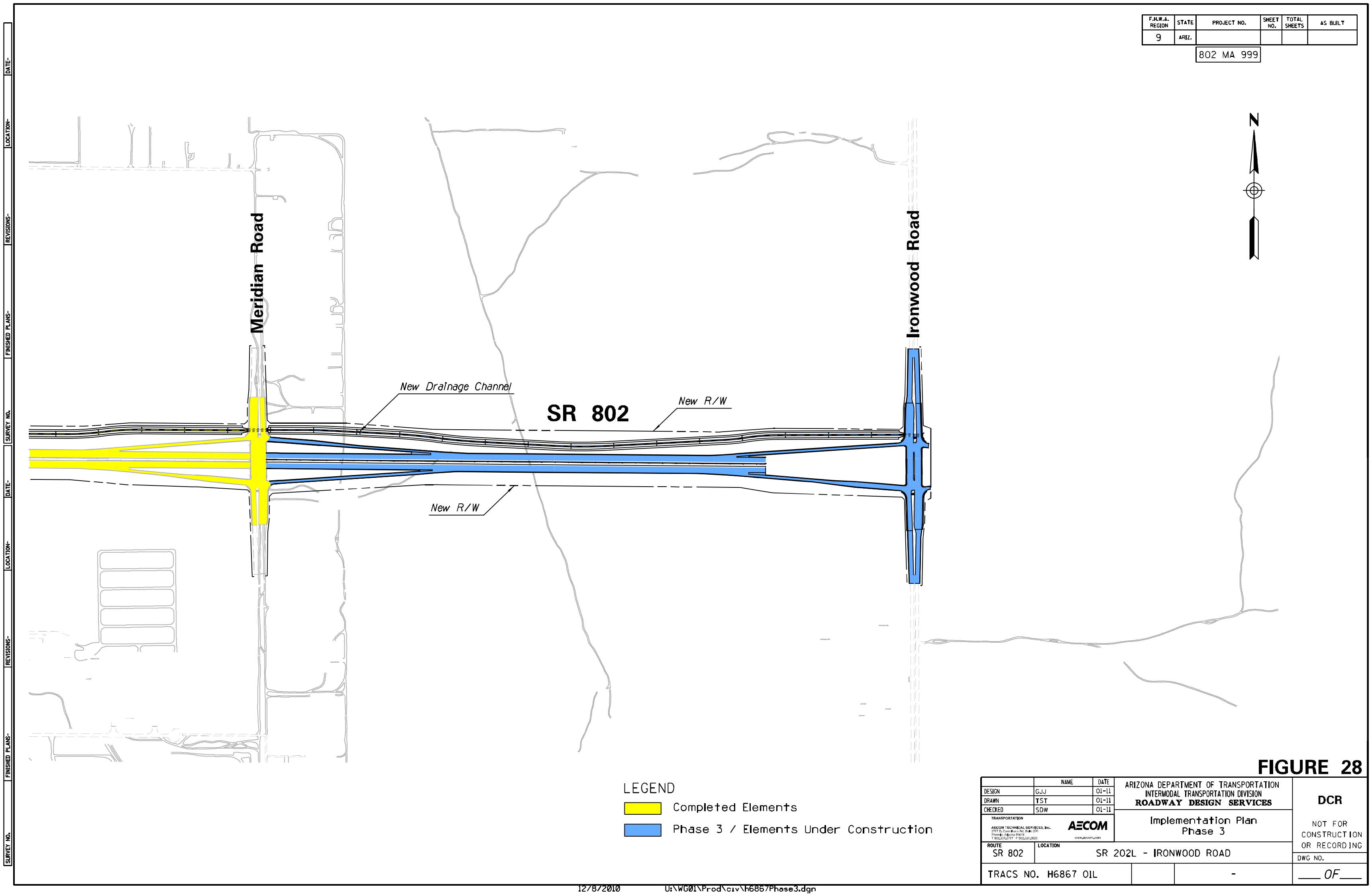
F.H.W.A. REGION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
9
ARIZ.
802 MA 999
N
Meridian Road
Ironwood Road
SR 802
New Drainage Channel
New R/W
New R/W
LEGEND
Completed Elements
Phase 3 / Elements Under Construction
FIGURE 28
NAME
DATE
DESIGN
GJJ
01-11
DRAWN
TST
01-11
CHECKED
SDW
01-11
TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
Implementation Plan
Phase 3
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE
SR 802
LOCATION
SR 202L - IRONWOOD ROAD
DWG NO.
TRACS NO. H6867 01L
-
OF
12/8/2010
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Table 42 – Estimate of Probable Project Cost for Phase 1

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	10,920	6.00	65,600
2020027	REMOVAL OF CONCRETE BARRIER	L.FT.	7,487	10.00	74,900
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	12,987	15.00	194,900
2020034	REMOVAL OF SIGNS	L.SUM	1	800.00	800
2020053	REMOVE (ANNENUATORS)	EACH	3	3,000.00	9,000
2020071	REMOVE GUARDRAIL	L.FT.	2,500	5.00	12,500
2020201	SAW CUTTING	L.FT.	5,000	4.00	20,000
2030301	ROADWAY EXCAVATION	CU.YD.	298,341	6.00	1,790,100
2030401	DRAINAGE EXCAVATION	CU.YD.	364,588	3.00	1,093,800
2030451	CHANNEL EXCAVATION	CU.YD.	23,485	6.00	141,000
2030900	BORROW (IN PLACE)	CU.YD.	1,440,855	10.00	14,408,600
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	20,233	20.00	404,700
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	1,776	18.00	32,000
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	35,634	30.00	1,069,100
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	34,398	35.00	1,204,000
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (12" PCCP OVER 4" AB)	SQ.YD.	24,277	40.00	971,100
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	68,724	40.00	2,749,000
406XX01	ASPHALTIC CONCRETE (7" AC OVER 10" AB)	SQ.YD.	3,637	30.00	109,200
414XX02	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	163,761	5.00	818,900
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	155	110.00	17,100
5011024	PIPE, REINFORCED CONCRETE, CLASS IV, 24"	L.FT.	492	70.00	34,500
5011025	PIPE, REINFORCED CONCRETE, CLASS V, 24"	L.FT.	1,028	75.00	77,100
5011034	PIPE, REINFORCED CONCRETE, CLASS IV, 30"	L.FT.	198	75.00	14,900
5012524	STORM DRAIN PIPE, 24"	L.FT.	9,641	60.00	578,500
5012530	STORM DRAIN PIPE, 30"	L.FT.	510	80.00	40,800
5012536	STORM DRAIN PIPE 36"	L.FT.	864	100.00	86,400
5014024	FLARED END SECTION, 24" (C-13.25)	EACH	14	400.00	5,600
5014030	FLARED END SECTION, 30" (C-13.25)	EACH	1	500.00	500
5014036	FLARED END SECTION, 36" (C-13.25)	EACH	1	500.00	500
5030021	CONCRETE CATCH BASIN (C-15.20)(ONE 3.5' WING, H=8' OR LESS)	EACH	12	3,200.00	38,400
5030023	CONCRETE CATCH BASIN (C-15.20)(ONE 7.5' WING, H=8' OR LESS)	EACH	2	3,500.00	7,000
5030142	CONCRETE CATCH BASIN (C=15.80)(H=8' OR LESS)	EACH	9	2,800.00	25,200
5030604	CONCRETE CATCH BASIN (C-15.91)(H=8' OR LESS)	EACH	27	3,200.00	86,400
5030606	CONCRETE CATCH BASIN (C-15.92)(H=8' OR LESS)	EACH	63	3,500.00	220,500
5050021	MANHOLE (C-18.10)(NO. 2)(FOR PIPES 6" TO 36")	EACH	31	3,500.00	108,500
5050024	MANHOLE (C-18.10)(NO. 2)(FOR PIPE OVER 36")	EACH	2	4,000.00	8,000
6060046	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 2F)	EACH	1	54,000.00	54,000
6060048	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	4	110,000.00	440,000
6060076	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 2F)	EACH	2	7,500.00	15,000
6060079	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	8	8,000.00	64,000
6060133	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	1	40,000.00	40,000
6060134	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	2	41,000.00	82,000
6060256	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	1	7,500.00	7,500
6060257	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	2	4,900.00	9,800
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	289	25.00	7,300
6070006	BREAKAWAY SIGN POST W8x18	L.FT.	72	48.00	3,500
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	22	280.00	6,200
6070026	FOUNDATION FOR BREAKAWAY SIGN POST W8x18	EACH	4	700.00	2,800
6070040	SLIP BASE SIGN POST (P-2)	EACH	7	150.00	1,100
6070049	FOUNDATION FOR SIGN POST	EACH	30	180.00	5,400
6070057	SIGN POST (PERFORATED)(2 1/2 T)	L.FT.	386	12.00	4,700
6080004	REGULATORY, WARN, OR MARKER SIGN PANEL W/TYP VIII/IX/X SHEET	SQ.FT.	322	14.00	4,600
6080064	EXTRUDED ALUM SIGN PANEL WITH TYPE VIII/IX/X SHEET	SQ.FT.	4,154	18.00	74,800
6080105	RELOCATE SIGNS	L.SUM	1	500.00	500
7030095	MILEPOST MARKER (S-10)	EACH	6	220.00	1,400
7040070	PAVEMENT MARKING (WHITE THERMOPLASTIC)(0.090")	L.FT.	71,376	0.20	14,300
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC)(0.090")	L.FT.	65,412	0.20	13,100
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC)(ALKYD)(0.090")	EACH	23	100.00	2,300
7050021	PAVEMENT MARKING, PREFORMED, TYPE I, YELLOW STRIPE	L.FT.	35,816	3.45	123,600
7050022	PAVEMENT MARKING, PREFORMED, TYPE I, WHITE STRIPE	L.FT.	135,356	3.45	467,000
7050029	PAVEMENT MARKING, PREFORMED, TYPE I, FREEWAY ARROW	EACH	3	250.00	800
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	4,749	3.25	15,500
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	1,912	2.75	5,300
7080001	PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	137,821	0.10	13,800
7080011	PERMANENT PAVEMENT MARKING (PAINTED)(YELLOW)	L.FT.	67,485	0.10	6,800
7080101	PERMANENT PAVEMENT MARKING (PAINTED SYMBOL)	EACH	26	28.00	800
7310162	POLE (TYPE T)(50 FT.)	EACH	34	3,000.00	102,000
7310170	POLE (TYPE U)	EACH	4	4,000.00	16,000
7310178	POLE (FOR 80 FT. HIGH MAST)	EACH	25	6,000.00	150,000
7310182	POLE (FOR 120 FT. HIGH MAST)	EACH	33	10,000.00	330,000

Table 42 – Estimate of Probable Project Cost for Phase 1 (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
7310186	POLE (SPECIAL)(32 FT. POLE)	EACH	39	1,500.00	58,500
7310341	POLE FOUNDATION (TYPE T)(40 FT. THRU 55 FT.)	L.FT.	34	3,000.00	102,000
7310350	POLE FOUNDATION (TYPE U)	L.FT.	4	4,000.00	16,000
7310358	POLE FOUNDATION (FOR 80 FT. HIGH MAST)	EACH	25	10,000.00	250,000
7310362	POLE FOUNDATION (FOR 120 FT. HIGH MAST)	EACH	33	12,000.00	396,000
7310371	POLE FOUNDATION (32 FT. POLE)	EACH	39	2,000.00	78,000
7310630	HIGH MAST RAISING AND LOWERING DEVICE	EACH	58	5,000.00	290,000
7310710	TWIN LUMINAIRE BRACKET	L.SUM	6	200.00	1,200
7320050	ELECTRICAL CONDUIT (2")(PVC)	L.FT.	41,930	10.00	419,300
7320055	ELECTRICAL CONDUIT (2")(PVC)(DIRECTIONAL DRILLED)	L.FT.	760	40.00	30,400
7320072	ELECTRICAL CONDUIT (3 - 3")(PVC)	L.FT.	14,240	10.00	142,400
7320090	ELECTRICAL CONDUIT (4")(PVC)	L.FT.	40	20.00	800
7320410	PULL BOX (NO. 5)	EACH	133	400.00	53,200
7320421	PULL BOX (NO. 7)(WITH EXTENSION)	EACH	24	600.00	14,400
7320455	PULL BOX (NO. 9)	EACH	9	2,600.00	23,400
7320456	PULL BOX(BARRIER)	EACH	4	500.00	2,000
7320520	CONDUCTOR(NO. 8)	L.FT.	385,720	0.50	192,900
7320585	CONDUCTOR(INSULATED BOND)(NO. 8)	L.FT.	42,030	0.50	21,100
7330998	TRAFFIC SIGNAL (HAWES RD TI)	L.SUM	1	150,500.00	150,500
7330999	TRAFFIC SIGNAL (ELLSWORTH RD TI)	L.SUM	1	137,000.00	137,000
7360060	LUMINAIRE (VERTICAL MOUNT)(250 WATT)	EACH	39	500.00	19,500
7360070	LUMINAIRE (VERTICAL MOUNT)(400 WATT)	EACH	34	500.00	17,000
7360080	LUMINAIRE (HIGH MAST)(HPS 400 WATT)	EACH	264	600.00	158,400
7360235	LOAD CENTER CABINET (METER PEDESTAL)	EACH	2	5,000.00	10,000
7360240	LOAD CENTER CABINET FOUNDATION	EACH	2	1,000.00	2,000
8040001	TOPSOIL PLATING	CU.YD.	113,360	10.00	1,133,600
8050021	SEEDING	ACRE	35	2,000.00	70,000
80800XX	LANDSCAPING	ACRE	35	30,250.00	1,058,800
8082116	16" DUCTILE IRON PIPE, WATER LINE	L.FT.	150	200.00	30,000
8090186	10" DUCTILE IRON PIPE, SEWER FORCE MAIN	L.FT.	150	250.00	37,500
8090703	24" STEEL CASING	L.FT.	100	240.00	24,000
8090704	30" STEEL CASING	L.FT.	100	300.00	30,000
9020014	CHAIN LINK FENCE, TYPE 1 (72")	L.FT.	20,618	5.00	103,100
9040201	MEDIAN CABLE BARRIER	L.FT.	1,480	15.00	22,200
9040221	MEDIAN CABLE BARRIER ANCHOR	EACH	2	2,500.00	5,000
9040223	MEDIAN CABLE BARRIER END TERMINAL	EACH	2	2,500.00	5,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	17	4,000.00	68,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	17	4,500.00	76,500
9080084	CONCRETE CURB AND GUTTER	L.FT.	11,925	15.00	178,900
9080085	CONCRETE CURB AND GUTTER (TYPE D, STD C-05.20)	L.FT.	3,220	15.00	48,300
9080086	CONCRETE SINGLE CURB (TYPE A-1, STD C-05.10)	L.FT.	3,552	15.00	53,300
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220)	L.FT.	1,121	15.00	16,900
9080108	CONCRETE SINGLE CURB (MAG DET. 222)(TYPE A)	L.FT.	966	15.00	14,500
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	8,694	15.00	130,500
9080296	CONCRETE SIDEWALK RAMP TYPE B (C-05.30)	EACH	4	1,000.00	4,000
9080298	CONCRETE SIDEWALK RAMP TYPE F (C-05.30)	EACH	2	800.00	1,600
9100000	CONCRETE BARRIER (SINGLE FACE WITH 2.5' GUTTER)	L.FT.	16,193	60.00	971,600
9100002	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	31,361	60.00	1,881,700
9100012	CONCRETE BARRIER (ADJACENT TO RETAINING WALL)(4.5' GUTTER)	L.FT.	2,750	75.00	206,300
9100201	CONCRETE MEDIAN BARRIER	L.FT.	807	75.00	60,600
9110001	RIGHT-OF-WAY MARKER	EACH	43	1,000.00	43,000
9140153	RETAINING WALL (REGULAR)	SQ.FT.	41,496	55.00	2,282,300
9140155	RETAINING WALL (SPECIALTY)	SQ.FT.	13,476	75.00	1,010,700
9201006	CONCRETE CHANNEL LINING (6")	SQ.YD.	21,200	50.00	1,060,000
9240051	MISC. WORK (WASTEWATER BYPASS PUMPING OPERATIONS)	L.SUM	1	100,000.00	100,000
9240077	MISC. WORK (WATER SYSTEM LINE STOPPING & BYPASSING)	L.SUM	1	150,000.00	150,000
9999903A	RCB CULVERT (4 -10' X 8' X 180')(ELLSWORTH RD)	L.SUM.	1	549,100.00	549,100
9999903B	RCB CULVERT (3 -8' X 7' X 586')(RAMP ES - SANTAN CHANNEL)	L.SUM.	1	1,020,200.00	1,020,200
9999903C	RCB CULVERT (3 -8' X 7' X 895')(RAMP NE - SANTAN CHANNEL)	L.SUM.	1	1,407,200.00	1,407,200
9999903D	RCB CULVERT (3 -8 X 6' X 140')(RAMP NE)	L.SUM.	1	304,200.00	304,200
9999910A	SOSSAMAN OVERPASS EB (WIDEN)	L.SUM	1	375,300.00	375,300
9999910B	SOSSAMAN OVERPASS WB (WIDEN)	L.SUM	1	375,300.00	375,300
9999910C	RAMP E-S OVER HAWES ROAD	L.SUM	1	967,500.00	967,500
9999910D	RAMP N-W OVER SR 202L	L.SUM	1	8,108,800.00	8,108,800
9999910E	RAMP W-S OVER WARNER ROAD	L.SUM	1	1,196,200.00	1,196,200
9999910F	RAMP W-S OVER SR 202L	L.SUM	1	8,461,900.00	8,461,900
9999910G	RAMP N-E OVER WARNER ROAD	L.SUM	1	979,600.00	9,979,600
9999910H	RAY ROAD OVERPASS (SR 802 EB & WB)	L.SUM	1	4,011,700.00	4,011,700
9999910I	POWERLINE FLOODWAY OVERPASS (SR 802 EB & WB)	L.SUM	1	4,880,800.00	4,880,800
				ITEM TOTAL	**74,706,700**

Table 42 – Estimate of Probable Project Cost for Phase 1 (continued)

PROJECT WIDE				
	Maintenance and Protection of Traffic (5%)	COST		3,736,000
	Dust and Water Palliative (2%)	COST		1,495,000
	Quality Control (2%)	COST		1,495,000
	Construction Surveying (4%)	COST		2,989,000
	Erosion Control (1%)	COST		748,000
	Mobilization (8% of all construction items)	COST		9,045,000
			PROJECT WIDE SUBTOTAL	**19,508,000**
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		18,843,000
			PROJECT WIDE TOTAL	**38,351,000**
OTHER COST				
	Construction Engineering (9%)	COST		10,176,000
	Construction Contingencies (5%)	COST		5,653,000
	Indirect Cost Allocation (5.19%)	COST		5,868,000
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST		9,045,000
	Environmental Mitigation (Unknown at this time)	COST		-
	PCCP Quality Incentive	COST		233,200
	AR-ACFC Smoothness Incentive	COST		274,700
	Right-of-Way	COST		50,799,900
	Utility Relocation	COST		250,000
			OTHER COST TOTAL	**82,299,804**

SUMMARY	
ITEM TOTAL	**74,706,700**
PROJECT WIDE	**38,351,000**
OTHER COST TOTAL	**82,299,800**
TOTAL PROJECT COST	**195,357,500**

Table 43 – Estimate of Probable Project Cost for Phase 2

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	20,372	6.00	122,300
2020027	REMOVAL OF CONCRETE BARRIER	L.FT.	10,149	10.00	101,500
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	15,435	15.00	231,600
2020034	REMOVAL OF SIGNS	L.SUM	1	10,000.00	10,000
2020053	REMOVE (ATTENUATORS)	EACH	7	3,000.00	21,000
2030301	ROADWAY EXCAVATION	CU.YD.	2,869,191	6.00	17,215,200
2030451	CHANNEL EXCAVATION	CU.YD.	317,286	6.00	1,903,800
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	48,404	20.00	968,000
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	10,602	18.00	190,900
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	146,675	30.00	4,400,300
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	8,183	35.00	286,500
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	177,287	40.00	7,091,500
4010023	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AC)	SQ.YD.	113,233	45.00	5,095,500
406XX01	ASPHALTIC CONCRETE (7" AC OVER 10" AB)	SQ.YD.	34,796	30.00	1,043,900
414XX02	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	299,550	5.00	1,497,800
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	560	110.00	61,600
5012524	STORM DRAIN PIPE, 24"	L.FT.	21,025	60.00	1,261,500
5012530	STORM DRAIN PIPE, 30"	L.FT.	730	80.00	58,400
5012536	STORM DRAIN PIPE 36"	L.FT.	680	100.00	68,000
5012554	STORM DRAIN PIPE 54"	L.FT.	1,190	140.00	166,600
5012560	STORM DRAIN PIPE 60"	L.FT.	5,525	160.00	884,000
5030021	CONCRETE CATCH BASIN (C-15.20)(ONE 3.5' WING, H=8' OR LESS)	EACH	36	3,200.00	115,200
5030142	CONCRETE CATCH BASIN (C=15.80)(H=8' OR LESS)	EACH	35	2,800.00	98,000
5030604	CONCRETE CATCH BASIN (C-15.91)(H=8' OR LESS)	EACH	113	3,200.00	361,600
5030606	CONCRETE CATCH BASIN (C-15.92)(H=8' OR LESS)	EACH	16	3,500.00	56,000
5050031	MANHOLE (C-18.10)(NO. 3)(FOR PIPES 6" TO 36")	EACH	40	3,500.00	140,000
5050032	MANHOLE (C-18.10)(NO. 3)(FOR PIPES OVER 36")	EACH	23	5,500.00	126,500
6060048	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	3	110,000.00	330,000
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	5	15,000.00	75,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	10	7,500.00	75,000
6060079	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	6	8,000.00	48,000
6060133	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	5	40,000.00	200,000
6060134	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	19	41,000.00	779,000
6060256	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 3C)	EACH	5	7,500.00	37,500
6060257	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	19	4,900.00	93,100
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	498	25.00	12,500
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	40	280.00	11,200
6070038	SLIP BASE	EACH	80	150.00	12,000
6070057	SIGN POST (PERFORATED)(2 1/2 T)	L.FT.	1,028	12.00	12,400
6070060	FOUNDATION FOR SING POST (CONCRETE)	EACH	84	180.00	15,200
6080004	REGULATORY, WARN, OR MARKER SIGN PANEL W/TYP VIII/IX/X SHEET	SQ.FT.	969	14.00	13,600
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	8,026	18.00	144,500
6080105	RELOCATE SIGNS	L.SUM	1	1,500.00	1,500
7015041	TEMPORARY PAINTED MARKING (ARROW, SYMBOL OR LEGEND)	L.FT.	321	35.00	11,300
7015042	TEMPORARY PAINTED MARKING (STRIPE)	L.FT.	379,266	0.08	30,400
7015052	OBLITERATE PAINTED MARKING (STRIPE)	L.FT.	125,418	0.35	43,900
7030095	MILEPOST MARKER (S-10)	EACH	12	220.00	2,700
7040070	PAVEMENT MARKING (WHITE THERMOPLASTIC)(0.090")	L.FT.	473,932	0.20	94,800
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC)(0.090")	L.FT.	225,630	0.20	45,200
7040072	PAVEMENT MARKING (TRANSVERSE)(THERMOPLASTIC)(ALKYD)(0.090")	L.FT.	19,404	0.40	7,800
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC)(ALKYD)(0.090")	EACH	62	110.00	6,900
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC)(ALKYD)(0.090")	EACH	199	110.00	21,900
7050021	PAVEMENT MARKING PREFORMED, TYPE 1, YELLOW STRIPE	L.FT.	35,052	3.45	121,000
7050022	PAVEMENT MARKING PREFORMED, TYPE 1, WHITE STRIPE	L.FT.	234,939	3.45	810,600
7050029	PAVEMENT MARKING PREFORMED, TYPE 1, SYMBOL	EACH	60	250.00	15,000
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	17,720	3.25	57,600
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	5,290	2.75	14,600
7310162	POLE (TYPE T)(50 FT.)	EACH	56	3,000.00	168,000
7310180	POLE (FOR 100 FT. HIGH MAST)	EACH	39	11,000.00	429,000
7310182	POLE (FOR 120 FT. HIGH MAST)	EACH	3	10,000.00	30,000
7310341	POLE FOUNDATION (TYPE T)(40 FT. THRU 55 FT.)	EACH	56	3,000.00	168,000
7310360	POLE FOUNDATION (FOR 100 FT. HIGH MAST)	EACH	39	5,000.00	195,000
7310362	POLE FOUNDATION (FOR 120 FT. HIGH MAST)	EACH	3	12,000.00	36,000
7310630	HIGH MAST RAISING AND LOWERING DEVICE	EACH	42	5,000.00	210,000
7320050	ELECTRICAL CONDUIT (2")(PVC)	L.FT.	3,500	10.00	350,000
7320070	ELECTRICAL CONDUIT (3")(PVC)	L.FT.	1,200	10.00	12,000
7320072	ELECTRICAL CONDUIT (3 - 3")(PVC)	L.FT.	36,300	10.00	363,000
7320410	PULL BOX (NO. 5)	EACH	110	400.00	44,000

Table 43 – Estimate of Probable Project Cost for Phase 2 (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
7320421	PULL BOX (NO. 7)(WITH EXTENSION)	EACH	28	600.00	16,800
7320455	PULL BOX (NO. 9)	EACH	26	2,600.00	67,600
7320520	CONDUCTOR (NO. 8)	L.FT.	280,000	0.50	140,000
7320585	CONDUCTOR (INSULATED BOND)(NO. 8)	L.FT.	35,000	0.50	17,500
7330996	TRAFFIC SIGNAL (ELLSWORTH RD TI)	L.SUM	1	86,000.00	86,000
7330997	TRAFFIC SIGNAL (WILLIAMS FIELD RD TI)	L.SUM	1	233,000.00	233,000
7330998	TRAFFIC SIGNAL (SIGNAL BUTTE RD TI)	L.SUM	1	232,000.00	232,000
7330999	TRAFFIC SIGNAL (MERIDIAN RD TI)	L.SUM	1	226,000.00	226,000
7360070	LUMINAIRE (VERTICAL MOUNT)(400 WATT)	EACH	56	500.00	28,000
7360080	LUMINAIRE (HIGH MAST)(HPS 400 WATT)	EACH	150	600.00	90,000
7360241	LOAD CENTER CABINET (TYPE IV)(240/480 VOLT)	EACH	3	10,000.00	30,000
7360290	LOAD CENTER CABINET FOUNDATION	EACH	3	1,000.00	3,000
8040001	TOPSOIL PLATING	CU.YD.	336,778	10.00	3,367,800
80800XX	LANDSCAPING	ACRE	104	30,250.00	3,146,000
8082116	16" DUCTILE IRON PIPE, WATER LINE	L.FT.	800	200.00	160,000
8090187	12" DUCTILE IRON PIPE, SEWER LINE	L.FT.	700	180.00	126,000
9020014	CHAIN LINK FENCE, TYPE 1 (72")	L.FT.	58,631	5.00	293,200
9040201	MEDIAN CABLE BARRIER	L.FT.	18,525	15.00	277,900
9040221	MEDIAN CABLE BARRIER ANCHOR	EACH	20	2,500.00	50,000
9040223	MEDIAN CABLE BARRIER END TERMINAL	EACH	20	2,500.00	50,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	20	4,000.00	80,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	20	4,500.00	90,000
9080084	CONCRETE CURB AND GUTTER	L.FT.	70,596	15.00	1,059,000
9080085	CONCRETE CURB AND GUTTER (TYPE D, STD C-05.20)	L.FT.	11,195	15.00	168,000
9080086	CONCRETE SINGLE CURB (TYPE A-1, STD C-05.10)	L.FT.	6,824	15.00	102,400
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220)	L.FT.	6,149	15.00	92,300
9080108	CONCRETE SINGLE CURB (MAG DET. 222)(TYPE A)	L.FT.	5,420	15.00	81,300
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	68,750	15.00	1,031,300
9080296	CONCRETE SIDEWALK RAMP TYPE B (C-05.30)	EACH	28	1,000.00	28,000
9080298	CONCRETE SIDEWALK RAMP TYPE F (C-05.30)	EACH	6	800.00	4,800
9100000	CONCRETE BARRIER (SINGLE FACE WITH 2.5' GUTTER)	L.FT.	17,121	60.00	1,027,300
9100002	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	18,285	60.00	1,097,100
9100009	CONCRETE BARRIER (ADJACENT TO RETAINING WALL)(2.5' GUTTER)	L.FT.	3,115	75.00	233,700
9100012	CONCRETE BARRIER (ADJACENT TO RETAINING WALL)(4.5' GUTTER)	L.FT.	891	75.00	66,900
9110001	RIGHT-OF-WAY MARKER	EACH	134	1,000.00	134,000
9140153	RETAINING WALL (REGULAR)	SQ.FT.	42,900	55.00	2,359,500
9140155	RETAINING WALL (SPECIALTY)	SQ.FT.	100	75.00	7,500
9201006	CONCRETE CHANNEL LINING (6")	SQ. YD.	161,378	50.00	8,068,900
9240051	MISC. WORK (WASTEWATER BYPASS PUMPING OPERATIONS)	L.SUM	1	150,000.00	150,000
9240077	MISC. WORK (WATER SYSTEM LINE STOPPING & BYPASSING)	L.SUM	1	150,000.00	150,000
9240100	MISCELLANEOUS WORK (SIGNAL BUTTE LIFT STATION)	L.SUM	1	4,800,000.00	4,800,000
9240119	MISCELLANEOUS WORK (HIGH MAST POLE MAINTENANCE PAD)	EACH	42	2,000.00	84,000
9999903A	SIDE WEIR SPILLWAY INTO ELLSWORTH BASIN	L.SUM	1	309,400.00	309,400
9999903B	RCD CULVERT (4 -10' X 4' X 65')(ELLSWORTH BASIN)	L.SUM	1	151,600.00	151,600
9999903C	RCB CULVERT (3 -12' X 8' X 200')(WILLIAMS FIELD RD)	L.SUM.	1	563,400.00	563,400
9999903D	RCB CULVERT (3 -8' X 8' X 200')(CRISMON RD)	L.SUM.	1	371,600.00	371,600
9999903E	RCB CULVERT (3 -8' X 8' X 180')(SIGNAL BUTTE RD)	L.SUM.	1	377,900.00	377,900
9999903F	RCB CULVERT (1 -8' X 8' X 1000')(SIGNAL BUTTE LIFT STATION STORAGE)	L.SUM.	1	805,000.00	805,000
9999903G	RCB CULVERT (3 -8' X 8' X 110')(MOUNTAIN RD)	L.SUM.	1	226,700.00	226,700
9999903H	RCB CULVERT (3 -8' X 8' X 191')(MERIDIAN RD)	L.SUM.	1	355,100.00	355,100
9999910A	CRISMON ROAD OVERPASS	L.SUM.	1	4,309,000.00	4,309,000
9999910B	SIGNAL BUTTE ROAD TI UNDERPASS	L.SUM.	1	3,739,400.00	3,739,400
9999910C	MOUNTAIN ROAD UNDERPASS	L.SUM.	1	2,387,600.00	2,387,600
9999910D	MERIDIAN ROAD TI UNDERPASS	L.SUM.	1	4,043,200.00	4,043,200
9999910E	POWER ROAD TIOP EB (WIDEN)	L.SUM	1	508,890.00	508,900
9999910F	POWER ROAD TIOP WB (WIDEN)	L.SUM	1	508,890.00	508,900
9999910G	POWER ROAD RAMP C (WIDEN)	L.SUM	1	557,700.00	557,700
9999910H	EAST MARICOPA FLOODWAY OVERPASS EB (WIDEN)	L.SUM	1	908,850.00	908,900
9999910I	EAST MARICOPA FLOODWAY OVERPASS WB (WIDEN)	L.SUM	1	908,850.00	908,900
9999910J	ELLSWORTH RAMP B CONNECTOR OVER HAWES RD	L.SUM	1	794,900.00	794,900
9999910K	ELLSWORTH RAMP B CONNECTOR OVER RAY RD	L.SUM	1	745,300.00	745,300
9999910L	ELLSWORTH RAMP A CONNECTOR OVER RAY RD	L.SUM	1	1,871,600.00	1,871,600
9999910M	ELLSWORTH RAMP B CONNECTOR OVER POWERLINE FLOODWAY	L.SUM	1	1,036,500.00	1,036,500
9999910N	RAMP N-E OVER POWERLINE FLOODWAY	L.SUM	1	1,548,700.00	1,548,700
9999910O	ELLSWORTH RAMP A CONNECTOR OVER POWERLINE FLOODWAY	L.SUM	1	1,042,600.00	1,042,600
9999910P	RAMP N-E OVER ELLSWORTH RD RAMP A	L.SUM	1	1,147,000.00	1,147,000
9999910Q	ELLSWORTH ROAD OVERPASS (SR 802 EB)	L.SUM	1	2,223,300.00	2,223,300
9999910R	ELLSWORTH ROAD OVERPASS (SR 802 WB)	L.SUM	1	2,223,300.00	2,223,300
9999910S	WILLIAMS FIELD ROAD TI OVERPASS	L.SUM	1	3,626,100.00	3,626,100
				ITEM TOTAL	115,725,100

Table 43 – Estimate of Probable Project Cost for Phase 2 (continued)

PROJECT WIDE				
	Maintenance and Protection of Traffic (5%)	COST		5,787,000
	Dust and Water Palliative (2%)	COST		2,315,000
	Quality Control (2%)	COST		2,315,000
	Construction Surveying (4%)	COST		4,630,000
	Erosion Control (1%)	COST		1,158,000
	Mobilization (8% of all construction items)	COST		14,011,000
			PROJECT WIDE SUBTOTAL	30,216,000
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		29,189,000
			PROJECT WIDE TOTAL	59,405,000
OTHER COST				
	Construction Engineering (9%)	COST		15,762,000
	Construction Contingencies (5%)	COST		8,757,000
	Indirect Cost Allocation (5.19%)	COST		9,090,000
	Engineering Design (Includes Surveying and Geotechnical)(8% of all items)	COST		14,011,000
	Environmental Mitigation (Unknown at this time)	COST		-
	PCCP Quality Incentive	COST		570,100
	AR-ACFC Smoothness Incentive	COST		431,000
	Right-of-Way	COST		51,255,500
	Utility Relocation	COST		1,140,000
			OTHER COST TOTAL	101,016,600

SUMMARY

ITEM TOTAL	**115,725,200**
PROJECT WIDE	**59,405,000**
OTHER COST TOTAL	**101,016,600**
TOTAL PROJECT COST	**276,146,800**

Table 44 – Estimate of Probable Project Cost for Phase 3

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2030301	ROADWAY EXCAVATION	CU.YD.	507,687	6.00	3,046,200
2030451	CHANNEL EXCAVATION	CU.YD.	34,373	6.00	206,300
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	9,582	20.00	191,700
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	3,194	18.00	57,500
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	35,481	30.00	1,064,500
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	20,766	40.00	830,700
4010023	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AC)	SQ.YD.	63,504	45.00	2,857,700
406XX01	ASPHALTIC CONCRETE (7" AC OVER 10" AB)	SQ.YD.	9,524	30.00	285,800
414XX02	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	102,460	5.00	512,300
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	180	110.00	19,800
5012524	STORM DRAIN PIPE, 24"	L.FT.	5,165	60.00	309,900
5012530	STORM DRAIN PIPE, 30"	L.FT.	1,065	80.00	85,200
5012548	STORM DRAIN PIPE, 48"	L.FT.	1,340	90.00	120,600
5030021	CONCRETE CATCH BASIN (C-15.20)(ONE 3.5' WING, H=8' OR LESS)	EACH	9	3,200.00	28,800
5030142	CONCRETE CATCH BASIN (C=15.80)(H=8' OR LESS)	EACH	3	2,800.00	8,400
5030604	CONCRETE CATCH BASIN (C-15.91)(H=8' OR LESS)	EACH	32	3,200.00	102,400
5050031	MANHOLE (C-18.10)(NO. 3)(FOR PIPES 6" TO 36")	EACH	8	3,500.00	28,000
5050032	MANHOLE (C-18.10)(NO. 3)(FOR PIPES OVER 36")	EACH	5	5,500.00	27,500
6060057	BRIDGE SIGN STRUCTURE (TAPERED TUBE, SINGLE BEAM, 50' TO 70')	EACH	4	15,000.00	60,000
6060074	FOUNDATION FOR BRIDGE SIGN STRUCTURE (TAPERED TUBE)	EACH	8	7,500.00	60,000
6060134	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	4	41,000.00	164,000
6060257	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	4	4,900.00	19,600
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	74	25.00	1,900
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	6	280.00	1,700
6070038	SLIP BASE	EACH	11	150.00	1,700
6070057	SIGN POST (PERFORATED) (21/2 T)	L.FT.	133	12.00	1,600
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	11	180.00	2,000
6080004	REGULATORY, WARN, OR MARKER SIGN PANEL W/TYP VIII/IX/X SHEET	SQ.FT.	135	14.00	1,900
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	1,928	18.00	34,800
7015041	TEMPORARY PAINTED MARKING (ARROW, SYMBOL OR LEGEND)	EACH	33	35.00	1,200
7015042	TEMPORARY PAINTED MARKING (STRIPE)	L.FT.	58,744	0.08	4,700
7030095	MILEPOST MARKER (S-10)	EACH	2	220.00	500
7040070	PAVEMENT MARKING (WHITE THERMOPLASTIC)(0.090")	L.FT.	51,517	0.20	10,400
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC)(0.090")	L.FT.	24,521	0.20	5,000
7040073	DELINEATOR (M-25) (DOUBLE WHITE OR DOUBLE YELLOW)	EACH	9	110.00	1,000
7040074	DELINEATOR (M-25) (360 DEGREES WHITE OR YELLOW)	EACH	24	110.00	2,700
7050022	PAVEMENT MARKING PREFORMED, TYPE 1, WHITE STRIPE	L.FT.	10,046	3.45	34,700
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	1,113	3.25	3,700
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	470	2.75	1,300
7310162	POLE (TYPE T) (50 FT.)	EACH	20	3,000.00	60,000
7310180	POLE (FOR 100 FT. HIGH MAST)	EACH	12	11,000.00	132,000
7310341	POLE FOUNDATION (TYPE T)(40 FT. THRU 55 FT.)	EACH	20	3,000.00	60,000
7310360	POLE FOUNDATION (FOR 100 FT. HIGH MAST)	EACH	12	5,000.00	60,000
7310630	HIGH MAST RAISING AND LOWERING DEVICE	EACH	12	5,000.00	60,000
7320050	ELECTRICAL CONDUIT (2")(PVC)	L.FT.	11,500	10.00	115,000
7320070	ELECTRICAL CONDUIT (3")(PVC)	L.FT.	400	10.00	4,00
7320072	ELECTRICAL CONDUIT (3 - 3")(PVC)	L.FT.	12,000	10.00	120,000
7320410	PULL BOX (NO. 5)	EACH	36	400.00	14,400
7320421	PULL BOX (NO. 7)(WITH EXTENSION)	EACH	8	600.00	4,800
7320455	PULL BOX (NO. 9)	EACH	8	2,600.00	20,800
7320520	CONDUCTOR (NO. 8)	L.FT.	92,000	0.50	46,000
7320585	CONDUCTOR (INSULATED BOND)(NO. 8)	L.FT.	11,500	0.50	5,800
7330999	TRAFFIC SIGNAL (IRONWOOD RD TI)	L.SUM	1	228,000.00	228,000
7360070	LUMINAIRE (VERTICAL MOUNT)(400 WATT)	EACH	20	500.00	10,000
7360080	LUMINAIRE (HIGH MAST)(HPS 400 WATT)	EACH	40	600.00	24,000
7360241	LOAD CENTER CABINET (TYPE IV) (240/480 VOLT)	EACH	1	10,000.00	10,000
7360290	LOAD CENTER CABINET FOUNDATION	EACH	1	1,000.00	1,000
8040001	TOPSOIL PLATING	CU.YD.	53,101	10.00	531,100
8080099	LANDSCAPING	ACRE	16	30,250.00	484,000
9020014	CHAIN LINK FENCE, TYPE 1 (72")	L.FT.	8,739	5.00	43,700
9040201	MEDIAN CABLE BARRIER	L.FT.	5,924	15.00	88,900
9040221	MEDIAN CABLE BARRIER ANCHOR	EACH	4	2,500.00	10,000
9040223	MEDIAN CABLE BARRIER END TERMINAL	EACH	4	2,500.00	10,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	1	4,000.00	4,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	1	4,500.00	4,500
9080084	CONCRETE CURB AND GUTTER	L.FT.	21,980	15.00	329,500
9080085	CONCRETE CURB AND GUTTER (TYPE D, STD C-05.20)	L.FT.	2,447	15.00	36,800
9080086	CONCRETE SINGLE CURB (TYPE A-1, STD C-05.10)	L.FT.	2,067	15.00	31,100

Table 44 – Estimate of Probable Project Cost for Phase 3 (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
9080101	CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220)	L.FT.	2,007	15.00	30,200
9080108	CONCRETE SINGLE CURB (MAG DET. 222)(TYPE A)	L.FT.	1,682	15.00	25,300
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	15,646	15.00	234,700
9080296	CONCRETE SIDEWALK RAMP TYPE B (C-05.30)	EACH	8	1,000.00	8,000
9080298	CONCRETE SIDEWALK RAMP TYPE F (C-05.30)	EACH	2	800.00	1,600
9100002	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	601	60.00	36,100
9110001	RIGHT-OF-WAY MARKER	EACH	14	1,000.00	14,000
9201006	CONCRETE CHANNEL LINING (6")	SQ. YD.	25,767	50.00	1,288,400
9240119	MISCELLANEOUS WORK (HIGH MAST POLE MAINTENANCE PAD)	EACH	12	2,000.00	24,000
9999903A	RCB CULVERT (2 -8' X 6' X 173')(IRONWOOD RD)	L.SUM.	1	194,400.00	194,400
				ITEM TOTAL	**14,603,800**
PROJECT WIDE					
	Maintenance and Protection of Traffic (5%)	COST			731,000
	Dust and Water Palliative (2%)	COST			293,000
	Quality Control (2%)	COST			293,000
	Construction Surveying (4%)	COST			585,000
	Erosion Control (1%)	COST			147,000
	Mobilization (8% of all construction items)	COST			1,769,000
				PROJECT WIDE SUBTOTAL	**3,818,000**
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST			3,685,000
				PROJECT WIDE TOTAL	**7,503,000**
OTHER COST					
	Construction Engineering (9%)	COST			1,990,000
	Construction Contingencies (5%)	COST			1,106,000
	Indirect Cost Allocation (5.19%)	COST			1,148,000
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST			1,769,000
	Environmental Mitigation (Unknown at this time)	COST			-
	PCCP Quality Incentive	COST			131,600
	AR-ACFC Smoothness Incentive	COST			135,600
	Right-of-Way	COST			13,600,000
	Utility Relocation	COST			200,000
				OTHER COST TOTAL	**20,080,200**

SUMMARY	
ITEM TOTAL	**14,603,800**
PROJECT WIDE	**7,503,000**
OTHER COST TOTAL	**20,080,200**
TOTAL PROJECT COST	**42,187,000**

7.0 AASHTO CONTROLLING DESIGN CRITERIA

American Association of State Highway and Transportation Officials (AASHTO) Controlling Design Criteria have been reviewed for the existing roadways that will remain as a part of the proposed improvements. Existing and proposed features for each of the alternatives that do not meet current AASHTO (2004 Green Book) recommended guidelines are indicated below.

The Arizona Department of Transportation (ADOT) Design Criteria has also been reviewed for the new roadways that are part of the proposed improvements. Existing and proposed features for each alternative that do not meet current *ADOT Roadway Design Guidelines* (RDG) are also indicated below.

7.1 AASHTO NON-CONFORMING GEOMETRIC DESIGN ELEMENTS

Non-conforming AASHTO design elements that would not be upgraded as part of this project include the following:

<u>SR 202L MAINLINE</u>

The proposed horizontal curve superelevation rate for the westbound SR 202L mainline is less than the recommended AASHTO minimum at the following location:

a. Station 3088+12.53 to 3110+44.81: The existing 0.036 ‘/ft. superelevation rate is less than the recommended minimum of 0.039 ‘/ft. for 65 mph (e_{max} = 0.060 ‘/ft)

<u>SR202L/SR802 TI DIRECTIONAL RAMPS</u>

The horizontal stopping sight distance is less than the AASHTO recommended minimum distances due to roadway curvature and the placement of concrete barrier adjacent to the inside and outside shoulders at the following locations:

a. Ramp ‘N-W’ Station 43+67.59 to 63+17.59 (HPI Station 56+98.46): 185’ less than the recommended 512’ (inside shoulder)
b. Ramp ‘W-S’ Station 24+80.97 to 33+26.12 (HPI Station 29+26.01): 206’ less than the recommended 529’ (inside shoulder)
c. Ramp ‘W-S’ Station 33+26.12 to 51+87.66 (HPI Station 43+17.74): 77’ less than the recommended 529’ (inside shoulder)
d. Ramp ‘E-S’ Station 37+72.83 to 51+21.50 (HPI Station 45+01.83): 82’ less than the recommended 510’ (outside shoulder)
e. Ellsworth Road Ramp ‘B’ Connector Station 5+28.50 to 15+58.84 (HPI Station 10+88.37): 57’ less than the recommended 427’ (outside shoulder)

<u>HAWES ROAD TI</u>

The horizontal curve superelevation rate is less than the recommended AASHTO minimum at the following location:

a. Hawes Road Ramp ‘C’ Station 16+23.65 to 33+13.65 (HPI Station 24+85.21): The 0.036’/ft. superelevation rate is less than the recommended minimum of 0.039’/ft.

<u>ELLSWORTH ROAD TI</u>

The horizontal stopping sight distance is less than the AASHTO recommended minimum distances due to roadway curvature and the placement of concrete barrier adjacent to the inside and outside shoulders at the following locations:

a. Ramp 'A' Station 14+83.19 to 19+42.19 (HPI Station 17+15.81): 119’ less than the recommended 421’ (outside shoulder)

7.2 REQUEST FOR AASHTO DESIGN EXCEPTIONS

The Phase I project is currently under final design and the roadway geometry is being refined by the final designer. AASHTO design exceptions will be requested during final design for the non-conforming design elements.

7.3 ADOT NON-CONFORMING GEOMETRIC DESIGN ELEMENTS

Non-conforming AASHTO design elements that would not be upgraded as part of this project include the following:

<u>SR 202L MAINLINE</u>

The proposed horizontal curve superelevation rate for the westbound SR 202L centerline is less than the recommended AASHTO minimum at the following location:

a. Station 3088+12.53 to 3110+44.81: The existing 0.036 ‘/ft. superelevation rate is less than the recommended minimum of 0.039 ‘/ft. for 65 mph (e_{max} = 0.060 ‘/ft)

<u>SR202L/SR802 TI DIRECTIONAL RAMPS</u>

The horizontal stopping sight distance is less than the AASHTO recommended minimum distances due to roadway curvature and the placement of concrete barrier adjacent to the inside and outside shoulders at the following locations:

a. Ramp ‘N-W’ Station 43+67.59 to 63+17.59 (HPI Station 56+98.46): 185’ less than the recommended 512’ (inside shoulder)

b. Ramp ‘W-S’ Station 24+80.97 to 33+26.12 (HPI Station 29+26.01): 206’ less than the recommended 529’ (inside shoulder)
c. Ramp ‘W-S’ Station 33+26.12 to 51+87.66 (HPI Station 43+17.74): 77’ less than the recommended 529’ (inside shoulder)
d. Ramp ‘E-S’ Station 37+72.83 to 51+21.50 (HPI Station 45+01.83): 82’ less than the recommended 510’ (outside shoulder)
e. Ellsworth Road Ramp ‘B’ Connector Station 5+28.50 to 15+58.84 (HPI Station 10+88.37): 57’ less than the recommended 427’ (outside shoulder)

HAWES ROAD TI

The horizontal curve superelevation rate is less than the recommended AASHTO minimum at the following location:

a. Hawes Road Ramp ‘C’ Station 16+23.65 to 33+13.65 (HPI Station 24+85.21): The 0.036’/ft. superelevation rate is less than the recommended minimum of 0.039’/ft.

ELLSWORTH ROAD TI

The horizontal stopping sight distance is less than the AASHTO recommended minimum distances due to roadway curvature and the placement of concrete barrier adjacent to the inside and outside shoulders at the following locations:

a. Ramp 'A' Station 14+83.19 to 19+42.19 (HPI Station 17+15.81): 119’ less than the recommended 421’ (outside shoulder)

7.4 REQUEST FOR ADOT DESIGN EXCEPTIONS

The Phase I project is currently under final design and the roadway geometry is being refined by the final designer. AASHTO design exceptions will be requested during final design for the non-conforming design elements.

8.0 SOCIAL, ECONOMIC AND ENVIRONMENTAL CONCERNS

An Environmental Assessment (EA) is being prepared as part of this project. The Draft EA was approved on October 12, 2010, and the Final EA was approved with a Finding of No Significant Impact (FONSI) in May 2011.

APPENDIX A

Summary of Comments

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L to IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS

ACTION CODES: A = WILL COMPLY — *B = CONSULTANT TO EVALUATE
**C = ADOT TO EVALUATE — *D = DESIGN TEAM RECOMMENDS NO FURTHER ACTION

* REQUIRES A WRITTEN EXPLANATION BY CONSULTANT/DESIGNER
** REQUIRES FINAL DISPOSITION

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	FINAL	RESPONSE
		Larry Langer, ADOT Valley Project Management			
		Initial Design Concept Report			
1	Volume. 1, Page 1	**Fifth Paragraph;** We refer to continuation of the existing ½ cent sales tax. Seems there needs to be some reference to the first tax.	A	A	
2	Volume. 1, Page 2	**Top of the Second Column;** Change the order of the sentence to a plan that addresses safety requirements ... and is acceptable to ADOT….	A	A	
3	Volume. 1, Page 6	**Bottom of Column One;** The inside and outside shoulders should be 12 feet wide.	D	D	The existing median shoulders are 8’ AC within a 48’ open median. The outside shoulders are 10’ adjacent to C&G and 12’ adjacent to half barrier.
4	Volume. 1, Page 6	**Top of Column Two;** The median width should be 26 feet or 50 feet wide.	A	A	Will change to reference the existing 48’ median width.
5	Volume. 1, Page 6	**Fourth Paragraph from the Bottom;** The Santan is depressed at Higley.	A	A	
6	Volume. 1, Page 11	**Third or Fourth Paragraphs of 1.3.4;** Should we mention Flight Operations Procedures?	A	A	Will add to text
7	Volume. 1, Page 13	The text indicates the Ellsworth Road channel runs along the east and west sides of Ellsworth yet the graphic only shows it on the west.	A	A	
8	Volume. 1, Page 13	**Last Paragraph;** Change “flow” to “flows”.	A	A	
9	Volume. 1, Page 16	**Table 4, Second Column, Rows 5, 7 and 8;** East should be west and west should be east.	A	A	
10	Volume. 1, Page 16	**Table 5, Second Column, Row 4;** South should be north.	A	A	
11	Volume. 1, Page 17	**Table 5, Second Column, Last Row;** Check NB, all other entries use EB/WB.	A	A	
12	Volume. 1, Page 17	**Last Paragraph;** I’m told FMS conduit is no longer concrete encased. Please verify.	A	A	ADOT TTG verified the FMS conduit is no longer concrete encased
13	Volume. 1, Page 17	**Last Paragraph;** Do we have any bridges the conduit would run through instead of being attached to?	A	A	
14	Volume. 1, See Right	**Pages 21, 22, 25, 26, 27, 28, 29, 30;** Seems we should eliminate the Williams Gateway reference in the lower left corner. It is in the header and is confusing as the route shown is 202 not 802.	A	A	Will revise the graphics

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	FINAL	RESPONSE
		Larry Langer, ADOT Valley Project Management (Continued)			
15	Volume. 1, Pages 31-42	Same comment as above although in this case some of the sheets do show 802.	A	A	See Comment 14
16	Volume. 1, Pgs 45, 46, 47	**Second Column, Second Paragraph;** Change "operation" to "operational".	A	A	
17	Volume. 1, Page 49	Seems we should eliminate the Williams Gateway reference in the lower left corner or change it to 802/202.	A	A	See Comment 14
18	Volume. 1, Page 50	**First Column, Last Paragraph;** Change "operation" to "operational".	A	A	
19	Volume. 1, Pages 51, 52	Seems we should eliminate the Williams Gateway reference in the lower left corner or change it to 802/202.	A	A	See Comment 14
20	Volume. 1, Page 72	**Second Paragraph;** Change "there" to "where".	A	A	
21	Volume. 1, Page 76	**First line of the Next to Last Paragraph;** It seems "designated" should be "divided".	A	A	
22	Volume. 1, Page 80	**Section 4.15.1;** I'm told conduit is no longer concrete encased.	A	A	See Comment 12
23	Volume. 1, Page 80	**First Paragraph of 4.16;** Begin the sentence with "Eight existing freeway light poles would penetrate into…"	A	A	Will revise text to incorporate.
24	Volume. 1, Page 87	It appears the pink color used on the mainline just west of Ellsworth is a different shade from the rest of the Phase 2 work.	A	A	Will revise the graphic
25	Volume. 1, Page 93	Why can't we meet the desired super elevation on Williams Field Ramp C as it's a new ramp?	A	A	Will eliminate this design exception request.
26	Volume. 2, Dwg G-2.3	20 foot slope rounding detail should reflect the slopes intersecting at the 10 foot point. This applies to all typical sections.	A	A	Will update typical sections to include PI of the slopes that contribute to the 20' rounding.
27	Volume. 2, Dwg G-2.6	Why does the only two lane entrance ramp section show an adverse super section?	A	A	Will revise typical section
28	Volume. 2, Dwg G-2.7	Is the 8 foot median shown on the Crismon section really correct? That would seem to be too narrow for a standard Mesa cross section. At this is not a TI we are just crossing the City section.	A	A	Will revise typical section to include a 16' width raised median.
29	Volume. 2, Dwg C-3.6	The WB Power Road off ramp section across the RWCD bridge is not the right section for a two lane exit ramp. If that is the existing bridge width it seems we need to call out a taper on the approach roadway to get to that width.	A	A	Will update design to provide an ultimate two lane exit ramp.
30	Volume. 2, Dwg C-3.16	The WB 25:1 taper at Sta 3118+88.94 appears to end somewhat inside the existing edge of pavement. It seems we need to end the taper at the edge of pavement and the end of the existing anchor slab and ignore the use of a 25:1 taper rate since the roadway is widening here.	A	A	
31	Volume. 2, Dwg C-6.3	Why have we introduced a crest in the Crismon profile? We don't have a TI there so it is not for improving the ramp connections. It appears just to create an extra low point in the profile.	A	A	Will lower the Crismon Road profile.

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	DISPOSITION FINAL	RESPONSE
		Larry Langer, ADOT Valley Project Management (Continued)			
32	Volume. 2, Dwg T-2.1	TTG has asked that we show future DMS locations on the signing and marking plans.	A	A	We contacted TTG for guidance and modified the plans accordingly. We have included a note to coordinate with TTG on FMS implementation items in Section 4.15.2 of the DCR.
33	Volume. 2, Dwg T-2.2	Is the airport access sign referring to the correct exit? I believe PMGA is going to sign Hawes for airport access since it will open soon.	D	D	Until the east terminal complex is built and operational, Power Road will remain the main entry into PMGA.
		Dennis Crandall, ADOT Roadway Drainage Section			
		Initial Drainage Design Concept Report			
1	Page 12	**1st Sentence;** Is the flow in the channel limited to 1650 cfs or is this the flow rate that split flow into the basin occurs?	A	A	The flow in the channel is limited to 1650 cfs. Flow in excess of this amount goes into the basin.
2	Page 14	**Channel Cross Slope;** Have we changed the criteria? The old Urban Highways Manual criteria is 2% cross slope but 6" minimum.	A	A	According to the 2007 Roadway Design Guidelines, Section 608.1 (B), the only cross slope requirement is 2% with no mention of the 6" minimum.
3	Page 21	Hasn't the drainage section provided written guidance regarding catch basin placement along ramp transitions?	A	A	We will reference a written document if it is available.
4	Page 21	Are you using an old report for the Red Mountain Freeway as a template? There is a reference to "this section of the Red Mountain Freeway".	A	A	
		Initial Design Concept Report			
5	Page 12	Is reference to 25 hour rainfall depth correct?	A	A	Will revise the text.
6	Volume. 2, Appendix C	**Sheet D-1.3;** Why are we connecting existing storm drain in Ellsworth Road to our system and discharging it into the ADOT basin?	A	A	The existing storm drain in Ellsworth Rd. will be cut off by the proposed offsite channel RCBC. Rather than tie into the RCBC, the flow is instead routed directly to the basin. We propose to leave the design as currently shown. We propose to leave the design as currently shown.
		Kurt Miyamoto, ADOT Traffic Engineering Group			
		Initial Design Concept Report			
1	Volume 2, Dwg T-2.2	Add 3 AASHTO lane drop arrows for WB traffic.	A	A	
2	Volume. 2, Dwg T-2.3	Position pavement arrow nearer to the last skip lane lines for on ramp WB traffic (see M-15 Signing & Marking Standard). Move EB "Right Lane Exit Only" sign closer to beginning of solid gore lane line.	A	A	
3	Volume. 2, Dwg T-2.6	Change "Right 2 Lanes Must Exit" sign designation to W6-5e; Move EB "Right Lane Exit Only" sign further east such that it is close to lane drop lines, preferably closer to the beginning of solid gore lane line	A	A	

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	DISPOSITION FINAL	RESPONSE
		Kurt Miyamoto, ADOT Traffic Engineering Group (Continued)			
4	Volume. 2, Dwg T-2.11	Prefer to have all Exit 32 panels replaced (if possible) instead of using existing panels because "1/4" fraction should be removed from sign panel.	A	A	
5	Volume. 2, Dwg T-2.14	Position first pavement arrow nearer to the last skip lane lines for NB traffic (see M-15 signing & marking standard).	A	A	
6	Volume. 2, Dwg T-2.15	Add black on yellow "exit only" panels with two lane assignment "down" arrows for 202 West and 202 East signs, respectively.	A	A	
7	Volume. 2, Dwg T-2.16	Add black on yellow "exit only" panels with two lane assignment "down" arrows for 202 West and 202 East signs, respectively; Extend lane drop markings further east to where new sign structure and panels are located.	A	A	
		Hector Rivas-Bernal, ADOT Materials Group			
		Initial Design Concept Report			
1	Volume 1, Page 9	**Table 78;** Change the thickness of Plain PCCP for the Ramps to 10" to match with Table 9 on page 18.	D	D	The previous page states that the pavement on SR202L should match the existing pavement. Will clarify that Table 9 is intended to reference only new pavement structure sections for SR802.
2	Volume. 1, Page 81	**Cost Estimate;** The item numbers of the following do not match with the ADOT numbers: • 4060023 Asphaltic Concrete (AR-ACFC 1" Overlay) • 4060098 Asphaltic Concrete (7" AC over 10" AB) • Is the price of 4010013 the same price as 4010012?	A	A	Will revise item numbers; Will use different unit rates for each pavement structural section.
3	Volume. 2, Appendix C	**Typical Sections;** The Pavement Structure thickness layers are not shown for the Typical Sections in Drawings G-2.1 through G-2.10. The Pavement Structure Sections are necessary in order to revise the quantities and to know where the following Items are going to be built: • 3030026 Aggregate Subbase, Class 6 • 4010011 Portland Cement Concrete Pavement (11"/4" AB) • 4010012 Portland Cement Concrete Pavement (12"/4" AB) • 4060098 Asphaltic Concrete (7" AC over 10" AB)	A	A	We will clarify which pavement structure section applies to each type of roadway in the estimate; We typically do not include all of the assumed pavement structural sections on the DCR plans.
		James Marino, ADOT Transportation Technology Group			
		Initial Design Concept Report			
1	Volume. 1, Page 80	**Section 4.15.1, FMS Communication sand Trunk Line;** "The trunk line conduit consisting of three **concrete encased** 3" conduit would be installed …" We no longer encase conduit in concrete. We don't even encase conduit half sack slurry any longer so this phrase should not be used. Should a bid be done with this phrase in it then we would be giving the contractor free money since they would bid on the assumption that the conduit would be encased in concrete and find out afterward that we do not want it.	A	A	Will eliminate all references to "concrete encased" conduit.

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	DISPOSITION FINAL	RESPONSE
		James Marino, ADOT Transportation Technology Group (Continued)			
2	Volume. 1, Page 17	**Section 1.3.10, Freeway Management Systems;** "The existing FMS ducts banks include three 3" conduits located along the shoulders of eastbound and westbound roadways. The conduit system is concrete encased …." I talked to Farzana, Lydia, and Chuck McClatchey about this. The last time, to the best of everyone's recollection, that we encased conduit in concrete was phase 7a. No one here thinks that the conduit along the SR 202 where the new Williams Gateway freeway will be is concrete encased. We are not 100% sure but the consensus is that the conduit is not encased. Did AECOM pothole to see if the conduit is concrete encased? As in comment number 1 if we leave the concrete encased reference in the document and the conduits are not concrete encased then we would be giving free money to the contractor when they bid on the project.	A	A	
		Shelby Brown, Flood Control District of Maricopa County			
		Initial Drainage Design Concept Report			
1	Report	**Table 2;** Table 2 shows concentration points in the EMF. Please be aware and note that these concentration points in the model MIDCURE.DAT do not represent peak flows in the EMF. In order to determine peak flows in the EMF in this study area, a series of 3 HEC-1 models representing the contributing watershed must be run with values written to a .dss file, followed by the running of a HEC-1 routing model for the EMF which extracts the inflow hydrographs at the various inflow locations from the .dss file and combines and routes the flows. These additional models can be provided if you would like to determine the EMF flows.	B	A	The model X-NEMESA.DAT was run to create a .dss file, which was then read by MIDCURE.DAT. If additional files are necessary, we will include those files as well. We contacted the FCDMC and mutually agreed to clarify in the text that the HEC-1 results do not represent the total combined flows into the EMF.
2	Report	**Table 2;** In Table 2, please include the volume comparisons at concentration points CPPWR (confluence of Powerline Floodway and Ellsworth Channel), CPOWER (Powerline Floodway u/s of EMF), and 76ATPR (Santan Channel u/s of EMF).	A	A	We will include those volumes in Table 2 in the next report submittal.
3	Report	**Section 5.3;** It is stated that the existing conditions hydrology was used for design as it produces the highest flows. Please note that, although the NOAA 14 100-yr, 24-hr rainfall remained nearly the same as the NOAA 2 value, the NOAA 14 100-yr, 2-hr rainfall decreased significantly to approximately 2.2" from the NOAA 2 value of 2.6". This change means that the retention volume requirements for future development will likely be less than estimated in the original East Mesa ADMP. Preliminary results of the East Mesa ADMP Update show some sub-basins generating higher flows after development (with on-site retention) than under the existing conditions.	B	A	We contacted the FCDMC and mutually agreed to clarify the text to state that the hydrology is based entirely on the NOAA 2 precipitation.
4	HEC-1 Model	**Revised HEC-1;** For the modified drainage areas, the same values for DTHETA, PSIF, and XKSAT used in the existing conditions sub-basins were applied to the sub-basins split by the proposed SR 802. As these parameters are dependent on the soil type, or an average of the collective soil types, this is not an appropriate method for assigning these values.	A	A	We will update the affected subbasins for future submittals.
5	HEC-1 Model	**Revised HEC-1;** The S-Graph for sub-basin 78F2 was changed from Valley (for sub-basin 78F in the EMADMP) to the Desert/Rangeland S-graph. The assigned Kn value for this sub-basin, however, does not support the choice of Desert/Rangeland S-graph. Please use the Valley S-graph.	A	A	

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	DISPOSITION FINAL	RESPONSE
		Shelby Brown, Flood Control District of Maricopa County (Continued)			
6	HEC-1 Model	**Revised HEC-1;** Should RTIMP for S78E1 be 12% rather than 1%?	A	A	Yes.
7	Report	**Report:** For the FlowMaster calculations, please clarify/identify where the different cross sections are located. Provide the source of the data input into the calculations and document any assumed data such as 'n' values. The 11,983.59 cfs design Q seems high.	A	A	We will provide cross section locations and source data.
8	HEC-1 Model	**HEC-1 Model;** For the proposed basin at Ellsworth Road, please keep in mind that HEC-1 does not necessarily do a good job at estimating the size basin that is needed. Actual volume required for offline basins with side weirs (after modeling as unsteady flow in HEC-RAS) is often triple the diverted volume determined in the HEC-1. This appears to be, at least, partially due to the efficiency of the weir. The weir coefficient typically computes to approx 2.0 using Hager's Equation. I noticed that a coefficient of 2.6 was used in the calculations.	A	A	The Ellsworth Basin was modeled in HEC-1 using a simple divert operation. No weir calculation was performed. During final design, the side weir will have to be designed with the appropriate length and crest elevation to ensure that the flow rate and flow volume modeled in HEC-1 will exit the channel and enter the basin.
		Andy Smith, Pinal County			
		Initial Drainage Design Concept Report			
1	General	The preliminary drainage design scheme seems feasible and the designers appear to have a good understanding of the drainage design requirements and how to address them. The offsite hydrologic analysis appears to be complete and is acceptable, and the preliminary size and type of the associated drainage structures has been documented and appears reasonable. However, based on the review, the following items will need to be addressed as part to the 60% submittal:			
		• It should be noted that the hydrologic analysis is based on NOAA 14 normal values; whereas, Pinal County uses the upper 90% values. Please revise accordingly.	D	D	The hydrologic analysis actually used the NOAA Atlas 2 for rainfall depths, not NOAA 14. ADOT's policy is to use existing hydrology studies when available. In this case, the Flood Control District of Maricopa County (FCDMC) *East Mesa Area Drainage Master Plan* hydrologic analysis was used as the base model for the design the SR 802 offsite drainage system.
		• The approximate boundaries of the onsite drainage areas are provided and a cursory design of the number and type of roadway drainage elements (i.e., detention/retention basins, catch basins, and storm drains) to be provided was included in the report. More-detailed design of the onsite elements will be required as the overall roadway design evolves. This information will need to be finalized prior to the acceptance of the final design report.	A	A	More-detailed design of onsite drainage elements will be performed as part of the final design and will be documented in a Final Drainage Report.
		• The initial report does not mention the potential for sedimentation within the collector channel and how it will be analyzed and addressed.	A	A	Future reports will include a discussion of sedimentation.
		• Typical sections of the collector channel and roadway should be provided as part of the Drainage Areas plan set. It is important that the typical sections of the channel include a key-in along its upstream edge to address the potential for erosion.	A	A	The DCR plans include a roadway typical section, and a typical channel section is shown on Dwg D-4, which includes a toe-down or key-in along the upstream edge.

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	DISPOSITION FINAL	RESPONSE
		Andy Smith, Pinal County (Continued)			
1	General (Continued)	• The report notes the standard freeboard requirement for uniform channel reaches; however, additional freeboard is required as channel bends, along transition sections, in the vicinity of hydraulic jumps, and on the bank opposite the inflow side of a collector channel. These additional freeboard requirements should also be incorporated into the design.	A	A	Additional freeboard will be provided in these locations as necessary during the final design development. The Initial Drainage Design Concept Report does indicate the need for accounting for superelevation of the water surface on Page 16.
2	Sections 3.2, 3.5 and 7.0	Suggestions regarding the write-up: • The text references the Mesa Proving Grounds, but figures are labeled Former General Motors Proving Grounds. Please revise to be consistent between the two. • The text references the Phoenix-Mesa Gateway Airport, but figures are labeled Williams Gateway Airport. Please revise to be consistent between the two. • Identify and label the county boundary on the figures. • The text references the proposed alignment of Pecos Road channel, but it is not shown on Figure 2. Please revise accordingly. • The discussion uses detention and retention interchangeably when referencing the same feature. Although it is recognized that the three first-flush retention basins and the larger basin is a retention/detention basin, the discussion does not make this distinction. In addition, the report references the Ellsworth detention basin, but it is only identified in Figure 3 as a firth-flush retention basin. Please revise accordingly.	A A A D A	A A A D A	We will revise the text/figures to be consistent. We will revise the text/figures to be consistent as Phoenix-Mesa Gateway Airport. We will include the county boundary on the figures. The Pecos Channel is not an existing nor a currently proposed channel, so it doesn't belong on either the existing or the proposed drainage facilities figures. As described in section 3.5, the Pecos Channel *was* proposed as part of the East Mesa ADMP, but is now being reconsidered because most of the flow that it would collect would be cut off by the proposed SR 802. We will make references to basins consistent. Please note that all of the basins perform both as retention (for first flush) and as detention basins, so we will probably use the term "first flush / detention basin".
3	General	Please resubmit 2 paper copies of the 60% Concept Design Report with accompanying figures/exhibits and supporting calculations. Please provide a CD containing an electronic copy of the DCR, calculations and figures in a PDF format as part of the next submittal. Also provide electronic copies of all hydrologic and hydraulic Models (i.e. HEC-RAS, HEC-2, HEC-1, HEC-HMS, etc), including spreadsheets, on a separate CD for verification and review purposes.	A	A	The requested data will be provided with future submittals for the portion of the project within Pinal County.
4	General	Based on the information being requested, additional comments may be forthcoming.	N/A	N/A	
		Alan Sanderson, City of Mesa			
		Initial Design Concept Report			
1	Volume. 1, Page 9	On page 9 there's a comment that "The City of Mesa does not currently plan to extend Hawes Road to the north of SR 202L." Just to be clear, the City's 2025 Transportation Plan does call for Hawes Road to extend north of SR 202L, and Hawes Road from Broadway to SR 202L is in Phase IV of the Arterial Life Cycle Program of the Regional Transportation Plan.	A	A	Will update the text to include this information.

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	FINAL	RESPONSE
		Alan Sanderson, City of Mesa (Continued)			
2	Volume 1, Page 43	In the analysis of the service interchange operations, excessively long cycle lengths of 140 and 150 seconds are shown for A.M. periods. These cycle lengths are well beyond what is typically needed and used along the arterial street system. Operating the interchanges at these cycle lengths separately from the other arterial intersections would disrupt progression and degrade service along the arterial streets.	A	A	We will revisit the analysis with a reduced cycle length that is typically used by Mesa. We will update the report accordingly.
3	Volume 1, Page 43	The analyses of the service interchanges show a need only for single left-turn lanes up to 2030 except for the interim condition at Ellsworth, and for northbound at Signal Butte. Does the MAG model that generated the traffic forecast include the high density development envisioned by the DMB Mesa Proving Grounds development, the Mesa Gateway Strategic Development Plan, and proposed development in Pinal County to the east and the Queen Creek area to the south? Based on experience with US 60 throughout the east valley and land use plans for this area, it is extremely likely that dual left turn lanes will be needed ultimately at these interchanges. While single left turn lanes may be sufficient initially, it is critical that the interchange bridges be built to accommodate an ultimate cross section with dual left turn lanes. We realize this will not be an issue for Phase 1 construction, but for future phases when the service interchange bridges will be built, and recognize the DCR does state evaluations should be done in the future. However, we want to raise this concern now since we believe it is a critical issue for the future phases.	A	A	The MAG model is intended to reflect the current planned development in the area based upon the local agencies approved land use plans. The MAG model was also updated during this study to incorporate the assumed planned land use at the east terminal complex at PMGA. The number of turn lanes at each interchange was developed based upon the number of lanes needed to operate each interchange with LOS 'D' or better in accordance with MAG policy. Each interchange will be re-evaluated in the future in conjunction with the freeway design. This is intended to ensure the appropriate number of turn lanes are included in the design (at that time) to satisfy the future travel demand projections.
		Mark Ahlstrom, City of Mesa			
		Initial Design Concept Report			
1	Volume 1, Page 12	**Table 1;** The City has the following existing facilities that should be included: • There is a 4" PE gas line in Power Road • The 54' sewer at the RWCD Canal is in a 78" sleeve • The 24" DIP water line in Sossaman Road is in a 42" steel casing • There is a 42" RGRCP sewer line in Elliot Road	A	A	Will update Table 1 to incorporate.
2	Volume 1, Page 12	The City has proposed utilities at the following locations: • Ellsworth Road: 21" sewer • Ellsworth Road: 20" water • Williams Field Road: 18" sewer • Williams Field Road: 16" water • Crismon Road: 20" water • Crismon Road: 24" water • Signal Butte Road: 12" water • Meridian Road: 12" water	A	A	Will update the DCR Section 4.9 to incorporate.
3	Volume 1, Pgs 12 & 69	The final drainage report should coordinate with and reference the City of Mesa Storm Drain Master Plan, January 2010	A	A	Will include on Page 69 of the DCR.

SR 802, WILLIAMS GATEWAY FREEWAY
(SR 202L TO IRONWOOD ROAD)
PROJECT NO. 802 MA 999 H6867 01L

INITIAL DESIGN CONCEPT REPORT REVIEW COMMENTS (continued)

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION INIT.	FINAL	RESPONSE
		Tim Wolfe, ADOT Phoenix Maintenance District			
		I have no comments.			
		Julie Kliewer, ADOT Phoenix Maintenance District			
		I have no comments.			
		Javier Gurrola, ADOT Roadway Predesign Section			
		I have no comments.			
		Kenneth Potts, ADOT MPD Aeronautics Group			
		I have no comments. You are working with the airport.			
		Sheng-Yung Hsu, ADOT Bridge Group			
		No comments were received			
		Rebecca Swiecki, ADOT Environmental Planning Group			
		No comments were received			
		George Chin, ADOT Phoenix Regional Traffic			
		No comments were received			
		Nancy Wilcox, ADOT Right-of-Way Group			
		No comments were received			
		Dan Macdonald, ADOT Roadway Support Group			
		No comments were received			
		Joseph Salazar, ADOT Roadside Development Section			
		No comments were received			
		Amy Ritz, ADOT Utilities & Railroad Engineering Section			
		No comments were received			
		Denise Lacey, Maricopa County Department of Transportation			
		No comments were received			
		Walter Fix, Phoenix-Mesa Gateway Airport			
		No comments were received			
		Bob Hazlett, Maricopa Association of Governments			
		No comments were received			
		Wendy Kaserman, Town of Queen Creek			
		No comments were received			
		Michelle Green, Arizona State Land Department			
		No comments were received			

APPENDIX B

AASHTO Controlling Criteria Report

PROJECT 802 MA 999 H6867 01L

SR 802 WILLIAMS GATEWAY FREEWAY

SR 202L – IRONWOOD ROAD

AASHTO CONTROLLING DESIGN CRITERIA REPORT

May 2010

ARIZONA DEPARTMENT OF TRANSPORTATION

INTERMODAL TRANSPORTATION DIVISION

ROADWAY ENGINEERING GROUP

ROADWAY PREDESIGN SECTION

TABLE OF CONTENTS

PAGE

LIST OF EXISTING FEATURES REQUIRING DESIGN EXCEPTIONS

The following is a list of the existing design features requiring design exceptions:

(Note: The analysis of all design elements of the following roadways have been compared with the recommended AASHTO Controlling Design Criteria to identify geometric elements that do not comply with the AASHTO 2004 "Green" Book criteria.)

No existing design features require a desigu exception.

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
202L MAIN LINE SUMMARY

PROJECT NUMBER: 802 MA 999 H6867 01L
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
FUNCTIONAL CLASSIFICATION: Urban Freeway/Expressway - Controlled Access

ROUTE: SR 202L
BEGINNING MP: 31.08
ENDING MP: 38.63

LANE AND SHOULDER WIDTH

	EXISTING (Feet)	AASHTO RECOMMENDED MINIMUM (Feet)
LANE WIDTH:	12	12
INSIDE SHOULDER WIDTH:	8 [1]	10
OUTSIDE SHOULDER WIDTH:	10-12	10

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: 65 MPH

THE POSTED SPEED LIMIT IS: 65 MPH
TERRAIN IS: LEVEL

GRADES

EXISTING MAXIMUM GRADE IS: 2.0000% EB&WB

AASHTO ALLOWABLE MAXIMUM GRADE IS: 3.0000%

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020'/ft

AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020'/ft

TRAFFIC VOLUMES AND FACTORS

	Existing 2009 ADT (VPD)	Design Year 2030 ADT (VPD)	TRAFFIC FACTORS		
			K=	D=	T=

See Attachment No. 5

REMARKS

[1] Existing Median shoulder is 8' Paved with flat median grading

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
SR202L MAINLINE - CONTINUED

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Post Construction Clearance	AASHTO Minimum Allowable Clearance

See Attachment No. 3

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity

See Attachment No. 4

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)

See Attachment No. 1

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	Existing (Ft/Ft)	Minimum (Ft/Ft)	EXISTING SPEED (MPH)	DEGREE OF CURVE Maximum	Existing

See Attachment No. 2

REMARKS

ATTACHMENT NO. 1

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

Direction: SR 202L Eastbound

VPI Station	Curve Length (Ft)	Grades (%)		Existing SDs (Ft)	Minimum SDs (Ft)	Existing Speed (mph)	Design Speed (mph)
		Approach	Departure				
2869+25.00	900	0.5025	-0.8409	1,253	653	>90	65
2880+25.00	800	-0.8409	1.3005	2,699	653	>90	65
2929+80.00	1,200	1.3005	-0.3991	1,235	648	>90	65
2964+25.00	1,400	-0.3991	1.5005	10,226	648	>90	65
2997+00.00	2,550	1.5005	-0.9996	1,484	655	>90	65
3020+33.00	1,200	-0.9996	2.0000	1,600	655	>90	65
3034+05.00	1,200	2.0000	-0.7469	971	652	83	65
3060+05.00	1,000	-0.7469	1.3732	3,405	652	>90	65
3090+25.00	800	1.3732	-0.4000	1,009	648	85	65
3100+60.00	800	-0.4000	0.9028	>1500	648	>90	65
3118+20.00	1,000	0.9028	-0.4960	1,271	649	>90	65
3151+75.00	800	-0.4960	1.8000	2,048	649	>90	65
3171+30.00	2,000	1.8000	-1.8000	1,095	665	88	65
3186+70.00	800	-1.8000	0.5057	2,019	665	>90	65
3198+90.00	800	0.5057	-0.6141	1,364	651	>90	65
3226+50.00	800	-0.6141	1.2952	6,049	651	>90	65
3275+86.41	800	1.2952	0.4000	1,605	639	>90	65

Direction: SR 202 Westbound

VPI Station	Curve Length (Ft)	Grades (%)		Existing SDs (Ft)	Minimum SDs (Ft)	Existing Speed (mph)	Design Speed (mph)
		Approach	Departure				
2866+50.00	900	0.5200	-0.6545	1,369	649	>90	65
2880+25.00	800	-0.6545	1.3054	4,687	659	>90	65
2929+60.00	1,200	1.3054	-0.4035	1,231	659	>90	65
2964+25.00	1,400	-0.4035	1.5005	9,958	661	>90	65
2997+00.00	2,550	1.5005	-0.9996	1,484	661	>90	65
3020+33.00	1,200	-0.9996	2.0000	1,600	668	>90	65
3034+05.00	1,200	2.0000	-0.7500	970	668	81	65
3060+05.00	1,000	-0.7500	1.3500	3,571	660	>90	65
3090+25.00	800	1.3500	-0.4000	1,017	660	84	65
3100+60.00	800	-0.4000	0.8500	>1500	653	>90	65
3118+20.00	1,000	0.8500	-0.4450	1,333	653	>90	65
3151+75.00	800	-0.4450	1.8000	2,218	665	>90	65
3171+30.00	2,000	1.8000	-1.8000	1,095	665	88	65
3186+70.00	800	-1.8000	0.5057	2,019	649	>90	65
3198+90.00	800	0.5057	-0.6134	1,364	649	>90	65
3227+25.00	800	-0.6134	1.2966	6,024	659	>90	65
3243+50.00	800	1.2966	1.5106	>1500	662	>90	65
3256+79.24	800	1.5106	1.2941	5,383	662	>90	65
3275+29.24	800	1.2941	0.4001	1,607	659	>90	65

ATTACHMENT NO. 2

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
HORIZONTAL ALIGNMENT AND SUPERELEVATION

Direction: SR102L Eastbound and Westbound

HPI Station	Superelevation			Existing Speed (MPH)	Degree Curve	
	Max	Existing	Minimum		Max	Existing
2877+94.98	0.060	0.020	0.020	65	3°-27'-00"	0°-30'-00"
2912+44.72	0.060	0.020	0.020	65	3°-27'-00"	0°-30'-00"
3059+47.48	0.060	0.024	0.023	65	3°-27'-00"	0°-45'-00"
3120+92.15	0.060	0.036	0.036	65	3°-27'-00"	1°-15'-00"
3234+65.69	0.060	0.036	0.036	65	3°-27'-00"	1°-15'-00"
3268+42.51	0.060	0.036	0.036	65	3°-27'-00"	1°-15'-00"

ATTACHMENT NO. 3

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Post Construction Clearance	AASHTO Minimum Allowable Clearance
Higley Road TI UP Structure No.2779	38.65	N/A	17.16	16'
Recker Road OP EB Structure No.2780	37.65	N/A	17.02	16'
Recker Road OP WB Structure No.2781	37.64	N/A	17.11	16'
Power Road OP WB Structure No.2759	36.65	N/A	19.08	16'
Power Road OP EB Structure No.2758	36.65	N/A	19.08	16'
E. Maricopa Fldwy OP WB Structure No.2761	36.40	N/A	19.00	16'
E. Maricopa Fldwy OP EB Structure No.2760	36.40	N/A	19.00	16'
Sossaman Road OP WB Structure No.2757	35.80	N/A	18.00	16'
Sossaman Road OP EB Structure No.2756	35.80	N/A	17.91	16'
Hawes Road TI OP WB Structure No.2755	34.67	N/A	17.00	16'
Hawes Road TI OP EB Structure No.2754	34.67	N/A	18.02	16'
Warner Road OP WB Structure No.2753	34.10	N/A	16.70	16'
Warner Road OP EB Structure No.2752	34.10	N/A	17.85	16'
Elliot Road TI OP WB Structure No.2711	33.07	N/A	16.71	16'
Elliot Road TI OP EB Structure No.2710	33.07	N/A	16.71	16'
Guadalupe Road TI UP WB Structure No.2724	32.07	N/A	17.72	16'
Guadalupe Road TI UP EB Structure No.2712	32.07	N/A	17.72	16'
Baseline Rd TI OP (Ramp N-W) Structure No.2734	31.03	N/A	16.67	16'
Baseline Road TI OP SB Structure No.2732	31.03	N/A	18.72	16'
Baseline Road TI OP NB Structure No.2731	31.03	N/A	18.72	16'

REMARKS

ATTACHMENT NO. 4

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Higley Road TI UP Structure No.2779	38.65	143	143	Yes	Yes	HS-20	HS-20
Recker Road OP EB Structure No.2780	37.65	73	73	Yes	Yes	HS-20	HS-20
Recker Road OP WB Structure No.2781	37.64	73	73	Yes	Yes	HS-20	HS-20
Power Road OP WB Structure No.2759	36.65	73	73	Yes	Yes	HS-20	HS-20
Power Road OP EB Structure No.2758	36.65	73	73	Yes	Yes	HS-20	HS-20
E. Maricopa Fldwy OP WB Structure No.2761	36.4	73	73	Yes	Yes	HS-20	HS-20
E. Maricopa Fldwy OP EB Structure No.2760	36.4	73	73	Yes	Yes	HS-20	HS-20
Sossaman Road OP WB Structure No.2757	35.8	73	73	Yes	Yes	HS-20	HS-20
Sossaman Road OP EB Structure No.2756	35.8	73	73	Yes	Yes	HS-20	HS-20
Hawes Road TI OP WB Structure No.2755	34.67	73	73	Yes	Yes	HS-20	HS-20
Hawes Road TI OP EB Structure No.2754	34.67	73	73	Yes	Yes	HS-20	HS-20
Warner Road OP WB Structure No.2753	34.1	85	85	Yes	Yes	HS-20	HS-20
Warner Road OP EB Structure No.2752	34.1	85	85	Yes	Yes	HS-20	HS-20
Elliot Road TI OP WB Structure No.2711	33.07	91.42	91.42	Yes	Yes	HS-20	HS-20
Elliot Road TI OP EB Structure No.2710	33.07	91.42	91.42	Yes	Yes	HS-20	HS-20
Guadalupe Road TI UP WB Structure No.2724	32.07	70	70	Yes	Yes	HS-20	HS-20
Guadalupe Road TI UP EB Structure No.2712	32.07	70	70	Yes	Yes	HS-20	HS-20
Baseline Rd TI OP (Ramp N-W) Structure No.2734	31.03	41.92	41.92	Yes	Yes	HS-20	HS-20
Baseline Road TI OP SB Structure No.2732	31.03	82'	82'	Yes	Yes	HS-20	HS-20
Baseline Road TI OP NB Structure No.2731	31.03	94'	94'	Yes	Yes	HS-20	HS-20

REMARKS

ATTACHMENT NO. 5

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
TRAFFIC VOLUMES AND FACTORS

Begin MP	Section Begins At	End MP	Section Ends At	Existing 2009 ADT (VPD)	Design Year 2030 ADT (VPD)	TRAFFIC FACTORS K=	D=	T=
31.2	Exit 31 Baseline Rd	32.13	Exit 32 Guadalupe Rd	67,500	157,600	7%	63%	2%
32.13	Exit 32 Guadalupe Rd	33.1	Exit 33 Elliot Rd	57,500	157,600	7%	58%	2%
33.1	Exit 33 Elliot Rd	36.6	Exit 36 Power Rd	39,700	116,500	7%	52%	2%
36.6	Exit 36 Power Rd	38.67	Exit 38 Higley Rd	40,000	106,400	6%	56%	2%

Note: 1) Design Year 2030 traffic volumes include HOV lane.
2) Traffic Factors were obtained from the Arizona Department of Transportation Multimodal Division's 2009 AADT's

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp A

PROJECT NUMBER: 802 MA 999 H6867 01L — **MAINLINE MILEPOST:** 36.9
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Power Rd TI
RAMP DESIGNATION: Ramp A
DESCRIPTION: WB Entrance Ramp

PAVEMENT WIDTH
CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28	26	45	11,451

DESIGN SPEED
THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	Descending
1.9008	-1.3818	6.0	6.0

CROSS SLOPE
EXISTING CROSS SLOPE IS: 0.020 '/ft — AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
6,800	4,600	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp A - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
11+50.00	1.3818	-1.9008	1000	811	504	74	55
18+15.00	-1.9008	0.9183	200	451	429	52	50

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
4+89.02	0.060	0.020	0.020	55	5°-24'-00"	0°-30'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp B

PROJECT NUMBER: 802 MA 999 H6867 01L **MAINLINE MILEPOST:** 36.9
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Power Rd TI
RAMP DESIGNATION: Ramp B
DESCRIPTION: EB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 2
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
22-40 [1]	20	30	11,451

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	Descending
1.3633	-1.6957	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
6,500	4,100	

REMARKS

[1] One lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp B - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
12+25.00	1.3633	-1.6957	1000	840	506	75	55
19+15.00	-1.6957	0.9200	200	533	435	57	50

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
4+48.35	0.060	0.020	0.020	60	4°-18'-00"	0°-30'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp C

PROJECT NUMBER: 802 MA 999 H6867 01L **MAINLINE MILEPOST:** 36.2
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Power Rd TI
RAMP DESIGNATION: Ramp C
DESCRIPTION: WB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28-52 [1]	26	45	7,625

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	Descending
0.6551	-2.8661	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
6,600	9,300	

REMARKS

[1] One lane ramp tapers to four lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp C - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Structure No. 2762	36.40	NA	NA	16'

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Structure No. 2762	36.40	32'	32'	Yes	Yes	HS-20	HS-20

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
1+70.00	1.0651	2.8661	200	7,453	256	>90	35
13+80.00	2.8661	-0.6551	900	743	518	69	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
27+02.23	0.060	0.020 **	0.021	60	4°-18'-00"	0°-45'-00"

REMARKS

** Design Exception will not be requested because this segment of the ramp will be upgraded under this project

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp D

PROJECT NUMBER: 802 MA 999 H6867 01L — **MAINLINE MILEPOST:** 36.2
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Power Rd TI
RAMP DESIGNATION: Ramp D
DESCRIPTION: EB Entrance Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28-32	26	45	7,629

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
2.7421	-0.5523	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft — AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
6,300	9,500	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Power Road Ramp D - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Structure No. 2763	36.40	NA	NA	16'

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Structure No. 2763	36.40	32'	32'	Yes	Yes	HS-20	HS-20

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
1+70.00	1.3000	2.7421	200	>1500	241	>90	35
14+00.00	2.7421	-0.5523	700	677	427	67	50

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
22+86.41	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp A

PROJECT NUMBER: 802 MA 999 H6867 01L — **MAINLINE MILEPOST:** 34.9
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Hawes Rd TI
RAMP DESIGNATION: Ramp A
DESCRIPTION: WB Entrance Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28	26	45	2,278

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
1.1600	-1.5050	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft — AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
N/A	5,400	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp A - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
9+55.00	1.1898	-1.1600	700	809	431	74	50
19+50.00	-1.1600	1.5050	200	510	251	55	35

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
5+99.20	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"
16+46.77	0.060	0.040	0.040	50	6°-53'-00"	2°-30'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp B

PROJECT NUMBER: 802 MA 999 H6867 01L
MAINLINE MILEPOST: 35.0
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Hawes Rd TI
RAMP DESIGNATION: Ramp B
DESCRIPTION: EB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 2
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
22-40 [1]	20	30	4,576

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
1.5250	-1.6791	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft

AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
N/A	8,100	

REMARKS

[1] One lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp B - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
11+80.00	0.9607	-1.6791	1000	904	506	78	55
19+50.00	-1.6791	1.5250	200	358	252	44	35

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
14+46.87	0.060	0.024	0.024	50	6°-53'-00"	1°-15'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp C

PROJECT NUMBER: 802 MA 999 H6867 01L
MAINLINE MILEPOST: 34.4
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Hawes Rd TI
RAMP DESIGNATION: Ramp C
DESCRIPTION: WB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
34-40' [1]	26	45	1,743

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
1.3550	-2.7392	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft   AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
N/A	3,400	

REMARKS

[1] Two lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp C - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
12+00.00	-1.3550	2.7392	200	260	256	35	35
19+50.00	2.7392	1.0607	600	943	516	79	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

	SUPERELEVATION				DEGREE OF CURVE	
HPI STATION	Maximum (Ft/Ft)	Existing (Ft/Ft)	Minimum (Ft/Ft)	Existing Speed (MPH)	Maximum	Existing
14+69.59	0.060	0.046	0.046	50	6°-53'-00"	3°-15'-00"
24+85.21	0.060	0.036	0.034	55	4°-18'-00"	1°-37'-30"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp D

PROJECT NUMBER: 802 MA 999 H6867 01L **MAINLINE MILEPOST:** 34.3
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Hawes Rd TI
RAMP DESIGNATION: Ramp D
DESCRIPTION: EB Entrance Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH			
Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28	26	45	867

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%)		AASHTO ALLOWABLE MAXIMUM GRADE (%)	
Ascending	Decending	Ascending	Descending
2.4547	-1.3850	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
N/A	3,300	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Hawes Road Ramp D - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
2+50.00	-1.3850	2.4547	200	279	251	38	35
15+25.00	2.4547	0.5914	600	879	487	79	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

	SUPERELEVATION				DEGREE OF CURVE	
HPI STATION	Maximum (Ft/Ft)	Existing (Ft/Ft)	Minimum (Ft/Ft)	Existing Speed (MPH)	Maximum	Existing
3+81.46	0.060	0.060	0.059	50	6°-53'-00"	6°-30'-00"
7+46.99	0.060	0.047	0.046	50	6°-53'-00"	3°-15'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp A

PROJECT NUMBER: 802 MA 999 H6867 01L
MAINLINE MILEPOST: 33.5
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Elliot Rd TI
RAMP DESIGNATION: Ramp A
DESCRIPTION: WB Entrance Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28'	26	45	7,631

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%)		AASHTO ALLOWABLE MAXIMUM GRADE (%)	
Ascending	Decending	Ascending	Descending
0.9054	-1.5200	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft   AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
1,800	7,400	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp A - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
23+50.00	0.6691	-0.9054	1000	1,185	428	>90	50
32+00.00	-0.9054	1.5200	200	655	251	65	35

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
13+80.20	0.060	0.020	0.020	55	5°24'-00"	0°-45'-00"
24+79.79	0.060	0.020	0.020	50	6°53'-00"	0°-29'-54"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp B

PROJECT NUMBER: 802 MA 999 H6867 01L
MAINLINE MILEPOST: 33.5
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Elliot Rd TI
RAMP DESIGNATION: Ramp B
DESCRIPTION: EB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 2
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
22-40' [1]	18	30	7,631

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
1.5100	-0.3931	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
1,800	7,800	

REMARKS

[1] One lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp B - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
22+50.00	0.4402	-0.3931	1000	1,795	426	>90	50
33+50.00	-0.3931	1.5100	200	2,549	247	>90	35

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	Existing (Ft/Ft)	Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	Existing
13+10.54	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"
23+35.68	0.060	0.020	0.020	50	6°-53'-00"	0°-28'-39"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp C

PROJECT NUMBER: 802 MA 999 H6867 01L **MAINLINE MILEPOST:** 32.9
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Elliot Rd TI
RAMP DESIGNATION: Ramp C
DESCRIPTION: WB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 2
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
24-40' [1]	18	30	7,619

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	Descending
1.4282	-1.7720	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
10,200	9,500	

REMARKS

[1] One lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp C - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
1+75.00	-1.4282	1.7720	200	359	252	44	35
9+25.00	1.7720	-0.8299	800	815	507	73	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
19+17.90	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp D

PROJECT NUMBER: 802 MA 999 H6867 01L
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Elliot Rd TI
RAMP DESIGNATION: Ramp D
DESCRIPTION: EB Entrance Ramp

MAINLINE MILEPOST: 32.8

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 3
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
28'	26	45	7,631

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
0.9922	-1.4180	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft   AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
11,200	9,700	

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Elliot Road Ramp D - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
2+00.00	-1.4180	0.9922	200	668	251	65	35
12+25.00	0.9922	-0.3941	800	1,178	495	>90	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
18+37.04	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"

REMARKS

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Guadalupe Road Ramp B

PROJECT NUMBER: 802 MA 999 H6867 01L
MAINLINE MILEPOST: 32.4
PROJECT LOCATION: Higley Road - Guadalupe Road
HIGHWAY SECTION: Santan Freeway (SR202L)
INTERCHANGE: Guadalupe Rd TI
RAMP DESIGNATION: Ramp B
DESCRIPTION: EB Exit Ramp

PAVEMENT WIDTH

CASE (1 OR 2 OR 3): 2
TRAFFIC CONDITIONS (A OR B OR C): C

TOTAL PAVEMENT WIDTH

Existing (Feet)	AASHTO Recommended Minimum (Feet)	AASHTO Maximum (Feet)	Minimum Ramp Inside Radius (Feet)
22-42' [1]	18	30	7,631

DESIGN SPEED

THE AASHTO RECOMMENDED MINIMUM DESIGN SPEED OF THE HIGHWAY IS: Ramp Terminal = 35 mph; Ramp Body = 50 mph; Ramp Gore Area = 55 mph

GRADES

EXISTING MAXIMUM GRADE IS (%) Ascending	EXISTING MAXIMUM GRADE IS (%) Decending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Ascending	AASHTO ALLOWABLE MAXIMUM GRADE (%) Descending
1.9790	-0.7590	6.0	6.0

CROSS SLOPE

EXISTING CROSS SLOPE IS: 0.020 '/ft AASHTO ALLOWABLE RANGE IS: 0.015'/ft - 0.020 '/ft

TRAFFIC VOLUMES AND FACTORS

YEAR	DESIGN YEAR	TRAFFIC FACTORS
2009	2030	K = N/A
		D = N/A
ADT (VPD)	ADT (VPD)	T = N/A
2,600	7,700	

REMARKS

[1] One lane ramp tapers to three lanes at cross road

SUMMARY OF AASHTO CONTROLLING DESIGN CRITERIA
Guadalupe Road Ramp B - Continued

VERTICAL CLEARANCE

STRUCTURE	MILEPOST	Preconstruction Clearance	Postconstruction Clearannce	AASHTO Minimum Allowable Clearance
Not Applicable				

STRUCTURES

STRUCTURE	MILEPOST	Existing Bridge Width	Recommended Bridge Width	Bridge Rail Geometry Adequate?	Bridge Rail Structure Adequate?	Existing Structural Capacity	Recommended Structural Capacity
Not Applicable							

VERTICAL ALIGNMENT AND STOPPING SIGHT DISTANCE

VPI STATION	Approach Grade (%)	Departure Grade (%)	Length of Curve (Feet)	Existing Sight Distance (Feet)	Recommended Sight Distance (Feet)	Existing Speed (MPH)	Recommended Design Speed (MPH)
7+65.00	-0.7590	1.9790	400	757	498	71	55

HORIZONTAL ALIGNMENT, SUPERELEVATION, AND STOPPING SIGHT DISTANCE

HPI STATION	SUPERELEVATION Maximum (Ft/Ft)	SUPERELEVATION Existing (Ft/Ft)	SUPERELEVATION Minimum (Ft/Ft)	Existing Speed (MPH)	DEGREE OF CURVE Maximum	DEGREE OF CURVE Existing
3+32.59	0.060	0.020	0.020	55	5°-24'-00"	0°-45'-00"

REMARKS

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE _ OF _

DATE: 2/23/2009

TO: SUNIL ATHALYE
BRIDGE GROUP
BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: N/A TRACS NO: H6867 01L
HIGHWAY: 202L
LOCATION: Phoenix, AZ
MP LIMITS: 32.07 TO: 38.65
PROJECT DESCRIPTION: 202L - Williams Gateway

FROM: Christopher A. Labye, PE
AECOM, 2777 E Camelback Rd Ste 200
Phoenix, AZ 85016

SUBJECT: BRIDGE EVALUATION REQUEST

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER TYPE	GEOM. OK	STRUC OK	AC OVERLAY THICKNESS (EXISTING)	REMOVE (MINIMUM)	REPLACE/NEW (MAXIMUM)	VERTICAL CLEARANCE (MINIMUM) NB/EB	SB/WB	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
202L	32.07	2712 Guadalupe Road TI UP EB	262'	61.08'	Conc. parapet	Yes	Yes	0"	N.A.	1"(*)	NB:18.18'	SB:17.72'	HS20+	95.61
			Comments: Relatively new structure. Built in 2004. *Place 1" thick AR-ACFC on deck. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	32.07	2724 Guadalupe Road TI UP WB	262'	61.1'	Conc. parapet	Yes	Yes	0"	N.A.	1"(*)	NB:17.79'	SB:19.01'	HS20+	95.61
			Comments: Relatively new structure. Built in 2004. *Place 1" thick AR-ACFC on deck. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	33.07	2710 Elliot Road TI OP EB	216'	93.75'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	EB:16.78'	WB:16.83	HS20+	F 93.8
			Comments: Relatively new structure. Built in 2004. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	33.07	2711 Elliot Road TI OP WB	216'	81.75'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	EB:16.78'	WB:16.83	HS20+	F 93.8
			Comments: Relatively new structure. Built in 2004. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	34.08	7148 Warner Road RCB 3-8'x7'											HS20	98.12
			Culvert not at grade. Structure Length= 27' Fill Height= 2' Barrel Length= 906' Built in 2006.											
202L	34.15	2752 Warner Road OP EB	215'	82.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:19.10'	SB:19.46'	HS20+	F 84.56
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE _ OF _

DATE: 2/23/2009

TO: **SUNIL ATHALYE**
BRIDGE GROUP
BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: N/A TRACS NO: H6867 01L
HIGHWAY: 202L
LOCATION: Phoenix, AZ
MP LIMITS: 32.07 TO: 38.65
PROJECT DESCRIPTION: 202L - Williams Gateway

FROM: Christopher A. Labye, PE
AECOM, 2777 E Camelback Rd Ste 200
Phoenix, AZ 85016

SUBJECT: **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER TYPE	BRIDGE RAIL / BARRIER GEOM. OK	BRIDGE RAIL / BARRIER STRUC OK	AC OVERLAY THICKNESS (EXISTING)	AC OVERLAY REMOVE (MINIMUM)	AC OVERLAY REPLACE/NEW (MAXIMUM)	VERTICAL CLEARANCE (MINIMUM) NB/EB	VERTICAL CLEARANCE (MINIMUM) SB/WB	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
202L	34.15	2753 Warner Road OP WB	215'	94.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:16.74'	SB:16.98'	HS20+	F 94.00
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	34.67	2754 Hawes Road TI OP EB	214'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:18.20'	SB:18.24'	HS20+	F 84.56
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	34.67	2755 Hawes Road TI OP WB	214'	82.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:16.91'	SB:16.93'	HS20+	F 84.56
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	34.68	7147 Hawes Road RCB 3 - 8'x7'											HS20	92.49
			Culvert not at grade. Structure Length= 27' Fill Height= 2' Barrel Length= 247' Built in 2006.											
202L	35.80	2756 Sossaman Road OP EB	124'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20	93.50
			Comments: Relatively new structure. Built in 2005. The road under the bridge was not paved at last inspection dated 5/21/08. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											
202L	35.80	2757 Sossaman Road OP WB	124'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20	93.50
			Comments: Relatively new structure. Built in 2005. The road under the bridge was not paved at last inspection dated 5/21/08. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE _ OF _

DATE: 2/23/2009

TO: **SUNIL ATHALYE**
BRIDGE GROUP
BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: N/A TRACS NO: H6867 01L
HIGHWAY: 202L
LOCATION: Phoenix, AZ
MP LIMITS: 32.07 TO: 38.65
PROJECT DESCRIPTION: 202L - Williams Gateway

FROM: Christopher A. Labye, PE
AECOM, 2777 E Camelback Rd Ste 200
Phoenix, AZ 85016

SUBJECT: **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER TYPE	BRIDGE RAIL / BARRIER GEOM. OK	BRIDGE RAIL / BARRIER STRUC OK	AC OVERLAY THICKNESS (EXISTING)	AC OVERLAY REMOVE (MINIMUM)	AC OVERLAY REPLACE/NEW (MAXIMUM)	VERTICAL CLEARANCE (MINIMUM) NB/EB	VERTICAL CLEARANCE (MINIMUM) SB/WB	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
202L	36.40	2760 East Maricopa-Floodway OP EB	396'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20+	93.50
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											
202L	36.40	2761 East Maricopa-Floodway OP WB	396'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20+	93.50
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											
202L	36.40	2762 Power Road Ramp C OP	396'	32.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20+	96.12
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											
202L	36.40	2763 Power Road Ramp D OP	396'	32.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	N.A.	N.A.	HS20+	96.12
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC.											
202L	36.65	2758 Power Road OP EB	214'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:17.72'	SB:17.65'	HS20+	F 94.79
			Comments: Relatively new structure. Built in 2004. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											

ROADWAY ENGINEERING GROUP
ROADWAY PREDESIGN SECTION

PAGE _ OF _

DATE: 2/23/2009

TO: **SUNIL ATHALYE**
BRIDGE GROUP
BRIDGE MANAGEMENT SECTION, MD 635E

FEDERAL REFERENCE NO: N/A   TRACS NO: H6867 01L
HIGHWAY: 202L
LOCATION: Phoenix, AZ
MP LIMITS: 32.07 TO: 38.65
PROJECT DESCRIPTION: 202L - Williams Gateway

FROM: Christopher A. Labye, PE
AECOM, 2777 E Camelback Rd Ste 200
Phoenix, AZ 85016

SUBJECT: **BRIDGE EVALUATION REQUEST**

Please evaluate the following structures per AASHTO guidelines:

ROUTE NO.	MILEPOST	STR. NO. AND NAME	BRIDGE LENGTH	BRIDGE ROADWAY WIDTH	BRIDGE RAIL / BARRIER: TYPE	BRIDGE RAIL / BARRIER: GEOM. OK	BRIDGE RAIL / BARRIER: STRUC OK	AC OVERLAY: THICKNESS (EXISTING)	AC OVERLAY: REMOVE (MINIMUM)	AC OVERLAY: REPLACE/NEW (MAXIMUM)	VERTICAL CLEARANCE (MINIMUM): NB/EB	VERTICAL CLEARANCE (MINIMUM): SB/WB	BRIDGE LOAD RATING	BRIDGE SUFFICIENCY RATING
202L	36.65	2759 Power Road OP WB	214'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:18.40'	SB:19.15'	HS20+	F 94.79
			Comments: Relatively new structure. Built in 2004. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	37.64	2780 Recker Road OP EB	124'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:18.82'	SB:18.32'	HS20+	92.22
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	37.65	2781 Recker Road OP WB	124'	70.0'	Conc. barrier	Yes	Yes	2"	2"(*)	1"(*)	NB:17.94'	SB:17.45'	HS20+	92.22
			Comments: Relatively new structure. Built in 2006. *Existing AC overlay on bridge deck should be removed full depth & replaced with 1" thick AR-ACFC. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											
202L	38.65	2779 Higley Road TI UP	254'	140'	Conc. parapet	Yes	Yes	0"	N.A.	1"(*)	EB:16.93'	WB:17.47	HS20+	88.36
			Comments: Relatively new structure. Built in 2006. *Place 1" thick AR-ACFC on deck. If underpass roadway is overlaid, measure new minimum clearance after new overlay and report it to Bridge Management Section.											

Evaluation Completed by: Homer Saidi, P.E.   Date: 3/5/2009

Final Design Concept Report
(Volume 2 of 2)

SR 24, GATEWAY FREEWAY
(SR 202L – Ironwood Road)

ADOT CONTRACT NO. 05-26
PROJECT NO. 024 MA 000 H6867 01L
FEDERAL ID NO. NH-802-A(AUG)

Prepared For:

Arizona Department of Transportation

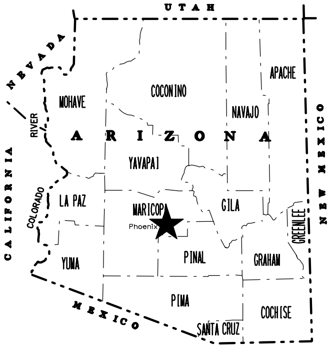
Prepared By:

AECOM

2777 E. Camelback Road, Suite 200
Phoenix, Arizona 85016

APRIL 2011

ON THE MOVE
PARTNERS IN PROGRESS

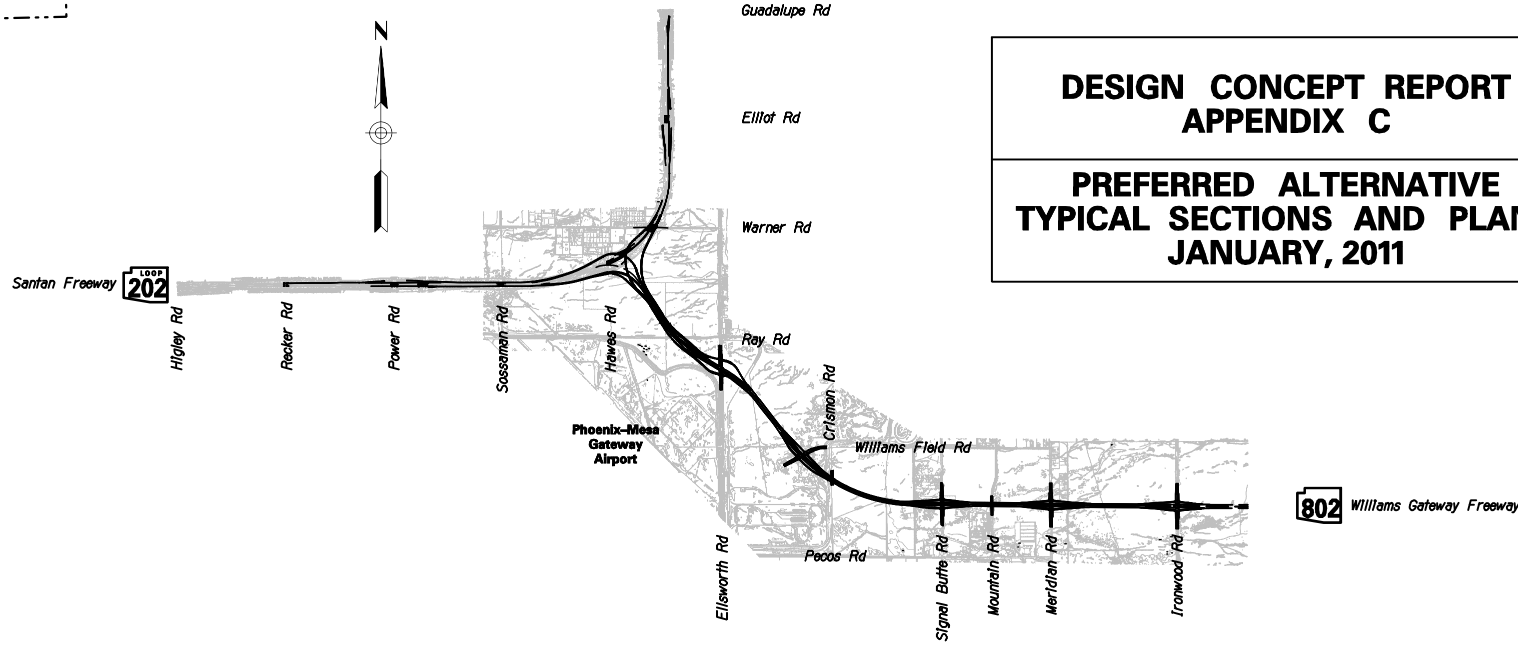


STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PROJECT PLANS

STATE HIGHWAY
SR 802, WILLIAMS GATEWAY FREEWAY
802 MA 999

DESIGN CONCEPT REPORT APPENDIX C
PREFERRED ALTERNATIVE TYPICAL SECTIONS AND PLANS JANUARY, 2011



SR 802, WILLIAMS GATEWAY FREEWAY
SR 202L TO IRONWOOD ROAD

PROJECT NO. 802 MA 999 H6867 01 L
CONTRACT NO. 05-26

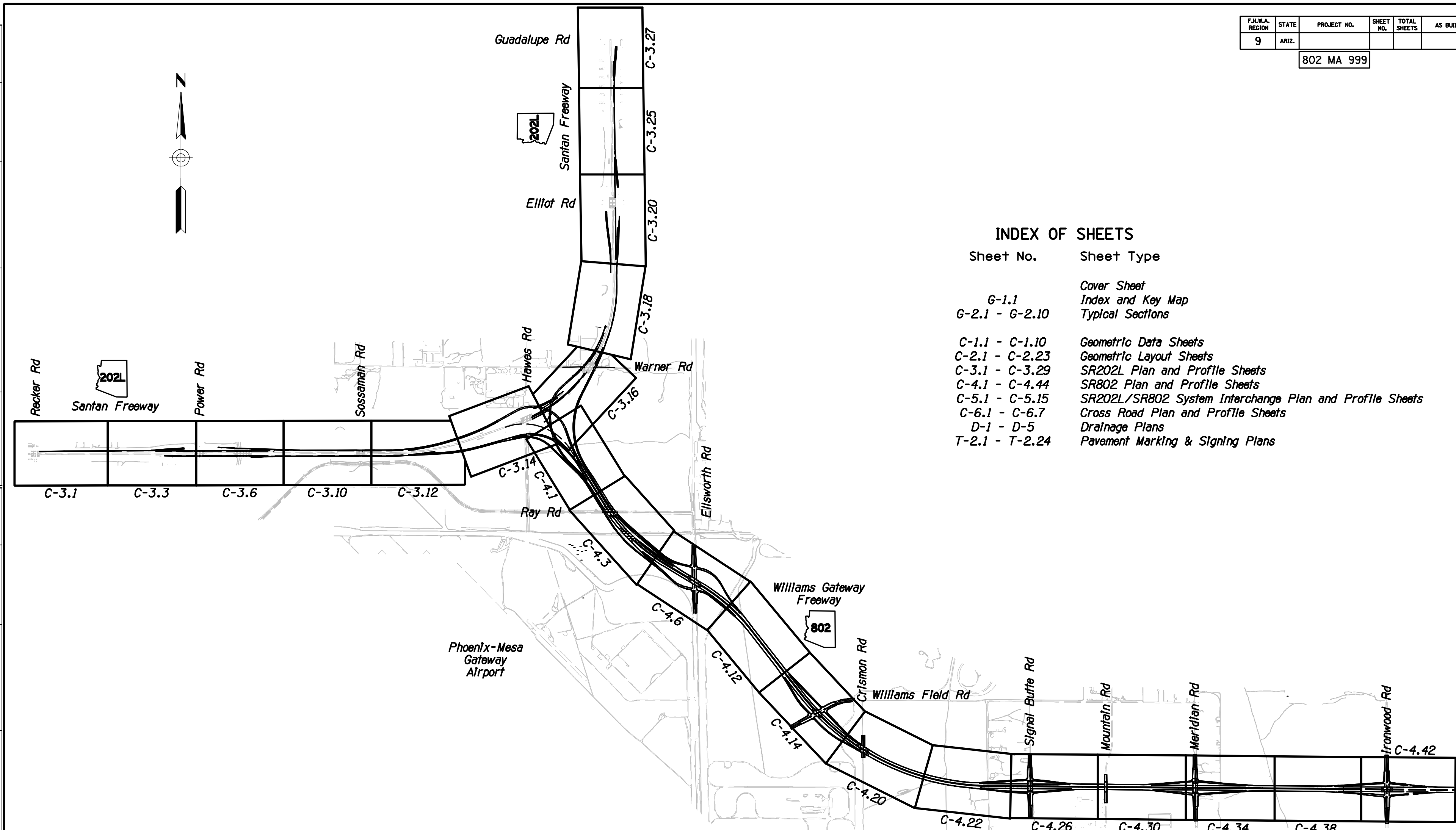
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
FLOYD ROEHRICH, JR. P.E., STATE ENGINEER

AS BUILT DATA	AS BUILT DATE	______ OF ______

12/20/2010 u:\wg01\prod\civ\h6867fs.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



INDEX OF SHEETS

Sheet No.	Sheet Type
	Cover Sheet
G-1.1	Index and Key Map
G-2.1 - G-2.10	Typical Sections
C-1.1 - C-1.10	Geometric Data Sheets
C-2.1 - C-2.23	Geometric Layout Sheets
C-3.1 - C-3.29	SR202L Plan and Profile Sheets
C-4.1 - C-4.44	SR802 Plan and Profile Sheets
C-5.1 - C-5.15	SR202L/SR802 System Interchange Plan and Profile Sheets
C-6.1 - C-6.7	Cross Road Plan and Profile Sheets
D-1 - D-5	Drainage Plans
T-2.1 - T-2.24	Pavement Marking & Signing Plans

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
SHEET INDEX AND KEY MAP

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

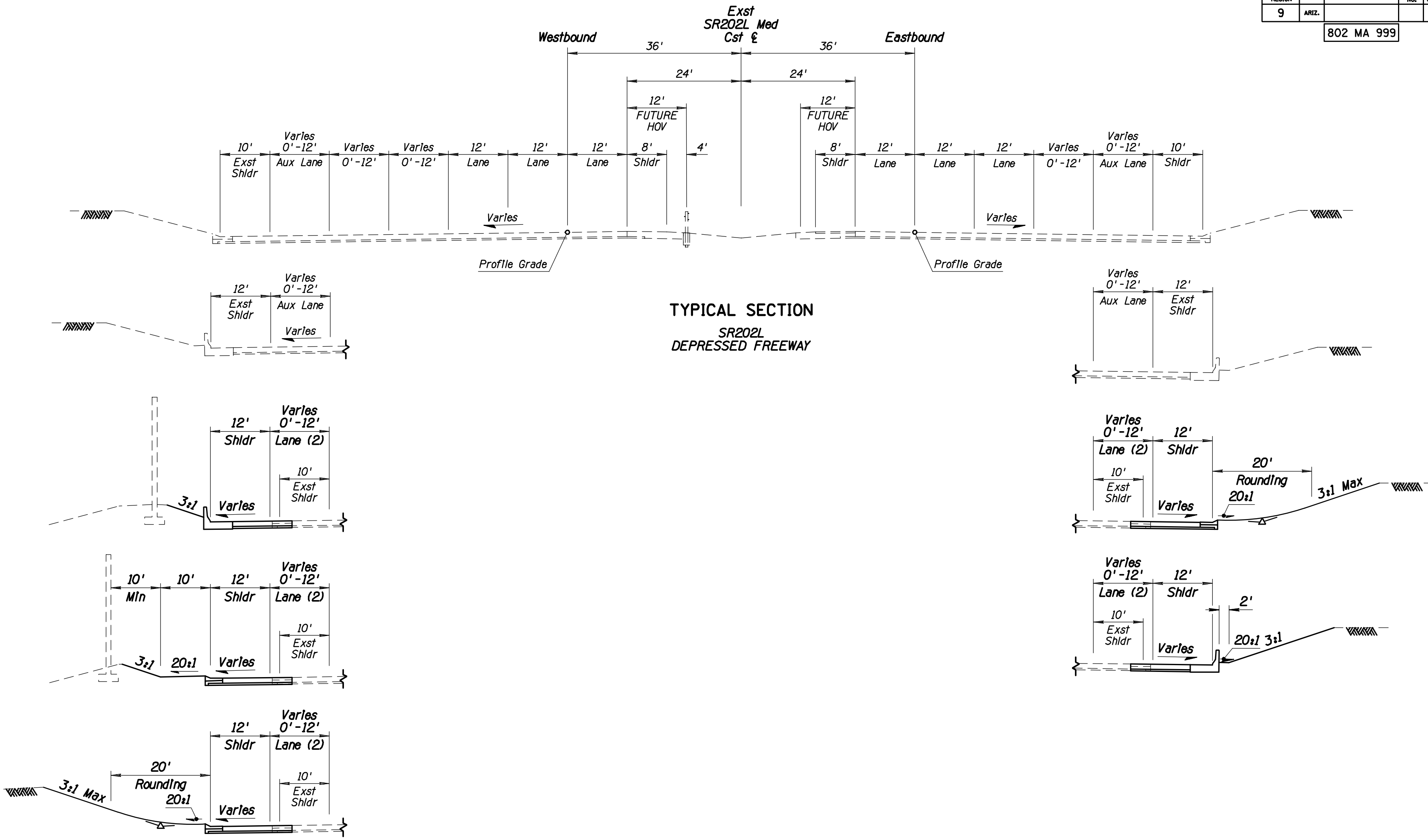
DWG NO. G-1.1

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ds01.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



TYPICAL SECTION

SR202L
DEPRESSED FREEWAY

APPENDIX C

NOTES:

1. Topsoil plating not shown.
2. Parallel Entrance or Lane

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L MAINLINE
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

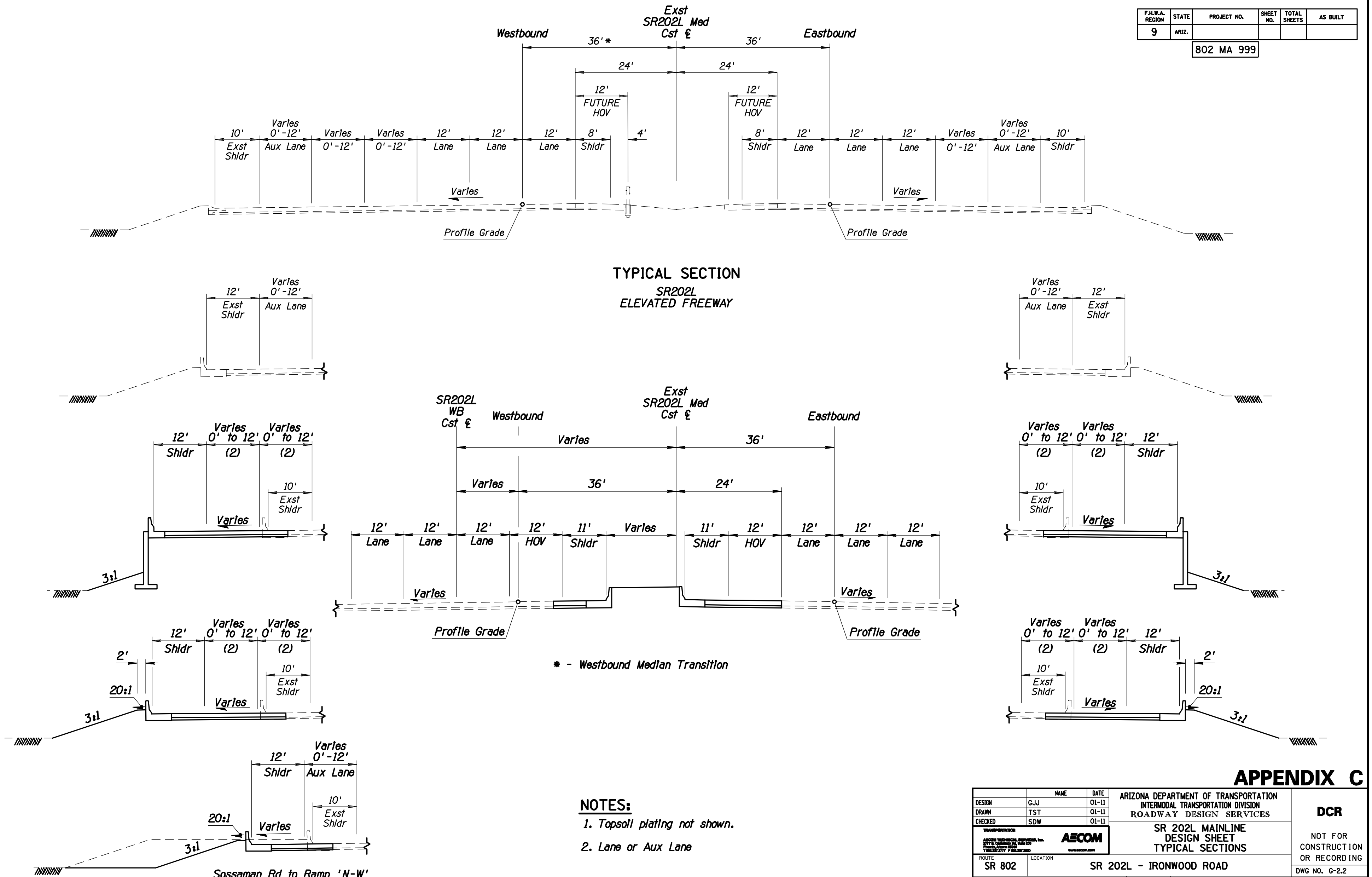
ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.1

TRACS NO. H6867 01L -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty01.dgn



APPENDIX C

NOTES:

1. Topsoil plating not shown.
2. Lane or Aux Lane

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 202L MAINLINE
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.2

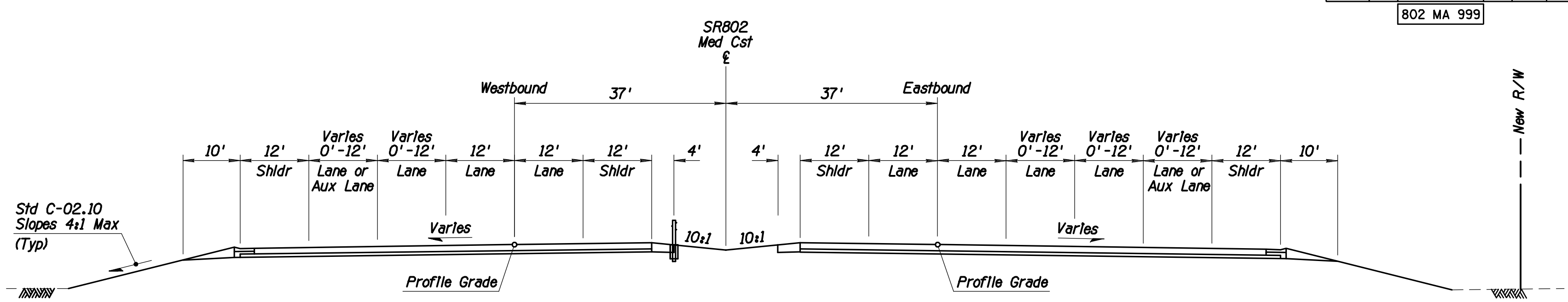
TRACS NO. H6867 01L -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty02.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



TYPICAL SECTION
SR802

NOTE: TOPSOIL PLATING NOT SHOWN

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802 MAINLINE
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.3

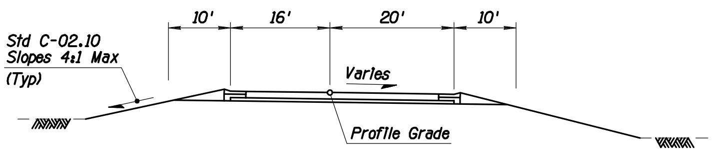
TRACS NO. H6867 01L

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty03.dgn

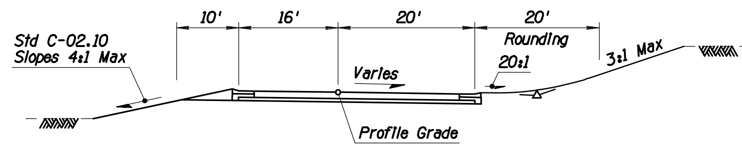
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



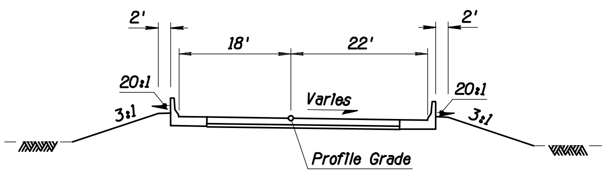
TYPICAL SECTION

2-Lane Directional Ramp
With Direction of Travel



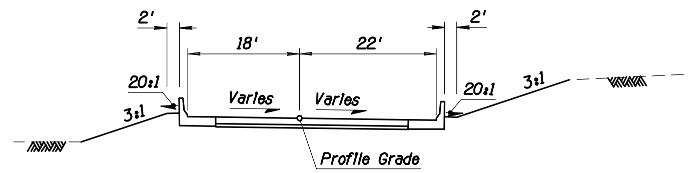
TYPICAL SECTION

2-Lane Directional Ramp
With Direction of Travel



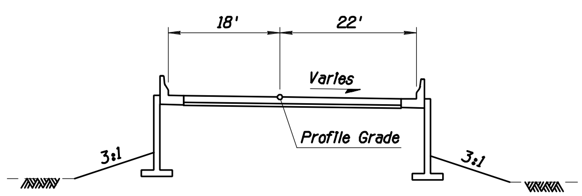
TYPICAL SECTION

2-Lane Directional Ramp
With Direction of Travel



TYPICAL SECTION

2-Lane Directional Ramp
With Direction of Travel



TYPICAL SECTION

2-Lane Directional Ramp
With Direction of Travel

NOTE: TOPSOIL PLATING NOT SHOWN

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DIRECTIONAL RAMP
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

AECOM

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.4

TRACS NO. H6867 01L

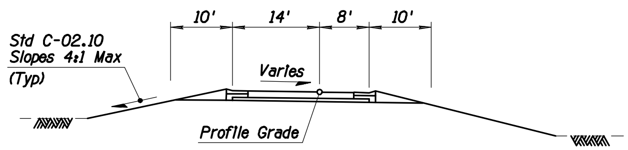
-

___ OF ___

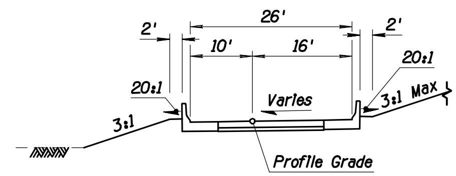
12/20/2010 u:\wg01\prod\civ\h6867ty04.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

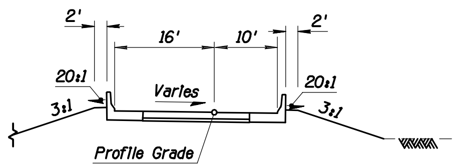
802 MA 999



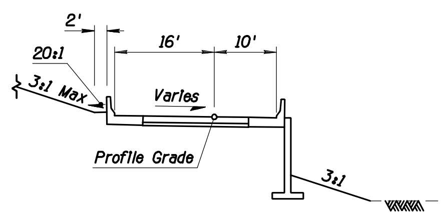
TYPICAL SECTION
ELLSWORTH ROAD RAMP CONNECTOR
1-Lane Directional Ramp
With Direction of Travel



TYPICAL SECTION
ELLSWORTH ROAD RAMP CONNECTOR
1-Lane Directional Ramp
With Direction of Travel



TYPICAL SECTION
ELLSWORTH ROAD RAMP CONNECTOR
1-Lane Directional Ramp
With Direction of Travel



TYPICAL SECTION
ELLSWORTH ROAD RAMP CONNECTOR
1-Lane Directional Ramp
With Direction of Travel

NOTE: TOPSOIL PLATING NOT SHOWN

APPENDIX C

	NAME	DATE	
DESIGN	GJJ	01-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	01-11	
CHECKED	SDW	01-11	

TRANSPORTATION AECOM

ELLSWORTH RD CONNECTOR RAMP
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. G-2.5

TRACS NO. H6867 01L | - | ___ OF ___

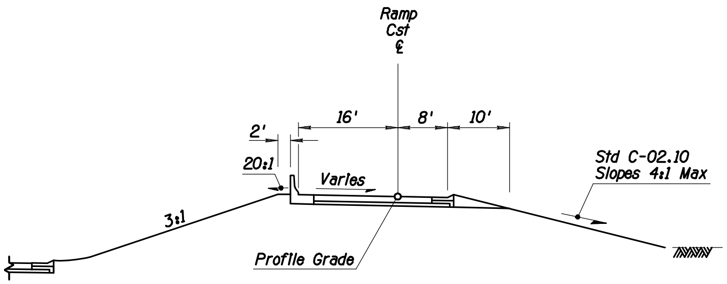
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

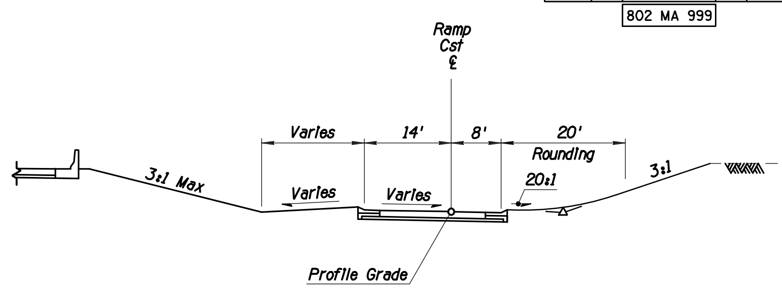
12/20/2010 u:\wg01\prod\civ\h6867ty05.dgn

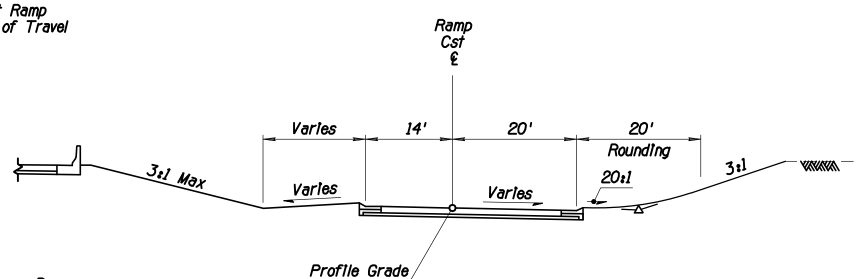
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

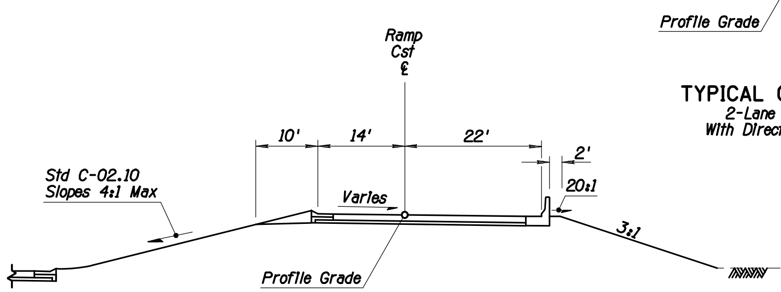


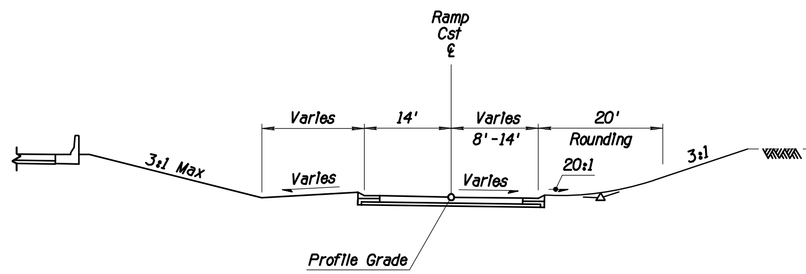
TYPICAL EMBANKMENT SECTION
1-Lane Exit Ramp
With Direction of Travel





TYPICAL CUT SECTION
2-Lane Exit Ramp
With Direction of Travel





TYPICAL EMBANKMENT SECTION
2-Lane Exit Ramp
With Direction of Travel

TYPICAL CUT SECTION
2-Lane Entrance Ramp
With Direction of Travel

NOTE: TOPSOIL PLATING NOT SHOWN

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SERVICE INTERCHANGE RAMPS
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.6

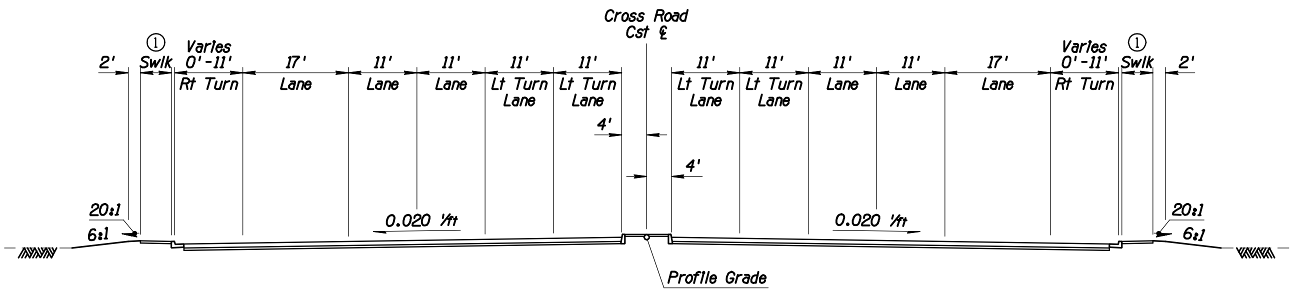
TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty06.dgn

REVISIONS- | LOCATION- | DATE- | SURVEY NO. | FINISHED PLANS-

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

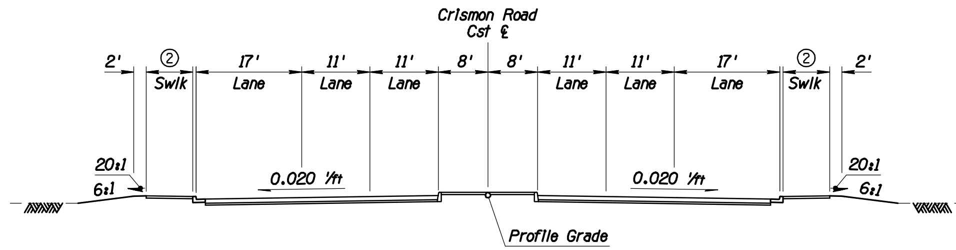


TYPICAL SECTION

At Full Diamond Traffic Interchange

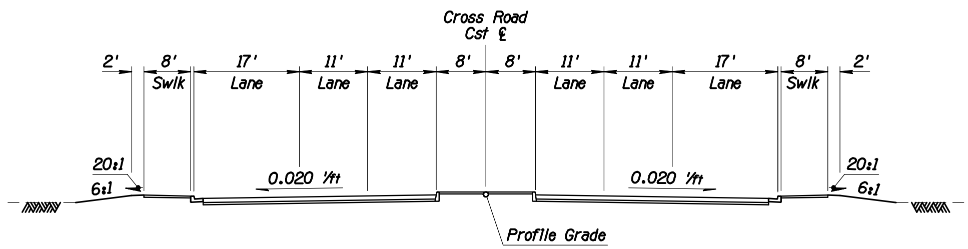
Ellsworth Road
Williams Field Road

① Sidewalk Width 5' Between Ramp Intersections
Sidewalk Width 8' Outside of Ramp Intersections



TYPICAL SECTION

Crismon Road



TYPICAL SECTION

Away From Traffic Interchange

Ellsworth Road
Williams Field Road

② Sidewalk Width 5' at Freeway Overpass
Sidewalk Width 8' Away from Freeway Overpass

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

CROSSROADS
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.7

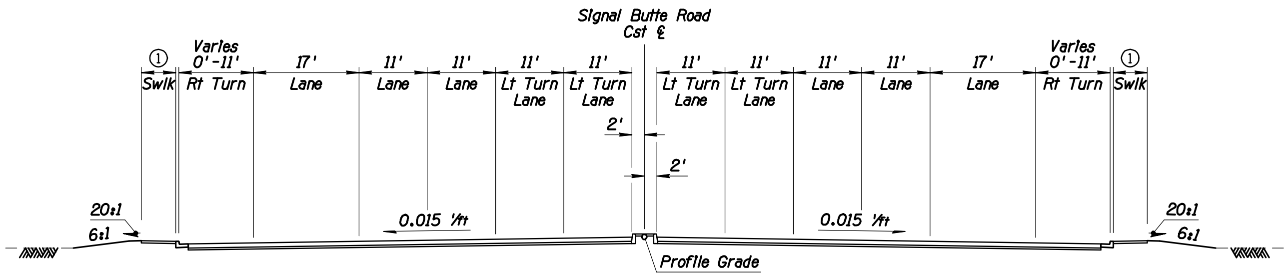
TRACS NO. H6867 01L — ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty07.dgn

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

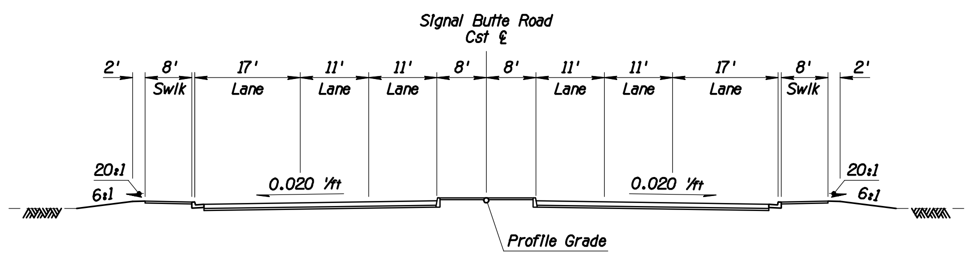


TYPICAL SECTION

At Full Diamond Traffic Interchange

Signal Butte Road

① *Sidewalk Width 6' Between Ramp Intersections*
Sidewalk Width 8' Outside of Ramp Intersections



TYPICAL SECTION

Away From Traffic Interchange

Signal Butte Road

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

CROSSROADS
DESIGN SHEET
TYPICAL SECTIONS

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-2.8

TRACS NO. H6867 01L | - | ___ OF ___

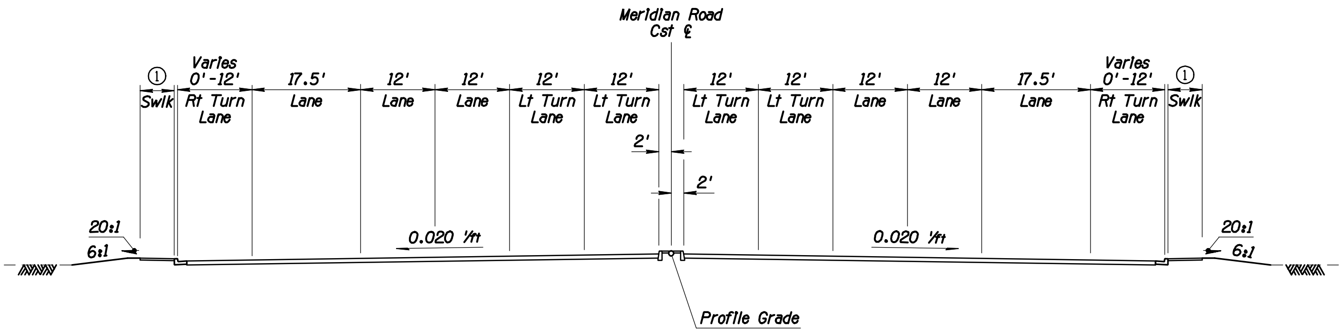
12/20/2010 u:\wg01\prod\civ\h6867ty08.dgn

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

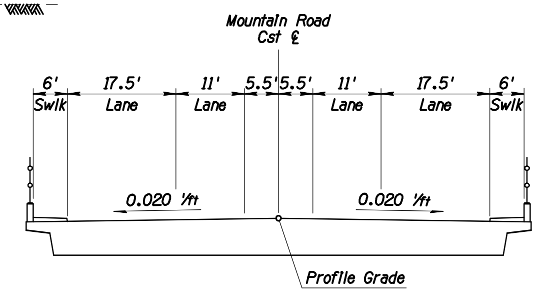


TYPICAL SECTION

At Full Diamond Traffic Interchange

Meridian Road

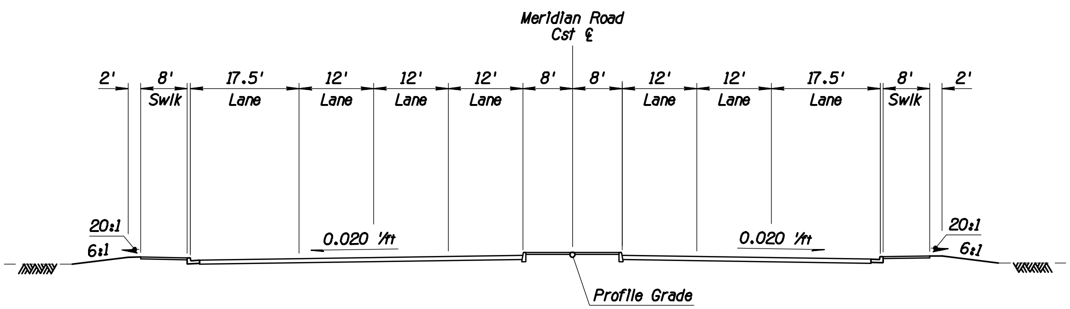
① *Sidewalk Width 6' Between Ramp Intersections*
Sidewalk Width 8' Outside of Ramp Intersections



TYPICAL SECTION

At Freeway Crossing

Mountain Road



TYPICAL SECTION

Away From Traffic Interchange

Meridian Road

APPENDIX C

	NAME	DATE	
DESIGN	GJJ	01-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	01-11	
CHECKED	SDW	01-11	
TRANSPORTATION AECOM			CROSSROADS DESIGN SHEET TYPICAL SECTIONS
ROUTE SR 802	LOCATION SR 202L - IRONWOOD ROAD		
TRACS NO. H6867 01L			-

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. G-2.9

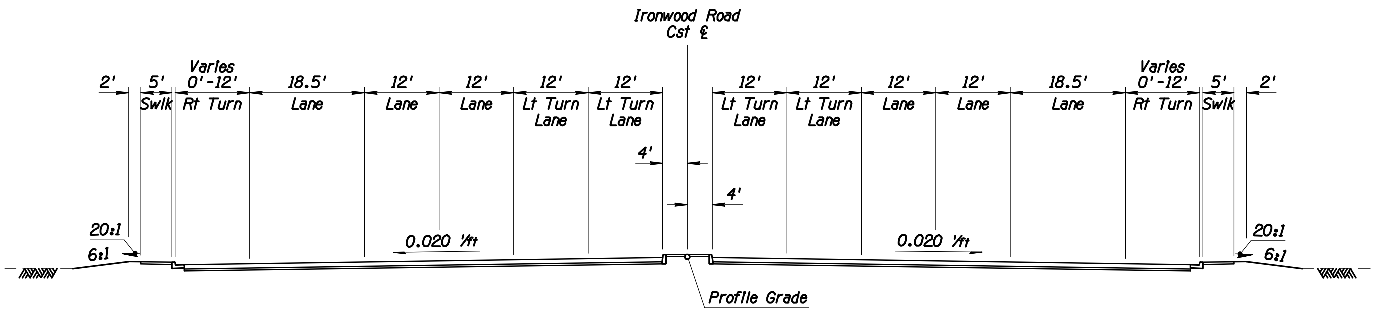
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty09.dgn

SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

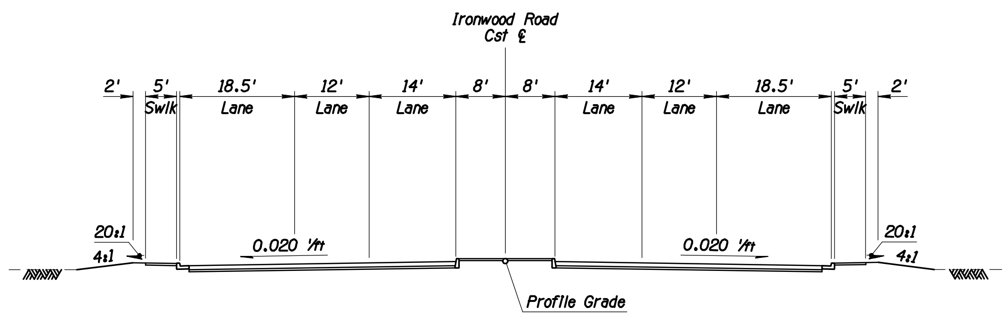
802 MA 999



TYPICAL SECTION

At Full Diamond Traffic Interchange

Ironwood Road



TYPICAL SECTION

Away From Traffic Interchange

Ironwood Road

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DESIGN SHEET
TYPICAL SECTIONS

AECOM

ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L -

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. G-2.10

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867ty10.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
199	Exst SR202L Med Cst ℄ PI	2912+44.72	N=847192.275	E=762984.307									
20119	Exst SR202L Med Cst ℄ PI	2932+91.97	N=847196.533	E=765031.719									
200	Exst SR202L Med Cst ℄ PI	3059+47.48	N=847222.855	E=777687.200	SIMPLE	Δ=19°29'12"	D=0°45'00"	R=7639.44	T=1311.77	L=2598.21	Ext=111.80	e=0.024'/ft	SEE SUPERELEVATION DIAGRAM
201	Exst SR202L Med Cst ℄ PI	3120+92.15	N=849293.175	E=783499.494	SIMPLE	Δ=71°10'03"	D=1°15'00"	R=4583.66	T=3279.61	L=5693.40	Ext=1052.46	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
202	Exst SR202L Med Cst ℄ PI	3234+65.69	N=861531.429	E=783334.320	SIMPLE	Δ=23°54'03"	D=1°15'00"	R=4583.66	T=970.15	L=1912.07	Ext=101.54	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
20130	Exst SR202L Med Cst ℄ PI	3251+66.20	N=863102.322	E=782612.649									
30600	Exst Recker Rd Cst ℄ POT	0+00.00	N=849196.386	E=765007.662									
22563	Exst Recker Rd Cst ℄ PI	18+50.18	N=847346.339	E=765030.135									
4102	Exst Recker Rd Cst ℄ POT	20+00.00	N=847196.534	E=765031.971									
30601	Exst Recker Rd Cst ℄ POT	40+00.00	N=845196.684	E=765056.486									
20873	Exst Power Rd Cst ℄ POT	-8+21.00	N=850028.049	E=770213.214									
20886	Exst Power Rd Cst ℄ PI	18+07.52	N=847399.855	E=770255.188									
30002	Exst Power Rd Cst ℄ POT	20+00.00	N=847207.404	E=770258.277									
20893	Exst Power Rd Cst ℄ POT	44+35.79	N=844771.932	E=770297.372									
30101	Exst Power Rd Ramp 'A' Cst ℄ PC	0+00.00	N=847275.268	E=768269.572									
210	Exst Power Rd Ramp 'A' Cst ℄ PI	4+89.01	N=847276.285	E=768758.584	SIMPLE	Δ=4°53'14"	D=0°30'00"	R=11459.16	T=489.01	L=977.43	Ext=10.43	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
30001	Exst Power Rd Ramp 'A' Cst ℄ POT	19+90.65	N=847407.379	E=770255.084									
30201	Exst Power Rd Ramp 'B' Cst ℄ PC	0+00.00	N=847131.081	E=768179.872									
211	Exst Power Rd Ramp 'B' Cst ℄ PI	4+48.35	N=847132.014	E=768628.216	SIMPLE	Δ=4°28'52"	D=0°30'00"	R=11459.16	T=448.35	L=896.23	Ext=8.77	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
30003	Exst Power Rd Ramp 'B' Cst ℄ POT	20+85.90	N=847007.430	E=770261.487									
30001	Exst Power Rd Ramp 'C' Cst ℄ POT	0+00.00	N=847407.379	E=770255.084									
212	Exst Power Rd Ramp 'C' Cst ℄ PI	27+02.22	N=847291.013	E=772954.796	SIMPLE	Δ=2°35'14"	D=0°45'00"	R=7639.44	T=172.51	L=344.97	Ext=1.95	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
30303	Exst Power Rd Ramp 'C' Cst ℄ PT	28+74.67	N=847291.371	E=773127.309									
30004	Exst Power Rd Ramp 'D' Cst ℄ POT	0+00.00	N=846995.431	E=770261.680									
213	Exst Power Rd Ramp 'D' Cst ℄ PI	25+00.40	N=847140.603	E=772757.866	SIMPLE	Δ=3°12'33"	D=0°45'00"	R=7639.44	T=214.01	L=427.90	Ext=3.00	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
30403	Exst Power Rd Ramp 'D' Cst ℄ PT	27+14.30	N=847141.048	E=772971.871									
20875	Exst Sossaman Rd Cst ℄ POT	-7+81.22	N=849999.276	E=775386.215									
20887	Exst Sossaman Rd Cst ℄ PI	18+50.25	N=847367.817	E=775390.465									
30501	Exst Sossaman Rd Cst ℄ POT	20+00.00	N=847218.083	E=775392.910									
20895	Exst Sossaman Rd Cst ℄ POT	44+79.76	N=844738.659	E=775433.397									

CURVE DATA TABLE

APPENDIX C

	NAME	DATE
DESIGN	WJS	01-11
DRAWN	BAF	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.1

TRACS NO. H6867 01L

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g01.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
20877	Exst Hawes Rd Cst ℄ POT	3+39.36	N=849959.894	E=780691.941									
40003	Exst Hawes Rd Cst ℄ POT	20+00.00	N=848299.284	E=780681.546									
20888	Exst Hawes Rd Cst ℄ POT	29+71.03	N=847328.273	E=780675.468									
40102	Exst Hawes Rd Ramp 'A' Cst ℄ PC	0+00.00	N=847679.875	E=778750.859									
220	Exst Hawes Rd Ramp 'A' Cst ℄ PI	5+99.20	N=847869.224	E=779319.359	SIMPLE	Δ=14°53'44"	D=1°15'00"	R=4583.66	T=599.20	L=1191.65	Ext=39.00	e=0.028'/ft	SEE SUPERELEVATION DIAGRAM
221	Exst Hawes Rd Ramp 'A' Cst ℄ PI	16+46.67	N=848448.279	E=780200.320	SIMPLE	Δ=14°40'31"	D=2°30'00"	R=2291.83	T=295.12	L=587.01	Ext=18.92	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
40001	Exst Hawes Rd Ramp 'A' Cst ℄ POT	21+53.38	N=848611.278	E=780683.499									
40202	Exst Hawes Rd Ramp 'B' Cst ℄ POT	0+00.00	N=847467.158	E=778554.728									
222	Exst Hawes Rd Ramp 'B' Cst ℄ PI	14+46.25	N=847878.858	E=779941.145	SIMPLE	Δ=5°28'32"	D=1°15'00"	R=4583.66	T=219.19	L=438.05	Ext=5.24	e=0.024'/ft	SEE SUPERELEVATION DIAGRAM
40004	Exst Hawes Rd Ramp 'B' Cst ℄ POT	21+98.58	N=848023.289	E=780679.819									
40002	Exst Hawes Rd Ramp 'C' Cst ℄ POT	9+96.37	N=848587.278	E=780683.349									
223	Exst Hawes Rd Ramp 'C' Cst ℄ PI	14+69.68	N=848725.284	E=781136.085	SIMPLE	Δ=10°02'02"	D=3°15'00"	R=1762.95	T=154.77	L=308.74	Ext=6.78	e=0.046'/ft	SEE SUPERELEVATION DIAGRAM
224	Exst Hawes Rd Ramp 'C' Cst ℄ PI	24+85.21	N=849186.473	E=782041.744	SIMPLE	Δ=27°27'45"	D=1°37'30"	R=3525.89	T=861.56	L=1690.00	Ext=103.74	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
40305	Exst Hawes Rd Ramp 'C' Cst ℄ PT	33+13.65	N=849887.436	E=782542.676									
40005	Exst Hawes Rd Ramp 'D' Cst ℄ POT	0+00.00	N=847999.290	E=780679.668									
225	Exst Hawes Rd Ramp 'D' Cst ℄ PI	3+81.83	N=848095.875	E=781049.084	SIMPLE	Δ=19°29'22"	D=6°30'00"	R=881.47	T=151.38	L=299.84	Ext=12.90	e=0.060'/ft	SEE SUPERELEVATION DIAGRAM
226	Exst Hawes Rd Ramp 'D' Cst ℄ PI	7+47.28	N=848302.622	E=781353.968	SIMPLE	Δ=14°02'02"	D=3°15'00"	R=1762.95	T=216.99	L=431.81	Ext=13.30	e=0.047'/ft	SEE SUPERELEVATION DIAGRAM
40406	Exst Hawes Rd Ramp 'D' Cst ℄ POT	22+25.78	N=849406.006	E=782341.353									
20877	Exst Warner Rd Cst ℄ POT	0+21.79	N=849959.894	E=780691.941									
40501	Exst Warner Rd Cst ℄ PI	20+00.00	N=849944.635	E=782670.096									
20878	Exst Warner Rd Cst ℄ PI	26+60.06	N=849939.544	E=783330.136									
40502	Exst Warner Rd Cst ℄ POT	27+95.20	N=849938.634	E=783465.273									
20857	Exst Elliot Rd Cst ℄ POT	-8+16.86	N=855216.518	E=780603.017									
20858	Exst Elliot Rd Cst ℄ PI	18+37.39	N=855198.333	E=783257.202									
41003	Exst Elliot Rd Cst ℄ POT	20+00.00	N=855197.369	E=783419.808									
45	Exst Elliot Rd Cst ℄ POT	44+93.55	N=855182.588	E=785913.310									
41101	Exst Elliot Rd Ramp 'A' Cst ℄ PC	10+00.00	N=852798.547	E=783368.176									
230	Exst Elliot Rd Ramp 'A' Cst ℄ PI	13+80.20	N=853178.711	E=783363.045	SIMPLE	Δ=5°41'54"	D=0°45'00"	R=7639.44	T=380.20	L=759.77	Ext=9.45	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
231	Exst Elliot Rd Ramp 'A' Cst ℄ PI	24+79.83	N=854271.958	E=783239.036	SIMPLE	Δ=3°55'29"	D=0°29'54"	R=11500.00	T=394.02	L=787.73	Ext=6.75	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
41001	Exst Elliot Rd Ramp 'A' Cst ℄ POT	34+07.22	N=855198.740	E=783197.812									

CURVE DATA TABLE

APPENDIX C

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DESIGN	WJS	01-11
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.2

TRACS NO. H6867 01L

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g02.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
41201	Exst Elliot Rd Ramp 'B' Cst ℄ PC	10+00.00	N=852660.135	E=783526.059									
232	Exst Elliot Rd Ramp 'B' Cst ℄ PI	13+10.54	N=852970.648	E=783521.868	SIMPLE	Δ=4°39'20"	D=0°45'00"	R=7639.44	T=310.54	L=620.74	Ext=6.31	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
233	Exst Elliot Rd Ramp 'B' Cst ℄ PI	23+35.70	N=853993.796	E=783591.301	SIMPLE	Δ=2°31'28"	D=0°28'39"	R=12000.00	T=264.34	L=528.70	Ext=2.91	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
41004	Exst Elliot Rd Ramp 'B' Cst ℄ POT	35+38.34	N=855196.183	E=783619.805									
41002	Exst Elliot Rd Ramp 'C' Cst ℄ POT	0+00.00	N=855198.657	E=783209.812									
234	Exst Elliot Rd Ramp 'C' Cst ℄ PI	19+17.83	N=857113.871	E=783309.934	SIMPLE	Δ=3°45'57"	D=0°45'00"	R=7639.44	T=251.14	L=502.11	Ext=4.13	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
41303	Exst Elliot Rd Ramp 'C' Cst ℄ PT	21+68.79	N=857364.991	E=783306.545									
41005	Exst Elliot Rd Ramp 'D' Cst ℄ POT	0+00.00	N=855196.112	E=783631.804									
235	Exst Elliot Rd Ramp 'D' Cst ℄ PI	18+36.96	N=857025.675	E=783467.139	SIMPLE	Δ=4°22'11"	D=0°45'00"	R=7639.44	T=291.45	L=582.62	Ext=5.56	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
41403	Exst Elliot Rd Ramp 'D' Cst ℄ PT	21+28.13	N=857317.101	E=783463.206									
20837	Exst Guadalupe Rd Cst ℄ POT	-8+33.16	N=860485.874	E=780515.544									
20838	Exst Guadalupe Rd Cst ℄ PI	18+26.08	N=860470.177	E=783174.741									
42003	Exst Guadalupe Rd Cst ℄ POT	20+00.00	N=860469.178	E=783348.657									
20839	Exst Guadalupe Rd Cst ℄ POT	44+85.12	N=860454.896	E=785833.738									
42101	Exst Guadalupe Rd Ramp 'A' Cst ℄ PC	0+00.00	N=858664.709	E=783277.002									
240	Exst Guadalupe Rd Ramp 'A' Cst ℄ PI	2+91.83	N=858956.508	E=783273.064	SIMPLE	Δ=4°22'31"	D=0°45'00"	R=7639.44	T=291.83	L=583.37	Ext=5.57	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
42001	Exst Guadalupe Rd Ramp 'A' Cst ℄ POT	18+11.57	N=860470.402	E=783136.661									
42201	Exst Guadalupe Rd Ramp 'B' Cst ℄ PC	0+00.00	N=858666.976	E=783444.987									
241	Exst Guadalupe Rd Ramp 'B' Cst ℄ PI	3+32.57	N=858999.518	E=783440.499	SIMPLE	Δ=4°59'08"	D=0°45'00"	R=7639.44	T=332.57	L=664.73	Ext=7.24	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
42004	Exst Guadalupe Rd Ramp 'B' Cst ℄ POT	18+04.64	N=860468.028	E=783548.654									
42002	Exst Guadalupe Rd Ramp 'C' Cst ℄ POT	0+00.00	N=860470.331	E=783148.660									
242	Exst Guadalupe Rd Ramp 'C' Cst ℄ PI	13+50.51	N=861820.260	E=783109.191	SIMPLE	Δ=22°59'58"	D=1°45'00"	R=3274.04	T=666.09	L=1314.25	Ext=67.07	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
42303	Exst Guadalupe Rd Ramp 'C' Cst ℄ PT	19+98.66	N=862425.538	E=782831.125									
42005	Exst Guadalupe Rd Ramp 'D' Cst ℄ POT	0+00.00	N=860467.959	E=783560.654									
243	Exst Guadalupe Rd Ramp 'D' Cst ℄ PI	8+86.07	N=861346.764	E=783447.452	SIMPLE	Δ=14°10'35"	D=1°30'00"	R=3819.72	T=474.97	L=945.09	Ext=29.42	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
42404	Exst Guadalupe Rd Ramp 'D' Cst ℄ POT	18+10.69	N=862211.471	E=783106.549									

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APPENDIX C

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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.3

TRACS NO. H6867 01L

___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
59000	Exst Ray Rd Cst ℄ POT	117+45.29	N=845352.158	E=780713.998									
59001	Exst Ray Rd Cst ℄ PI	143+49.57	N=845333.803	E=783318.216									
59002	Exst Ray Rd Cst ℄ PI	143+91.59	N=845333.507	E=783360.233									
59003	Exst Ray Rd Cst ℄ POT	170+24.20	N=845310.230	E=785992.741									
63500	Exst Mountain Rd Cst ℄ PC	4+61.79	N=838092.016	E=799329.444									
850	Exst Mountain Rd Cst ℄ PI	7+21.40	N=837832.415	E=799331.876	SIMPLE	Δ=20°32'46"	D=4°00'00"	R=1432.39	T=259.61	L=513.65	Ext=23.34	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
851	Exst Mountain Rd Cst ℄ PI	13+40.53	N=837245.418	E=799118.118	SIMPLE	Δ=20°32'36"	D=4°00'00"	R=1432.39	T=259.61	L=513.65	Ext=23.34	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
63550	Exst Mountain Rd Cst ℄ POT	20+00.00	N=836580.402	E=799124.348									
63506	Exst Mountain Rd Cst ℄ POT	45+72.81	N=834007.704	E=799148.451									

CURVE DATA TABLE

APPENDIX C

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ARIZONA DEPARTMENT OF TRANSPORTATION
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ROADWAY DESIGN SERVICES

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GEOMETRIC DATA SHEET

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ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.4

TRACS NO. H6867 01L

___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	802 MA 999			

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
21060	SR202L WB Cst ℄ PC	3088+12.53	N=848226.627	E=780397.939									
400	SR202L WB Cst ℄ PI	3091+71.59	N=848347.108	E=780736.182	SIMPLE	Δ=10°15'32"	D=1°25'57"	R=4000.00	T=359.06	L=716.20	Ext=16.08	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
401	SR202L WB Cst ℄ PI	3099+29.26	N=848725.348	E=781394.904	SIMPLE	Δ=7°38'18"	D=0°57'18"	R=6000.00	T=400.53	L=799.88	Ext=13.35	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
402	SR202L WB Cst ℄ PI	3106+87.67	N=849187.788	E=781997.506	SIMPLE	Δ=10°15'32"	D=1°25'57"	R=4000.00	T=359.06	L=716.20	Ext=16.08	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
21066	SR202L WB Cst ℄ PT	3110+44.81	N=849453.619	E=782238.872									
50020	SR802 Med Cst ℄ POT	10+00.00	N=846791.245	E=782407.226									
800	SR802 Med Cst ℄ PI	38+01.00	N=844408.657	E=783879.937	SIMPLE	Δ=27°23'33"	D=1°00'00"	R=5729.58	T=1396.32	L=2739.25	Ext=167.69	e=0.030'/ft	SEE SUPERELEVATION DIAGRAM
801	SR802 Med Cst ℄ PI	75+62.62	N=842450.250	E=787153.924	SIMPLE	Δ=21°06'47"	D=1°00'00"	R=5729.58	T=1067.77	L=2111.32	Ext=98.65	e=0.030'/ft	SEE SUPERELEVATION DIAGRAM
802	SR802 Med Cst ℄ PI	149+05.58	N=836644.843	E=791689.628	SIMPLE	Δ=51°30'12"	D=0°45'00"	R=7639.44	T=3685.10	L=6867.10	Ext=842.36	e=0.023'/ft	SEE SUPERELEVATION DIAGRAM
50031	SR802 Med Cst ℄ POT	341+91.40	N=836473.327	E=811477.788									
52008	Ramp 'W-S' Cst ℄ PC	0+00.00	N=851272.659	E=783210.482									
500	Ramp 'W-S' Cst ℄ PI	9+22.97	N=850385.114	E=782957.224	SIMPLE	Δ=31°29'13"	D=1°45'00"	R=3274.04	T=922.97	L=1799.25	Ext=127.61	e=0.046'/ft	SEE SUPERELEVATION DIAGRAM
501	Ramp 'W-S' Cst ℄ PI	29+26.01	N=848998.034	E=781448.110	SIMPLE	Δ=44°22'13"	D=5°15'00"	R=1091.35	T=445.04	L=845.15	Ext=87.25	e=0.060'/ft	SEE SUPERELEVATION DIAGRAM
502	Ramp 'W-S' Cst ℄ PI	43+17.74	N=847563.401	E=781371.855	SIMPLE	Δ=48°51'56"	D=2°37'30"	R=2182.70	T=991.62	L=1861.54	Ext=214.69	e=0.047'/ft	SEE SUPERELEVATION DIAGRAM
503	Ramp 'W-S' Cst ℄ PI	58+94.06	N=846380.086	E=782589.656	SIMPLE	Δ=14°06'07"	D=2°00'00"	R=2864.79	T=354.34	L=705.10	Ext=21.83	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
52010	Ramp 'W-S' Cst ℄ PT	62+44.82	N=846078.676	E=782775.962									
51012	Ramp 'N-W' Cst ℄ PC	0+00.00	N=847291.772	E=776204.534									
510	Ramp 'N-W' Cst ℄ PI	11+06.76	N=847294.074	E=777311.295	SIMPLE	Δ=18°17'21"	D=0°50'00"	R=6875.49	T=1106.76	L=2194.70	Ext=88.51	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
511	Ramp 'N-W' Cst ℄ PI	30+56.67	N=847915.774	E=779179.292	SIMPLE	Δ=10°45'00"	D=1°00'00"	R=5729.58	T=539.08	L=1075.00	Ext=25.30	e=0.023'/ft	SEE SUPERELEVATION DIAGRAM
512	Ramp 'N-W' Cst ℄ PI	56+98.46	N=849204.457	E=781489.064	SIMPLE	Δ=99°56'15"	D=5°07'30"	R=1117.97	T=1330.87	L=1950.00	Ext=620.15	e=0.060'/ft	SEE SUPERELEVATION DIAGRAM
513	Ramp 'N-W' Cst ℄ PI	70+69.58	N=847237.704	E=782174.761	SIMPLE	Δ=12°30'00"	D=1°15'00"	R=4583.66	T=501.99	L=1000.00	Ext=27.41	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
51000	Ramp 'N-W' Cst ℄ PT	75+67.59	N=846810.698	E=782438.699									
53001	Ramp 'E-S' Cst ℄ POT	0+00.00	N=847157.658	E=776743.150									
520	Ramp 'E-S' Cst ℄ PI	18+33.06	N=847248.844	E=778573.938	SIMPLE	Δ=12°36'36"	D=1°00'00"	R=5729.58	T=633.06	L=1261.00	Ext=34.87	e=0.023'/ft	SEE SUPERELEVATION DIAGRAM
521	Ramp 'E-S' Cst ℄ PI	45+01.83	N=847961.674	E=781151.062	SIMPLE	Δ=53°56'48"	D=4°00'00"	R=1432.39	T=729.00	L=1348.67	Ext=174.84	e=0.057'/ft	SEE SUPERELEVATION DIAGRAM
522	Ramp 'E-S' Cst ℄ PI	56+21.33	N=847196.956	E=782112.952	SIMPLE	Δ=19°47'38"	D=2°00'00"	R=2864.79	T=499.83	L=989.70	Ext=43.28	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
53009	Ramp 'E-S' Cst ℄ PT	61+11.20	N=846771.791	E=782375.753									
55011	Ramp 'N-E' Cst ℄ POT	0+00.00	N=850976.594	E=783267.660									
530	Ramp 'N-E' Cst ℄ PI	7+50.36	N=850268.139	E=783020.417	SIMPLE	Δ=7°30'00"	D=1°30'00"	R=3819.72	T=250.36	L=500.00	Ext=8.20	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
531	Ramp 'N-E' Cst ℄ PI	33+62.29	N=847934.862	E=781844.940	SIMPLE	Δ=58°27'33"	D=2°30'00"	R=2291.83	T=1282.42	L=2338.37	Ext=334.40	e=0.045'/ft	SEE SUPERELEVATION DIAGRAM
532	Ramp 'N-E' Cst ℄ PI	63+95.12	N=845162.445	E=783558.610	SIMPLE	Δ=17°26'58"	D=1°30'00"	R=3819.72	T=586.19	L=1163.30	Ext=44.72	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
533	Ramp 'N-E' Cst ℄ PI	88+23.89	N=843568.548	E=785403.227	SIMPLE	Δ=9°56'35"	D=1°15'00"	R=4583.66	T=398.72	L=795.44	Ext=17.31	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
55000	Ramp 'N-E' Cst ℄ PT	92+20.61	N=843363.868	E=785745.403									

CURVE DATA TABLE

APPENDIX C

	NAME	DATE
DESIGN	WJS	01-11
DRAWN	BAF	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DCR

AECOM

GEOMETRIC DATA SHEET

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.5

TRACS NO. H6867 01L

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12/20/2010 u:\wg01\prod\civ\h6867g04.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
60151	Ellsworth Rd Ramp 'A' Connector Cst ℄ PC	0+00.00	N=845756.249	E=783219.787									
540	Ellsworth Rd Ramp 'A' Connector Cst ℄ PI	5+86.19	N=845257.624	E=783527.994	SIMPLE	Δ=17°26'58"	D=1°30'00"	R=3819.72	T=586.19	L=1163.30	Ext=44.72	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
541	Ellsworth Rd Ramp 'A' Connector Cst ℄ PI	27+77.71	N=843818.850	E=785193.087	SIMPLE	Δ=22°26'35"	D=3°45'00"	R=1527.89	T=303.13	L=598.48	Ext=29.78	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
60157	Ellsworth Rd Ramp 'A' Connector Cst ℄ POT	31+12.12	N=843710.994	E=785517.845									
54000	Ellsworth Rd Ramp 'B' Connector Cst ℄ POT	0+00.00	N=847576.395	E=779803.159									
550	Ellsworth Rd Ramp 'B' Connector Cst ℄ PI	12+45.16	N=847823.817	E=781023.491	SIMPLE	Δ=55°38'19"	D=5°24'00"	R=1061.03	T=559.88	L=1030.34	Ext=138.65	e=0.060'/ft	SEE SUPERELEVATION DIAGRAM
551	Ellsworth Rd Ramp 'B' Connector Cst ℄ PI	31+87.88	N=846407.674	E=782480.906	SIMPLE	Δ=14°06'07"	D=2°30'00"	R=2291.83	T=283.47	L=564.08	Ext=17.46	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
552	Ellsworth Rd Ramp 'B' Connector Cst ℄ PI	54+43.75	N=844486.349	E=783668.504	SIMPLE	Δ=20°25'32"	D=1°30'00"	R=3819.72	T=688.15	L=1361.70	Ext=61.49	e=0.028'/ft	SEE SUPERELEVATION DIAGRAM
553	Ellsworth Rd Ramp 'B' Connector Cst ℄ PI	70+62.10	N=843484.288	E=784957.857	SIMPLE	Δ=5°00'00"	D=1°00'00"	R=5729.58	T=250.16	L=500.00	Ext=5.46	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
54013	Ellsworth Rd Ramp 'B' Connector Cst ℄ PT	73+11.94	N=843314.148	E=785141.247									
70100	Power Rd Ramp 'A' Cst ℄ PC	10+95.91	N=847287.466	E=768364.572									
300	Power Rd Ramp 'A' Cst ℄ PI	12+96.33	N=847287.882	E=768564.994	SIMPLE	Δ=3°20'22"	D=0°50'00"	R=6875.49	T=200.42	L=400.73	Ext=2.92	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
301	Power Rd Ramp 'A' Cst ℄ PI	23+49.41	N=847351.418	E=769616.271	SIMPLE	Δ=1°32'52"	D=0°30'50"	R=11150.00	T=150.61	L=301.20	Ext=1.02	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
70105	Power Rd Ramp 'A' Cst ℄ PT	25+00.00	N=847364.562	E=769766.305									
70300	Power Rd Ramp 'C' Cst ℄ PI	26+55.00	N=847336.109	E=771908.548									
302	Power Rd Ramp 'C' Cst ℄ PI	43+16.61	N=847286.291	E=773569.407	SIMPLE	Δ=1°50'14"	D=0°36'44"	R=9360.00	T=150.08	L=300.14	Ext=1.20	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
70303	Power Rd Ramp 'C' Cst ℄ PT	44+66.66	N=847286.603	E=773719.490									
70400	Power Rd Ramp 'D' Cst ℄ PI	26+50.00	N=847091.229	E=771908.897									
303	Power Rd Ramp 'D' Cst ℄ PI	34+79.85	N=847128.561	E=772737.906	SIMPLE	Δ=2°27'33"	D=0°45'00"	R=7639.44	T=163.98	L=327.90	Ext=1.76	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
70403	Power Rd Ramp 'D' Cst ℄ PT	36+43.77	N=847128.902	E=772901.881									
81100	Elliot Rd Ramp 'A' Cst ℄ PC	23+70.75	N=853170.370	E=783363.158									
310	Elliot Rd Ramp 'A' Cst ℄ PI	27+77.68	N=853577.262	E=783357.666	SIMPLE	Δ=6°46'27"	D=0°50'00"	R=6875.49	T=406.93	L=812.91	Ext=12.03	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
311	Elliot Rd Ramp 'A' Cst ℄ PI	37+82.20	N=854574.017	E=783225.600	SIMPLE	Δ=5°00'02"	D=1°00'00"	R=5729.58	T=250.19	L=500.06	Ext=5.46	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
81108	Elliot Rd Ramp 'A' Cst ℄ POT	41+14.00	N=854905.809	E=783210.842									
81200	Elliot Rd Ramp 'B' Cst ℄ PC	19+85.62	N=852645.693	E=783526.253									
312	Elliot Rd Ramp 'B' Cst ℄ PI	23+10.61	N=852970.648	E=783521.868	SIMPLE	Δ=4°39'20"	D=0°43'00"	R=7994.76	T=324.98	L=649.61	Ext=6.60	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
313	Elliot Rd Ramp 'B' Cst ℄ PI	33+35.75	N=853993.796	E=783591.301	SIMPLE	Δ=2°31'28"	D=0°28'39"	R=12000.00	T=264.39	L=528.70	Ext=2.91	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
41207	Elliot Rd Ramp 'B' Cst ℄ POT	37+50.00	N=854408.015	E=783601.121									

CURVE DATA TABLE

APPENDIX C

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CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.6

TRACS NO. H6867 01L

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g05.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
81410	Elliot Rd Ramp 'D' Cst ℄ POT	15+00.00	N=855694.099	E=783586.984									
314	Elliot Rd Ramp 'D' Cst ℄ PI	26+79.46	N=856868.811	E=783481.257	SIMPLE	Δ=4°22'11"	D=0°50'00"	R=6875.49	T=262.31	L=524.36	Ext=5.00	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
81402	Elliot Rd Ramp 'D' Cst ℄ PT	29+41.51	N=857131.094	E=783477.717									
82200	Guadalupe Rd Ramp 'B' Cst ℄ PC	9+16.13	N=858582.146	E=783458.133									
320	Guadalupe Rd Ramp 'B' Cst ℄ PI	11+76.85	N=858842.841	E=783454.615	SIMPLE	Δ=3°44'08"	D=0°43'00"	R=7994.76	T=260.72	L=521.25	Ext=4.25	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
321	Guadalupe Rd Ramp 'B' Cst ℄ PI	23+49.71	N=860014.320	E=783515.239	SIMPLE	Δ=1°14'59"	D=0°24'57"	R=13780.00	T=150.30	L=300.58	Ext=0.82	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
82205	Guadalupe Rd Ramp 'B' Cst ℄ PT	25+00.00	N=860164.211	E=783526.278									
49	Ellsworth Rd Cst ℄ POT	4+73.67	N=844651.332	E=785995.755									
50101	Ellsworth Rd Cst ℄ POT	20+00.00	N=843125.295	E=786025.412									
50	Ellsworth Rd Cst ℄ POT	31+02.00	N=842023.502	E=786046.823									
60100	Ellsworth Rd Ramp 'A' Cst ℄ PC	0+00.00	N=844928.799	E=783707.902									
810	Ellsworth Rd Ramp 'A' Cst ℄ PI	4+62.85	N=844576.753	E=784008.388	SIMPLE	Δ=12°40'35"	D=1°22'30"	R=4166.97	T=462.85	L=921.92	Ext=25.63	e=0.030'/ft	SEE SUPERELEVATION DIAGRAM
811	Ellsworth Rd Ramp 'A' Cst ℄ PI	17+16.18	N=843822.987	E=785014.446	SIMPLE	Δ=22°57'17"	D=5°00'00"	R=1145.92	T=232.67	L=459.10	Ext=23.38	e=0.056'/ft	SEE SUPERELEVATION DIAGRAM
60110	Ellsworth Rd Ramp 'A' Cst ℄ POT	27+42.33	N=843575.210	E=786016.668									
60201	Ellsworth Rd Ramp 'B' Cst ℄ PC	0+00.00	N=844457.873	E=783964.982									
812	Ellsworth Rd Ramp 'B' Cst ℄ PI	2+77.31	N=844250.738	E=784149.364	SIMPLE	Δ=5°28'20"	D=0°59'15"	R=5802.58	T=277.31	L=554.20	Ext=6.62	e=0.030'/ft	SEE SUPERELEVATION DIAGRAM
813	Ellsworth Rd Ramp 'B' Cst ℄ PI	21+31.64	N=842989.273	E=785509.065	SIMPLE	Δ=28°58'01"	D=6°00'00"	R=954.93	T=246.67	L=482.78	Ext=31.34	e=0.059'/ft	SEE SUPERELEVATION DIAGRAM
60207	Ellsworth Rd Ramp 'B' Cst ℄ POT	26+58.28	N=842860.345	E=786030.561									
60300	Ellsworth Rd Ramp 'C' Cst ℄ POT	0+00.00	N=843575.210	E=786016.668									
814	Ellsworth Rd Ramp 'C' Cst ℄ PI	6+56.34	N=843417.687	E=786653.824	SIMPLE	Δ=46°06'04"	D=6°00'00"	R=954.93	T=406.34	L=768.35	Ext=82.86	e=0.059'/ft	SEE SUPERELEVATION DIAGRAM
815	Ellsworth Rd Ramp 'C' Cst ℄ PI	16+42.69	N=842525.206	E=787169.350	SIMPLE	Δ=9°59'12"	D=2°00'00"	R=2864.79	T=250.30	L=499.34	Ext=10.91	e=0.035'/ft	SEE SUPERELEVATION DIAGRAM
816	Ellsworth Rd Ramp 'C' Cst ℄ PI	24+01.88	N=841942.652	E=787658.153	SIMPLE	Δ=4°56'14"	D=0°59'15"	R=5802.58	T=250.16	L=500.00	Ext=5.39	e=0.030'/ft	SEE SUPERELEVATION DIAGRAM
60309	Ellsworth Rd Ramp 'C' Cst ℄ PT	26+51.72	N=841737.892	E=787801.857									
60400	Ellsworth Rd Ramp 'D' Cst ℄ POT	0+00.00	N=842860.345	E=786030.561									
817	Ellsworth Rd Ramp 'D' Cst ℄ PI	3+84.81	N=842767.989	E=786404.125	SIMPLE	Δ=25°07'28"	D=6°30'00"	R=881.47	T=196.42	L=386.53	Ext=21.62	e=0.060'/ft	SEE SUPERELEVATION DIAGRAM
818	Ellsworth Rd Ramp 'D' Cst ℄ PI	17+58.76	N=841899.151	E=787476.626	SIMPLE	Δ=12°59'20"	D=1°30'00"	R=3819.72	T=434.82	L=865.92	Ext=24.67	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
60406	Ellsworth Rd Ramp 'D' Cst ℄ PT	21+89.86	N=841556.506	E=787744.330									

CURVE DATA TABLE

APPENDIX C

	NAME	DATE
DESIGN	WJS	01-11
DRAWN	BAF	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.7

TRACS NO. H6867 01L

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12/20/2010 u:\wg01\prod\civ\h6867g06.dgn

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings

G.A.F. = 1.00016

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES										
61000	Williams Field Rd Cst ℄ PC	7+33.80	N=839352.449	E=791126.718									
820	Williams Field Rd Cst ℄ PI	11+65.52	N=839356.323	E=790695.010	SIMPLE	Δ=29°32'53"	D=3°30'00"	R=1637.02	T=431.73	L=844.23	Ext=55.97	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
50061	Williams Field Rd Cst ℄ POT	20+00.00	N=838941.998	E=789948.593									
821	Williams Field Rd Cst ℄ PI	35+61.58	N=838184.121	E=788583.256	SIMPLE	Δ=39°02'02"	D=3°30'00"	R=1637.02	T=580.25	L=1115.26	Ext=99.79	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
61005	Williams Field Rd Cst ℄ PT	40+96.59	N=838284.880	E=788011.825									
61100	Williams Field Rd Ramp 'A' Cst ℄ PC	0+00.00	N=840552.854	E=788728.979									
822	Williams Field Rd Ramp 'A' Cst ℄ PI	3+62.36	N=840267.307	E=788952.073	SIMPLE	Δ=6°02'02"	D=0°50'00"	R=6875.49	T=362.36	L=724.06	Ext=9.54	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
61110	Williams Field Rd Ramp 'A' Cst ℄ POT	20+62.03	N=839044.887	E=790133.951									
61201	Williams Field Rd Ramp 'B' Cst ℄ PC	0+00.00	N=840654.668	E=788464.155									
823	Williams Field Rd Ramp 'B' Cst ℄ PI	5+16.96	N=840247.297	E=788782.430	SIMPLE	Δ=7°23'58"	D=0°43'00"	R=7994.76	T=516.96	L=1032.49	Ext=16.70	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
824	Williams Field Rd Ramp 'B' Cst ℄ PI	16+43.71	N=839276.231	E=789356.731	SIMPLE	Δ=13°26'00"	D=3°00'00"	R=1909.86	T=224.92	L=447.78	Ext=13.20	e=0.044'/ft	SEE SUPERELEVATION DIAGRAM
61210	Williams Field Rd Ramp 'B' Cst ℄ POT	22+41.56	N=838844.932	E=789773.726									
61300	Williams Field Rd Ramp 'C' Cst ℄ POT	0+00.00	N=839039.064	E=790123.459									
825	Williams Field Rd Ramp 'C' Cst ℄ PI	16+55.45	N=837848.912	E=791274.139	SIMPLE	Δ=20°50'28"	D=1°00'00"	R=5729.58	T=1053.70	L=2084.12	Ext=96.09	e=0.027'/ft	SEE SUPERELEVATION DIAGRAM
61303	Williams Field Rd Ramp 'C' Cst ℄ PT	26+85.87	N=837401.518	E=792228.145									
61400	Williams Field Rd Ramp 'D' Cst ℄ POT	0+00.00	N=838839.108	E=789763.234									
826	Williams Field Rd Ramp 'D' Cst ℄ PI	8+18.09	N=838250.963	E=790331.874	SIMPLE	Δ=17°26'15"	D=2°00'00"	R=2864.79	T=439.33	L=871.88	Ext=33.49	e=0.035'/ft	SEE SUPERELEVATION DIAGRAM
61404	Williams Field Rd Ramp 'D' Cst ℄ POT	24+33.79	N=837476.065	E=791757.366									
20921	Crismon Rd Cst ℄ POT	4+16.35	N=839350.140	E=791384.176									
50062	Crismon Rd Cst ℄ PI	20+00.00	N=837766.605	E=791403.477									
20930	Crismon Rd Cst ℄ POT	30+48.10	N=836718.583	E=791416.250									
20923	Signal Butte Rd Cst ℄ POT	-7+11.87	N=839312.901	E=796683.786									
20931	Signal Butte Rd Cst ℄ PI	19+25.00	N=836676.256	E=796717.965									
50006	Signal Butte Rd Cst ℄ POT	20+00.00	N=836601.256	E=796718.270									
20943	Signal Butte Rd Cst ℄ POT	45+76.79	N=834024.492	E=796728.777									
63100	Signal Butte Rd Ramp 'A' Cst ℄ PC	0+00.00	N=836734.938	E=794578.268									
830	Signal Butte Rd Ramp 'A' Cst ℄ PI	3+43.87	N=836695.739	E=794919.894	SIMPLE	Δ=10°17'18"	D=1°30'00"	R=3819.72	T=343.87	L=685.89	Ext=15.45	e=0.032'/ft	SEE SUPERELEVATION DIAGRAM
63110	Signal Butte Rd Ramp 'A' Cst ℄ POT	21+42.15	N=836813.244	E=796716.189									

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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GEOMETRIC DATA SHEET

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NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.8

TRACS NO. H6867 01L

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12/20/2010 u:\wg01\prod\civ\h6867g07.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
63201	Signal Butte Rd Ramp 'B' Cst ℄ POT	0+00.00	N=836591.755	E=794545.524									
831	Signal Butte Rd Ramp 'B' Cst ℄ PI	12+55.28	N=836446.039	E=795792.319	SIMPLE	Δ=3°53'59"	D=0°45'00"	R=7639.44	T=260.08	L=519.95	Ext=4.43	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
63210	Signal Butte Rd Ramp 'B' Cst ℄ POT	21+82.93	N=836401.258	E=796719.086									
63300	Signal Butte Rd Ramp 'C' Cst ℄ POT	0+00.00	N=836801.245	E=796716.344									
832	Signal Butte Rd Ramp 'C' Cst ℄ PI	15+49.44	N=836660.901	E=798259.414	SIMPLE	Δ=4°42'01"	D=0°43'00"	R=7994.76	T=328.11	L=655.84	Ext=6.73	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
63303	Signal Butte Rd Ramp 'C' Cst ℄ PT	18+77.18	N=836658.057	E=798587.508									
63400	Signal Butte Rd Ramp 'D' Cst ℄ POT	0+00.00	N=836389.258	E=796719.135									
833	Signal Butte Rd Ramp 'D' Cst ℄ PI	15+04.06	N=836515.255	E=798217.911	SIMPLE	Δ=5°18'07"	D=0°50'00"	R=6875.49	T=318.35	L=636.24	Ext=7.37	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
63403	Signal Butte Rd Ramp 'D' Cst ℄ PT	18+21.95	N=836512.496	E=798536.245									
63510	Mountain Rd Cst ℄ POT	16+00.00	N=836980.384	E=799120.601									
63550	Mountain Rd Cst ℄ PI	20+00.00	N=836580.402	E=799124.348									
63511	Mountain Rd Cst ℄ POT	25+00.00	N=836080.424	E=799129.032									
20925	Meridian Rd Cst ℄ POT	-7+19.05	N=839274.553	E=801948.175									
22579	Meridian Rd Cst ℄ PI	15+61.92	N=836993.715	E=801973.312									
20932	Meridian Rd Cst ℄ PI	19+25.00	N=836630.662	E=801977.313									
50007	Meridian Rd Cst ℄ POT	20+00.00	N=836555.666	E=801978.145									
22580	Meridian Rd Cst ℄ PI	41+99.39	N=834356.413	E=802002.538									
64100	Meridian Rd Ramp 'A' Cst ℄ PC	0+00.00	N=836645.057	E=800087.452									
860	Meridian Rd Ramp 'A' Cst ℄ PI	3+00.49	N=836642.452	E=800387.928	SIMPLE	Δ=5°00'18"	D=0°50'00"	R=6875.49	T=300.49	L=600.59	Ext=6.56	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
64110	Meridian Rd Ramp 'A' Cst ℄ POT	18+92.91	N=836767.653	E=801975.803									
64200	Meridian Rd Ramp 'B' Cst ℄ PC	0+00.00	N=836499.495	E=800036.188									
861	Meridian Rd Ramp 'B' Cst ℄ PI	3+46.77	N=836496.490	E=800382.949	SIMPLE	Δ=4°58'02"	D=0°43'00"	R=7994.76	T=346.77	L=693.11	Ext=7.52	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
64210	Meridian Rd Ramp 'B' Cst ℄ POT	19+51.18	N=836343.679	E=801980.496									
64300	Meridian Rd Ramp 'C' Cst ℄ POT	0+00.00	N=836755.654	E=801975.935									
862	Meridian Rd Ramp 'C' Cst ℄ PI	19+57.07	N=836611.771	E=803927.708	SIMPLE	Δ=3°43'10"	D=0°43'00"	R=7994.76	T=259.60	L=519.01	Ext=4.21	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
64303	Meridian Rd Ramp 'C' Cst ℄ PT	22+16.48	N=836609.521	E=804187.294									
64400	Meridian Rd Ramp 'D' Cst ℄ POT	0+00.00	N=836343.679	E=801980.496									
863	Meridian Rd Ramp 'D' Cst ℄ PI	18+51.22	N=836466.633	E=803827.630	SIMPLE	Δ=4°18'17"	D=0°50'00"	R=6875.49	T=258.41	L=516.58	Ext=4.85	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
64403	Meridian Rd Ramp 'D' Cst ℄ PT	21+09.39	N=836464.393	E=804086.033									

CURVE DATA TABLE

APPENDIX C

	NAME	DATE
DESIGN	WJS	01-11
DRAWN	BAF	01-11
CHECKED	SDW	01-11

TRANSPORTATION

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.9

TRACS NO. H6867 01L

___ OF ___

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

12/20/2010 u:\wg01\prod\civ\h6867g08.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
22582	Ironwood Rd Cst ℄ POT	-11+54.59	N=839657.350	E=808065.089									
22583	Ironwood Rd Cst ℄ PI	14+86.06	N=837016.726	E=808076.388									
65003	Ironwood Rd Cst ℄ PI	20+00.00	N=836502.790	E=808078.587									
22584	Ironwood Rd Cst ℄ POT	41+26.71	N=834376.102	E=808087.687									
65100	Ironwood Rd Ramp 'A' Cst ℄ PC	0+00.00	N=836594.353	E=805937.233									
870	Ironwood Rd Ramp 'A' Cst ℄ PI	2+52.94	N=836592.161	E=806190.162	SIMPLE	Δ=4°12'49"	D=0°50'00"	R=6875.49	T=252.94	L=505.65	Ext=4.65	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
65110	Ironwood Rd Ramp 'A' Cst ℄ POT	21+44.21	N=836714.788	E=808077.680									
65200	Ironwood Rd Ramp 'B' Cst ℄ PC	0+00.00	N=836448.792	E=805885.969									
871	Ironwood Rd Ramp 'B' Cst ℄ PI	2+91.51	N=836446.265	E=806177.465	SIMPLE	Δ=4°10'35"	D=0°43'00"	R=7994.76	T=291.51	L=582.76	Ext=5.31	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
65210	Ironwood Rd Ramp 'B' Cst ℄ POT	21+99.62	N=836290.792	E=808079.494									
65300	Ironwood Rd Ramp 'C' Cst ℄ POT (Future)	0+00.00	N=836702.788	E=808077.731									
872	Ironwood Rd Ramp 'C' Cst ℄ PI (Future)	15+34.40	N=836562.556	E=809605.714	SIMPLE	Δ=4°44'49"	D=0°43'00"	R=7994.76	T=331.38	L=662.38	Ext=6.86	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
65303	Ironwood Rd Ramp 'C' Cst ℄ PT (Future)	18+65.41	N=836559.684	E=809937.082									
65400	Ironwood Rd Ramp 'D' Cst ℄ POT (Future)	0+00.00	N=836290.792	E=808079.494									
873	Ironwood Rd Ramp 'D' Cst ℄ PI (Future)	14+90.41	N=836416.908	E=809564.557	SIMPLE	Δ=5°21'02"	D=0°50'00"	R=6875.49	T=321.27	L=642.08	Ext=7.50	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
65403	Ironwood Rd Ramp 'D' Cst ℄ PT (Future)	18+11.22	N=836414.123	E=809885.819									

CURVE DATA TABLE

APPENDIX C

	NAME	DATE
DESIGN	WJS	01-11
DRAWN	BAF	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

GEOMETRIC DATA SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.10

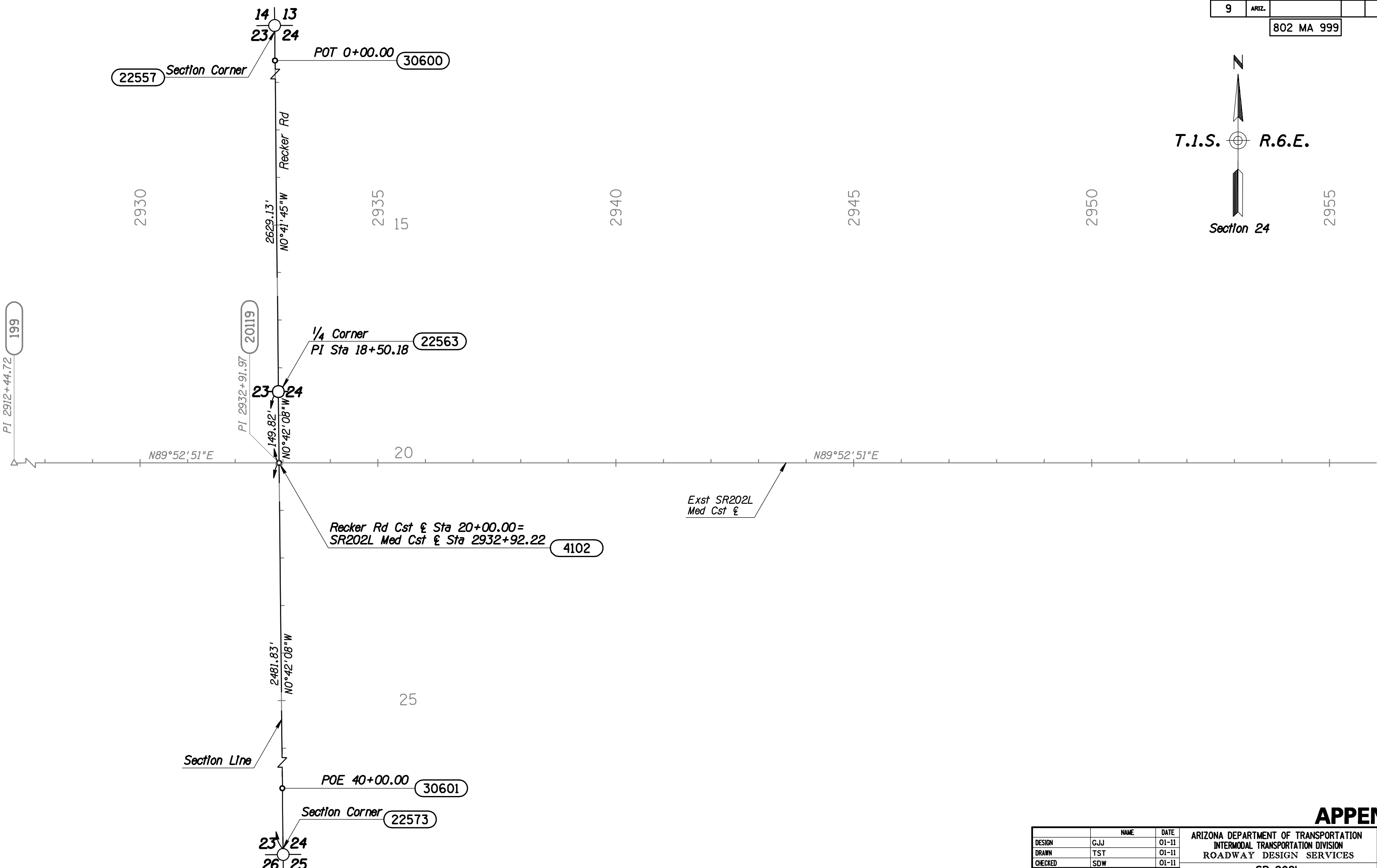
TRACS NO. H6867 01L

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g09.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 2928+00 TO STA 2956+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

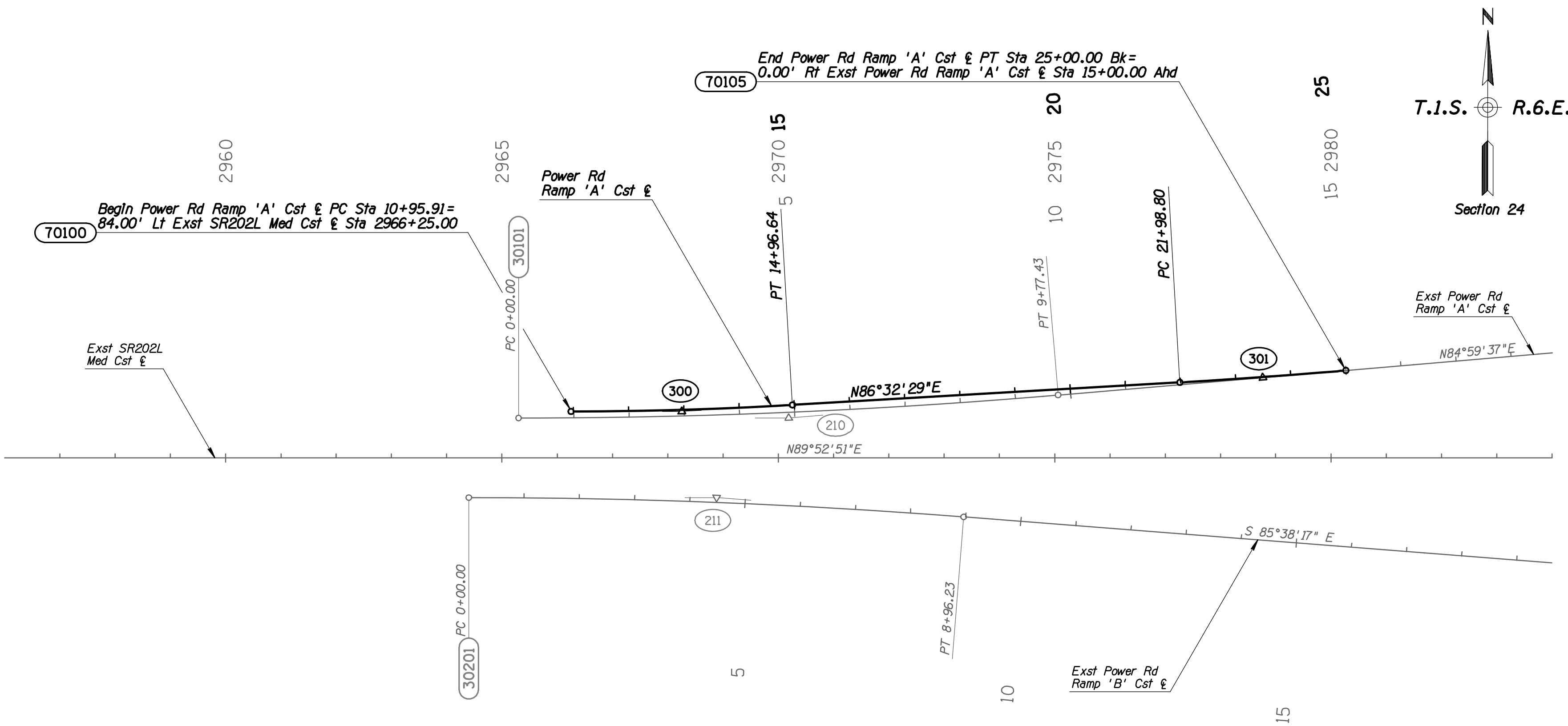
DWG NO. C-2.1

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g10.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 2956+00 TO STA 2984+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.2

TRACS NO. H6867 01L | - | ___ OF ___

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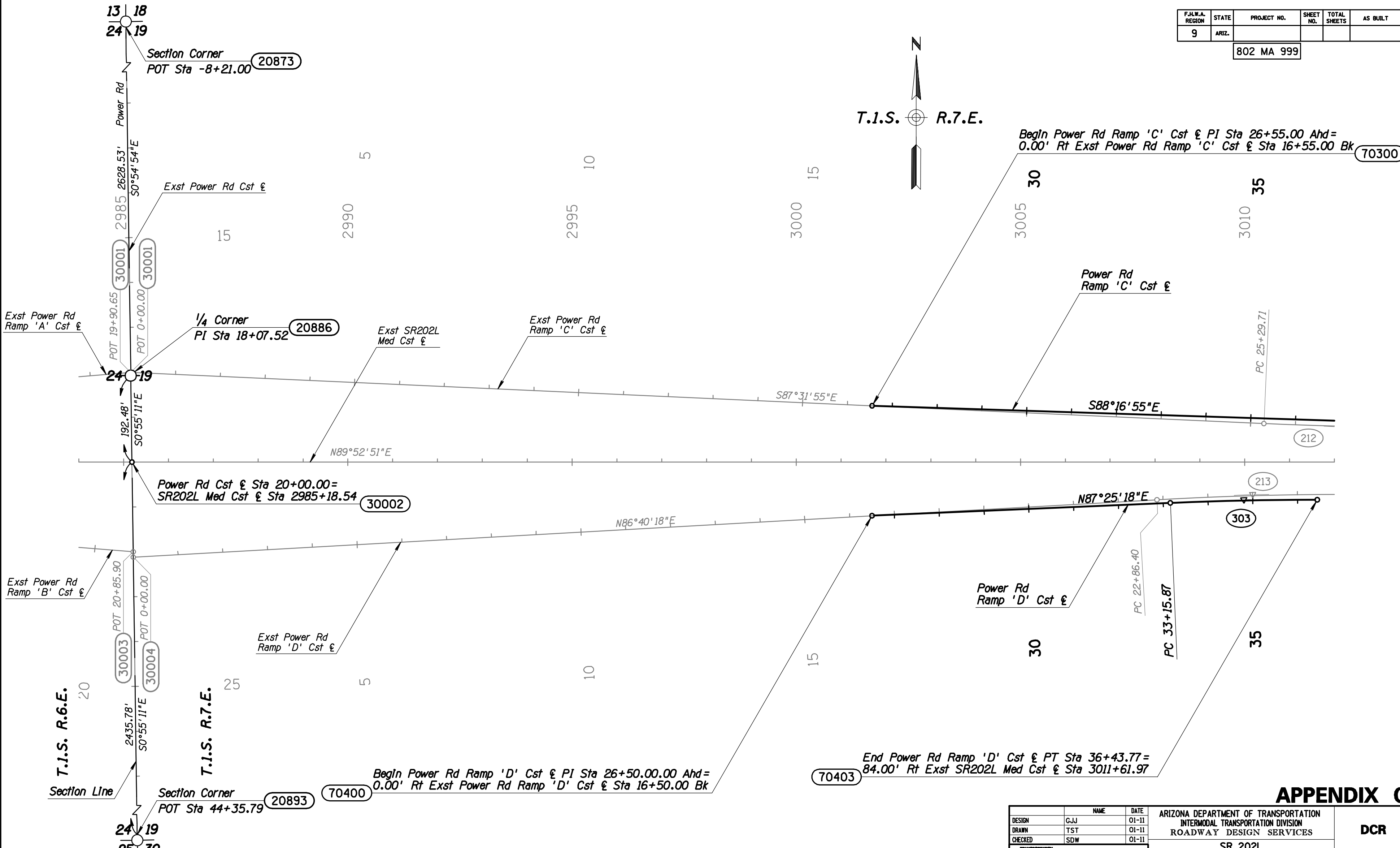
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 2984+00 TO STA 3012+00

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
AECOM
www.aecom.com

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

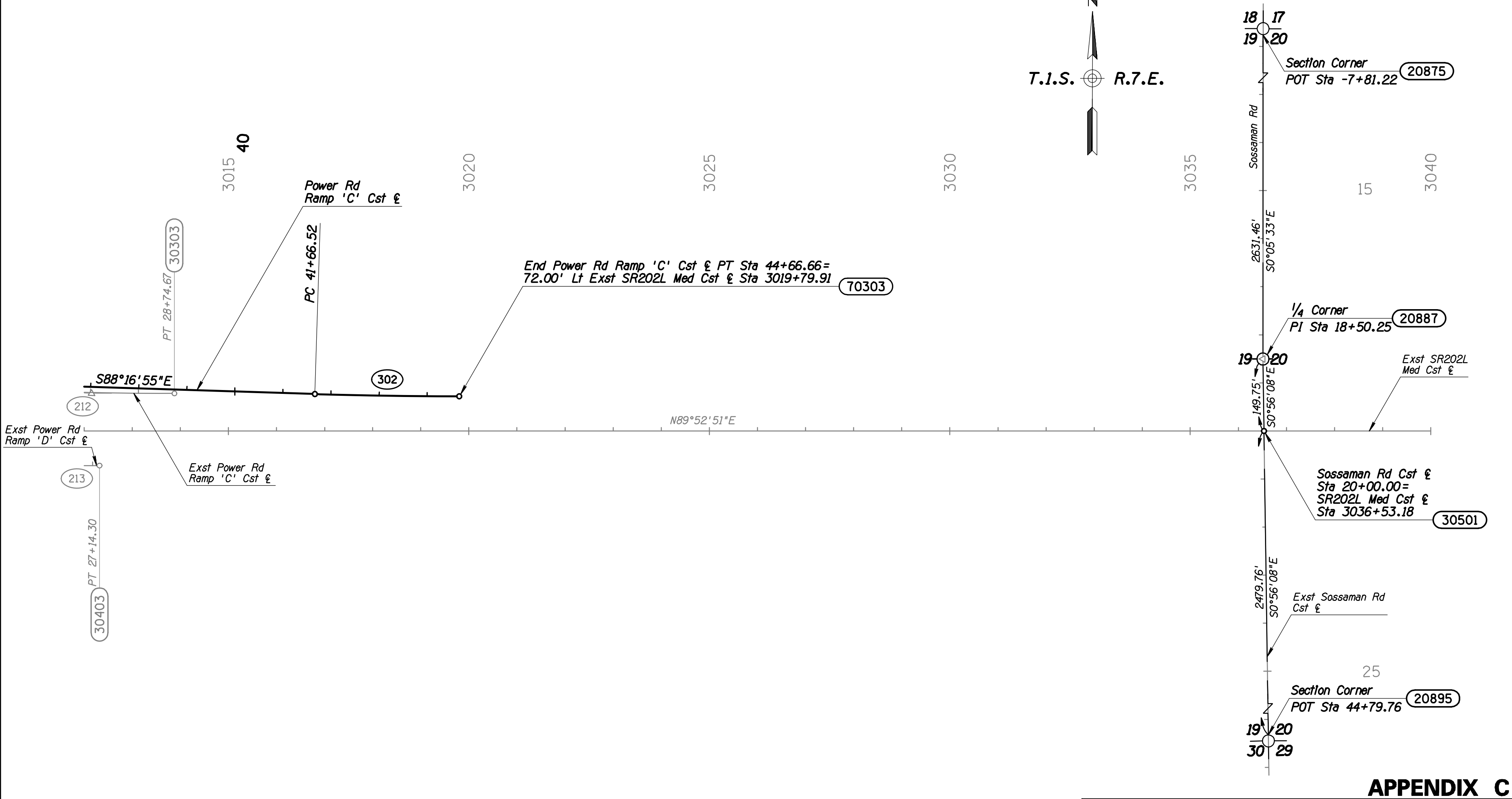
DCR
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-2.3

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g12.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3012+00 TO STA 3040+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.4

TRACS NO. H6867 01L | - | ___ OF ___

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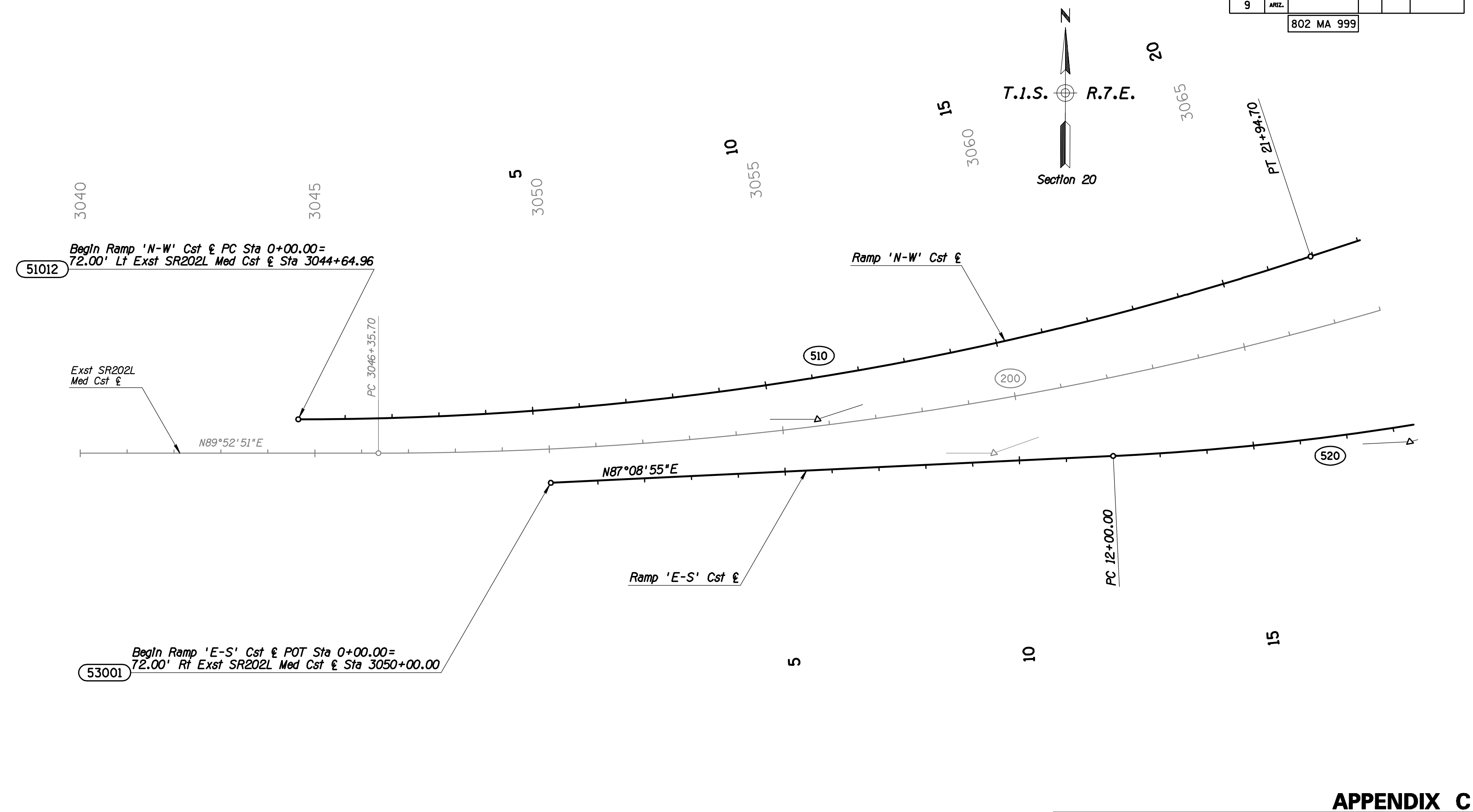

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3040+00 TO STA 3068+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.5

TRACS NO. H6867 01L

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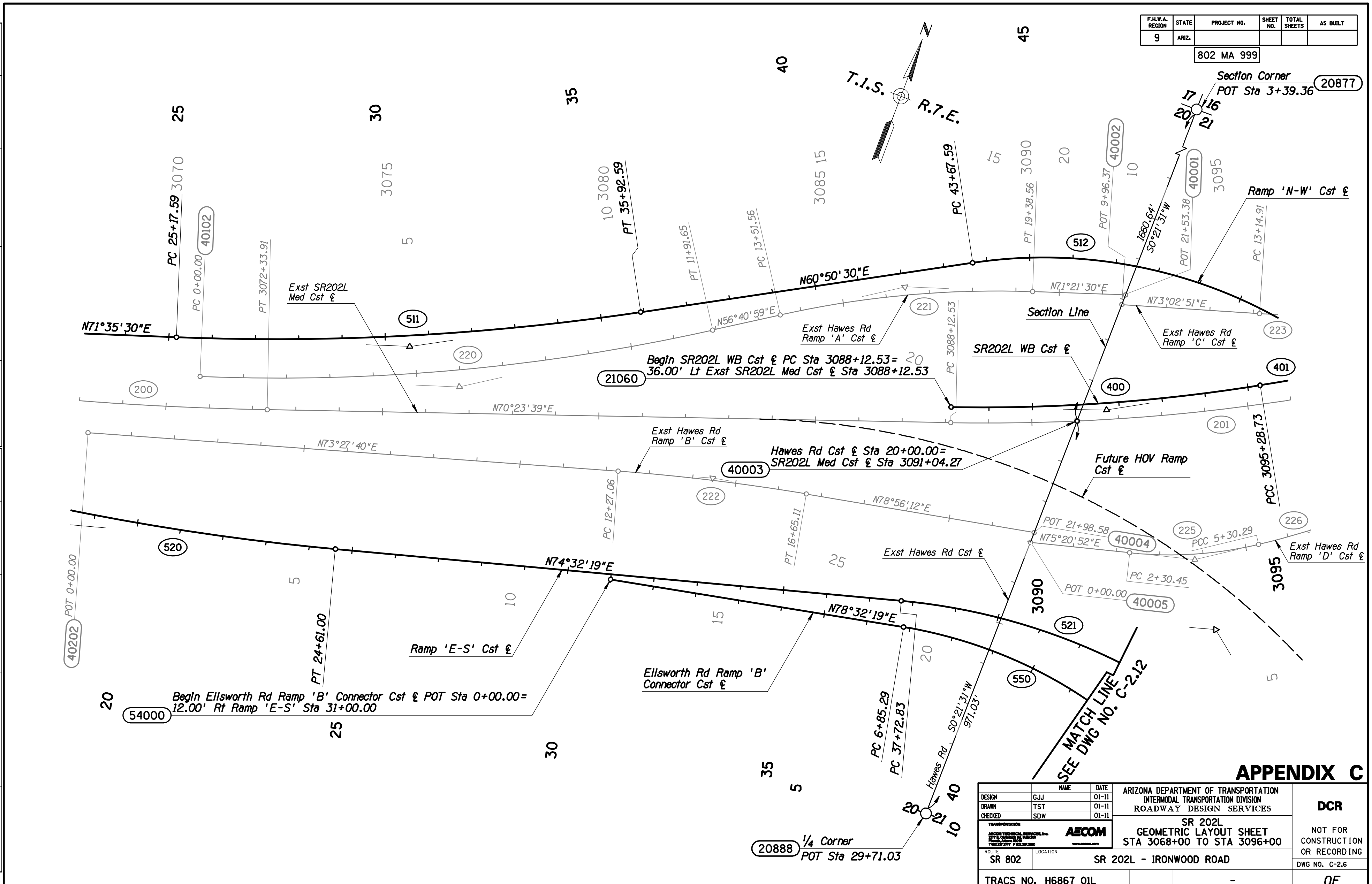

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3068+00 TO STA 3096+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.6

TRACS NO. H6867 01L — -

___ OF ___

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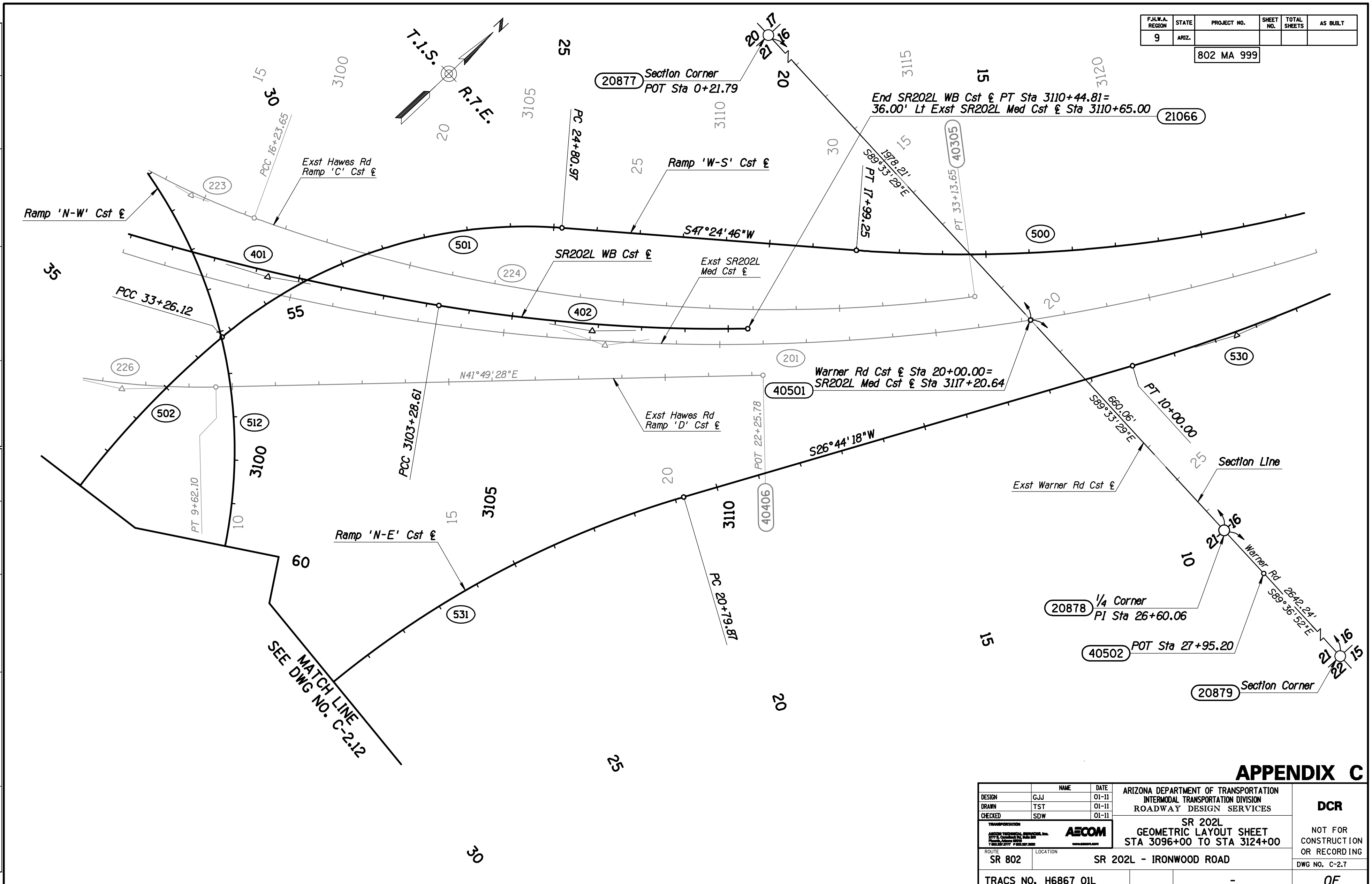

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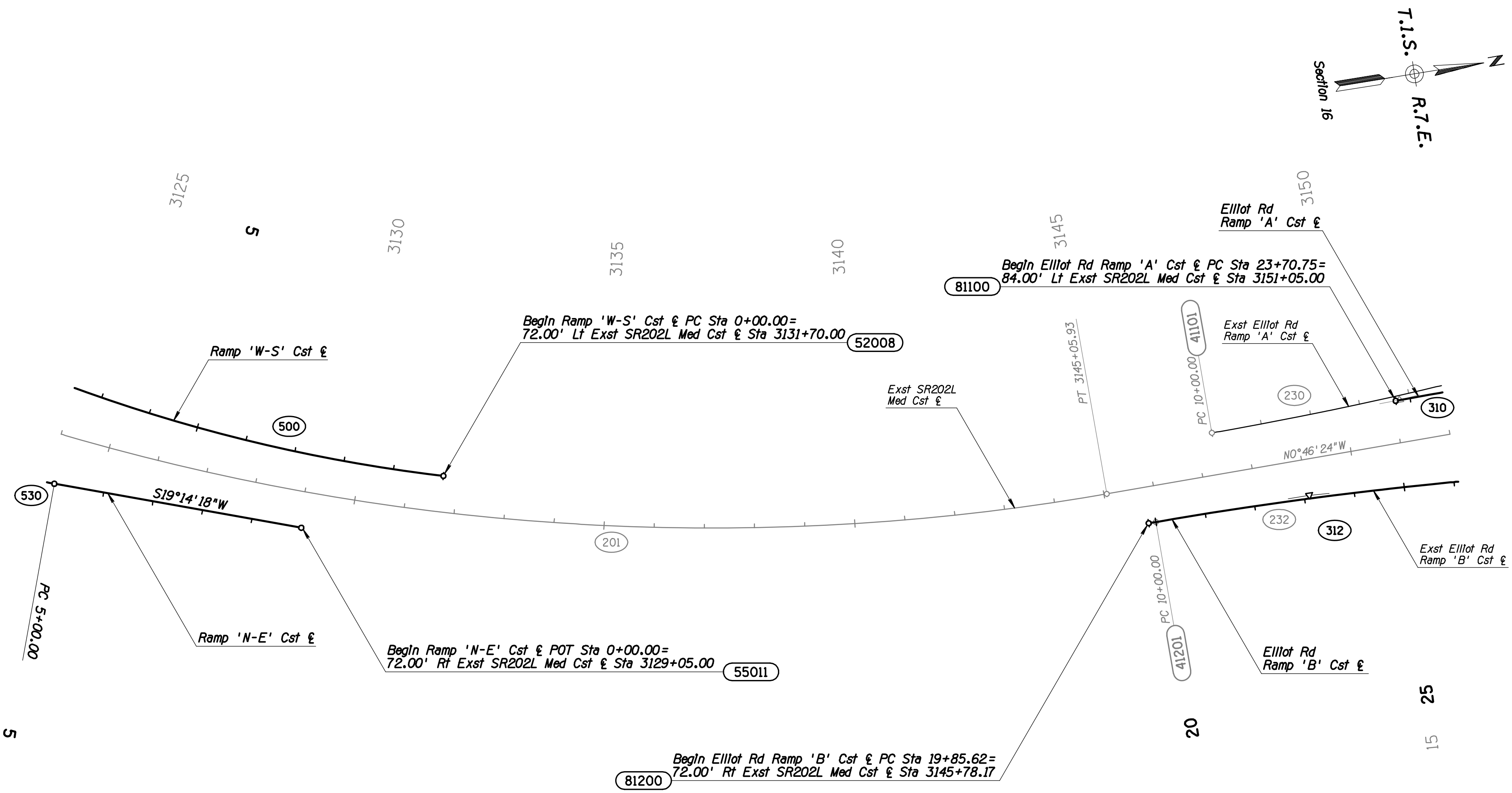
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3124+00 TO STA 3152+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.8

TRACS NO. H6867 01L

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___ OF ___

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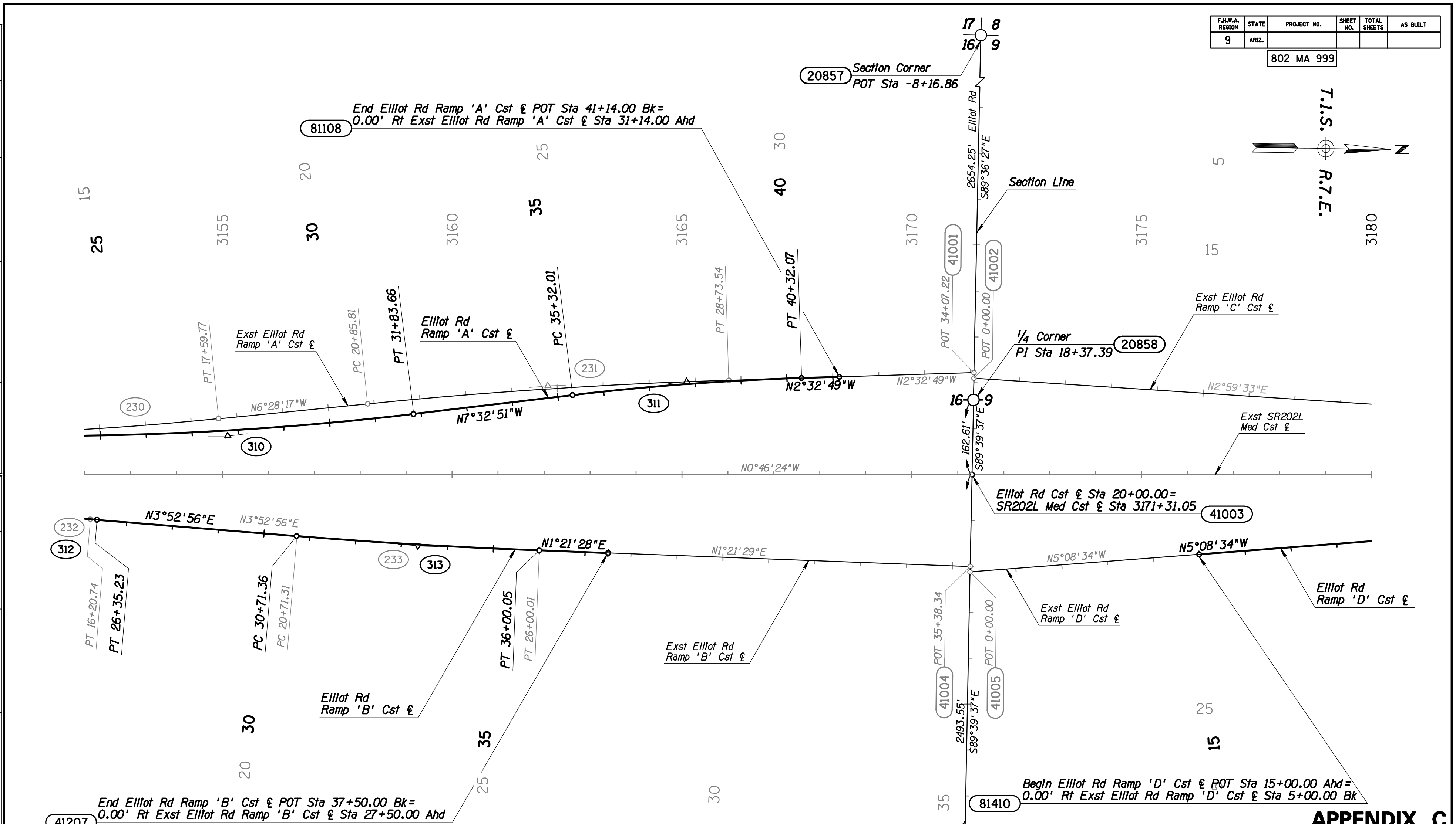

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3152+00 TO STA 3180+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.9

TRACS NO. H6867 01L | - | ___ OF ___

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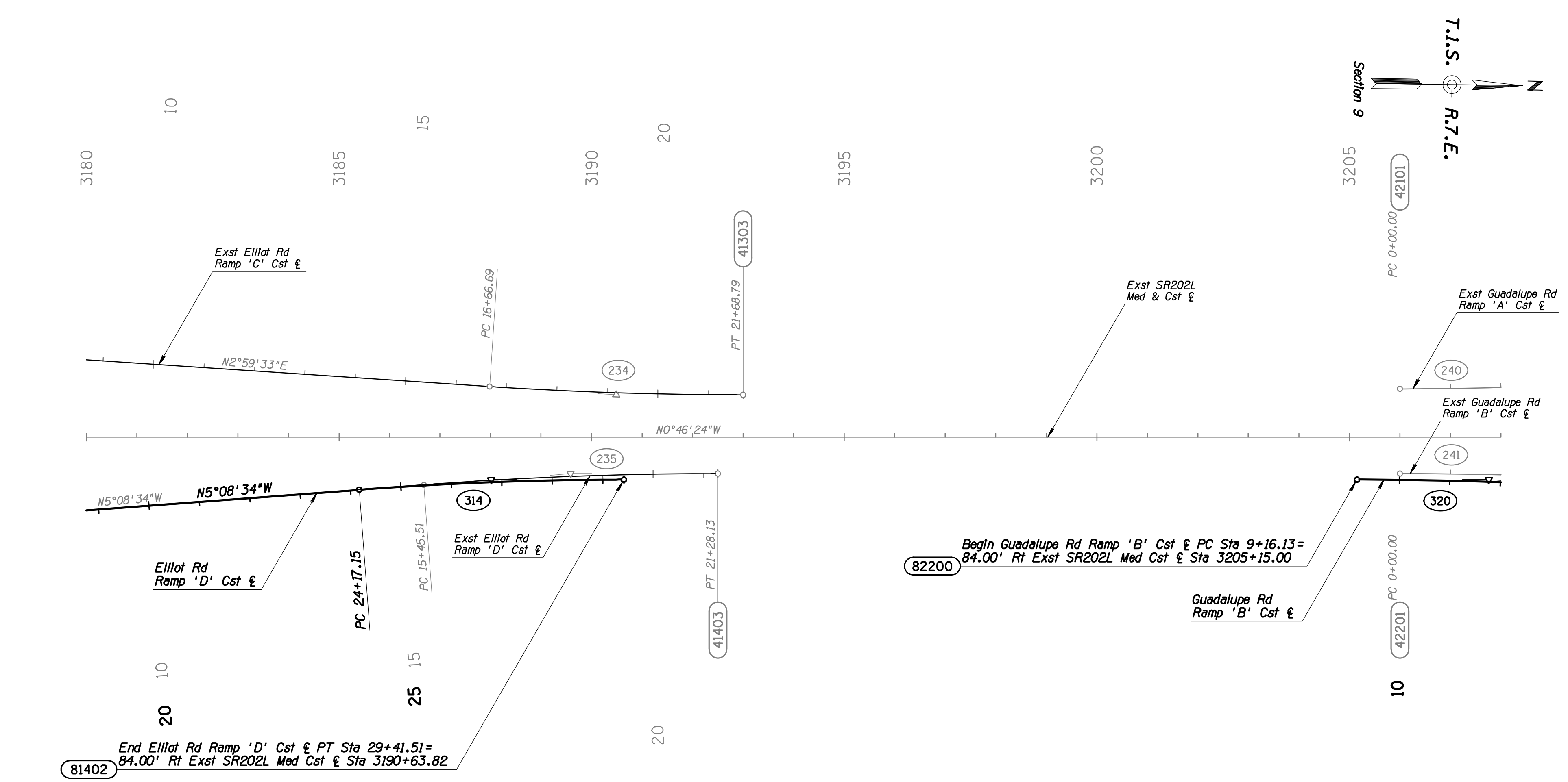
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
GEOMETRIC LAYOUT SHEET
STA 3180+00 TO STA 3208+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.10

TRACS NO. H6867 01L

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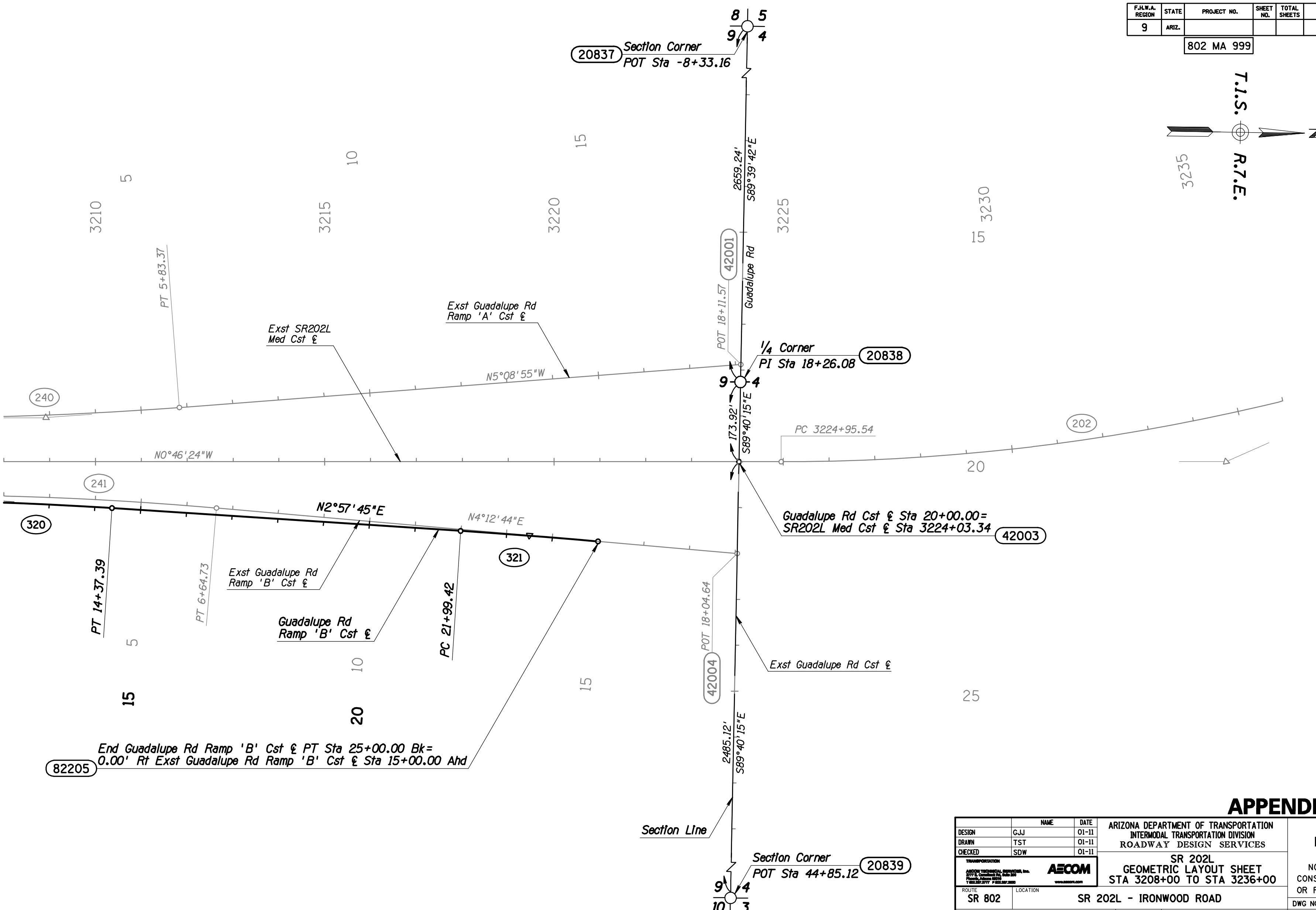
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g19.dgn

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

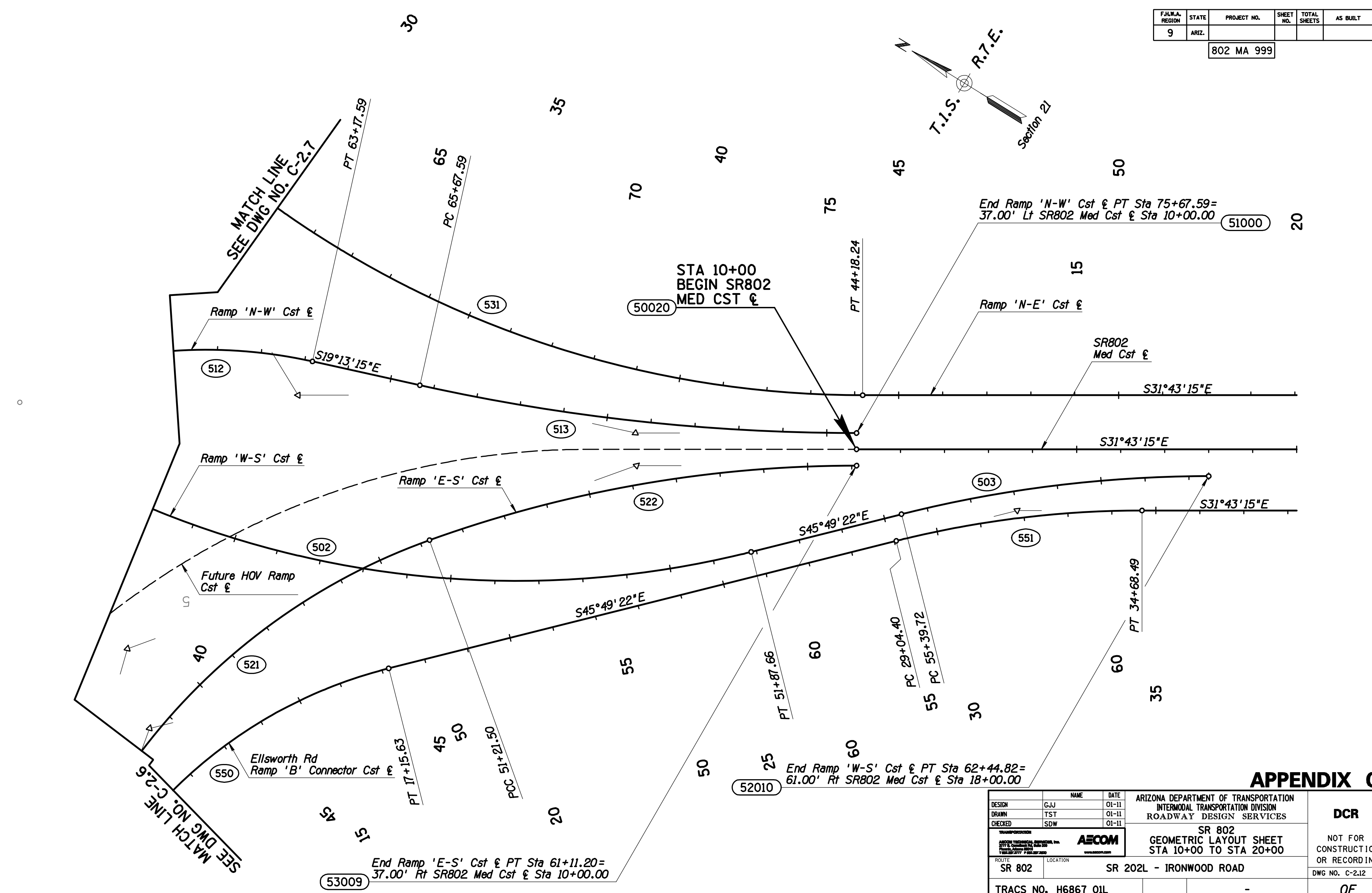
802 MA 999



APPENDIX C

	NAME	DATE	
DESIGN	GJJ	01-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	01-11	SR 202L GEOMETRIC LAYOUT SHEET STA 3208+00 TO STA 3236+00
CHECKED	SDW	01-11	DCR NOT FOR CONSTRUCTION OR RECORDING
AECOM			DWG NO. C-2.11
ROUTE SR 802	LOCATION SR 202L - IRONWOOD ROAD		
TRACS NO. H6867 01L	-		___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g20.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 10+00 TO STA 20+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.12

TRACS NO. H6867 01L

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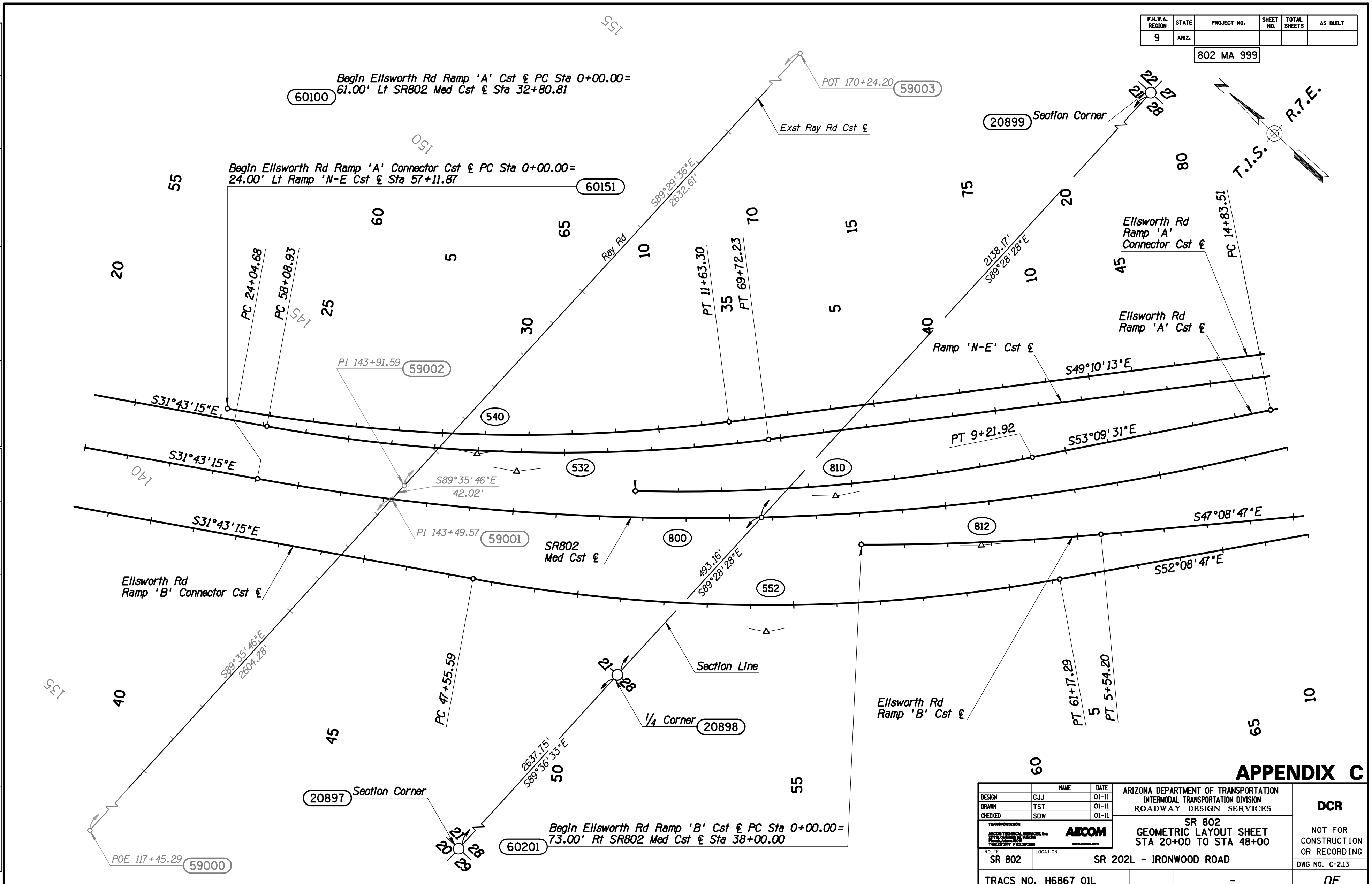
___ OF ___



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 802
GEOMETRIC LAYOUT SHEET
STA 20+00 TO STA 48+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.13

TRACS NO. H6867 01L

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___ OF ___

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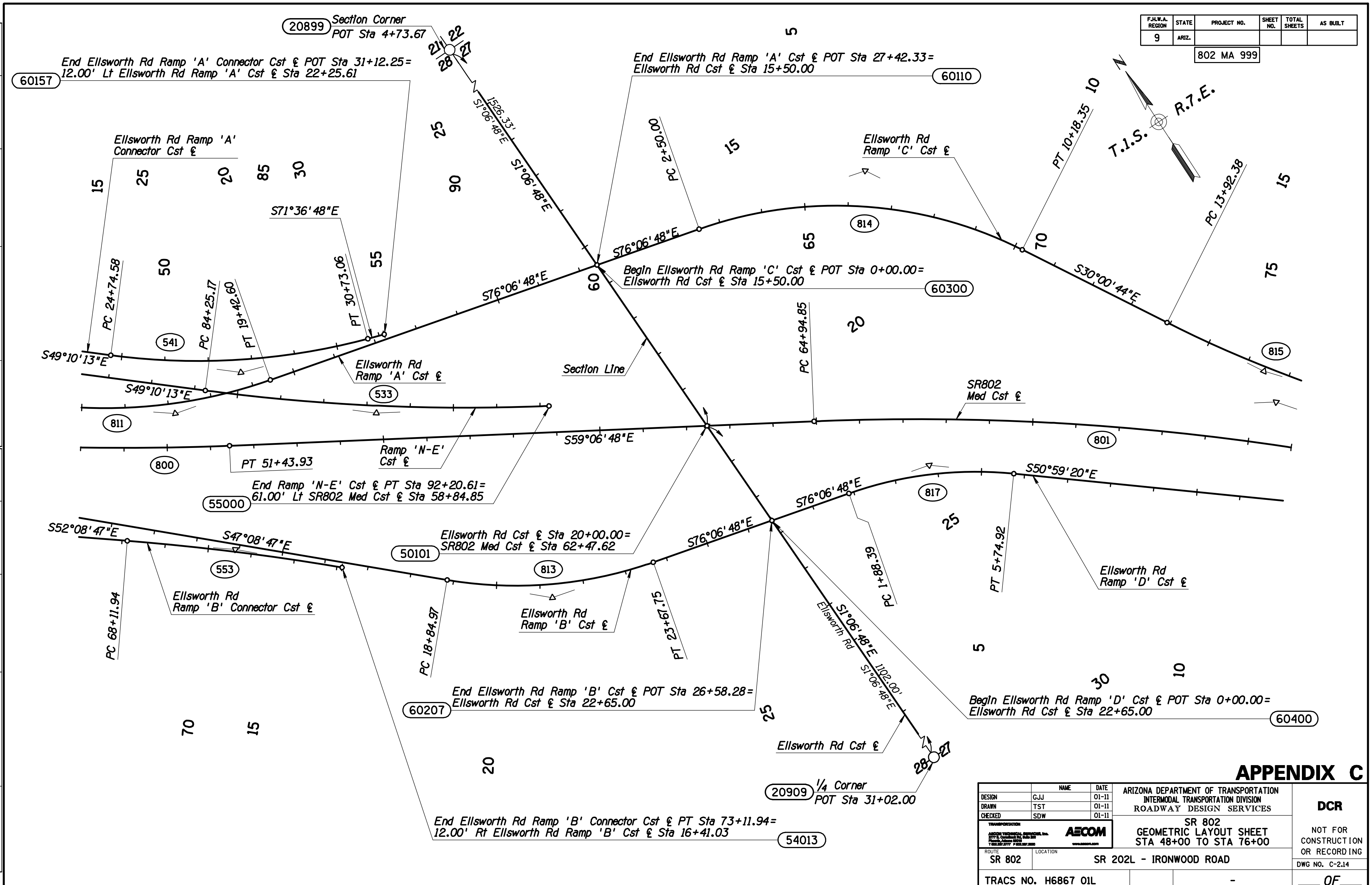

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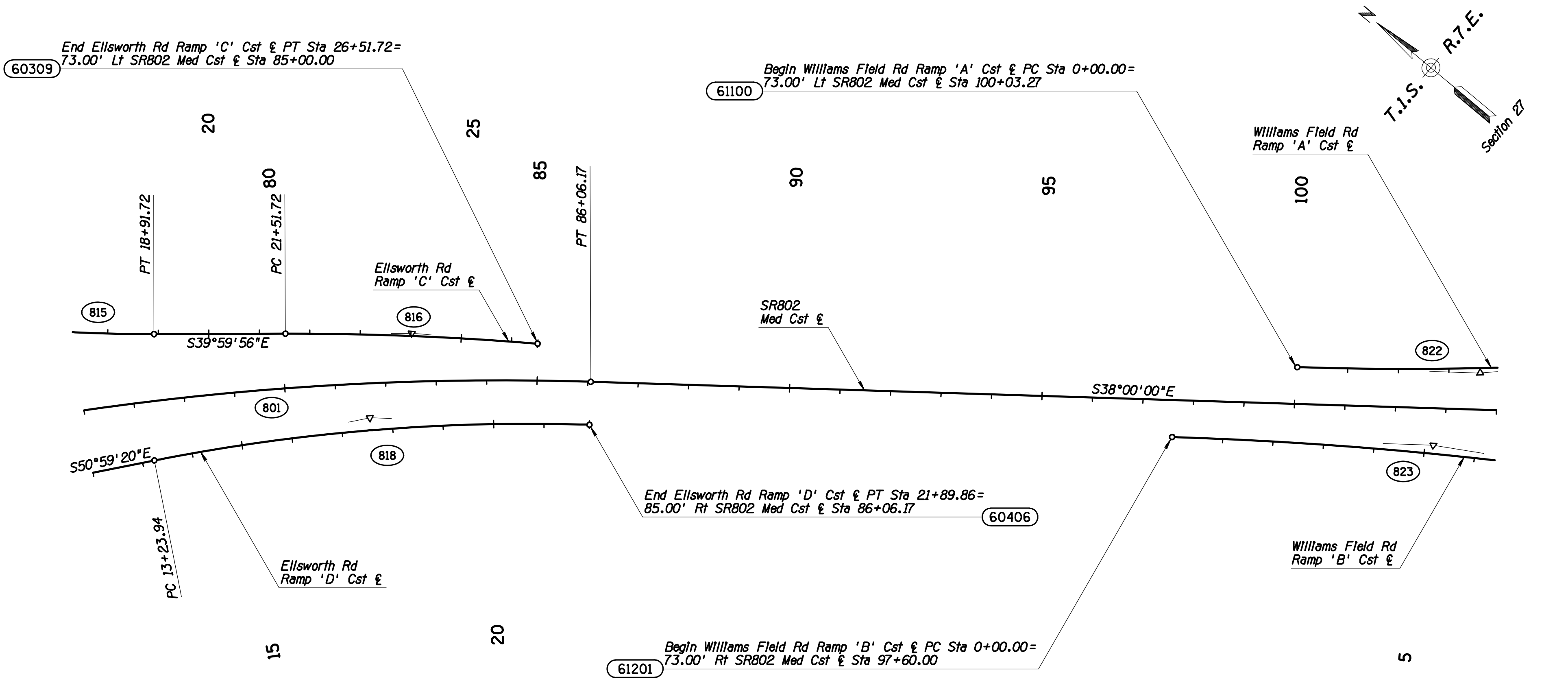
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

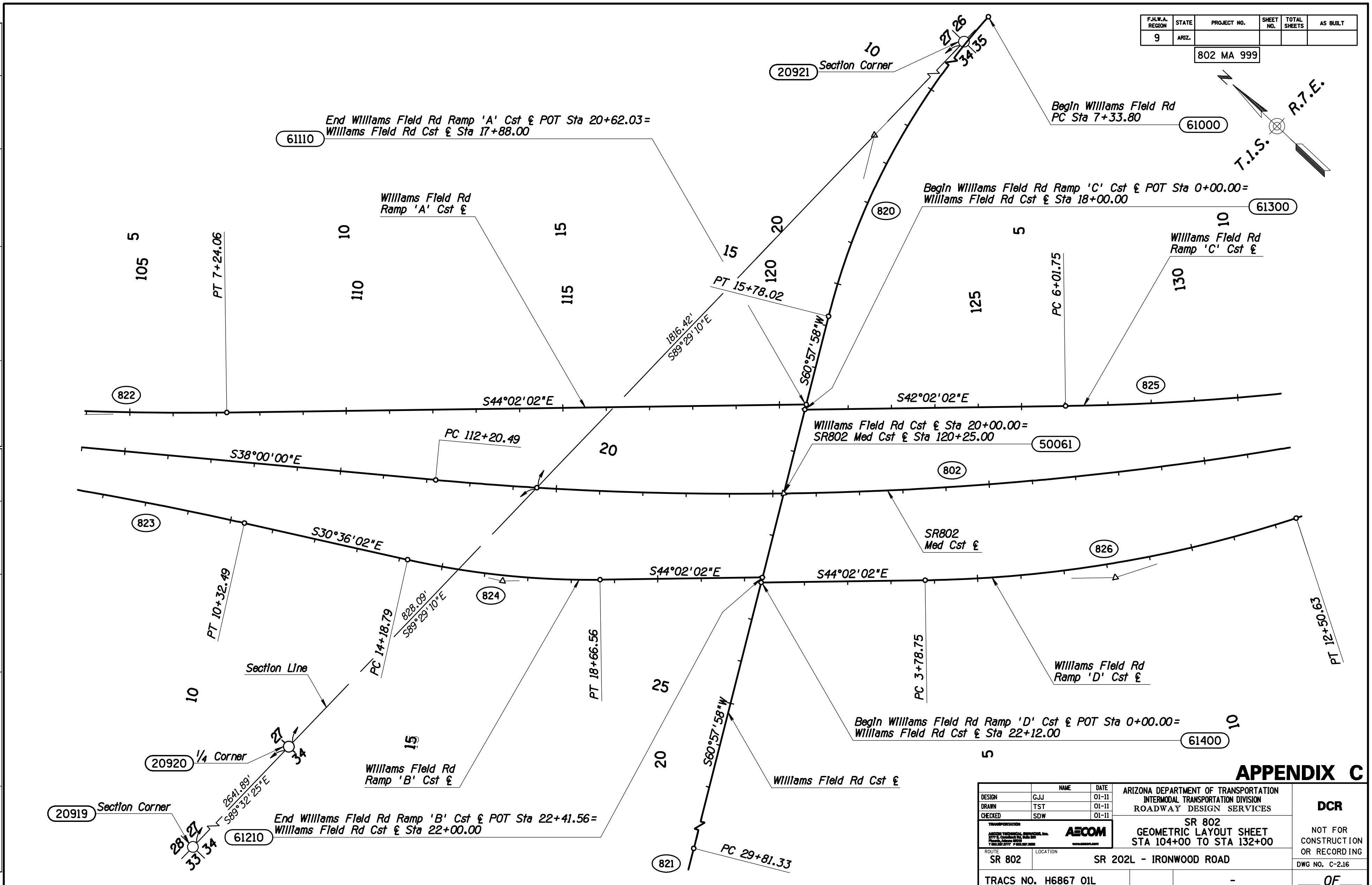
802 MA 999



APPENDIX C

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES	DCR
DESIGN	GJJ	01-11	SR 802	
DRAWN	TST	01-11	GEOMETRIC LAYOUT SHEET	NOT FOR CONSTRUCTION OR RECORDING
CHECKED	SDW	01-11	STA 76+00 TO STA 104+00	
TRANSPORTATION AECOM				
ROUTE SR 802	LOCATION		SR 202L - IRONWOOD ROAD	DWG NO. C-2.15
TRACS NO. H6867 01L			-	___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g24.dgn



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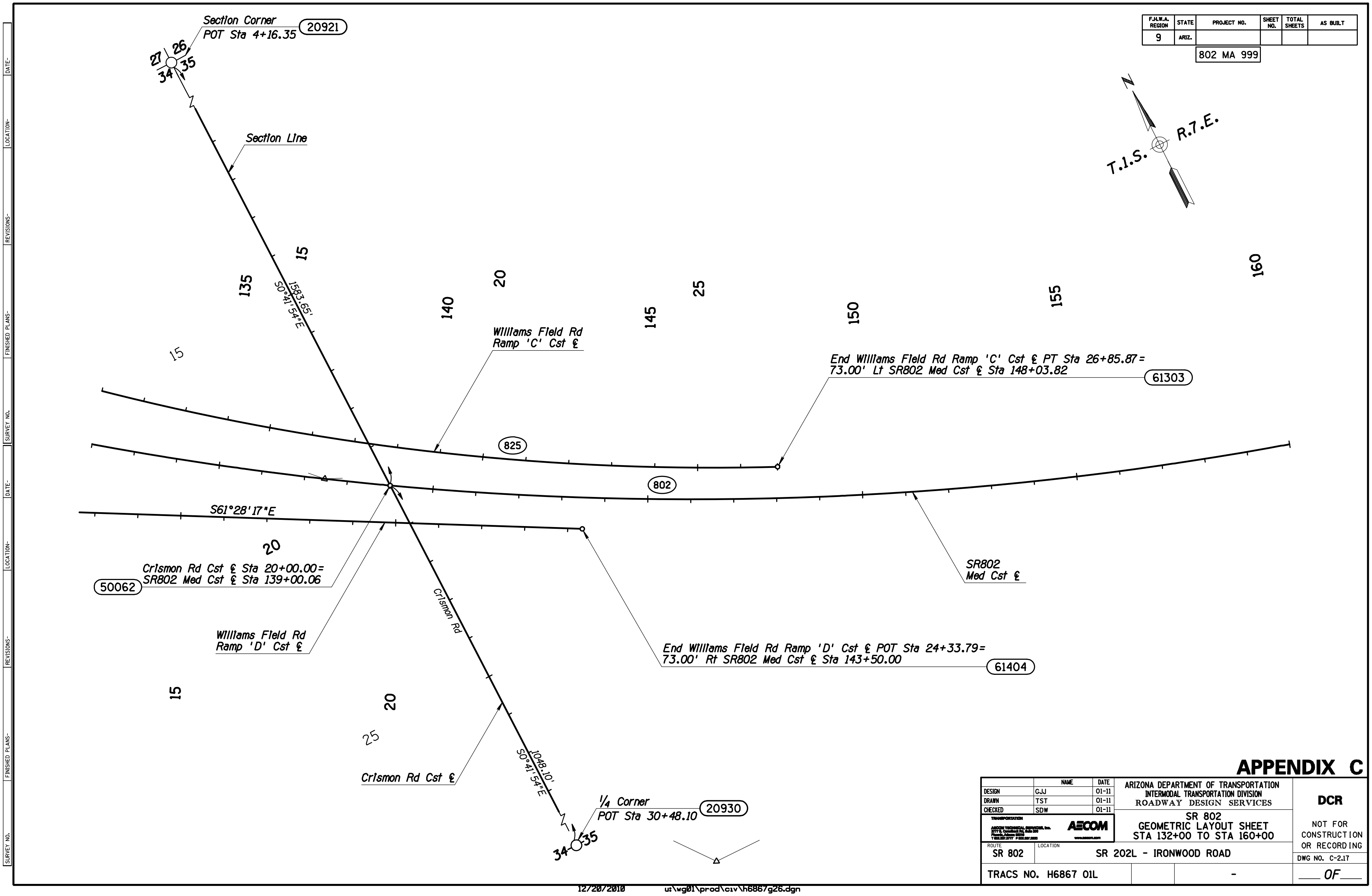

F.H.W.A. REGION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
9
ARIZ.
802 MA 999
N
T.1.S.
R.7.E.
Section Corner
POT Sta 4+16.35
20921
27 26
34 35
Section Line
15
135
1583.65'
S0°41'54"E
140
20
145
25
150
155
160
Williams Field Rd
Ramp 'C' Cst ℄
End Williams Field Rd Ramp 'C' Cst ℄ PT Sta 26+85.87 =
73.00' Lt SR802 Med Cst ℄ Sta 148+03.82
61303
825
802
S61°28'17"E
20
Crismon Rd Cst ℄ Sta 20+00.00 =
SR802 Med Cst ℄ Sta 139+00.06
50062
SR802
Med Cst ℄
Crismon Rd
Williams Field Rd
Ramp 'D' Cst ℄
End Williams Field Rd Ramp 'D' Cst ℄ POT Sta 24+33.79 =
73.00' Rt SR802 Med Cst ℄ Sta 143+50.00
61404
15
20
25
Crismon Rd Cst ℄
1048.10'
S0°41'54"E
1/4 Corner
POT Sta 30+48.10
20930
34 35
APPENDIX C
NAME
DATE
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
SR 802
GEOMETRIC LAYOUT SHEET
STA 132+00 TO STA 160+00
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. C-2.17
TRACS NO. H6867 01L
-
OF
12/20/2010
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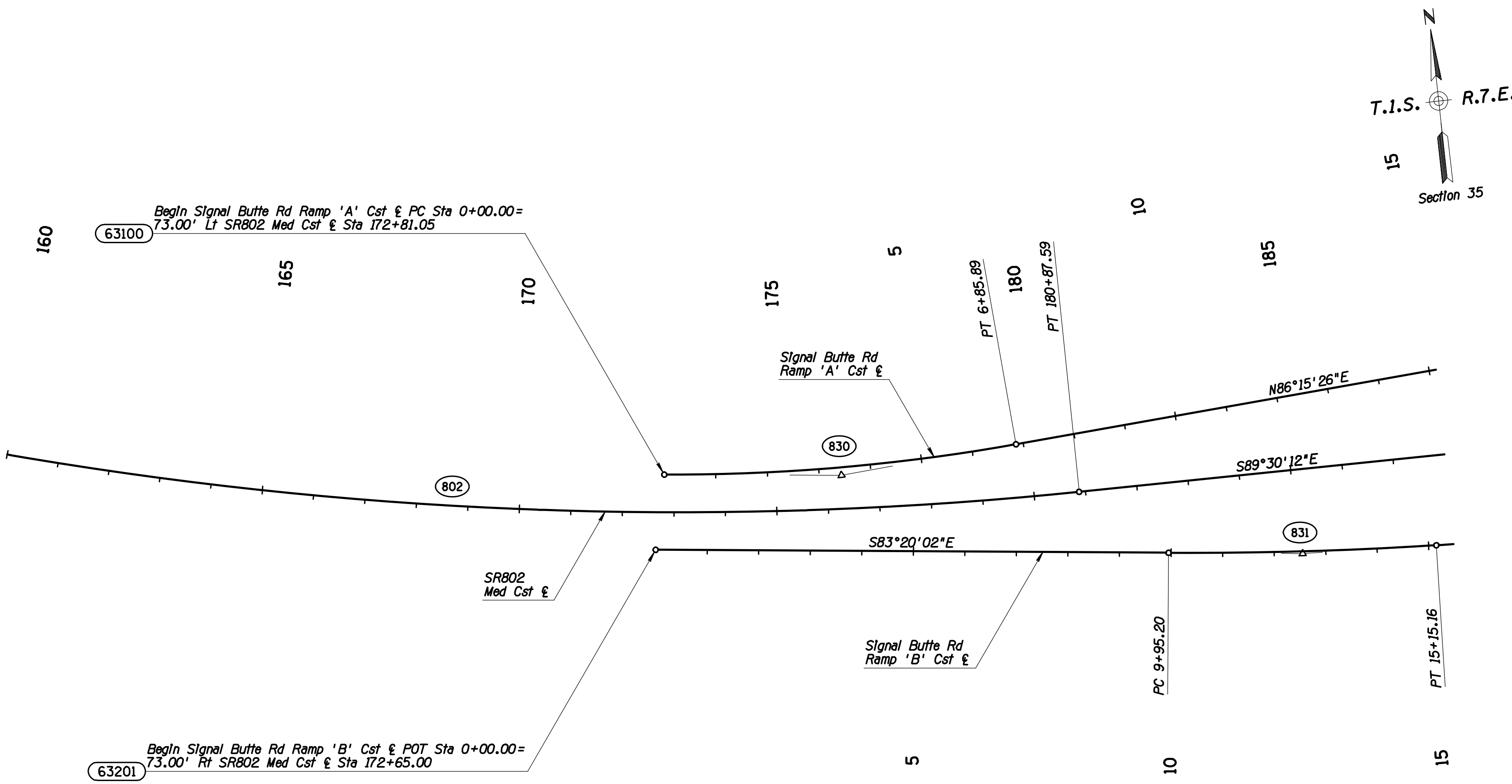
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 160+00 TO STA 188+00

DCR

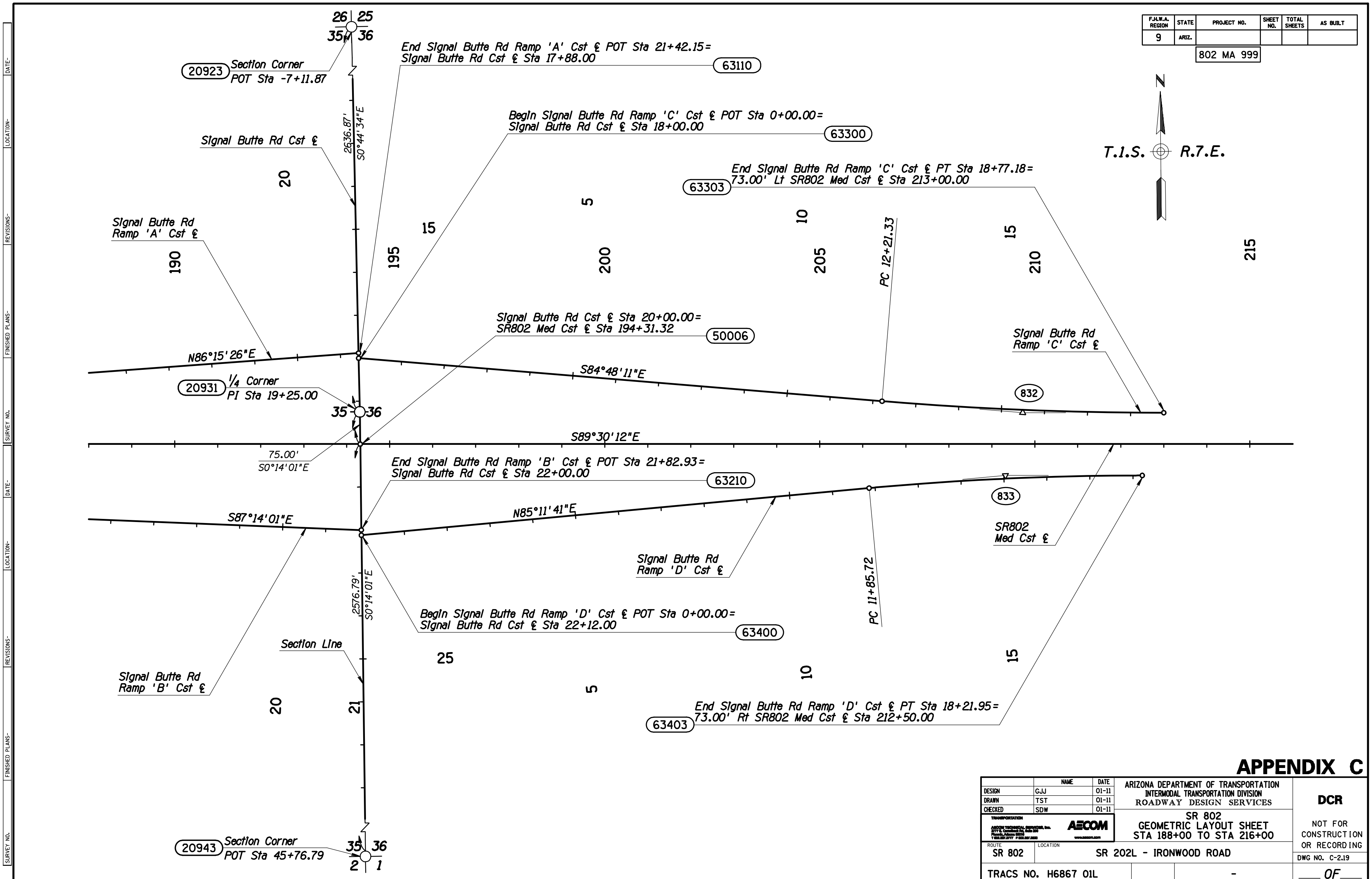
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.18

TRACS NO. H6867 01L | - | ___ OF ___

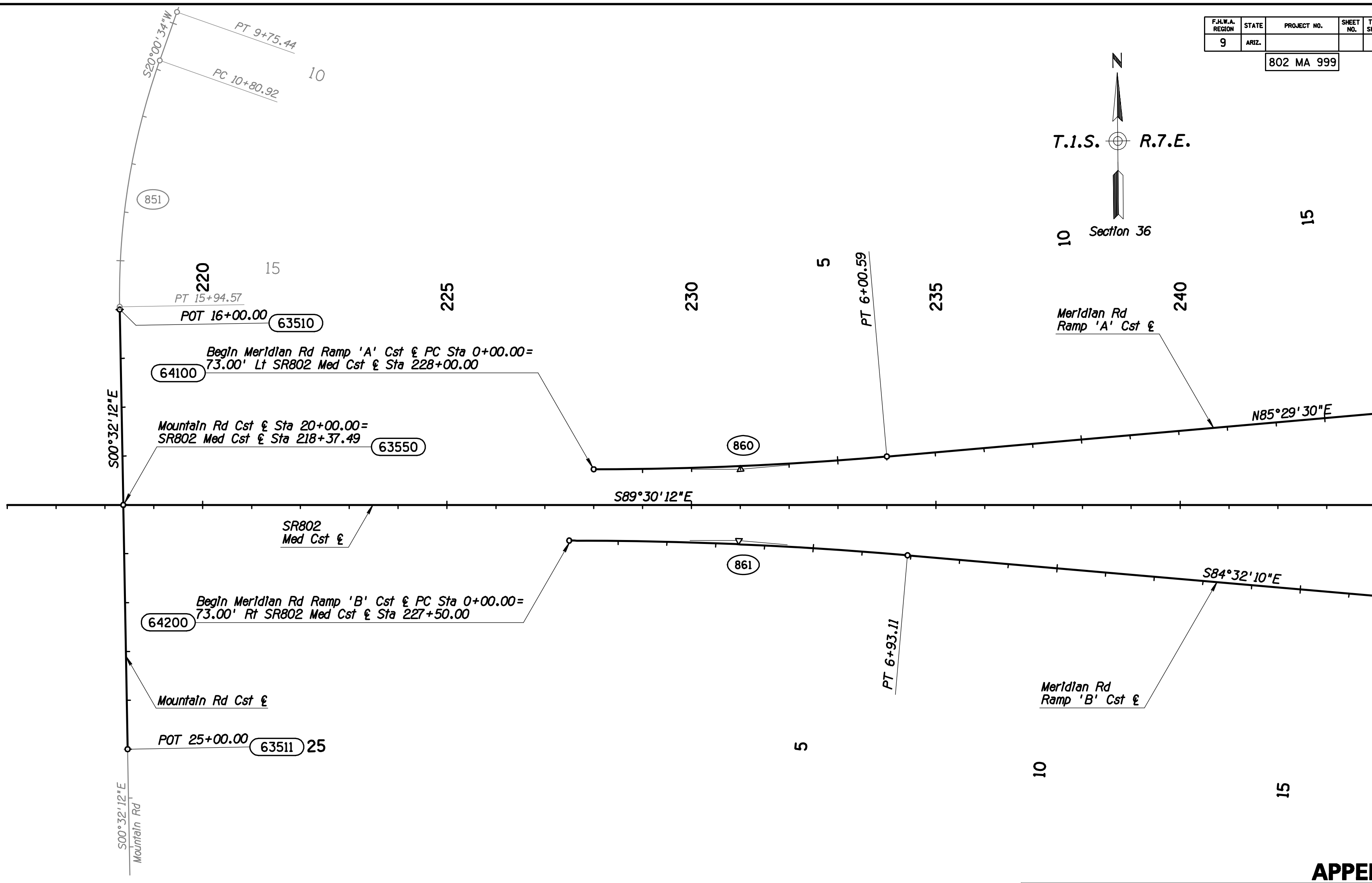
12/20/2010 u:\wg01\prod\civ\h6867g27.dgn



12/20/2010 u:\wg01\prod\civ\h6867g28.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 216+00 TO STA 244+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

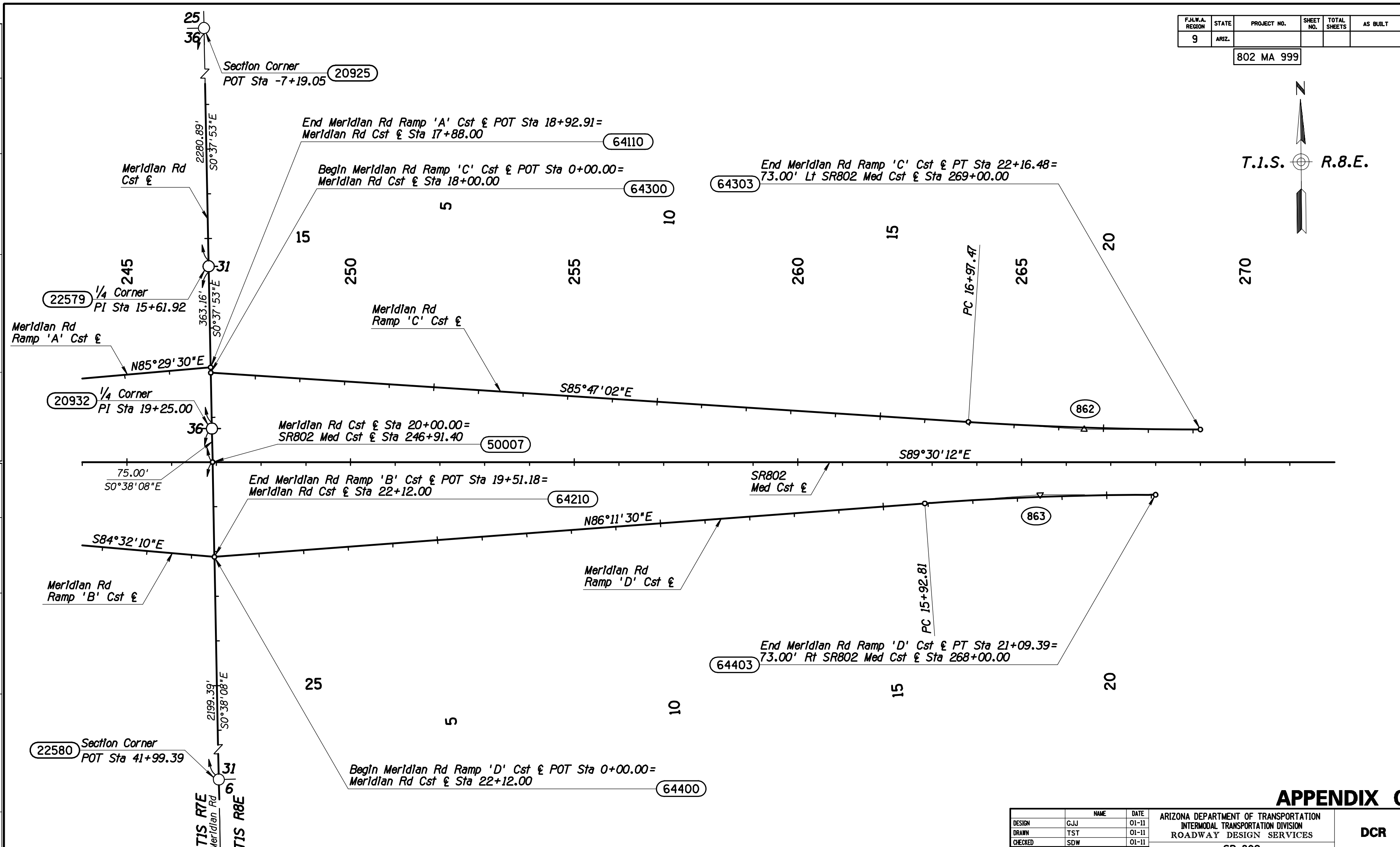
DWG NO. C-2.20

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g29.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 244+00 TO STA 272+00

ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-2.21

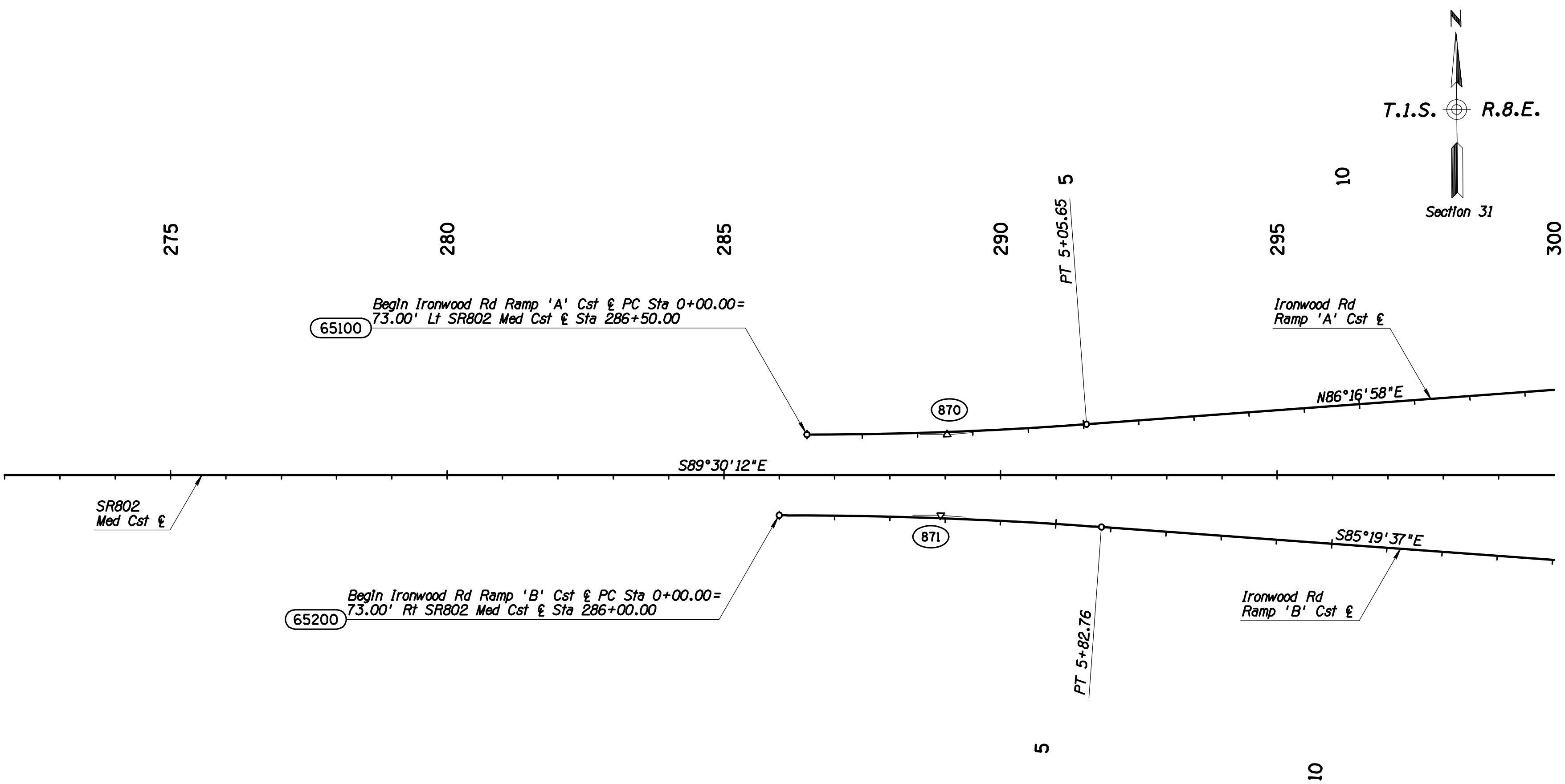
TRACS NO. H6867 01L -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g30.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 272+00 TO STA 300+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.22

TRACS NO. H6867 01L

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___ OF ___

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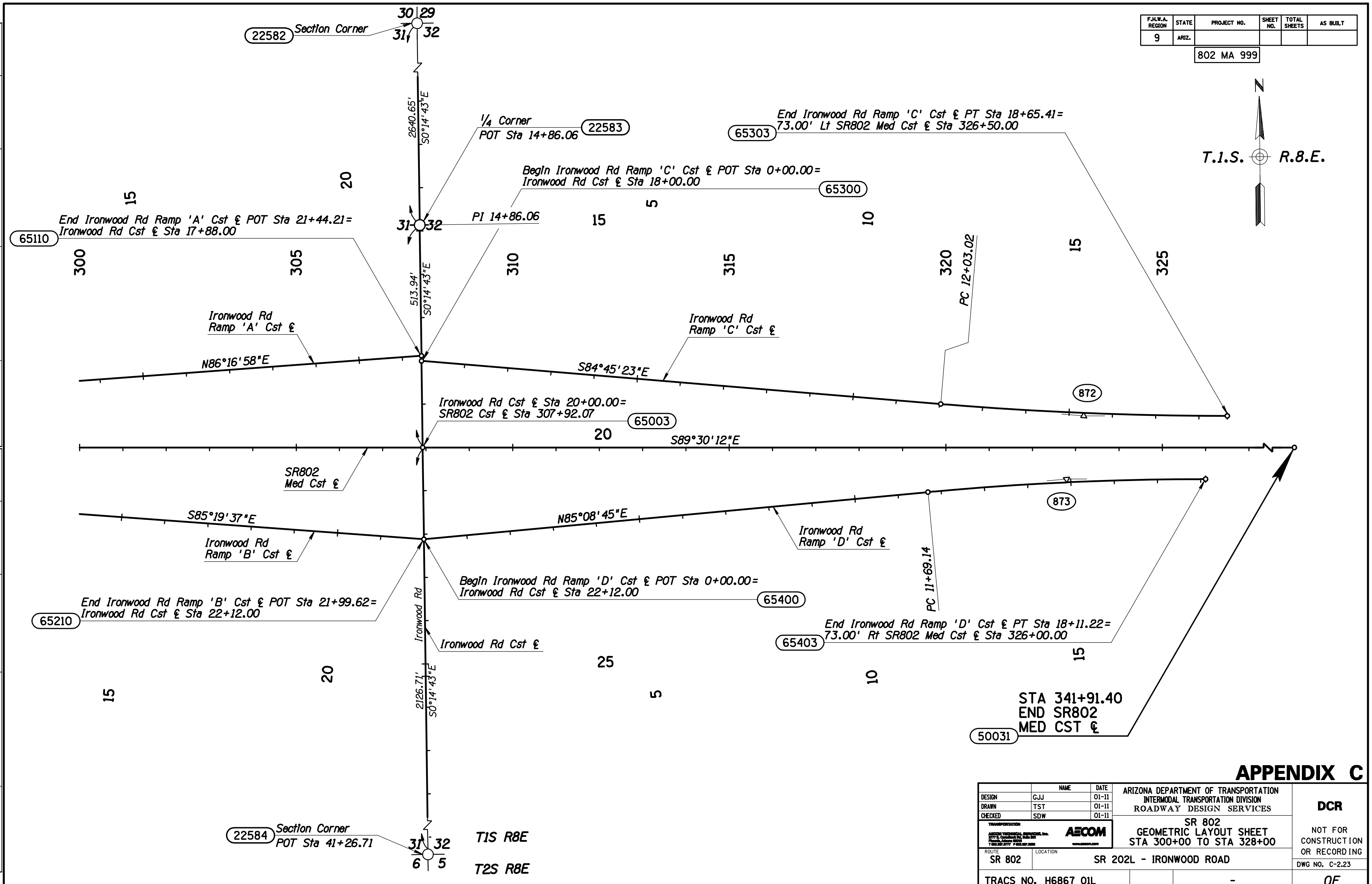

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
GEOMETRIC LAYOUT SHEET
STA 300+00 TO STA 328+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-2.23

TRACS NO. H6867 01L

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___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867g32.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

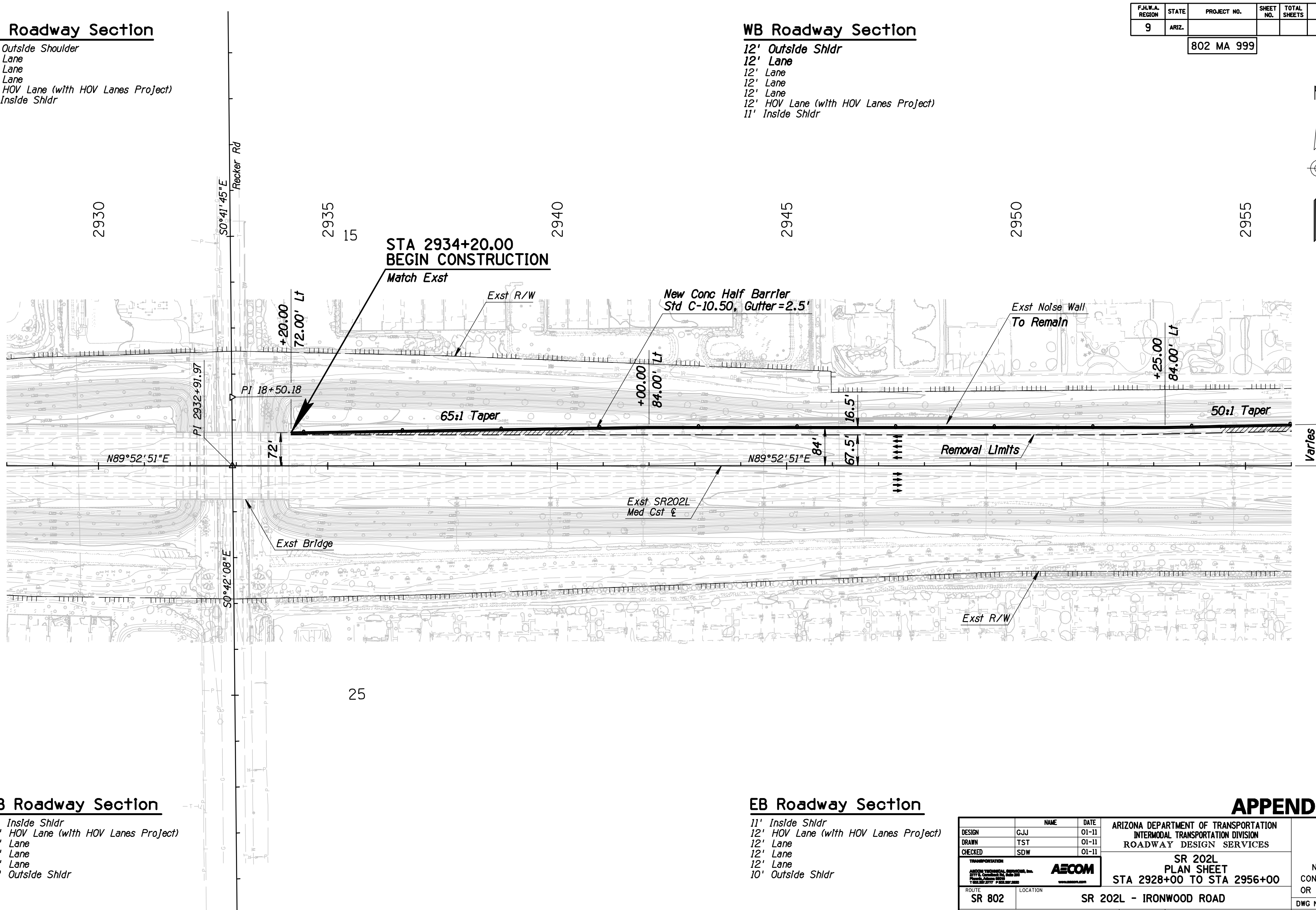
802 MA 999

WB Roadway Section

10' Outside Shoulder
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
10' Outside Shldr

EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
10' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 2928+00 TO STA 2956+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

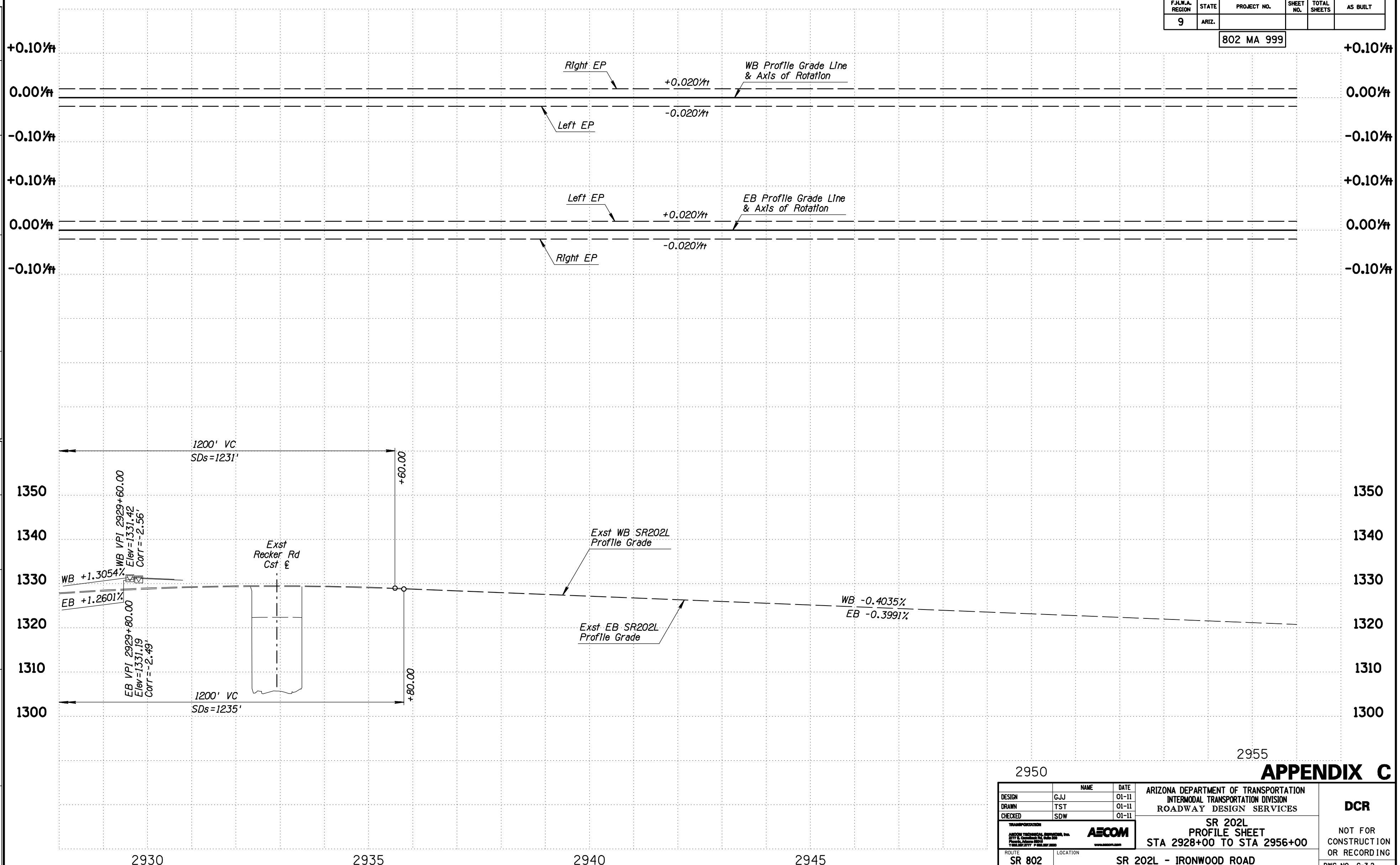
DWG NO. C-3.1

TRACS NO. H6867 01L — - — ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p11.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 2928+00 TO STA 2956+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.2

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v01.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

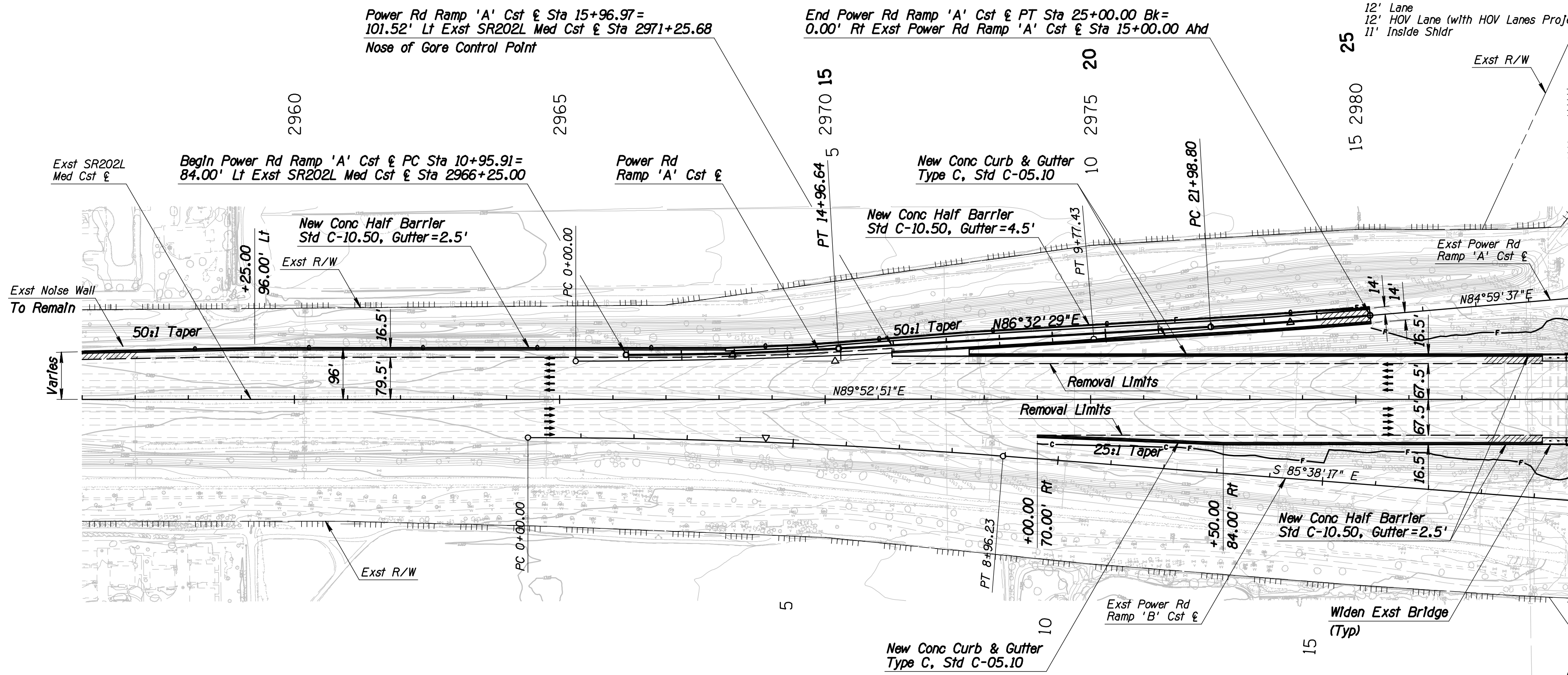
802 MA 999

WB Roadway Section

12' Outside Shldr
12' Lane (Parallel Entrance)
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Parallel Exit Lane
10' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 2956+00 TO STA 2984+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.3

TRACS NO. H6867 01L

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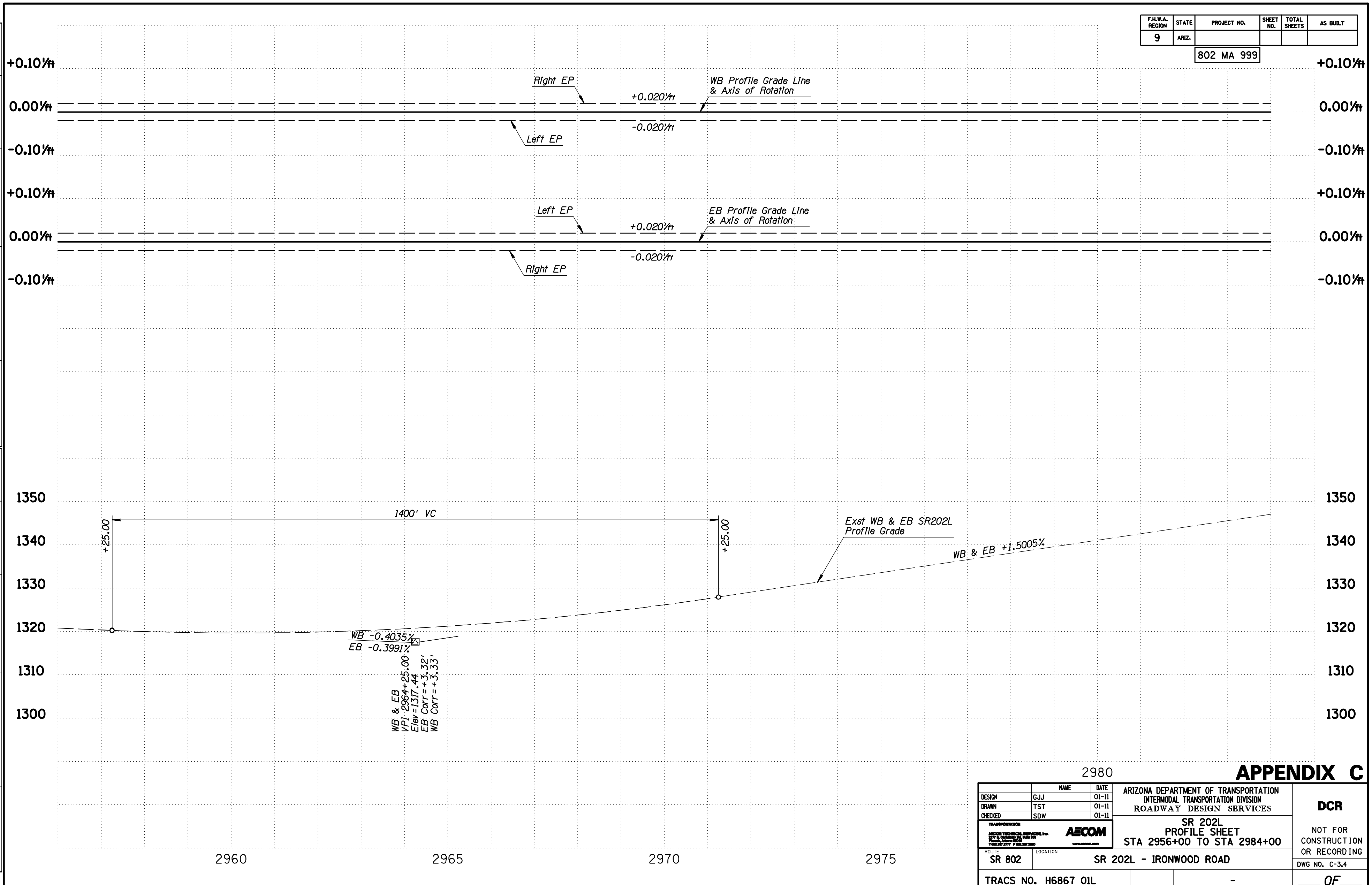
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p12.dgn



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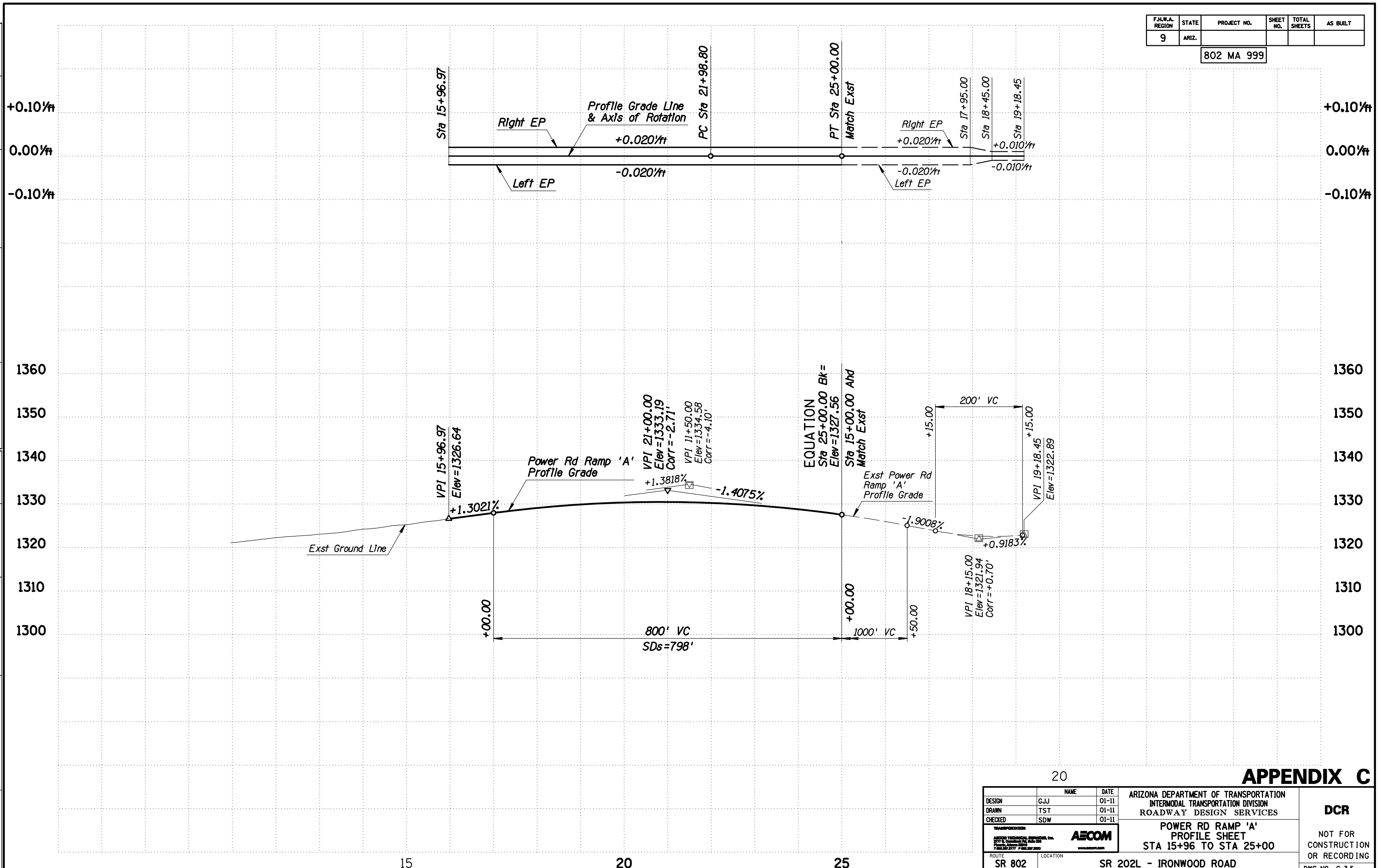


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

20

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DCR

AECOM

POWER RD RAMP 'A'
PROFILE SHEET
STA 15+96 TO STA 25+00

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.5

TRACS NO. H6867 01L — -

___ OF ___

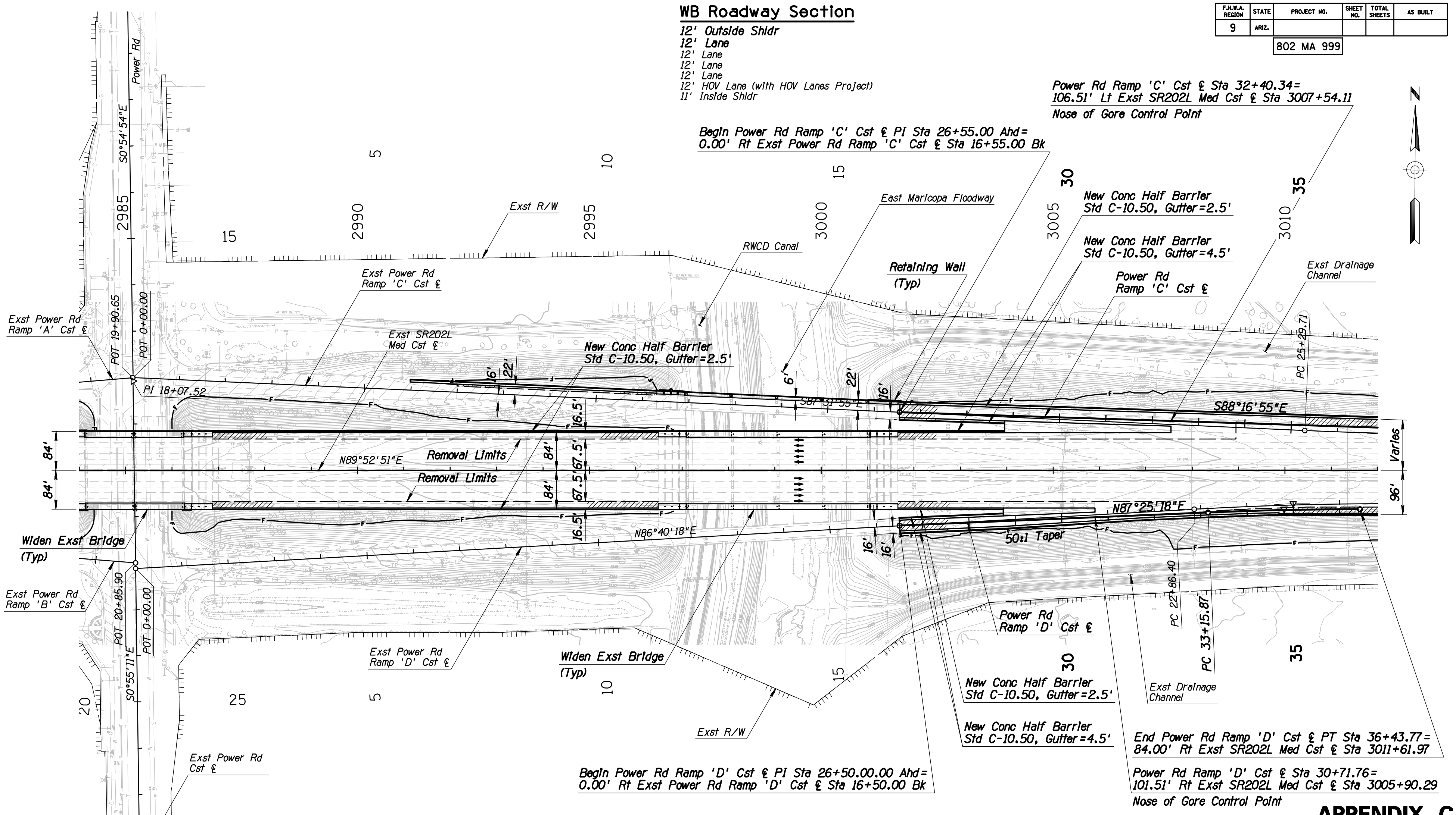
12/20/2010 u:\wg01\prod\civ\h6867v40.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



APPENDIX C

EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 202L
PLAN SHEET
STA 2984+00 TO STA 3012+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

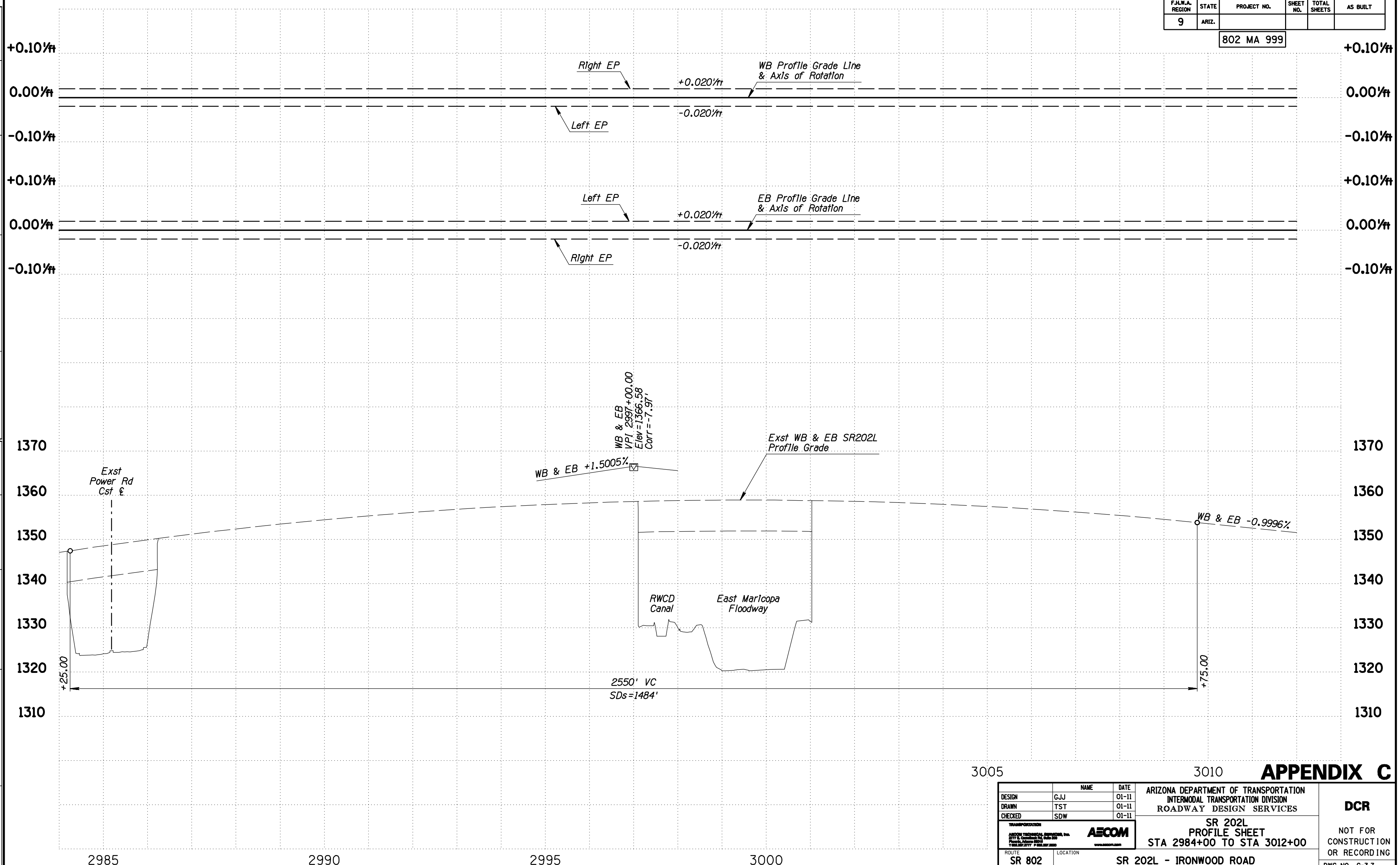
DWG NO. C-3.6

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p13.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 2984+00 TO STA 3012+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.7

TRACS NO. H6867 01L

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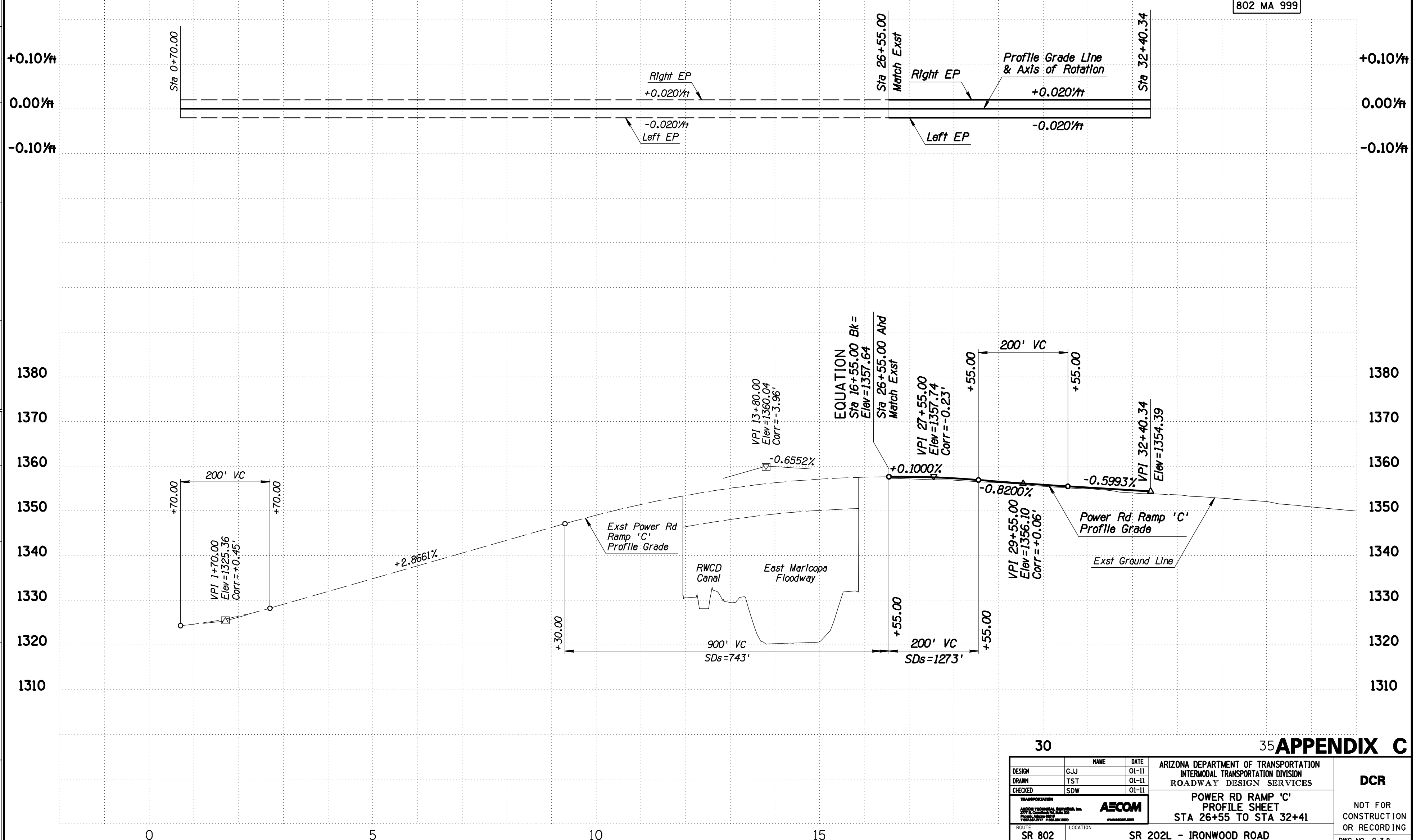
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v03.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

POWER RD RAMP 'C'
PROFILE SHEET
STA 26+55 TO STA 32+41

DCR

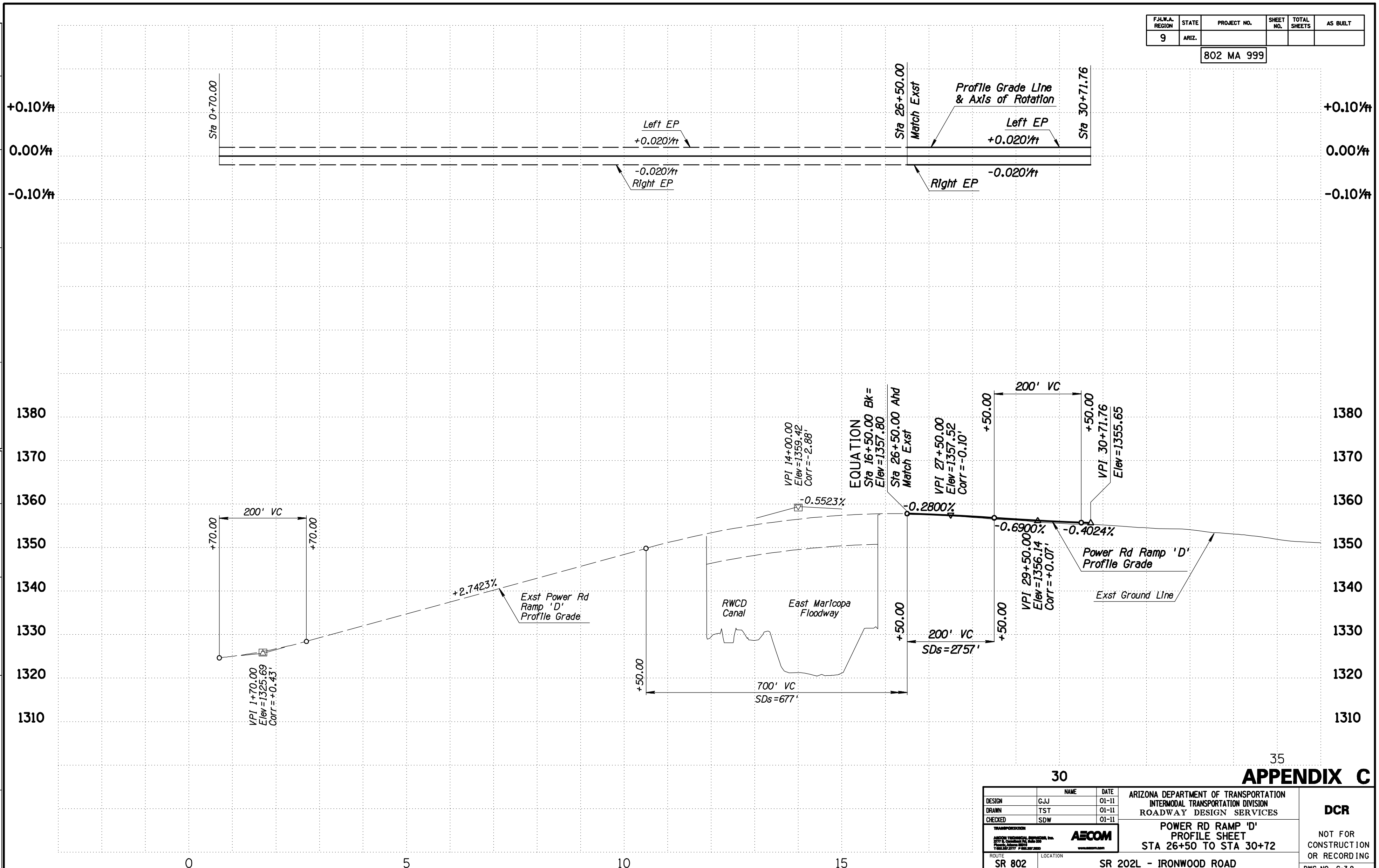
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.8

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v41.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

30

35

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

POWER RD RAMP 'D'
PROFILE SHEET
STA 26+50 TO STA 30+72

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.9

TRACS NO. H6867 01L

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___ OF ___

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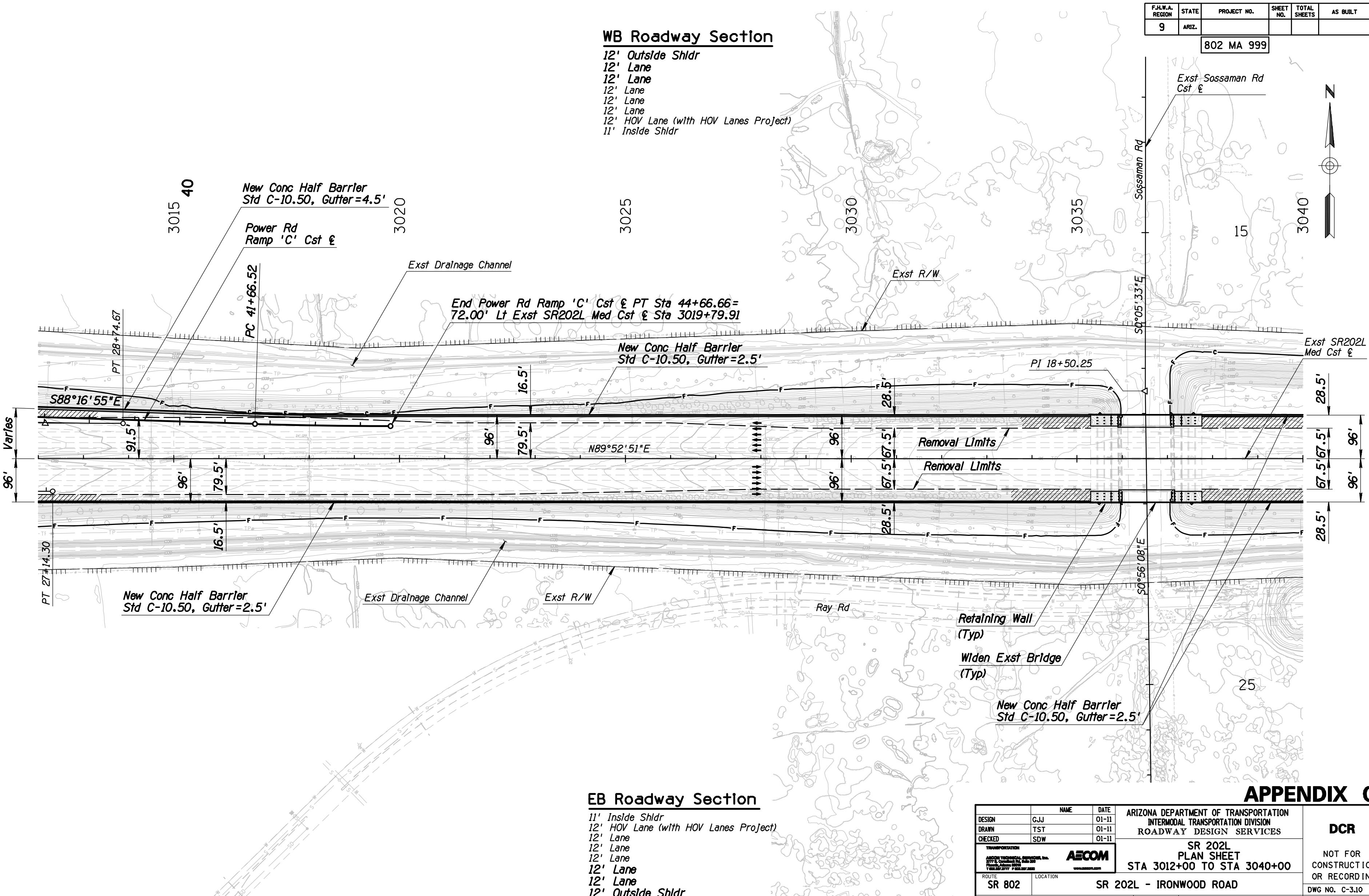


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 202L
PLAN SHEET
STA 3012+00 TO STA 3040+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.10

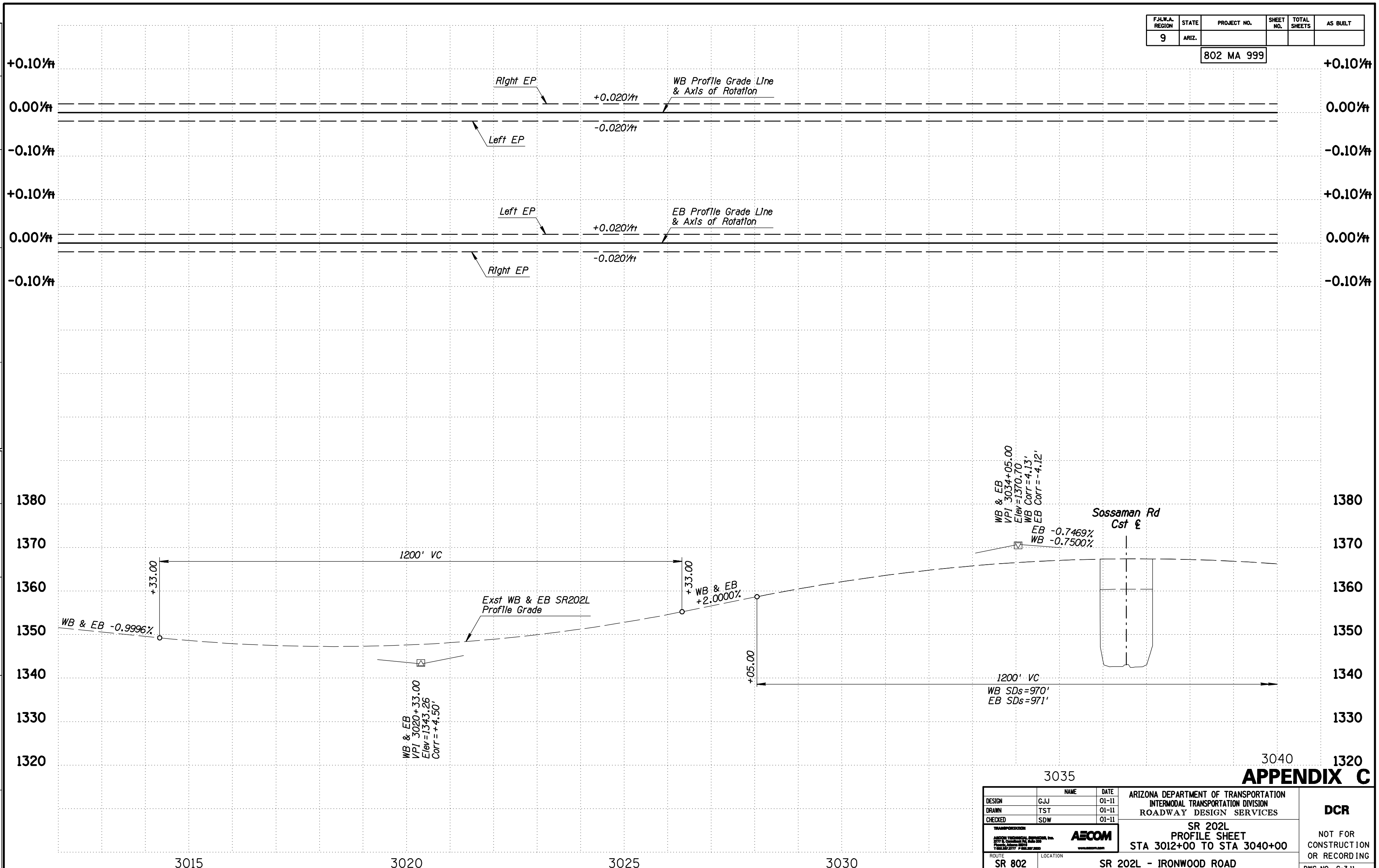
TRACS NO. H6867 01L -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p14.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 3012+00 TO STA 3040+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.11

TRACS NO. H6867 01L

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___ OF ___

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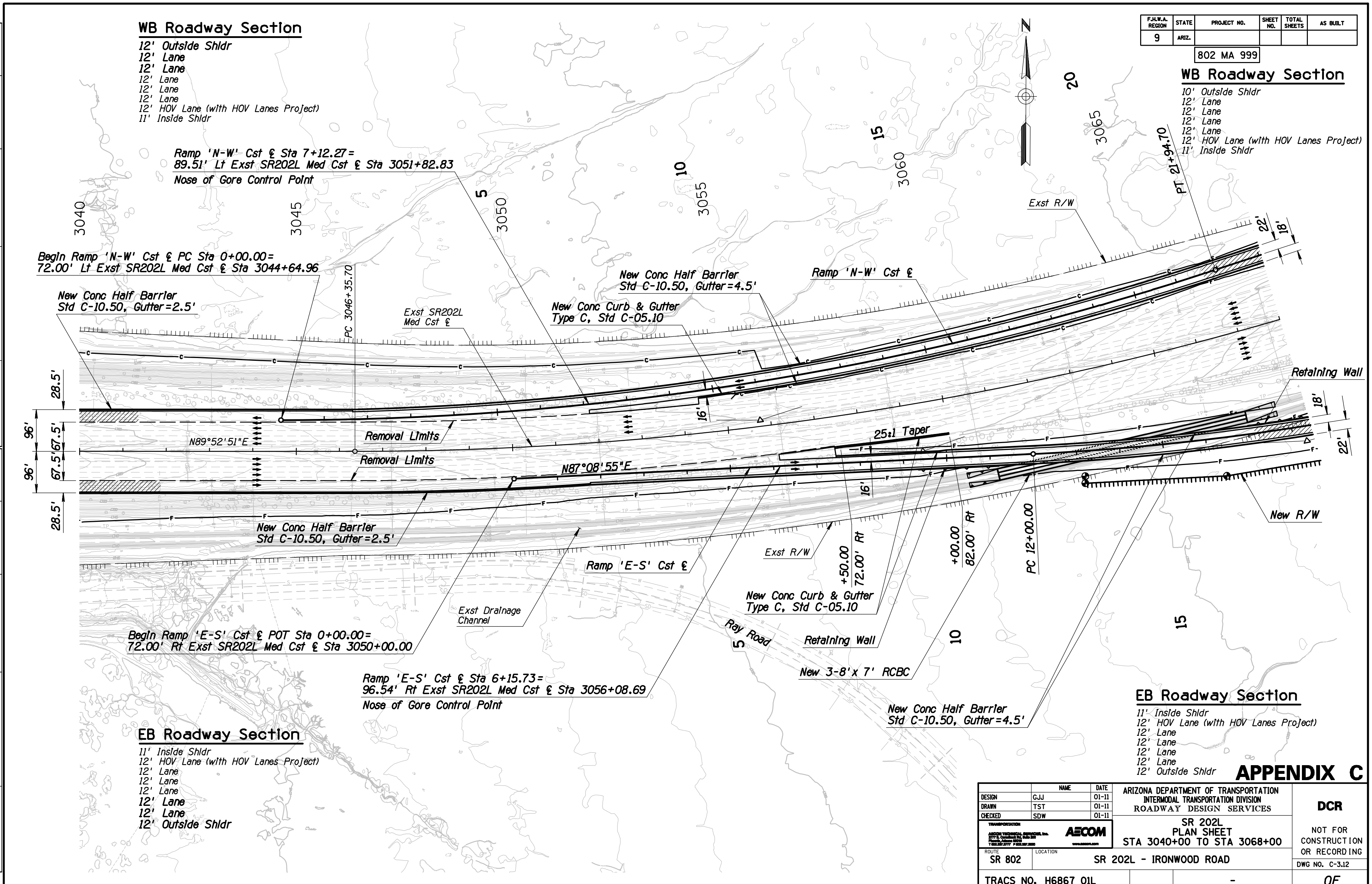


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3040+00 TO STA 3068+00

DCR

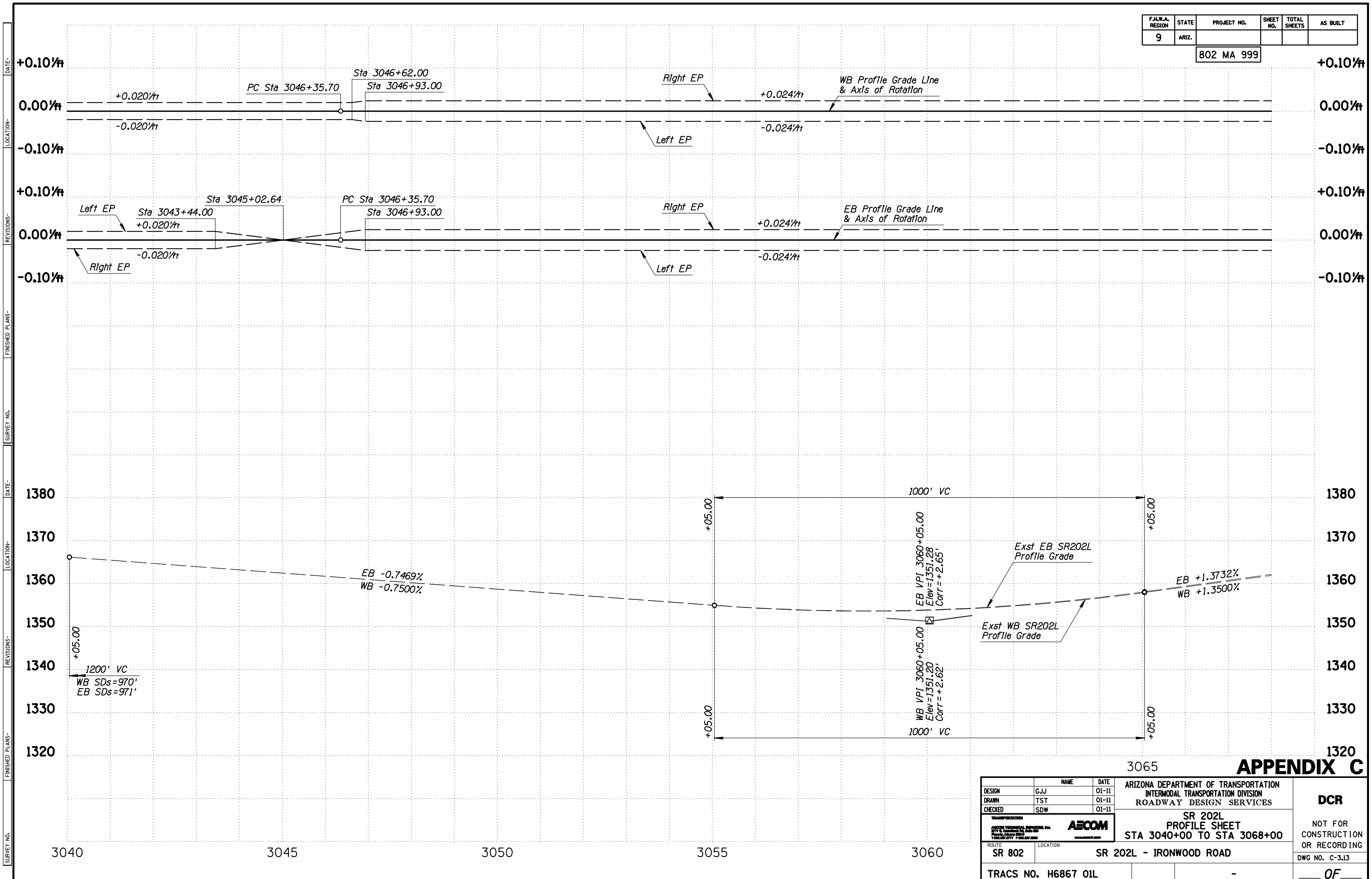
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.12

TRACS NO. H6867 01L — - — ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p15.dgn



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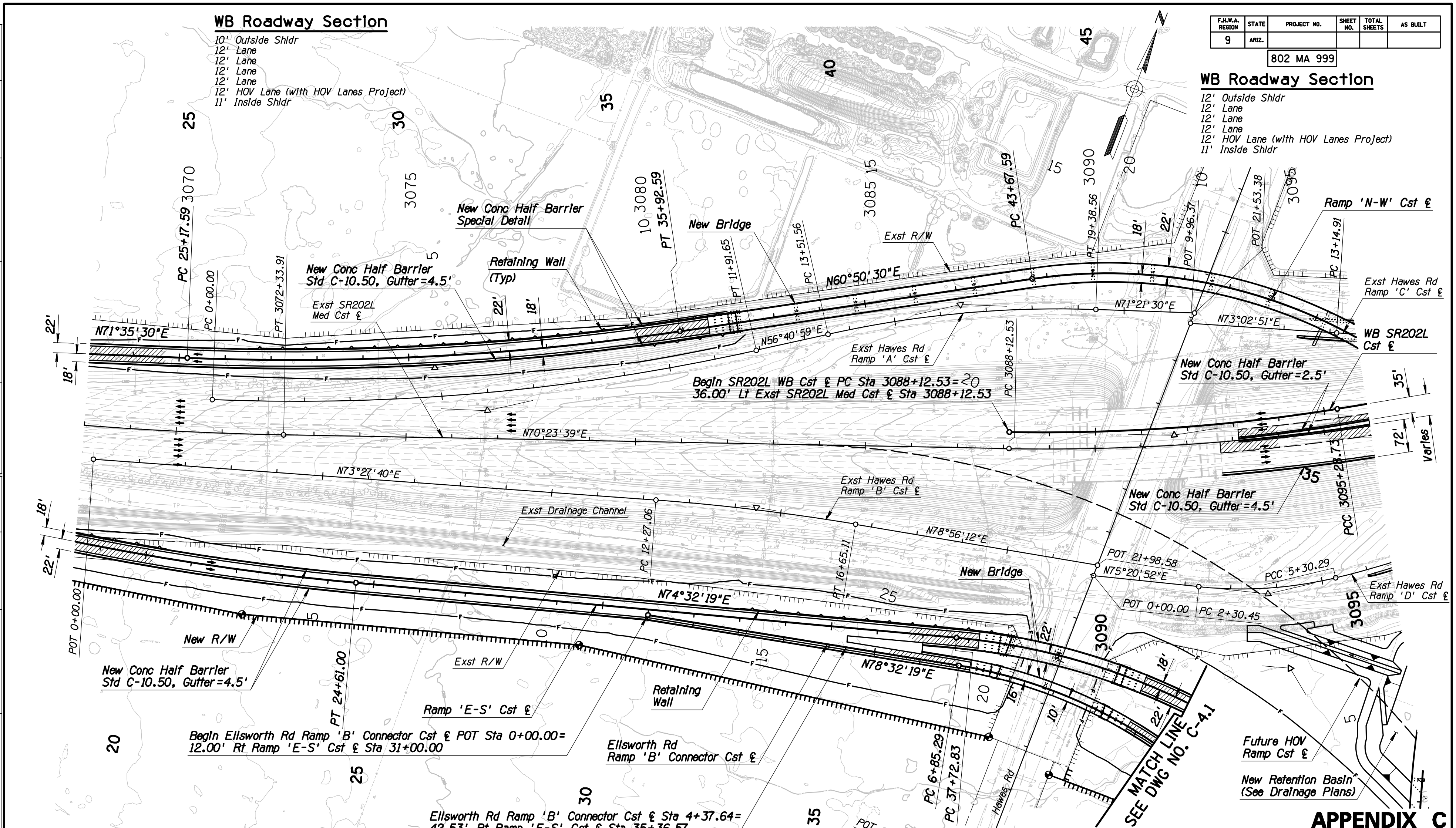


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3068+00 TO STA 3096+00

DCR

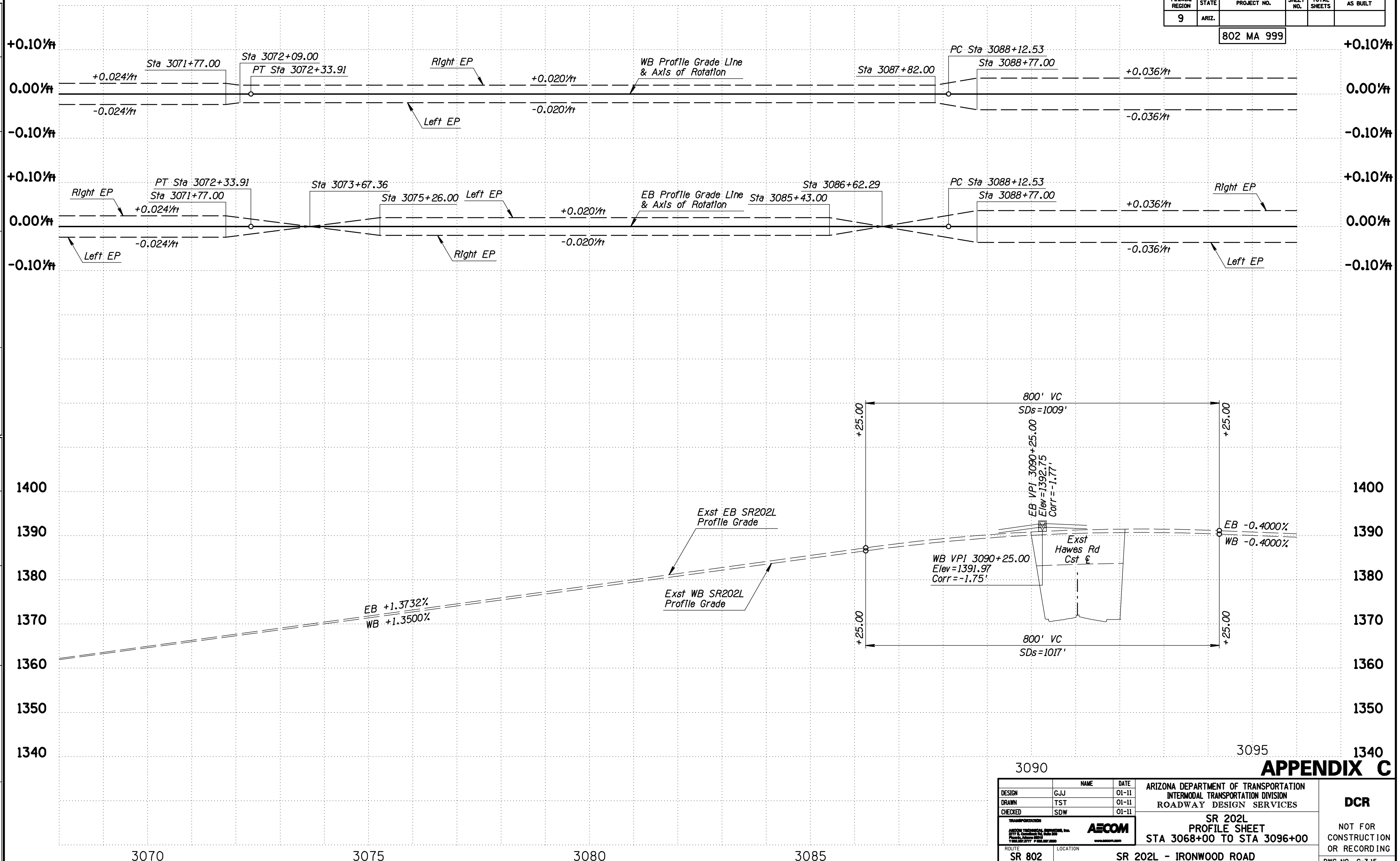
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.14

TRACS NO. H6867 01L — OF

12/20/2010 u:\wg01\prod\civ\h6867p16.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 3068+00 TO STA 3096+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.15

TRACS NO. H6867 01L

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___ OF ___

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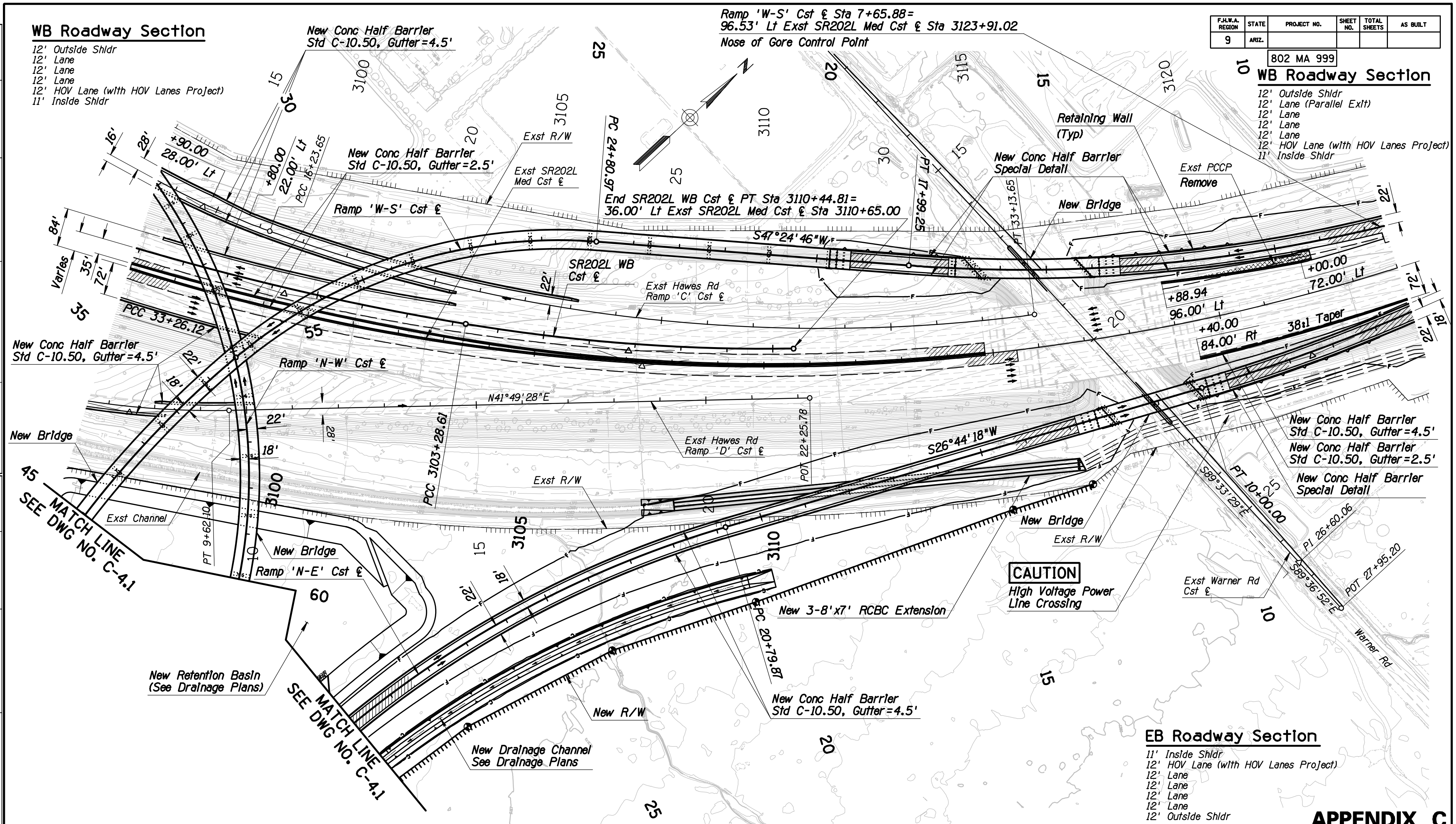


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3096+00 TO STA 3124+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

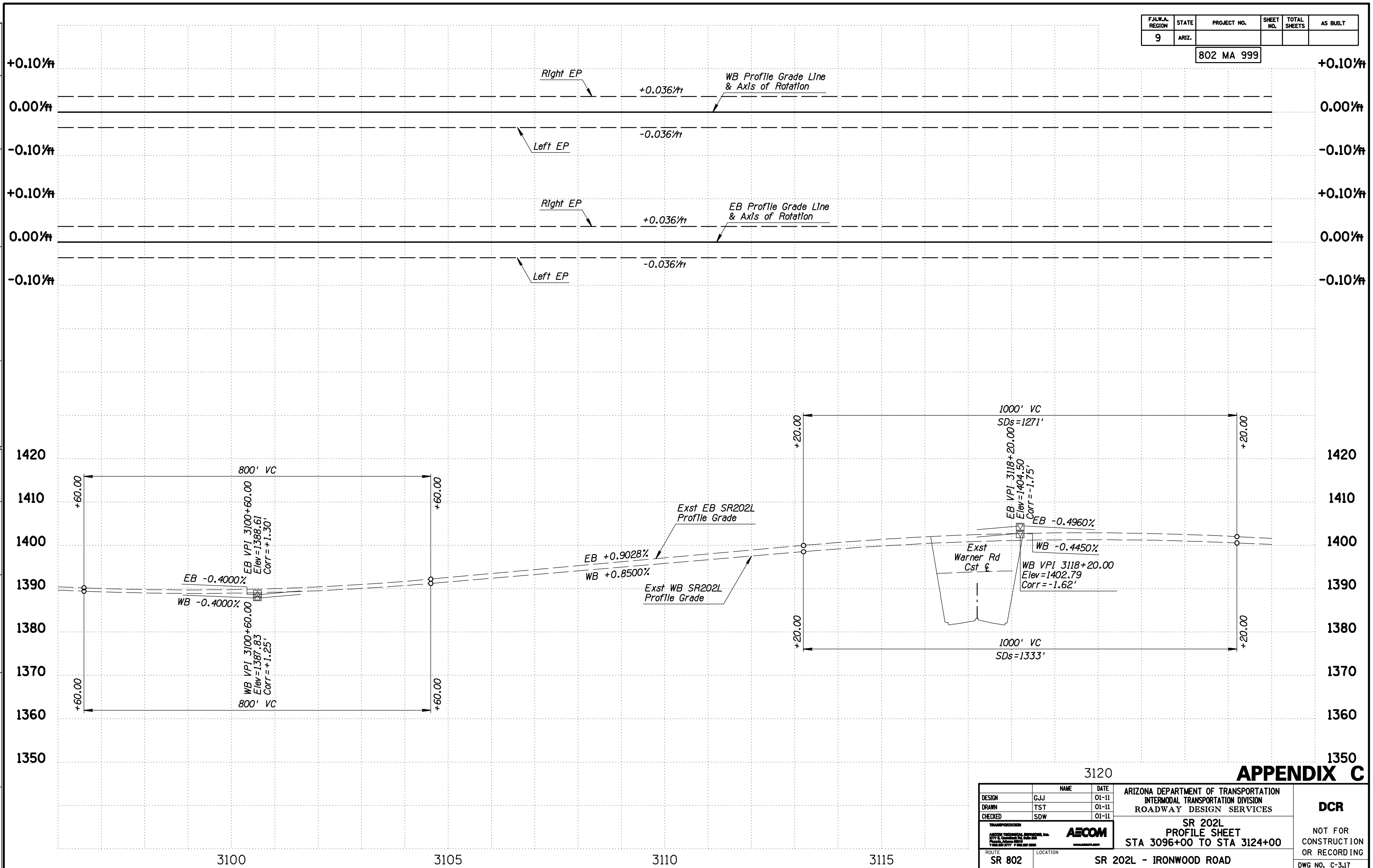
DWG NO. C-3.16

TRACS NO. H6867 01L — - — ____ OF ____

12/20/2010 u:\wg01\prod\civ\h6867p17.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 3096+00 TO STA 3124+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.17

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v07.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

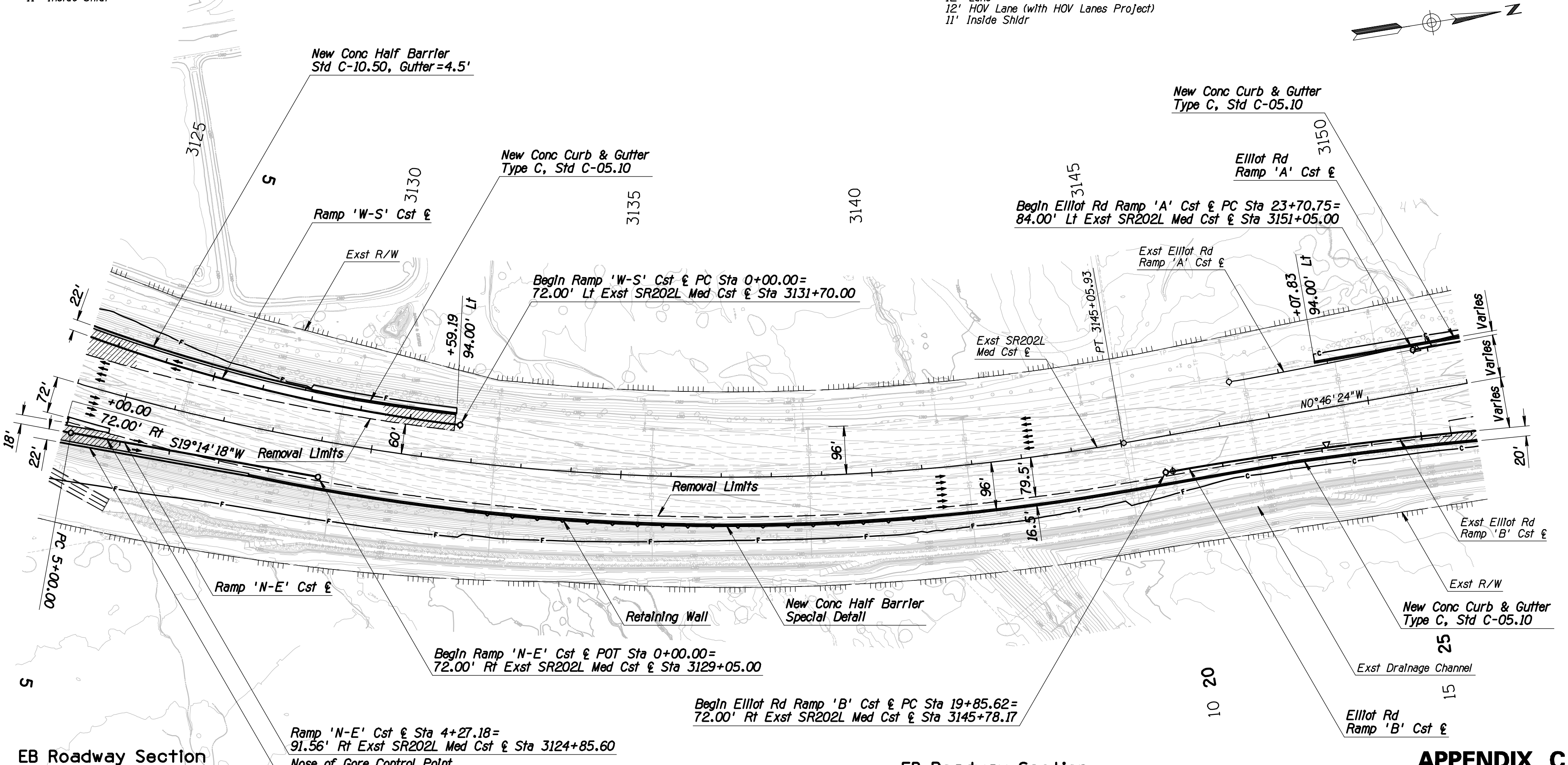
802 MA 999

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr

WB Roadway Section

12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3124+00 TO STA 3152+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

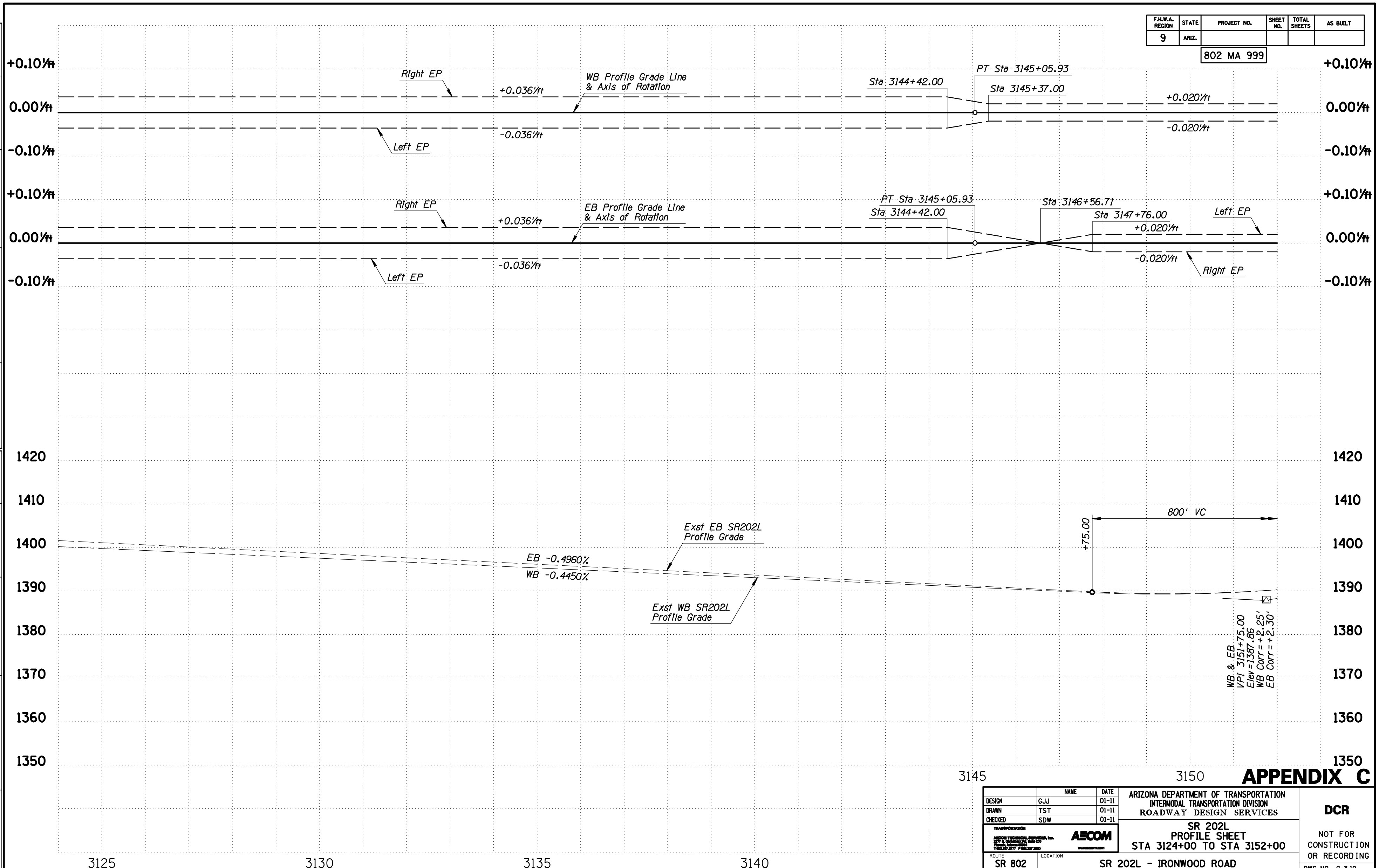
ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.18

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p18.dgn

REVISIONS- | DATE- | LOCATION- | SURVEY NO. | FINISHED PLANS-



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 3124+00 TO STA 3152+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.19

TRACS NO. H6867 01L

-

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v08.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

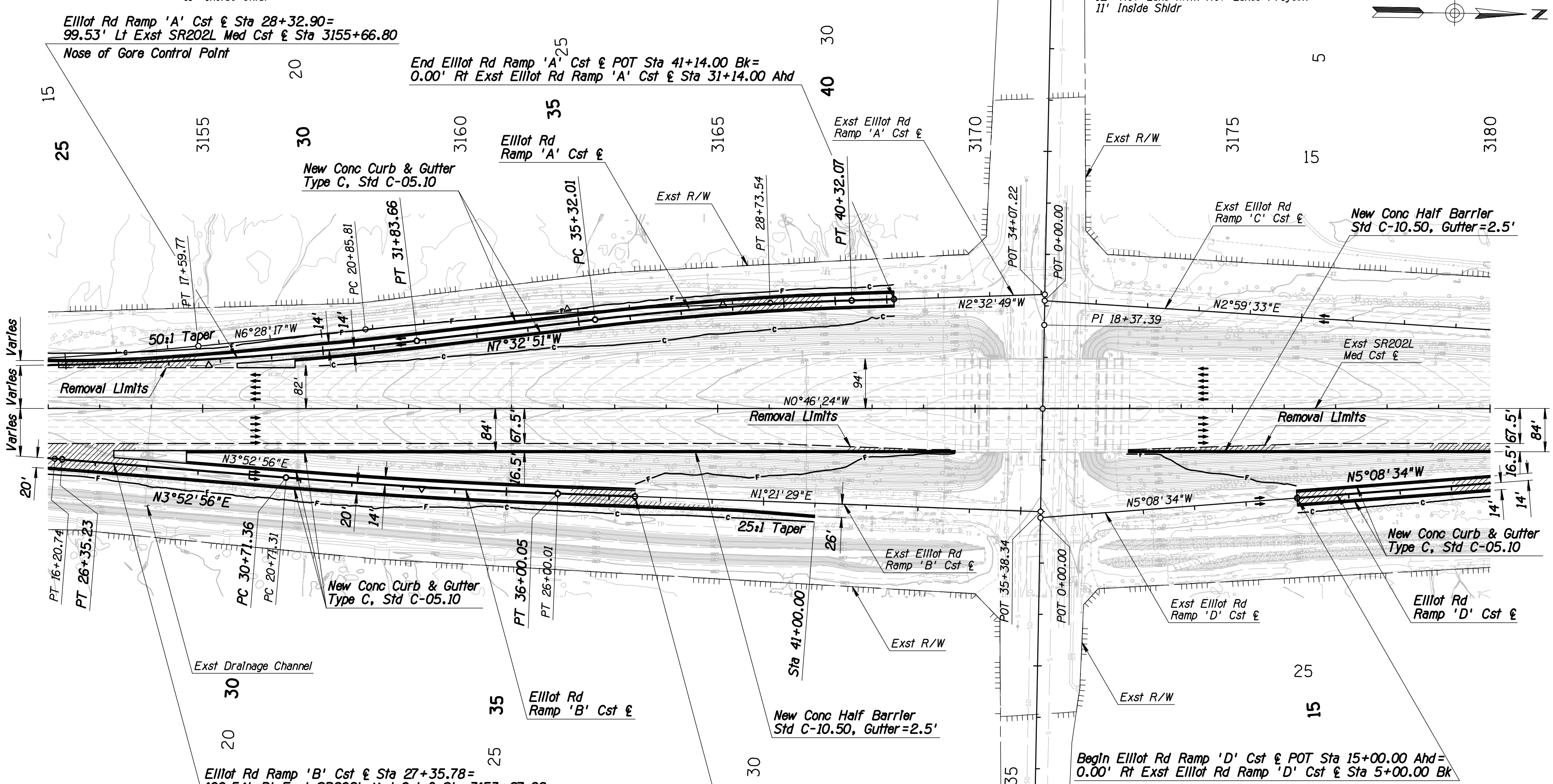
802 MA 999

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

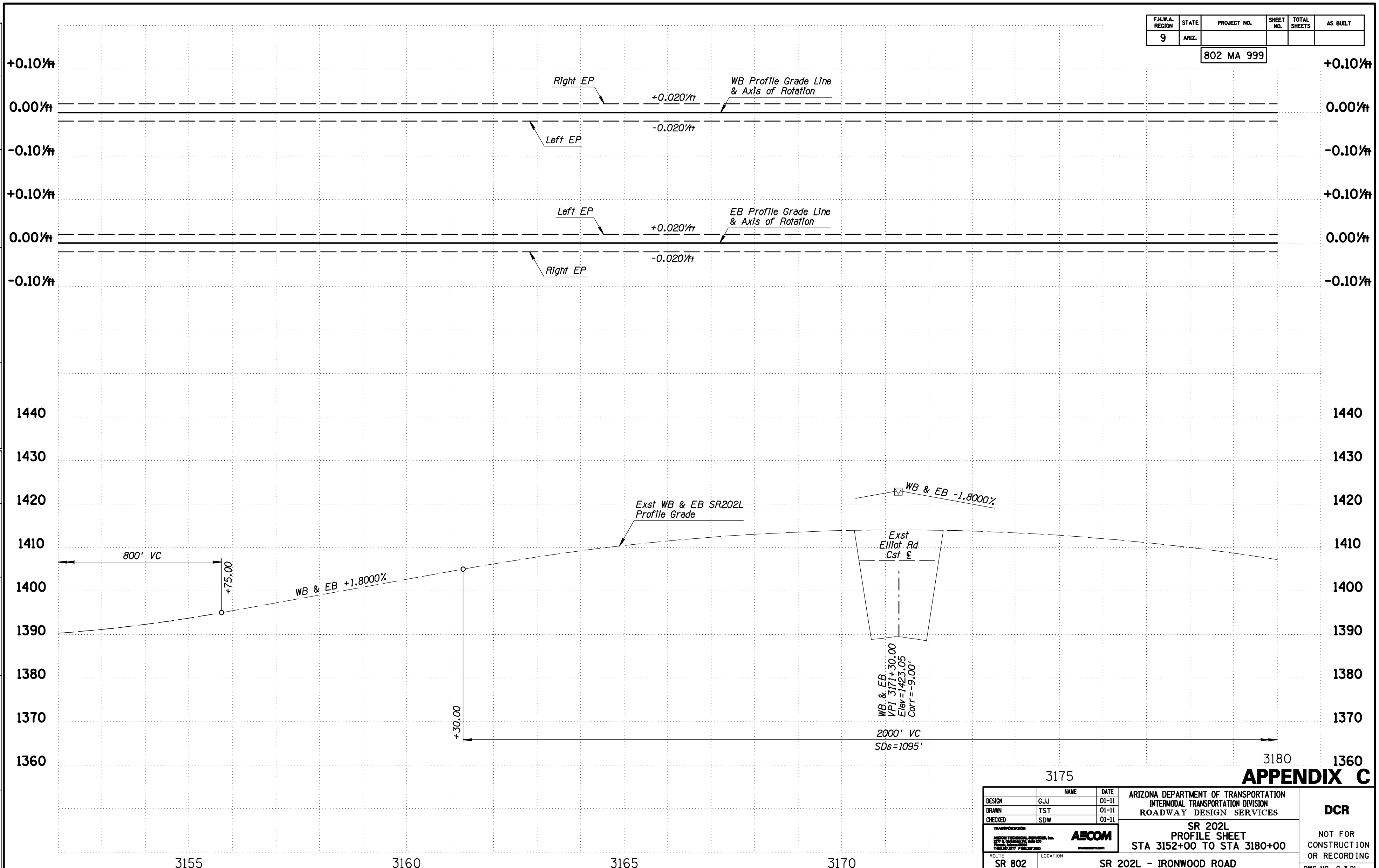
APPENDIX C

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES	DCR
DESIGN	GJJ	01-11	SR 202L PLAN SHEET STA 3152+00 TO STA 3180+00	NOT FOR CONSTRUCTION OR RECORDING
DRAWN	TST	01-11		
CHECKED	SDW	01-11		
TRANSPORTATION AECOM				
ROUTE SR 802			LOCATION SR 202L - IRONWOOD ROAD	DWG NO. C-3.20
TRACS NO. H6867 01L			-	___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p19.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 202L
PROFILE SHEET
STA 3152+00 TO STA 3180+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

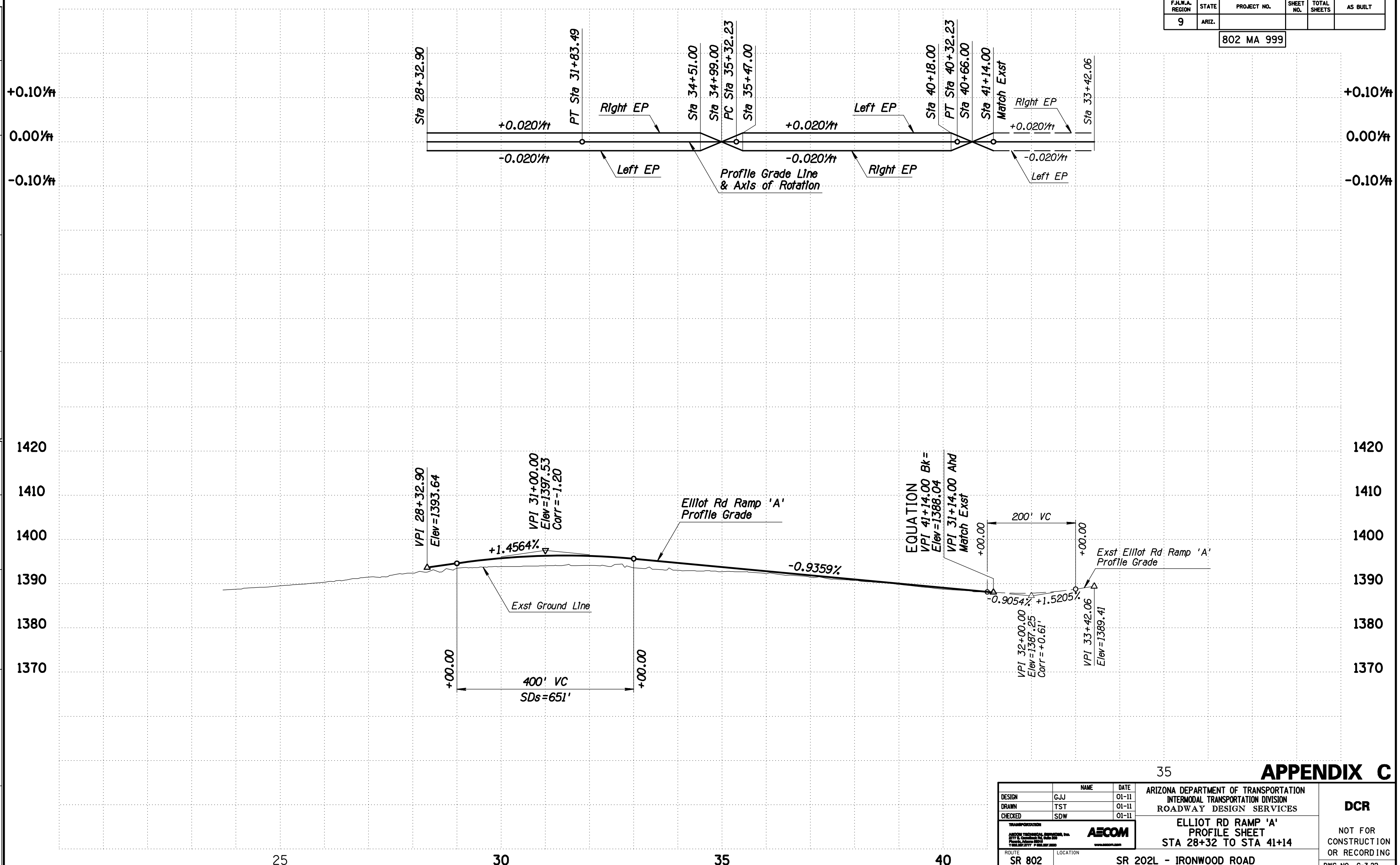
DWG NO. C-3.21

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v09.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



35

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ELLIOT RD RAMP 'A'
PROFILE SHEET
STA 28+32 TO STA 41+14

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802 | LOCATION: SR 202L - IRONWOOD ROAD

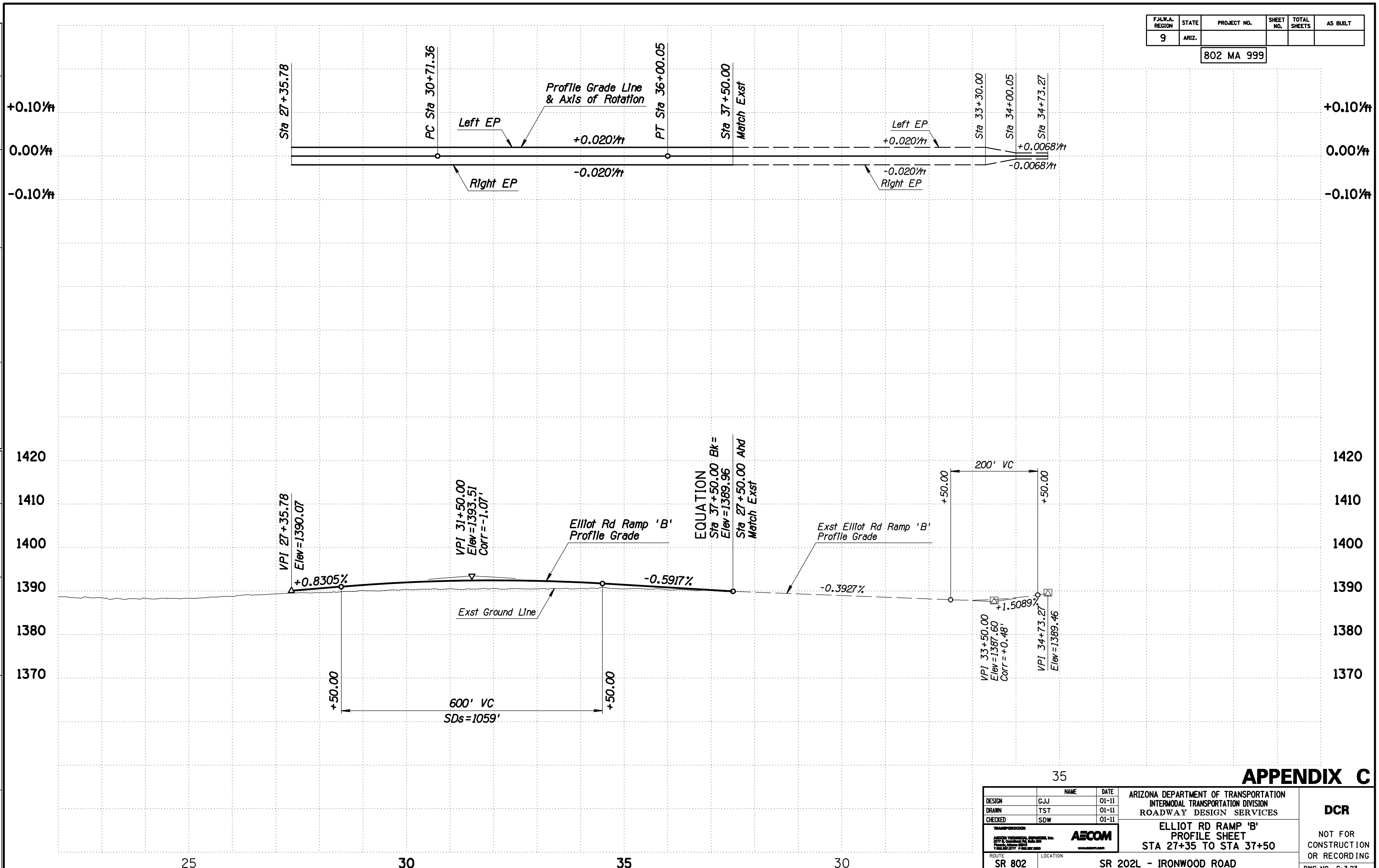
DWG NO. C-3.22

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v43.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLIOT RD RAMP 'B'
PROFILE SHEET
STA 27+35 TO STA 37+50

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.23

TRACS NO. H6867 01L

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___ OF___

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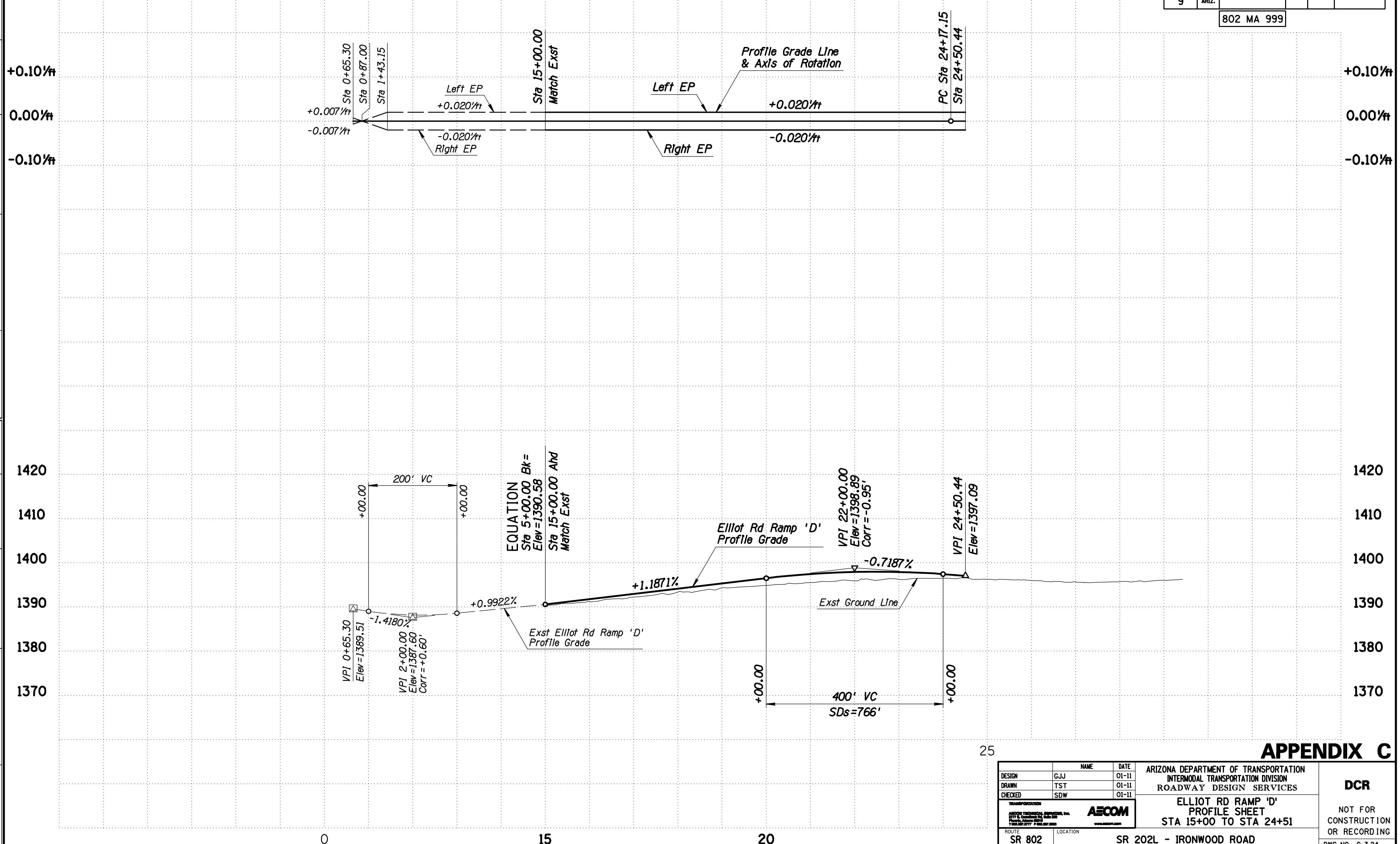
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



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APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLIOT RD RAMP 'D'
PROFILE SHEET
STA 15+00 TO STA 24+51

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.24

TRACS NO. H6867 01L

-

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v45.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

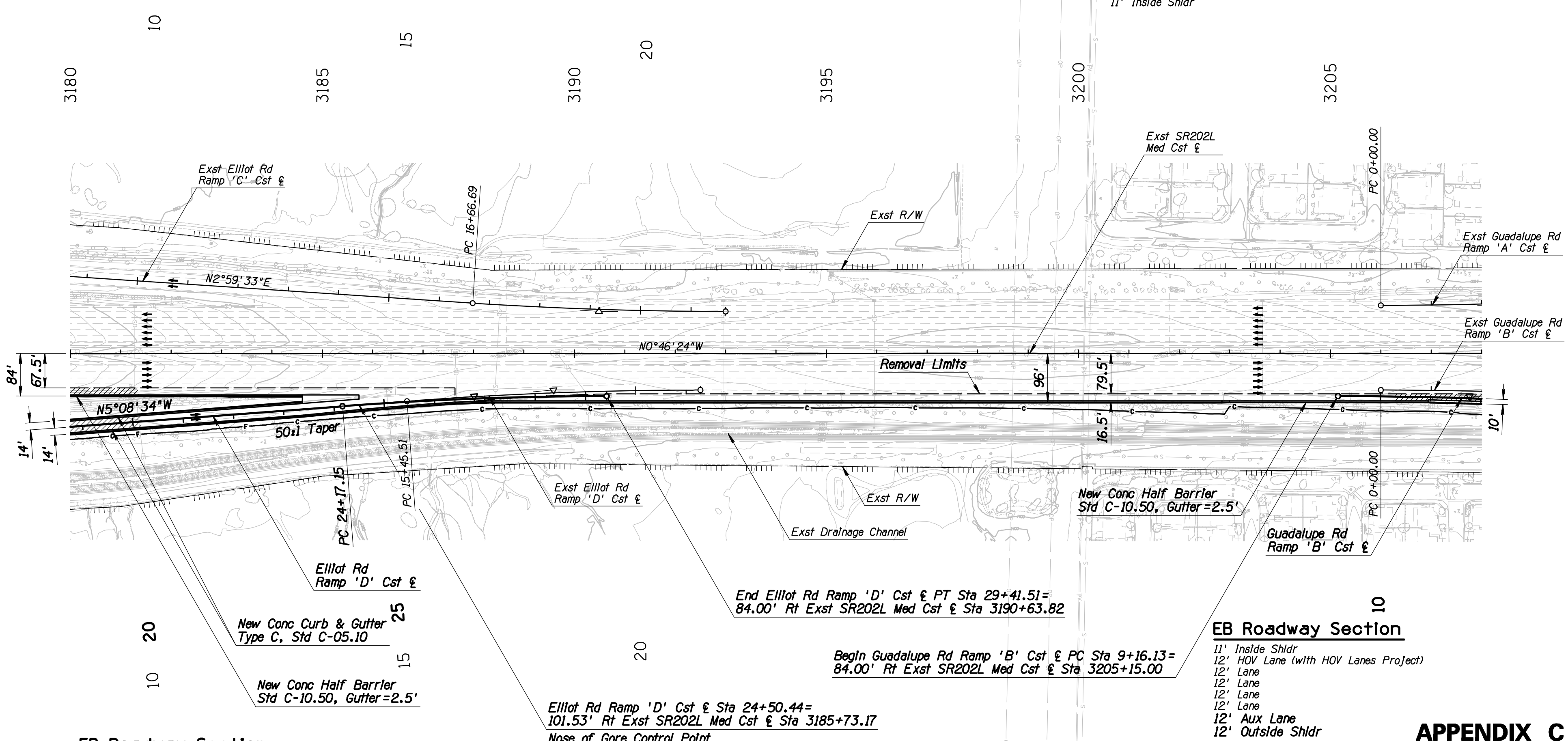
WB Roadway Section

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr

CAUTION
High Voltage Power
Line Crossing

WB Roadway Section

10' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane (with HOV Lanes Project)
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

EB Roadway Section

11' Inside Shldr
12' HOV Lane (with HOV Lanes Project)
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3180+00 TO STA 3208+00

DCR

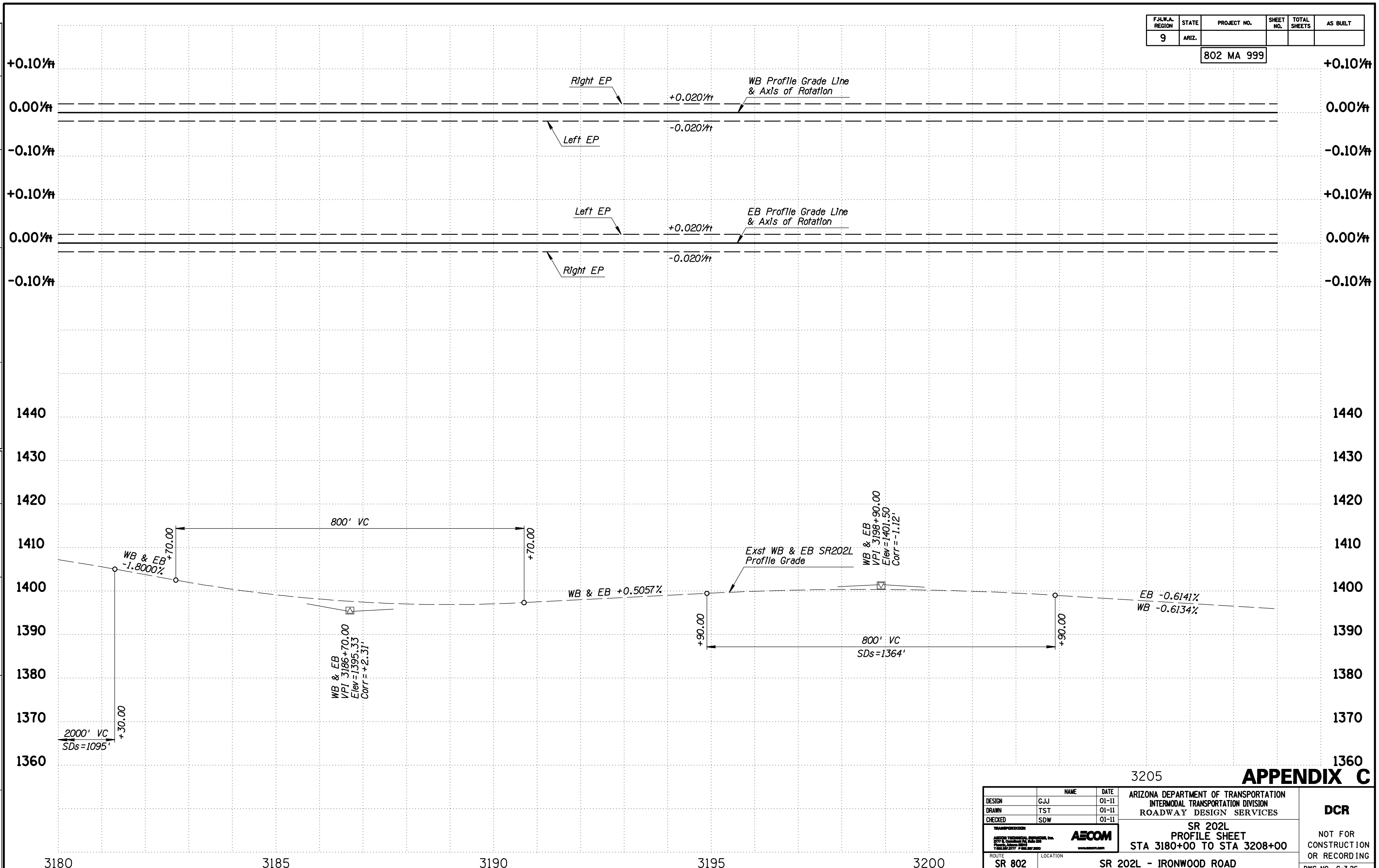
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.25

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p20.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 202L
PROFILE SHEET
STA 3180+00 TO STA 3208+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.26

TRACS NO. H6867 01L

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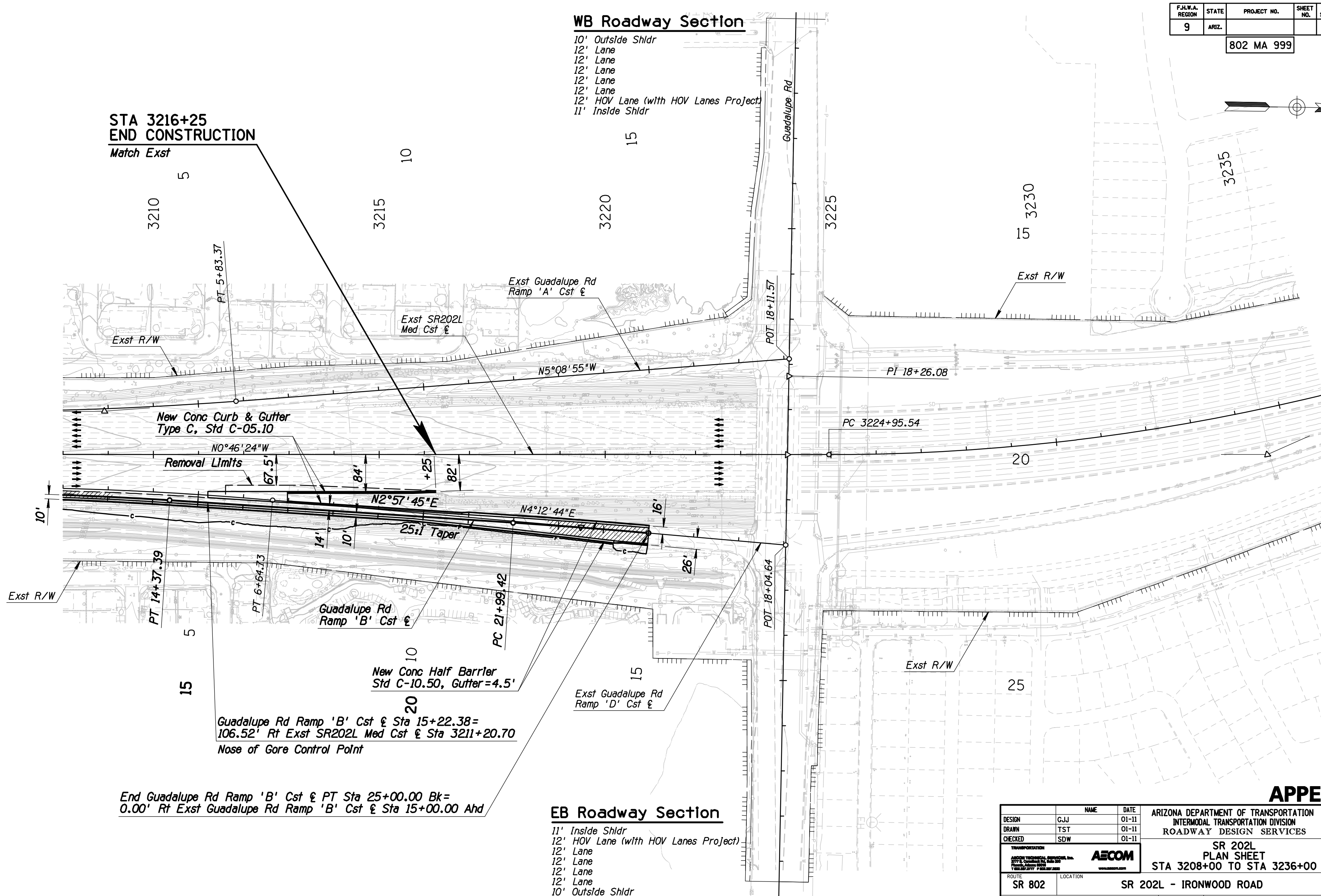
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v10.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PLAN SHEET
STA 3208+00 TO STA 3236+00

AECOM

DCR

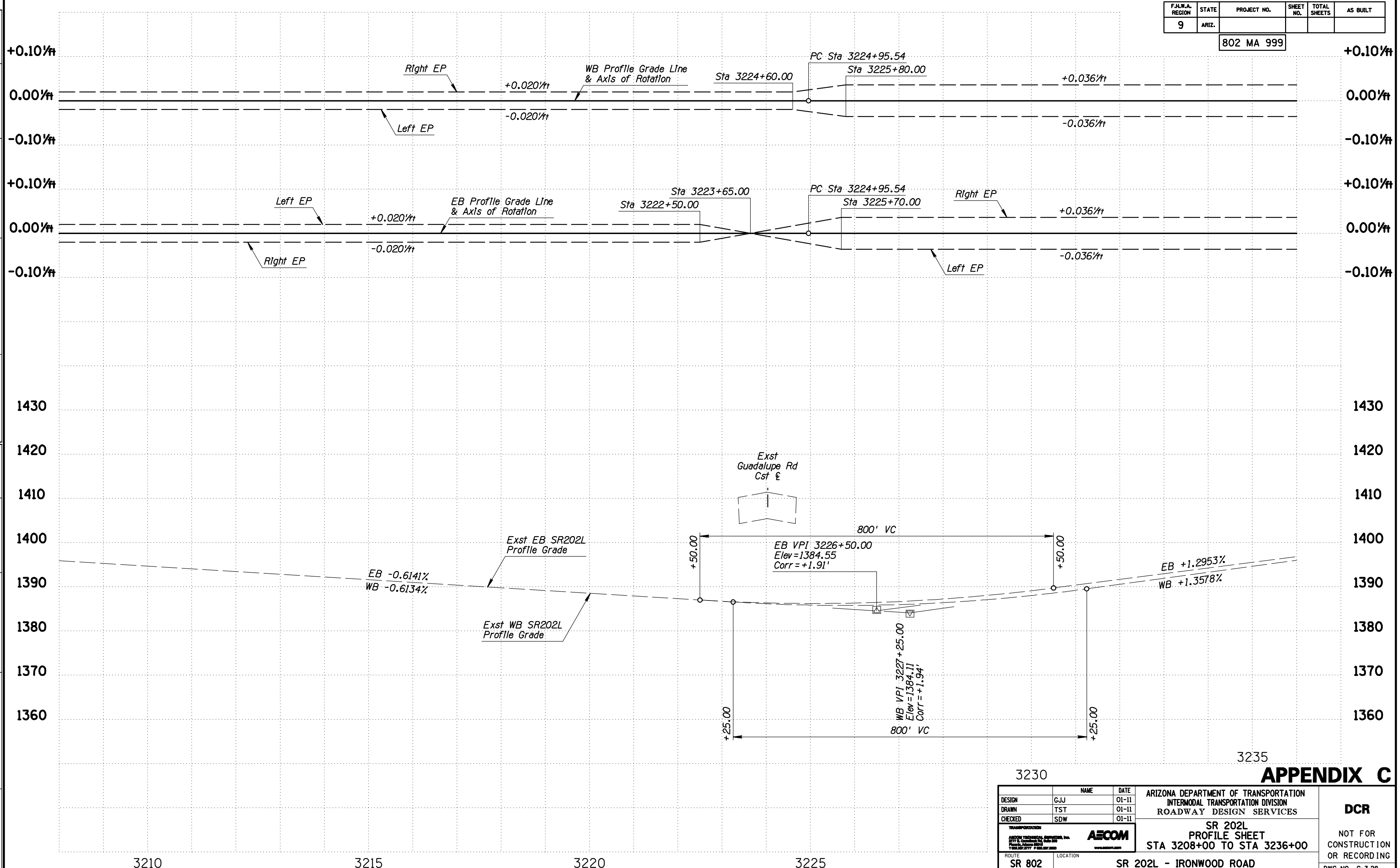
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.27

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p21.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 202L
PROFILE SHEET
STA 3208+00 TO STA 3236+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

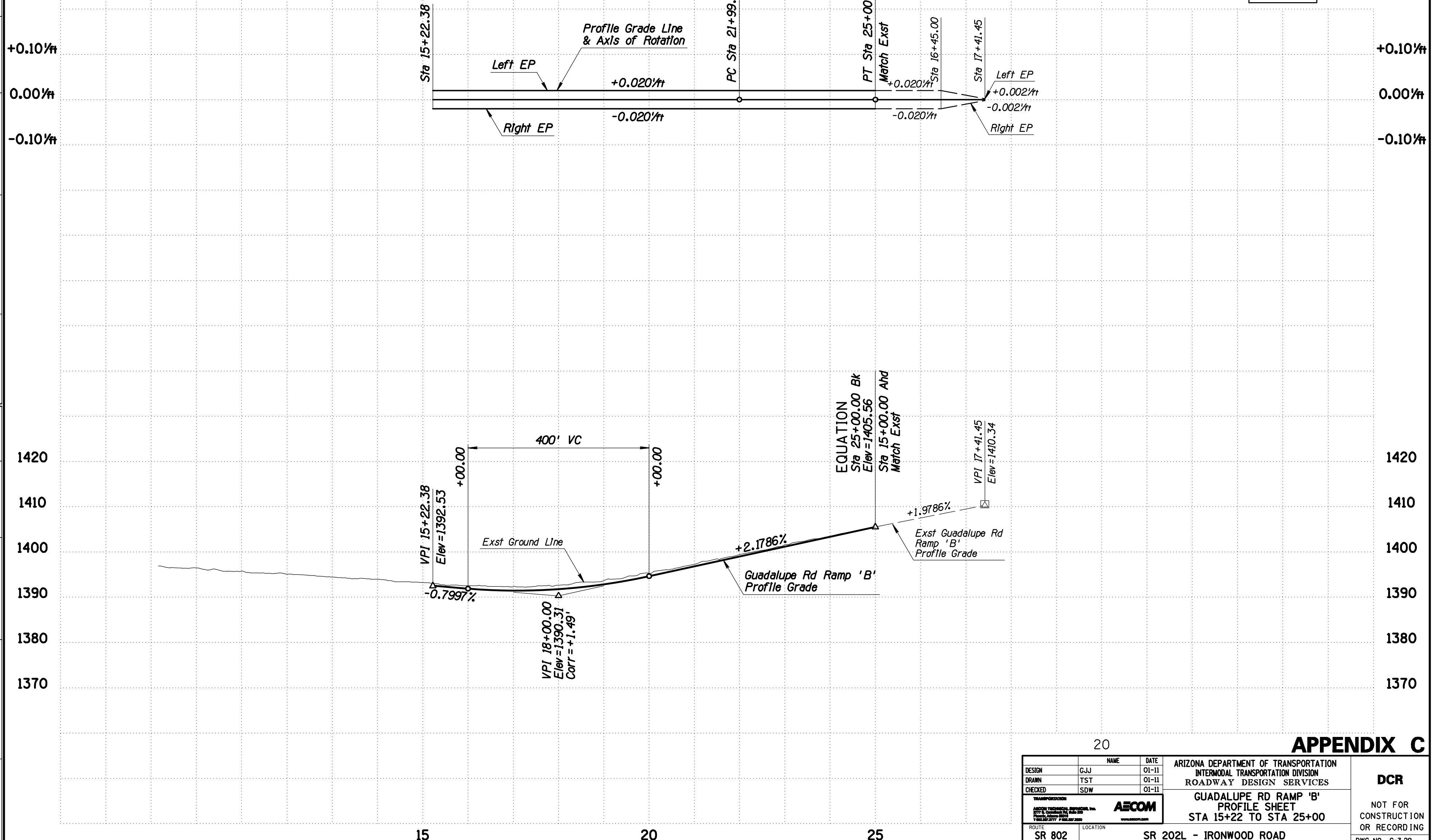
DWG NO. C-3.28

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v11.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



20

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

GUADALUPE RD RAMP 'B'
PROFILE SHEET
STA 15+22 TO STA 25+00

DCR

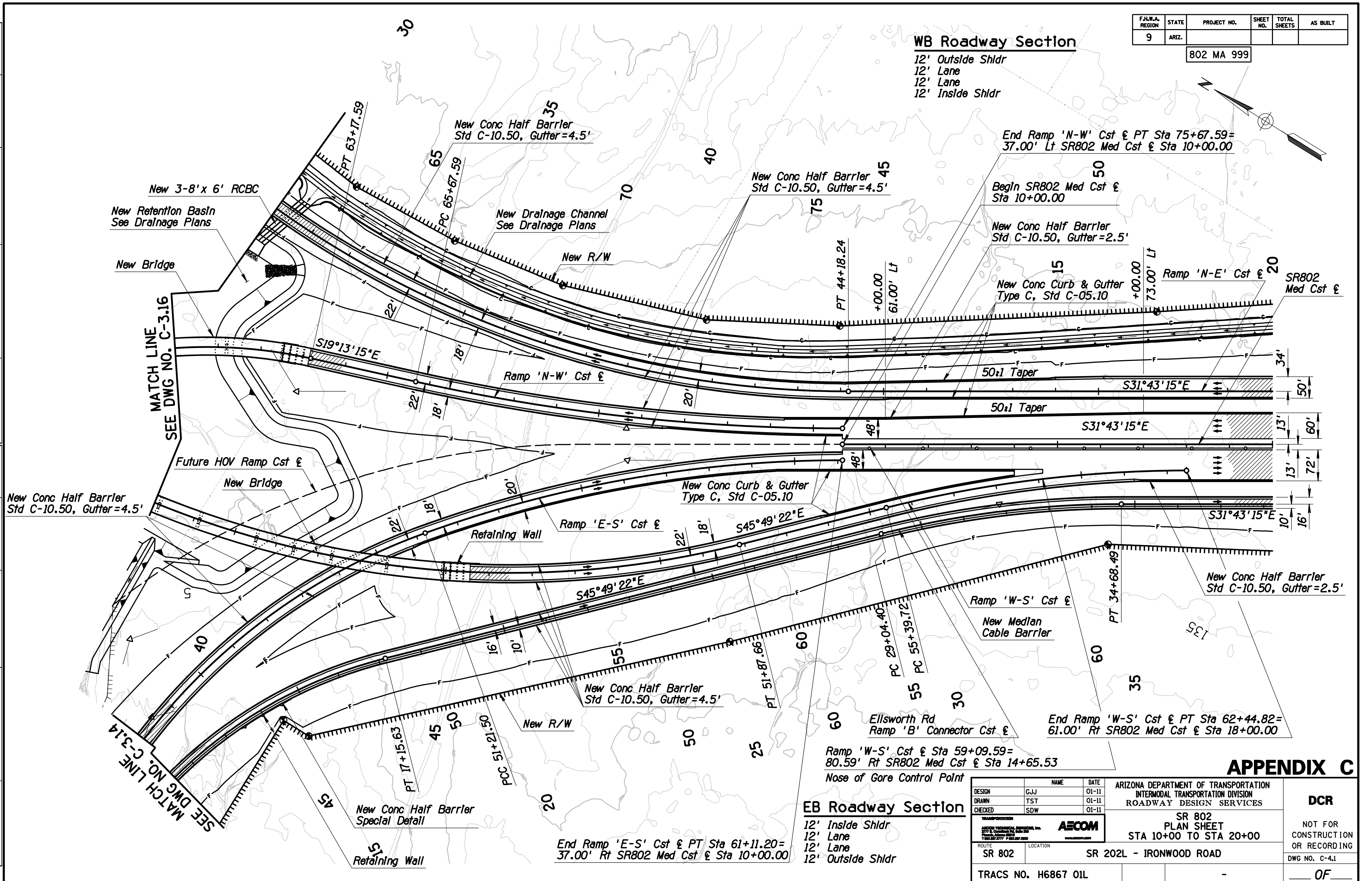
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.29

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v46.dgn



APPENDIX C

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 10+00 TO STA 20+00

AECOM

DCR

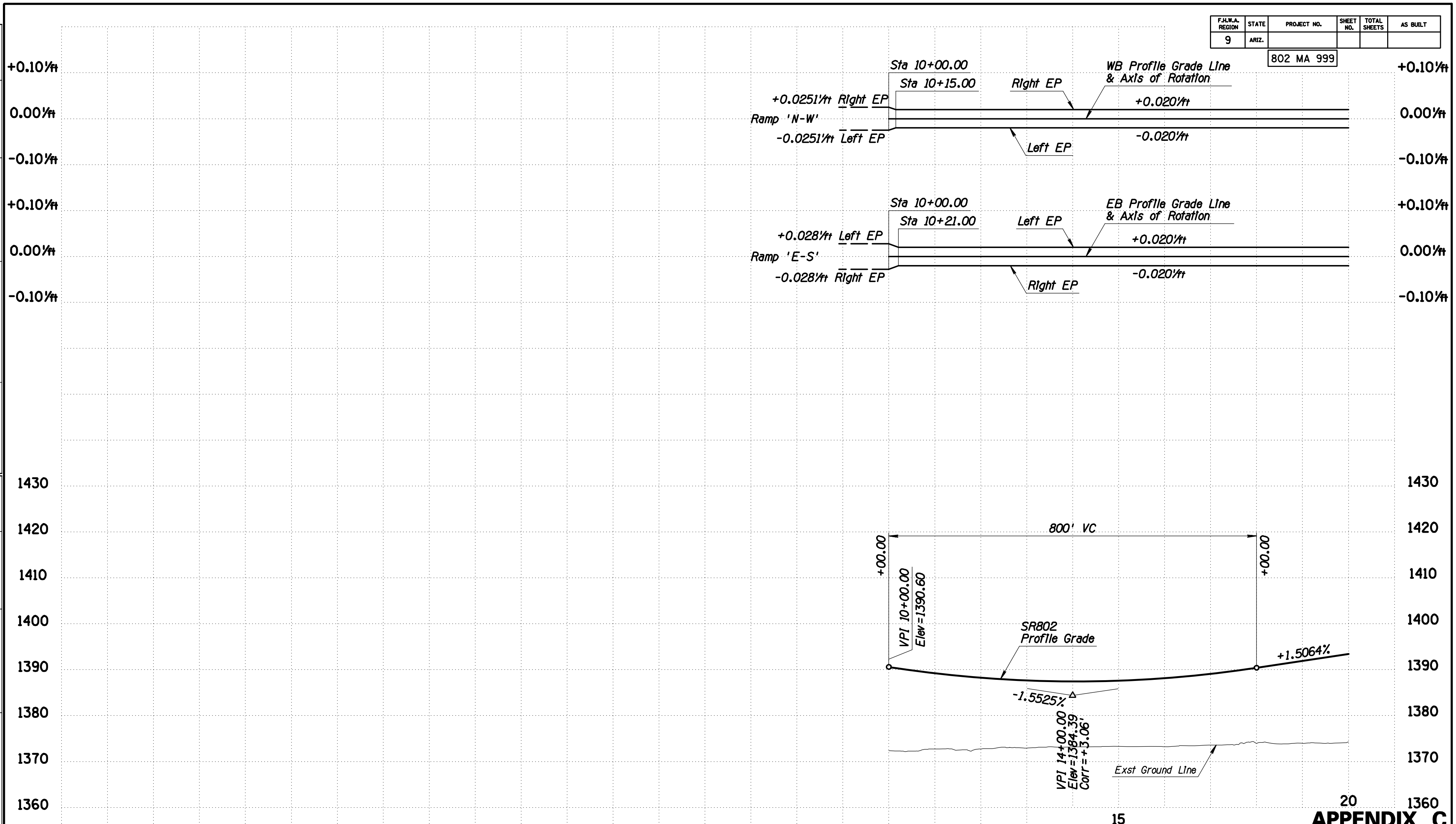
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.1

TRACS NO. H6867 01L — - — ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p01.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 10+00 TO STA 20+00

DCR

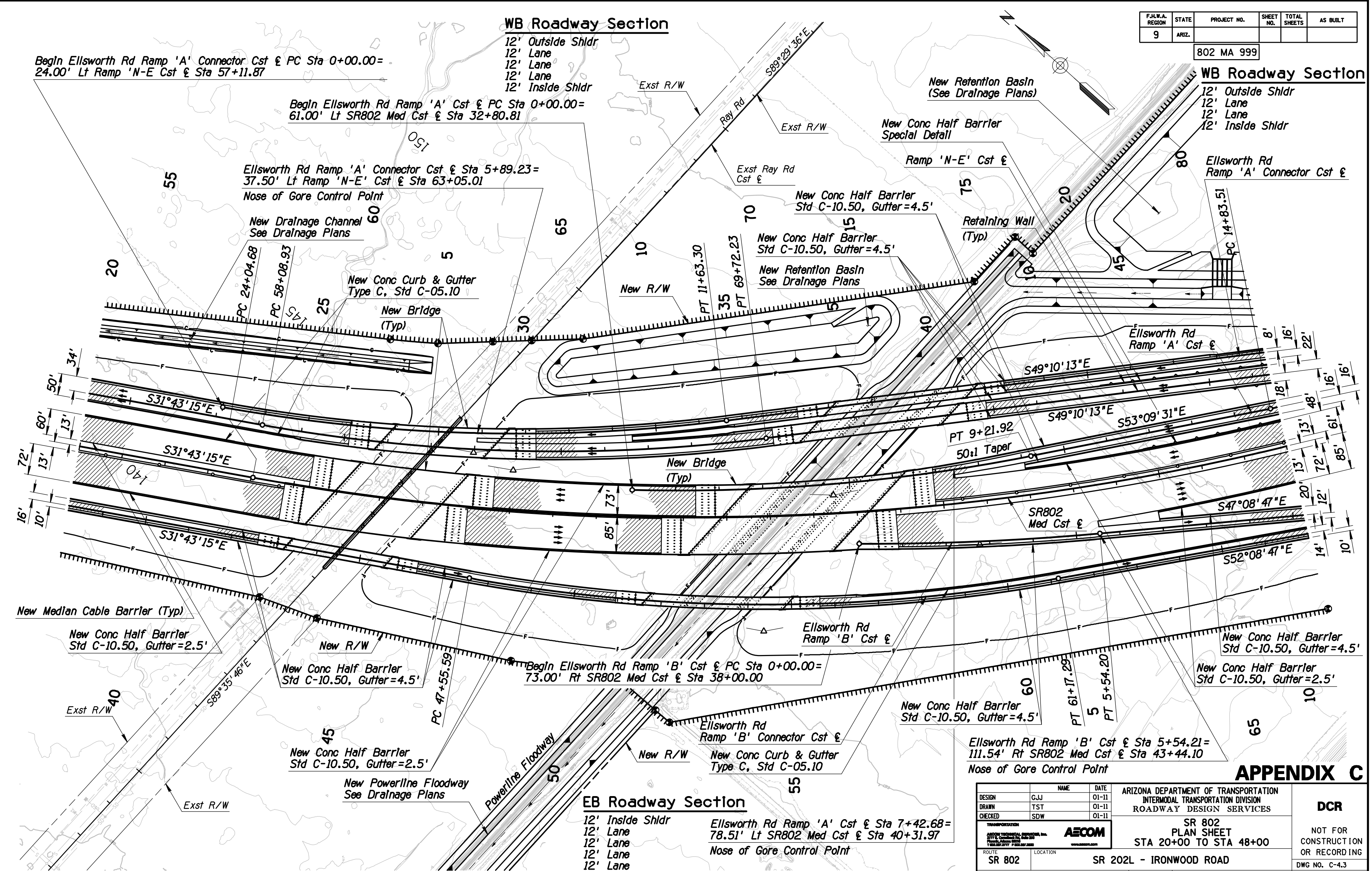
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.2

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v12.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 802
PLAN SHEET
STA 20+00 TO STA 48+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

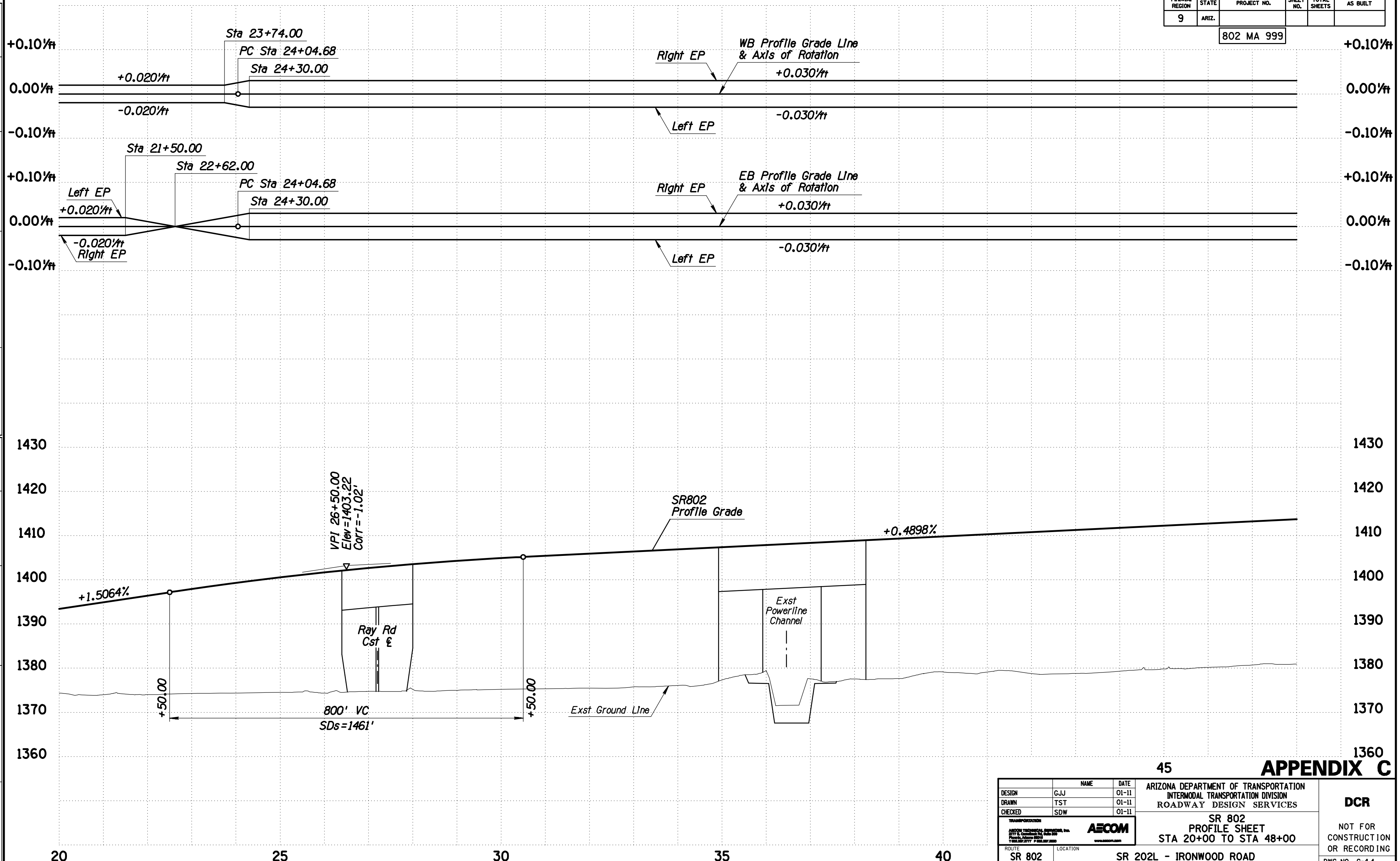
DWG NO. C-4.3

TRACS NO. H6867 01L — - — OF

12/20/2010 u:\wg01\prod\civ\h6867p02.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DCR

SR 802
PROFILE SHEET
STA 20+00 TO STA 48+00

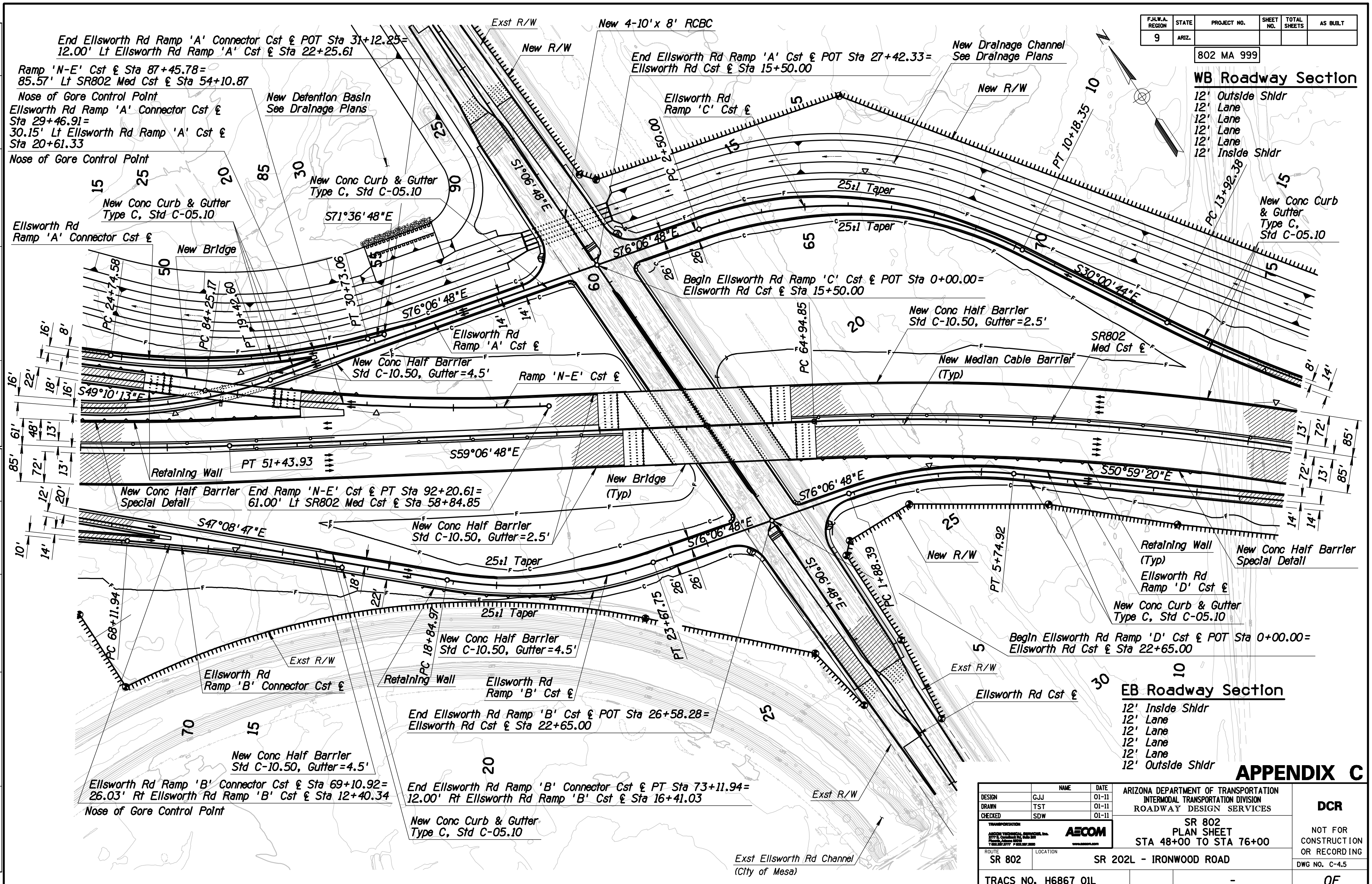
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.4

TRACS NO. H6867 01L | - | ___ OF___

12/20/2010 u:\wg01\prod\civ\h6867v13.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 802
PLAN SHEET
STA 48+00 TO STA 76+00

DCR

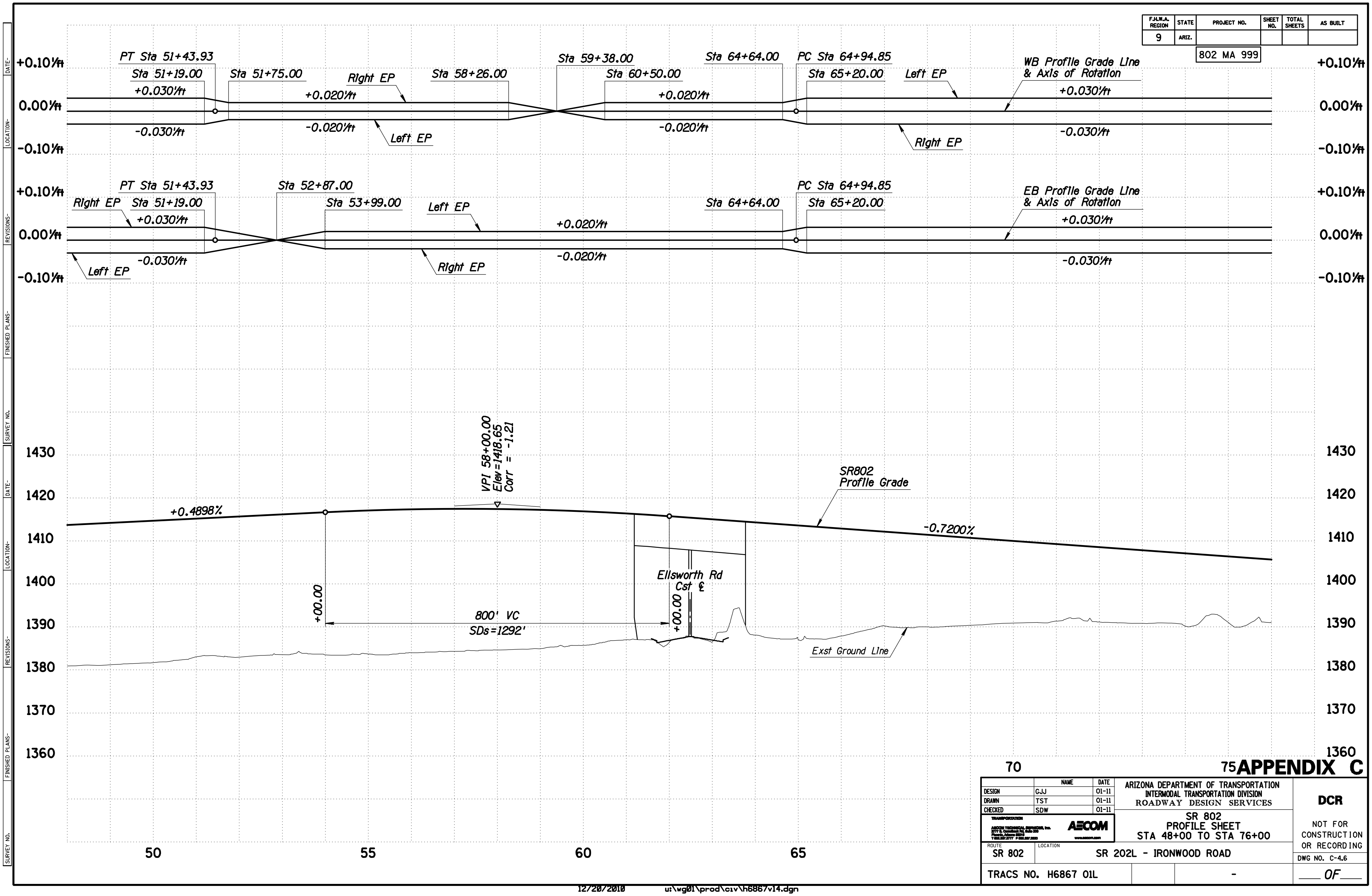
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.5

TRACS NO. H6867 01L | - | ___ OF ___

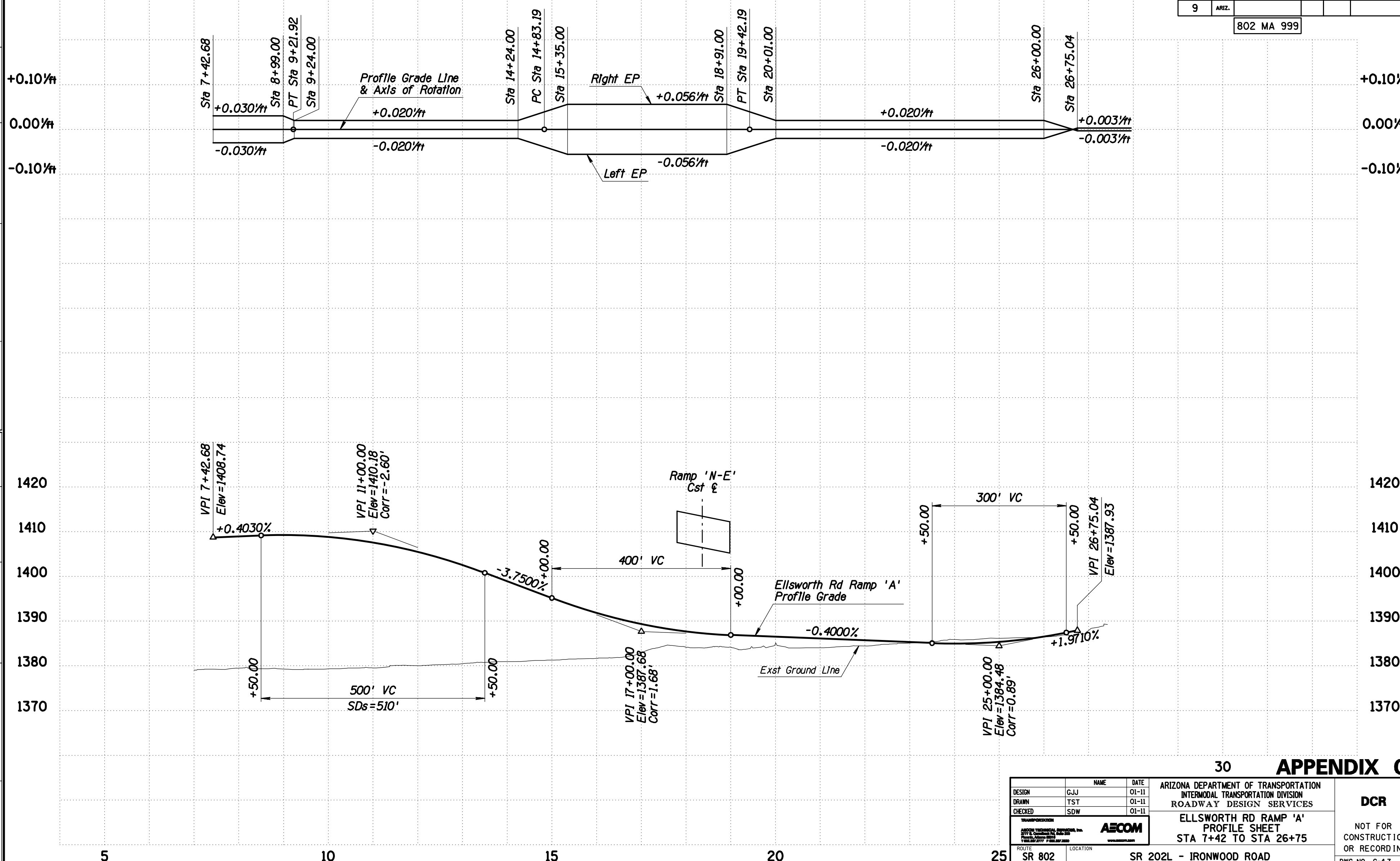
12/20/2010 u:\wg01\prod\civ\h6867p03.dgn



F.H.W.A. REGION | STATE | PROJECT NO. | SHEET NO. | TOTAL SHEETS | AS BUILT
9 | ARIZ.
802 MA 999
+0.10%/ft
0.00%/ft
-0.10%/ft
PT Sta 51+43.93
Sta 51+19.00
Sta 51+75.00
Right EP
Sta 58+26.00
Sta 59+38.00
Sta 60+50.00
Sta 64+64.00
PC Sta 64+94.85
Sta 65+20.00
Left EP
WB Profile Grade Line & Axis of Rotation
+0.030'/ft
+0.020'/ft
-0.030'/ft
-0.020'/ft
Left EP
Right EP
Sta 52+87.00
Sta 53+99.00
EB Profile Grade Line & Axis of Rotation
1430
1420
1410
1400
1390
1380
1370
1360
VPI 58+00.00
Elev=1418.65
Corr = -1.21
SR802 Profile Grade
+0.4898%
-0.7200%
+00.00
800' VC
SDs=1292'
Ellsworth Rd Cst ℄
Exst Ground Line
50
55
60
65
70
75
APPENDIX C
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
AECOM
SR 802
PROFILE SHEET
STA 48+00 TO STA 76+00
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. C-4.6
TRACS NO. H6867 01L
OF
DATE-
LOCATION-
REVISIONS-
FINISHED PLANS-
SURVEY NO.
12/20/2010 u:\wg01\prod\civ\h6867v14.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



30 **APPENDIX C**

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'A'
PROFILE SHEET
STA 7+42 TO STA 26+75

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

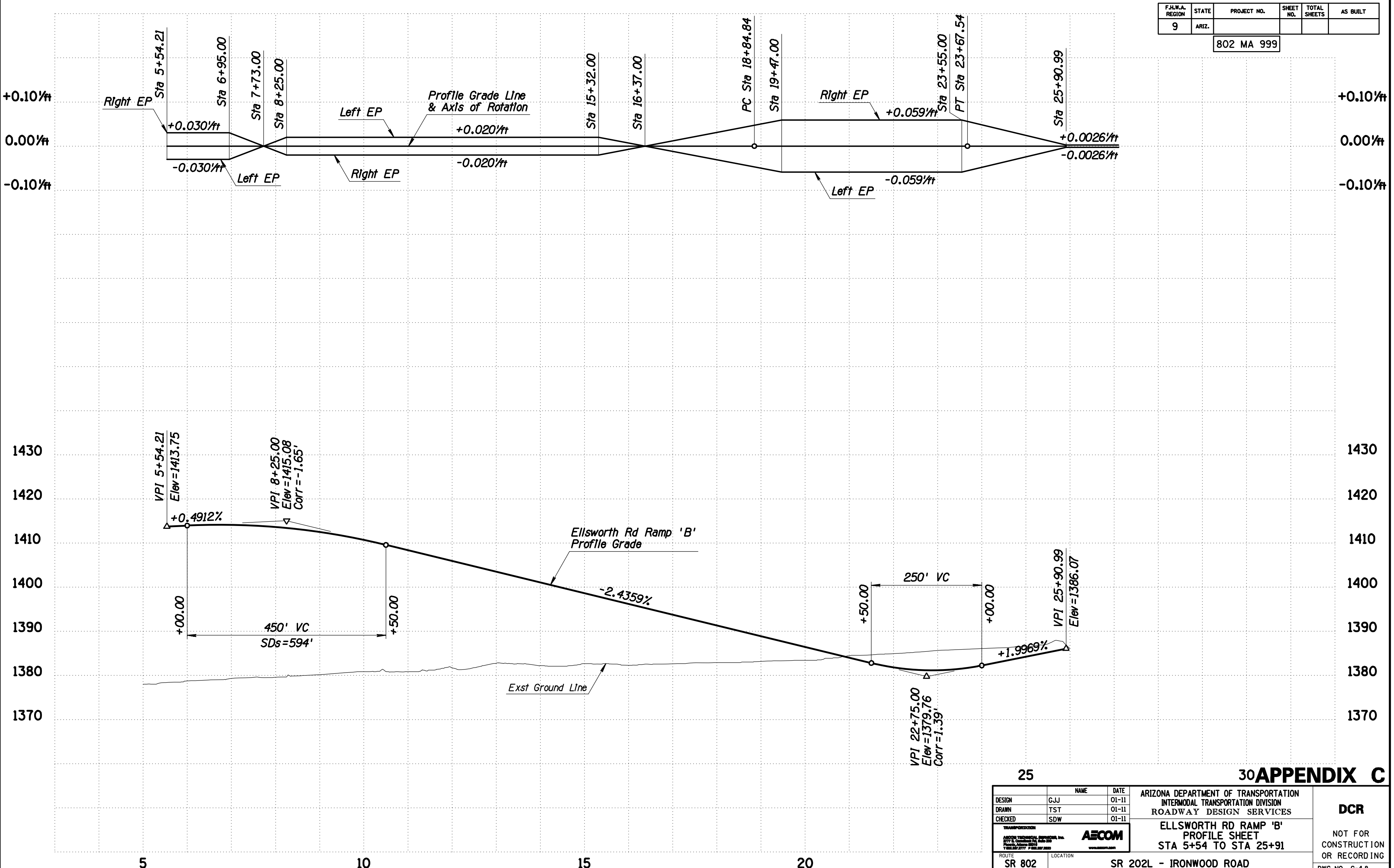
DWG NO. C-4.7

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v51.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'B'
PROFILE SHEET
STA 5+54 TO STA 25+91

DCR

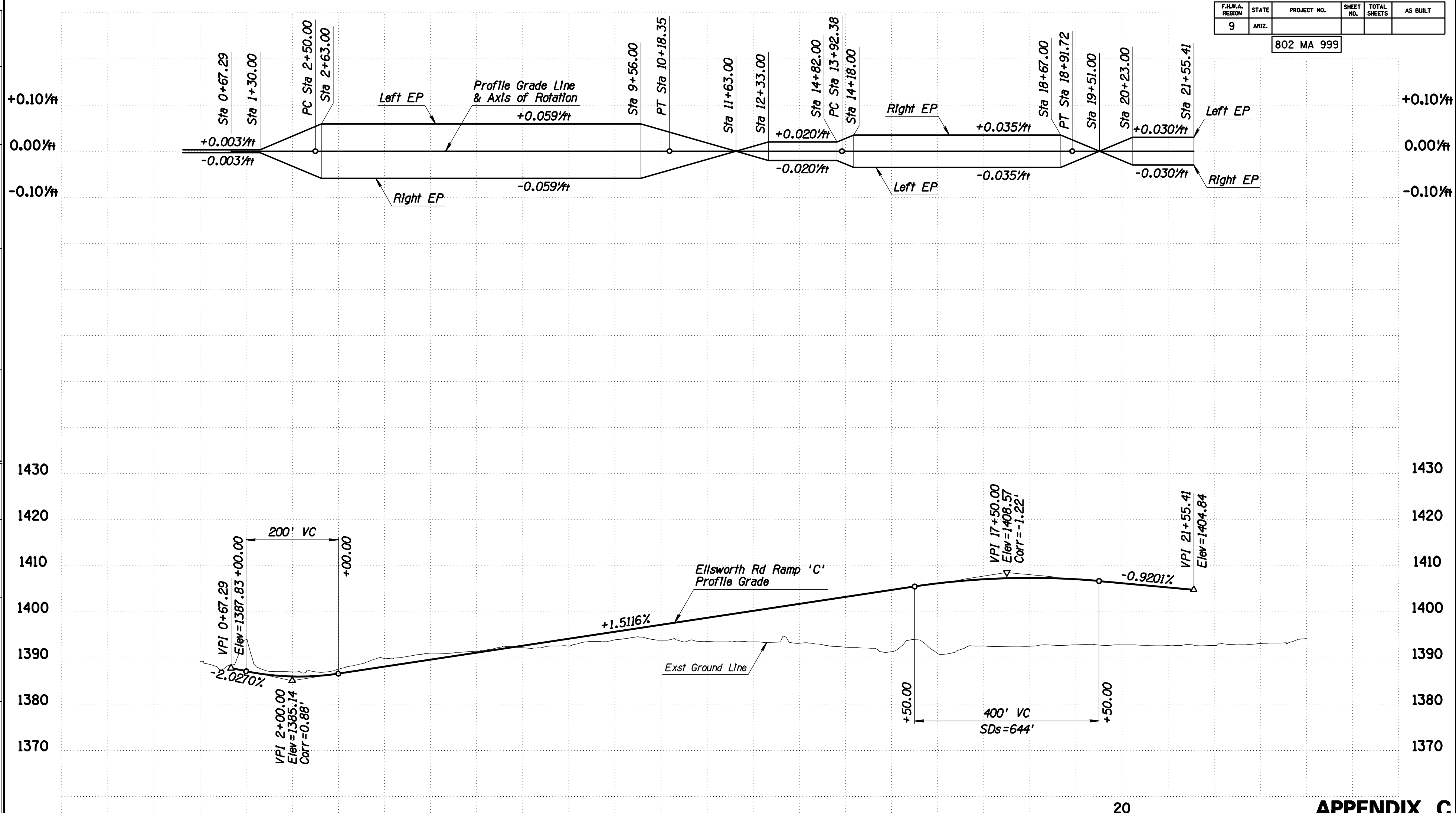
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.8

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v52.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'C'
PROFILE SHEET
STA 0+67 TO STA 21+56

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802 | LOCATION: SR 202L - IRONWOOD ROAD

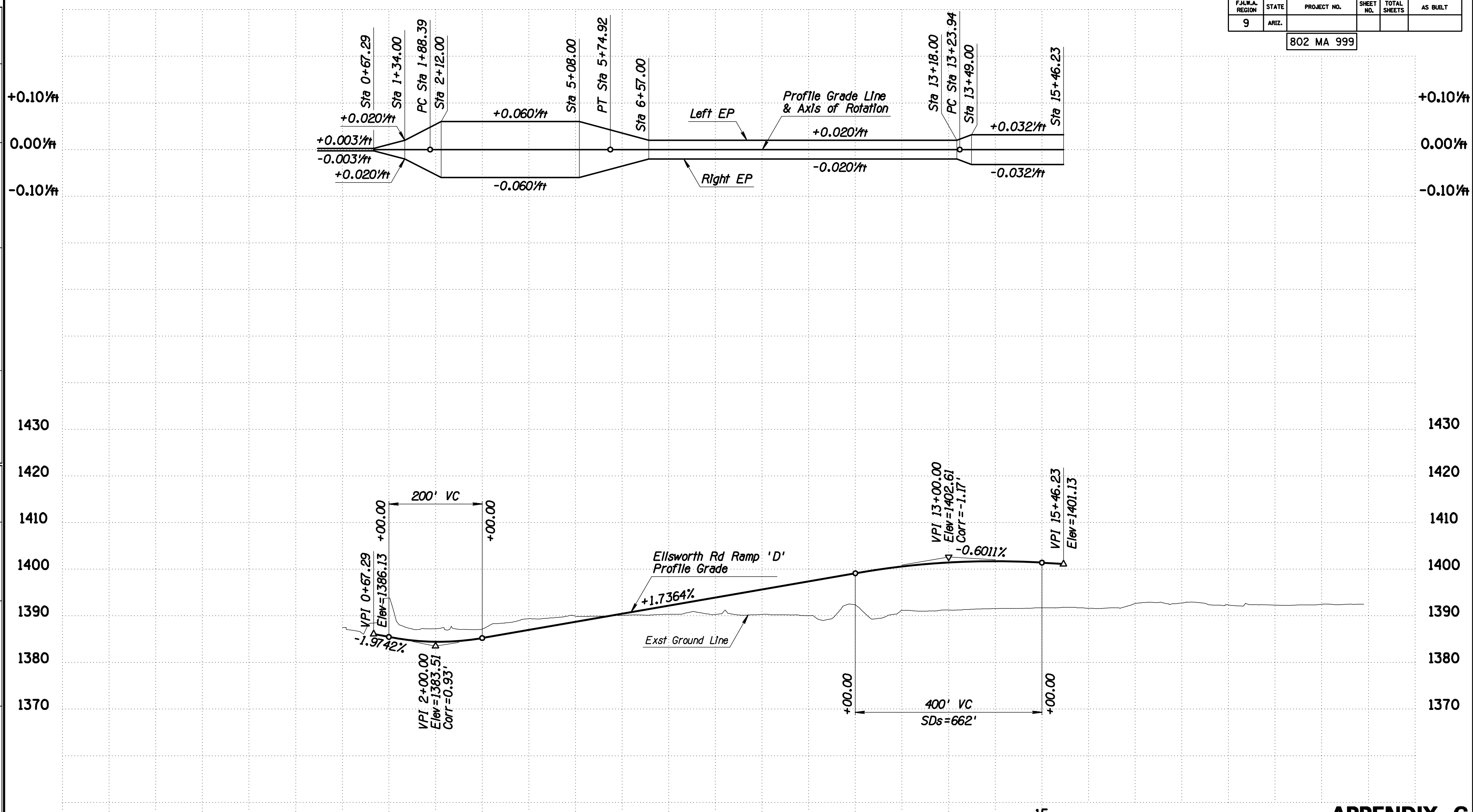
DWG NO. C-4.9

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v53.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'D'
PROFILE SHEET
STA 0+67 TO STA 15+47

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.10

TRACS NO. H6867 01L -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v54.dgn

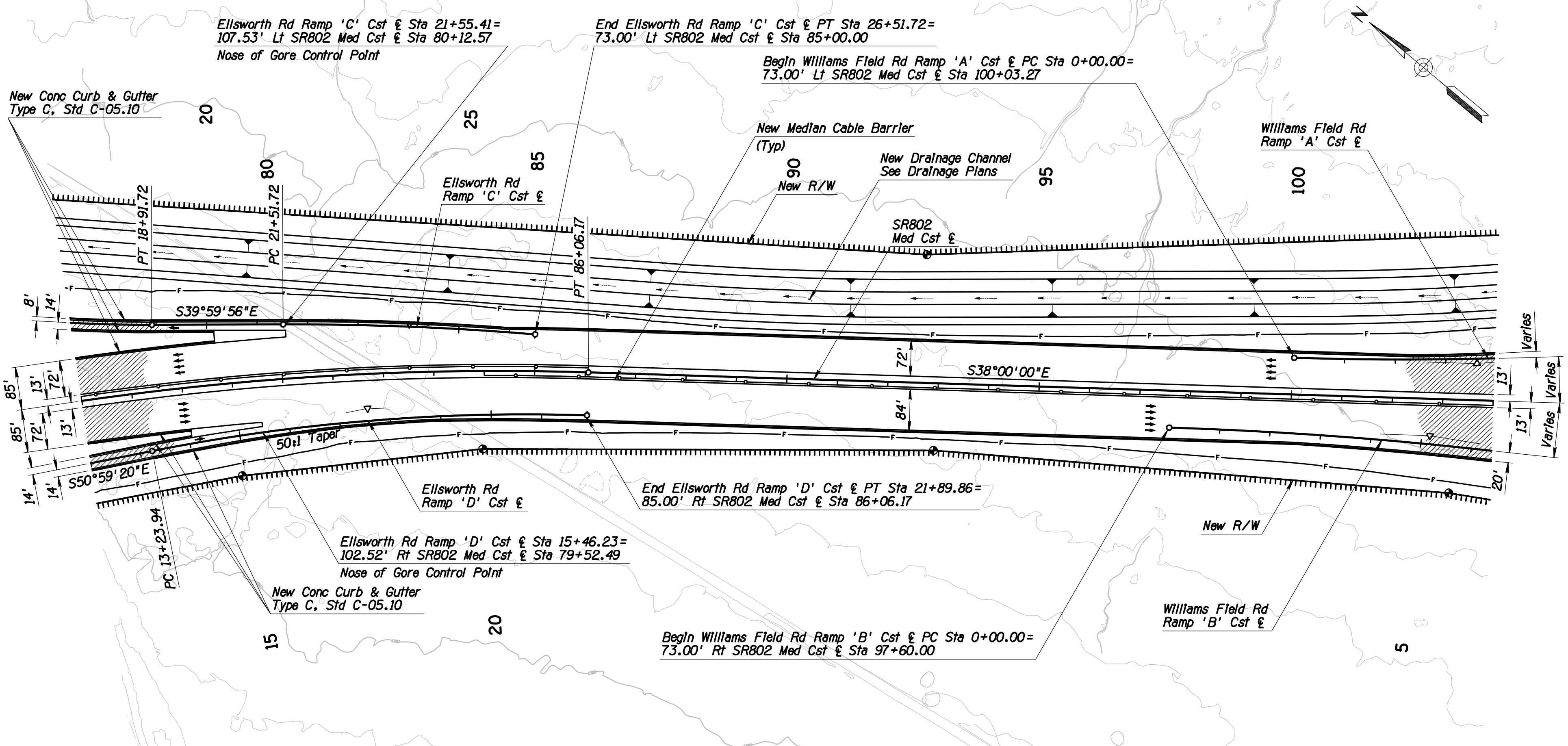
DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Inside Shldr



EB Roadway Section

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB Roadway Section

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 76+00 TO STA 104+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

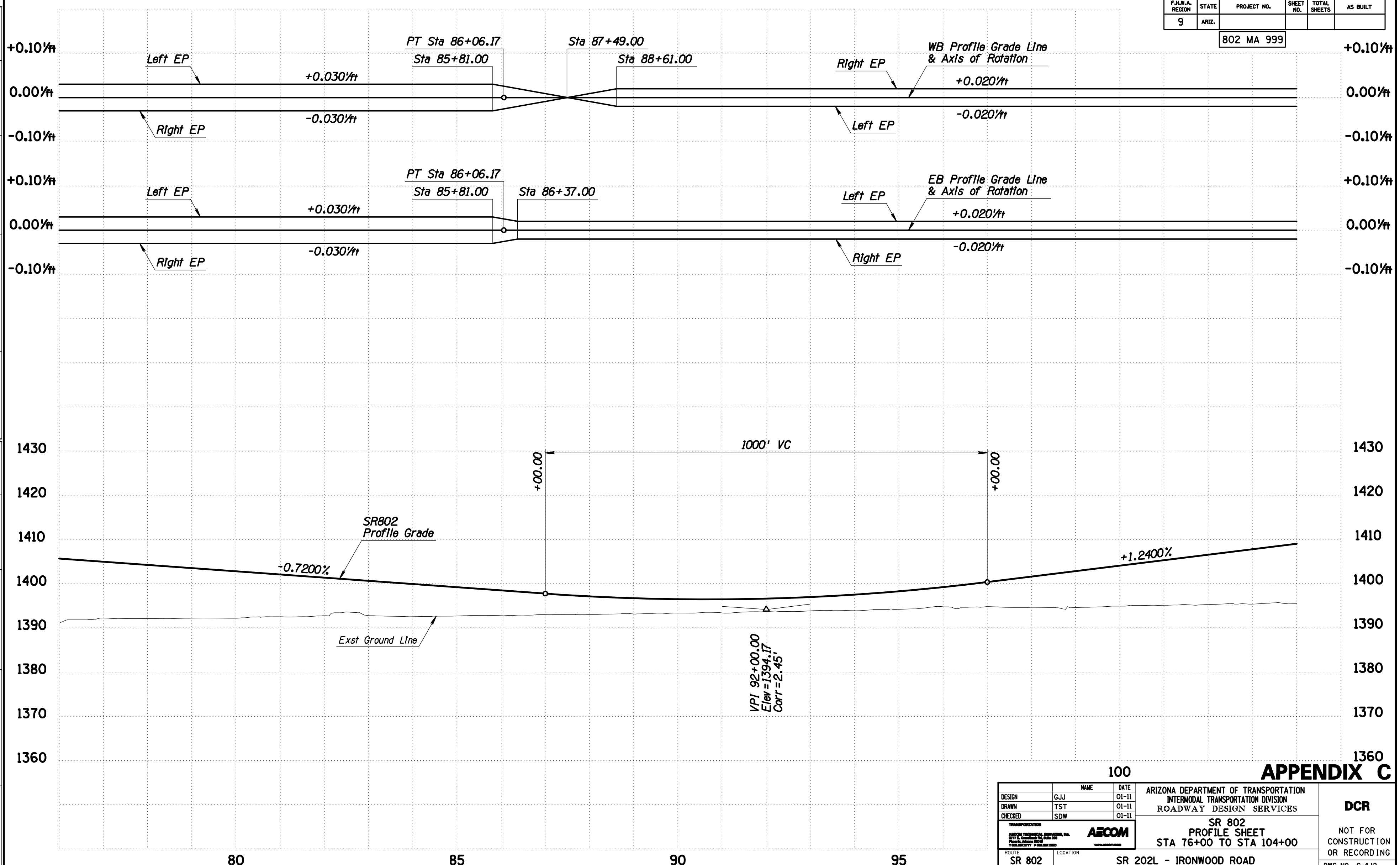
DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-4.11

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p04.dgn



APPENDIX C

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 76+00 TO STA 104+00

DCR

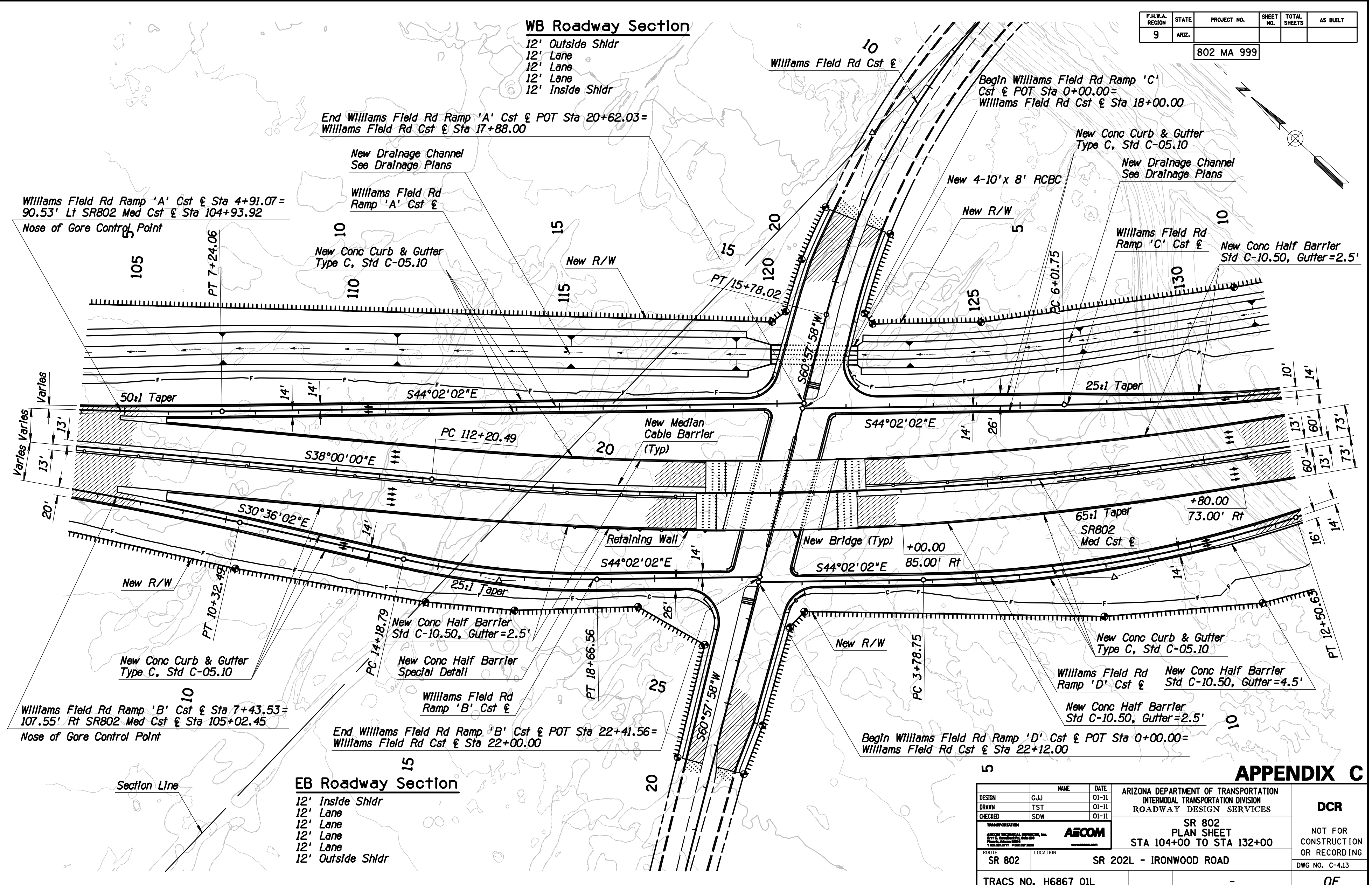
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.12

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v15.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 802
PLAN SHEET
STA 104+00 TO STA 132+00

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-4.13

TRACS NO. H6867 01L

\- ____ OF ____

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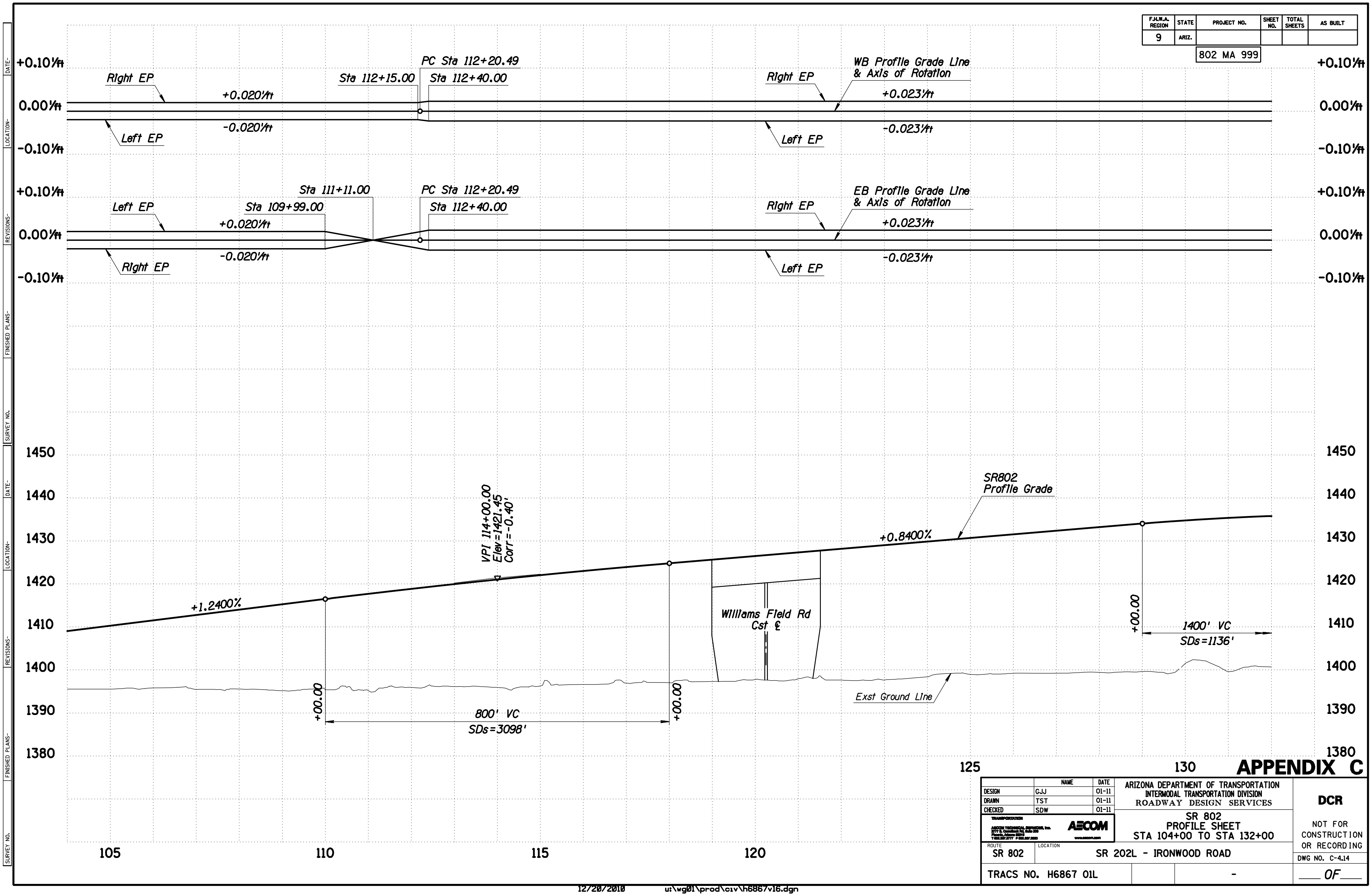
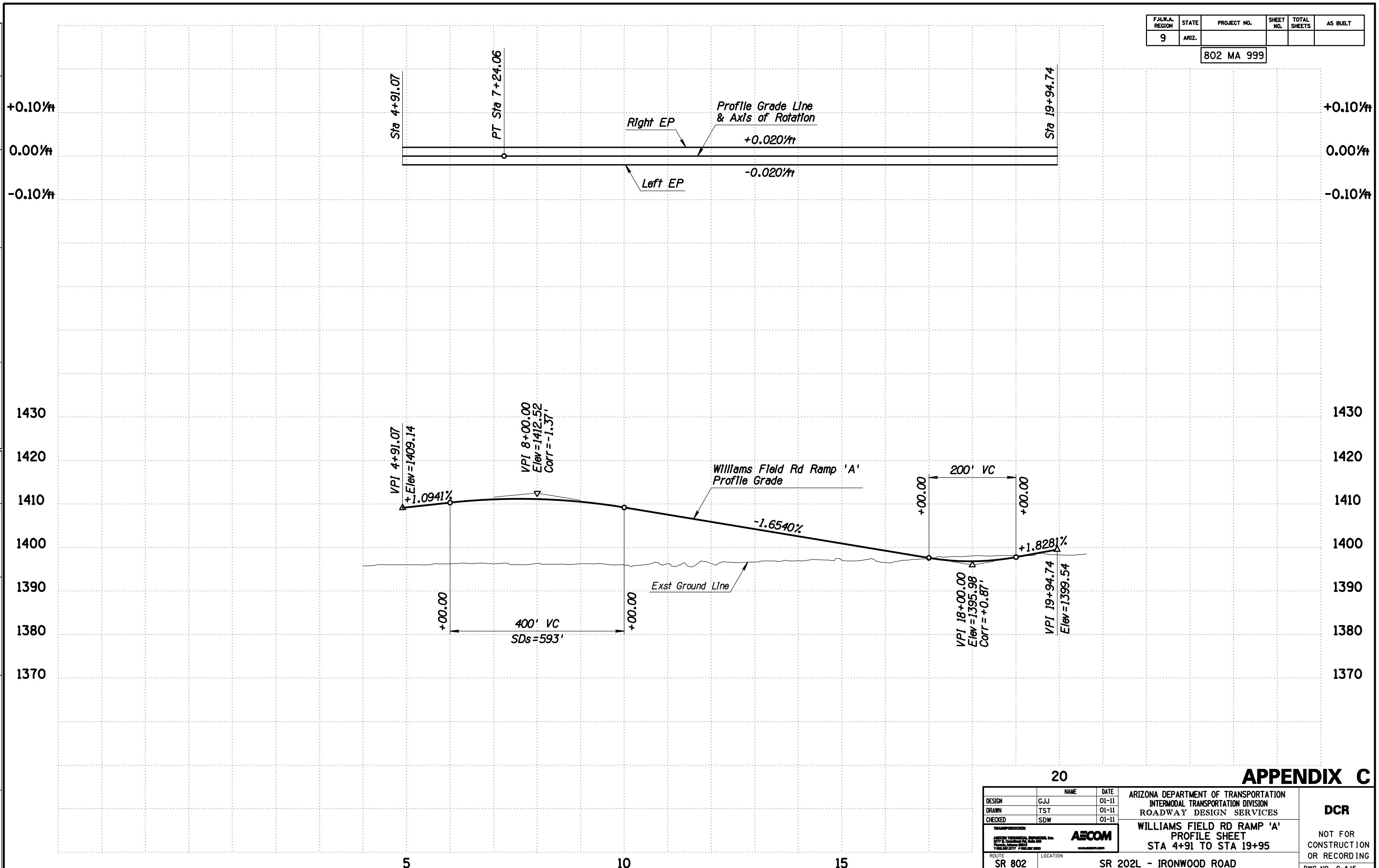


F.H.W.A. REGION | STATE | PROJECT NO. | SHEET NO. | TOTAL SHEETS | AS BUILT
9 | ARIZ.
802 MA 999
+0.10%ft
0.00%ft
-0.10%ft
PC Sta 112+20.49
Right EP
Sta 112+15.00
Sta 112+40.00
+0.020'/ft
-0.020'/ft
Left EP
WB Profile Grade Line & Axis of Rotation
Right EP
+0.023'/ft
-0.023'/ft
Left EP
Sta 111+11.00
PC Sta 112+20.49
Left EP
Sta 109+99.00
Sta 112+40.00
+0.020'/ft
-0.020'/ft
Right EP
EB Profile Grade Line & Axis of Rotation
Right EP
+0.023'/ft
-0.023'/ft
Left EP
1450
1440
1430
1420
1410
1400
1390
1380
SR802 Profile Grade
VPI 114+00.00
Elev=1421.45
Corr=-0.40'
+0.8400%
+1.2400%
Williams Field Rd Cst ℄
+00.00
1400' VC
SDs=1136'
Exst Ground Line
+00.00
800' VC
SDs=3098'
+00.00
105
110
115
120
125
130
APPENDIX C
DESIGN | GJJ | 01-11
DRAWN | TST | 01-11
CHECKED | SDW | 01-11
NAME | DATE
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
SR 802
PROFILE SHEET
STA 104+00 TO STA 132+00
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. C-4.14
TRACS NO. H6867 01L
-
OF
12/20/2010 u:\wg01\prod\civ\h6867v16.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

WILLIAMS FIELD RD RAMP 'A'
PROFILE SHEET
STA 4+91 TO STA 19+95

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.15

TRACS NO. H6867 01L | - | ___ OF ___

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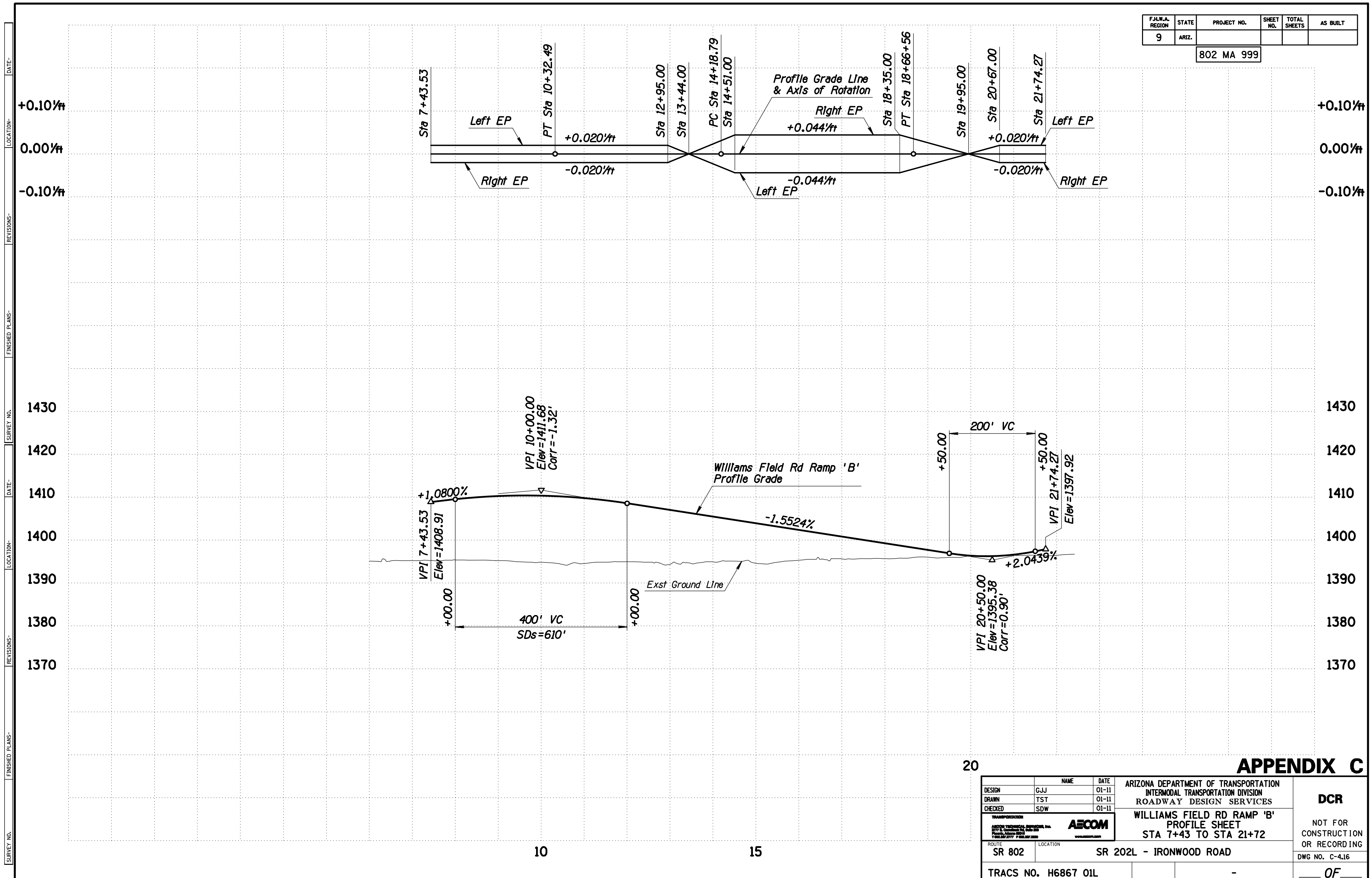

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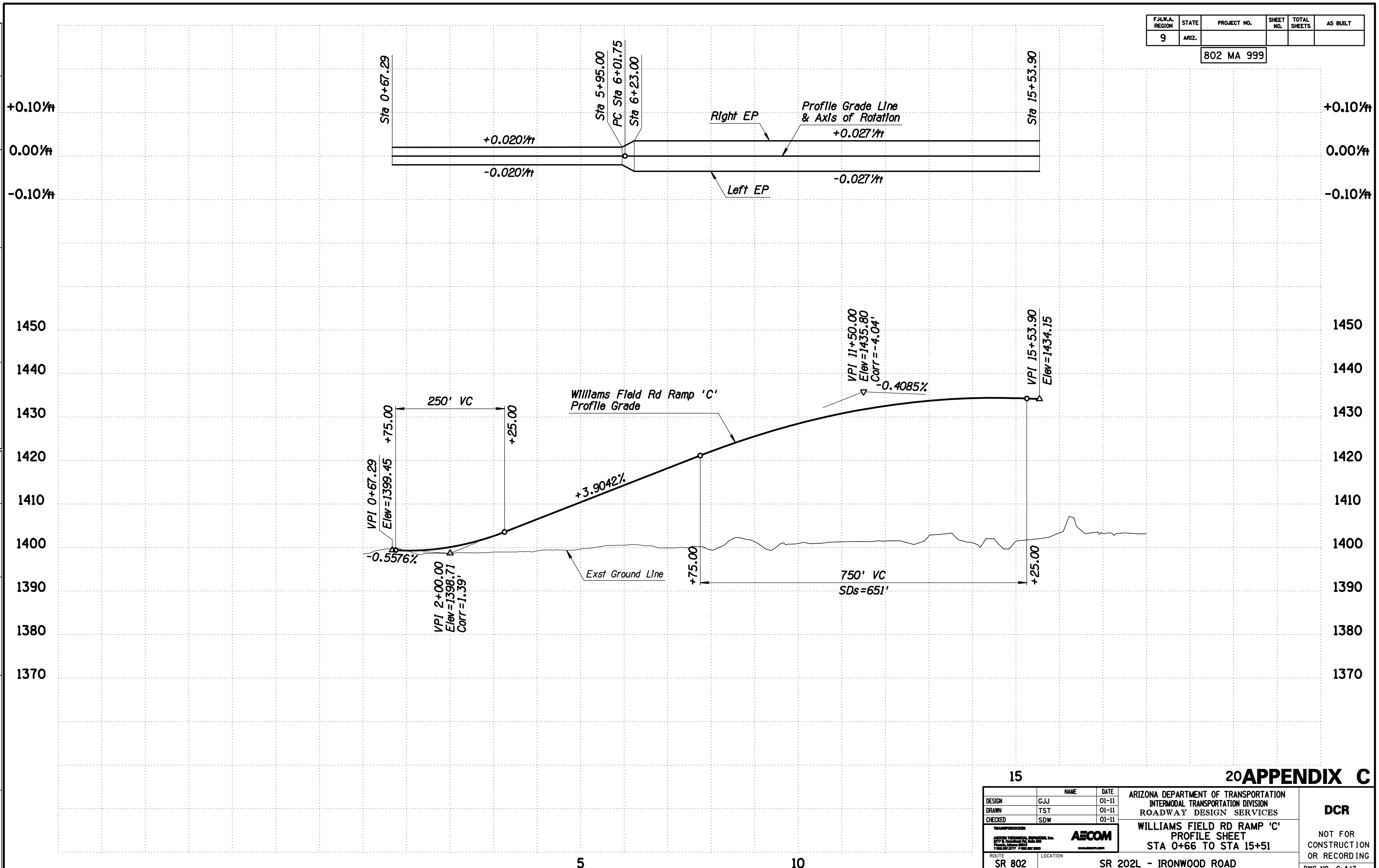


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

WILLIAMS FIELD RD RAMP 'C'
PROFILE SHEET
STA 0+66 TO STA 15+51

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

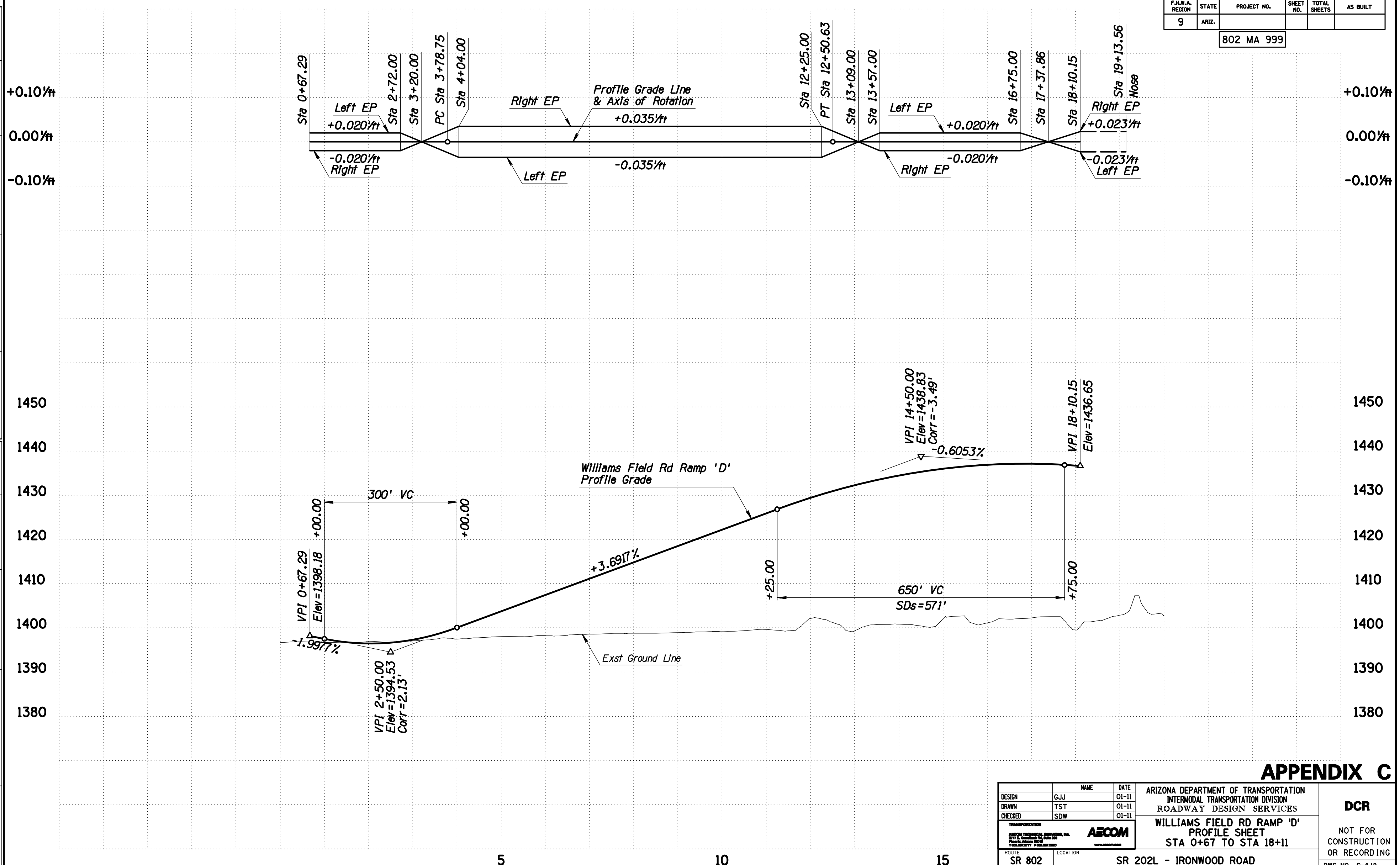
DWG NO. C-4.17

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v57.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

WILLIAMS FIELD RD RAMP 'D'
PROFILE SHEET
STA 0+67 TO STA 18+11

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.18

TRACS NO. H6867 01L | - | ___ OF ___

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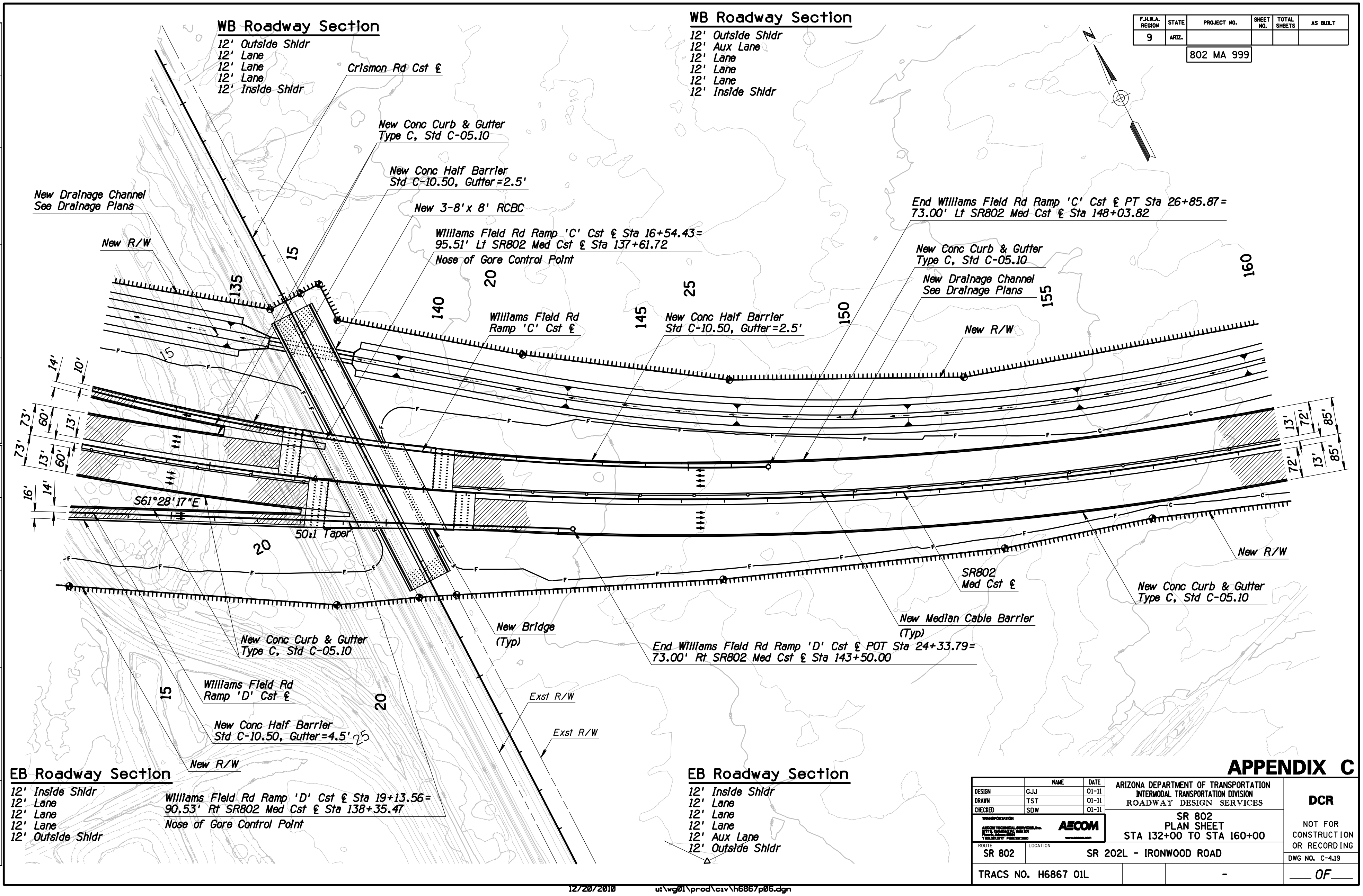
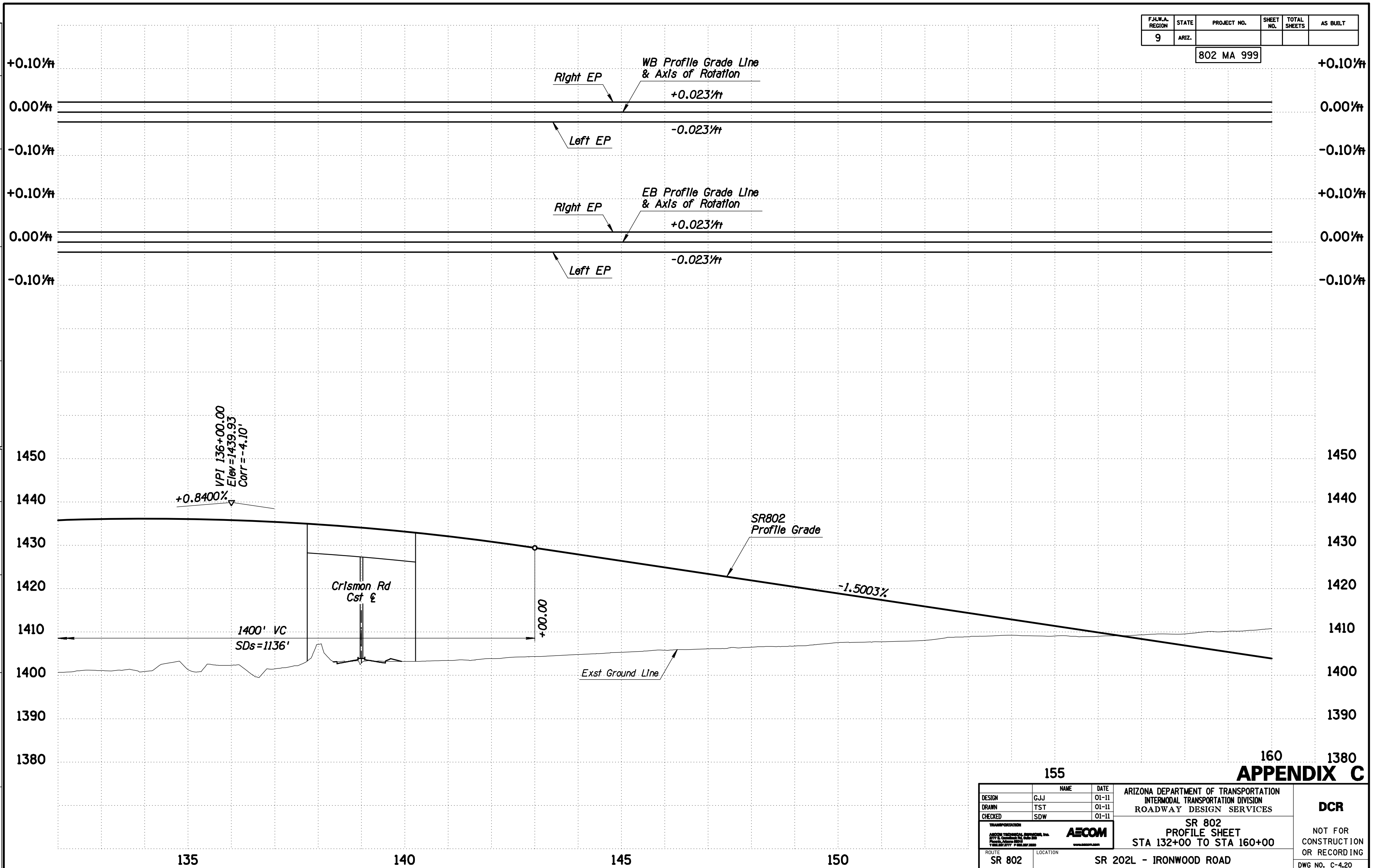


WB Roadway Section
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Inside Shldr
WB Roadway Section
12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Inside Shldr
F.H.W.A. REGION 9
STATE ARIZ.
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
802 MA 999
Crismon Rd Cst ℄
New Conc Curb & Gutter Type C, Std C-05.10
New Conc Half Barrier Std C-10.50, Gutter=2.5'
New Drainage Channel See Drainage Plans
New 3-8'x 8' RCBC
New R/W
Williams Field Rd Ramp 'C' Cst ℄ Sta 16+54.43= 95.51' Lt SR802 Med Cst ℄ Sta 137+61.72
Nose of Gore Control Point
End Williams Field Rd Ramp 'C' Cst ℄ PT Sta 26+85.87= 73.00' Lt SR802 Med Cst ℄ Sta 148+03.82
New Conc Curb & Gutter Type C, Std C-05.10
New Drainage Channel See Drainage Plans
Williams Field Rd Ramp 'C' Cst ℄
New Conc Half Barrier Std C-10.50, Gutter=2.5'
New R/W
135
140
145
150
155
160
15
20
25
S61°28'17"E
50:1 Taper
SR802 Med Cst ℄
New R/W
New Conc Curb & Gutter Type C, Std C-05.10
New Median Cable Barrier (Typ)
New Bridge (Typ)
End Williams Field Rd Ramp 'D' Cst ℄ POT Sta 24+33.79= 73.00' Rt SR802 Med Cst ℄ Sta 143+50.00
New Conc Curb & Gutter Type C, Std C-05.10
Williams Field Rd Ramp 'D' Cst ℄
New Conc Half Barrier Std C-10.50, Gutter=4.5'
Exst R/W
Exst R/W
New R/W
EB Roadway Section
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Outside Shldr
Williams Field Rd Ramp 'D' Cst ℄ Sta 19+13.56= 90.53' Rt SR802 Med Cst ℄ Sta 138+35.47
Nose of Gore Control Point
EB Roadway Section
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr
APPENDIX C
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
AECOM
DCR
SR 802
PLAN SHEET
STA 132+00 TO STA 160+00
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. C-4.19
TRACS NO. H6867 01L
OF
12/20/2010 u:\wg01\prod\civ\h6867p06.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 132+00 TO STA 160+00

AECOM

DCR

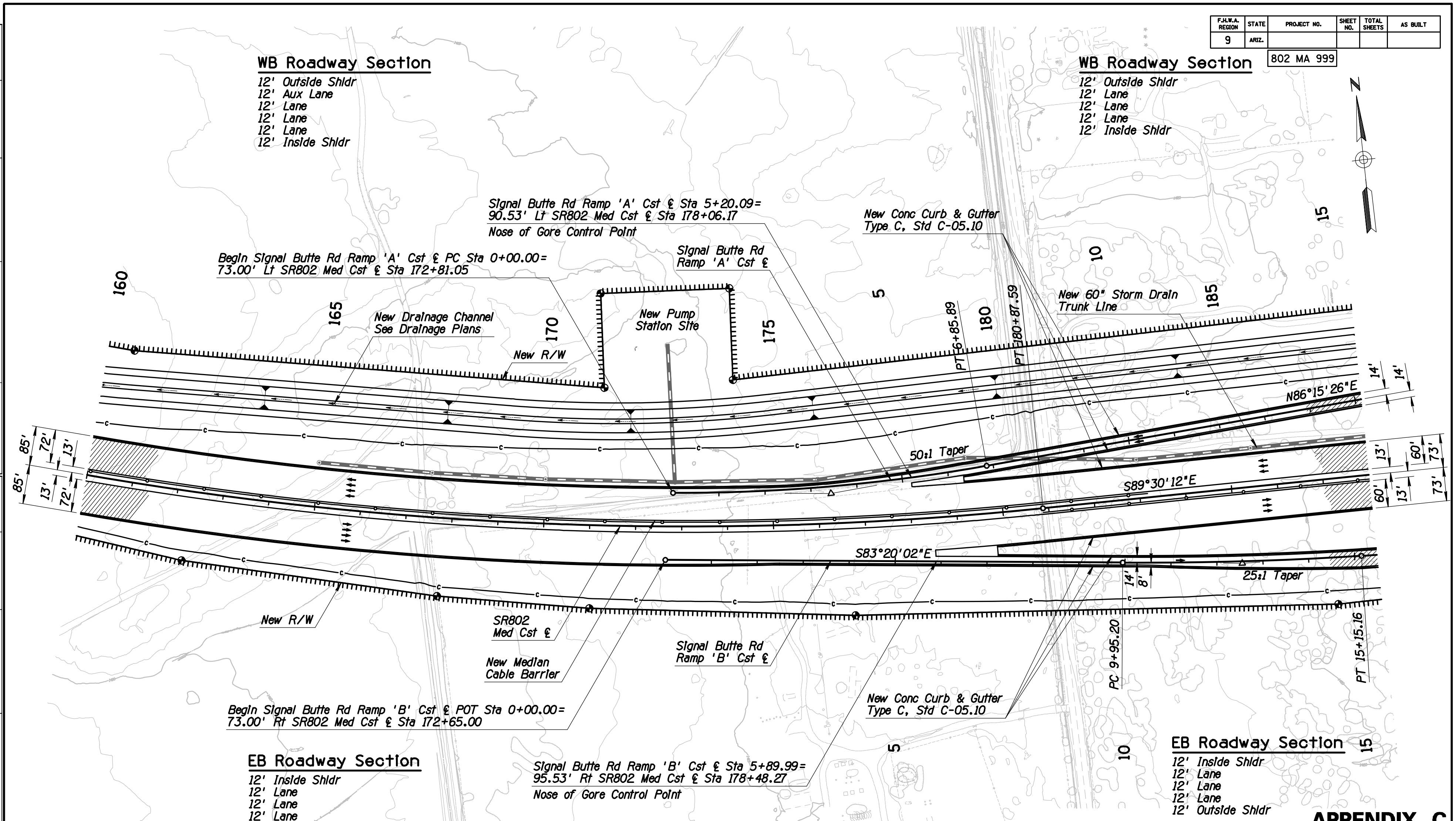
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.20

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v17.dgn



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
AECOM
www.aecom.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 160+00 TO STA 188+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.21

TRACS NO. H6867 01L

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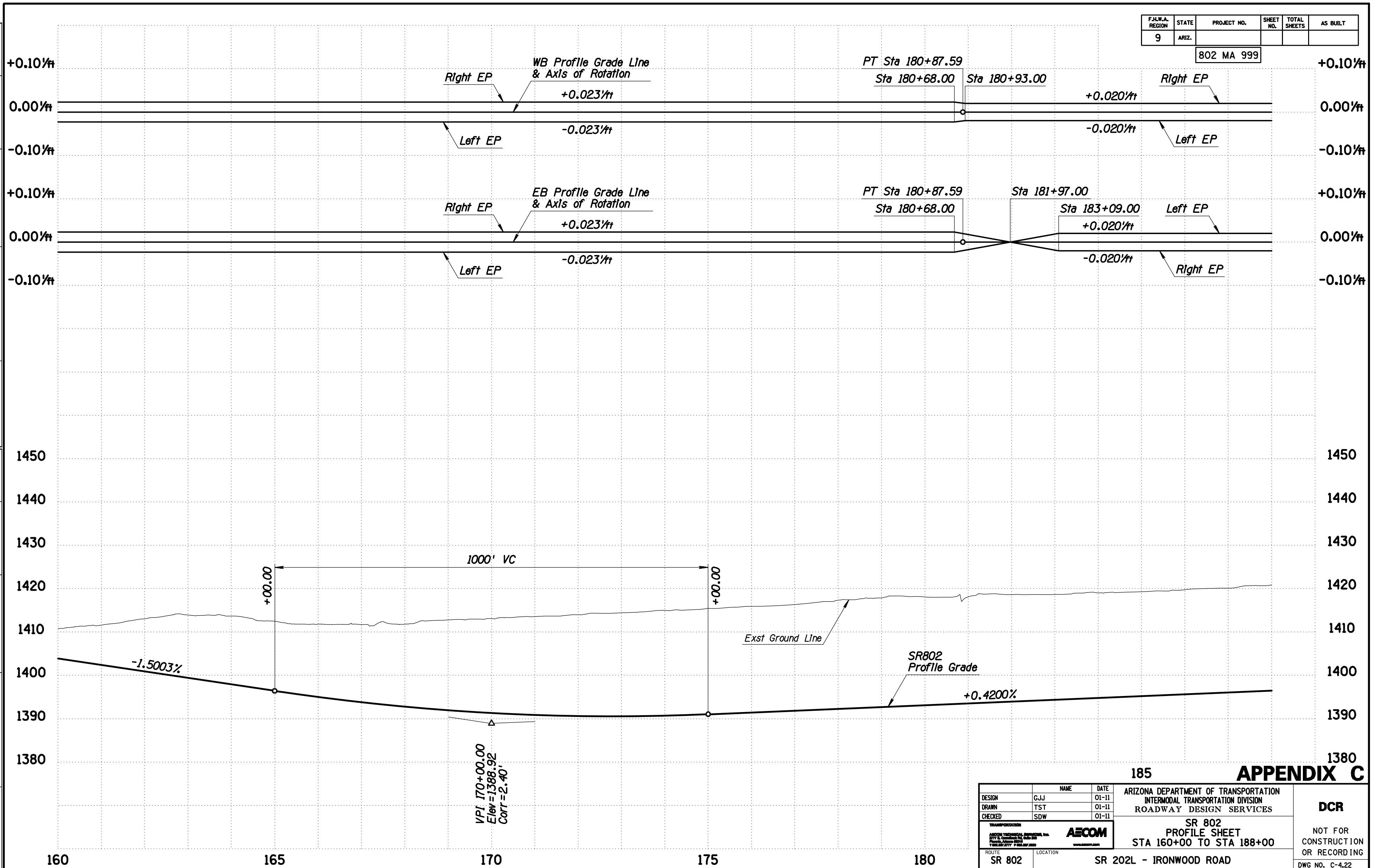
___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p07.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 160+00 TO STA 188+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

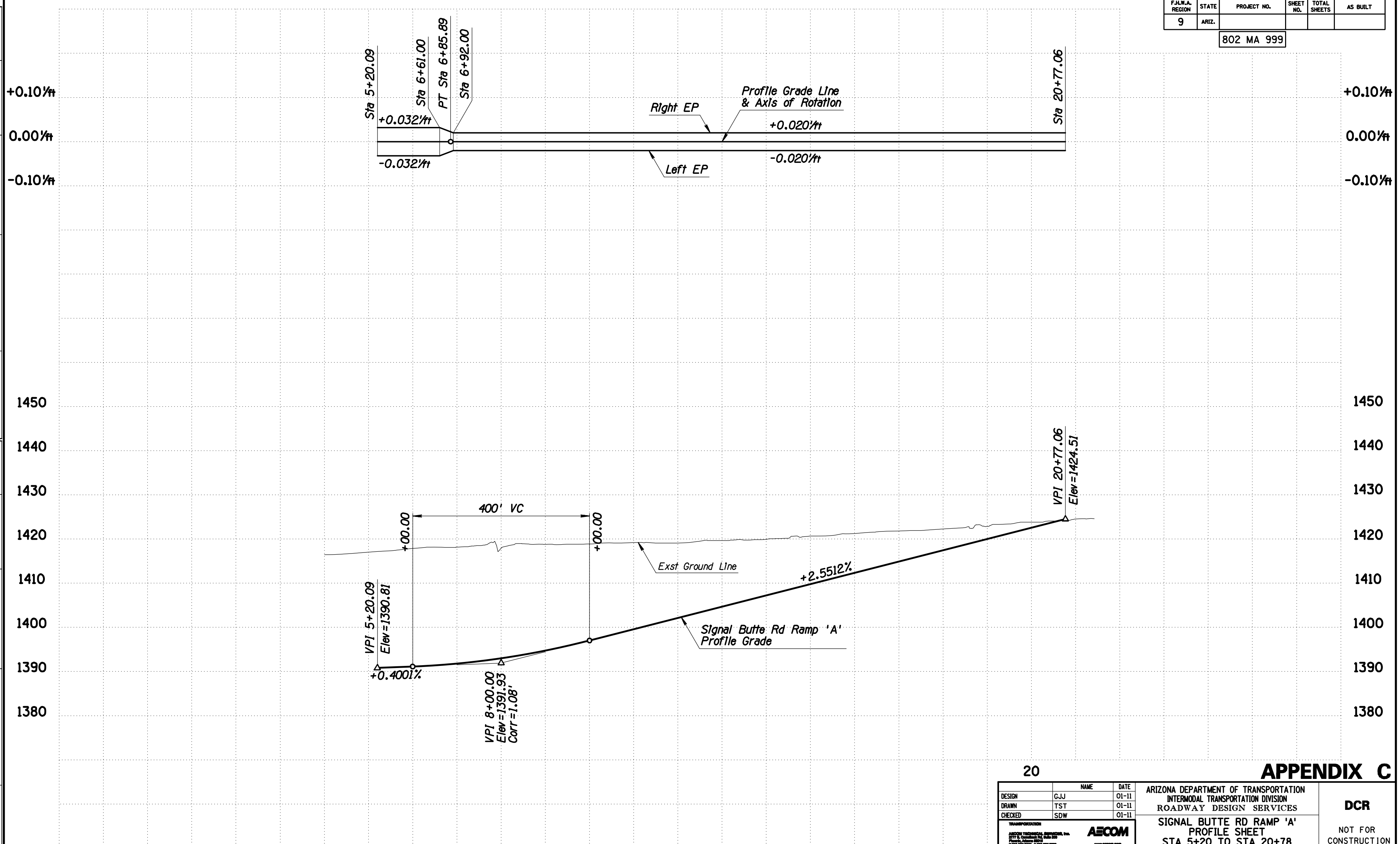
DWG NO. C-4.22

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v18.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SIGNAL BUTTE RD RAMP 'A'
PROFILE SHEET
STA 5+20 TO STA 20+78

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

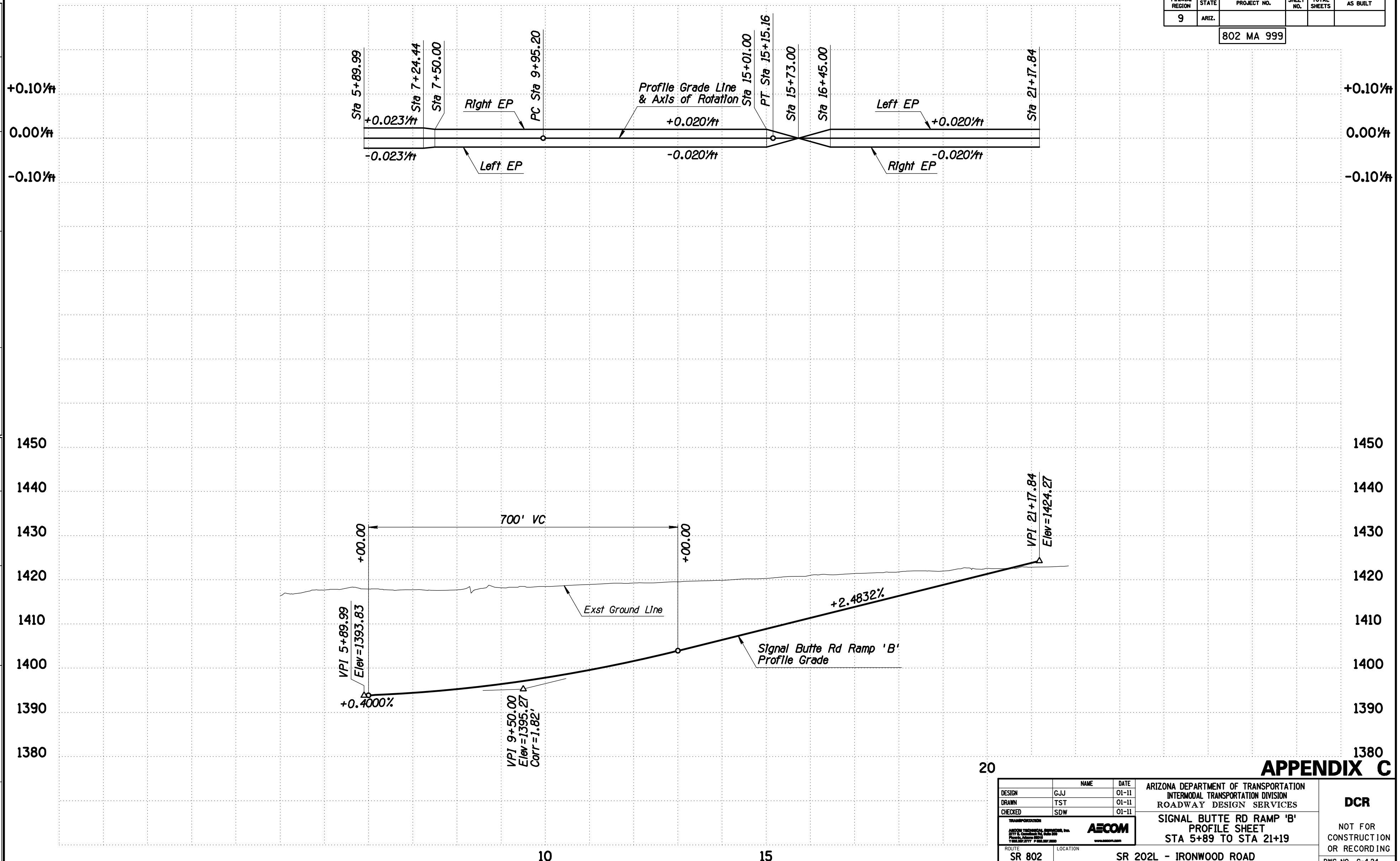
DWG NO. C-4.23

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v59.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SIGNAL BUTTE RD RAMP 'B'
PROFILE SHEET
STA 5+89 TO STA 21+19

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.24

TRACS NO. H6867 01L | - | ___ OF ___

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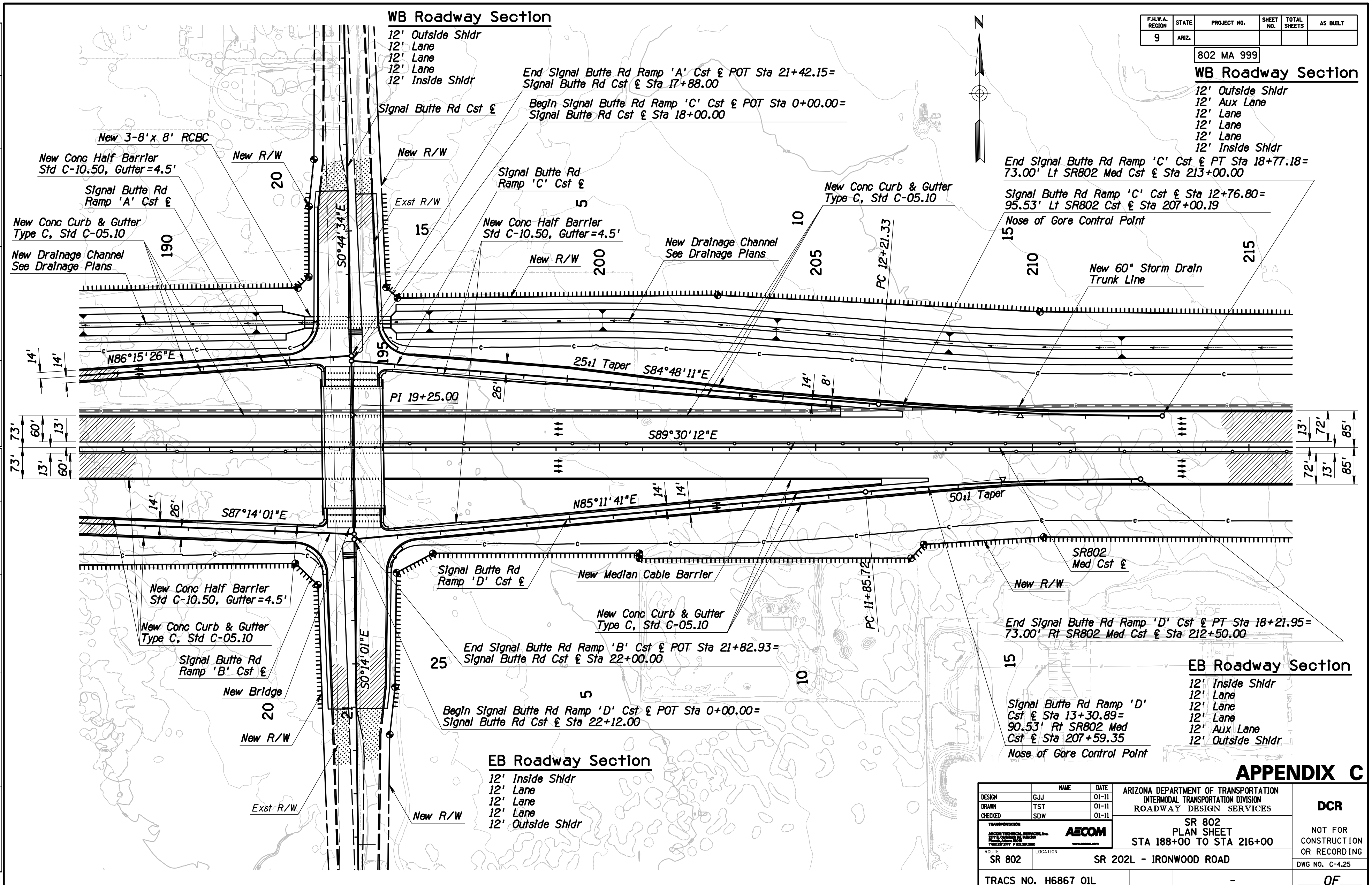

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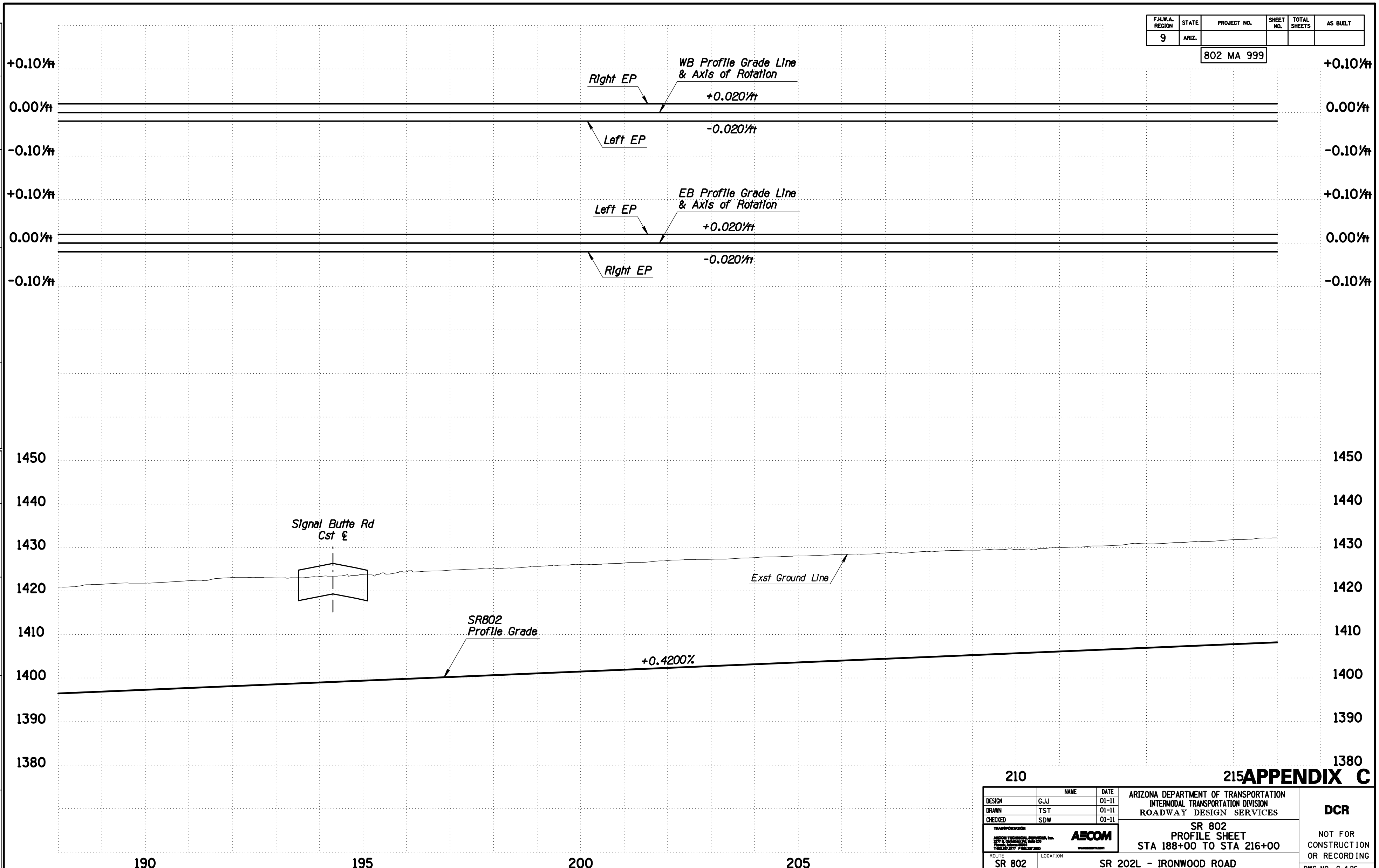

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 188+00 TO STA 216+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.26

TRACS NO. H6867 01L

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___ OF ___

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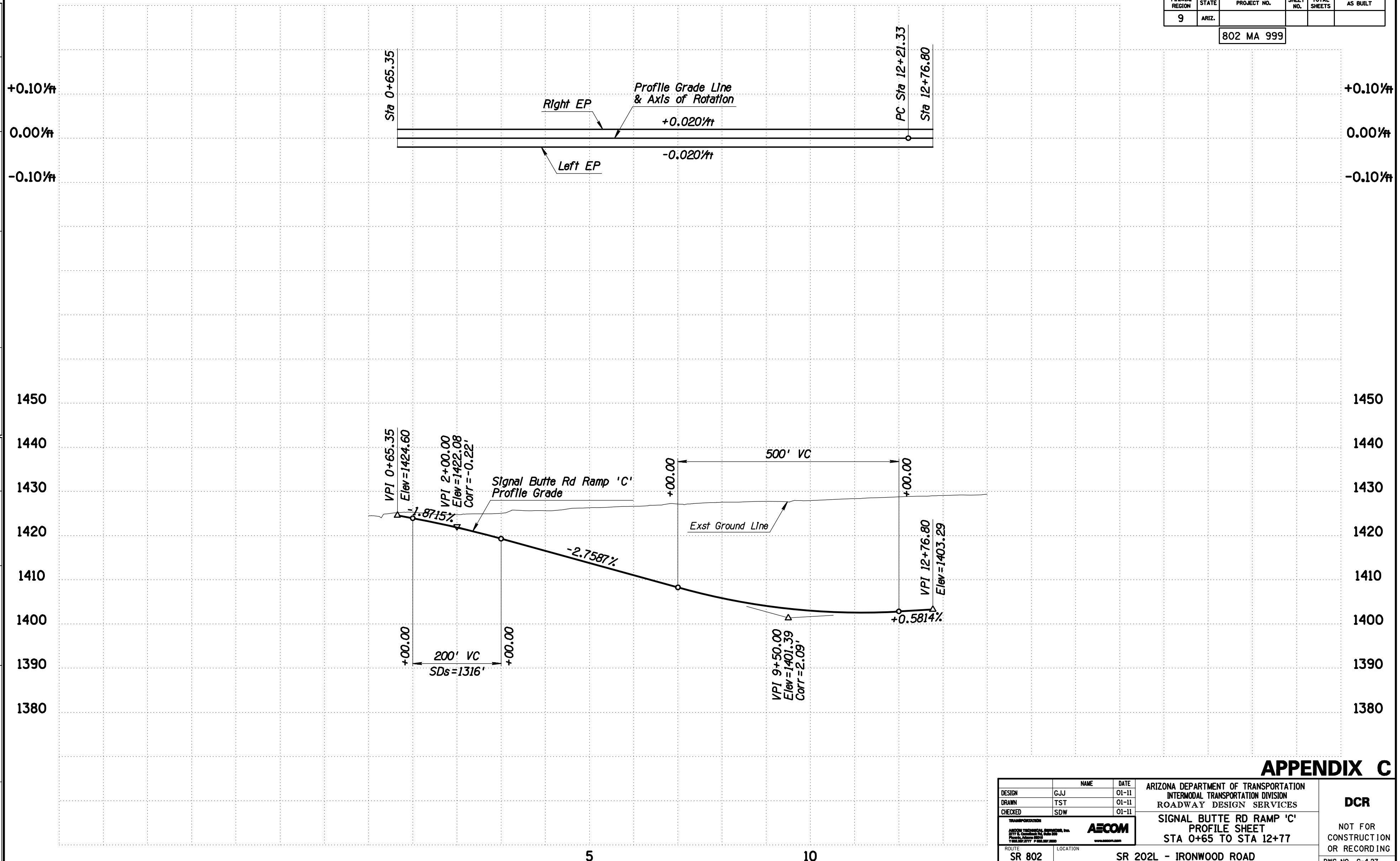


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SIGNAL BUTTE RD RAMP 'C'
PROFILE SHEET
STA 0+65 TO STA 12+77

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

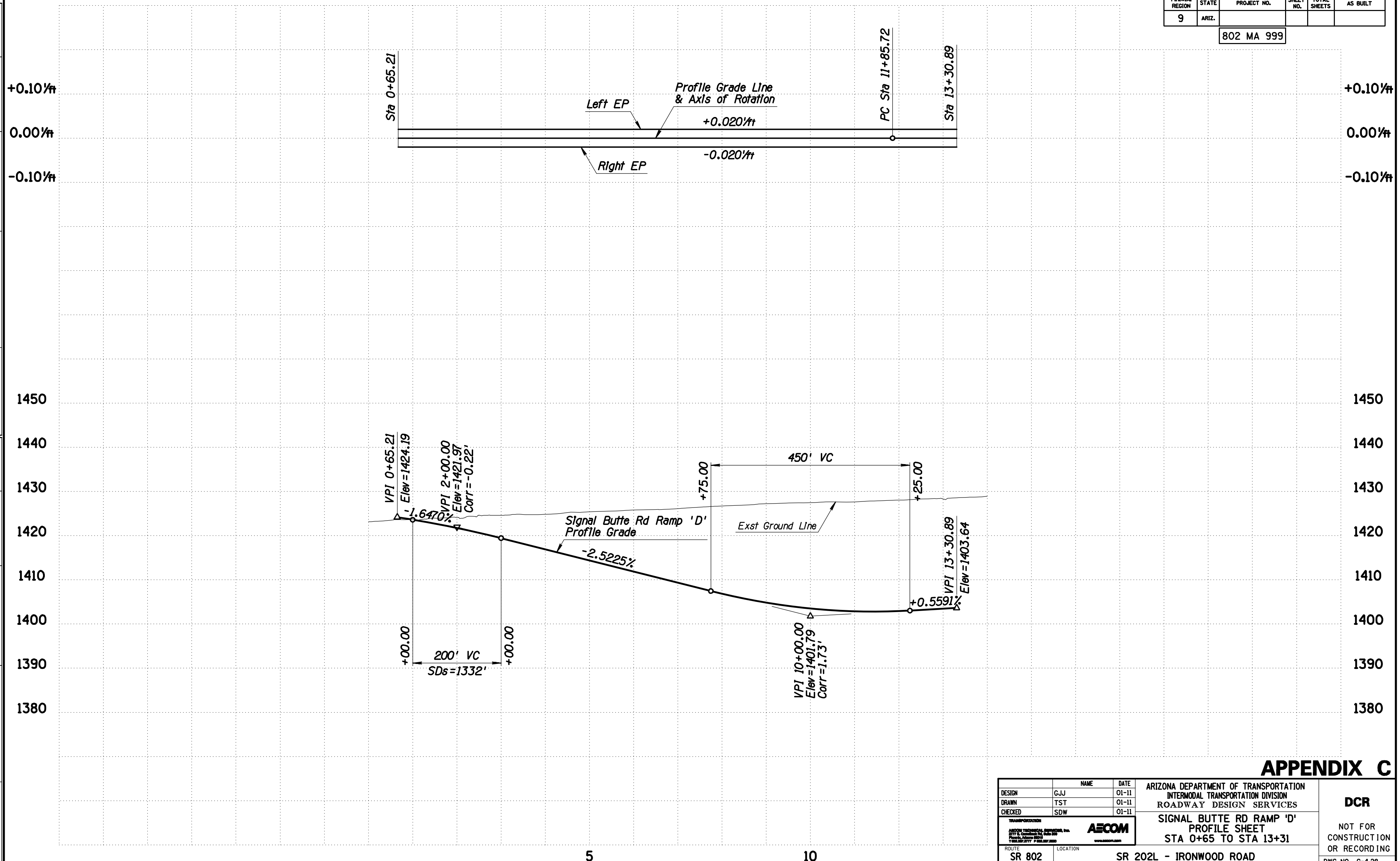
DWG NO. C-4.27

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v61.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE	
DESIGN	GJJ	01-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	01-11	
CHECKED	SDW	01-11	

AECOM

SIGNAL BUTTE RD RAMP 'D'
PROFILE SHEET
STA 0+65 TO STA 13+31

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.28

TRACS NO. H6867 01L | - | ___ OF ___

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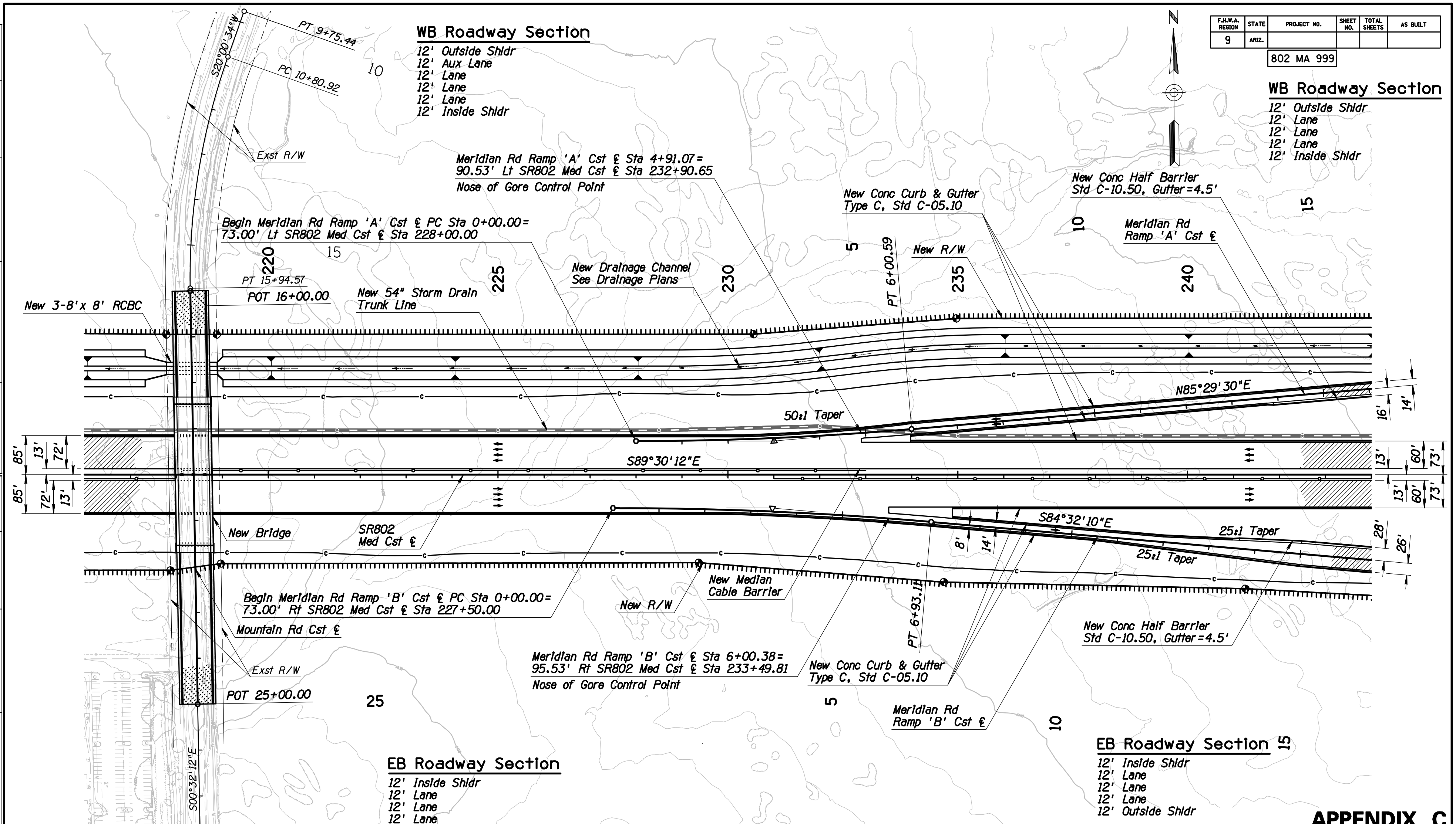

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 216+00 TO STA 244+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-4.29

TRACS NO. H6867 01L | - | ___ OF ___

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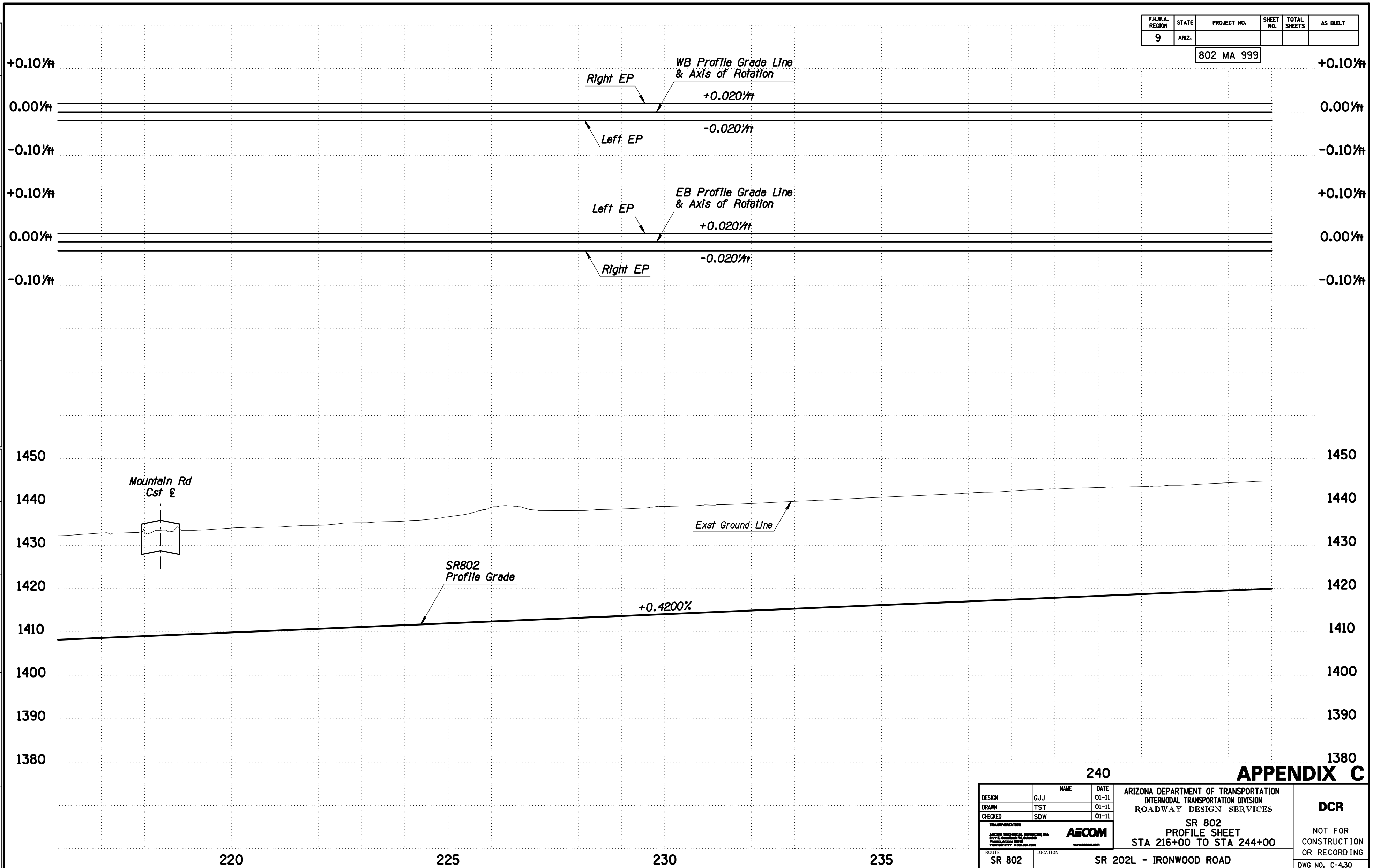

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 216+00 TO STA 244+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. C-4.30

TRACS NO. H6867 01L

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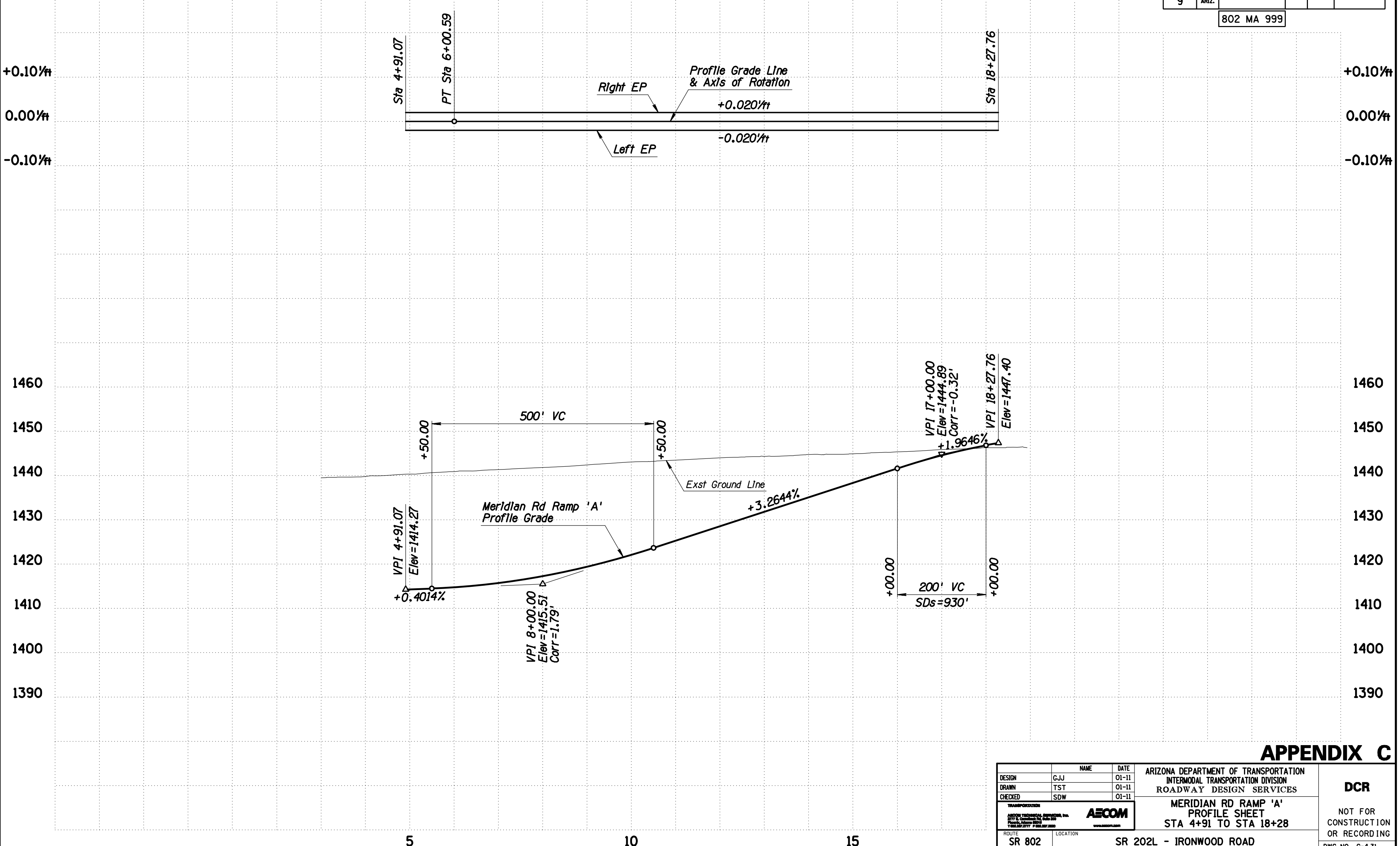
____ OF____

12/20/2010 u:\wg01\prod\civ\h6867v20.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

MERIDIAN RD RAMP 'A'
PROFILE SHEET
STA 4+91 TO STA 18+28

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

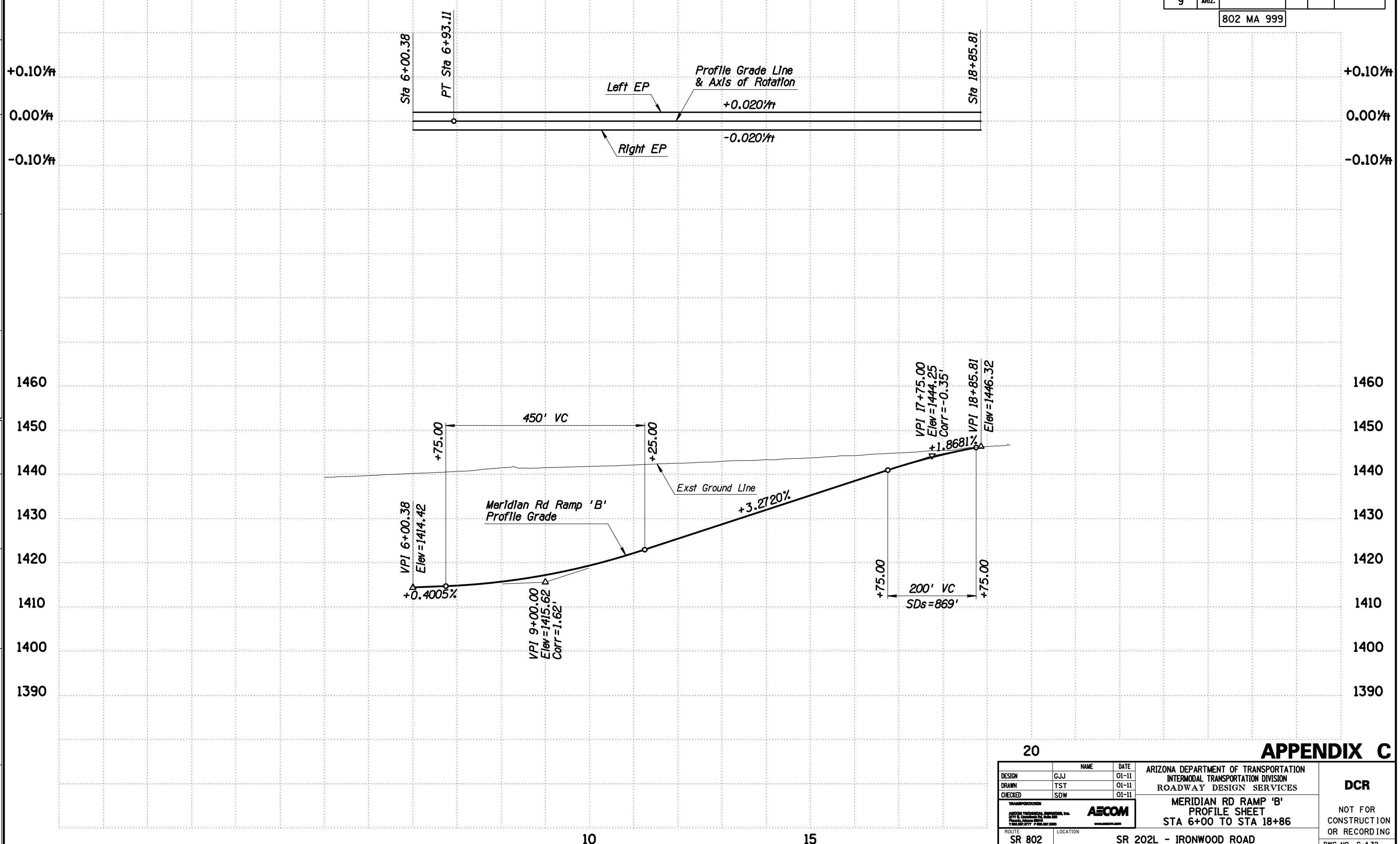
DWG NO. C-4.31

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v63.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

MERIDIAN RD RAMP 'B'
PROFILE SHEET
STA 6+00 TO STA 18+86

DCR

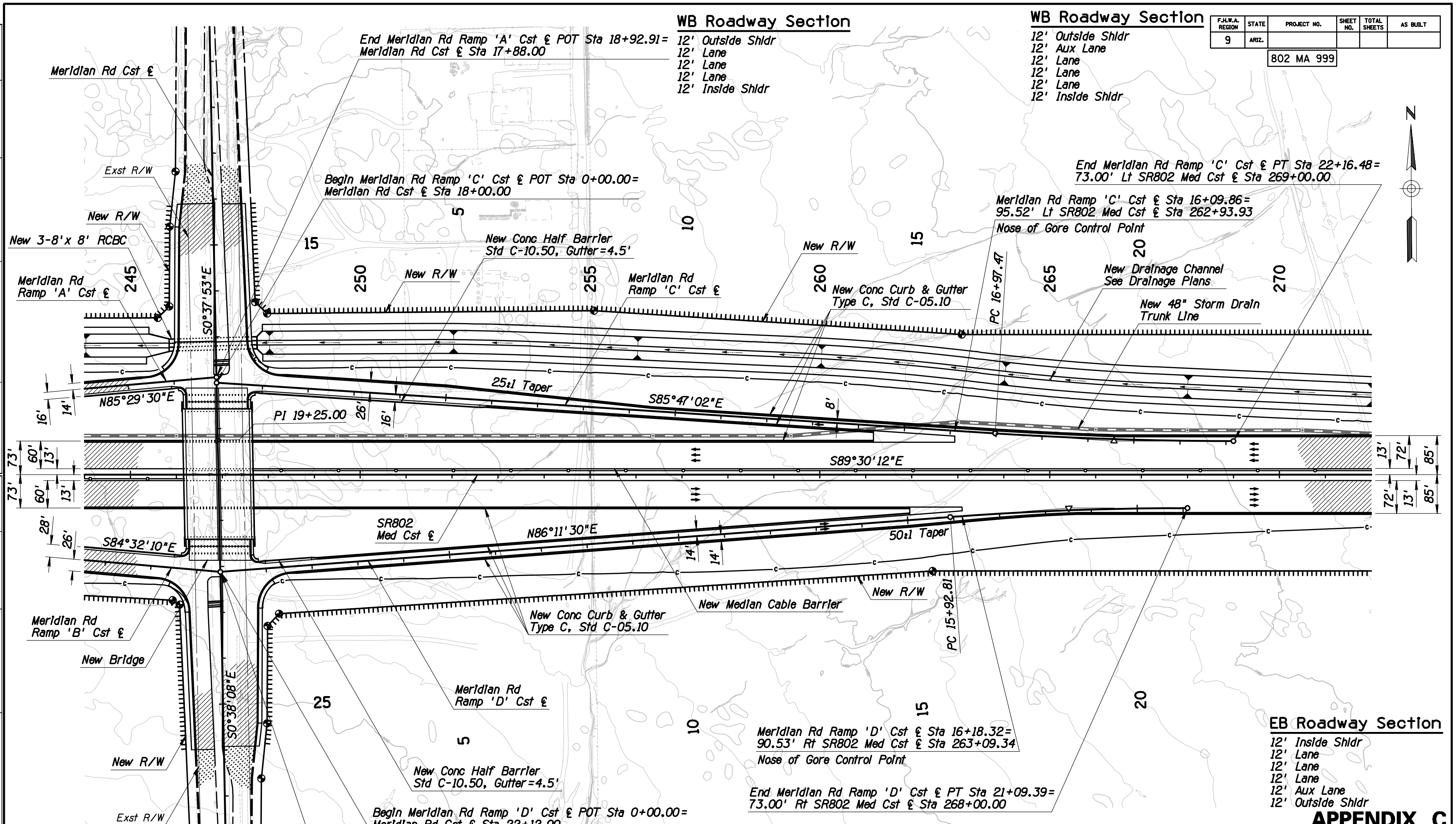
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.32

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v64.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 244+00 TO STA 272+00

DCR

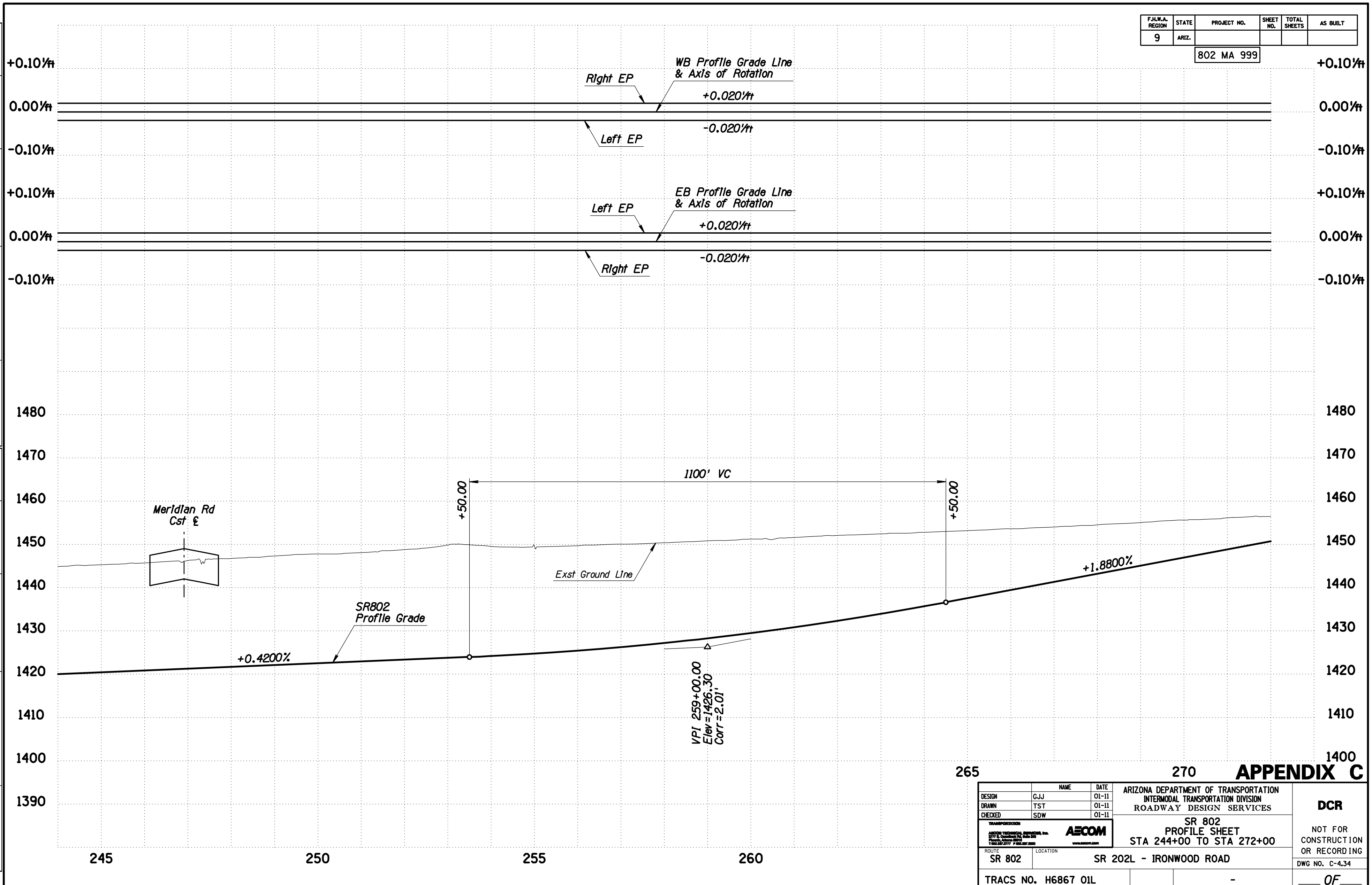
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.33

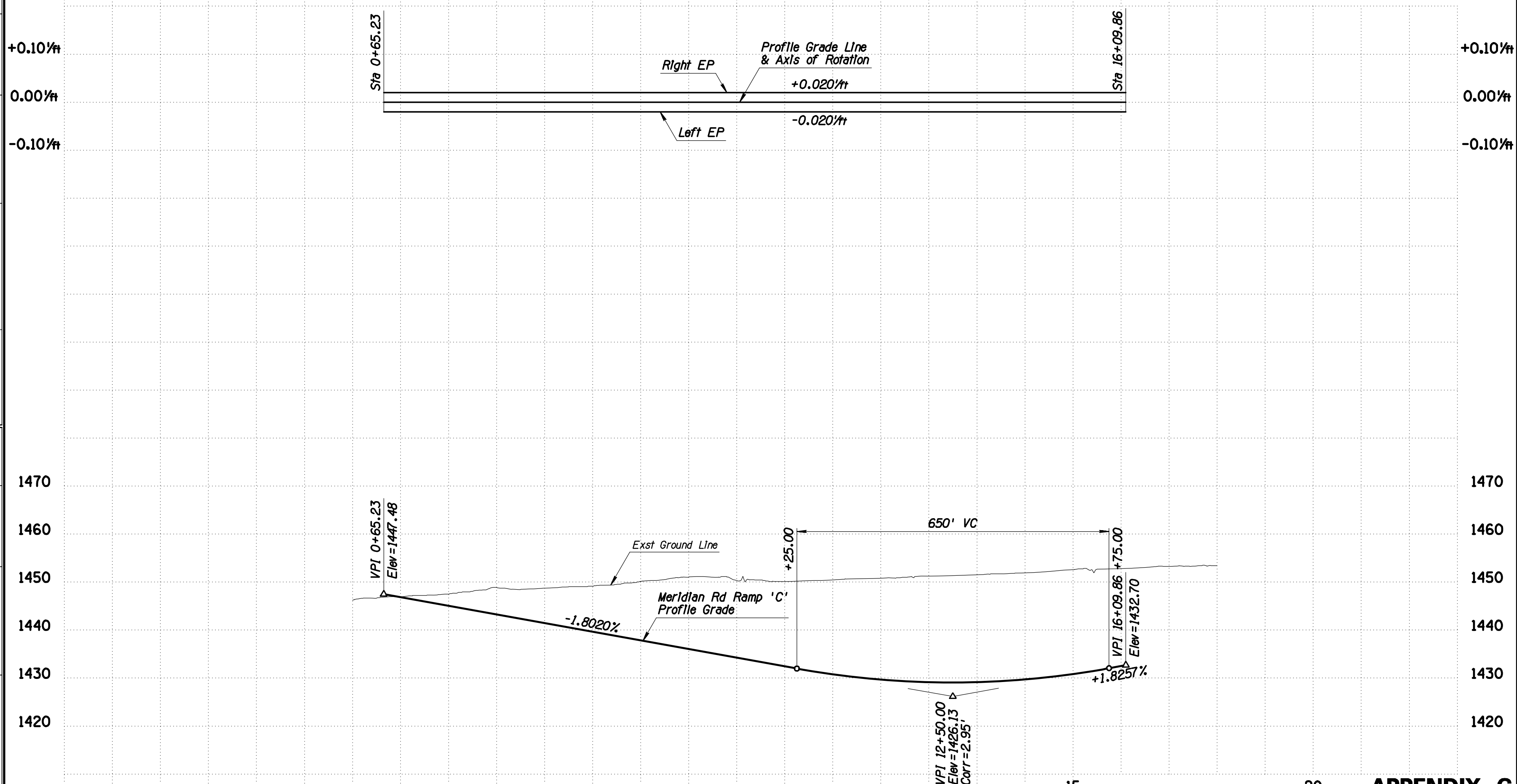
TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p10.dgn


F.H.W.A. REGION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
9
ARIZ.
802 MA 999
+0.10%ft
0.00%ft
-0.10%ft
WB Profile Grade Line
& Axis of Rotation
Right EP
+0.020%ft
-0.020%ft
Left EP
EB Profile Grade Line
& Axis of Rotation
Left EP
+0.020%ft
-0.020%ft
Right EP
1480
1470
1460
1450
1440
1430
1420
1410
1400
1390
1100' VC
+50.00
+50.00
Meridian Rd
Cst ℄
Exst Ground Line
+1.8800%
SR802
Profile Grade
+0.4200%
VPI 259+00.00
Elev=1426.30
Corr=2.01'
245
250
255
260
265
270
APPENDIX C
NAME
DATE
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
SR 802
PROFILE SHEET
STA 244+00 TO STA 272+00
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE
SR 802
LOCATION
SR 202L - IRONWOOD ROAD
DWG NO. C-4.34
TRACS NO. H6867 01L
-
OF
12/20/2010
u:\wg01\prod\civ\h6867v21.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

MERIDIAN RD RAMP 'C'
PROFILE SHEET
STA 0+65 TO STA 16+10

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.35

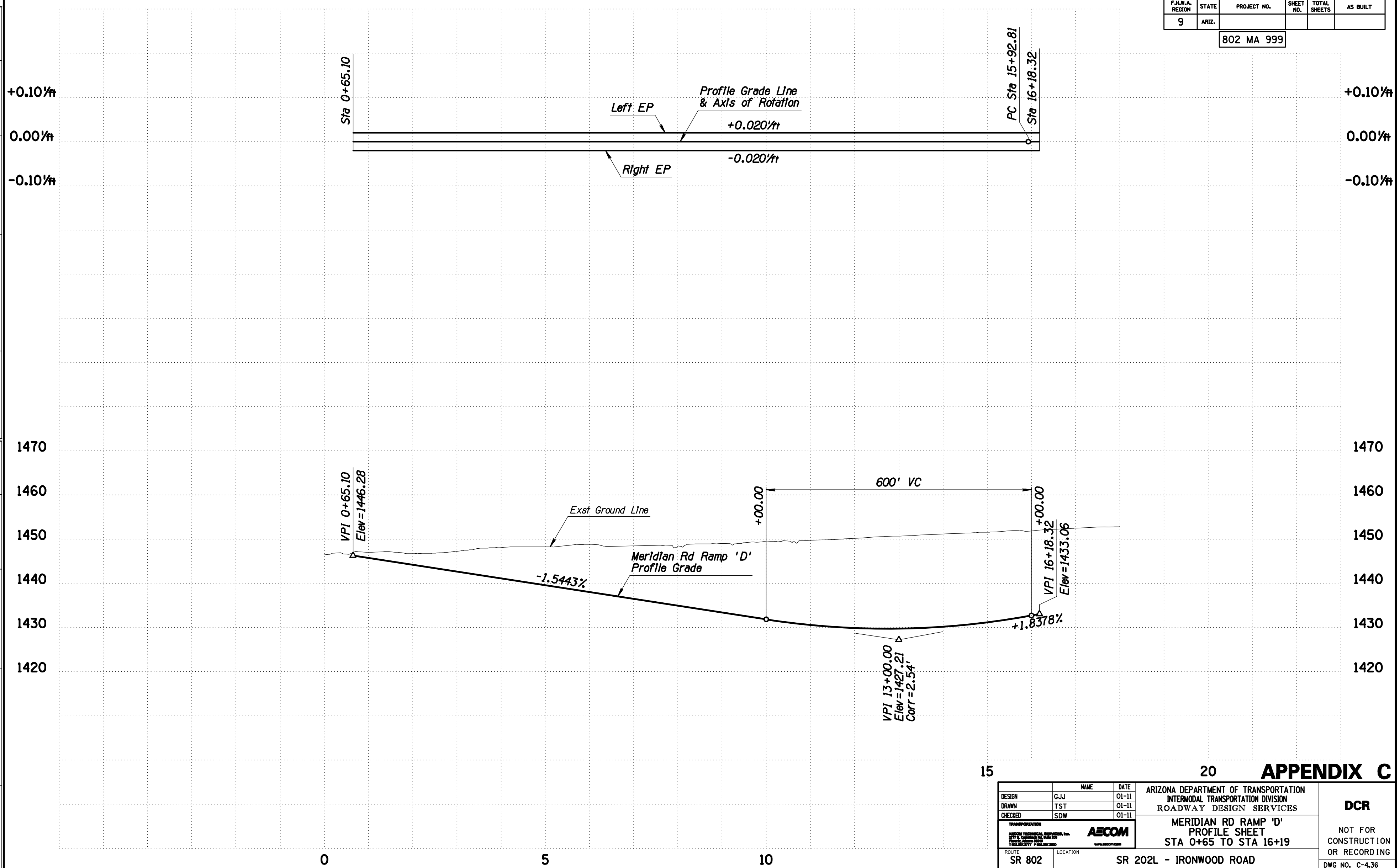
TRACS NO. H6867 01L — -

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v65.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

MERIDIAN RD RAMP 'D'
PROFILE SHEET
STA 0+65 TO STA 16+19

DCR

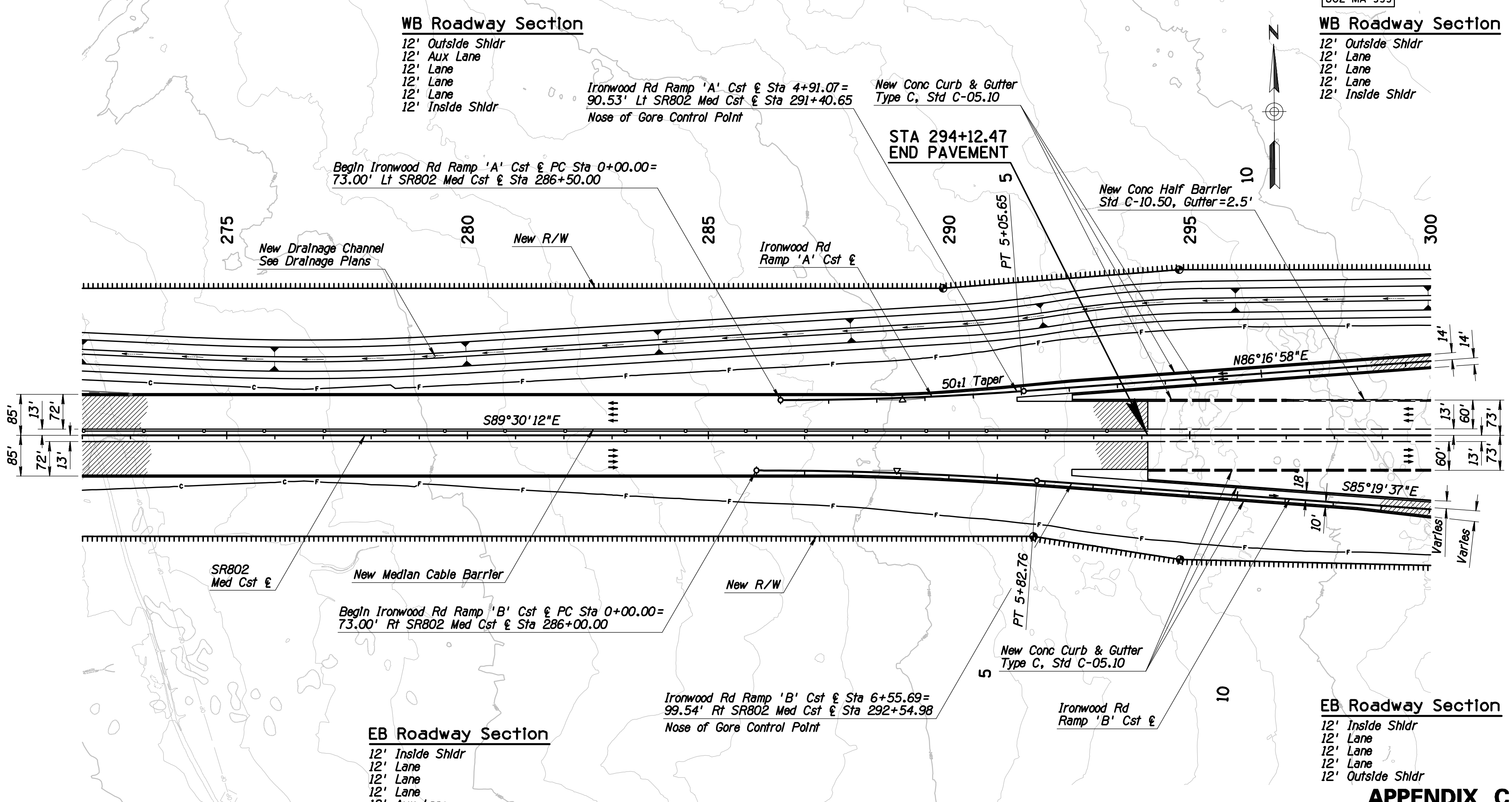
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.36

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v66.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PLAN SHEET
STA 272+00 TO STA 300+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.37

TRACS NO. H6867 01L

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____ OF____

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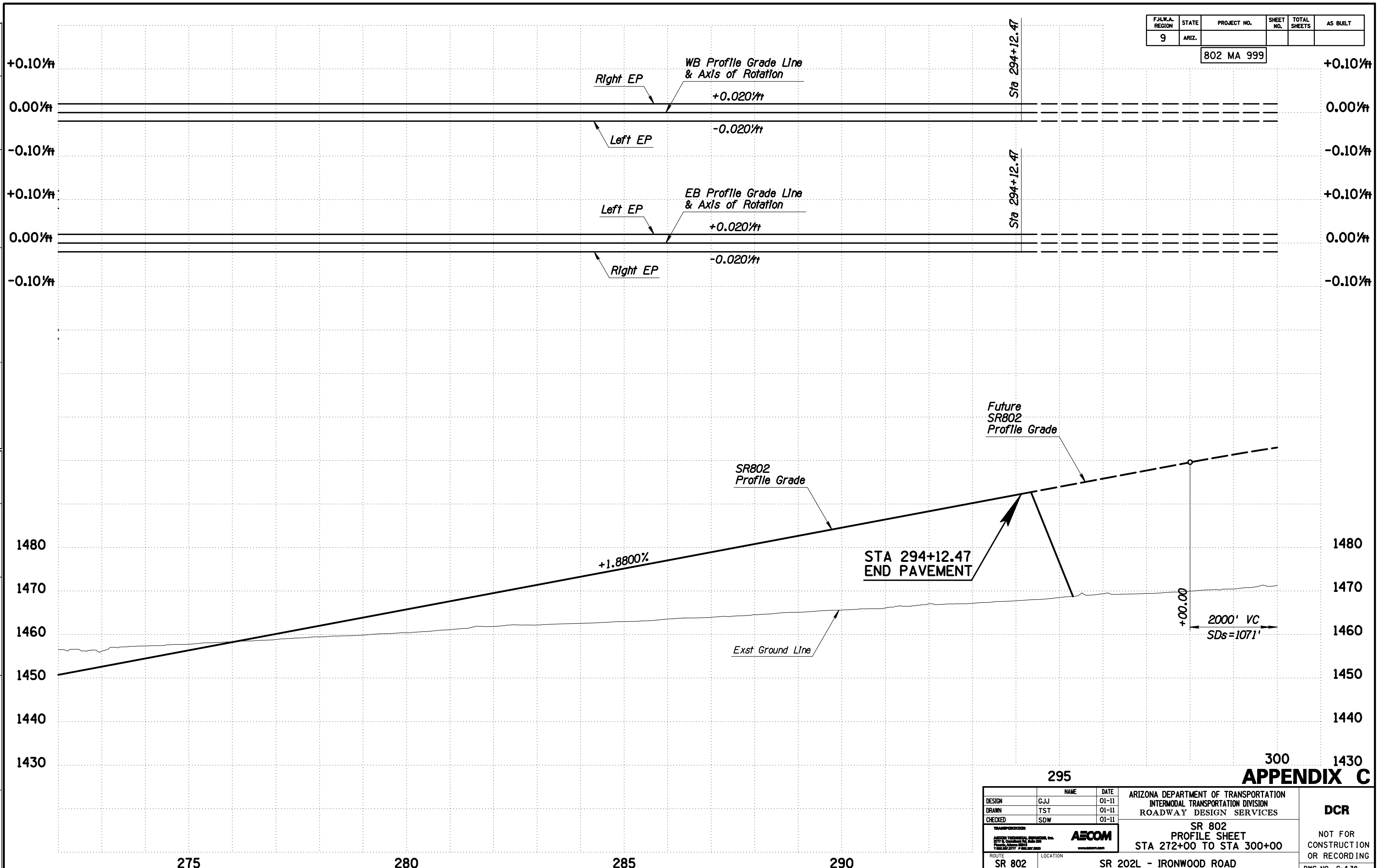


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

SR 802
PROFILE SHEET
STA 272+00 TO STA 300+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

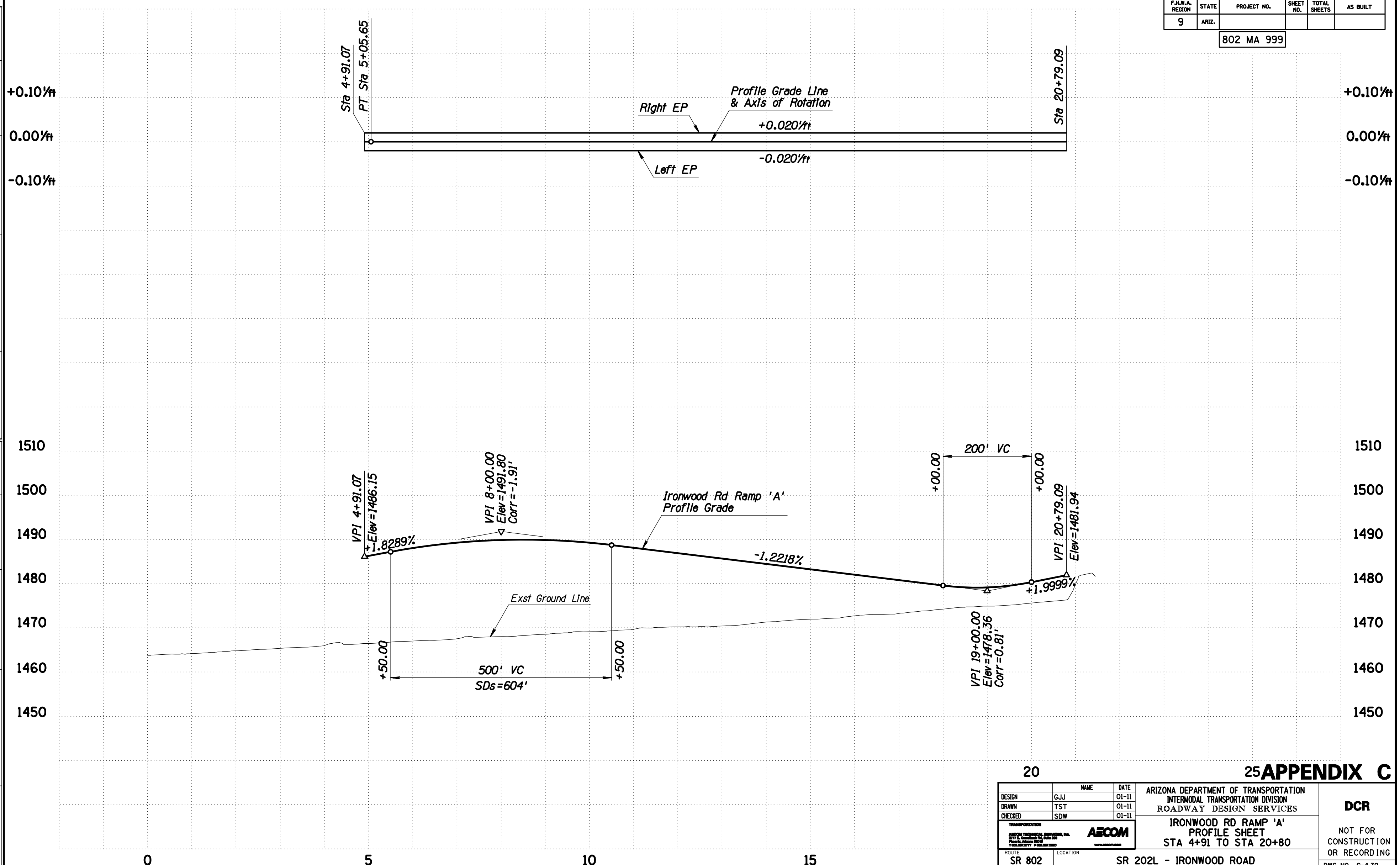
DWG NO. C-4.38

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v22.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



25 **APPENDIX C**

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

IRONWOOD RD RAMP 'A'
PROFILE SHEET
STA 4+91 TO STA 20+80

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

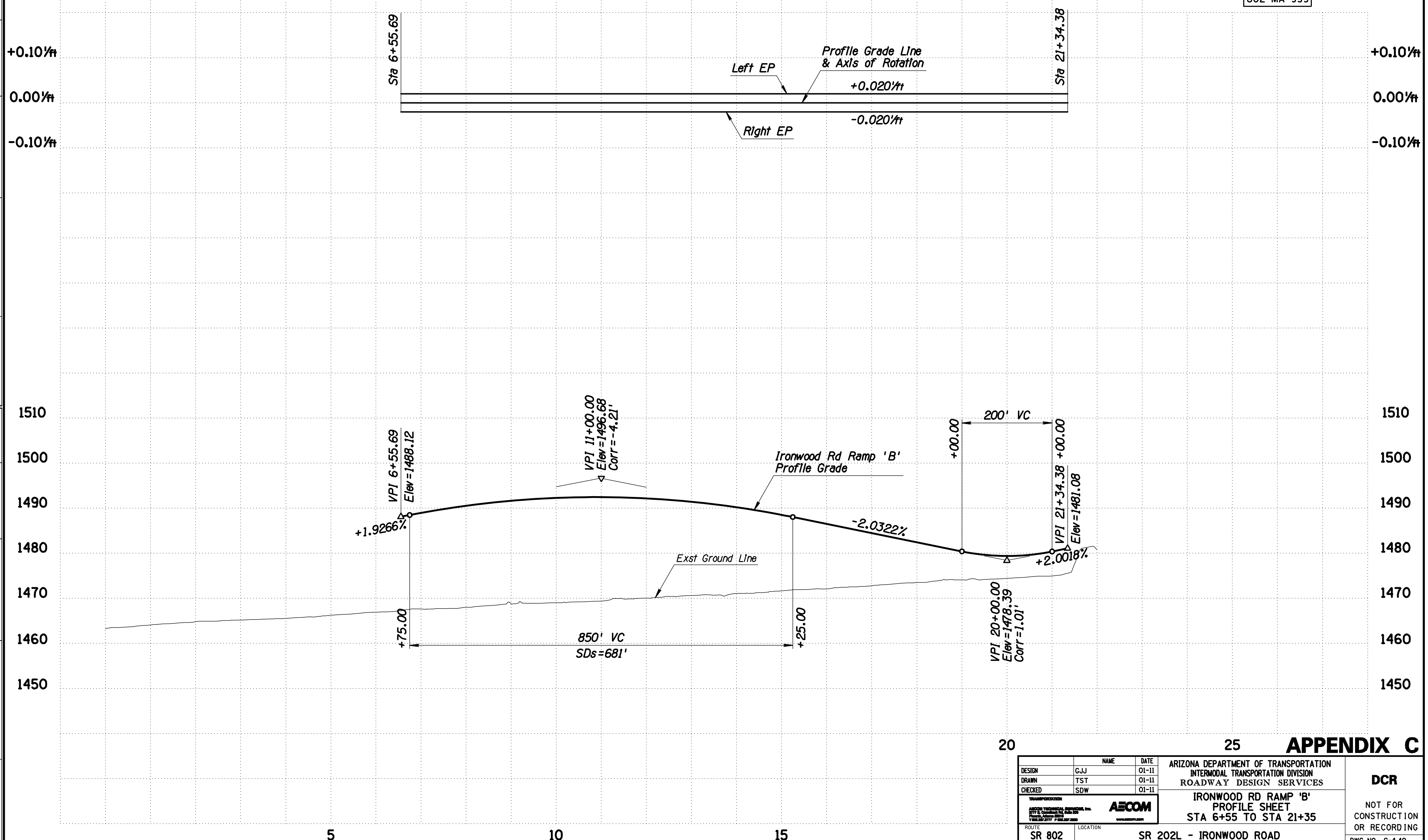
DWG NO. C-4.39

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v67.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

IRONWOOD RD RAMP 'B'
PROFILE SHEET
STA 6+55 TO STA 21+35

DCR

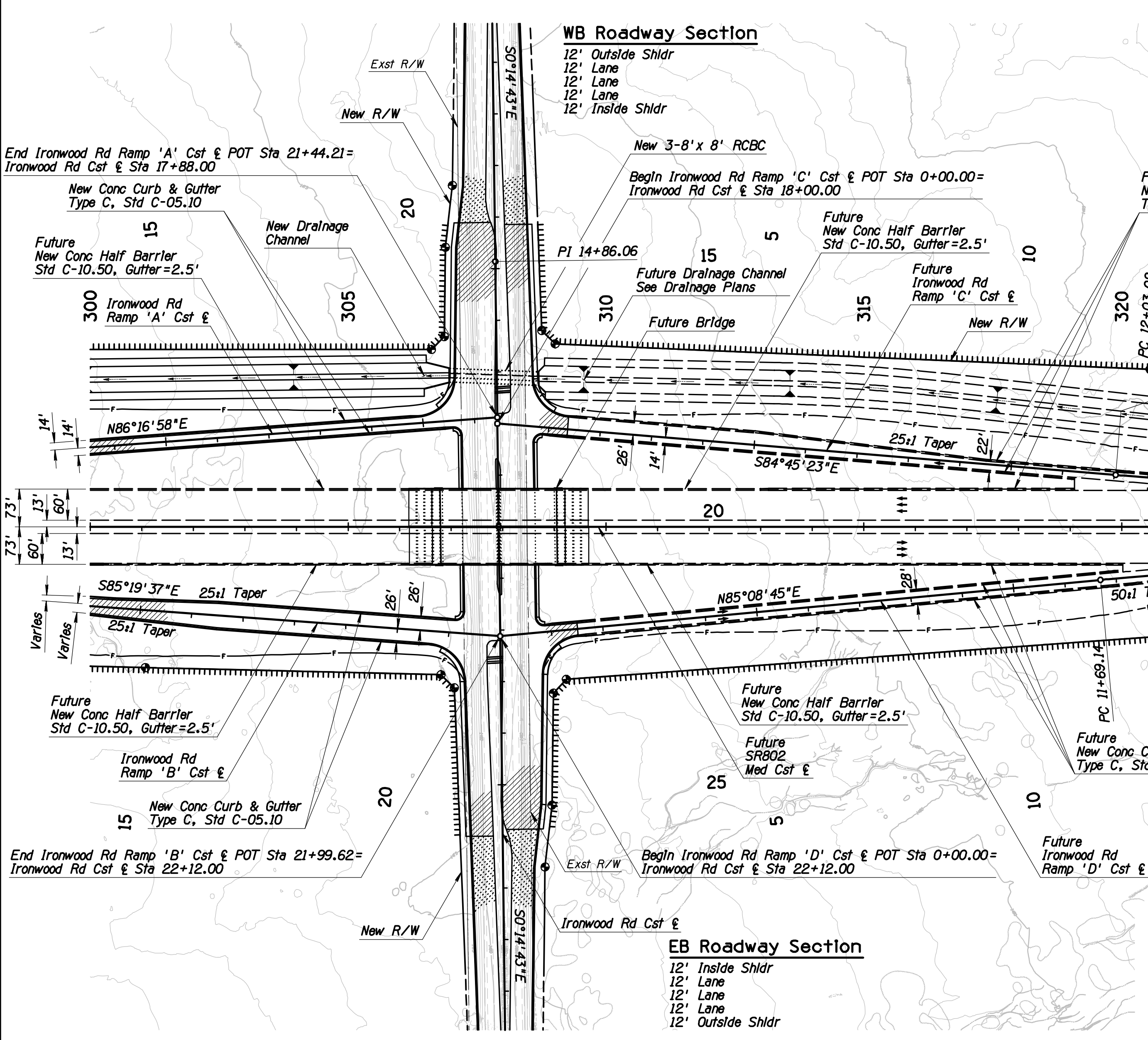
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.40

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v68.dgn



APPENDIX C

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR 802
PLAN SHEET
STA 300+00 TO STA 328+00

DCR

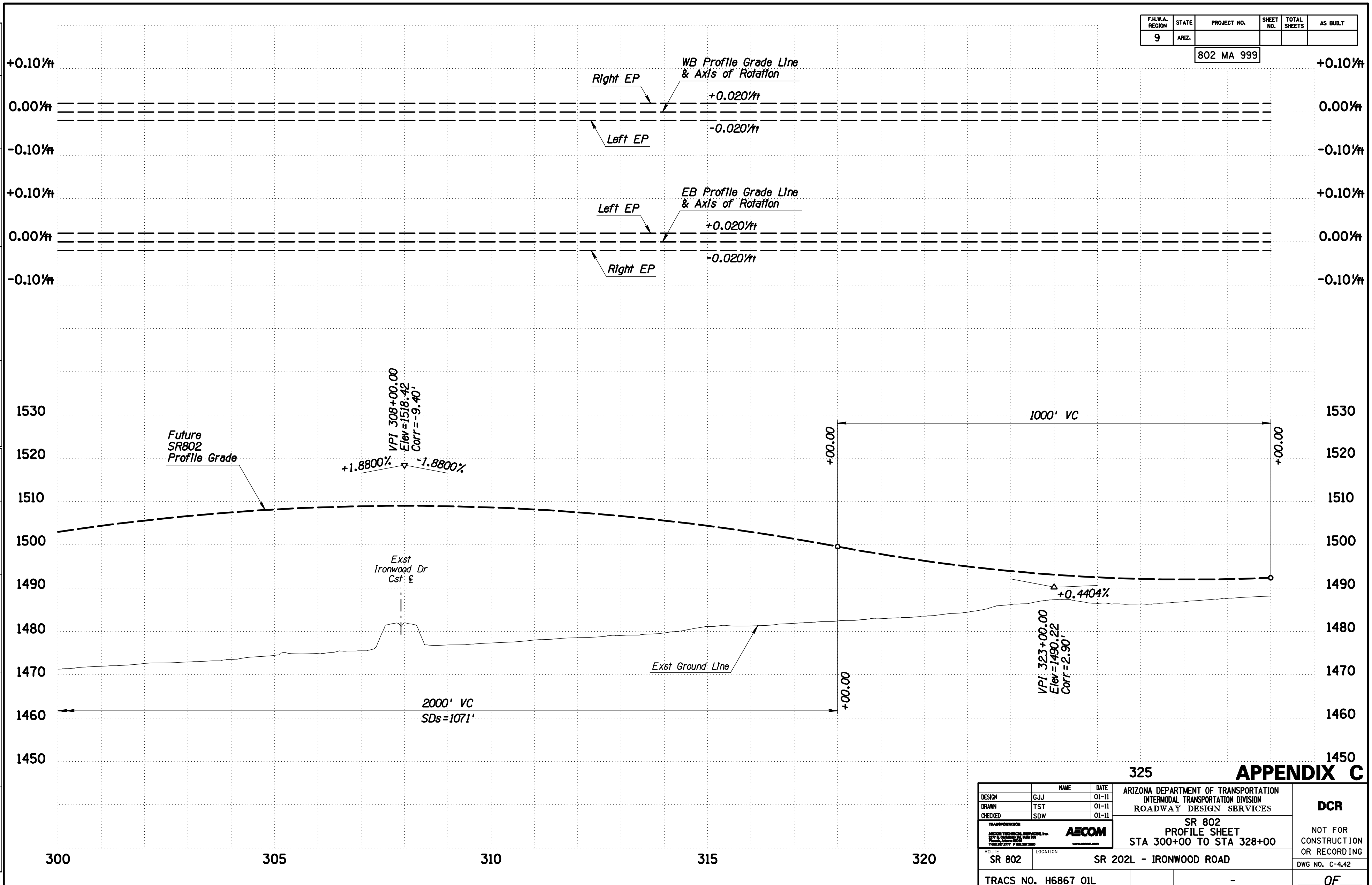
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4.41

TRACS NO. H6867 01L | - | ____ OF ____

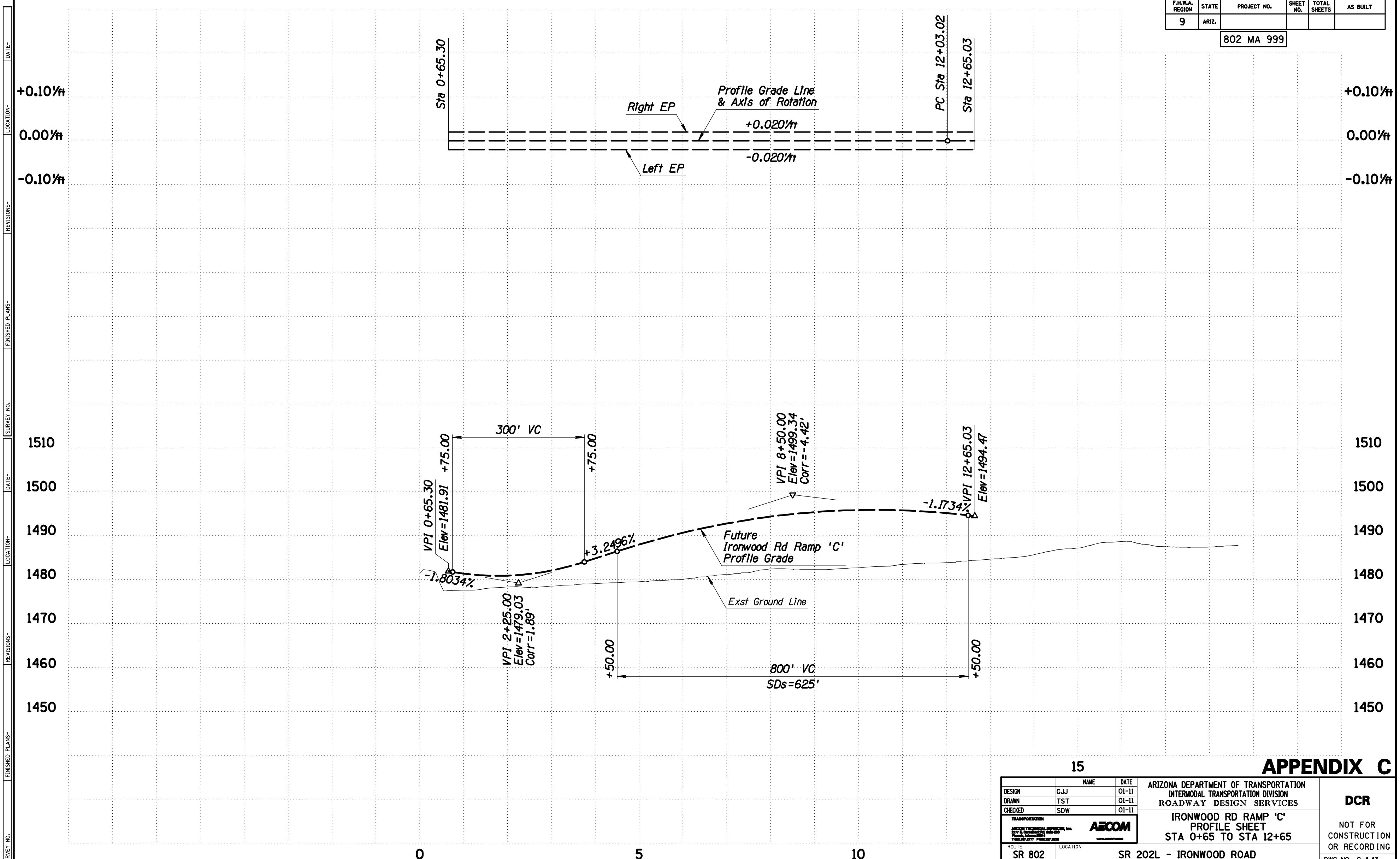
12/20/2010 u:\wg01\prod\civ\h6867p23.dgn



12/20/2010 u:\wg01\prod\civ\h6867v23.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



15

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

IRONWOOD RD RAMP 'C'
PROFILE SHEET
STA 0+65 TO STA 12+65

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

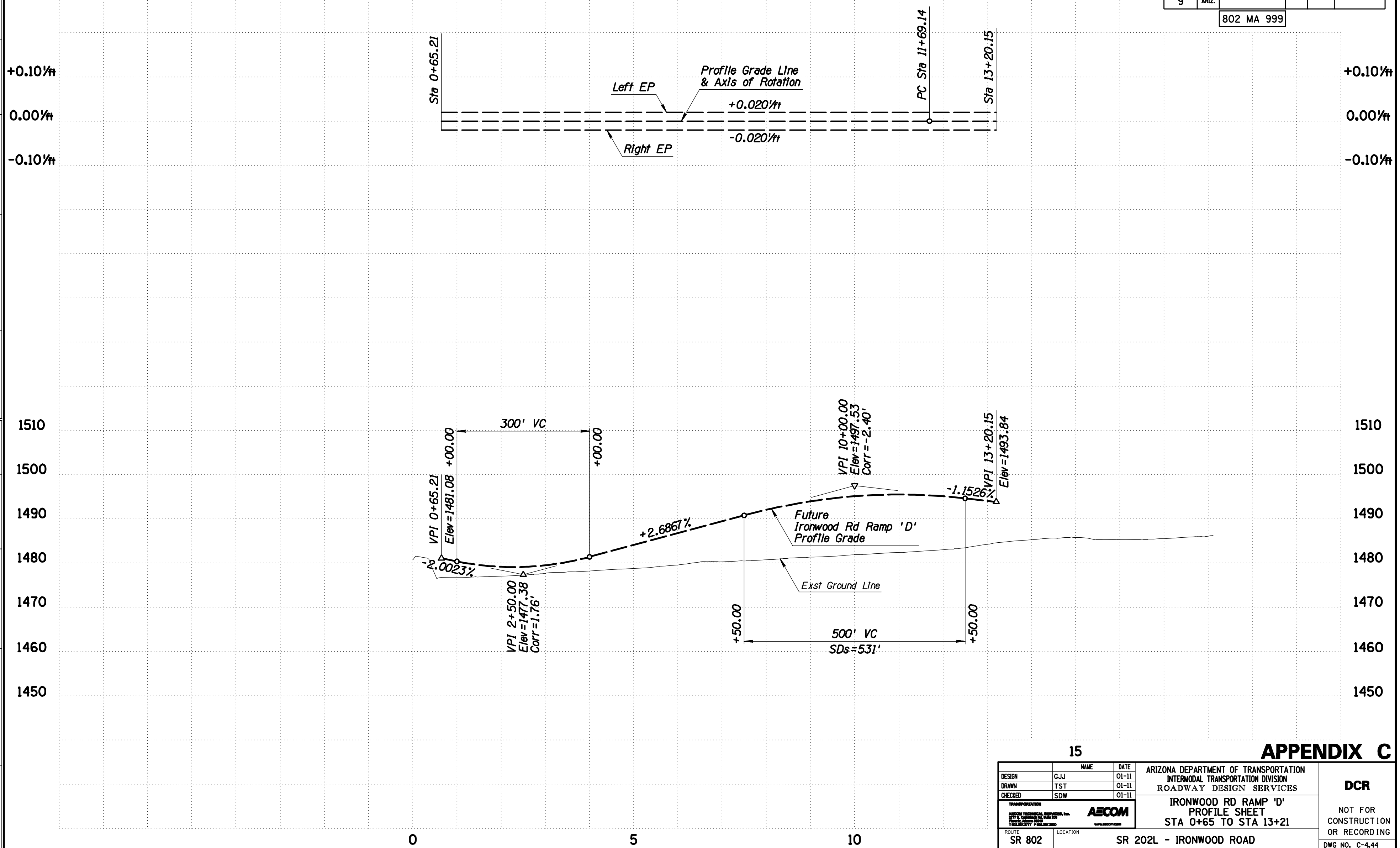
DWG NO. C-4.43

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v69.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



15

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

IRONWOOD RD RAMP 'D'
PROFILE SHEET
STA 0+65 TO STA 13+21

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

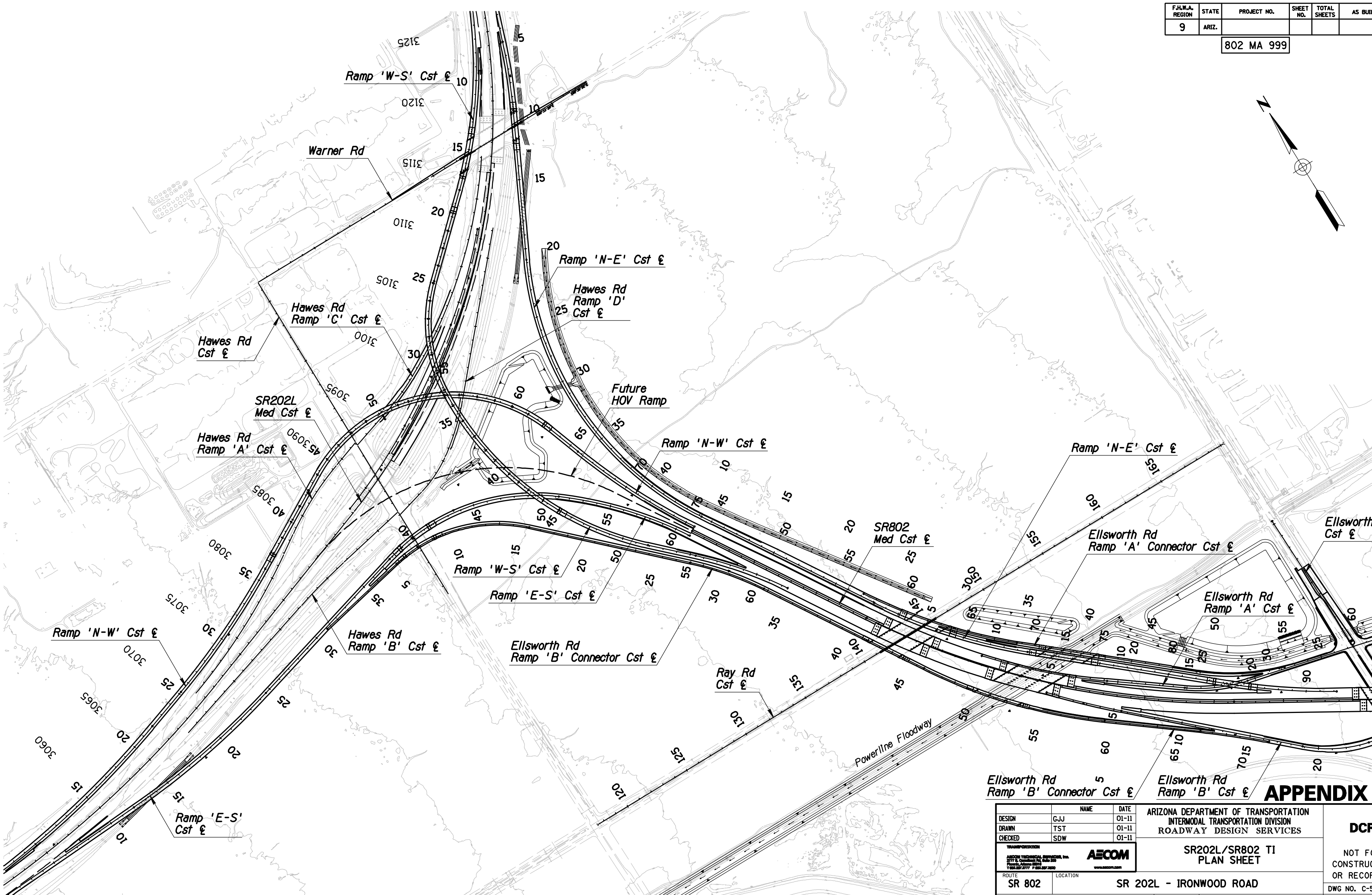
DWG NO. C-4.44

TRACS NO. H6867 01L | - | ___ OF___

12/20/2010 u:\wg01\prod\civ\h6867v70.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SR202L/SR802 TI
PLAN SHEET

DCR

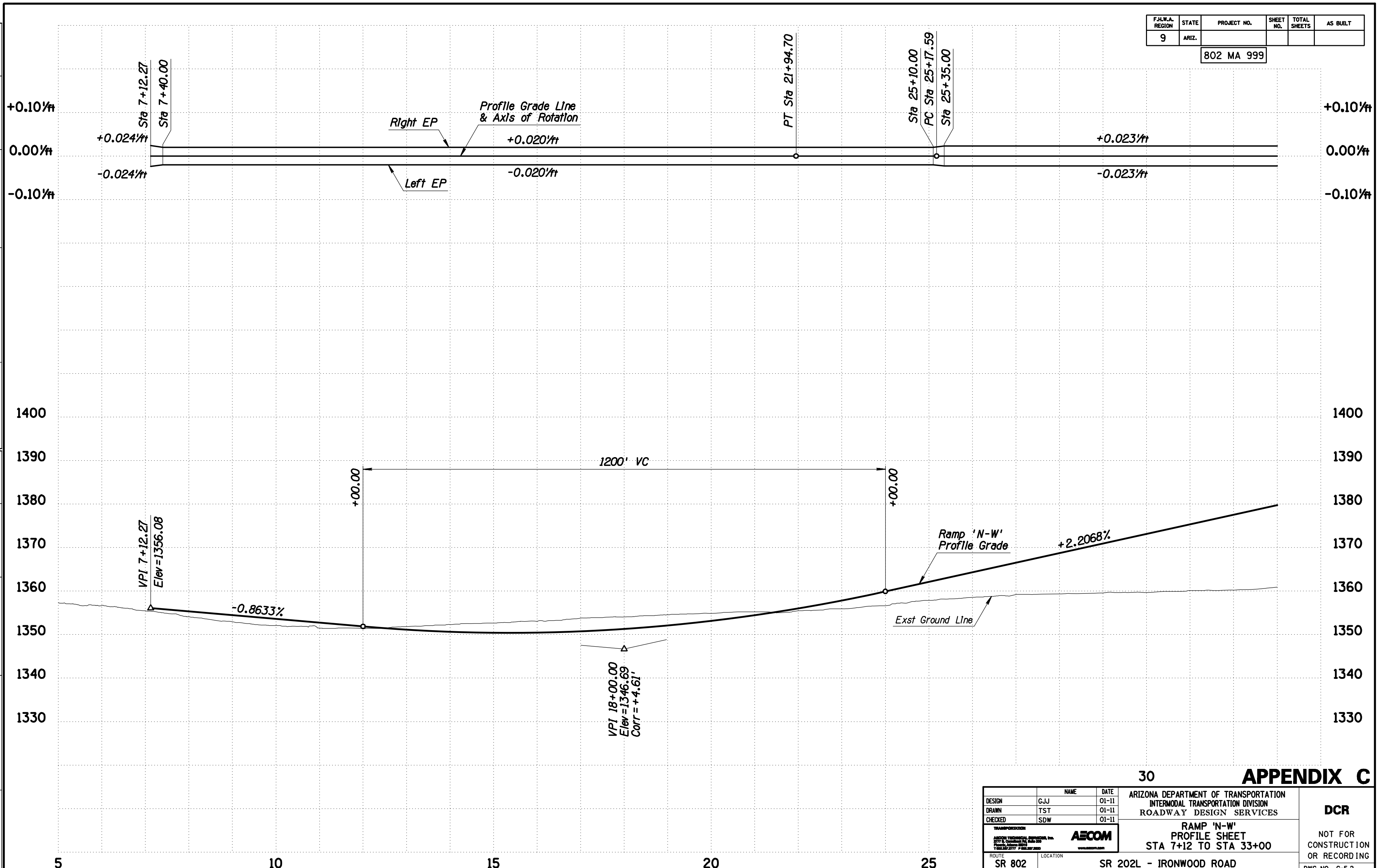
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.1

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p35.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

30

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'N-W'
PROFILE SHEET
STA 7+12 TO STA 33+00

DCR

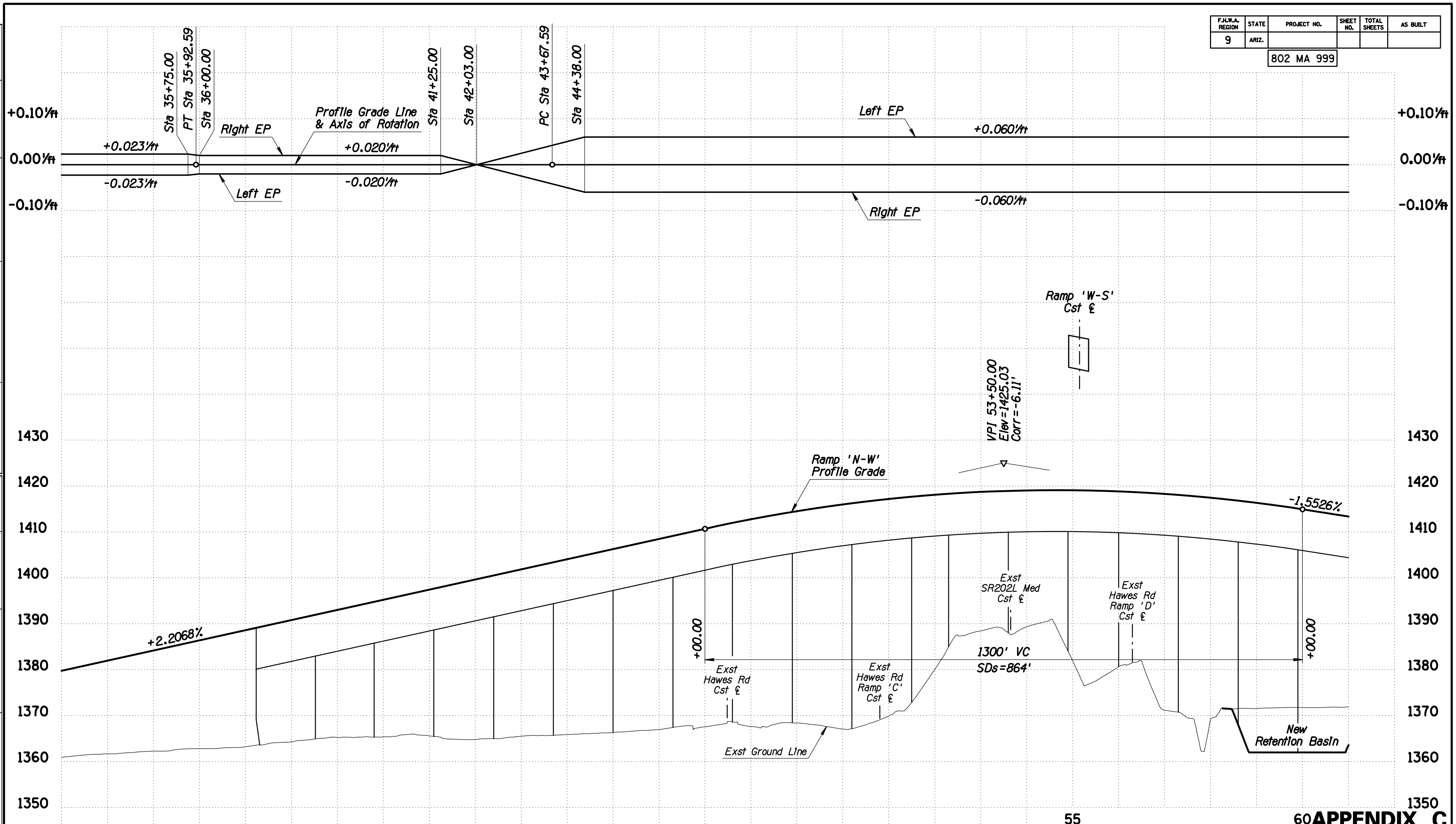
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.2

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v25.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'N-W'
PROFILE SHEET
STA 33+00 TO STA 61+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

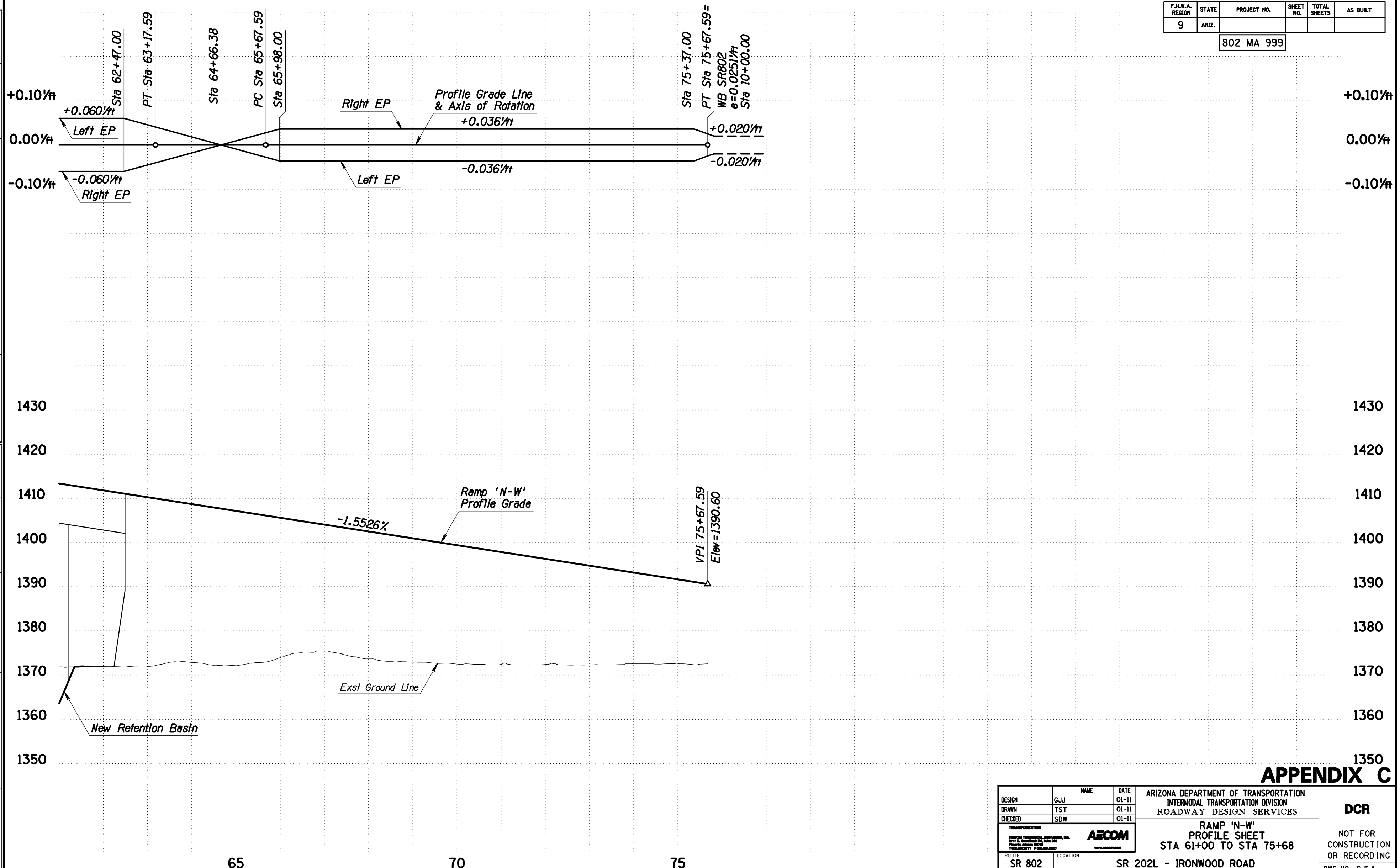
DWG NO. C-5.3

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v26.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'N-W'
PROFILE SHEET
STA 61+00 TO STA 75+68

DCR

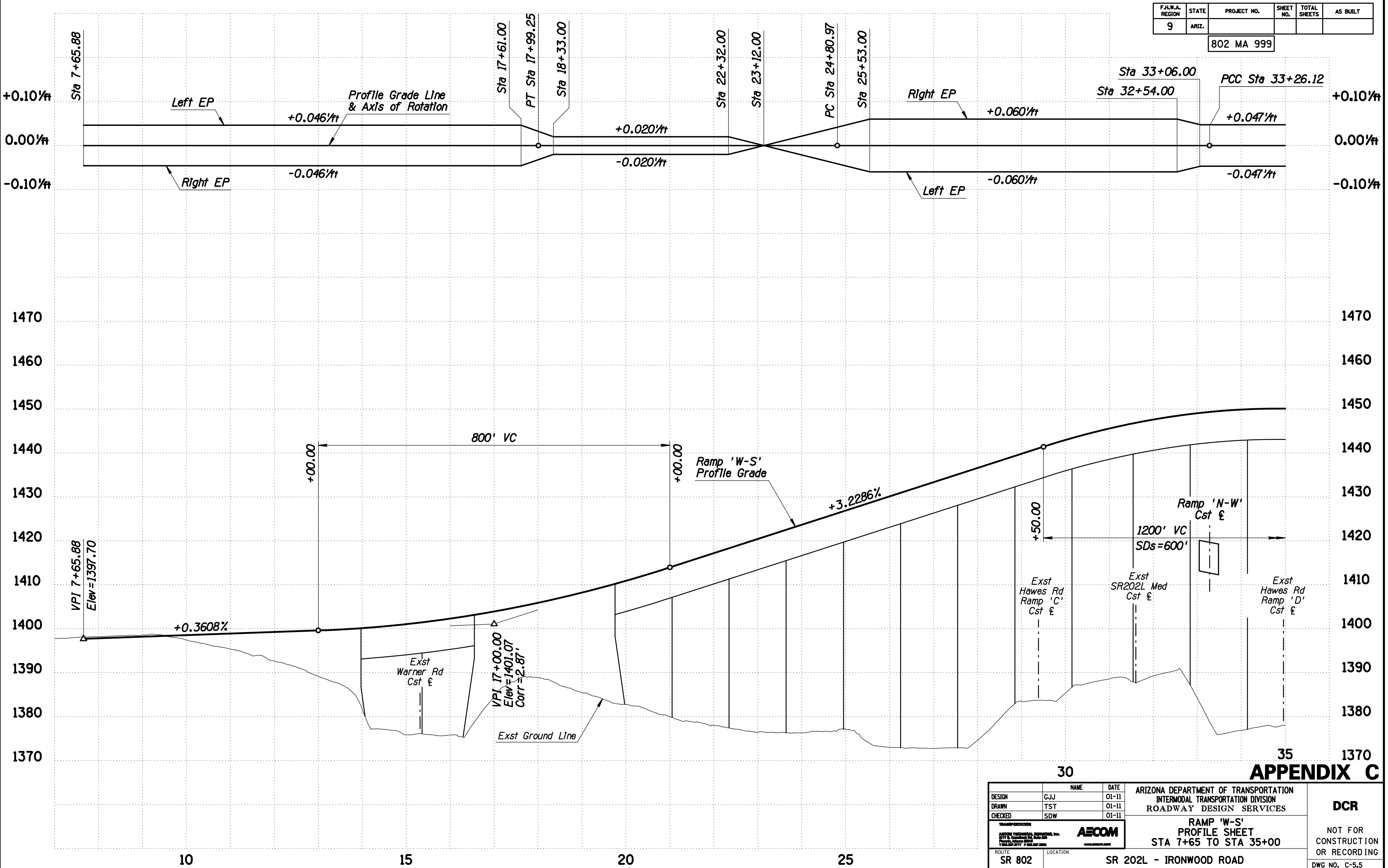
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.4

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v27.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'W-S'
PROFILE SHEET
STA 7+65 TO STA 35+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

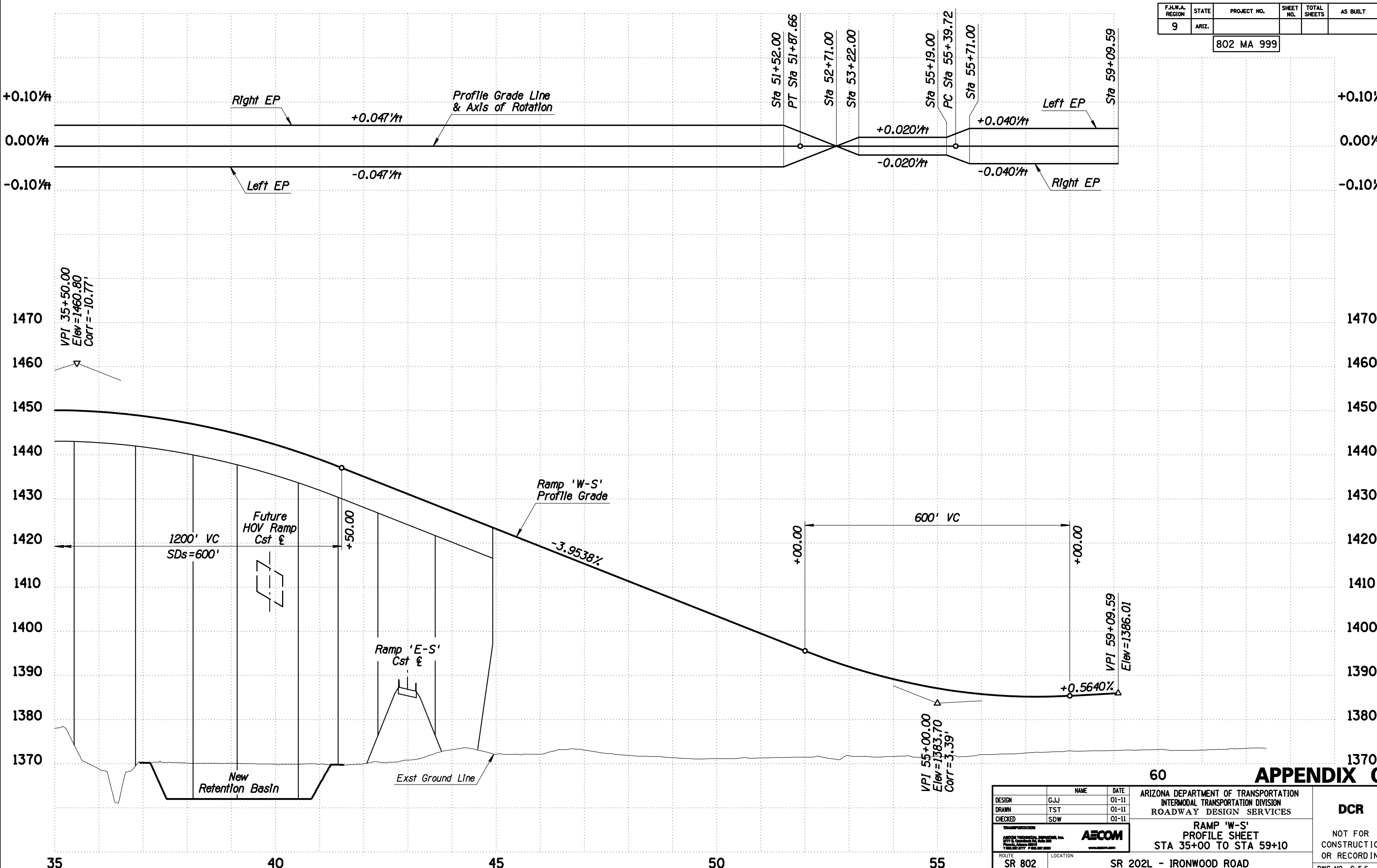
DWG NO. C-5.5

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v28.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'W-S'
PROFILE SHEET
STA 35+00 TO STA 59+10

DCR

NOT FOR CONSTRUCTION OR RECORDING

AECOM

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

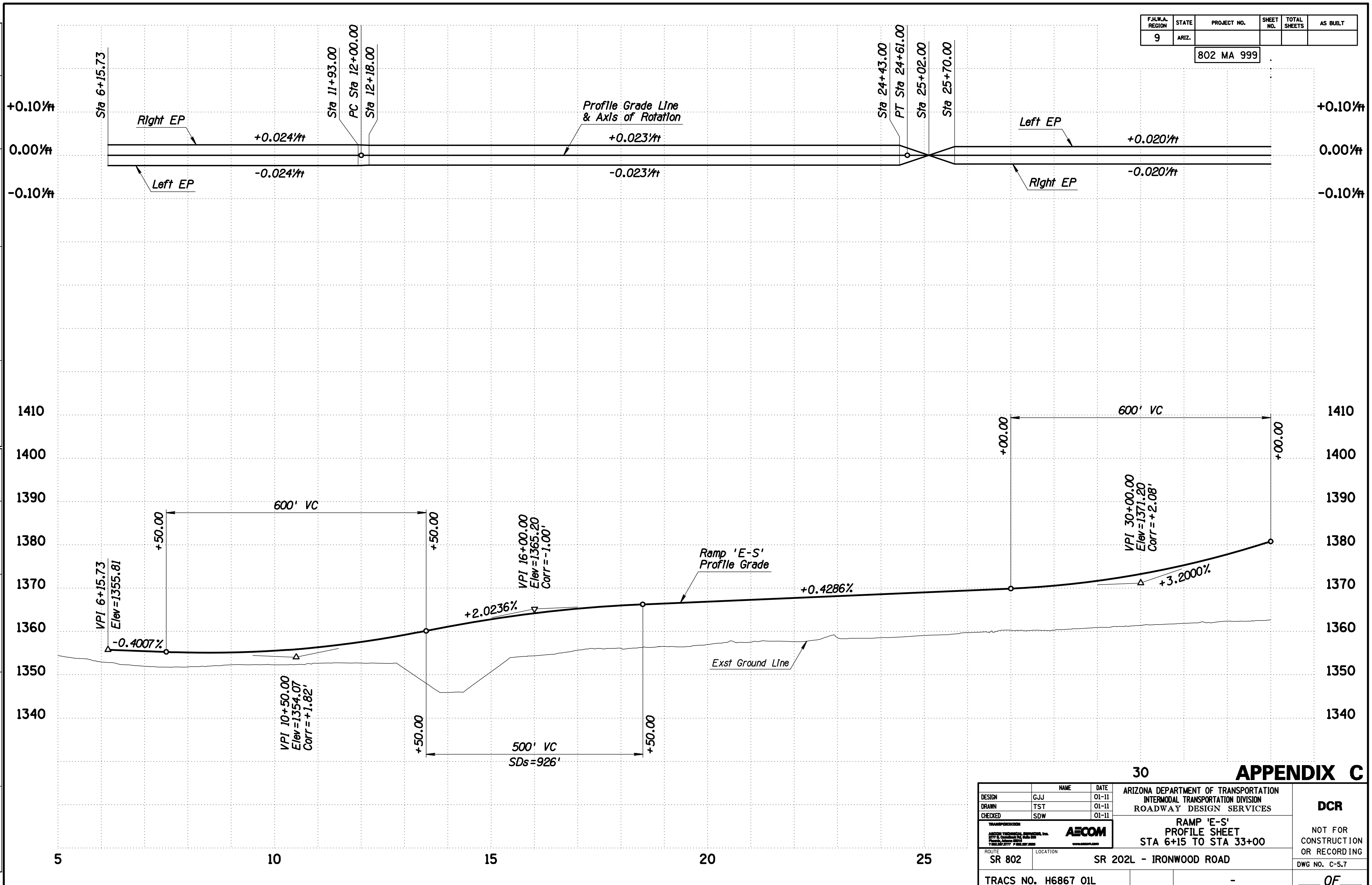
DWG NO. C-5.6

TRACS NO. H6867 01L

-

___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v29.dgn



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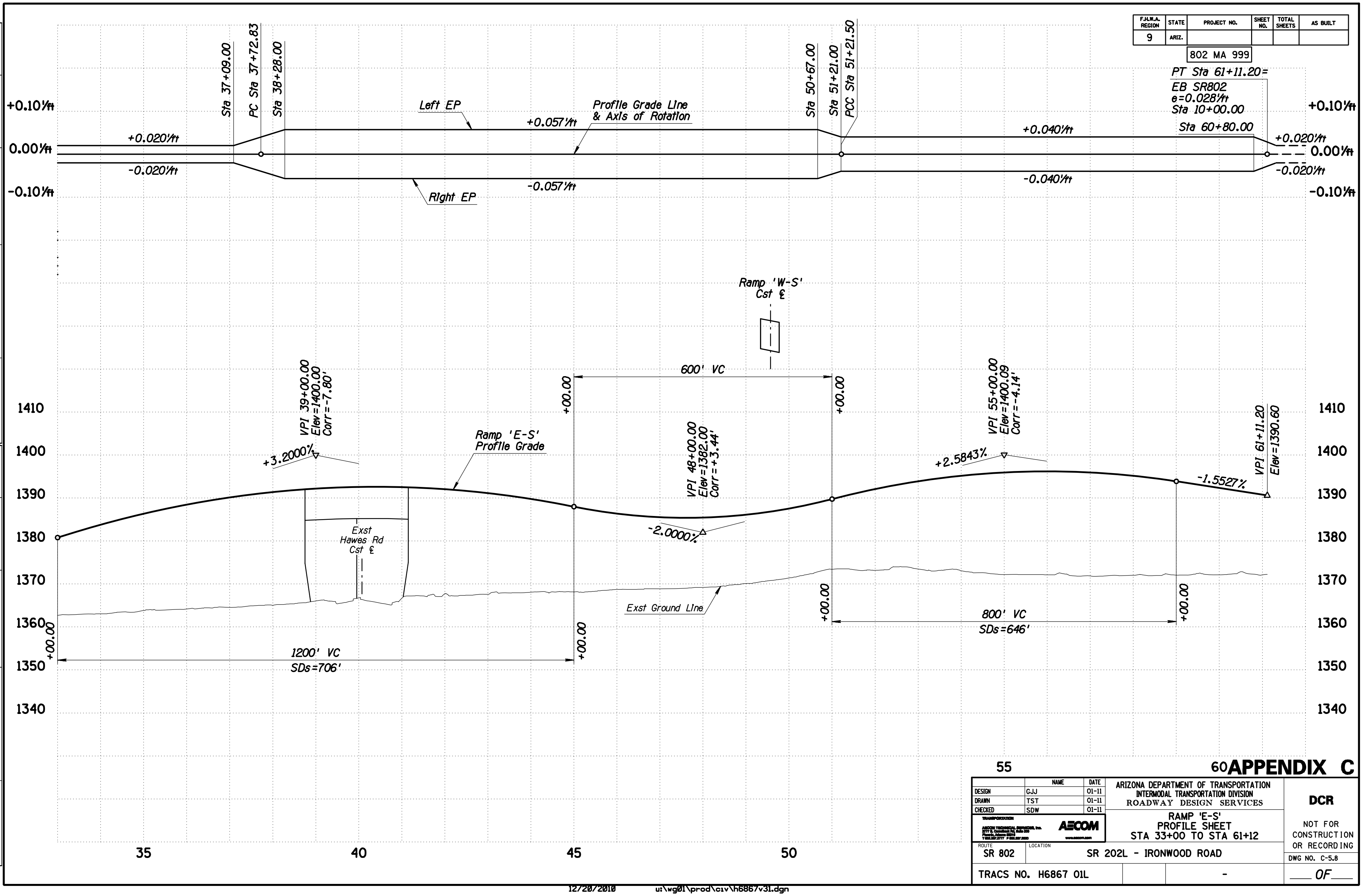
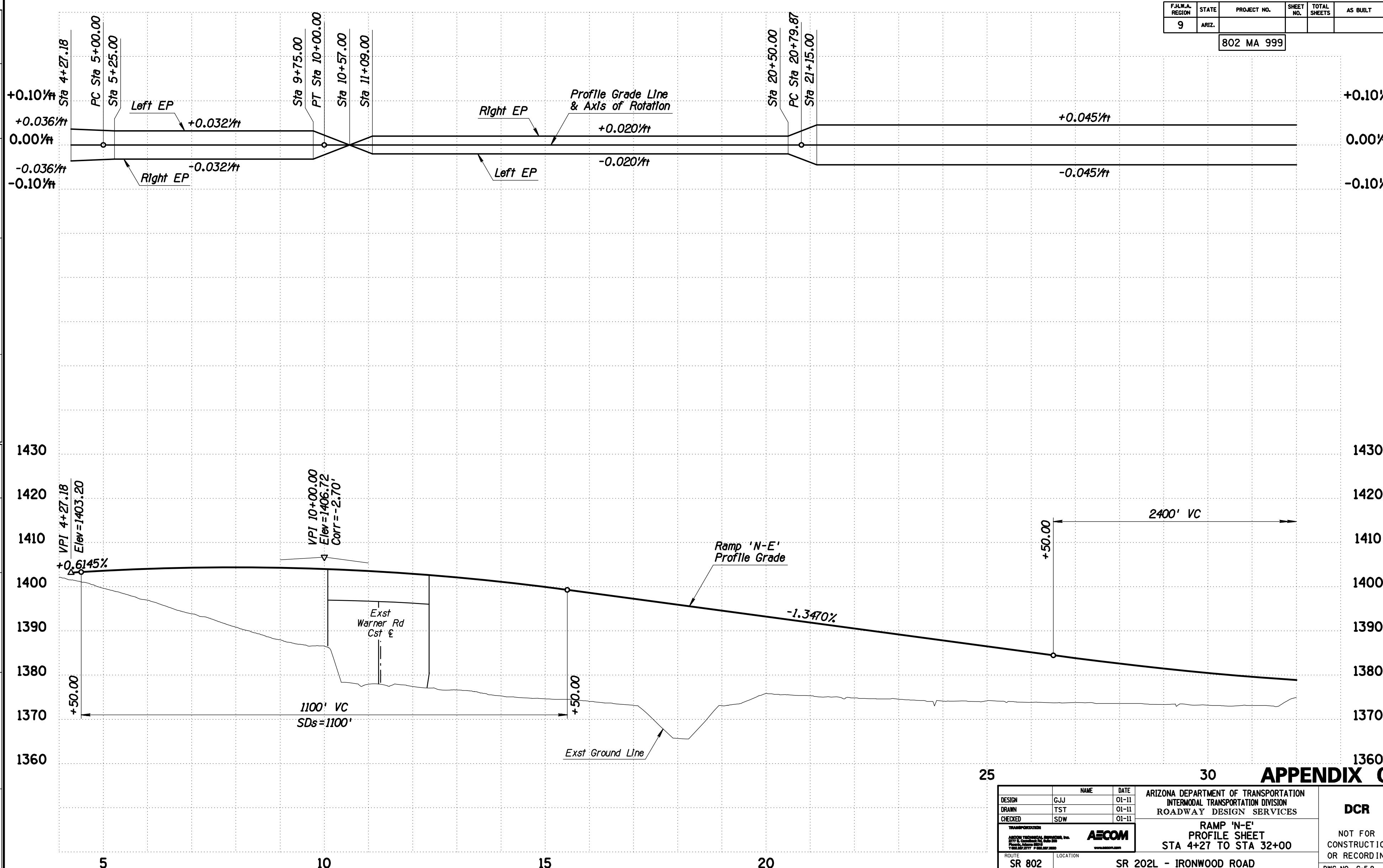

F.H.W.A. REGION 9
STATE ARIZ.
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
802 MA 999
+0.10'/ft
0.00'/ft
-0.10'/ft
+0.020'/ft
-0.020'/ft
Sta 37+09.00
PC Sta 37+72.83
Sta 38+28.00
Left EP
Profile Grade Line & Axis of Rotation
+0.057'/ft
-0.057'/ft
Right EP
Sta 50+67.00
Sta 51+21.00
PCC Sta 51+21.50
+0.040'/ft
-0.040'/ft
PT Sta 61+11.20= EB SR802 e=0.028'/ft Sta 10+00.00
Sta 60+80.00
Ramp 'W-S' Cst ℄
600' VC
VPI 39+00.00 Elev=1400.00 Corr=-7.80'
+3.2000%
Ramp 'E-S' Profile Grade
VPI 48+00.00 Elev=1382.00 Corr=+3.44'
-2.0000%
VPI 55+00.00 Elev=1400.09 Corr=-4.14'
+2.5843%
-1.5527%
VPI 61+11.20 Elev=1390.60
Exst Hawes Rd Cst ℄
Exst Ground Line
1200' VC
SDs=706'
800' VC
SDs=646'
+00.00
1410
1400
1390
1380
1370
1360
1350
1340
35
40
45
50
55
DESIGN GJJ 01-11
DRAWN TST 01-11
CHECKED SDW 01-11
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
RAMP 'E-S'
PROFILE SHEET
STA 33+00 TO STA 61+12
DCR
NOT FOR CONSTRUCTION OR RECORDING
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. C-5.8
TRACS NO. H6867 01L
-
OF
12/20/2010
u:\wg01\prod\civ\h6867v31.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'N-E'
PROFILE SHEET
STA 4+27 TO STA 32+00

DCR

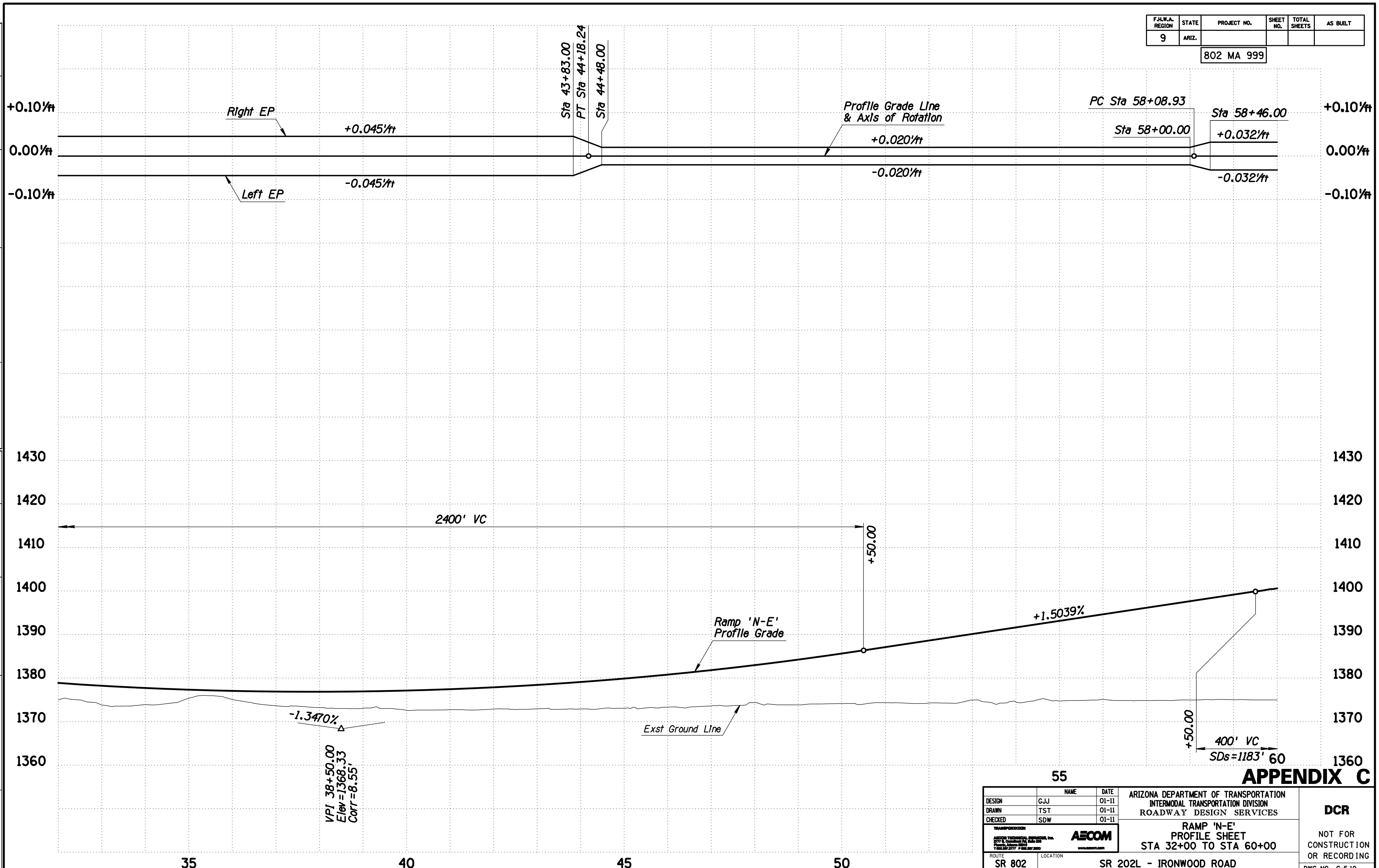
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.9

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v32.dgn



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

RAMP 'N-E'
PROFILE SHEET
STA 32+00 TO STA 60+00

DCR

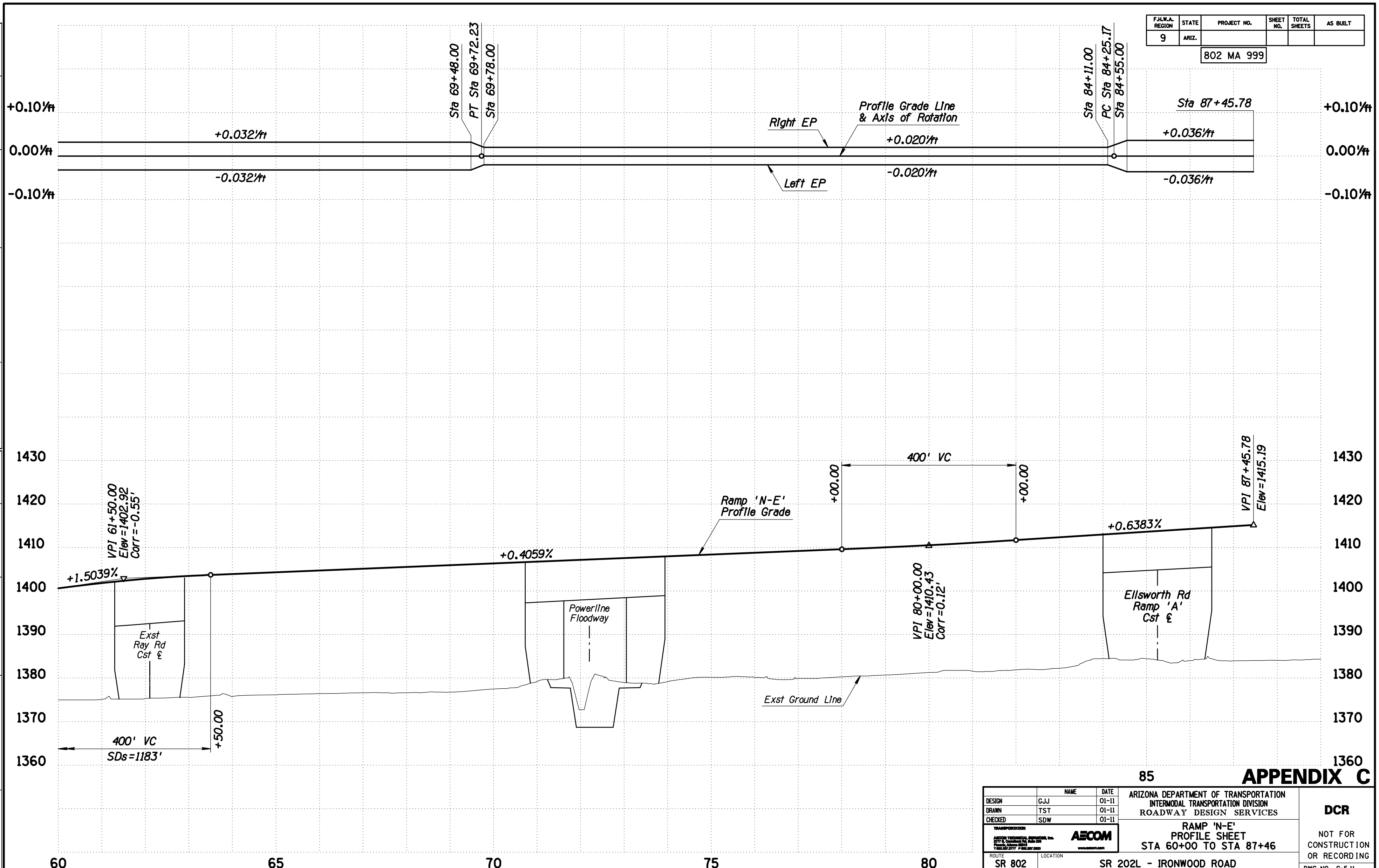
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.10

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v33.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAMP 'N-E'
PROFILE SHEET
STA 60+00 TO STA 87+46

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

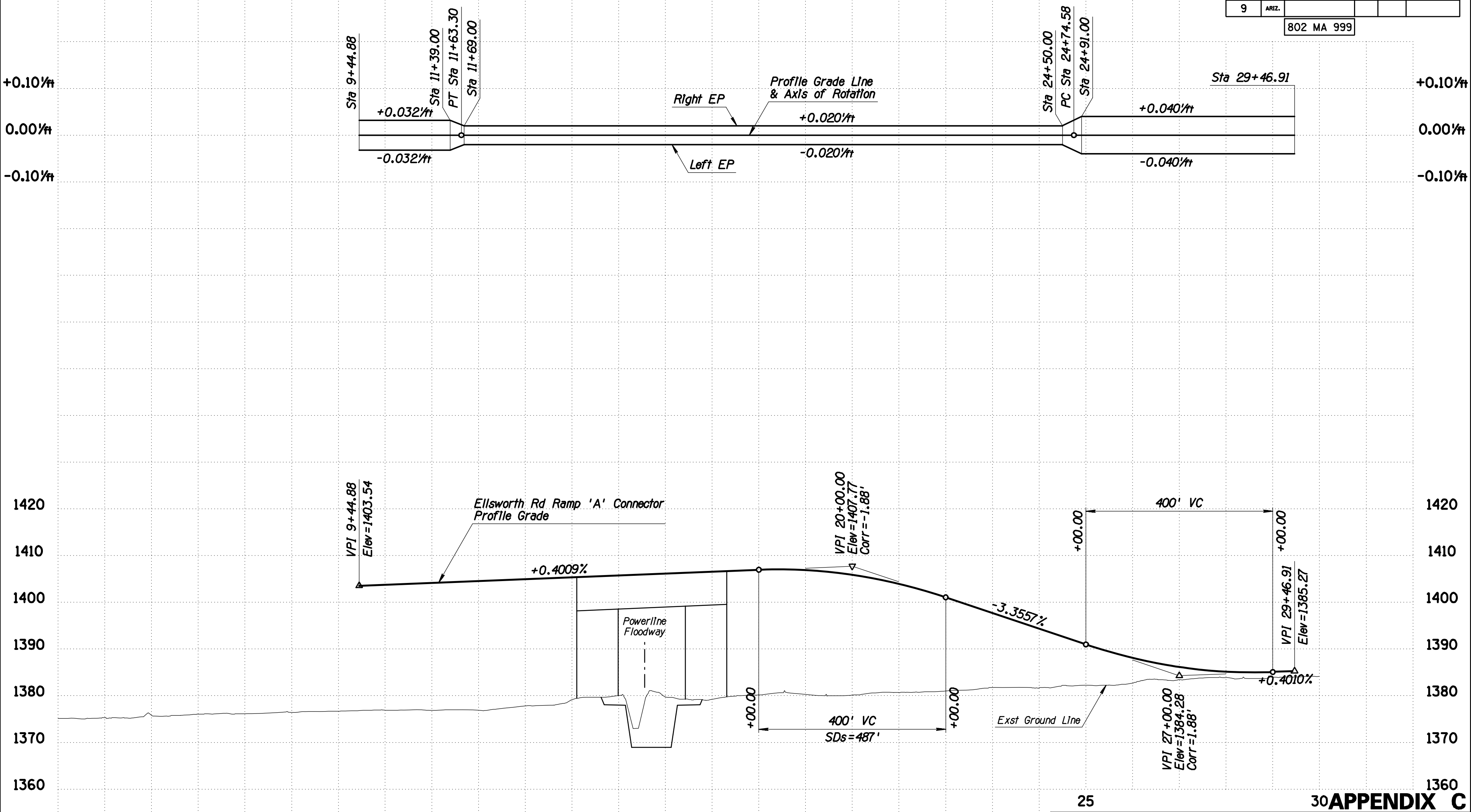
DWG NO. C-5.11

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v34.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'A' CONNECTOR
PROFILE SHEET
STA 9+44 TO STA 29+47

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

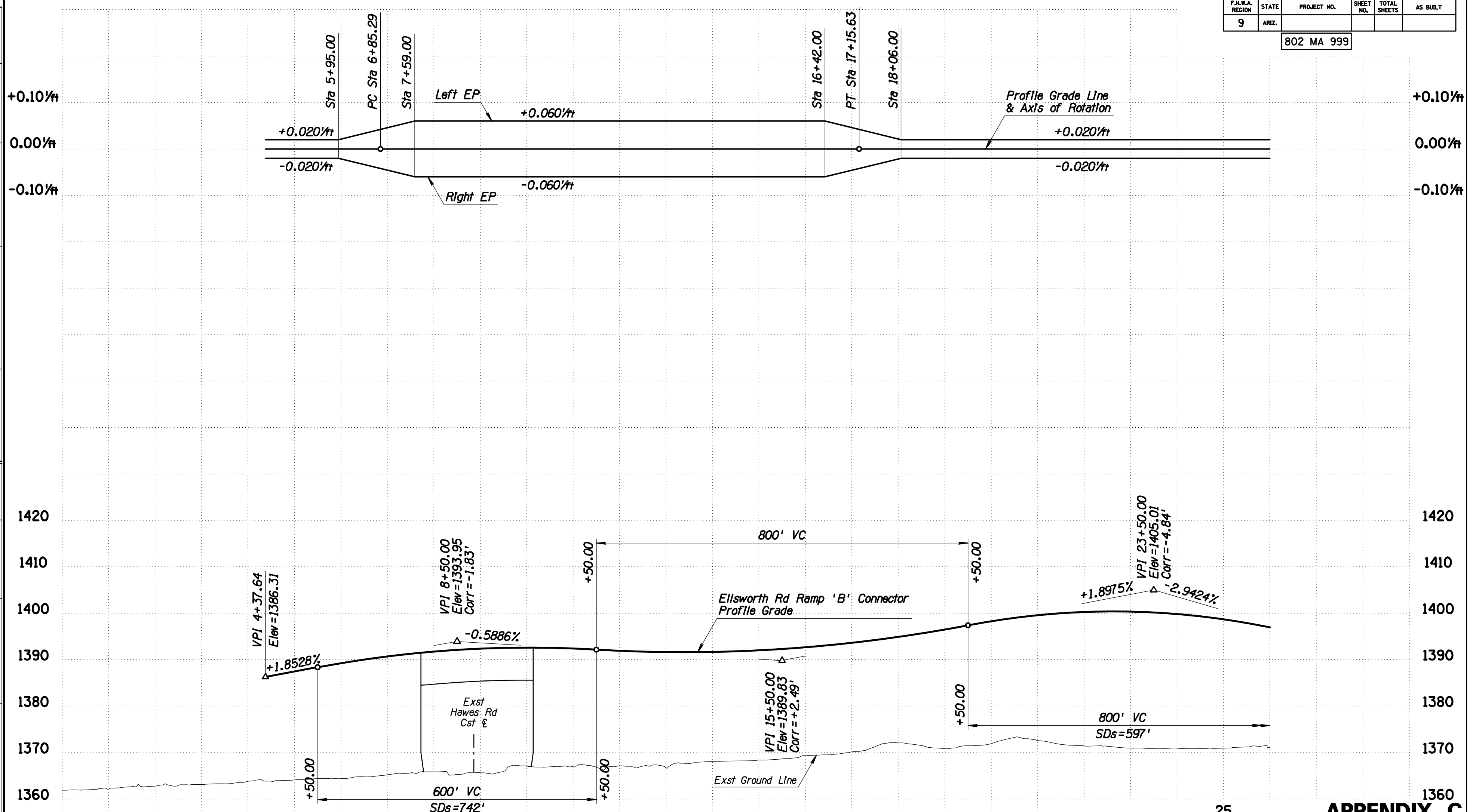
DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-5.12

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v50.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

25

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'B' CONNECTOR
PROFILE SHEET
STA 4+37 TO STA 26+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

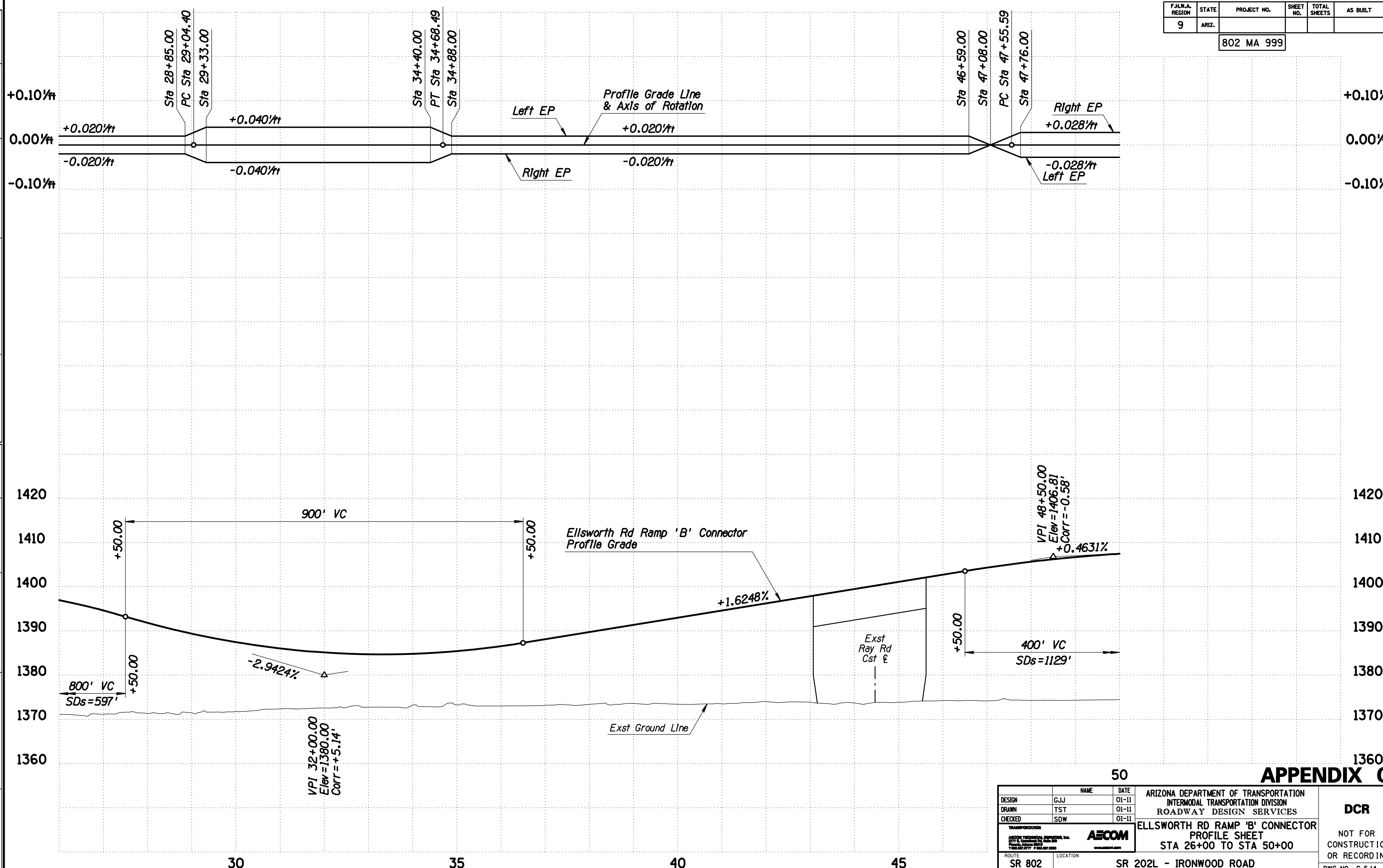
DWG NO. C-5.13

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867v35.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'B' CONNECTOR
PROFILE SHEET
STA 26+00 TO STA 50+00

DCR

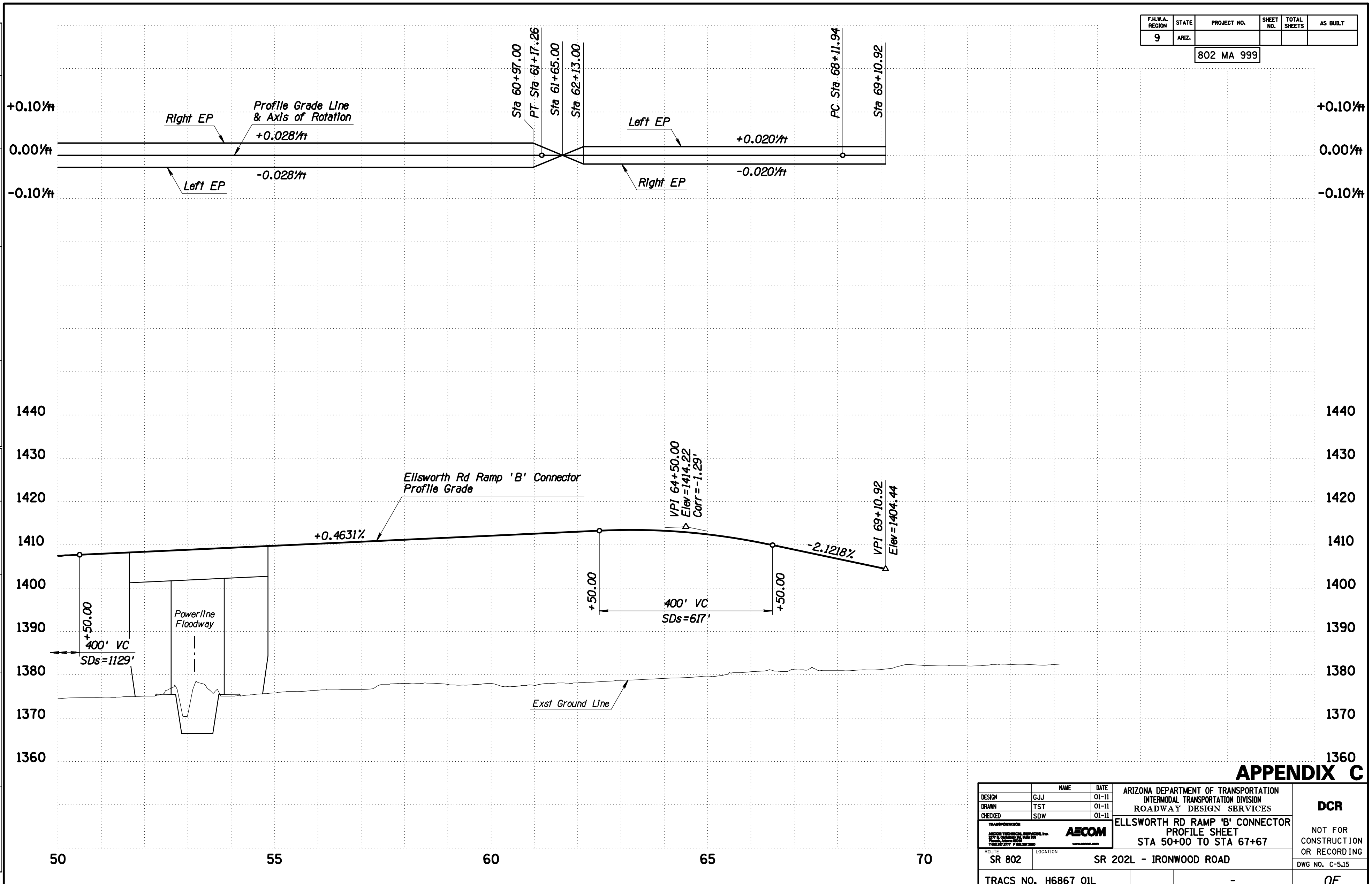
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.14

TRACS NO. H6867 01L | - | ____ OF ____

12/20/2010 u:\wg01\prod\civ\h6867v36.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLSWORTH RD RAMP 'B' CONNECTOR
PROFILE SHEET
STA 50+00 TO STA 67+67

DCR

NOT FOR CONSTRUCTION OR RECORDING

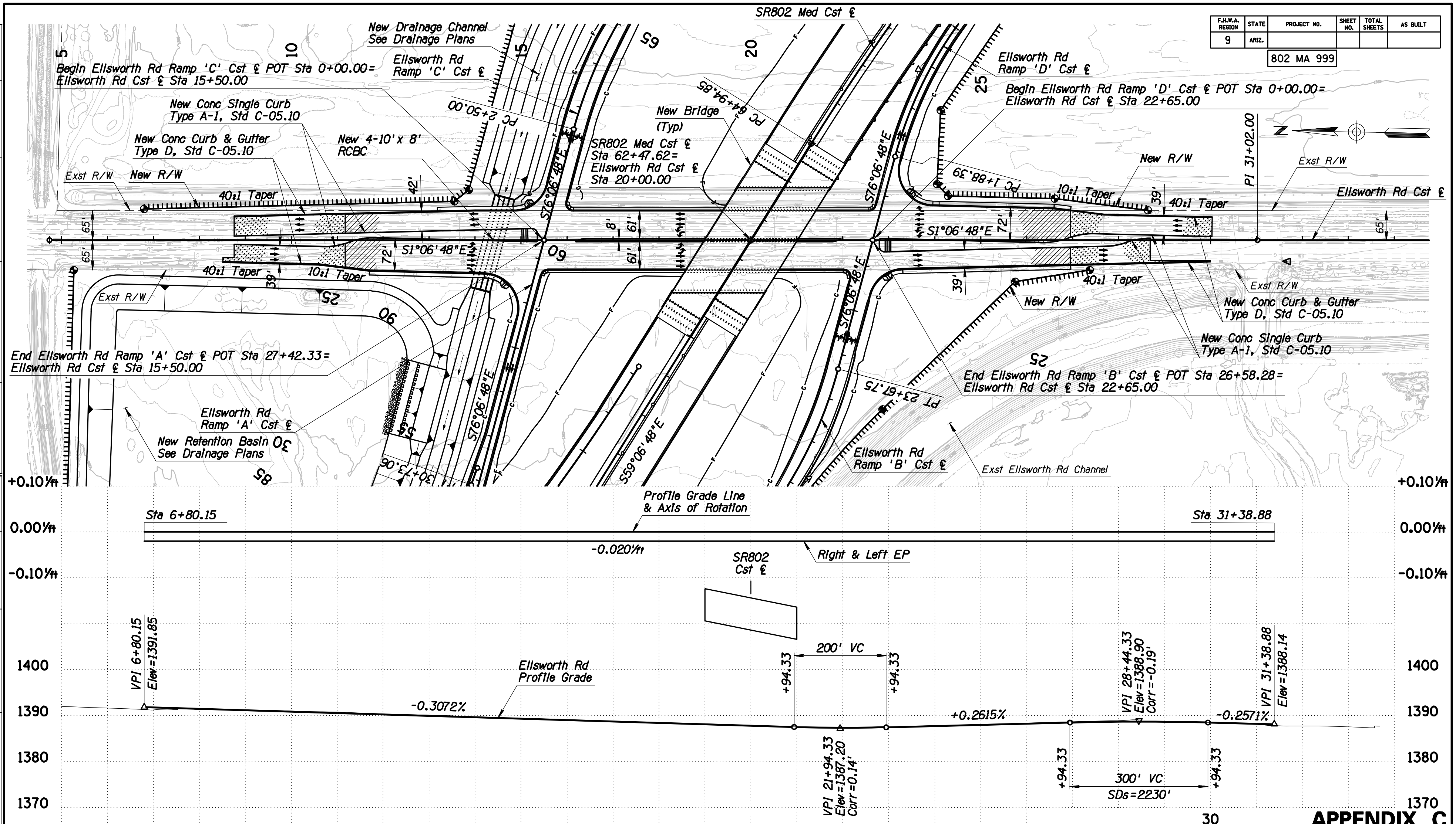
ROUTE SR 802 LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-5.15

TRACS NO. H6867 01L -

____ OF____

12/20/2010 u:\wg01\prod\civ\h6867v37.dgn



F.H.W.A. REGION: 9 | STATE: ARIZ. | PROJECT NO. | SHEET NO. | TOTAL SHEETS | AS BUILT

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ELLSWORTH ROAD
PLAN AND PROFILE SHEET

DCR

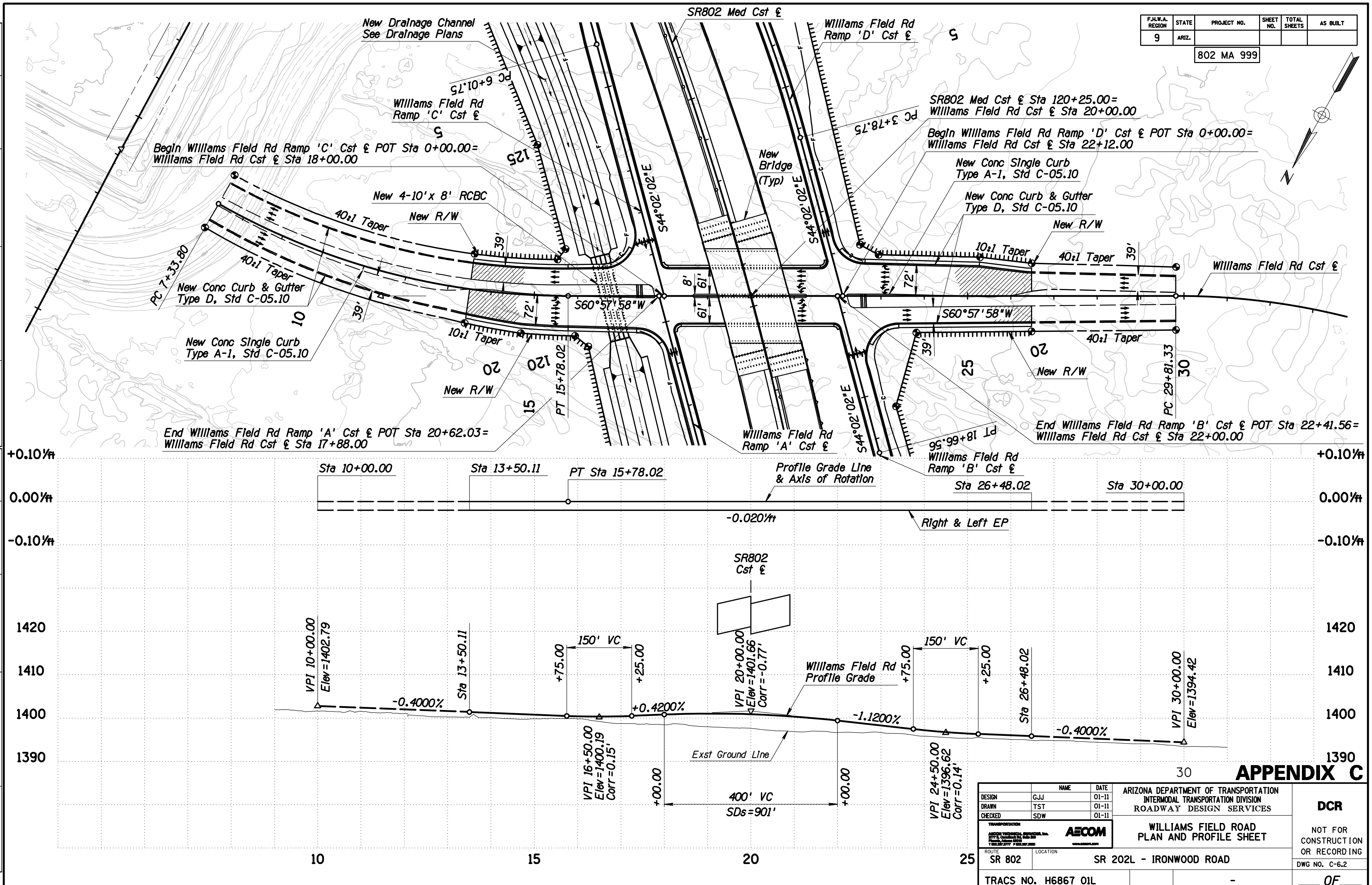
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-6.1

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p26.dgn



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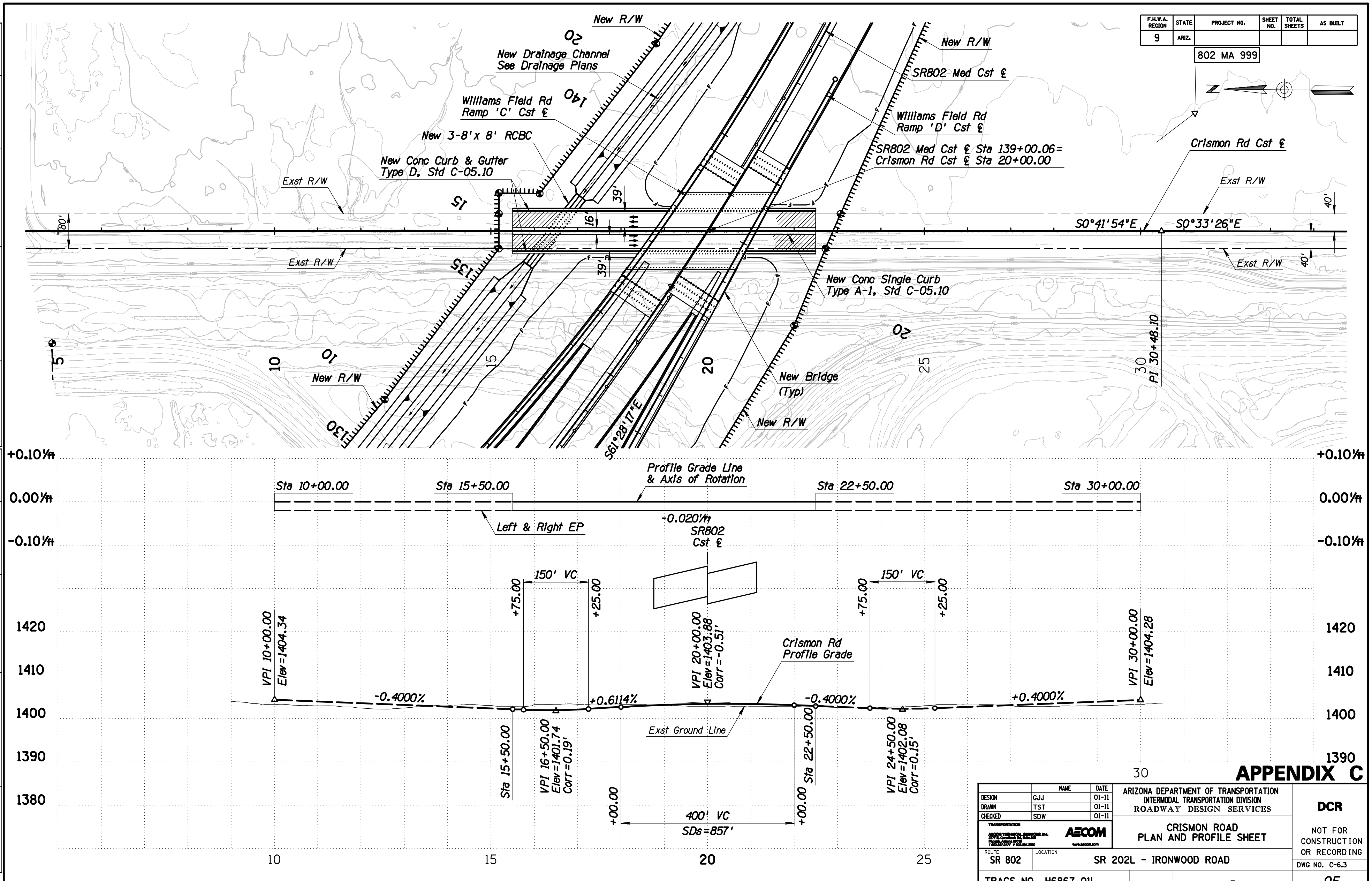


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

CRISMON ROAD
PLAN AND PROFILE SHEET

DCR

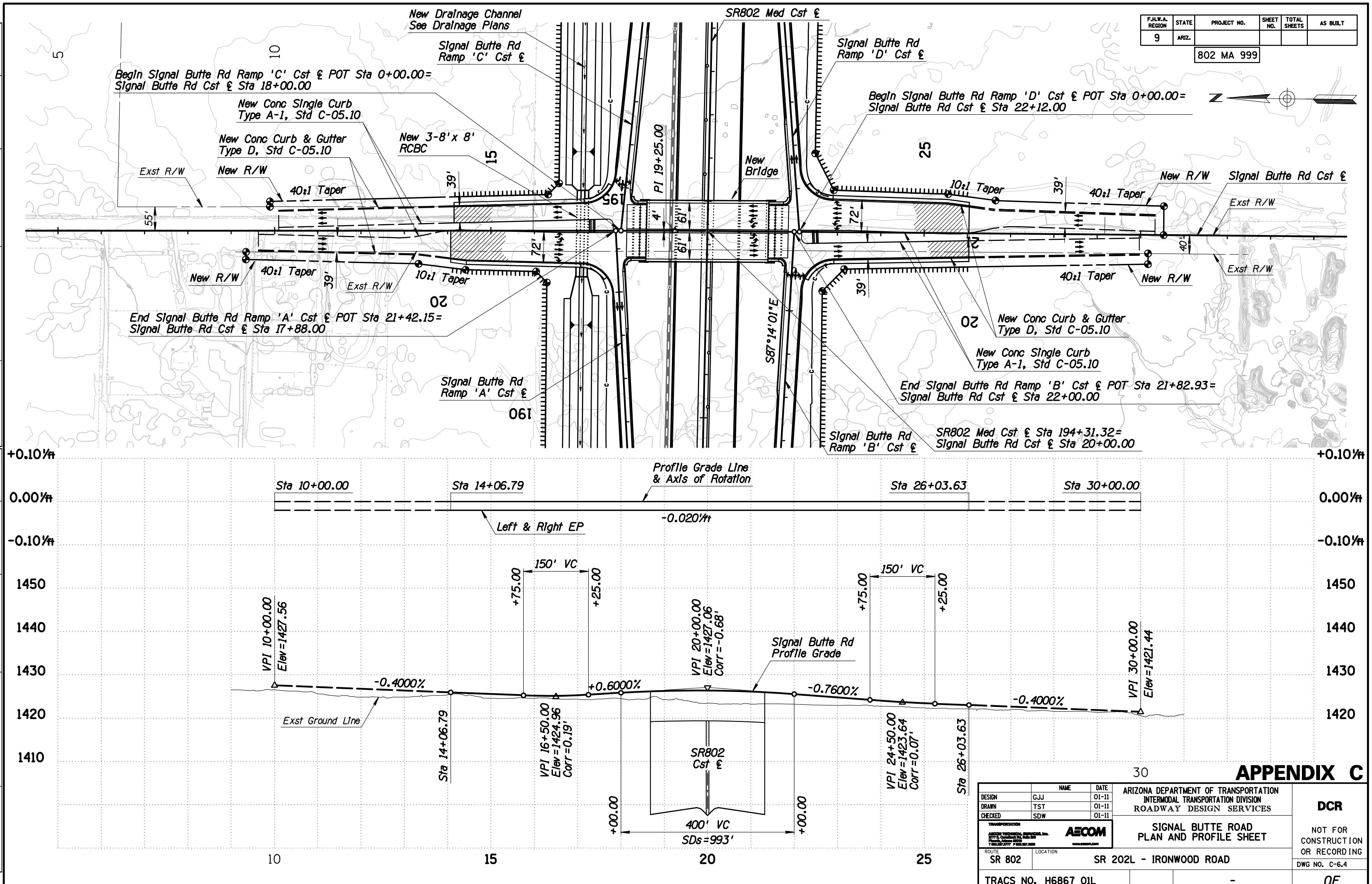
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-6.3

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p28.dgn



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

SIGNAL BUTTE ROAD
PLAN AND PROFILE SHEET

DCR

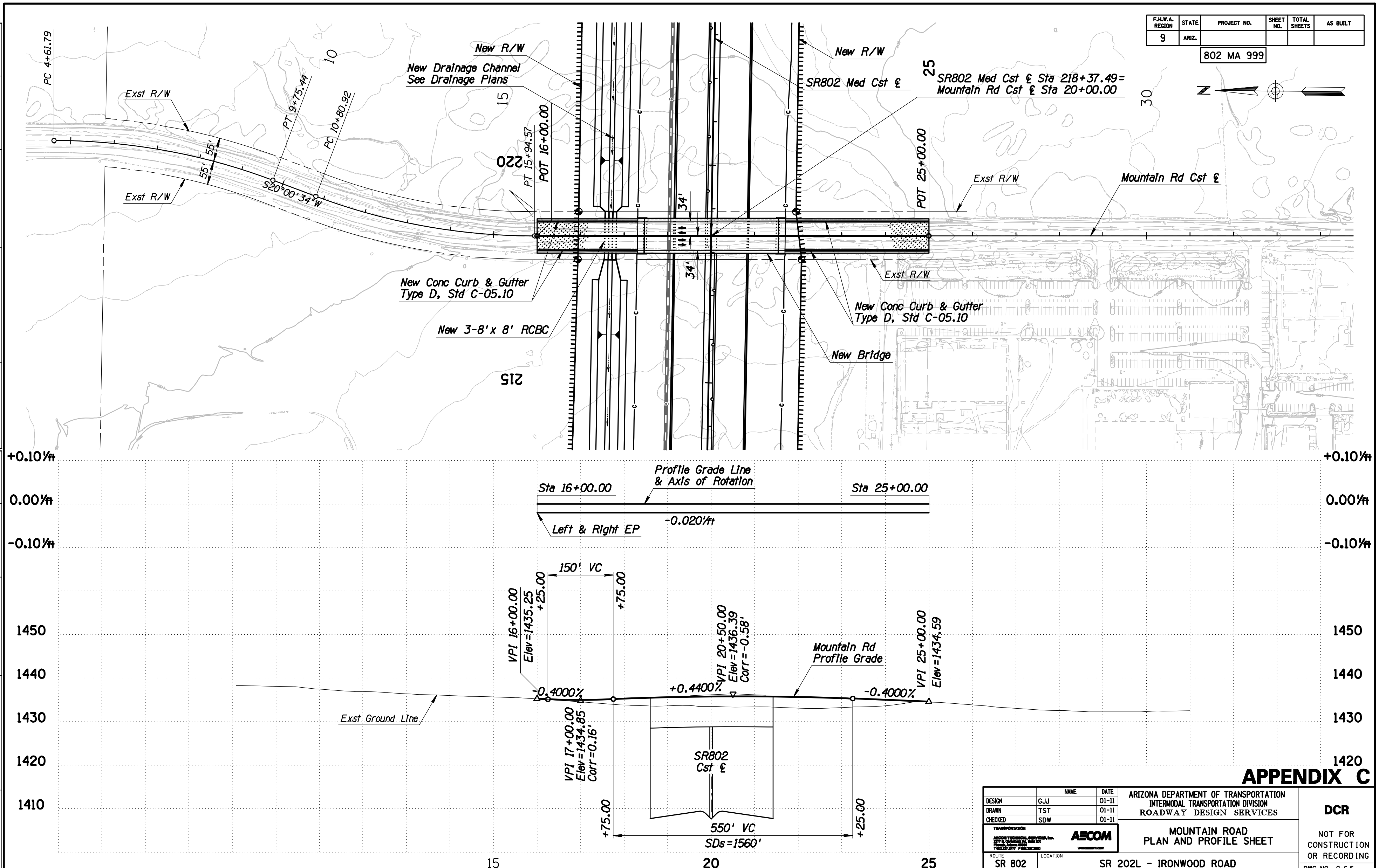
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-6.4

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p29.dgn



APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

MOUNTAIN ROAD
PLAN AND PROFILE SHEET

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-6.5

TRACS NO. H6867 01L

-

___ OF ___

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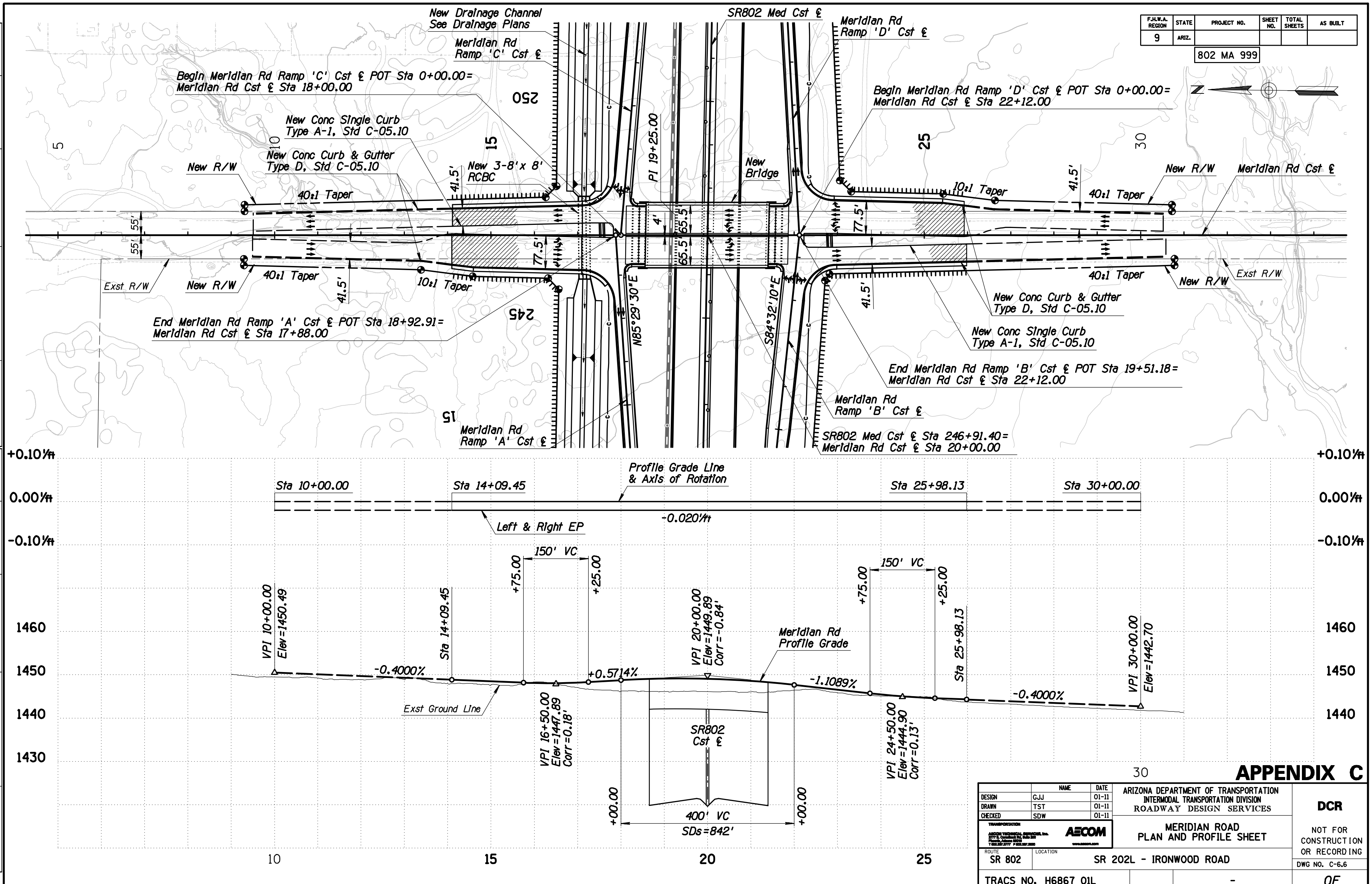

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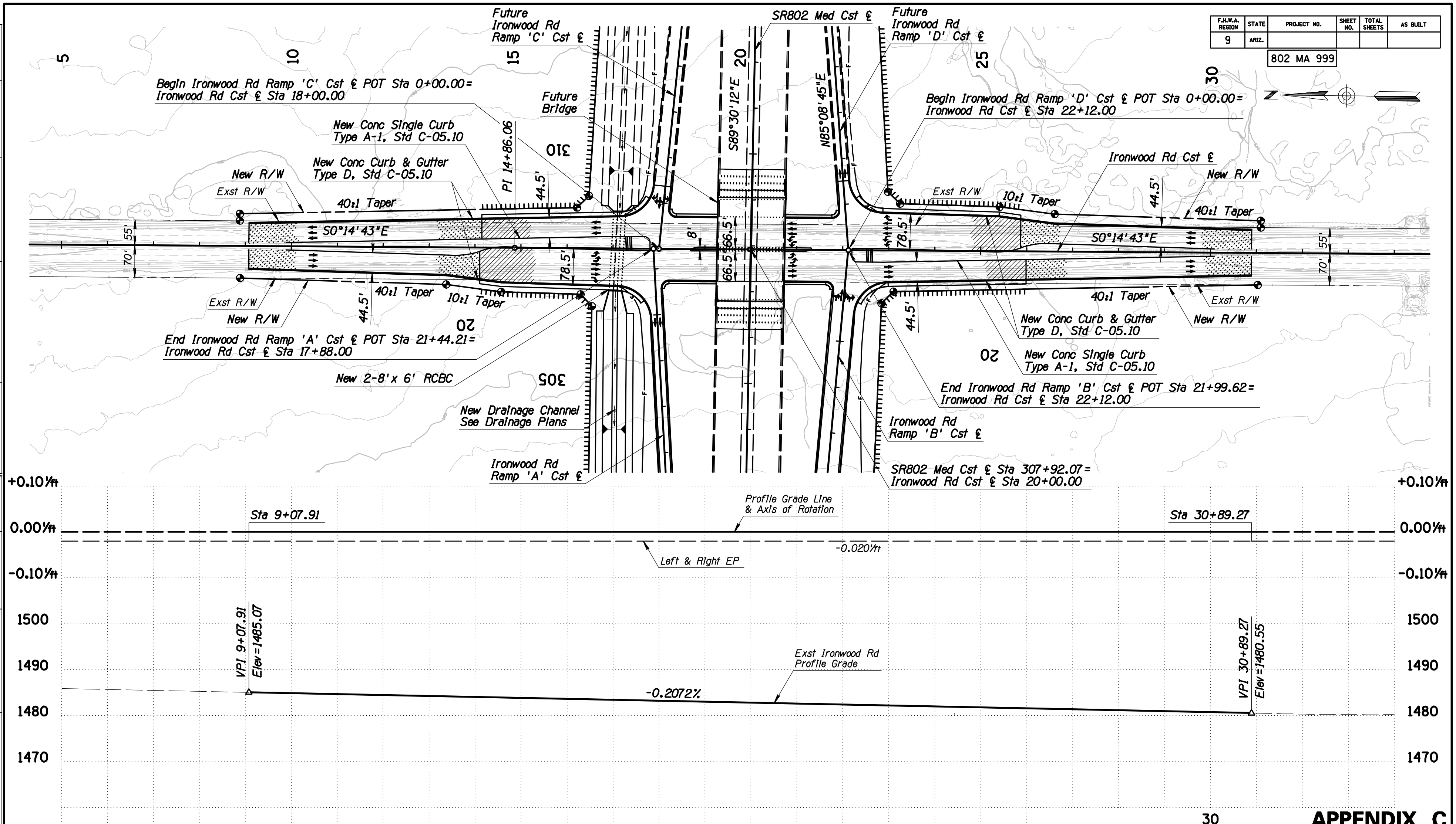


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

30

APPENDIX C

	NAME	DATE
DESIGN	GJJ	01-11
DRAWN	TST	01-11
CHECKED	SDW	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

IRONWOOD ROAD
PLAN AND PROFILE SHEET

DCR

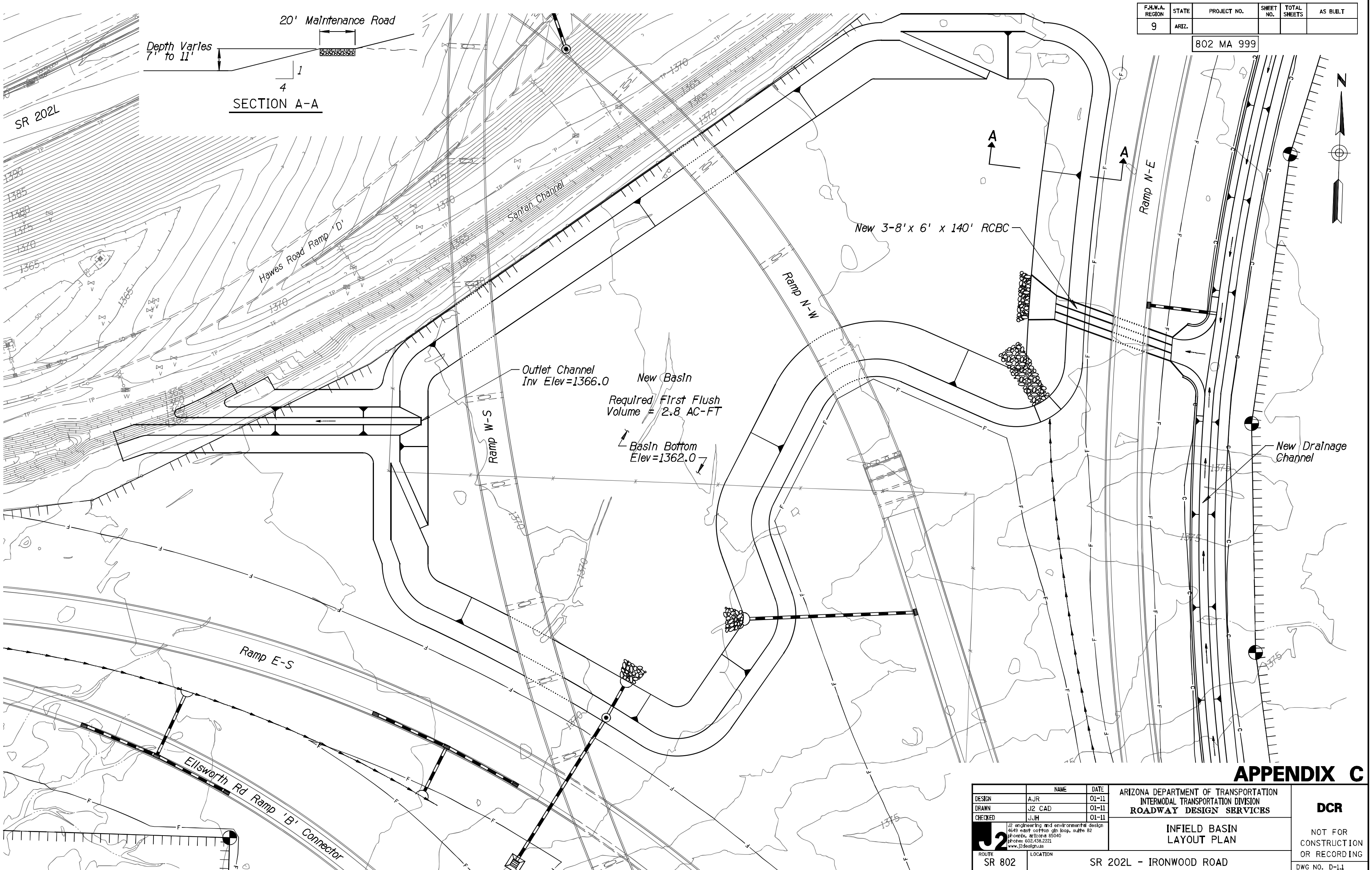
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-6.7

TRACS NO. H6867 01L | - | ___ OF ___

12/20/2010 u:\wg01\prod\civ\h6867p32.dgn



APPENDIX C

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

	NAME	DATE
DESIGN	AJR	01-11
DRAWN	J2 CAD	01-11
CHECKED	JJH	01-11

J2 engineering and environmental design
4649 east cotton gin loop, suite B2
phoenix, arizona 85040
phone: 602.438.2221
www.j2design.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

INFIELD BASIN
LAYOUT PLAN

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

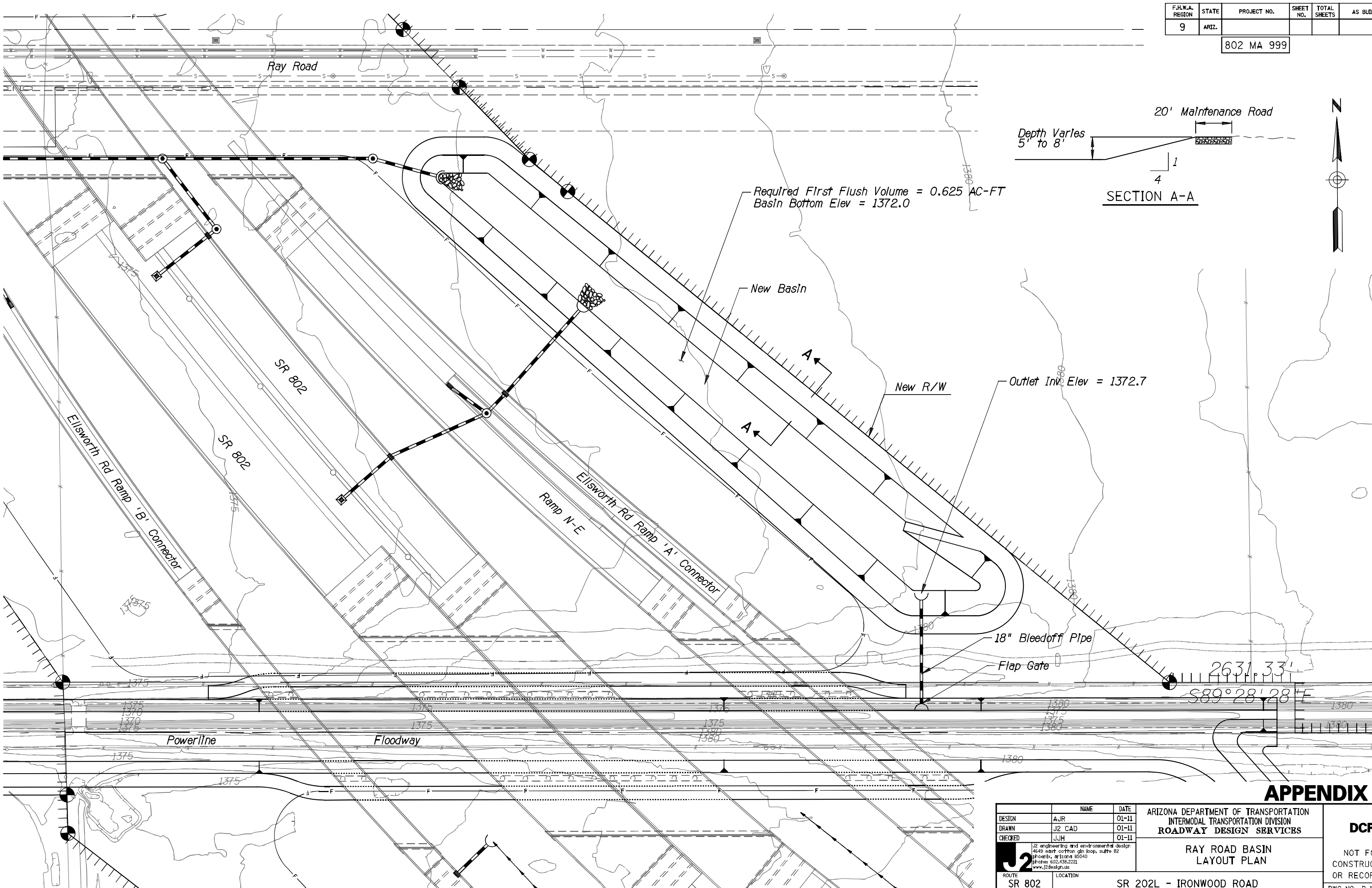
DWG NO. D-1.1

TRACS NO. H6867 01L | - | ____ OF ____

12/17/2010 p:\050074\BG002-Task9 Williams Gateway\j2cad\sheets\DCR\h6867drn_Basin1.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	AJR	01-11
DRAWN	J2 CAD	01-11
CHECKED	JJH	01-11

J2 engineering and environmental design
4649 east cotton gin loop, suite B2
phoenix, arizona 85040
phone: 602.438.2221
www.j2design.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

RAY ROAD BASIN
LAYOUT PLAN

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802

LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. D-1.2

TRACS NO. H6867 01L

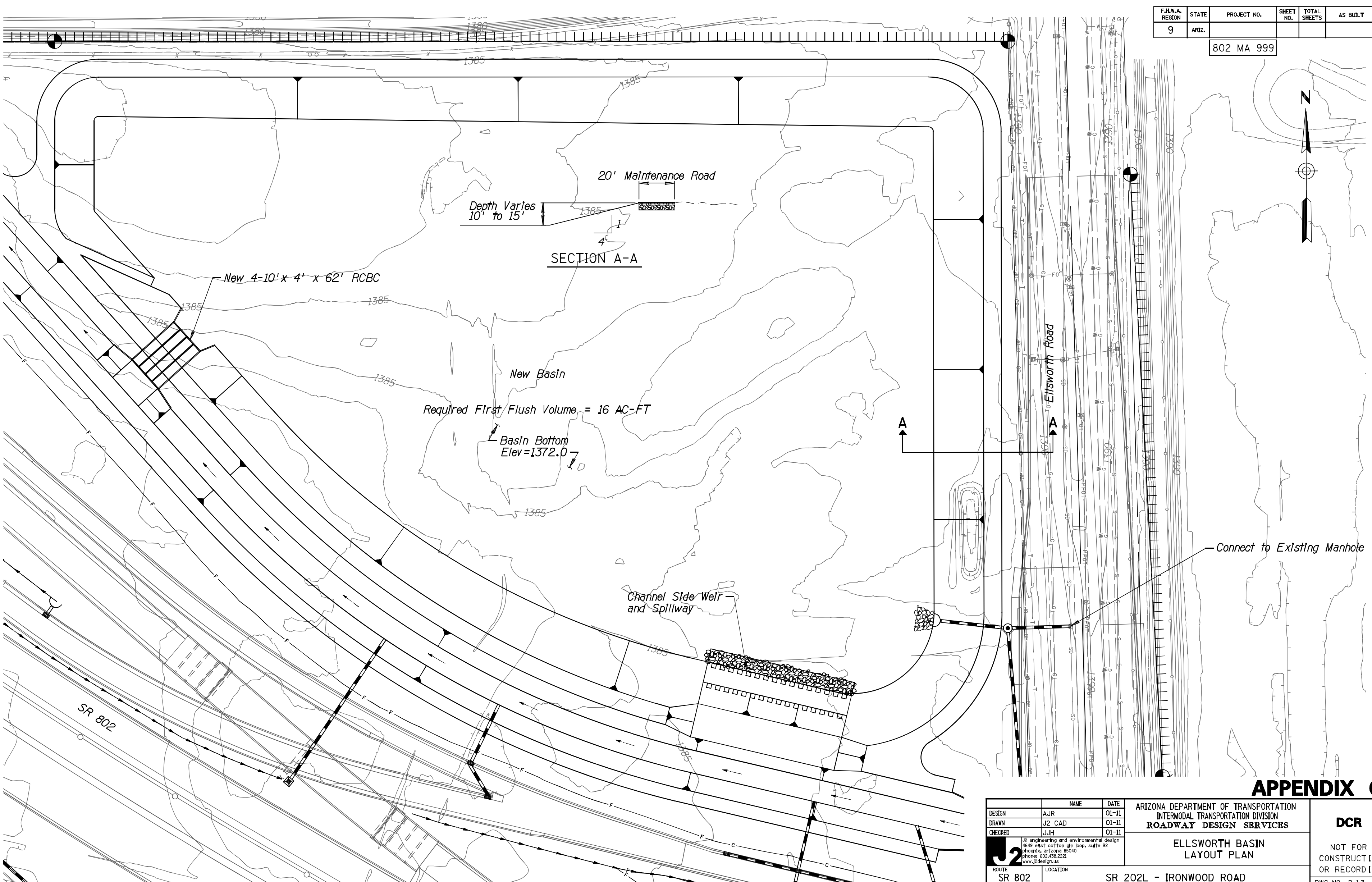
-

____ OF ____

12/17/2010 p:\050074\BG002-Task9 Williams Gateway\j2cad\sheets\DCR\h6867drn_Basin2.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX C

	NAME	DATE
DESIGN	AJR	01-11
DRAWN	J2 CAD	01-11
CHECKED	JJH	01-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

DCR

J2 engineering and environmental design
4649 east cotton gin loop, suite B2
phoenix, arizona 85040
phone: 602.438.2221
www.j2design.us

ELLSWORTH BASIN
LAYOUT PLAN

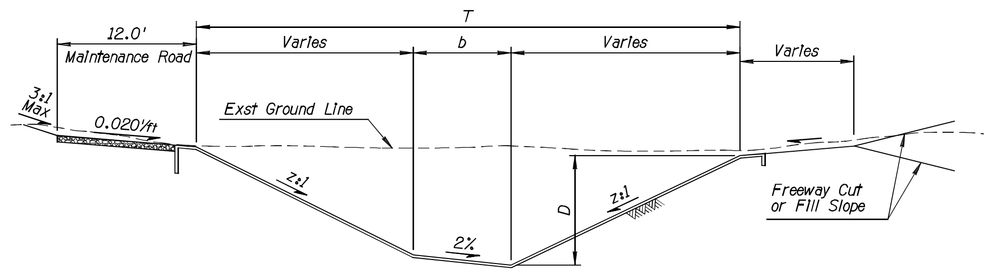
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. D-1.3

TRACS NO. H6867 01L | - | ___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



TYPICAL SECTION

Stationing	From Station	To Station	Bottom Width (b)*	Side Slope (z:1)	Depth (D)*	Top Width (T)*
Ramp E-S	43+67	46+20	8	2	6	31.7
Ramp N-E	20+10	31+87	10	2	4	25.6
	31+87	51+39	8	2	5	27.7
	51+39	61+89	8	2	4	23.7
SR 802	60+46	120+05	20	2	9	55.2
	122+12	135+98	20	2	9	55.2
	139+05	193+19	10	2	9	45.6
	195+20	217+78	10	2	9	45.6
	218+90	245+84	10	2	9	45.6
	247+76	306+96	8	2	9	43.7

Notes:
* All Dimensions are in feet

APPENDIX C

	NAME	DATE
DESIGN	AJR	01-11
DRAWN	J2 CAD	01-11
CHECKED	JJH	01-11

J2 engineering and environmental design
4649 east cotton gin loop, suite B2
phoenix, arizona 85040
phone: 602.438.2221
www.j2design.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

OFFSITE CHANNEL
TYPICAL SECTION

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. D-1.4

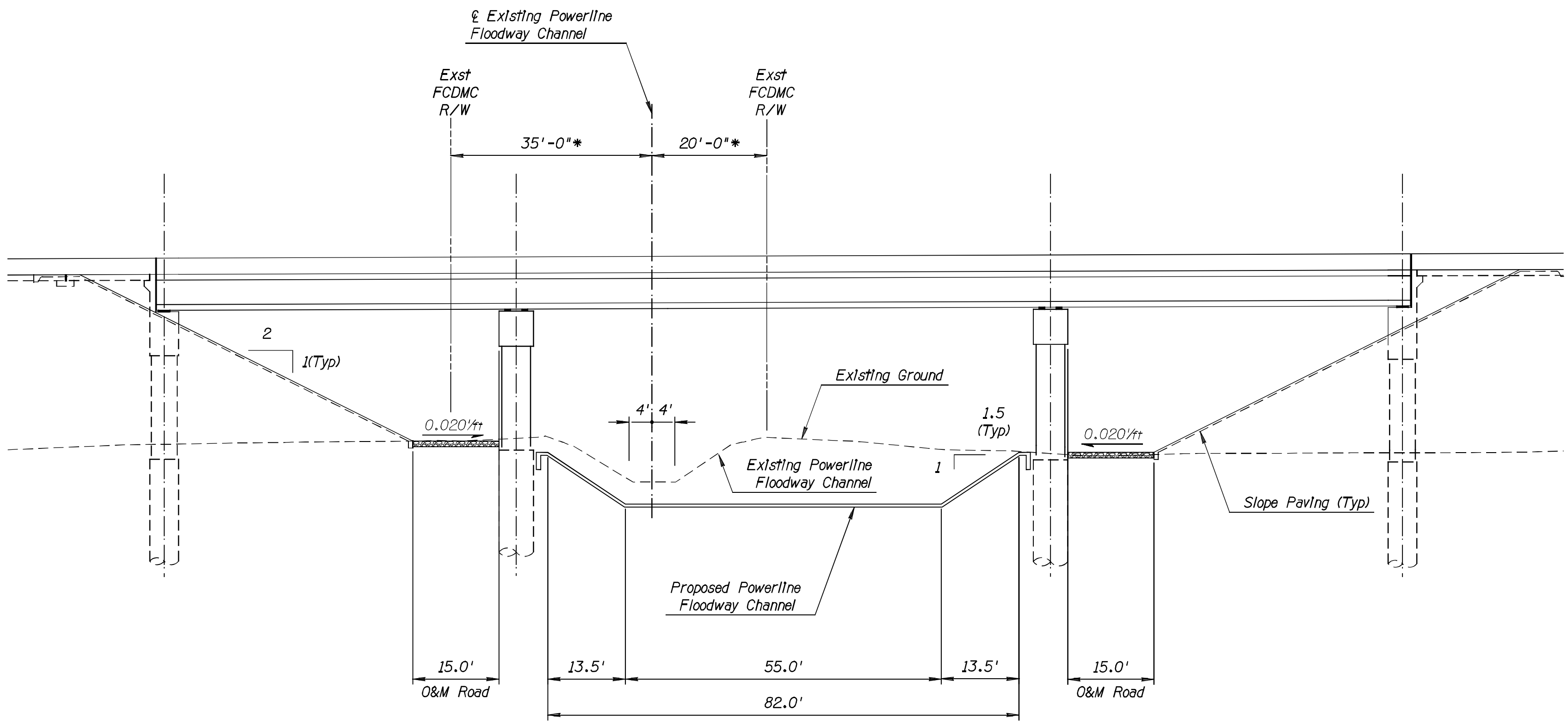
TRACS NO. H6867 01L | - | ___ OF ___

12/17/2010 p:\050074\BG002-Task9 Williams Gateway\j2cad\sheets\DCR\h6867drn_dtl1.dgn

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



TYPICAL SECTION - POWERLINE FLOODWAY WIDENING

* R/W Data Based on Powerline Floodway As-Built Plans.

APPENDIX C

	NAME	DATE
DESIGN	AJR	01-11
DRAWN	J2 CAD	01-11
CHECKED	JJH	01-11

J2 engineering and environmental design
4649 east cotton gin loop, suite B2
phoenix, arizona 85040
phone: 602.438.2221
www.j2design.us

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

POWERLINE FLOODWAY
TYPICAL SECTION

DCR

NOT FOR CONSTRUCTION OR RECORDING

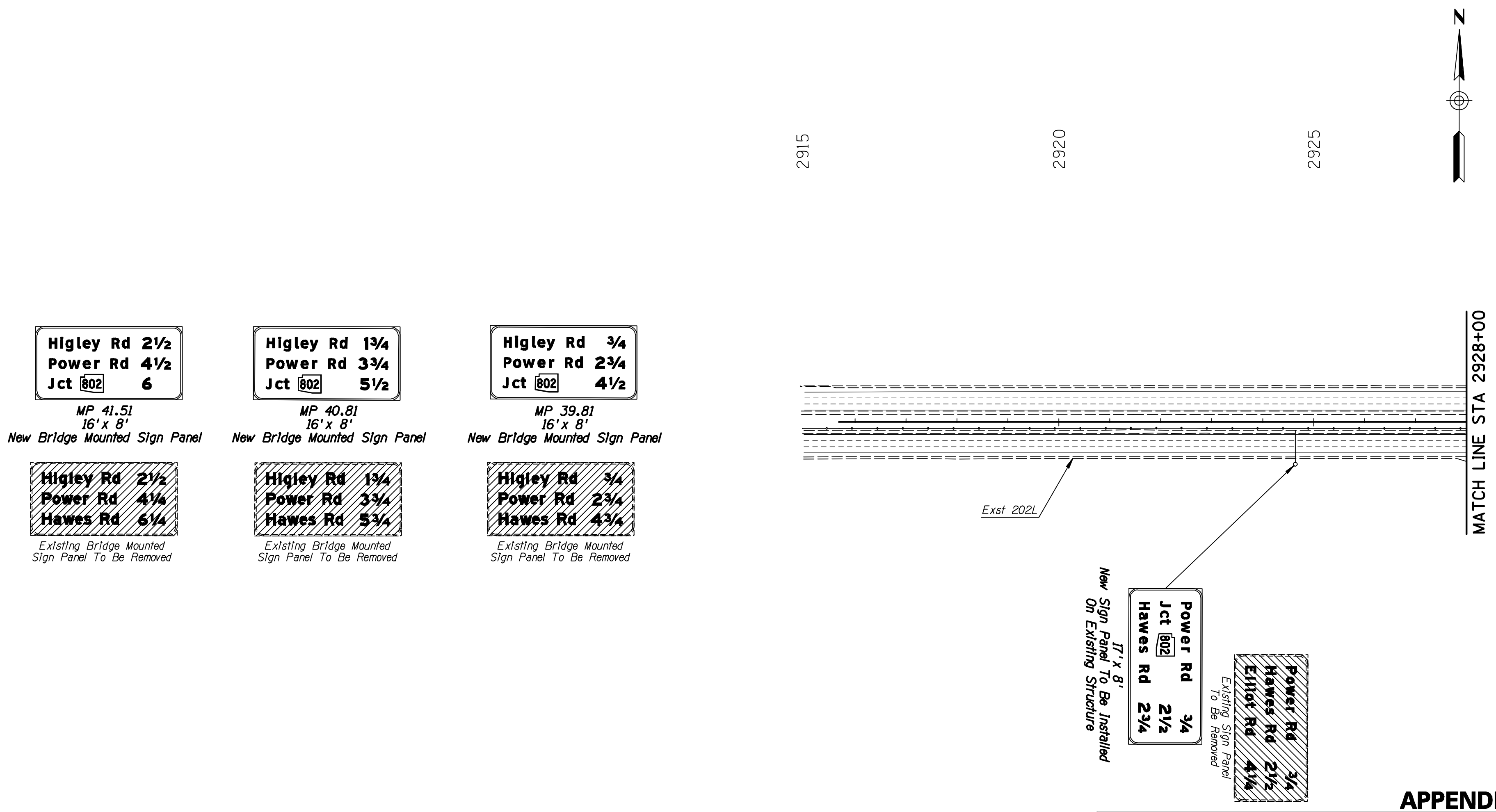
ROUTE: SR 802 | LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. D-1.5

TRACS NO. H6867 01L | - | ___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 202L
BEGIN PROJECT TO STA 2928+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.1

TRACS NO. H6867 01L

___ OF ___

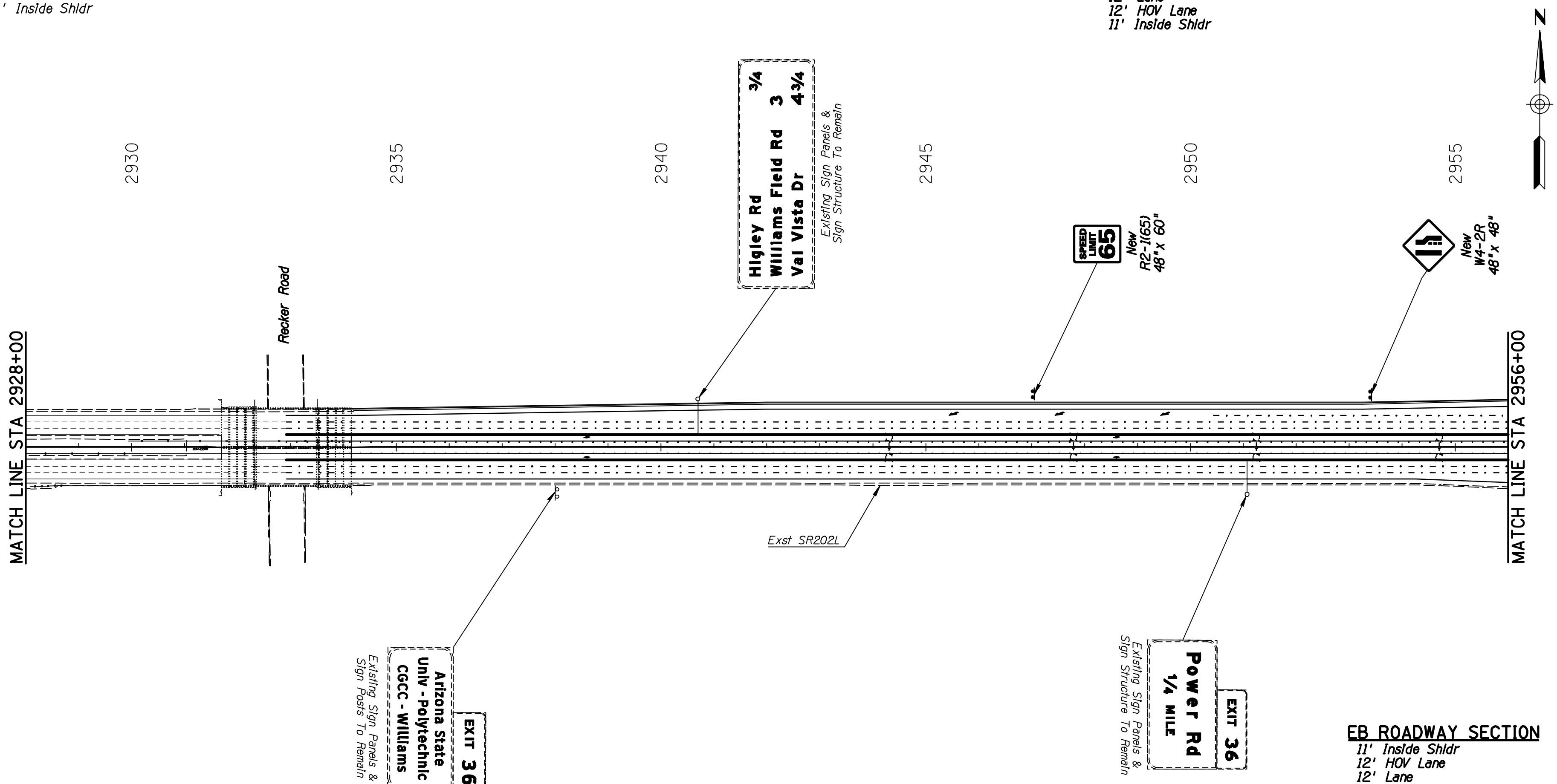
3/23/2011 U:\WG01\Prod\tra\t6867p101.dgn

WB ROADWAY SECTION
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 2928+00 TO STA 2956+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.2

TRACS NO. H6867 01L

___ OF ___

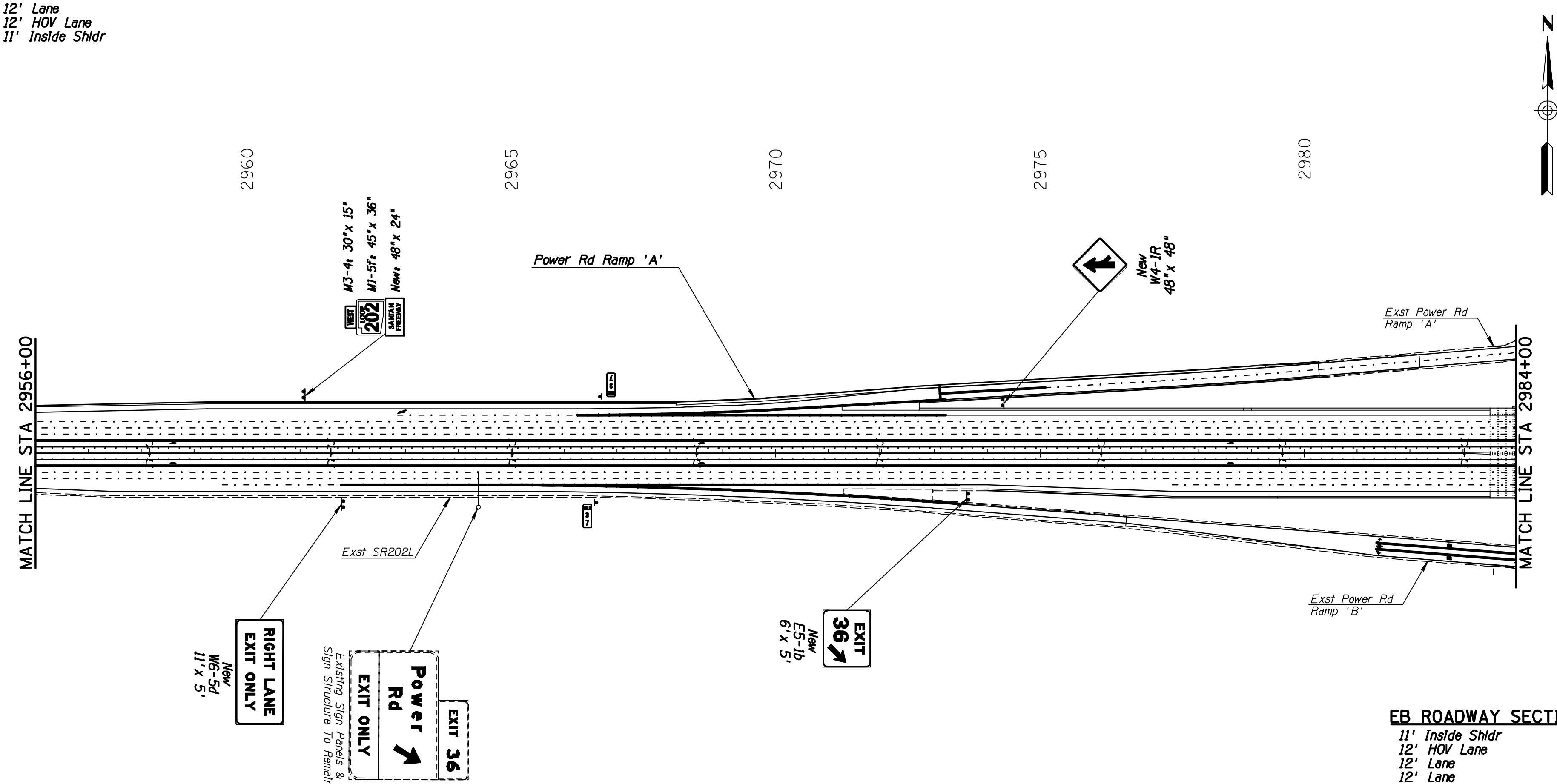
3/23/2011 U:\WG01\Prod\tra\t6867p102.dgn

WB ROADWAY SECTION

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

APPENDIX C

EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 2956+00 TO STA 2984+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.3

TRACS NO. H6867 01L

___ OF ___

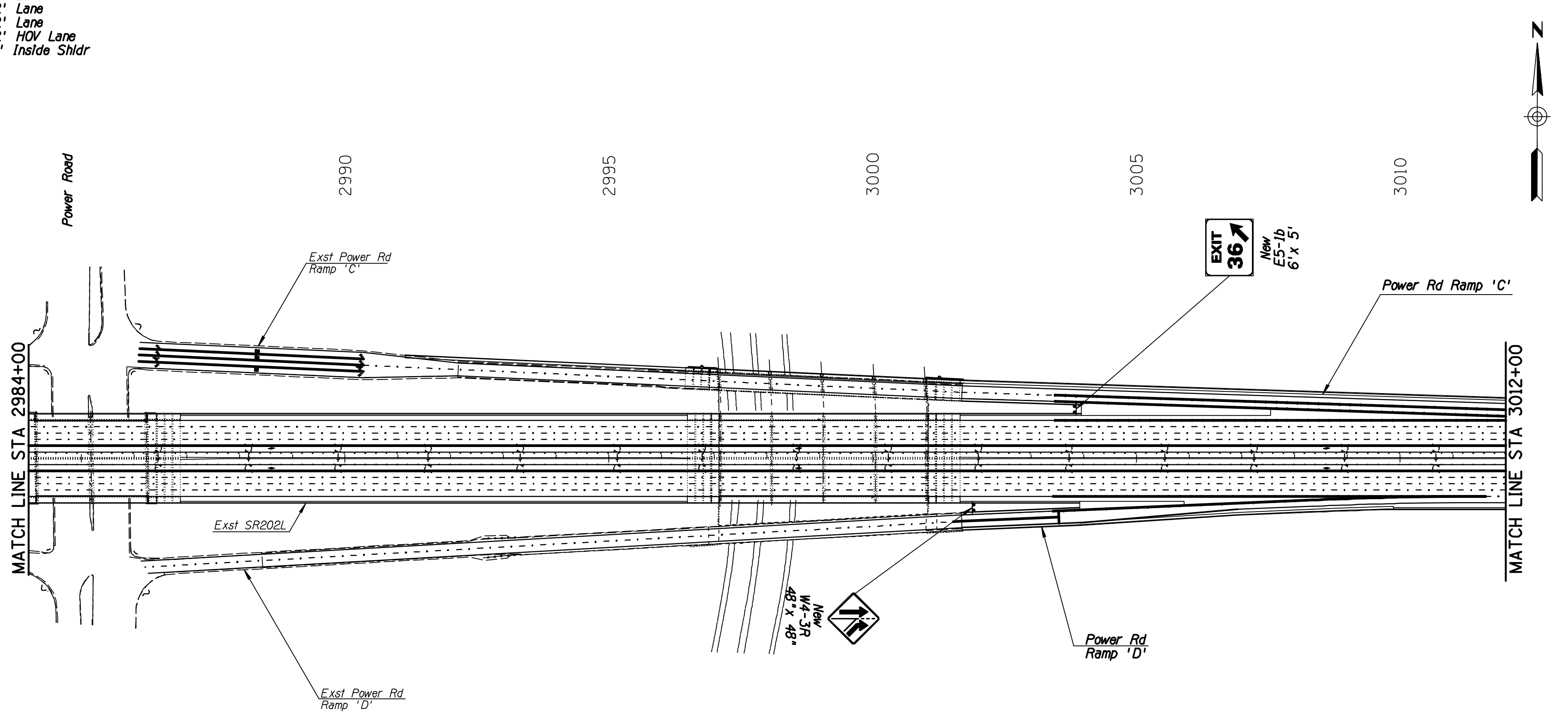
3/23/2011 U:\WG01\Prod\tra\t6867p103.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE	
DESIGN	CMJ	04-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES
DRAWN	CMJ	04-11	
CHECKED	JJP	04-11	

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 2984+00 TO STA 3012+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

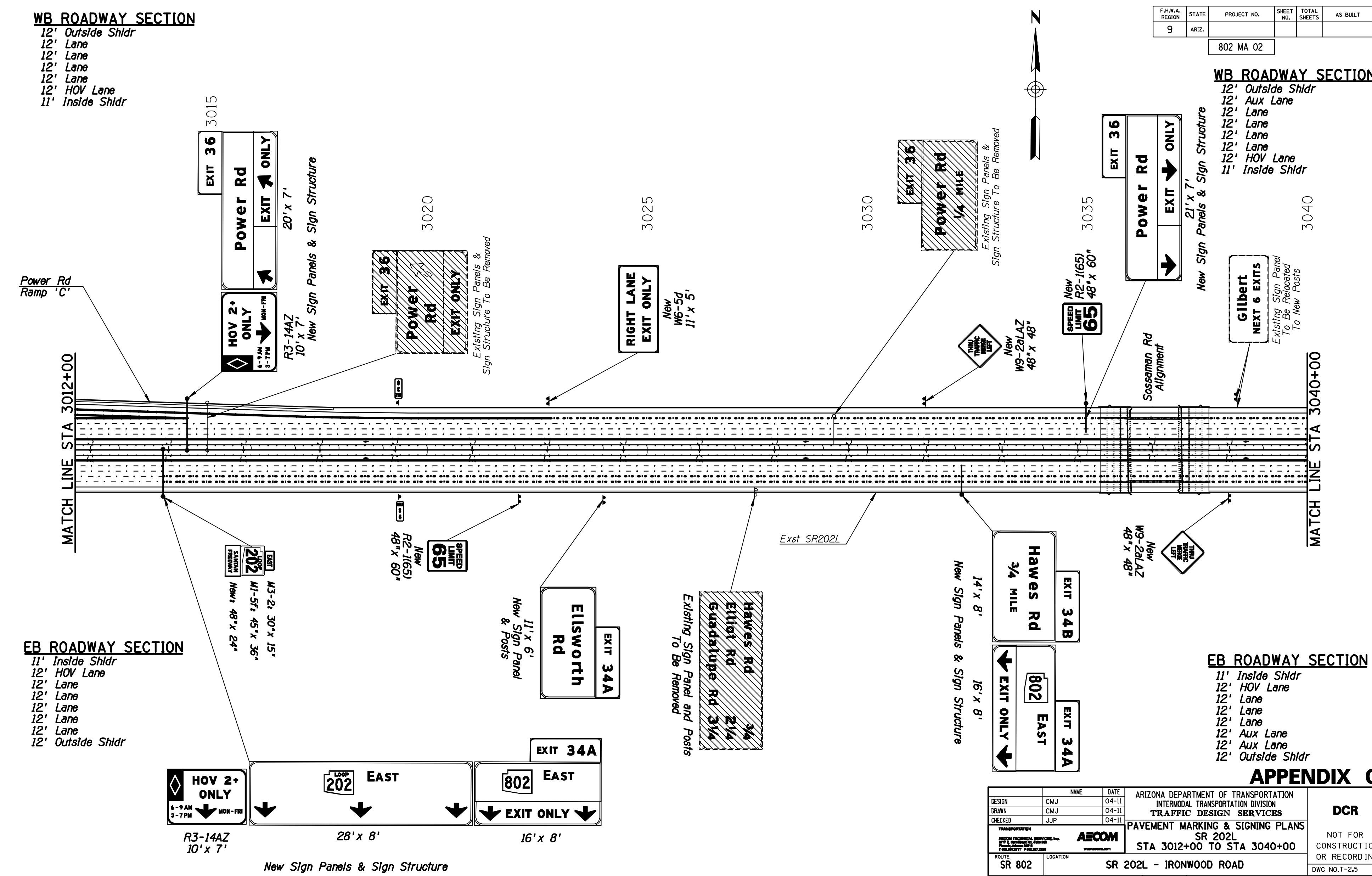
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. T-2.4

TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p104.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3012+00 TO STA 3040+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.5

TRACS NO. H6867 01L

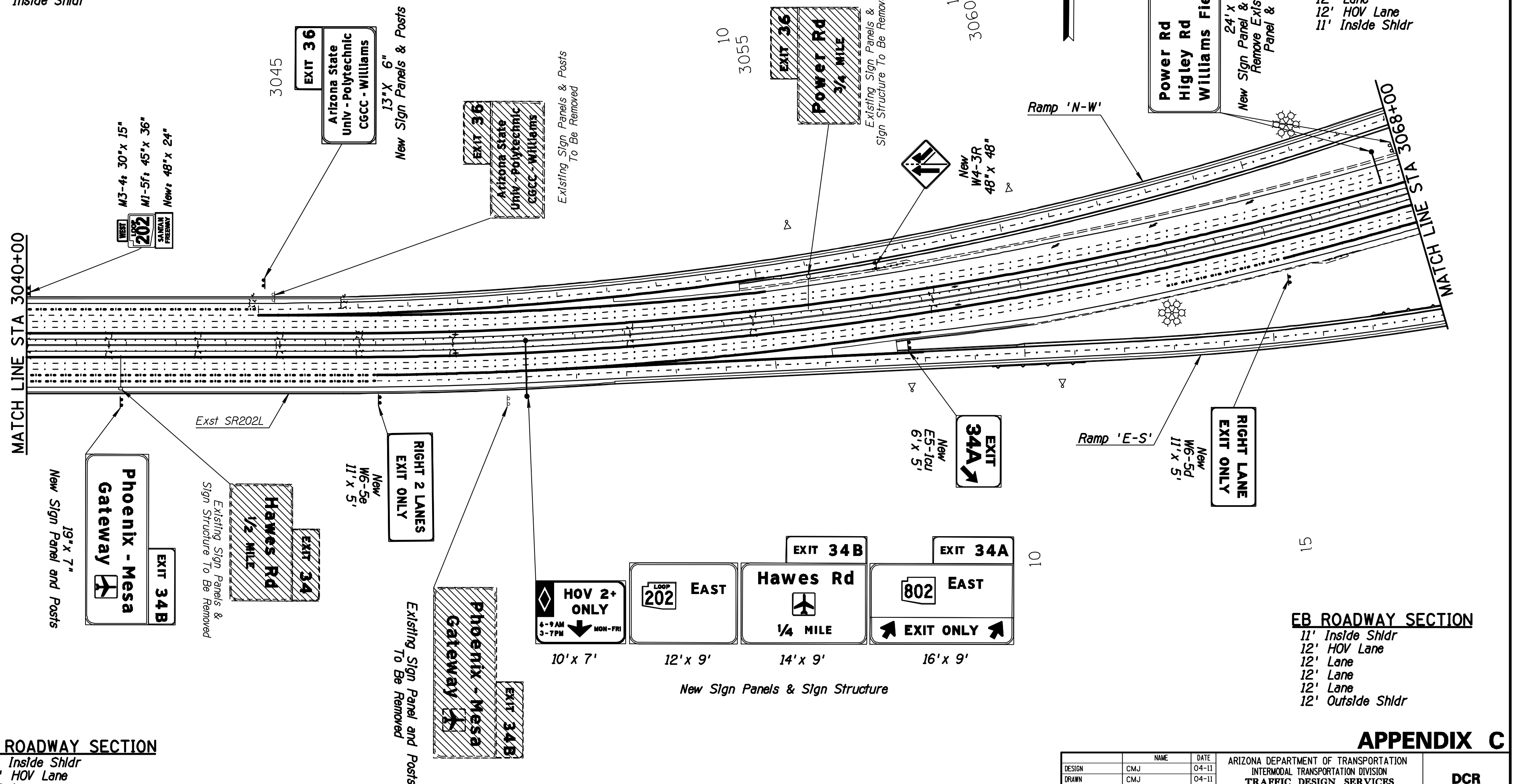
____ OF ____

4/7/2011 U:\WG01\Prod\tra\t6867p105.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION
12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



WB ROADWAY SECTION
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Aux Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3040+00 TO STA 3068+00

AECOM

DCR
NOT FOR CONSTRUCTION OR RECORDING

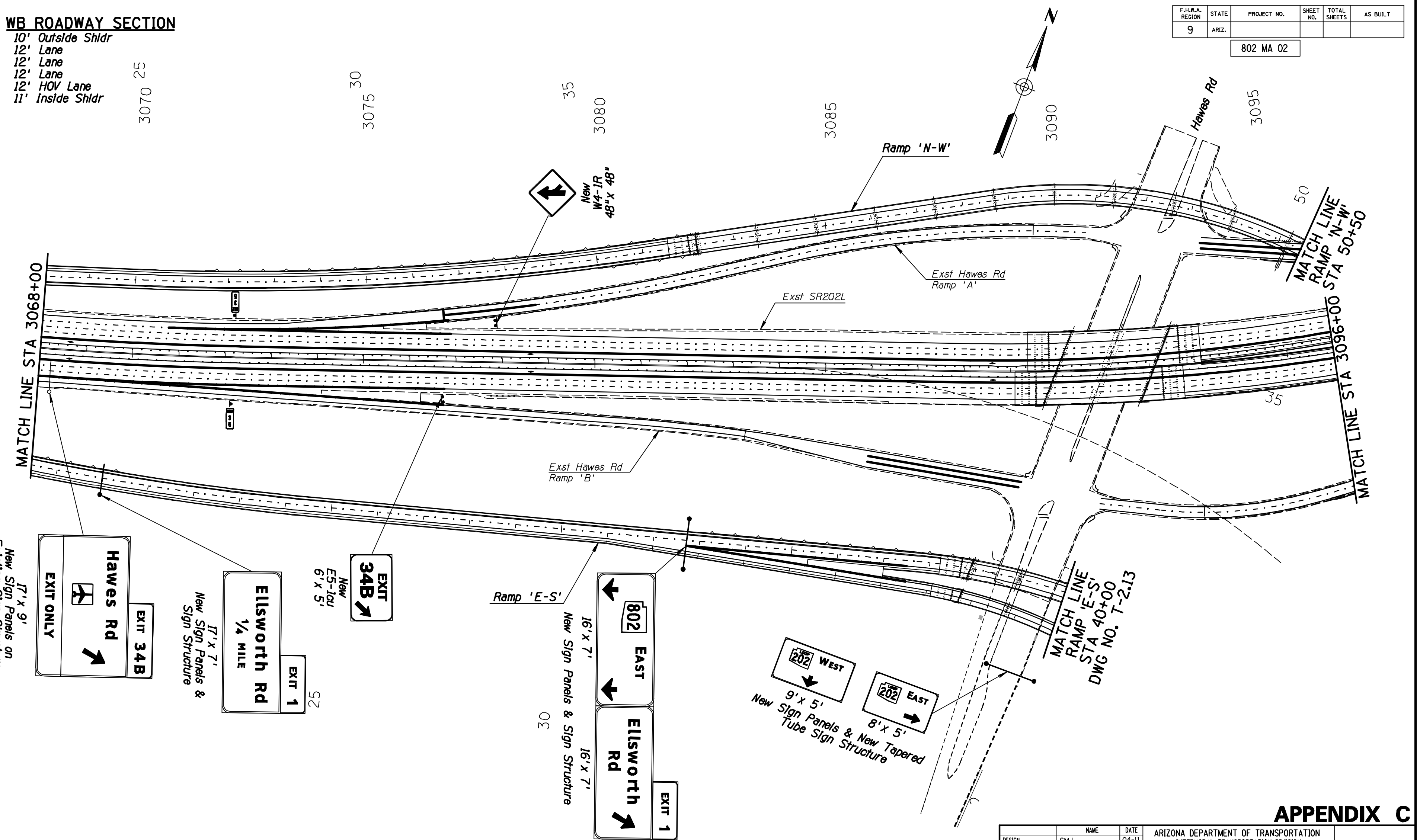
ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.6

TRACS NO. H6867 01L

___ OF ___

4/7/2011 U:\WG01\Prod\tra\t6867p106.dgn



WB ROADWAY SECTION

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3068+00 TO STA 3096+00

AECOM

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR
NOT FOR CONSTRUCTION OR RECORDING
DWG NO.T-2.7

TRACS NO. H6867 OIL

___ OF ___

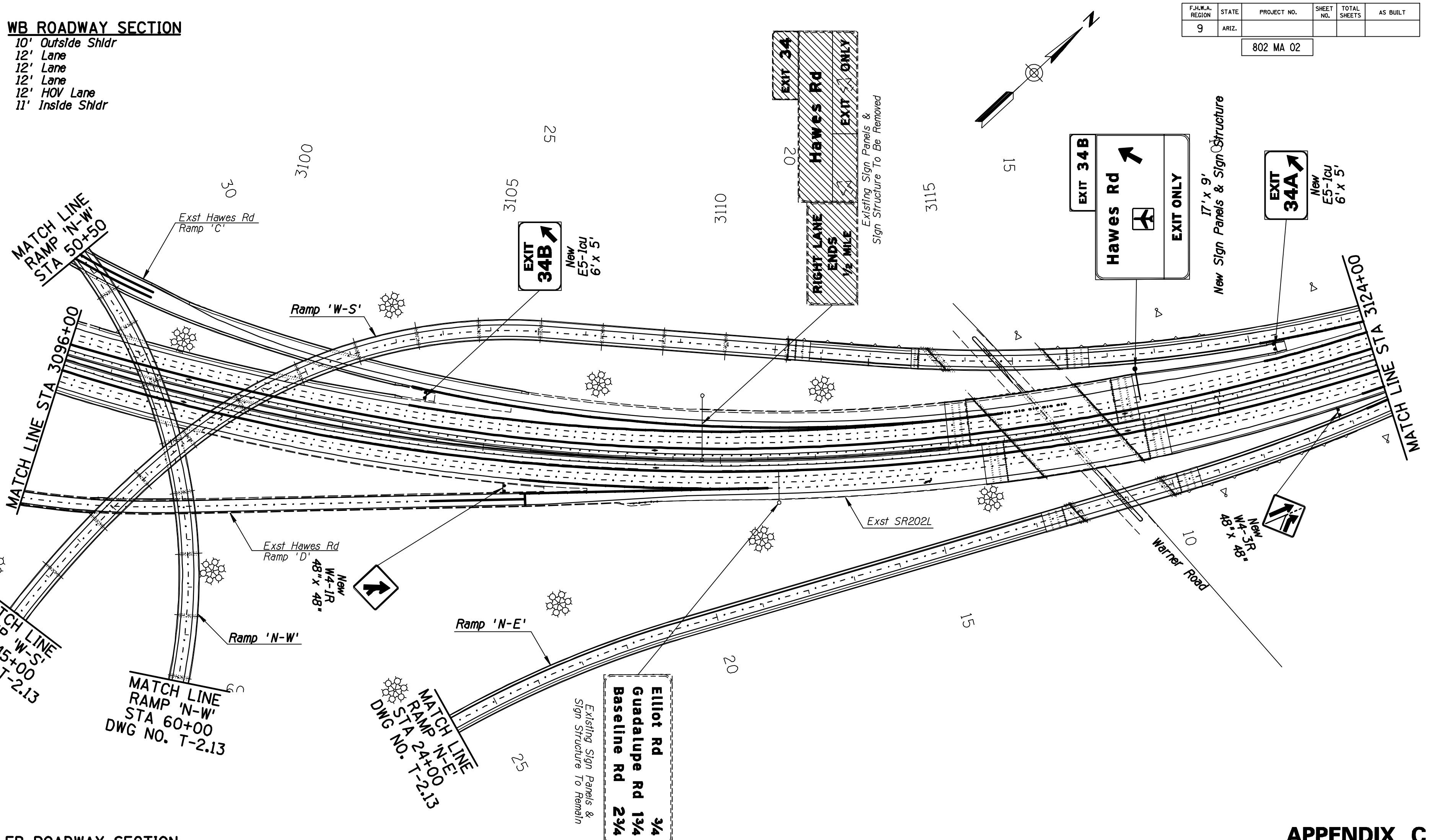
3/23/2011 U:\WG01\Prod\tra\t6867p107.dgn

WB ROADWAY SECTION

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3096+00 TO STA 3124+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

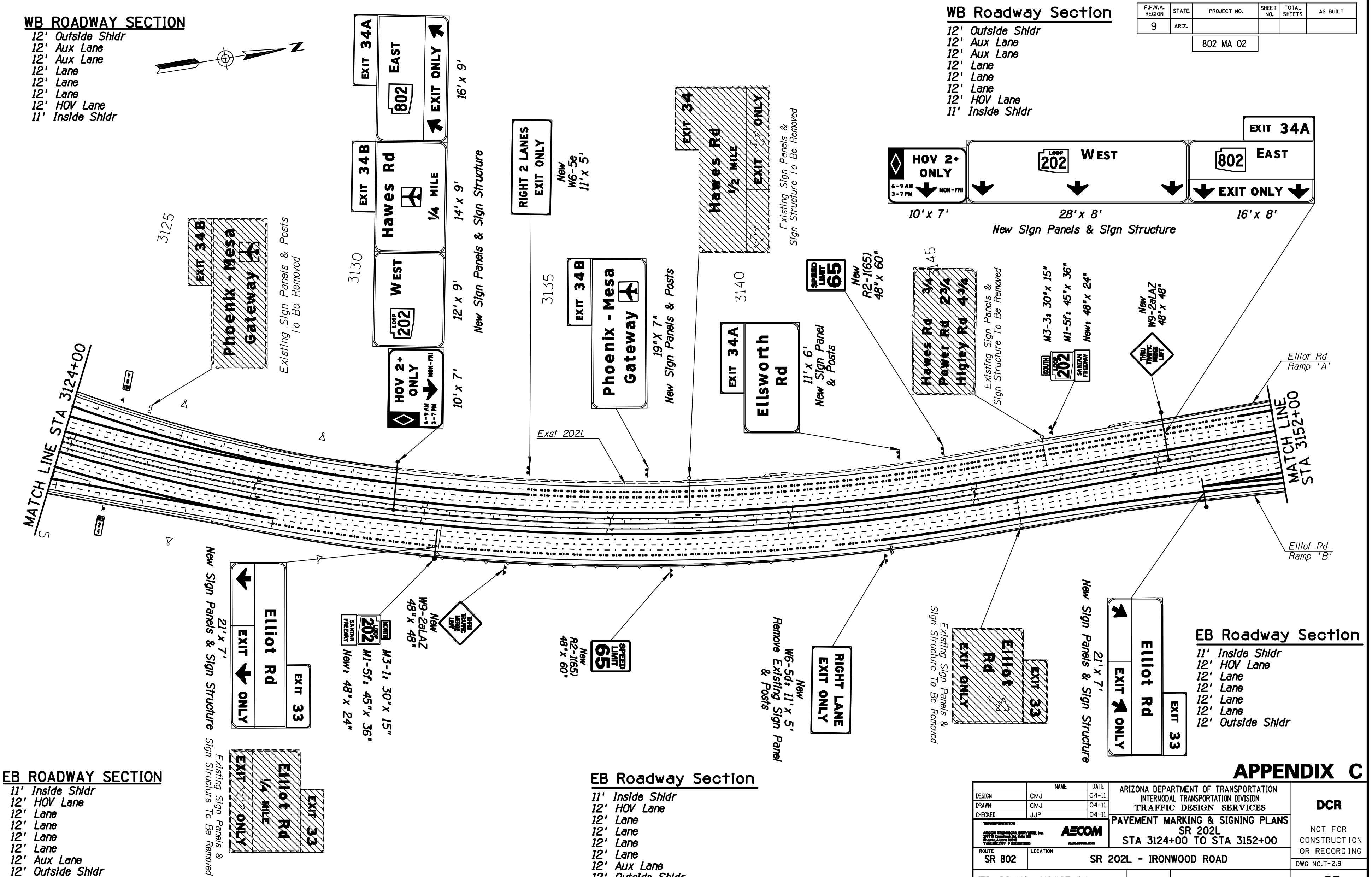
ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.8

TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p108.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX C

	NAME	DATE	
DESIGN	CMJ	04-11	ARIZONA DEPARTMENT OF TRANSPORTATION
DRAWN	CMJ	04-11	INTERMODAL TRANSPORTATION DIVISION
CHECKED	JJP	04-11	TRAFFIC DESIGN SERVICES

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3124+00 TO STA 3152+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.9

TRACS NO. H6867 01L

____ OF ____

4/7/2011 U:\WG01\Prod\tra\t6867p109.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

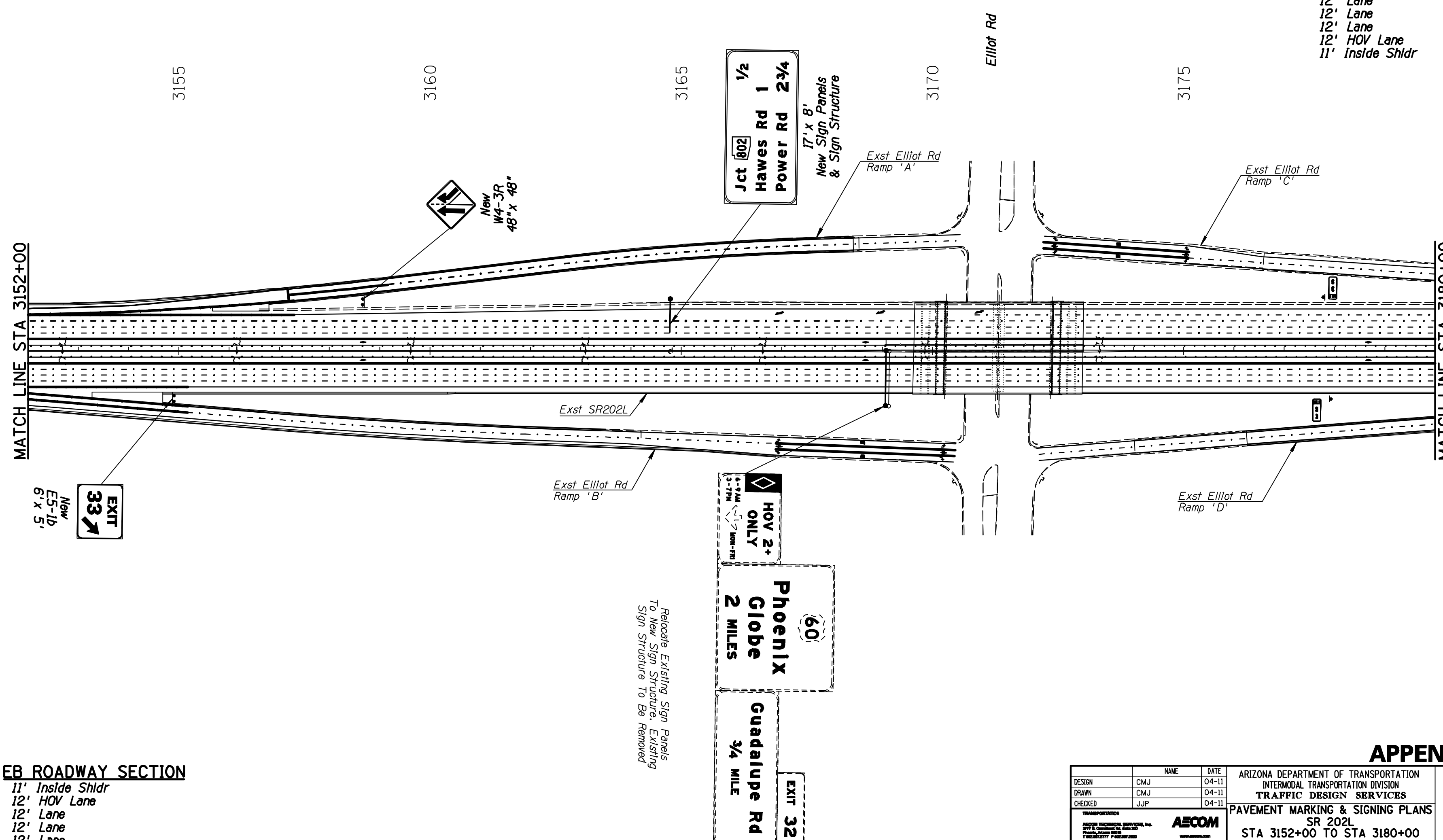
802 MA 02

WB ROADWAY SECTION

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

NB ROADWAY SECTION

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3152+00 TO STA 3180+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.10

TRACS NO. H6867 01L

___ OF ___

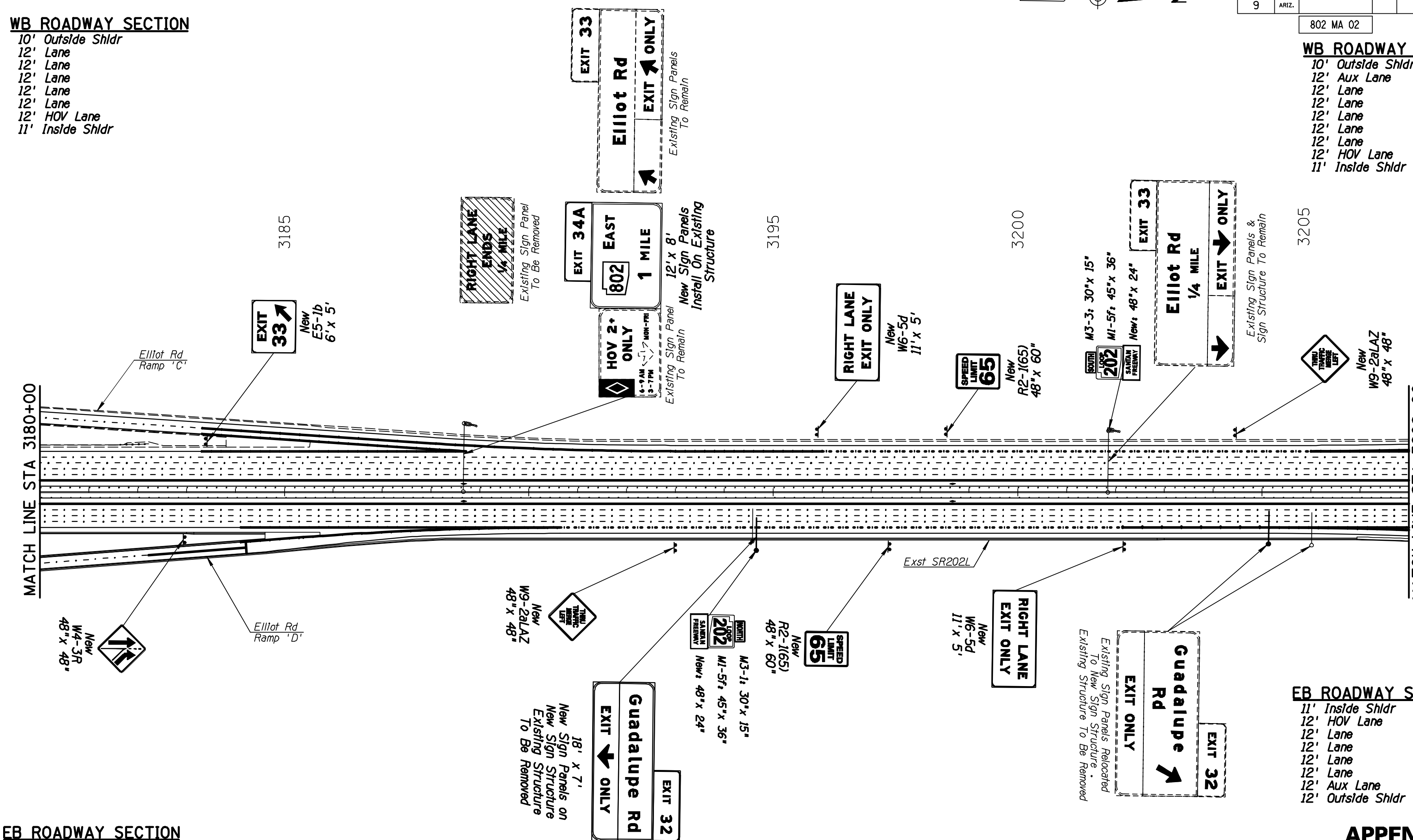
3/23/2011 U:\WG01\Prod\tra\t6867pl10.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION
10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

WB ROADWAY SECTION
10' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

EB ROADWAY SECTION
11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE	
DESIGN	CMJ	04-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES
DRAWN	CMJ	04-11	
CHECKED	JJP	04-11	

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 202L
STA 3180+00 TO STA 3208+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.11

TRACS NO. H6867 01L

____ OF ____

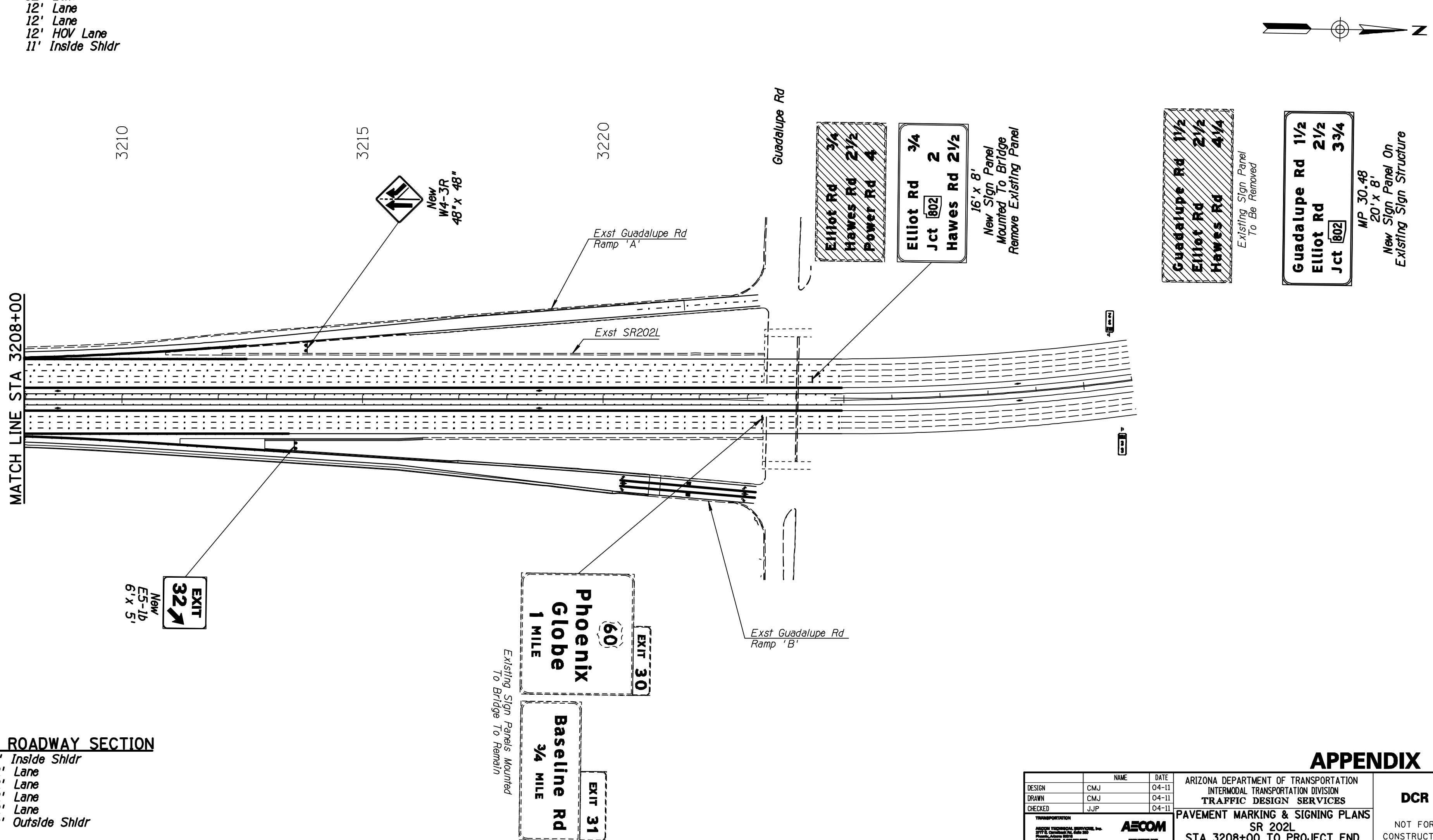
3/23/2011 U:\WG01\Prod\tra\t6867pl11.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION

10' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB ROADWAY SECTION

11' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
10' Outside Shldr

APPENDIX C

	NAME	DATE	
DESIGN	CMJ	04-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES
DRAWN	CMJ	04-11	
CHECKED	JJP	04-11	PAVEMENT MARKING & SIGNING PLANS SR 202L STA 3208+00 TO PROJECT END

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.12

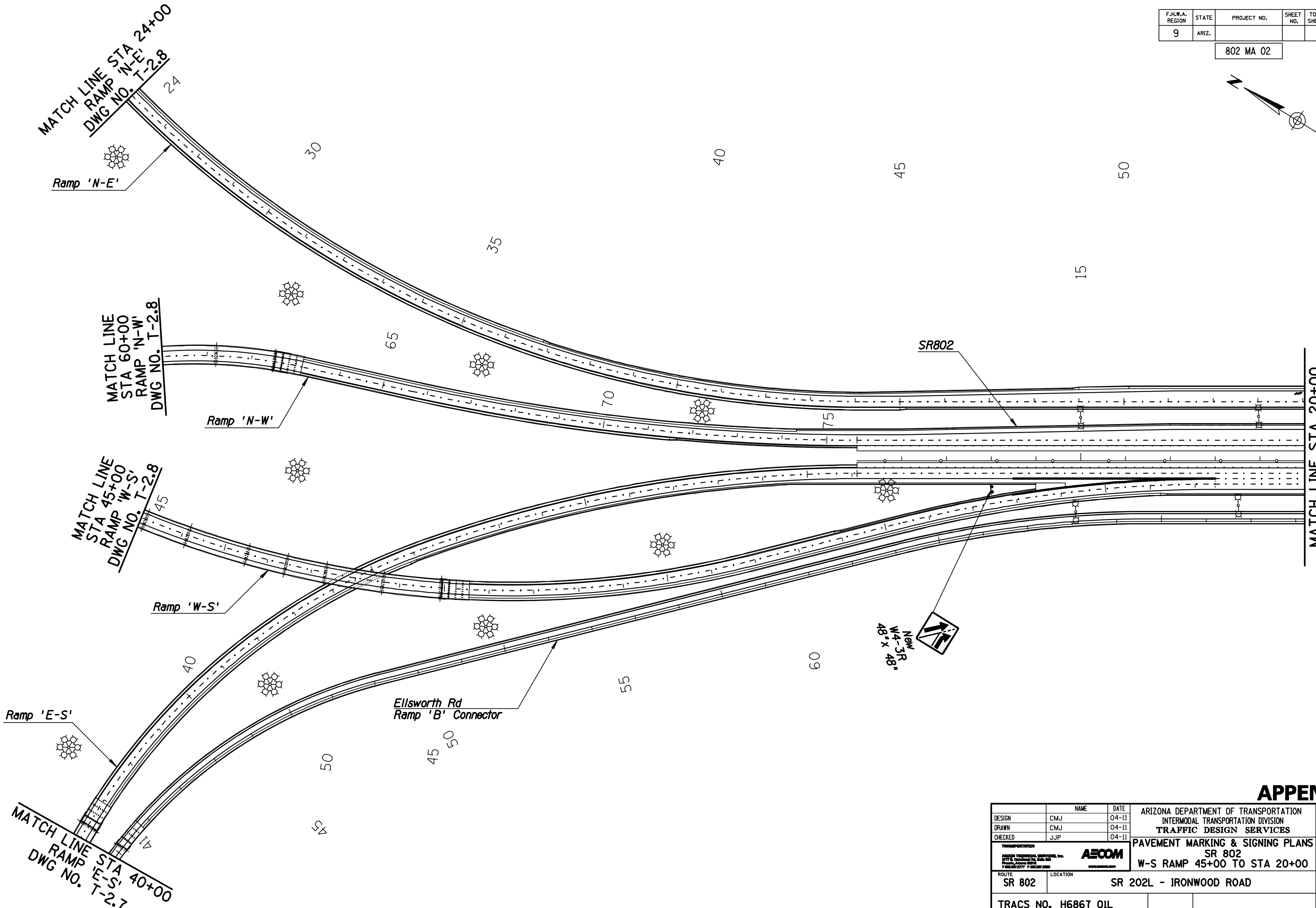
TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867pl12.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
W-S RAMP 45+00 TO STA 20+00

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.13

TRACS NO. H6867 01L

___ OF ___

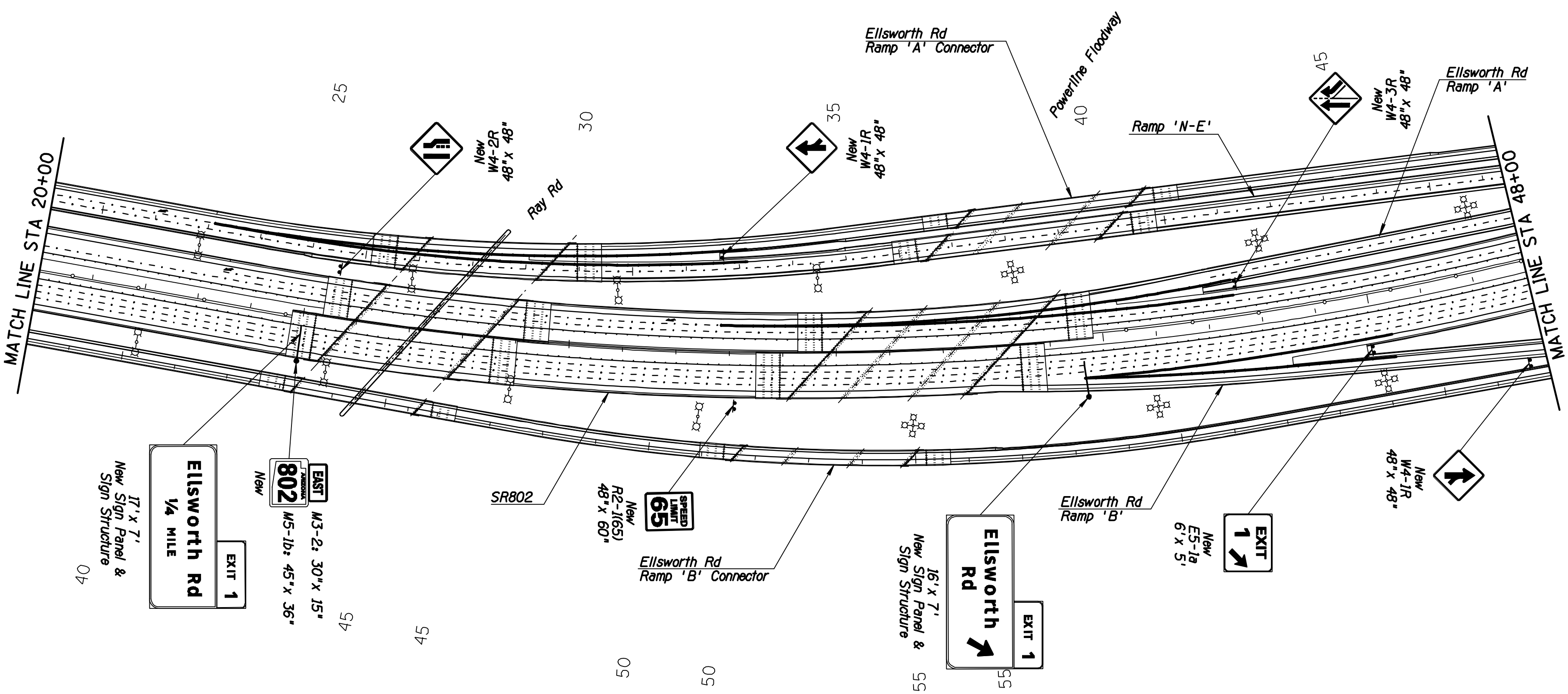
3/23/2011 U:\WG01\Prod\tra\t6867pl13.dgn

WB ROADWAY SECTION
12' Outside Shldr
24' Lane
12' Lane
12' Inside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION
12' Outside Shldr
12' Lane
12' Lane
12' Inside Shldr



EB ROADWAY SECTION
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE	
DESIGN	CMJ	04-11	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES
DRAWN	CMJ	04-11	
CHECKED	JJP	04-11	PAVEMENT MARKING & SIGNING PLANS SR 802 STA 20+00 TO STA 48+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.14

TRACS NO. H6867 01L

___ OF ___

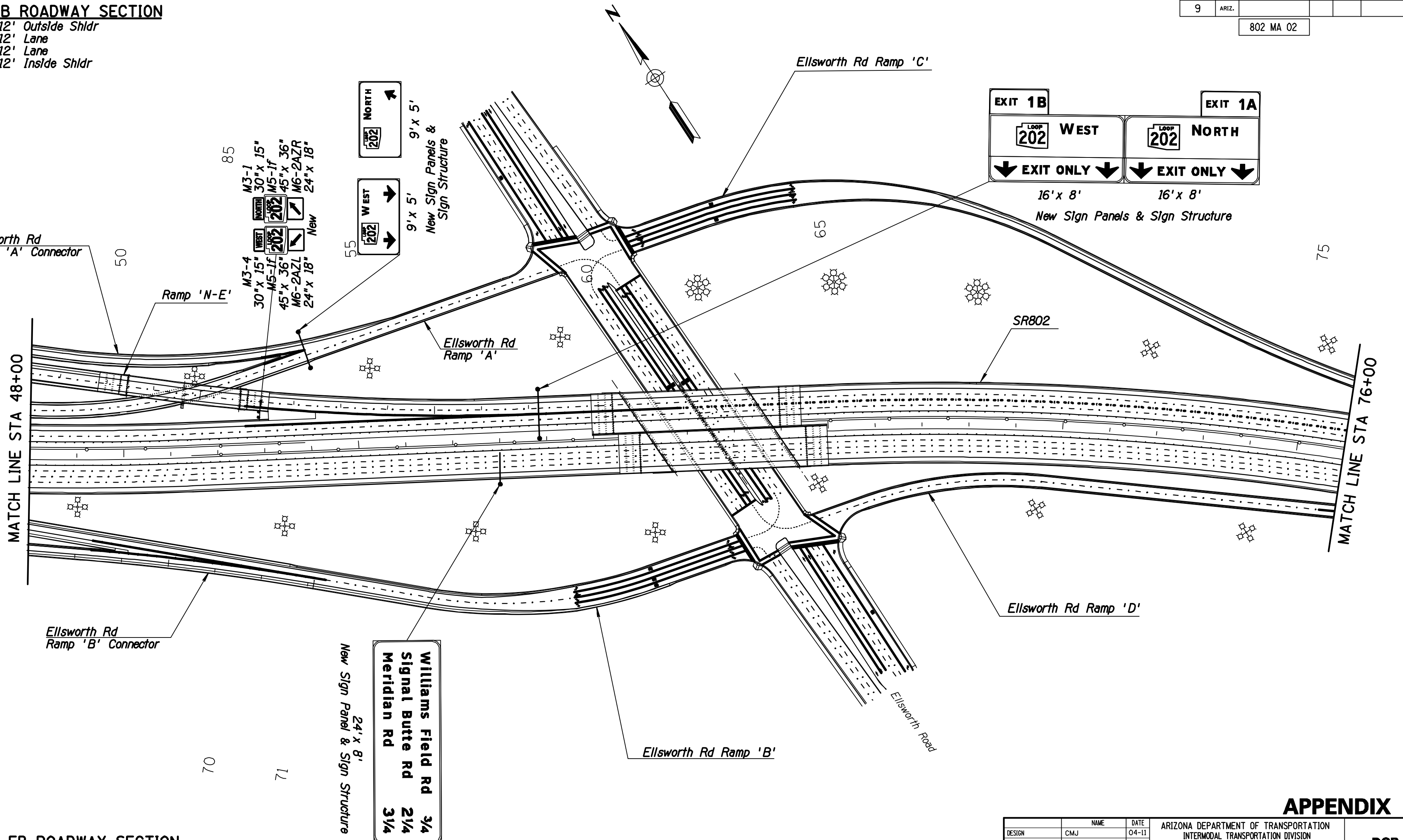
3/23/2011 U:\WG01\Prod\tra\t6867pl14.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION

12' Outside Shldr
12' Lane
12' Lane
12' Inside Shldr



APPENDIX C

EB ROADWAY SECTION

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 48+00 TO STA 76+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. T-2.15

TRACS NO. H6867 01L

___ OF ___

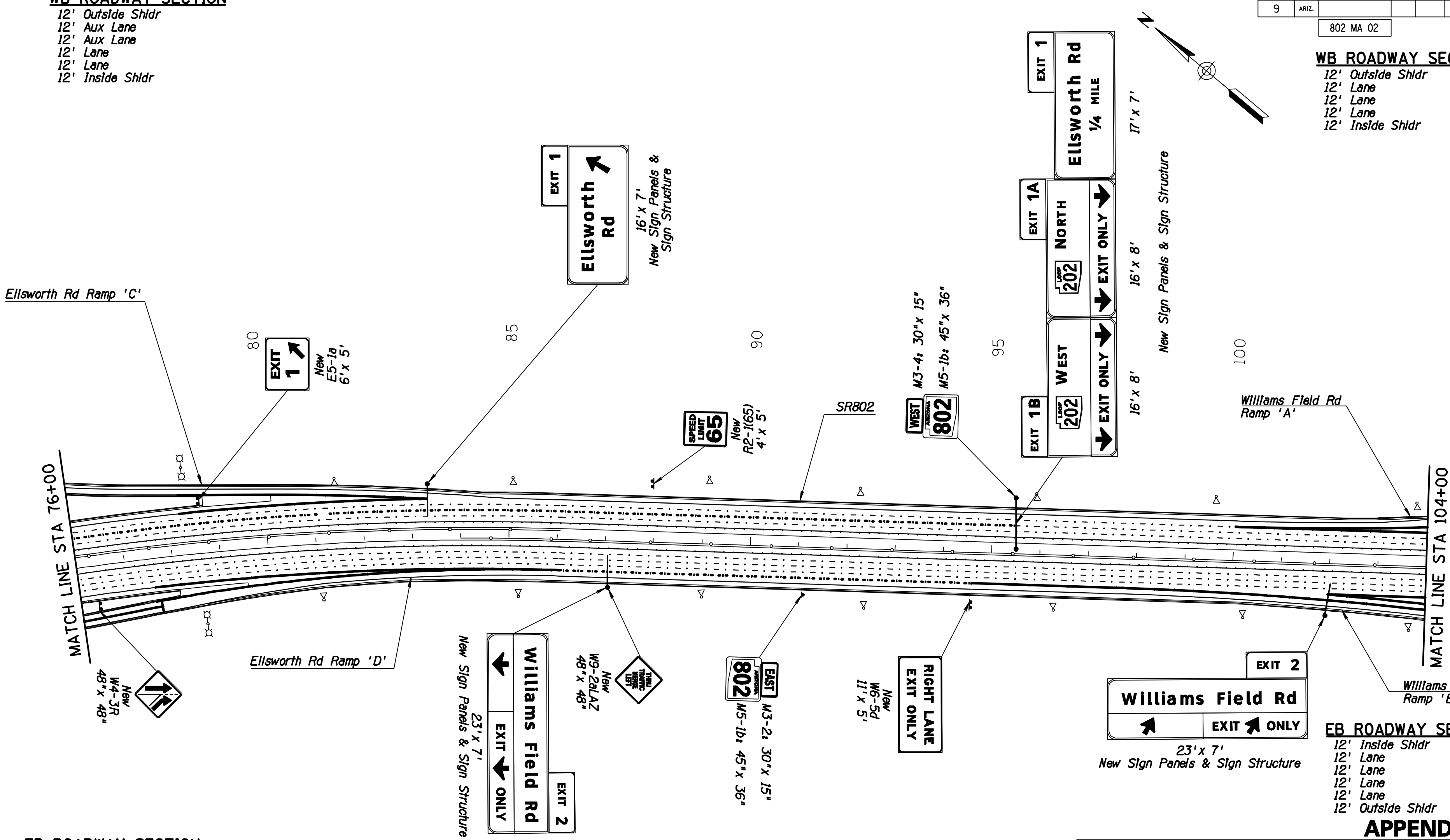
3/23/2011 U:\WG01\Prod\tra\t6867p115.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION
12' Outside Shldr
12' Aux Lane
12' Aux Lane
12' Lane
12' Lane
12' Inside Shldr

WB ROADWAY SECTION
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Inside Shldr



EB ROADWAY SECTION
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

EB ROADWAY SECTION
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB ROADWAY SECTION
12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 76+00 TO STA 104+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

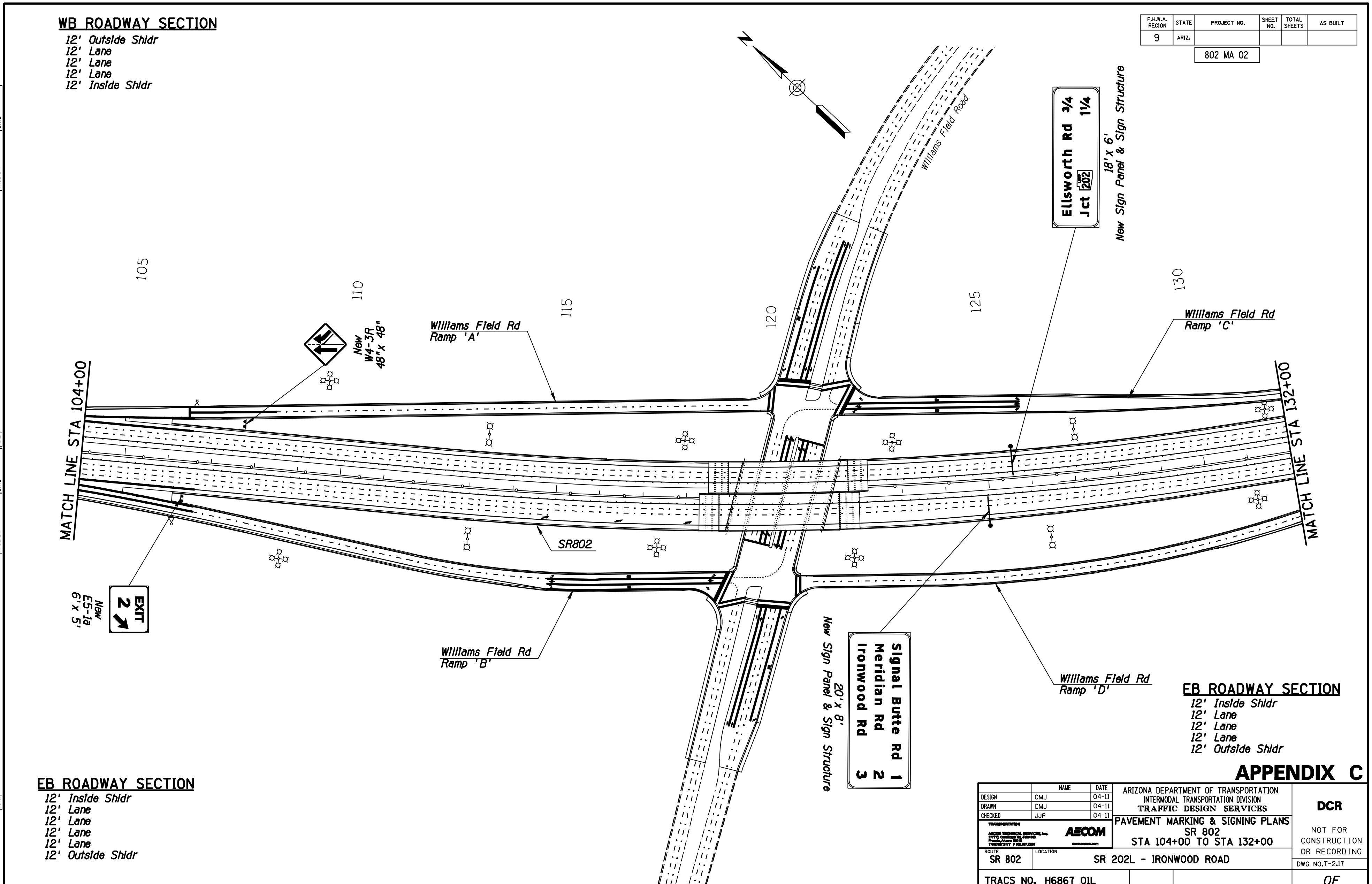
ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. T-2.16

TRACS NO. H6867 01L

____ OF ____

3/23/2011 U:\WG01\Prod\tra\t6867pl16.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

DCR

AECOM

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 104+00 TO STA 132+00

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.17

TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p117.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

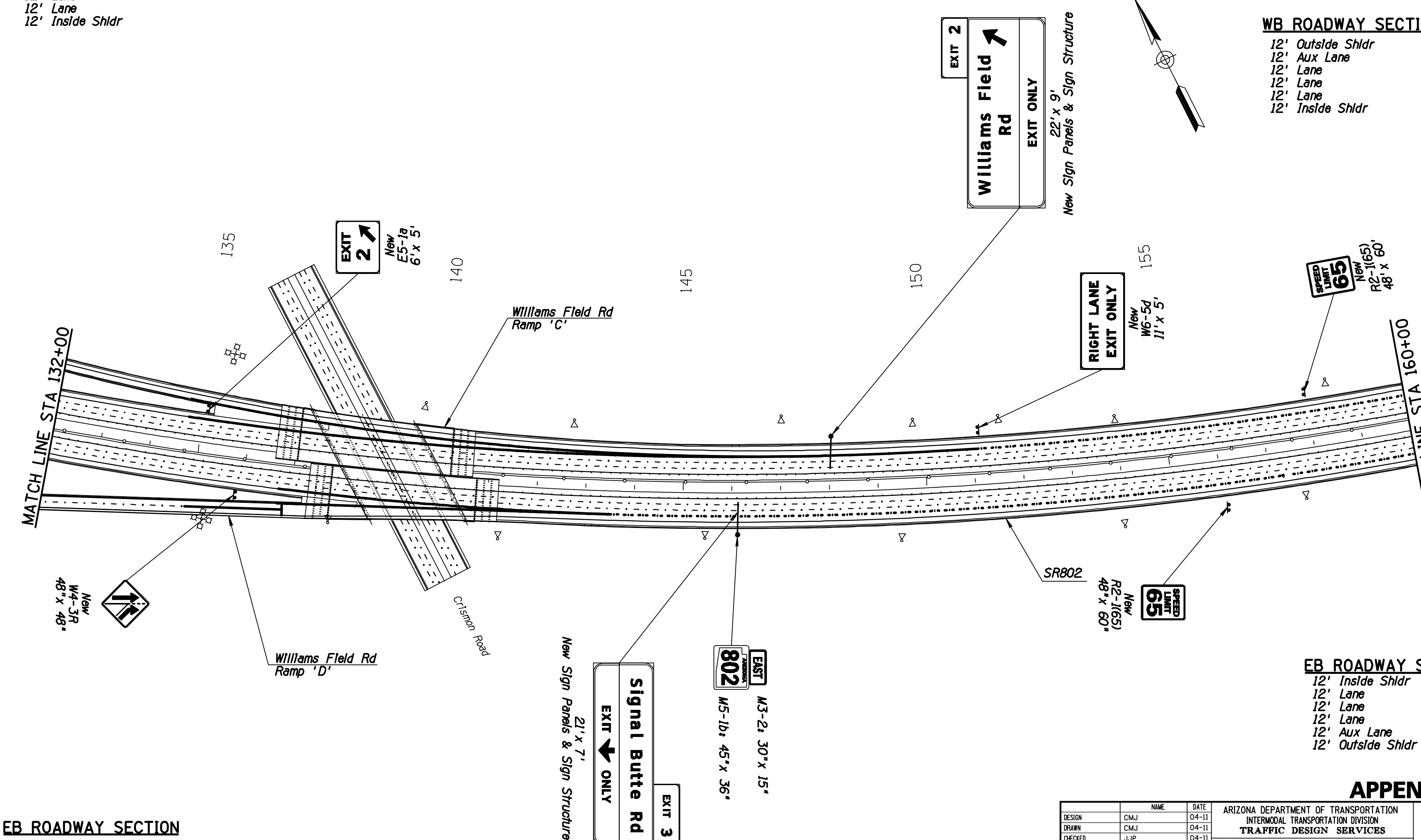
802 MA 02

WB ROADWAY SECTION

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Inside Shldr

WB ROADWAY SECTION

12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Inside Shldr



EB ROADWAY SECTION

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

EB ROADWAY SECTION

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 132+00 TO STA 160+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. T-2.18

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867pl18.dgn

WB ROADWAY SECTION

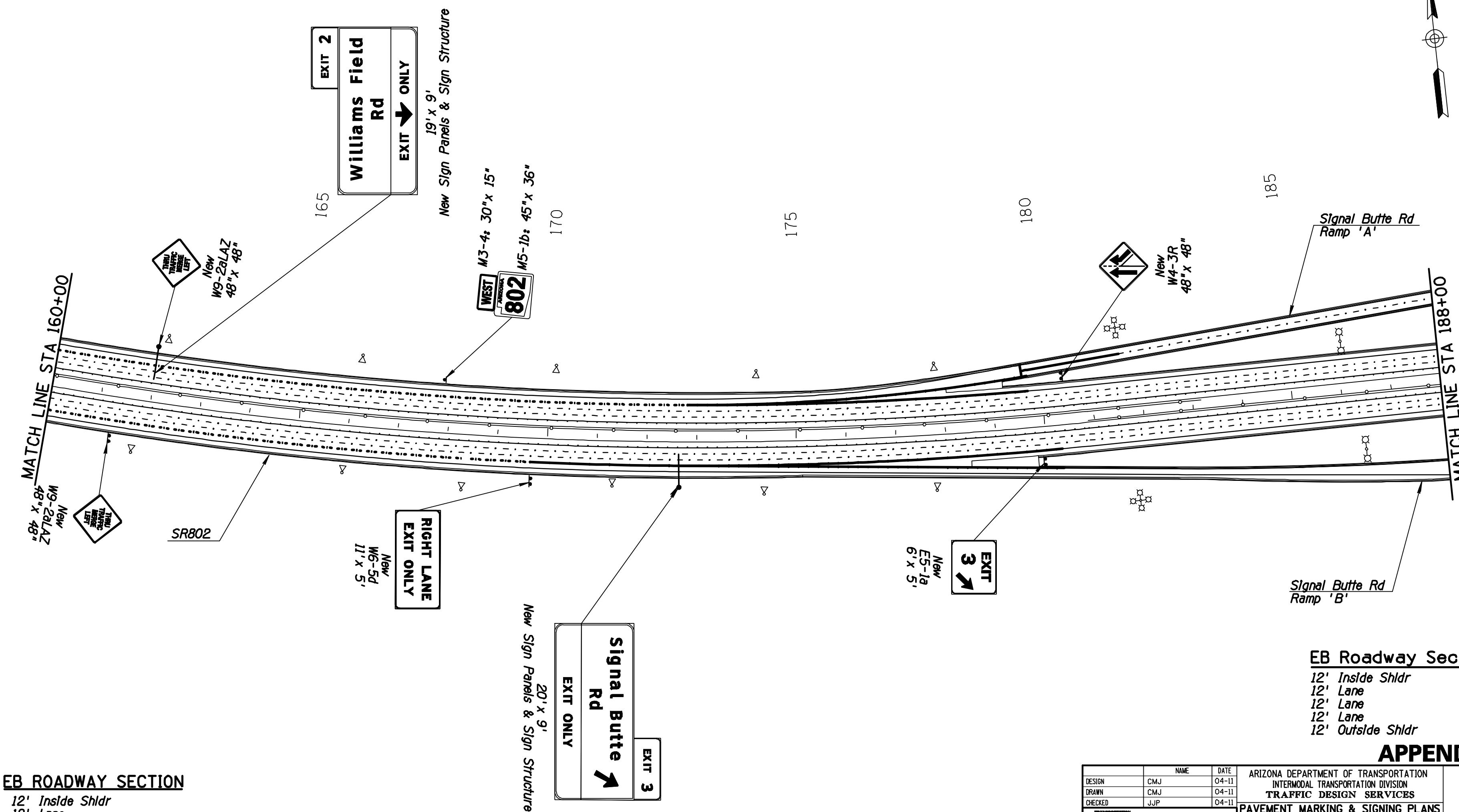
12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Inside Shldr

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' Inside Shldr

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



EB Roadway Section

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB ROADWAY SECTION

12' Inside Shldr
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Outside Shldr

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 160+00 TO STA 188+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR

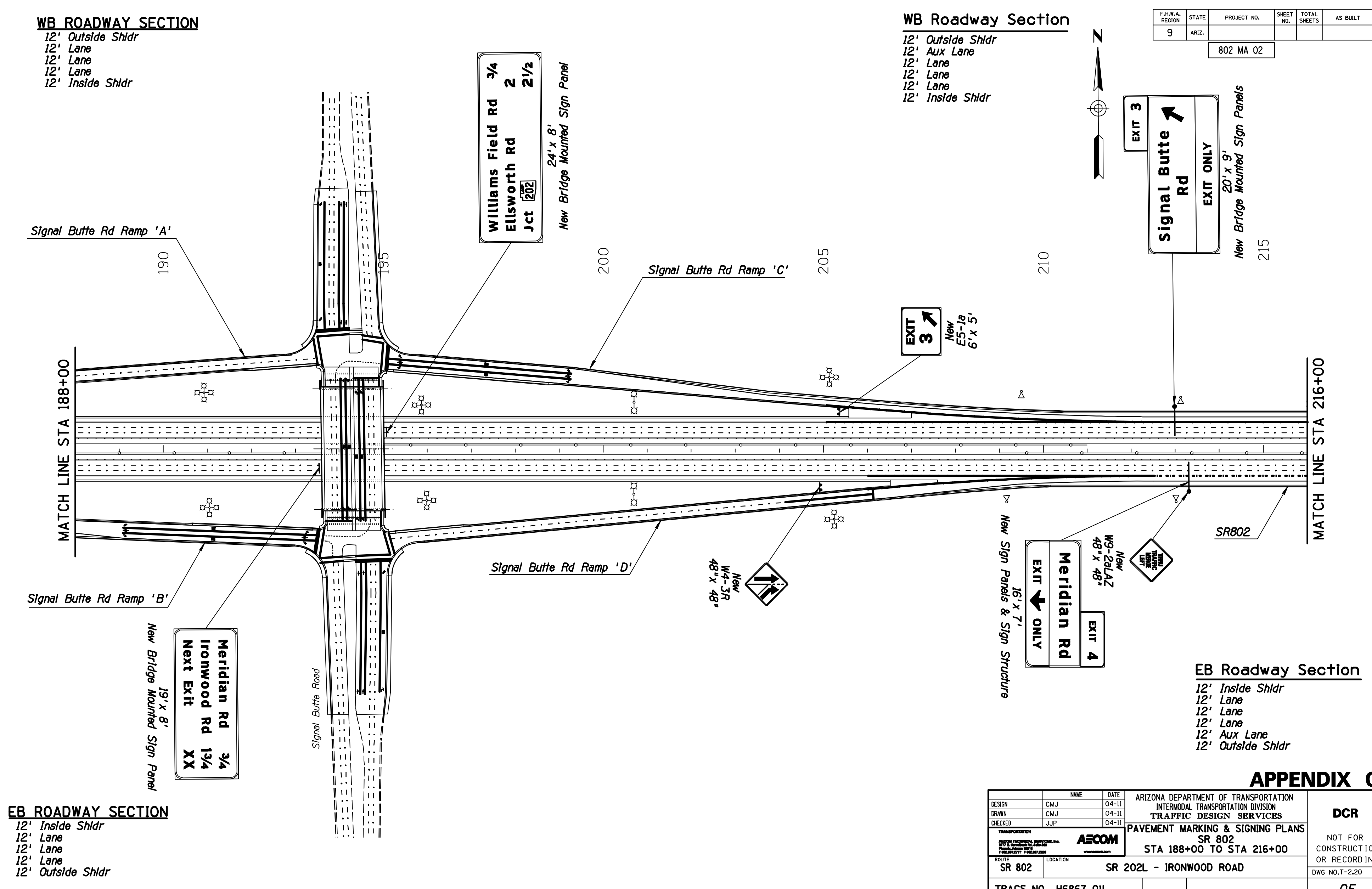
NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.19

TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p119.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 188+00 TO STA 216+00

AECOM

DCR

NOT FOR CONSTRUCTION OR RECORDING

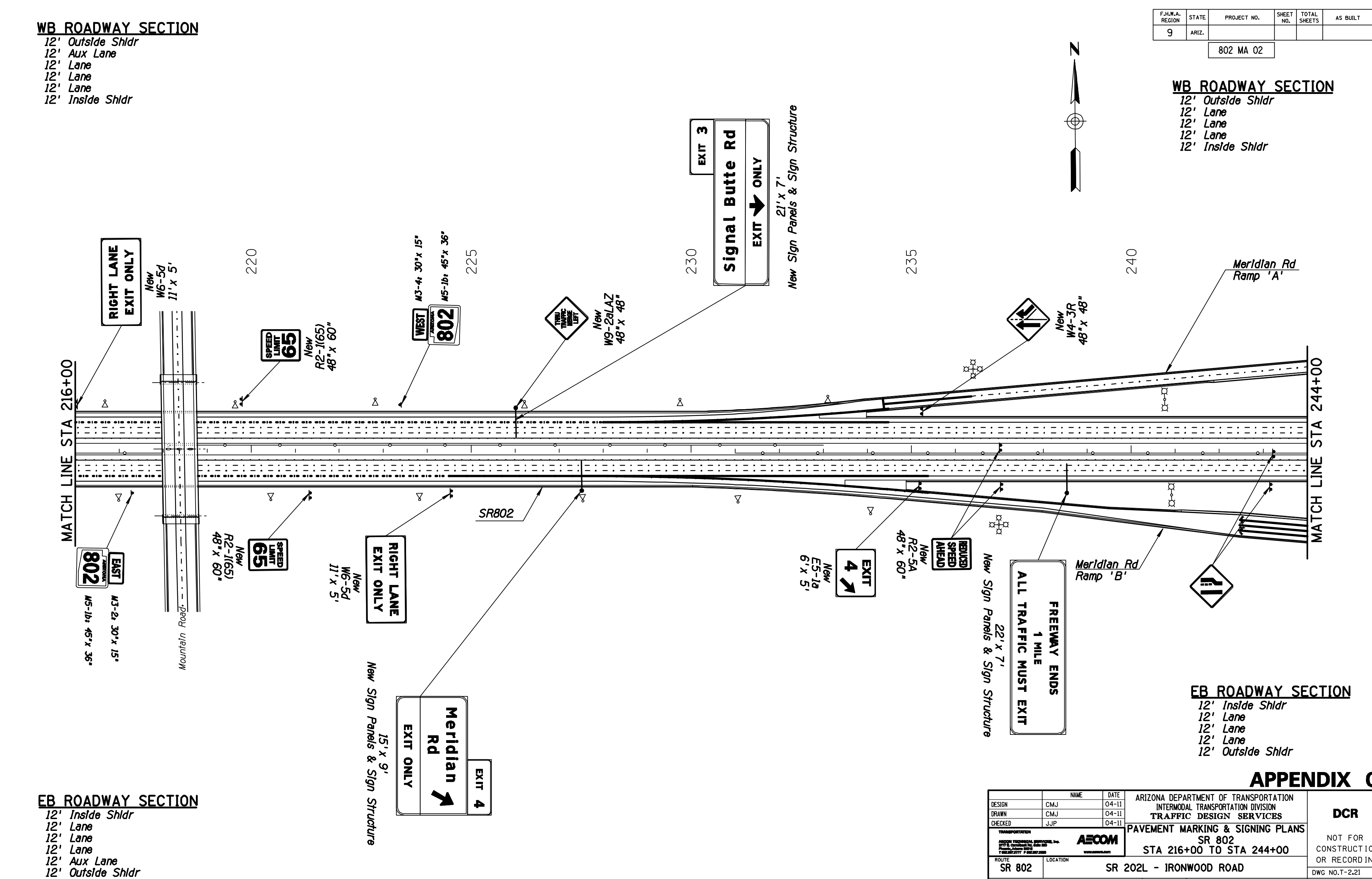
ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.20

TRACS NO. H6867 01L

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p120.dgn



APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 216+00 TO STA 244+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

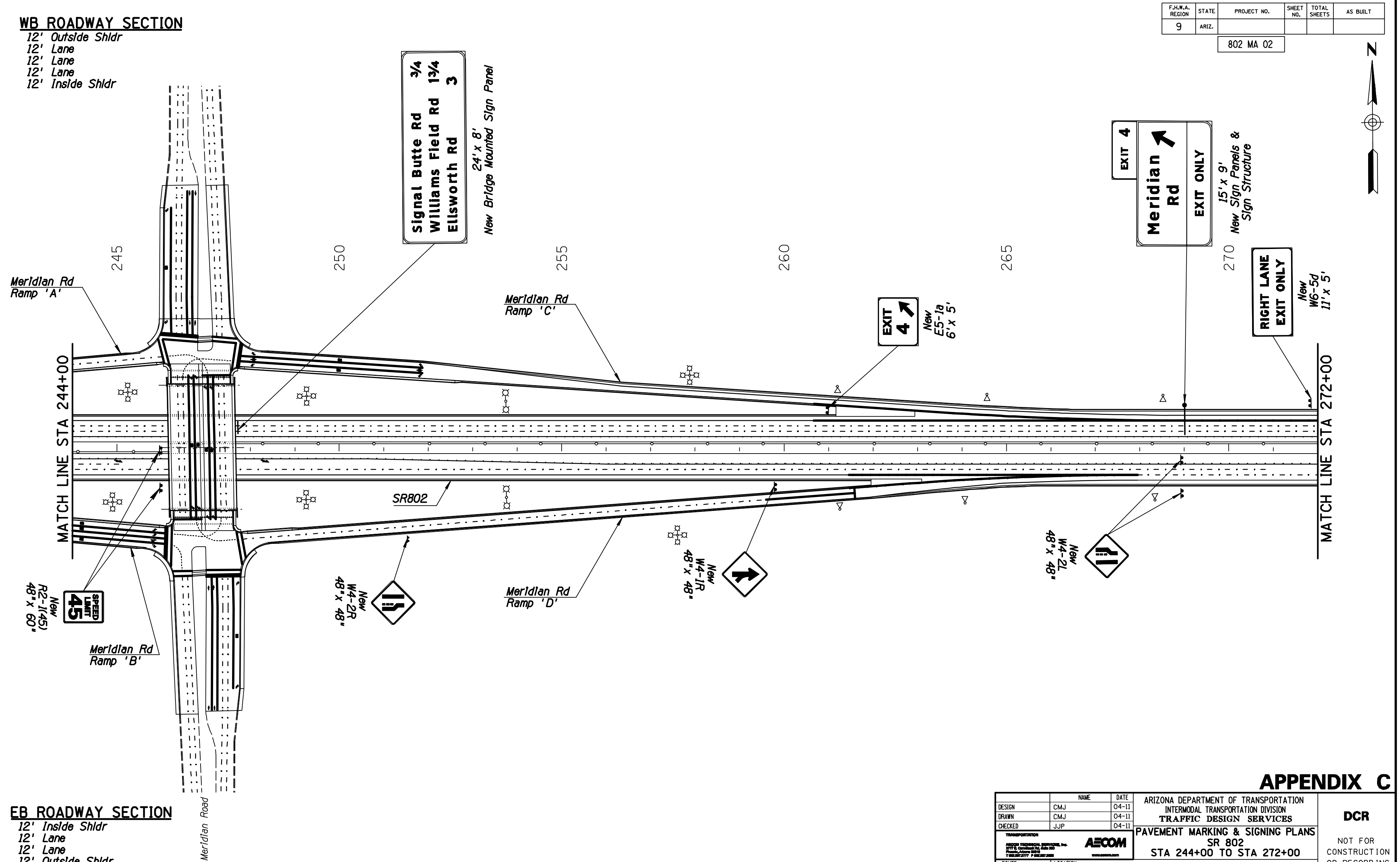
DCR
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. T-2.21
____ OF ____

TRACS NO. H6867 01L

3/23/2011 U:\WG01\Prod\tra\t6867pl21.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX C

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES	DCR
DESIGN	CMJ	04-11	PAVEMENT MARKING & SIGNING PLANS SR 802 STA 244+00 TO STA 272+00	NOT FOR CONSTRUCTION OR RECORDING
DRAWN	CMJ	04-11		
CHECKED	JJP	04-11		
AECOM				
ROUTE SR 802	LOCATION		SR 202L - IRONWOOD ROAD	DWG NO.T-2.22
TRACS NO. H6867 01L				___ OF ___

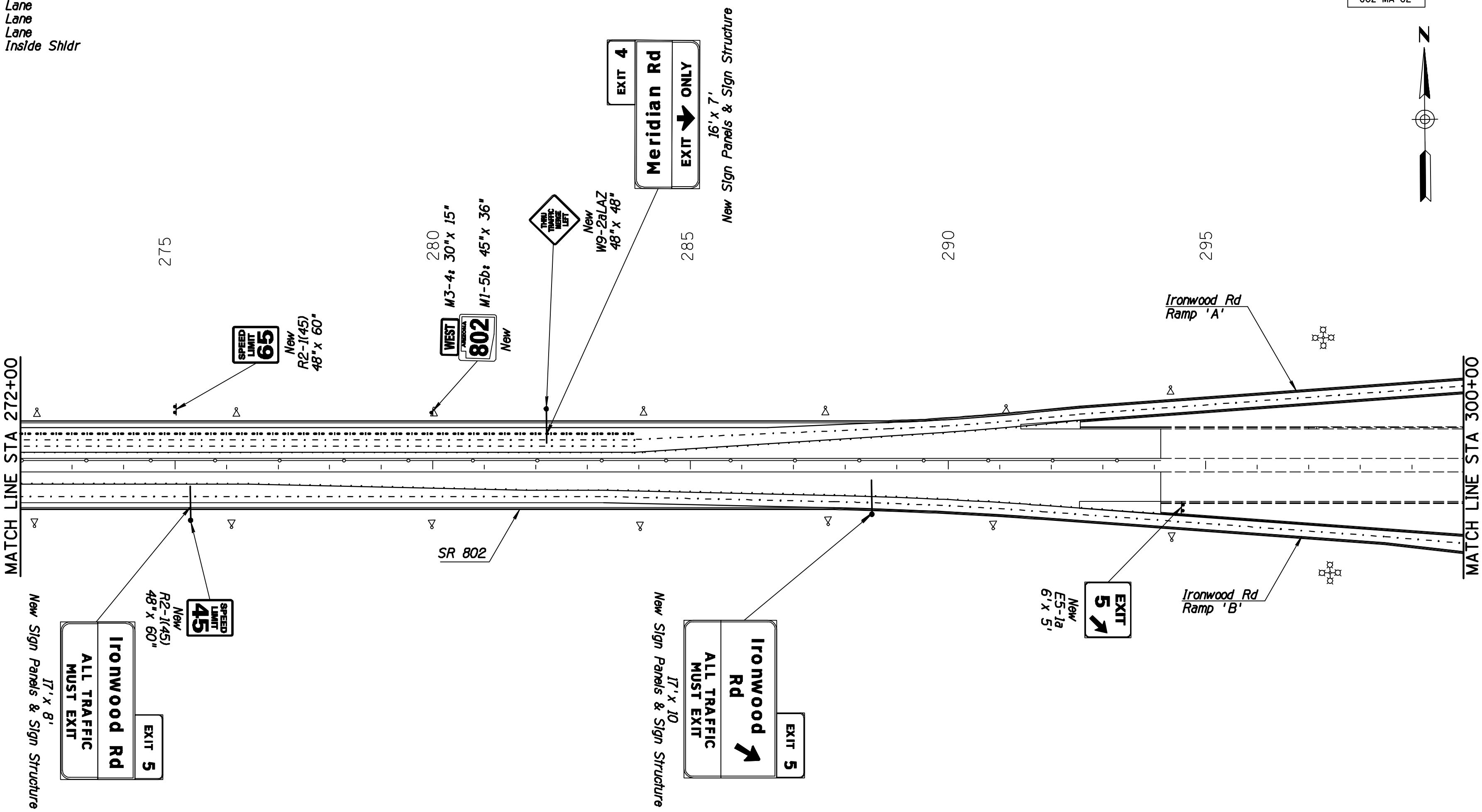
3/23/2011 U:\WG01\Prod\tra\t6867p122.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB ROADWAY SECTION

12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Inside Shldr



EB ROADWAY SECTION

20' Inside Shldr
12' Lane
12' Lane
12' Outside Shldr

NO.	DESCRIPTION OF REVISION	MADE BY	DATE
1			
2			

APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 272+00 TO STA 300+00

DCR

NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO.T-2.23

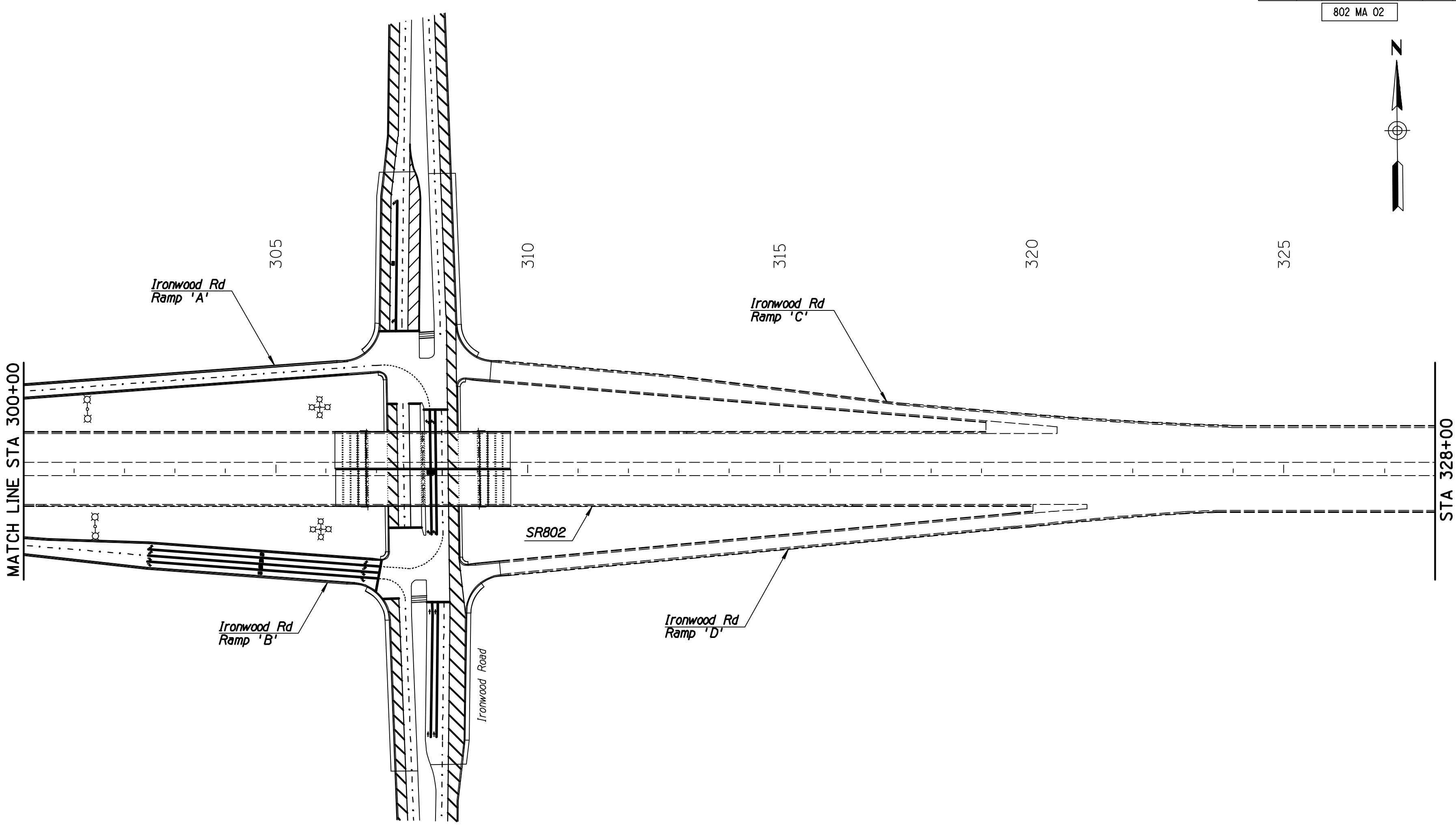
TRACS NO. H6867 01L

____ OF____

3/23/2011 U:\WG01\Prod\tra\t6867p123.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX C

	NAME	DATE
DESIGN	CMJ	04-11
DRAWN	CMJ	04-11
CHECKED	JJP	04-11

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802
STA 300+00 TO STA 328+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L

DCR

NOT FOR CONSTRUCTION OR RECORDING

DWG NO.T-2.24

___ OF ___

3/23/2011 U:\WG01\Prod\tra\t6867p124.dgn

NO.1 | DESCRIPTION OF REVISION | MADE BY | DATE
NO.2 | DESCRIPTION OF REVISION | MADE BY | DATE

APPENDIX D

SR 802 Profile Options Evaluation

- Technical Memorandum
- Profile Option Exhibits

AECOM
2777 East Camelback Road, Suite 200
Phoenix, Arizona 85016-4302
Tel: (602) 337-2777
Fax: (602) 337-2624

AECOM

Memorandum

Date: August 31, 2009

To: File

From: Steven Wilcox
Design Manager

Subject: SR 802, Williams Gateway Freeway
Elevated Versus Depressed Freeway Evaluation
Ellsworth Road – Meridian Road

The purpose of this Technical Memorandum is to summarize an evaluation that was conducted for three freeway profile design options for the segment of SR 802 between Ellsworth Road and Meridian Road, and provide a recommendation for the preferred profile option that would be implemented for the future project. The recommended option would attempt to balance the excavation and embankment needs and provide the most cost effective solution.

1. PROJECT BACKGROUND

The Regional Transportation Plan Freeway Program (RTPFP) includes the final design and construction of the SR 802, Williams Gateway Freeway in Phase 3 of the RTPFP. Two projects are identified which include the following:

- SR 802; SR 202L, Santan – Ellsworth Road (Phase 1)
- SR 802; Ellsworth Road – Meridian Road (Phase 2)

The first project (Phase 1) would construct the new freeway-to-freeway traffic interchange (TI) ramp connections between SR 202L and SR 802, a portion of the ultimate widening on SR 202L to support the SR202L/SR802 TI, a portion of the ultimate SR 802 mainline between SR 202L and Ellsworth Road, and interim connections to Ellsworth Road (to/from the west). Grade separations would be provided at Ray Road and the Powerline Floodway. The goal of this project is to provide access between SR 202L and Ellsworth Road using components of the ultimate facility with a minimum of "throw-away" costs.

The second project (Phase 2) would complete the remaining components of the ultimate SR202L/SR802 TI and west ramp connections to/from Ellsworth Road, additional widening on SR 202L to support the ultimate number of ramp lanes at the system interchange, and construction of the SR 802 mainline from west of Ellsworth Road to Meridian Road. Service traffic interchanges would be constructed at Williams Field Road, Signal Butte Road and Meridian Road. Grade separated crossings would also be provided at Crismon Road and Mountain Road.

2. EVALUATION METHODOLOGY

The three profile options that were evaluated for the segment of SR 802 between Ellsworth Road and Meridian Road included: 1.) balanced earthwork profile option; 2.); fully depressed profile option; and, 3.) fully elevated profile option.

The construction of Phase 1 would be completed with an elevated roadway design with all mainline and directional ramp roadways being elevated over SR 202L, Ray Road and the Powerline Floodway. After completion of Phase 1, approximately 981,000 cubic yards (c.y.) of embankment would be required between SR 202L and Ellsworth Road to construct the remaining segment of the SR 802 mainline west of

Ellsworth Road, the segment of the SR202L/SR802 TI Ramp 'N-E', the Ellsworth Road Ramp 'A' Connector, and the Ellsworth Road Ramp 'B' Connector. A shrinkage factor of 15% was applied to the roadway excavation, drainage excavation and channel excavation quantities in the earthwork quantity calculations.

An order-of-magnitude cost estimate of each of the profile options was developed to determine the incremental cost differences between each option. Quantities of major construction items including earthwork, pavement, storm drain, pump stations, curb and gutter, concrete half barrier, bridge structures, retaining walls, box culverts, and other items that would change as a result of each profile option were developed and included in each order-of-magnitude cost estimate. Unit prices were obtained from recent construction bid history and engineering judgment.

3. OPTION NO. 1 – BALANCED EARTHWORK PROFILE OPTION

The profile of the SR 802 would pass over Ellsworth Road, Williams Field Road and Crismon Road. East of Crismon Road the freeway would become depressed and pass beneath Signal Butte Road, Mountain Road and Meridian Road. Once passing beneath Meridian Road, the mainline would transition to an at-grade facility in Pinal County. The plan and profile drawings for this option are provided in Attachments B and E, respectively.

An offsite drainage channel is planned along the north side of the SR 802 right-of-way between the Powerline Floodway and at least Meridian Road for all of the options. The channel would collect and convey all offsite and onsite drainage to the west and discharge into the Powerline Floodway. Within the elevated freeway segment, the onsite drainage system would consist of a network of catch basins and laterals that would convey all pavement runoff to the north drainage channel. Within the depressed freeway segment from east of Crismon Road to Meridian Road, the drainage system would consist of a network of catch basins, laterals and trunk lines that would convey the freeway drainage to a new pump station located near Signal Butte Road.

The combination of the roadway and channel excavation would satisfy the embankment needs for the Phase 2 project. The profile would be refined during final design to optimize the earthwork balance. The order cost estimate for the roadway, drainage and structures items would be approximately $152 million, as shown in Attachment B.

4. OPTION NO. 2 – DEPRESSED FREEWAY PROFILE OPTION

The profile of the SR 802 would pass over Ellsworth Road and then beneath Williams Field Road, Crismon Road, Signal Butte Road, Mountain Road and Meridian Road. Once passing beneath Meridian Road, the mainline would transition to an at-grade facility in Pinal County. The plan and profile drawings for this option are provided in Attachments C and E, respectively.

Within the depressed freeway segment from east of Ellsworth Road to Meridian Road, the drainage system would consist of a network of catch basins, laterals and trunk lines that would convey the freeway drainage to a new pump station located near Williams Field Road and a second pump station located near Signal Butte Road.

The combination of the roadway and channel excavation would result in approximately 1.7 million cubic yards of waste material for the Phase 2 project. The order cost estimate for the roadway, drainage and structures items would be approximately $170 million, which would be an additional $18 million when compared to Option 1.

5. OPTION NO. 3 – ELEVATED FREEWAY PROFILE OPTION

The profile of the SR 802 would pass over Ellsworth Road, Williams Field Road, Crismon Road, Signal Butte Road, Mountain Road and Meridian Road. Once passing over Meridian Road, the mainline would transition to an at-grade facility in Pinal County. The plan and profile drawings for this option are provided in Attachments D and E, respectively.

The onsite drainage system would consist of a network of catch basins and laterals that would convey all pavement runoff to the north drainage channel.

The elevated profile option would require approximately 4.7 million cubic yards of borrow material for the Phase 2 project. The order cost estimate for the roadway, drainage and structures items would be approximately $215 million, which would be an additional $63 million when compared to Option 1 and $45 million when compared to Option 2.

6. RECOMMENDATION

Based upon the benefits of the balanced profile on the earthwork balance and project costs for the Phase 2 project, Option 1 is recommended for implementation for the future project on SR 802 between Ellsworth Road and Meridian Road.

SR 802 Balanced Earthwork Option Order of Magnitude Itemized Estimate

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2030301	ROADWAY EXCAVATION (WASTE)	CU.YD.	195,530	10.00	1,955,300
2030301	ROADWAY EXCAVATION (TO BE USED IN PLACE)	CU.YD.	2,717,478	6.00	16,304,900
2030451	CHANNEL EXCAVATION	CU.YD.	364,365	6.00	2,186,200
2030900	BORROW (PHASE 2, WEST OF ELLSWORTH ROAD)	CU.YD.	981,608	-	-
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	3,551	18.00	64,000
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	107,161	30.00	3,215,500
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AC)	SQ.YD.	135,607	30.00	4,068,300
4010015	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	83,954	30.00	2,518,700
4060023	ASPHALTIC CONCRETE (CROSSROADS)	SQ.YD.	84,252	35.00	2,948,900
4070001	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	295,734	5.00	1,478,700
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	5,369	110.00	590,600
5011057	PIPE, REINFORCED CONCRETE, CLASS II, 54"	L.FT.	1,050	180.00	189,000
5011062	PIPE, REINFORCED CONCRETE, CLASS II, 60"	L.FT.	2,155	240.00	517,200
5012524	STORM DRAIN PIPE, 24"	L.FT.	101,527	60.00	6,091,700
5012530	STORM DRAIN PIPE, 30"	L.FT.	450	80.00	36,000
5012536	STORM DRAIN PIPE, 36"	L.FT.	440	100.00	44,000
5012542	STORM DRAIN PIPE, 42"	L.FT.	350	120.00	42,000
5012548	STORM DRAIN PIPE, 48"	L.FT.	1,800	140.00	252,000
5030001	CONCRETE CATCH BASIN (C-15.10) SINGLE, H=8' OR LESS	EACH	20	3,000.00	60,000
5030021	CONCRETE CATCH BASIN (C-15.20) ONE 3.5' WING, H=8' OR LESS	EACH	30	3,200.00	96,000
5030142	CONCRETE CATCH BASIN (C=15.80) H=8' OR LESS	EACH	110	2,800.00	308,000
5030604	CONCRETE CATCH BASIN (C-15.91) H=8' OR LESS	EACH	278	3,200.00	883,200
5030606	CONCRETE CATCH BASIN (C-15.92) H=8' OR LESS	EACH	91	3,500.00	318,500
5050031	MANHOLE (C-18.10) (NO. 3) (FOR PIPES 6" TO 36")	EACH	57	3,500.00	199,500
5050032	MANHOLE (C-18.10) (NO. 3) (FOR PIPES OVER 36")	EACH	9	5,500.00	49,500
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	6	3,200.00	19,200
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	6	4,500.00	27,000
9080084	CONCRETE CURB AND GUTTER	L.FT.	74,221	15.00	1,113,400
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	34,264	4.00	137,100
9100000	CONCRETE BARRIER (SINGLE FACE WITH GUTTER)	L.FT.	6,780	60.00	406,800
9100009	CONCRETE BARRIER ADJACENT TO RETAINING WALL	L.FT.	1,000	75.00	75,000
9140153	RETAINING WALL (REGULAR)	SQ.FT.	11,000	55.00	605,000
9201008	CONCRETE CHANNEL LINING (6")	SQ.YD.	183,589	50.00	9,179,500
9240100	MISCELLANEOUS WORK (SIGNAL BUTTE LIFT STATION)	L.SUM	1	4,800,000.00	4,800,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS EB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS WB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (MOUNTAIN ROAD UNDERPASS)	L.SUM	1	2,582,600.00	2,582,600
9999910	LUMP SUM (SIGNAL BUTTE ROAD UNDERPASS)	L.SUM	1	4,119,300.00	4,119,300
9999910	LUMP SUM (WILLIAMS FIELD ROAD OVERPASS)	L.SUM	1	4,236,700.00	4,236,700
9999910	LUMP SUM (MERIDIAN ROAD UNDERPASS)	L.SUM	1	4,446,825.00	4,446,900
9999910	LUMP SUM (CRISMON ROAD OVERPASS)	L.SUM	1	5,571,200.00	5,571,200
9999911	LUMP SUM (RCB CULVERT (MOUNTAIN ROAD))	L.SUM	1	220,448.00	220,500
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (SIGNAL BUTTE ROAD))	L.SUM	1	252,825.00	252,900
9999911	LUMP SUM (RCB CULVERT (3-8'X8'X180') (CRISMON ROAD))	L.SUM	1	365,851.00	365,900
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (ELLSWORTH ROAD))	L.SUM	1	508,553.00	508,600
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X200') (WILLIAMS FIELD ROAD))	L.SUM	1	559,379.00	559,400
9999911	LUMP SUM (RCB CULVERT (1-8'X8'X1000') (SIGNAL BUTTE PUMP STATION ST(	L.SUM	1	804,977.00	805,000
9999911	LUMP SUM (RCB CULVERT (1-8'X8'X1500') (WILLIAMS FIELD PUMP STATION S'	L.SUM	1	804,977.00	805,000
			ITEM TOTAL		89,912,700

SR 802 Balanced Earthwork Option Order of Magnitude Itemized Estimate (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
PROJECT WIDE					
	Maintenance and Protection of Traffic	COST		1,000,000.00	1,000,000
	Dust and Water Palliative (0.75%)	COST		675,000.00	675,000
	Quality Control (2%)	COST		1,799,000.00	1,799,000
	Construction Surveying (2%)	COST		1,799,000.00	1,799,000
	Erosion Control (0.3%)	COST		270,000.00	270,000
	Mobilization (8% of all construction items)	COST		8,301,000.00	8,301,000
			PROJECT WIDE SUBTOTAL		13,844,000
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		20,752,000.00	20,752,000
			PROJECT WIDE TOTAL		34,596,000
OTHER COST					
	Construction Engineering (9%)	COST		11,206,000.00	11,206,000
	Construction Contingencies (5%)	COST		6,226,000.00	6,226,000
	Environmental Mitigation (Unknown at this time)	COST		-	-
	PCCP Quality Incentive	SQ.YD.	0	1.50	-
	AR-ACFC Smoothness Incentive	L.MILE	0	11,000.00	-
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST		9,961,000.00	9,961,000
	Right-of-Way	COST		-	-
			OTHER COST TOTAL		27,393,000

SUMMARY

ITEM TOTAL	89,912,700
PROJECT WIDE	34,596,000
OTHER COST TOTAL	27,393,000
TOTAL PROJECT COST	151,901,700

SR 802 Depressed Option Order of Magnitude Itemized Estimate

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT
2030301	ROADWAY EXCAVATION (TO BE USED IN PLACE)	CU.YD.	1,453,996	6.00	8,724,000
2030301	ROADWAY EXCAVATION (WASTE)	CU.YD.	1,716,372	10.00	17,163,800
2030451	CHANNEL EXCAVATION	CU.YD.	272,219	6.00	1,633,400
2030900	BORROW (PHASE 2, WEST OF ELLSWORTH ROAD)	CU.YD.	981,608	-	-
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	2,127	18.00	38,300
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	43,718	35.00	1,530,200
4010012	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AC)	SQ.YD.	215,066	35.00	7,527,400
4010015	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	81,840	30.00	2,455,200
4060023	ASPHALTIC CONCRETE (CROSSROADS)	SQ.YD.	77,911	35.00	2,726,900
4070001	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	311,730	5.00	1,558,700
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	2,207	110.00	242,800
5011057	PIPE, REINFORCED CONCRETE, CLASS II, 54"	L.FT.	1,200	180.00	216,000
5011058	PIPE, REINFORCED CONCRETE, CLASS III, 54"	L.FT.	300	210.00	63,000
5011059	PIPE, REINFORCED CONCRETE, CLASS IV, 54"	L.FT.	1,000	220.00	225,000
5011060	PIPE, REINFORCED CONCRETE, CLASS V, 54"	L.FT.	500	225.00	120,000
5011062	PIPE, REINFORCED CONCRETE, CLASS II, 60"	L.FT.	600	240.00	200,000
5011063	PIPE, REINFORCED CONCRETE, CLASS III, 60"	L.FT.	700	250.00	182,000
5011064	PIPE, REINFORCED CONCRETE, CLASS IV, 60"	L.FT.	900	260.00	54,000
5012524	STORM DRAIN PIPE, 24"	L.FT.	300	60.00	30,000
5012536	STORM DRAIN PIPE, 36"	L.FT.	2,400	100.00	288,000
5012542	STORM DRAIN PIPE, 42"	L.FT.	680	120.00	95,200
5012548	STORM DRAIN PIPE, 48"	L.FT.	2,400	140.00	7,200,000
5030001	CONCRETE CATCH BASIN (C-15.10) SINGLE, H=8' OR LESS	EACH	4	3,000.00	12,800
5030021	CONCRETE CATCH BASIN (C-15.20) ONE 3.5' WING, H=8' OR LESS	EACH	6	3,200.00	16,800
5030142	CONCRETE CATCH BASIN (C=15.80) H=8' OR LESS	EACH	56	2,800.00	179,200
5030604	CONCRETE CATCH BASIN (C-15.91) H=8' OR LESS	EACH	140	3,200.00	490,000
5030606	CONCRETE CATCH BASIN (C-15.92) H=8' OR LESS	EACH	46	3,500.00	161,000
5050031	MANHOLE (C-18.10) (NO. 3) (FOR PIPES 6" TO 36")	EACH	25	3,500.00	137,500
5050032	MANHOLE (C-18.10) (NO. 3) (FOR PIPES OVER 36")	EACH	7	5,500.00	22,400
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	6	3,200.00	19,200
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	6	4,500.00	27,000
9080084	CONCRETE CURB AND GUTTER	L.FT.	77,200	15.00	1,158,000
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	28,984	4.00	116,000
9100000	CONCRETE BARRIER (SINGLE FACE WITH GUTTER)	L.FT.	4,416	60.00	265,000
9100009	CONCRETE BARRIER ADJACENT TO RETAINING WALL	L.FT.	1,000	75.00	75,000
9140153	RETAINING WALL (REGULAR)	SQ.FT.	11,000	55.00	605,000
9201006	CONCRETE CHANNEL LINING (6")	SQ.YD.	124,539	50.00	6,227,000
9240100	MISCELLANEOUS WORK (SIGNAL BUTTE LIFT STATION)	L.SUM	1	4,800,000.00	4,800,000
9240101	MISCELLANEOUS WORK (WILLIAMS FIELD LIFT STATION)	L.SUM	1	6,300,000.00	6,300,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS EB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS WB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (MOUNTAIN ROAD UNDERPASS)	L.SUM	1	2,582,600.00	2,582,600
9999910	LUMP SUM (CRISMON ROAD OVERPASS)	L.SUM	1	3,610,200.00	3,610,200
9999910	LUMP SUM (SIGNAL BUTTE ROAD UNDERPASS)	L.SUM	1	4,119,300.00	4,119,300
9999910	LUMP SUM (MERIDIAN ROAD UNDERPASS)	L.SUM	1	4,446,825.00	4,446,900
9999910	LUMP SUM (WILLIAMS FIELD ROAD OVERPASS)	L.SUM	1	4,531,500.00	4,531,500
9999911	LUMP SUM (RCB CULVERT (MOUNTAIN ROAD))	L.SUM	1	220,448.00	220,500
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (SIGNAL BUTTE ROAD))	L.SUM	1	252,825.00	252,900
9999911	LUMP SUM (RCB CULVERT (3-8'X8'X180') (CRISMON ROAD))	L.SUM	1	365,851.00	365,900
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (ELLSWORTH ROAD))	L.SUM	1	508,553.00	508,600
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X200') (WILLIAMS FIELD ROAD))	L.SUM	1	559,379.00	559,400
9999911	LUMP SUM (RCB CULVERT (1-8'X8'X1000') (SIGNAL BUTTE PUMP STATION ST(	L.SUM	1	804,977.00	805,000
9999911	LUMP SUM (RCB CULVERT (1-8'X8'X1500') (WILLIAMS FIELD PUMP STATION S'	L.SUM	1	1,152,170.00	1,152,200
			ITEM TOTAL		100,698,800

SR 802 Depressed Option Order of Magnitude Itemized Estimate (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT
PROJECT WIDE					
	Maintenance and Protection of Traffic	COST		1,000,000.00	1,000,000
	Dust and Water Palliative (0.75%)	COST		756,000.00	756,000
	Quality Control (2%)	COST		2,014,000.00	2,014,000
	Construction Surveying (2%)	COST		2,014,000.00	2,014,000
	Erosion Control (0.3%)	COST		303,000.00	303,000
	Mobilization (8% of all construction items)	COST		9,286,000.00	9,286,000
			PROJECT WIDE SUBTOTAL		15,373,000
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		23,215,000.00	23,215,000
			PROJECT WIDE TOTAL		38,588,000
OTHER COST					
	Construction Engineering (9%)	COST		12,536,000.00	12,536,000
	Construction Contingencies (5%)	COST		6,965,000.00	6,965,000
	Environmental Mitigation (Unknown at this time)	COST		-	-
	PCCP Quality Incentive	SQ.YD.	0	1.50	-
	AR-ACFC Smoothness Incentive	L.MILE	0	11,000.00	-
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST		11,143,000.00	11,143,000
	Right-of-Way	COST		-	-
			OTHER COST TOTAL		30,644,000

SUMMARY

ITEM TOTAL	100,698,800
PROJECT WIDE	38,588,000
OTHER COST TOTAL	30,644,000
TOTAL PROJECT COST	169,930,800

SR 802 Elevated Option Order of Magnitude Itemized Estimate

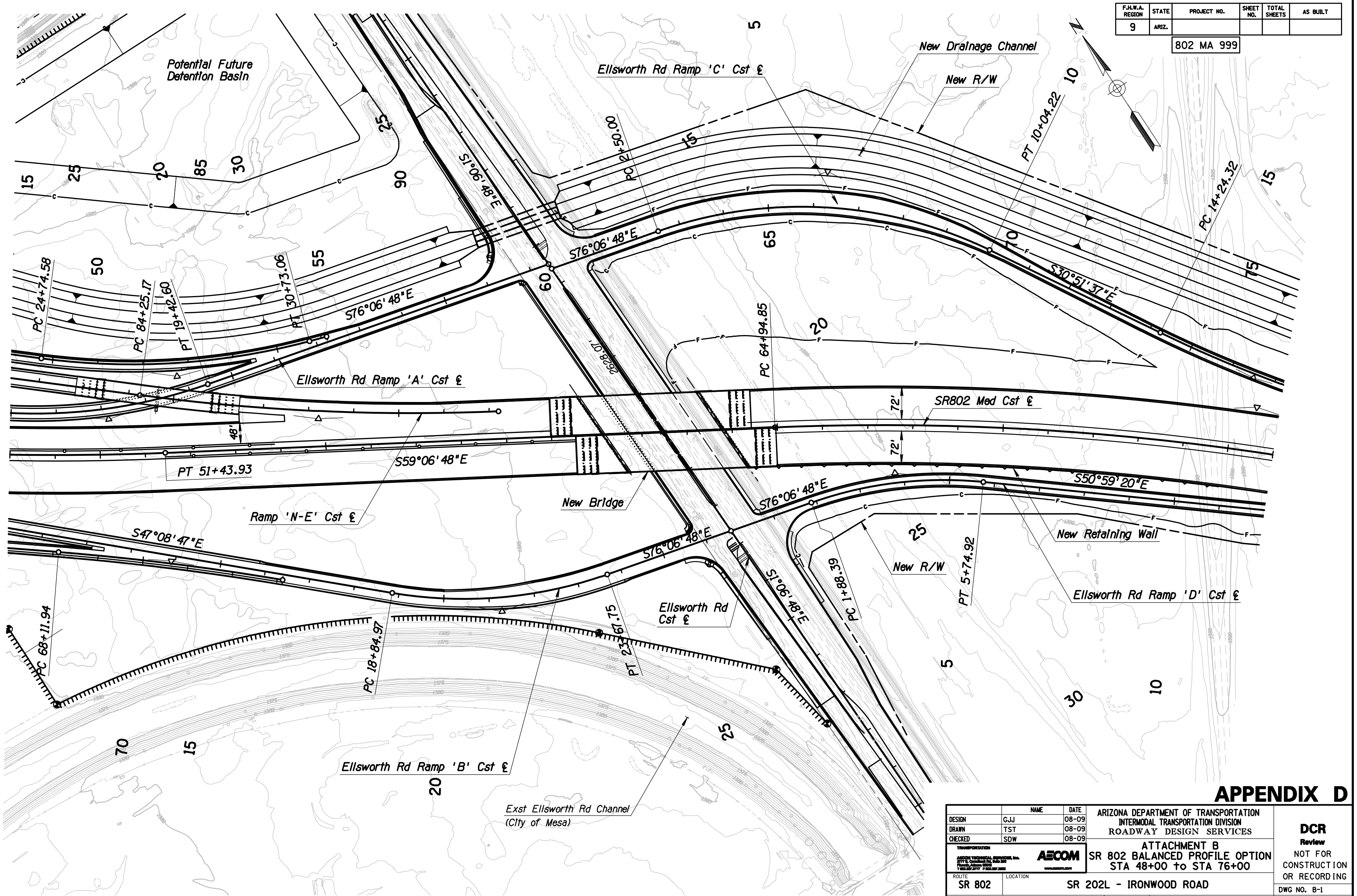
ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2030451	CHANNEL EXCAVATION	CU.YD.	272,219	6.00	1,633,400
2030900	BORROW (PHASE 2, WEST OF ELLSWORTH ROAD)	CU.YD.	981,608	15.00	14,724,200
2030900	BORROW (EAST OF ELLSWORTH ROAD)	CU.YD.	3,726,024	15.00	55,890,400
3030026	AGGREGATE SUBBASE, CLASS 6	CU.YD.	2,127	18.00	38,300
4010011	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	235,809	35.00	8,253,400
4010015	PORTLAND CEMENT CONCRETE PAVEMENT (11" PCCP OVER 4" AB)	SQ.YD.	88,037	30.00	2,641,200
4060023	ASPHALTIC CONCRETE (CROSSROADS)	SQ.YD.	96,500	35.00	3,377,500
4070001	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	288,755	5.00	1,443,800
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	2,598	110.00	285,800
5012524	STORM DRAIN PIPE, 24"	L.FT.	49,010	60.00	2,940,600
5030001	CONCRETE CATCH BASIN (C-15.10) SINGLE, H=8' OR LESS	EACH	16	3,000.00	48,000
5030021	CONCRETE CATCH BASIN (C-15.20) ONE 3.5' WING, H=8' OR LESS	EACH	24	3,200.00	76,800
5030142	CONCRETE CATCH BASIN (C=15.60) H=8' OR LESS	EACH	63	2,800.00	176,400
5030604	CONCRETE CATCH BASIN (C-15.91) H=8' OR LESS	EACH	158	3,200.00	505,600
5030606	CONCRETE CATCH BASIN (C-15.92) H=8' OR LESS	EACH	52	3,500.00	182,000
5050031	MANHOLE (C-18.10) (NO. 3) (FOR PIPES 6" TO 36")	EACH	36	3,500.00	126,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	5	3,200.00	16,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	5	4,500.00	22,500
9080084	CONCRETE CURB AND GUTTER	L.FT.	77,637	15.00	1,164,600
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	51,240	4.00	205,000
9100000	CONCRETE BARRIER (SINGLE FACE WITH GUTTER)	L.FT.	6,588	60.00	395,200
9100009	CONCRETE BARRIER ADJACENT TO RETAINING WALL	L.FT.	1,730	75.00	129,800
9140153	RETAINING WALL (REGULAR)	SQ.FT.	13,310	55.00	732,100
9201006	CONCRETE CHANNEL LINING (6")	SQ.YD.	124,539	50.00	6,227,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS EB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (ELLSWORTH ROAD OVERPASS WB)	L.SUM	1	2,329,000.00	2,329,000
9999910	LUMP SUM (MOUNTAIN ROAD UNDERPASS)	L.SUM	1	2,831,745.00	2,631,800
9999910	LUMP SUM (SIGNAL BUTTE ROAD UNDERPASS)	L.SUM	1	3,493,667.00	3,493,700
9999910	LUMP SUM (MERIDIAN ROAD UNDERPASS)	L.SUM	1	3,568,018.00	3,568,100
9999910	LUMP SUM (WILLIAMS FIELD ROAD OVERPASS)	L.SUM	1	4,236,700.00	4,236,700
9999910	LUMP SUM (CRISMON ROAD OVERPASS)	L.SUM	1	5,571,200.00	5,571,200
9999911	LUMP SUM (RCB CULVERT (MOUNTAIN ROAD))	L.SUM	1	220,448.00	220,500
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (SIGNAL BUTTE ROAD))	L.SUM	1	252,825.00	252,900
9999911	LUMP SUM (RCB CULVERT (3-8'X8'X180') (CRISMON ROAD))	L.SUM	1	365,851.00	365,900
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X180') (ELLSWORTH ROAD))	L.SUM	1	508,553.00	508,600
9999911	LUMP SUM (RCB CULVERT (3-12'X8'X200') (WILLIAMS FIELD ROAD))	L.SUM	1	559,379.00	559,400
				ITEM TOTAL	**127,502,400**

SR 802 Elevated Option Order of Magnitude Itemized Estimate (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
PROJECT WIDE					
	Maintenance and Protection of Traffic	COST		1,000,000.00	1,000,000
	Dust and Water Palliative (0.75%)	COST		957,000.00	957,000
	Quality Control (2%)	COST		2,551,000.00	2,551,000
	Construction Surveying (2%)	COST		2,551,000.00	2,551,000
	Erosion Control (0.3%)	COST		383,000.00	383,000
	Mobilization (8% of all construction items)	COST		11,735,000.00	11,735,000
			PROJECT WIDE SUBTOTAL		**19,177,000**
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		29,336,000.00	29,336,000
			PROJECT WIDE TOTAL		**48,513,000**
OTHER COST					
	Construction Engineering (9%)	COST		15,842,000.00	15,842,000
	Construction Contingencies (5%)	COST		8,801,000.00	8,801,000
	Environmental Mitigation (Unknown at this time)	COST		-	-
	PCCP Quality Incentive	SQ.YD.	0	1.50	-
	AR-ACFC Smoothness Incentive	L.MILE	0	11,000.00	-
	Engineering Design (includes Surveying and Geotechnical) (8% of all items)	COST		14,082,000.00	14,082,000
	Right-of-Way	COST		-	-
			OTHER COST TOTAL		**38,725,000**

SUMMARY

ITEM TOTAL	127,502,400
PROJECT WIDE	48,513,000
OTHER COST TOTAL	38,725,000
TOTAL PROJECT COST	214,740,400



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 48+00 to STA 76+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. B-1

TRACS NO. H6867 01L | - | ___ OF ___

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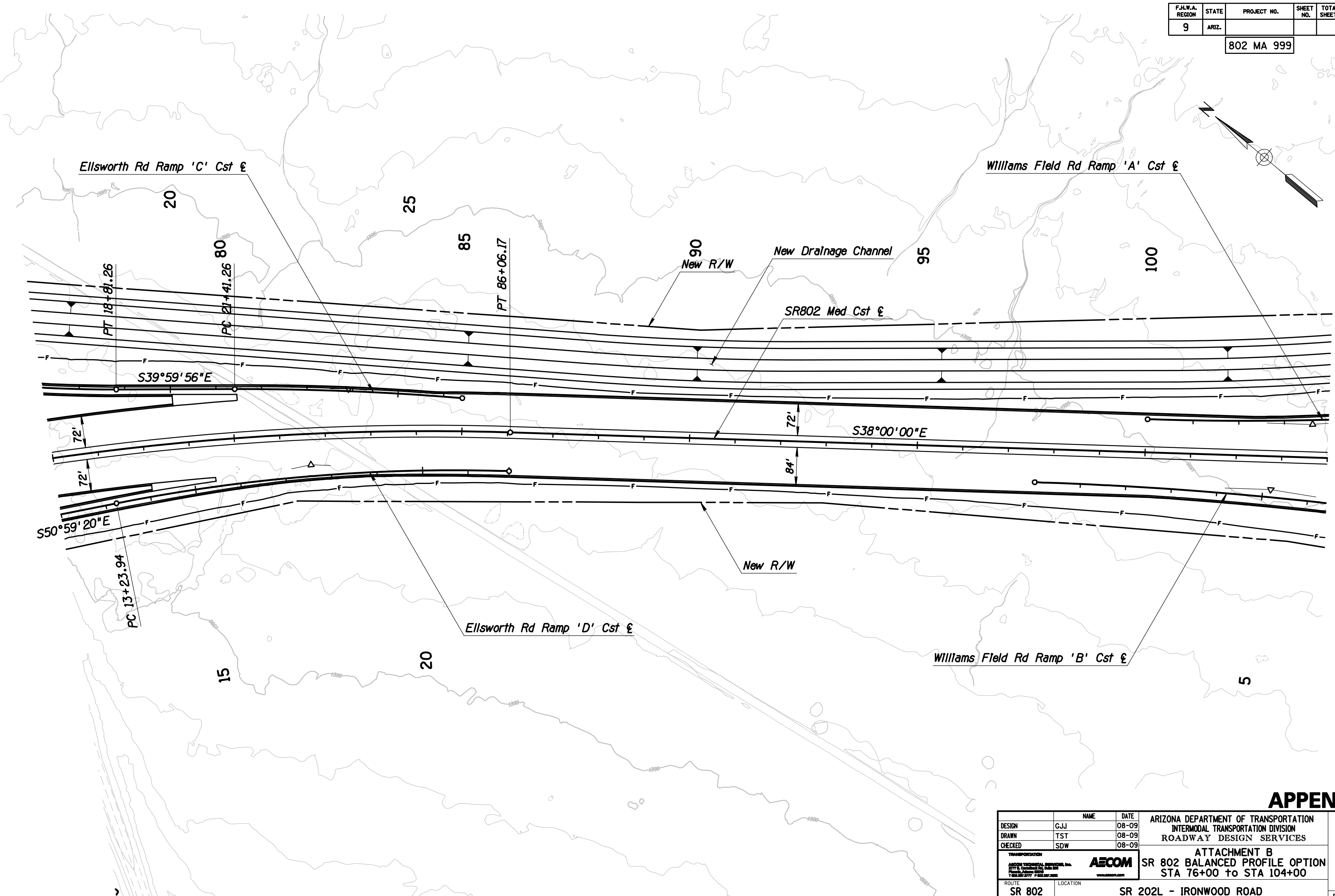

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 76+00 to STA 104+00

AECOM

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. B-2

TRACS NO. H6867 01L -

___ OF ___

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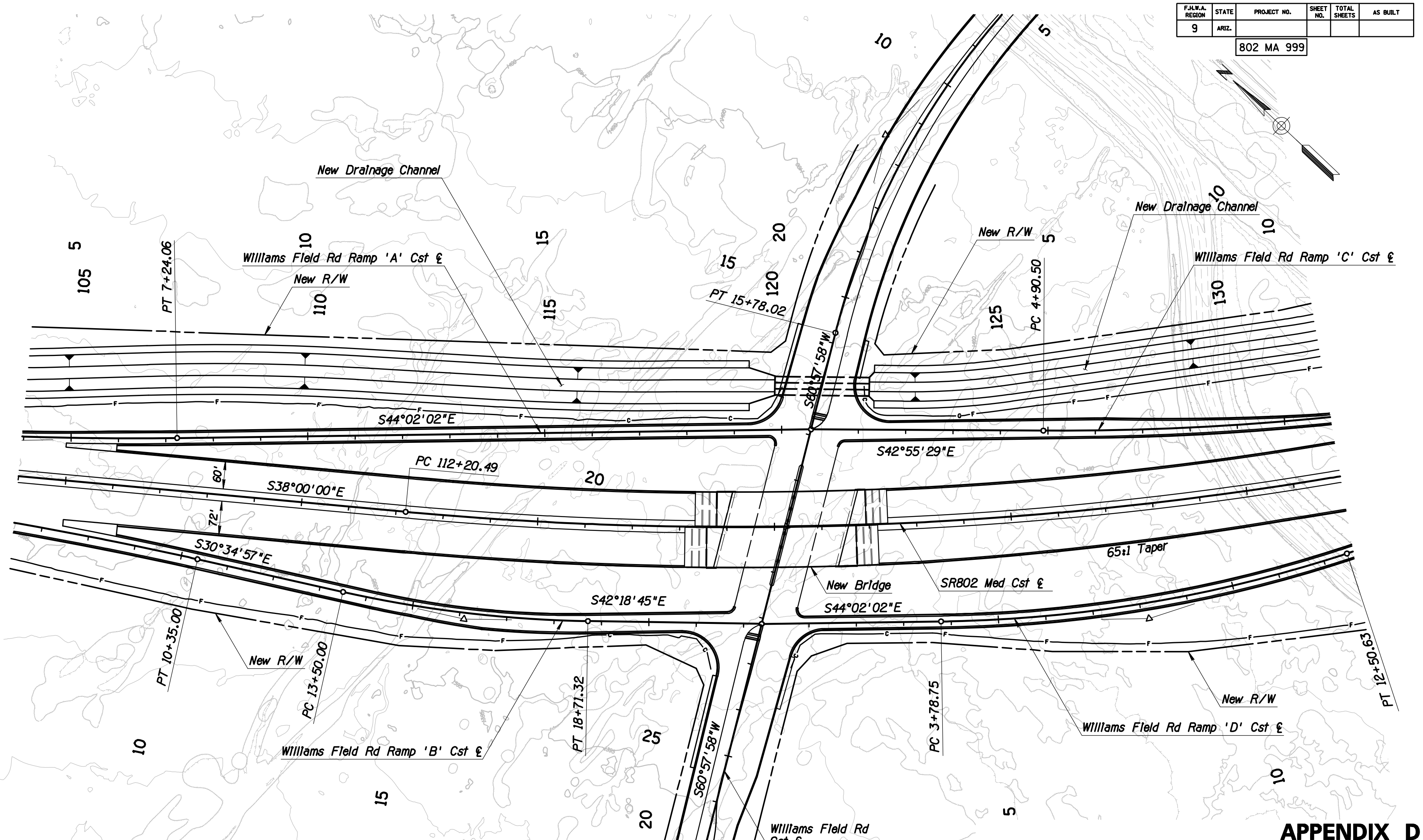

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 104+00 to STA 132+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. B-3

TRACS NO. H6867 01L | - | ___ OF ___

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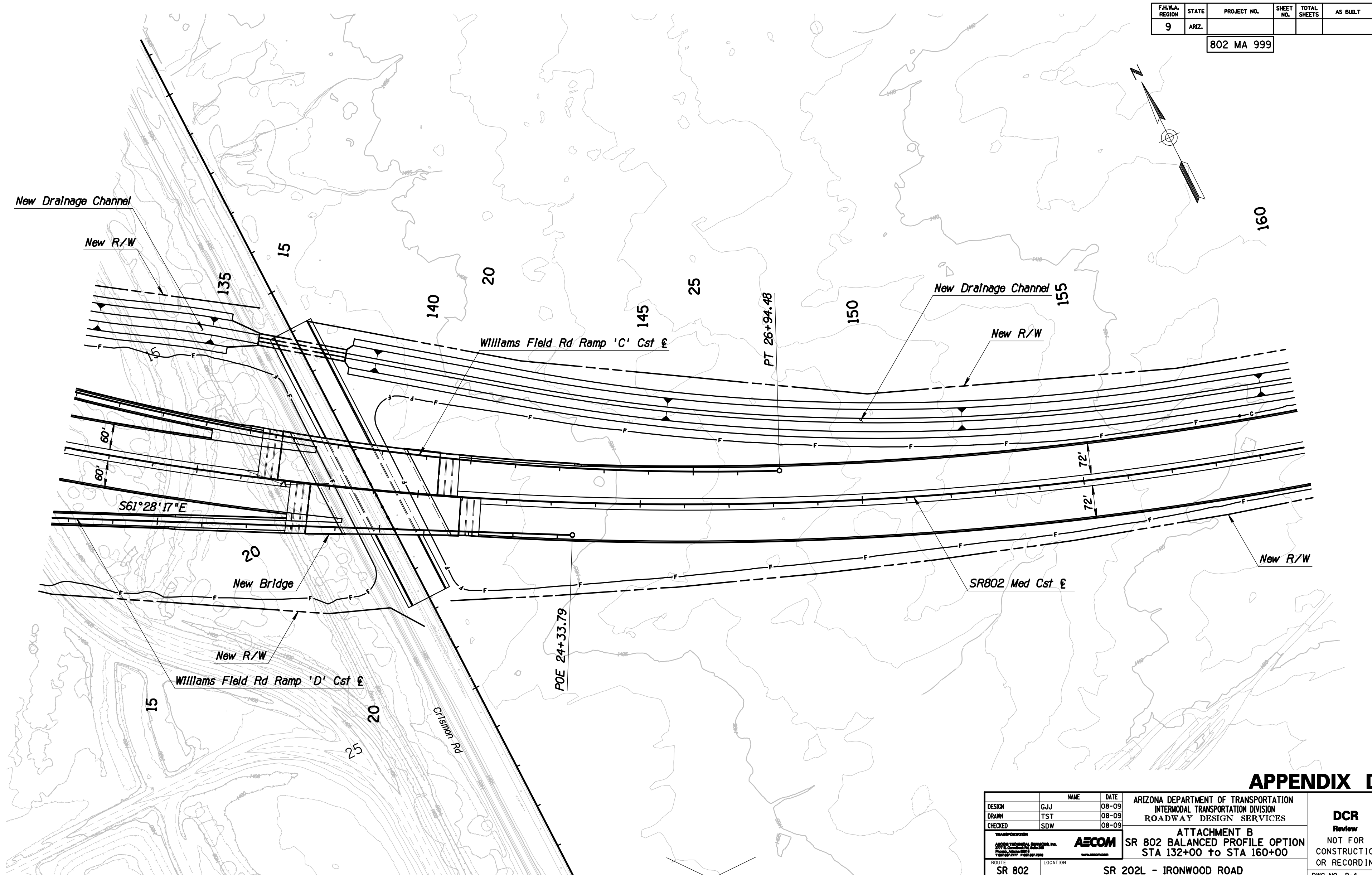

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 132+00 to STA 160+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. B-4

TRACS NO. H6867 01L | - | ___ OF ___

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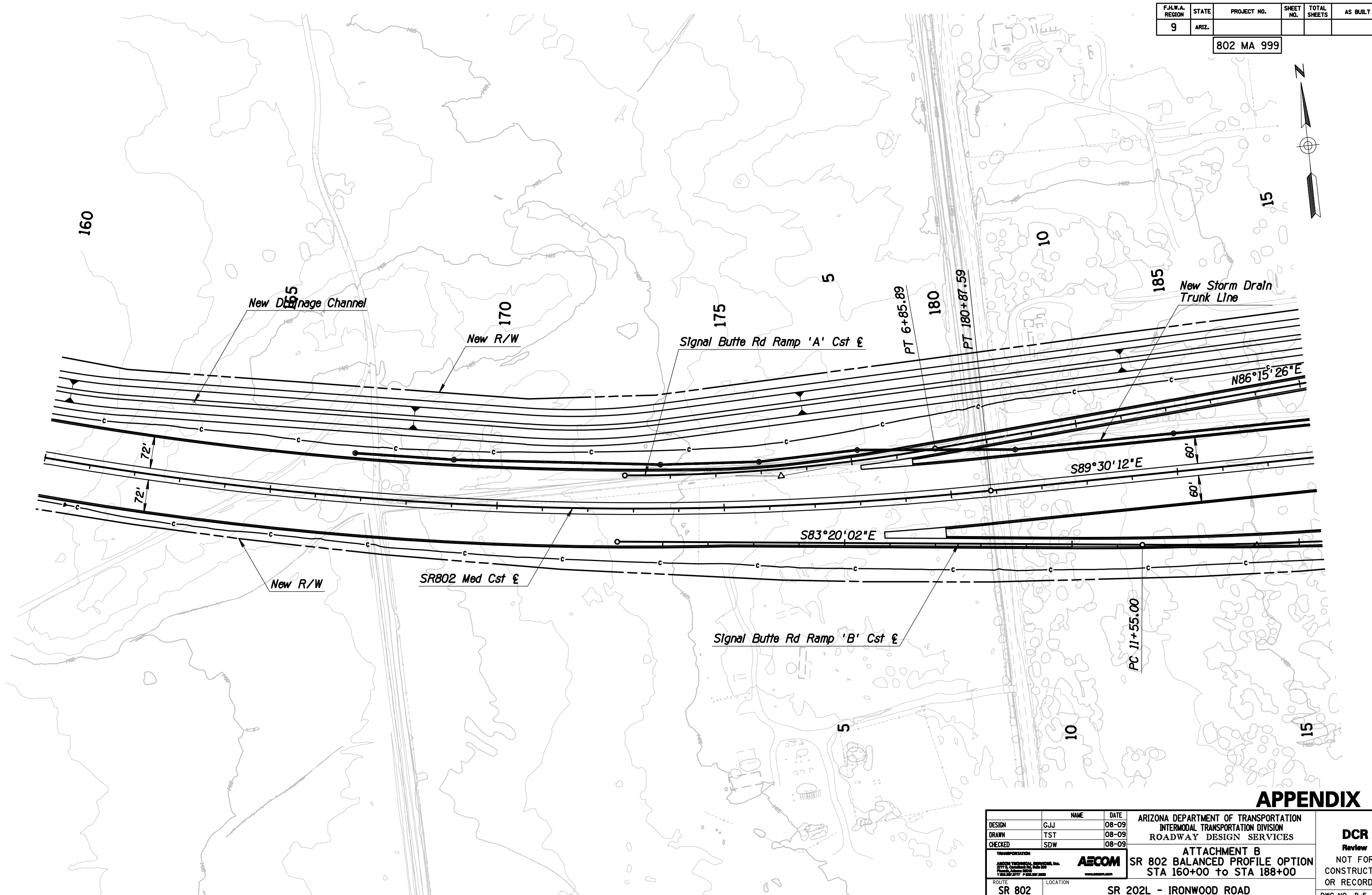
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

TRANSPORTATION
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 160+00 to STA 188+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DWG NO. B-5

TRACS NO. H6867 01L

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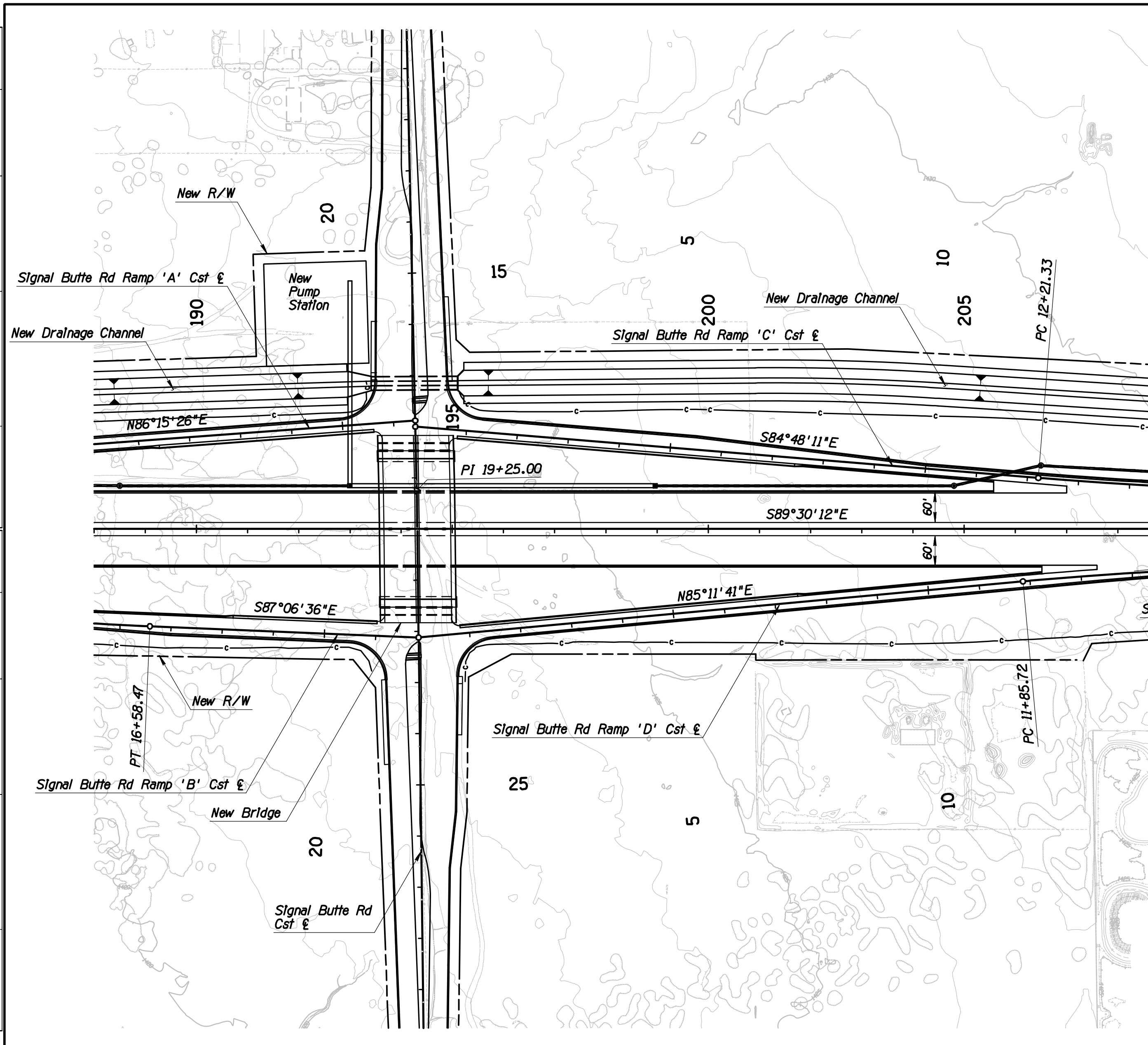

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 188+00 to STA 216+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DWG NO. B-6

TRACS NO. H6867 01L
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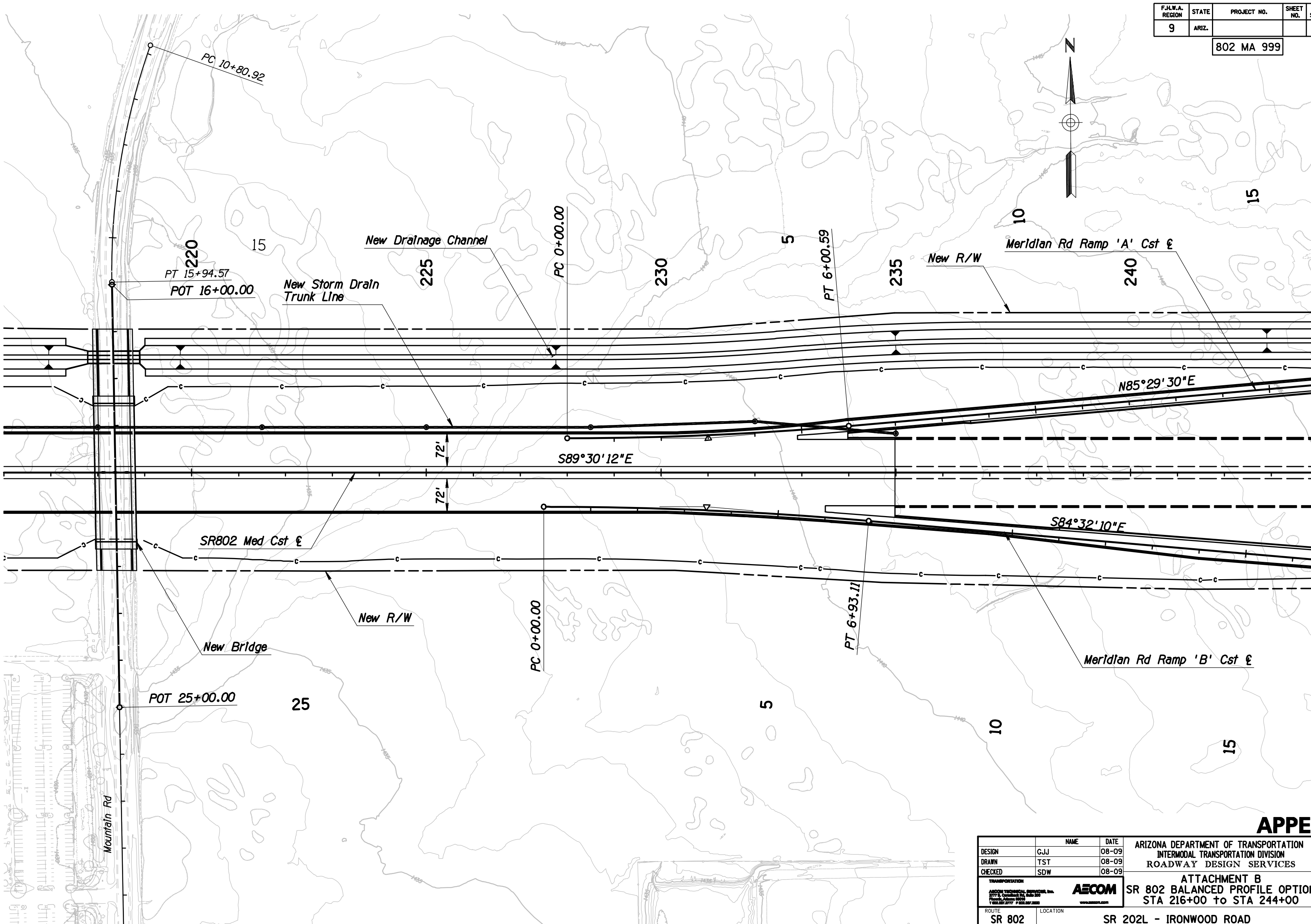
___ OF ___



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 216+00 to STA 244+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DWG NO. B-7

TRACS NO. H6867 01L

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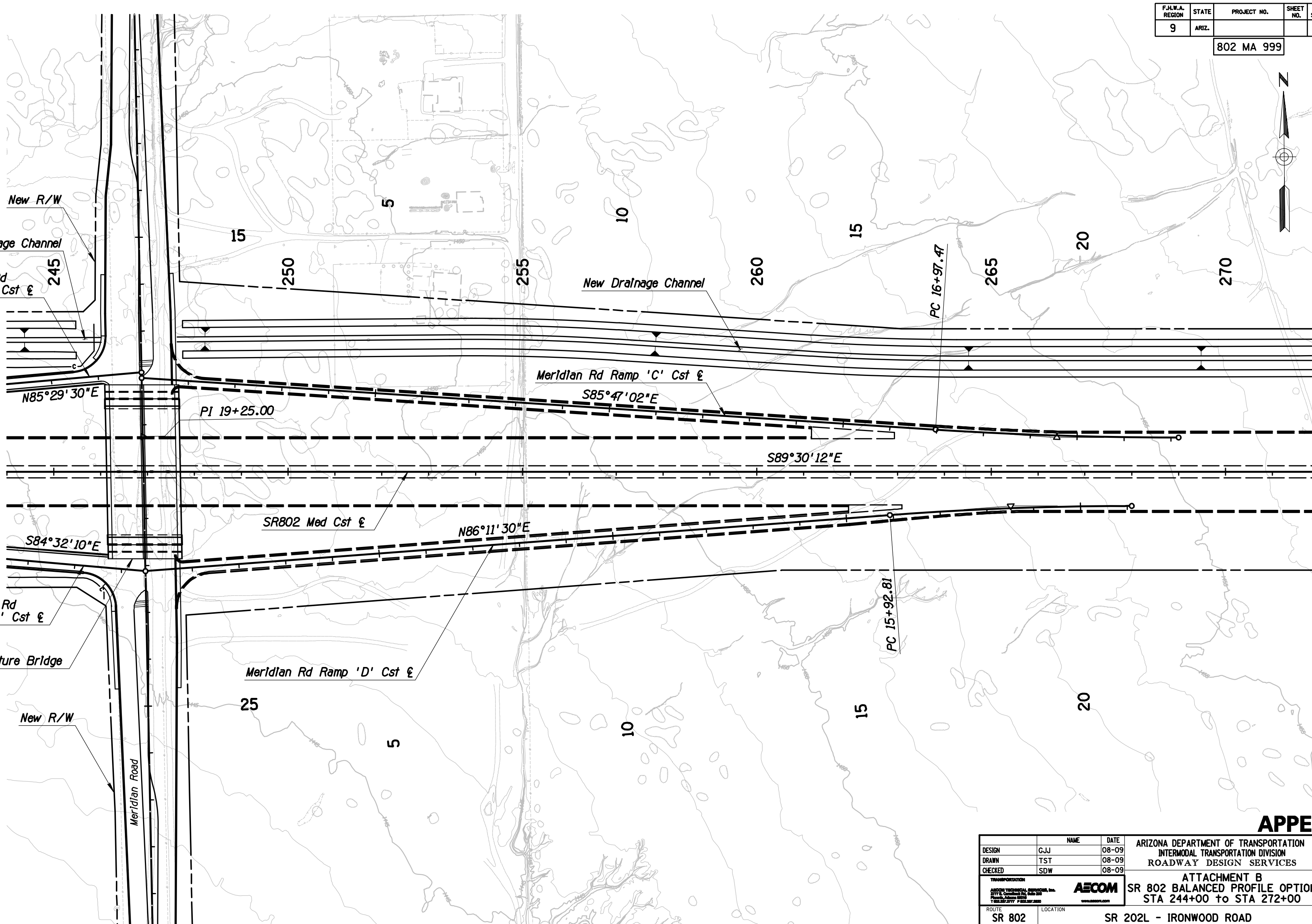
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

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ATTACHMENT B
SR 802 BALANCED PROFILE OPTION
STA 244+00 to STA 272+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. B-8

TRACS NO. H6867 01L

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___ OF ___

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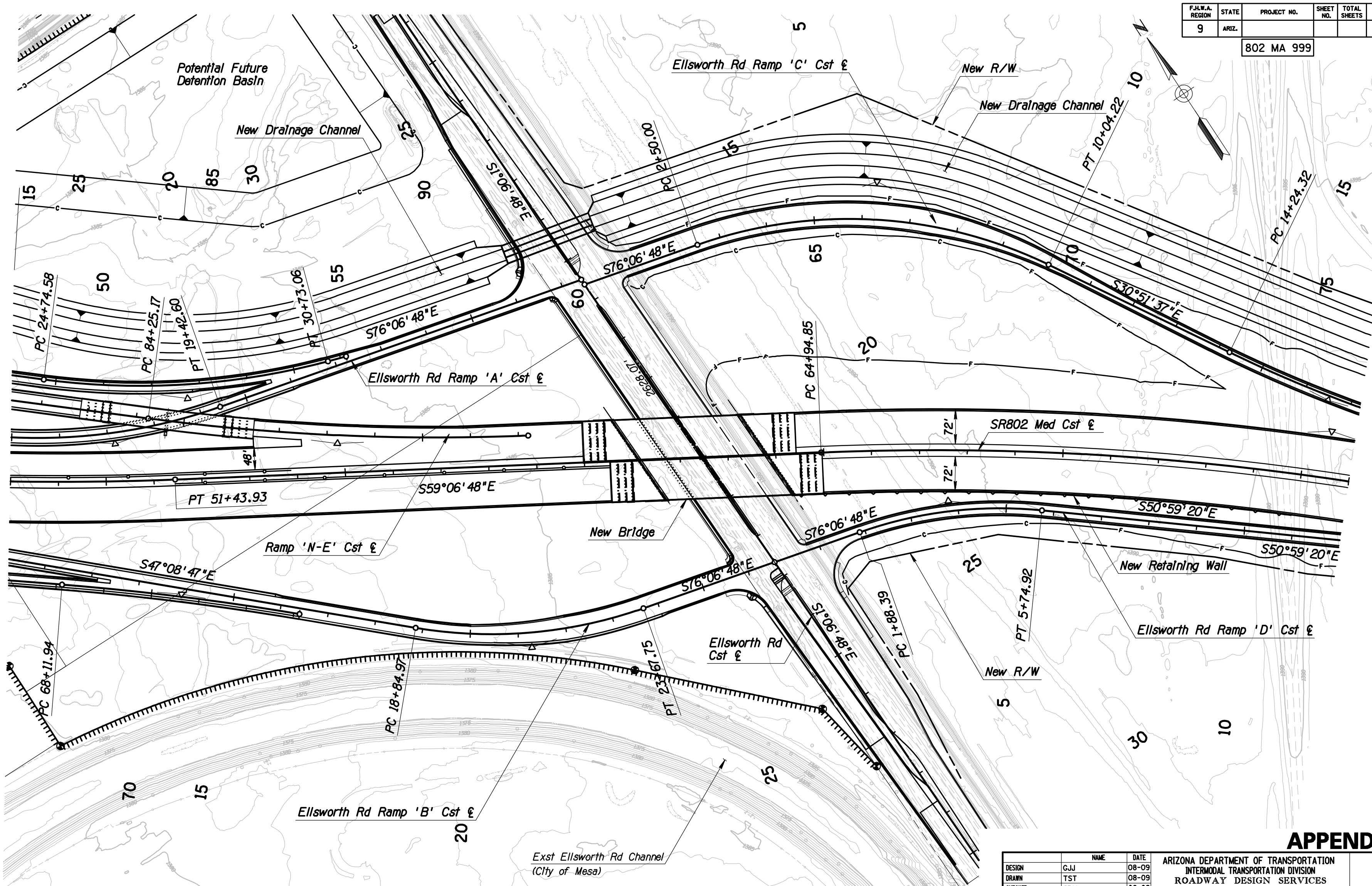
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE	
DESIGN	GJJ	08-09	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	08-09	
CHECKED	SDW	08-09	

AECOM

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 48+00 to STA 76+00

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-1

TRACS NO. H6867 01L — - — ___ OF ___

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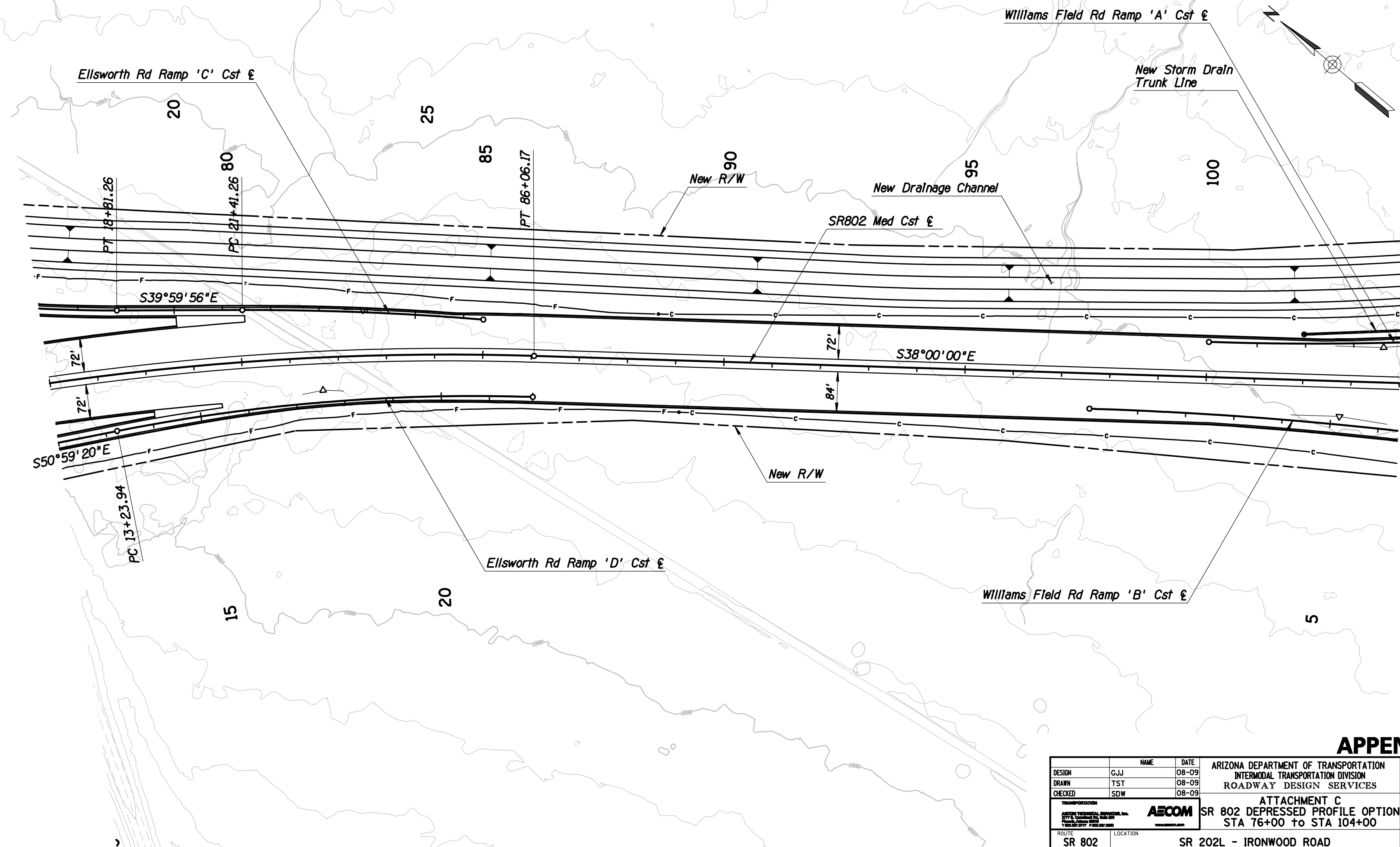
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE	
DESIGN	GJJ	08-09	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	08-09	
CHECKED	SDW	08-09	

AECOM

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 76+00 to STA 104+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION
SR 802	SR 202L - IRONWOOD ROAD

DWG NO. C-2

TRACS NO. H6867 01L | - | ___ OF ___

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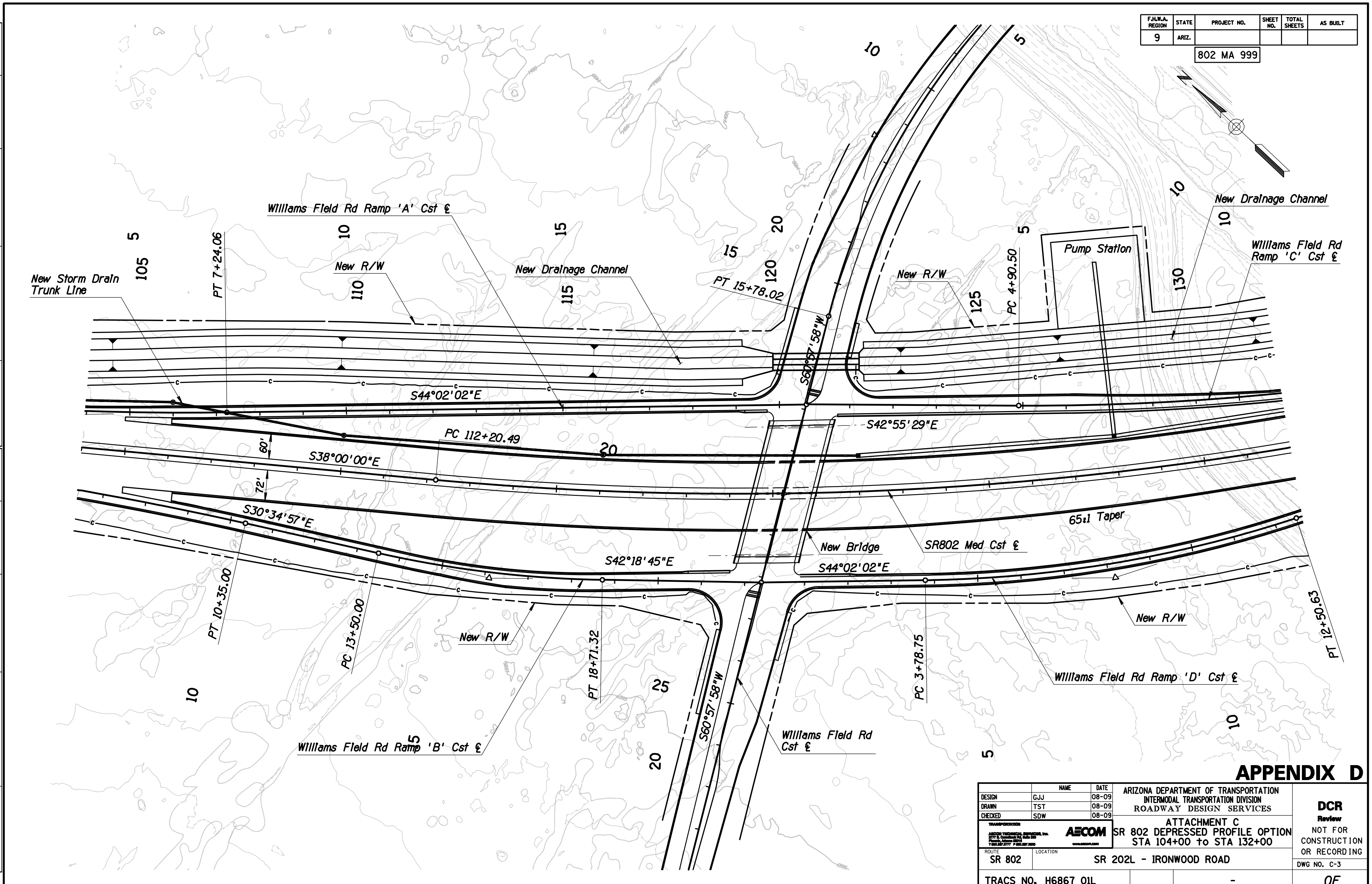
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 104+00 to STA 132+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-3

TRACAS NO. H6867 01L - ___ OF ___

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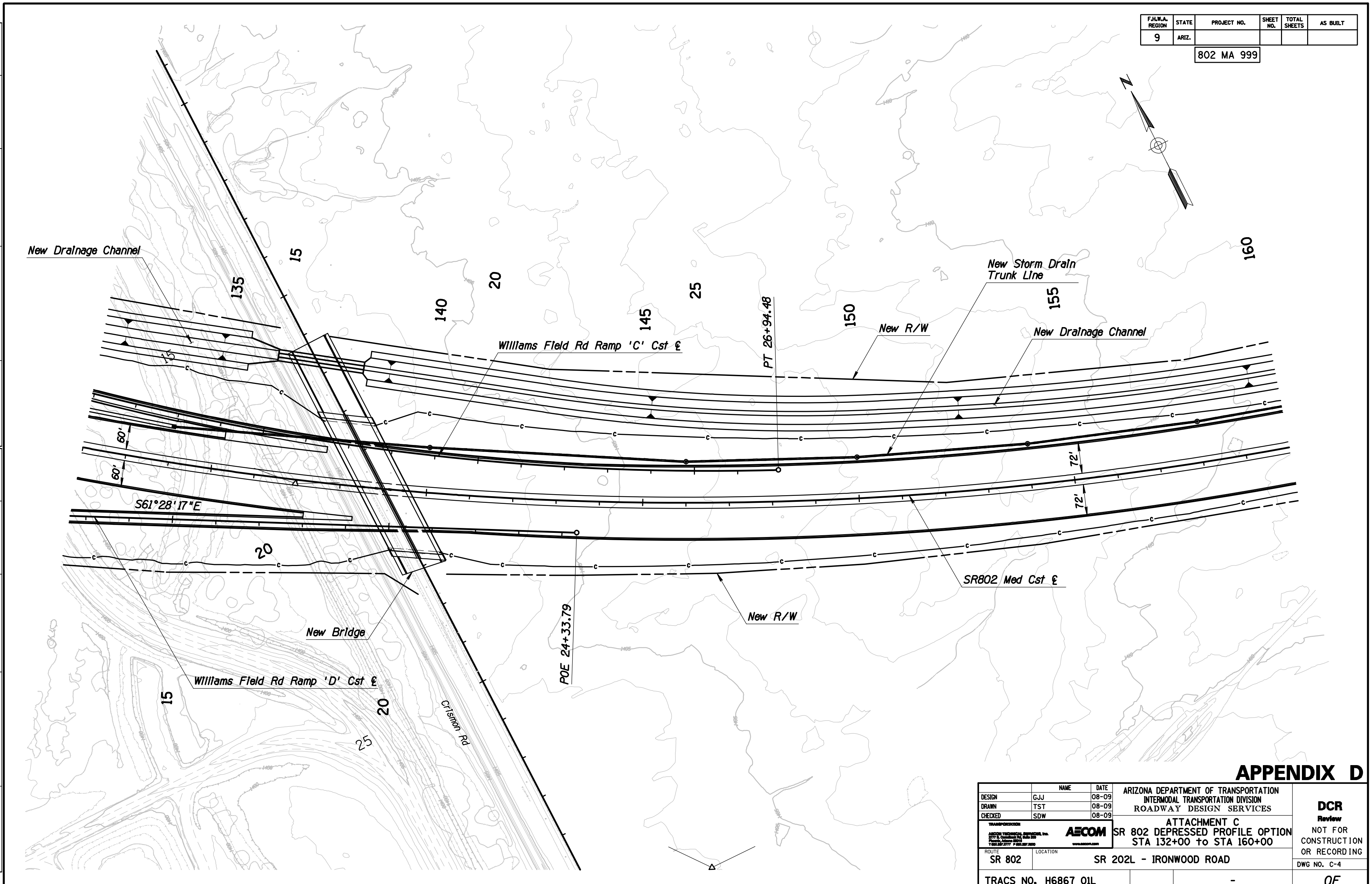

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 132+00 to STA 160+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-4

TRACS NO. H6867 01L

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___ OF ___

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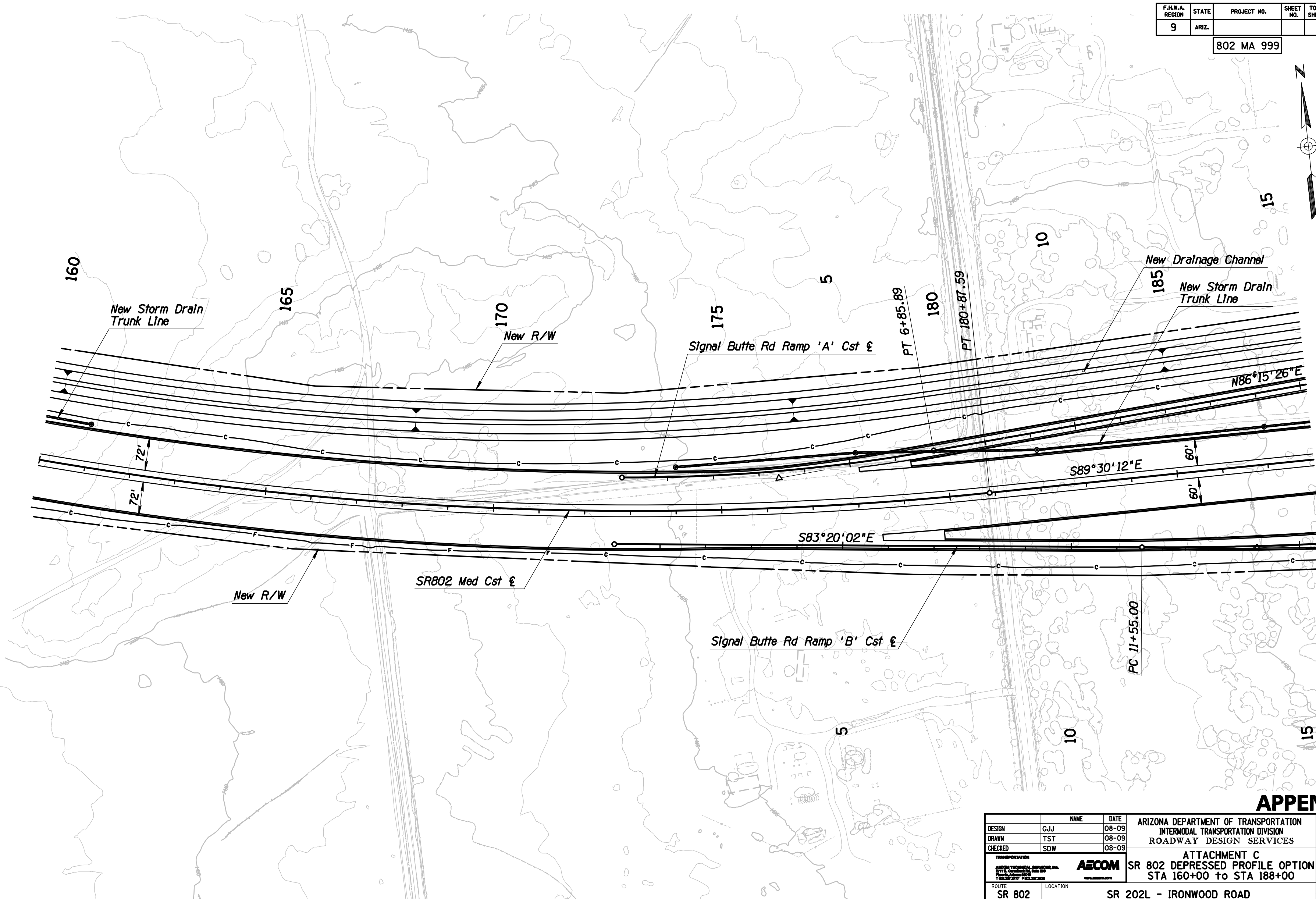
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 160+00 to STA 188+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-5

TRACS NO. H6867 01L
-
___ OF ___

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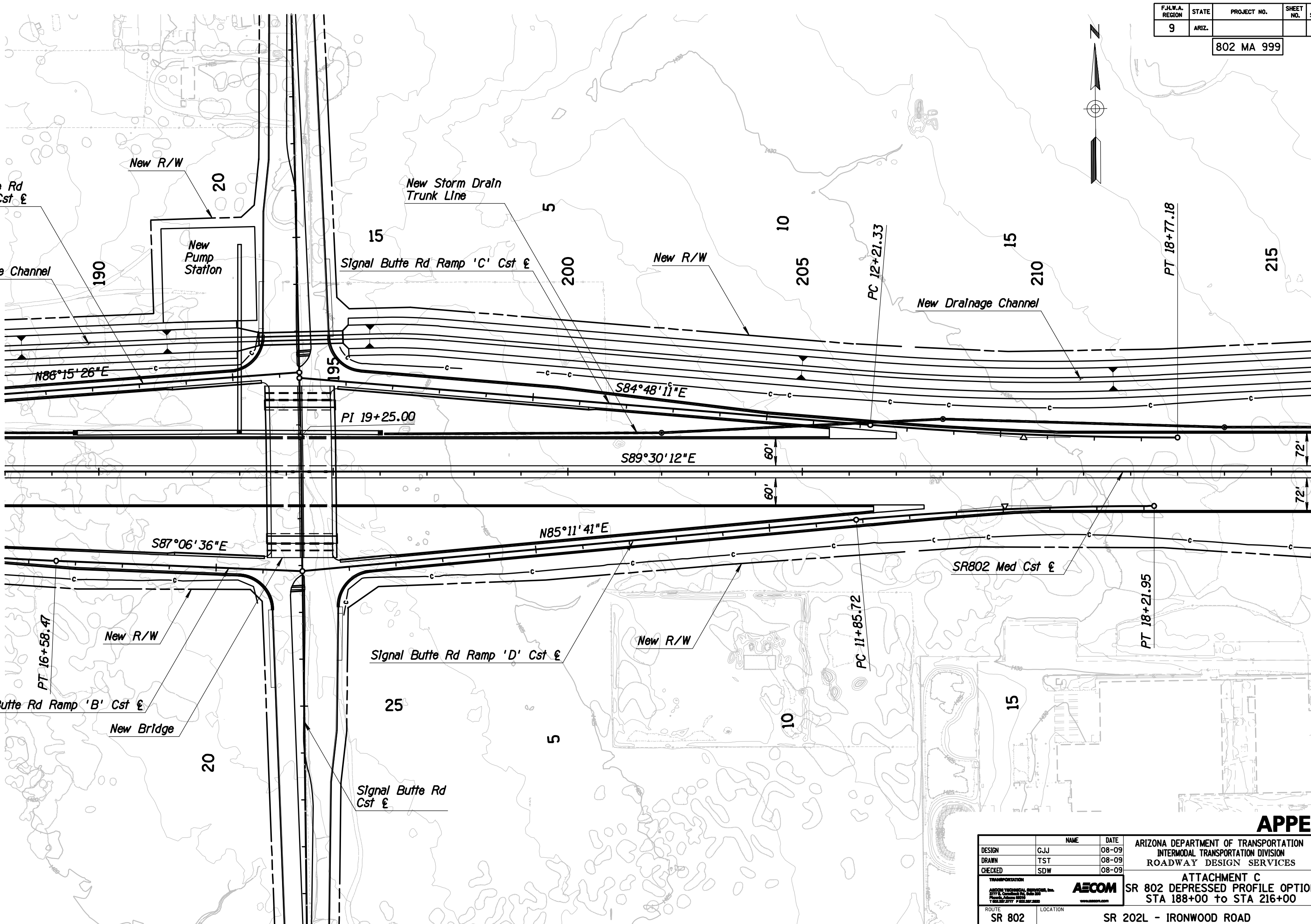
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 188+00 to STA 216+00

ROUTE SR 802

LOCATION SR 202L - IRONWOOD ROAD

DCR Review

NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-6

TRACS NO. H6867 01L

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___ OF ___

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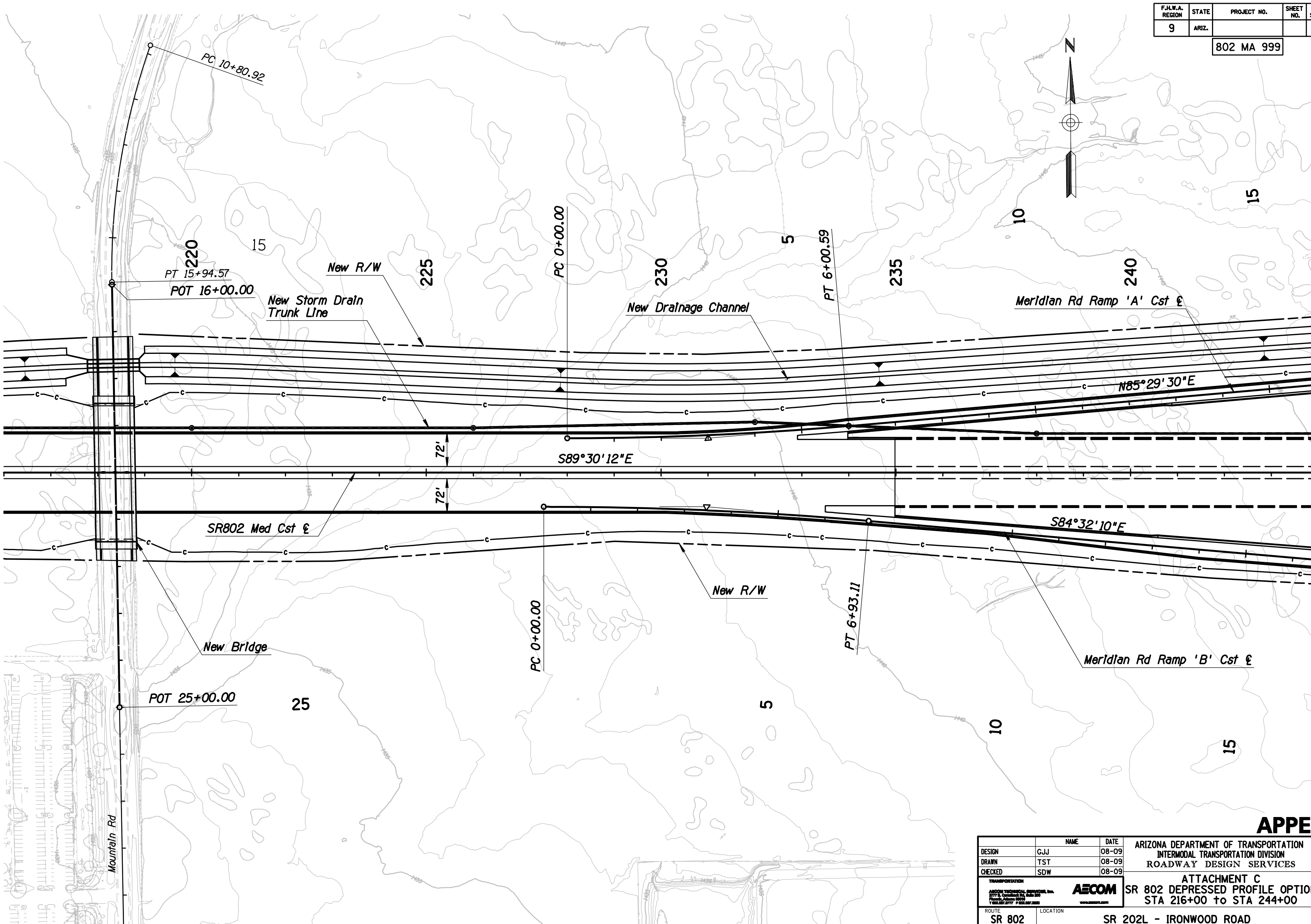
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 216+00 to STA 244+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

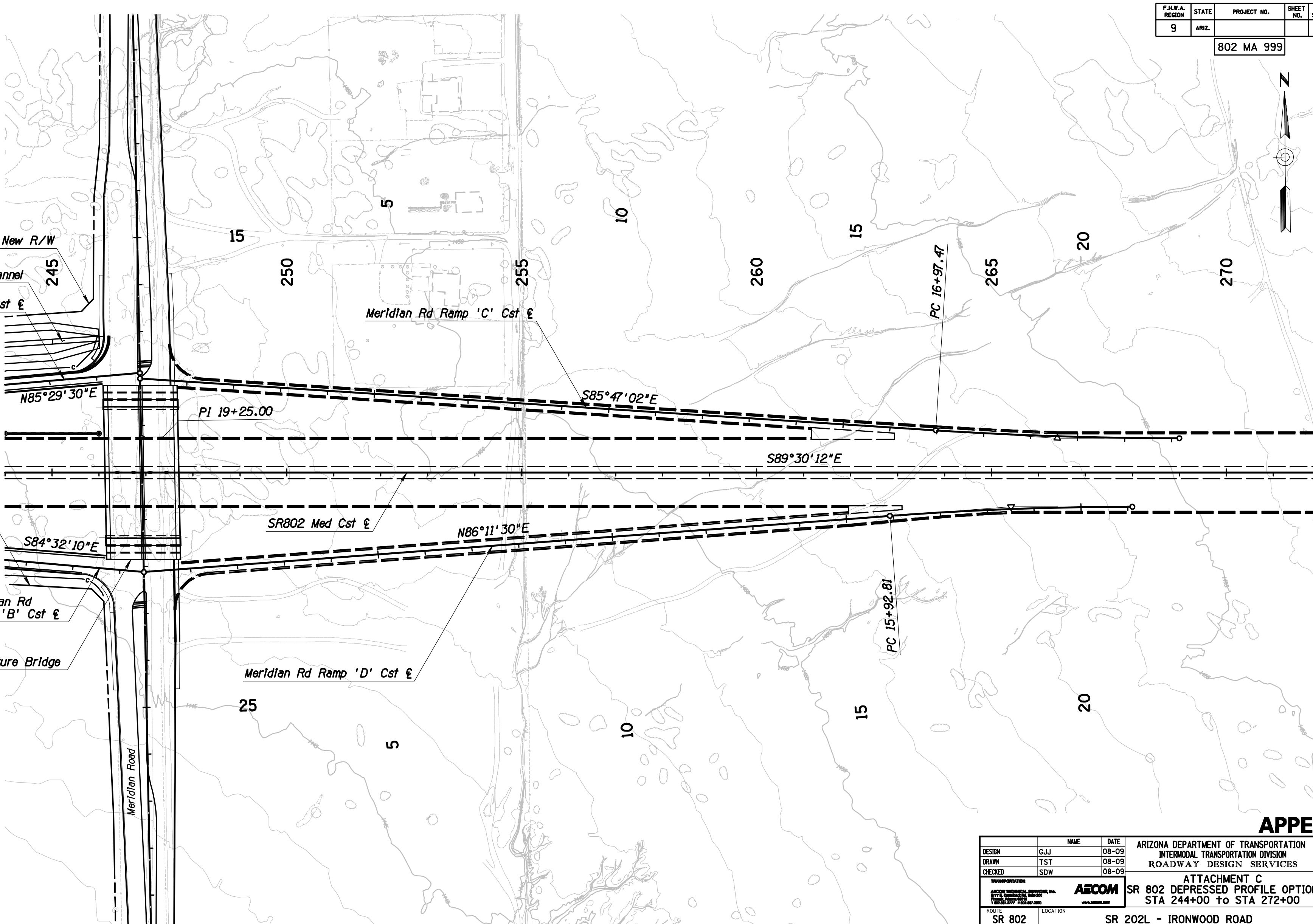
DWG NO. C-7

TRACS NO. H6867 01L | - | ___ OF ___

7/27/2010 U:\WG01\Prod\civ\Depressed\h6867p09_Alt3.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT C
SR 802 DEPRESSED PROFILE OPTION
STA 244+00 to STA 272+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-8

TRACS NO. H6867 01L | - | ___ OF ___

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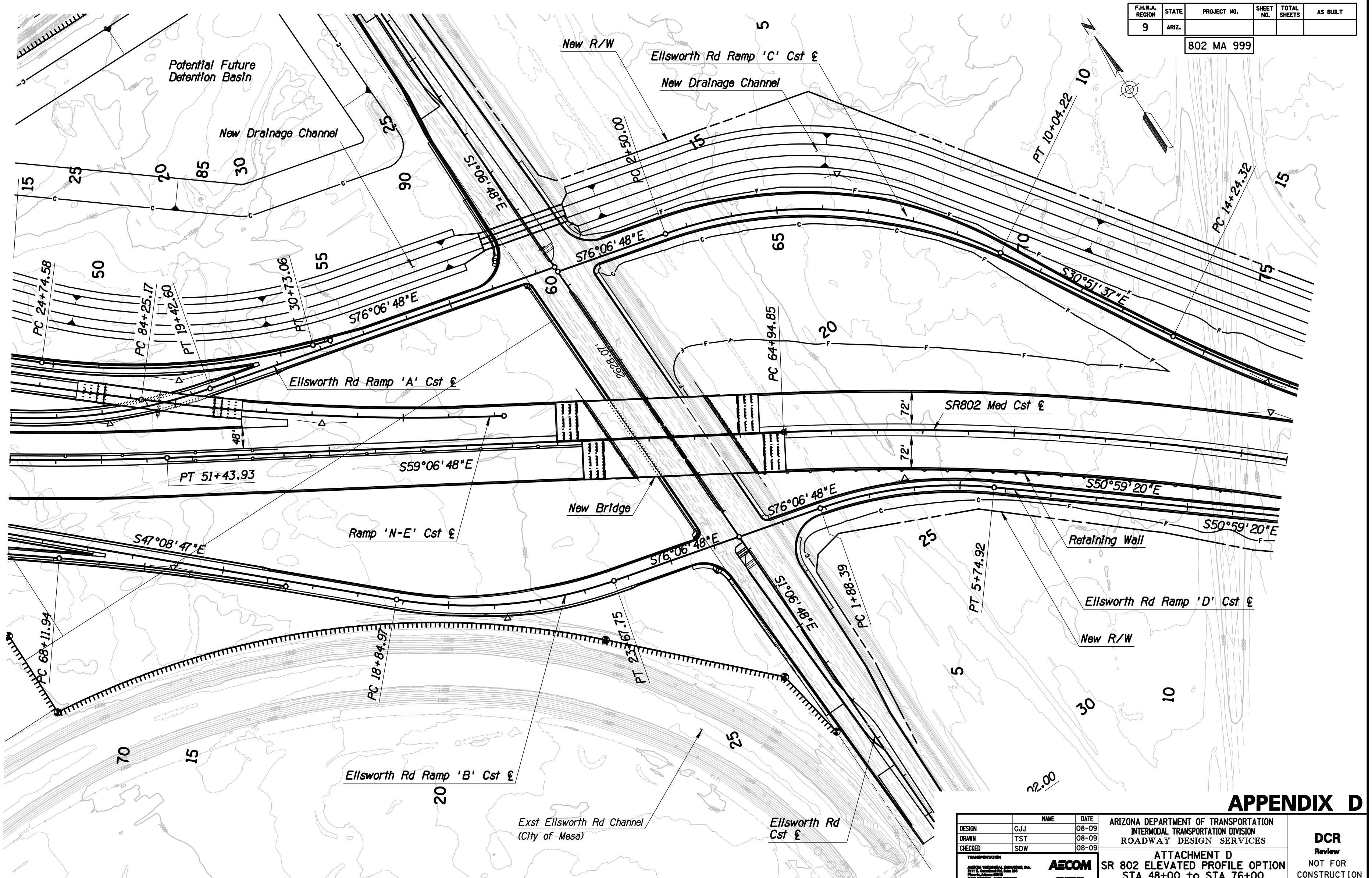

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 48+00 to STA 76+00

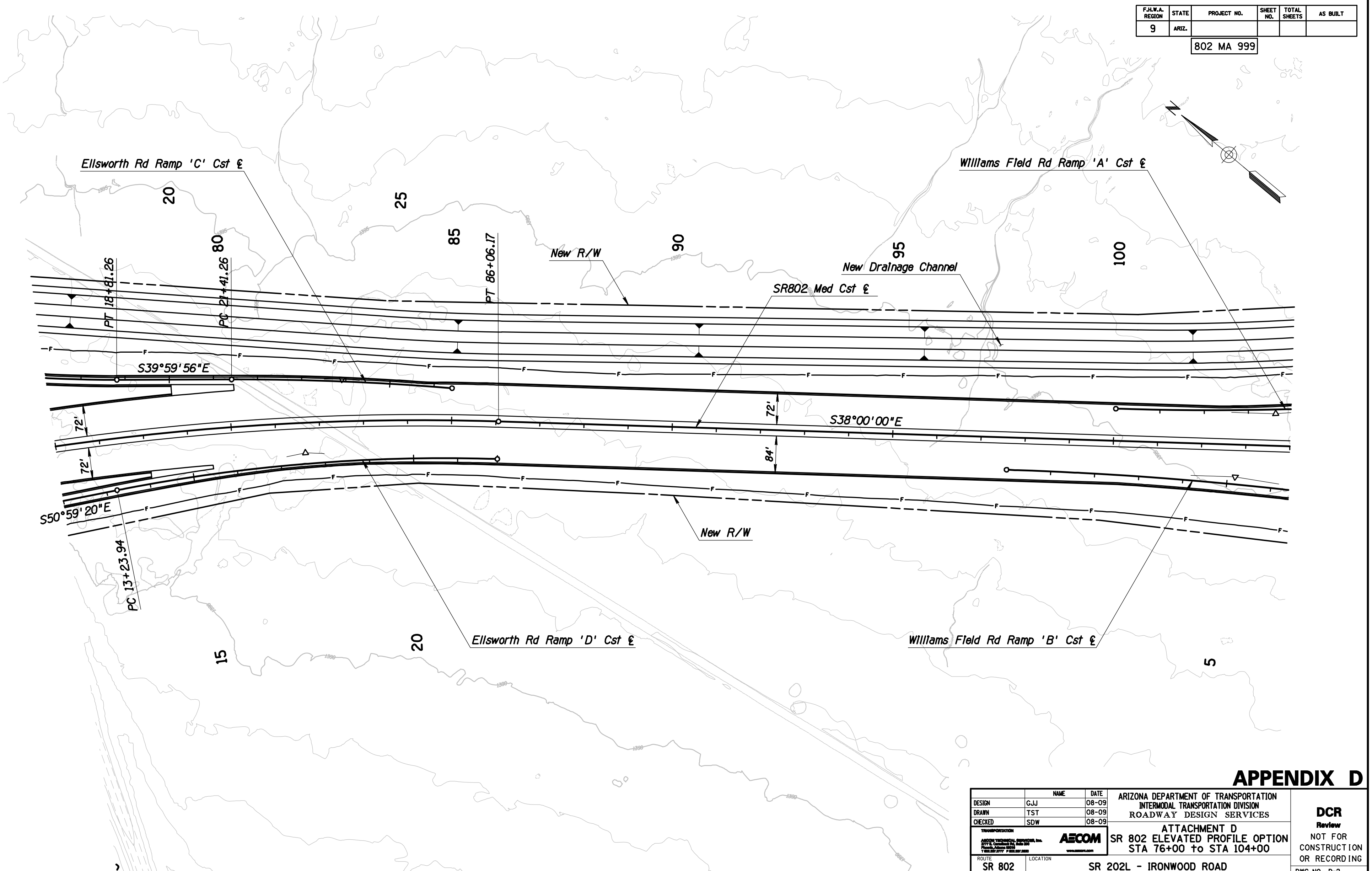
DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. D-1

TRACS NO. H6867 01L | - | ___ OF ___

7/27/2010 U:\WG01\Prod\civ\Elevated\h6867p03_Alt1.dgn



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 76+00 to STA 104+00

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. D-2

TRACS NO. H6867 01L | - | ___ OF ___

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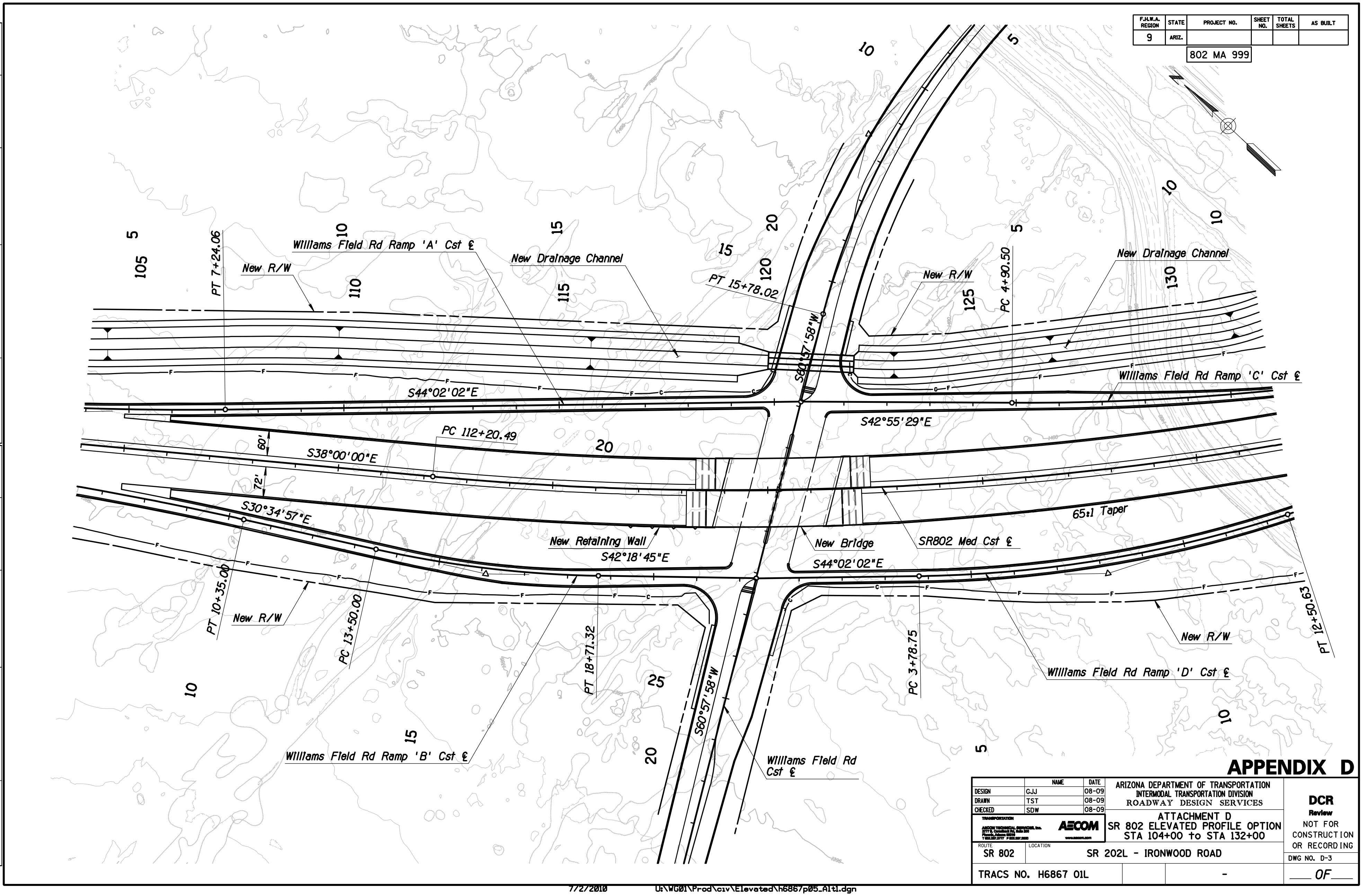
F.H.W.A. REGION
9
STATE
ARIZ.
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AS BUILT
802 MA 999
Williams Field Rd Ramp 'A' Cst ℄
New R/W
PT 7+24.06
New Drainage Channel
PT 15+78.02
S60°57'58"W
New R/W
PC 4+90.50
New Drainage Channel
Williams Field Rd Ramp 'C' Cst ℄
S44°02'02"E
S42°55'29"E
PC 112+20.49
60'
S38°00'00"E
72'
S30°34'57"E
65:1 Taper
New Retaining Wall
S42°18'45"E
New Bridge
SR802 Med Cst ℄
S44°02'02"E
PT 10+35.00
New R/W
PC 13+50.00
PT 18+71.32
S60°57'58"W
PC 3+78.75
New R/W
PT 12+50.63
Williams Field Rd Ramp 'D' Cst ℄
Williams Field Rd Ramp 'B' Cst ℄
Williams Field Rd Cst ℄
105
110
115
120
125
130
APPENDIX D
DESIGN GJJ 08-09
DRAWN TST 08-09
CHECKED SDW 08-09
AECOM
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES
ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 104+00 to STA 132+00
ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD
DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. D-3
TRACS NO. H6867 01L
OF
7/27/2010
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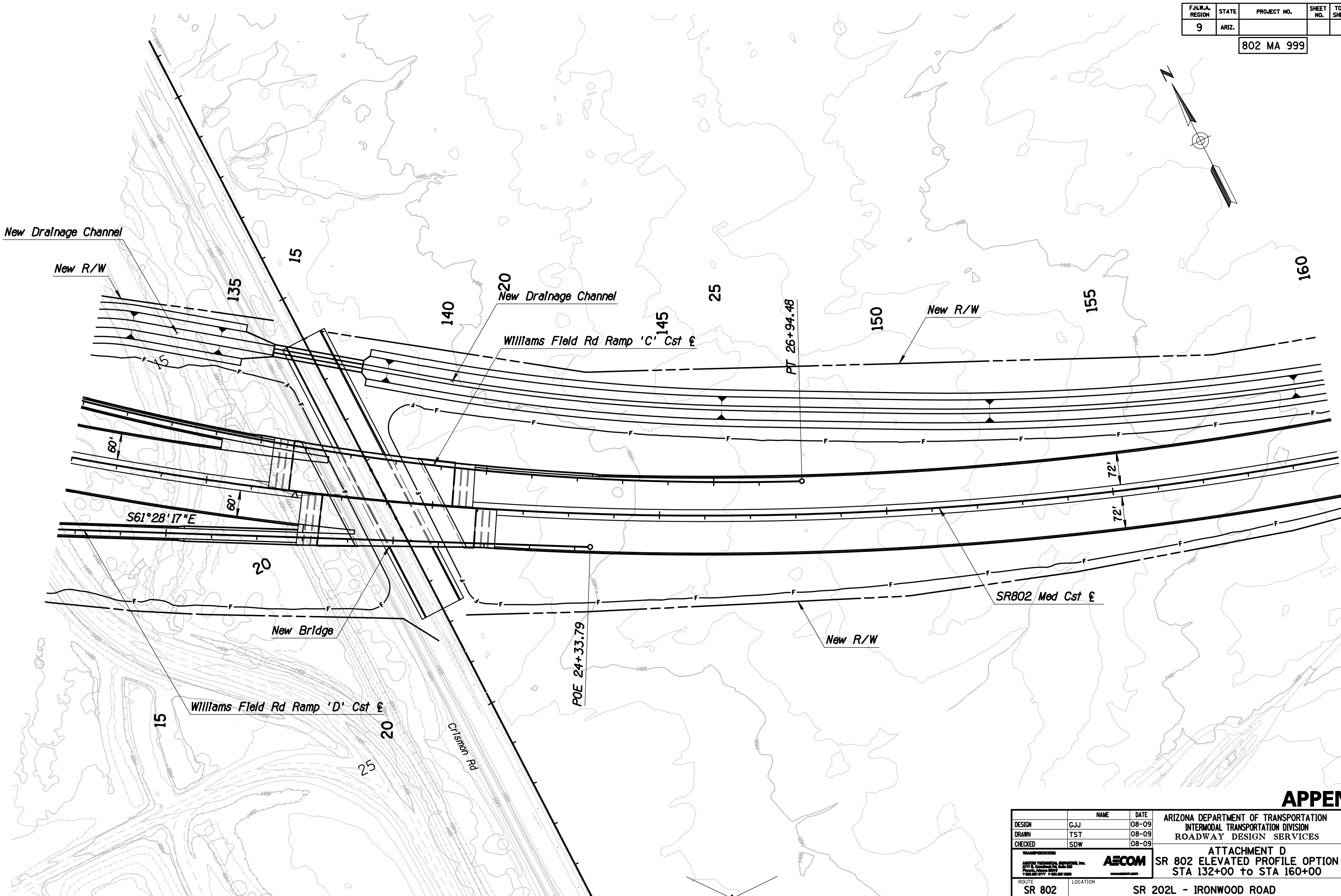
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

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DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 132+00 to STA 160+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. D-4

TRACS NO. H6867 01L   -   ___ OF ___

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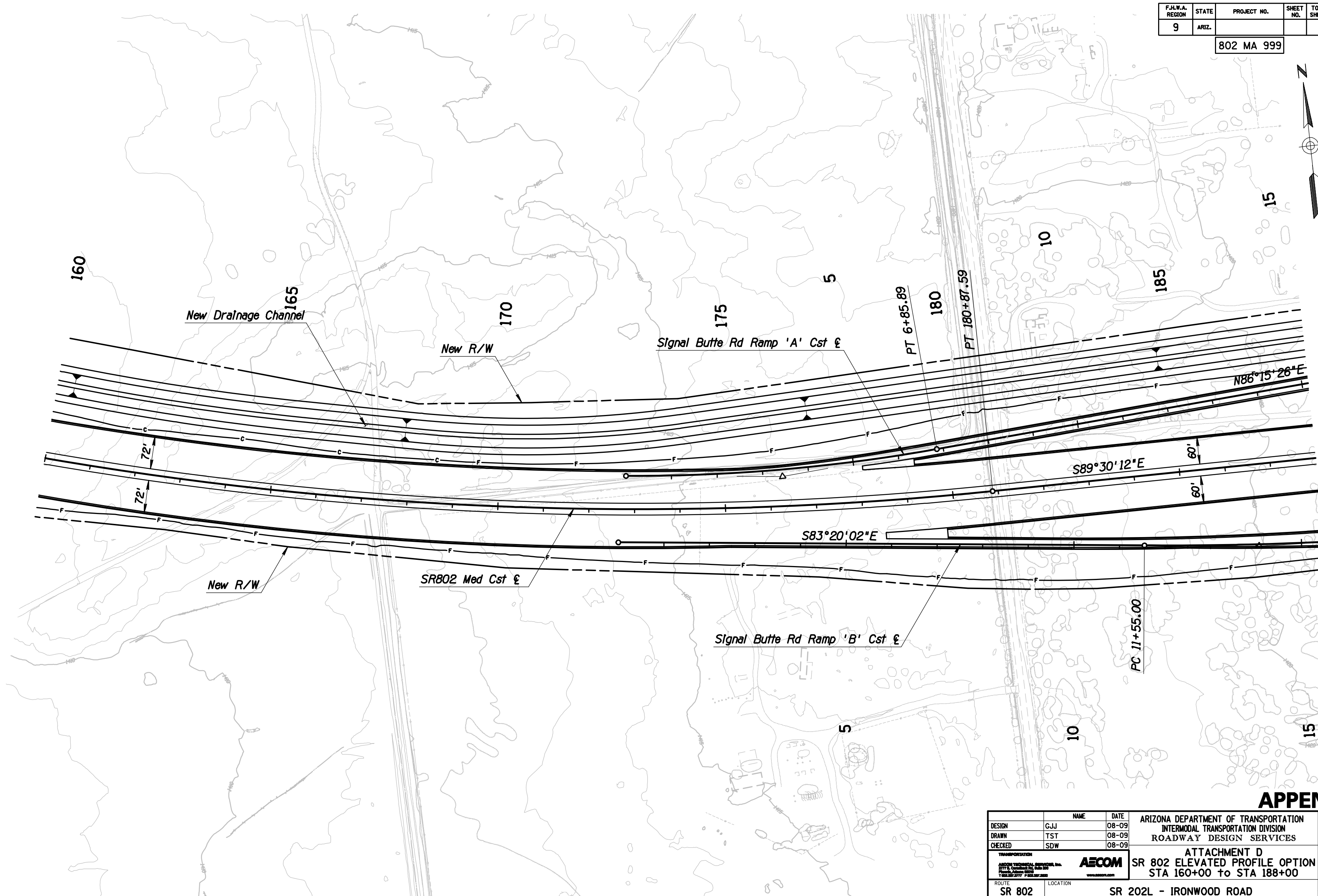
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 160+00 to STA 188+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. D-5

TRACS NO. H6867 01L

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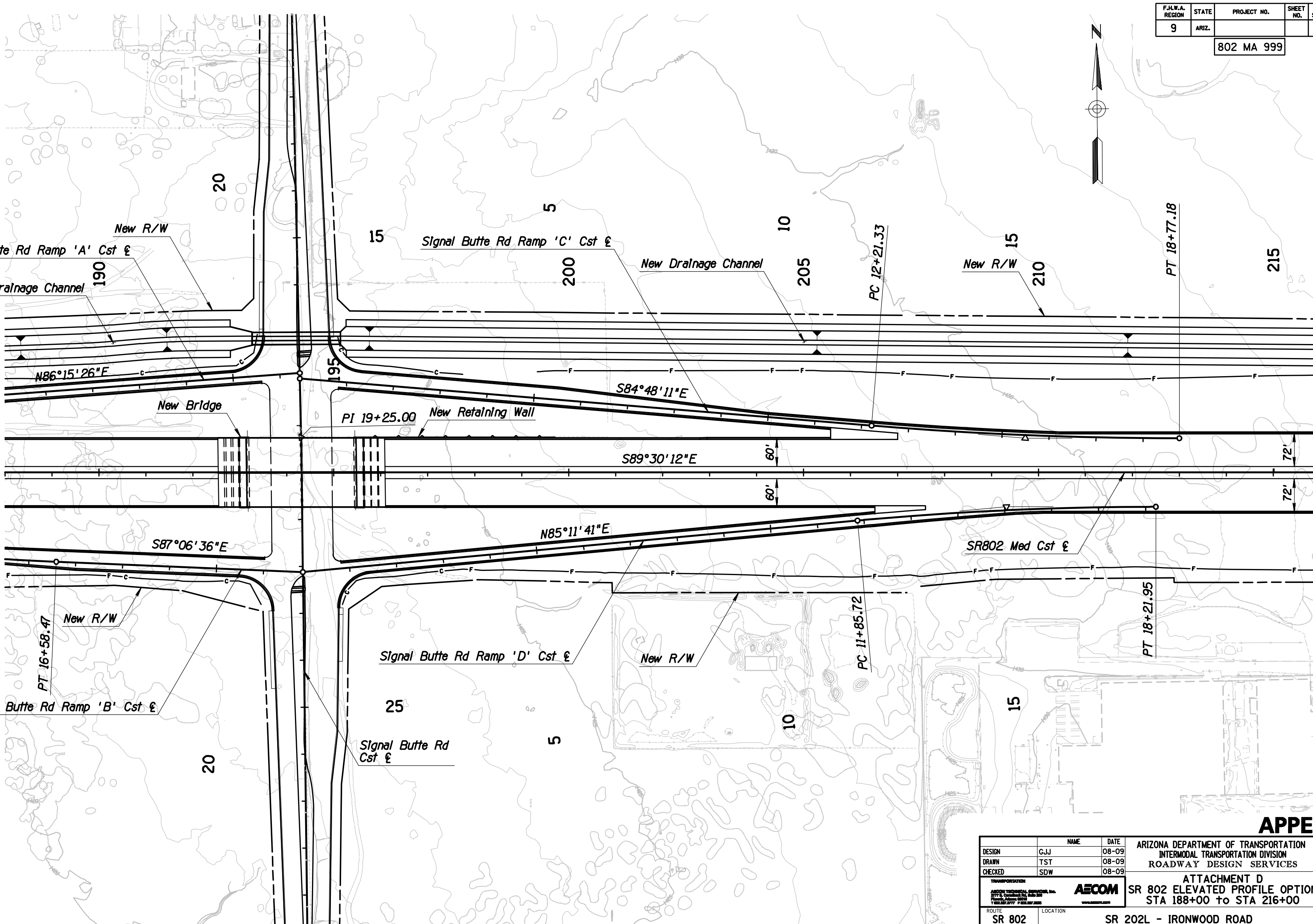

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

TRANSPORTATION AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 188+00 to STA 216+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. D-6

TRACS NO. H6867 01L | - | ____ OF ____

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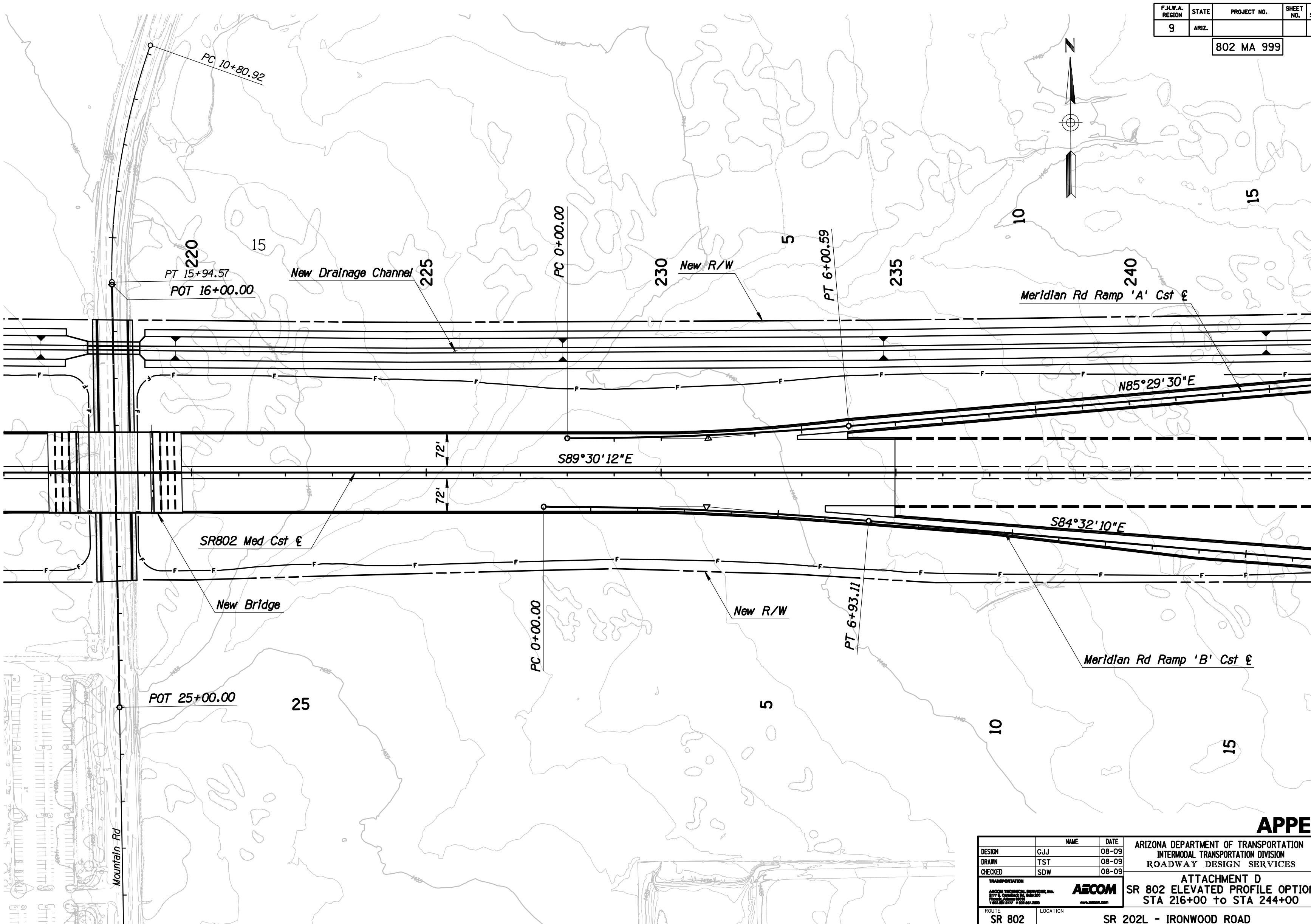
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

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ATTACHMENT D
SR 802 ELEVATED PROFILE OPTION
STA 216+00 to STA 244+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. D-7

TRACS NO. H6867 01L | - | ___ OF ___

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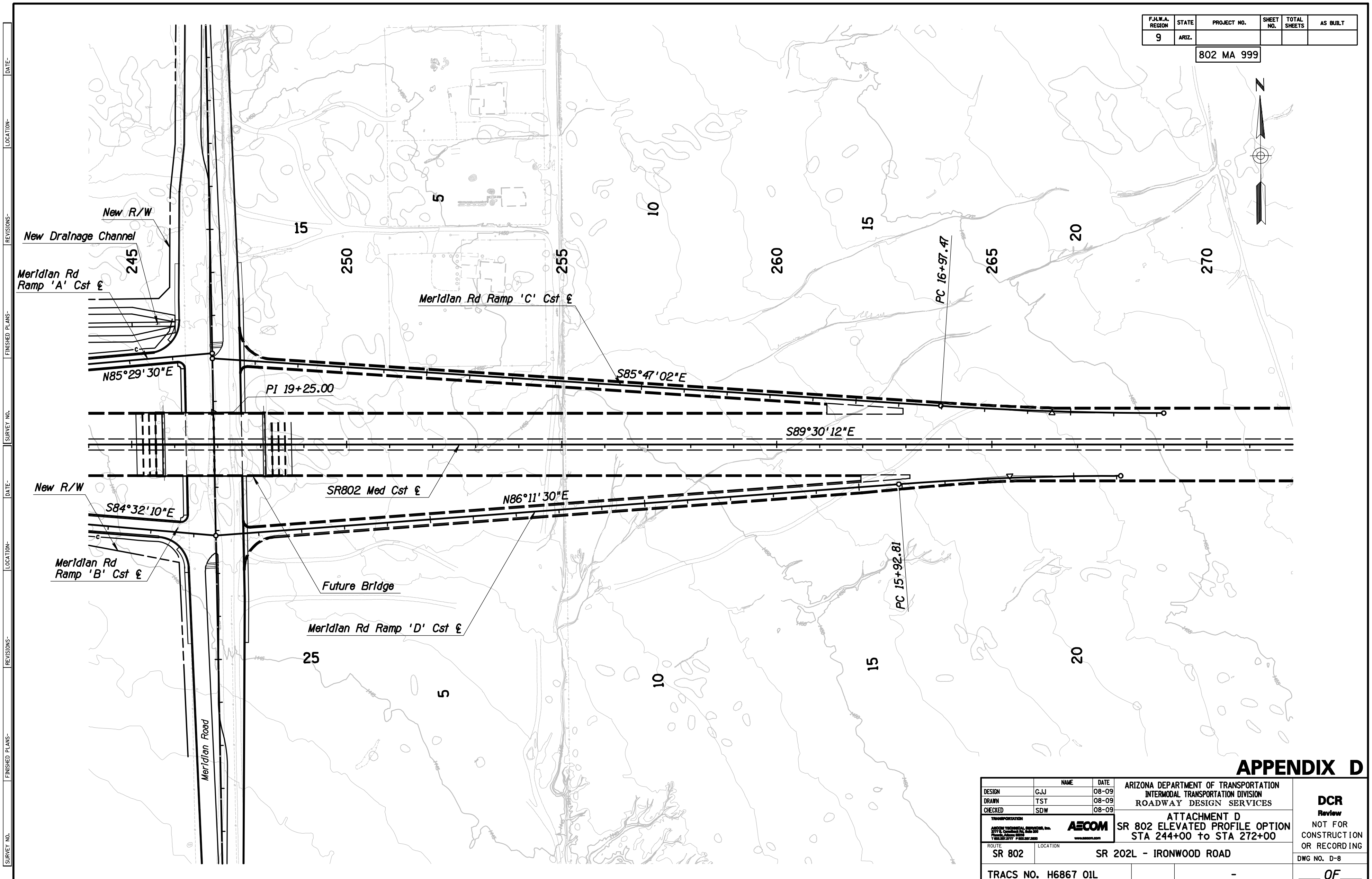
SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-



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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
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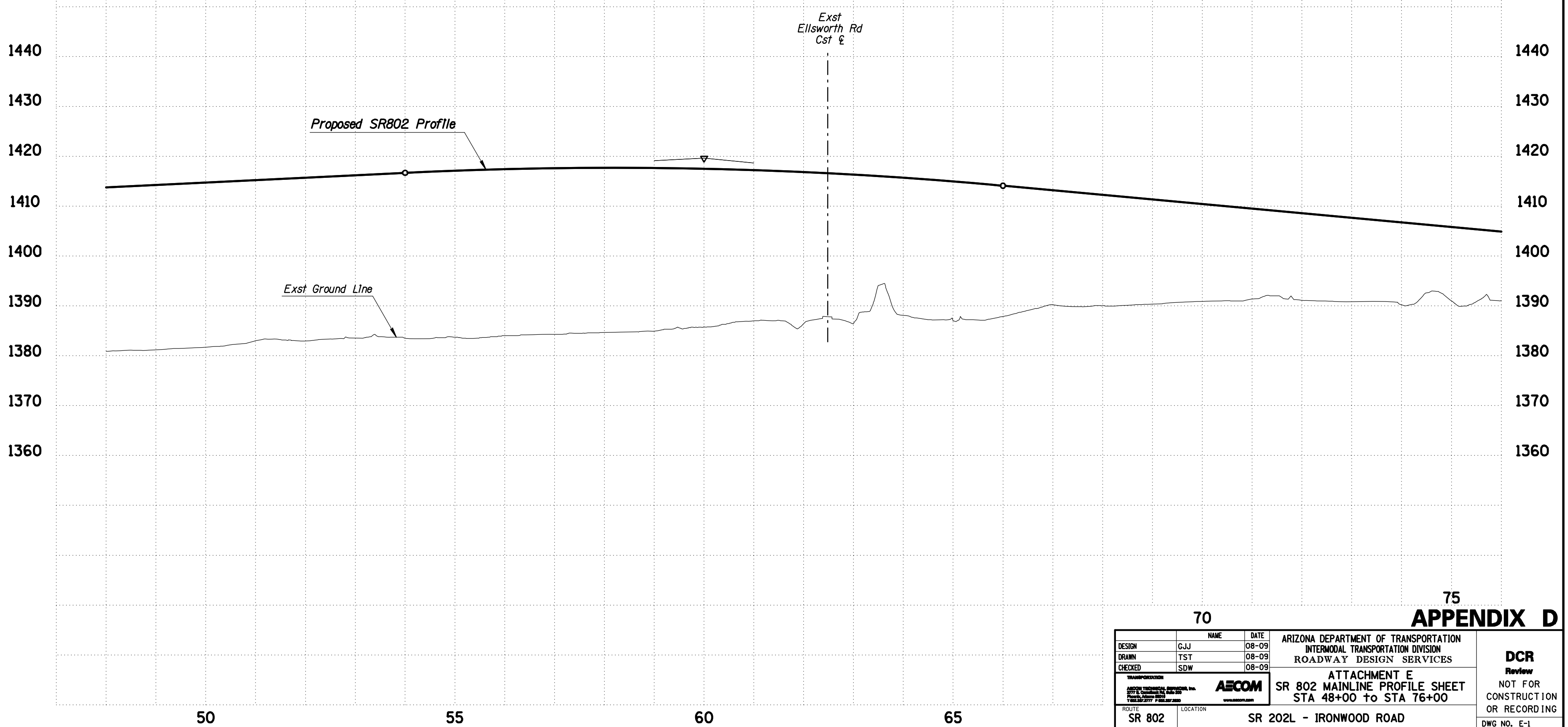

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

TRANSPORTATION

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ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 48+00 to STA 76+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L | -

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. E-1

____ OF____

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
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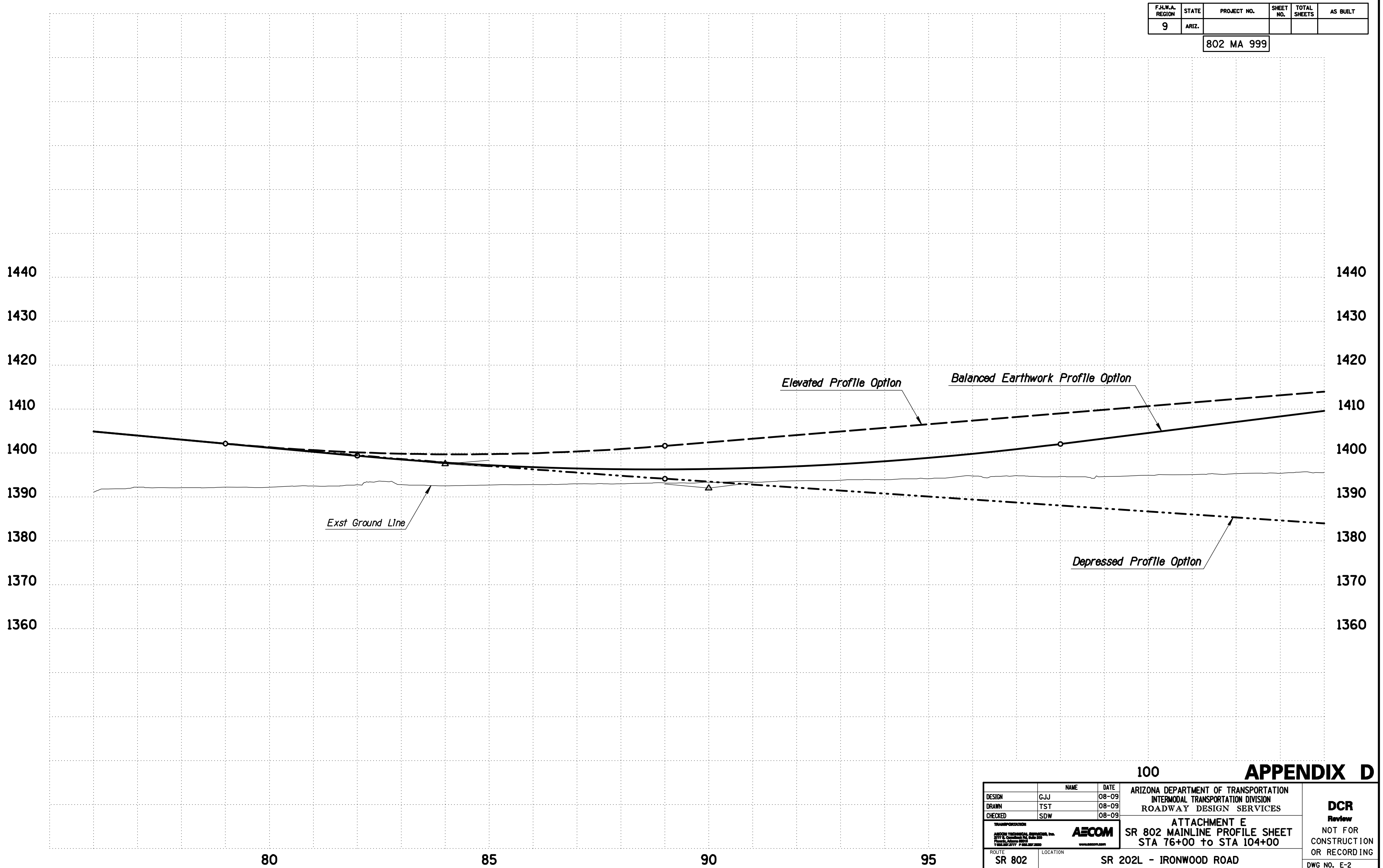
802 MA 999



APPENDIX D

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DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

TRANSPORTATION
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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 76+00 to STA 104+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. E-2

TRACS NO. H6867 01L

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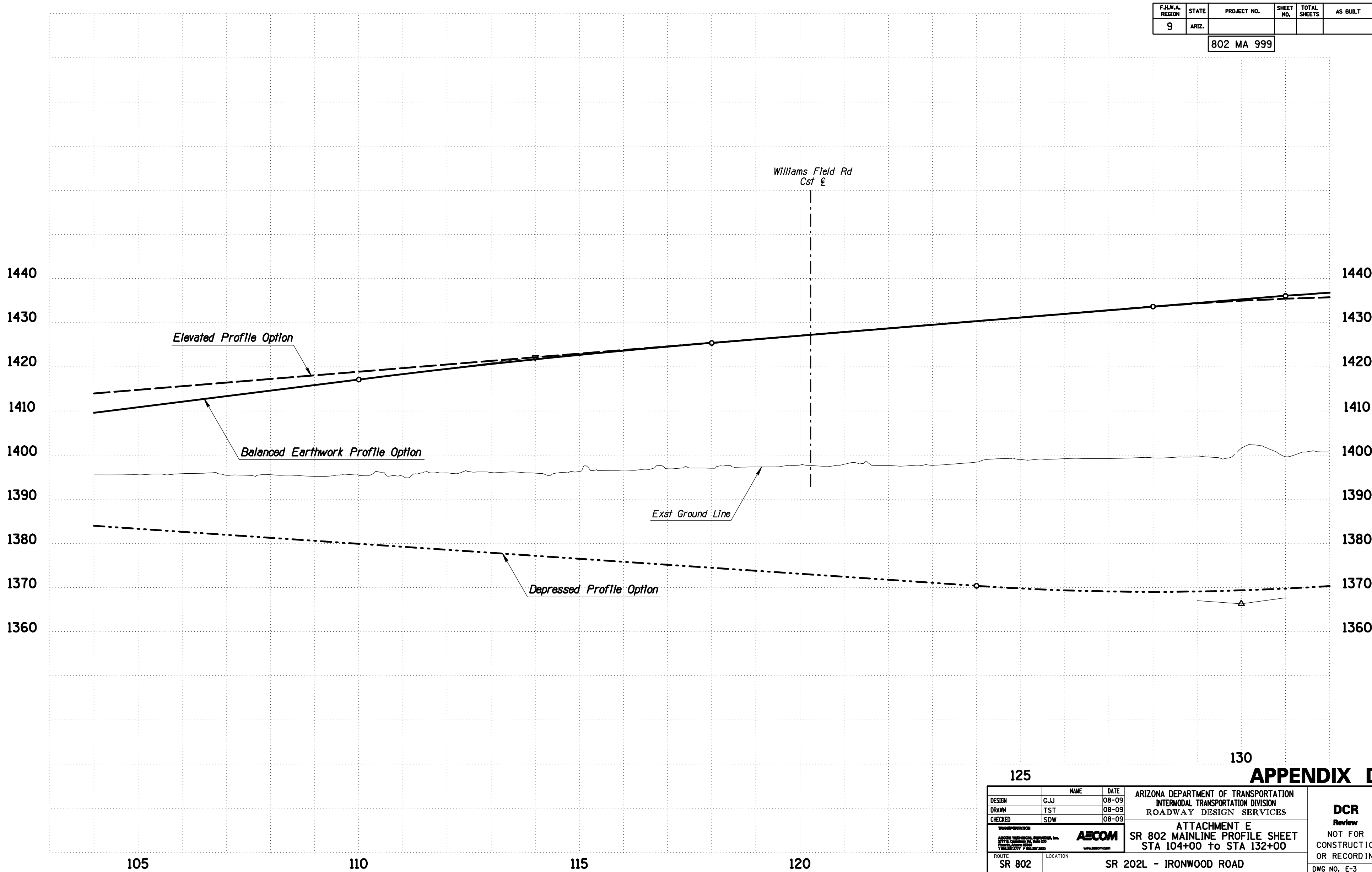

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 104+00 to STA 132+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. E-3

TRACS NO. H6867 01L | - | ___ OF ___

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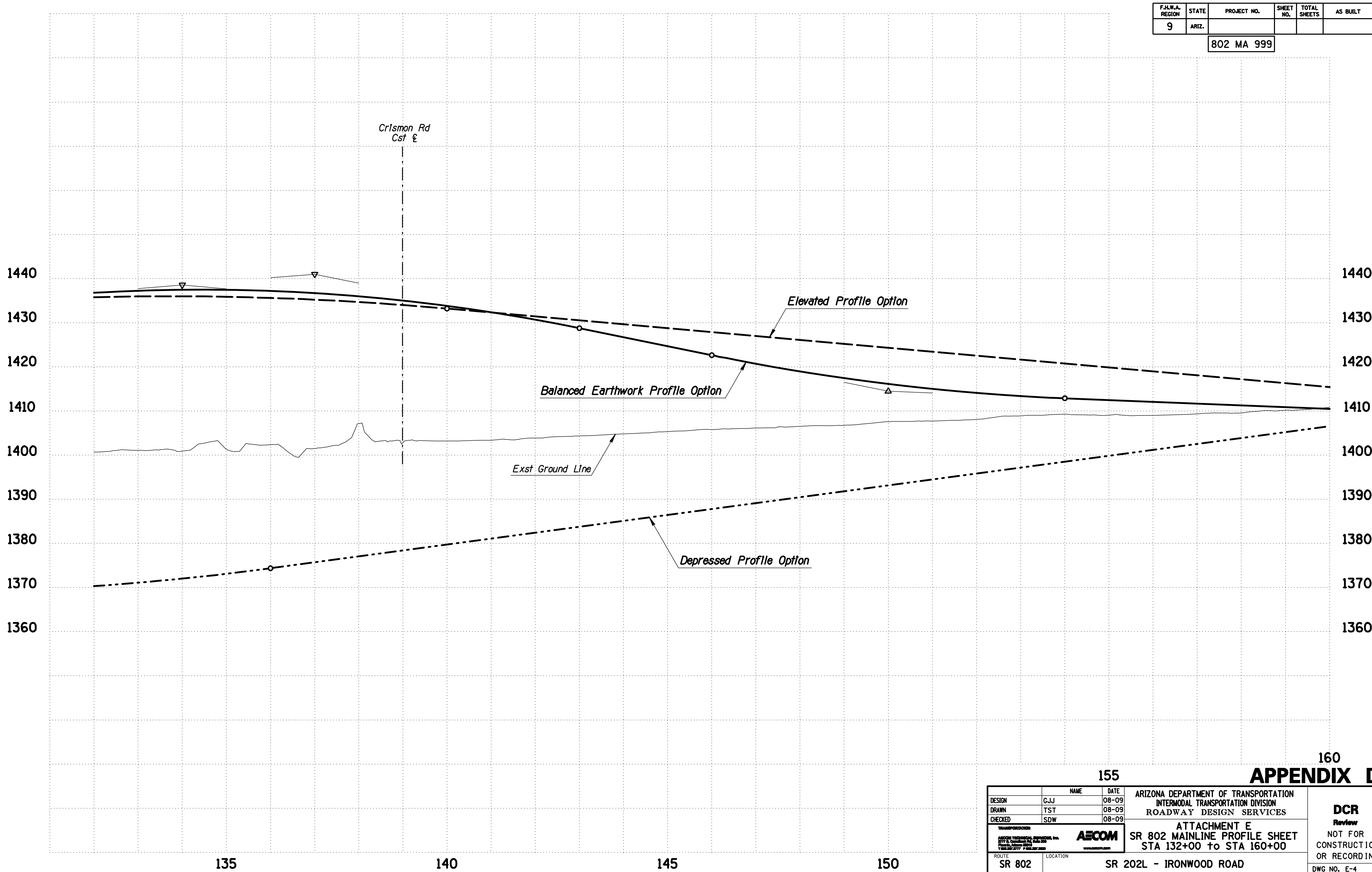
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 132+00 to STA 160+00

AECOM

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. E-4

TRACS NO. H6867 01L | - | ___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

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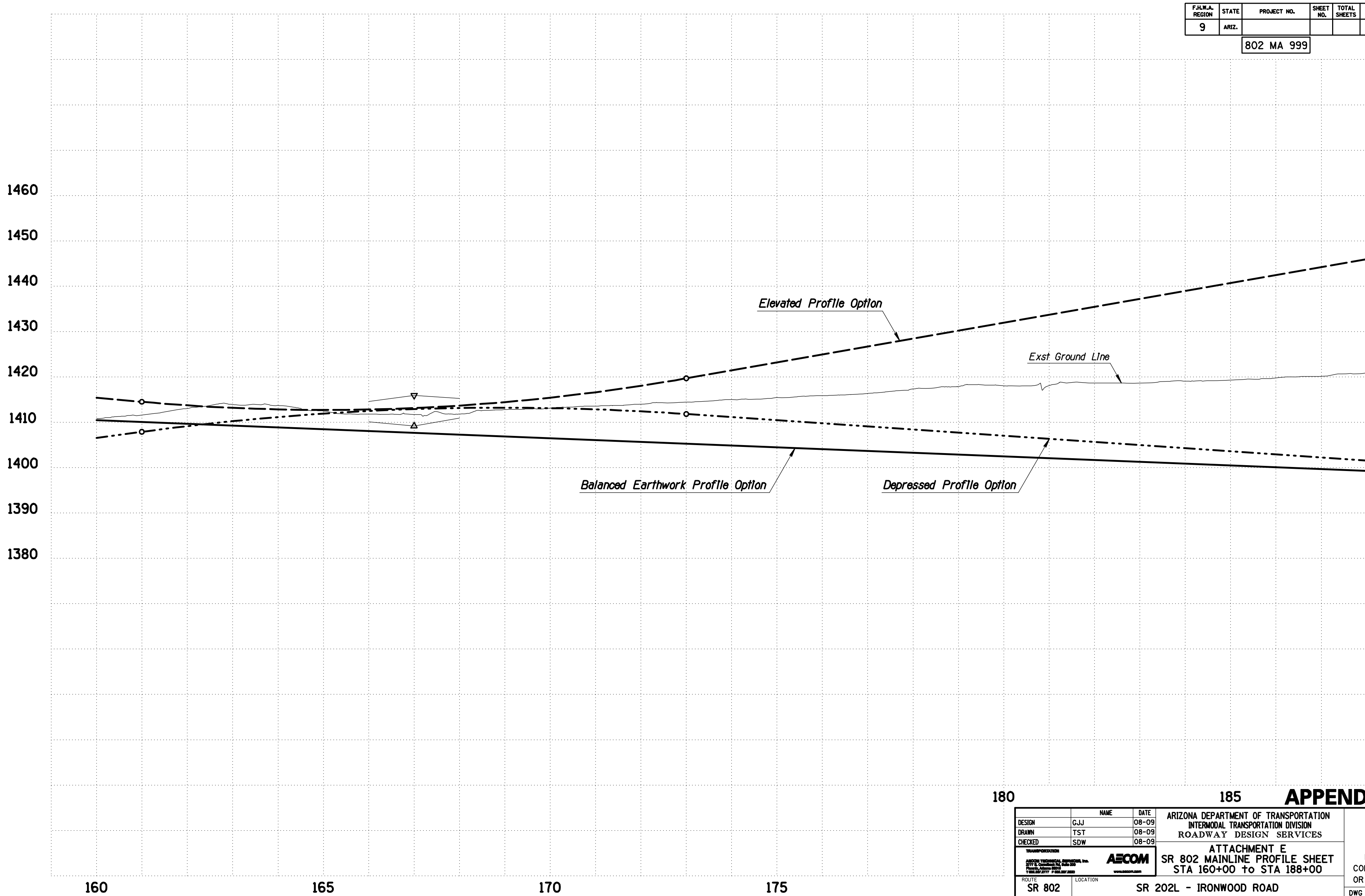

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
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ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 160+00 to STA 188+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DWG NO. E-5

TRACS NO. H6867 01L

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___ OF ___

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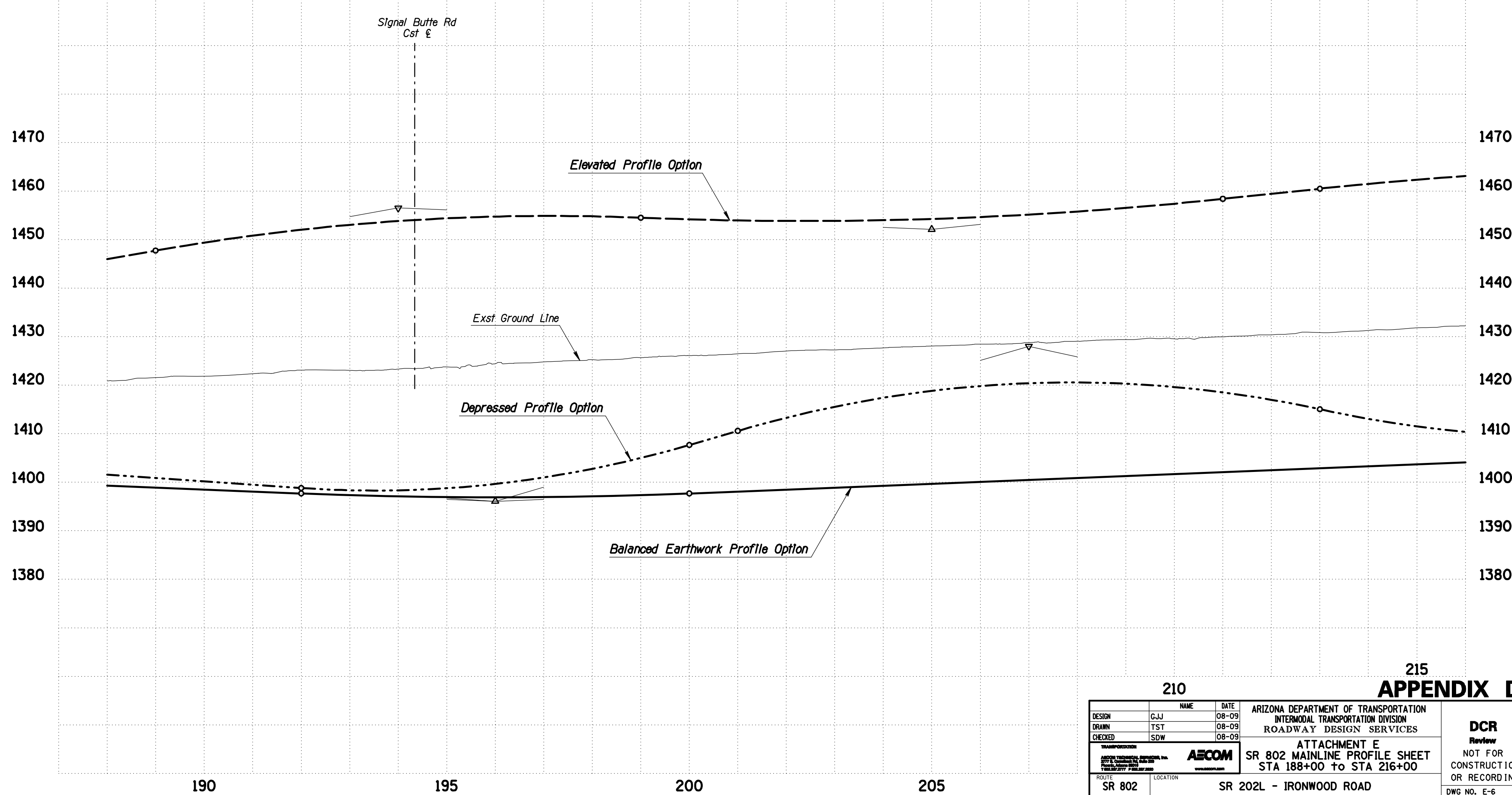
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 188+00 to STA 216+00

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ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. E-6

TRACS NO. H6867 01L | - | ___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

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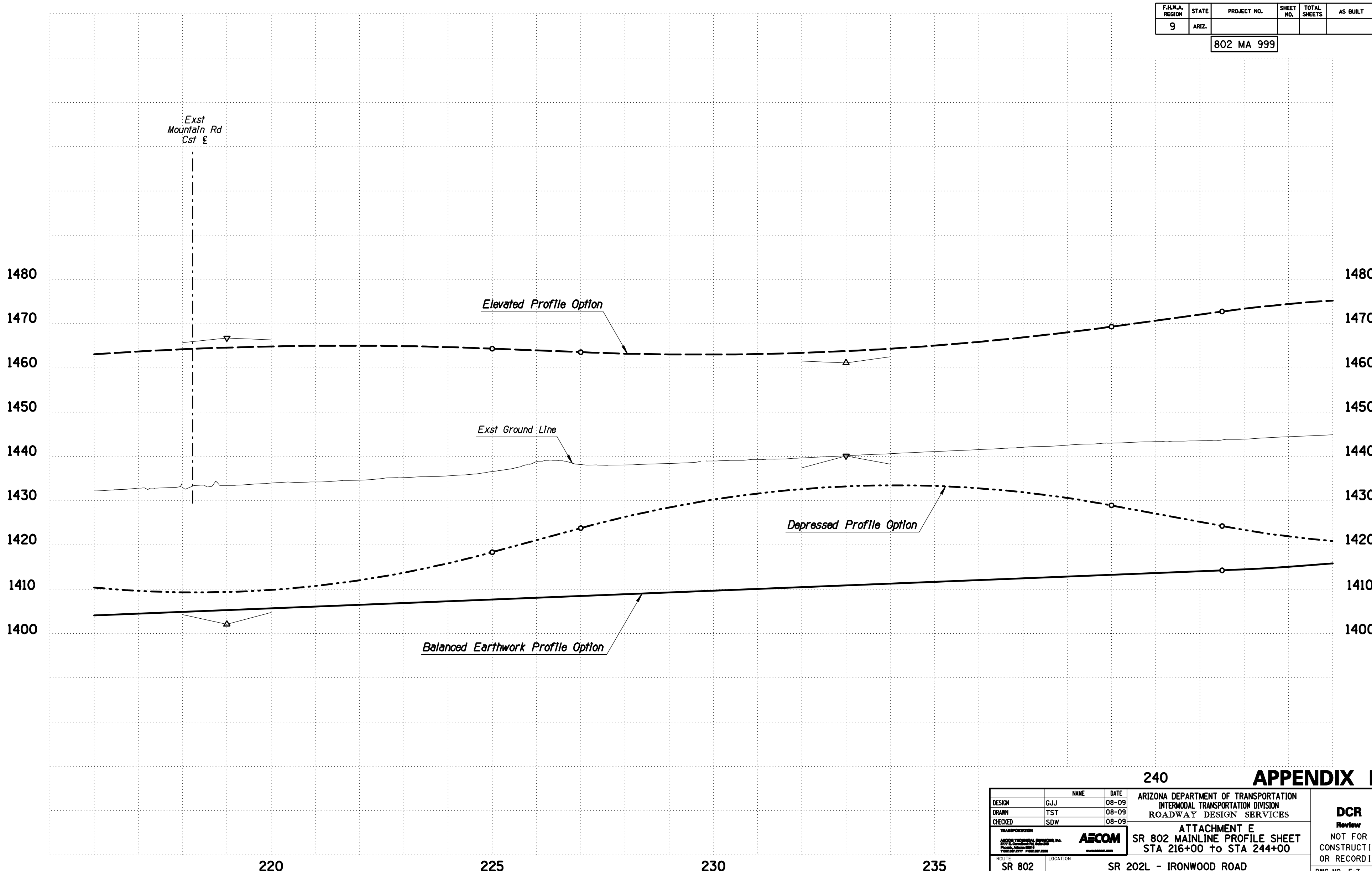

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

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ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 216+00 to STA 244+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DWG NO. E-7

TRACS NO. H6867 01L

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___ OF ___

7/27/2010 U:\WG01\Prod\civ\Balanced\h6867v09.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

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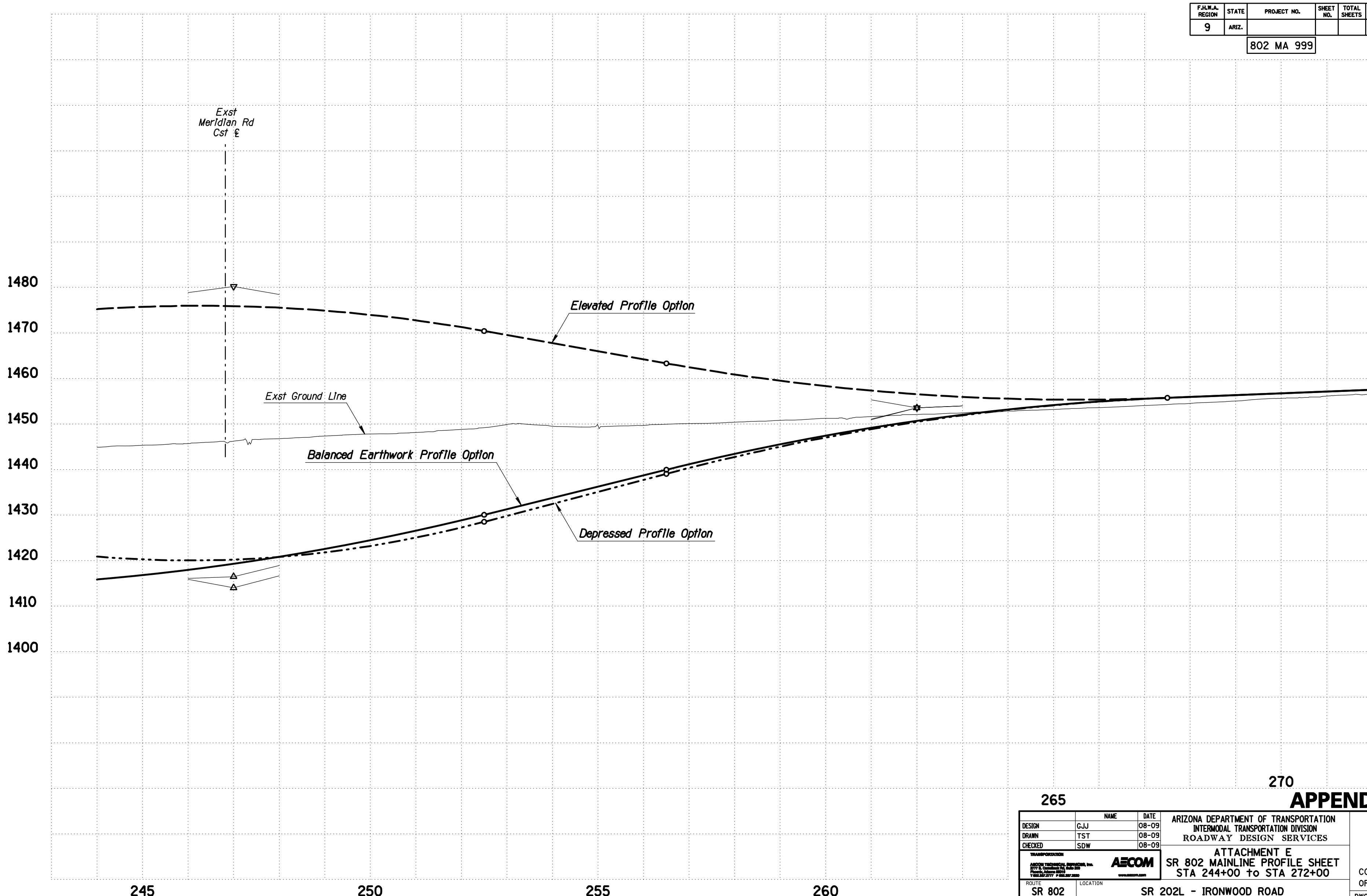

APPENDIX D

	NAME	DATE
DESIGN	GJJ	08-09
DRAWN	TST	08-09
CHECKED	SDW	08-09

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INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ATTACHMENT E
SR 802 MAINLINE PROFILE SHEET
STA 244+00 to STA 272+00

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. E-8

TRACS NO. H6867 01L

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___ OF ___

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REVISIONS- LOCATION- DATE- SURVEY NO. FINISHED PLANS-

APPENDIX E

Potential Future HOV Directional Ramp Evaluation

- Technical Memorandum
- Roadway Concept Plans
- Signing and Pavement Marking Concept Plans

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2777 East Camelback Road, Suite 200
Phoenix, Arizona 85016-4302
Tel: (602) 337-2777
Fax: (602) 337-2624

AECOM

Memorandum

Date: May 3, 2010

To: File

From: Steven Wilcox
Design Manager

Subject: SR 802, Williams Gateway Freeway
SR202L/SR802 System Traffic Interchange
Future High-Occupancy Vehicle Directional Ramp

The purpose of this Technical Memorandum is to summarize the development and design features for a conceptual plan for a potential future High Occupancy Vehicle (HOV) lane directional ramp connection between the Santan Freeway (SR202L) and the Williams Gateway Freeway (SR 802) at the SR202L/SR802 system traffic interchange (TI). The purpose of this evaluation was to ensure the SR202L/SR802 TI is designed in a manner that would accommodate an HOV ramp in the future.

1.0 PROJECT BACKGROUND

The *MAG High Occupancy Lanes and Value Lanes Study* was adopted in March 2002. This study recommended the construction of HOV lanes for all freeways within the Maricopa County area, and included recommendations for HOV directional ramps at numerous freeway-to-freeway traffic interchanges. The adopted HOV system plan is shown on Attachment A.

The HOV ramps that were identified in the MAG study that have already been constructed includes the I-10/SR51/SR202L TI that provides direct HOV connections between I-10 (to/from the south) and SR 51 (to/from the north), and between I-10 (to/from the west) and SR 202L (to/from the east). An HOV ramp has also been constructed at the I-10/US60 TI that provides a direct HOV connection between I-10 (to/from the north) to US 60 (to/from the east), and at the SR51/SR101L TI that provides a direct HOV connection between SR 51 (to/from the south) to SR 101L (to/from the east).

A project is currently advertised for design-build services to construct the HOV ramp at the I-10/SR202L (Santan) TI that will provide a direct HOV connection between I-10 (to/from the north) and SR 202L (to/from the east), and at the SR101L/SR202L TI that will provide a direct HOV connection between SR 101L (to/from the north) to SR 202L (to/from the east).

Additional HOV ramps that are planned in the future include the US60/SR202L TI that would provide a direct HOV connection between US 60 (to/from the east) to SR 202L (to/from the south), and the I-10/I-17 (Maricopa) TI that would provide a direct HOV ramp connection between I-10 (to/from the east) and I-17 (to/from the west) that would connect to the planned HOV lanes on I-17.

2.0 HOV RAMP ORIENTATION

The SR202L/SR802 TI HOV ramp was oriented to provide for direct HOV access between SR 802 and SR 202L (to/from the west). The ramp was oriented to the west on SR 202L to provide system continuity between SR 802 and the overall regional HOV System Plan. HOV lane traffic that originates in the southeast valley would travel on the SR 802 HOV lanes and use the ramp to directly access the SR 202L HOV lanes to the west of the SR202L/SR802 TI. Once on the SR 202L HOV lanes, HOV lane travelers could directly access SR 101L for destinations in Chandler, Tempe, Mesa and Scottsdale; I-10 for

destinations in Chandler, Tempe and downtown Phoenix, or SR 202L (South Mountain) for destinations in Ahwatukee or the west valley communities.

Since the design of the US60/SR202L TI included provisions for a future HOV ramp connection between SR 202L (to/from the south) to US 60 (to/from the east), direct HOV access between SR 202L (to/from the south) and US 60 (to/from the west) would not be easily provided without significant modifications to the US60/SR202L TI. Therefore, the best travel route for inbound HOV traffic originating on SR 802 that are destined for westbound US 60 would be to remain on the outside general-purpose lane approaching the SR202L/SR802 TI, exit on Ramp 'N-E' and continue to SR 202L, remain on the outside general-purpose lane approaching the US60/SR202L TI, and exit on Ramp 'N-W' to enter US 60. HOV travelers that would continue to the north on SR 202L (Red Mountain) would utilize the HOV lanes and the HOV ramps at the I-10/SR51/SR202L TI to head to downtown Phoenix.

3.0 HOV RAMP CONCEPT

Design Controls

A summary of the design controls for the HOV Ramp is provided in Table 1 below.

Table 1 – Design Controls for HOV Ramp

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- At exit from mainline:	65 mph
- Ramp body:	55 mph
- At entrance to mainline:	55 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- One Lane Ramps:	28 ft.
Lane Width:	12 ft.
Shoulder Width:	
- Inside shoulder:	6 ft.
- Outside shoulder:	10 ft.
Maximum Horizontal Curve:	5 degree, 24 minutes
Maximum Gradient:	+4%, -5%
Taper Rate:	55:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.

A summary of design controls for the service interchange ramps is provided in Table 2.

Table 2 – Design Controls for Service Interchange Ramps

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- Nose of gore (exit ramps):	60 mph
- Nose of gore (entrance ramps):	55 mph
- Ramp body:	50 mph
- Ramp terminal:	35 mph

Table 2 – Design Controls for Service Interchange Ramps (continued)

Description of Criteria	Values for Design
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Single lane exit ramp:	22 ft., plus 2 ft. offset to barrier
- Entrance ramp:	28 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Maximum Horizontal Curve:	6 degree, 53 minutes
Maximum Gradient:	+4%, -5%
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.

HOV Ramp Concept Description

The HOV ramp roadway and signing concepts are included with the attached plans. The HOV ramp would depart the SR 802 mainline within the median. The ramp would continue to the north and west on a new bridge structure that would merge with the planned HOV lanes on SR 202L.

In order to develop the additional median width necessary for the HOV ramp, the existing SR 202L eastbound and westbound roadways would be widened toward the outside of the existing pavement limits. The SR202L/SR802 TI Ramps 'E-S' and 'N-W', and the Hawes Road TI Ramps 'A' and 'B' would be realigned to support the widened mainline pavement.

Bridges and Retaining Walls

Table 3 presents a feasible bridge span configuration and maximum superstructure depth for the HOV ramp bridge. Additional bridge alternatives and vertical profile refinements should be investigated with the future Bridge Selection Report evaluation, while considering the constraints and issues presented in this section.

Coordination will also be required with the Phoenix-Mesa Gateway Airport and the Federal Aviation Administration to obtain any necessary permits required for the bridge and light pole construction activities that may impact the regulated runway airspace.

Special cranes with low boom heights may be required to erect girders under Ramp 'W-S' which has been profiled to provide 16'-6" minimum clearance to the future HOV connector. Precast straddle bents should also be investigated to minimize impacts to eastbound SR 202L traffic.

Table 3 – HOV Ramp Bridge Concept

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Deck Width	Max. Structure Depth
HOV Connector Ramp	2,038'	16	3 at 135', 117', 96.5', 78.25', 2 at 135.5', 121.83', 7 at 135'	61.17'	9.50'*

Note:
* Maximum structure depths include depth of superstructure plus precast straddle bents over SR 202L. The maximum structure depth past SR 202L would be 7.50'.

Table 4 provides a summary of the bridge widening concept that could be utilized for the widening of the Hawes Road overpasses that would be required to support the HOV ramp.

Table 4 – Hawes Road Overpass Widening Concept

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Approx Width of Widening *	Proposed Superstructure Depth	Existing Superstructure Type	Proposed Widening Concept
Hawes Road TI Overpass (SR 202L EB & WB)	213.69'	2	103.4', 104.6'	Varies	4'-6"	Post-tensioned box girder	Hydraulically jacked PT box or steel through girders for falsework could address temporary construction clearance issues and reduce the number of falsework towers.

* Structural widening does not include the width associated with the partial removal of the existing deck.

New retaining walls would be required along the HOV ramp as it merges into the SR 202L median. Due to the close proximity of the HOV ramp to the SR 202L HOV lanes, it is anticipated that an MSE wall would be utilized at this location. A retaining wall along Ramp 'N-W' would be lengthened by approximately 300' due to the realignment of the Hawes Road TI Ramp 'A'. Each of these retaining walls are described in Table 5 below.

Table 5 – New Retaining Wall Summary

Alignment	Description	Approximate Station Limits	Approximate Wall Length	Average Wall Height/ Maximum Wall Height(1)	Wall Type(1)
SR 202L Mainline	Median Edge of SR 202L EB and WB, between HOV Ramp and General-Purpose Lanes	Station 3069+30 to Station 3083+70	2,880' (1,440' EB and WB)	17'/30'	Specialty wall
Ramp 'N-W'	Between HOV Ramp and Ramp 'N-W'	Station 32+00 to Station 35+00	300'	4'/5'	Standard CIP Wall

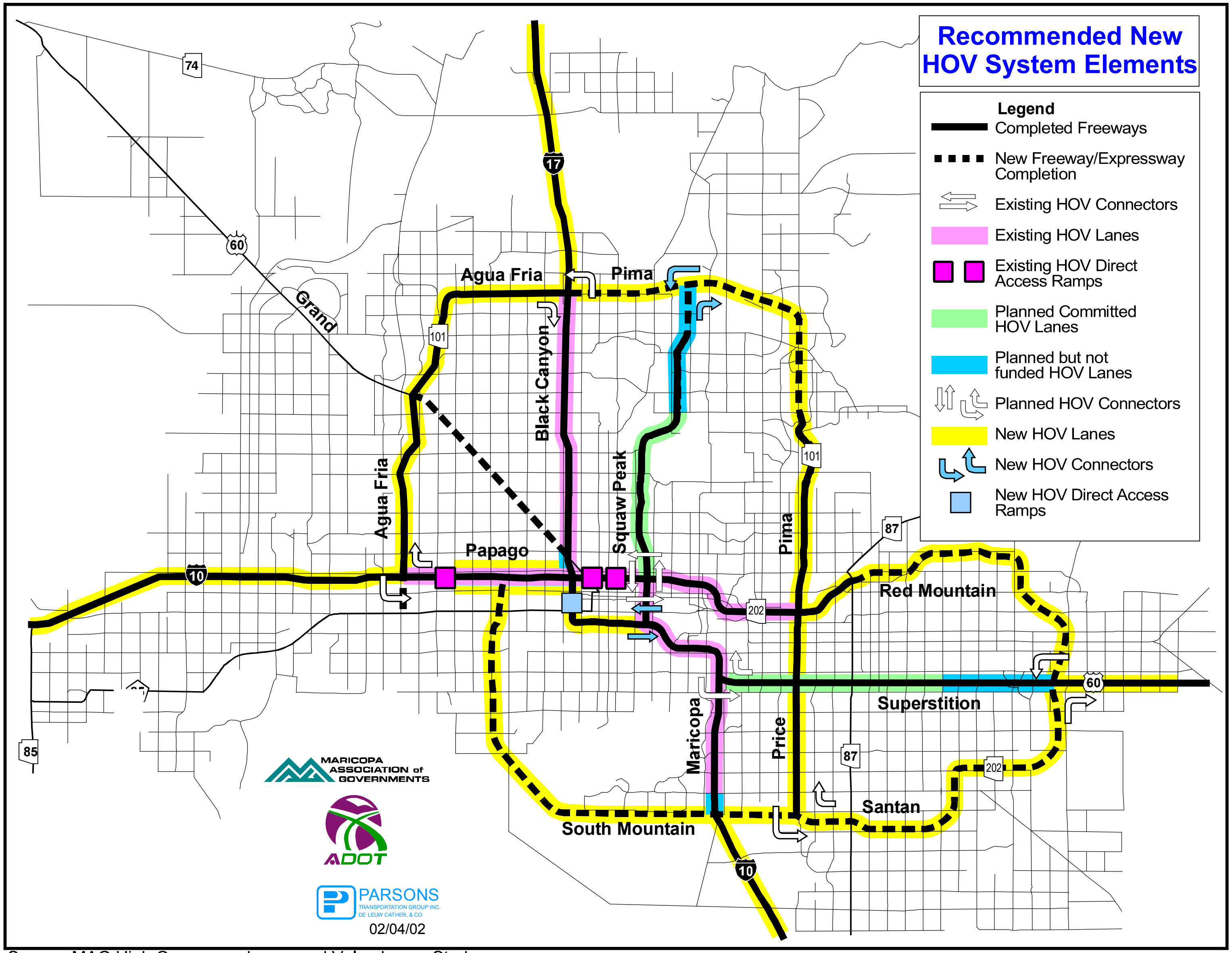
(1) Wall type selection should consider future noise analyses, structural analyses, and/or geotechnical investigations

Estimate of HOV Ramp Project Costs

The estimated total project cost for the future HOV ramp is approximately $53,490,600, which includes $3,339,000 for design and $50,151,600 for construction. The project cost estimate is provided with the Attachment B.

Attachment A

Recommended New HOV Lanes and Connectors



Source: MAG High Occupancy Lanes and Value Lanes Study

ATTACHMENT B
SR202L/SR802 TI HOV Ramp Order of Magnitude Itemized Estimate

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	10,421	6.00	62,600
2020027	REMOVAL OF CONCRETE BARRIER	L.FT.	11,508	10.00	115,100
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	20,059	15.00	300,900
2020034	REMOVAL OF SIGNS	L.SUM	1	800.00	800
2020035	REMOVAL OF SIGN BRIDGES	L.SUM	1	15,000.00	15,000
2020053	REMOVE (ANNENUATORS)	EACH	4	3,000.00	12,000
2020053	REMOVE (EXISTING CANTILEVER SIGN STRUCTURE)	EACH	2	3,000.00	6,000
2020201	SAW CUTTING	L.FT.	2,500	4.00	10,000
2030900	BORROW (IN PLACE)	CU.YD.	50,000	10.00	500,000
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	20,353	30.00	610,600
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	23,580	35.00	825,300
4060023	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	57,806	5.00	289,100
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	195	110.00	21,500
5012524	STORM DRAIN PIPE, 24"	L.FT.	1,875	60.00	112,500
5030142	CONCRETE CATCH BASIN (C=15.80) H=8' OR LESS	EACH	2	2,100.00	4,200
5030604	CONCRETE CATCH BASIN (C-15.91) H=8' OR LESS	EACH	35	3,200.00	112,000
5030606	CONCRETE CATCH BASIN (C-15.92) H=6' OR LESS	EACH	8	3,500.00	28,000
5050031	MANHOLE (C-18.10) (NO. 3) (FOR PIPES 6" TO 36")	EACH	3	3,500.00	10,500
6080048	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	1	110,000.00	110,000
6080079	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	2	8,000.00	16,000
6060134	CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	3	41,000.00	123,000
6060257	FOUNDATION FOR CANTILEVER SIGN STRUCTURE (SD9.10, TYPE 4C)	EACH	3	4,900.00	14,700
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	72	25.00	1,800
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	6	280.00	1,700
6080064	EXTRUDED ALUM SIGN PANEL WITH TYPE VIII/IX/X SHEET	SQ.FT.	1,429	18.00	25,600
7040070	PAVEMENT MARKING (WHITE THERMOPLASTIC) (0.090")	L.FT.	55,040	0.20	11,100
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC) (0.090")	L.FT.	17,225	0.20	3,500
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	5,292	0.40	2,200
7050021	PAVEMENT MARKING PREFORMED, TYPE 1, YELLOW STRIPE	L.FT.	8,290	3.45	28,700
7050022	PAVEMENT MARKING PREFORMED, TYPE 1, WHITE STRIPE	L.FT.	39,699	3.45	137,000
7050029	PAVEMENT MARKING PREFORMED, TYPE 1, SYMBOL	EACH	22	250.00	5,500
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	3,291	3.14	10,400
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	482	2.75	1,400
7080001	PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	76,392	0.10	7,700
7080011	PERMANENT PAVEMENT MARKING (PAINTED) (YELLOW)	L.FT.	19,773	0.10	2,000
7080101	PERMANENT PAVEMENT MARKING (PAINTED SYMBOL)	EACH	3	28.00	100
80800XX	LANDSCAPING	ACRE	4	30,250.00	121,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	2	4,000.00	8,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	2	4,500.00	9,000
9080084	CONCRETE CURB AND GUTTER	L.FT.	1,552	15.00	23,300
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	71,703	15.00	1,075,600
9100000	CONCRETE BARRIER (SINGLE FACE WITH 2.5' GUTTER)	L.FT.	18,359	80.00	1,101,600
9100000	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	7,494	60.00	449,700
9100009	CONCRETE BARRIER (ADJACENT TO RETAINING WALL) (2.5' GUTTER)	L.FT.	2,150	75.00	161,300
9140153	RETAINING WALL (REGULAR)	SQ.FT.	1,200	55.00	66,000
9140155	RETAINING WALL (SPECIALTY)	SQ.FT.	47,520	75.00	3,564,000
9999910A	HAWES OVERPASS EB (WIDEN)	L.SUM	1	635,100.00	635,100
9999910B	HAWES OVERPASS WB (WIDEN)	L.SUM	1	591,725.00	591,800
9999910C	HOV RAMP STRUCTURE	SQ.FT.	124,856	130.00	16,231,300
				ITEM TOTAL	27,576,400

ATTACHMENT B
SR202L/SR802 TI HOV Ramp Order of Magnitude Itemized Estimate (continued)

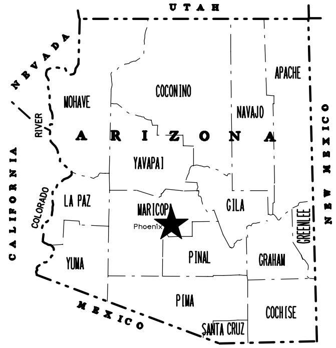
ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
PROJECT WIDE					
	Maintenance and Protection of Traffic (5%)	COST		1,379,000.00	1,379,000
	Dust and Water Palliative (2%)	COST		552,000.00	552,000
	Quality Control (2%)	COST		552,000.00	552,000
	Construction Surveying (4%)	COST		1,104,000.00	1,104,000
	Erosion Control (1%)	COST		276,000.00	276,000
	Mobilization (8% of all construction items)	COST		3,339,000.00	3,339,000
				PROJECT WIDE SUBTOTAL	7,202,000
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		6,956,000.00	6,956,000
				PROJECT WIDE TOTAL	14,158,000
OTHER COST					
	Construction Engineering (9%)	COST		3,757,000.00	3,757,000
	Construction Contingencies (5%)	COST		2,087,000.00	2,087,000
	Indirect Cost Allocation (5.19%)	COST		2,167,000.00	2,167,000
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST		3,339,000.00	3,339,000
	Environmental Mitigation (Unknown at this time)	COST		-	-
	PCCP Quality Incentive	COST		65,000.00	65,900
	AR-ACFC Smoothness Incentive	COST		90,300.00	90,300
	Right-of-Way	COST		-	-
	Utility Relocation	COST		250,000.00	250,000
				OTHER COST TOTAL	11,756,200

SUMMARY

ITEM TOTAL	27,576,400
PROJECT WIDE	14,158,000
OTHER COST TOTAL	11,756,200
TOTAL PROJECT COST	53,490,600

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PROJECT PLANS

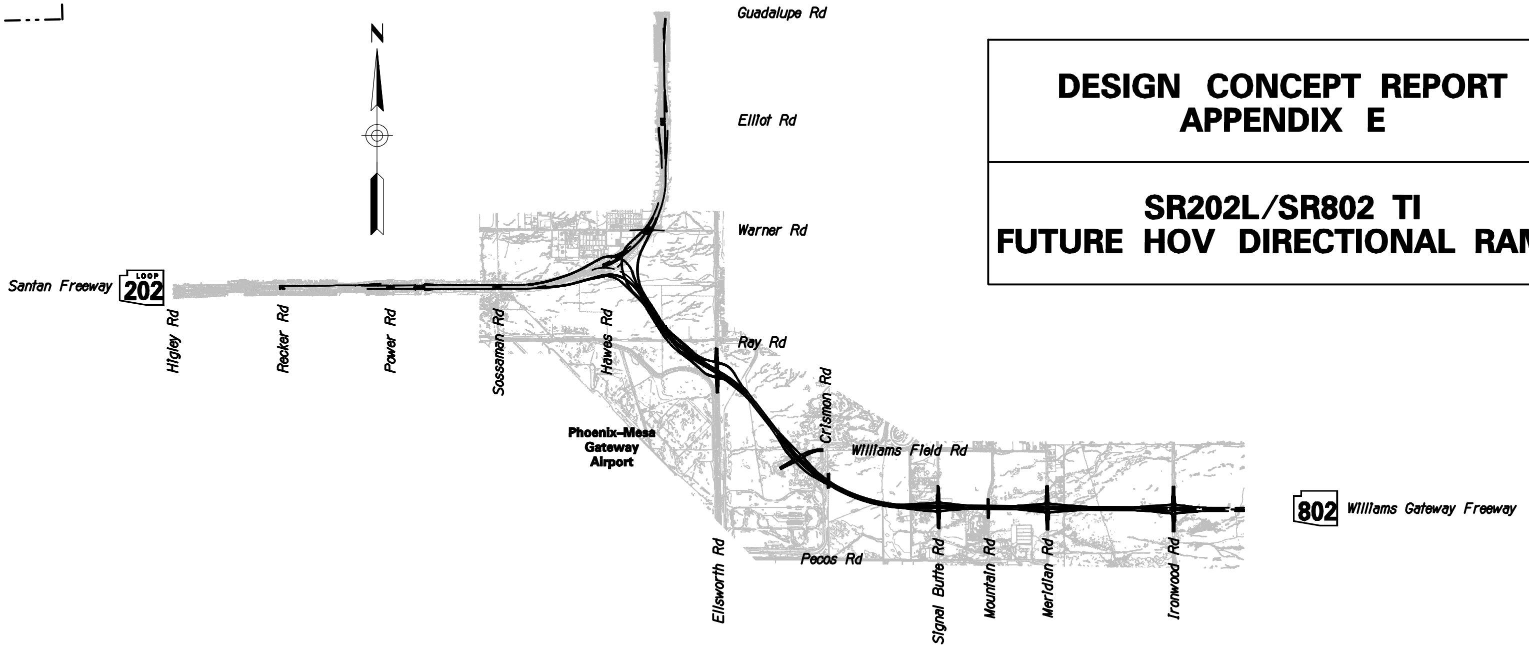


STATE HIGHWAY
SR 802, WILLIAMS GATEWAY FREEWAY
802 MA 999

ADOT

DESIGN CONCEPT REPORT
APPENDIX E

SR202L/SR802 TI
FUTURE HOV DIRECTIONAL RAMP



SR 802, WILLIAMS GATEWAY FREEWAY
SR 202L TO IRONWOOD ROAD

PROJECT NO. 802 MA 999 H6867 01 L
CONTRACT NO. 05-26

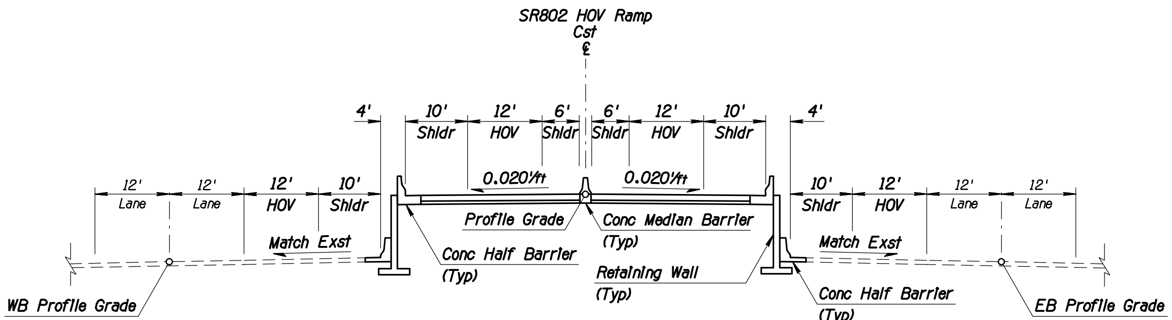
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
FLOYD ROEHRICH, JR. P.E., STATE ENGINEER

AS BUILT DATA	AS BUILT DATE	OF

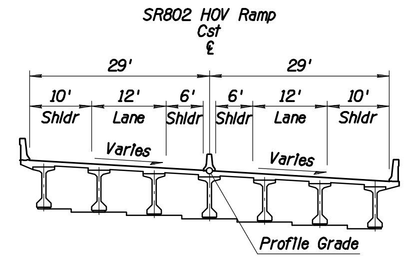
7/15/2010 U:\WG01\Prod\civ\h6867fs-HOV.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



SR802 HOV RAMP SECTION



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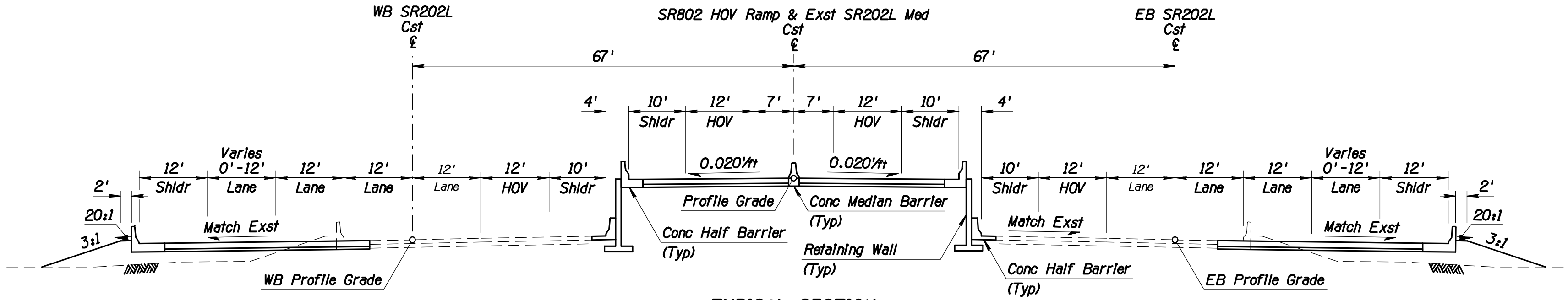
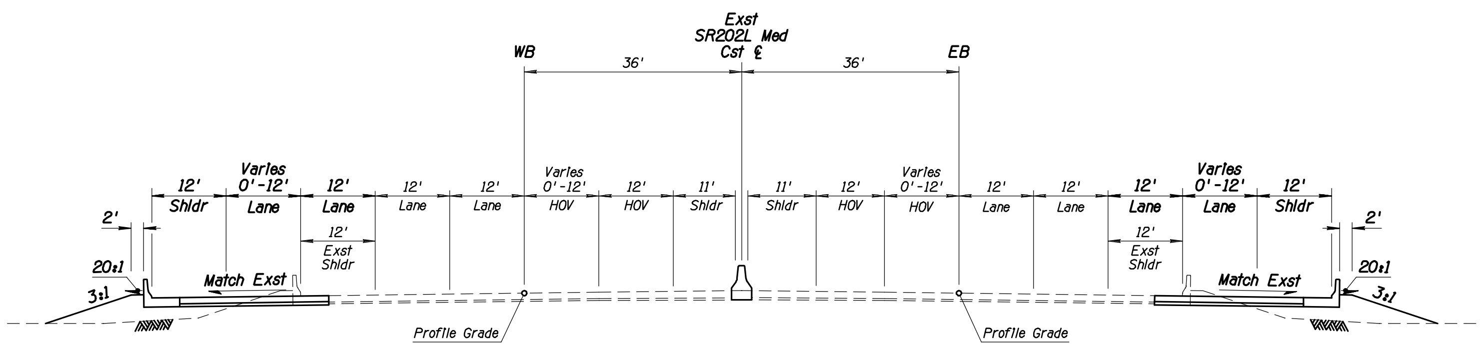


TYPICAL SECTION

SR202L



TYPICAL SECTION

SR202L

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
DESIGN SHEET
TYPICAL SECTIONS

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-1.1

TRACS NO. H6867 01L | - | ___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.		---	---	--------

802 MA 999

PLAN REF NO		P.I./P.O.T. STATION	COORDINATES		All Coordinates Are Ground Coordinates And All Bearings Are Grid Bearings								G.A.F. = 1.00016
18004	SR202L WB Cst ℄ POT	3072+33.91	N=847726.131	E=778900.440									
400	SR202L WB Cst ℄ PI	3096+66.79	N=848542.473	E=781192.268	SIMPLE	Δ=19°35'47"	D=1°15'00"	R=4583.66	T=791.59	L=1567.71	Ext=67.85	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
18001	SR202L WB Cst ℄ PT	3104+42.91	N=849042.801	E=781805.686									
19004	SR202L EB Cst ℄ POT	3072+33.91	N=847599.900	E=778945.404									
401	SR202L EB Cst ℄ PI	3093+17.28	N=848298.966	E=780907.988	SIMPLE	Δ=15°15'01"	D=1°02'30"	R=5500.00	T=736.31	L=1463.92	Ext=49.07	e=0.036'/ft	SEE SUPERELEVATION DIAGRAM
19001	SR202L EB Cst ℄ PT	3100+44.89	N=848719.779	E=781512.198									
56000	SR802 HOV Ramp Cst ℄ PC	7+00.00	N=847567.926	E=778638.411									
990	SR802 HOV Ramp Cst ℄ PI	8+50.02	N=847612.677	E=778781.600	SIMPLE	Δ=2°15'00"	D=0°45'00"	R=7639.44	T=150.02	L=300.00	Ext=1.47	e=0.024'/ft	SEE SUPERELEVATION DIAGRAM
991	SR802 HOV Ramp Cst ℄ PI	35+62.53	N=848522.862	E=781336.888	SIMPLE	Δ=77°53'06"	D=3°15'00"	R=1762.95	T=1424.68	L=2396.46	Ext=503.70	e=0.052'/ft	SEE SUPERELEVATION DIAGRAM
50020	SR802 HOV Ramp Cst ℄ POT	51+45.35	N=846791.245	E=782407.226									
90400	Ramp 'E-S' Cst ℄ POT	9+98.67	N=847145.673	E=776743.747									
520	Ramp 'E-S' Cst ℄ PI	27+78.09	N=847234.190	E=778520.960	SIMPLE	Δ=12°36'36"	D=1°00'00"	R=5729.58	T=633.06	L=1261.00	Ext=34.87	e=0.023'/ft	SEE SUPERELEVATION DIAGRAM
90406	Ramp 'E-S' Cst ℄ POT	35+00.00	N=847428.007	E=779221.673									
90502	Ramp 'N-W' Cst ℄ PC	10+39.85	N=847296.245	E=776239.771									
510	Ramp 'N-W' Cst ℄ PI	17+82.38	N=847309.211	E=776982.190	SIMPLE	Δ=12°56'21"	D=0°52'30"	R=6548.09	T=742.53	L=1478.75	Ext=41.97	e=0.020'/ft	SEE SUPERELEVATION DIAGRAM
511	Ramp 'N-W' Cst ℄ PI	33+35.55	N=847684.890	E=778495.750	SIMPLE	Δ=5°17'34"	D=1°00'00"	R=5729.58	T=264.83	L=529.28	Ext=6.12	e=0.023'/ft	SEE SUPERELEVATION DIAGRAM
90509	Ramp 'N-W' Cst ℄ PT	36+00.00	N=847772.125	E=778745.797									
90100	Hawes Rd Ramp 'A' Cst ℄ PC	11+61.39	N=847760.044	E=778888.361									
300	Hawes Rd Ramp 'A' Cst ℄ PI	15+88.16	N=847903.247	E=779290.394	SIMPLE	Δ=10°38'19"	D=1°15'00"	R=4583.66	T=426.78	L=851.10	Ext=19.83	e=0.028'/ft	SEE SUPERELEVATION DIAGRAM
301	Hawes Rd Ramp 'A' Cst ℄ PI	26+37.50	N=848433.023	E=780199.018	SIMPLE	Δ=8°08'19"	D=2°30'00"	R=2291.83	T=163.05	L=325.55	Ext=5.79	e=0.040'/ft	SEE SUPERELEVATION DIAGRAM
90105	Hawes Rd Ramp 'A' Cst ℄ PT	28+00.00	N=848494.381	E=780350.081									
90208	Hawes Rd Ramp 'B' Cst ℄ POT	10+61.21	N=847455.649	E=778620.411									
310	Hawes Rd Ramp 'B' Cst ℄ PI	27+97.01	N=847946.180	E=780285.453	SIMPLE	Δ=5°21'07"	D=1°30'00"	R=3819.72	T=178.53	L=356.80	Ext=4.17	e=0.024'/ft	SEE SUPERELEVATION DIAGRAM
90206	Hawes Rd Ramp 'B' Cst ℄ POT	29+81.04	N=847981.544	E=780466.320									

CURVE DATA TABLE

APPENDIX E

	NAME	DATE
DESIGN	WJS	07-10
DRAWN	BAF	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
GEOMETRIC DATA SHEET

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-1.1

___ OF ___

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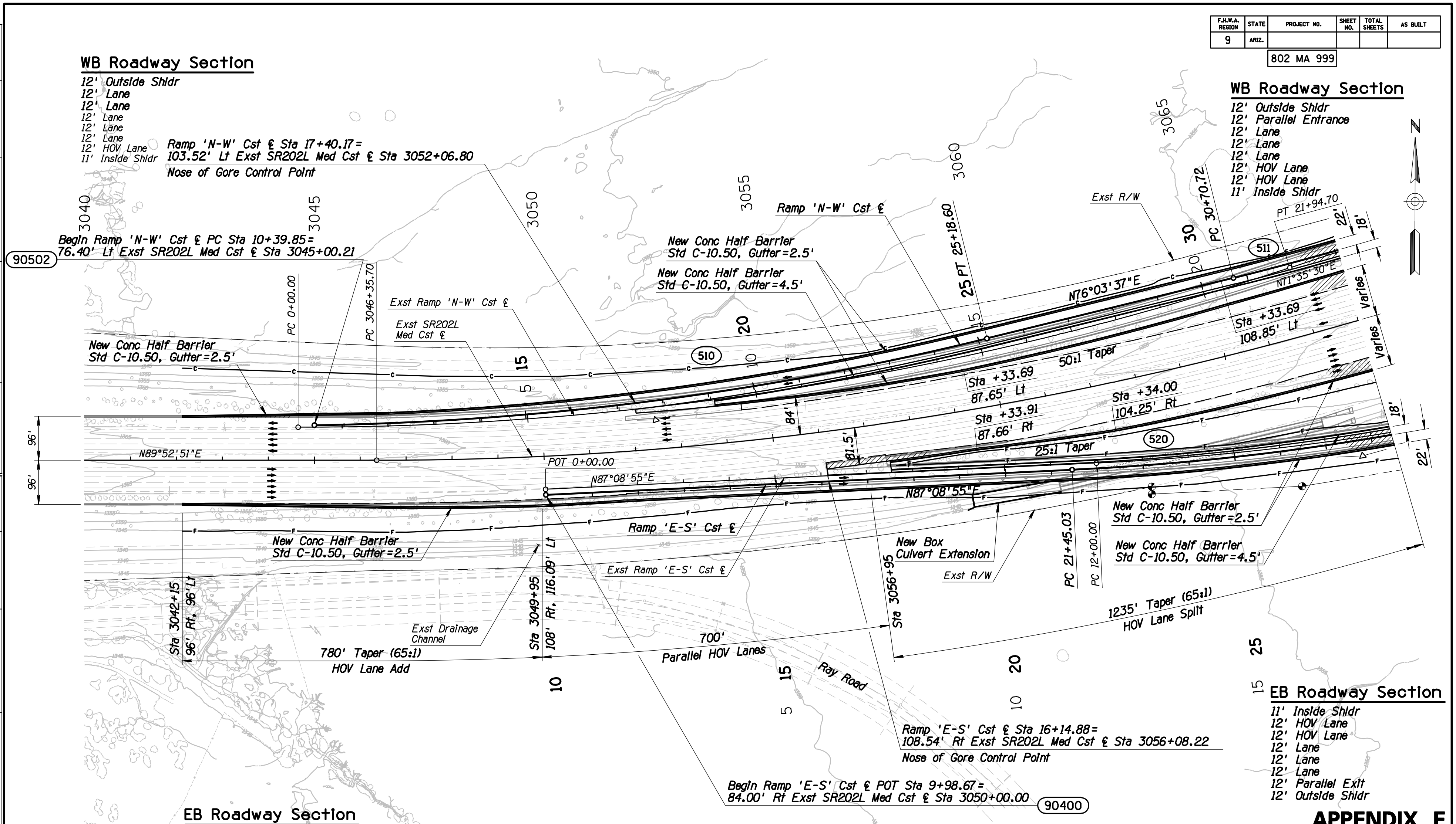

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

HOV RAMP (FUTURE)
SR 202L PLAN SHEET
STA 3040+00 TO STA 3068+00

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-2.1

TRACS NO. H6867 01L — - — ___ OF ___

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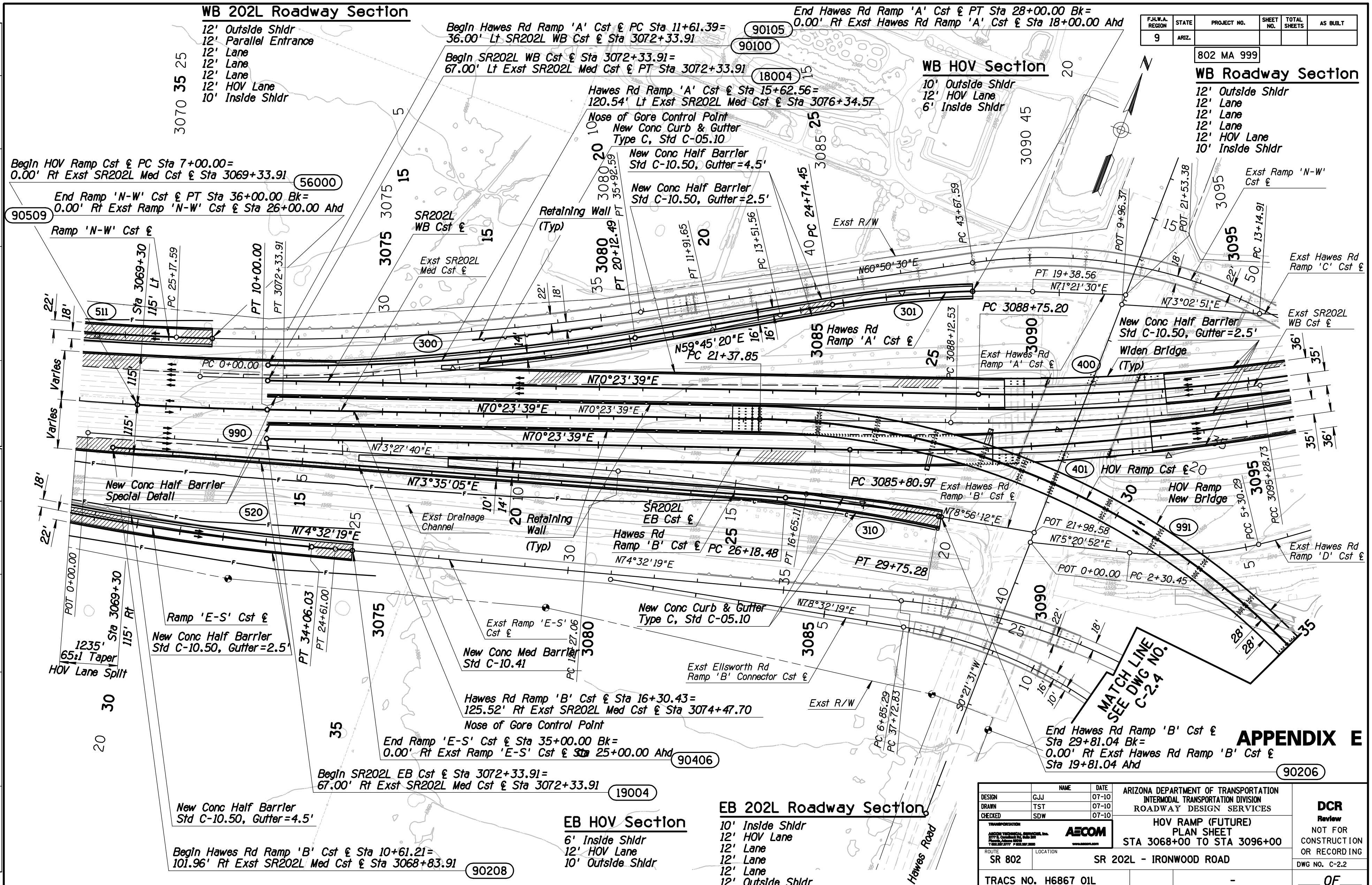

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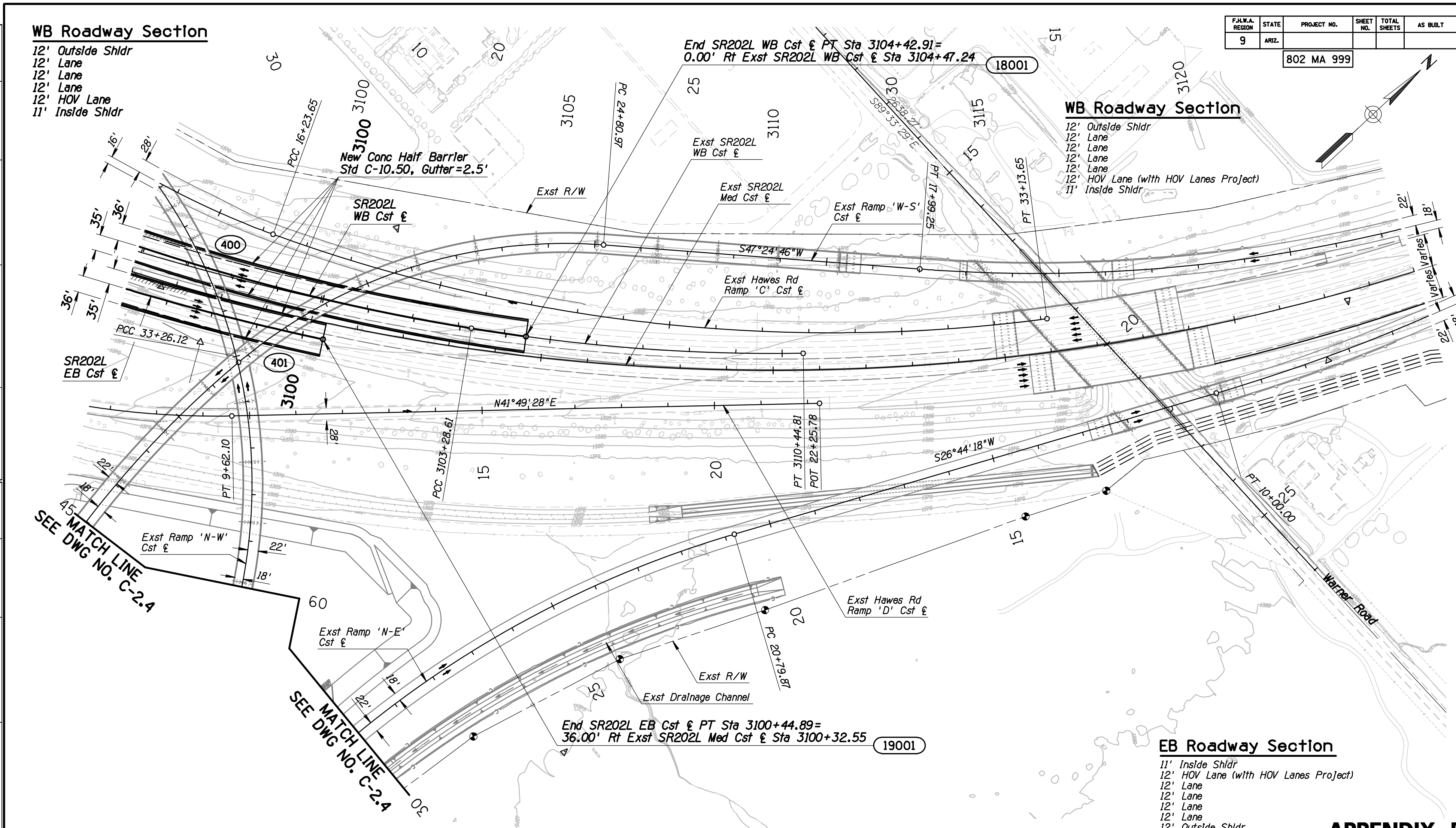

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

HOV RAMP (FUTURE)
SR 202L PLAN SHEET
STA 3096+00 TO STA 3124+00

ROUTE SR 802 — LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-2.3

TRACS NO. H6867 01L — ____ OF ____

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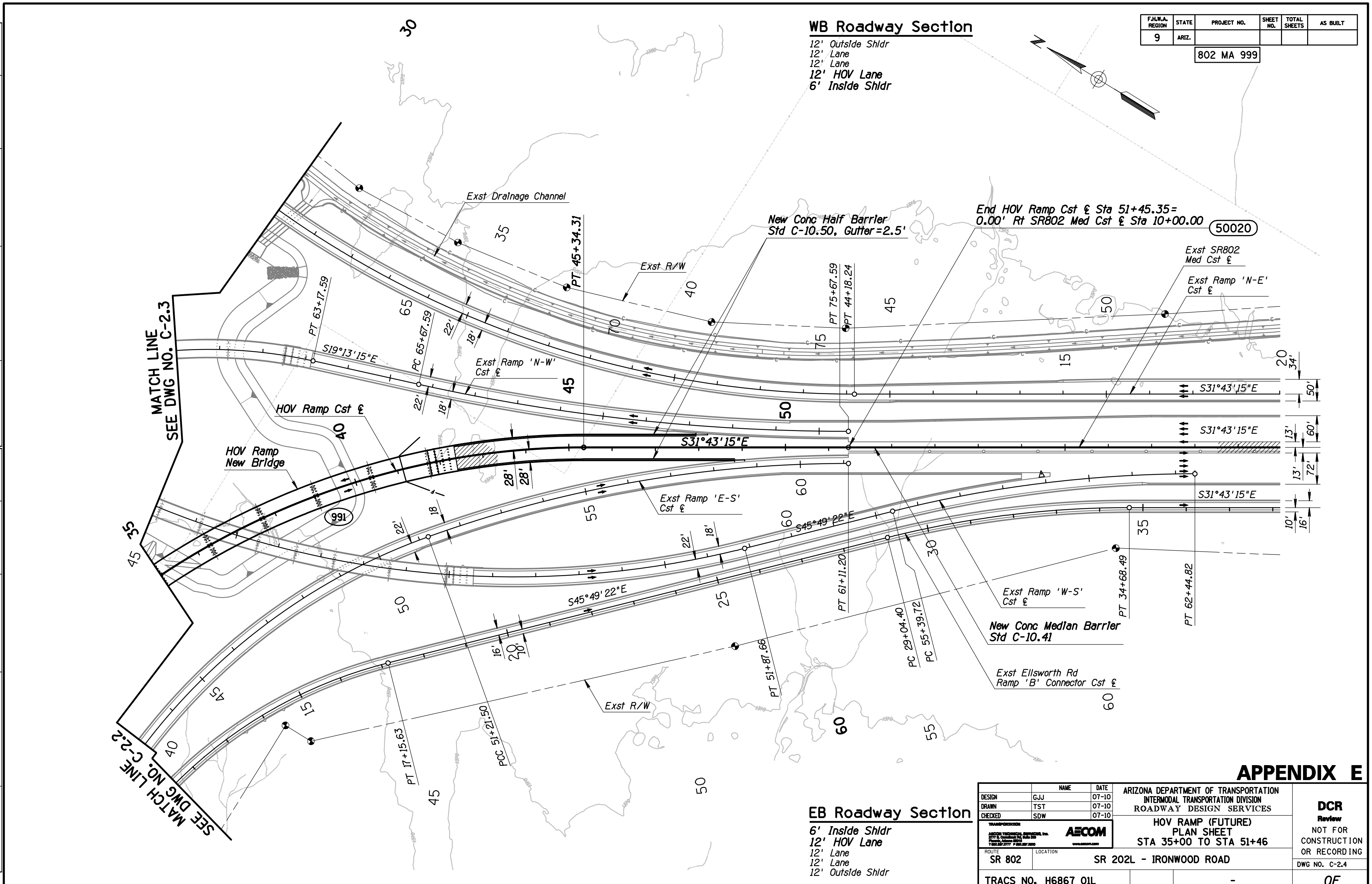

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

HOV RAMP (FUTURE)
PLAN SHEET
STA 35+00 TO STA 51+46

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-2.4

TRACS NO. H6867 01L | - | ___ OF ___

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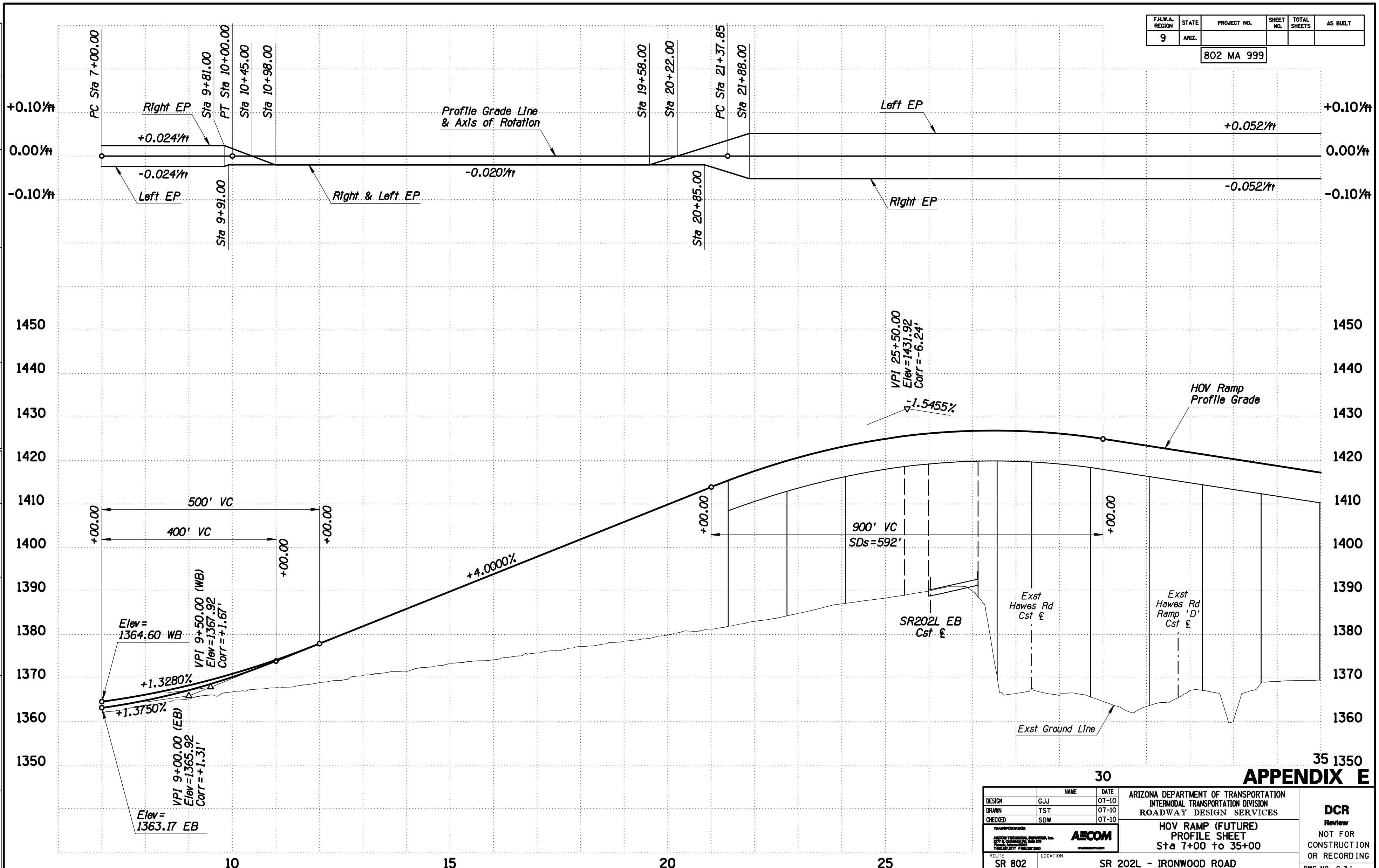

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

AECOM

HOV RAMP (FUTURE)
PROFILE SHEET
Sta 7+00 to 35+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-3.1

TRACAS NO. H6867 01L | - | ___ OF ___

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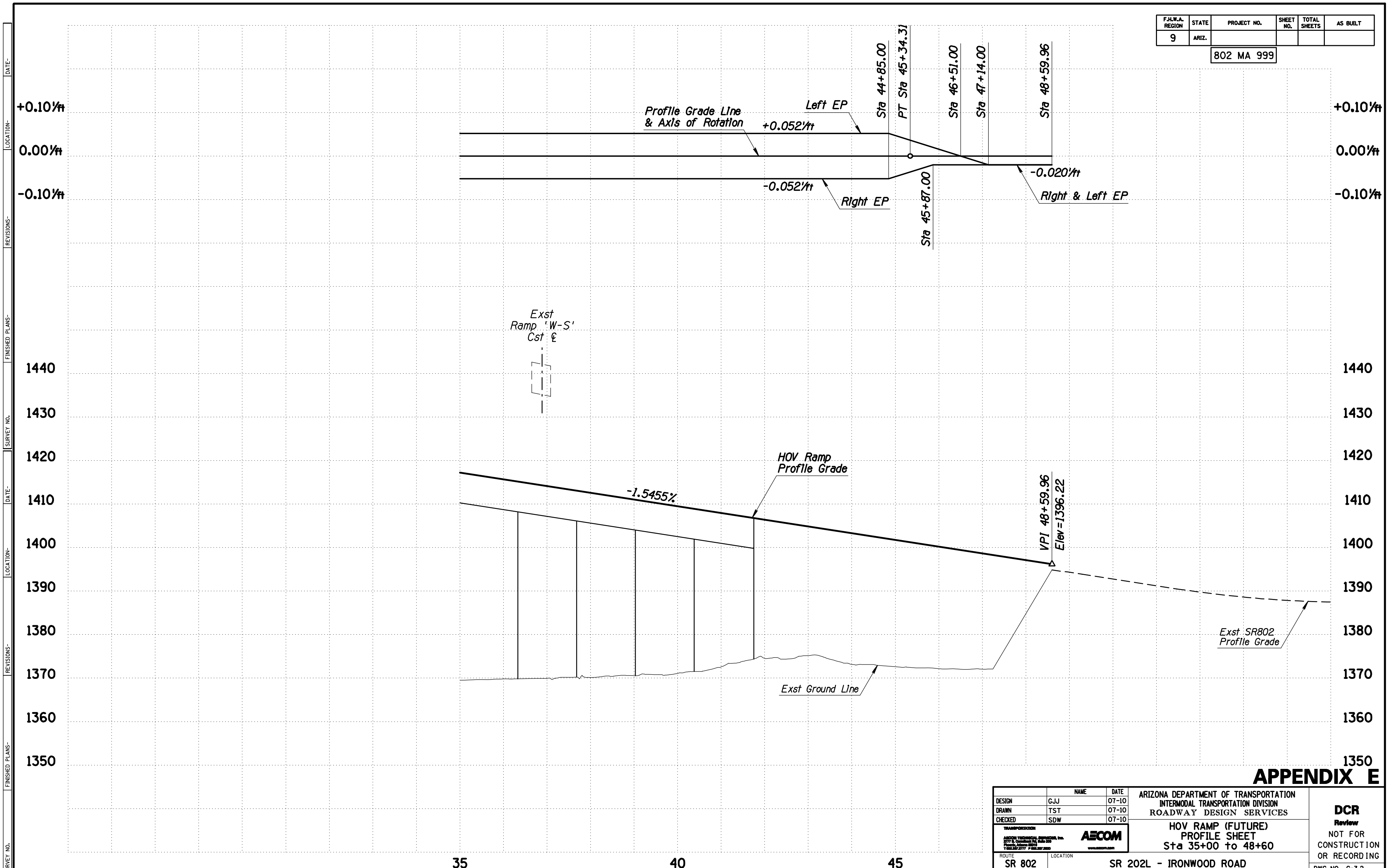

APPENDIX E

DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
PROFILE SHEET
Sta 35+00 to 48+60

AECOM

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-3.2

TRACS NO. H6867 01L | - | ___ OF ___

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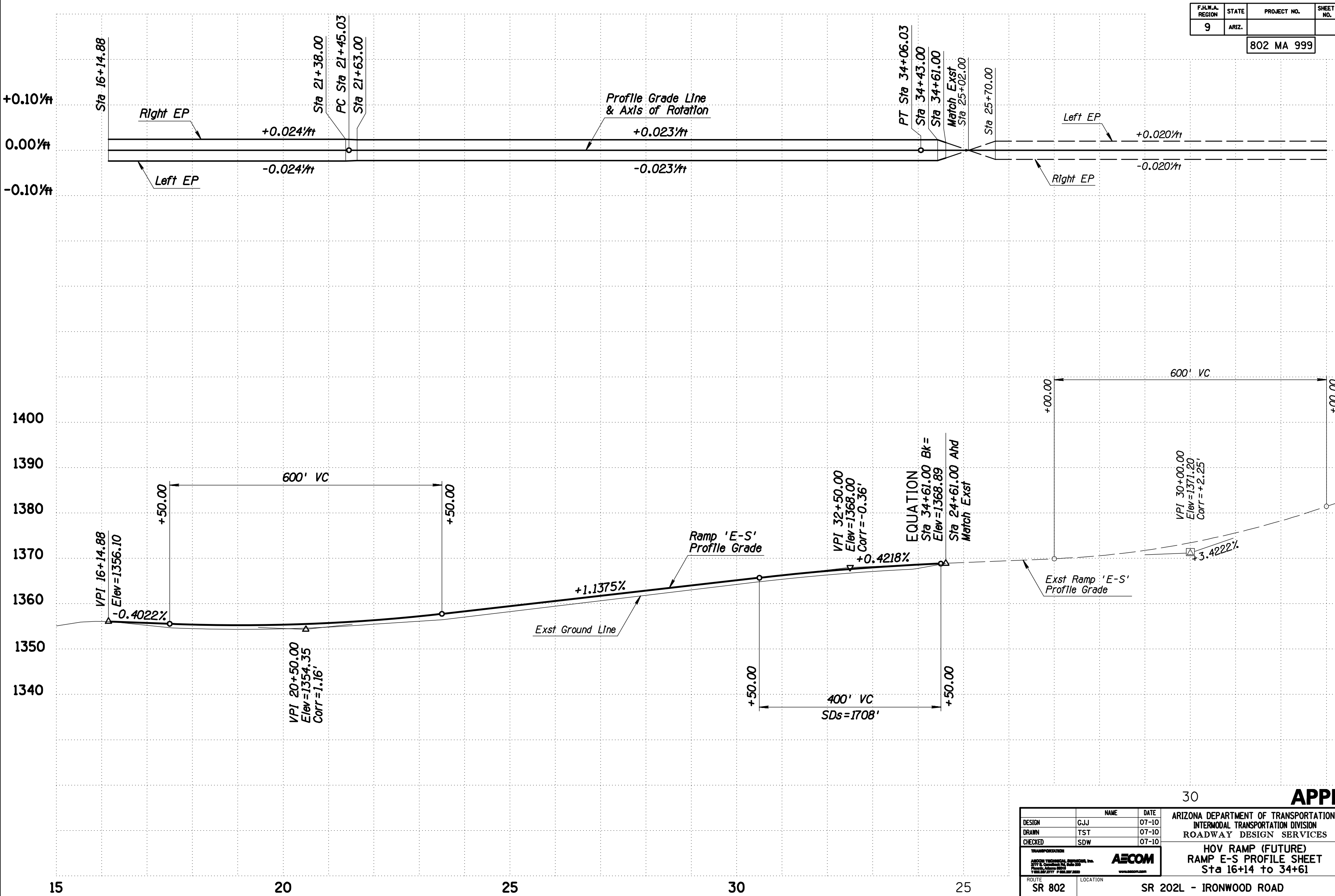

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

30

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
RAMP E-S PROFILE SHEET
Sta 16+14 to 34+61

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. C-3.3

TRACS NO. H6867 01L | - | ___ OF ___

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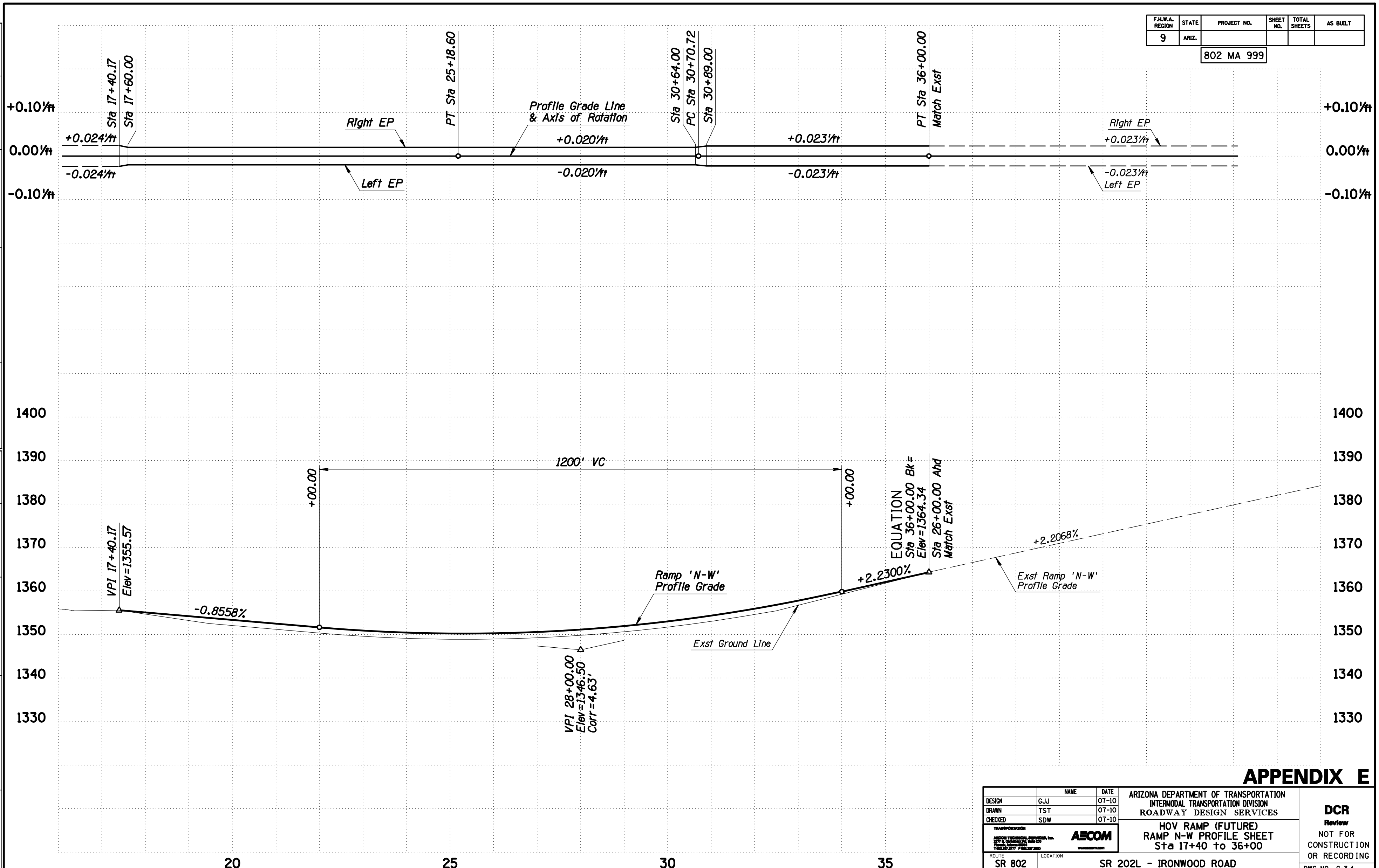

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
RAMP N-W PROFILE SHEET
Sta 17+40 to 36+00

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

DCR
Review
NOT FOR
CONSTRUCTION
OR RECORDING

DWG NO. C-3.4

TRACS NO. H6867 01L

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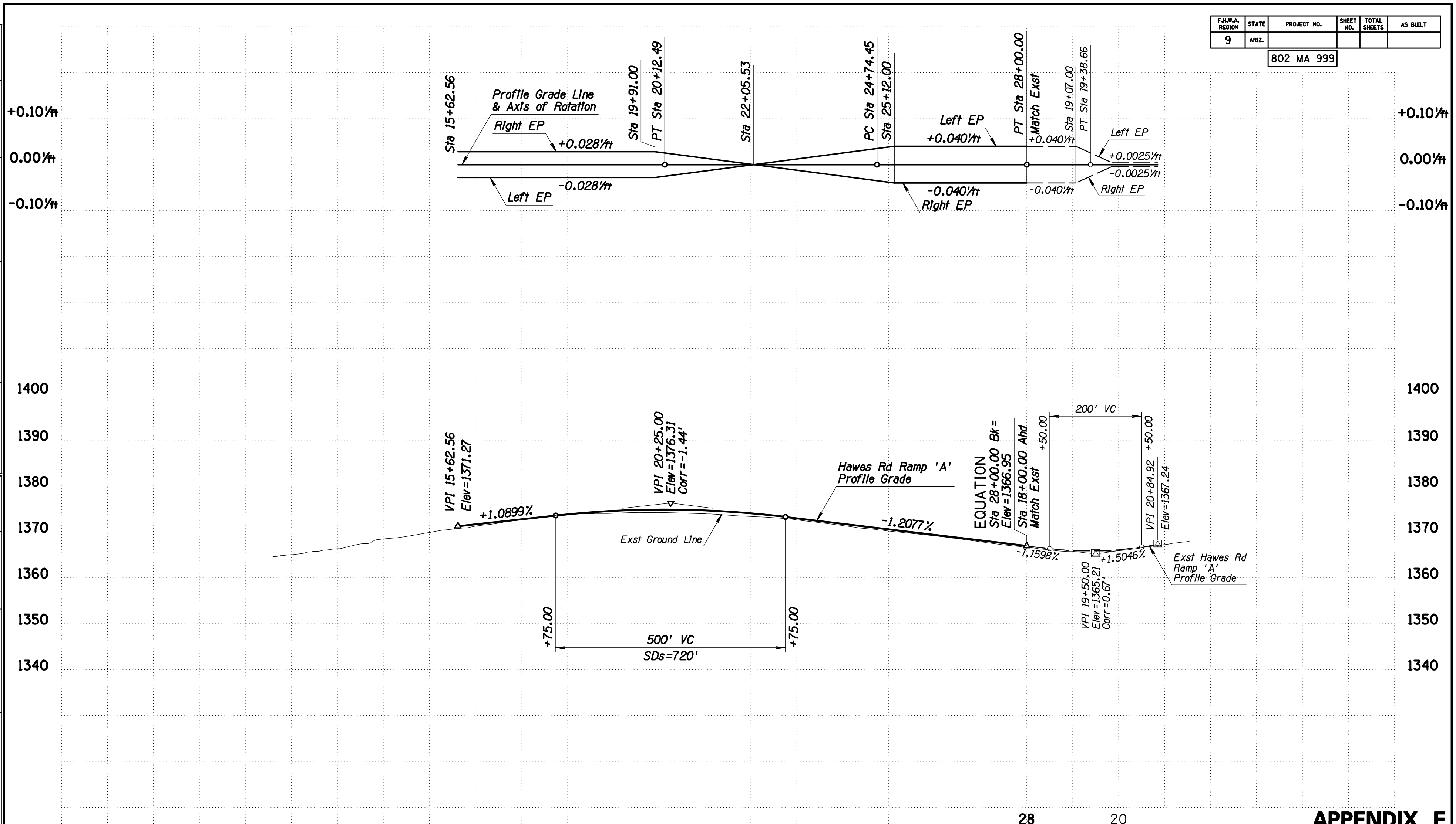

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
HAWES RD RAMP A PROFILE SHEET
Sta 15+62 to 28+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L | -

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-3.5

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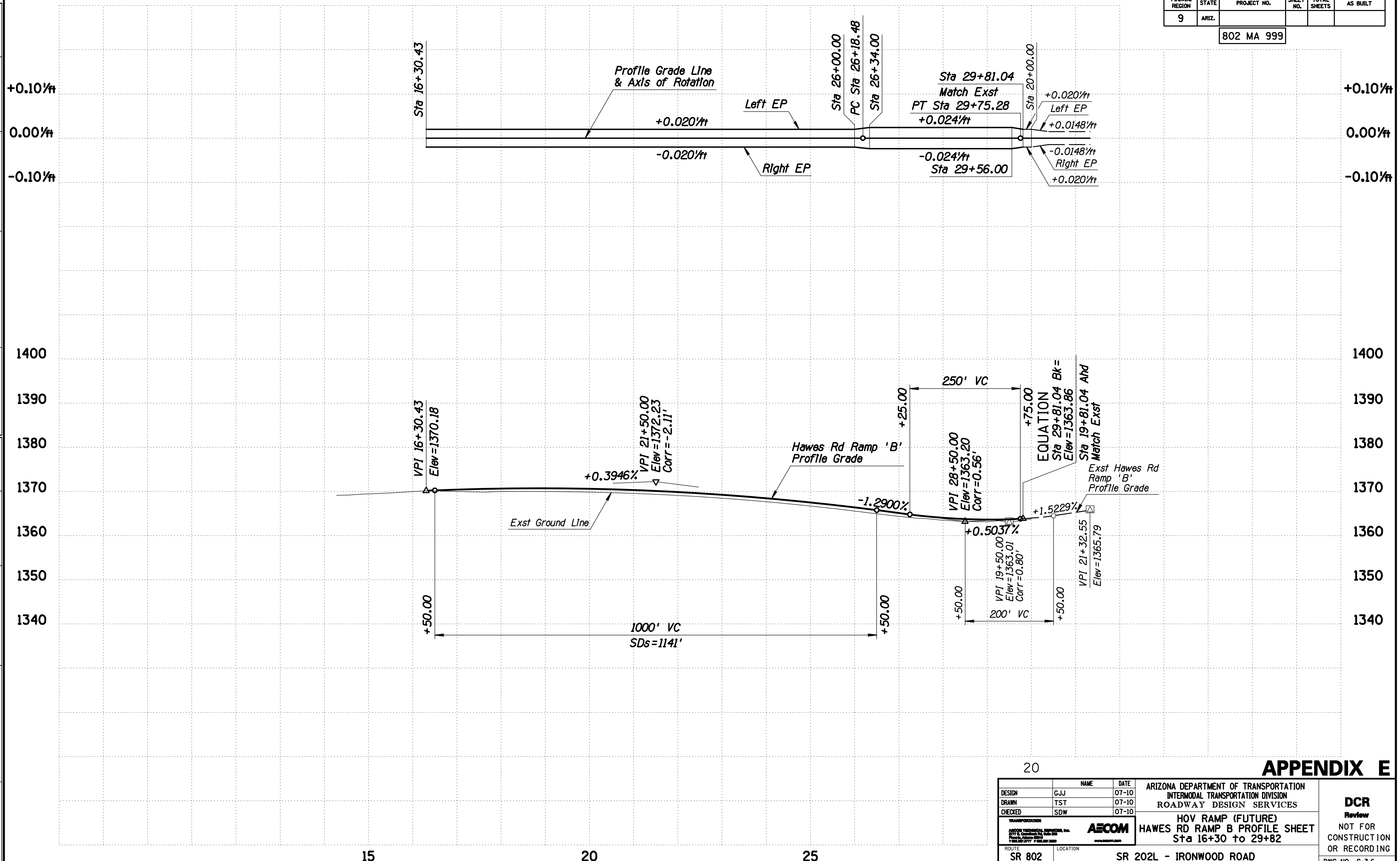
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



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APPENDIX E

	NAME	DATE
DESIGN	GJJ	07-10
DRAWN	TST	07-10
CHECKED	SDW	07-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

HOV RAMP (FUTURE)
HAWES RD RAMP B PROFILE SHEET
Sta 16+30 to 29+82

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-3.6

TRACS NO. H6867 01L | - | ___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

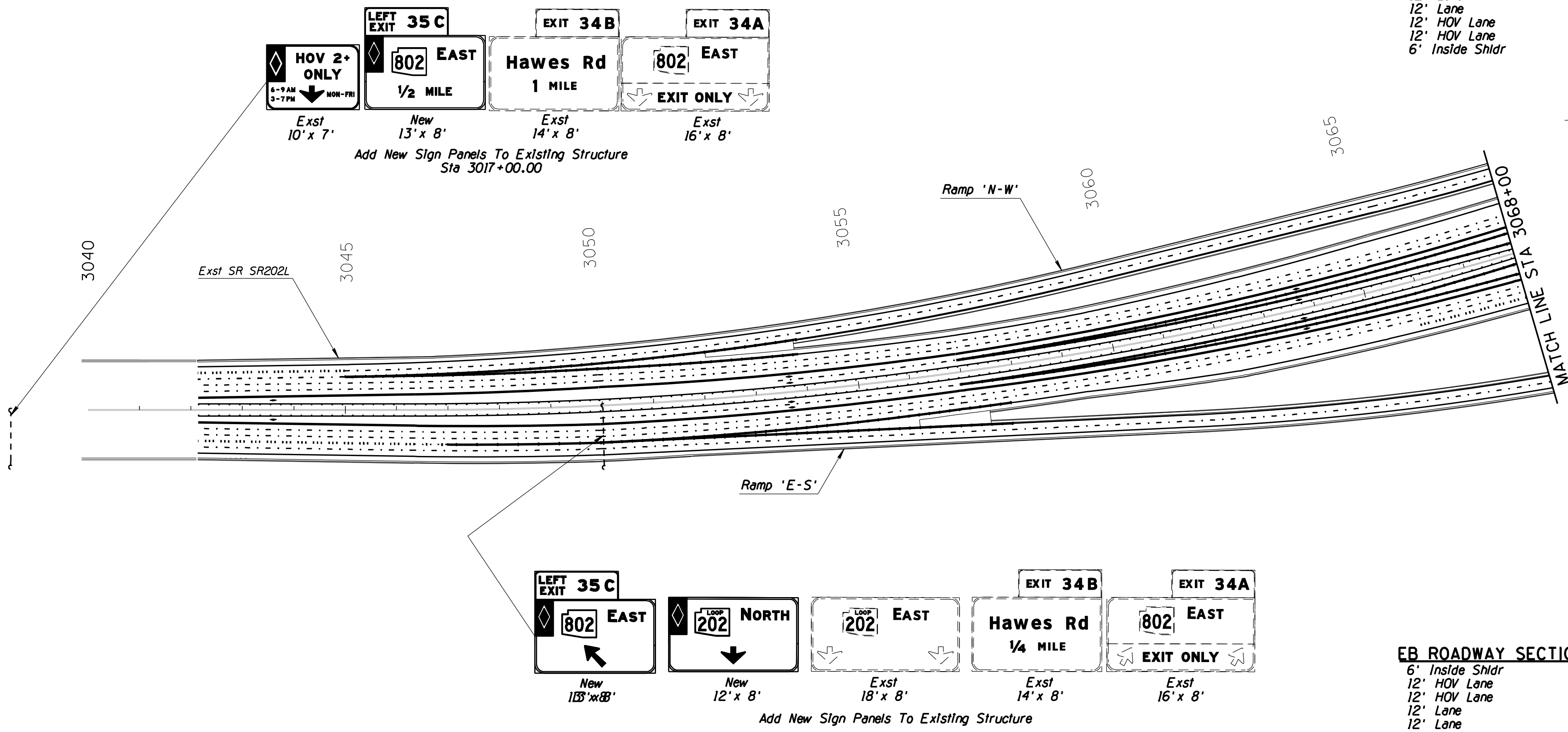
802 MA 02

WB ROADWAY SECTION

12' Outside Shldr
12' Aux Lane
12' Lane
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr

WB ROADWAY SECTION

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
12' HOV Lane
6' Inside Shldr



EB ROADWAY SECTION

6' Inside Shldr
12' HOV Lane
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

EB ROADWAY SECTION

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Aux Lane
12' Aux Lane
12' Outside Shldr

NOTE: The striping tapers match the tapers shown on the roadway plans.

APPENDIX E

	NAME	DATE
DESIGN	CMJ	07/10
DRAWN	CMJ	07/10
CHECKED	JJP	07/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR 802 HOV RAMP
STA 3040+00 TO STA 3068+00

DCR Review

NOT FOR CONSTRUCTION OR RECORDING

TRAFFIC ENGINEER

ROUTE: SR 802 | LOCATION: SR 202L - IRONWOOD ROAD | DWG NO. T-1.1

TRACS NO. H6867 OIL | ___ OF ___

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB SR202L Roadway Section

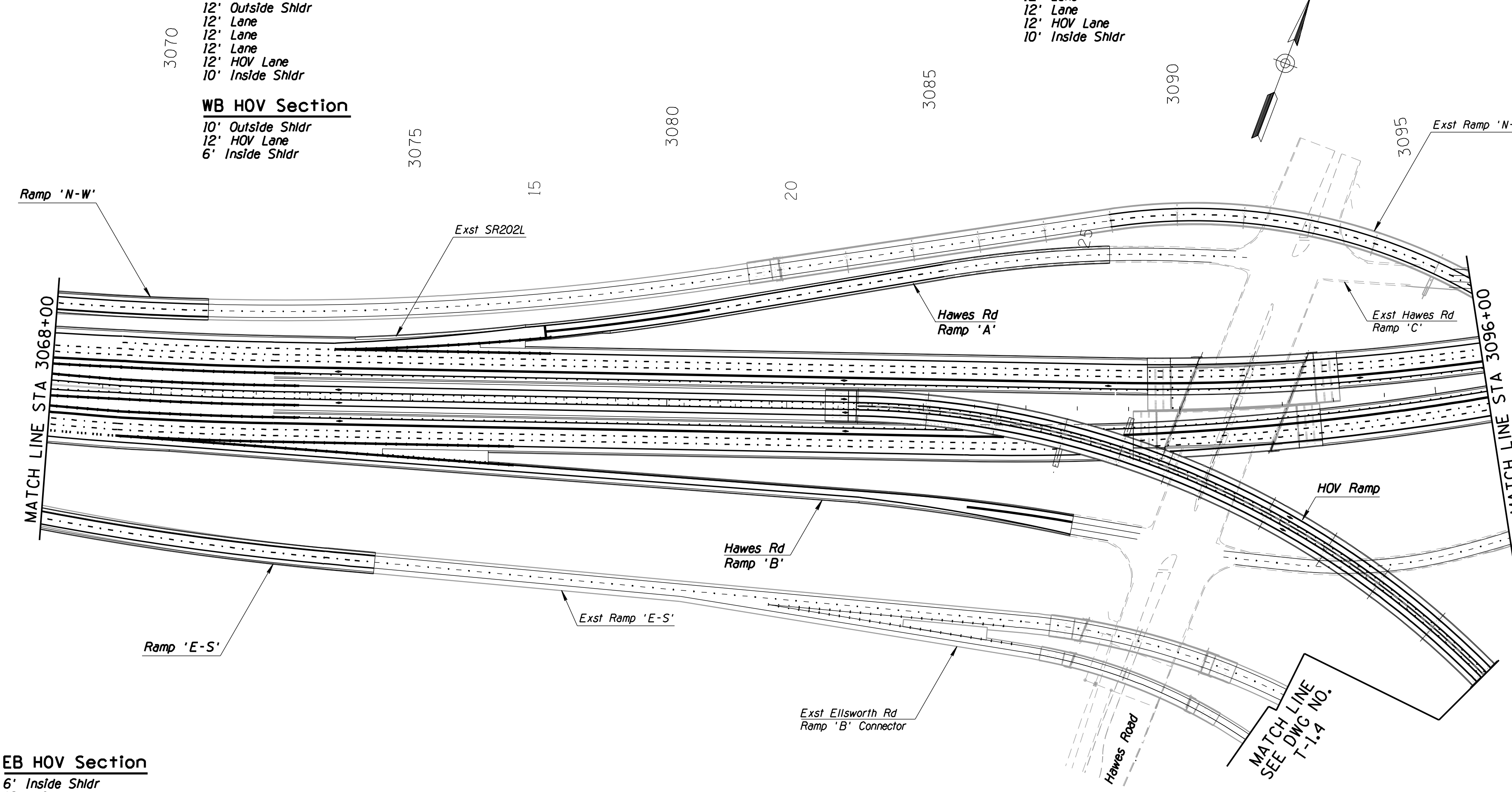
12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
10' Inside Shldr

WB HOV Section

10' Outside Shldr
12' HOV Lane
6' Inside Shldr

WB SR202L Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
10' Inside Shldr



EB HOV Section

6' Inside Shldr
12' HOV Lane
10' Outside Shldr

EB SR202L Roadway Section

10' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

NOTE: The striping tapers match the tapers shown on the roadway plans.

EB SR202L Roadway Section

10' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX E

	NAME	DATE
DESIGN	CMJ	07/10
DRAWN	CMJ	07/10
CHECKED	JJP	07/10

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
2777 E. Camelback Rd, Suite 200
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T 602.337.2777 F 602.337.2820
AECOM
www.aecom.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR802 HOV RAMP
STA 3068+00 TO STA 3096+00

DCR
Review

NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. T-1.2

TRACS NO. H6867 OIL

____ OF ____

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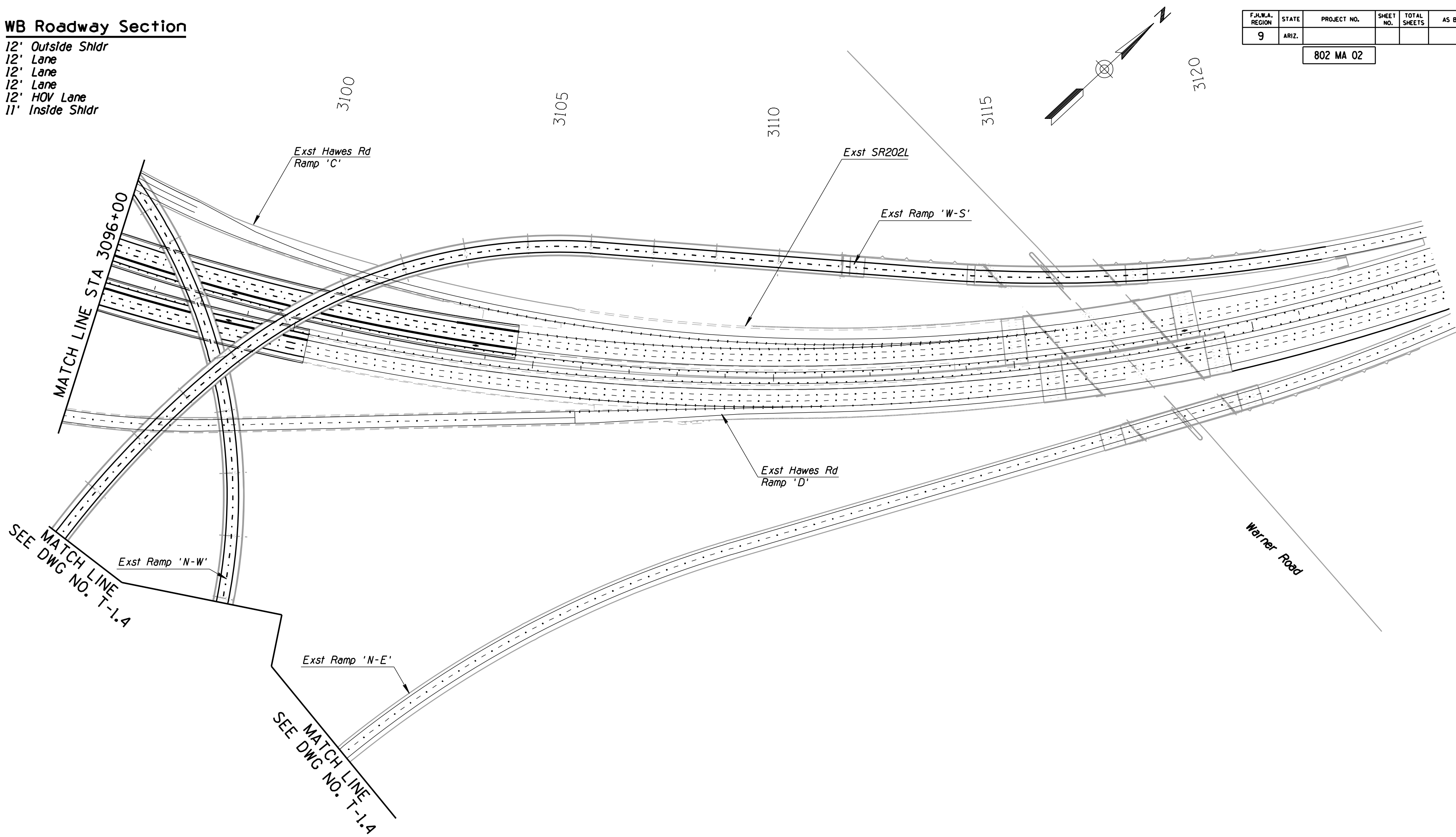
NO. | DESCRIPTION OF REVISION | DATE | MADE BY

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' Lane
12' HOV Lane
11' Inside Shldr



EB Roadway Section

11' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Lane
12' Outside Shldr

NOTE: The striping tapers match the tapers shown on the roadway plans.

APPENDIX E

	NAME	DATE
DESIGN	CMJ	07/10
DRAWN	CMJ	07/10
CHECKED	JJP	07/10

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
SR802 HOV RAMP
STA 3096+00 TO STA 3124+00

DCR Review

NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. T-1.3

TRACS NO. H6867 01L

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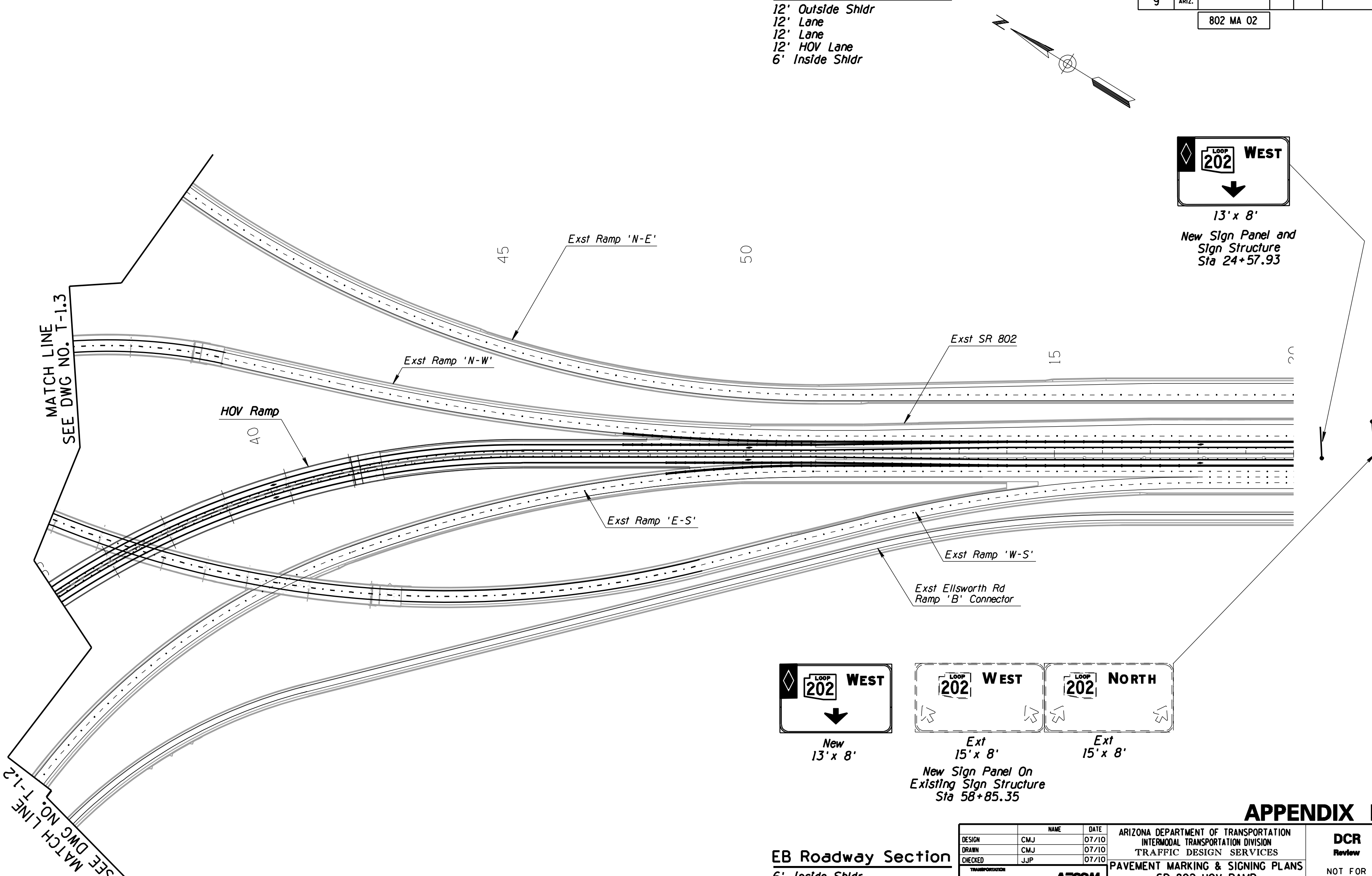
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

WB Roadway Section

12' Outside Shldr
12' Lane
12' Lane
12' HOV Lane
6' Inside Shldr



EB Roadway Section

6' Inside Shldr
12' HOV Lane
12' Lane
12' Lane
12' Outside Shldr

APPENDIX E

	NAME	DATE	
DESIGN	CMJ	07/10	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION TRAFFIC DESIGN SERVICES
DRAWN	CMJ	07/10	
CHECKED	JJP	07/10	PAVEMENT MARKING & SIGNING PLANS SR 802 HOV RAMP STA 35+00 TO STA 51+46

AECOM

DCR Review

NOT FOR CONSTRUCTION OR RECORDING

TRAFFIC ENGINEER

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD | DWG NO. T-1.4

TRACS NO. H6867 01L

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APPENDIX F

SR202L/SR802 TI Ramp ‘W-S’ Braided Ramp Evaluation

- Technical Memorandum
- Roadway Concept Plans
- Signing and Pavement Marking Concept Plans

AECOM

AECOM
2777 East Camelback Road, Suite 200
Phoenix, Arizona 85016-4302
Tel: (602) 337-2777
Fax: (602) 337-2624

Memorandum

Date: May 3, 2010

To: File

From: Steven Wilcox
Design Manager

Subject: SR 802, Williams Gateway Freeway
SR202L/SR802 TI Ramp 'W-S' Braided Ramp Evaluation

The purpose of this Technical Memorandum is to summarize the development of a conceptual plan for a potential future braided ramp configuration for Ramp 'W-S' at the SR202L/SR802 system traffic interchange (TI). The purpose of this evaluation is to develop an ultimate plan for this ramp to address a potential area of congestion as traffic volumes continue to increase on SR 202L, or as additional traffic is superimposed on the SR202L/SR802 TI as the SR 802 mainline is extended from Ironwood Road further to the east into Pinal County.

1.0 FUTURE TRAFFIC CONDITIONS AND OPERATIONAL ANALYSIS

ADOT conducted the *Williams Gateway Corridor Definition Study* (2006) that recommended that SR 802 continue further to the east into Pinal County and connect to US 60 or SR 79. This study also recommended a new North-South Freeway Corridor within Pinal County west of SR 79 that would extend from US 60 on the north to I-10 on the south. Both of these future transportation corridors are also included in the *Building a Quality Arizona (bqAZ) Statewide Transportation Planning Framework, Final Report* (March 2010) that was adopted by the Arizona State Transportation Board in January 2010. ADOT has initiated design concept and environmental impact studies for both of these projects.

Design year 2030 traffic volume projections were obtained from the Maricopa Association of Governments (MAG) that represents the future transportation network and socioeconomic conditions within Maricopa and Pinal Counties (see Appendix G of this Design Concept Report). The transportation network includes the extension of SR 802 into Pinal County with a connection to SR 79, the future North-South Freeway corridor, and the future major arterial roadways in Maricopa and Pinal Counties. A level-of-service analysis was conducted for the A.M. and P.M. peak hours to determine if the additional traffic generated on these future roadways would impact the operations on SR 202L, SR 802, and the SR202L/SR802 TI.

The results of the level-of-service analysis indicate congestion (LOS 'E' or 'F') would occur on a segment of westbound SR 202L between the Elliot Road Ramp 'A' and SR202L/SR802 TI Ramp 'W-S', and on the SR202L/SR802 TI directional ramps, as depicted on Attachment A. The congestion on the directional ramps would not queue vehicles to the extent that would impact the operations on the SR 202L or SR 802 mainlines.

An alternative was developed to realign Ramp 'W-S' to develop a braided ramp configuration (with Elliot Road Ramp 'A') to eliminate the weaving area on the SR 202L mainline where the congestion would be anticipated to occur. As depicted on Attachment B, this ramp reconfiguration would improve the level-of-service analysis on the westbound SR 202L mainline to LOS 'D" approaching the revised Ramp 'W-S' exit near Elliot Road.

2.0. BRAIDED RAMP 'W-S' CONCEPT

Design Controls

A summary of the design controls for Ramp 'W-S' is provided in Table 1 below.

Table 1 – Design Controls for Ramp 'W-S'

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- At exit from mainline:	65 mph
- Ramp body:	55 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Two Lane Ramps:	36 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Shoulder Width:	
- Inside shoulder:	4 ft., plus 2 ft. offset to barrier
- Outside shoulder:	8 ft., plus 2 ft. offset to barrier
Maximum Horizontal Curve:	5 degree, 24 minutes
Maximum Gradient:	+4%, -5%
Taper Rate:	55:1
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.

A summary of the design controls for Elliot Road Ramp 'A' is provided in Table 2 below.

Table 2 – Design Controls for Elliot Road Ramp 'A'

Description of Criteria	Values for Design
Design Year:	2030
Design Speed:	
- Nose of gore (entrance ramps):	55 mph
- Ramp body:	50 mph
- Ramp terminal:	35 mph
Superelevation:	0.06 ft/ft maximum
Cross Slope:	2.0%
Pavement Width:	
- Entrance ramp:	28 ft., plus 2 ft. offset to barrier
Lane Width:	12 ft.
Maximum Horizontal Curve:	6 degree, 53 minutes
Maximum Gradient:	+4%, -5%
Slope Standards:	
- Cut slopes:	Varies, 3:1 maximum
- Fill slopes:	Varies, 3:1 maximum
Minimum Vertical Clearance:	
- Highway structure:	16.5 ft.

Braided Ramp Concept Description

The improvement limits would extend on westbound SR 202L from Guadalupe Road to Hawes Road. Five general-purpose lanes and one future HOV lane currently exists on westbound SR 202L at Guadalupe Road. The Guadalupe Road entrance ramp would be reconfigured to a parallel entrance configuration that would merge into the adjacent general-purpose lane. Five general-purpose lanes and one future HOV lane would continue to the south approaching the Elliot Road TI.

The Elliot Road exit ramp would be reconfigured to a tapered exit from the outside general-purpose lane. The new Ramp 'W-S' exit would be developed as a two lane mandatory exit from the outside freeway lanes. Three general-purpose lanes and one future HOV lane would continue to the south.

The Elliot Road entrance ramp would be realigned to pass beneath Ramp 'W-S' and enter the westbound SR 202L mainline with a parallel entrance configuration that transitions into an auxiliary lane that continues to the Hawes Road exit ramp. The Hawes Road exit ramp would be developed as a single-lane ramp with a mandatory exit from the auxiliary lane. Three general-purpose lanes and one future HOV lane would continue to the west.

Ramp 'W-S' (2 lanes) would depart the westbound SR 202L mainline and pass over the Elliot Road entrance ramp, and then parallel the SR 202L mainline. The new Ramp 'W-S' roadway would connect to the existing Ramp 'W-S' roadway just north of the Warner Road overpass.

The proposed design concept for the potential future Ramp 'W-S' braided ramp is depicted on the attached roadway, signing and pavement marking plans.

Bridge and Retaining Walls

The braided ramp configuration produces a large degree of skew at the crossing with Elliot Road Ramp 'A'. In order to avoid future maintenance issues associated with larger skews on bridges, a portal frame would be constructed to grade-separate Elliot Road Ramp 'A' from Ramp 'W-S'. The portal frame would be approximately 296' long and would require retaining walls at the northwest and southeast corners, respectively. A long-term ramp closure would likely be required to construct the portal frame and retaining walls. A summary of the new retaining walls is shown in Table 3.

In addition to the portal frame and retaining walls, the SR 202L TI overpass at Elliot Road would need to be widened to accommodate the Ramp 'W-S' alignment. A "wasted deck" area would likely be needed to accommodate the sliver roadway widening on the southern portion of the existing bridge. A summary of the bridge widening at Elliot Road is presented in Table 4 on the following page.

Table 3 – New Retaining Wall Summary

Alignment	Description	Approximate Station Limits	Approximate Wall Length	Average Wall Height/ Maximum Wall Height(1)	Wall Type(1)
Ramp 'W-S'	Western edge of Ramp 'W-S', north of Elliot Road Ramp 'A' portal frame	Station 12+45 to Station 17+01	454'	17'/27'	Standard CIP Wall
	Eastern edge of Ramp 'W-S', south of Elliot Road Ramp 'A' portal frame	Station 19+96 to Station 23+02	303'	17'/27'	Standard CIP wall

(1) Wall type may be impacted pending further noise analyses, structural analyses, and/or geotechnical investigations.

Table 4 – Bridge Structure Widening Concepts

Bridge Description	Bridge Length	Number of Spans	C_L-C_L Span Lengths	Approx Width of Widening *	Proposed Superstructure Depth	Existing Superstructure Type	Proposed Widening Concept
Elliot Road TI Overpass (SR 202L EB & WB)	216'	2	105', 105'	8'	6'-2"	AASHTO Type V Modified Girder	AASHTO Type V Modified Girder

* Structural widening does not include the width associated with the partial removal of the existing deck.

3.0 ESTIMATED PROJECT COST

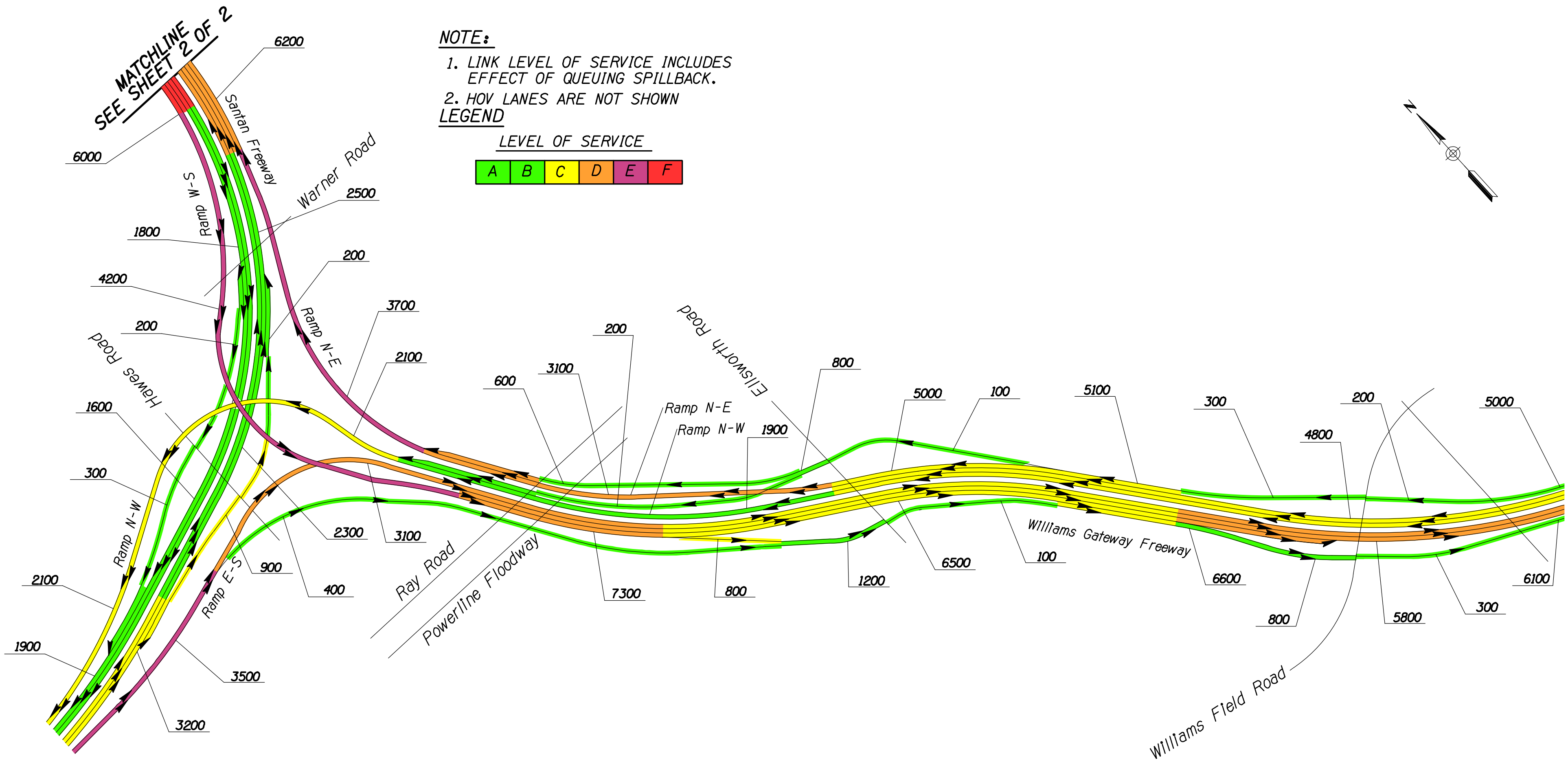
The order of magnitude of project cost for the Braided Ramp 'W-S' option is approximately $15,082,300 which includes $800,000 for design, $2,050,000 for right-of-way, and $12,232,300 for construction as shown in Attachment C. The total right-of-way acquisition area is approximately 6.4 acres.

4.0 RECOMMENDATION

This evaluation was conducted to evaluate potential improvements at the SR202L/SR802 TI that could address congestion that may occur as traffic volumes on SR 202L and SR 802 increase in the future. The first area that would experience congestion would be the weaving area on westbound SR 202L between the Ramp 'W-S' exit and the Elliot Road Ramp 'A' entrance.

The Braided Ramp 'W-S' concept would eliminate the weaving area that could cause future congestion on westbound SR 202L, and would be recommended to be constructed as traffic conditions warrant in the future.

The new right-of-way along SR 202L that would be required in support of this concept is currently undeveloped desert land. Consideration should be made in possibly acquiring this property while the land is undeveloped, or coordinate with the local agency and State Land Department to reserve the property as part of the development approval process.



ATTACHMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 1 OF 2

LEGEND

xxx - 2030 PM Peak Hour

NOTE: HOV Lanes Not Shown.

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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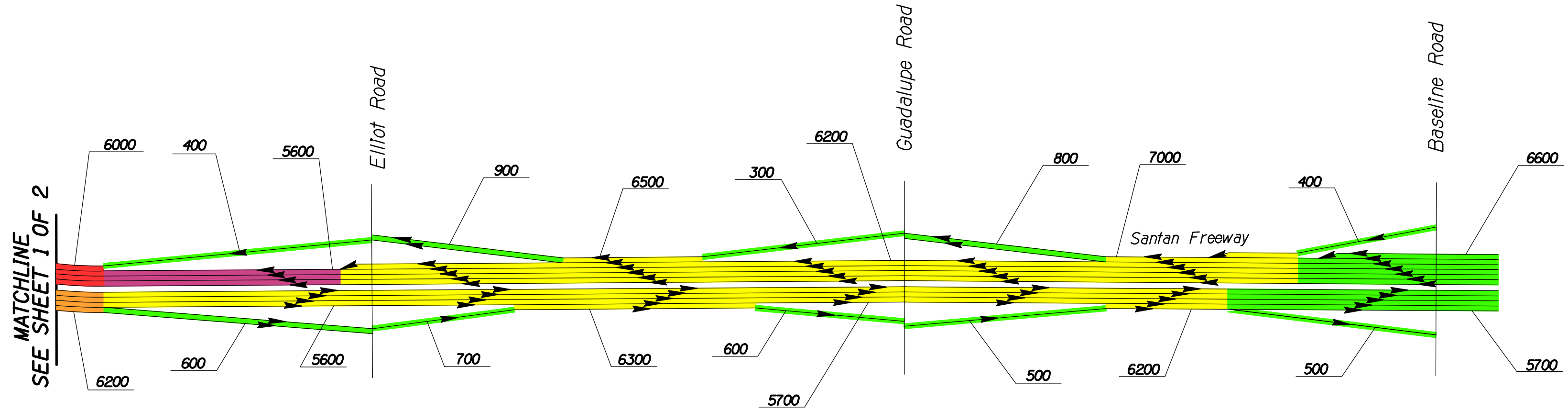
NOTE:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F



ATTACHMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 2 OF 2

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 PM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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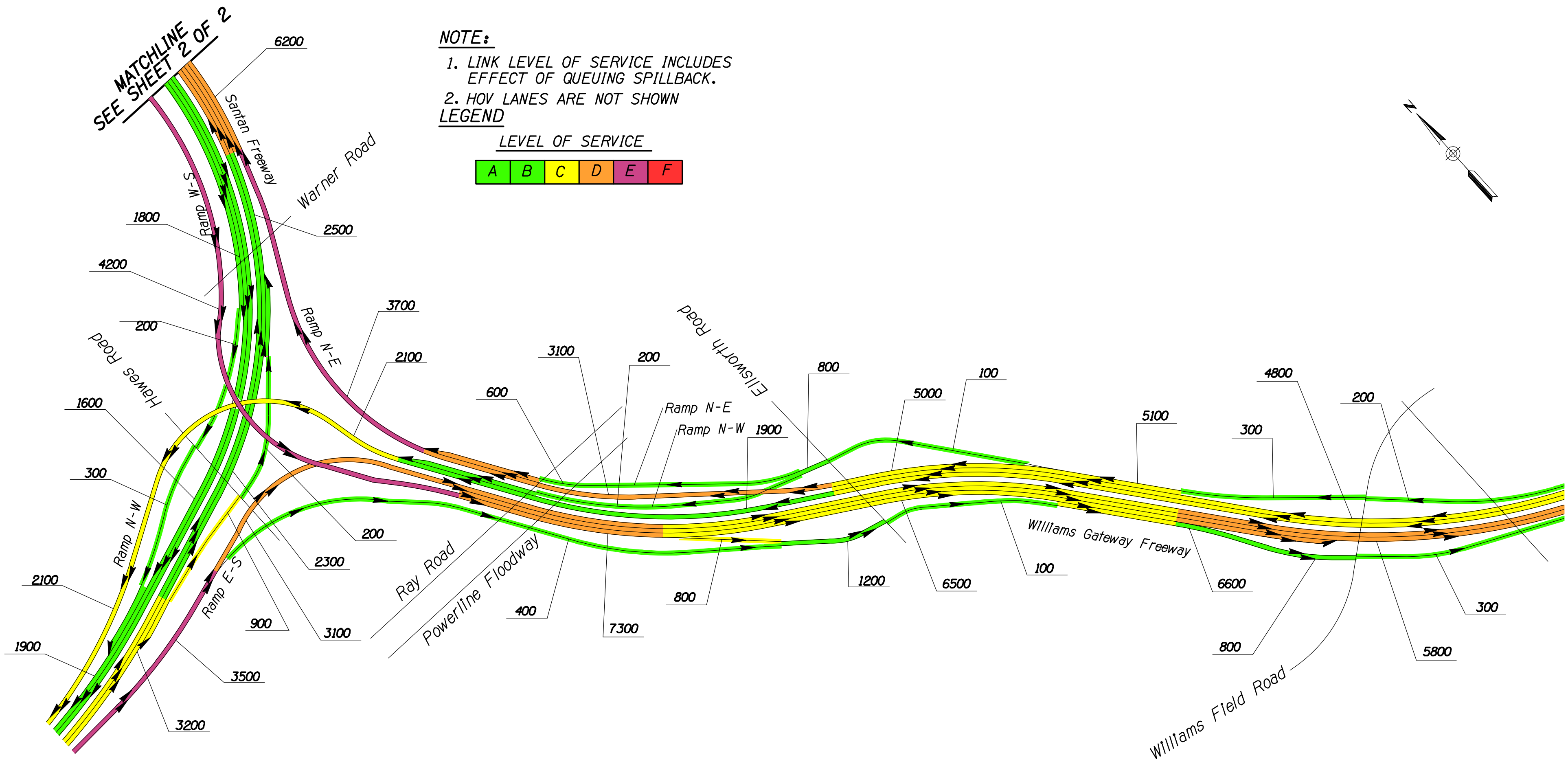

ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
BRAIDED RAMP AT ELLIOT ROAD
2030 BUILD PM LEVEL OF SERVICE
SHEET 1 OF 2

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 PM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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5/4/2010

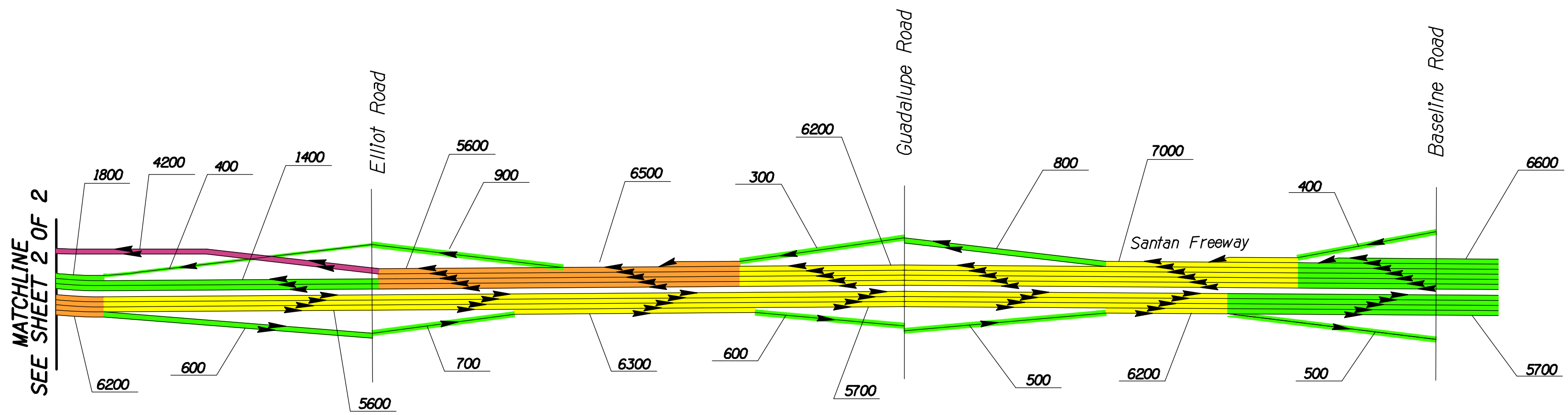
NOTE:

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F



ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
BRAIDED RAMP AT ELLIOT ROAD
2030 BUILD PM LEVEL OF SERVICE
SHEET 2 OF 2

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 PM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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5/4/2010

ATTACHMENT C
Braided Ramp 'W-S' Order of Magnitude Itemized Estimate

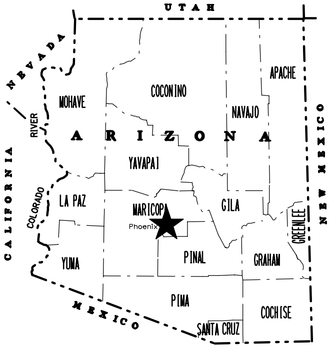
ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	5,522	6.00	33,200
2020027	REMOVAL OF CONCRETE BARRIER	L.FT.	2,581	10.00	25,900
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	13,248	15.00	198,800
2020034	REMOVAL OF SIGNS	L.SUM	1	5,000.00	5,000
2020053	REMOVE (ANNENUATORS)	EACH	3	3,000.00	9,000
2020201	SAW CUTTING	L.FT.	5,030	4.00	20,200
2030301	ROADWAY EXCAVATION	CU.YD.	2,000	6.00	12,000
2030900	BORROW (IN PLACE)	CU.YD.	25,000	10.00	250,000
4010010	PORTLAND CEMENT CONCRETE PAVEMENT (10" PCCP OVER 4" AB)	SQ.YD.	21,233	30.00	637,000
4010013	PORTLAND CEMENT CONCRETE PAVEMENT (13" PCCP OVER 4" AB)	SQ.YD.	500	35.00	17,500
4060023	ASPHALTIC CONCRETE (AR-ACFC 1" OVERLAY)	SQ.YD.	22,565	5.00	112,000
5012524	STORM DRAIN PIPE, 24"	L.FT.	1,455	60.00	87,300
5030600	JACKING, BORING OR TUNNELING PIPE	L.FT.	300	1,000.00	300,000
5030604	CONCRETE CATCH BASIN (C-15.91) H=8' OR LESS	EACH	14	3,200.00	44,800
5030606	CONCRETE CATCH BASIN (C-15.92) H=8' OR LESS	EACH	16	3,500.00	56,000
5050021	MANHOLE (C-18.10) (NO. 3) (FOR PIPES 6" TO 36")	EACH	4	3,500.00	14,000
6060048	BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	1	110,000.00	110,000
6060079	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 4F)	EACH	2	8,000.00	16,000
6060302	RELOCATE EXISTING CANTILEVER SIGN STRUCTURE (4C)	EACH	1	1,000.00	1,000
6070002	BREAKAWAY SIGN POST S4X7.7	L.FT.	99	25.00	2,500
6070022	FOUNDATION FOR BREAKAWAY SIGN POST S4X7.7	EACH	6	280.00	2,300
6070057	SIGN POST (PERFORATED) (2 1/2 T)	L.FT.	64	15.00	1,000
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	5	215.00	1,100
6080050	REGULATORY, WARN, OR MARKER SIGN PANEL W/TYP IX OR XI SHEET	SQ.FT.	20	16.00	400
6080051	EXTRUDED ALUM SIGN PANEL WITH TYPE IX OR XI SHEET	SQ.FT.	1,405	26.50	37,300
6080105	RELOCATE SIGNS	L.SUM	1	4,000.00	4,000
6080201	MODIFY SIGN LEGEND	L.SUM	1	10,500.00	10,500
7040070	PAVEMENT MARKING (WHITE THERMOPLASTIC) (0.090")	L.FT.	10,457	0.20	2,100
7040071	PAVEMENT MARKING (YELLOW THERMOPLASTIC) (0.090")	L.FT.	2,276	0.20	500
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	72	0.40	100
7050021	PAVEMENT MARKING PREFORMED, TYPE 1, YELLOW STRIPE	L.FT.	6,283	3.45	21,700
7050022	PAVEMENT MARKING PREFORMED, TYPE 1, WHITE STRIPE	L.FT.	15,052	3.45	52,000
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	738	3.14	2,400
7060017	PAVEMENT MARKER, RAISED, TYPE E	EACH	391	2.75	1,100
7080001	PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	22,023	0.10	2,300
7080011	PERMANENT PAVEMENT MARKING (PAINTED) (YELLOW)	L.FT.	7,800	0.10	800
7310162	POLE (TYPE T) (50 FT.)	EACH	14	3,000.00	42,000
7310341	POLE FOUNDATION (TYPE T) (40 FT. THRU 55 FT.)	EACH	14	2,000.00	28,000
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	5,000	4.00	20,000
7320410	PULL BOX (NO. 5)	EACH	14	300.00	4,200
7320520	CONDUCTOR (NO. 8)	L.FT.	20,000	0.50	10,000
7320585	CONDUCTOR (INSULATED BOND) (	L.FT.	5,000	0.50	2,500
7360070	LUMINAIRE (VERTICAL MOUNT) (400 WATT)	EACH	14	600.00	8,400
8040001	TOPSOIL PLATING	CU.YD.	10,000	10.00	100,000
80800XX	LANDSCAPING	ACRE	4	30,250.00	121,000
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	1	4,000.00	4,000
9050401	GUARD RAIL TRANSITION, W-BEAM TO CONCRETE BARRIER	EACH	1	4,500.00	4,500
9080084	CONCRETE CURB AND GUTTER	L.FT.	1,907	15.00	28,700
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	224	15.00	3,400
9100000	CONCRETE BARRIER (SINGLE FACE WITH 2.5' GUTTER)	L.FT.	3,917	60.00	235,100
9100000	CONCRETE BARRIER (SINGLE FACE WITH 4.5' GUTTER)	L.FT.	10,522	60.00	631,400
9100009	CONCRETE BARRIER (ADJACENT TO RETAINING WALL) (2.5' GUTTER)	L.FT.		75.00	
9100012	CONCRETE BARRIER (ADJACENT TO RETAINING WALL) (4.5' GUTTER)	L.FT.	755	75.00	56,700
9140153	RETAINING WALL (REGULAR)	SQ.FT.	12,869	55.00	707,800
9999910A	ELLIOT OVERPASS WB (WIDEN)	L.SUM	1	400,000.00	400,000
9999910B	PORTAL FRAME RAMP 'W-S'	L.SUM	1	2,100,000.00	2,100,000
				ITEM TOTAL	6,600,400

ATTACHMENT C
Braided Ramp 'W-S' Order of Magnitude Itemized Estimate (continued)

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE ($)	AMOUNT ($)
PROJECT WIDE					
	Maintenance and Protection of Traffic (5%)	COST		331,000.00	331,000
	Dust and Water Palliative (2%)	COST		133,000.00	133,000
	Quality Control (2%)	COST		133,000.00	133,000
	Construction Surveying (4%)	COST		265,000.00	265,000
	Erosion Control (1%)	COST		67,000.00	67,000
	Mobilization (8% of all construction items)	COST		800,000.00	800,000
				PROJECT WIDE SUBTOTAL	1,729,000
	Unidentified Items (20% of Item Total and Project Wide Subtotal)	COST		1,666,000.00	1,666,000
				PROJECT WIDE TOTAL	3,395,000
OTHER COST					
	Construction Engineering (9%)	COST		900,000.00	900,000
	Construction Contingencies (5%)	COST		500,000.00	500,000
	Indirect Cost Allocation (5.19%)	COST		519,000.00	519,000
	Engineering Design (Includes Surveying and Geotechnical) (8% of all items)	COST		800,000.00	800,000
	Environmental Mitigation (Unknown at this time)	COST		-	-
	PCCP Quality Incentive	COST		32,600.00	32,600
	AR-ACFC Smoothness Incentive	COST		35,300.00	35,300
	Right-of-Way	COST		2,050,000.00	2,050,000
	Utility Relocation	COST		250,000.00	250,000
				OTHER COST TOTAL	5,086,900

SUMMARY

ITEM TOTAL	6,600,400
PROJECT WIDE	3,395,000
OTHER COST TOTAL	5,088,900
TOTAL PROJECT COST	15,082,300

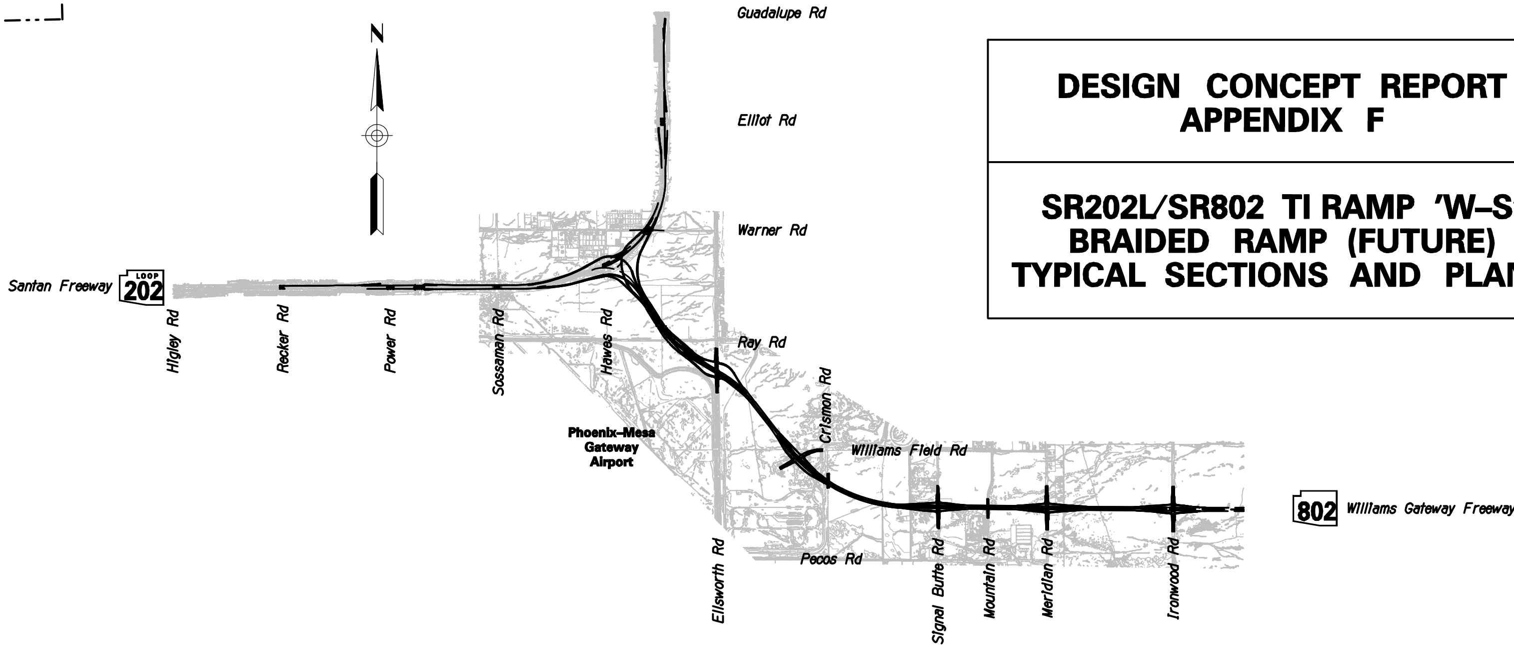


STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PROJECT PLANS

STATE HIGHWAY
SR 802, WILLIAMS GATEWAY FREEWAY
802 MA 999

ADOT



DESIGN CONCEPT REPORT APPENDIX F
SR202L/SR802 TI RAMP 'W–S' BRAIDED RAMP (FUTURE) TYPICAL SECTIONS AND PLANS

SR 802, WILLIAMS GATEWAY FREEWAY
SR 202L TO IRONWOOD ROAD

PROJECT NO. 802 MA 999 H6867 01 L
CONTRACT NO. 05–26

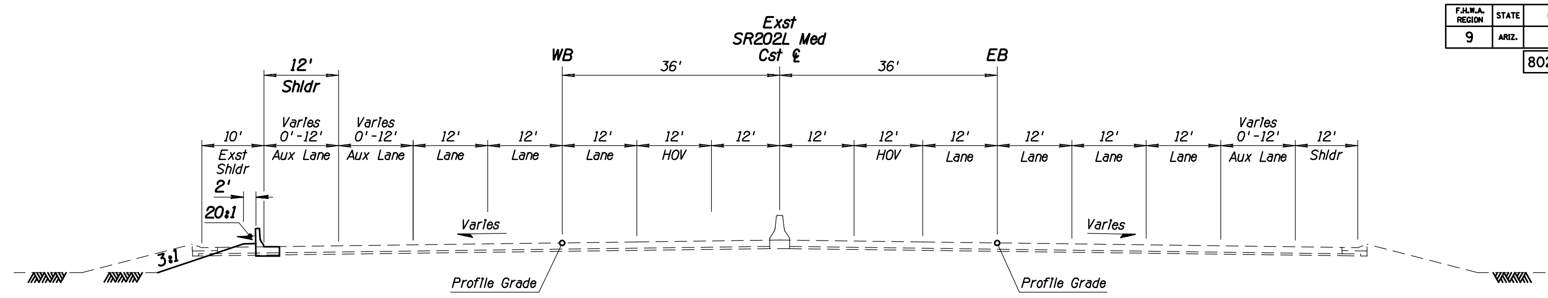
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
FLOYD ROEHRICH, JR. P.E., STATE ENGINEER

AS BUILT DATA	AS BUILT DATE	______ OF ______

7/15/2010 U:\WG01\Prod\civ\h6867fs-Braid.dgn

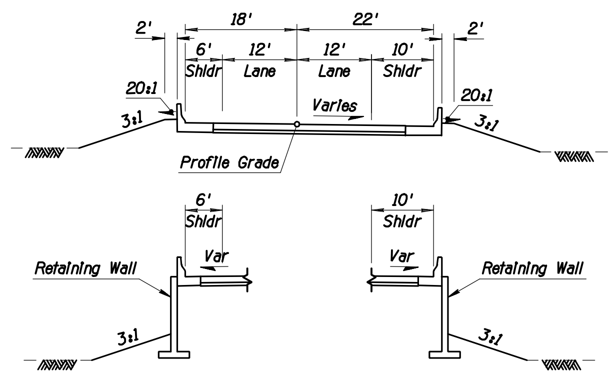
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



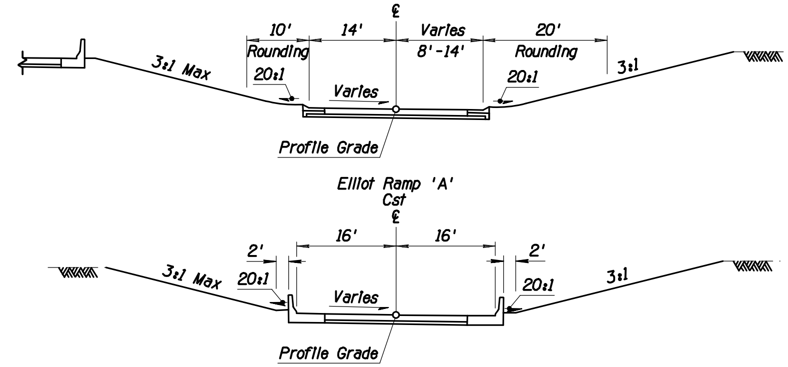
TYPICAL SECTION

SR202L
Sta 3119+00 to Sta 3172+85



TYPICAL SECTION

Ramp W-S



TYPICAL CUT SECTION

2-Lane Entrance Ramp
With Direction of Travel

APPENDIX F

	NAME	DATE
DESIGN	GJJ	05-10
DRAWN	TST	05-10
CHECKED	SDW	05-10

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BRAIDED RAMP 'W-S' (FUTURE)
DESIGN SHEET
TYPICAL SECTIONS

DCR
Review
NOT FOR
CONSTRUCTION
OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. G-1.1

TRACS NO. H6867 01L | - | ___ OF ___

7/15/2010 U:\WG01\Prod\civ\h6867ty12-Braid.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

(100) CURVE DATA

PI Sta 9+22.97

Main Curve
Δ=31°29'13" Rt
D=1°45'00"
R=3274.04'
L=1799.25'
T=922.97'
Ext=127.61'
Super=0.046'/ft

(101) CURVE DATA

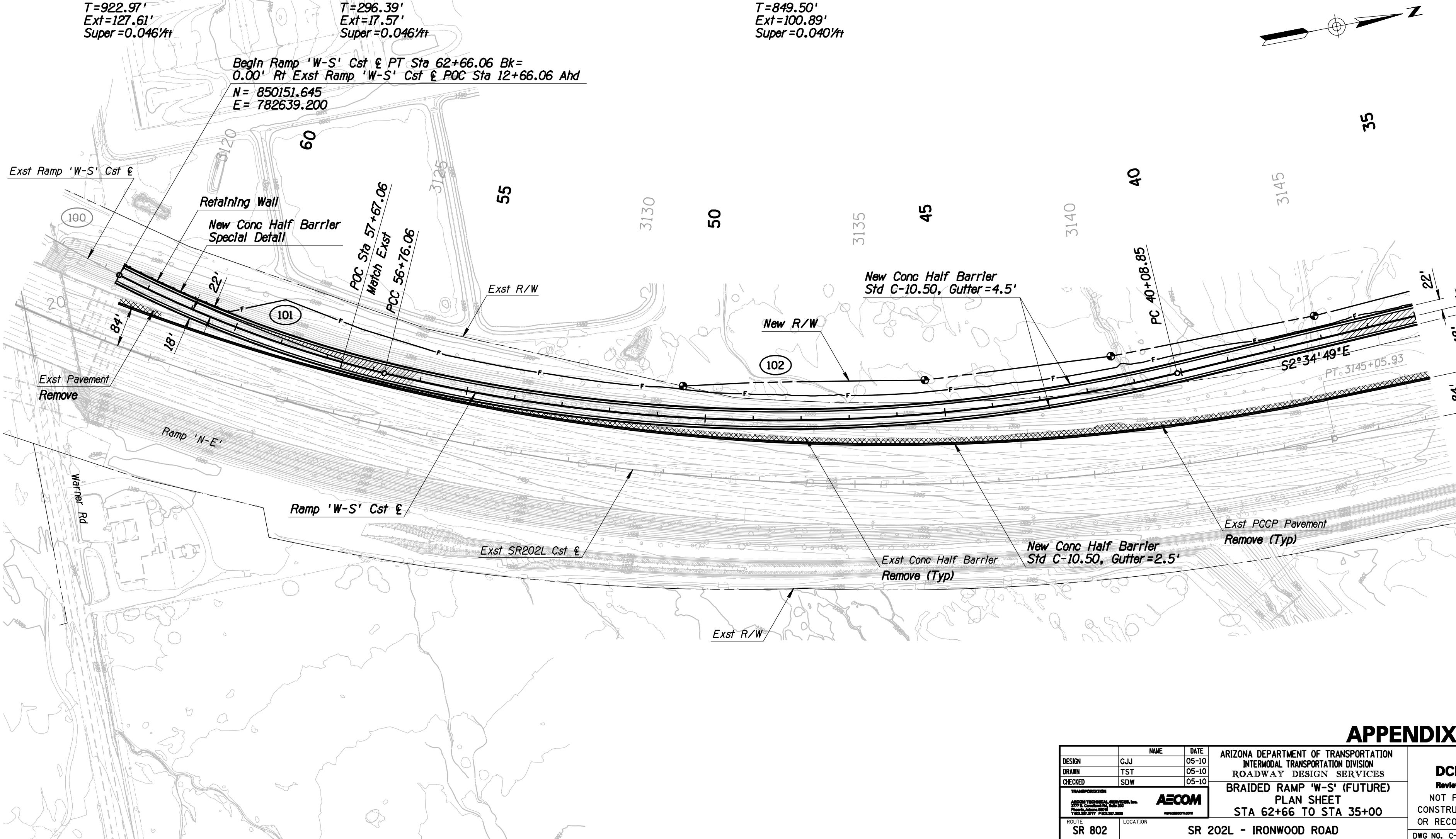
PI Sta 59+72.45

Main Curve
Δ=13°34'12" Rt
D=2°18'00"
R=2491.12'
L=590.00'
T=296.39'
Ext=17.57'
Super=0.046'/ft

(102) CURVE DATA

PI Sta 48+58.34

Main Curve
Δ=27°05'32" Rt
D=1°37'30"
R=3525.89'
L=1667.22'
T=849.50'
Ext=100.89'
Super=0.040'/ft



APPENDIX F

	NAME	DATE
DESIGN	GJJ	05-10
DRAWN	TST	05-10
CHECKED	SDW	05-10

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BRAIDED RAMP 'W-S' (FUTURE)
PLAN SHEET
STA 62+66 TO STA 35+00

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-1.1

TRACS NO. H6867 01L | - | ___ OF ___

7/15/2010 U:\WG01\Prod\civ\h6867p36.dgn

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

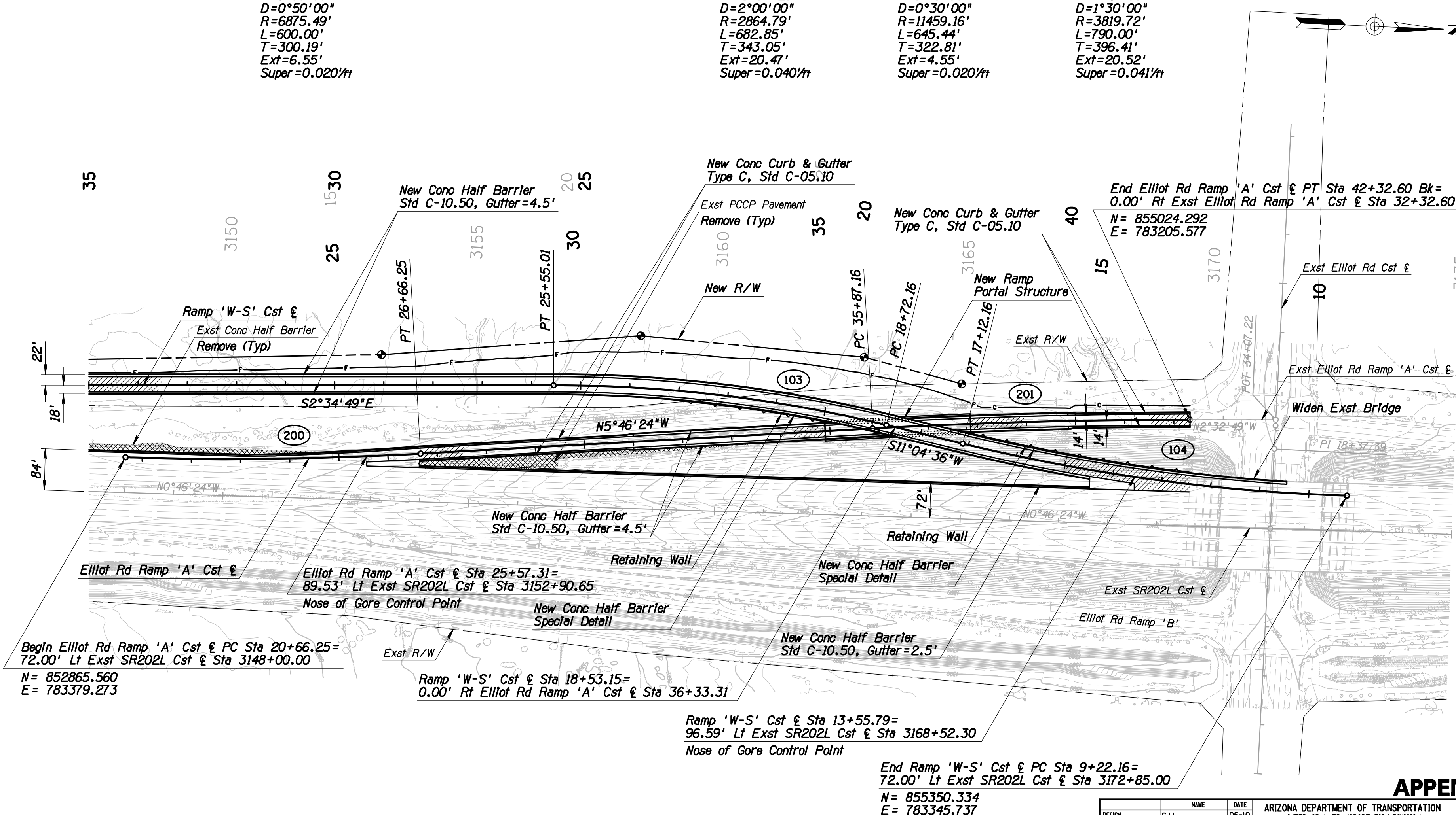
802 MA 999

(200) CURVE DATA
PI Sta 23+66.44
Main Curve
Δ=5°00'00" Lt
D=0°50'00"
R=6875.49'
L=600.00'
T=300.19'
Ext=6.55'
Super=0.020'/ft

(103) CURVE DATA
PI Sta 22+15.21
Main Curve
Δ=13°39'25" Lt
D=2°00'00"
R=2864.79'
L=682.85'
T=343.05'
Ext=20.47'
Super=0.040'/ft

(201) CURVE DATA
PI Sta 39+09.97
Main Curve
Δ=3°13'38" Rt
D=0°30'00"
R=11459.16'
L=645.44'
T=322.81'
Ext=4.55'
Super=0.020'/ft

(104) CURVE DATA
PI Sta 13+18.57
Main Curve
Δ=11°51'00" Rt
D=1°30'00"
R=3819.72'
L=790.00'
T=396.41'
Ext=20.52'
Super=0.041'/ft



APPENDIX F

	NAME	DATE	
DESIGN	GJJ	05-10	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SERVICES
DRAWN	TST	05-10	
CHECKED	SDW	05-10	BRAIDED RAMP 'W-S' (FUTURE) PLAN SHEET STA 35+00 TO STA 9+23
ROUTE SR 802	LOCATION SR 202L - IRONWOOD ROAD		
TRACS NO. H6867 01L	-		

AECOM

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-1.2
____ OF ____

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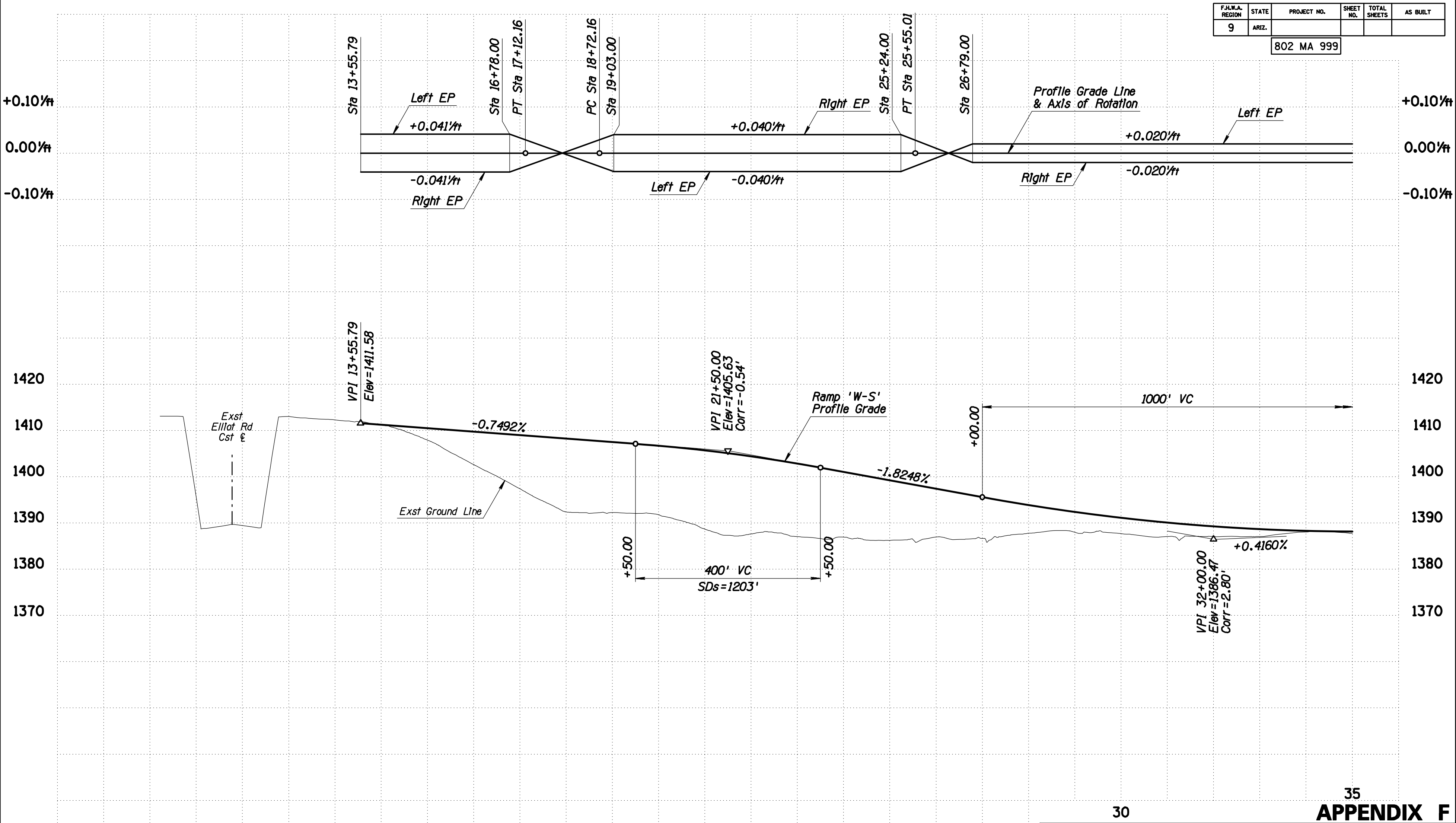

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX F

	NAME	DATE
DESIGN	GJJ	05-10
DRAWN	TST	05-10
CHECKED	SDW	05-10

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BRAIDED RAMP 'W-S' (FUTURE)
PROFILE SHEET
STA 13+55 TO STA 35+00

AECOM

DCR
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. C-1.3

TRACS NO. H6867 01L | - | ___ OF ___

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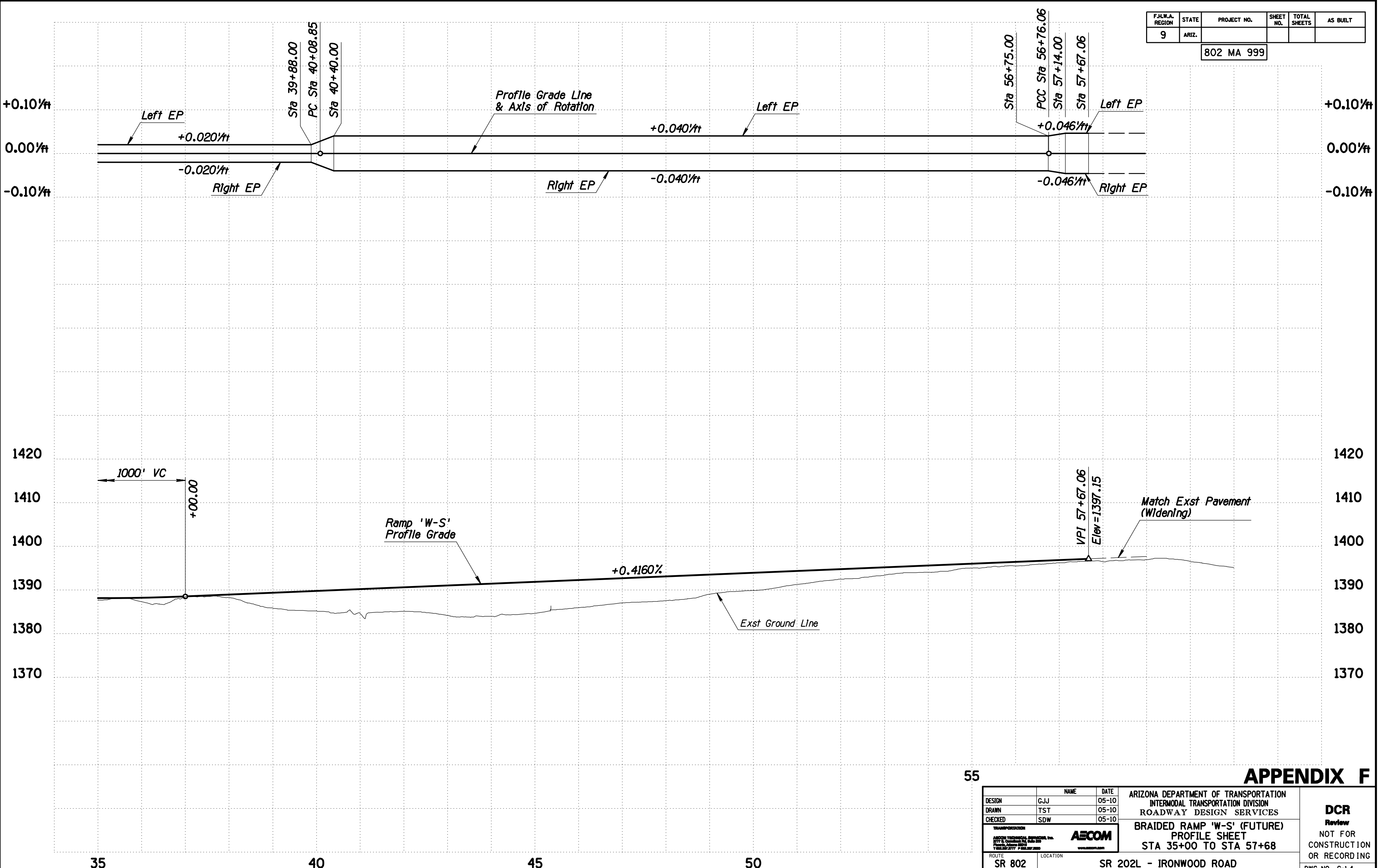


F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999

APPENDIX F

	NAME	DATE
DESIGN	GJJ	05-10
DRAWN	TST	05-10
CHECKED	SDW	05-10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

BRAIDED RAMP 'W-S' (FUTURE)
PROFILE SHEET
STA 35+00 TO STA 57+68

DCR Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

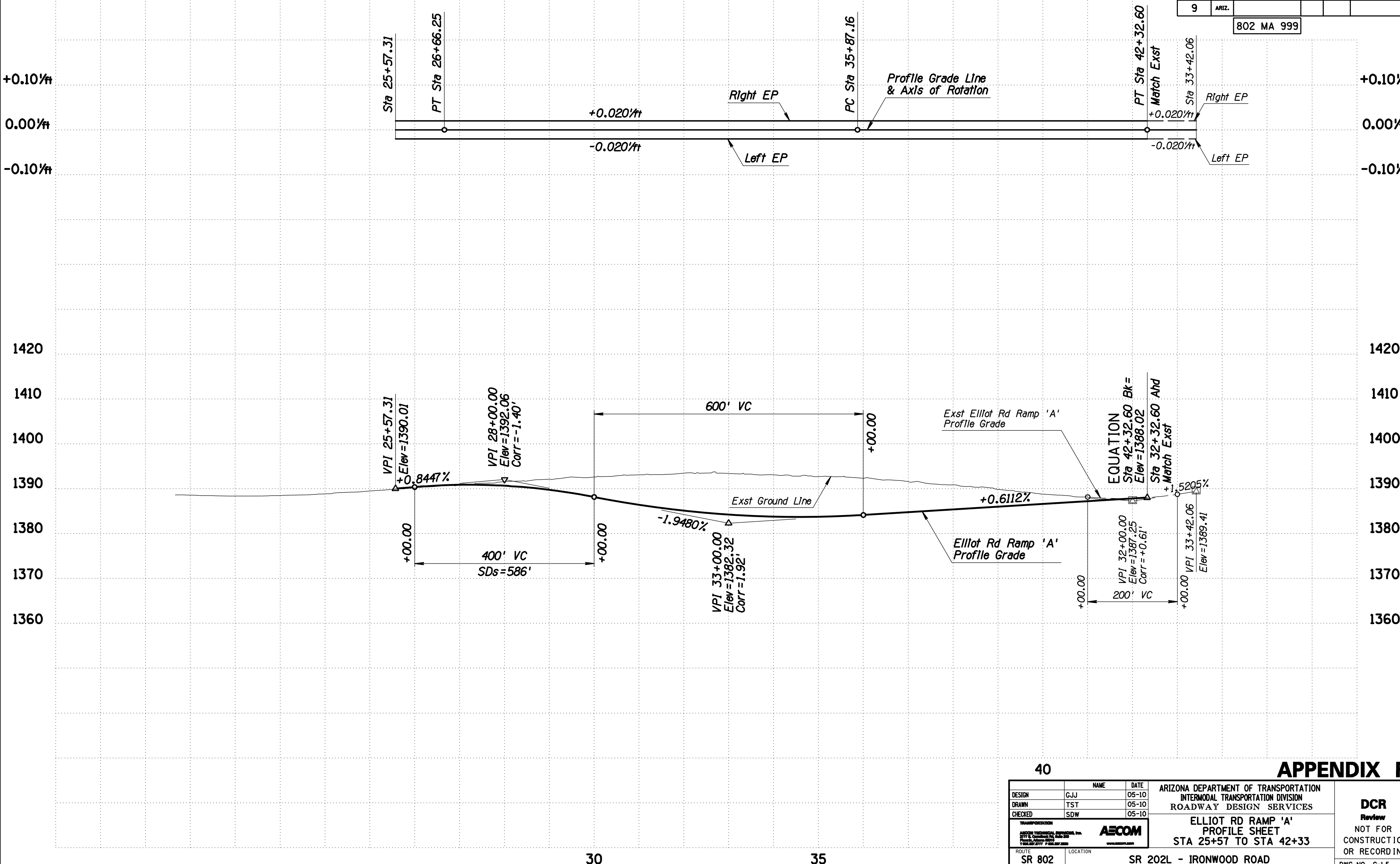
DWG NO. C-1.4

TRACS NO. H6867 01L | - | ___ OF ___

7/15/2010 U:\WG01\Prod\civ\h6867v88.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 999



APPENDIX F

	NAME	DATE
DESIGN	GJJ	05-10
DRAWN	TST	05-10
CHECKED	SDW	05-10

TRANSPORTATION
AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

ELLIOT RD RAMP 'A'
PROFILE SHEET
STA 25+57 TO STA 42+33

ROUTE SR 802
LOCATION SR 202L - IRONWOOD ROAD

TRACS NO. H6867 01L

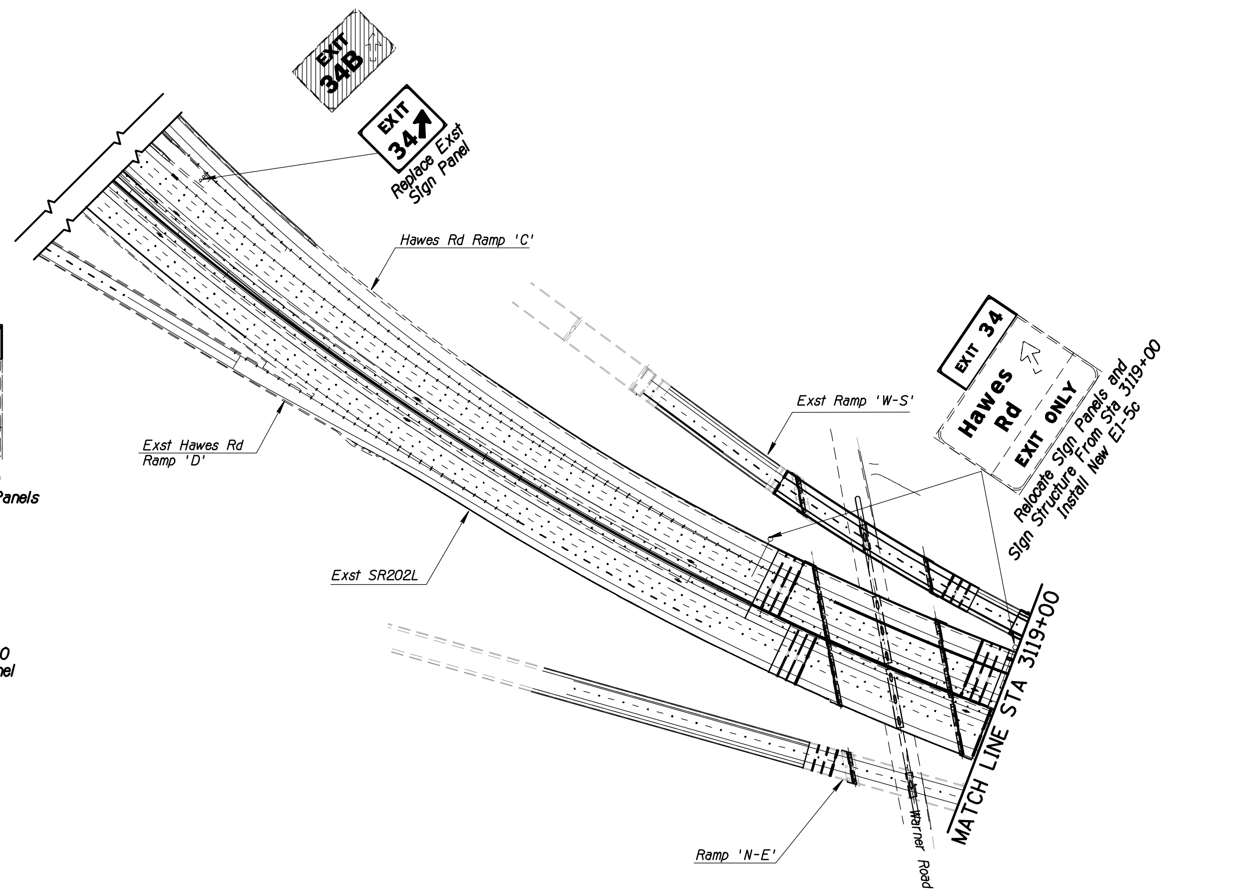
-

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-1.5
____ OF ____

7/15/2010 U:\WG01\Prod\civ\h6867v89.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



EXIT 34
Hawes Rd
1 MILE

EXIT 33B
802 EAST
EXIT ONLY

WB Sta 3017+00
Replace Exit Number Panels

EXIT 34
Hawes Rd
EXIT ONLY

WB Sta 3068+30
Replace Exit Number Panels

EXIT 33B
802 EAST
EXIT ONLY

WB Sta 3035+00
Replace Exit Number Panel

EXIT 34

WB Sta 3076+70
Replace Sign Panel

EXIT 34
Hawes Rd
1/4 MILE

EXIT 33B
802 EAST
EXIT ONLY

WB Sta 3050+00
Replace Exit Number Panels

EXIT 33B

WB Sta 3057+60
Replace Sign Panel

These signs, in the Eastbound direction, will be impacted if the Braided W-S Ramp is used. The exit numbers will change requiring renumbering in both directions.

APPENDIX F

	NAME	DATE
DESIGN	CMJ	05/10
DRAWN	CMJ	05/10
CHECKED	JJP	05/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
PLAN SHT W/ BRAIDED RAMP 'W-S'
STA 3017+00 TO STA 3119+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD
DWG NO. T-1.1

TRACS NO. H6867 01L

____ OF ____

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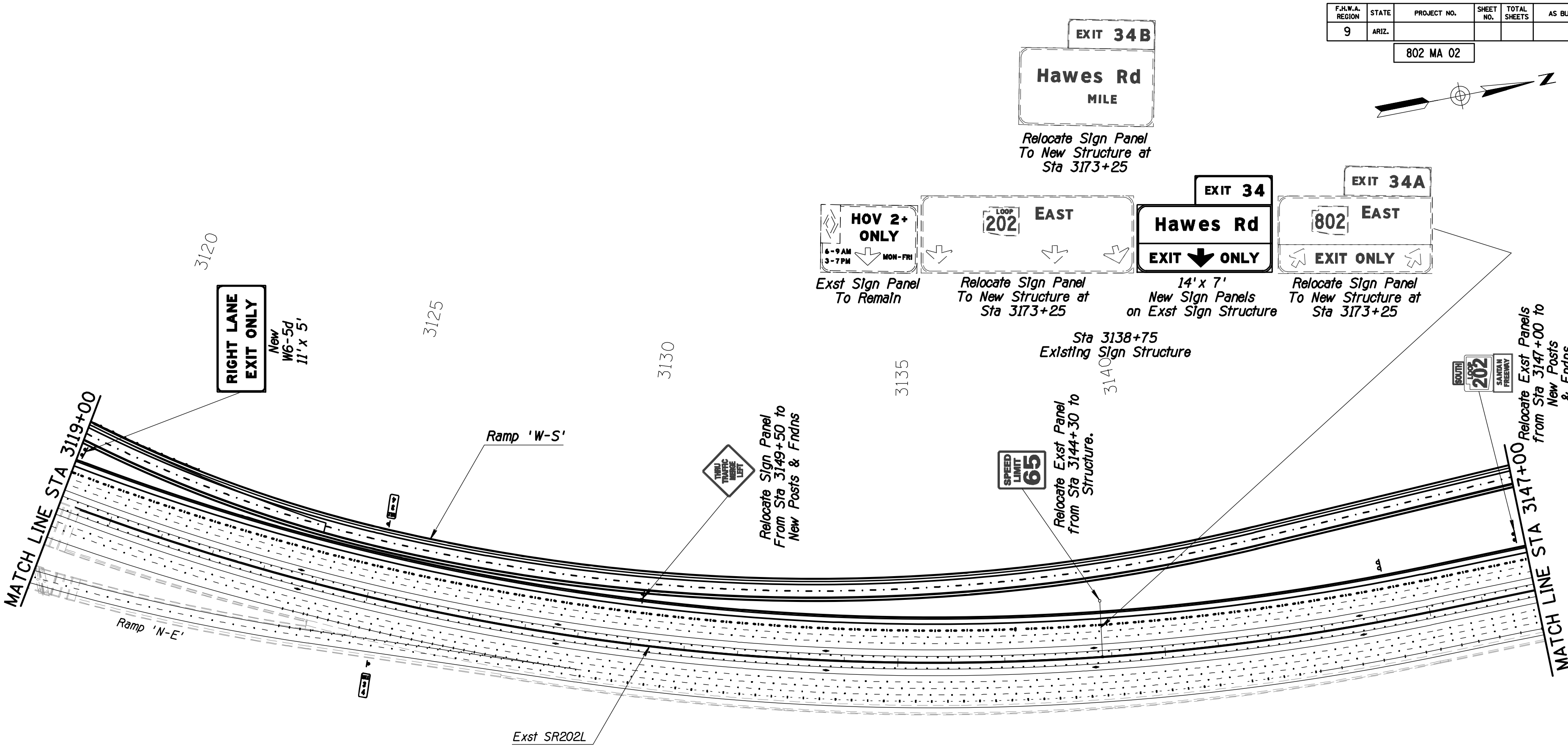

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02

APPENDIX F

	NAME	DATE
DESIGN	CMJ	05/10
DRAWN	CMJ	05/10
CHECKED	JJP	05/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
PLAN SHT W/ BRAIDED RAMP 'W-S'
STA 3119+00 TO STA 3147+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD
DWG NO. T-1.2

TRACS NO. H6867 01L

____ OF ____

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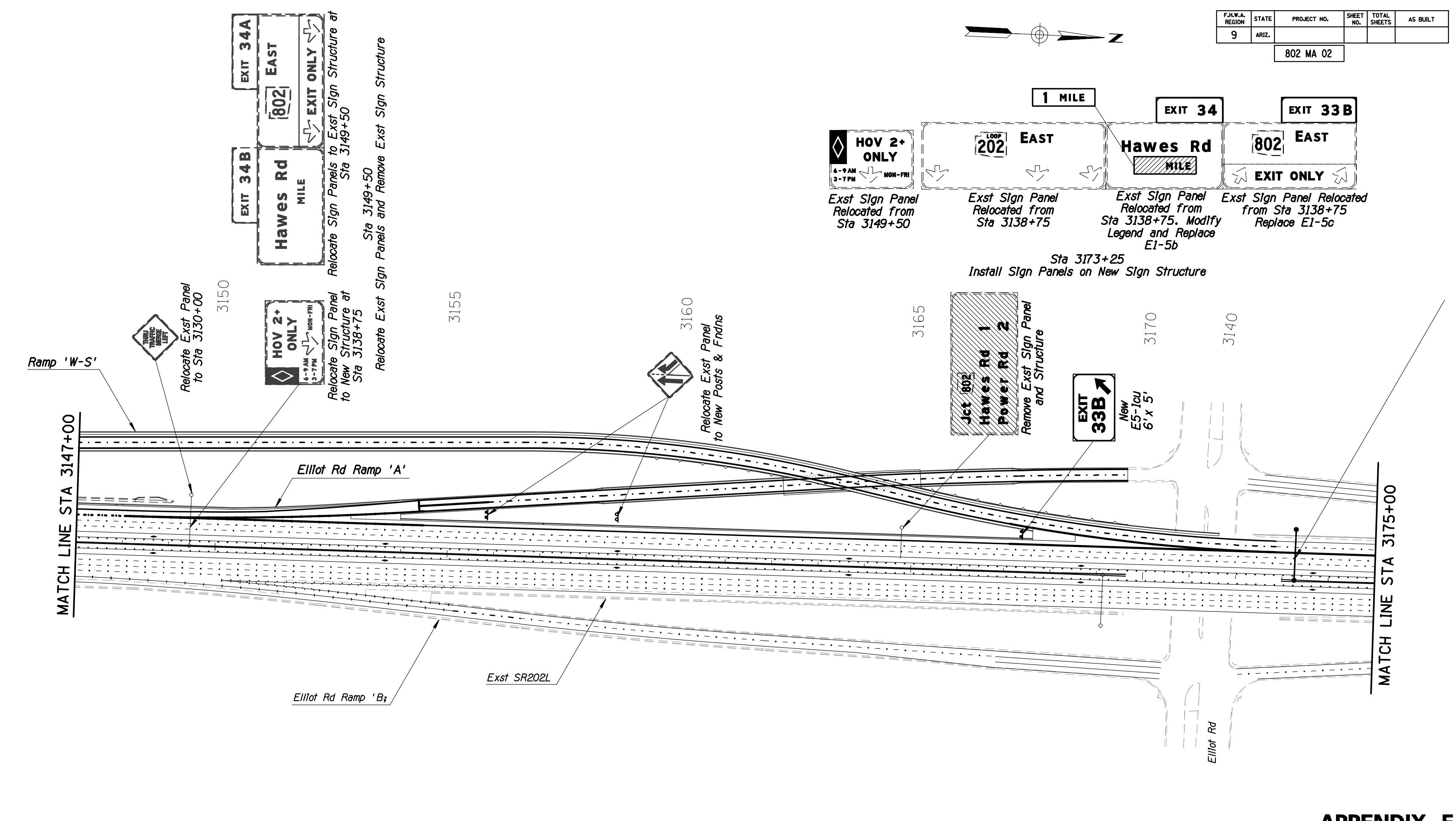

APPENDIX F

	NAME	DATE
DESIGN	CMJ	05/10
DRAWN	CMJ	05/10
CHECKED	JJP	05/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
PLAN SHT W/ BRAIDED RAMP 'W-S'
STA 3147+00 TO STA 3175+00

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE SR 802 | LOCATION SR 202L - IRONWOOD ROAD

DWG NO. T-1.3

TRACS NO. H6867 01L

____ OF ____

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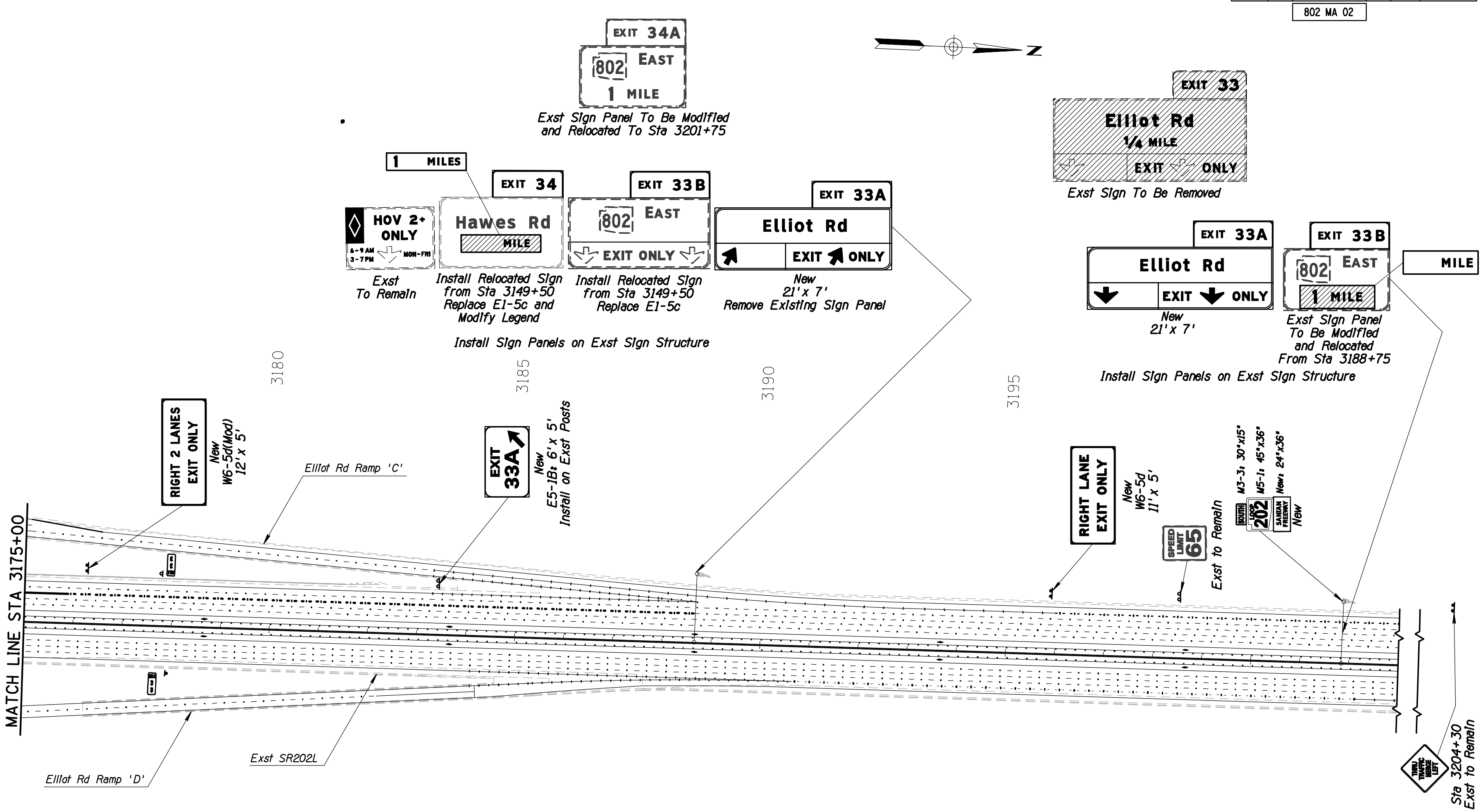
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX F

	NAME	DATE
DESIGN	CMJ	05/10
DRAWN	CMJ	05/10
CHECKED	JJP	05/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
PLAN SHT W/ BRAIDED RAMP 'W-S'
STA 3175+00 TO STA 3203+00

DCR Review

NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE: SR 802 | LOCATION: SR 202L - IRONWOOD ROAD

DWG NO. T-1.4

TRACS NO. H6867 01L

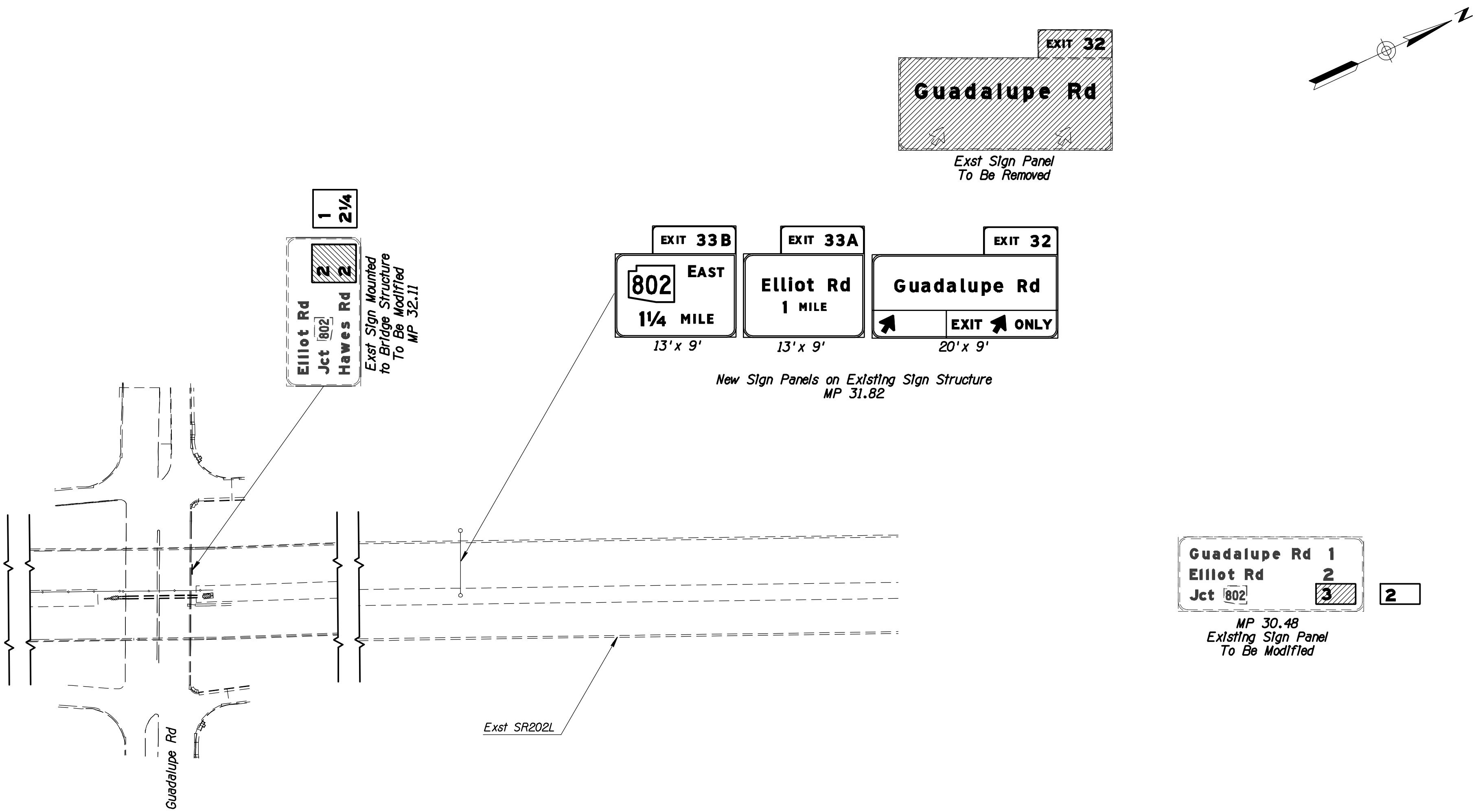
____ OF ____

7/12/2010 u:\wg01\prod\tra\braided\h6867p38.dgn

NO. | DESCRIPTION OF REVISION | MADE BY | DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.				

802 MA 02



APPENDIX F

	NAME	DATE
DESIGN	CMJ	05/10
DRAWN	CMJ	05/10
CHECKED	JJP	05/10

AECOM

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
TRAFFIC DESIGN SERVICES

PAVEMENT MARKING & SIGNING PLANS
PLAN SHT W/ BRAIDED RAMP 'W-S'
MP 32.10 TO MP 30.47

DCR Review
NOT FOR CONSTRUCTION OR RECORDING
TRAFFIC ENGINEER

ROUTE: SR 802
LOCATION: SR 202L - IRONWOOD ROAD
DWG NO. T-1.5

TRACS NO. H6867 01L

____ OF____

7/12/2010 u:\wg01\prod\tra\braided\h6867p39.dgn

APPENDIX G

SR 802 Extension into Pinal County Traffic Memorandum

AECOM

AECOM
2777 East Camelback Road
Suite 200
Phoenix, Arizona 85016
www.aecom.com

602.337.2777 tel
602.337.2624 fax

Memorandum

Date: July 15, 2010

To: File

From: Rodney Bragg RLB

Subject: SR 802, Williams Gateway Freeway
Extension of SR 802 Beyond Ironwood Road

The purpose of this Technical Memorandum is to review the potential travel demand impacts on SR 802 as the facility is extended to the east beyond Ironwood Road (to US 60 or SR 79) and is connected to the future North-South Freeway, in Pinal County.

1.0 PROJECT BACKGROUND

ADOT conducted the *Williams Gateway Corridor Definition Study* (2006) which recommended that SR 802 continue east into Pinal County and connect to US 60 or SR 79. This study also recommended a new North-South Freeway Corridor within Pinal County west of SR 79 that would extend from US 60 on the north to I-10 on the south. Both of these future transportation corridors are included in the *Building a Quality Arizona (bqAZ) Statewide Transportation Planning Framework*, Final Report (March 2010) which was adopted by the State Transportation Board in January 2010.

2.0 EVALUATION METHODOLOGY

The Maricopa Association of Governments (MAG) provided traffic volume projections for Design Year 2030 for use in the Design Concept Report. MAG maintains a regional traffic forecasting model to develop future traffic volume projections based on projected socio-economic, population, employment, origin-destination, and other regionally based data. The output from the model includes daily, peak period, and peak hour traffic volumes for general-purpose and HOV lanes for the regional freeway system.

The MAG regional traffic forecasting model includes a portion of northern Pinal County. The socio-economic data within the portion of Pinal County in the MAG model was modified to match the *Pinal County Small Area Transportation Study* (SATS) which was adopted by Pinal County in 2006. The arterial roadway network used in the MAG model in northern Pinal County was modified based on the Pinal County *Regionally Significant Routes for Safety and Mobility* which was completed in 2008. The revised socio-economic and network inputs were utilized in the MAG models for the SR 802 project with the SR 802 facility ending at Ironwood Road. Additional roadway networks were provided to MAG for inclusion in the 2030 MAG model that extended the SR 802 east from Ironwood Road, and included the planned North-South Freeway in Pinal County. The roadway network in shown in Figure 1.

The output from the 2030 MAG regional travel demand model was utilized to estimate the future travel demand on the SR 802 corridor with the SR 802 extended east (to US 60 or SR 79) and connected to the future North-South Freeway in Pinal County. The following network assumptions were added to the MAG model:

- The SR 802 corridor would extend east from Ironwood Road, cross the Central Arizona Project (CAP) Canal, cross the Vineyard Flood Retarding Structure, and continue east to connect to US 60 near the Germann Road section line.
- Two service interchanges would be provided along SR 802 between Ironwood Road and US 60.

- SR 802 would connect to US 60 with a traditional service interchange configuration similar to a diamond interchange.
- The North-South Freeway would extend from I-10 on the south to SR 802 on the north. North of SR 802, it would transition to an expressway facility as opposed to a freeway facility and connect to US 60.
- The North-South Freeway and SR 802 would connect using a free-flow, freeway-to-freeway system interchange with ramps connecting all directions of travel.
- The US 60 would be realigned around Gold Canyon Ranch and upgraded to an access-controlled, 6-lane facility to SR 79.

The socio-economic input data and supporting arterial roadway network was not modified from the previous models. The resulting 2030 travel demand projections for SR 802 were utilized in CORSIM to simulate the SR 802 traffic operations between SR 202L and Ironwood Road with additional travel demand due to the extension of the corridor beyond Ironwood Road. The resulting 2030 traffic volumes are shown in Attachment A.

The following CORSIM model input assumptions were used for the operational analysis for this evaluation:

- Free flow speed of 65 mph for the mainline general-purpose lanes
- Free flow speed of 55 mph for the system interchange ramps
- Free flow speed of 50 mph for the service interchange ramps
- Commercial (heavy) vehicle percentage was assumed to be 5% during peak hours

3.0 OPERATIONAL ANALYSIS RESULTS

The 2030 A.M. and P.M. peak hour LOS analysis results are shown in Attachments B and C, respectively. Under this scenario, congestion (LOS 'E' or 'F') would be anticipated to occur within the following segments of the corridor:

- 2030 A.M. Peak Hour:
  - SR202L/SR802 TI Ramp 'N-E' (LOS 'E' on the ramp body)
- 2030 P.M. Peak Hour:
  - SR202L/SR802 TI Ramp 'W-S' (LOS 'F' on the ramp body)
  - SR202L/SR802 TI Ramp 'E-S' (LOS 'F' on the ramp body)
  - SR202L/SR802 TI Ramp 'N-E' (LOS 'F' on the ramp body)
  - Westbound SR 202L from the Ramp 'W-S' exit to Elliot Road

With the SR 802 terminating at Ironwood Road, all segments of the SR 802 and SR 202L are expected to operate at LOS 'D' or better during both the 2030 A.M. and P.M. peak hours. With the SR 802 extended beyond Ironwood Road, this analysis indicates that congestion may occur on westbound SR 202L approaching the SR202L/SR802 TI, and on the SR202L/SR802 TI ramps.

4.0 CONCLUSION

With the future extension of SR 802 beyond Ironwood Road, it is likely that additional traffic will utilize SR 802 and congestion may occur at a few specific locations near the SR202L/SR802 TI. However, detailed land use/development plans are not currently available and other on-going and future transportation planning studies and development plans will likely dictate the transportation network in Northern Pinal County and may influence these results.

The near-term improvements for the SR202L/SR802 TI will include 2-lane directional ramps in all directions of travel. Additional improvements could be considered in the future, or with other planning studies, to mitigate potential operational concerns that could include:

- Extend the planned North-South Freeway to US 60 as a limited-access freeway facility
- Realign the SR202L/SR802 Ramp 'W-S' to provide a braided ramp configuration with Elliot Road Ramp 'A'

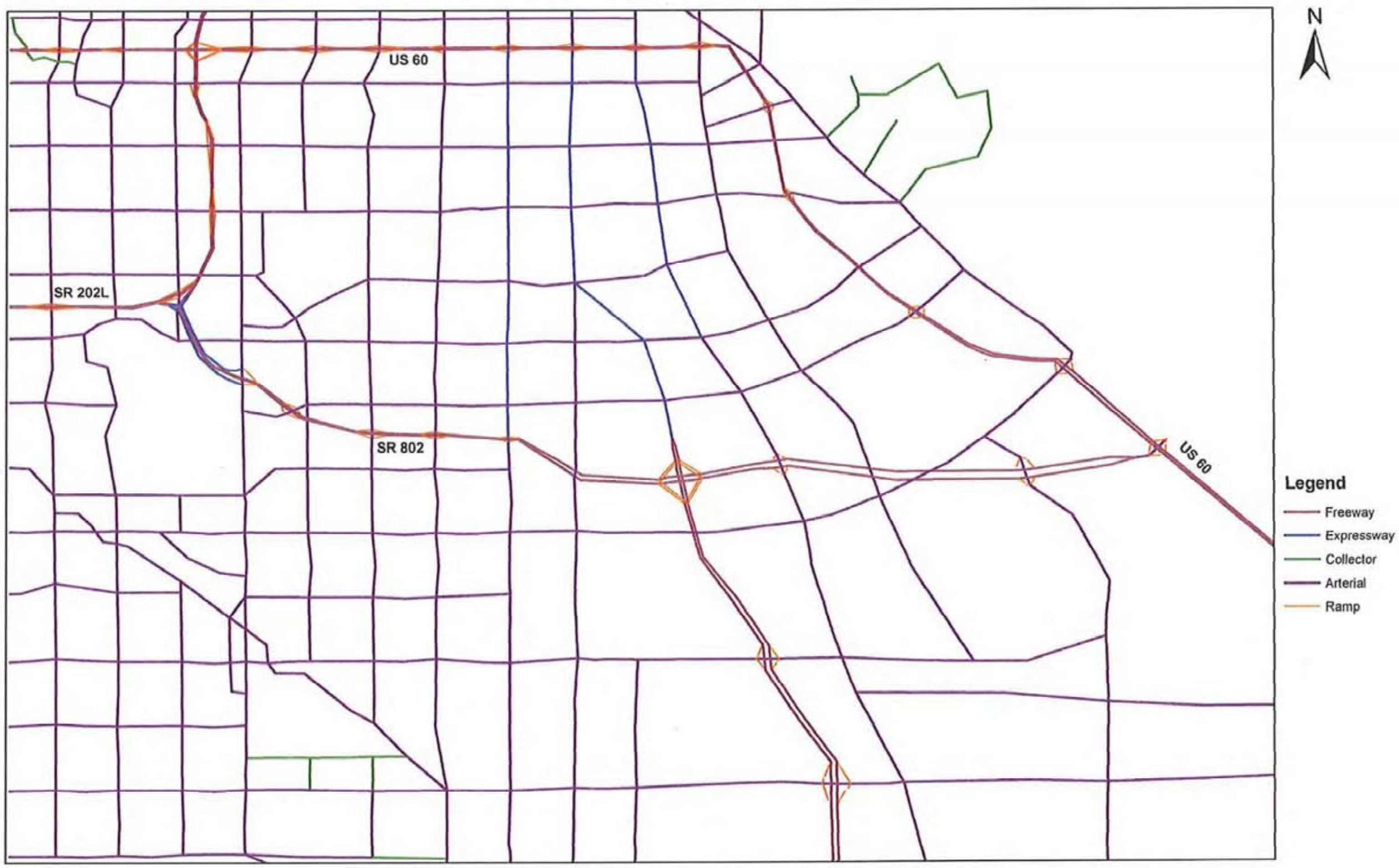
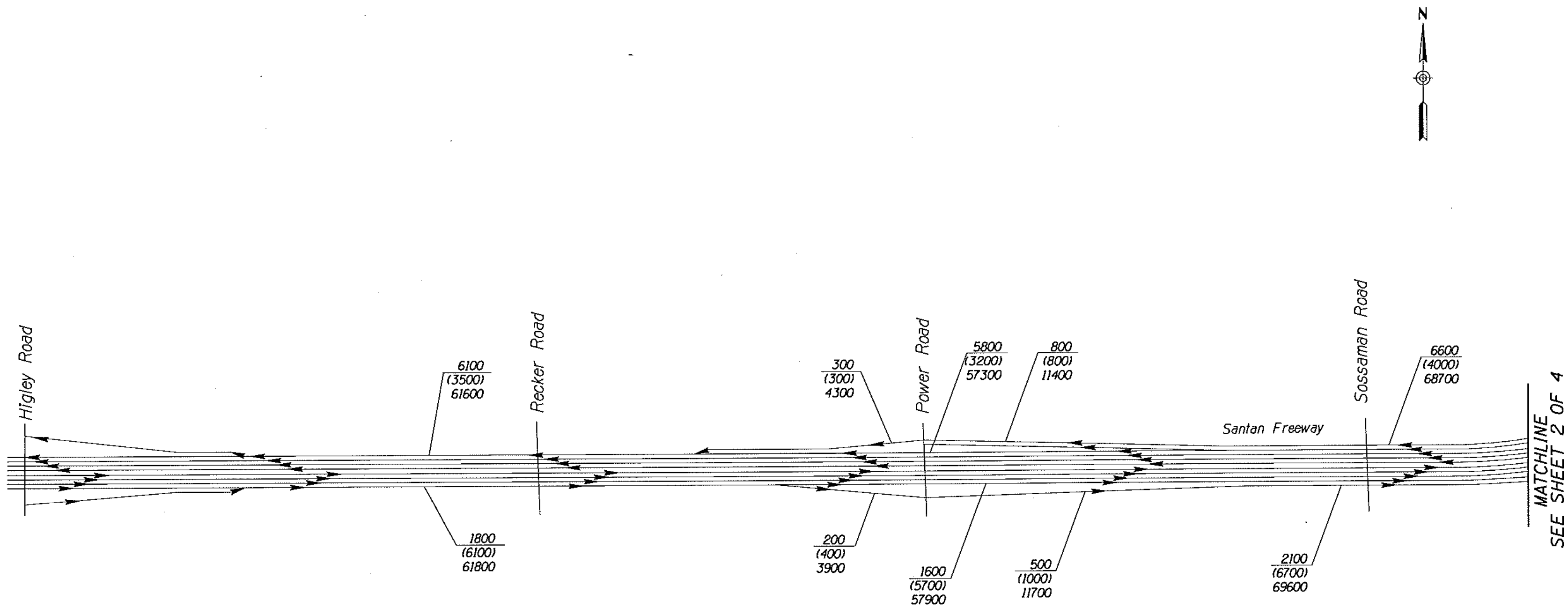


Figure 1 – Roadway Network



ATTACHEMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD VOLUMES
SHEET 1 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

WILLIAMS GATEWAY FREEWAY (SR802)

AECOM

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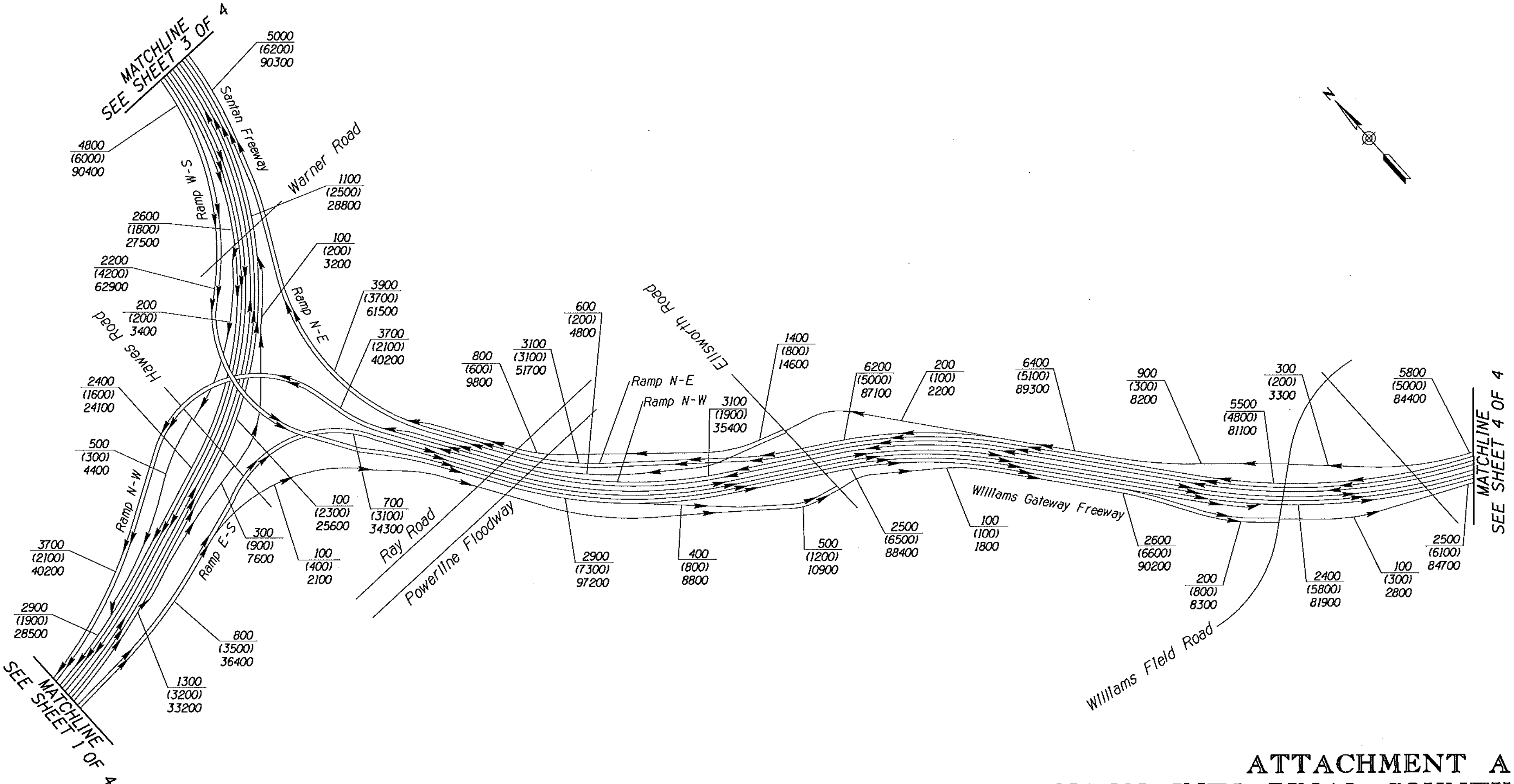

ATTACHMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD VOLUMES
SHEET 2 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND
xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

WILLIAMS GATEWAY FREEWAY (SR802)

AECOM

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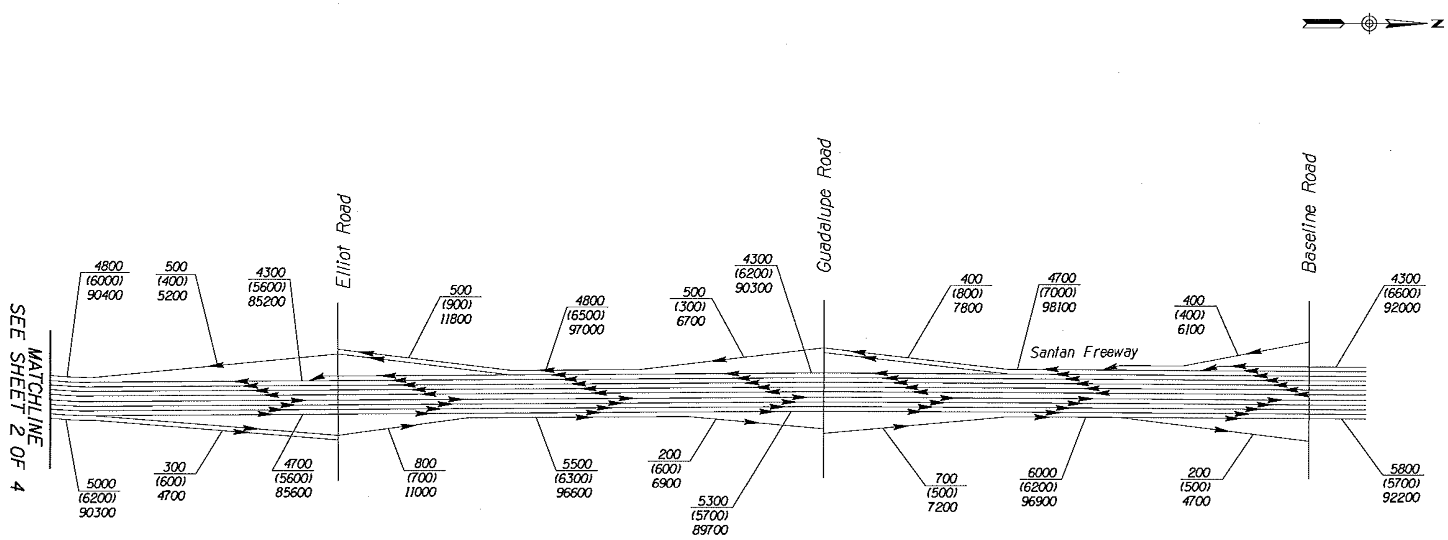

ATTACHMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD VOLUMES
SHEET 3 OF 4

LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

NOT TO SCALE - SCHEMATIC ONLY

NOTE: HOV Lanes Not Shown.

WILLIAMS GATEWAY FREEWAY (SR802)

AECOM

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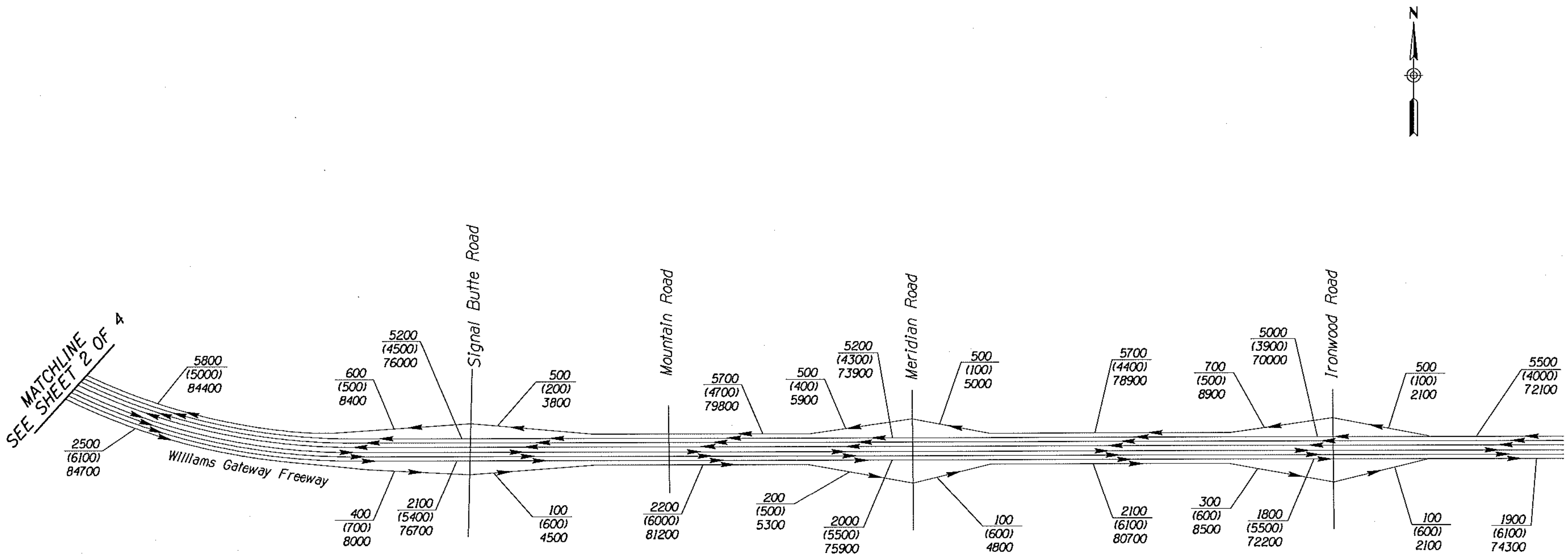


ATTACHMENT A
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD VOLUMES
SHEET 4 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour
(xxx) - 2030 PM Peak Hour
xxxx - 2030 Average Daily Traffic

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

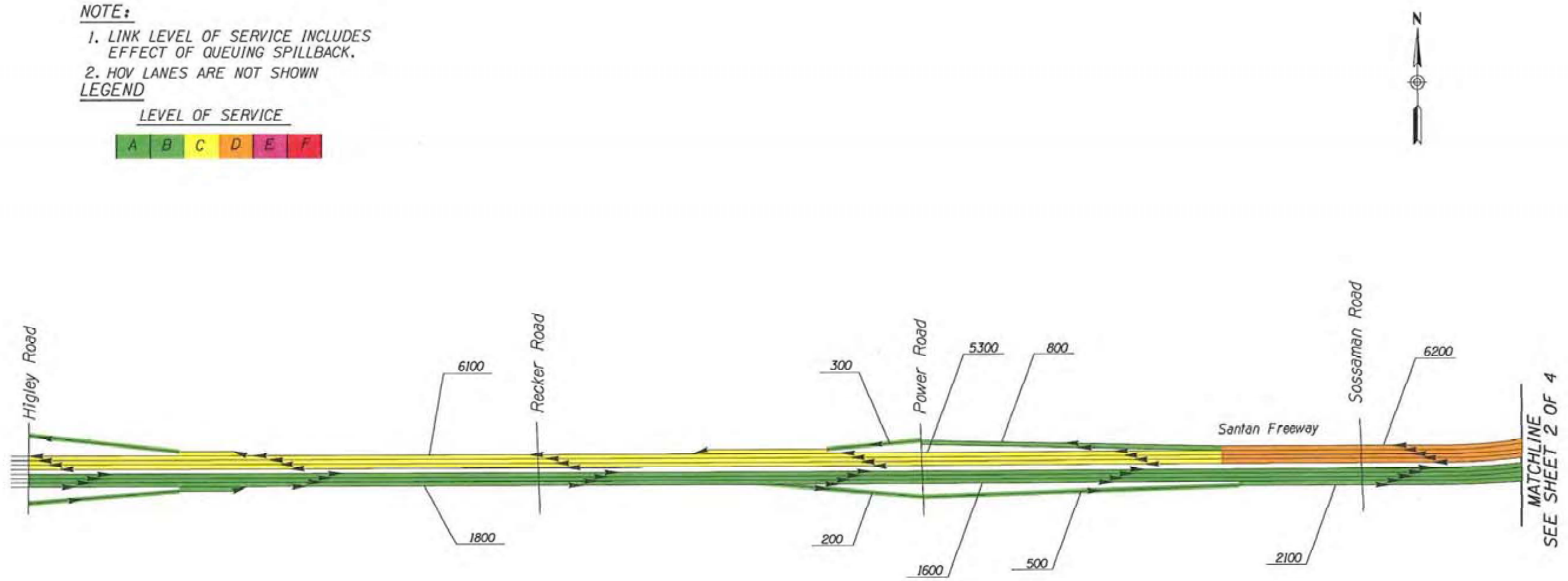
6/16/2010

NOTE:
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A B C D E F



ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD AM LEVEL OF SERVICE
SHEET 1 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

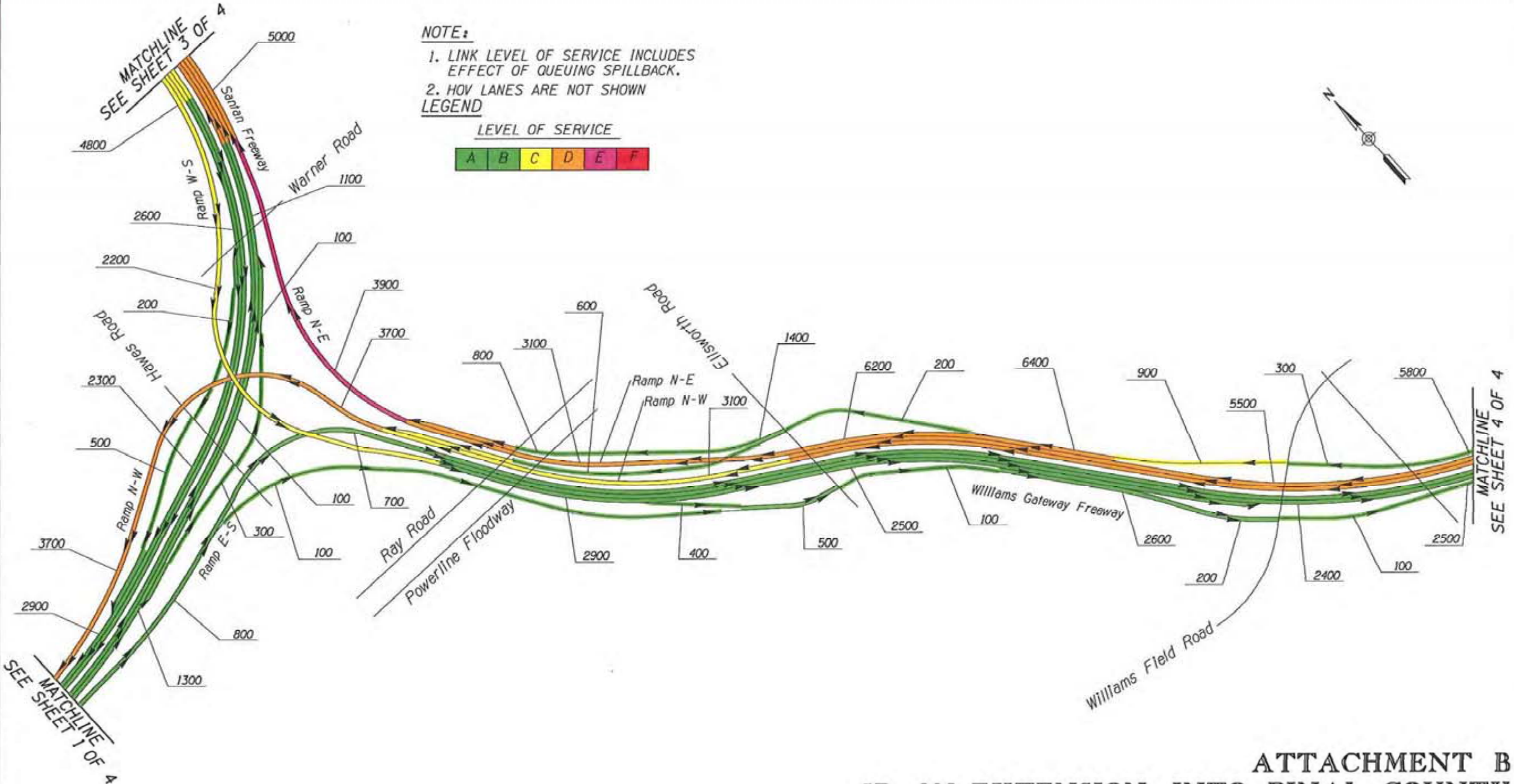
xxx - 2030 AM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

6/16/2010



ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD AM LEVEL OF SERVICE
SHEET 2 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

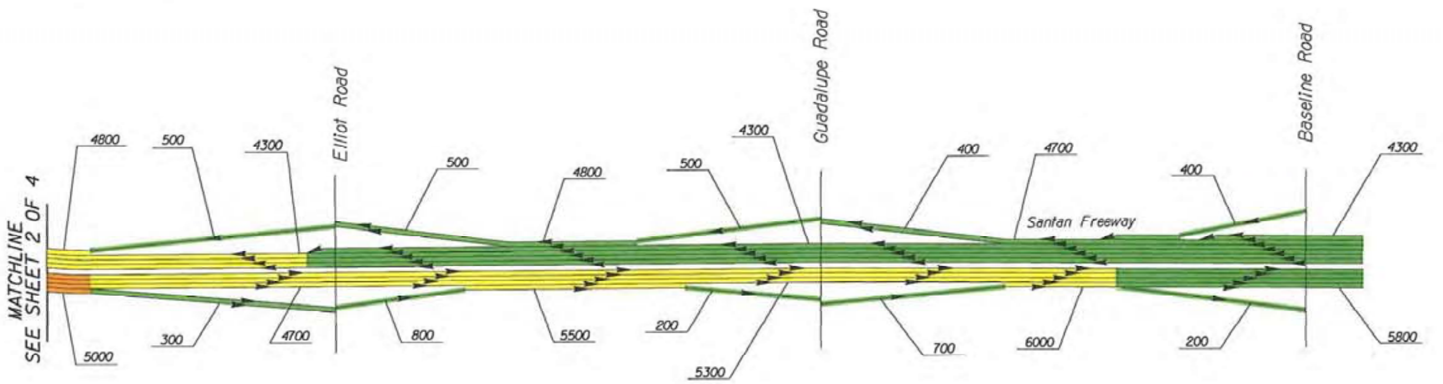
AECOM

NOTE:
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F



ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD AM LEVEL OF SERVICE
SHEET 3 OF 4

NOTE: HOV Lanes Not Shown.

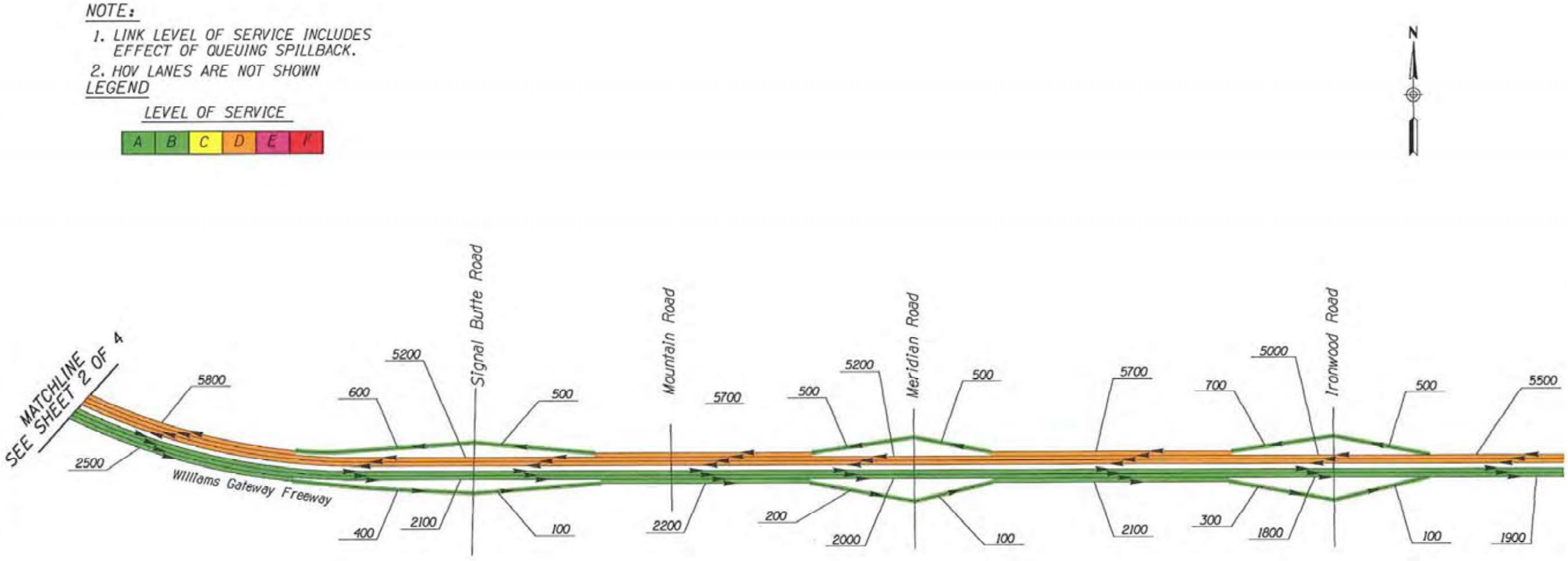
LEGEND

xxx - 2030 AM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM



ATTACHMENT B
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD AM LEVEL OF SERVICE
SHEET 4 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 AM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

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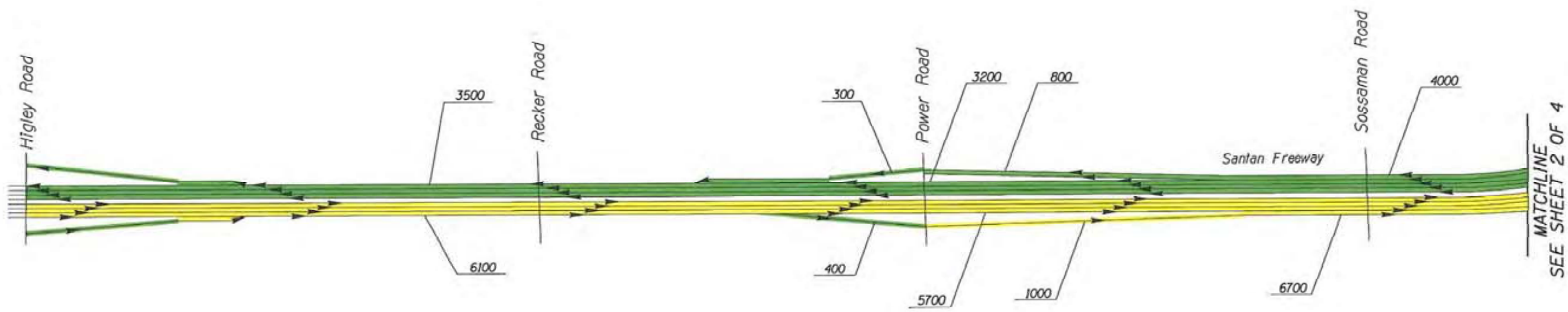
NOTE:

1. *LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.*
2. *HOV LANES ARE NOT SHOWN*

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F



ATTACHMENT C
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 1 OF 4

LEGEND

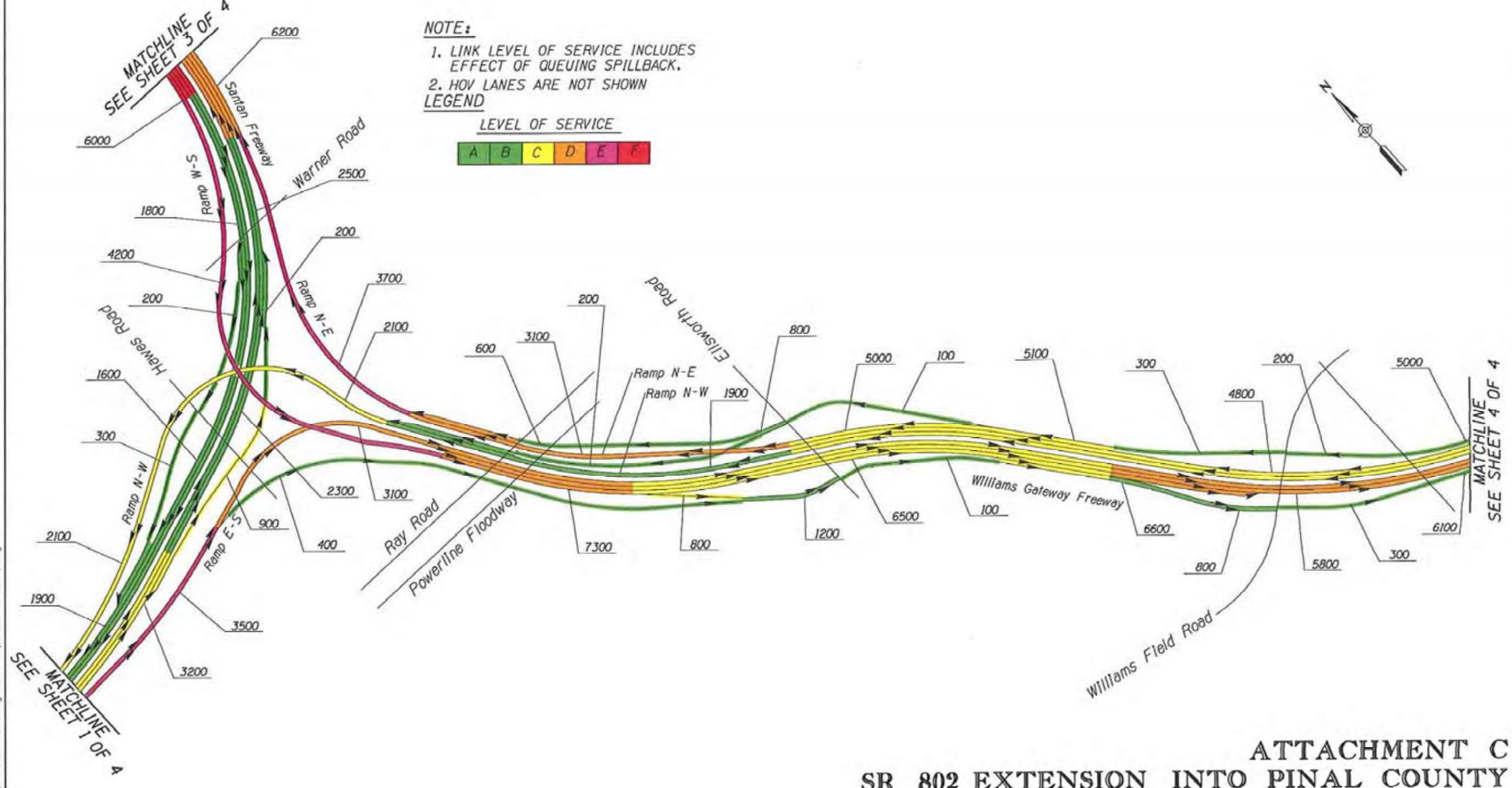
xxx - 2030 PM Peak Hour

NOTE: HOV Lanes Not Shown.

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM



ATTACHMENT C
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 2 OF 4

LEGEND

xxx - 2030 PM Peak Hour

NOTE: HOV Lanes Not Shown.

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

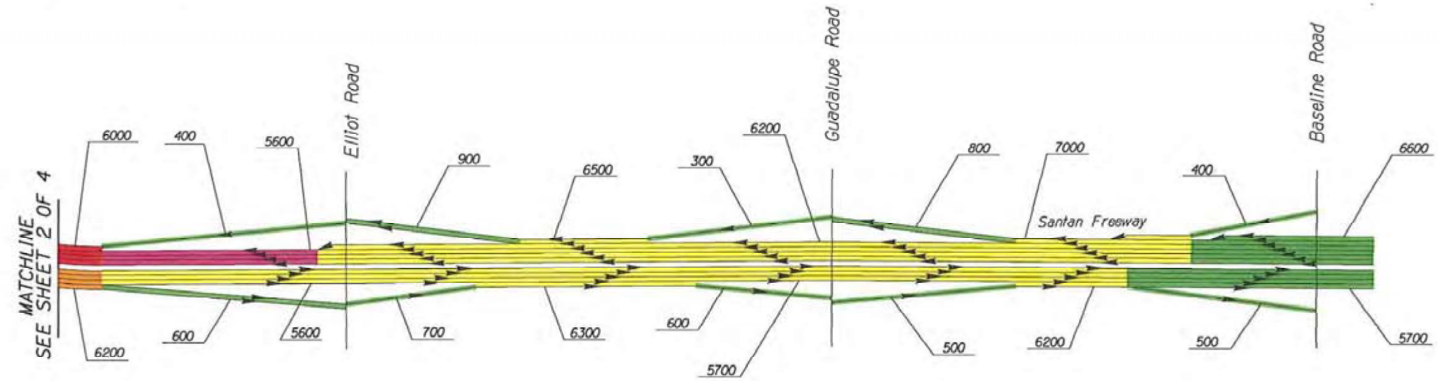
NOTE:
1. *LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.*
2. *HOV LANES ARE NOT SHOWN*

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

N



ATTACHMENT C
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 3 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 PM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM

6/16/2010

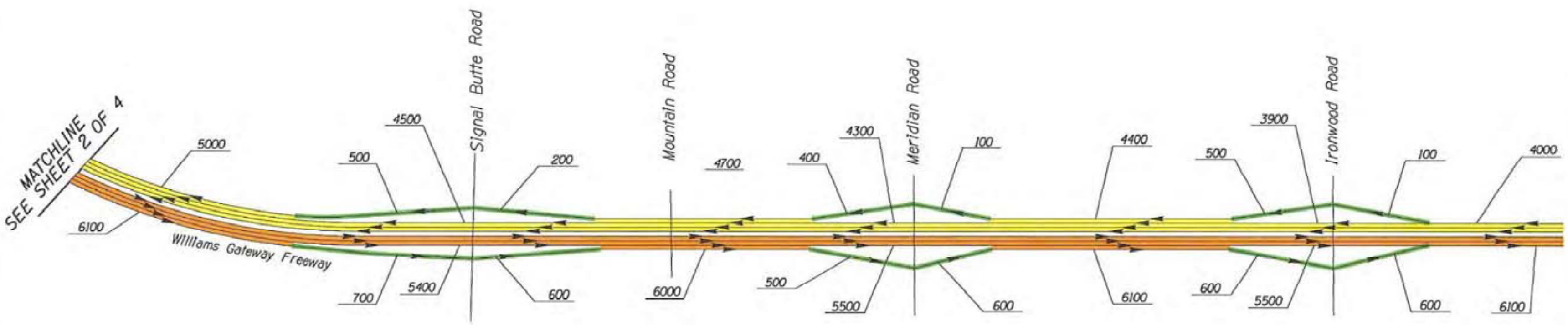
NOTE:
1. *LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.*
2. *HOV LANES ARE NOT SHOWN*

LEGEND

LEVEL OF SERVICE

A	B	C	D	E	F

N



ATTACHMENT C
SR 802 EXTENSION INTO PINAL COUNTY
2030 BUILD PM LEVEL OF SERVICE
SHEET 4 OF 4

NOTE: HOV Lanes Not Shown.

LEGEND

xxx - 2030 PM Peak Hour

WILLIAMS GATEWAY FREEWAY (SR802)

NOT TO SCALE - SCHEMATIC ONLY

AECOM