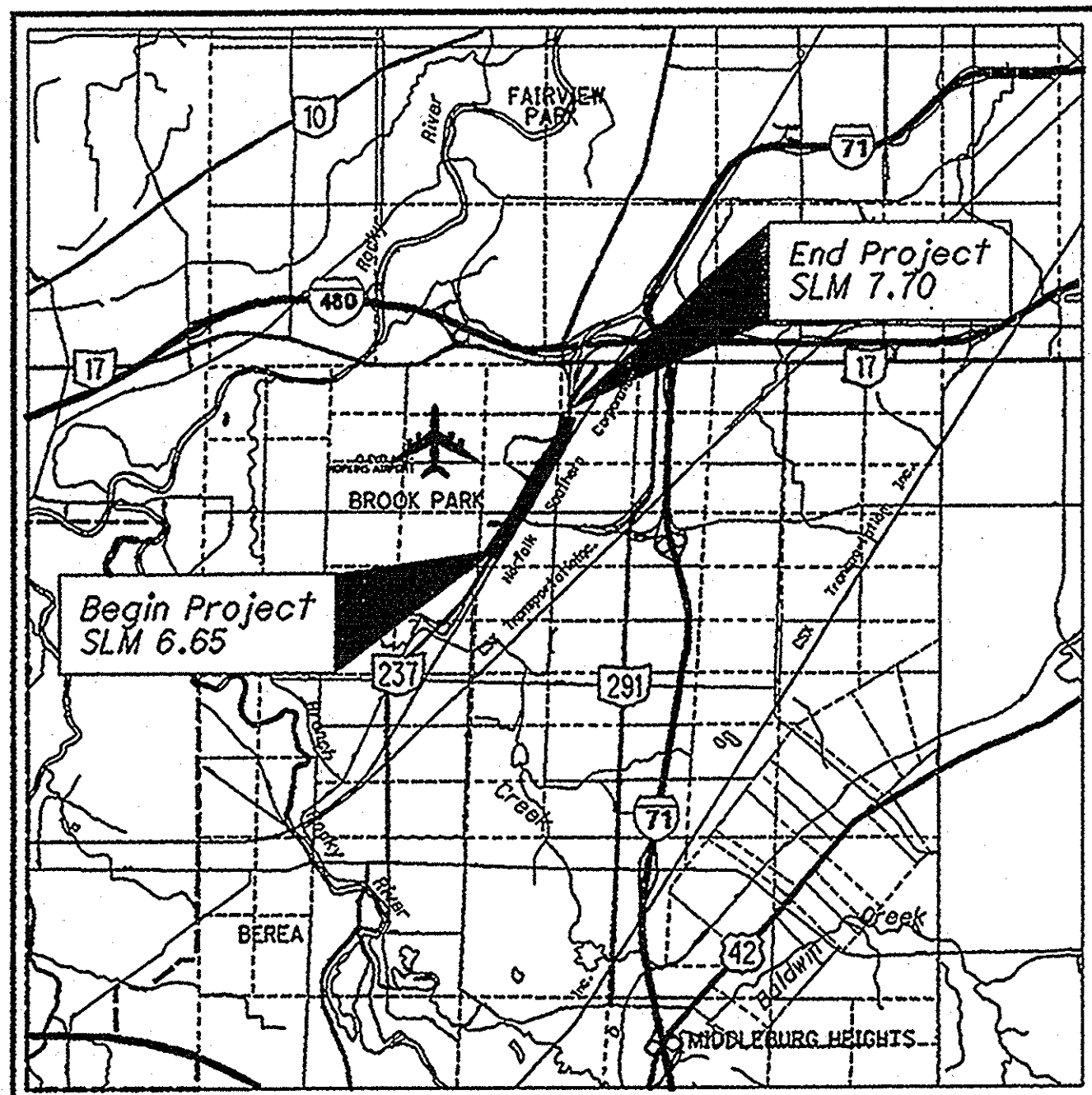


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-237-6.65

**CUYAHOGA COUNTY
CITY OF BROOK PARK**



LOCATION MAP

LATITUDE: 41°24'27" LONGITUDE: 81°50'04"



PORTION TO BE IMPROVED.....	—————
INTERSTATE HIGHWAY.....	—————
FEDERAL ROUTES.....	—————
STATE ROUTES.....	—————
COUNTY & TOWNSHIP ROADS.....	—————
OTHER ROADS.....	—————

DESIGN FUNCTIONAL CLASSIFICATION:

Urban Arterial
NHS PROJECT..... Yes

DESIGN EXCEPTIONS

None Required

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS UNDERGROUND
PROTECTION SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
ODOT DISTRICT 12 PLANNING & ENGINEERING
5500 TRANSPORTATION BLVD.
GARFIELD HEIGHTS, OH 44125

ENGINEERS SEAL:

SIGNED: *Keith D. Hamilton*
DATE: 12-15-2014

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-2.1	7/19/13	MT-98.20	7/18/14	800	1/21/15
BP-2.2	7/18/08	MT-98.22	7/18/14		
BP-2.5	7/19/13	MT-98.28	7/18/14	821	4/20/12
BP-3.1	7/18/14	MT-99.20	7/18/13	832	1/17/14
BP-5.1	7/19/13	MT-101.90	7/18/14	875	1/17/14
BP-9.1	7/19/13	MT-105.10	7/19/13	921	4/20/12
MGS-1.1	7/19/13	TC-61.10	1/17/14		
MGS-2.1	7/19/13	TC-61.30	7/18/14		
MGS-3.1	7/18/14	TC-65.10	1/17/14		
MGS-3.2	1/18/13	TC-65.11	7/18/14		
MGS-4.2	7/19/13	TC-71.10	1/17/14		
		TC-72.20	7/18/14		
		TC-82.10	10/18/13		
		MT-95.30	7/18/14		
		MT-98.10	7/18/14		
		MT-98.11	7/18/14		

PROJECT DESCRIPTION

IMPROVEMENT OF 1.15 MILES OF SR-237 FROM EASTLAND RD. TO SR-17 (BROOKPARK RD.) IN THE CITY OF BROOKPARK. WORK ITEMS INCLUDE ASPHALT RESURFACING, PAVEMENT REPAIRS, GUARDRAIL, PAVEMENT MARKINGS, AND RAISED PAVEMENT MARKERS.

PROJECT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)

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.

2013 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 APPROVED 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.

APPROVED: *M. J. ...*
DATE: 12-15-14 DISTRICT DEPUTY DIRECTOR

APPROVED: *[Signature]*
DATE: 12-23-14 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E(100)1917

PID NO. 85631

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

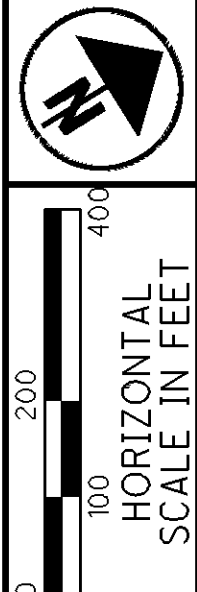
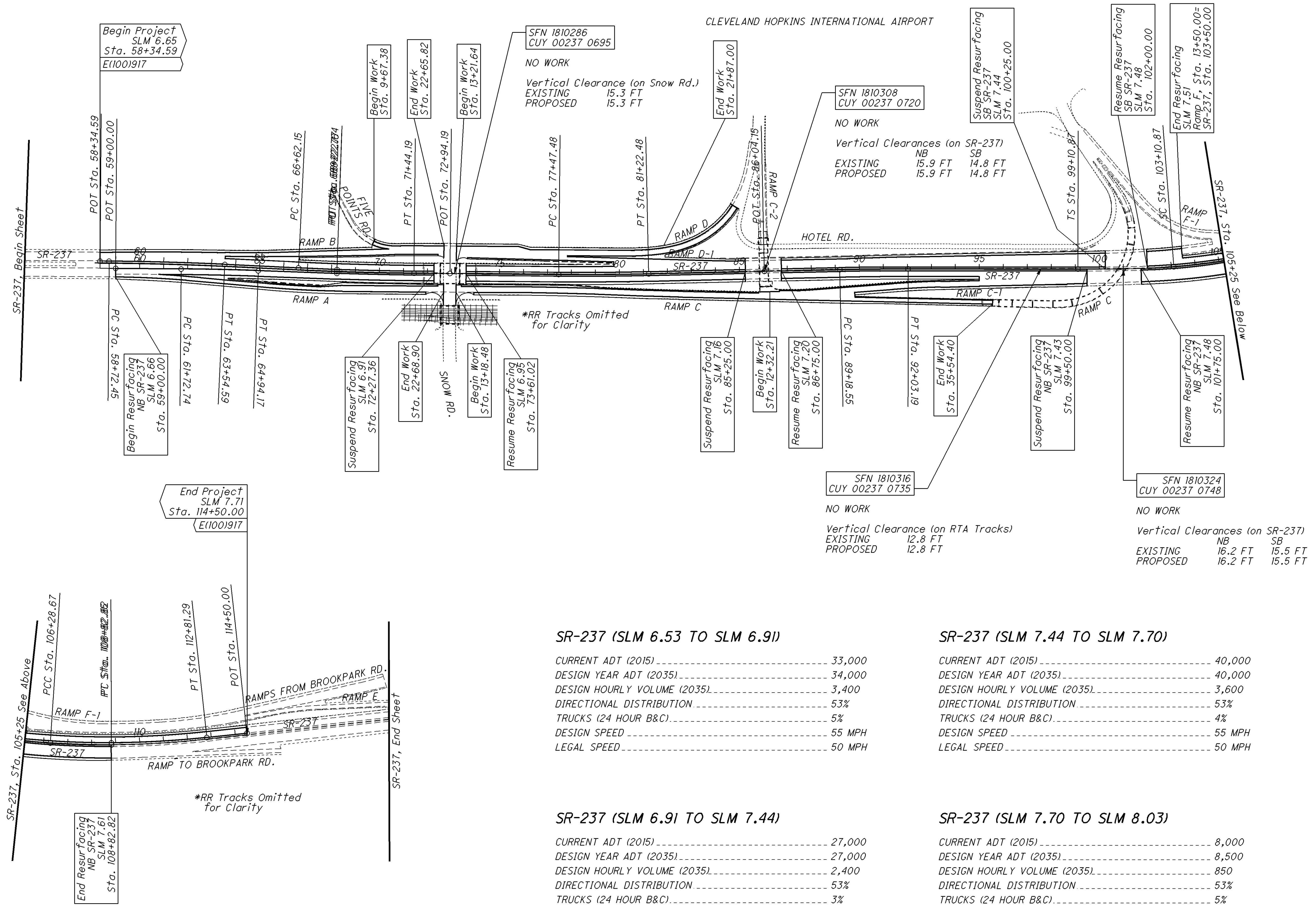
CUY-237-6.65

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CUY - SR 237-06.65
150131 PID - 85631
Dist 12 3/20/2015

Contract Proposal Available
@ www.contracts.dot
state.oh.us/home

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SCHEMATIC PLAN & DESIGN DESIGNATIONS

SR-237 (SLM 6.53 TO SLM 6.91)

CURRENT ADT (2015)	33,000
DESIGN YEAR ADT (2035)	34,000
DESIGN HOURLY VOLUME (2035)	3,400
DIRECTIONAL DISTRIBUTION	53%
TRUCKS (24 HOUR B&C)	5%
DESIGN SPEED	55 MPH
LEGAL SPEED	50 MPH

SR-237 (SLM 6.91 TO SLM 7.44)

CURRENT ADT (2015)	27,000
DESIGN YEAR ADT (2035)	27,000
DESIGN HOURLY VOLUME (2035)	2,400
DIRECTIONAL DISTRIBUTION	53%
TRUCKS (24 HOUR B&C)	3%
DESIGN SPEED	55 MPH
LEGAL SPEED	50 MPH

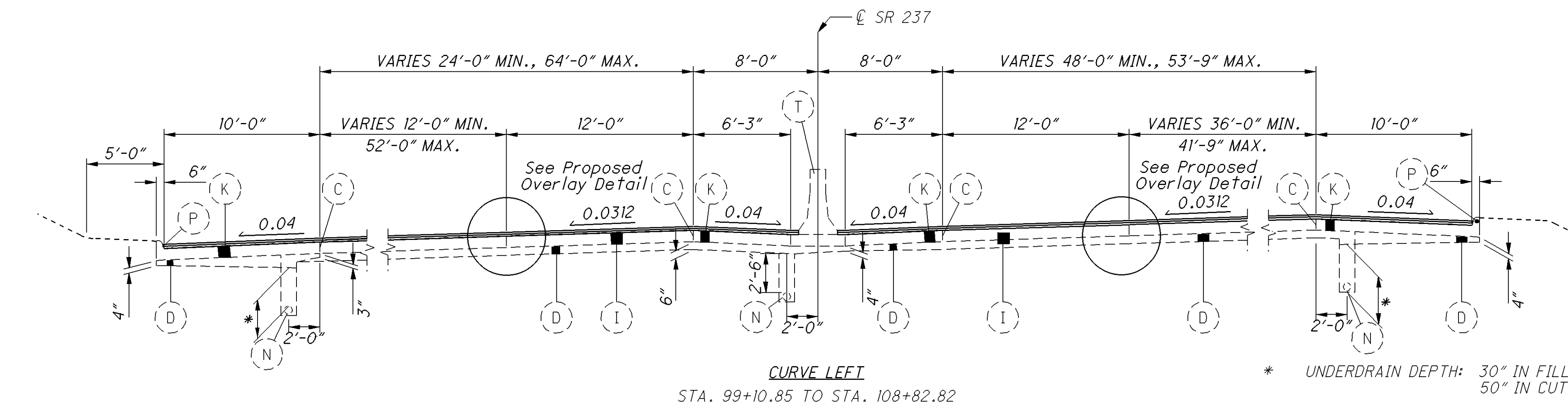
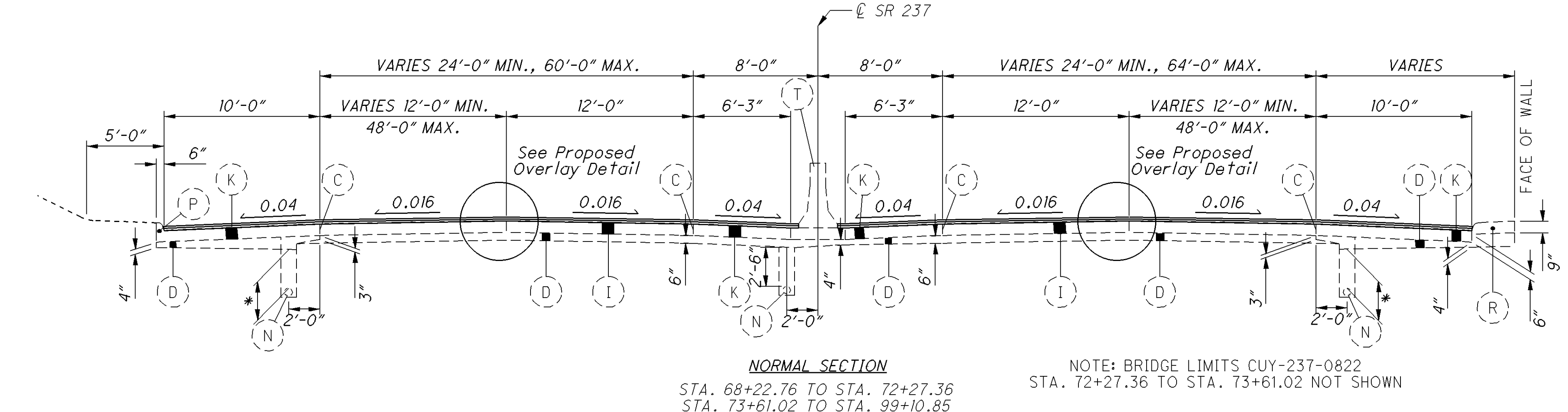
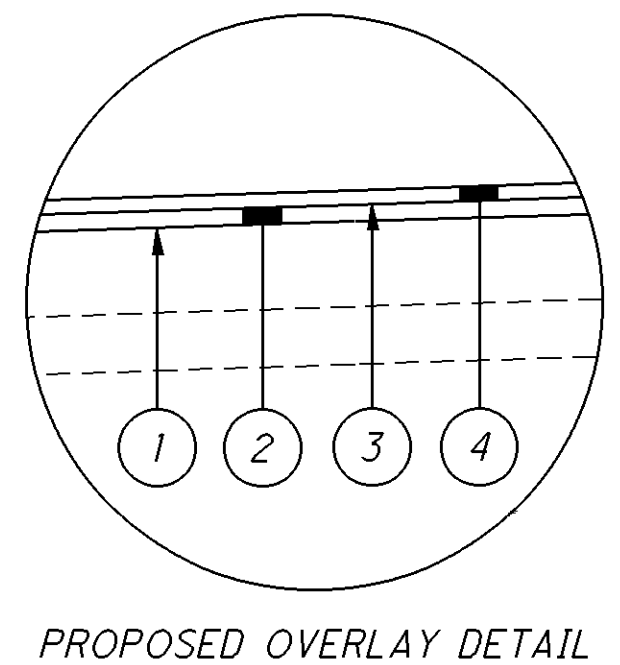
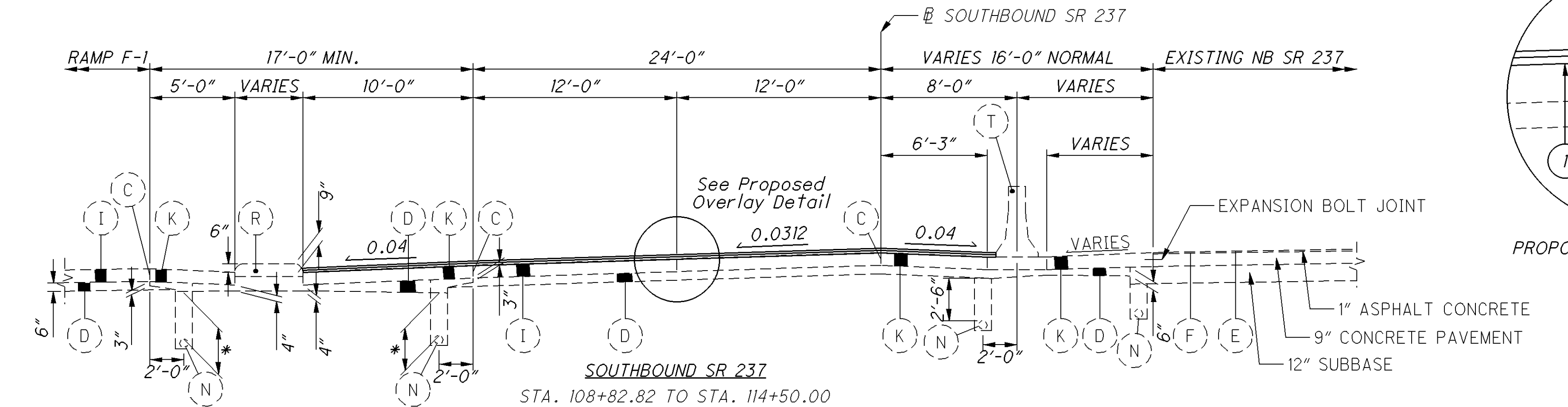
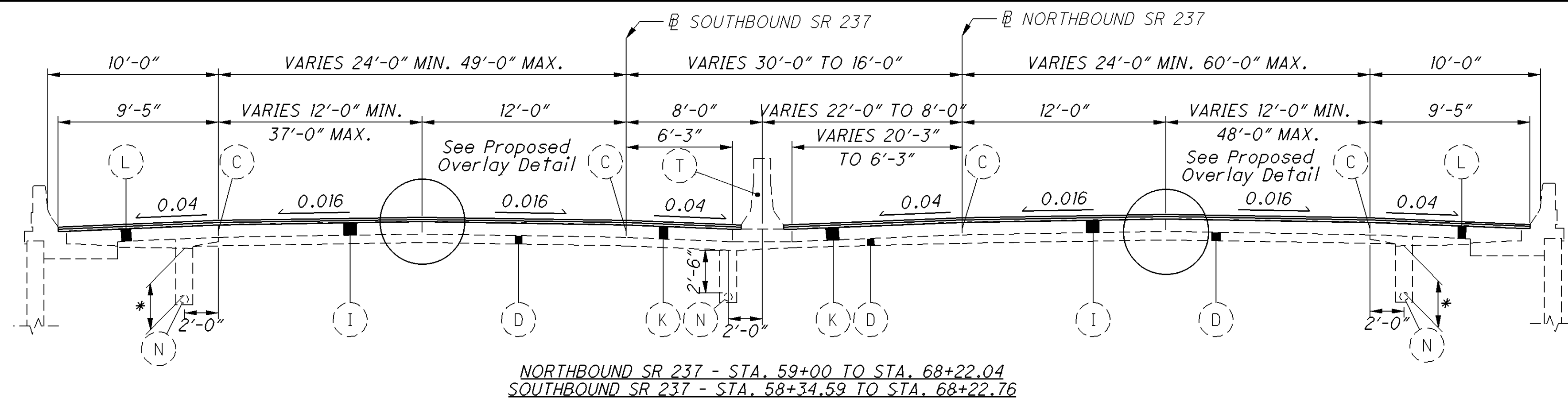
SR-237 (SLM 7.44 TO SLM 7.70)

CURRENT ADT (2015)	40,000
DESIGN YEAR ADT (2035)	40,000
DESIGN HOURLY VOLUME (2035)	3,600
DIRECTIONAL DISTRIBUTION	53%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	55 MPH
LEGAL SPEED	50 MPH

SR-237 (SLM 7.70 TO SLM 8.03)

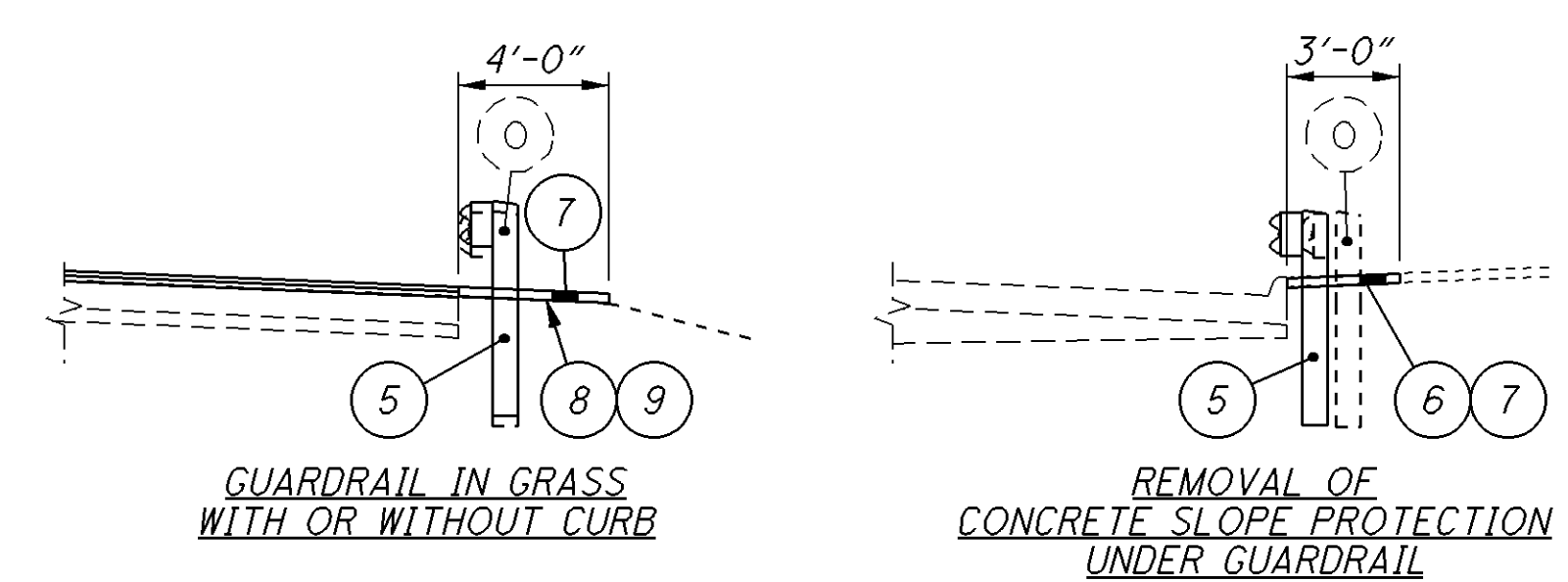
CURRENT ADT (2015)	8,000
DESIGN YEAR ADT (2035)	8,500
DESIGN HOURLY VOLUME (2035)	850
DIRECTIONAL DISTRIBUTION	53%
TRUCKS (24 HOUR B&C)	5%
DESIGN SPEED	55 MPH
LEGAL SPEED	50 MPH

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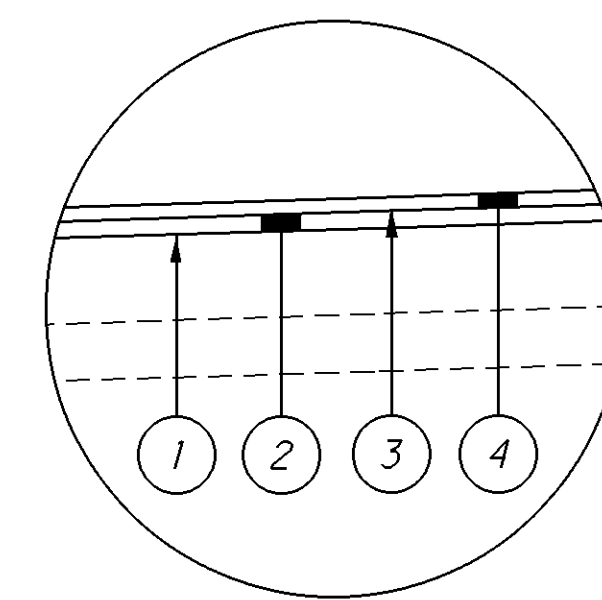
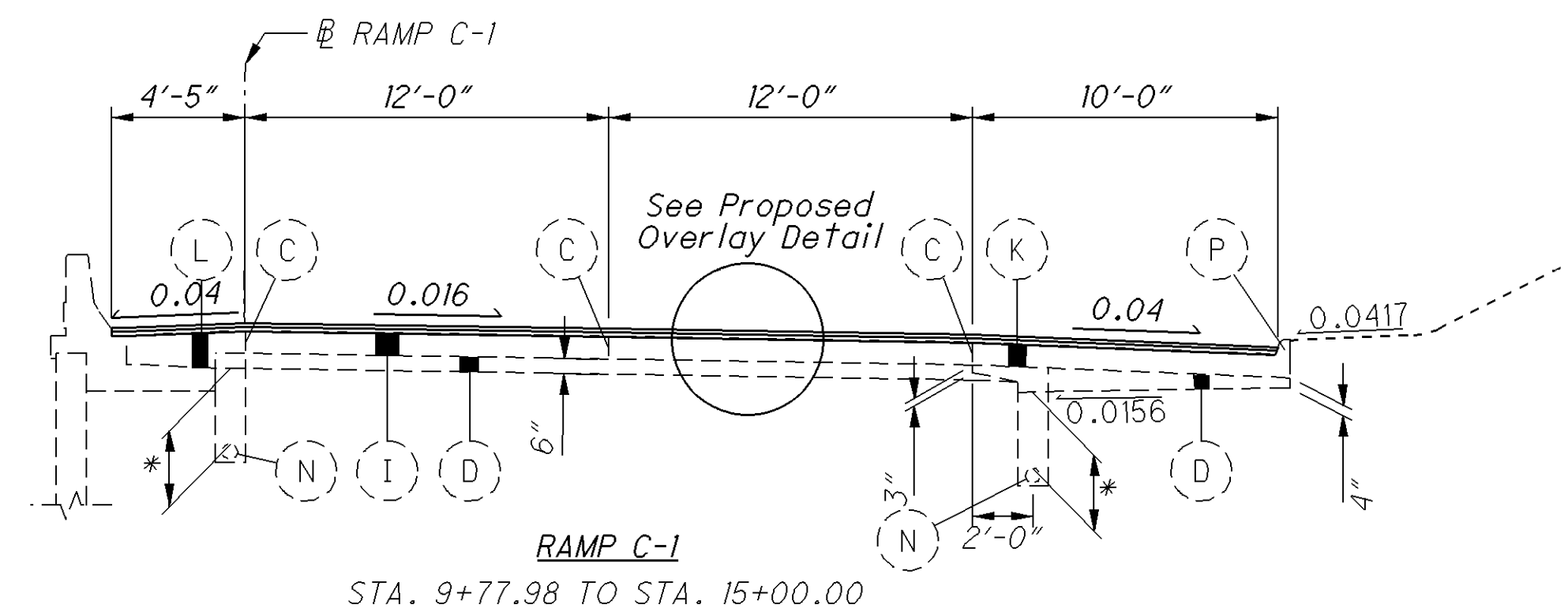
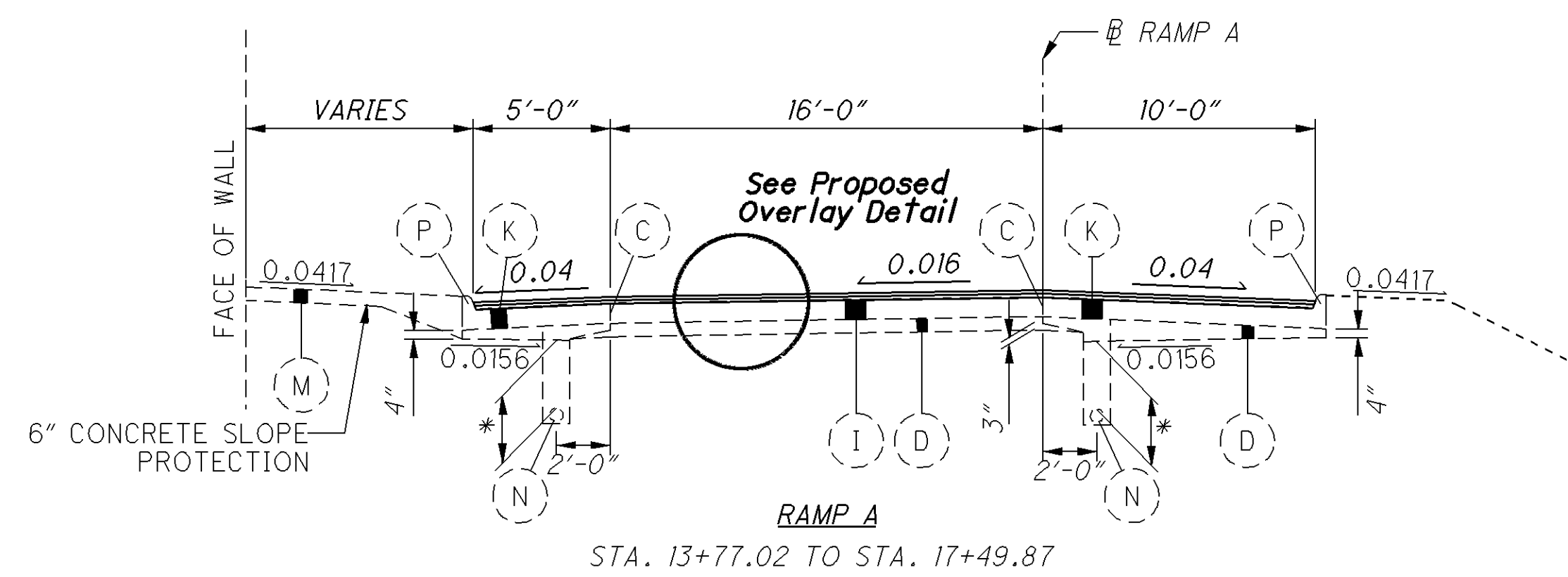
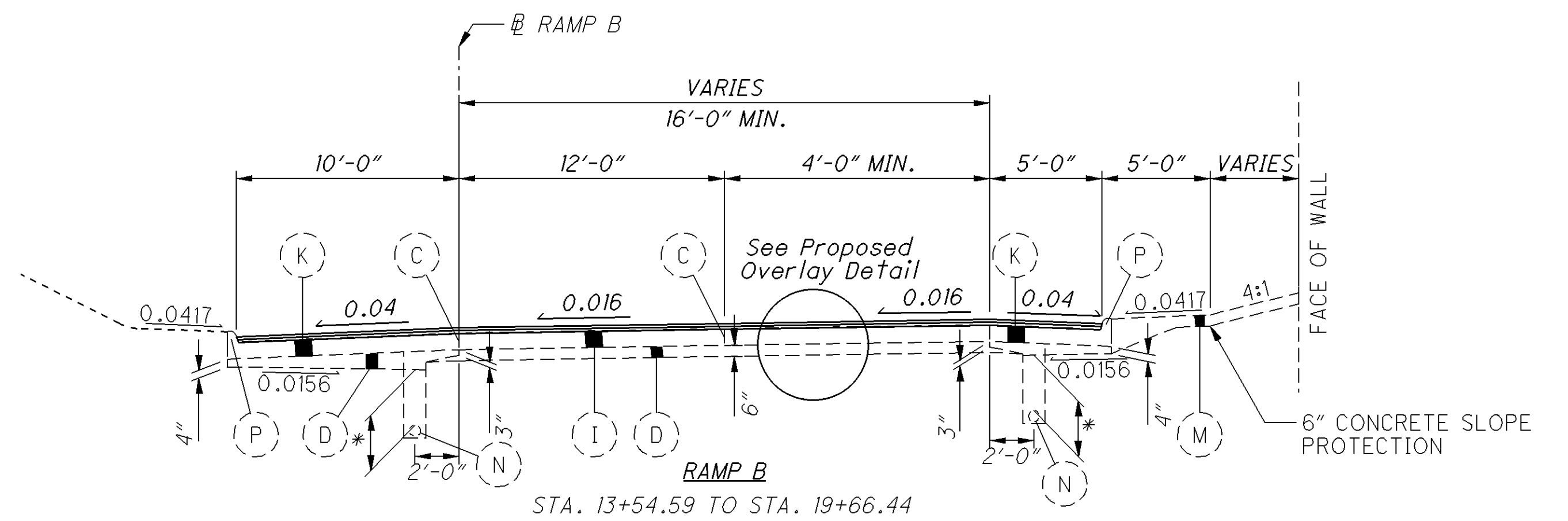
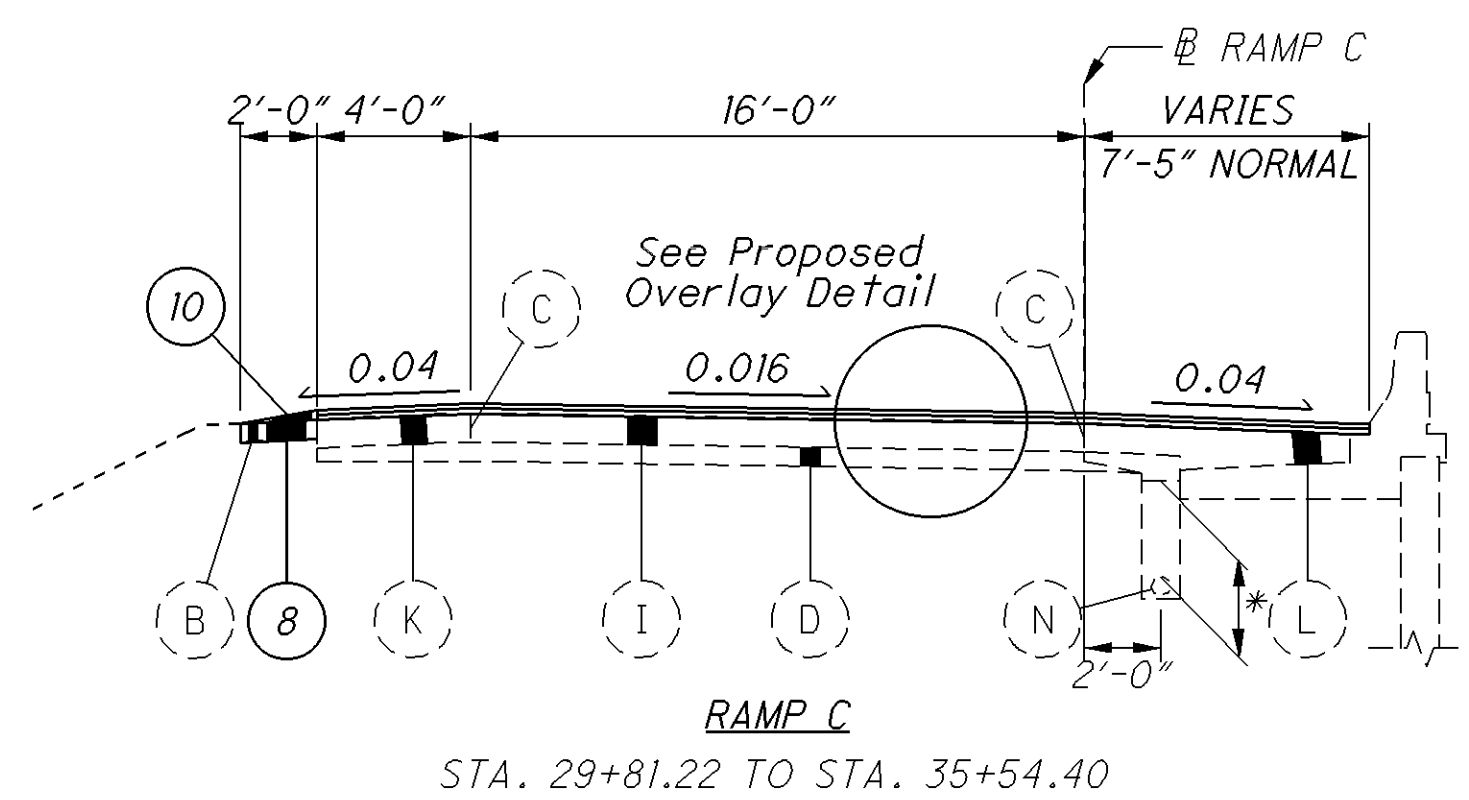
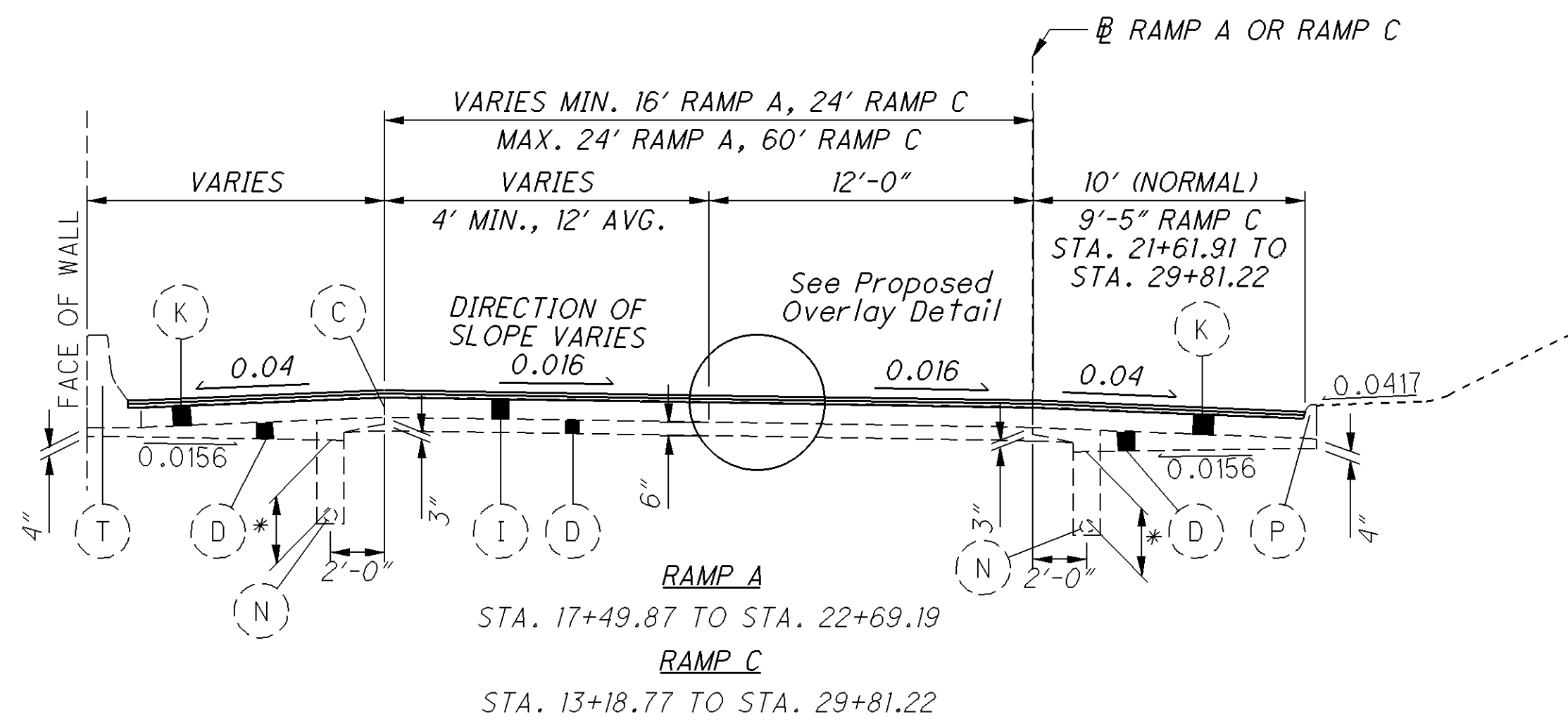
- EXISTING LEGEND**
- (A) 5" BITUMINOUS AGGREGATE BASE AC-20, RT-11, OR RT-12
 - (B) 6" BITUMINOUS AGGREGATE BASE AC-20, RT-11, OR RT-12
 - (C) STANDARD LONGITUDINAL JOINT
 - (D) SUBBASE, TYPE II
 - (E) ASPHALT CONCRETE AC-20
 - (F) COVER AGGREGATE
 - (G) SEAL COVER AGGREGATE, NO. 8
 - (H) 6" STABILIZED CRUSHED AGGREGATE
 - (I) 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
 - (J) 8" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
 - (K) 9" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
 - (L) PLAIN PORTLAND CEMENT CONCRETE PAVEMENT, VARIABLE THICKNESS
 - (M) CONCRETE SLOPE PROTECTION
 - (N) 6" PIPE UNDERDRAIN
 - (O) GUARDRAIL, TYPE 5
 - (P) CURB, TYPE 2A
 - (Q) 6" X 7" INTEGRAL CONCRETE CURB
 - (R) CONCRETE MEDIAN
 - (S) 4" CONCRETE TRAFFIC ISLAND
 - (T) CONCRETE BARRIER, TYPE B50 OR D32

- PROPOSED LEGEND**
- (1) ITEM 407 - TACK COAT, 702.13
 - (2) ITEM 442 - ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446), 1-3/4 IN.
 - (3) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE
 - (4) ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446), AS PER PLAN, 1-1/2 IN.
 - (5) ITEM 606 - GUARDRAIL, TYPE MGS
 - (6) ITEM 202 - CONCRETE SLOPE PROTECTION REMOVED
 - (7) ITEM 441 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448), UNDER GUARDRAIL, AS PER PLAN
 - (8) ITEM 209 - BORROW
 - (9) ITEM 209 - RESHAPING UNDER GUARDRAIL, AS PER PLAN
 - (10) ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN



* UNDERDRAIN DEPTH: 30" IN FILL (SHALLOW)
 50" IN CUT (DEEP)

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PROPOSED OVERLAY DETAIL

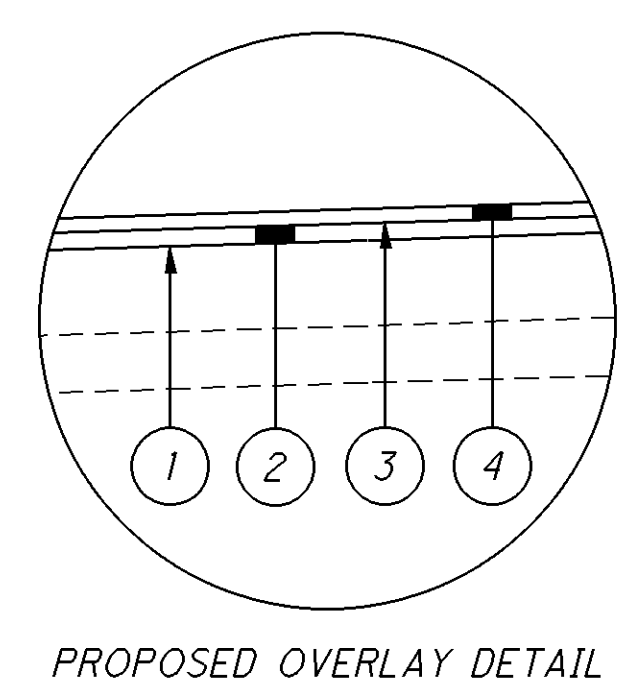
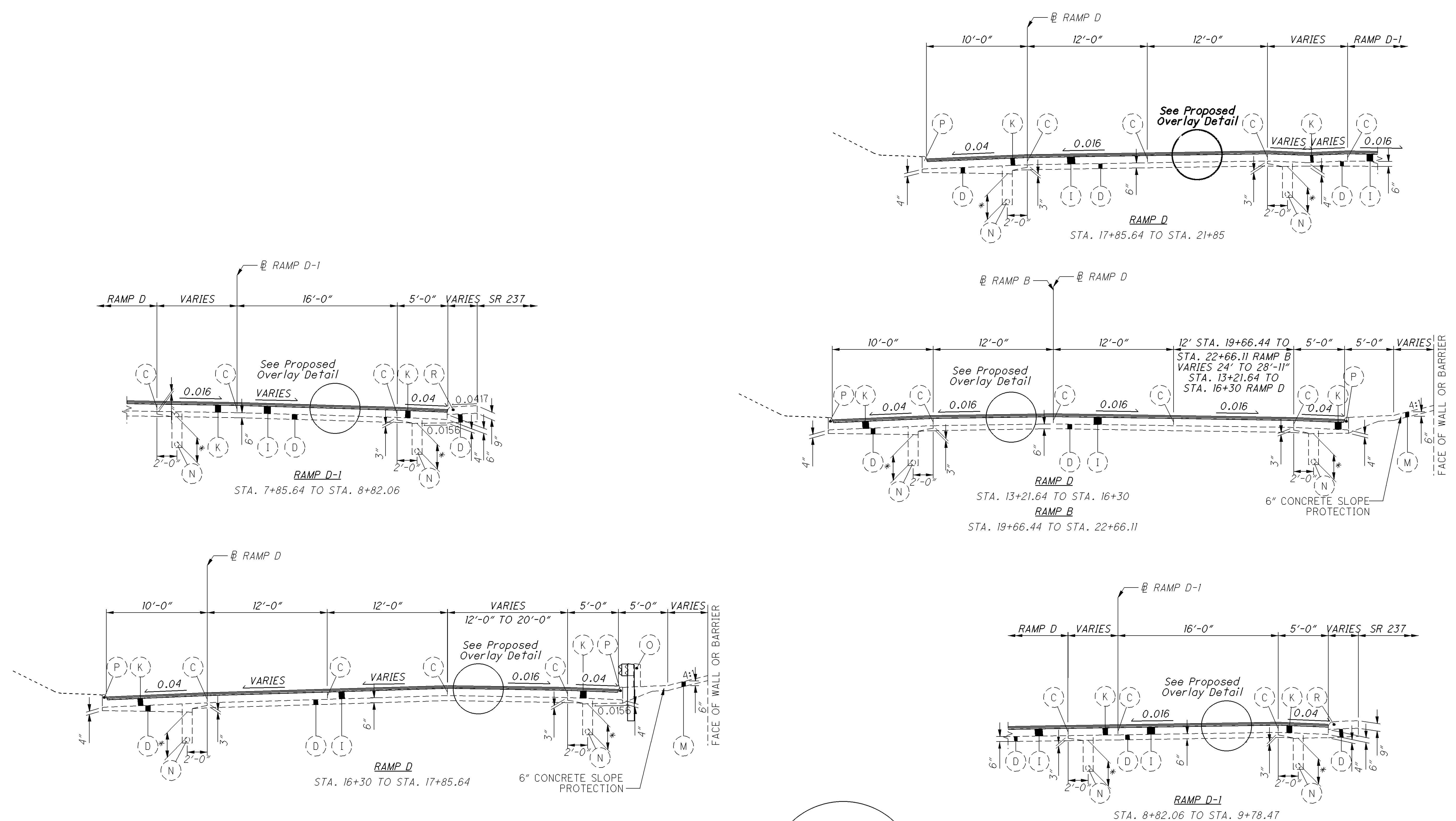
* UNDERDRAIN DEPTH: 30" IN FILL (SHALLOW)
50" IN CUT (DEEP)

For Legend, See Sheet 3

TYPICAL SECTIONS - RAMPS

CUY - 237 - 6.65

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* UNDERDRAIN DEPTH: 30" IN FILL (SHALLOW)
50" IN CUT (DEEP)

For Legend, See Sheet 3

General

Project Description

This project consists of the rehabilitation of 1.15 miles of SR-237 from Eastland Rd. to SR-17 (Brookpark Rd.) in the City of Brookpark in Cuyahoga County.

Right of Way

All work shall be performed within the existing right of way or easements.

Existing Plans

Existing plans entitled CUY-237-6.70; Project 813-83 and CUY-237-5.59; Project 102-06; PID 24859 may be inspected in the ODOT District 12 Office at:

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

Plan Sheet Stationing

The roadway was not surveyed prior to the preparation of these plans. Record drawings were used to prepare plan sheets and calculate estimated pavement area quantities and pavement markings.

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.

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:

1. Any removed items shall not be stored on the right of way for more than thirty (30) days.
2. 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.
3. All disturbed areas shall be returned to their original condition at no expense to the state.

Item 623 - Construction Layout Stakes and Surveying, As Per Plan

In addition to the requirements of the CMS, this item of work will include the following additional requirements.

An Ohio Professional Surveyor shall determine the minimum vertical clearances of all existing and new bridges within the project limits after completion of all the work, but prior to final acceptance of the project. At a minimum, measurements shall be taken along the centerline of each fascia beam at the edge of shoulders, edge lines, lane lines, and crown of the roadway below. The measurements shall be documented on the ODOT vertical clearance survey form. The form shall bear the stamp or seal of the Ohio Professional Surveyor who has taken the measurements. The Ohio Professional Surveyor shall submit the completed form to the Project Engineer and the District Bridge Maintenance Engineer prior to final acceptance of the project.

Payment for all of the above work shall be at the unit price bid for Item 623 – Construction Layout Stakes, As Per Plan, which shall include all labor, equipment, materials and incidentals necessary to complete the above work.

Utilities

Listed below are all utilities located within the project construction limits together with their respective owners. The Ohio Department of Transportation has used the best available information to determine the utility companies serving this area but cannot guarantee that this utility company list is complete.

Electric:

Illuminating Company
6896 Miller Road
Brecksville, OH 44141
Attn: Mark Robinson,
Contract Specialist & Public Works
Coordinator
Phone: (440) 717-6845
Cell Phone: (440) 550-9001
Fax: (440) 546-8780
Email:
robinsonme@firstenergycorp.com

Oil/Gas:

Dominion East Ohio Gas Company
320 Springside Dr.
Fairlawn, OH 44333
Attn: Ed Goubeaux, Project Manager
Phone: (330) 664-2494
Mobile: (330) 604-7482
Email: Edward.t.goubeaux@dom.com

Telecommunications:

Fibertech Networks, LLC
15565 Neo Parkway
Garfield Heights, OH 44128
Attn: Ed Daly
Cell: (585) 397-5988
Email: edaly@fibertech.com
OR
Attn: Robert J. Pluto, Market Operations
Manager
Cell: (585) 474-6244
Email: rpluto@fibertech.com

AT&T

13630 Lorain Ave. – 2nd Floor
Cleveland, OH 44111
Attn: James Janis, Design Manager
Phone: (216) 476-6142
Fax: (216) 476-6013

MCI - Worlcom

120 Ravine St.
Akron, OH 44303
Attn: Al Guest
Phone: (330) 253-8267
Email: allan.guest@verizon.com

Water:

City of Cleveland
Division of Water
1201 Lakeside Ave.
Cleveland, OH 44114
Attn: Tina Gosha – Plan Review Unit
Phone: (216) 664-2444, Ext. 5526
Fax: (216) 664-2838
Email: tina_gosha@clevelandwater.com

Lighting:

Ohio Department of Transportation
5500 Transportation Blvd.
Garfield Heights, OH 44125
Attn: Tony Toth, P.E., District
Traffic Engineer
Phone: (216) 584-2168
Fax: (216) 584-2278

BP Oil

4421 Bradley Road
Cleveland, OH 44109
Attn: Dan Plevny
Mobile: (216) 906-6374
Fax: (216) 398-8693
Email: dan.plevny@bp.com

Time Warner Cable

8179 Dow Circle
Strongsville, OH 44136
Attn: Gary Naumann, Supervisor
Phone: (216) 575-8016, Ext. 5033
OR
Attn: Paul Silvestro, Field Engineer
Phone: (216) 575-8016, Ext. 5034
Fax: (440) 826-2940

Qwest Communications

4650 Lakehurst Court, 1st Floor
Dublin, OH 43016
Attn: Chris Strayer
Phone: (614) 215-5606
Cell Phone: (303) 886-1299

Sewer:

City of Cleveland
Division of Water Pollution Control
12302 Kirby Road
Cleveland, OH 44108
Attn: Rachid Zoghaib
Phone: (216) 664-3785

Northeast Ohio Regional Sewer
District (NEORSRD)
3900 Euclid Ave.
Cleveland, OH 44115-2504
Attn: Mary Maciejowski, CDDP
Manager
NEORSRD – Watershed Programs
Phone: (216) 881-6600, Ext. 6466
Email: maciejowskim@neorsrd.org

There are no underground utilities shown on this plan. The nature of the work required by this project will not affect any known underground utilities that exist under or adjacent to the work area.

Protection of BP Oil Pipeline

The Contractor is warned that a BP Oil pipeline is present just to the west of southbound SR-237, along Hotel Rd., behind the concrete barrier.

The Contractor shall give 24-hour notice to BP Oil, attention Dan Plevny, E&M Specialist I, at (216) 906-6374, prior to working within 25 FT of the pipeline in order to give adequate notice so that a BP Oil representative can be on site, if needed.

Protection of Right-of-Way Landscaping

Prior to beginning work, the Contractor, the Project Engineer, and a representative of the maintaining agency will review and record all landscaping items within the right-of-way (both within and outside the construction limits). A record of this review will be kept in the Project Engineer's files. Prior to final acceptance, a final review of landscaping items will be made.

Constrict all activities, equipment storage, and staging to within the construction limits. Unless otherwise identified in the plans or proposal, the construction limits are identified as 30 feet [10 meters] from the edge of pavement.

Submit a written request to the Project Engineer to use any area outside these limits. The document submitted must clearly identify the area and explain the proposed use and restoration of the area. Use of these areas for disposal of waste material and construction debris, excavation of borrow material, and placement of portable plants is prohibited. The request must be approved, in writing, before the Contractor has permission to use the area.

Any items damaged beyond the construction limits as defined above will be replaced in kind or as approved by the Project Engineer.

Work Limits

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

Staging Areas

There are no specific areas given in the plans for the Contractor to use as a staging area(s). If the Contractor wants to use an area(s) for staging, regardless if it falls within the project limits or not, the Contractor is to contact Jill Powers at 216-584-2195 at District 12 in order to apply for a permit per Section 107.02 of the CMS.

If a permit is granted, all conditions of the permit shall be met in addition to the requirements of 104.04 of the CMS, at no additional cost to the State. If the Project Engineer deems that all the conditions of the permit were not met, then 10% of the Contract bid amount for mobilization shall be withheld until all the conditions of the permit are satisfied.

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.

Airway/Highway Clearance for Airports and Heliports

This project has been identified as being within the influence area of a public use airport or heliport. No temporary structures or construction equipment at maximum operating height shall exceed a height of 25 FT. If any temporary structures or construction equipment will exceed this height, further coordination with the Federal Aviation Administration (FAA) and the ODOT Office of Aviation will be necessary prior to erecting such temporary structures or operating such equipment on the project. The Contractor will be required to file a new FAA Form 7460-1, advising the FAA that the following Aeronautical Studies Numbers are being resubmitted and that an alteration to the original submission is requested.

2014-AGL-5927-OE	2014-AGL-5928-OE	2014-AGL-5929-OE
2014-AGL-5930-OE	2014-AGL-5931-OE	2014-AGL-5932-OE
2014-AGL-5933-OE	2014-AGL-5934-OE	2014-AGL-5935-OE
2014-AGL-5936-OE	2014-AGL-5937-OE	2014-AGL-5938-OE
2014-AGL-5939-OE	2014-AGL-5940-OE	2014-AGL-5941-OE
2014-AGL-5942-OE	2014-AGL-5943-OE	2014-AGL-5944-OE
2014-AGL-5945-OE	2014-AGL-5946-OE	2014-AGL-5947-OE
2014-AGL-5948-OE	2014-AGL-5949-OE	

Notify the ODOT Office of Aviation when resubmitting FAA Form 7460-1. No temporary structures or construction equipment shall exceed the permissible height until a copy of the FAA Approval and the ODOT Office of Aviation permit has been furnished to the Project Engineer.

FAA approval may take up to 45 days. All submissions shall be directed to these offices:

Express Processing Center The Federal Aviation Administration Southwest Regional Office Air Traffic Airspace Branch ASW-520 2601 Meachan Blvd. Fort Worth, TX 76137-4298	Ohio Department of Transportation Office of Aviation 2829 West Dublin-Granville Road Columbus, Ohio 43235 614-387-2346
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Additional Requirements for Airport Coordination

The temporary structure (dump truck) must be lowered to the ground when not in use.

Notify the manager of Cleveland Hopkins International Airport (CLE) at 216-265-6000 at least 3 business days prior to the temporary structure being erected and again when the structure is removed from the site.

Notify the manager of CLE Air Traffic Control Tower (ATCT), at 216-898-2020 at least 3 business days prior to the temporary structure being erected and again when the structure is removed from the site. Additionally, provide contact information for the onsite operator in the event that Air Traffic Control requires the temporary structure to be lowered immediately.

Additional Information for Aeronautical Study Number 2014-AGL-5927-OE

Aeronautical Study No. 2014-AGL-5927-OE

MSL – Mean Seal Level IFR – Instrument Flight Rules RWY – runway
AGL – Above Ground Level VFR – Visual Flight Rules nm – nautical mile
Part 77 – Title 14 Code of Federal Regulations (CFR) Part 77,
Objects Affecting Navigable Airspace

This temporary construction equipment at 25 feet AGL, 812 feet AMSL would be located approximately 802 feet (0.13 nm) southeast of the existing RWY 28 threshold of the Cleveland-Hopkins International Airport (CLE) in Cleveland, OH. The temporary crane has been identified as an obstruction under the standards of Title 14, Code of Federal Regulations (CFR) Part 77, as applied to CLE. This equipment (dump truck) will be used to assist in the pavement of the road. CLE elevation is 799 feet MSL.

Scheduled time of operation: This equipment will be on site for 8 months.

This temporary crane would exceed this CLE Part 77 protected surface:

Section 77.19(d) – A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end. The temporary construction equipment would exceed the CLE approach surface for the proposed RWY 28 by 4 feet and for the existing RWY 28 by 4 feet.

The temporary construction equipment does not constitute a substantial adverse effect because the structure would be temporary. The crane would not be a hazard to air navigation provided these additional conditions identified below are strictly met:

- 1) This temporary construction equipment shall be marked with red light and flag. Red light must conform to chapter 5, red obstruction light system, (L-810 or equivalent and minimum 32.5 candelas) and flag must conform to chapter 3, marking guidelines, in accordance with FAA's advisory circular 70/7460-1K, Obstruction Marking and Lighting. Copy of advisory circular 70/7460-1k can be viewed and/or downloaded at https://oeaaa.faa.gov/oeaaa/external/content/AC70_7460_1K.pdf.
- 2) The sponsor shall notify the Manager of Cleveland Hopkins International Airport (CLE) at 216-265-6000 at least three (3) business days prior to setting the crane.
- 3) Sponsor shall notify the Manager of CLE Air Traffic Control Tower (ATCT), at 216-898-2020 at least three (3) business days prior to erecting the construction equipment before and/or the construction equipment is raised to the higher height. The construction equipment may NOT be raised until this coordination has been completed and sponsor will notify the airport manager when the project is completed and when the construction equipment is removed. Sponsor shall provide the contact phone number of the construction equipment operator schedule to lower the construction equipment if/when necessary along with any revision in the construction equipment operation schedule.
- 4) The construction equipment shall be lowered to the ground at night/or when not in use.

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CALCULATED
KDH
CHECKED
EMK

GENERAL NOTES

CUY - 237 - 6.65

Roadway

**Item 202 – Curb Removed
Item 609 – Curb, Type 2-A, As Per Plan**

This item shall be used as directed by the Engineer to replace existing curb.

The proposed Type 2-A curb shall be doweled into the existing pavement using 6" dowels spaced at 12" center-to-center. The dowels shall be placed vertically and shall extend 3" into the existing pavement, and 3" up into the proposed curb. All requirements of C&MS 609 and the Standard Construction Drawings shall apply.

The existing curb shall be removed and the proposed curb installed prior to placing the proposed intermediate course of asphalt.

The following estimated quantity has been carried to the General Summary to complete this item of work:

202, Curb Removed	200 Feet
609, Curb, Type 2-A, As Per Plan	200 Feet

Item 209 – Reshaping Under Guardrail, As Per Plan

This item of work shall be used to prepare proposed and existing guardrail runs for paving under guardrail, including the removal and disposal of existing asphalt under guardrail.

A sawcut will be performed, when applicable, to assist in the removal of existing asphalt under guardrail and minimize damage to the existing shoulder asphalt. Payment for sawcutting shall be included in the unit bid price for Item 209 – Reshaping Under Guardrail, As Per Plan.

Fill all holes remaining after removal of guardrail posts and anchor assemblies with granular material. Do not use fill material containing sod. All fill material shall be approved by the Engineer and shall be compacted as directed by the Engineer. Payment for the above is included in the applicable guardrail item.

Reshape and compact subgrade to ensure positive drainage. Establish a cross-slope of 0.042 (half inch per foot). Grade to a maximum width of 6 feet to provide positive drainage away from the travel lanes.

All collected debris and topsoil shall be removed and disposed of as specified in Section 105.17 of the CMS.

In areas where both the existing guardrail and the existing asphalt under guardrail will not be replaced, the removed material shall be replaced with compactable granular material conforming to 703.16 and placed to grade as approved by the Engineer. Seed and mulch these areas according to 659.

Payment for the above work shall be made at the unit bid price for Item 209 – Reshaping Under Guardrail, As Per Plan and shall include all labor, tools, equipment, materials, and incidentals necessary to perform the work.

Item 606 – Anchor Assembly, MGS Type E

This item shall consist of furnishing and installing any of the guardrail end terminals listed on Roadway Engineering's web page under Roadside Safety Devices for Approved Guardrail End Treatments. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications.

The face of the Type E impact head shall be covered with a sheet of Type G reflective sheeting per CMS 730.19.

Refer to the manufacturer's instructions 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 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 31 inches from the edge of the shoulder.

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

Payment for the above work shall be made at the unit bid price for Item 606 – Anchor Assembly, MGS 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 202 – Guardrail Removed, As Per Plan

This item of work shall be used to carefully dismantle and remove all guardrail, terminal assemblies, posts and miscellaneous hardware as per CMS 202.09 at the locations specified in the plans.

All guardrail, terminal assemblies, posts and miscellaneous items listed below in good condition shall remain the property of the State and shall be salvaged for reuse. The following materials shall be salvaged, as directed by the Engineer:

- Type 5 guardrail panels
- Plastic guardrail blockouts
- Steel posts
- Type E end terminals – all parts except hardware
- Flared and/or Rounded end sections

All other material not specifically listed above including damaged guardrail components and misc. hardware shall be disposed of by the Contractor.

Items designated for salvage shall be delivered by the Contractor to:

ODOT – Warrensville Garage
 25609 Emery Rd.
 Warrensville Hts., OH 44128
 Location: SR 175 at the intersection of I-271 and Emery Rd
 Office: (216) 584-2285

Provide a minimum one week notice to the designated ODOT Maintenance contact to coordinate/schedule delivery.

Payment for the above item of work shall be included in the Unit Price Bid for Item 202-Guardrail Removed, As Per Plan.

Item 441 – Asphalt Concrete Intermediate Course, Type 1, (448), (Under Guardrail), As Per Plan

This operation shall include paving under the guardrail using 441 Asphalt Concrete Intermediate Course, Type 1, (448), Under Guardrail, As Per Plan.

Paving under guardrail shall consist of placing Item 441 to the depth specified using one of the following methods:

Method A:

1. Set guardrail posts
2. Place Item 441

Method B:

1. Place Item 441
2. Bore asphalt at post locations (may be omitted if steel posts are used)
3. Set guardrail posts
4. Patch around posts. The materials used for patching shall be an asphalt concrete approved by the Engineer. Patched areas shall be compacted using either hand or mechanical methods. Finished surfaces shall be smooth and sloped to drain away from the posts.

All equipment, materials and labor required to perform the work outlined above, with the exception of setting guardrail posts, shall be included for payment under Item 441, Asphalt Concrete, Intermediate Course, Type 1, (448), (Under Guardrail), As Per Plan.

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GENERAL NOTES

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Drainage

Review of Drainage Facilities

Before any work is started on the project and again before final acceptance by the State, representatives of the State and the Contractor, along with local representatives, shall make an inspection of all existing sewers which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenance shall be determined from field observations. Records of the inspection shall be kept in writing by the State. All new conduits, inlets, catch basins, and manholes constructed as a part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the State.

All existing sewers inspected initially by the above mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer. Payment for all operations described above shall be included in the contract price for the pertinent 611 conduit items.

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 or light duty) for the particular structure in question. All material shall meet item 611 of the specifications and shall have the prior approval of the Engineer.

The following estimated quantity has been carried to the general summary for use as directed by the engineer.

Special, Miscellaneous Metal **5,000 Pounds**

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.

Item 611 – Inlet Reconstructed to Grade, As Per Plan, I-2A-10 Item 611 – Inlet Reconstructed to Grade, As Per Plan, I-2A-12

In addition to the requirements of Item 611.10, remove the upper portion of the existing inlet (the "coffin" section) and replace it with a precast section conforming to the requirements of the Standard Construction Drawings and 706.13.

The following estimated quantities have been carried to the General Summary:

611, Inlet Reconstructed to Grade, As Per Plan, I-2A-10..... **5 Each**
611, Inlet Reconstructed to Grade, As Per Plan, I-2A-12..... **1 Each**

Castings Adjusted to Grade

All castings shall be adjusted to the finished roadway elevation by the Contractor. The time between adjusting the castings and resurfacing shall be kept to an absolute minimum. No adjusting rings shall be permitted. When performing this work, the pavement shall be sawcut prior to removal and hook bolts shall be used where practical to connect existing pavement to new concrete.

The following estimated quantities have been carried to the General Summary:

611, Catch Basin Adjusted to Grade, As Per Plan..... **15 Each**
611, Inlet Adjusted to Grade, As Per Plan..... **25 Each**
611, Manhole Adjusted to Grade, As Per Plan..... **10 Each**
611, Gas Valve Box Adjusted to Grade **5 Each**
623, Monument Box Adjusted to Grade, As Per Plan **5 Each**
638, Valve Box Adjusted to Grade, As Per Plan..... **5 Each**

Castings Reconstructed to Grade

The Contractor and Field Engineer shall field check all existing catch basins, manholes, or monument boxes located within the limits of the project. Any casting found that exhibits substantial deterioration and requires more work than is specified under "Castings Adjusted to Grade" shall be "Reconstructed to Grade", as directed by the Engineer. If none are needed, these items are to be non-performed.

The following estimated quantities have been carried to the General Summary:

611, Catch Basin Reconstructed to Grade..... **5 Each**
611, Manhole Reconstructed to Grade **1 Each**
623, Monument Box Reconstructed to Grade **5 Each**

Item Special – Pipe Cleanout

This work shall consist of removing sediment and debris from the existing drainage conduits as directed by the Engineer. All material removed shall be disposed of as per 105.16 and 105.17. All sewers shall be cleaned out to the satisfaction of the Engineer.

All adjacent drainage structures shall be cleaned of debris, to the satisfaction of the Engineer. Clean existing underdrains within 5 FT of a drainage structure to provide adequate flow, as directed by the Engineer. Payment for underdrain and drainage structure cleanout shall be made using the pipe cleanout items and quantities below.

Cleanout of the pipe shall be paid for at the unit price bid for Item Special - Pipe Cleanout. This price shall include the cost for material, equipment, labor, and all incidentals required to complete the cleanout.

The following estimated quantities have been included in the General Summary for the above noted work:

Special, Pipe Cleanout, 12"..... **150 Feet**
Special, Pipe Cleanout, 15"..... **1,500 Feet**
Special, Pipe Cleanout, 18"..... **200 Feet**
Special, Pipe Cleanout, 24"..... **150 Feet**

Pavement

Profile and Alignment

Place the proposed pavement to follow the alignment and profile of the existing pavement. Previous construction plans showing the original alignment and profile, are available for inspection at the ODOT District 12 Office. Place the proposed asphalt concrete overlay as shown on the typical sections.

Part-Width Construction

Because of the necessity to build this project under traffic and to construct the asphalt overlay in stages, exercise care to prevent the construction of a transverse butt joint in the asphalt courses. Lap longitudinal joints as shown on Standard Construction Drawing BP-3.1.

Asphalt Concrete Surface Course Sealing Requirements

In addition to the gutter sealing requirements specified in SCD BP-3.1 and C&MS 401.15, after completion of the surface course, the Contractor shall use a certified 702.01 PG binder to seal the following locations:

- All castings including but not limited to monuments, manholes, water valves, catch basins, curb inlets.
- Butt joints and feather joints including bridge approaches.
- Forward joint for driveway asphalt and trailing joint when butting to existing asphalt drive.
- Perimeter of all pavement repairs or other asphalt inlays when pavement repairs/inlays are not overlaid with an asphalt concrete surface course.
- All cold longitudinal joints between paved shoulders and guardrail asphalt.

The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Any additional costs associated with the work identified in this note shall be included in the appropriate asphalt concrete surface course item of work.

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 along the lane line. No other cold joints are permitted in the surface course of the mainline pavement.
- If part-width construction is used for the ramps, 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 lanes within the same work day as adjacent mainline pavement.

Asphalt Under Guardrail Sealing Requirements

The Contractor shall seal the perimeter of the asphalt under guardrail placed in the concrete slope protection areas using a certified 702.01 PG binder.

Payment for all materials, equipment, labor, and incidentals necessary to perform the above work shall be made at the contract bid price for Item 441 Asphalt Concrete Intermediate Course, Type 1, (448), (Under Guardrail), As Per Plan.

Item 256 – Bonded Patching of Portland Cement Concrete Pavement, Type A, As Per Plan

In lieu of the patch material specified in Section 256 of the C&MS, the following proportions will be used as a starting mix design.

CONCRETE TABLE
Quantities Per Cubic Yard
Aggregates (SSD)

Micro-Silica Overlay Concrete, As Per Plan

Aggregate Type	Fine Aggre.	*#8 Coarse Aggre.	Aggre. Total (lb)	Cement Content (lb)	Micro-Silica (lb)	Water to Cementitious Ratio	Air Content	**Fiber (1 1/4" Polypropylene) (lb)
	(lb)	(lb)					+/- 2%	
Gravel	1410	1430	2840	600	50	0.40	8	1
Limestone	1410	1450	2860	600	50	0.40	8	1
Slag	1300	1350	2650	600	50	0.40	8	1

* All coarse aggregate shall have an absorption of 1.00% or greater as defined per ASTM C127

** Fiber mesh shall be 100% virgin polypropylene in a fibrillated-network form and shall be 1 1/4" in length.

The weights specified in the concrete table were calculated for materials of the following bulk specific gravities (SSD): natural sand and gravel 2.62, limestone sand 2.68, limestone 2.65, slag 2.30, Micro-Silica solids 2.20, and portland cement 3.15. For aggregates of specific gravities differing more than plus or minus 0.02 from these, the weights in the table will be corrected. (Fiber mesh weights not included in mix design).

Item 251 Partial Depth Pavement Repair, As Per Plan A

This item shall be used for the repair of unsound, cold patch, or pop-out areas of longitudinal joints consisting of existing concrete, as directed by the Engineer. The depth of the repair from the top of the existing surface shall be 3". The width of the repair shall be 24" centered over the existing joint.

The following estimated quantity is carried to the General Summary to complete this item of work:

251, Partial Depth Pavement Repair, As Per Plan A**5.025 Sq Yds**

Item 251 Partial Depth Pavement Repair, As Per Plan B

This item shall be used for the repair of unsound, cold patch, or pop-out areas of transverse joints consisting of existing concrete or existing asphalt pressure relief joints at bridge approaches, as directed by the Engineer. The depth of the repair from the top of the existing surface shall be 3". The width of the repair shall be 24" centered over the existing joint.

The following estimated quantity is carried to the General Summary to complete this item of work:

251, Partial Depth Pavement Repair, As Per Plan B**345 Sq Yds**

Item 617 – Compacted Aggregate, As Per Plan

This item shall be used to place compacted aggregate at a variable depth only where needed to fill in low spots along the shoulder and eliminate drop-offs. Material shall be limited to reclaimed asphalt concrete pavement.

The actual depth of compacted aggregate placed will vary depending upon existing conditions. For estimating purposes, an average depth of 3.25 inches has been used. Water, if needed, shall be applied as per 617.05 and included under Item 617 – Compacted Aggregate, As Per Plan.

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

This item shall consist of replacing existing pavement per Item 255, the following notes and the details on Sheet 27

Existing concrete pavement thickness may vary from that shown on the typical sections. 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. Additional compensation shall be made by change order for the material cost of concrete only when the average thickness exceeds the 1 1/2 inch maximum tolerance above the volume of concrete paid for and shall be based upon the amount of concrete additional 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, the Engineer will direct the contractor excavate the unsuitable material and replace it with compacted 304 aggregate. Quantities of Item 203 – Excavation and Item 304 – Aggregate Base have been provided to repair said failed subbase or subgrade areas.

Pavement repairs less than or equal to ten (10) feet in length and 9" in depth shall be paid for under "Full Depth Pavement Removal and Replacement, Class QC MS, As Per Plan A". Pavement repairs greater than ten (10) feet in length and 9" in depth shall be paid for under "Full Depth Pavement Removal and Replacement, Class QC MS, As Per Plan B".

The following estimated quantities shall be used at locations as directed by the Engineer for pavement repairs on SR-237 underneath the Ramp C-2 and Ramp C bridges:

255, Full Depth Pavement Sawing**11,120 Feet**
255, Full Depth Pavement Removal and Rigid Replacement, Class QC MS, As Per Plan A.....**1,300 Sq. Yd.**
255, Full Depth Pavement Removal and Rigid Replacement, Class QC MS, As Per Plan B.....**2,075 Sq. Yd.**

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

The coarse virgin aggregate for this item shall be limited to a blend of air cooled blast furnace slag (ACBFS) or Trap Rock from Ontario and limestone. The Contractor shall use a minimum 60% of ACBFS or Trap Rock from Ontario with limestone comprising the remaining percentage.

When ACBFS is used for a fraction of the aggregate, all requirements of C&MS 442 apply, except provide a total asphalt binder content greater than or equal to 6.2 percent. If ACBFS makes up 100% of the coarse aggregate, all requirements of C&MS 442 apply.

Use a PG 76-22M binder for this item.

Item 618 – Rumble Strips, (Asphalt Concrete)

The following estimated quantity has been carried to the General Summary and shall be used to construct Item 618 Rumble Strips (Asphalt Concrete) per Standard Construction Drawing BP-9.1:

618, Rumble Strips, (Asphalt Concrete).....**4.24 Mile**

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Pavement (Continued)

Item Special Tack Coat, Trackless Tack
Item Special Tack Coat, Trackless Tack for Intermediate Course

Description: This work consists of preparing and treating a paved surface with NTSS-1HM Trackless Tack produced by Blacklidge Emulsions, Inc. Meet all requirements of Construction and Material Specifications Item 407 Tack Coat except as noted below.

Material: Conform to the following typical physical properties:

Parameter	Test Method	MIN.	MAX.
Saybolt Furol Viscosity, SFS @ 25°C	ASTM D88	15	100
Storage Stability, 24 hrs, %	ASTM D244	--	1
Storage Stability, 5 days, %	ASTM D244	--	5
Residue by Distillation, %	ASTM D244	50	--
Oil Distillate, %	ASTM D244	--	1
Sieve Test, %	ASTM D244	--	0.3

Test on Residue:

Penetration, @ 25°C,	ASTM D5	--	20
Softening Point Range Deg C	ASTM D36	65	--
Solubility,%	ASTM D2042	97.5	--
Original Binder DSR@82°C			
G*/SIN δ,10 rad/sec	AASHTO T111	1	--

Note: Product should not contain filler such as clay, etc
 Keep from freezing.
 Supply certified test data to the Engineer showing the material supplied was tested for and meets the above properties.

Equipment. All requirements of 407.03 apply. See manufacturer's representative for correct distributor settings. Thoroughly clean all equipment if cationic emulsion was previously used.

Weather Limitations. All requirements of 407.04 apply.

Preparation of Surface. All requirements of 407.05 apply.

Application of Asphalt Material. Uniformly apply the asphalt material with a distributor per the requirements of 407.06 except as noted.

Dilution is not allowed.

If product is stored for an extended period of time, prior to application, agitate or gently circulate the material.

All nozzles and spray patterns shall be identical to one another along the distributor spray bar. The angle of the nozzle should a 15 to 30 degree angle to the spray bar axis to maximize overlap or as recommended by the nozzle manufacturer. Contact the manufacturer's representative for required spray nozzle size, and distributor and nozzle settings.

Apply at a rate of 0.04 to 0.08 gallons per square yard. Recommended application temperature is 160°F to 180° F. Do not exceed 180°F.

The Engineer and manufacturer's representative will approve rate of application, temperature, distributor settings, and areas to be treated before application of the tack coat. The Engineer will determine the actual application in gallons per square yard by a check on the project.

The application is considered satisfactory when the material is applied uniformly with no visible evidence of streaking or ridging and the application rate is ±10% of the specified rate.

Method of Measurement. All requirements of 407.07 apply.

Basis of Payment. The Department will not pay for non-uniformly applied materials as defined in 407.06.

The Department will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
Special	Gallon (Liter)	Tack Coat, Trackless Tack
Special	Gallon (Liter)	Tack Coat, Trackless Tack for Intermediate Course

Traffic Control

ODOT Automatic Traffic Recorder Site

The Contractor is advised that automatic traffic recording (ATR) site #594 is located on SR-237 at approximately Sta. 56+00, 250 FT south of the beginning of the project.

The ODOT Project Engineer shall contact the Office of Technical Services, attention Lindsey Pflum, Phone (614) 752-4057, prior to pavement operations and upon completion of the overlay. The Department will restore operation of the ATR site.

Raised Pavement Markers

Raised pavement marker spacing shall be 80 feet.

Item 632 – Detector Loop, As Per Plan

An estimated quantity of Item 632 - Detector Loop, As Per Plan has been provided as a contingency if a wire is cut, broken, or destroyed.

All stop line inductance detector loops shall be the powerhead configuration shown on TC-82.10. The width shall be as specified on TC-82.10 and the length shall be as currently called for in the plans. The stop line detector loops shall not be wired to any other loops and shall have its own detector channel. The location of these loops shall be such that the powerhead is located at the stop line, not past it.

All dilemma zone inductance detector loops call for in the plans shall be the Angular Design Detection (ADD) loop as shown on TC-82.10. Dimensions shall be as specified on TC-82.10.

All stop line detection shall be tested for a bicycle target and all dilemma detection zones shall be tested for a motorcycle target.

Mark	Approach	Size	No.
DL-1	Ramp A at Snow Rd. Powerhead Loops at Stop Bar	6' x 20'	2

Install detector loops in the surface course within 72 hours of its placement.

When replacing the loop detectors, the loop detector wire shall be replaced to the pull box or pole, whichever is applicable, under Item 632 and TC-82.10. The new cable splice kits shall be included in this pay item.

The Contractor shall contact the Project Engineer 7 days prior to beginning work to adjust signal operation as needed.

The following estimated quantities have been carried to the General Summary to be used as directed by the Engineer.

632, Detector Loop, As Per Plan..... **2 Each**

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Maintenance of Traffic

Item 614 Maintaining Traffic

Generally the Contractor shall conduct his operations as to complete the proposed improvement with a minimum of hazard, delay and inconvenience to the motorists using the highway affected by the work done under this contract. In addition to the construction and material specifications, the following specific provisions are mandatory.

I. Notification

Since functional traffic control is a major concern on this project, it is essential that the motoring public be adequately forewarned of future lane closures and traffic constrictions. Therefore, the Contractor shall 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 any such closures.

II. Work Hours

Night work will be permitted due to the nature of the work required.

III. Lane Closure, Planing and Paving Restrictions

1. Maintain a minimum of one 11' lane using flaggers.
2. Place the surface course with a single cold joint located at the lane line.

IV. Maintenance of Traffic Systems

A. When Required

Whenever any part of the traveled surface is being worked upon or is otherwise not suitable for safe and convenient use by vehicles, traffic control devices sufficient to protect such areas to assure the safe and convenient passage of vehicular traffic shall be installed and maintained. Such traffic control devices and the manner in which they are used shall be consistent with these plans and the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, hereinafter referred to as the OMUTCD. The traffic control device system shall constitute the minimum provisions for traffic control for each particular situation. Whenever the Engineer deems it necessary especially where a grade, curve, or merge conditions exists, he may direct that additional or alternative devices be used.

B. Conditions

During all parts of this project, flaggers, signing, barricades, flashing arrows, etc. shall be located as indicated in the OMUTCD or as shown in the Standard Construction Drawings. Two-way traffic shall be maintained at all times.

C. Advance Warning Signs

All advance warning signs for any condition which restricts traffic shall be erected before any such restriction is put into effect. All such signs shall be covered or removed from the view of traffic whenever they are not applicable.

D. Flashing Arrow Requirement

Whenever any part of the traveled surface is closed, the motorists shall be warned and directed by the Contractor through the use of one flashing arrow for each lane closed. Additionally, the provisions set forth in the OMUTCD and the applicable Standard Construction Drawings shall be met.

E. Flaggers and Law Enforcement Officers

The Contractor shall furnish additional flaggers as directed by the Engineer. Law Enforcement Officers (LEO's) shall be required for traffic direction only under the following circumstances: (1) if signals are non-operational or (2) if traffic must move against signal phasing.

F. Protection of Public

Personal cars shall not be parked within the R/W.

G. Failure to Comply

If there is any failure to comply with provisions for traffic control set out in these plans and notes, or with the provisions of the OMUTCD, the highway in the vicinity of the work area shall not be considered in a condition for the safe and convenient use by the traveling public. Any failure to keep the highway, in the vicinity of the work area, in a condition for the safe and convenient use by the traveling public shall be considered a breach of this contract. Work shall be suspended until the Contractor complies with the provisions of the aforementioned items.

V. Maintenance of Traffic Materials

A. Signs

Sign dimensions and specifications, including letter sizes shall be as provided in the OMUTCD, or in design drawings provided by the Department of Transportation. The signs shall be subject to approval of the Engineer prior to the start of the project.

B. Sign Supports

Sign supports shall be of sufficient size and height as to support the signs at the appropriate height. Supports shall be adequate in mass and stability to prevent the signs from being blown over by wind or vehicular generated air turbulence.

C. Flashing Arrows

Whenever any part of the traveled surface is closed, the motorist shall be warned and diverted by the Contractor through the use of one flashing arrow barricade for each lane closed. The Contractor shall refer to Standard Construction Drawing MT-35.10 and the provisions set forth in the OMUTCD for all information regarding furnishing, maintaining, and use of flashing arrow barricades. Payment for the above shall be included in the lump sum bid for Item 614 Maintaining Traffic.

D. Drums

Drums shall be in accordance with pertinent sections of the OMUTCD. All costs for installing, maintaining and subsequent removal of said drums shall be included in the lump sum bid price for Item 614 Maintaining Traffic.

E. Cones

Cones shall be located as shown in the OMUTCD and the Standard Construction Drawings.

F. Flashers

Flashers shall be 12 volt battery operated models with 7 inch diameter yellow lenses illuminated by rapid intermittent flashers of short duration and shall be placed on all signs at all times as required by the OMUTCD and the Standard Construction Drawings.

VI. Payment

Payment for providing, erecting, maintaining and removing temporary maintenance of traffic control devices shall be made under the lump sum price bid for Item 614 Maintaining Traffic.

Lanes Open During Holidays or Special Events

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events:

Christmas	Fourth of July
New Year's	Labor Day
Memorial Day	Thanksgiving

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:

<u>Day of the Week</u>	<u>Times All Lanes Must Be Open to Traffic</u>
Sunday	12:00 Noon Friday through 12:00 Noon Monday
Monday	12:00 Noon Friday through 12:00 Noon Tuesday
Tuesday	12:00 Noon Monday through 12:00 Noon Wednesday
Wednesday	12:00 Noon Tuesday through 12:00 Noon Thursday
Thursday	12:00 Noon Wednesday through 12:00 Noon Friday
Thursday (Thanksgiving Only)	12:00 Noon Wednesday through 12:00 Noon Monday
Friday	12:00 Noon Thursday through 12:00 Noon Monday
Saturday	12:00 Noon Friday through 12:00 Noon Monday

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 area-wide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed a disincentive in the amount of \$50 for each minute the above described lane closure restrictions are violated.

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.

Contractor's Equipment - Operation and Storage

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

Equipment, vehicles and materials shall not be stored or parked within 30 feet of the traveled way unless 6 feet behind PCB or guardrail.

All work vehicles and equipment that enters 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 During Construction Operations

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, a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) shall be provided for the following traffic control tasks:

- During the entire advance preparation and closure sequence where complete blockage of traffic is required.
- During a traffic signal installation when impacting the normal function of the signal or the flow of traffic or when traffic needs to be directed through an energized traffic signal contrary to the signal display (e.g., directing motorists through a red light).

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

- For lane closures: during initial set-up periods, tear down periods, substantial shifts of a closure point or when new lane closure arrangements are initiated for long-term lane closures/shifts (for the first and last day of major changes in traffic control setup). In general, LEOs should be positioned at the point of lane restriction or road closure and to manually control traffic movements through intersections in work zones.
- When construction vehicles are entering/exiting the zone directly from/into an open lane of traffic. If a lane has been closed to provide an acceleration/deceleration lane for the vehicle, the LEO will not be required.

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 should 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 following estimated quantities have been carried to the General Summary.

614, Law Enforcement Officer with Patrol Car for Assistance..... **1,000 Hours**

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.

Work Zone Markings

Place temporary markings at the same locations as the proposed permanent markings.

The following estimated quantities have been carried to the General Summary for use at locations identified by the Engineer for work zone pavement markings per the requirements of C&MS 614.04 and 614.11.

After placing the intermediate course, use the following temporary markings and signs:

- 614, Work Zone Lane Line, Class I, 642 Paint..... **3.35 Miles**
- 614, Work Zone Edge Line, Class I, 642 Paint **6.56 Miles**
- 614, Work Zone Channelizing Line, Class I, 642 Paint..... **7,338 Feet**
- 614, Work Zone Dotted Line, Class I, 642 Paint **2,487 Feet**
- 614, Work Zone Stop Line, Class I, 642 Paint **186 Feet**
- 614, Work Zone Arrow, Class I, 642 Paint..... **22 Each**

After placing the surface course, use the following temporary markings:

- 614, Work Zone Lane Line, Class III, 642 Paint **3.35 Miles**
- 614, Work Zone Edge Line, Class III, 642 Paint..... **6.56 Miles**
- 614, Work Zone Channelizing Line, Class III, 642 Paint..... **7,338 Feet**
- 614, Work Zone Dotted Line, Class III, 642 Paint..... **2,487 Feet**
- 614, Work Zone Stop Line, Class III, 642 Paint..... **186 Feet**
- 614, Work Zone Arrow, Class III, 642 Paint..... **22 Each**

Item 630 – Specific Service and Tourist-Oriented Directional Signs Removal and Reinstallation

In the event that this project necessitates the removal of any Specific Service (logo) signs and/or Tourist-Oriented Directional Signs (TODS) that are not specifically described in other items of work, the Contractor shall carefully remove such signs. Removed logo signs and TODS shall be immediately re-erected on approved temporary supports in the same general vicinity along the roadway to be viewed by the motoring public. Unless original supports will be reused, the Contractor shall remove and dispose of the supports and foundations in accordance with Item 630.12. The Contractor shall notify Ohio Logos, Inc. at (800) 860-5646 at least 60 days prior to project completion to alert them that one or more logo signs and/or TODS are on temporary supports. Ohio Logos, Inc. will make arrangements to have the signs installed on permanent supports at the completion of the project.

This item of work includes removal and temporary re-erection of logo signs and TODS, furnishing and installation of temporary supports, removal and disposal of the original supports and foundations, and providing notification to Ohio Logos, Inc. This work will be included in the lump sum payment for Item 614, Maintaining Traffic.

Drop-offs Due to Planing and Paving

All asphalt concrete operations shall be conducted in a manner that will assure minimum danger and inconvenience to the highway users. All work shall be performed at the times provided in the "Schedule of Through Lanes to be Maintained" note. The procedure for the removal or placement of any existing or proposed asphalt course shall be such that no greater than 1 ½" discontinuity in the elevation of the travelled surface shall be exposed to traffic.

Traffic shall not be permitted to cross any partial-width removal or resurfacing joint during the actual removal or paving operation, except as necessary. Any partial-width longitudinal joints which must be exposed to traffic shall be ramped using Item 614 Asphalt Concrete for Maintaining Traffic at a rate not steeper than 6:1.

Temporary transverse removal or paving joints which must be exposed to traffic shall be ramped using Item 614 Asphalt Concrete for Maintaining Traffic at a rate not to exceed 1" in 10'.

For removal of existing overlays, a transition may be planed into the existing overlay and may be substituted for the asphalt ramps previously described, provided the transition is removed in a subsequent operation within 24 hours.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, the Contractor shall provide W8-11-48 "UNEVEN LANES" signs (dual sign installation). Placement shall be as directed by the Engineer and included in the lump sum payment for Item 614, Maintaining Traffic.

Item 614 Asphalt Concrete for Maintaining Traffic

This item shall be used to install and remove temporary asphalt ramps at butt joints, and drainage/utility castings, where required. Material shall be removed prior to the placement of the next course of asphalt. The following estimated quantity is carried to the general summary to accomplish this item of work.

614, Asphalt Concrete for Maintaining Traffic..... **200 Cu Yd**

Surface Condition Signs

Erect a GROOVED PAVEMENT sign (W8-H15) 250 feet (75 m) 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.

Floodlighting

Floodlighting of the work site for operations conducted during nighttime periods shall be accomplished so that the lights do not cause glare to the drivers on the roadway. To ensure the adequacy of the floodlight placement, the Contractor and the Engineer shall drive through the work site each night when the lighting is in place and operative prior to commencing any work. If glare is detected, the light placement and shielding shall be adjusted to the satisfaction of the Engineer before work proceeds.

Payment for all labor, equipment and materials shall be included in the lump sum contract price 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.

Item 614 Portable Changeable Message Signs, As Per Plan

The Contractor shall furnish, install, maintain and remove, when no longer needed, a changeable message sign. The sign shall be of a type shown on a list of approved PCMS units available on the Office of Materials Management web page. The list contains Class A and B units with minimum legibility distances of 650 feet and 475 feet, respectively.

Each sign shall be 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. The PCMS shall be delineated in accordance with C&MS 614.03.

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 away from all 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 twice.

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 twice.

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 C&MS 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 or her 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.

The plan quantity below is based on a total of four (4) PCMS units for duration of six (6) months each.

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.

614, Portable Changeable Message Sign, As Per Plan..... **24 Sign Month**

Alternate Methods

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic, provided the intent of the provisions is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted in writing, by the Director.

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.

Major Work Items

The following major work items will require traffic maintenance which shall be incorporated into the Contractor's sequence of operations:

- A. Removal of existing RPM's
- B. Perform pavement repairs
- C. Place asphalt concrete intermediate course
- D. Place asphalt concrete surface course
- E. Place proposed pavement markings and raised pavement markers
- F. Remove existing guardrail and place proposed guardrail

Schedule of Through Lanes to be Maintained

Location	SR-237 Permitted Lane Reductions	
	One Lane Closed	Two Lanes Closed
SR-237 NB and SB SLM 6.65 to SLM 7.48	<u>Weekday</u> 7 PM to 6 AM	<u>Weekday</u> N/A
SR-237 SB SLM 7.48 to SLM 7.71	<u>Weekend</u> 7 PM Fri to 6 AM Mon	<u>Weekend</u> N/A
SR-237 NB SLM 7.48 to SLM 7.71	<u>Weekday</u> 7 PM to 6 AM	<u>Weekday</u> N/A
SR-237 NB SLM 7.48 to SLM 7.71	<u>Weekend</u> 7 PM Fri to 6 AM Mon	<u>Weekend</u> N/A
Ramp C-1	<u>Weekday</u> 7 PM to 6 AM	<u>Weekday</u> N/A
Ramp C (2-Lane Portion)	<u>Weekend</u> 7 PM Fri to 6 AM Mon	<u>Weekend</u> N/A
	<u>Weekday</u> 7 PM to 6 AM	<u>Weekday</u> N/A
	<u>Weekend</u> 7 PM Fri to 6 AM Mon	<u>Weekend</u> N/A
	<u>Weekday</u> 7 PM to 6 AM	<u>Weekday</u> N/A
	<u>Weekend</u> 7 PM Fri to 6 AM Mon	<u>Weekend</u> N/A

All notes on the District 12 Permitted Lane Closure Times website, which is located on ODOT's website at the following location shall apply:

<http://www.dot.state.oh.us/districts/D12/HighwayManagement/Pages/PermittedLaneClosures.aspx>

The latest revision, 14 days prior to the bid date, will be in effect for this job.

Any road not listed in the Permitted Lane Closure Schedule shall not have any lane closures weekdays from 6:00am to 9:00am and 3:00pm to 7:00pm.

SR-237 Ramps (One-Lane Entrance and Exit Ramps)		
Location	Permitted Closures	
	Partial Width	Total Closure
Ramp A (SR-237 NB Exit to Snow Rd.)	Maintain 11' Lane	Not Permitted
Ramp B (Snow Rd. Entrance to SR-237 SB)	Maintain 11' Lane	Not Permitted
Ramp C (From C-2 Intersection to Bridge over SR-237)	Maintain 11' Lane	Not Permitted
Ramp D (Airport Exit to Snow Rd.)	Maintain 11' Lane	Not Permitted
Ramp D-1 (SR-237 SB Exit to Snow Rd.)	Maintain 11' Lane	Not Permitted
Ramp F-1 (SR-237 SB Exit to Airport)	No Work	No Work

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 shall be certified from one of the following organizations:

1. American Traffic Safety Service Association (ATSSA), phone number 1-800-272-8772, certified Traffic Control Supervisor (TCS).
2. National Highway Institute, Design and Operation of Work Zone Traffic Control, phone number 1-703-235-0500.
3. The Ohio Contractors Association, Traffic Control Supervisor (OCA/TCS) work zone class, only if taken after May 5, 2004, phone number 1-800-229-1388.
4. Ohio Laborers' Training, Traffic Control Supervisors Class, phone number 1-740-599-7915.

A copy of each WTS's 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 WTS certification containing the date of issue and shall be from any of the approved organizations. At the time of the preconstruction conference, the WTS certification date of issue shall be within the 5 years prior to the Original Completion Date of the project.

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

1. 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. Coordinate a Traffic Incident Management meeting each year before construction work begins with ODOT and the Safety Forces that will respond to incidents on the project.

Items to be discussed will be the:

- a. Traffic Incident Management Plan (TIMP);
 - b. Emergency Response and Notification;
 - c. Project work/phasing concerns (e.g., ramp closures); and
 - d. Responders concerns.
5. Be aware of, and coordinate if necessary, all traffic control operations, including those of subcontractors and suppliers.
 6. 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.
 7. Coordinate meetings with ODOT personnel, LEOs and other applicable entities before each plan phase switch to discuss work zone traffic control.

8. 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.
9. Notify the Contractor of the need for cleaning and maintenance of all traffic control devices, including the covering and removal of inapplicable signs.
10. 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:
 - a. Initial traffic control setup (day and night review).
 - b. Daily traffic control setup and removal.
 - c. When construction staging causes a change in the traffic control setup.
 - d. Crash occurrences within the construction area.
 - e. Removal of traffic control devices at the end of a phase or project.
 - f. All other emergency traffic control needs.
11. Complete the Department approved Long Term Inspection form (CA-D-8) after each inspection as required in #10 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 current revision of the Department of Transportation Construction Inspection Forms Manual.
12. Verify that all flagging operations are being conducted per the Ohio Manual of Uniform Traffic Control Devices.
13. 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.
14. Identify and contact all possible response personnel; preplan and keep an updated roster with phone numbers:
 - a. Federal, State, and local transportation agencies (Traffic Management Center);
 - b. Regional, county or local 911 dispatch; and
 - c. Towing and recovery providers.
15. Comply with the provisions of OMUTCD Chapter 6I, Control of Traffic Through Traffic Incident Management Areas.
16. Propose a response/action plan to:
 - a. Establish alternate route plans per the provided ODOT Playbook;
 - b. Remove traffic demand from impacted roadway(s);

- c. Divert traffic to routes that can accommodate demands;
 - d. Detour traffic away from sensitive areas (such as schools, hospitals, etc.);
 - e. Discuss methods of determining a staging area for responders within or near the construction zone; and
 - f. Discuss methods of developing ingress and egress sites within the construction zone.
- The response/action plan shall be submitted to ODOT for acceptance before the Contractor's first day of work.
17. Perform, at a minimum, the following functions in incident detection and verification:
 - a. Call 911/ notify Traffic Management Center and provide the following:
 - i. Location – including milepost number and direction of travel.
 - ii. Number and type of vehicles involved.
 - iii. Estimated extent of damage or injury.
 - iv. Estimated number of patients involved.
 - v. Any potential hazardous conditions.
 - vi. The placard number on any hazardous materials placard from a safe distance.
 - b. Initiate traffic management / provide traffic control.
 - c. Assist motorist with disabled vehicles.
 - d. Recommend roadway repair needs.
 - e. Provide repair resources.
 18. Attend post-incident debriefings if required.

The Department will deduct the prorated daily amount of 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 Maintenance of 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.

The following estimated quantity has been included for the Worksite Traffic Supervisor:

614, Worksite Traffic Supervisor **6 Months**

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	254	256	SPECIAL	SPECIAL	442	442	209	617	202	601
									PAVEMENT PLANING, PORTLAND CEMENT CONCRETE, 0 IN TO 1-1/2 IN	BONDED PATCHING OF PORTLAND CEMENT CONCRETE PAVEMENT, TYPE A, 4S PER PLAN	TACK COAT, TRACKLESS TACK	TACK COAT, TRACKLESS TACK FOR INTERMEDIATE COURSE	ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446), 1-3/4 IN	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, 1-1/2 IN	BORROW	COMPACTED AGGREGATE, AS PER PLAN, 3 IN AVG.	CONCRETE SLOPE PROTECTION REMOVED	CONCRETE SLOPE PROTECTION
				FT.	FT.	FT.	FT.	SQ. YD.	SY	SF	GAL	GAL	CY	CY	CY	CY	SY	SY
			<i>NB SR-237 (South End of Project)</i>															
	1		58+34.59	59+00.00	65.41	21	21	21	151	151			7	6				
	1		59+00.00	59+48.34	48.34	65	66	65	351	351			17	15				
	1		59+48.34	63+78.17	429.83	66	82	74	3,538				172	147				
	1		63+78.17	68+22.04	443.87	46	40	43	2,125				103	89				
			<i>SB SR-237 (South End of Project)</i>															
	1		58+34.59	59+48.34	113.75	46	56	51	642	642			31	27				
	1		59+48.34	63+54.59	406.25	56	66	61	2,739				133	114				
	1		63+54.59	66+62.15	307.56	66	85	75	2,569				125	107				
	1		66+62.15	68+22.76	160.61	40	40	40	717				35	30				
			<i>SR-237 Northbound (RT Side)</i>															
	1		68+22.76	71+13.61	290.85	40	40	40	1,298				63	54				
	1		71+13.61	72+27.36	113.75	40	40	40	508	508			25	21				
	1		<i>Bridge CUY 00237 0695 (SR-237 over Snow Rd.)</i>															
	1		73+61.02	74+74.77	113.75	40	40	40	508	508	225		25	21				
	1		74+74.77	84+11.25	936.48	40	40	40	4,180				203	174				
	1		84+11.25	85+25.00	113.75	40	40	40	508	508			25	21				
			<i>Bridge CUY 00237 0720 (Airport Exits over SR-237)</i>															
	1		86+75.00	87+88.75	113.75	40	40	40	508	508			25	21				
	1		87+88.75	95+00.00	711.25	40	40	40	3,175				154	132				
	1		95+00.00	98+36.25	336.25	81	72	77	2,858				139	119				
	1		98+36.25	99+50.00	113.75	72	70	71	896	896			44	37				
			<i>Bridge CUY 00237 0748 (SR-237 NB Ramp to Airport)</i>															
	1		101+75.00	102+88.75	113.75	65	65	65	818	818			40	34				
	1		102+88.75	107+69.07	480.32	65	65	65	3,456				168	144				
	1		107+69.07	108+82.82	113.75	65	65	65	818	818			40	34				
			<i>SR-237 Southbound (LT Side)</i>															
	1		68+22.76	71+13.61	290.85	40	40	40	1,298				63	54				
	1		71+13.61	72+27.36	113.75	40	40	40	508	508			25	21				
	1		<i>Bridge CUY 00237 0695 (SR-237 over Snow Rd.)</i>															
	1		73+61.02	74+74.77	113.75	40	40	40	508	508	45		25	21				
	1		74+74.77	79+77.66	502.89	40	40	40	2,245				109	94				
	1		79+77.66	81+91.54	213.88	109	116	112	2,672				130	111				
	1		81+91.54	84+11.25	219.71	67	56	61	1,497				73	62				
	1		84+11.25	85+25.00	113.75	56	52	54	682	682			33	28				
			<i>Bridge CUY 00237 0720 (Airport Exits over SR-237)</i>															
	1		86+75.00	87+88.75	113.75	52	52	52	658	658			32	27				
	1		87+88.75	89+50.00	161.25	52	52	52	933				45	39				
	1		89+50.00	103+50.00	1400.00	52	81	66	10,325				502	430				
	1		103+50.00	108+82.82	532.82	41	41	41	2,412				117	101				
			<i>SB SR-237 (North End of Project)</i>															
	1		108+82.83	113+36.25	453.42	41	41	41	2,053				86					
	1		113+36.25	114+50.00	113.75	41	41	41	515	515			25	21				
SUBTOTALS									8,578	270	5,867	2,933	2,852	2,444				
TOTALS CARRIED TO GENERAL SUMMARY									8,578	270	5,867	2,933	2,852	2,444				
PLAN SPLIT #1 TOTAL									8,578	270	5,867	2,933	2,852	2,444				
PLAN SPLIT #2 TOTAL																		

PAVEMENT SUBSUMMARY - MAINLINE

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	254	256	SPECIAL	SPECIAL	442	442	209	617	202	601	
									PAVEMENT PLANING, PORTLAND CEMENT CONCRETE, 0 IN TO 1-1/2 IN	BONDED PATCHING OF PORTLAND CEMENT CONCRETE PAVEMENT, TYPE A, 4S PER PLAN	TACK COAT, TRACKLESS TACK	TACK COAT, TRACKLESS TACK FOR INTERMEDIATE COURSE	ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446), 1-3/4 IN	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), 4S PER PLAN, 1-1/2 IN	BORROW	COMPACTED AGGREGATE, AS PER PLAN	CONCRETE SLOPE PROTECTION REMOVED	CONCRETE SLOPE PROTECTION	
									SY	SF	GAL	GAL	CY	CY	CY	CY	SY	SY	
			Ramp A																
1			13+77.02	17+49.87	372.85	31	31	31	1,284	1,284			62	54					
1			17+49.87	18+49.87	100.00	31	46	39	428	428			21	18					
1			18+49.87	21+95.19	345.32	46	41	44	1,675	1,675			81	70					
1			21+95.19	22+68.90	73.71			CADD	350	350			17	15					
			Ramp B																
1			16+64.00	19+66.44	302.44	39	39	39	1,311				64	55					
1			19+66.44	19+79.48	13.04	48	72	60	87	47			4	4					
1			19+79.48	20+62.19	82.71	72	51	62	567	272			28	24					
1			20+62.19	21+52.07	89.88	51	51	51	509				25	21					
1			21+52.07	22+42.00	89.93	51	51	51	510	510			25	21					
1			22+42.00	22+65.82	23.82	51	57	54	143	143			7	6			4	4	
			Ramp C																
1			13+18.48	13+92.72	74.24			CADD	346	346			17	14					
1			13+92.72	14+32.23	39.51	41	42	41	182	182			9	8					
1			14+32.23	17+83.20	350.97	42	44	43	1,675				81	70					
1			17+83.20	19+40.57	157.37	44	38	41	722				35	30					
1			19+40.57	25+79.69	639.12	38	38	38	2,728				133	114					
1			25+79.69	26+68.73	89.04			CADD	495	495			24	21					
1			26+68.73	29+81.22	312.49	50	74	62	2,143				104	89					
1			29+81.22	30+81.22	100.00	29	27	28	316				15	13	6	2			
1			30+81.22	34+40.65	359.43	27	27	27	1,095				53	46	20	7			
1			34+40.65	35+54.40	113.75	27	27	27	347	347			17	14	6	2			
			Ramp C-1																
1			9+77.98	13+40.17	362.19	39	39	39	1,569				76	65					
			Ramp D																
1			13+21.64	13+85.64	64.00			CADD	442	442			21	18			21	21	
1			13+85.64	14+35.39	49.75	63	64	63	351	351			17	15			17	17	
1			14+35.39	15+80.00	144.61	64	67	65	1,051				51	44			4	4	
1			15+80.00	16+30.00	50.00	67	56	61	341				17	14					
1			16+30.00	19+78.50	348.50	56	63	59	2,299				112	96					
1			21+87.00	25+35.82	348.82	56	63	59	2,301	211			112	96					
SUBTOTALS									7,084		2,527	1,263	1,228	1,053	32	11	46	46	
TOTALS CARRIED TO GENERAL SUMMARY									7,084		2,527	1,263	1,228	1,053	32	11	46	46	
PLAN SPLIT #1 TOTAL									7,084		2,527	1,263	1,228	1,053	32	11	46	46	
PLAN SPLIT #2 TOTAL																			

CALCULATED	KDH	CHECKED	EMK
PAVEMENT SUBSUMMARY - RAMPS			
CUY - 237 - 6.65			
19			
28			

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		DIRECTION	SIDE	202	202	202	209	209	441	606	606		606	606	606	606	609	620	626			
			CURB REMOVED	CONCRETE SLOPE PROTECTION REMOVED			GUARDRAIL REMOVED, AS PER PLAN	RESHAPING UNDER GUARDRAIL, AS PER PLAN	BORROW	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I, (448), (UNDER GUARDRAIL), AS PER PLAN	GUARDRAIL, TYPE MGS	GUARDRAIL, TYPE MGS HALF POST SPACING		ANCHOR ASSEMBLY, MGS TYPE E	ANCHOR ASSEMBLY, MGS TYPE T	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	CURB, TYPE 4-A	DELINEATOR, POST MOUNTED, (WHITE)	BARRIER REFLECTOR, TYPE 4					
			FROM	TO			FT	SY	FT	STA	CY	CY	FT	FT		EACH	EACH	EACH	EACH	FT	EACH	EACH			
GR-1	22	1	10+29.25	11+41.75	Ramp A	RT			125	2	5	5	37.5	12.5		1	1				1	3			
GR-2	22, 23	1	16+70.75	17+70.75	Ramp A	RT			175	1	4	4	37.5			1	1				1	3			
GR-3	23	1	14+47.50	18+22.50	Ramp D	RT		125	537.5			11	300	12.5		1	1				1	4			
GR-4	23	1	14+45.50	16+83.00	Ramp D	LT		80	350			7	225				1						3		
GR-5	23, 24	1	77+85.00	80+22.50	NB	RT			275	3	9	9	225				1				1		3		
GR-6	23, 24	1	18+62.00	21+62.00	Ramp C	RT	20		287.5	3	11	11	212.5	12.5		1		1		20	1	3			
GR-7	24	1	13+46.50	14+21.50	Ramp D-1	RT			112.5	1	3	3	50	12.5			1				1		3		
GR-8	24	1	83+86.25	85+73.75	NB	RT			200	2	7	7	125			1	1				1	3			
GR-9	25	1	34+02.00	35+64.50	Ramp C	RT	20		162.5	2	6	6	87.5			1		1		20	1	3			
GR-10	25	1	94+75.00	95+50.00	NB	RT	20		100	1	2	2				1		1		20	1	3			
GR-11	25, 26	1	97+50.00	105+00.00	NB	RT			800	8	28	28	712.5	25			1				1		8		
TOTALS CARRIED TO GENERAL SUMMARY							60	205	3125	23	75	93	2013	75		7	8	3	4	60	7	39			
PLAN SPLIT #1 TOTAL							60.00	205.00	3,125.00	23.00	75.00	93.00	2,012.50	75.00		7.00	8.00	3.00	4.00	60.00	7.00	39.00			
PLAN SPLIT #2 TOTAL																									

CUY - 237 - 6.65	CALCULATED
	BPE CHECKED KDH

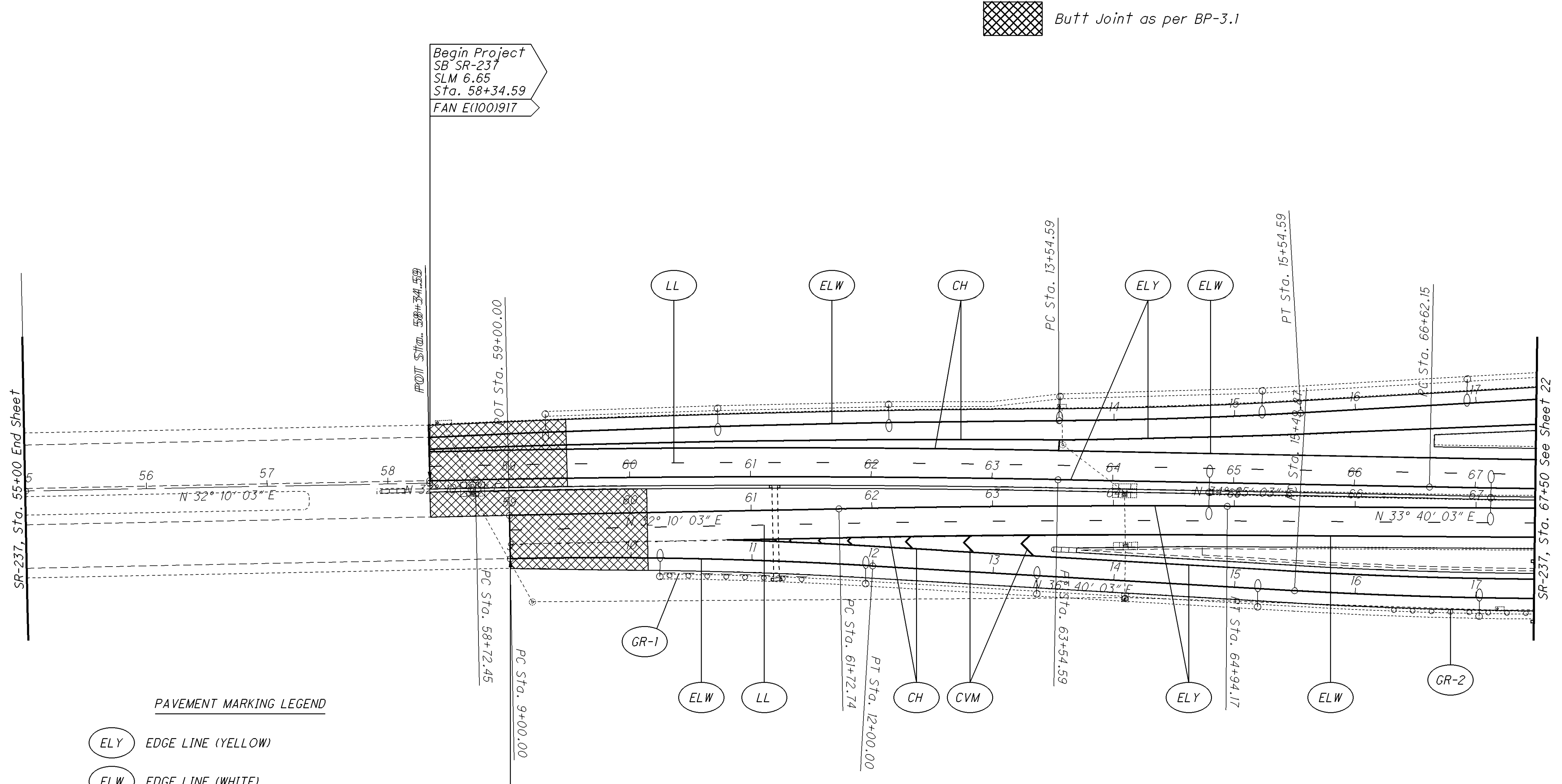
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SHEET NO.	PLAN SPLIT NO.	LOCATION	STATION		646	646	646	646	646	646	646	646	646	621	621	621	621	
			FROM	TO	EDGE LINE, 4", WHITE	EDGE LINE, 4", YELLOW	LANE LINE, 4"	CHANNELIZING LINE, 8"	STOP LINE	CHEVRON MARKING	LANE ARROW	DOTTED LINE, 4"	REMOVAL OF PAVEMENT MARKING		RPM, (ONE-WAY WHITE)	RPM, (TWO-WAY WHITE/RED)	RPM, (TWO-WAY YELLOW/RED)	RAISED PAVEMENT MARKER REMOVED
			FT	FT	FT	FT	FT	FT	FT	EACH	FT	FT		EACH	EACH	EACH	EACH	
	1	SR-237 Northbound	59+00.00	60+80.00	180	180	180							3			3	
	1		60+80.00	63+69.23	289	289	289	578		83				4	15		19	
	1		63+69.23	68+22.76	454	454	454							6			6	
	1	SR-237 Southbound	58+34.59	63+54.59	520	520	520	1,040						7	13		20	
	1		63+54.59	68+22.76	468	468	468							6			6	
	1	SR-237 Northbound	68+22.76	95+00.00	2,677	2,677	2,677							34			34	
	1		95+00.00	101+40.00	640	640	1,280	1,280						16	16		32	
	1		101+40.00	108+82.85	743	743	1,486					743		19			19	
	1		108+82.85	111+80.00								297	297					
	1	SR-237 Southbound	68+22.76	79+77.66	1,155	1,155	1,155							15			15	
	1		79+77.66	84+06.62	429	429	429	858		144				6	22		28	
	1		84+06.62	89+50.00	543	543	543					543		7			7	
	1		89+50.00	95+50.00	600	600	1,200					600		15			15	
	1		95+50.00	103+50.00	800	800	1,600	1,600						20	20		40	
	1		103+50.00	108+82.85	533	533	533							7			7	
	1		108+82.85	114+50.00	567	567	567							8			8	
	1	Ramp A	13+67.94	18+49.87	482	482										7	7	
	1		18+49.87	22+58.00	408	408		408	52			6			11	6	17	
	1	Ramp B	13+54.59	19+66.00	611	611										8	8	
	1		19+66.00	20+36.38	70	70	70	141		53				1	4	1	6	
	1		20+36.38	21+81.86	145	145	145	145						2		2	4	
	1		21+81.86	22+65.82	84	84	84							2		2	4	
	1	Ramp C	13+20.27	25+75.00	1,255	1,255	1,255		24						16	16	32	
	1		25+75.00	26+68.83	94	28		32	58			124						
	1		26+68.83	27+76.60	108	108	108	108							2		2	
	1		27+76.60	29+81.22	205	205	205	409		88					13	3	16	
	1		29+81.22	43+61.00	1,380	1,380										18	18	
	1	Ramp C-1	9+78.00	15+00.00	522	522	522								7	7	14	
	1	Ramp D	13+34.00	15+80.00	246	246		738	52			16			19	4	23	
	1		15+80.00	17+85.64	206	206	411							6	3	9		
	1		17+85.64	21+87.00	401	401	803							11	6	17		
	1	Ramp D-1	7+85.64	9+78.47	193	193										3	3	
SUBTOTALS					17,008	16,942	16,984	7,338	186	368	22	2,487	297		195	158	86	439
TOTALS CARRIED TO GENERAL SUMMARY					6.43 MI		3.22 MI	7,338	186	368	22	2,487	297		439		439	
PLAN SPLIT #1 TOTAL					3.23 MI	3.21 MI	16984	7338	186	368	22	2487	297		439		439	
PLAN SPLIT #2 TOTAL																		

PAVEMENT MARKING SUBSUMMARY

CUY - 237 - 6.65










CALCULATED
KDH
CHECKED
EMK




Begin Project
SB SR-237
SLM 6.65
Sta. 58+34.59
FAN E(100)917

Begin Work
NB SR-237
SLM 6.66
Sta. 59+00.00

 Butt Joint as per BP-3.1

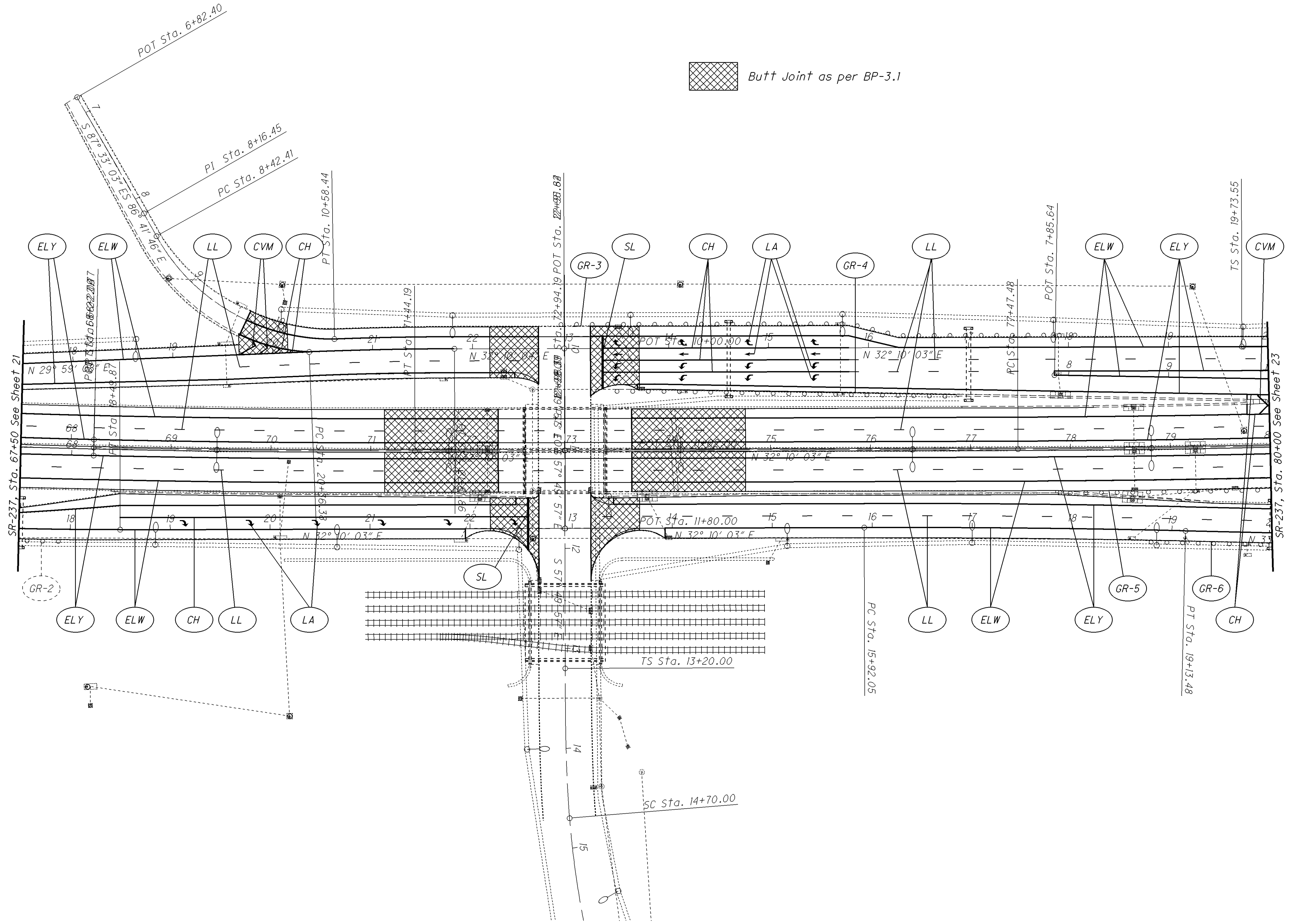
- PAVEMENT MARKING LEGEND**
-  EDGE LINE (YELLOW)
 -  EDGE LINE (WHITE)
 -  CHANNELIZING LINE
 -  CHEVRON MARKING
 -  STOP LINE
 -  LANE ARROW
 -  DOTTED LINE
 -  REMOVAL OF PAVEMENT MARKING
 -  LANE LINE

CALCULATED
KDH
CHECKED
EMK

 0 25 50 100
HORIZONTAL
SCALE IN FEET

**PLAN - S.R. 237
STA. 55+00 TO STA. 67+50**

CUY - 237 - 6.65



Butt Joint as per BP-3.1

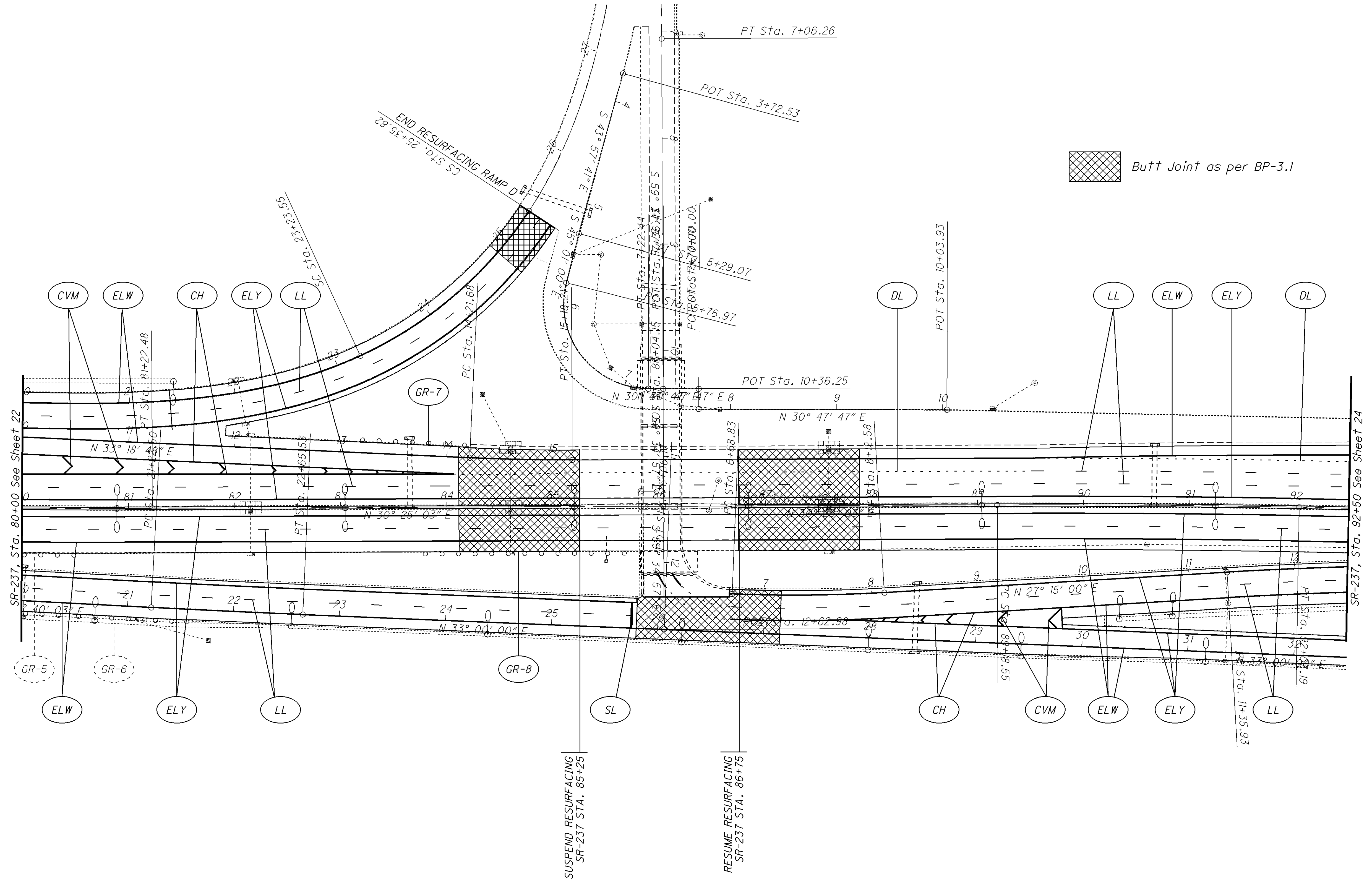
CALCULATED
KDH
CHECKED
EMK

0 50 100
HORIZONTAL
SCALE IN FEET

PLAN - S.R. 237
STA. 67+50 TO STA. 80+00

CUY - 237 - 6.65

FOR PAVEMENT MARKING LEGEND, SEE SHEET 21



 Butt Joint as per BP-3.1

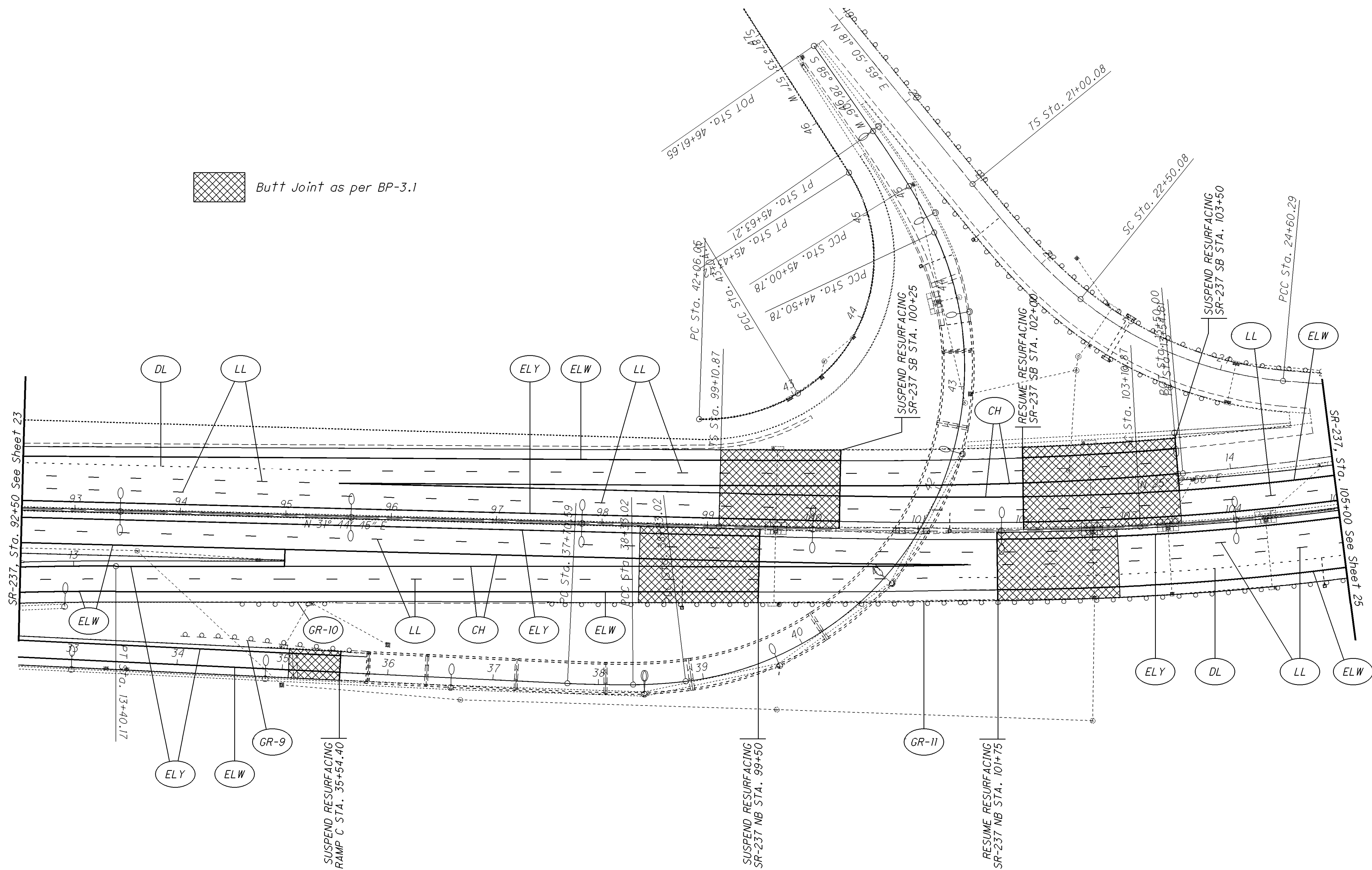
CALCULATED
KDH
CHECKED
EMK

0 50 100
HORIZONTAL
SCALE IN FEET

**PLAN - S.R. 237
STA. 80+00 TO STA. 92+50**

CUY - 237 - 6.65

FOR PAVEMENT MARKING LEGEND, SEE SHEET 21



 Butt Joint as per BP-3.1

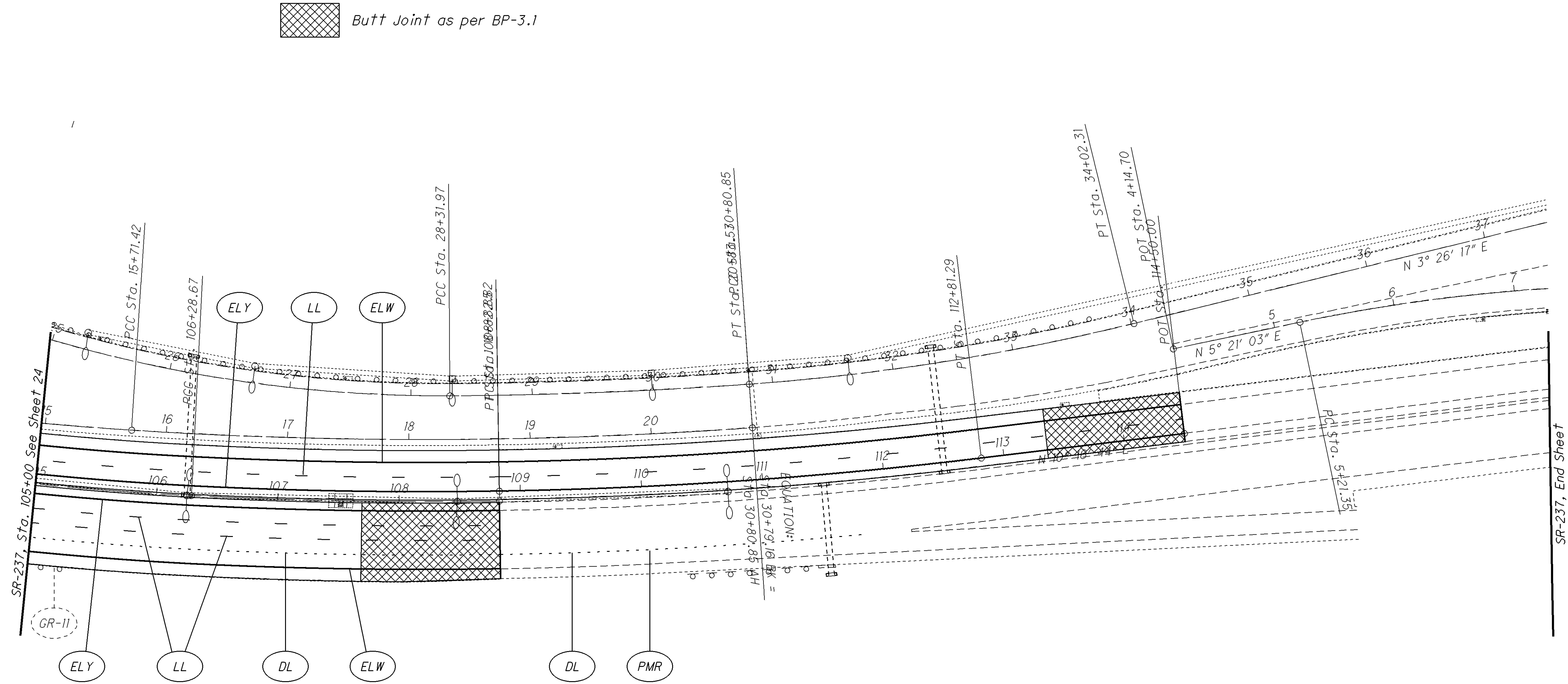
CALCULATED
KDH
CHECKED
EMK

0 50 100
HORIZONTAL
SCALE IN FEET

PLAN - S.R. 237
STA. 92+50 TO STA. 105+00

CUY - 237 - 6.65

FOR PAVEMENT MARKING LEGEND, SEE SHEET 21



 Butt Joint as per BP-3.1

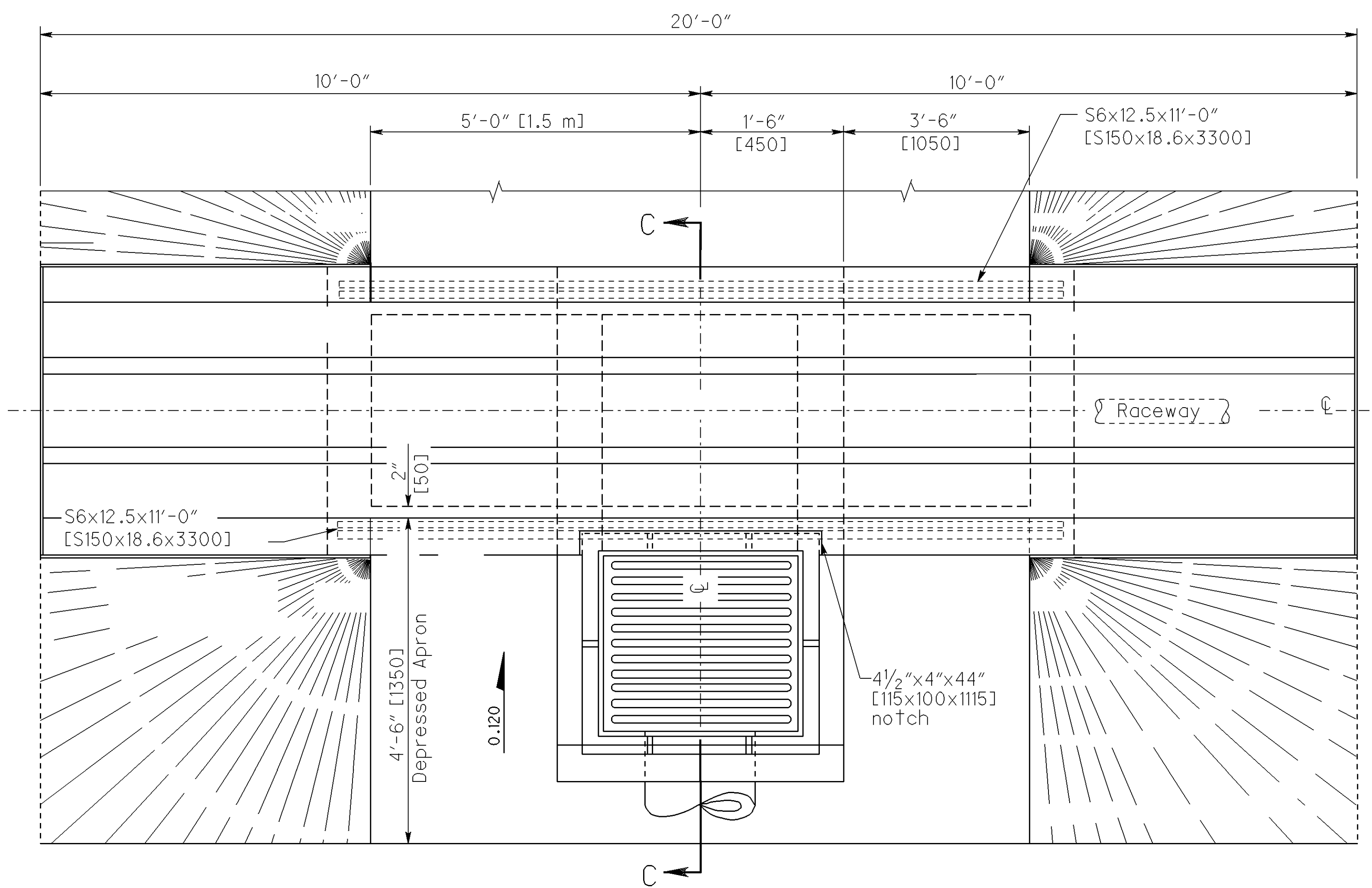
CALCULATED
KDH
CHECKED
EMK

0 50 100
HORIZONTAL
SCALE IN FEET

PLAN - S.R. 237
STA. 105+00 TO STA. 114+50

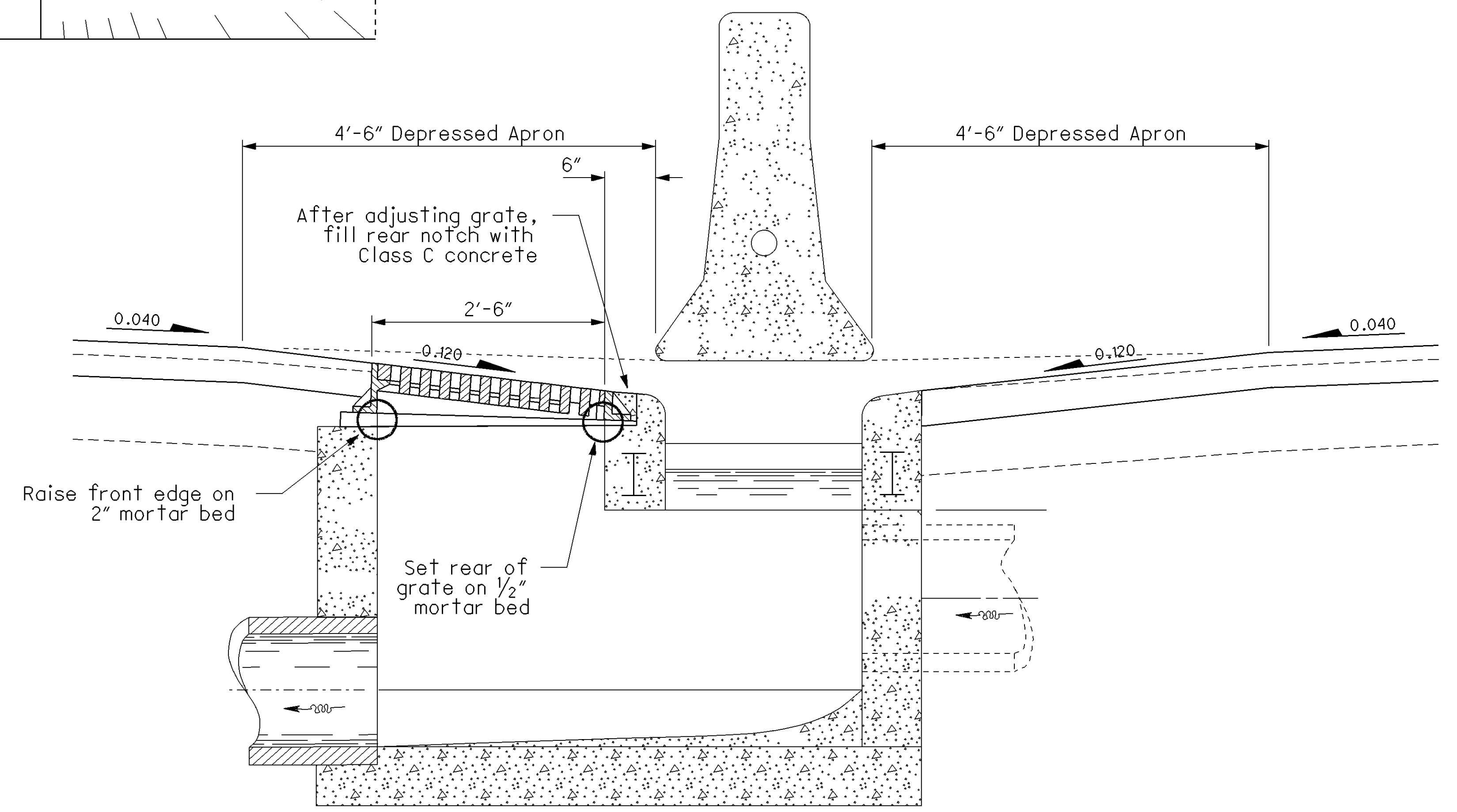
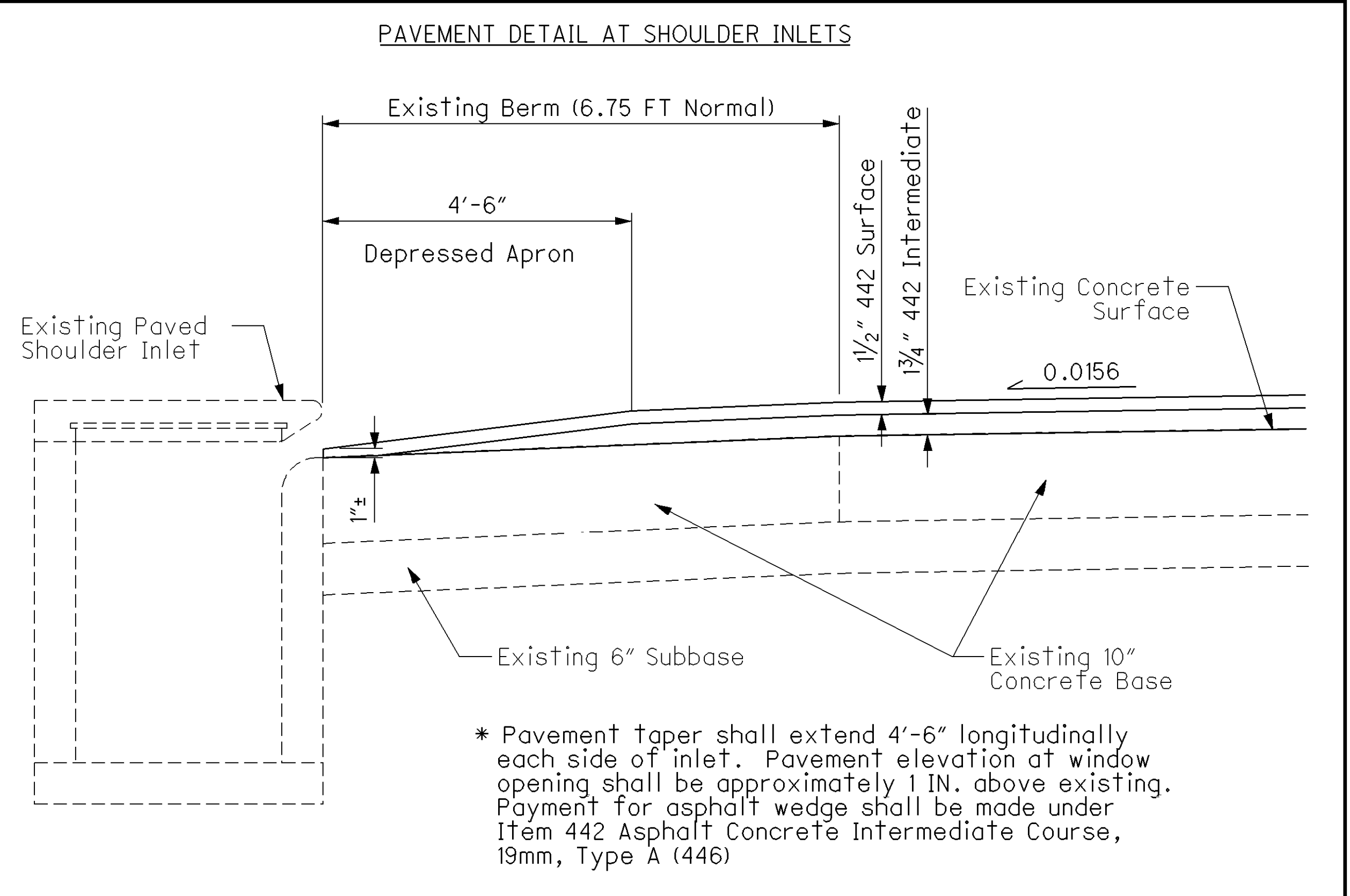
CUY - 237 - 6.65

FOR PAVEMENT MARKING LEGEND, SEE SHEET 21



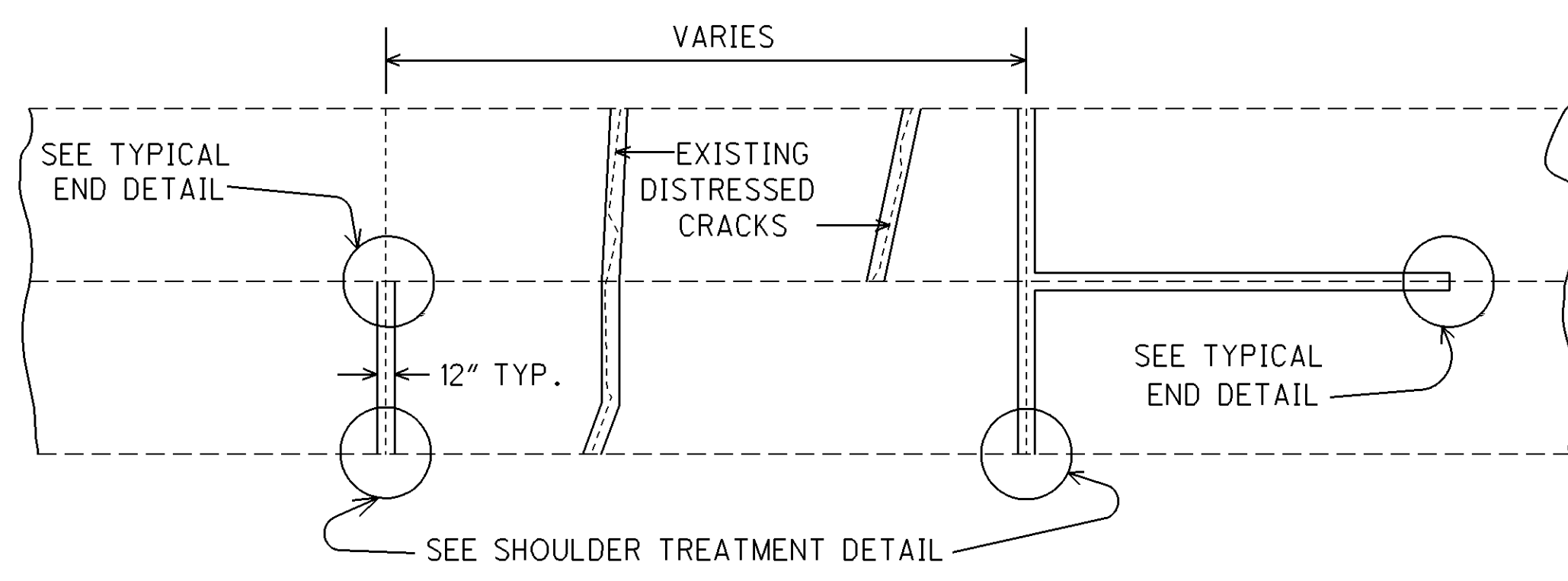
PLAN VIEW

Item 604 - Inlet Adjusted to Grade. As Per Plan (Median Barrier Inlet)
 The Contractor shall remove and adjust the slope of the frame and grate of existing median barrier inlets as shown in Section C-C.
 The intent of this detail is to preserve the height of the existing window opening by steepening the grade of the depressed apron.
 The adjustment shall be performed after placement of the intermediate course and prior to the surface course.
 See Sheet 8 for Inlet Adjusted to Grade, As Per Plan quantity.

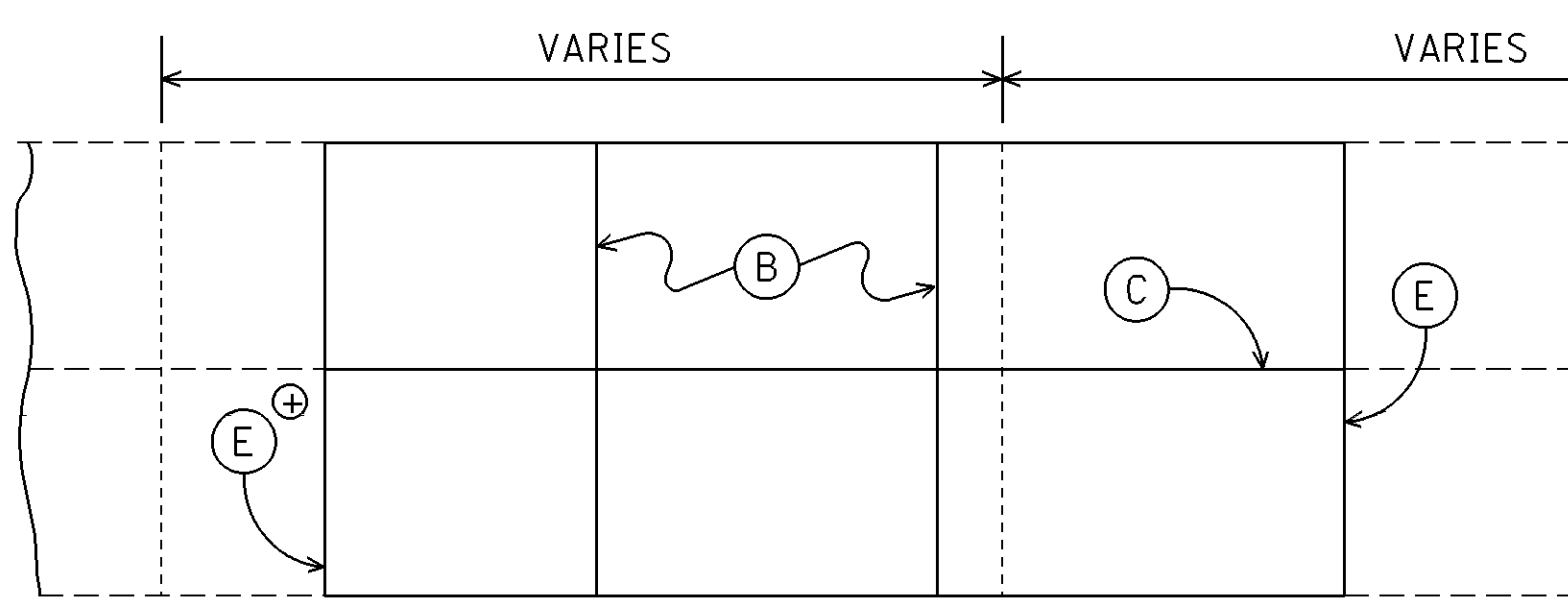


SECTION C-C

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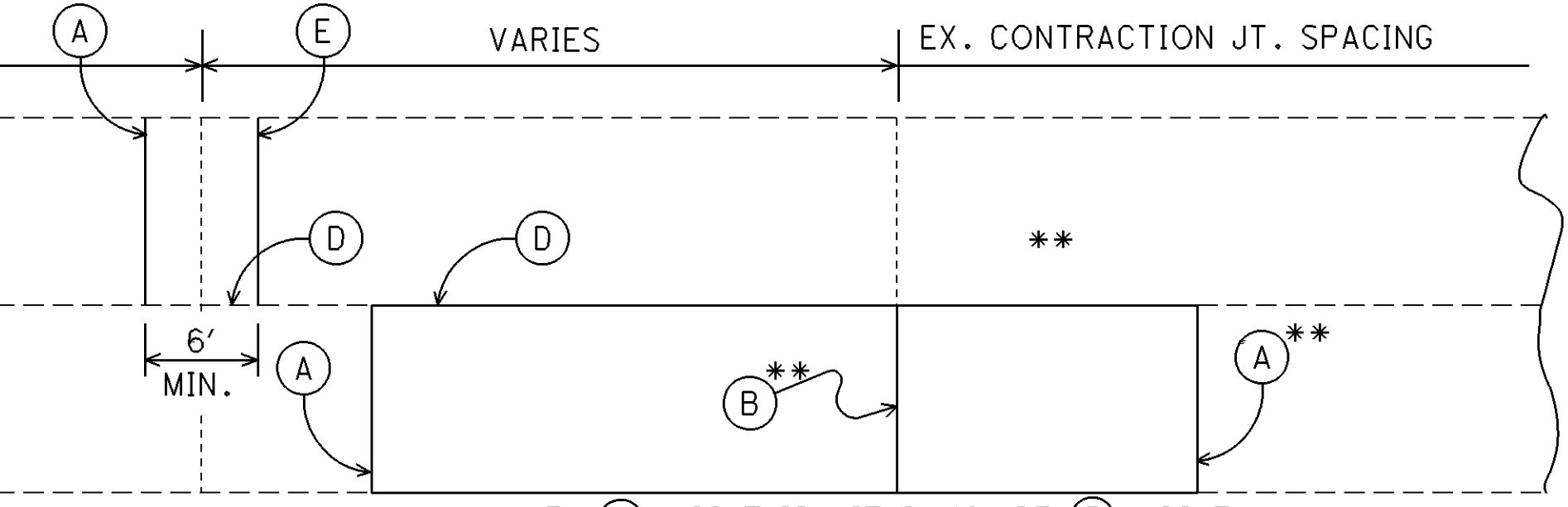


PARTIAL DEPTH JOINT OR CRACK REPAIR



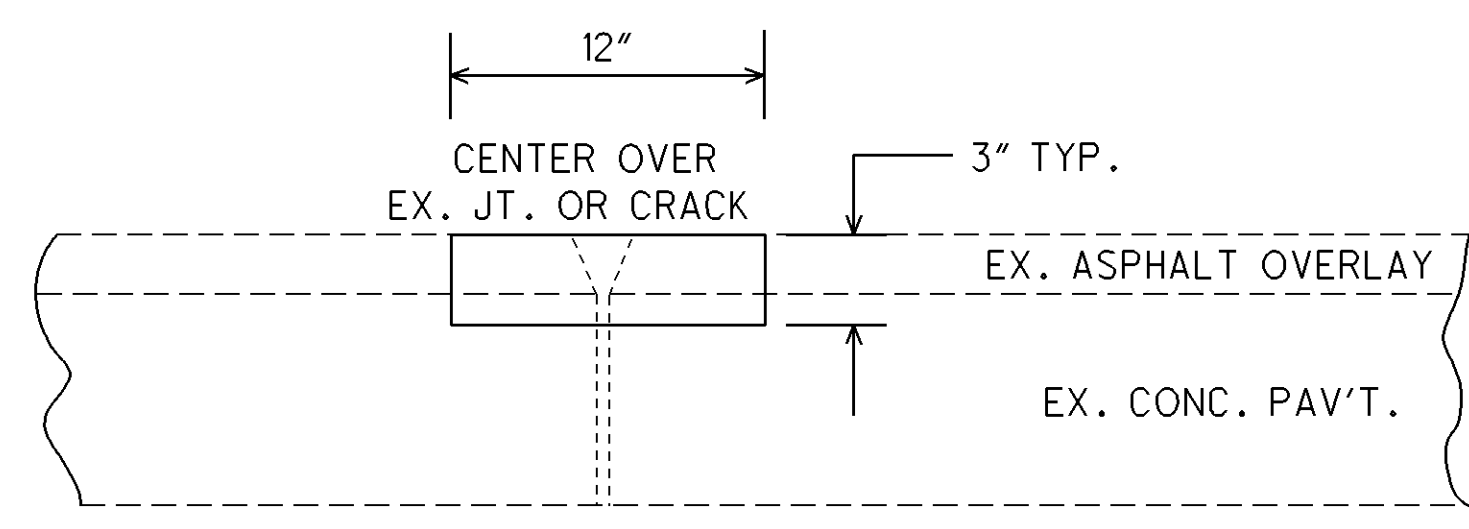
⊕ USE (A) IF WITHIN 10' OF CONTRACTION JT.

TYPICAL TWO LANE REPLACEMENT

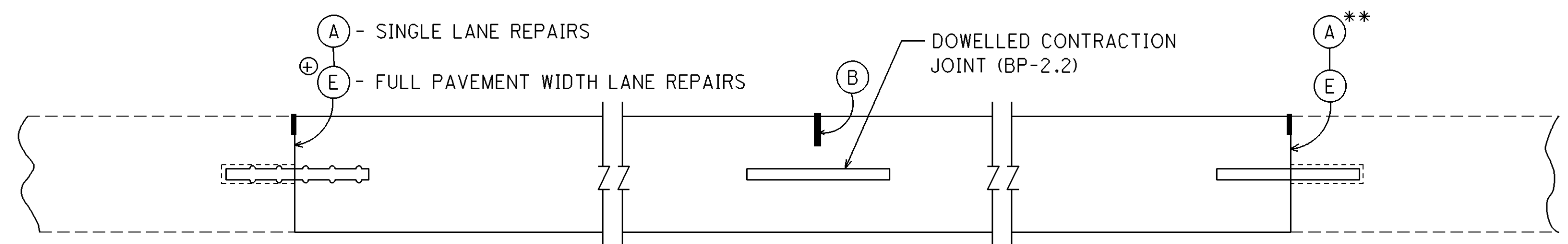


** - WHEN (A) JOINT IS WITHIN 10' OF (B) JOINT OMIT (B) JOINT, CHANGE (A) JOINT TO (E) JOINT AND OMIT PORTION OF TIED JOINT DENOTED **.

TYPICAL ONE LANE REPLACEMENT

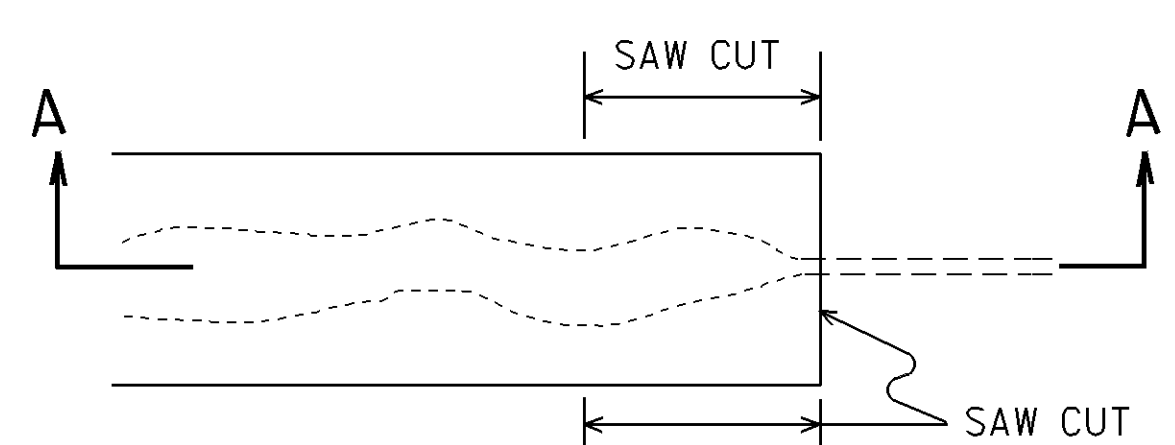


ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR

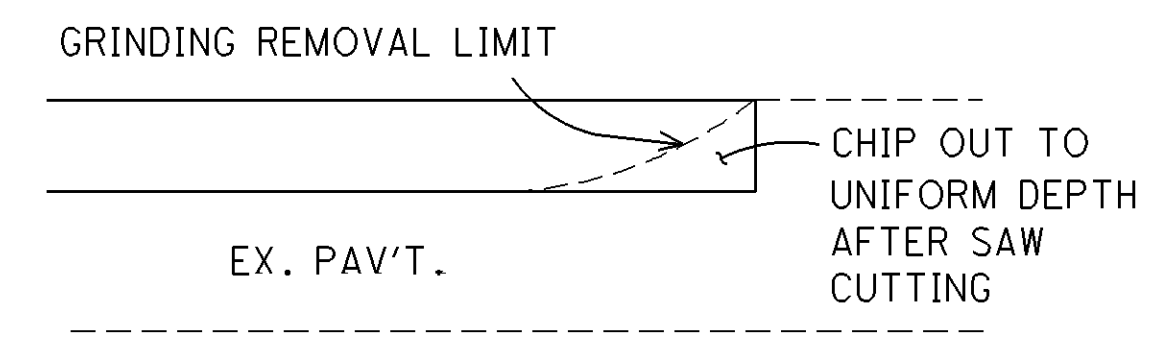


ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT

SEE GENERAL NOTES ON SHEET 9 FOR ADDITIONAL INFORMATION.



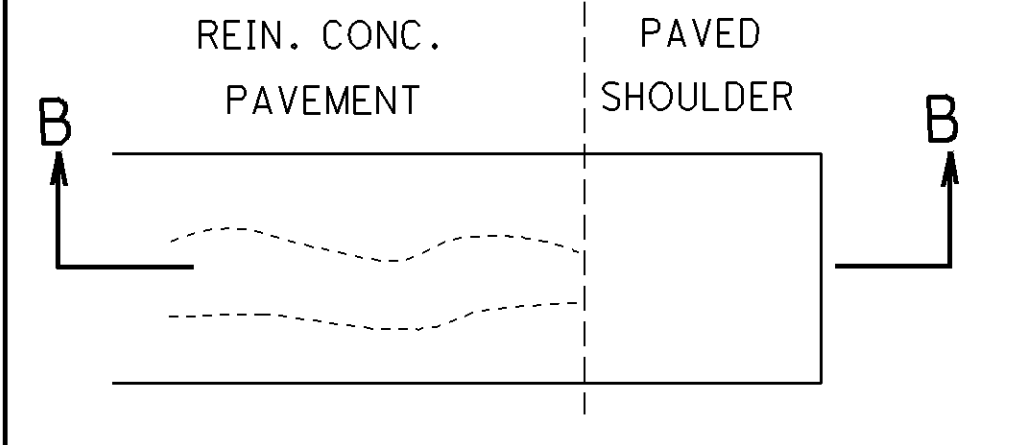
DISTRESSED JOINT - PLAN VIEW



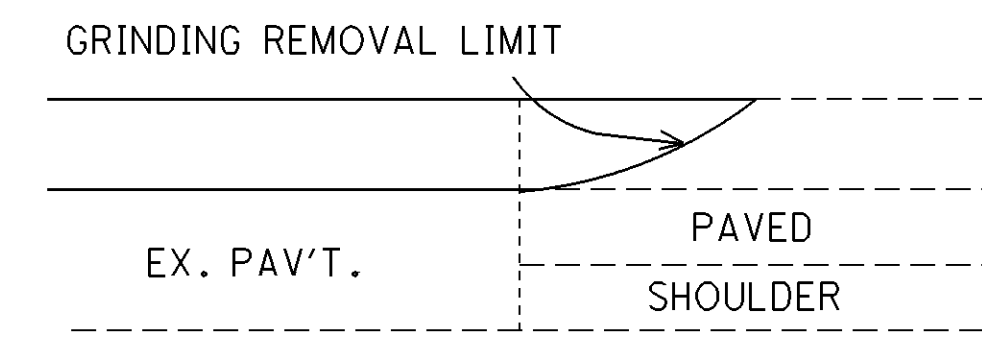
SECTION A-A

TYPICAL END DETAIL

NO SEPARATE PAYMENT WILL BE MADE FOR THESE SAW CUTS



DISTRESSED JOINT - PLAN VIEW



SECTION B-B

SHOULDER TREATMENT DETAIL

MEASURED QUANTITY SHALL NOT INCLUDE THE PAVED SHOULDER AREA

LEGEND

- (A) TYPE T TIED REPAIR JOINT, AS PER BP-2.5
- (B) SAWED AND DOWELED CONTRACTION JOINT AS PER BP-2.2 MAX. SPACING 20' C/C FOR FULL PAVEMENT WIDTH LANE REPAIRS
- (C) LONGITUDINAL BUTT JOINT AS PER BP-2.1
- (D) LONGITUDINAL JOINTS AS PER BP-2.1 FOR PATCHES 10' OR GREATER IN LENGTH
- (E) TYPE Y DOWELED REPAIR JOINTS, AS PER BP-2.5

SEE GENERAL NOTES ON SHEET NO. 9 FOR ADDITIONAL INFORMATION.

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