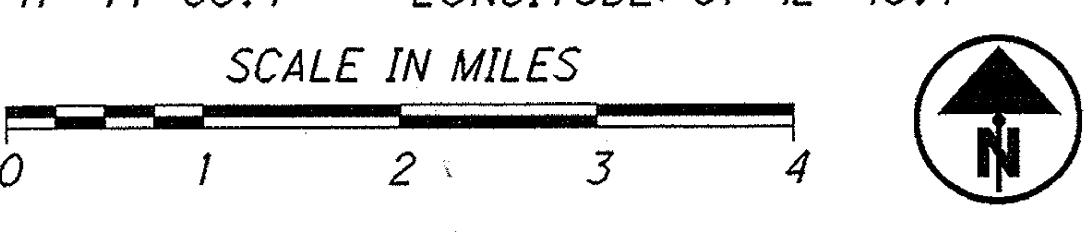
LATITUDE: 41° 44′ 56.4" LONGITUDE: 81° 12′ 46.4"



PORTION TO BE IMPROVED ______ INTERSTATE & DIVIDED HIGHWAY _____ UNDIVIDED STATE & FEDERAL ROUTES _____

DESIGN DESIGNATION	A	В
CURRENT ADT (2011)	31,470	20,000
DESIGN YEAR ADT (2031)	35,890	23,420
K	0.11	0.11
D		0.5
T24	0.05	0.04
TD		0.04

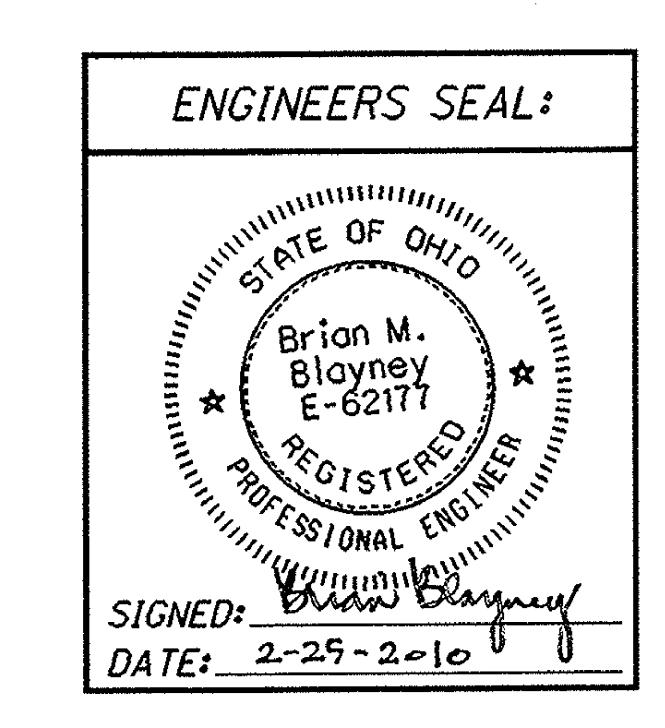
A: Richmond Street (SR 283) to SR 535 B: SR 535 to US 20

DESIGN EXCEPTIONS

None Required



PLAN PREPARED BY: ODOT District 12 5500 Transportation Blvd Garfield Heights, OH 44126



STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

LAK-2-16.61

PAINESVILLE TOWNSHIP LAKE COUNTY

INDEX OF SHEETS:

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NPDES REQUIREMENTS

PROJECT EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT) ESTIMATED CONTRACTOR EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT) NOTICE OF INTENT EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT)

		STA	NDARD	CONSTRUCTION DRAWIN	IGS	SUPPLEMENTAL SPECIFICATIONS
BP-2.1	7/18/08	MT-35.10	4/20/01			800 4/16/10
BP-2.2	7/18/08	MT-95.30	7/17/09			832 5/5/09
BP-2.5	7/18/08	MT-95.50	4/17/09			
BP-3.1	10/19/07	MT-98.10	7/17/09			
BP-5.1	7/28/00	MT-98.11	7/17/09			
BP-7.1	1/19/07	MT-98.20	7/17/09			
BP-7.2	1/19/07	MT-98.22	7/17/09			
BP-9.1	4/15/05	MT-98.28	7/17/09			
		MT-105.10	1/16/09			
GR-1.1	7/16/04					SPECIAL
GR-2.1	1/16/04	TC-65.10	1/21/05			1
GR-3.1	10/16/09	TC-65.11	1/21/05			PROVISIONS
GR-3.2	10/16/09	TC-71.10	1/16/09			None Required
GR-4.2	1/19/07	TC-72.20	10/16/09			
RM-4.5	10/16/09					

PROJECT DESCRIPTION

IMPROVEMENT OF 2.25 MILES OF SR-2 BY REPAIR AND RESURFACING.

IMPROVEMENT OF SR 2 EASTBOUND EXIT TO LLOYD ROAD BY ADDING RUMBLE STRIPS.

IMPROVEMENT OF ODOT PAINESVILLE MAINTENANCE FACILITY BY RESURFACING.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

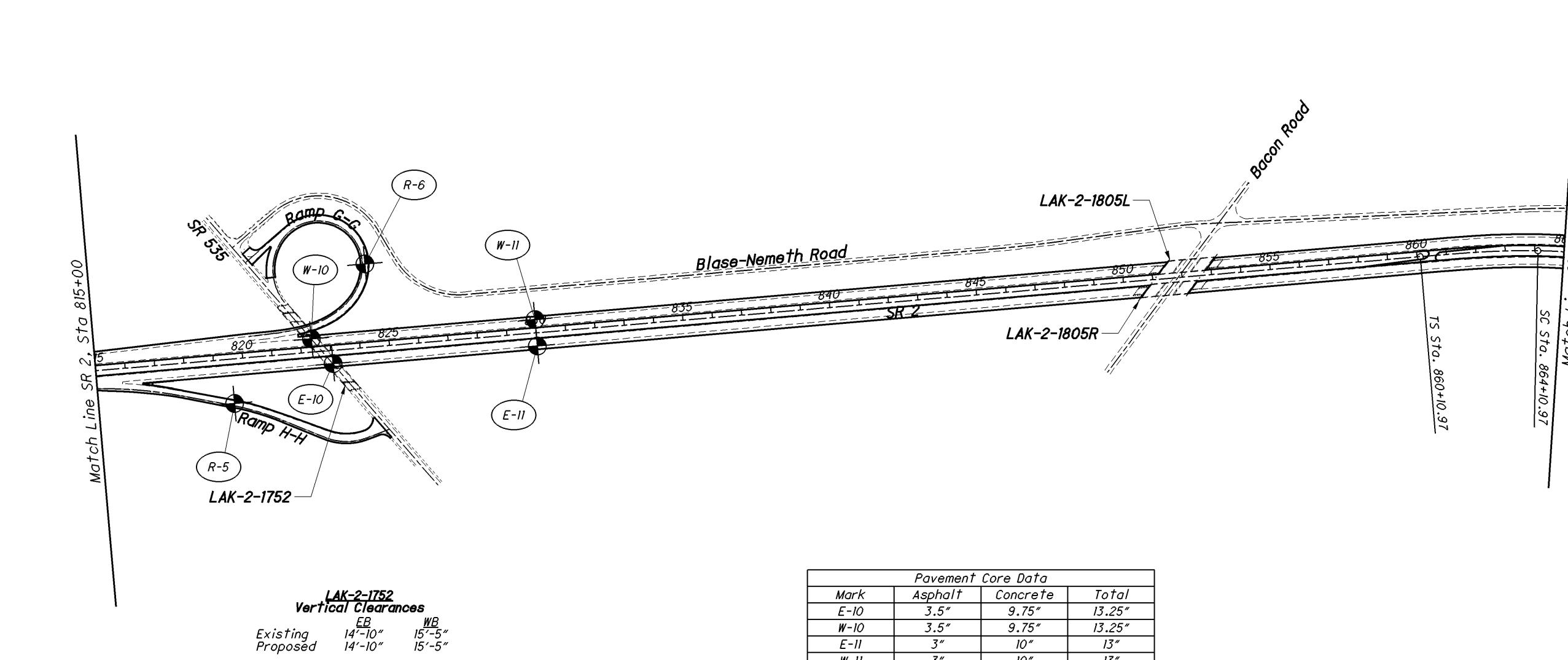
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (H) OF THE OHIO REVISED CODE, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DE-TERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

DATE 3-8-10 DIRECTOR, DEPARTMENT OF TRANSPORTATION







E-10

W-10

E-11

W-11

R-5

R-6

3.5"

3.5"

3"

3"

3"

13.25"

13.25"

13"

13"

12.25"

12.75"

9.75"

9.75"

10"

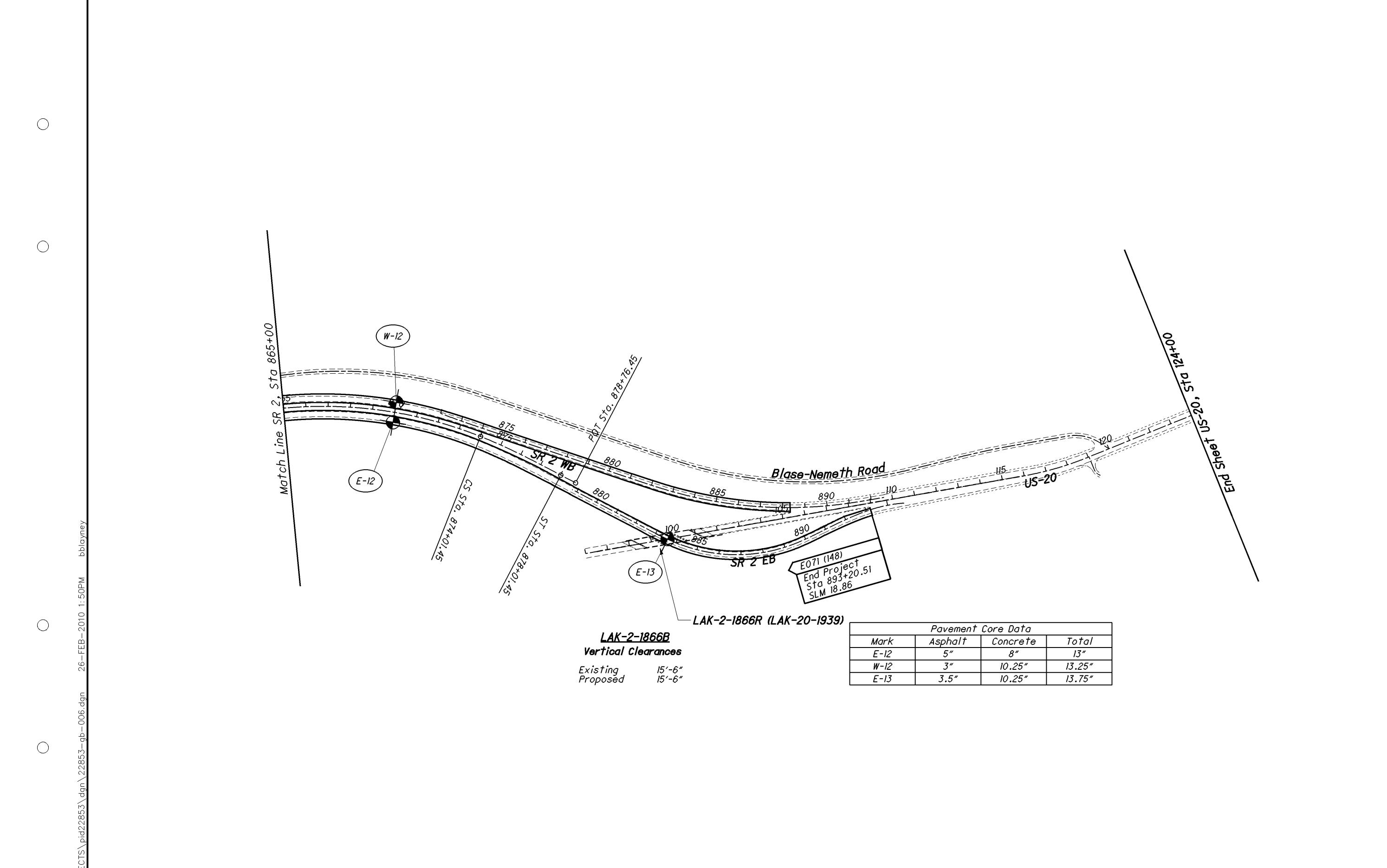
10"

9.25"

9.75"



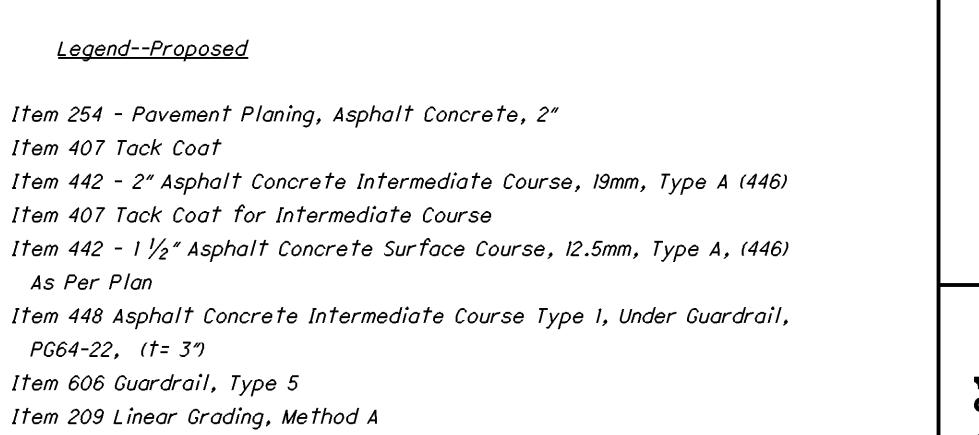


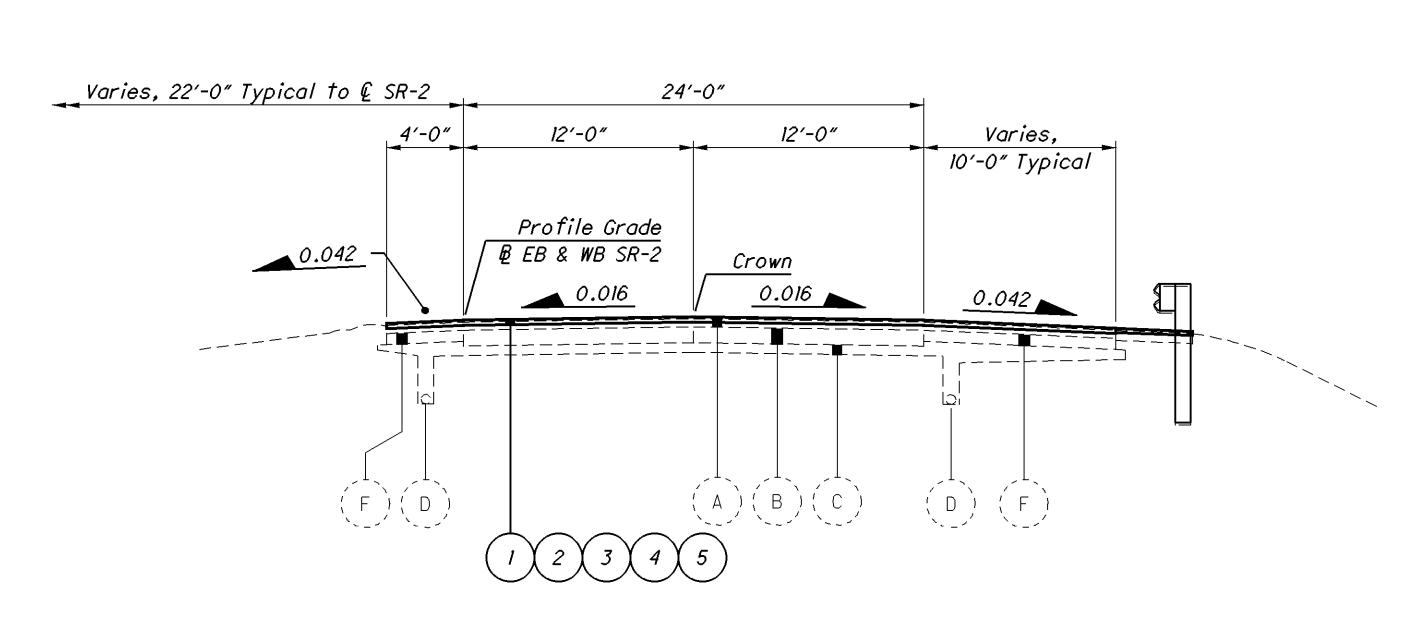


Φ chematic



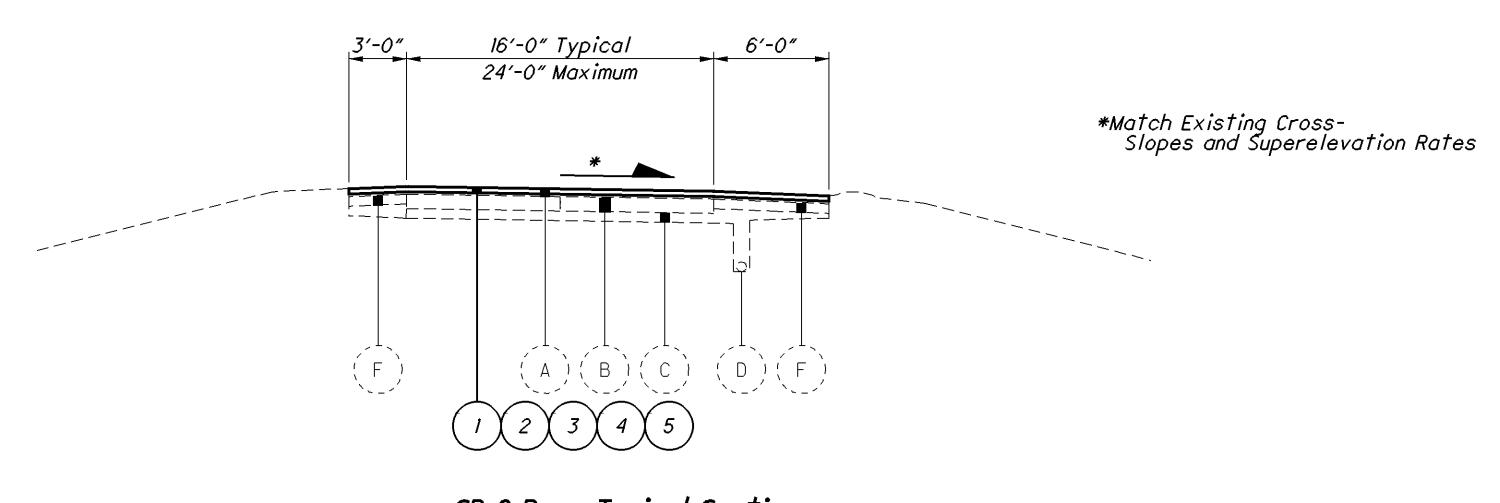






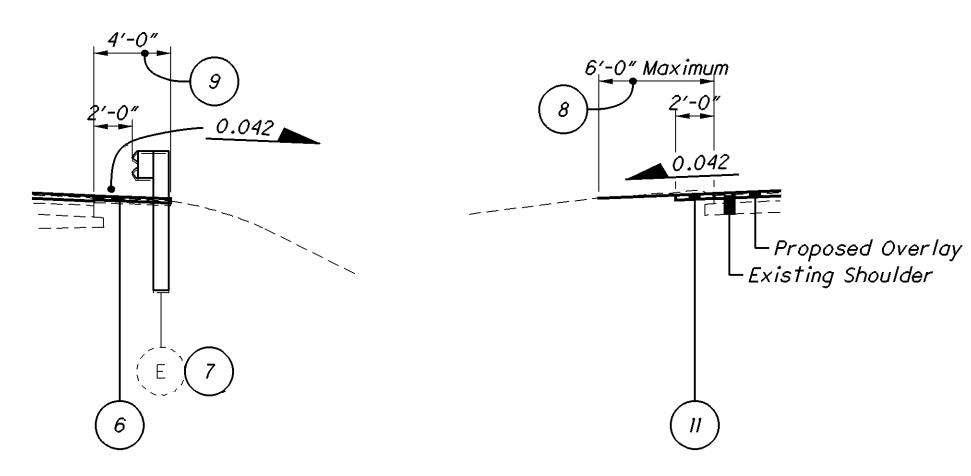
SR-2 Typical Section (EB Normal Crown Shown)

Sta 774+51 to Sta 779+26.80 (Station Eqn) Sta 779+24.64 to Sta 812+30.15 (Station Eqn) Sta 810+85.72 to Sta 893+20.51 (SR 2 EB)



SR-2 Ramp Typical Section

SR 535



<u>Guardrail Detail</u>

Remove and Replace Asphalt Under Guardrail; Make Up Difference in Grade Using Borrow

Item 209 Linear Grading, Method A

Grading at Uncurbed Shoulders without Barrier

<u>Legend--Existing</u>

Asphalt Overlay (Thicknesses Vary) 10" Reinforced Concrete Base Aggregate Base or Subbase Underdrain Guardrail, Type 5, 5A or Barrier Style Bituminous Aggregate Base

<u>Legend--Proposed</u>

Item 407 Tack Coat Item 442 - 2" Asphalt Concrete Intermediate Course, 19mm, Type A (446) Item 407 Tack Coat for Intermediate Course Item 442 - 1 ½ " Asphalt Concrete Surface Course, 12.5mm, Type A, (446) As Per Plan Item 448 Asphalt Concrete Intermediate Course Type 1, Under Guardrail, PG64-22, (t= 3")

Item 606 Guardrail, Type 5 Item 209 Linear Grading, Method A Item 209 Linear Grading, Method B or C Item 203 Borrow (Estimated t= 2" Average) Item 617 - 3" Compacted Aggregate

Project Description

This project consists of the minor rehabilitation of 2.25 miles of State Route 2 by planing and resurfacing the roadway from SLM 16.61 to 18.86 in Painesville Township. Incidental work items include pavement repairs, pavement markings, and raised pavement markers.

This project also consists of the installation of pavement rumble strips at the SR 2 Eastbound exit to the Lloyd Road Connector in the City of Wickliffe.

This project also consists of the resurfacing of the ODOT Lake County maintenance facility located at 10 Blackbrook Road in Painesville Township.

Existing Typical Sections

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

For further information in regard to the existing typical sections, the Contractor shall refer to the previous construction plans.

These plans may be reviewed at the following location:

Ohio Department of Transportation District 12 Office 5500 Transportation Boulevard Garfield Heights, Ohio 44125

Contingency Quantities

The Contractor shall not order materials or perform work for items designated by plan note to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

Interim Completion Dates

August 1, 2010 constitutes an interim completion date for the placement of the proposed rumble strips at the SR 2 EB exit to the Lloyd Road Connector.

September 15, 2010 constitutes an interim completion date for the placement of the proposed overlay at SR 2.

October 1, 2010 constitutes an interim completion date for all proposed work at ODOT Painesville Yard.

October 15, 2010 constitutes an interim completion date for placement of RPM's and final pavement markings at all locations.

The Department will assess road user costs in accordance with 108.07 of the Construction and Material Specifications for each day after these dates that interim requirements are not met for locations on SR 2.

Cooperation Between Contractors

The Contractor shall cooperate and coordinate his/her operations with the contractors on other projects that may be in force during the life of the contract. No waiver of any provisions of 105.07 of the Construction and Material Specifications is intended.

Right of Way

Perform all work within the existing right of way or easements.

Utilities

There are no underground utilities shown on this plan for proposed work on SR 2. The nature of the work required at these locations will not affect any known underground utilities that exist under or adjacent to the work area.

At Painesville Yard, contact OUPS and ODOT District 12 Facilities Manager Tom Vanek (216-584-2040) to locate existing buried services connections that may exist in the vicinity of proposed curb and sidewalk improvements.

Alignment and Profile

The proposed pavement resurfacing shall follow the alignment and profile of the existing pavement. The proposed asphalt concrete overlay shall be as shown on the typical sections. The intent of the plans is to maintain the existing profile.

Equipment and Material Storage

In order to provide for the safety of the traveling public the Contractor's attention is directed to 614.03. In addition the following provisions shall apply:

- Any removed items shall not be stored on the right of way for more than thirty
- The storage of equipment, materials, and vehicles within the highway right of way will be permitted. The number of areas and exact locations shall be approved by the Engineer.
- All disturbed areas shall be returned to their original condition at no expense to the state.

Work Limits

The work limits shown on these plans are for physical construction only. The installation and operation of all temporary traffic control and temporary traffic control devices required by these plans shall be provided by the Contractor whether inside or outside these work limits.

<u>Item 623 Construction Layout Stakes, As Per Plan</u>

Prior to the planing of pavement beneath all overhead structures, a licensed surveyor shall measure the vertical clearances and document the measurements on an approved Ohio Department of Transportation form available from the District Bridge Office. The measurements shall be taken at the locations indicated on the approved ODOT form and submitted to the Project Engineer. After new paving has been completed, a registered surveyor again shall take vertical clearance measurements at locations indicated on the approved ODOT form. These final measurements shall be recorded on the form and submitted to the Project Engineer and the District Bridge Engineer. The record shall bear the stamp or seal of the licensed surveyor who has taken the measurements and will verify that vertical clearances have been preserved.

See plan note "Pavement Markings" for additional requirements.

Item 407 Tack Coat Item 407 Tack Coat for Intermediate Course

The rate of application of the 407 Tack Coat shall be subject to adjustment as directed by the Engineer. Plan quantities indicate an average application rate of 0.10 gallons per square yard of tack coat and 0.05 gallons per square yard of tack coat for intermediate course.

Item 442 Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan

Use a minimum of 50% crushed air cooled slag or Ontario trap rock for coarse aggregate. The remainder of the coarse aggregate may be crushed carbonate stone, crushed air cooled slag or Ontario trap rock.

When air cooled slag is used for a fraction of the coarse aggregate, use an N_{des} of 50, an N_{max} of 75, and provide a total asphalt binder content greater than or equal to 6.5%. These requirements do not apply if air cooled slag makes up 100% of the coarse aggregate.

In addition, construct joints subject to the requirement of the plan notes for "Sealing" Joints in Asphalt Concrete Surface Courses" and "Longitudinal Joints (Flexible Pavement)."

<u>Item 448 Asphalt Concrete Surface Course, Type 1, PG64-22, As Per Plan</u>

Use either crushed air cooled slag or crushed carbonate stone for coarse aggregate.

In addition, construct joints subject to the requirement of the plan notes for "Sealing" Joints in Asphalt Concrete Surface Courses" and "Longitudinal Joints (Flexible Pavement)."

Sealing Joints in Asphalt Surface Courses

In addition to the gutter sealing requirements specified on SCD BP-3.1 and in 401.15, after completion of the surface course but prior to placement of permanent pavement markings, seal the following locations with a certified PG binder:

- All transverse cold joints.
- All castings including but not limited to monuments, manholes, water valves, catch basins
- Butt joints and feather joints, including those at bridge approaches
- The foreword joint for driveway asphalt and trailing joint when butting to existing asphalt drive.

Seal at a width of 2 inches.

Longitudinal Joints (Flexible Pavement)

Locate longitudinal joints in the surface course subject to the following requirements:

- Place the mainline pavement surface course with a single cold longitudinal joint located at the crown of 2-lane sections. No other cold joints are permitted in the surface course of mainline pavement.
- Place the ramp surface course with a single cold longitudinal joint located near the middle of the ramp's total width.
- At speed change lanes at ramp merge and diverge areas: Place surface course on speed change areas within the same work day as adjacent mainline pavement.

Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan A

Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan B

Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only

Make MS concrete repairs after planing the existing overlay.

This item shall consist of replacing existing pavement in accordance with Item 255 and the notes below and details shown in the plans. Place additional concrete so that the repairs are flush with adjacent pavement.

Do not pave over MS concrete repairs until 24 hours after their placement.

To account for the variation in the thickness of the remaining asphalt overlay (after planing), the Department will pay for the additional material required above a standard 10" repair under the volumetric pay item for Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only.

Existing concrete pavement thickness may vary from that shown on the typical sections by plus or minus one inch. No adjustment in payment for this item shall be made providing that the average pavement thickness is within one half inch of the thickness shown on the typical sections. The Department will provide additional compensation for the material cost of concrete only when the average thickness exceeds the one half inch maximum tolerance above. If necessary, payment will be made under the volumetric pay item for Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only. The volume of additional concrete paid for shall be based upon the amount of concrete above the one half inch tolerance limit.

If, after removal of the rigid pavement the Engineer determines that the subbase or subgrade has failed or is pumping, he shall direct the Contractor to excavate the unsuitable material and replace it with compacted aggregate. Quantities of Item 203 Excavation and Item 304 Aggregate Base have been provided to repair failed subbase or subgrade areas.

At areas of 10" concrete base pavement, pavement repair less than or equal to 10" in length shall be paid for under "Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan A". Pavement repairs greater than 10' in length shall be paid for under "Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan B".

1810 Sq Yds

20 Cu Yds

Class MS, As Per Plan A	
Item 255 Full Depth Removal and Rigid Replacement,	<u>1980 Sq Yds</u>
Class MS, As Per Plan B	·
Item 255 Full Depth Removal and Rigid Replacement,	
Class MS, Misc.: Additional Material Only	<u>210 Cu Yds</u>
Item 255 Full Depth Pavement Sawing	10,200 Feet
Item 203 Excavation	20 Cu Yds

Item 251 Partial Depth Pavement Repair, As Per Plan A Item 251 Partial Depth Pavement Repair, As Per Plan B

Item 304 Aggregate Base

Item 255 Full Depth Removal and Rigid Replacement,

Use this item to repair unsound, cold-patch, or pop-out areas of longitudinal and transverse joints as directed by the Engineer. Perform repairs after the milling operation and prior to resurfacing. Make standard repairs at a depth of 3" and at a width of 12". Center the repair over the existing joint.

Longitudinal repairs are considered "As Per Plan A." Transverse repairs are considered "As Per Plan B."

When the Engineer determines that repairs must be made at an additional depth (for example, to reach into the top of base concrete) in order to reach sound base pavement, the additional removal and placement of material will be paid for under the volumetric pay item for Item 251 Partial Depth Pavement Repair, Misc.: Additional Material Only.

The following quantities have been carried to the general summary to be used to complete these items of work on SR 2:

Item 251 Partial Depth Pavement Repair, As Per Plan A 1970 Sq Yds Item 251 Partial Depth Pavement Repair, As Per Plan B 620 Sq Yds Item 251 Partial Depth Pavement Repair, Misc: Additional Material Only 150 Cu Yds

Pavement Repairs, Painesville Yard

Make repairs to Painesville Yard as directed by the Engineer. The following quantity has been carried to the general summary to be used to complete these items of work at Painesville Yard at 100% State Participation:

Item 251 Partial Depth Pavement Repair 250 Sq Yds

<u>Item 618 Rumble Strips (Asphalt Concrete)</u>

Once the surface course is complete, place rumble strips along mainline edges of pavement per the requirements of Standard Drawing BP-9.1. Do not place rumble strips along ramps.

The following estimated quantity is carried to the general summary to complete this item of work:

Item 618 Rumble Strips (Asphalt Concrete) 8.86 Miles

Item 604 Manhole Adjusted to Grade, As Per Plan Item 604 Catch Basin Adjusted to Grade, As Per Plan

Do not use adjustment devices.

Item Special Miscellaneous Metal

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor's responsibility to provide the castings of the required type, size and strength (heavy duty) for the particular structure in question. All materials must meet Item 604 of the Specifications and shall have the prior approval of the Engineer.

The Contractor is cautioned to use extreme care in the removal, storage and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor. The Contractor shall not order materials until authorized by the Engineer and if none are needed the item is to be nonperformed.

The following estimated quantity has been carried to the General Summary for use as directed by the Engineer.

Item Special Miscellaneous Metal 5000 Lbs

Item 209 Linear Grading, Method A

Upon completion of adjacent surface course, use Item 209 Linear Grading, Method A at all shoulders without barrier. Prepare and compact a subgrade to place Item 617 at a width of 2' and a thickness of 3". Restore positive drainage to the ditch. Establish a cross-slope of 0.042 (half inch per foot). Grade to a maximum width of 6' from the edge of shoulder to provide positive drainage away from the travel lanes. Remove and dispose of all material required to place Item 617 and restore the required cross-slope.

The following items are provided to improve existing graded shoulders after completion of the overlay.

em 209 Linear Grading, Method A	267 Stations
em 617 Compacted Aggregate	494 Cu Yds
em 617 Water	<u>5 MGal</u>

Paving Under Guardrail Item 209 Linear Grading, Method B Item 209 Linear Grading, Method C **Item 203 Borrow**

Item 203 Linear Grading, Method B: Use this item to prepare a subgrade to replace asphalt under guardrail where guardrail presently exists. Place Item 203 Borrow to make up the difference in grade between the bottom of existing asphalt under guardrail and plan line of the bottom of proposed asphalt under guardrail. This difference in grade is estimated at 2".

Item 203 Linear Grading, Method C: Use this item to prepare a subgrade to place asphalt under guardrail where currently guardrail does not exist.

Remove and dispose of existing material including asphalt under guardrail. Reshape and compact subgrade to ensure positive drainage. Establish a crossslope of 0.042 (half inch per foot). Grade to a maximum width of 6' to provide positive drainage away from the travel lanes. Remove and dispose of all material above the required cross-slope.

Connection Between Existing and Proposed Guardrail

When it is necessary to splice proposed guardrail to existing guardrail, only the existing guardrail shall be cut, drilled, or punched. The connection shall be made using a "W-Beam rail splice" as shown in AASHTO M 180. Payment shall be included in the contract price for the respective guardrail items.

Item 606, Guardrail, Misc.: Shim Plates

In addition to the requirements of plan details for constructing bridge terminal assemblies Type BR-1, furnish and install a set of 4 shim plates to allow the bearing plates to bear evenly on the back of concrete barrier transitions constructed without a uniform vertical face for the full height of the guardrail connection. Each plate will be paid for separately.

Furnish plates meeting the same material specifications as the BR-1 bearing plates, each having the dimension of 1" thick by 3" wide by 18" tall. Install a pair of shim plates together to make up the 2" required to fir out the bearing plate. Locate the shims in the two spaces between the innermost both holes on the top and bottom bearing plates for the guardrail connection.

Cut the top of the shim plates at all locations where they protrude above the top horizontal surface of the concrete transition so that no snag point protrudes above this surface.

This item shall consist of furnishing and installing either of the following guardrail end terminals, or an approved equal as listed on roadway engineering's web page at www.dot.state.oh.us/drrc/ under roadside safety devices for approved guardrail end treatments:

1. The ET-2000 (1997) manufactured by Trinity Industry, 1170 N. State Street, Girard, Ohio 44420 (Telephone: 330-545-4373).

The length of the ET-2000 (1997) system is considered to be 50'-0" [15.24 m], inclusive of two 25'-0" [7.62 m] long rail elements. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SS142	ET2000 Plus 50'-0" Plan, Elevation & Section 25'-0" Rail, Sleeve W/PL Posts 1-4	4/12/00	7/31/00
SS141	ET2000 Plus Plan, Elevation & Section 25'-0" Rail, HBA Posts 1-4	2/29/00	7/31/00
SS158	ET2000 Plus 50'-0" with 12'-6" Panels & HBA Posts 1-4 Plan, Elevation & Section	5/22/00	7/31/00
SS330	ET2000 Plus 50'-0" with 4 Foundation Tubes and 4 CRT Posts	3/28/06	3/29/06
SS373	ET2000 Plus 50'-0" with 7 SYT Posts and 1 HBA Post	6/20/09	1/20/09

2. The SKT-350 manufactured by Road Systems, Inc., 2516 Mallory Lane, Stow, Ohio, 44224, (Telephone: 330-346-0721).

The length of the SKT-350 system is considered to be 50'-0" [15.24 m], inclusive of four 12'-6" [3.81 m] long rail elements. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SKT-4M	Sequential Kinking Terminal (SKT-350) Assembly with 4 Foundation Tubes	12/11/97	3/6/98
SKT Hinged CRT	Sequential Kinking Terminal (SKT-350) 4 Posts are Steel Hinged and 5 Posts are CRT	4/30/06	5/23/06
SKT-SP	Sequential Kinking Terminal (SKT-350) A 7 Post Option Using Standard Steel Post	3/30/09	3/4/09

The face of the Type E Impact Head shall be covered with a sheet of Type G Reflective Sheeting, per CMS 730.19, approximately 18" x 18" [450 mm x 450 mm.], or 12" [30 mm] x 18" [450 mm] if applied to a rectangular ET-2000 "plus" extruder head.

Refer to the manufacturer's instruction regarding the installation of, and the grading around, the foundation tubes and ground strut. The top of any foundation tube should be less than 4-inches [100 mm] above the ground. The placement of the foundation tubes should be an appropriate depth below the level line in order to maintain the finished guardrail height of 27-3/4-inches [706 mm] from the edge of the shoulder.

On-site grading is required if the top of the foundation tubes or top of the ground strut does project more than 4-inches [100 mm] above the ground line.

Payment for the above work shall be made at the unit price bid for Item 606, Anchor Assembly, Type E, each, and shall include all labor, tools,

Equipment and materials necessary to construct a complete and functional anchor assembly system, including all related transitions, reflective sheeting, hardware, grading, embankment and excavation not separately specified, as required by the manufacturer.

Item 606 - Impact Attenuator, Type 1 (Unidirectional or Bidirectional)

This item shall consist of furnishing and installing any one of the following impact attenuators, or an approved equal as listed on roadway engineering's web page at www.dot.state.oh.us/drrc/ under roadside safety devices for approved impact attenuators:

1. The C-A-T manufactured by Trinity Industry, 1170 N. State Street, Girard, Ohio 44420 (Telephone: 330-545-4373).

The length of the C-A-T system is considered to be 31'-3" [9525 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SS245M	Crash-Cushion Attenuating Terminal Plan, Elevation & Sections for use as a Longitudinal Median Barrier Terminal or Crash Cushion Attenuator	4/10/97 Rev. 4	3/6/98
SS224M	C-A-T Transition to Median Barrier Guardrail Plan, Elevation & Sections	4/26/96	3/6/98
SS226M	C-A-T Transition to Vertical Wall or Pier Plan, Elevation & Sections	4/26/96	3/6/98

2. The Brakemaster manufactured by Energy Absorption Systems, Inc., One East Wacker Drive, Chicago, IL 60601 (Telephone: 312-467-6750).

The length of the Brakemaster system is considered to be 32'-8" [9957 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
92-00-01	Brakemaster General Assembly	3/6/97 Rev.	3/6/98
00.00.01	(Unidirectional System)	N 0.000.00	0/0/00
92-00-81	Brakemaster (Unidirectional) with Foundation Tubes	2/29/00	3/6/98
92-00-02	Brakemaster General Assembly (Bidirectional System)	4/12/00	3/6/98
92-00-82 Brakemaster (Bidirectional) with Foundation Tubes		5/22/00	3/6/98
92-02024	Anchor Assembly, Foundation Tube, 6 ½ Ft., BRS	12/11/97	3/6/98

3. The FLEAT-MT manufactured by Road Systems, Inc. (RSI), 3616 Old Howard County Airport Road, Big Springs, TX, 79720 (Telephone 915-263-2435) and available from RSI's list of approved distributors.

The length of the FLEAT-MT system is considered to be 37'-6" [11430 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specification as detailed on the following pre-approved shop drawings and the manufacturer's installation manual.

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
MEDFLT-W-US	Flared Energy Absorbing Terminal - FLEAT-MT Assembly for Wood Breakaway Post System	4/10/02 Rev. 5	1/6/03

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
MEDFLT-S-US	Flared Energy Absorbing Terminal -		
	FLEAT-MT Assembly for Steel	4/10/02	1/6/03
	Breakaway Post System	Rev. 6	

The face of the Type 1 Impact Head shall be covered with a sheet of Type G Reflective Sheeting, per CMS 730.19, approximately 36" x 12" [915 mm W x 305 mm H] (one 9" x 18" [225 mm W x 450 mm H for each FLEAT-MT Impact Head). Payment for the above work shall be made at the unit price bid for Item 606, Impact Attenuator, Type 1 [(unidirectional or bidirectional)], each, and shall include all labor, tools, equipment and materials necessary to construct a complete and functional impact attenuator system, including all related transitions, hardware, reflective sheeting and grading, not separately specified, as required by the manufacturer.

<u>Item 202 Guardrail Removed for Storage, As Per Plan</u> <u>Item 202 Removal, Misc.: Type E Anchor Assembly Removed for Storage</u>

The Engineer will identify existing guardrail panels in the best condition to be salvaged by the Department. Neatly stack and secure panels in manageable units. In addition, salvage all Type E anchor assemblies designated for removal within the project limits.

Deliver salvaged guardrail panels and assemblies to the following location:

Painesville Yard (ODOT District 12) 10 Blackbrook Road Rd, Painevsille Township, OH 44077

Make arrangements for the delivery of salvaged panels with Dave Paponetti, Lake County Manager, phone 216-584-2053. Provide a minimum of 7 days notice prior to delivering salvaged guardrail panels.

Type 5 Guardrail: Salvage 600 steel W-beam panels and 300 blockouts.

<u>Type E Anchor Assemby</u>: Salvage the following components: extruder, all panels, all posts, offset or straight strut between Posts #1 and #2, cable with hardware, and pipe soil sleeve for Post #1.

Dispose of all other components (posts, remaining blockouts, hardware, remaining assemblies, etc.) in accordance with the standard provisions for ordinary removals.

The Department will pay for removal of items designated for storage under Item 202 Guardrail Removed. The Department will pay for storage and delivery of salvaged materials under these items.

Basis of Payment. Payment is full compensation for all additional work (work beyond that required for standard removals) required to handle, store, organize, coordinate, and deliver items designated for storage.

Pavement Markings

Prior to any planing and paving operations, the contractor is responsible for conducting a field survey of the existing pavement markings. It is the intent of this plan to replace the pavement markings in the same location as the existing pavement markings. Any staking or marking required to establish control points to ensure that the new markings are accurately placed is the responsibility of the contractor. The engineer shall verify all permanent marking locations prior to the actual installation. The cost of this item shall be included in Item 623 Construction Layout Stakes, As Per Plan.

Entrance and exit markings shall be located and installed as per standard construction drawing TC-72.20. Plan details showing gore locations are approximate. The contractor shall be responsible to perform any measurements as needed to determine the location of the markings.

Auxiliary markings shall be located and installed as per standard construction drawing TC-71.10.

Item 621 RPM

Install RPM's for lane lines at a spacing of 80' center-to-center.

Item 620 Delineator

Replace delineators at mainline SR 2 and exit and entrance ramps. The removal and disposal quantity is 75% of the replacement quantity based on the fact that many existing delineators are damaged or missing.

Item 646 Lane Line, As Per Plan

The width of the lane lines shall be six inches (6"). Apply materials at the rates for 6" lines as required in 646.05. All other pavement markings shall be placed per C.M.S. 641.08.

<u>Item 614 Maintaining Traffic</u>

General and Notification Requirements

It is the responsibility of the Contractor to provide through vehicular access in both directions at all times throughout the project area. The project shall be constructed in phases in order to minimize traffic disruption and inconvenience to the general public. The Contractor shall be responsible for providing all equipment, materials and manpower needed to adequately maintain traffic as provided for in the plans and specifications.

The Contractor is reminded that, in the conduct of this project, the sequence of operations shall be planned in a fashion which minimizes the number of lane reductions and/or lane width reductions required to maintain traffic through the project.

Permitted lane closures shall be as shown on the "Schedule of Through Lanes to be Maintained" table. The time limits shown in this table shall be adhered to or road user costs will be assessed.

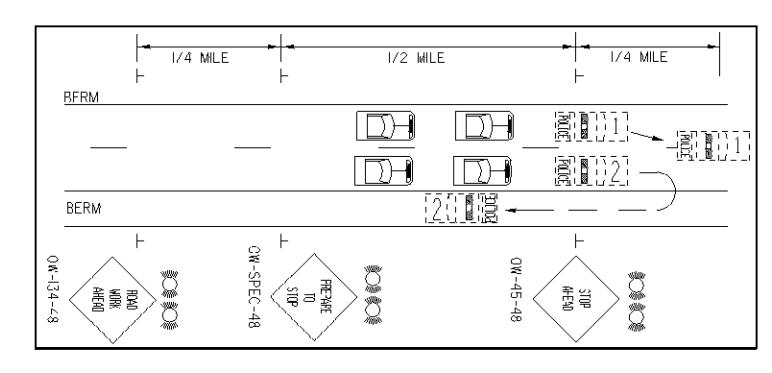
Since functional traffic control is a major concern on this project, it is essential that the motoring public be adequately informed of lane closures and traffic constrictions. Submit a written schedule to the Engineer, responsible law enforcement agencies, and the ODOT Public Information Office (216-584-2007) indicating the locations and dates of the lane closures at least 3 days prior to the implementation of closures or restrictions. Additionally, provide notice to the following individuals:

- Dave Paponetti, ODOT Lake Co. Manager, 216-584-2053
- Bruce Landeg, Lake County Engineer, 440-350-2770 (for Lloyd Road Connector ramp rumble strips, provide 7 days' notice)

Maintaining Traffic—General Provisions

- 1. Traffic shall be maintained in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement.
- 2. Nighttime work shall be permitted in accordance with these plans and notes. The Contractor shall provide flood lighting of the work area in order to assure the safest conditions during nighttime work. A lighting plan for nighttime operations shall be presented to and approved by the Engineer.
- 3. The Contractor shall furnish, erect and maintain all new warning and information signs necessary for maintaining traffic. The Contractor shall determine what signs are needed and advise the Engineer two (2) weeks in advance of his detailed plans. See the OMUTCD and standard drawings for the minimum signage required.
- 4. Traffic control devices shall be set up prior to the start of construction, and shall be properly maintained during the time special conditions exist. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the condition present during stage in progress. All signs with messages which do not apply during a certain period shall be covered or set aside out of the view of traffic.
- 5. Placement of final roadway pavement markings and raised pavement markers shall be accomplished in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall provide 2 trailing vehicles as per MT-99.20M following the pavement marking equipment. The trailing vehicles shall travel 500' apart with the remote vehicle traveling on the shoulder (left or right as applicable) where usable shoulder is available. The first trail vehicle in a traffic lane shall be equipped with a truck mounted attenuator meeting NCHRP 350 requirements. Each trailing vehicle shall have a yellow flashing beacon plus 48" construction warning signs mounted

- on the back facing traffic with standard type messages advising motorists of the work ahead, advisory warning speed, and which lane is closed.
- 6. During non-working periods, open excavations shall be delineated with warning flashers and/or other approved devices as deemed appropriate by the Engineer.
- 7. Existing signs located within the road work areas which are necessary for interim or permanent traffic control shall be removed and re-erected in locations as approved by the Engineer.
- 8. No stoppage of traffic shall occur without law enforcement personnel at each location to direct traffic.
- 9. Any time traffic must be completely stopped on a freeway or interstate, it shall be as follows. The complete traffic stoppage of all lanes of any directional roadway shall be no more than 10 minutes in any one consecutive 30 minute period. A minimum of two (2) law enforcement officers (LEO's) with patrol vehicles shall be used to pace motorists to a stop. One LEO with patrol car should be provided for each lane of traffic to be closed. Payment for LEO's shall be incidental to Item 614 Maintaining Traffic, unless itemized separately elsewhere in the plans. After traffic has been slowed, one (1) patrol vehicle shall travel along the roadway shoulder 500' behind the back up of stopped vehicles. Where stoppage occurs in the vicinity of freeway entrances, the Contractor shall place flaggers on the ramps to stop traffic. Patrol vehicles shall have flashing beacons. To provide adequate visibility to approaching motorists, the Contractor shall erect and maintain "Road Work Ahead", "Prepare to Stop", and "Stop Ahead" signs with two flashing 12" traffic signal heads in accordance with 632.05. Flares may be substituted for flashing lights and sign illumination. These signs shall be illuminated during night operations and shall be 48" by 48" signs. Stopping traffic shall be done when the greatest numbers of lanes are permitted to be closed according to the Schedule of Through Lanes To Be Maintained. A portable changeable message sign shall be placed 1.5 miles to 2 miles in advance of the closure. Patrol vehicles and signs shall be located in accordance with the sketch below.



- 10. Whenever a total closure is implemented, the Contractor shall provide a portable changeable message sign, type from ODOT's pre-approved list. It shall be placed 1.5 miles to 2 miles in advance of the closure or as directed by the Engineer.
- 11. Complete stoppages of highway traffic shall be used when removing or placing overhead box trusses.
- 12. For any operation not specifically mentioned in these plans, the traffic shall be maintained in accordance with the OMUTCD.
- 13. All labor, materials, equipment and any incidentals required to complete the work as described above shall be included in the lump sum bid for Item 614 Maintaining Traffic.

Suspension of Work

If the Contractor fails to comply with the provisions for traffic control as set forth in these plans or with provisions of the OMUTCD, the Engineer shall suspend work until the Contractor complies with the necessary requirements.

Schedule of Through Lanes to Be Maintained

SR-2 Eastbound			
Section	Permitted La	ne Reductions	
Section	One Lane Closed	Two Lanes Closed	
SR 283 to US 20 ¹	<u>Weekday</u> 9 AM to 2 PM 7 PM to 7 AM <u>Weekend</u> 7 PM Fri to 7 AM Mon	<u>Weekday</u> N/A <u>Weekend</u> N/A	

	SR 2 Westbound	
Section	Permitted La	ne Reductions
Section	One Lane Closed	Two Lanes Closed
US 20 to SR 283 ¹	<u>Weekday</u> 9 AM to 2 PM 6 PM to 6 AM <u>Weekend</u> 6 PM Fri to 6 AM Mon	<u>Weekdav</u> N/A <u>Weekend</u> N/A

	SR 2 Ramps	
	Permitted Ramp Clos	sures, Lane Reductions
Ramps	Overnight Closures with Detour	Partial Width Closure for Repair and Paving (Maintain a minimum 1 11' lane.)
US 20 EB Exit	Not Permitted; No Detour Route Readily Nearby	<u>Weekday</u> 8 PM to 6 AM <u>Weekend</u> 8 PM to 8 AM
Lloyd Road Connector, SR 283, SR 535	<u>Weekday</u> 8 PM to 6 AM <u>Weekend</u> 9 PM Fri to 9 AM Sat 8 PM Sat to 11 AM Sun 8 PM Sun to 6 AM Mon	<u>Weekday</u> 7 PM to 6 AM <u>Weekend</u> 8 PM Fri to 9 AM Sat 8 PM Sat to 11 AM Sun 8 PM Sun to 6 AM Mon

One lane may remain closed continuously for up to 21 calendar days after planing until placement of intermediate course. During this period, trucks are not permitted to enter or exit the work zone on weekdays between 6 AM to 9 AM or 3 PM and 6

Overnight Ramp Closures

The Contractor may close one ramp at a time for proposed work at interchanges with local roads. Restrict closures to the hours shown in the "Schedule of thru Lanes to Be Maintained." Provide notice to ramp traffic at least 72 hours in advance through the use of either a ground mounted flat sheet sign or a portable changeable message sign. Provide an LEO with patrol car for each ramp closure to remain present for the duration of the closure.

Close ramps using a portable changeable message sign (PCMS) routing traffic to the next logical entrance or exit. Provide a second PCMS at that location to confirm the detour and to provide the information necessary to return motorists to their original direction of travel.

Do not close more than one ramp at a time within the project limits.

Although the plans contain bid items for LEO's and PCMS, their use for the overnight closure of ramps is considered incidental to Item 614 Maintaining Traffic in order to limit the frequency of closures to the minimum needed to perform the work.

Maintenance of Traffic Control Zones

The Contractor shall be responsible to maintain the signs, drums and temporary pavement markings at the locations detailed in the plans or specified in the standard drawings. When the Contractor is notified of deficiencies he shall correct the deficiencies as soon as possible, preferably within 12 hours and no later than 24 hours. If any noted deficiencies are not corrected within 24 hours the Engineer shall deduct one day pay for Item 614 Maintaining Traffic, not as a penalty but as road user costs. The Contractor shall be subject to these road user costs for each and every day that these provisions are not met. All costs for maintaining the work zones as described above shall be included under Item 614 Maintaining Traffic.

Shoulder Closures

Do not close shoulders except during the times permitted in the Schedule for a one lane closure.

Construction Traffic

All construction traffic shall use acceptable truck routes to access the construction area. Use of local residential streets is strictly prohibited unless allowed in writing by the local enforcement authority.

Signage

Advance warning sign groups as per standard drawings MT-95.30, MT-98.12, MT-98.13, MT-98.14, MT-98.15, MT-98.16, MT-98.17, and MT-98.18 shall be installed. Payment for these signs shall be under Item 614 Maintaining Traffic.

Contractor's Equipment-Operation and Storage

Vehicles and equipment must always move with, and not across or against the flow of traffic. Vehicles and other equipment must not park or stop except within designated work areas; and must not enter and leave work areas in a manner which will be hazardous to, or interfere with the normal traffic flow. Personal vehicles are not be permitted to park within the right-of-way except in specific areas designated by the Engineer.

Do not store or park equipment, vehicles and materials within 35' of the traveled way unless located 6' feet behind barrier and protected with at least a 150' length of approaching barrier.

All work vehicles and equipment entering the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night

Item 614 Law Enforcement Officer with Patrol Car for Assistance

Use of law enforcement officers (LEOS) by Contractors other than the uses specified below will not be permitted at project cost. LEOS should not be used where the OMUTCD intends that flaggers be used.

In addition to the requirements of CMS 614 and the OMUTCD, provide a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) for the following traffic control tasks:

- 1. During the advance preparation and closure sequence when a complete blockage of traffic is required.
- 2. For the first night of mainline overlay removal in each direction.
- 3. For full-depth repairs at mainline pavement when repairing the lane immediately adjacent to traffic during night time hours.

LEOS should not forgo their traffic control responsibilities to apprehend motorists for routine traffic violations. However, if a motorist's actions are considered to be reckless, then pursuit of the motorist is appropriate.

The LEOS work at the direction of the Contractor. The Contractor is responsible for securing the services of the LEOS with the appropriate agencies and communicating the intentions of the plans with respect to duties of the LEOS. The Engineer shall have final control over the LEOS' duties and placement, and will resolve any issues that may arise between the two parties.

The LEO shall report in to the Contractor prior to the start of the shift, in order to receive instructions regarding specific work assignments during his/her shift. The LEO is expected to stay at the project site for the entire duration of his/her shift. The LEO shall report to the Contractor at the end of his/her shift. Once the LEO has completed the duties described above and still has time remaining on his/her shift, the LEO may be asked to patrol through the work zone (with flashing lights off) or be placed at a location to deter motorists from speeding. Should it be necessary to leave the project site, the LEO shall notify the Engineer. The Contractor shall provide the LEO with a two-way communication device which shall be returned to the Contractor at the end of his/her shift.

LEOS (with patrol car) required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614 Law Enforcement Officer with Patrol Car for Assistance.

The hours paid shall include any minimum show-up time required by the law enforcement agency involved.

Any additional costs (administrative or otherwise) incurred by the Contractor to obtain the services of an LEO are included with the bid unit price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

<u>Item 614 Maintaing Traffic (Planing Requirements)</u>

Do not exceed 21 calendar days between the removal of the existing asphalt overlay and placement the first lift of the intermediate course. This requirement is imposed to limit the potential degradation of the existing concrete base to a minimum. In the event that the time between planing and paving exceeds 21 calendar days, road user costs as per 108.07 of the construction and material specifications manual shall be assessed. This requirement applies to both mainline and ramps alike.

Maintaining Traffic and Sequence of Operations

Conduct all asphalt concrete operations in a manner assuring minimum danger and inconvenience to the highway users. Perform all work at the times provided in the "Schedule of Through Lanes to be Maintained." Schedule removal and paving operations such that traffic is not permitted to travel across a vertical drop greater than 11/2".

- A. Longitudinal Joints for Removals and All Asphalt Courses Greater Than 11/2"
 - For removal of existing overlays, plane a wedge transition into the existing asphalt at a rate of 6:1 where the pavement must be re-opened to traffic to meet MOT requirements. The planing and subsequent removal of wedge transitions is incidental to the item for planing adjacent pavement at a uniform thickness. A wedge is required at pavement and shoulders alike. No vertical drop-offs are permitted.

B. Transverse Joints

- For removal of existing overlays, plane a transition into the existing overlay at the rate indicated in the plan details for asphalt transitions. The planing of the required transition is incidental to the item for planing adjacent pavement at a uniform thickness.
- Prior to paving with intermediate courses, remove planed transitions (in existing asphalt) to a vertical butt joint at the paving limits. This removal is itemized and paid for separately under Item 254 Pavement Planing, Asphalt Concrete (for Transitions). Prior to re-opening the joint to traffic, wedge the remaining lip (for the surface course) with Item 614 Asphalt for Maintaining Traffic, As Per Plan A. Ramp joints at a rate of 1" in 10'.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, provide W8-11-48 signs (dual sign installation). Place signs as directed by the Engineer, incidental to Item 614 Maintaining Traffic.

Worksite Traffic Supervisor

Subject to approval of the Engineer, the Contractor shall employ and identify (someone other than the superintendent) a certified Worksite Traffic Supervisor (WTS) before starting work in the field. The WTS may be certified from one of the following organizations:

- 1. American Traffic Safety Service Association (ATSSA), Phone: 1-800-272-8772, certified Traffic Control Supervisor (TCS).
- 2. National Highway Institute, Design and Operation of Work Zone Traffic Control, Phone: 1-703-235-0528.
- 3. The Ohio Contractors Association, Traffic Control Supervisor (OCA/TCS) Work Zone Class, only if taken after May 5, 2004, Phone: 1-614-599-7915.
- 4. Ohio Laborers Training, Traffic Control Supervisors Class, Phone: 1-740-

A copy of each WTSS certification and 24-hour contact information shall be provided to the engineer at the preconstruction conference. If the designated WTS will not be available full time (24/7) the contractor may designate an alternate WTS to be available when the primary is off duty. Each WTS shall have a current WTS certification (with an expiration date no more than 5 years from the date of issue) from any of the approved organizations.

The WTS position has the responsibility of monitoring traffic control deficiencies for the entire work zone. The duties of the WTS are as follows:

- Be available on a 24-hour per day basis, and be able to be on site for all emergency traffic control needs within one hour of notification by police or project staff and be prepared to effect corrective measures immediately on existing work zone traffic control devices.
- 2. Attend preconstruction meeting and all project meetings where traffic control management is discussed.

- 3. Be available for meetings or discussions with the Engineer upon request or within 36 hours.
- 4. Be aware of, and coordinate if necessary, all traffic control operations, including those of subcontractors and suppliers.
- 5. Coordinate project activities with all Law Enforcement Officers (LEOS). A WTS shall also be the main contact person with the LEOS while they are on the project.
- 6. Coordinate meetings with ODOT personnel, LEOS and other applicable entities before each plan phase switch to discuss work zone traffic control.
- 7. Ensure compliance with the contract documents for signs, barricades, temporary concrete barrier, pavement markings, portable message signs, and other traffic control devices on a daily basis; and facilitate any corrective action necessary.
- 8. Notify the Contractor of the need for cleaning and maintenance of all traffic control devices, including the covering and removal of inapplicable signs.
- 9. Inspect, evaluate, propose necessary modifications to, and document the effectiveness of, the traffic control devices and/or traffic operations on a daily basis (7 days a week). In addition, a weekly night inspection of the work zone setup for daytime work operations; and one daytime inspection per week for nighttime projects. This shall include (but not be limited to) documentation on the following project events:
 - Initial traffic control setup (day and night review).
 - Daily traffic control setup and removal.
 - When construction staging causes a change in the traffic control setup.
 - Crash occurrences within the construction area.
 - Removal of traffic control devices at the end of a phase or project.
 - All other emergency traffic control needs.
- 10. Complete the Department approved long term inspection form (CA-D-8) after each inspection as required in # 9 and submit it to the engineer the following work day. These reports shall include a checklist of all traffic control maintenance items to be reviewed. A copy of the form will be provided at the pre-construction meeting. Any deficiencies observed shall be noted, along with recommended corrective actions and the dates by which such corrections were, or will be, completed. A copy of this document can be found in the department of transportation construction inspection forms manual dated 10/15/06 or current revision.
- 11. Verify that all flagging operations are being conducted per The Ohio Manual of Uniform Traffic Control Devices.
- 12. Have copies of the ODOT Temporary Traffic Control Manual and applicable standards and specifications included in the contract documents available at all times on the project.

The Department will not pay the unit price bid for the WTS for any day on which the contractor fails to perform the duties set forth above. Should the Contractor's failure to perform any of the duties described above result in a maintenance of traffic safety issue, the department will deduct the prorated daily amount for Item 614 Mainting Traffic from the Contractor's next scheduled estimate.

If three or more failures to perform the duties set forth above occur, the WTS shall be immediately removed from the work in accordance with C&MS 108.05.

<u>Item 614 Portable Changeable Message Sign, As Per Plan</u>

Furnish, install, maintain and remove, when no longer needed, a changeable message sign, on site, for the duration of the project. The sign shall be of a type shown on a list of approved PCMS units maintained by the Director (Office of

Materials Management). This list is available on the ODOT website at http://www.dot.state.oh.us/testlab/applists/misc/pcms.htm. Furnish only units with a legibility distance in excess of 1250'.

Furnish a PCMS that is trailer-mounted and equipped with a functional dimming mechanism, to dim the sign during darkness, and a tamper and vandal proof enclosure. Each sign shall be provided with appropriate training and operation instructions to enable on-site personnel to operate and troubleshoot the unit. The sign shall also be capable of being powered by an electrical service drop from a local utility company. PCMS trailers should be delineated on a permanent basis by affixing retroreflective material, in a continuous line on the face of the trailer as seen by oncoming road users.

Placement, operation, maintenance and all activation of the signs by the Contractor shall be as directed by the Engineer. The PCMS shall be located in a highly visible position yet protected from traffic. The Contractor shall, at the direction of the Engineer, relocate the PCMS to improve visibility or accommodate changed conditions. When not in use, the PCMS shall be turned off. Additionally, when not in use for extended periods of time, the PCMS shall be turned, facing away from all traffic, and shall display one or more high-intensity yellow reflective sheeting surfaces of 9-inch by 15-inch minimum size facing traffic.

The Engineer shall be provided access to each sign unit and shall be provided with appropriate training and operation instructions to enable ODOT personnel to operate and troubleshoot the unit, and to revise sign messages, if necessary.

All messages to be displayed on the sign will be provided by the Engineer. A list of all required pre-programmed messages will be given to the Contractor at the project preconstruction conference. The sign shall have the capability to store up to 99 messages. Message memory or pre-programmed displays shall not be lost as a result of power failures to the on-board computer. The sign legend shall be capable of being changed in the field. Three-line presentation formats with up to six message phases shall be supported. PCMS format shall permit the complete message for each phase to be read at least once.

The PCMS shall contain an accurate clock and programming logic which will allow the sign to be activated, deactivated or messages changed automatically at different times of the day for different days of the week.

The PCMS unit shall be maintained in good working order by the Contractor in accordance with the provisions of CMS 614.07. The Contractor shall, prior to activating the unit, make arrangements, with an authorized service agent for the PCMS, to assure prompt service in the event of failure. Any failure shall not result in the sign being out of service for more than 12 hours, including weekends. Failure to comply may result in an order to stop work and open all traffic lanes and/or in the Department taking appropriate action to safely control traffic. The entire cost to control traffic, accrued by the Department due to the Contractor's noncompliance, will be deducted from moneys due, or to become due the Contractor on his contract.

The Contractor shall be responsible for 24-hour-per-day operation and maintenance of these signs on the project for the duration of the phases when the plan requires their use.

At the direction of the Engineer, the PCMS may be removed for periods or times when not in use. No payment will be made for these times (ex. winter months).

Payment for the above described item shall be at the contract unit price. Payment shall include all labor, materials, equipment, fuels, lubricating oils, software, hardware and incidentals to perform the above described work.

Payment for the new drums shall be included in the lump sum contract price for Item 614 Maintaining Traffic, and shall include the cost of removing and disposing of the damaged drum, and providing and maintaining the replacement drum in accordance with the contract requirements for the original drum.

Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan A

Use this item to provide temporary asphalt ramps for transverse joints butting into existing pavement, after placing intermediate course but before placing surface course. Place temporary ramps at the rate of 1" per 10'. Remove temporary asphalt ramps as part of this item.

<u>Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan B</u>

Use this item as directed by the Engineer to patch existing planed surfaces which deteriorate under traffic. The Contractor has the option whether to remove this material, incidental to this item, provided it does not interfere with the placement of subsequent courses of pavement.

<u>Item 614 Work Zone Lane Line, Class I, As Per Plan</u>

Apply temporary lane line markings at a width of 6".

Permanent Pavement Markings

After placing the surface course, the Contractor may place permanent pavement markings at locations shown in the typical sections and the traffic control sheets instead of placing work zone pavement markings, which shall be non-performed at these locations.

Application for Use of Weighted Channelizer (Grabber Cone)

The weighted channelizer may be used on this project as described below:

The weighted channelizer shall be predominantly orange in color and shall be made of a lightweight, flexible, and deformable material. They shall be at least 42 inches in height with a weighted base. They may have a "handle" or lifting device which extends above the 42" minimum height.

The markings on the weighted channelizer shall be horizontal, circumferential, alternating orange and white retroreflective stripes 6 inches wide. Each weighted channelizer shall have a minimum of two orange and two white stripes. Any nonretroreflective spaces between the horizontal orange and white stripes shall not exceed 2 inches wide. The weighted channelizer shall have a 4 inch minimum width, regardless of orientation.

Use of weighted channelizers on ODOT-maintained highways shall be as follows:

• For short-term work zones on SR 2 mainline and ramps.

Use of weighted channelizers on freeways and multilane highways shall be limited to short-term operation, generally twelve hours or less, for either day or night. Upon completion of work within the above noted time period, the weighted channelizers shall be removed. The weighted channelizers may again be placed on the highway when the work is to resume on the following day or night. Any lane closure using channelization devices, expected to remain for more than twelve hours, shall require the use of drums or barriers.

When used at night weighted channelizers shall only be placed in the "tangent area". The "tangent area" is defined as the area after the transition taper where the work takes place. Drums shall be used in the transition tapers for night operations. Maximum spacing of the weighted channelizers shall be 40 feet.

Steps should be taken to ensure that the weighted channelizers will not be blown over or displaced by wind or moving traffic. Ballasts should not present a hazard if the weighted channelizers are inadvertently struck, nor should they affect the visibility of the weighted channelizers. All ballasts used should be in accordance with the manufacturer's specifications.

Project Progress Meetings

Progress Meetings will be held every four (4) weeks at the project office, or other location designated by the Construction Engineer and attended by ODOT and Contractor decision-making personnel.

The purpose of these meetings will be to discuss critical operations and potential problems. The Contractor will confirm the number and duration of work shifts, number of work crews, and specific portions of the work to be performed during the following weeks.

The meetings can only be waived by the Construction Engineer.

Road User Costs-Short Term Lane Closures

Short term lane closures are those which are permitted by the "Schedule of Through Lanes to Be Maintained" table. These times shall not be revised without prior approval from the District 12 Work Zone Traffic Control Engineer. Short term road user costs shall also be assessed when a ramp closure is violated. If short term lane closures are in place outside the specified times, road user costs in the amount of \$50.00 per minute shall be assessed to the Contractor for each minute the lane remains closed.

Short term lane closures shall only be implemented when work is being continuously performed. The closure shall be removed as soon as possible after work has stopped.

Holiday Closures

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events: Easter, Memorial Day, Fourth of July, and Labor Day.

The period of time that the lanes are to be open depends on the day of the week on which the holiday or event falls. The following schedule shall be used to determine this period:

Times All Lanes Must Be Open <u>Day</u> 12 noon Friday Through 6 AM Monday Sunday 12 noon Friday Through 6 AM Tuesday Monday 12 noon Monday Through 6 AM Wednesday Tuesday 12 noon Tuesday Through 6 AM Thursday Wednesday Thursday Friday Saturday

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry-wide, or for labor strikes, unless such strikes are areawide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed road user costs in accordance with CMS 108.07.

<u>Item 614 Maintaining Traffic (Alternate Methods)</u>

If the Contractor so elects, he may submit detailed traffic control plans including written descriptions of the alternate methods for the maintenance of traffic, provided the intent of the provisions herein is followed without subsequent additional inconvenience to the traveling public. No alternate plan shall be placed into effect until prior approval has been granted in writing, by the Director.

Public Safety

The following provisions "A", "B", "C" and "D" apply when the lane adjacent to the guardrail is open to traffic. Limit the period of time that a hazard is left

unprotected by the removal of guardrail to an absolute minimum. If, after one day, the entire run of guardrail construction is not complete, meet the following requirements:

- A. In areas where existing guardrail has been removed or the guardrail is in a partial stage of completion, provide and maintain Type II barricades with Type C (steady burning) warning lights within the limits of the unprotected area. Place the barricades at 50' intervals offset at least 2' from the edge of the traveled roadway and in close proximity to the construction. Fasten the approach end of a partially completed run of guardrail to a steel drum at ground level.
- B. If the existing guardrail is for the protection of fixed hazard (such as a sign support or bridge parapet), erect portable concrete barrier in the direction of traffic no closer than 2' from the edge line of the adjacent lane. The requirements of paragraph "A" apply to the remaining guardrail within the run. Flare temporary barrier at a 17:1 (minimum) taper rate to the outer edge of the paved shoulder. Provide a work zone impact attenuator. The use of tapered ends or extension of PCB outside the clear zone or behind adjacent guardrail is not permitted.
- C. The requirements stated in "A" apply for a period not to exceed one week. Where the rebuilding or construction of any run of guardrail cannot be accomplished within one week, provide and maintain temporary concrete barrier as detailed in "B". In addition, provide a Type II barricade with Type B (high intensity flasher) warning light in front of the first section of temporary barrier to warn approaching traffic.
- D. Temporary concrete barrier is not required to separate opposing traffic when the median barrier is removed provided that both median lanes remain closed until the new median barrier is in place. For hazards within this zone, the requirements of provisions "A", "B", and "C" still apply.

The term "guardrail" is understood to cover all types of existing or proposed barrier, including standard guardrail, barrier design guardrail, bridge parapet, and concrete barrier.

The cost of complying with these safety procedures shall be included in the lump sum bid price for Item 614 Maintaining Traffic.

Covering of Ground-Mounted Signs--General

When required by other items or incidentally to Item 614 Maintaining Traffic, cover existing ground-mounted signs with plywood or OSB blanks (1/2" minimum thickness) covering 80% of the sign area and all of the sign legend. The use of low quality materials such as duct tape and black plastic is not permitted.

Night Vest

All of the Contractor's and sub-contractor's personnel working during the hours of darkness shall wear a 100% silver reflective safety vest or ANSI Class 2 vest. The safety vest shall be provided by the Contractor. The vest may have several lime or orange stripes on it.

<u>Item 614 Maintaining Traffic (Replacement Drums)</u>

Drums furnished by the Contractor in accordance with the requirements of the plans, specifications and proposal which become damaged by traffic for reasons beyond the control of the Contractor shall be replaced in kind when ordered by the Engineer. Replacement drums shall be new.

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<u>Item 614 Work Zone Increased Penalties Sign (R11-H5a)</u>

R11-H5a-48 signs shall be furnished, erected, and maintained in good condition and/or replaced as necessary and subsequently removed by the Contractor. Signs shall be mounted at the appropriate offsets and elevations as prescribed by the Ohio Manual of Uniform Traffic Control Devices. They shall be maintained on supports meeting current safety criteria.

Uncover or place Work Increased Penalties signs once the pavement surface is under construction for overlay removal, pavement repair, and placement of intermediate and surface courses. Uncover or place Increased Penalties signs no more than four hours before the actual start of work. Do not cover signs when lanes are re-opened to traffic subject to the provisions of the "Schedule of Through Lanes To Be Maintained." Once implemented, the penalties will be increased for the duration of the project until all work requiring lane closures is complete.

Once the mainline surface course is complete in each direction, cover or remove Work Zone Speed Limit signs IMMEDIATELY.

The signs shall be dual mounted. The first sign shall be placed between the ROAD WORK AHEAD (W20-1) sign and the next sign in the sequence. Signs shall be erected on each entrance ramp and every 2 miles (3 kilometers) through the construction work limits.

The Contractor may use signs and supports in used, but good condition provided the signs meet current ODOT specifications. Sign faces shall be reflectorized with Type G sheeting complying with the requirements of CMS 730.19.

Work Zone Increased Penalties signs and supports will be measured as the number of sign installations, including the sign and necessary supports. If a sign and support combination is removed and re-erected at another location as directed by the Engineer, it shall be considered another unit.

Payment for accepted quantities, complete, in place will be made at the contract unit price. Payment shall be full compensation for all materials, labor, incidentals and equipment for furnishing, erecting, maintaining, covering during suspension of work, and removal of the sign and support.

<u>Item 614 Work Zone Speed Limit Sign</u>

Furnish, install, maintain, cover during suspension of work, and subsequently remove Work Zone Speed Limit (R2-1) (50 MPH Speed Limit) signs and supports within the work limits in accordance with the following requirements:

Place Work Zone Speed Limit signs immediately prior to begin pavement repairs operations. Cover or remove signs immediately once the mainline overlay has been completed.

Do not leave Work Zone Speed Limit signs in place for any other item of work other than to place the surface course. Under no circumstances are signs to remain in place over the winter.

Consider opposing directions of interstate separately when placing or uncovering signs. Do not uncover or place Work Zone Speed Limit signs in areas where the repairs have not begun or where the surface course is complete.

Dual-mount Work Zone Speed Limit Signs on both sides of a directional roadway of divided highways. The first Work Zone Speed Limit sign shall be placed 500 feet (150 meters) in advance of the lane reduction or shift taper or at a point wherever construction begins, whichever comes first. On undivided highways the sign shall be mounted on the right side, 250 feet (75 meters) in advance of the taper. The sign shall be repeated, on the side nearest traffic, every 1 mile (1.6 kilometers) for 55 mph zones and every one-half mile (0.8 kilometers) for 50 mph and 45 mph zones. These signs shall also be erected immediately after each open entrance ramp within the zone.

Reduced Speed Ahead signs shall be erected in advance of the speed reduction, approximately 1300 feet (390 meters) on multi-lane highways and 500 feet (150 meters) on 2-lane highways.

Erect signs to indicate the resumption of the statutory speed limit at the end of any reduced Speed Zone. Use R2-1 (Speed Limit) signs on undivided roadways. Use R2-1 (Speed Limit) and R2-H2a signs on divided roadways. When used the R2-1 and R2-H2a mount signs side-by-side on separate supports. The Contractor may use signs and supports in used, but good, condition provided the signs meet current ODOT specifications. Sign faces shall be reflectorized with Type G sheeting complying with the requirements of CMS 730.19. Work Zone Speed Limit signs shall be mounted on two Item 630 Ground Mounted Supports, No. 3 posts. Work Zone Speed Limit signs and supports will be measured as the number of sign installations, including the signs and necessary supports. If a sign and support combination is removed and re-erected at another location within the project due to changes in the Speed Zone directed by the Engineer, it shall be considered another unit.

Locate speed zone signing at the following locations

SR 2 Eastbound:

Sta 750+00, Reduced Speed Ahead, 2 Signs Sta 776+00, Speed Limit 50 MPH, 2 Signs Sta 800+00, Speed Limit 50 MPH, 2 Signs Sta 825+00, Speed Limit 50 MPH, 2 Signs Sta 850+00, Speed Limit 50 MPH, 2 Signs Sta 875+00, Speed Limit 50 MPH, 2 Signs

SR 2 Westbound:

Sta 885+00, Speed Limit 50 MPH, 2 Signs Sta 850+00, Speed Limit 50 MPH, 2 Signs Sta 825+00, Speed Limit 50 MPH, 2 Signs Sta 800+00, Speed Limit 50 MPH, 2 Signs Sta 770+00, Speed Limit 60 MPH, 2 Signs

Payment for accepted quantities, complete in place, will be made at the contract unit price. Payment shall be full compensation for all materials, labor, incidentals and equipment for furnishing, erecting, maintaining, covering during suspension of work, and removing the signs and supports.

<u>Item 614 Maintaining Traffic – Surface Condition Signs</u>

Erect a "Grooved Pavement" sign (W8-H15) 250' in advance of any section of roadway where traffic must travel on a planed surface. Ensure these signs are in place before opening the roadway to traffic. Erect these signs on each entrance ramp and at intersections of through routes to warn traffic of this surface condition. Payment shall be made under the lump sum for Item 614 Maintaining Traffic.

Subsummary of Quantities for Maintenance of Traffic

The following quantities are carried to the general summary to complete these items of work.

Item 614 Work Zone Lane Line, Class I, As Per Plan Item 614 Work Zone Edge Line, Class I Item 614 Work Zone Channelizing Line, Class I Item 614 Work Zone Stop Line, Class I	<u>12 Miles</u> <u>30 Miles</u> <u>1900 Feet</u> <u>160 Feet</u>
Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan A Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan B	<u>25 Cu Yds</u> <u>25 Cu Yds</u>
Item 614 Law Enforcement Officer with Patrol Car for Assistance	80 Hours
Item 614 Work Zone Increased Penalties Sign Item 614 Work Zone Speed Limit Sign	<u>9 Each</u> 22 Each
Item 614 Portable Changeable Message Sign, As Per Plan Item 614 Worksite Traffic Supervisor	<u>360 Days</u> <u>8 Months</u>

	<u> </u>							254	407	442	407	442			202	254		Ę
REF.	SHEET	TO STATION	H L 5 N	WIDTH	G WIDTH	GE WIDTH	REA	ning Asphalt te, 2″	Coat	"Asphalt Concrete termediate Course, 9mm, Type A (446)	Coat for diate Course	Concrete se, 12.5mm, As Per Plan			rse Removed	ning, Asphalt Transitions)		CALCULATE
NO.	NO.		LEN	BEGIN	ENDIN	AVERA	◀	Pavement Pla	Tack	2" Asphal Intermedic 19mm, Ty ₁	Tack C Intermedi	1.5" Asphalt Surface Cours Type A (446),			Wearing Cou	Pavement Plar Concrete (for		
			Feet	Feet	Feet	Feet	Sq Yd	Sq Yd	Gallon	Cu Yd	Gallon	Cu Yd			Sq Yd	Sq Yd		
	SR-2 Eastbound																	
	774+80.58	775+91.80	111.22	34.00	38.00	36.00	445	445	44	25	22	19				420		
	775+91.80	779+26.80	335.00	38.00	38.00	38.00	1,414	1,414	141	79	71	59				720	Station Equation	
	779+24.64	810+85.72	3161.08	38.00	38.00	38.00	13,347	13,347	1,335	741	667	556			830	635	WCR under Mantle, RR	
	810+85.72	811+85.72	100.00	38.00	48.00	43.00	478	478	48	27	24	20						
	811+85.72	812+29.40	43.68	48.00	48.00	48.00	233	233	23	13	12	10					Station Equation	
	812+30.15	813+17.46	87.31	48.00	48.00	48.00	466	466	47	26	23	19				FOF		
	812+29.40 Suspend Bridge LAK-2-1731	814+08.71	179.31	48.00	44.00	46.00	916	916	92	51	40	38				595		
	814+40.41	816+55.71	215.30	44.00	66.80	55.40	1,325	1,325	133	74	66	55		1		631		
	816+55.71	850+71.60	3415.89	38.00	38.00	38.00	14,423	14,423	1,442	801	721	601			518	840	WCR under SR 535	
	Suspend Bridge LAK-2-1801																	
	852+36.12	891+00.00	3863.88	38.00	38.00	38.00	16,314	16,314	1,631	906	816	680			822	844	WCR under US 20	
	891+00.00	892+00.00	100.00	38.00	40.00	39.00	433	433	43	24	22	18						
	892+00.00	893+20.51	120.51	40.00	33.00	36.50	489	489	49	27	24	20				190		
	<u>SR-2 Westbound</u>																	
	888+33.85	887+33.99	99.86	40.00	38.00	39.00	433	433	43	24	22	18				222		
	887+33.99	852+99.66	3434.33	38.00	38.00	38.00	14,501	14,501	1,450	806	725	604				523		
	Suspend Bridge LAK-2-1801																	
	851+37.30	821+94.07	2943.23	38.00	38.00	38.00	12,427	12,427	1,243	690	621	518			919	793	WCR under SR 535 inc Ramp	
	821+94.07	820+25.75	168.32	66.48	63.00	64.74 54.87	1,211	1,211	121 317	67	61 159	50 132				273		
	820+25.75 815+05.37	815+05.37 814+12.43	520.38 92.94	63.00 46.74	46.74 38.29	42.52	3,173 439	3,173 439	44	176 24	22	132				552		
	Suspend Bridge LAK-2-1731		32.31	10.11	30.23	72.02	133	133	77	27	22	10				002		
	813+80.63	812+30.15	150.48	38.29	38.00	38.15	638	638	64	35	32	27				492	Station Equation	
	812+29.40	779+24.64	3304.76	38.00	38.00	38.00	13,953	13,953	1,395	775	698	581			398		Sta Eqn; WCR under RR	
	779+26.80	775+54.16	372.64	38.00	38.00	38.00	1,573	1,573	157	87	79	66				635		
	775+54.16	774+56.20	97.96	38.00	34.00	36.00	392	392	39	22	20	16				481		
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REF. NO.	SHEET NO.	STATION	TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTI	AVERAGE WIDT	AREA	avement Planing Asphal Concrete, 2″	Tack Coat	2" Asphalt Concrete Intermediate Course, 19mm, Type A (446)	Tack Coat for Intermediate Course	1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan		Wearing Course Removed	Pavement Planing, Asphalt Concrete (for Transitions)		
				Feet	Fee†	Feet	Feet	Sq Yd	Sq Yd	Gallon	Cu Yd	Gallon	Cu Yd		Sq Yd	Sq Yd		
		Ramp G-G and Spur																
		20+41.57 19+43.72	19+43.72 18+71.58	97.85 72.14	<i>30.00</i> <i>30.00</i>	30.00 27.00	30.00 28.50	326 228	326 228	33 23	18 13	16	14			403		
		18+71.58	11+91.91	679.67	27.00	24.33	25.67	1,938	1,938	194	108	97	81					
		20+40.99	18+71.58					367	367	37	20	18	15				CADD Area	
		<u>Ramp H-H</u> 24+90.65	24+43.69	46.96				331	331	33	18	17	14			346	CADD Area	
		24+43.69	22+93.64	150.05	0.00	33.00	16.50	275	275	28	15	14	11				STILL AT US	
		22+93.64	19+53.42	340.22	33.00	25.00	29.00	1,096	1,096	110	61	55	46					
		19+53.42	17+87.50	165.92	25.00	25.00	25.00	461	461	46	26	23	19					
		17+87.50	<i>16+54.62</i>	132.88	25.00	33.00	29.00	428	428	43	24	21	18					
PV-4		SR 2 Median Crossovers 795+30.00						370	370	37	21	19	15					
PV-5		860+50.00						370	370	37	21	19	15					
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			Subtotals, This Sheet:						6,192	619	344	310	258		0	749		
			Subtotals, Previous Sheet:						99,022	9,902	5,501	4,951	4,126		3,487	8,126		
		TOTALS	CARRIED TO GENEI	RAI SIIN	MMARV.	-	-	-	105,214	10,521	5,845	5,261	4,384		3,487	8,875		

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REF. NO.	SHEET STATION TO STATION	LENGTH	WIDTH	AREA	Concrete Median Removed	Curb Removed		Excavation	Embankmen†	iuminous Aggregate Base, PG64-22	6" Aggregate Base	Catch Basin Adjusted To Grade, As Per Plan	Asphalt Concrete Curb, Type I	Curb, Type 4-C	8" Concrete Median			Special-Rumble Strips**	CALCULATE F IK
		Feet	Feet	Sq Yd	Sq Yd	Feet		Cu Yd	Cu Yd	∞ Cu Yd	Cu Yd	Each	Feet	Feet	Sq Yd			Feet	
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C-2	31 882+50.00 888+33.00					583					·		583						4
DR-1	25 816+60.00											1							
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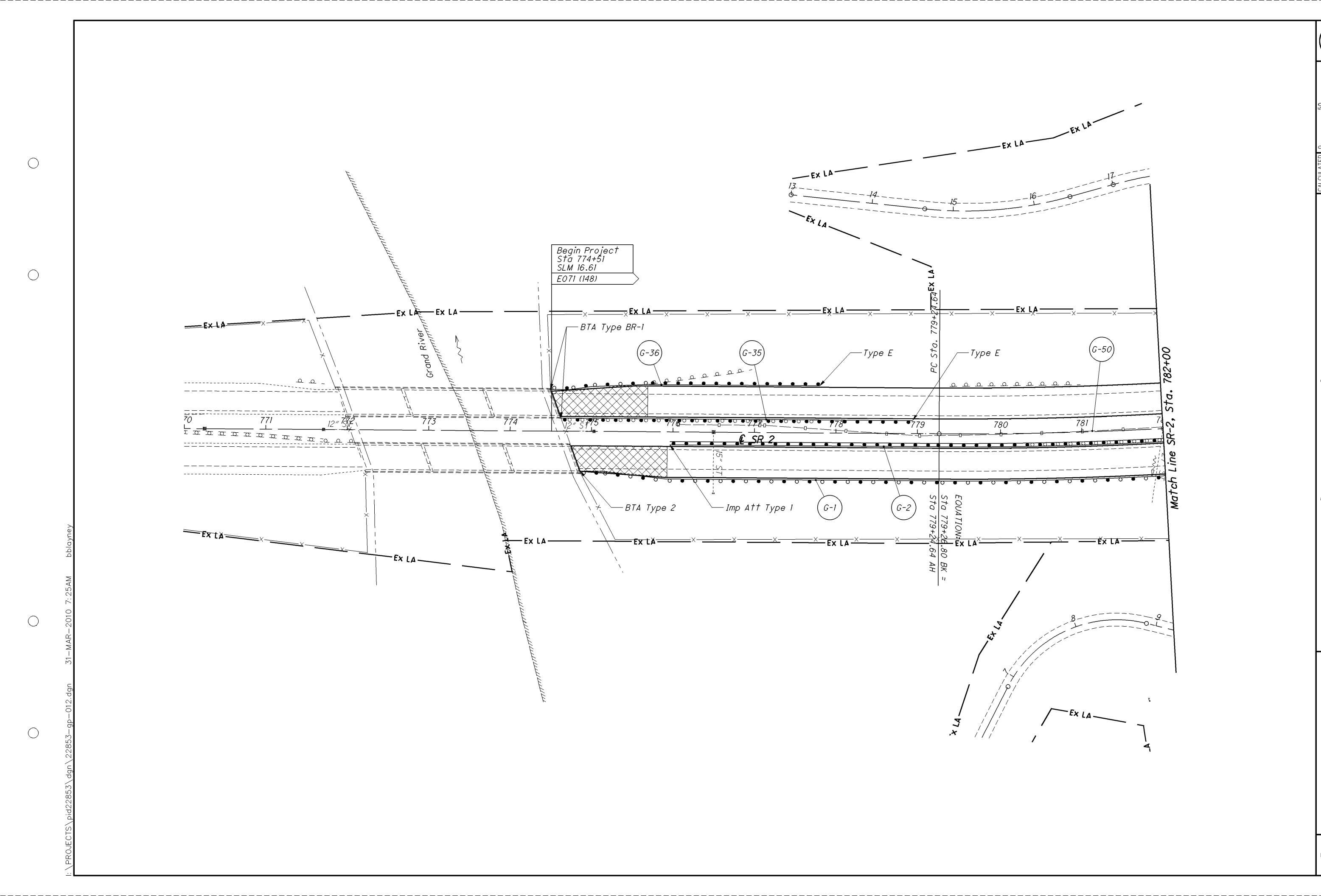
				202	202	203	254	301	304	407	407	448	448	203	604	604	609	608	608	— F
REF. NO.	SHEET STATION TO STATION	LENGTH	AREA	Curb Removed	Walk Removed	Excavation	ement Planing Asphalt Concrete, 2.25	tuminous Aggregate Base, PG64-22	Aggregate Base	Tack Coat	Tack Coat for ntermediate Course	l" Asphalt Concrete Intermediate Course, Type I, PG64-22	1.25" Asphalt Concrete Surface Course, Type I, PG64-22 As Per Plan	Embankment	Wanhole Adjusted To Grade, As Per Plan	ch Basin Adjusted To Grade, As Per Plan	Curb, Type 6	Curb Ramp	4" Concrete Walk	
		Feet	Sq Yd	Feet	Sq Ft	Cu Yd	Sq Yd	Gallon	Cu Yd	Gallon	Gallon	Cu Yd	Cu Yd	Cu Yd	Each	Each Gra	Feet	Sq Ft	Sq Ft	
	100% STATE PARTICIPATIONAll Items This Sheet																			
	Painesville Yard																			
PV-6 PV-7	46 Main Parking Lot 46 Entrance		2,855 2,992				2,855 2,992			286 299	143 150	79 83	99 104						1	\dashv
PV-8 PV-9	46 Salt Dome 46 Storage Building		5,189 3,565				5,189 3,565			519 357	259 178	144 99	180 124							
W-1	46 Storage barraing 46		3,303	8	120		3,303			331	110	33	124				8	80	40	
W-2	46			55	400												55	292	108	
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DR-5 DR-6	46 46															1				\exists
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C-1	46 Traffic Island at Yard Main Office			420		62		31	10					23			420			
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	TOTALS CARRIED TO GENERAL SUMMA	RY:		483	520	62	14,601	31	10	1,460	730	406	507	23	1	5	483	372	148	

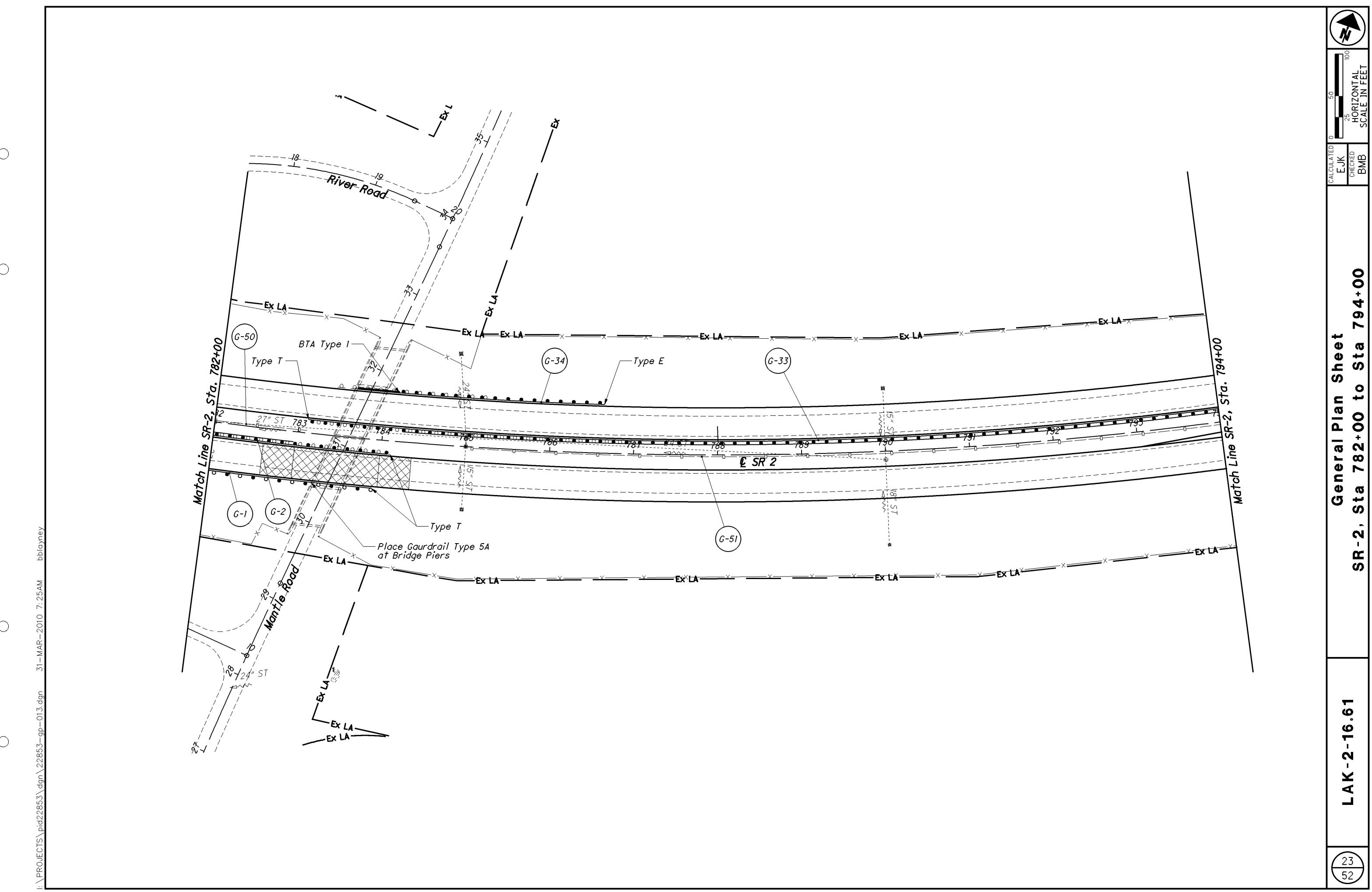
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MARK	SHEET			10	w	Remo	д, Ме	д, ме	Concre ite Co er Gua 4-22	Type	Туре	Туре	61%,	<i>bly</i> ,	ol As. BR-1	0/ As	ol As.	t Attenuator 1 (Bidirection	<u>*</u>	lisc.: es	stor,	
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						Feet	Station	Station	Cu Yd	Feet	Feet	Each	Each	Each	Each	Each	Each	Each	Cu Yd	Each	Each	1
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G-1		774+86.00	783+93.00	EB 50	Out	912.5	9.18	0.00	34.2	850	252	50		1			1	,	23		10	1
G-2 G-3		775+96.00 795+26.00	784+07.00 813+99.00	EB EB	In In	387.5 600	3.93 6.05	4.08 12.26	29.8 68.0	100 68.75	650 1712.5			1	1			1 1	10 15	4	20	_
G-4		805+66.03	808+14.41	EB	Out	401.86	4.07	0.00	15.3	250			1		1				10	4	4	
G-5		811+63.00	814+23.00	<u>EB</u>	Out	256.25	2.61	0.00	9.9	206.25			1		1				6	4	4	_
G-6		814+37.00	815+34.00	EB	In	94	0.99	0.00	3.9	94					1		1		2	4	2	┨ >
G-7 G-8		814+58.00 17+19.00	815+29.00 21+25.00	EB EB	Out Out	72 250	0.77 2.55	0.00 7.08	3.0 35.8	72 337.5			1	1	1		1		6	4	2 5	
G-9		818+26.00	823+14.00	EB	In	400	4.05	6.45	39.1	425			1	1					10		6	∄
G-10		819+99.00	822+81.00	EB	Out	200	2.05	0.26	8.8	231.25			1			1			5		4	∃
G-11		833+96.00	850+90.00	EB	In	368.75	3.74	12.20	59.2	68.75	1475				1			1	9	4	17	J
G-12		837+75.00	850+54.00	EB 50	Out	981.25	9.86	2.20	44.9	1206.25			1	,	1		1		24	4	14	مٌ ∟
G-13 G-14		852+76.00 860+83.00	860+92.00 864+11.00	EB EB	Out In	737.5	7.43	0.00 3.13	27.7 11.8	725 87.5	175			1			1	1	18		5	∣ ກ ່
G-15		879+36.00	882+67.00	EB	Out	262.5	2.68	0.14	10.6	281.25			1			1			7		5] <u> </u>
G-16		881+26.00	884+76.00	EB	In	400	4.05	5.08	34.0	187.5		100	1	1					10		5	<u>_</u> _ტ
G-17		891+00.00	892+37.00	EB	In	137.5]
		CD 2 Waathawad																				B
		<u>SR 2 Westbound</u>																<u> </u>			<u> </u>	1
G-20		880+80.00	888+30.00	WB	Out	750	7.55	0.00	28.1	737.5				1					19		9]
G-21 G-22		863+00.00 853+18.00	876+86.00 871+25.00	WB WB	In Out	1618.75	16.24	13.88 1.70	51.6 66.6	87.5 1793.75	1250		1	/	1			/	40	<u> </u>	15 20	-
G-23		852+81.00	860+25.00	WB	In	368.75	3.74	3.70	27.7	68.75	625		1		1			1	9	4	9	1
G-24		840+08.00	851+56.00	WB	Out	1150	11.55	0.00	43.0	1137.5				1			1		29		13]
G-25		814+23.00	836+05.00	WB	<u>In</u>	793.75	7.99	13.83	81.0	68.75	2062.5				1			1	20	4	23	-
G-26		822+63.00	825+94.00	WB	Out	131.25	1.36	1.45	10.6	281.25			1		1				3	4	5	
G-27		12+53.00 11+55.00	13+68.00 14+41.00	WB	Out Out	143.75 200	1.49 2.05	0.00 6.33	5.7 31.2	93.75			1	,	1				4	4	3	-
G-28 G-29		814+05.00	817+42.00	WB	Out	156.25	1.61	1.20	10.6	212.5 281.25			1	 '	1				4	4	5	1
G-30		813+18.00	813+68.00	WB	Out	50	0.55	0.00	2.2	37.5				1	-		1		1		2	1
G-31		<i>808+66.65</i>	811+29.15	WB	Out	127.85	1.33	1.30	9.9	262.5			1			1			3		5	-
G-32		808+08.93	810+58.56	WB	In		0.00	8.75	32.6	250			1	1							4]
G-33		783+10.00 784+16.00	794+77.00 786+53.00	WB WB	In Out	387.5 187.5	3.93	7.58	42.8 7.4	100	1000		,	'		,		1 /	10	-	13	
G-34 G-35		774+62.00	778+94.00	WB	In Out	318.75	1.93 3.24	0.01 0.58	14.3	193.75 381.25			1		1	,			8	4	6	
G-36		774+49.00	777+80.00	WB	Out	256.25	2.61	0.20	10.6	281.25			1		1				6	4	5	- L
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					202		609		622		626	202	202						ATED O
ARK	SHEET STATION	TO STATION	DIRECTION	SIDE	Removal, Misc.: Cable Rail		teet Type 4-C	ea t Concrete Barrier, Type D	Concrete Barrier End Section, Type D, Reinforced	Concrete Barrier End	Barrier Reflector, Type B	Storage, As Per Plan	Removal, Misc.: Type E S Anchor Assembly Removed for Storage						CALCULATE
G-25	822+81.00	823+36.00	EB 50	Out			20	26	1	1									
G-30 G-54	882+67.00 783+65.00	883+70.00 784+16.00	EB WB	Out Out			20	85 21	1	1									
	All Locations (Including Bi	ridge Parapets)									50								
	Project-Wide											3750	30						
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G-50	776+05.00	783+10.00			705														
G-51 G-52 G-53	785+06.00 795+62.00 816+09.00	794+73.00 807+20.00 849+88.00			967 1158 3379														
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PARTICIPATION SHEET NUMBER TEM GRAND DESCRIPTION UNIT: SHEE :ITEM 13 15 44 45 TOTAL NO. **⊢80/20** Fed/State 11-100: ROADWAY 3487 WEARING COURSE REMOVED 3,487 202 23500 SQ YD CONCRETE MEDIAN REMOVED 22 202 30600 202 SQ FT WALK REMOVED 30000 **520** 787 787 483 202 1,270 FT CURB REMOVED 202 GUARDRAIL REMOVED 13,102 13,102 38000 13,102 3,750 202 3,750 guardrail removed for storage, as per plan 38101 30 202 98100 REMOVAL MISC.: TYPE E ANCHOR ASSEMBLY REMOVED FOR STORAGE 8,441 24 202 8,441 8,441 REMOVAL MISC.: CABLE RAIL 98200 203 10000 CU YD **EXCAVATION** 203 CU YD EMBANKMENT 20000 BORROW 203 40000 324 CU YD 324 324 LINEAR GRADING, METHOD A 60200 STATION LINEAR GRADING, METHOD B 131 200 113 STATION LINEAR GRADING, METHOD C 60200 606 8,950 12000 8,950 guardrail, type swr 8,950 606 Guardrail, Type 5 11,460 11,460 13000 11,460 FT 13050 Guardrail, type sa ANCHOR ASSEMBLY, TYPE E ANCHOR ASSEMBLY, TYPE T 18 606 26100 EACH S 14 606 26500 EACH 14 BRIDGE TERMINAL ASSEMBLY, TYPE 1
BRIDGE TERMINAL ASSEMBLY, TYPE 2 606 35000 EACH <u>a</u> 606 35100 Φ 35170 BRIDGE TERMINAL ASSEMBLY, TYPE BR-1 Φ 606 EACH IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL) 60010 60 606 EACH GUARDRAIL, MISC.: SHIM PLATES 96100 132 622 24000 132 CONCRETE BARRIER, TYPE D 622 25000 CONCRETE BARRIER END SECTION, TYPE D CONCRETE BARRIER, END ANCHOR, REINFORCED, TYPE D 25050 RUMBLE STRIPS SPECIAL 69013000 52 1350 1,350 **EROSION CONTROL** 8,145 1855 832 30000 10,000 EROSION CONTROL MANHOLE ADJUSTED TO GRADE, AS PER PLAN 34501 604 EACH CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN 09001 MISCELLANEOUS METAL 5,000 SPECIAL 60450000 5,000 PAVEMENT 250 01000 PARTIAL DEPTH PAVEMENT REPAIR 1.970 251 01001 1,970 SQ YD Partial Depth Pavement Repair, as per plan a 1970 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN B 620 620 251 01001 620 PARTIAL DEPTH PAVEMENT REPAIR, MISC: ADDITIONAL MATERIAL ONLY
PAVEMENT PLANING, ASPHALT CONCRETE, 2" 150 150 98000 150 254 SQ YD 105,214 01000 105,214 8,875 254 01000 SQ YD PAVENENT PLANING, ASPHALT CONCRETE (FOR TRANSITIONS) 8,875 8,875 PAVEMENT PLANING, ASPHALT CONCRETE, 2.25"
FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS, AS PER PLAN A 14,601 254 01000 14,601 <u> 14,601 </u> 255 10151 1,810 SQ YD FULL DEP'TH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS, AS PER PLAN B FULL DEP'TH PAVEMENT SAWING FULL DEP'TH REPAIR, MISC: ADDITIONAL MATERIAL ONLY 1,960 255 10,200 255 10,200 20000 210 210 255 98000 210 ASPHALT CONCRETE BASE, PG84-22 31 31 301 46000 CU YD S Y 20 20000 CU YD AGGREGATE BASE 4 407 CYTTON 10,521 1460 10,521 1460 10000 11,981 ITACK COAT 407 **CALLON** 730 TACK COAT FOR INTERMEDIATE COURSE 5,261 <u>730</u> 14000 5,991 4,384 4,384 4,384 CU YD <u>asphalt concrete surface course, 12.5 mm, type a (446), as per plan</u> 10001 5,845 5,845 10100 <u>ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)</u> ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22 406 16020 448 912 46060 ASPHALT CONCRETE INTERNEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64—22 52

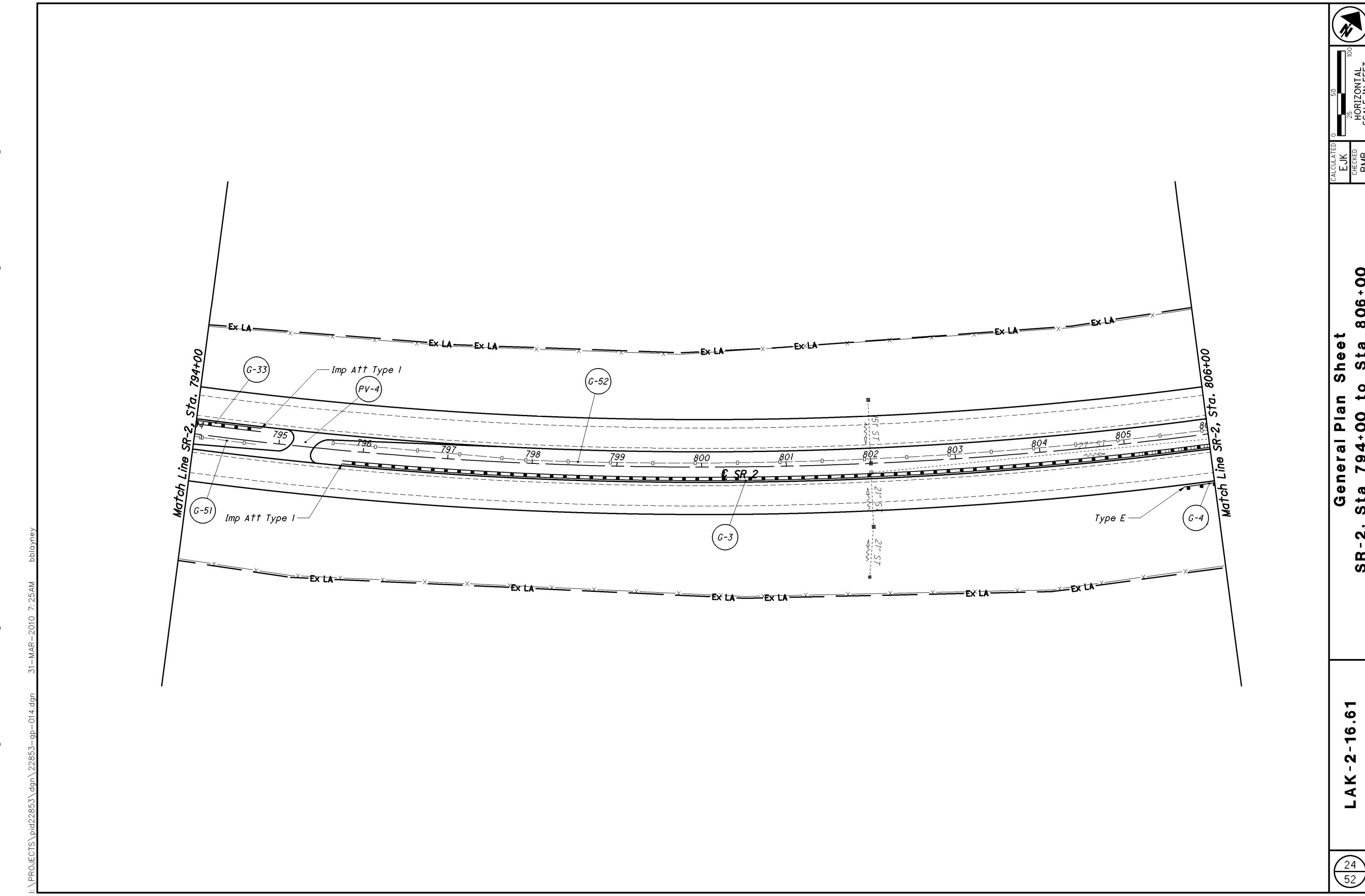
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		266				266		626	00100	266		BARRIER REFLECTOR, TYPE A		
			50	0.70	A 75	50	-	626	00100	50		BARRIER REFLECTOR, TYPE B		_
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				4.21		4.21		646	10101	4.21	MILE	LANE LINE, AS PER PLAN	9	-
				477	149	626		646	10300	626		CHANNEL IZING LINE		1
					54	54		646	10400	54	FT	STOP LINE		
				452		452		646	10600	452	FT	TRANSVERSE (24")		
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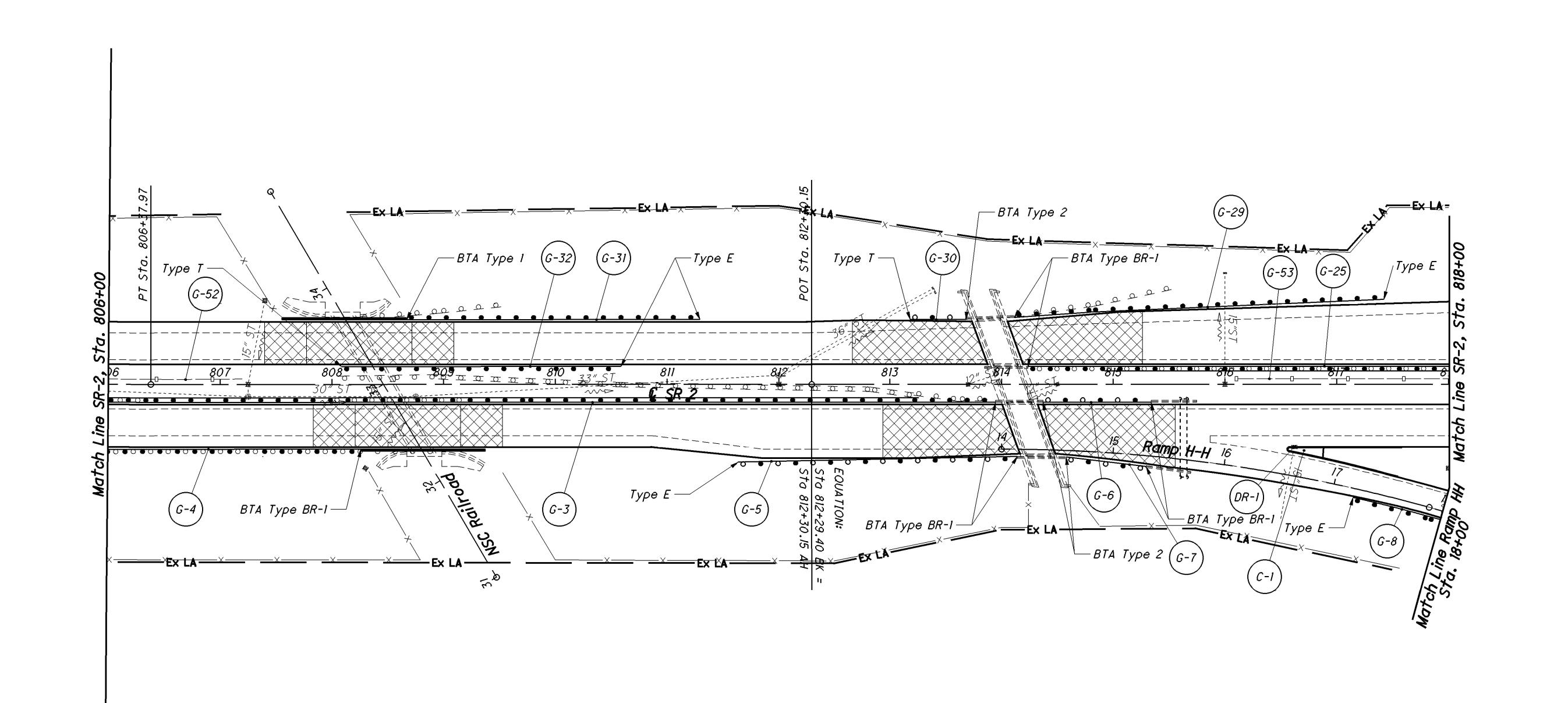
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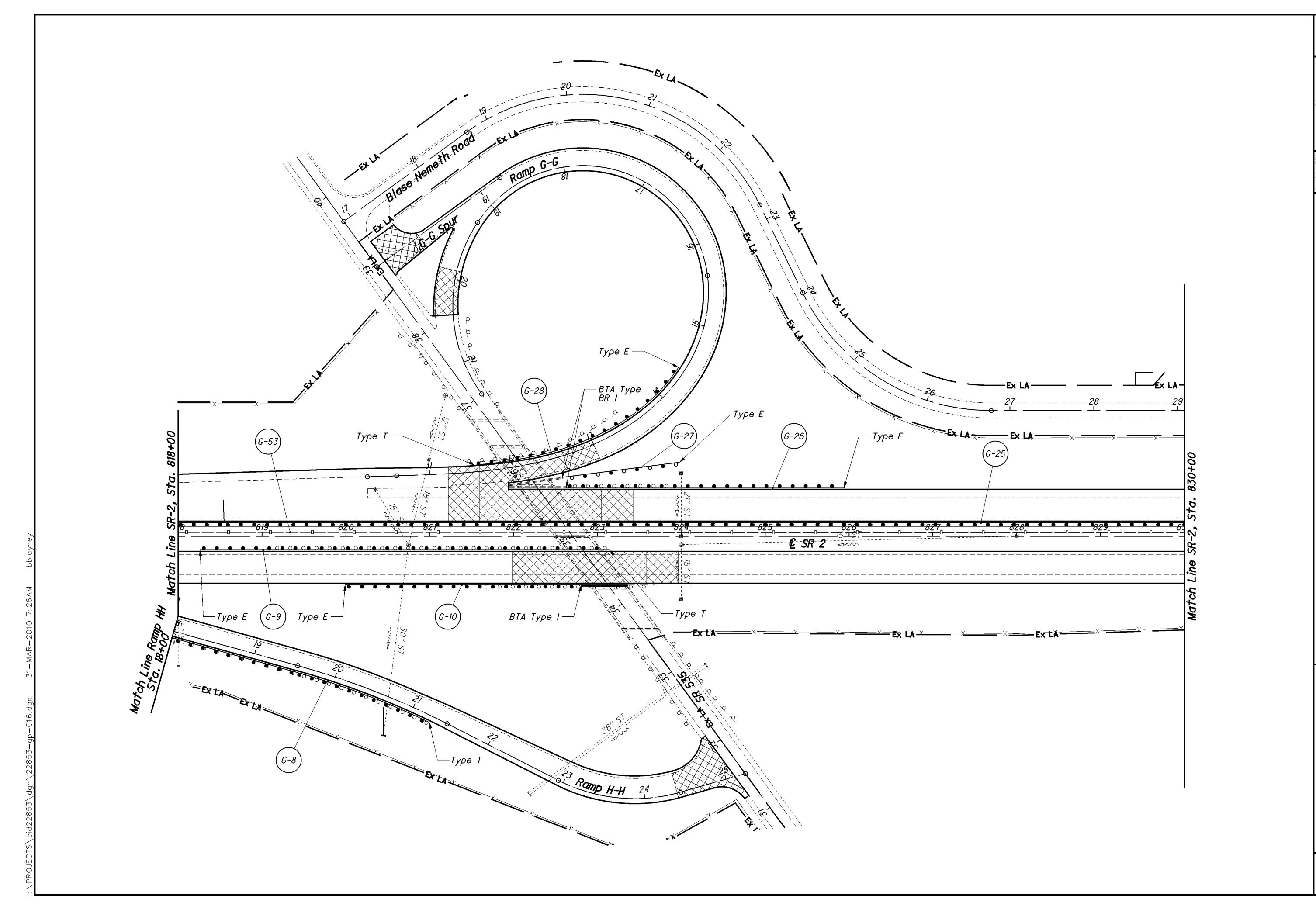
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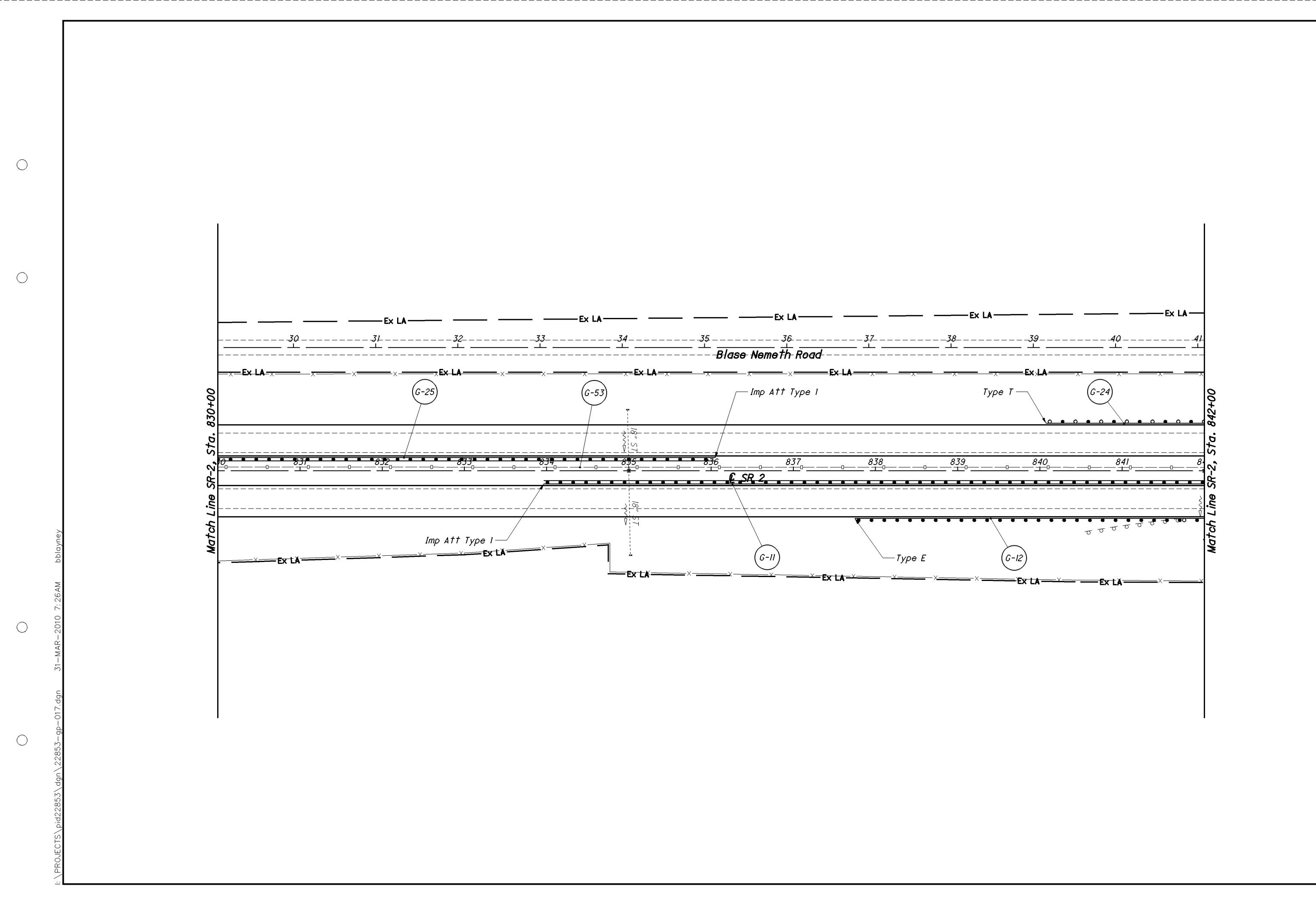


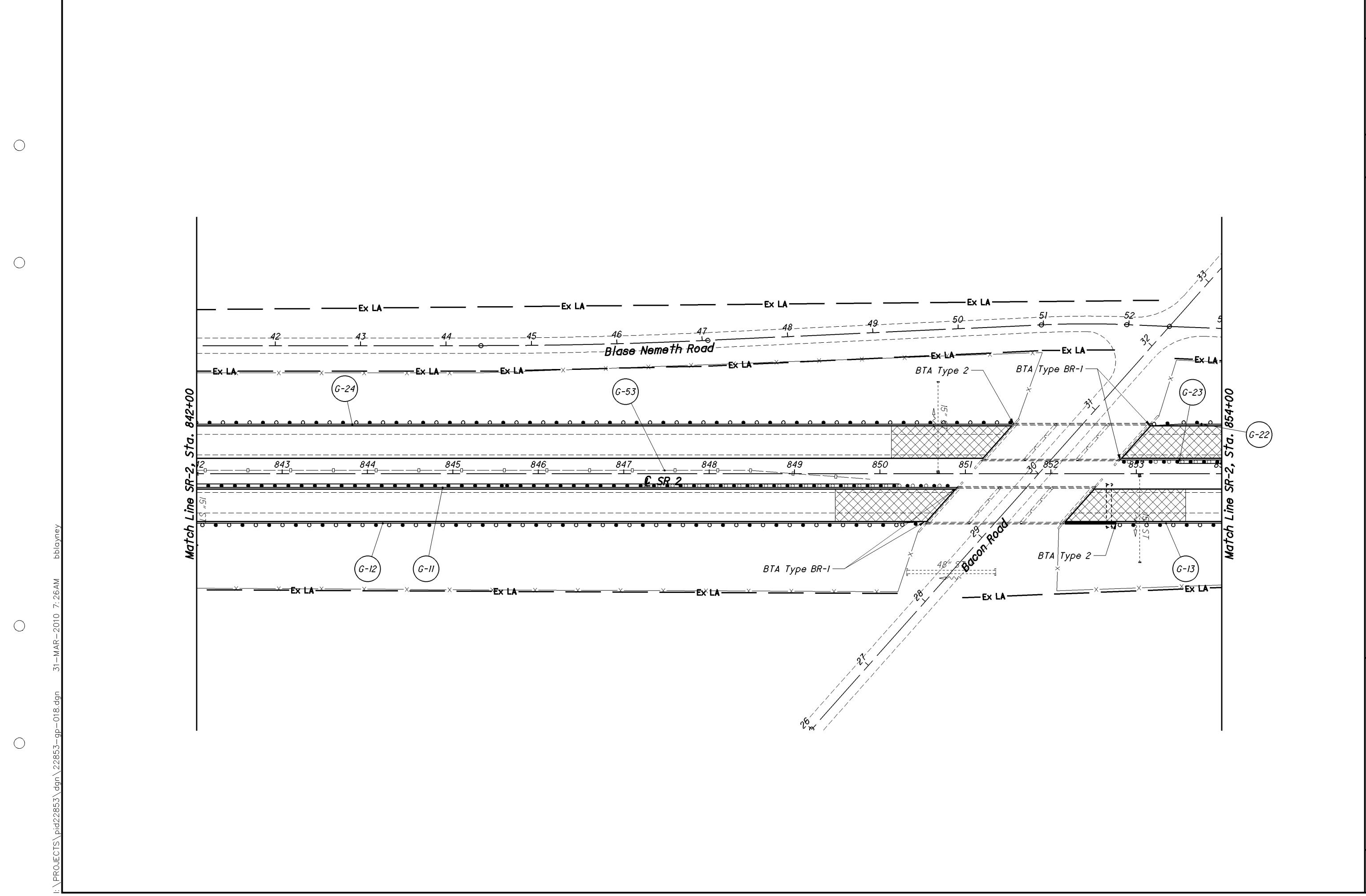
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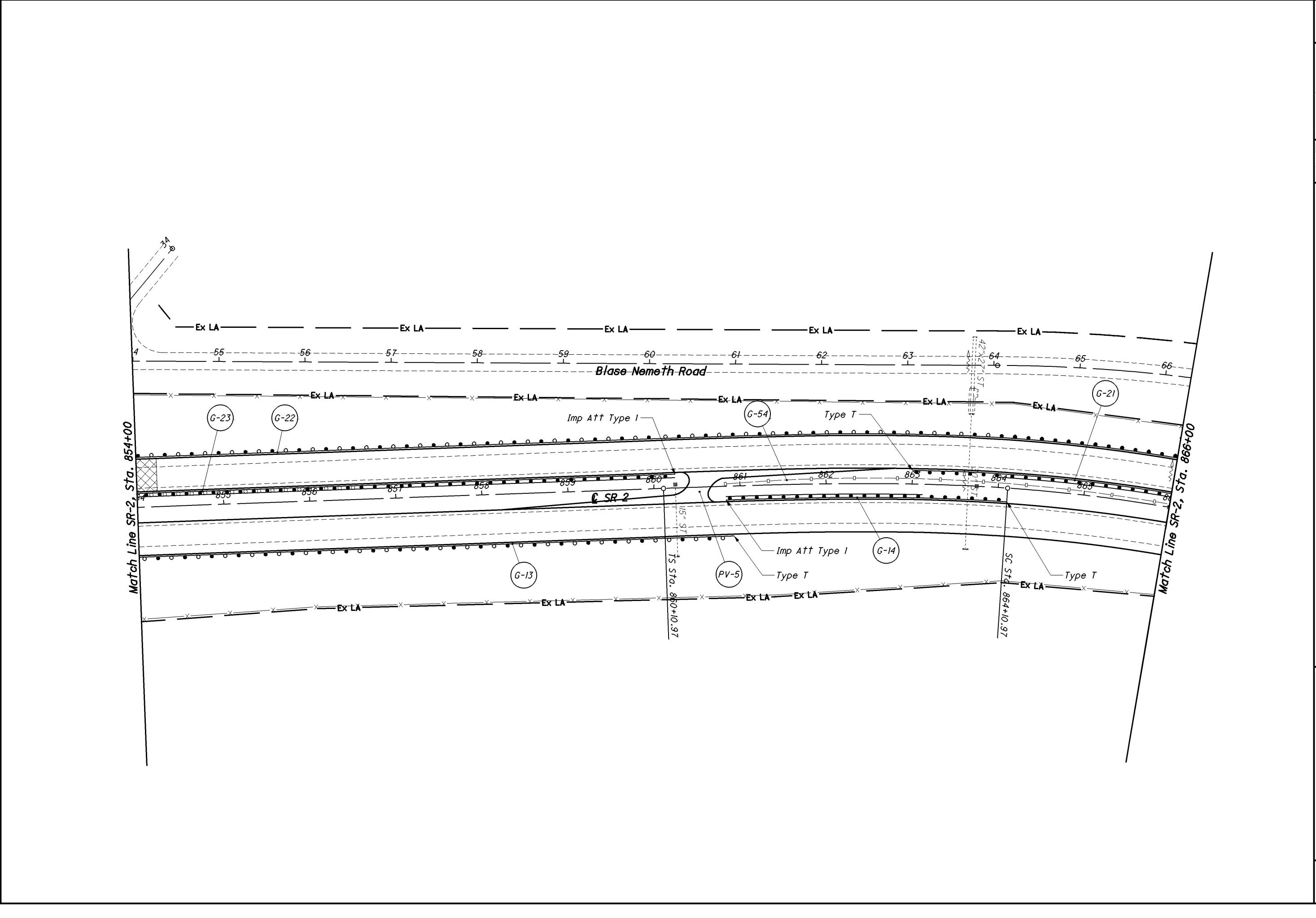


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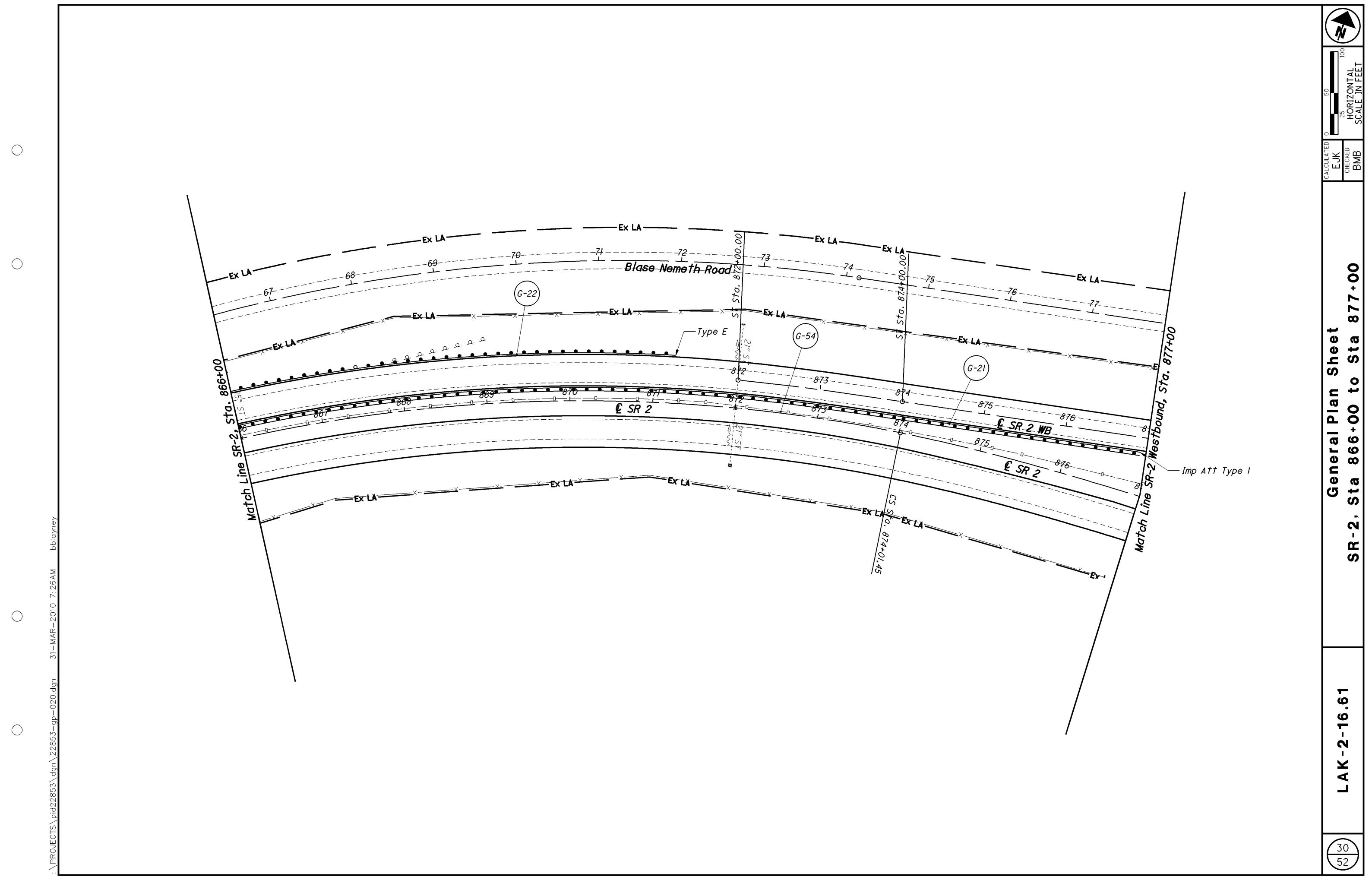






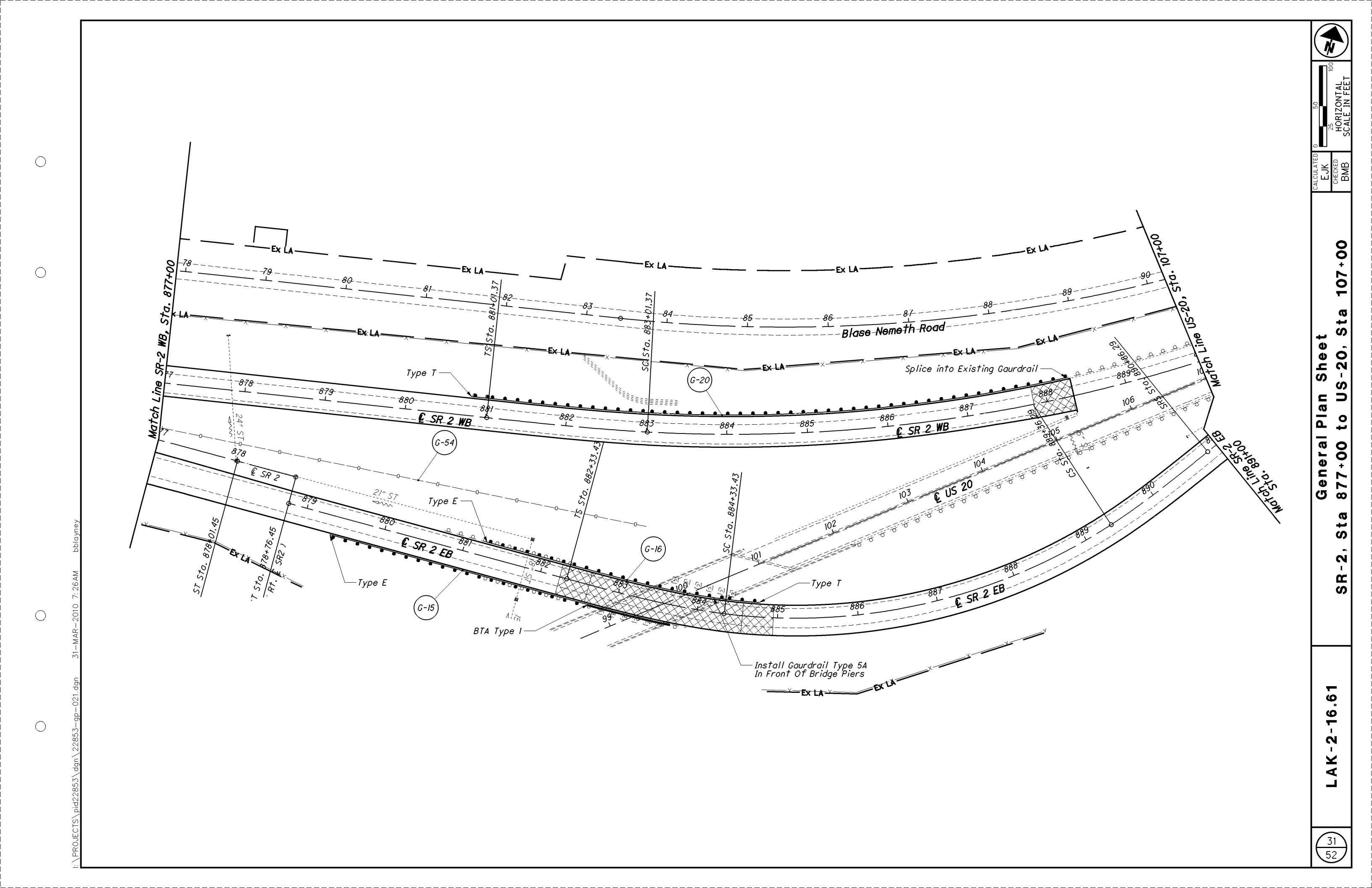
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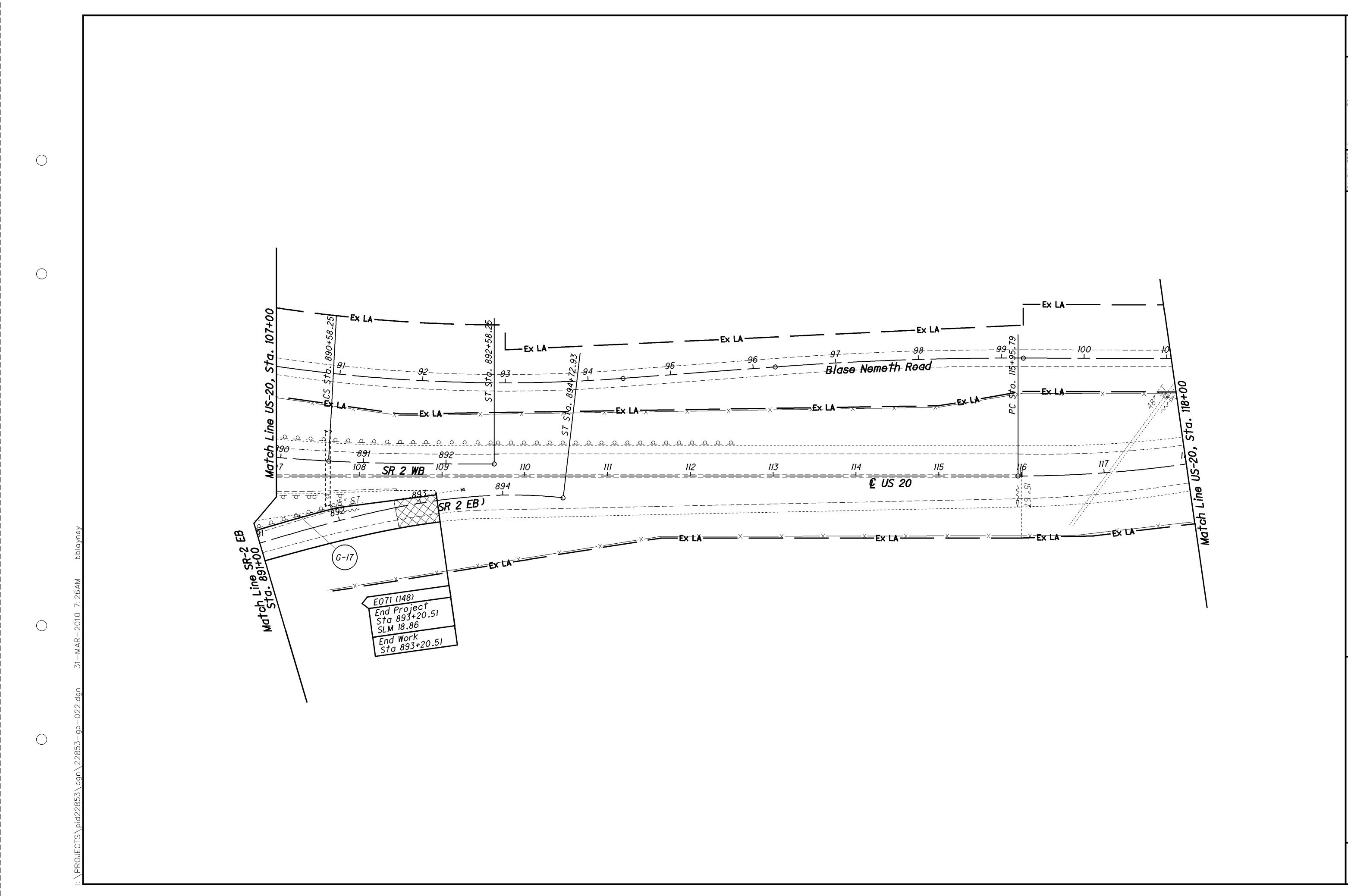
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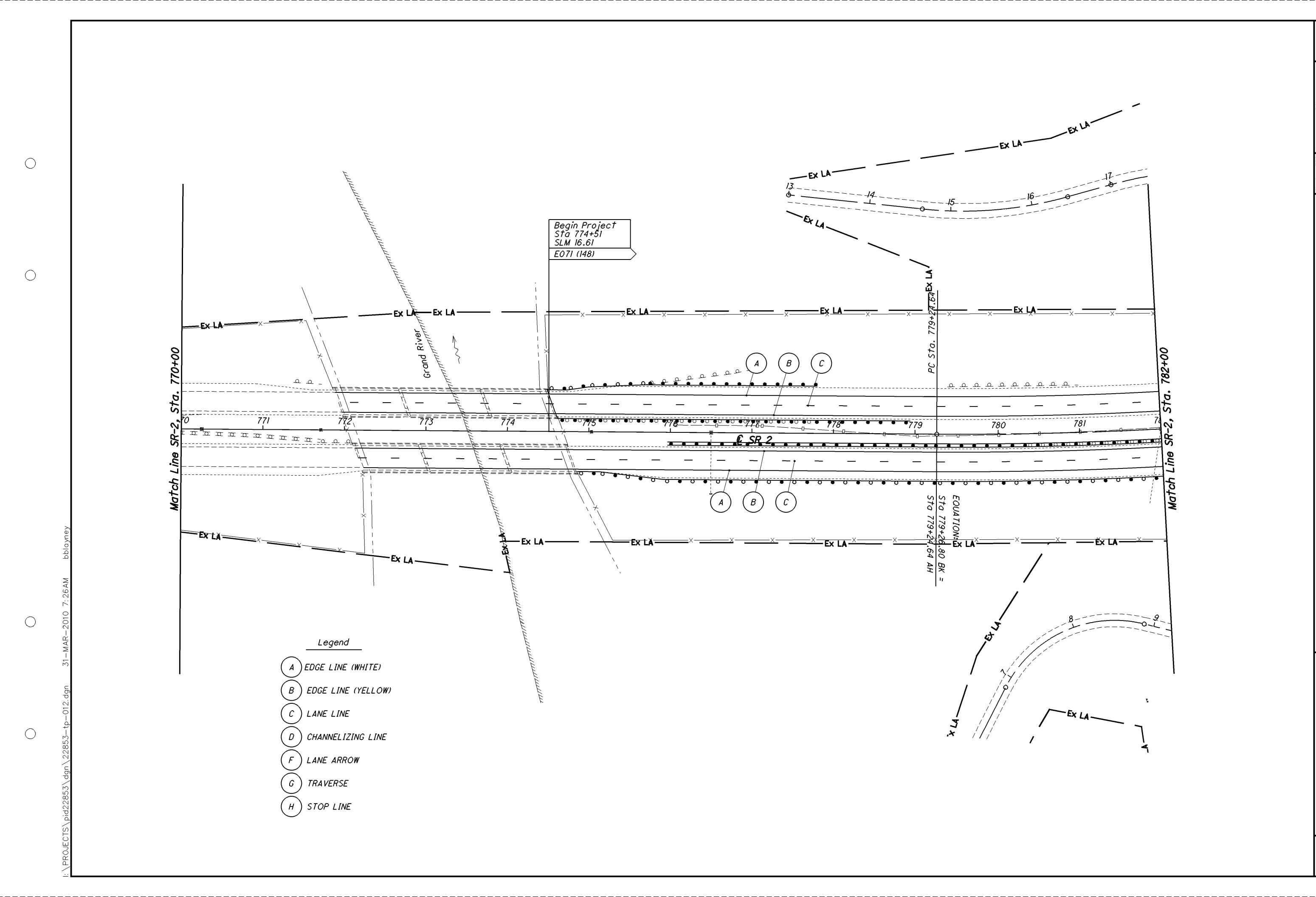


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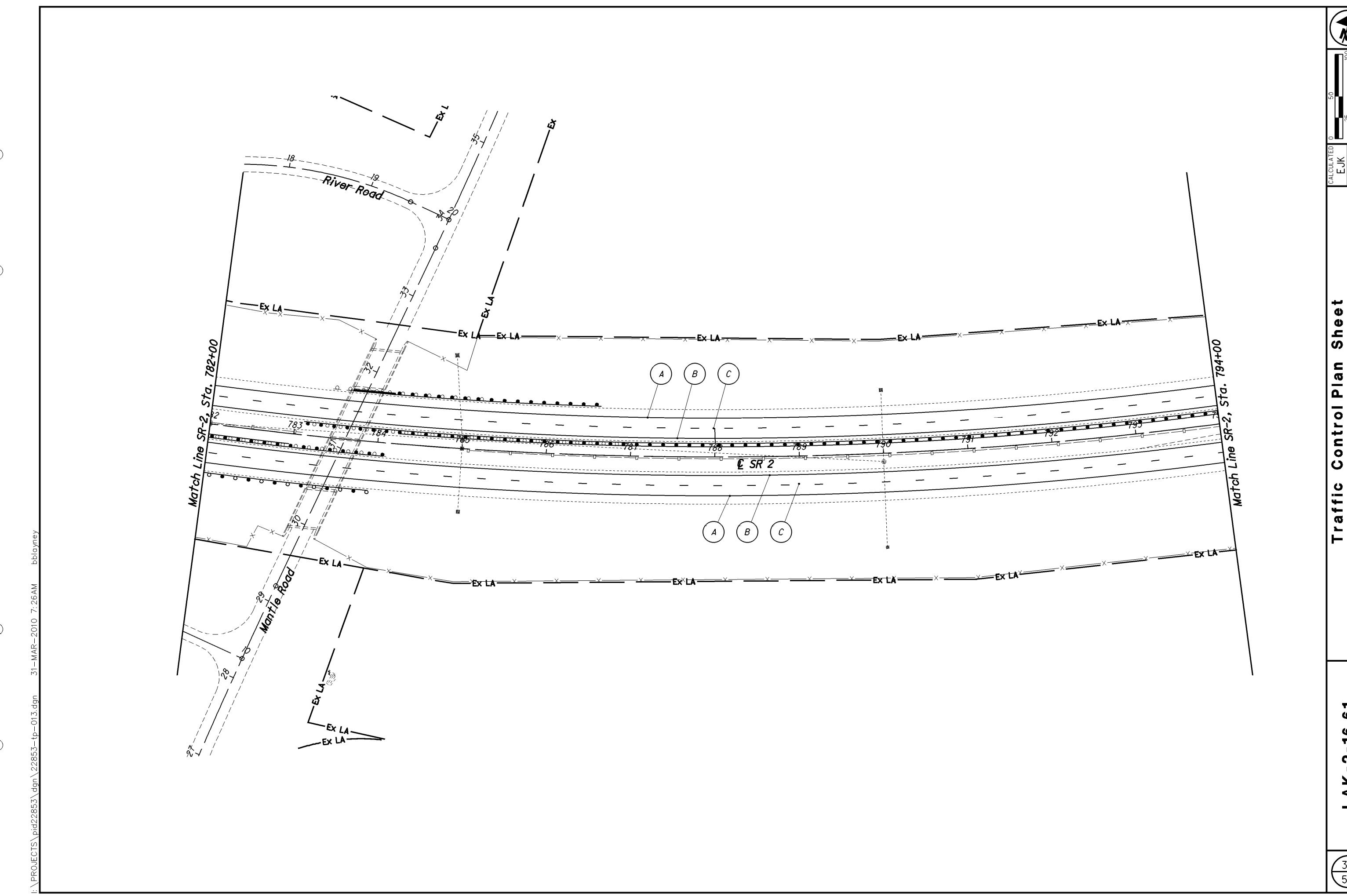
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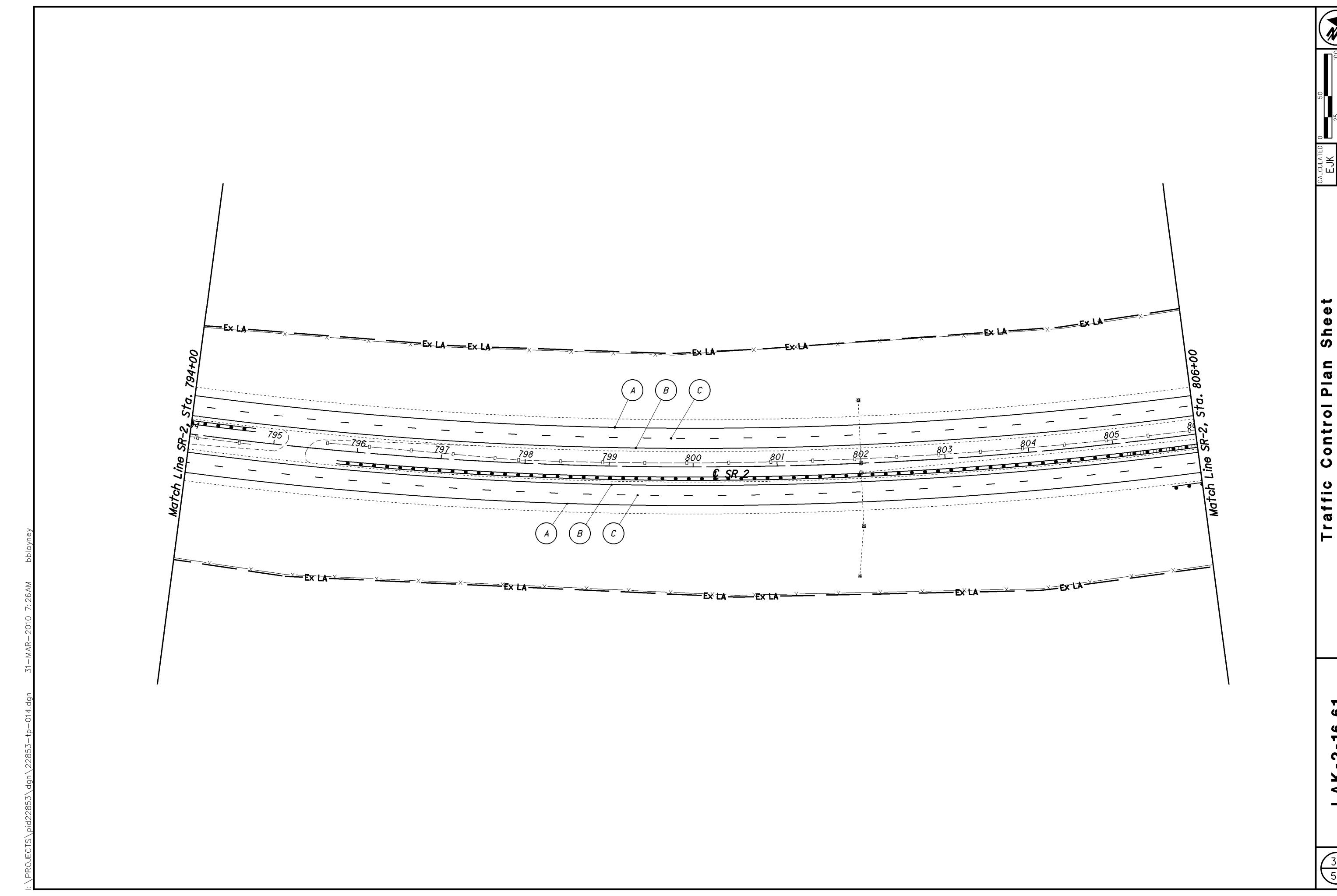




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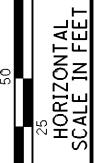
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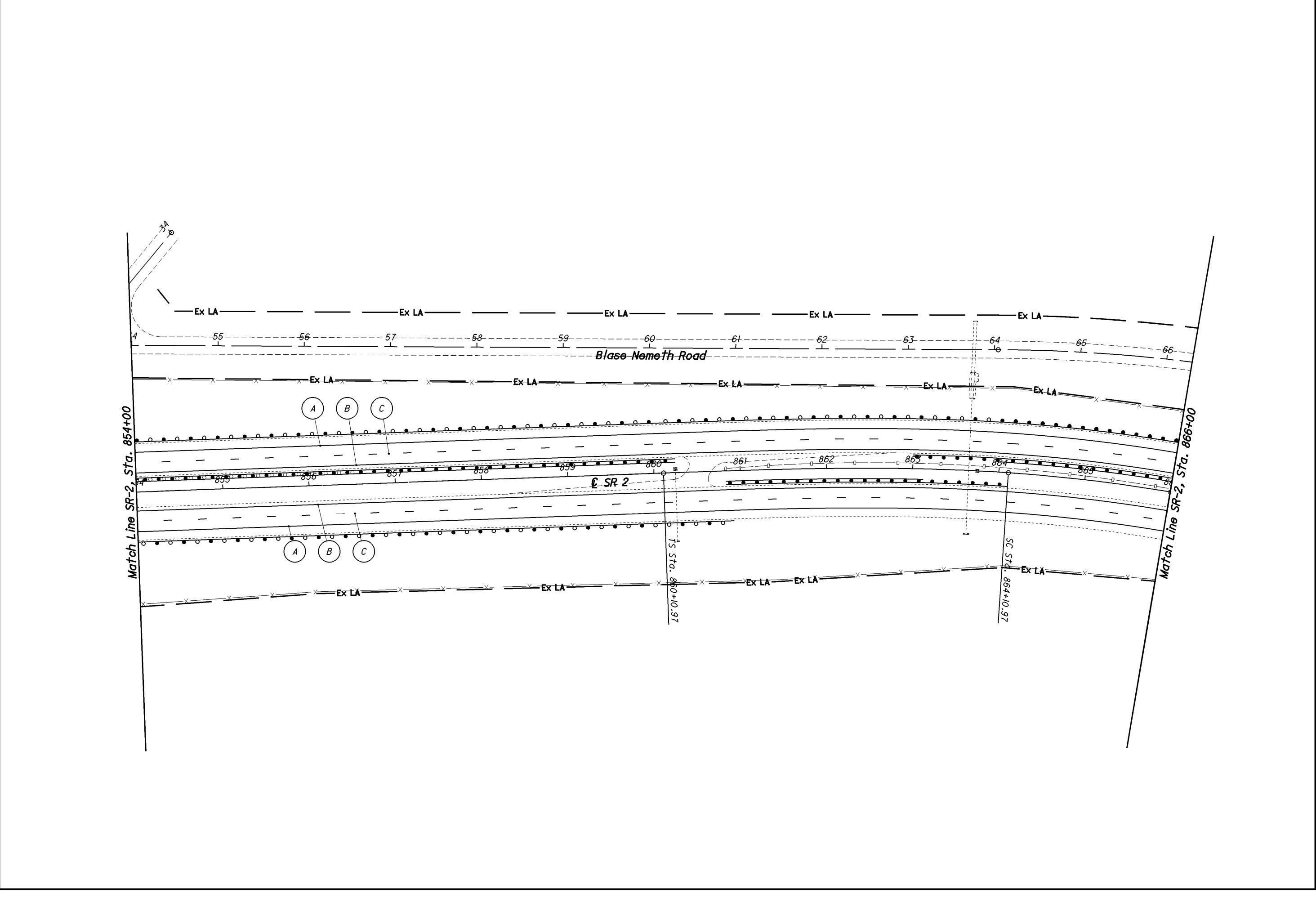
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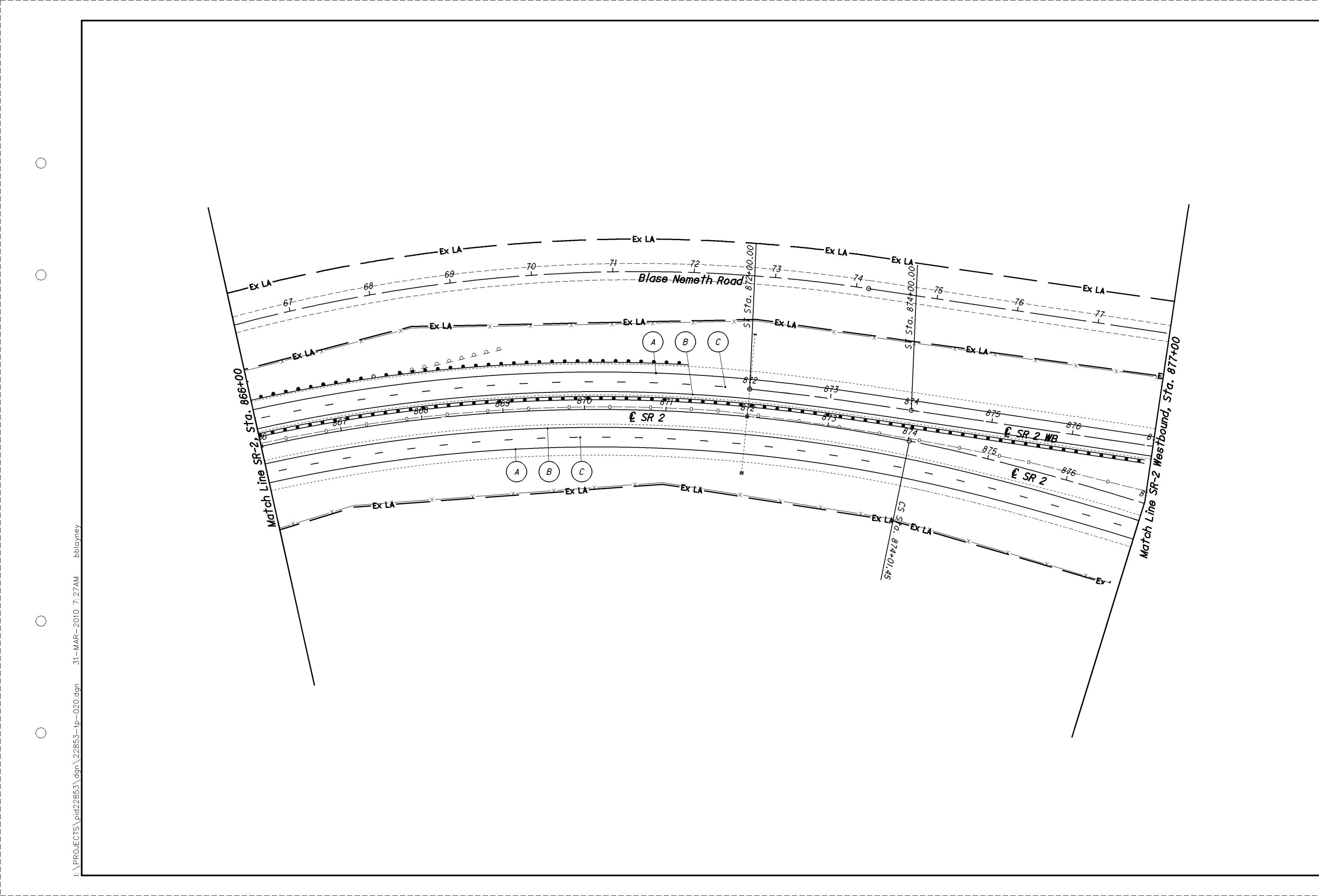






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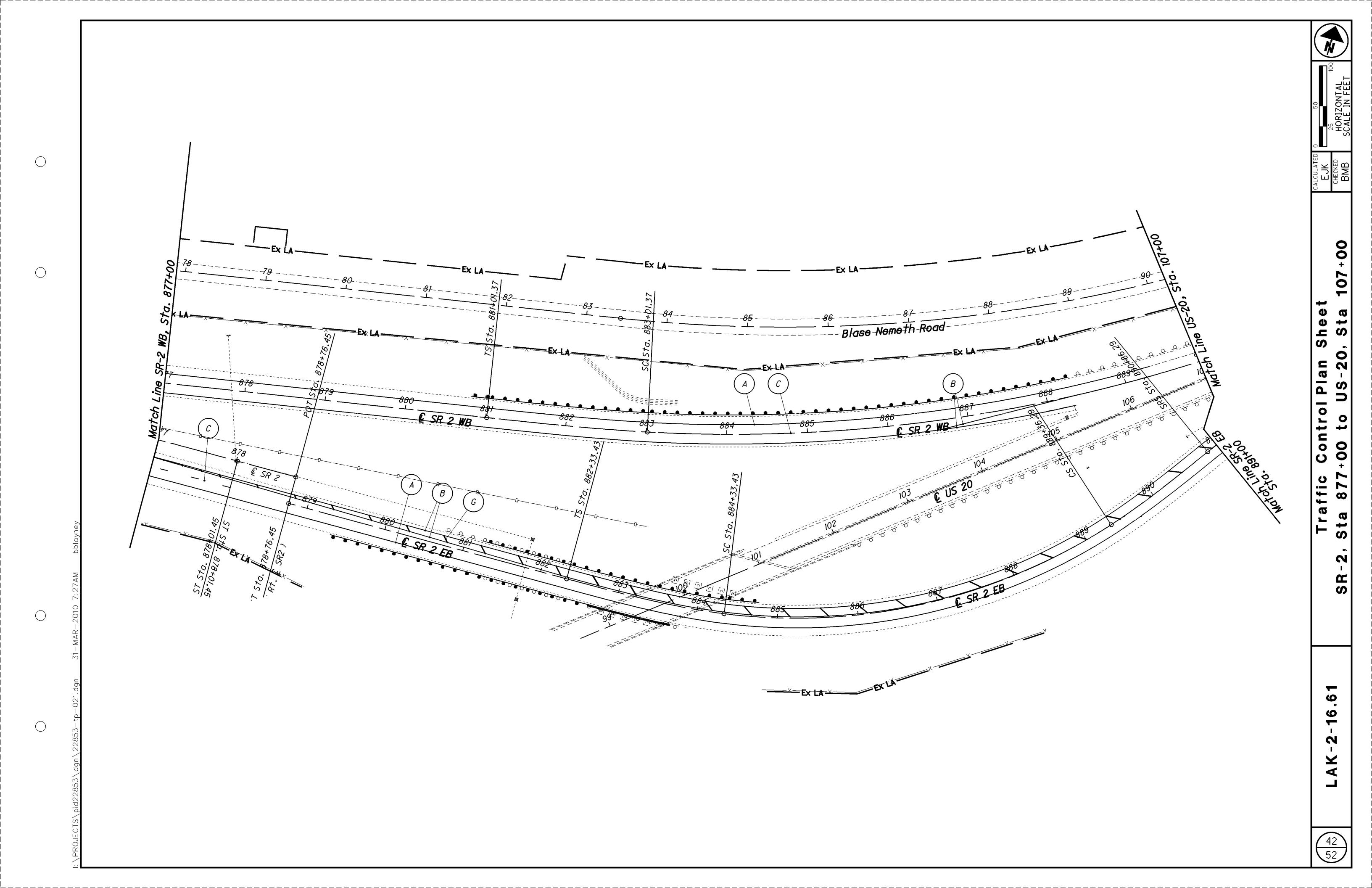
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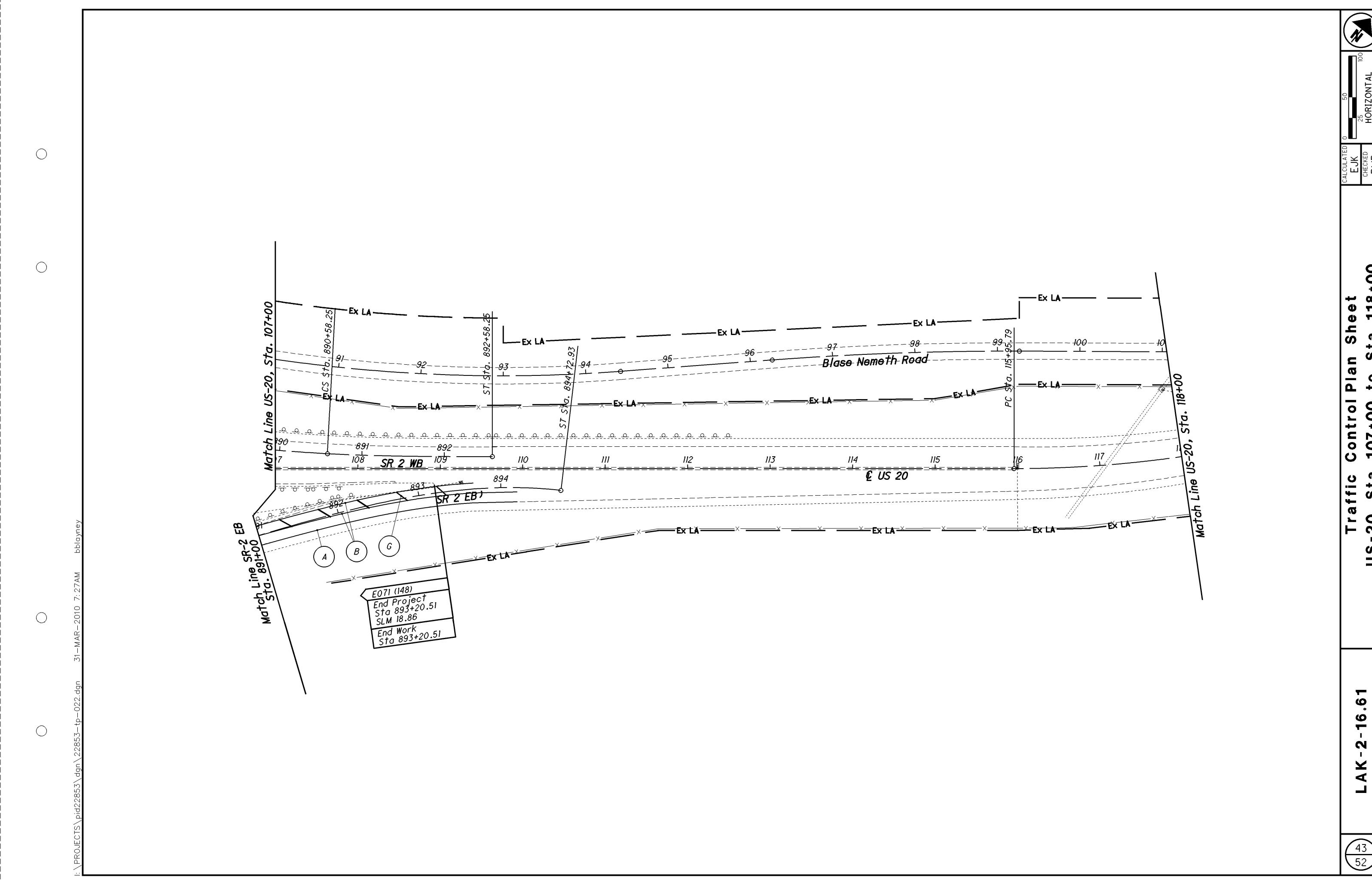


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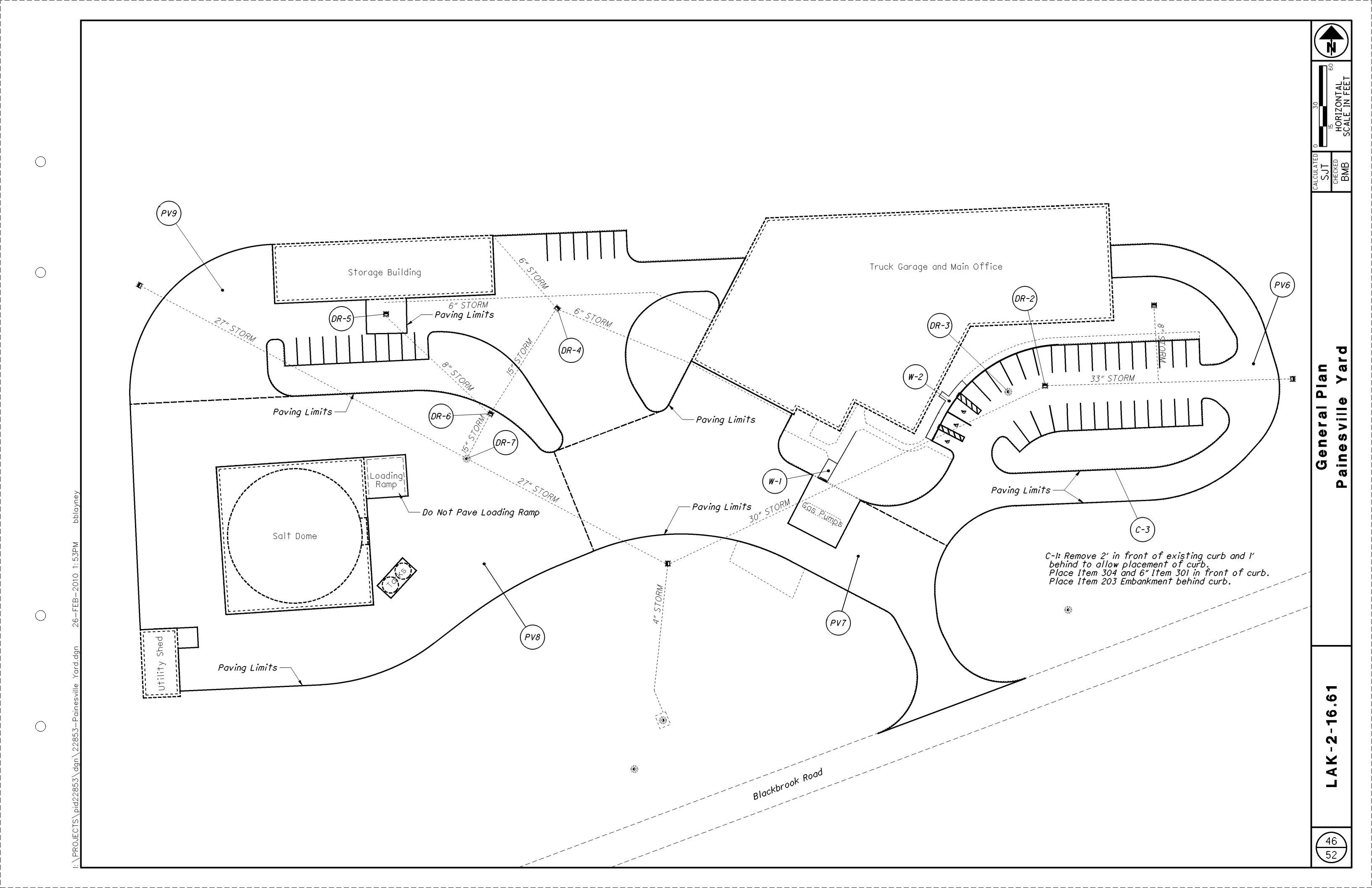


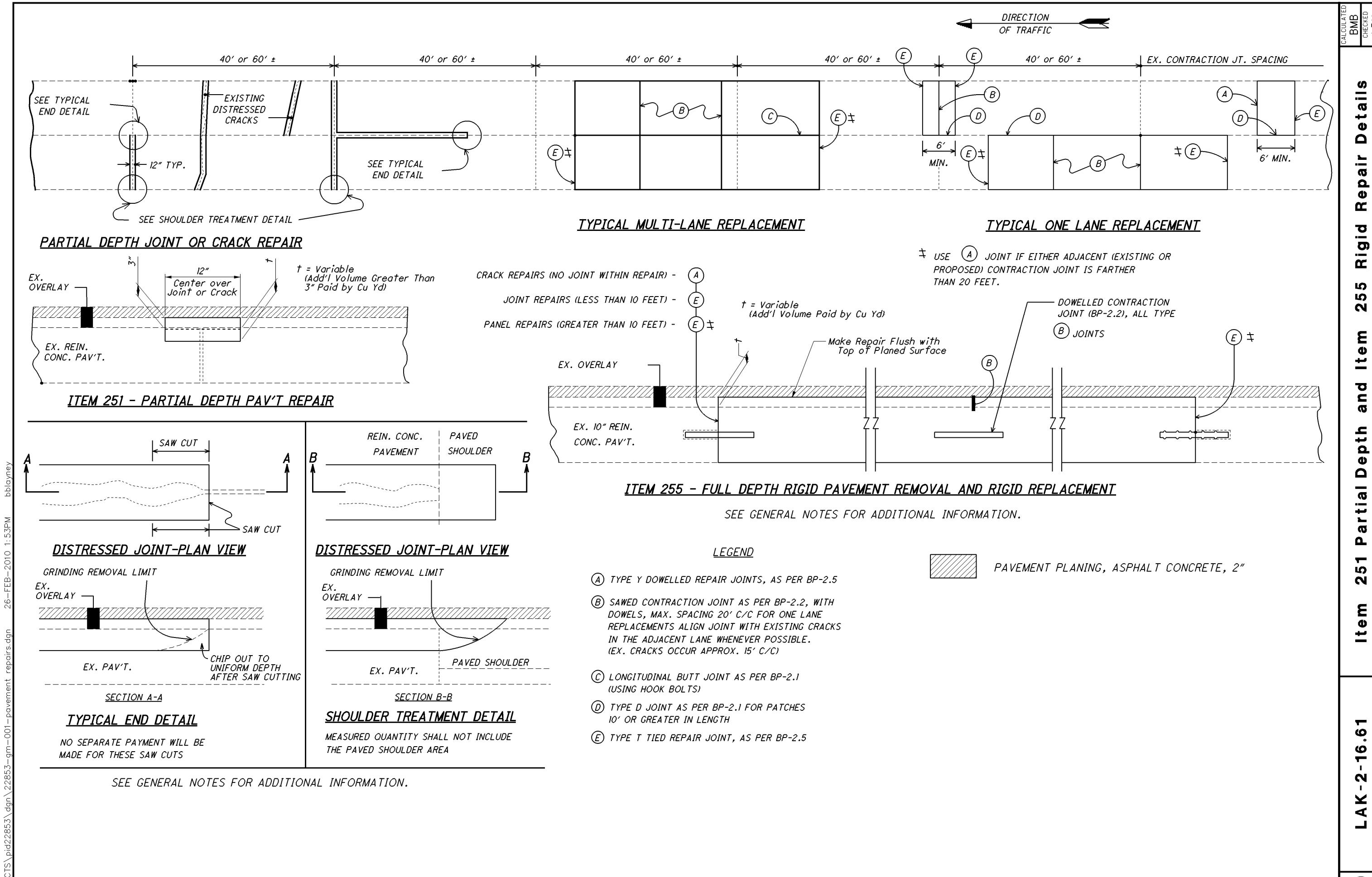
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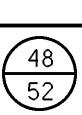
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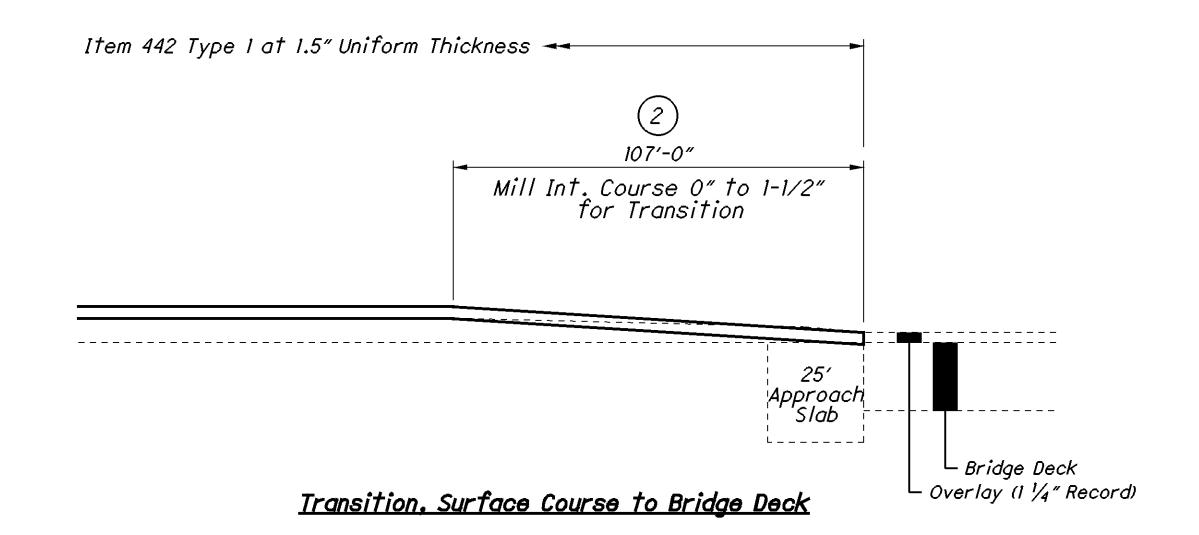
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REF. NO.	SHEET STATION TO STA	ATION	LENGTH	Edge Line, Yellow	Edge Line, White	Lane Line, As Per Plan	Channelizing Line	Transverse Line (24")	Lane Arrow	Stop Line	arking Lot Stall Marking	Handicap Symbol Marking	RPM (White)	RPM (White / Red)	RPM (Yellow / Red)	Raised Pavement Marker Removed	elineator, Post-Mounted (Yellow)	elineator, Post-Mounted (White)	Removal of Delineator	Detector Loop, As Per Plan	
		-	Feet	Feet	Feet	Feet	Feet	Feet	Each	Feet	Feet	Each	Each	Each	Each	Each	Each	<u> </u>	Each	Each	_
																					$\overline{}$
	SR-2 Westbound																				_
	771+92.56	816+73.97	4,481	4,374	4,374	4,374							56								
		818+66.06	192	192	192	384							6								
		821+94.22	328	328	656	328	328						5	9							
		886+63.10	6,469	6,469	6,469	6,469							82								
		888+33.85	171	342	171																
	888+33.85	889+33.85	100		200																
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	771+92.56	889+33.85	11,741														29	29			
	<u>SR-2 Eastbound</u>																				-
		813+47.57	4,130	4,048	4,048	4,048							52								
		815+07.57	160	160	160	320							5								
		816+56.83	149	149		149	149						3	5							_
		876+88.69	6,032	6,032	6,032	6,032							76		2						
		878+01.45	113	226	113	113		8					2		2						_
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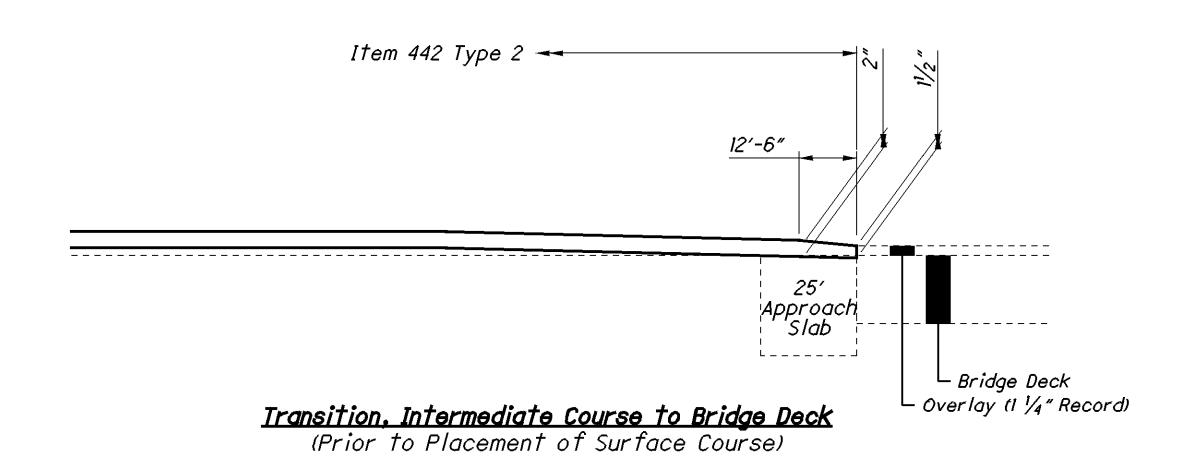
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REF. NO.	SHEET STATION T	O STATION	LENGTH	Edge Line, Yellow	Edge Line, White	Lane Line, As Per Plan	Channelizing Line	Transverse Line (24")	Lane Arrow	Stop Line	Parking Lot Stall Marking**	'andicap Symbol Marking**	RPM (White)	RPM (White / Red)	RPM (Yellow / Red)	Roised Povement Marker Removed	Delineator, Post-Mounted (Yellow)	Delineator, Post-Mounted (White)	Removal of Delineator	
			Feet	Feet	Feet	Feet	Feet	Feet	Each	Feet	Feet	Each	Each	Each	Each	Each	Each	Each	Each	
	<u>Ramp G-G</u> 11+92.39	20+41.57	849	849	849										12		5	5		
		20.11.01		075	070										12			Ĭ		
	<u>G-G Spur</u> 19+36.70	20+40.99	104	89	104			1							2					
	<u>Ramp H-H</u> 15+06.48	16+54.99	149		149		149							5	a					
	16+54.99 22+93.96	22+93.96 25+06.74	639 213	639 184	639 451				6	54					3					
	15+06.48	25+06.74	1,000														6	6		
PV6 PV7 PV8 PV9	Painesville Yard 46 Main Parking Lot 46 Entrance 46 Salt Dome 46 Storage Building										722 320	3								
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												 All [tems	l Participation	Code I, Exc	l ept Items D	l lenoted by "**	", which ar	l e Particpati l	l ion Code II.	l
	SUBTOTA	LS		1,761	2,192		149		6	54	1,042	3		5	26		11	11		
	TOTALS CARRIED TO GI	ENERAL SUMMARY	Υ	0	.75		149		6	54	1,042**	3**		31			11	"		

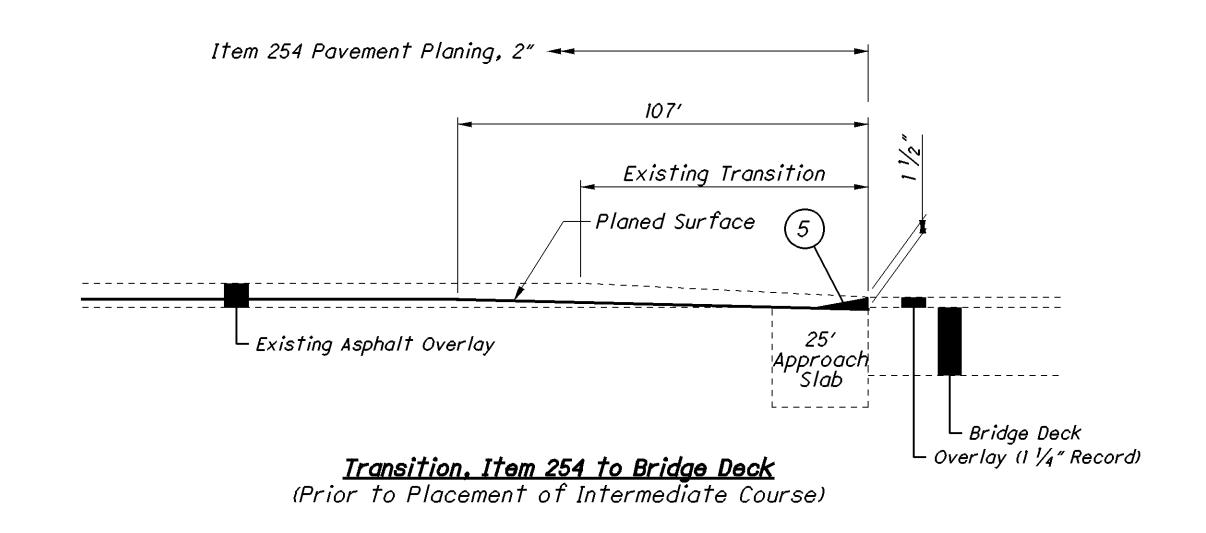


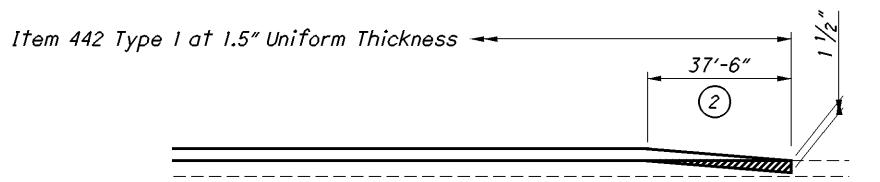




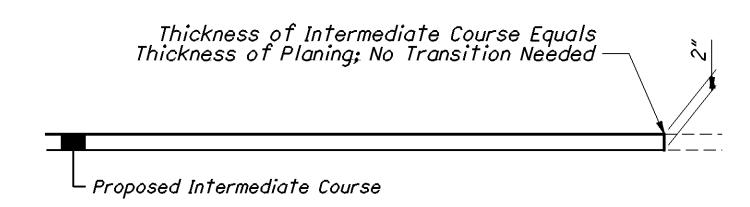




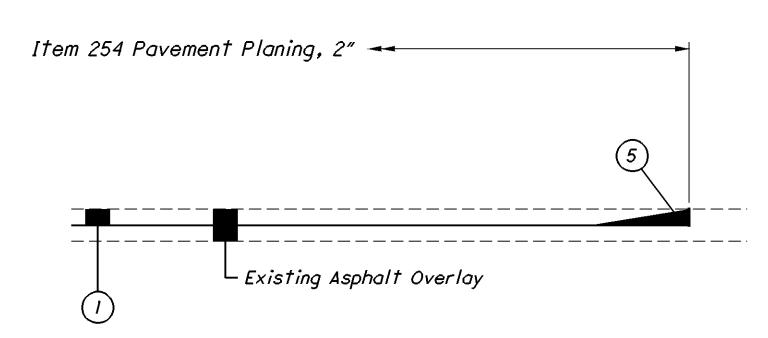




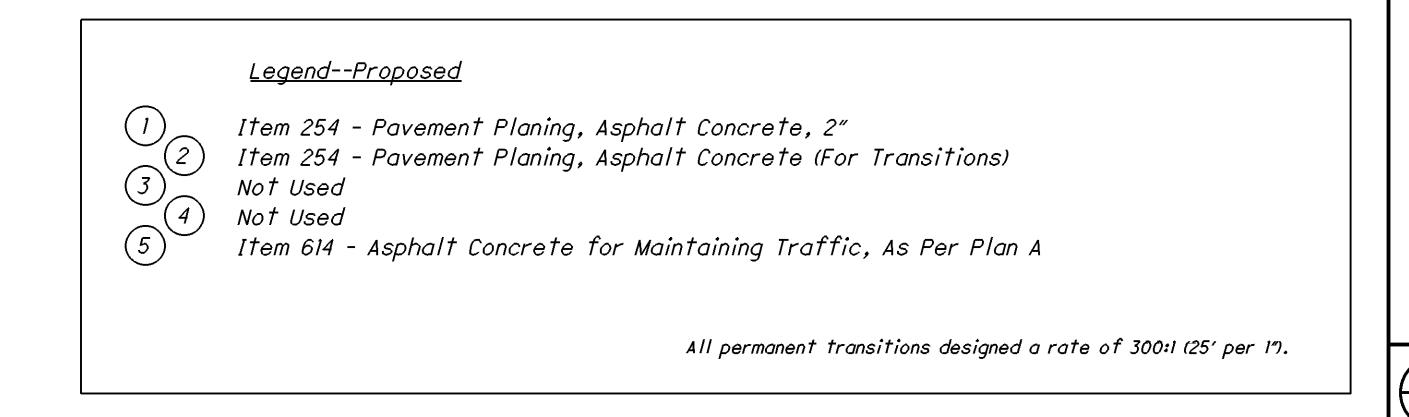
<u>Transition Details for Meeting Existing Pavements</u>

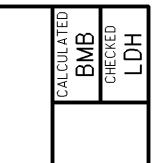


<u>Transition Details for Meeting Existing Pavements</u> (Prior to Placement of Surface Course)

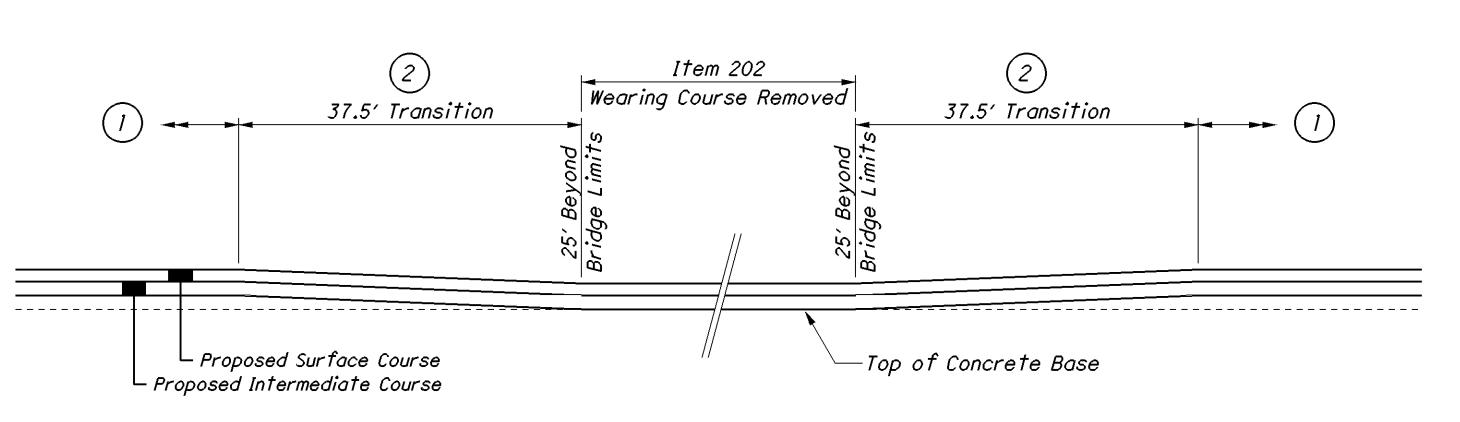


<u>Transition Details for Meeting Existing Pavements</u> (Prior to Placement of Intermediate Course)





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<u>Overlay Thickness Transition</u> SR-2 Under Overhead Structures

LAK-2-1677 EB (Mantle) LAK-2-1724 EB and WB (Railroad) LAK-2-1752 EB and WB (SR 535) LAK-2-1866R (US 20)

<u>Legend--Proposed</u>

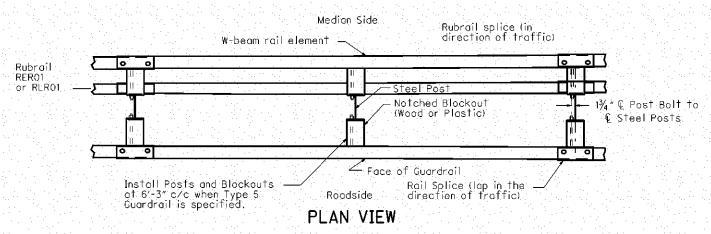
- - Item 254 Pavement Planing, Asphalt Concrete, 2" Item 254 Pavement Planing, Asphalt Concrete (For Transitions)
 - Not Used
 - Not Used
 - Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan A

All permanent transitions designed a rate of 300:1 (25' per 1").

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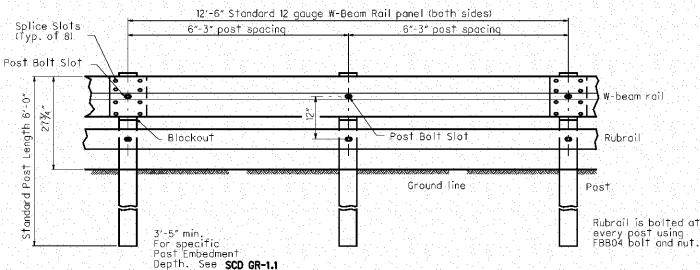
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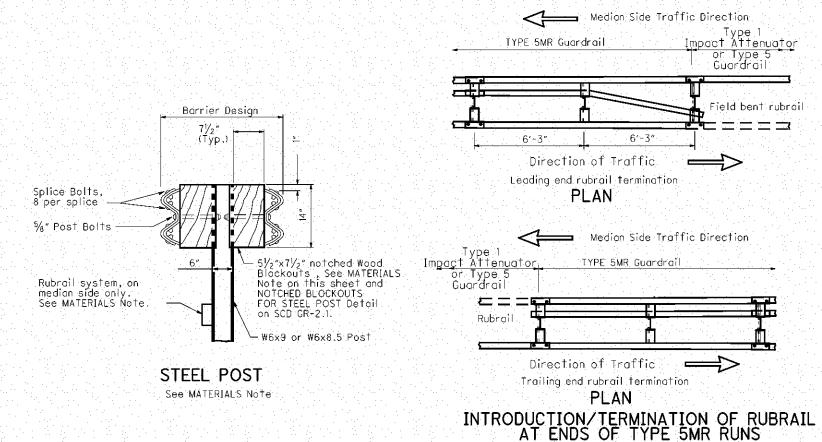
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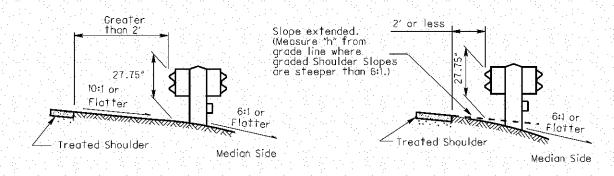
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MEDIAN SIDE ELEVATION





NOTES

This sheet details a median barrier quardrail system with a single rubrail, ODOT Type 5MR, to be installed in locations shown on the project plans.

DESCRIPTION:The barrier system detailed on this sheet depicts a barrier guardrail system consisting of a double sided w-beam guardrail run mounted on a single steel post with blockouts supporting the rail elements. A channel rub rail is to be attached to the steel posts on the ditch side of the barrier run as shown. It is different than ODOT Type 5 barrier guardrail in that the system has a rub rail on the median side, and steel posts are required. It is similiar to AASHTO-AGC-ARTBA standard hardware system SGM06a, except that it uses only one rubrail.

MATERIALS:

Posts are to be standard length steel W6x9 (W6x8.5) rolled or welded guardrail posts. Wood or alternate guardrail posts are not permitted. Blockouts are to be notched for steel posts and may be ODOT's generic wood or approved alternates as shown on ODOT Office of Materials Management's approved list for blockouts. Wood blockouts requiring toe nailing, or steel blockouts are not allowed.

The rub rail elements, assembly components, and its fastening is to be done in accordance with AASHTO-AGC-ARTBA's Hardware Guide part numbers REROI (bent plate rub rail), or REROI (channel-section rub rail), and mounted to one side of each post by a post bolt. If REROI is used by the contractor, a splice plate is reqired as per the Hardware Guide. This rub rail and any components of the rub rail subsystem are to be hot dipped galvanized as per ASTM A123 Type 2.
All posts, blockouts, materials are to be as per Standard Construction Drawing GR-2.1, and GR-1.1 and CMS 606. All other components are to be as specified on GR-1.1 GR-2.2 or CMS 606. on GR-1.1, GR-2.2, or CMS 606.

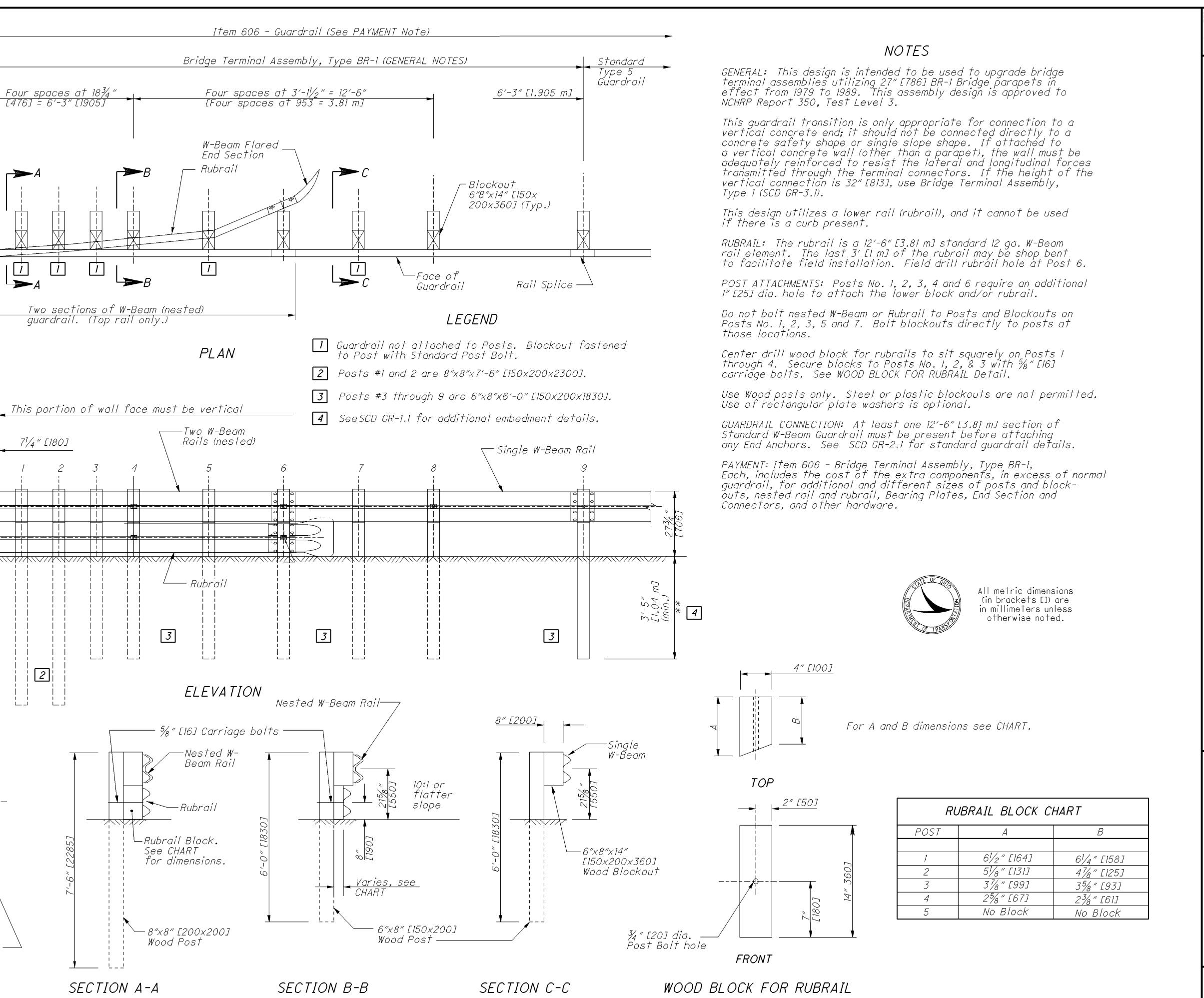
MOUNTING HEIGHT:

The Type 5MR is to be mounted at 27.75 inches to the top of the w-beam rail, when measured from the closest paved shoulder as shown on the MEASURING GUARDRAIL HEIGHT Detail on this sheet.

The configuration shown here is not to be used in any end terminals, bridge terminal assemblies, or impact attenuators. Those systems are to be installed as per other standard drawings or manufacturer's instructions. Introduce the rubrail to approaching traffic by field bending the last 6/3" of rubrail to behind the first post. On the trailing end, do not bend the rubrail behind the last post as shown. In both cases, attach the rubrail to the first (or last) post.

them 606 Guardrail Type 5MR is paid in Lineal Feet for the length specified in the plans and shall include all material components (rail, rubrail, post, blockout and fasteners), including the rub rail assembly, and all other haedware, material and labor required to construct the guardrail system as shown.





√8″ [22] dia. ASTM A325

washers and hex nuts.

Through bolts (lengths to be determined in the field

in accordance with parapet width). Use 1" [25] dia. holes with 5% "x10" x11" [16x 250x275] plate with standard—

Bearing Plate

(one for each

Permissible

wall transition

₽ Rail

W-Beam Terminal Connectors. lapped in the direction of traffic.

8″ [190] —

Existing

Parapet

BR-1

11/2" [38]

Post No.

€ Post Bolt Holes

[100]

11" [275]

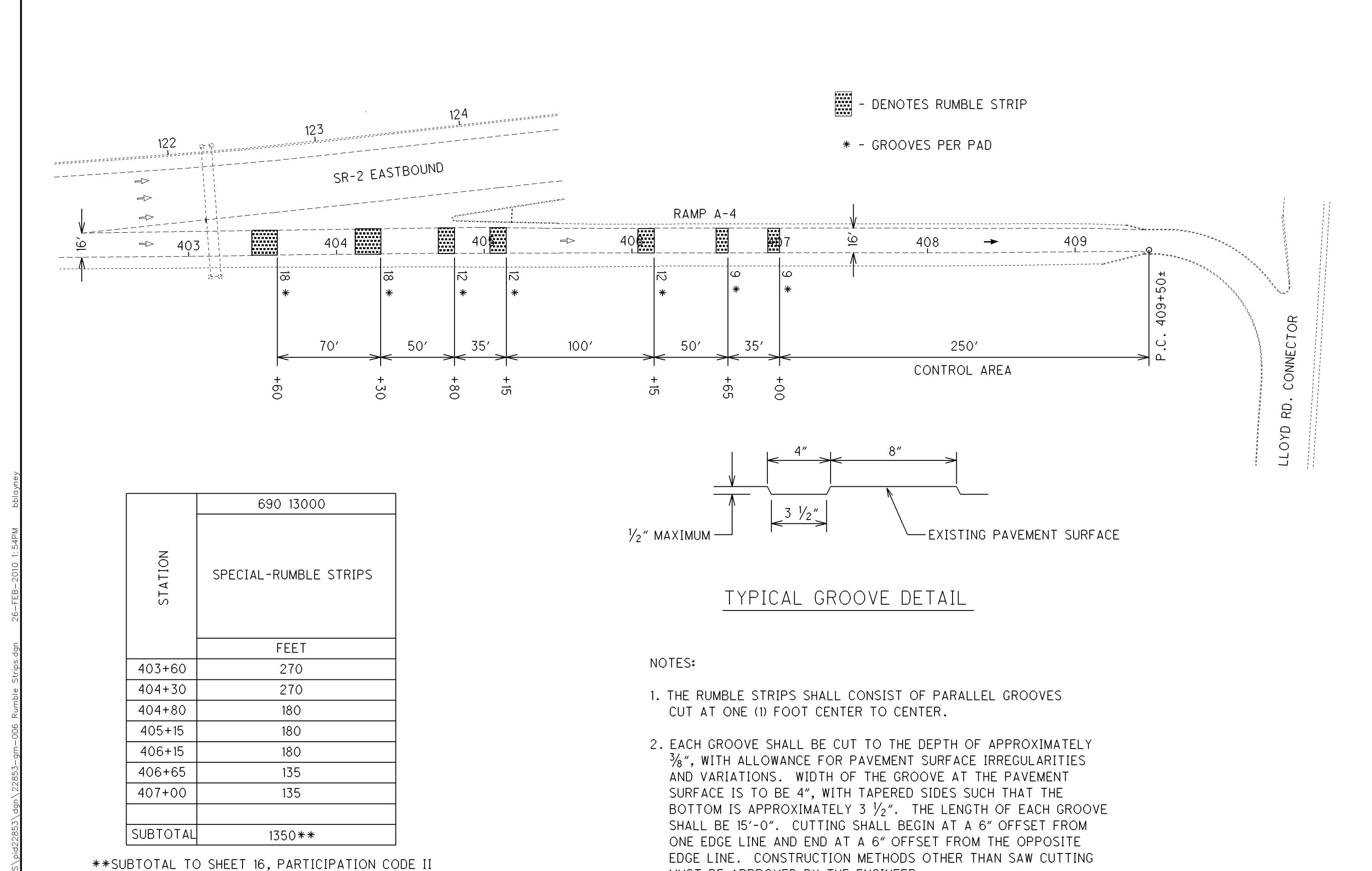
BEARING PLATE

2 required

5% "[16] thick plate with four 1"[25] dia. holes

rail). See detail.

7¹/4″ [180]



MUST BE APPROVED BY THE ENGINEER.