

**NORTH OLMSTED
FAIRVIEW PARK
CUYAHOGA COUNTY**

REPLACE THE MEDIAN BARRIER ALONG I-480 FROM SR-252 TO THE ROCKY RIVER BRIDGE IN NORTH OLMSTED AND FAIRVIEW PARK. WORK WILL INCLUDE UPGRADING THE MEDIAN LIGHTING.

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)

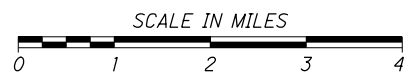
THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

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

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



LATITUDE: 41°25'14.5" LONGITUDE: -81°52'48.7"



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

<i>DESIGN DESIGNATION</i>	<i>S.L.M. 3.98-4.16</i>	<i>S.L.M. 4.16-5.67</i>	<i>S.L.M. 5.67-6.60</i>
<i>CURRENT ADT (2019).....</i>	<i>91,000</i>	<i>91,000</i>	<i>118,000</i>
<i>DESIGN YEAR ADT (2039).....</i>	<i>100,000</i>	<i>100,000</i>	<i>125,000</i>
<i>DESIGN HOURLY VOLUME (2039).....</i>	<i>10,000</i>	<i>9,000</i>	<i>11,000</i>
<i>DIRECTIONAL DISTRIBUTION.....</i>	<i>0.64</i>	<i>0.59</i>	<i>0.59</i>
<i>TRUCKS (24 HOUR B&C).....</i>	<i>0.04</i>	<i>0.04</i>	<i>0.05</i>
<i>DESIGN SPEED.....</i>	<i>65 MPH</i>	<i>65 MPH</i>	<i>65 MPH</i>
<i>LEGAL SPEED.....</i>	<i>60 MPH</i>	<i>60 MPH</i>	<i>60 MPH</i>

DESIGN FUNCTIONAL CLASSIFICATION:
INTERSTATE
NHS PROJECT _____ NO

NONE

<h1 style="text-align: center;">UNDERGROUND UTILITIES</h1> <p style="text-align: center;">CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.</p>	
 <p>OHIO Utilities Protection SERVICE</p> <p>(Non-members must be called directly)</p>	<p><i>Call Before You Dig</i> 1-800-362-2764</p>
<p style="text-align: center;">OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE</p> <p style="text-align: center;">1-800-925-0988</p>	

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

ENGINEERS SEAL:

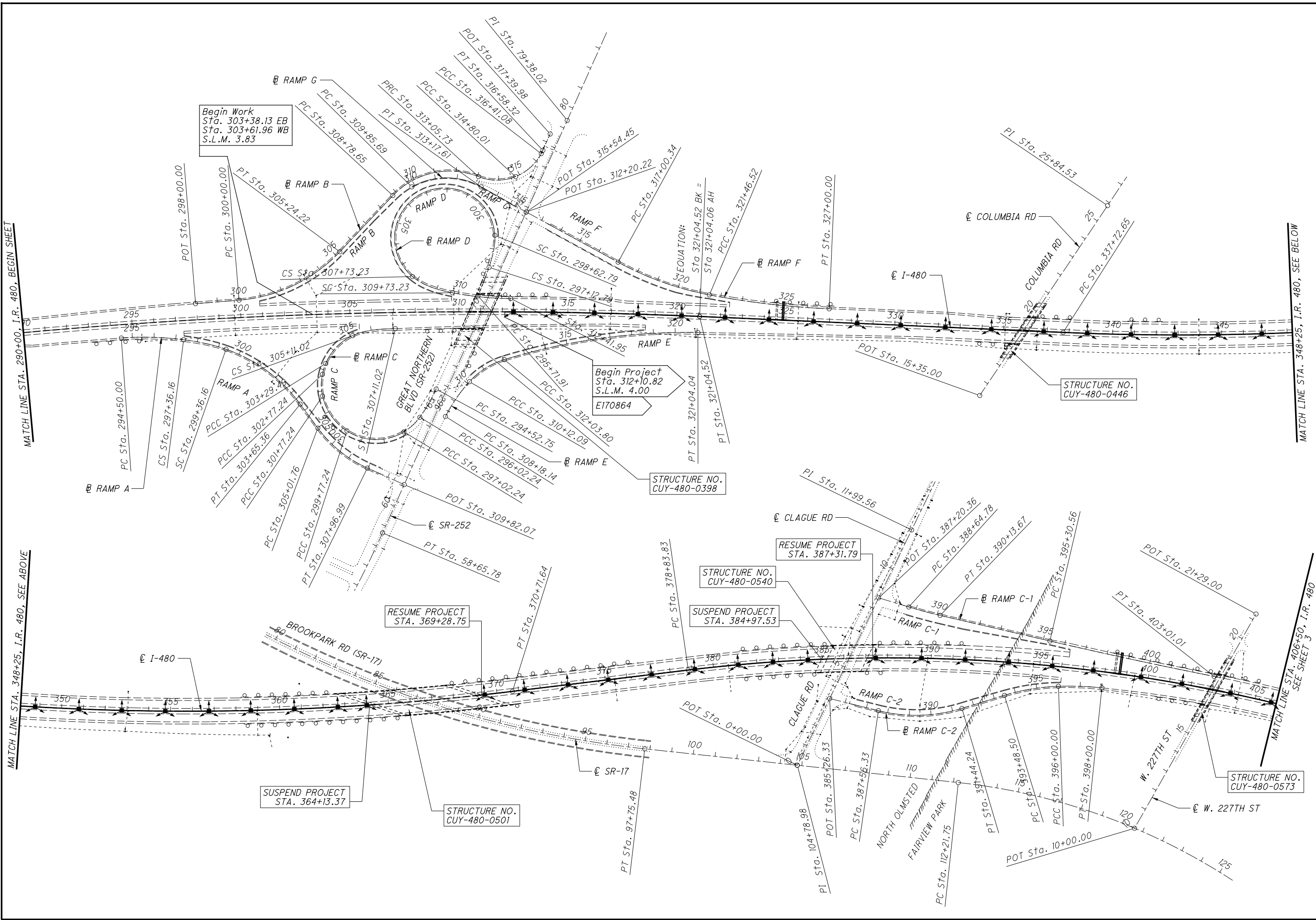
STATE OF OHIO
Eric M.
Kallio
E-59990
REGISTERED
PROFESSIONAL ENGINEER

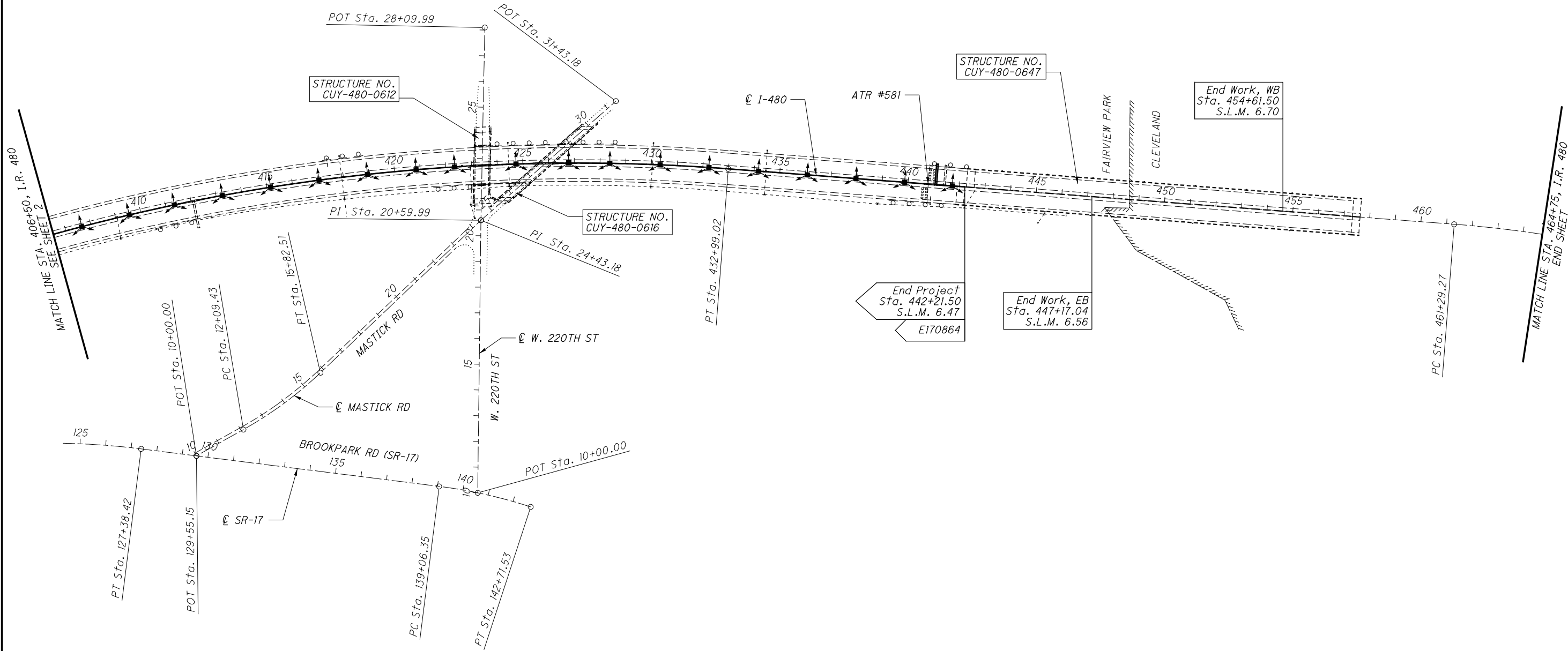
SIGNED: *Eric M. Kallio*
DATE: 10-16-13

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APPROVED _____
DATE 10-15-18 DISTRICT DEPUTY DIRECTOR

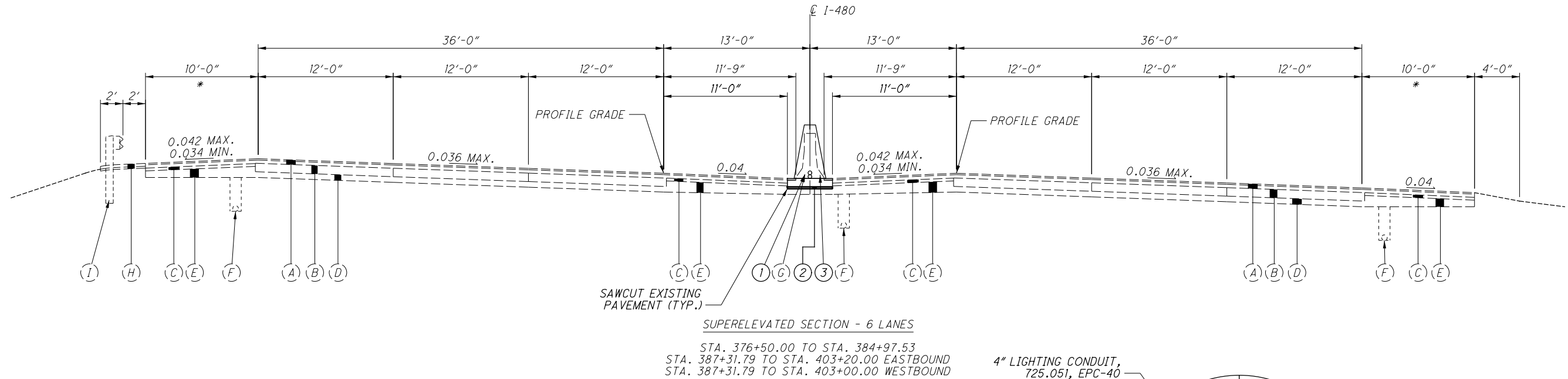
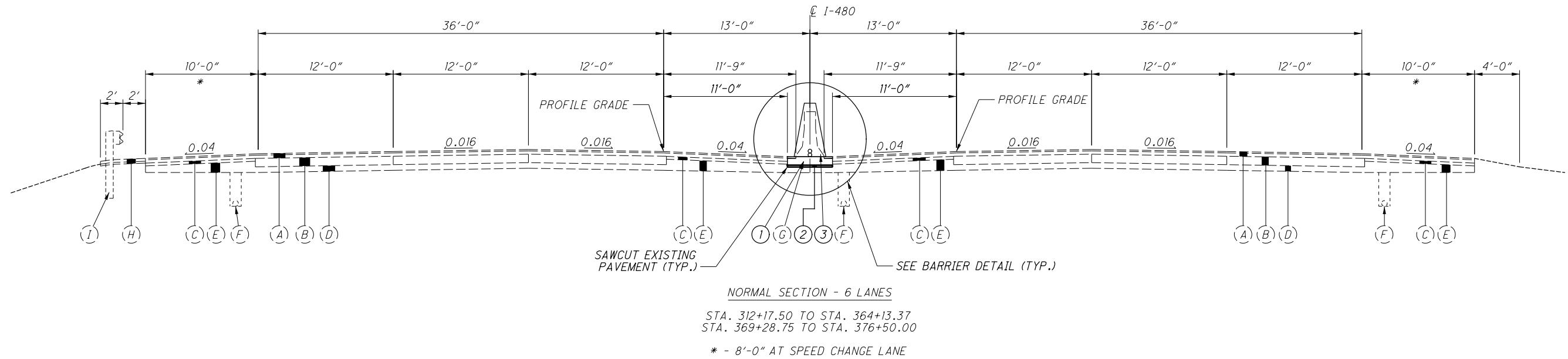
APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF
TRANSPORTATION





3 57	CUY -480-3.98	SCHEMATIC PLAN SHEET		I.R. 480, STA. 406+50 TO STA. 464+75	CALCULATED DAB CHECKED EMK	 0 100 200 400 HORIZONTAL SCALE IN FEET

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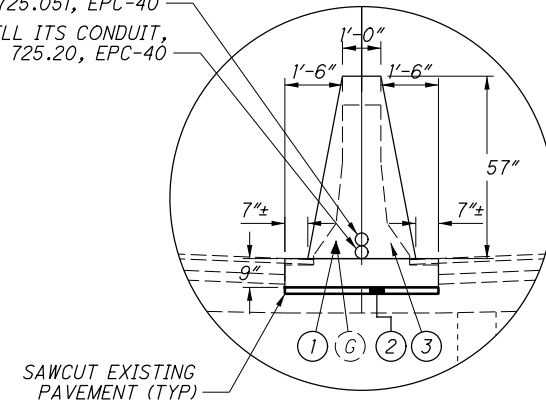
EXISTING LEGEND

- (A) 5" ASPHALT CONCRETE
- (B) 9" PORTLAND CEMENT CONCRETE BASE
- (C) 1 1/4" ASPHALT CONCRETE BASE
- (D) 6" SUBBASE
- (E) SUBBASE (VARIES 6"-12")
- (F) 6" UNDERDRAIN (30" SHALLOW - 50" DEEP)
- (G) CONCRETE BARRIER, TYPE B50
- (H) ASPHALT CONCRETE UNDER GUARDRAIL
- (I) GUARDRAIL, TYPE 5

PROPOSED LEGEND

- (1) ITEM 202 - CONCRETE BARRIER REMOVED, AS PER PLAN
- (2) ITEM 304 - 2" AGGREGATE BASE
- (3) ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE B1, AS PER PLAN

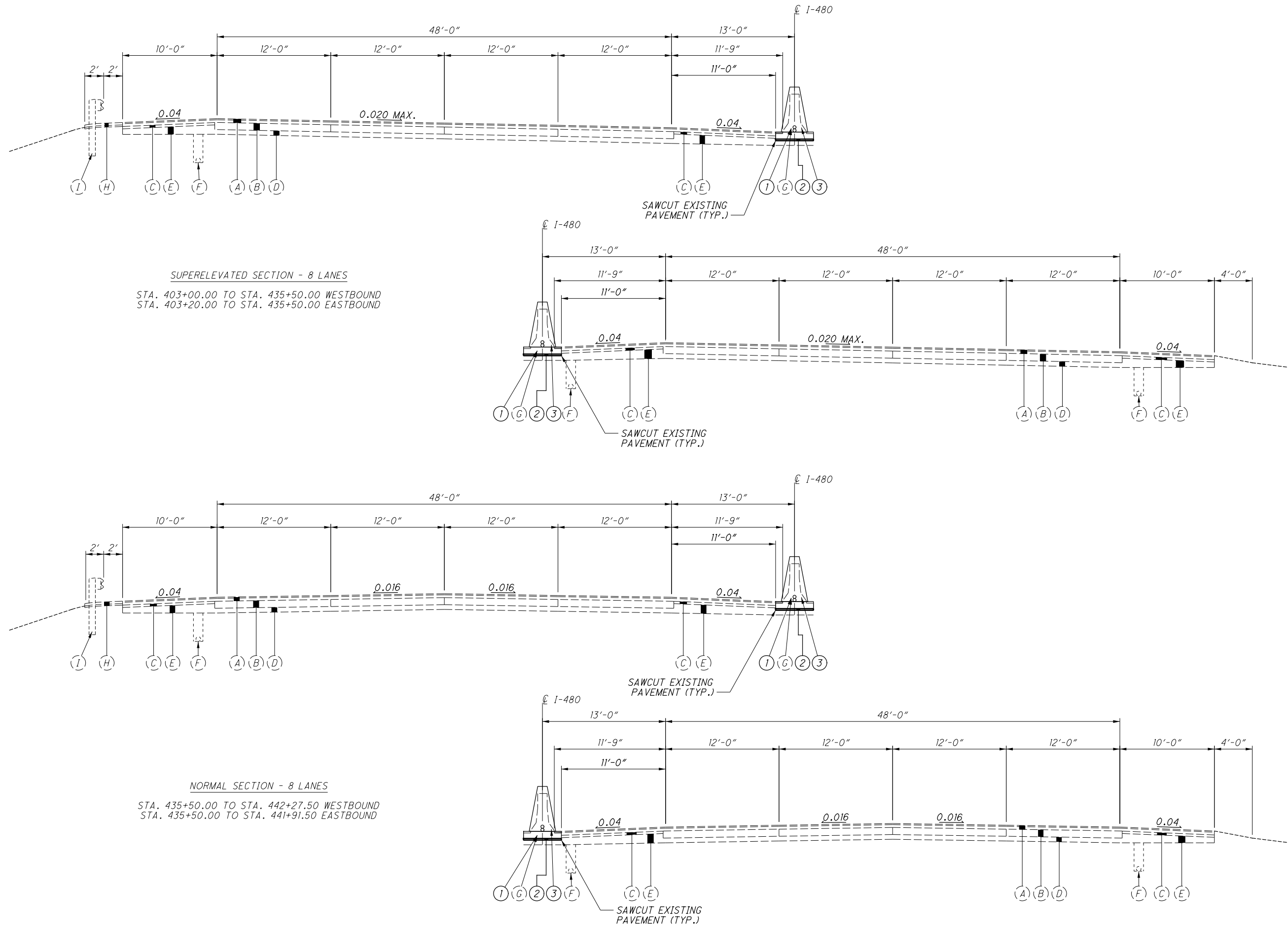
4" LIGHTING CONDUIT,
725.051, EPC-40
4" MULTICELL ITS CONDUIT,
725.20, EPC-40



SAWCUT EXISTING
PAVEMENT (TYP.)

CONCRETE BARRIER DETAIL

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TYPICAL SECTIONS

CUY - 480 - 3.98

FOR LEGEND, SEE SHEET 4

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GENERAL

Project Description

This project consists of the replacement of median barrier and lighting upgrade along I-480 from SR-252 to the Rocky River bridge in North Olmsted and Fairview Park.

Existing Typical Sections

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

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

These plans may be reviewed at the

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

Contingency Quantities

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

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.

Cooperation Between Contractors

The contractor shall cooperate and coordinate operations with the contractors on other projects that may be in force during the life of the contract.

Work Limits

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

Right Of Way

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

Plan Sheet Stationing

The roadway was not surveyed prior to the preparation of these plans. Stationing was provided to prepare plan sheets and calculate pavement and pavement marking quantities.

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.

Item 619 – Field Office, Type C, As Per Plan

A Type C Field Office is required for this project. The following revisions to equipment supplied with the Type C Field Office, as specified in Table 619.02-1, Field Office, shall apply:

- The broadband internet connection must meet a minimum upload speed of 5MB per second.
- Contractor shall furnish and set up a Wi-Fi router meeting the requirements of IEEE 802.11ac for the exclusive use of the Department.

All other field office items supplied shall meet the requirements of a Type C, Field Office.

Item 619 – Field Office, Type C, As Per Plan 6 Months

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.

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 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.

Utilities

The following utilities and owners are located within the work limits of this project. The Ohio Department of Transportation has used the best available information to determine the utility companies serving this area, but cannot guarantee the utility company list is complete.

The Illuminating Co.
6896 Miller Road
Brecksville, Ohio 44141
Attn: Ted Rader
Phone: 440-546-8738

City of North Olmsted
5200 Dover Center Road
North Olmsted, Ohio 44070
Phone: 440-777-8000

AT&T
13630 Lorain Ave. – 2nd Floor
Cleveland, Ohio 44111
Attn: James Janis
Phone: 216-476-6142

City of Fairveiw Park
20777 Lorain Road
Fairview Park, Ohio 44126
Phone: 440-333-2200

Dominion Energy Ohio
320 Springside Drive
Suite 320, Akron, Ohio 44333
Attn: Michael Antonius
Phone: 330-664-2481

City of Cleveland Division of Cleveland
Public Power (MELP)
1300 Lakeside Ave.
Cleveland, Ohio 44114
Attn: Chris Hirzel
Phone: 216-664-3922, Ext. 76115

Century Link
441 W. Broad Street
Pataskala, Ohio 43062
Attn: Chris Strayer
Phone: 330-886-1299

City of Cleveland Division of Water
1201 Lakeside Ave.
Cleveland, Ohio 44114
Attn: Fred Roberts
Phone: 216-664-2444 Ext. 5590

Ohio Department of Transportation
5500 Transportation Blvd.
Garfield Heights, Ohio 44125
Phone: 216-581-2100

ODOT Traffic Monitoring Section
1980 West Broad Street
Columbus, Ohio 43223
Attn: Ed Newmeyer (Field Rep)
Phone: (614) 204-0914
Attn: Sandra Mapel (Field Operations)
Phone: (614) 644-0291

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.

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Roadway and Erosion Control

Item 202 – Concrete Barrier Removed, As Per Plan

Removal of the existing concrete barrier foundation shall be included in this item of work. The Contractor may elect to sawcut the pavement at the barrier foundation edge prior to the concrete barrier and concrete barrier foundation removal as to prevent adjacent pavement from being disturbed.

This item of work shall also include removal of reinforced sections of barrier located within the project limits including, but not limited to, light pole foundations, inlet tops, and sign foundations as well as removal of any reference markers and barrier mounted supports located on the existing barrier. Existing light pole foundations shall be removed as per C&MS 625.21C. When removing inlet tops, care should be taken to avoid damaging inlet walls below the pavement surface. Existing sign foundations shall be removed as per C&MS 630.12.

All costs for this item of work, including sawcutting, labor, materials, equipment and incidentals shall be included in the unit bid price for Item 202 – Concrete Barrier Removed, As Per Plan.

Item 622 – Concrete Barrier, Single Slope, Type B1, As Per Plan

This item shall consist of furnishing and installing Type B1 Concrete Barrier according to the CMS and Standard Construction Drawing RM-4.3 with the following modifications:

- 1. Provide a 9” thick concrete foundation with an approximate width of 4.0’ as shown in the typical sections.
- 2. Install dowel bars between the concrete foundation and the concrete barrier. The size, length and placement of the dowel bars shall follow the doweling details shown on sheet 2 of RM-4.3.

In addition to the 4” lighting conduit, this item shall also include the installation of 4” Multicell ITS conduit, 725.20, EPC-40 as detailed on the typical sections.

All costs for this item of work, including sawcutting of existing shoulder asphalt, labor, materials, equipment and incidentals shall be included in the unit bid price for Item 622 – Concrete Barrier, Single Slope, Type B1, As Per Plan.

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 appurtenances 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 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 drainage items.

Item 611 – Inlet, No. 3 for Single Slope Barrier, Type B1, As Per Plan

This item shall consist of furnishing and installing Item 611 – Inlet, No. 3 for Single Slope Barrier, Type B1 according to the CMS and Standard Construction Drawing I-2.1 with the following modifications:

- 1. This item is intended to replace the concrete barrier on top of the inlet only.
- 2. The width of the inlet varies when located within barrier transitions from bridge piers to end anchorages.

All costs for this item of work, including labor, materials, equipment and incidentals shall be included in the unit bid price for Item 611 – Inlet, No. 3 for Single Slope Barrier, Type B1, As Per Plan.

Item 611 – Inlet Reconstructed to Grade, As Per Plan

The Contractor and Field Engineer shall field check all existing inlets located within the limits of the project. Any casting found that exhibits substantial deterioration shall be “Reconstructed to Grade”, as directed by the Engineer:

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

Item 611 – Inlet Reconstructed to Grade, As Per Plan 5 Each

Item Special – Miscellaneous Metal

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor’s responsibility to provide the castings of the required type, size, and strength (heavy duty) for the particular structure in question. All materials must meet Item 611 of the CMS and shall have the prior approval of the Engineer.

The Contractor is cautioned to use extreme care in the removal, storage, and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor.

The Contractor shall not order materials until authorized by the Engineer, and if none are needed, the item shall be non-performed.

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

Item Special – Miscellaneous Metal..... 12000 Lbs

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Pavement

Profile and Alignment

Place the proposed pavement to follow the alignment of the existing pavement. Place the proposed asphalt concrete with a uniform thickness as shown on the typical sections.

Planing Requirements

The duration of time between planing the asphalt and placing the asphalt overlay shall be kept to a minimum. In no instance shall this time exceed 7 calendar days. The time limit shall begin on the first day of planing and shall continue based on calendar days, minus any weather days, until completion of the asphalt concrete surface course. This is to ensure that the potential degradation of the exposed pavement due to traffic is kept to a minimum. This requirement applies to both mainline and ramps alike. If the surface course is not placed within 7 calendar days, then the Contractor shall be assessed damages equal to Table 108.07-1 per each day that the surface course is not placed.

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.

Item 442 – Asphalt Concrete Surface Course, 12.5 MM, Type A (448), As Per Plan, PG 70-22M

The coarse aggregate for this item shall be limited to a blend of air cooled blast furnace slag (ACBFS) and limestone. The Contractor shall use a minimum of 50 percent ACBFS with limestone comprising the remaining percentage.

In addition to the joint sealing requirements specified in 401.17, the Contractor shall seal the perimeter of all rumble strip pavement replacement areas. The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Payment for all labor, materials and equipment required to perform the above work shall be included in the contract price for Item 442 – Asphalt Concrete Surface Course, 12.5 MM, Type A (448), As Per Plan, PG70-22M.

Traffic Control

Protection of traffic monitoring equipment

Prior to beginning any pavement activities or any excavation activities between Sta. 440+54 and Sta. 441+04 (ATR Site #581) the Contractor, the project engineer, and a representative from the owner will coordinate a time for the owner/maintaining agency to disconnect the equipment. Following the disconnection by the owner, the Contractor will be allowed to perform their pavement activities, including pavement removal. The removed loops and sensors become the property of the contractor.

Sign Shop Drawings

The contractor shall submit a complete set of sign shop drawings to the project engineer for approval a minimum of four weeks prior to beginning of fabrication. The project engineer shall forward the sign shop drawings to the district Planning and Engineering department c/o Frank Konopka (216-584-2105) for approval.

Raised Pavement Markers

Install raised pavement markers for lane lines at a spacing of eighty feet (80') center-to-center.

Item 621 – Raised Pavement Marker Removed

This item shall include the removal and disposal of existing RPMs. The following estimated quantity has been carried to the General Summary:

Item 621 – Raised Pavement Marker Removed 747 Each

Item 626 – Barrier Reflector, Type 1, One Way

This item is provided for the installation of one way yellow barrier reflectors on the proposed concrete barrier. The following estimated quantity of Item 626 – Barrier Reflector, Type 1, One Way has been carried to the General Summary:

Item 626 – Barrier Reflector, Type 1, One Way 250 Each

Item 630-Sign Support Assembly, Pole Mounted
Item 630-Sign Support Assembly, Barrier Mounted
Item 630-Sign, Flat Sheet
Item 630-Removal of Ground Mounted Sign and Reerection

These pay items are being provided to remove and reerect miscellaneous flat sheet signs onto new light poles and to place new freeway reference markers onto the proposed concrete barrier. The contractor shall document the existing location of the signs that are to be reerected and place them on the nearest proposed low mast pole.

The new freeway reference markers shall be the standard sign design D10-5 (white on blue) and bear the interstate 480 route shield. The approximate locations of the reference markers are shown on sheets 49-56 of this plan. The barrier mounted sign support assemblies shall be fabricated per the details on sheet 42 of this plan.

The following quantities are being carried to the general summary to perform these items of work:

Item 630-Sign Support Assembly, Pole Mounted 11 Each
Item 630-Sign Support Assembly, Barrier Mounted 10 Each
Item 630-Sign, Flat Sheet 200 Sq.Ft.
Item 630-Removal of Ground Mounted Sign and Reerection 5 Each

Item 630-Overhead Sign Support, Type TC-7.65, Design 8, As Per Plan

In addition to C.M.S. 630.06, the sign supports shall have a wet or dry coating applied per Supplemental Specification 916. The color shall be medium grey (Federal Color No. 16440).

The coating of the supports shall be included in the bid price for Item 630-Overhead Sign Support, Type TC-7.65, Design 8, As Per Plan. This support type shall be itemized as coating two (2) galvanized steel end frames per support.

Detection Maintenance

If vehicle detection becomes unexpectedly disabled, requires modification, or is scheduled to be temporarily removed during the construction project, the Contractor shall immediately notify the Project Engineer and District Traffic Engineer.

If the loss of vehicle detection is known prior to the start of construction, it shall be discussed at the preconstruction meeting. At such time, the District Traffic Engineer shall advise the Project Engineer and Contractor on the appropriate action to rectify any loss of vehicle detection. This may include placing the traffic signal on minimum or maximum recall, modifying the minimum green times, and removing the malfunctioning detection from service. Where nonintrusive detection (i.e. video, radar) already exists, the Contractor shall insure that detection is operating and maintained by reconfiguring the detection units accordingly during all construction phases. This is to avoid the signal from maxing out the effected signal phase and creating unnecessary delays.

Locations where non-intrusive detection is proposed and the existing vehicle detection is to be abandon, the non-intrusive vehicle detection shall be installed, configured and made fully functional prior to the existing detection being disabled. The Contractor shall continue to maintain and modify the detection until final acceptance of the traffic signal. This is to ensure vehicle detection remains fully functional throughout construction.

Lighting

Power Agency

The power supplying agency for this project is:

First Energy-The Illuminating Company
6896 Miller Road
Brecksville, Ohio 44141
Attn: Call for New Service Request
Phone: 1-800-589-3101

ODOT Intelligent Transportation Systems Lab

Office of Traffic Operations
Phone: 614-644-4113
Email: cen.its.lab@dot.ohio.gov
Non-OUPS member, notify for locates

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Item 625-Light Pole, Low Mast, As Per Plan, ALM50

In addition to C&MS 625.09 the contractor shall label each low mast light pole with two (2) alpha numeric identifiers, one in each direction of traffic (WB & EB).

Item 625-Median Light Pole Foundation, 10’ Deep, As Per Plan

The median light pole foundations as itemized in this plan shall be constructed per the details and notes on sheet 57 of this plan.

Payment will be made at the unit bid price of each for Item 625-Median Light Pole Foundation, 10’ Deep, As Per Plan which shall be full compensation for all labor, materials and incidentals required to complete this item in a satisfactory and workmanlike manner.

Item 625-Conduit, Jacked or Drilled, As Per Plan, 4” Multicell

The conduit to be jacked or drilled under the pavement shall be type EPC-80 multiple cell and conform to C.M.S. 725.20.

Item 625-Luminaire, Low Mast, Solid State (LED), As Per Plan

In addition to supplemental specification 813, use one of the following luminaires or approved equal as directed by the highway maintenance traffic engineer:

Holophane **HMLED3 PK3 40KHVOLT G AW** with a color temperature of 3000k, type V distribution and an average of 45000-55000 lumen performance.

GE Lighting **ERHM-01-480-50 7-30-N-1-4B-GRAY-R-005** with a color temperature of 3000k, type V distribution and an average of 40000-50000 lumen performance.

Carolina **CLED-3M-G-40-HO-480** with a color temperature of 3000k, type V distribution and an average of 39610-41860 lumen performance.

Payment will be made at the unit bid price of each for Item 625-Luminaire, Low Mast, Solid State (LED), As Per Plan which shall be full compensation for all labor, materials and incidentals required to complete this item in a satisfactory and workmanlike manner.

Item 625-Luminaire, Conventional, Solid State (LED), As Per Plan

In addition to supplemental specification 813, use one of the following luminaires or approved equal as directed by the highway maintenance traffic engineer:

GE Lighting **ERS1010(B1 OR E1)X301GRAYLR130** with a color temperature of 3000k, type III distribution and an average of 8500-12000 lumen performance.

Autobahn **ATBM D 480 R3** with a color temperature of 3000k, type III distribution and an average of 8500-12000 lumen performance.

Payment will be made at the unit bid price of each for Item 625-Luminaire, Conventional, Solid State (LED), As Per Plan which shall be full compensation for all labor, materials and incidentals required to complete this item in a satisfactory and workmanlike manner.

Item 625 – Median Junction Box, As Per Plan A

Concrete barrier quantities are not included in this item and have been itemized separately in pay item 622 – Concrete Barrier, Single Slope, Type B1, As Per Plan.

Item 625-Median Junction Box, As Per Plan B

The median boxes as itemized in this plan shall be sized and constructed per the details and notes on SCD ITS-14.50.

Item 625-Pull Box, 725.08, 32”, As Per Plan

The 32” pull boxes as itemized in this plan shall be constructed per the details and notes on SCD ITS-14.11.

Item 625-Power Service, As Per Plan

In addition to the requirements of C.M.S. 625.22 and otherwise noted in this plan, the pull box(s) prior to the first light pole shall be considered a part of this pay item. The above noted pull box(s) shall be considered the pull boxes referenced as “at the power service location”.

When a new power service has been established the contractor shall present an invoice to the project engineer for any charges made by the power company for work by the company in conjunction with the establishment of the required service. The invoice shall include itemized materials, labor and all overhead costs supplied by the power company in establishing the service. Once the invoice is approved by the project engineer, the contractor shall be reimbursed accordingly for work done by the power company. The new ODOT maintained power services shall be metered service.

Electrical energy from existing power services shall continue to be charged to the maintaining agency. The contractor shall pay electrical energy charges for new power services established by this project. After acceptance of the lighting, the engineer shall ensure that each power services’ electrical energy account and billing address are in the name of the maintaining agency noted in the plans. This shall be done for each new power service established by this project.

Payment will be made at the unit bid price of each for item 625-Power Service, As Per Plan which shall be full compensation for all labor, materials and incidentals required to complete this item in a satisfactory and workmanlike manner.

Item Special-Maintain Existing Lighting

Existing roadways which are to remain open to traffic during construction of this project and which are lighted shall have the lighting maintained as described herein.

Before any work is started in the immediate vicinity of the existing lighting circuits, representatives of ODOT, the maintaining agency and the contractor shall make a visual inspection of the existing roadway lighting circuits to be maintained. During this inspection, a written record of the condition of existing lighting shall be made by ODOT's representative. This written report shall note individual luminaires which are not in working order, individual poles which are not standing, and individual circuits which are not in working order. The completed report shall be signed by the representatives of ODOT, the maintaining agency and the contractor.

If, as a result of this inspection, it is determined that the condition of the existing system is below that required for the safety of the traveling public, then the maintaining agency shall make the repairs necessary to return the system to an acceptable condition. Following these repairs, the system shall again be inspected and a report shall be made and signed as outlined herein.

When the existing system is in an acceptable condition, it shall be turned over to the contractor who shall then be required to maintain the existing lighting to the condition outlined in this report with the exception of knockdowns due to traffic accidents.

Replacement of knocked down units shall be done only when the engineer has determined that the replacement of the knocked down unit is necessary and shall be paid separately on a unit basis.

Betterments shall be covered in items of work pertaining to the construction of permanent improvement.

When the sequence of construction activities requires, or should the contractor desire, the removal of the existing lighting before the new lighting is operational, the contractor shall be responsible for providing temporary lighting of this portion of the roadway. Temporary lighting to maintain existing lighting is not required provided that service is only interrupted for a maximum of fourteen (14) days or less.

Prior to installing such lighting, the contractor shall prepare and submit four sets of the temporary lighting plan to the engineer for review and approval.

This plan shall show locations of poles, lengths of bracket arms, styles of luminaires, mounting heights, wiring methods and other pertinent information. The temporary lighting shall provide an average initial intensity of 1.2 footcandles with an average to minimum uniformity not to exceed 3:1. Mounting height of temporary luminaires shall not be less than 30 feet, and the minimum overhead conductor clearance shall be 20 feet. Temporary overhead construction shall not be less than grade "a" for strength requirements as defined by the national electric safety code. Wood poles with overhead wiring may be used. However, temporary lighting shall meet federal and state safety criteria. If breakaway poles are used to meet these criteria, then underground wiring shall be used. Reconditioned or used materials may be furnished for temporary lighting.

All materials necessary to complete the temporary lighting shall be furnished and installed by the contractor. When no longer needed, the temporary lighting installation shall be removed and properly disposed of by the contractor. The maintaining agency will pay for electrical energy consumed by existing power services and by proposed permanent power services after acceptance of the lighting work. The contractor will pay for electrical energy, installation, removal and maintenance of any temporary power services.

The lump sum price bid for Item Special-Maintain Existing Lighting shall include payment for all labor, equipment, materials and incidentals necessary to maintain the existing lighting as specified herein.

The unit price bid for Item Special-Replacement of Existing Lighting Unit shall be full payment for the replacement of an existing lighting unit which has been knocked down after the aforementioned inspection and shall include all labor, equipment, materials and incidentals necessary to provide a replacement for such unit.

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Maintenance of Traffic

General

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

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

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

Sequence of Construction

Permanent maintenance of traffic zones, as detailed on sheets 15-17 of the plans, shall be maintained for the duration of the project. The Contractor shall construct the proposed barrier and lighting upgrade such that the limits of the circuit around Clague Road are not being worked on at the same time as the adjacent circuits. Lighting shall be maintained in the sections not being worked on or already completed as part of this project.

Maintenance of Traffic Control Zones

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

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.

Payment

All work and traffic control devices shall be in accordance with CMS 614 and other applicable portions of the specifications, as well as the Ohio Manual of Uniform Traffic Control Devices. Payment for all labor, equipment, and materials shall be included in the lump sum contract price for Item 614 – Maintaining Traffic unless separately itemized in the plans.

Lane Closure/Reduction Required

Length and duration of lane closures and restrictions shall be at the approval of the Engineer. It is the intent to minimize the impact to the traveling public. Lane closures or restrictions over segments of the project in which no work is anticipated within a reasonable time frame, as determined by the Engineer, shall not be permitted. The level of utilization of maintenance of traffic devices shall be commensurate with the work in progress.

Schedule of Through Lanes to be Maintained

All lane closures may only be implemented at the times permitted by the "District 12 Permitted Lane Closure Times" list, which is located on the ODOT website:

www.dot.state.oh.us/dist12/workzone/laneclo.htm

The latest revision, at 14 days prior to the bid date, shall be in effect for this project.

No lane or shoulder closures shall be in place when no work is being performed, unless directed by the Engineer. Shoulder closures shall only be allowed at the times specified for lane closures.

Any roadway not listed shall not have any lane closures on weekdays from 6:30am to 9:00am and 3:00pm to 6:00pm. Contact Dennis O'Neil, District 12 Work Zone Traffic Manager, at (216) 584-2204 if there are any questions.

All notes on the Permitted Lane Closure Times shall be part of the project.

Lane Value Contract Table

Description of Critical Lane/Ramp to be Maintained	Restricted Time Period	Time Unit	Disincentive \$ per Time Unit per Lane
Co. Line to SR-252 East	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$195
Co. Line to SR-252 West	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$195
SR-252 to Clague Rd East	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$230
SR-252 to Clague Rd West	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$230
Clague Rd to I-71 Ramps East	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$230
Clague Rd to I-71 Ramps West	As per the D12 Permitted Lane Closure Schedule	Each Minute	\$230

The Contractor shall be assessed a disincentive in the amount of the sum total of those sections impacted by the physical lane restriction, including the Transition Area, Activity Area, and Termination Area as defined by the OMUTCD. Holiday disincentives shall be applied per section per lane per time unit.

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.

All items proposed for use under these provisions must comply with current Department standards for their use when the plan detail, Standard Construction Drawing or other bid document governing their use is not provided as part of the bid package.

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 authorities.

Contractor's Equipment – Operation and Storage

Vehicles and equipment must always move with, not across or against, the flow of traffic. Vehicles and other equipment must 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 normal traffic flow.

Personal vehicles are not 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 entering the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night.

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Maintaining Traffic – General Provisions

1. Traffic shall be maintained in accordance with the “Schedule of Through Lanes to be Maintained.” The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement
2. The Contractor shall notify the Engineer, the responsible law enforcement agency and the Ohio Department of Transportation, District 12 Public Information Officer ((216) 584-2007) not less than 24 hours prior to a scheduled disruption of traffic.
3. Nighttime work shall be permitted in accordance with these plans and notes. The Contractor shall provide flood lighting of the work area in accordance with CMS 401.15 in order to assure the safest conditions during nighttime work. A lighting plan for nighttime operations shall be presented to and approved by the Engineer.
4. The Contractor shall furnish, erect and maintain all warning and information signs necessary for maintaining traffic. The sign faces shall be reflectorized with type G sheeting complying with the requirements of CMS 730.19. The Contractor shall determine what signs are needed and advise the Engineer two weeks in advance of his detailed plans. See the OMUTCD and standard drawings for the minimum signage required.
5. Traffic control devices shall be set up prior to the start of construction and shall be properly maintained during the time special conditions exist. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the condition present during the stage in progress. All signs with messages which do not apply during a certain period shall be covered or set aside out of the view of traffic.
6. Placement of final roadway pavement markings and raised pavement markers shall be accomplished in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall provide 2 shadow vehicles as per MT-99.20 following the pavement marking equipment. The shadow vehicles shall travel 500' apart with the remote vehicle traveling on the shoulder (left or right as applicable) where usable shoulder is available. The first shadow vehicle in a traffic lane shall be equipped with a truck mounted attenuator meeting NCHRP 350 requirements. Each shadow vehicle shall have a yellow flashing beacon plus 48" construction warning signs mounted on the back facing traffic with standard type messages advising motorists of the work ahead, advisory warning speed, and which lane is closed.
7. During non-working periods, open excavations shall be delineated with warning flashers and/or other approved devices as deemed appropriate by the Engineer.
8. Existing signs located within the road work areas which are necessary for interim or permanent traffic control shall be removed and re-erected in locations as approved by the Engineer.
9. No stoppage of traffic shall occur without law enforcement personnel at each location to direct traffic.
10. Whenever a total closure is implemented, the Contractor shall provide a portable changeable message sign from ODOT’s pre-approved list. It shall be placed 1.5 miles to 2 miles in advance of the closure or as directed by the Engineer.
11. For any operation not specifically mentioned in these plans, the traffic shall be maintained in accordance with the OMUTCD.

Holiday Closures

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

Christmas	New Years	Mother's Day
Memorial Day	Fourth of July	Easter
Labor 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:

Day of the Week	Times All Lanes Must Be Open to Traffic
Sunday	12:00 Noon Friday through 6:00 AM Monday
Monday	12:00 Noon Friday through 6:00 AM Tuesday
Tuesday	12:00 Noon Monday through 6:00 AM Wednesday
Wednesday	12:00 Noon Tuesday through 6:00 AM Thursday
Thursday	12:00 Noon Wednesday through 6:00 AM Monday
Thursday	6:00AM Wednesday through 6:00AM Monday
(Thanksgiving only)	
Friday	12:00 Noon Thursday through 6:00 AM Monday
Saturday	12:00 Noon Friday through 6:00 AM Monday

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed a disincentive in the amount of \$125 for each minute the above described lane closure restrictions are violated. This disincentive shall be applied in addition to those listed in the Lane Value Contract Table.

Truck Mounted Attenuator

When the Contractor is setting short term work zones and the shoulders (right or left shoulder) are less than 10 feet in width and are on a road with speeds 45 mph or higher, a Truck Mounted Attenuator (TMA) must trail the operation of setting the advance warning signs up or taking them down. This same truck must have a Type B flashing arrow panel mounted on it facing the rear of the truck.

The TMA must meet NCHRP 350 TL-3 criteria. The manufacturer's specification must be followed concerning the size of the truck and the connections to the TMA.

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.

Major Work Items

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

- A. Remove existing RPMs
- B. Remove existing WB outside shoulder rumble strips and replace with asphalt
- C. Remove existing pavement markings & place work zone pavement markings
- D. Remove existing barrier
- E. Place proposed barrier, lighting, and inlets
- F. Place proposed pavement markings and raised pavement markers
- G. Place rumble strips

Rumble Strip Removal and Replacement

All existing rumble strips on the westbound outside shoulder that are in conflict with the proposed movement of traffic during the MOT operations shall be removed by pavement planing. The removed rumble strip areas shall be filled with asphalt concrete surface course. The rumble strip removal and replacement area shall be 2.5 feet wide and 1.5 inches deep, centered on the rumble strip. The pavement planing and placement of asphalt concrete surface course should be completed in the same operation. The estimated removal and replacement length is 13596 Ft.

Immediately following completion of MOT operations and restoring the traffic to its original position, new rumble strips shall be installed at the location where the existing rumble strips were removed.

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

Item 254 – Pavement Planing, Asphalt Concrete (1.5” depth)	3777 SY
Item 407 – Non-Tracking Tack Coat	378 Gal
Item 442 – Asphalt Concrete Surface Course, 12.5 MM, Type A (448), As Per Plan, PG70-22M, 1-1/2”	158 CY
Item 618 – Rumble Strips, (Asphalt Concrete)	2.58 Mile

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Item 614 – Work Zone Pavement Markings

The following estimated quantities have been carried to the General Summary to be used as directed by the Engineer for work zone pavement markings per the requirements of CMS 614.04 and 614.11. Remove all conflicting pavement markings prior to placing work zone markings. Place work zone markings at the locations shown on the maintenance of traffic typical section sheet.

Place dotted lines at a width of 6". All other temporary marking widths shall be as given in CMS 614 or 641.

Item 614 – Work Zone Lane Line, Class I, 6", 642 Paint **11.22 Mile**
Item 614 – Work Zone Edge Line, Class I, 6", 642 Paint **8.01 Mile**
Item 614 – Work Zone Channelizing Line, Class 1, 12", 642 Paint **7925 Ft**
Item 614 – Work Zone Dotted Line, Class 1, 642 Paint, As Per Plan, 6" .. **400 Ft**

Item 614 – Work Zone Raised Pavement Marker

The following estimated quantity has been carried to the General Summary to be used as directed by the Engineer for work zone raised pavement markers per the requirements of SCD MT-99.30.

Item 614 – Work Zone Raised Pavement Marker **839 Each**

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 800 feet and 650 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.

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 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 Portable Changeable Message Sign shall have a Web Based Communication System that will allow the Contractor or ODOT to change or program the message board remotely. This system shall be password protected and may be operated from a computer or have an application that can be opened from a cell phone, android or I phone. The Web Based Communication System will show the location of each message board on a map. All charges for the Web Based Communication System will be included in the cost of this item, Portable Changeable Message Sign, As Per Plan.

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.

Item 614 – Portable Changeable Message Sign,
As Per Plan **6 Sign Month(s)**
Assuming 2 PCMS Signs for 3 Months

Item 614 – Law Enforcement Officer with Patrol Car for Assistance

Use of Law Enforcement Officers (LEOs) by contractors other than the uses specified below will not be permitted at project cost. LEOs should not be used where the OMUTCD intends that flaggers be used.

In addition to the requirements of CMS 614 and the latest edition of 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 as approved by the Engineer:

- 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 in advance of and on the same side as the lane restriction or at the point of road closure, and to manually control traffic movements through intersections in work zones.

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

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

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

LEOs (with patrol car) required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614, Law Enforcement Officer (With Patrol Car) for Assistance. The following estimated quantities have been carried to the General Summary.

Item 614 – Law Enforcement Officer
With Patrol Car for Assistance **300 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 price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

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Item 614 - 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 1-703-235-0528.
- 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 WTSs certification and 24-hour contact information shall be provided to the Engineer at the preconstruction conference. If the designated WTS will not be available full time (24/7) the Contractor may designate an alternate WTS to be available when the primary is off duty. Each WTS shall have a current WTS certification (with an expiration date no more than 5 years from the date of issue) from any of the approved organizations.

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

- 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 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 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.

In addition to the plan requirements for Worksite Traffic Supervisor, complete a department-approved inspection form for each day a work zone speed zone is implemented. In the inspection report, note the disposition of all existing and work zone speed limit signing, including the actual times that the work zone speed limit signs were in place each day. Submit these daily inspection reports to the Engineer at least as often as the weekly inspection reports required in Item 10 of the Work Zone Supervisor plan note.

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 carried to the General Summary for the Worksite Traffic Supervisor:

Item 614 – Worksite Traffic Supervisor **4 Months**

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer

When additional signing is needed to maintain traffic, the Contractor shall furnish the sign or signs as directed by the Engineer. These signs shall be ground mounted and meet all the specifications of the plan, proposal and current year CMS.

Payment for this item shall include, but not be limited to, the cost to furnish and erect the sign, including driving posts or other approved methods of sign support, maintaining the sign and removal of the sign.

This item of work shall be used to provide signs that are beyond the requirements of the signage detailed in the Standard Construction Drawings and the OMUTCD.

The following estimated quantity has been carried to the General Summary to be used as directed by the Engineer:

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer **300 Sq Ft**

Covering of Ground-Mounted Signs--General

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

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Item 614 Maintaining Traffic – Work Zone Speed Zone Signs for Freeway Resurfacings

The following Work Zone Speed Zone (WZSZ) Speed Limit Revision(s) have been approved for use on this project when work zone conditions and factors are met as described below:

WZSZ Revision Number	County & Route	Direction
WZ-65213	Cuyahoga IR-480	EB & WB

Potential WZSZ locations shall have an original (pre-construction) posted speed limit of 55 mph or greater, a qualifying work zone condition of at least 0.5 mile in length, an expected work duration of at least three hours, and a work zone condition in place that reduces the existing functionality of the travel lanes or shoulders (i.e., lane closure, lane shift, crossover, contraflow and/or shoulder closure). The length of the work zone condition is measured from the beginning of the taper for the subject work zone condition impacting the travel lanes and/or shoulder to the end of the downstream taper, where drivers are returned to typical alignment. An expected work duration of at least three hours is required to balance the additional exposure created by installing and removing WZSZ signing with the time needed to complete the work.

If the work zone meets these minimum criteria, it shall be analyzed further using Table 1 below to determine if and when it qualifies for a speed limit reduction. Depending on the original posted speed limit, the type of temporary traffic control used, and whether or not workers are present, a warranted WZSZ will vary in the approved speed limit to be posted over time.

C&MS Item 614, Paragraph 614.02(B), indicates that two directions of a divided highway are considered separate highway sections. Therefore, if the work on a multi-lane divided highway is limited to only one direction, a speed limit reduction in the direction of the work does not automatically constitute a speed limit reduction in the opposite direction. Each direction shall be analyzed independently from each other.

All WZSZs fluctuate between two approved reduced speed limits or between an approved reduced speed limit and the original posted speed limit. Only one of two signing strategies shall be used to implement a WZSZ. WZSZs using DSL Sign Assemblies shall be in accordance with this note, Approved List, Supplemental Specifications (SS) 808 and 908, and Traffic SCD MT-104.10.

Only one warranted speed limit applies at any one time; speed limit reductions are not cumulative. WZSZs shall not be used for Moving/Mobile activities, as defined in OMUTCD Part 6.

When looking up the warranted work zone speed limits, always use the original, preconstruction, posted speed limit. Do not use a prior or current work zone speed limit as a look up value in the table. Positive Protection is generally regarded as portable barrier or other rigid barrier in use along the work area within the subject warranted work zone condition. Without Positive Protection is generally regarded as using drums, cones, shadow vehicle, etc., along the work area within the subject warranted work zone condition. Workers are considered as being present when on-site, working within the subject warranted work zone condition. When the work zone condition reducing the existing functionality of the travel lanes or shoulders is removed, the speed limit displayed shall return to the original posted speed limit.

Table 1: Warranted Work Zone Speed Limits (MPH) for Work Zones on High-Speed (55 mph or greater) Multi-Lane Highways

<u>Original Posted Speed Limit</u>	<u>WITH Positive Protection</u>		<u>WITHOUT Positive Protection</u>	
	<u>Workers Present</u>	<u>Workers NOT Present</u>	<u>Workers Present</u>	<u>Workers NOT Present</u>
70	60	65	55	65
65	55	60	50	60
60	55	60	50	60
55	50	55	45	55

The following estimated quantity has been carried to the General Summary.

Item 808, Digital Speed Limit (DSL) Sign Assembly **27 Sign Mnth**
Assuming 9 DSL Sign Assemblies for 3 Months

Item 614 Work Zone Increased Penalties Sign

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

The signs may be erected or uncovered no more than four hours before the actual start of work. The signs shall be removed or covered no later than four hours following restoration of all lanes to traffic with no restrictions, or sooner as directed by the Engineer. Temporary sign covering and uncovering due to temporary lane restorations shall be guided by the four-hour limitations stated above. Such lane restorations should be expected to remain in effect for 30 or more consecutive calendar days, such as during winter shut-downs.

The signs on the mainline shall be dual mounted unless not physically possible. The first sign shall be placed between the ROAD WORK AHEAD (W20-1) sign and the next sign in the sequence. Signs shall be erected on each entrance ramp and every 2 miles through the construction work limits. Signs on the mainline shall be R11-H5a-48. Signs used on the ramps shall be R11-H5a-24. R11-H5a-24 signs may be used in the median in lieu of R11-H5a-48 signs if it is not physically possible to provide R11-H5a-48 signs in the median.

The R11-H5a-48 signs shall be mounted on 2 No. 3 posts when located within clear zones.

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

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

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

Item 614 - Work Zone Increased Penalties Sign..... **14 Each**

Item 614, Work Zone Impact Attenuator (Unidirectional), 24”

This item shall consist of furnishing and installing a non-gating impact attenuator. Furnish an impact attenuator from the Office of Roadway Engineering's approved list for Work Zone Impact Attenuators, from the Roadway Standard's web page for Roadway Standards Approved Products.

Installation shall be at the locations specified in the plans in accordance with the manufacturer's specifications.

The Contractor shall repair or replace a damaged unit within 24 hours of a damaging impact.

When bidirectional designs are specified, the Contractor shall supply appropriate transitions.

When gating impact attenuators are desired, the Contractor shall submit documentation to the Engineer for acceptance.

The cost for the additional barrier required for a gating impact attenuator shall be included in the cost of the gating impact attenuator.

Payment for the above work shall be made at the unit price bid and shall include all labor, tools, equipment and materials necessary to construct and maintain a complete and functional impact attenuator system, including all related backups, transitions, leveling pads, hardware and grading, not separately specified, as required by the manufacturer. The following estimated quantity has been carried to the General Summary:

Item 614 – Work Zone Impact Attenuator (Unidirectional), 24”..... **6 Each**

Item 622 – Portable Barrier, 32”

This item of work shall be used when placing proposed concrete barrier in the median at the locations specified in the plans. The following estimated quantity has been carried to the General Summary:

Item 622 – Portable Barrier, 32”..... **26490 Feet**

Delineation of Portable and Permanent Barrier

Barrier Reflectors and Object Markers shall be installed on all Portable Barrier (PB) used for traffic control and on permanent concrete barrier (including bridge parapets) located within 5 feet of the edge of the adjacent travel lane.

Barrier Reflectors shall conform to C&MS 626, except that the spacing shall be as per Traffic SCD MT-101.70. Object Markers and their installation shall conform to C&MS 614.03 and SCD MT-101.70. When the PB contains glare screen, one set of three vertical stripes of sheeting shall be considered equivalent to an object marker, one-way.

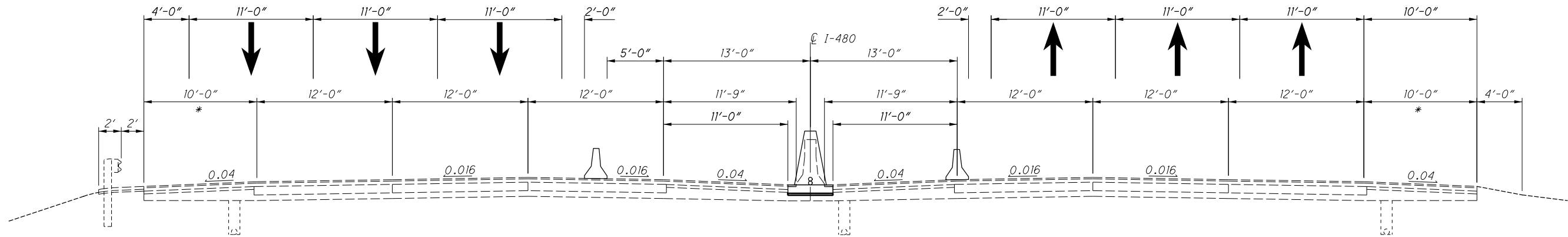
The following estimated quantities have been included in the plans and carried to the General Summary:

Item 614 – Barrier Reflector, Type 1, One Way..... **529 Each**
Item 614 – Object Marker, One Way..... **528 Each**

Construction Access Points

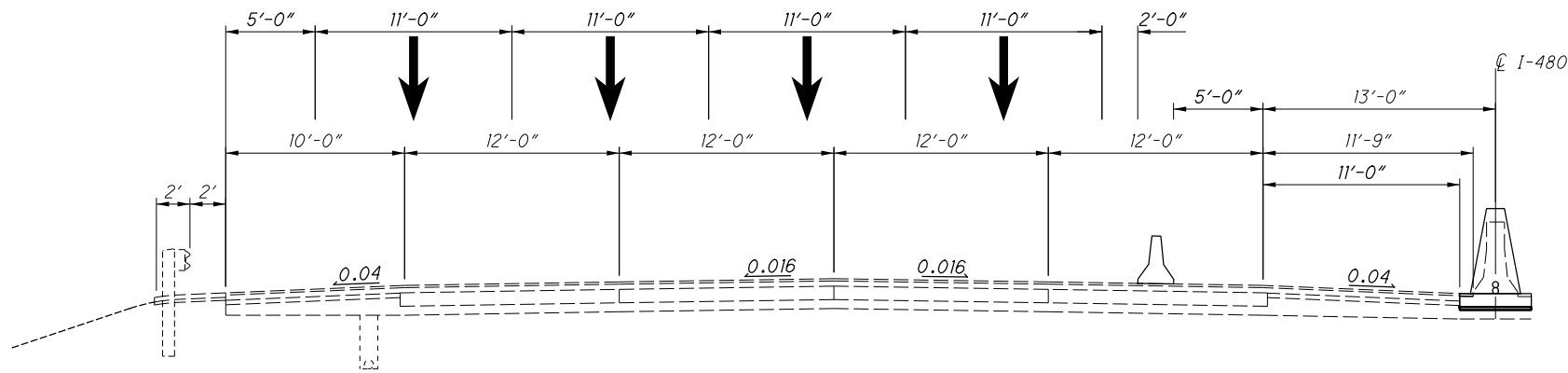
To be able to access the work area, the Contractor will be permitted to set up two construction access points in each direction. Four additional work zone impact attenuators have been provided in the General Summary for this purpose. The quantity of portable barrier has been calculated for the entire length of the project, in both directions. The Contractor shall receive no additional payment for portable barrier or impact attenuators when moving the construction access points to complete the construction of the proposed median barrier. The Contractor shall submit proposed locations for the construction access points to the Engineer for approval prior to setting up the work zone.

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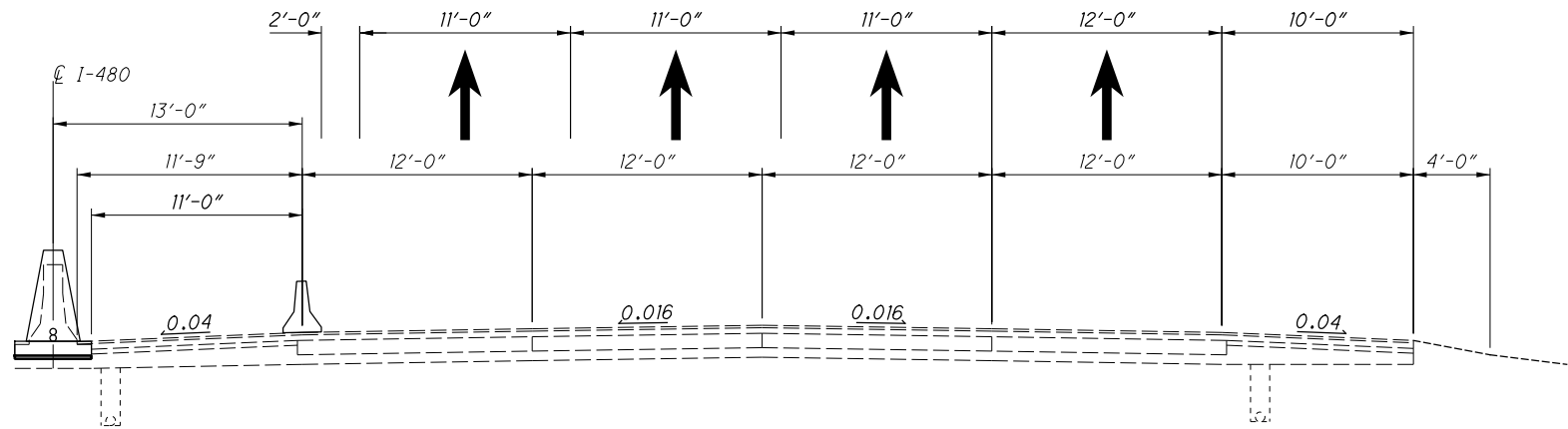


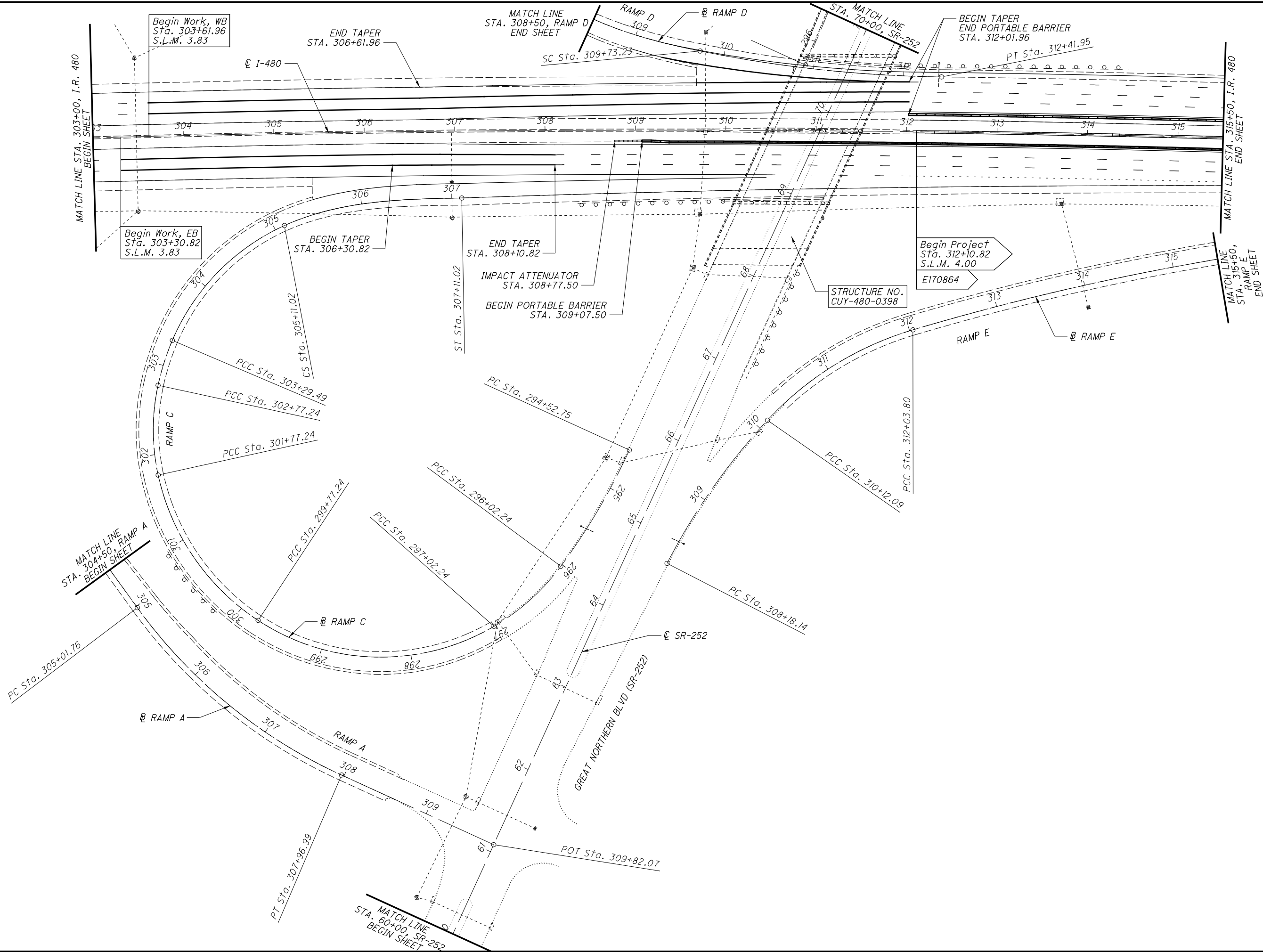
TYPICAL 6 LANE SECTION

* - 8'-0" AT SPEED CHANGE LANE

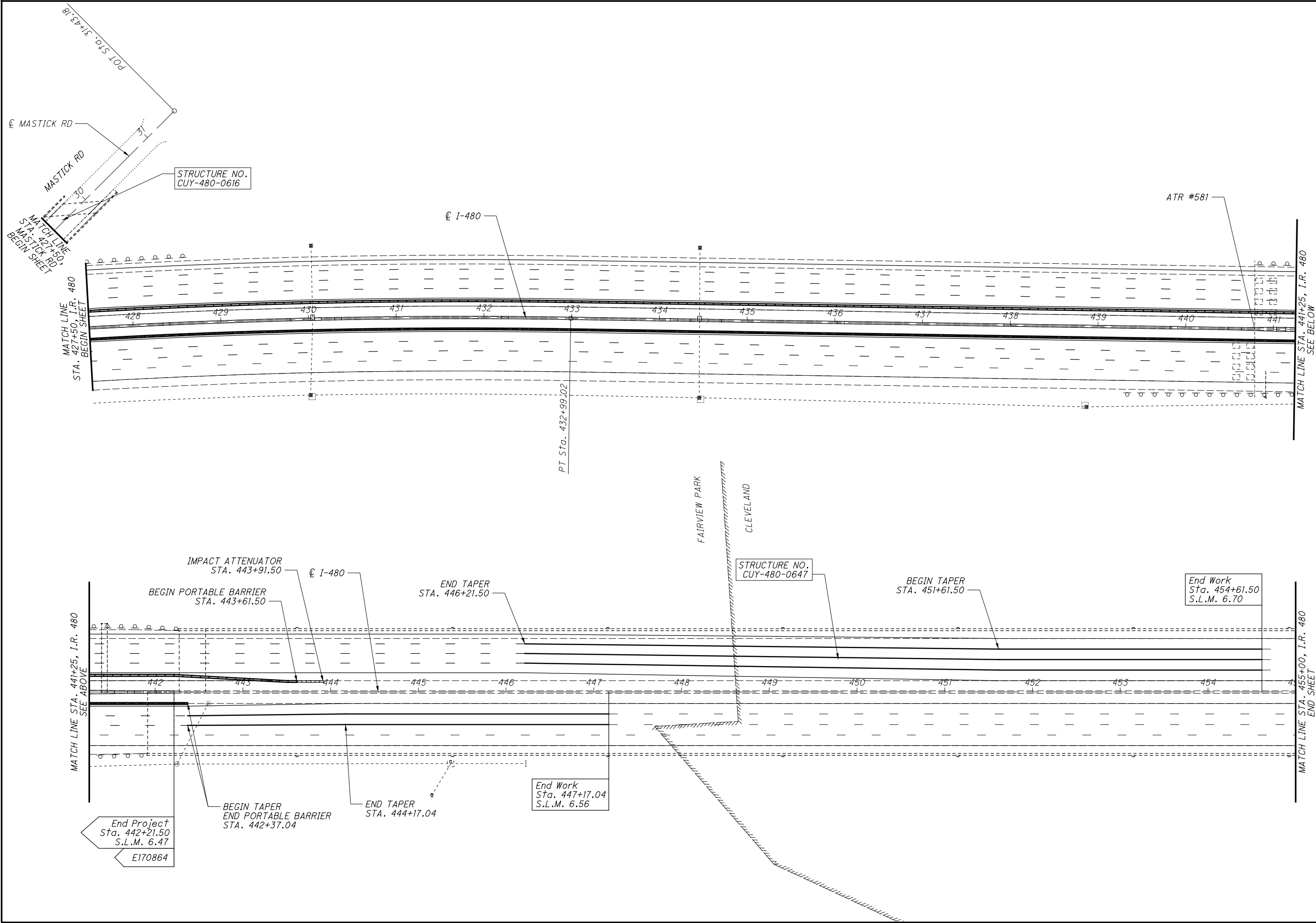


TYPICAL 8 LANE SECTION





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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		202	304	611	622	622	622							CALCULATED DAB	CHECKED EMK
				FT.	FT.	FT.	FT.	SQ. YD.		FT	CY	EACH	FT	EACH	EACH								
			IR-480																				
		1	364+04.73 364+19.73	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	364+19.73 364+39.73	20.00	4.00	4.00	4.00	8.89		20.00	0.50			1									
			SUSPEND PROJECT STA. 364+39.73																				
			RESUME PROJECT STA. 369+04.56																				
		1	369+04.56 369+24.56	20.00	4.00	4.00	4.00	8.89		20.00	0.50			1									
		1	369+24.56 369+39.56	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	369+39.56 369+47.56	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	369+47.56 371+24.56	177.00	4.00	4.00	4.00	78.67		177.00	4.38		177.00										
		1	371+24.56 371+32.56	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	371+32.56 373+24.56	192.00	4.00	4.00	4.00	85.34		192.00	4.75		192.00										
		1	373+24.56 373+32.56	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	373+32.56 374+44.50	111.94	4.00	4.00	4.00	49.76		111.94	2.77		111.94										
		1	374+44.50 374+59.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-9	31	1	374+59.50 374+79.50	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	374+79.50 374+94.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	374+94.50 375+10.50	16.00	4.00	4.00	4.00	7.12		16.00	0.40		16.00										
		1	375+10.50 375+18.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
D-10	31	1	375+18.50 375+33.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	375+33.50 375+53.50	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	375+53.50 375+68.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	375+68.50 375+95.50	27.00	4.00	4.00	4.00	12.00		27.00	0.67		27.00										
D-11	31	1	375+95.50 376+10.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	376+10.50 376+30.50	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	376+30.50 376+45.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	376+45.50 377+10.50	65.00	4.00	4.00	4.00	28.89		65.00	1.61		65.00										
		1	377+10.50 377+18.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	377+18.50 379+10.50	192.00	4.00	4.00	4.00	85.34		192.00	4.75		192.00										
		1	379+10.50 379+18.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
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		1	380+44.00 380+59.00	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-12	32	1	380+59.00 380+79.00	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	380+79.00 380+94.00	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	380+94.00 381+10.50	16.50	4.00	4.00	4.00	7.34		16.50	0.41		16.50										
		1	381+10.50 381+18.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	381+18.50 382+70.50	152.00	4.00	4.00	4.00	67.56		152.00	3.76		152.00										
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		1	382+78.50 384+30.50	152.00	4.00	4.00	4.00	67.56		152.00	3.76		152.00										
		1	384+30.50 384+38.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	384+38.50 384+87.53	49.03	4.00	4.00	4.00	21.80		49.03	1.22		49.03										
		1	384+87.53 385+02.53	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	385+02.53 385+22.53	20.00	4.00	4.00	4.00	8.89		20.00	0.50			1									
			SUSPEND PROJECT STA. 385+22.53																				
			RESUME PROJECT STA. 387+06.79																				
		1	387+06.79 387+26.79	20.00	4.00	4.00	4.00	8.89		20.00	0.50			1									
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SUBTOTALS										1688	41	4	1276	4	12								
TOTALS CARRIED TO GENERAL SUMMARY										1688	41	4	1276	4	12								
PLAN SPLIT #1 TOTAL										1688	41	4	1276	4	12								
PLAN SPLIT #2 TOTAL																							
PAVEMENT SUBSUMMARY																						22 57	

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		202	304	611	622	622	622							CALCULATED DAB	CHECKED EMK
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			IR-480																				
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		1	387+49.79 389+52.00	202.21	4.00	4.00	4.00	89.88		202.21	5.00		202.21										
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		1	389+60.00 389+75.00	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
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		1	390+10.00 391+52.00	142.00	4.00	4.00	4.00	63.12		142.00	3.51		142.00										
		1	391+52.00 391+60.00	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	391+60.00 393+52.00	192.00	4.00	4.00	4.00	85.34		192.00	4.75		192.00										
		1	393+52.00 393+60.00	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	393+60.00 394+45.25	85.25	4.00	4.00	4.00	37.89		85.25	2.11		85.25										
		1	394+45.25 394+60.25	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-14	33	1	394+60.25 394+80.25	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	394+80.25 394+95.25	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	394+95.25 395+52.00	56.75	4.00	4.00	4.00	25.23		56.75	1.41		56.75										
		1	395+52.00 395+60.00	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	395+60.00 397+42.00	182.00	4.00	4.00	4.00	80.89		182.00	4.50		182.00										
		1	397+42.00 397+50.00	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	397+50.00 398+07.50	57.50	4.00	4.00	4.00	25.56		57.50	1.42		57.50										
		1	398+07.50 398+22.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	398+22.50 398+62.50	40.00	4.00	6.00	5.00	22.23		40.00	1.24		40.00										
		1	398+62.50 398+72.50	10.00	6.00	6.00	6.00	6.67		10.00	0.38												
		1	398+72.50 399+12.50	40.00	6.00	4.00	5.00	22.23		40.00	1.24		40.00										
		1	399+12.50 399+27.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-15	33	1	399+27.50 399+47.50	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	399+47.50 399+62.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	399+62.50 399+70.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	399+70.50 401+52.50	182.00	4.00	4.00	4.00	80.89		182.00	4.50		182.00										
		1	401+52.50 401+60.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	401+60.50 402+25.69	65.19	4.00	4.00	4.00	28.98		65.19	1.61		65.19										
		1	402+25.69 402+40.69	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	402+40.69 402+80.69	40.00	4.00	7.00	5.50	24.45		40.00	1.36		40.00										
		1	402+80.69 403+24.44	43.75	7.00	7.00	7.00	34.03		43.75	1.90		43.75										
		1	403+24.44 403+64.44	40.00	7.00	4.00	5.50	24.45		40.00	1.36		40.00										
		1	403+64.44 403+79.44	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	403+79.44 403+87.44	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	403+87.44 403+95.50	8.06	4.00	4.00	4.00	3.59		8.06	0.20		8.06										
		1	403+95.50 404+10.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-16	34	1	404+10.50 404+30.50	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	404+30.50 404+45.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	404+45.50 404+94.00	48.50	4.00	4.00	4.00	21.56		48.50	1.20		48.50										
		1	404+94.00 405+09.00	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-17	34	1	405+09.00 405+29.00	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	405+29.00 405+44.00	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	405+44.00 405+70.50	26.50	4.00	4.00	4.00	11.78		26.50	0.66		26.50										
SUBTOTALS											1829	46	5	1452	13								
TOTALS CARRIED TO GENERAL SUMMARY											1829	46	5	1452	13								
																						23	
PLAN SPLIT #1 TOTAL											1829	46	5	1452	13							57	
PLAN SPLIT #2 TOTAL																							

PAVEMENT SUBSUMMARY

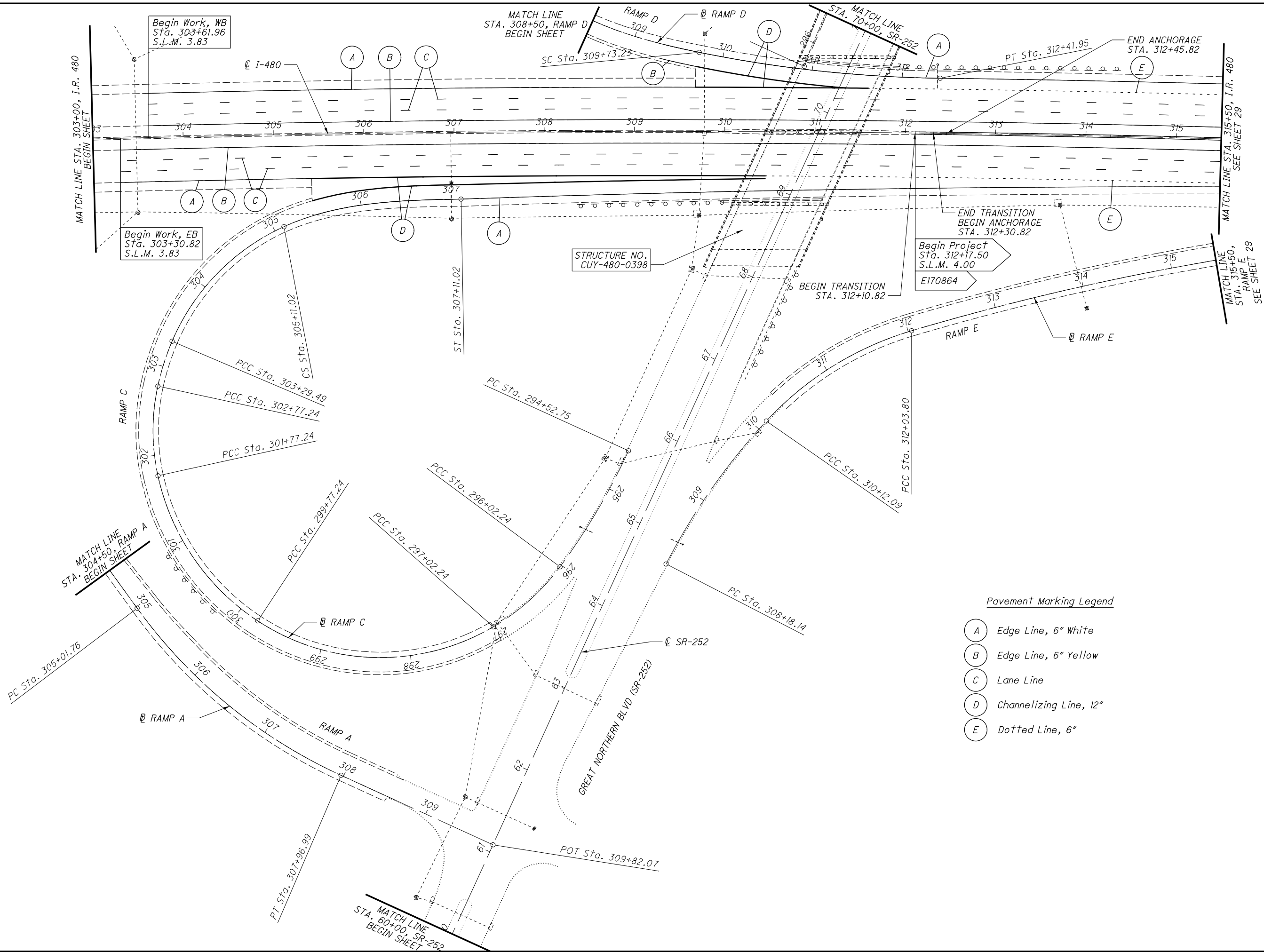
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$$\frac{24}{57}$$

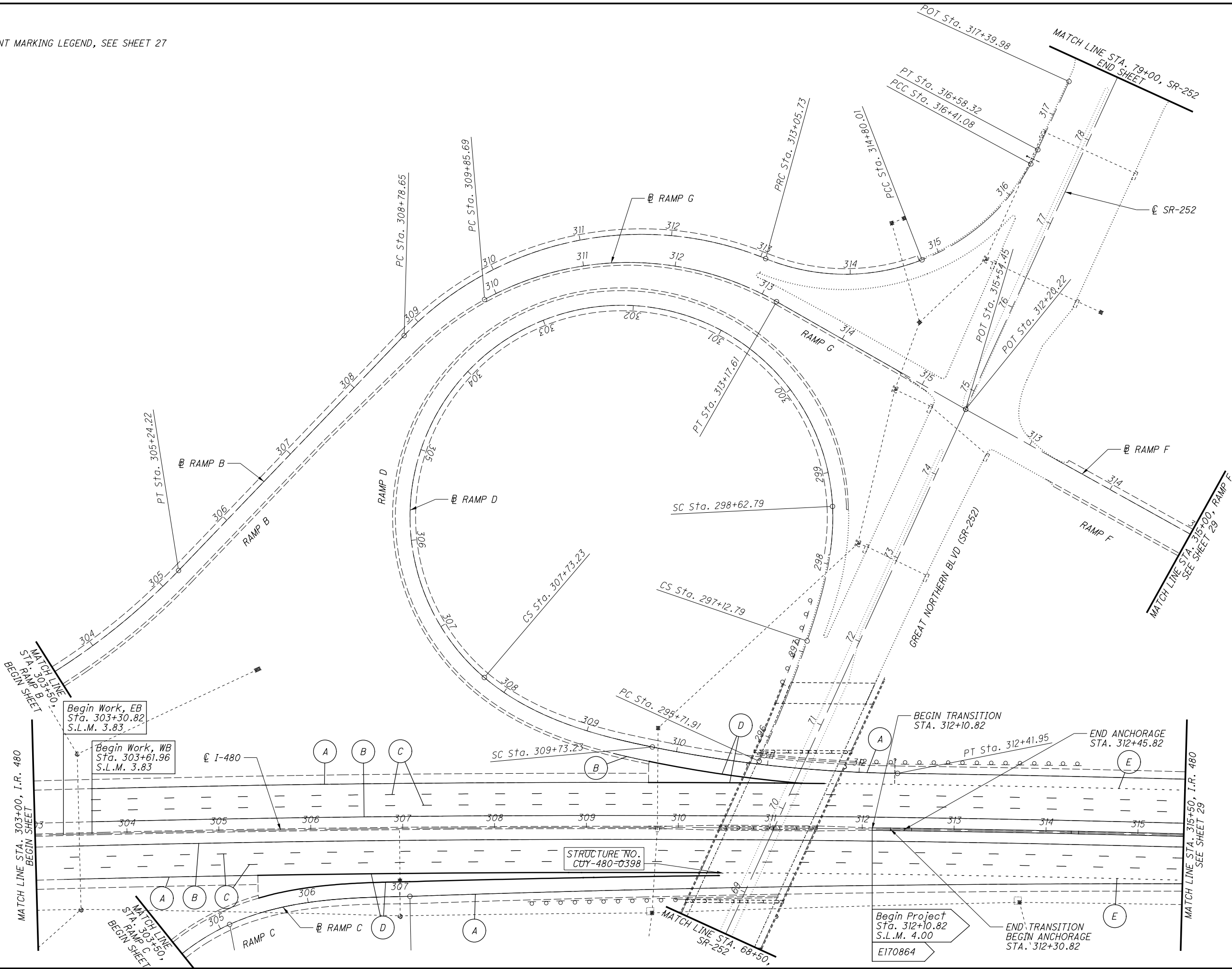
I:\ProjectData\CUY\04800\Design\Roadway\Sheet\04800_CS006.dgn Sheet 9/25/2018 10:16:59 AM dbrauer

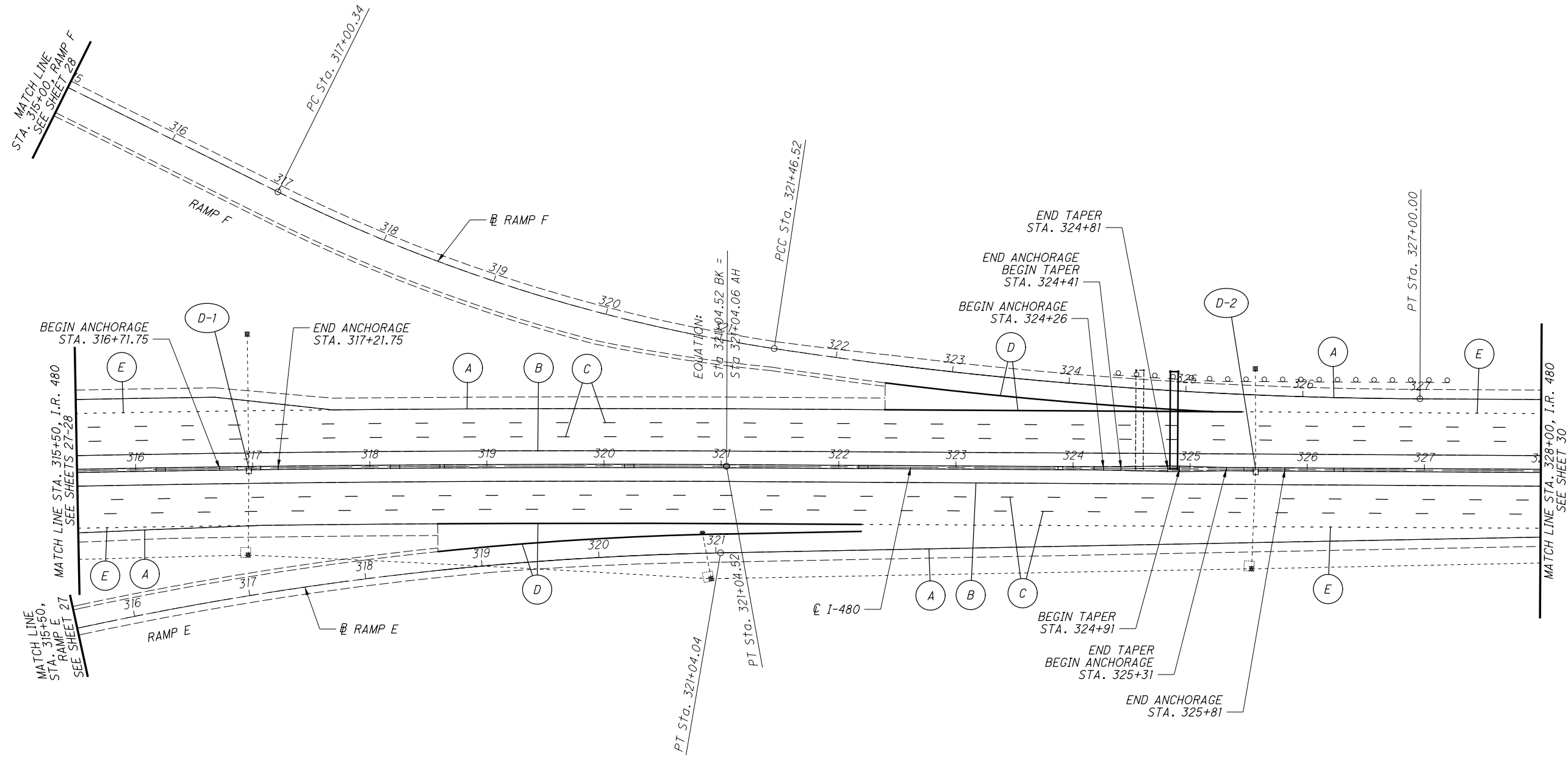
REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		202	304	611	622	622	622							CALCULATED DAB	CHECKED EMK
				FT.	FT.	FT.	FT.	SQ. YD.		FT	CY	EACH	FT	EACH	EACH								
			IR-480																				
		1	425+16.65 425+56.65	40.00	4.00	7.00	5.50	24.45		40.00	1.36		40.00										
		1	425+56.65 426+18.99	62.34	7.00	7.00	7.00	48.49		62.34	2.70		62.34										
		1	426+18.99 426+58.99	40.00	7.00	4.00	5.50	24.45		40.00	1.36		40.00										
		1	426+58.99 426+73.99	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	426+73.99 426+81.99	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	426+81.99 428+34.00	152.01	4.00	4.00	4.00	67.57		152.01	3.76		152.01										
		1	428+34.00 428+42.00	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	428+42.00 429+79.75	137.75	4.00	4.00	4.00	61.23		137.75	3.41		137.75										
		1	429+79.75 429+94.75	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-22	35	1	429+94.75 430+14.75	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	430+14.75 430+29.75	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	430+29.75 430+37.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	430+37.75 432+19.75	182.00	4.00	4.00	4.00	80.89		182.00	4.50		182.00										
		1	432+19.75 432+27.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	432+27.75 434+12.75	185.00	4.00	4.00	4.00	82.23		185.00	4.57		185.00										
		1	434+12.75 434+20.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	434+20.75 434+35.75	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
D-23	35	1	434+35.75 434+55.75	20.00	4.00	4.00	4.00	8.89		20.00	0.25	1											
		1	434+55.75 434+70.75	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	434+70.75 436+02.75	132.00	4.00	4.00	4.00	58.67		132.00	3.26		132.00										
		1	436+02.75 436+10.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	436+10.75 437+92.75	182.00	4.00	4.00	4.00	80.89		182.00	4.50		182.00										
		1	437+92.75 438+00.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	438+00.75 439+82.75	182.00	4.00	4.00	4.00	80.89		182.00	4.50		182.00										
		1	439+82.75 439+90.75	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	439+90.75 440+48.50	57.75	4.00	4.00	4.00	25.67		57.75	1.43		57.75										
		1	440+48.50 440+63.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	440+63.50 441+03.50	40.00	4.00	6.00	5.00	22.23		40.00	1.24		40.00										
		1	441+03.50 441+13.50	10.00	6.00	6.00	6.00	6.67		10.00	0.38												
		1	441+13.50 441+53.50	40.00	6.00	4.00	5.00	22.23		40.00	1.24		40.00										
		1	441+53.50 441+68.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	441+68.50 441+76.50	8.00	4.00	4.00	4.00	3.56		8.00	0.20												
		1	441+76.50 441+86.50	10.00	4.00	4.00	4.00	4.45		10.00	0.25		10.00										
		1	441+86.50 442+01.50	15.00	4.00	4.00	4.00	6.67		15.00	0.38				1								
		1	442+01.50 442+21.50	20.00	4.00	4.00	4.00	8.89		20.00	0.50			1									
SUBTOTALS										1705	44	2	1443	1	8								
TOTALS CARRIED TO GENERAL SUMMARY										1705	44	2	1443	1	8								
PLAN SPLIT #1 TOTAL										1705	44	2	1443	1	8								
PLAN SPLIT #2 TOTAL																							
PAVEMENT SUBSUMMARY																						25	
CUY - 480 - 3.98																						57	

26
57



FOR PAVEMENT MARKING LEGEND, SEE SHEET 27

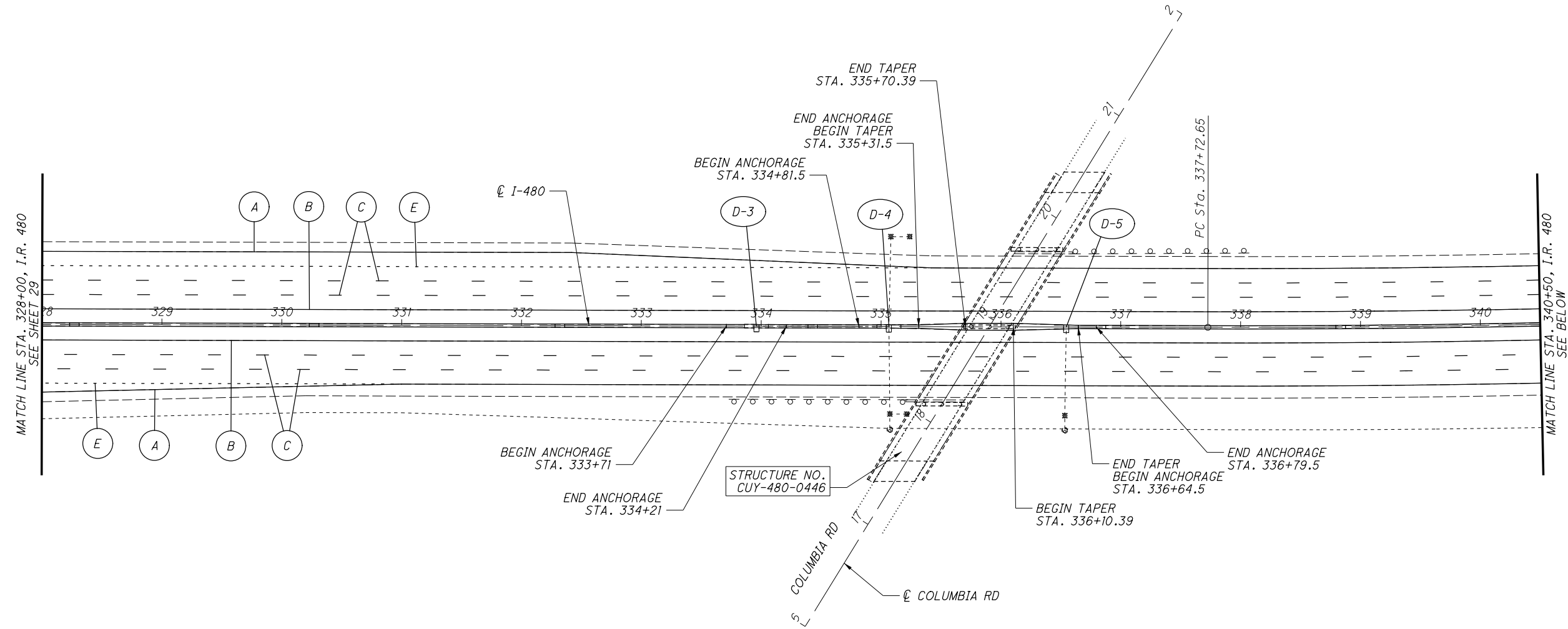
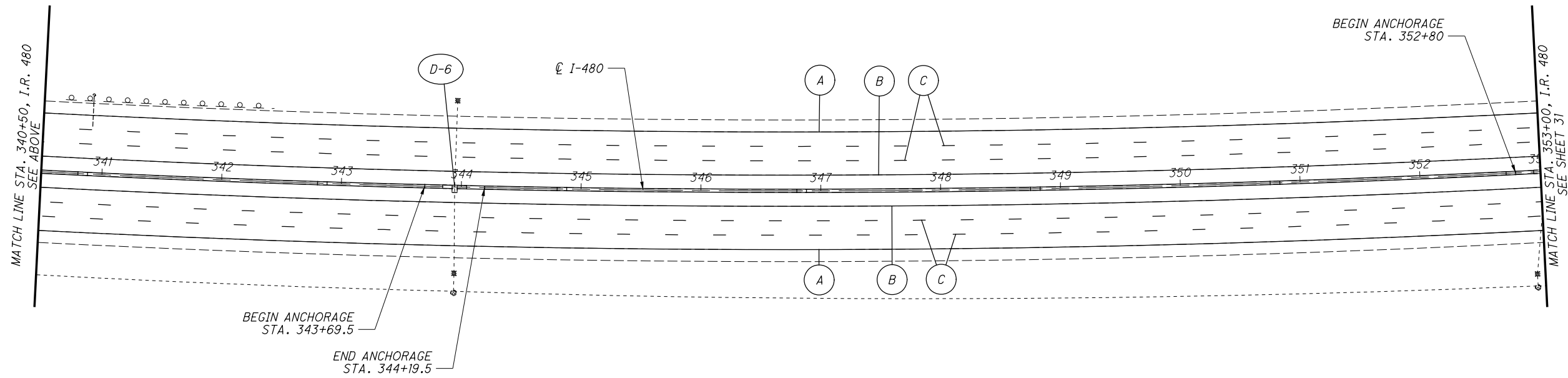




GENERAL PLAN SHEET
I.R. 480, STA. 315+50 TO STA. 328+00

CUY -480-3.98

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FOR PAVEMENT MARKING LEGEND, SEE SHEET 27

CUY-480-3.98

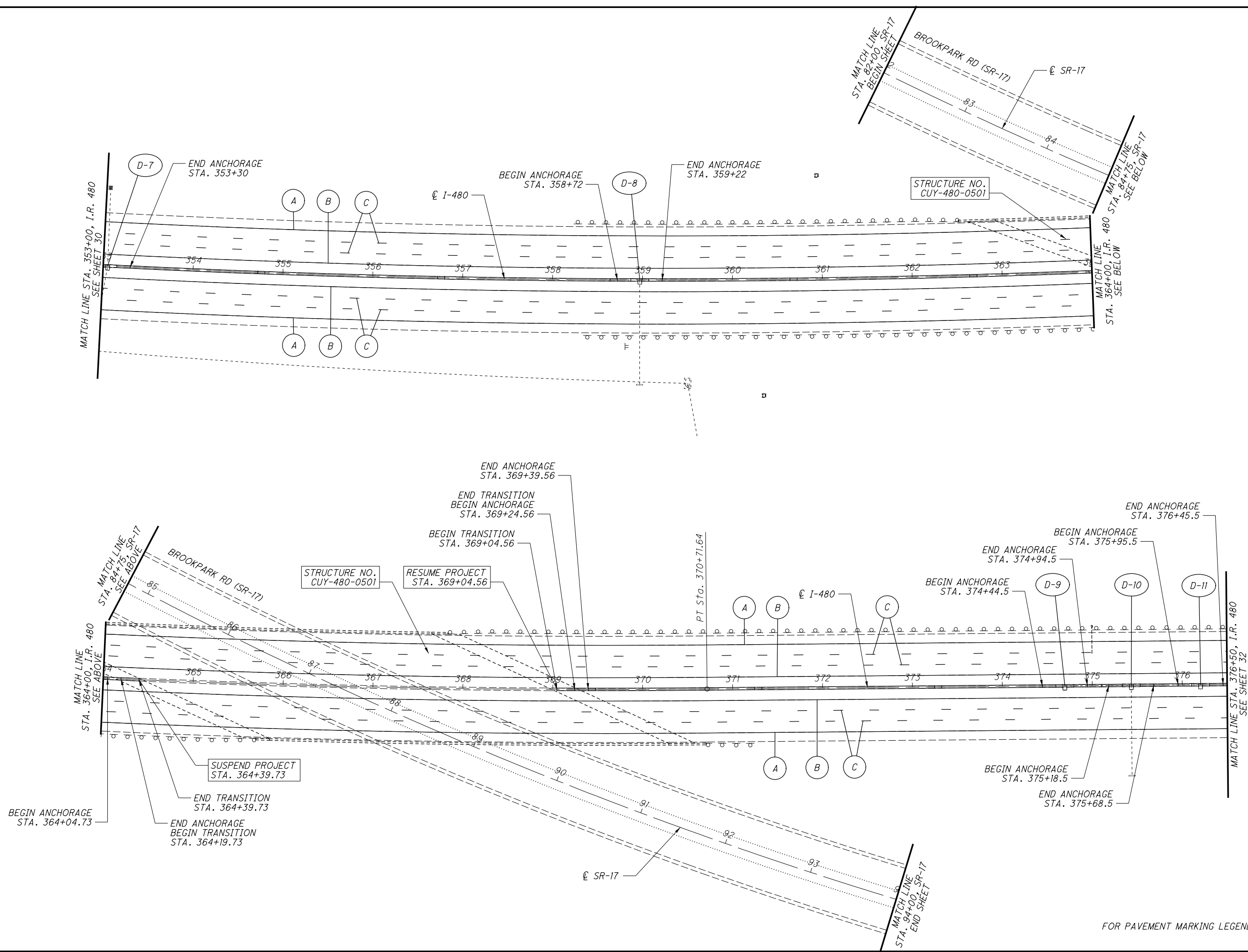
GENERAL PLAN SHEET
I.R. 480, STA. 328+00 TO STA. 353+00

CALCULATED
DAB
CHECKED
EMK



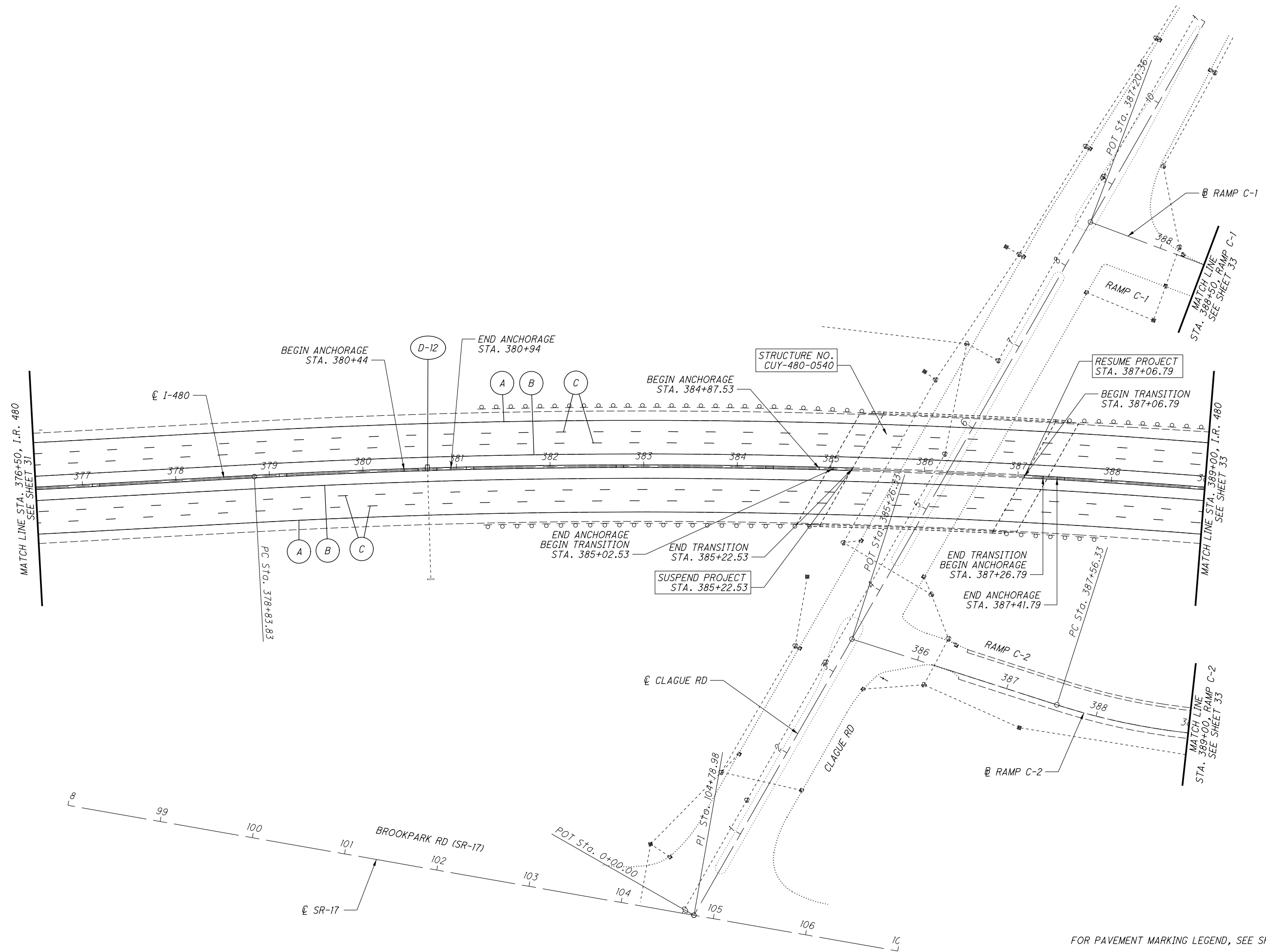
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57

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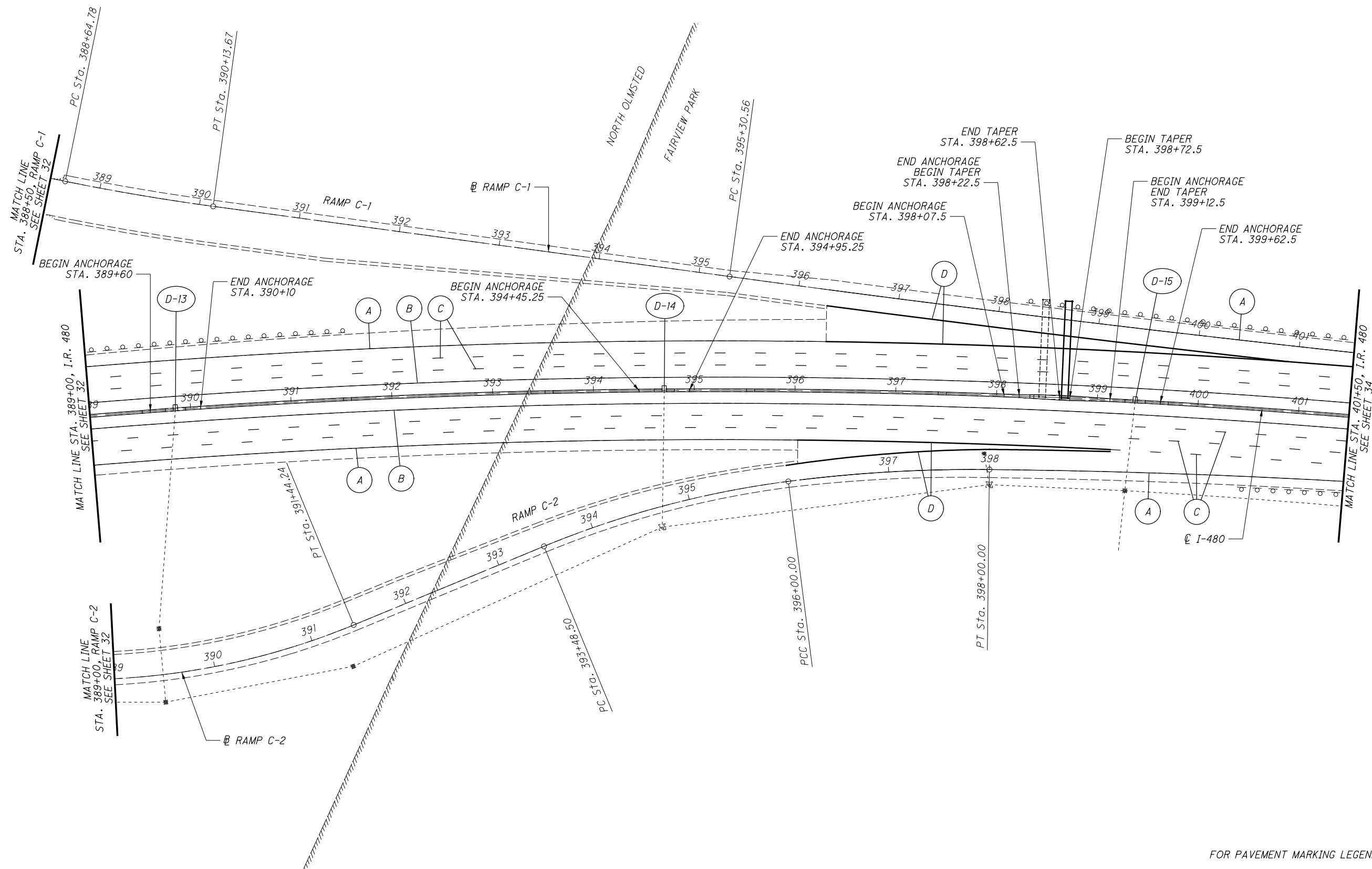
FOR PAVEMENT MARKING LEGEND, SEE SHEET 27

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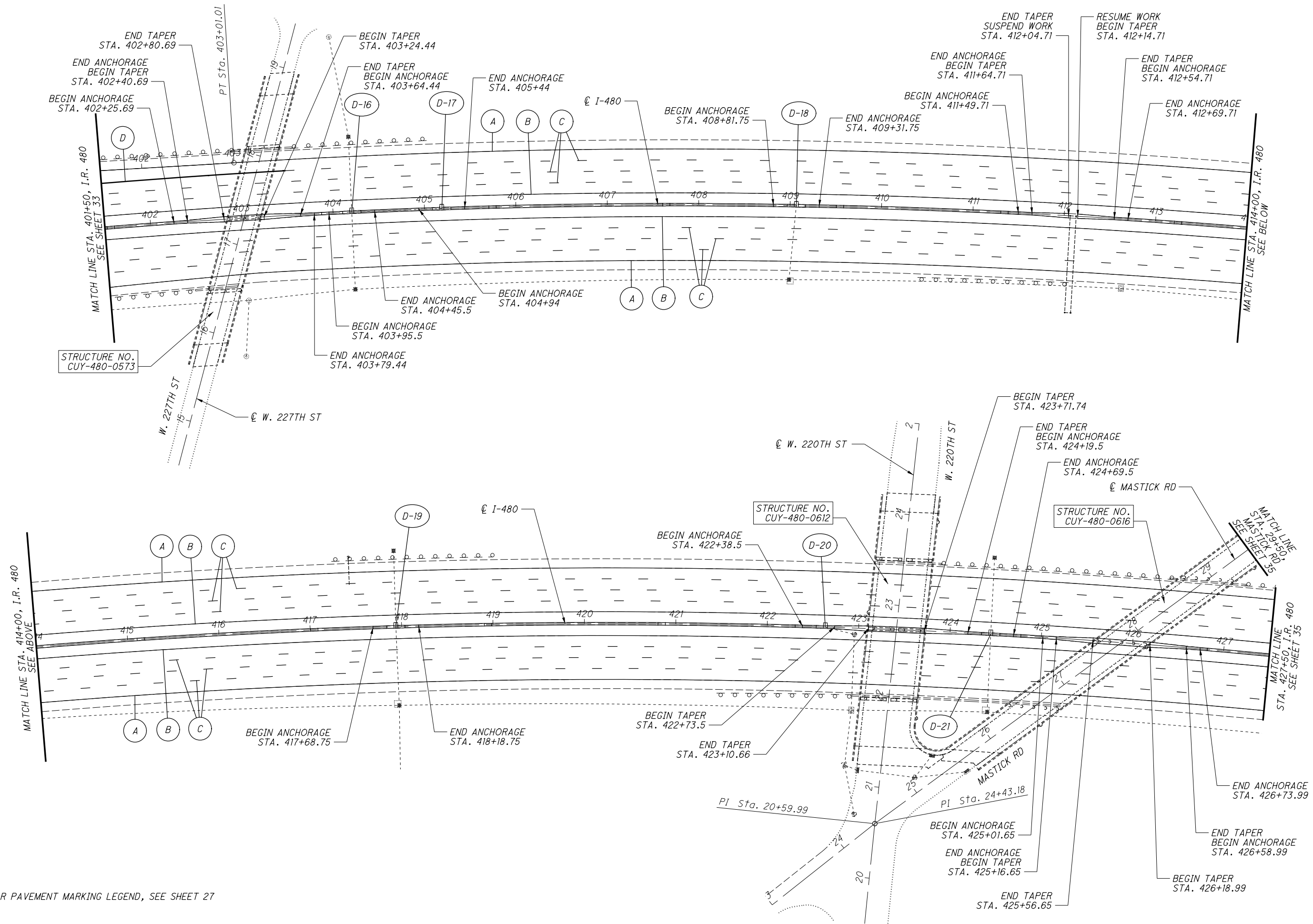
FOR PAVEMENT MARKING LEGEND, SEE SHEET 27

 0 50 100 HORIZONTAL SCALE IN FEET	GENERAL PLAN SHEET		I.R. 480, STA. 376+50 TO STA. 389+00
	CALCULATED DAB	CHECKED EMK	
CUY-480-3.98		32 57	



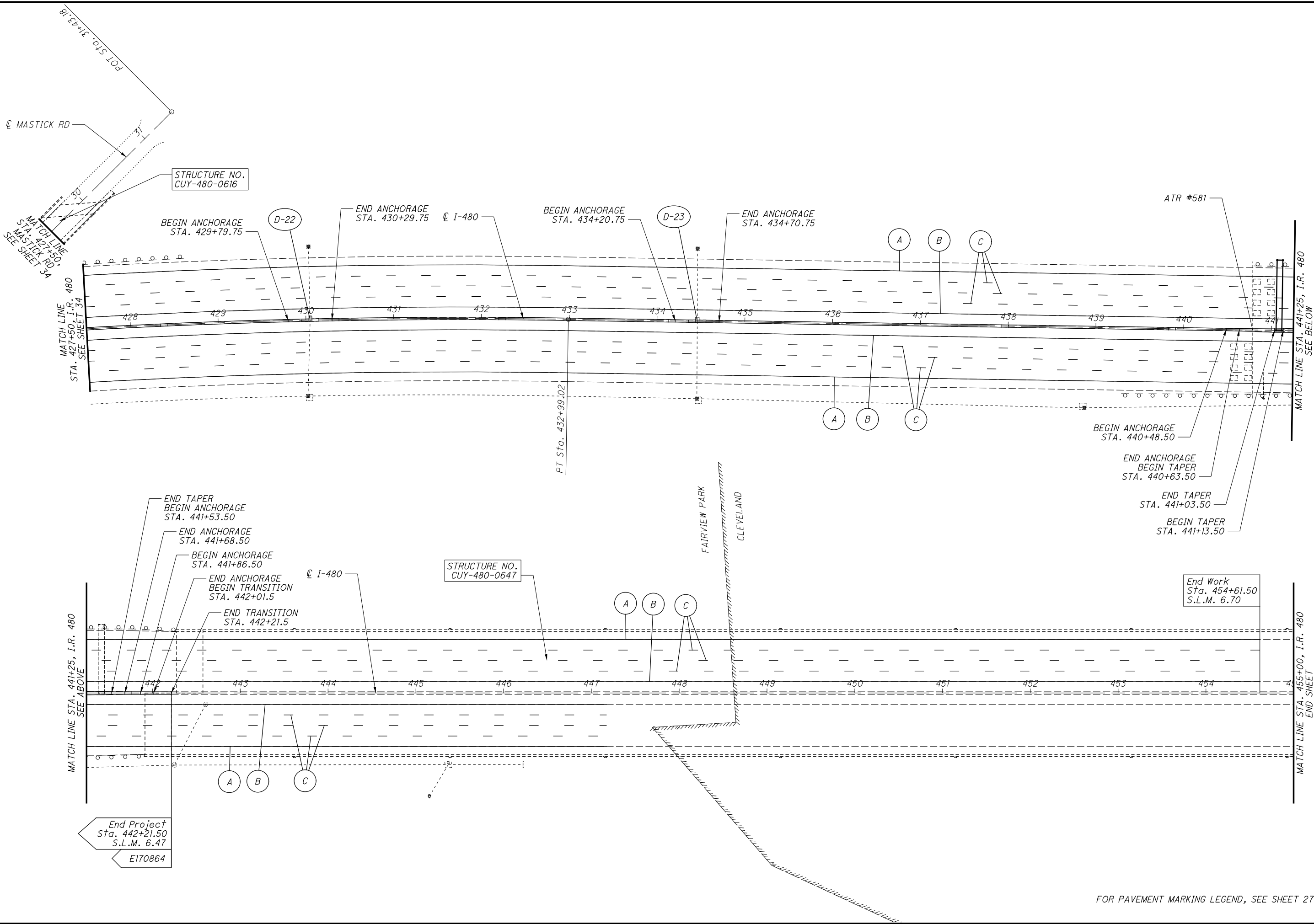
FOR PAVEMENT MARKING LEGEND, SEE SHEET 27

CALCULATED DAB CHECKED EMK	 0 50 100 HORIZONTAL SCALE IN FEET	GENERAL PLAN SHEET I.R. 480, STA. 389+00 TO STA. 401+50	CUY -480-3.98	33 57



GENERAL PLAN SHEET
I.R. 480, STA. 401+50 TO STA. 427+50

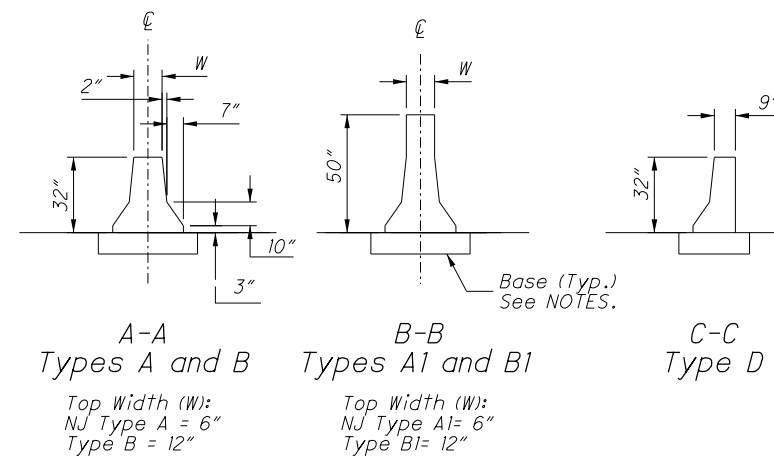
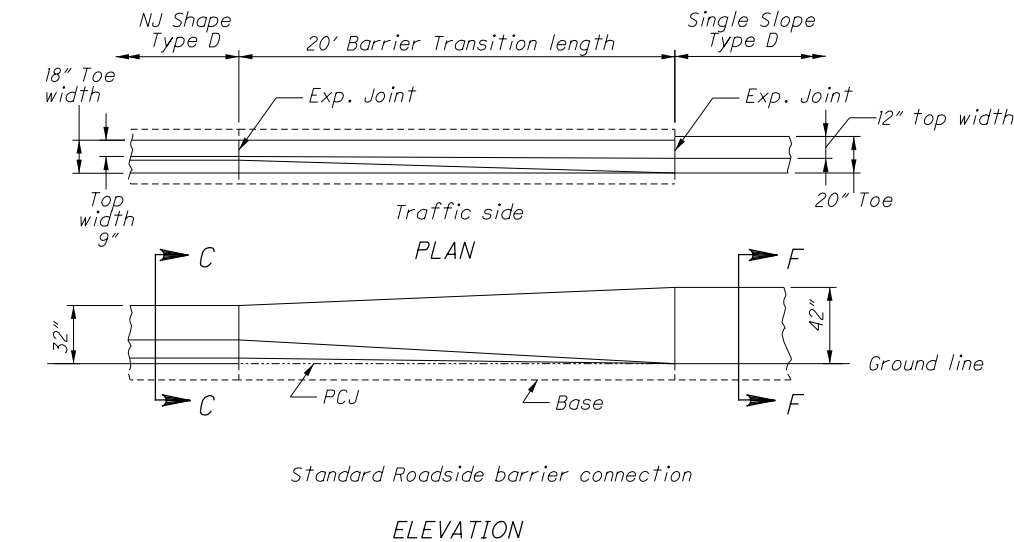
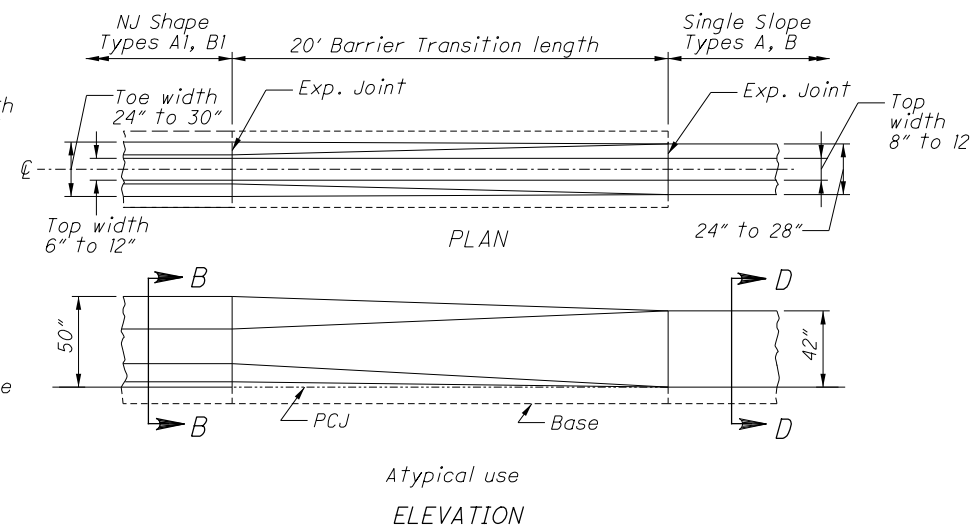
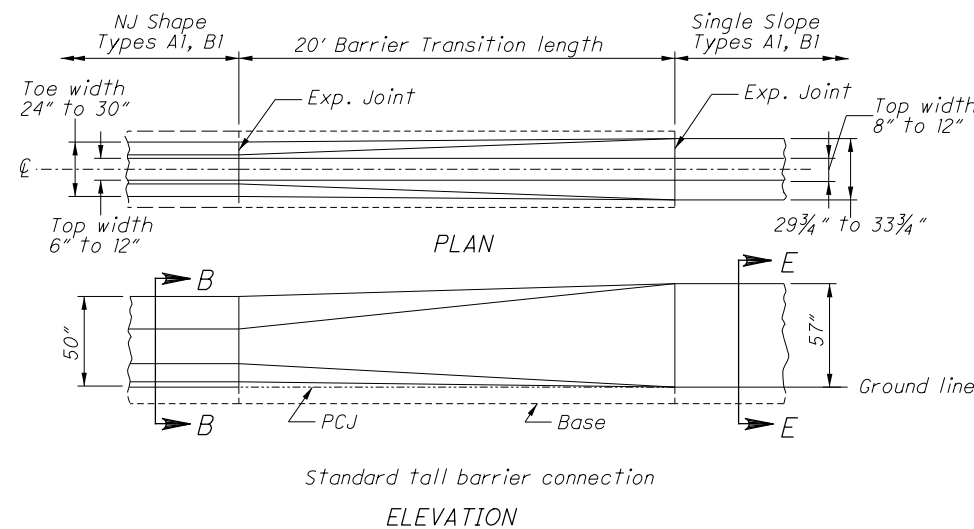
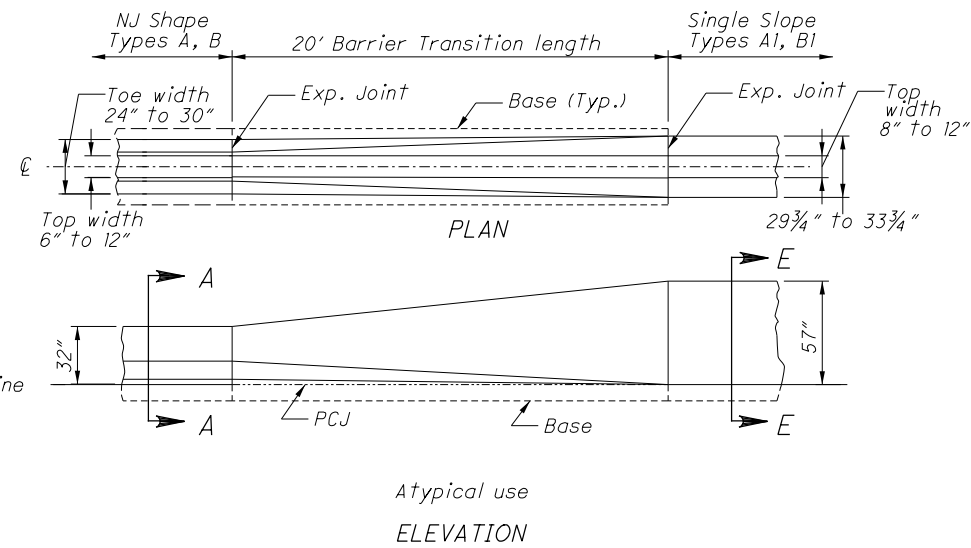
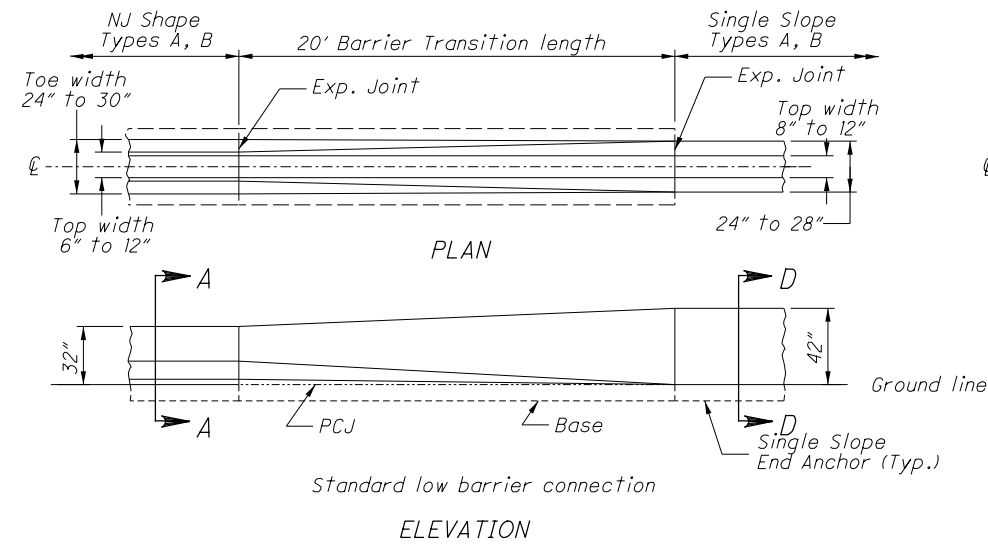
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CALCULATED DAB		CHECKED EMK	
GENERAL PLAN SHEET			
I.R. 480, STA. 427+50 TO STA. 455+00			
CUY-480-3.98		35 57	

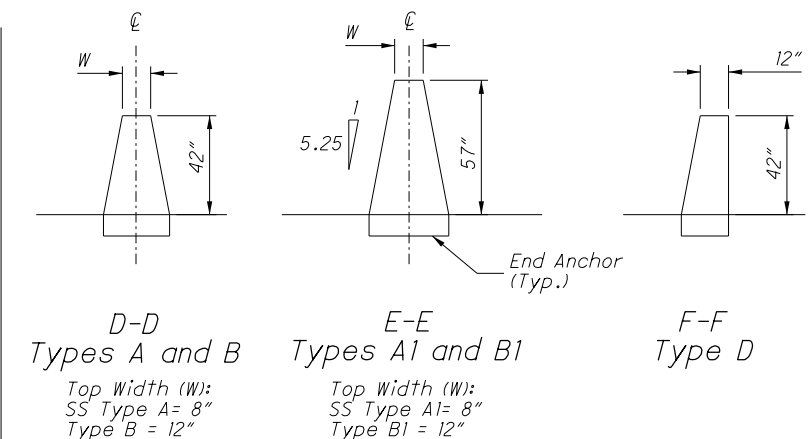
HORIZONTAL SCALE IN FEET

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NJ SHAPE SECTIONS

See Plan Insert sheets for specific NJ Shape Concrete barrier details.



SINGLE SLOPE SECTIONS

See SCD RM-4.3 and RM-4.5 for specific Single Slope concrete barrier details.

NOTES

GENERAL: This insert details the Barrier Transition, to connect existing NJ Concrete Barrier (safety shape) to a new run of Single Slope Concrete Barrier at locations shown on the plans. For NJ barrier shape and other details see the respective plan insert sheets. For Single Slope barrier details, see SCD RM-4.3 (RM-4.5 for Type D).

ADJACENT CONCRETE BARRIER RUNS: Remove any tapered end sections, Impact attenuators, or other guardrail hardware from existing barrier end. The barrier to barrier transition is not intended to be used at transition sections (those shown on SCD RM-4.4), Inlets, or on Type C or CI Barrier. If proposed adjacent single slope barrier is Type A or A1, the Barrier Transition should contain horizontal reinforcing steel similar to that required in the respective single slope barrier. Reinforcement is not shown and should be detailed separately. The adjacent single slope end should be terminated with a reinforced End Anchor as detailed on the SCDs.

BARRIER FACE TRANSITION: To prevent vehicle snagging, a smooth transition from the safety shape face to the single slope face is made over a 20' length. The actual shape of the Transition is dependent on both the adjacent NJ barrier and the single slope barrier Types, as detailed on the plans. The contractor and Engineer will agree on a construction method to ensure a smooth barrier face.

MATERIALS: Materials are same for those shown on RM-4.3 and RM-4.5, except that cast-in-place is the only acceptable method. Edges may be chamfered or radiused as shown on those drawings.

CONCRETE BASE: Construct base as shown on the NJ shape insert sheets, including the methods detailing the footing joint, Permissible Construction Joint (PCJ), and Dowelling requirements. The width of the base matches the existing NJ barrier.

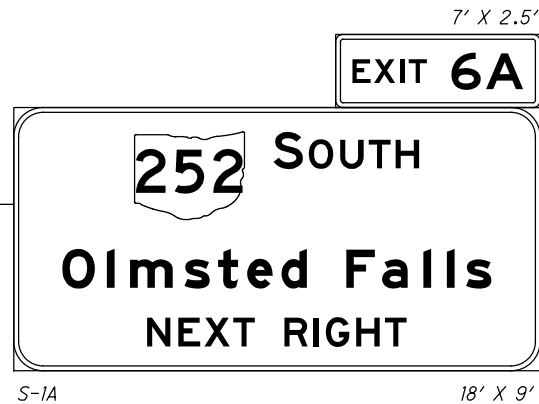
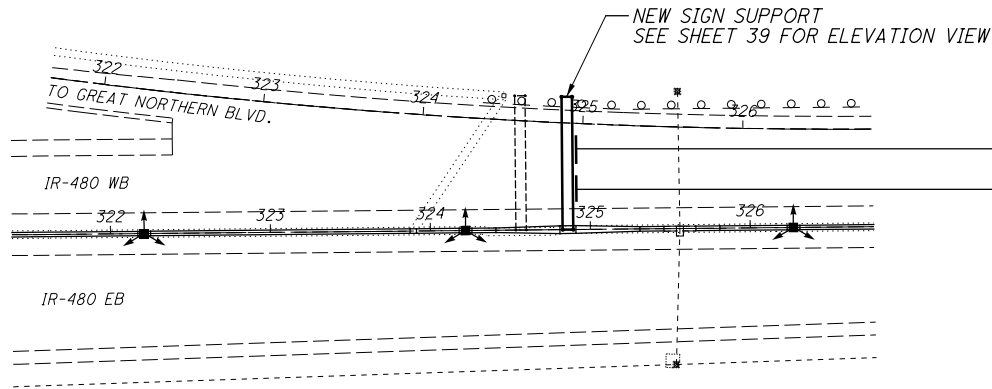
JOINTS: Construct joints as shown on respective barrier drawings.

RACEWAYS: When specified, place raceway(s) to match raceway elevation in adjoining segments. Place to obtain maximum concrete cover.

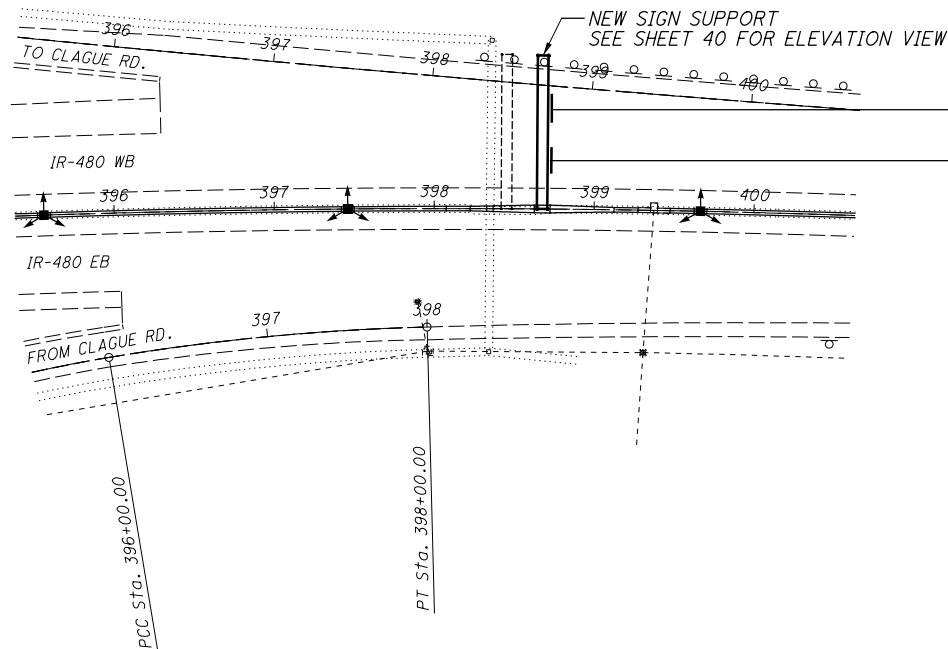
METRIC UNITS: Refer to respective barrier drawings or inserts for metric dimensions.

PAYMENT: This Barrier Transition shall include all material and labor needed to construct this 20' section, including any raceways, reinforcing steel, dowels and other necessary incidentals. Payment shall be made at the unit price for Item 622 - Barrier Transition, Each.

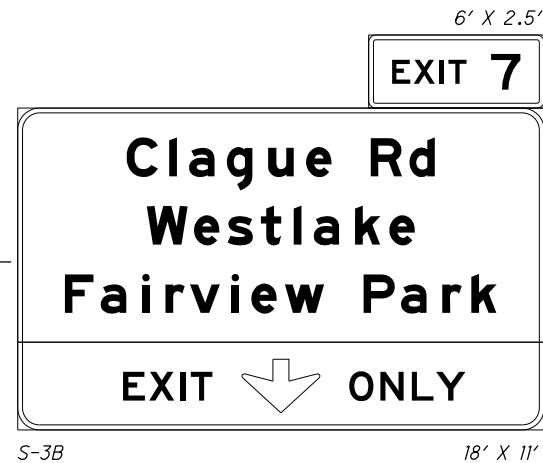
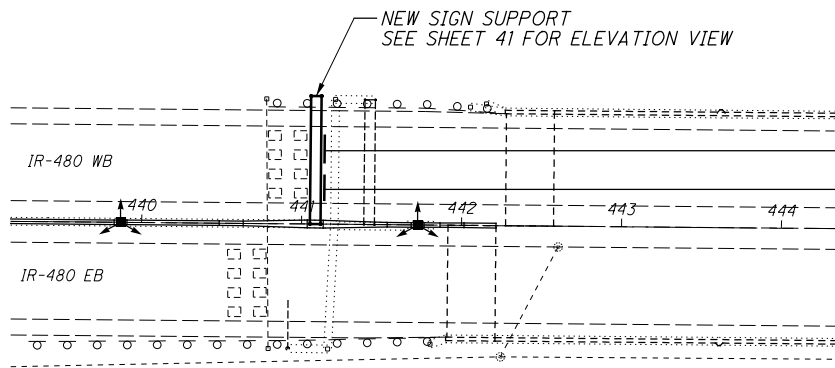
I:\ProjectData\CUY\104800\Design\Traffic\Sheets\104800_IP001.dgn Sheet 9/25/2018 10:19:02 AM dbrauer



(S-1)
STA. 324+70



(S-2)
STA. 398+60



(S-3)
STA. 441+10

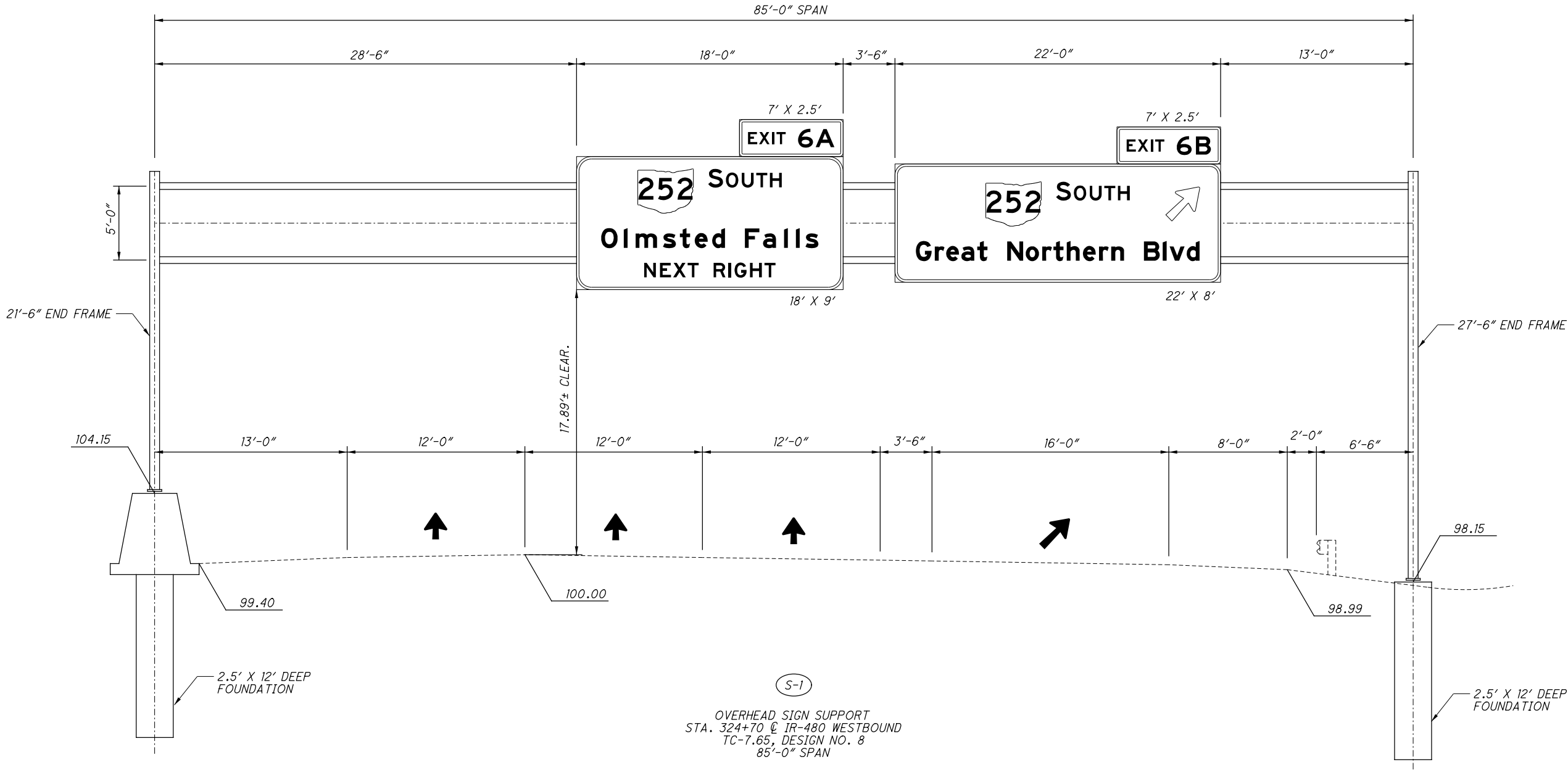


TRAFFIC CONTROL
PLAN SHEET

CUY-480-3.98

NOTES:

1. ELEVATIONS AND SLOPE CONDITIONS ARE FOR REFERENCE ONLY. LOCATIONS SHALL BE FIELD VERIFIED AND SURVEYED TO ENSURE PROPER ERECTION. CROSS SECTIONS ARE AVAILABLE AT THE DISTRICT 12 MAP ROOM.
2. ALL ELEVATION VIEWS ARE SHOWN IN THE DIRECTION OF VIEWING SIGN FACES.



CALCULATED
FLK
CHECKED
DAB

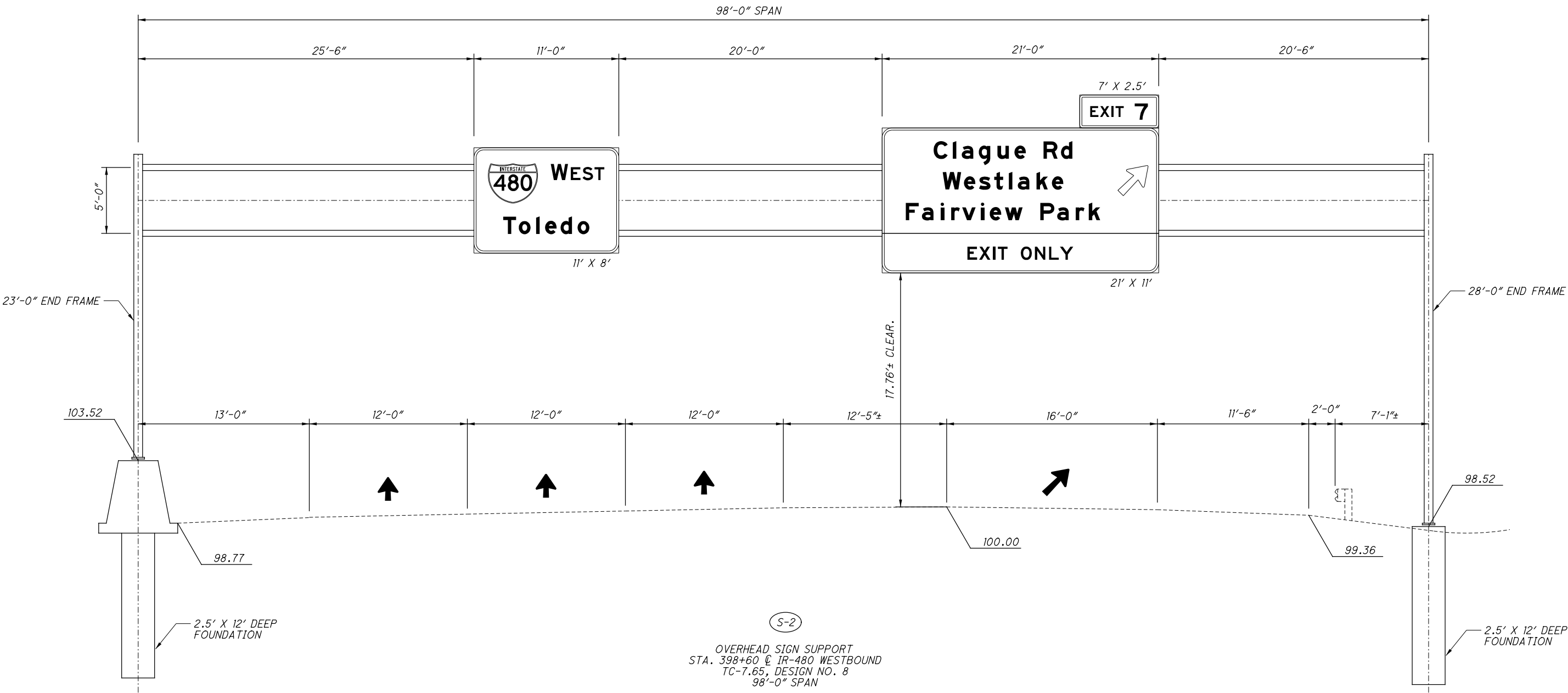
OVERHEAD SIGN SUPPORT ELEVATION VIEW

CUY -480-3.98

39
57

I:\ProjectData\CUY\04800\Design\Traffic\Sheets\04800_IE002.dgn Sheet 9/25/2018 10:20:16 AM dbrauer

- NOTES:
- 1. ELEVATIONS AND SLOPE CONDITIONS ARE FOR REFERENCE ONLY. LOCATIONS SHALL BE FIELD VERIFIED AND SURVEYED TO ENSURE PROPER ERECTION. CROSS SECTIONS ARE AVAILABLE AT THE DISTRICT 12 MAP ROOM.
 - 2. ALL ELEVATION VIEWS ARE SHOWN IN THE DIRECTION OF VIEWING SIGN FACES.



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CHECKED
DAB

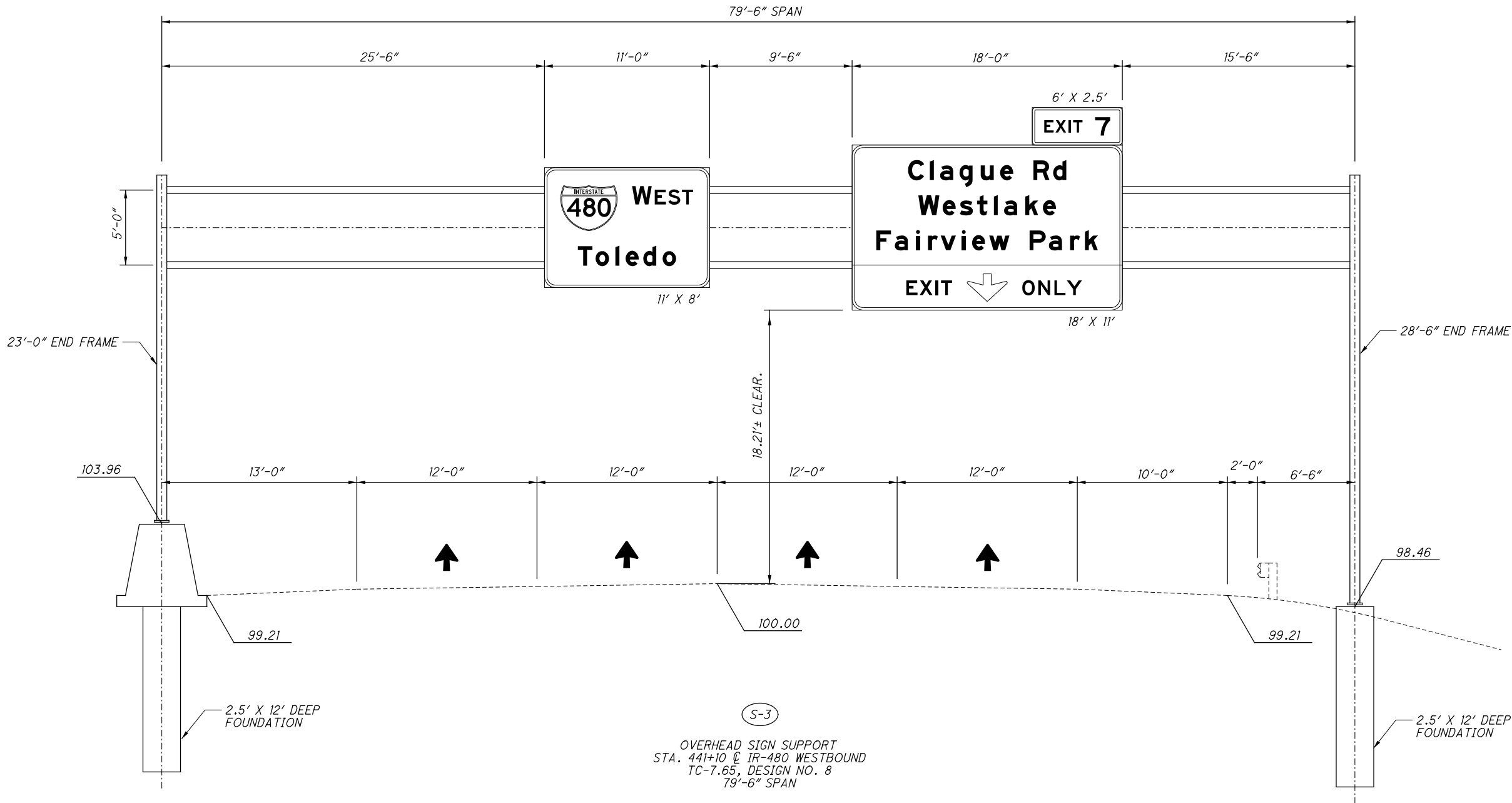
OVERHEAD SIGN SUPPORT ELEVATION VIEW

CUY - 480 - 3.98

40
57

NOTES:

1. ELEVATIONS AND SLOPE CONDITIONS ARE FOR REFERENCE ONLY. LOCATIONS SHALL BE FIELD VERIFIED AND SURVEYED TO ENSURE PROPER ERECTION. CROSS SECTIONS ARE AVAILABLE AT THE DISTRICT 12 MAP ROOM.
2. ALL ELEVATION VIEWS ARE SHOWN IN THE DIRECTION OF VIEWING SIGN FACES.



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OVERHEAD SIGN SUPPORT ELEVATION VIEW

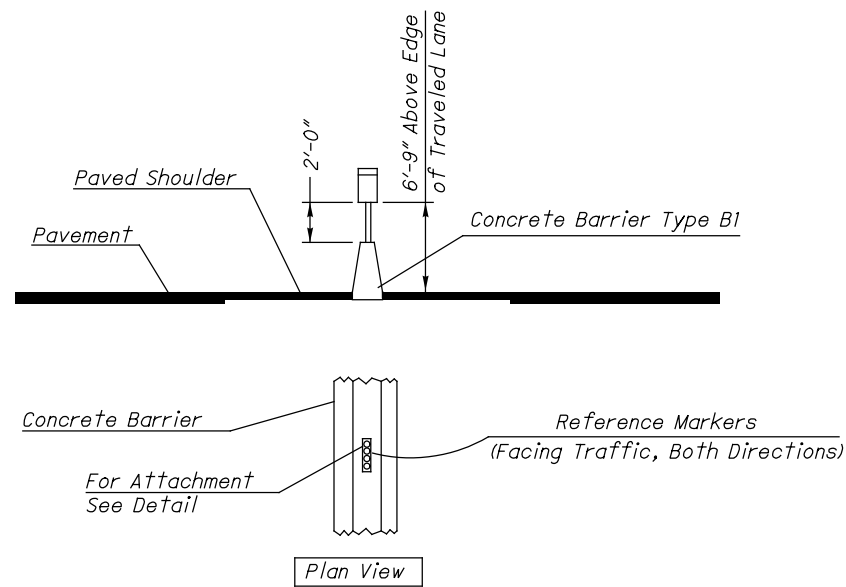
CUY -480-3.98

41
57

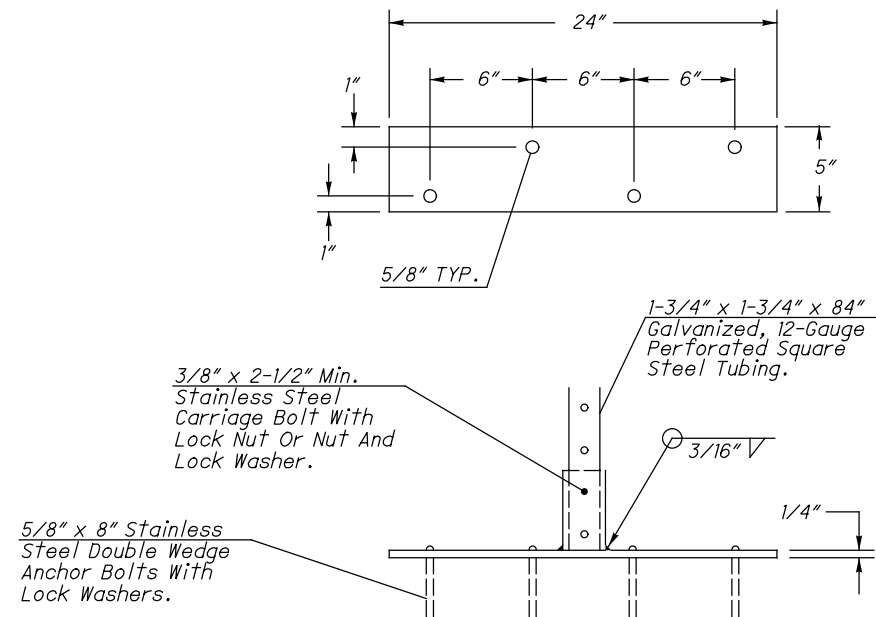
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Mainline Reference Markers (D10-5)

Single Median Barrier



Sign Support Assembly, Barrier Mounted

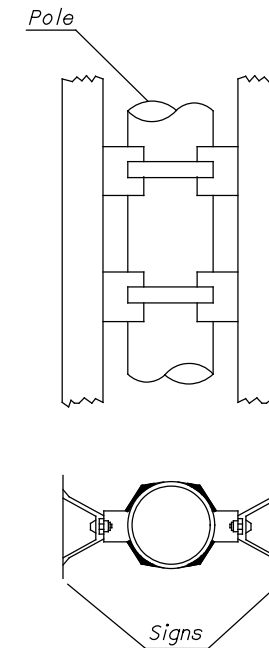


Notes:

1. All hardware shall be galvanized or stainless steel as specified.
2. All work and materials shall be in accordance with standard specifications.
3. 5/8" x 7" Stainless steel anchor bolts may be used if 8" lengths are not available.

Sign Support Assembly, Pole Mounted

See TC-41.40 For Attachment



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SHEET NO.	PLAN SPLIT NO.	CIRCUIT	POLE/PULL BOX NO.	STATION TO STATION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	CALCULATED FLK	CHECKED FLK			
					CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PERMANENT	LIGHT POLE, LOW MAST, AS PER PLAN, ALM50	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP, AS PER PLAN	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE	NO. 10 AWG POLE AND BRACKET CABLE	CONDUIT, 4", 725.04	CONDUIT, 4", MULTICELL, 725.20 , EPC-80	CONDUIT, JACKED OR DRILLED, AS PER PLAN, 4" MULTICELL	CONDUIT CLEANED AND CABLES REMOVED	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN	LUMINAIRE, LOW MAST, SOLID STATE (LED), AS PER PLAN	TRENCH, 24" DEEP	TRANSITION JUNCTION BOX	MEDIAN JUNCTION BOX, AS PER PLAN A	MEDIAN JUNCTION BOX, AS PER PLAN B	PULL BOX, 725.08, 18"	PULL BOX, 725.08, 24"	PULL BOX, 725.08, 32", AS PER PLAN	PULL BOX REMOVED	GROUND ROD	POWER SERVICE, AS PER PLAN	LIGHT POLE REMOVED	LUMINAIRE REMOVED	POWER SERVICE REMOVED			DISCONNECT CIRCUIT		
					EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	FT	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH					
	1	COL 4		312+15 IR-480 CL		3																					1	2		1	LIGHTING SUBSUMMARY	CUY -480-3.98		
49	1	COL 6	COL 6-8	312+50 314+30	2		1	1	570	150						1										1								
49	1		COL 6-7	314+30 316+20	2		1	1	600	150						1										1		1	2					
50	1		COL 6-6	316+20 318+20	2		1	1	630	150						1										1		1	2					
50	1		COL 6-5	318+20 320+20	2		1	1	630	150						1										1		1	2					
50	1		MJ-1	318+60		3			390				120					1								1								
50	1		COL 6-4	320+20 322+20	2		1	1	630	150						1										1		1	2					
50	1		COL 6-3	322+20 323+90	2		1	1	540	150						1										1		1	2					
50	1		MJ-2	323+90		3			390				120																					
50	1		PB-1	318+60 RAMP E		3																												
50	1		COL 6-9	318+55																														
50	1		COL 6-10	316+65																														
49	1		COL 6-11	314+75																														
49	1		COL 6-12	312+85																														
49	1		COL 6-13	310+85																														
50	1		PB-2	324+50 IR-480 LT		3															1			1										
				IR-480 CL																														
50	1	E1	E1-6	324+20 326+20	2		1	1	630	150						1										1		1	2					
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	1			334+40 IR-480 RT					480					70																				
	1			334+40 IR-480 RT		6			660		100							100								1								
51	1	E	PB-3	COLUMBIA RD. LT		6															1				1				1					
				IR-480 CL																														
	1	E2		334+40 336+80		3			750																				2	4				
51	1		E2-1	336+80 338+80	2		1	1	630	150						1										1								
51	1		E2-2	338+80 340+85	2		1	1	645	150						1										1		1	2					
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52	1		E2-10	354+75	2		1	1		150						1										1								
				IR-480 CL																														
52	1	CLA 7	CLA 7-15	356+75 358+65	2		1	1	600	150																								
52	1		CLA 7-14	358+65 360+65	2		1	1	630	150																								
52	1		CLA 7-13	360+65 362+75	2		1	1	660	150																								
52	1		CLA 7-12	362+75 364+00	2		1	1	405	150																								
52	1		CLA 7-11	364+00 364+35	2		1	1		150																								
52	1		TJ-1	364+35 366+55		3			690				220					1																








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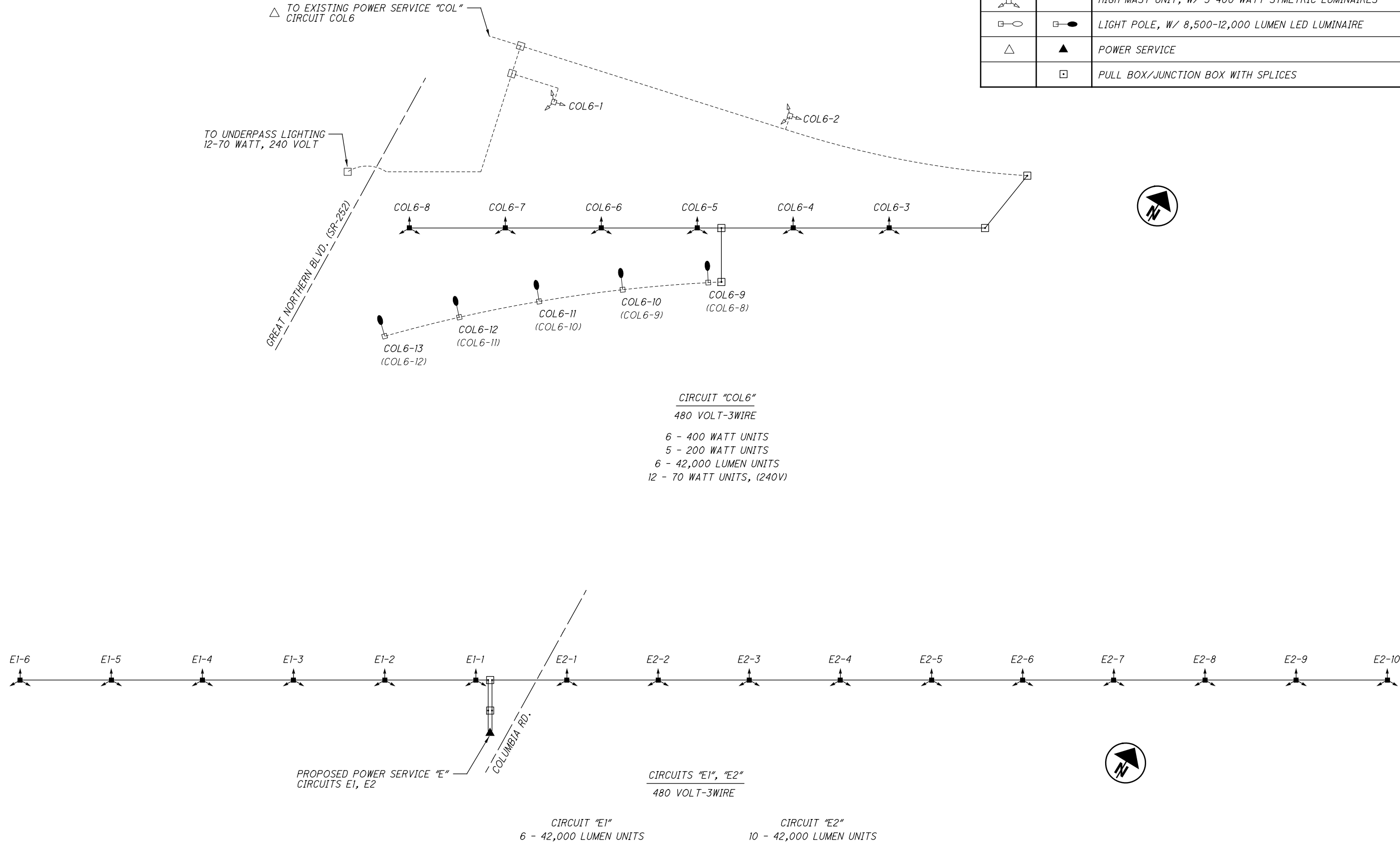
SHEET NO.	PLAN SPLIT NO.	CIRCUIT	POLE/PULL BOX NO.	STATION TO STATION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	CALCULATED FLK	CHECKED FLK
					CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PERMANENT	LIGHT POLE, LOW MAST, AS PER PLAN, ALM50	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP, AS PER PLAN	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE	NO. 10 AWG POLE AND BRACKET CABLE	CONDUIT, 4", 725.04	CONDUIT, 4", MULTICELL, 725.20 , EPC-80	CONDUIT, JACKED OR DRILLED, AS PER PLAN, 4" MULTICELL	CONDUIT CLEANED AND CABLES REMOVED	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN	LUMINAIRE, LOW MAST, SOLID STATE (LED), AS PER PLAN	TRENCH, 24" DEEP	TRANSITION JUNCTION BOX	MEDIAN JUNCTION BOX, AS PER PLAN A	MEDIAN JUNCTION BOX, AS PER PLAN B	PULL BOX, 725.08, 18"	PULL BOX, 725.08, 24"	PULL BOX, 725.08, 32", AS PER PLAN	PULL BOX REMOVED	GROUND ROD	POWER SERVICE, AS PER PLAN	LIGHT POLE REMOVED	LUMINAIRE REMOVED	POWER SERVICE REMOVED	DISCONNECT CIRCUIT
EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
53	1		MJ-3	384+65		6			270					80					1											
53	1		PB-4	384+65	IR-480 LT	6															1									
					IR-480 CL																									
	1	CLA8		384+65	385+20				195									1												
53	1		TJ-3	385+20	387+10		3		600				190					1												
53	1		TJ-4	387+10	387+45		3		135																		1	2		
53	1		CLA8-1	387+45	389+55	2		1	660	150						1									1					
54	1		CLA8-2	389+55	391+55	2		1	630	150						1									1		1	2		
54	1		CLA8-3	391+55	393+55	2		1	630	150						1									1		1	2		
54	1		CLA8-4	393+55	395+55	2		1	630	150						1									1		1	2		
54	1		CLA8-5	395+55	397+45	2		1	600	150						1									1		1	2		
54	1		CLA8-6	397+45	398+35	2		1	300	150						1									1		1	2		
54	1		MJ-4	398+35	399+70		3												1											
54	1		CLA8-7	399+70	401+55	2		1	585	150						1									1		1	2		
55	1		CLA8-8	401+55	403+80	2		1	705	150						1									1		1	2		
55	1		CLA8-9	403+80	405+75	2		1	615	150						1									1		1	2		
55	1		CLA8-10	405+75		2		1	150							1									1					
	1			399+70	IR-480 CL				405					125																
54	1		PB-6	399+70	IR-480 LT		3														1			1						
54	1		CLA8-11	396+35	RAMP C-1										1													1		
54	1		CLA8-12	394+20											1													1		
54	1		CLA8-13	392+20											1													1		
54	1		CLA8-14	390+30											1													1		
54	1		CLA8-15	388+60											1													1		
	1			399+70	IR-480 CL				330					100																
54	1		PB-5	399+70	IR-480 RT		3														1			1						
54	1		CLA8-16	398+95	RAMP C-2										1													1		
54	1		CLA8-17	396+80											1													1		
54	1		CLA8-18	394+50											1													1		
54	1		CLA8-19	392+70											1													1		
54	1		CLA8-20	390+60											1													1		
53	1		CLA8-21	388+45											1													1		
53	1		CLA8-22	386+25											1													1		
					IR-480 CL																									
55	1	MAS1	MAS1-12	407+65	409+55	2		1	600	150						1									1		2	4		
55	1		MAS1-11	409+55	411+45	2		1	600	150						1									1					
55	1		MAS1-10	411+45	413+35	2		1	600	150						1									1		1	2		
55	1		MAS1-9	413+35	415+15	2		1	570	150						1									1		1	2		
55	1		MAS1-8	415+15	417+05	2		1	600	150						1									1		1	2		
55	1		MAS1-7	417+05	418+95	2		1	600	150						1									1		1	2		
55	1		MAS1-6	418+95	420+85	2		1	600	150						1									1		1	2		
55	1		MAS1-5	420+85	422+35	2		1	480	150						1									1		1	2		
55	1		MAS1-4	422+35	424+75	2		1	750	150						1									1		1	2		
55	1		MAS1-3	424+75	426+80	2		1	645	150						1									1		1	2		
55	1		MAS1-2	426+80	428+40	2		1	510	150						1									1					
56	1		MAS1-1		428+40	2	6	1	150							1									1					
	1			428+40	IR-480 CL				540					80																
	1			428+40	IR-480 LT		6		780		120						120													
56	1	MAS	PB-7		MASTICK RD. RT		6														1				1			1		
					IR-480 CL																									
56	1	MAS2	MAS2-1	430+35	432+25	2		1	600	150						1									1		2	4		
56	1		MAS2-2	432+25	434+15	2		1	600	150						1									1		1	2		
56	1		MAS2-3	434+15	436+05	2		1	600	150						1									1		1	2		
56	1		MAS2-4	436+05	437+95	2		1	600	150						1									1		1	2		
56	1		MAS2-5	437+95	439+85	2		1	600	150						1									1		1	2		
56	1		MAS2-6	439+85	441+75	2		1	600	150						1									1					
56	1		MAS2-7		441+75	2		1	150							1									1		1	2		
TOTALS CARRIED TO GENERAL SUMMARY					58	45	29	29	18765	4350	120			575	12	29	120	2	2		2	2		4	29	1	26	64	1	

LIGHTING SUBSUMMARY

CUY -480-3.98








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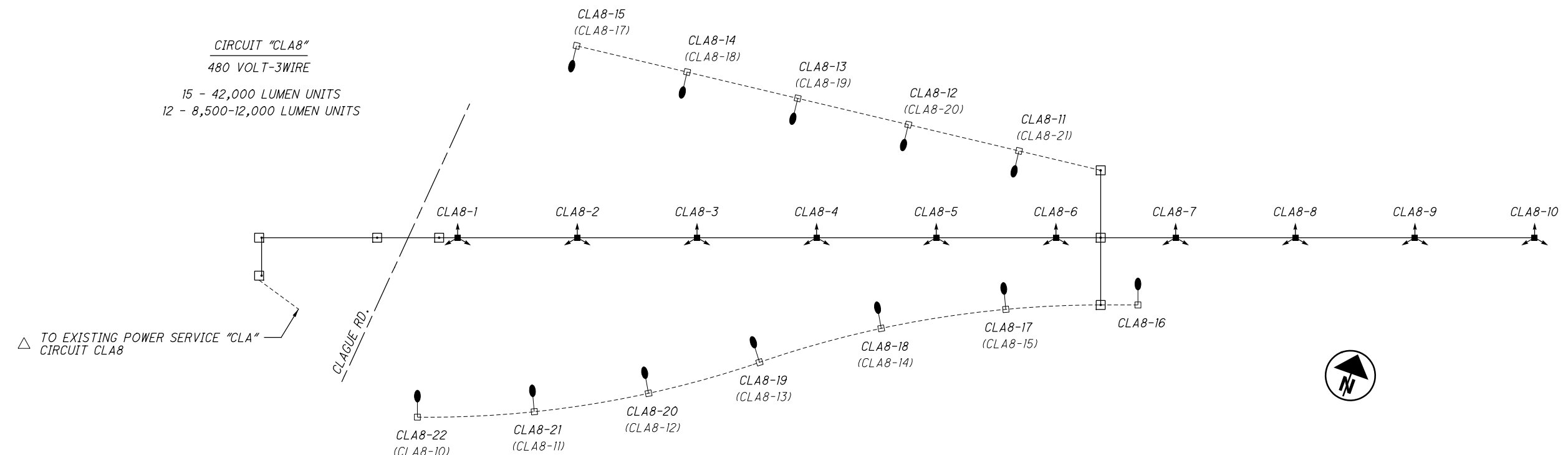
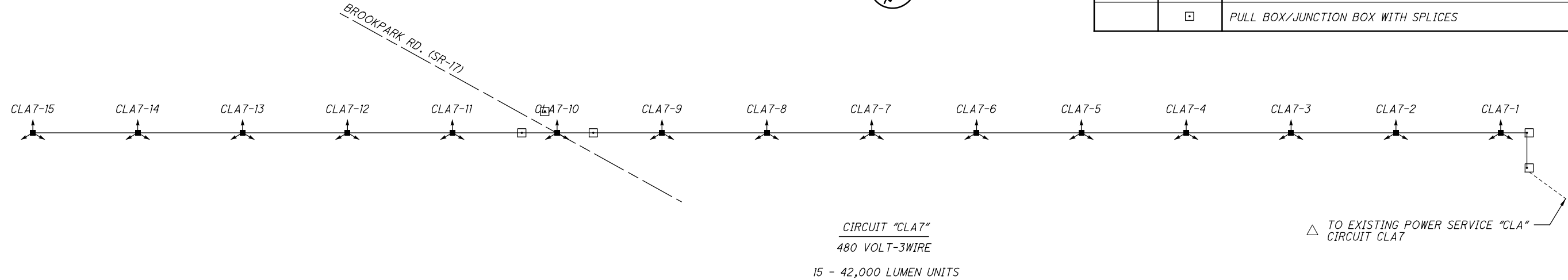
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		LOW MAST UNIT, W/ 1-42,000 LUMEN SYMETRIC LED LUMINAIRE
		HIGH MAST UNIT, W/ 3-400 WATT SYMETRIC LUMINAIRES
		LIGHT POLE, W/ 8,500-12,000 LUMEN LED LUMINAIRE
		POWER SERVICE
		PULL BOX/JUNCTION BOX WITH SPLICES



CALCULATED FLK	CHECKED FLK	CIRCUIT DIAGRAM
CUY - 480 - 3.98		46 57

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LC002.dgn Sheet 9/25/2018 10:22:28 AM dbrauer

EXIST.	PROP.	LEGEND
		LOW MAST UNIT, W/ 1-42,000 LUMEN SYMETRIC LED LUMINAIRE
		HIGH MAST UNIT, W/ 3-400 WATT SYMETRIC LUMINAIRES
		LIGHT POLE, W/ 8,500-12,000 LUMEN LED LUMINAIRE
		POWER SERVICE
		PULL BOX/JUNCTION BOX WITH SPLICES










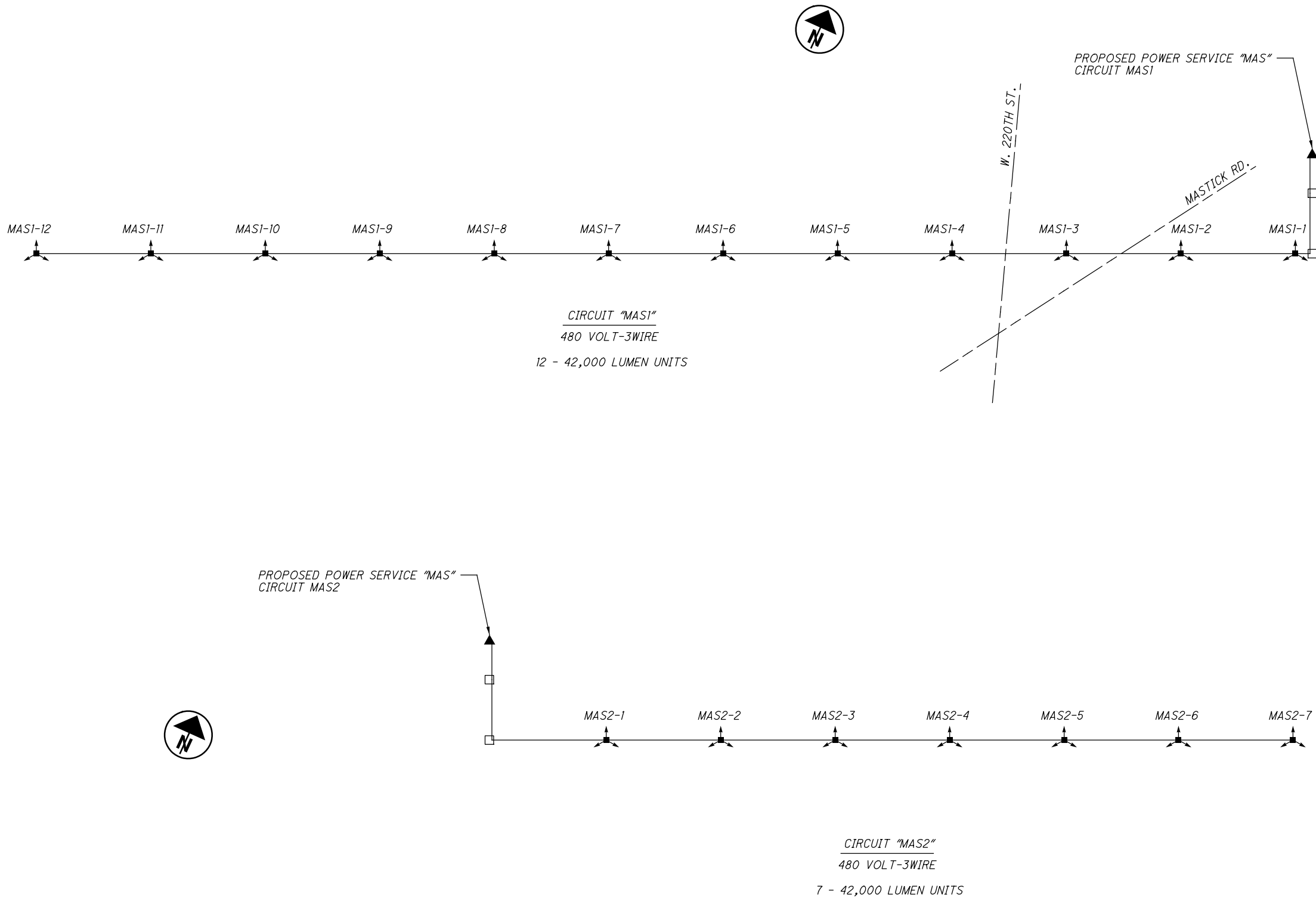
CIRCUIT DIAGRAM

CUY -480-3.98

CALCULATED	FLK	CHECKED	FLK








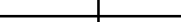










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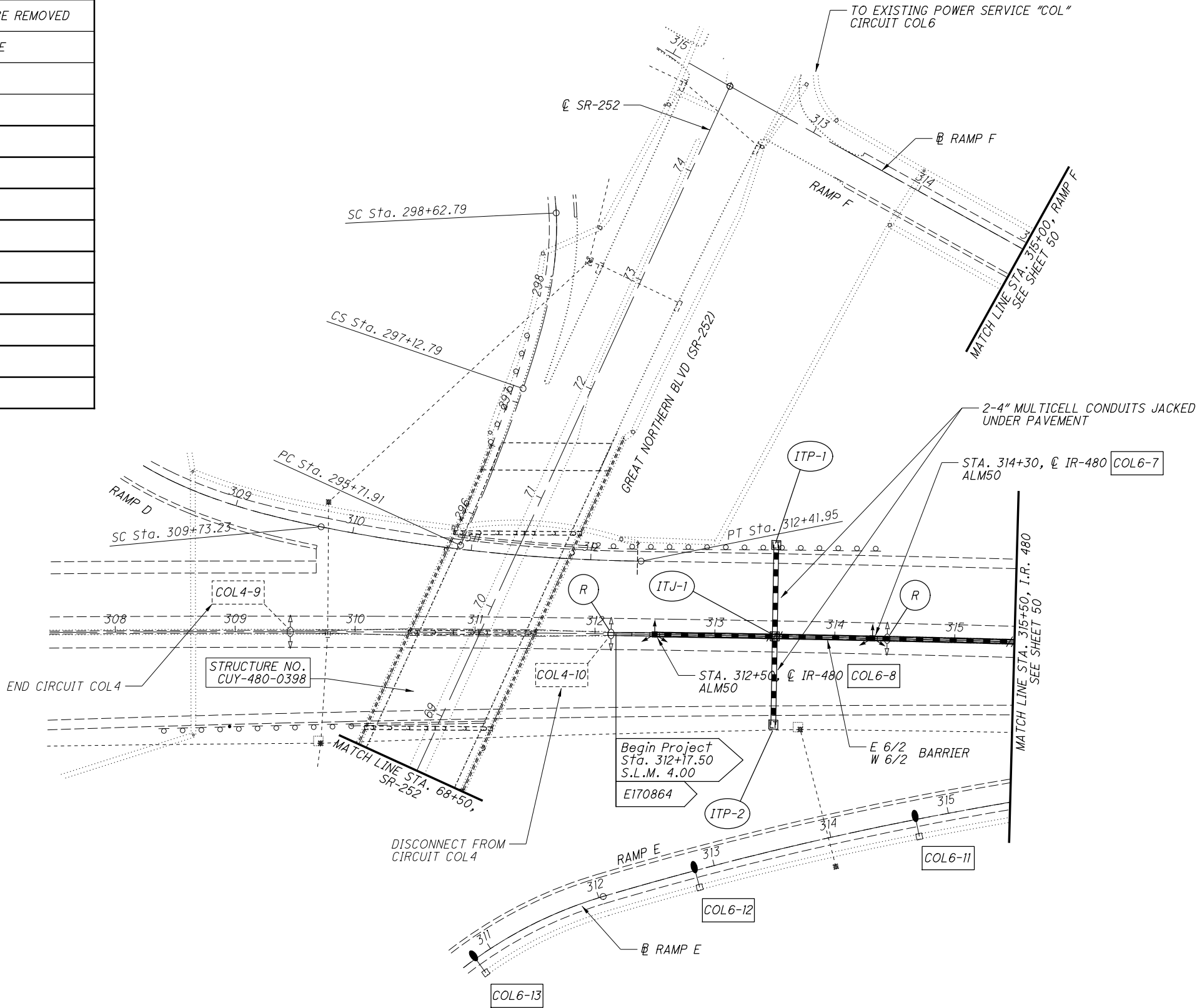
EXIST.	PROP.	LEGEND
		LOW MAST UNIT, W/ 1-42,000 LUMEN SYMETRIC LED LUMINAIRE
		HIGH MAST UNIT, W/ 3-400 WATT SYMETRIC LUMINAIRES
		LIGHT POLE, W/ 8,500-12,000 LUMEN LED LUMINAIRE
		POWER SERVICE
		PULL BOX/JUNCTION BOX WITH SPLICES



CALCULATED FLK	CHECKED FLK
48	57

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LP001.dgn Sheet 9/25/2018 10:22:46 AM dbrauer

EXIST.	PROP.	LEGEND
		LOW MAST UNIT, W/ 1-42,000 LUMEN SYMETRIC LED LUMINAIRE
		MEDIAN BARRIER LIGHT POLE AND LUMINAIRES, TO BE REMOVED
		LIGHT POLE, W/ 8,500-12,000 LUMEN LED LUMINAIRE
		POWER SERVICE
		DISTRIBUTION CABLE (3) IN CONDUIT
		CONDUIT, 725.04 OR 725.051 WHERE SPECIFIED
		MEDIAN JUNCTION BOX, IDENTIFICATION NO.
		TRANSITION JUNCTION BOX, IDENTIFICATION NO.
		PULL BOX, IDENTIFICATION NO.
		ITS MEDIAN JUNCTION BOX, IDENTIFICATION NO.
		ITS PULL BOX, IDENTIFICATION NO.
		LIGHT POLE TO BE REMOVED
		LIGHT POLE IDENTIFICATION NO.
		FREEWAY REFERENCE MARKER LOCATION





HORIZONTAL SCALE IN FEET

CALCULATED
FLK

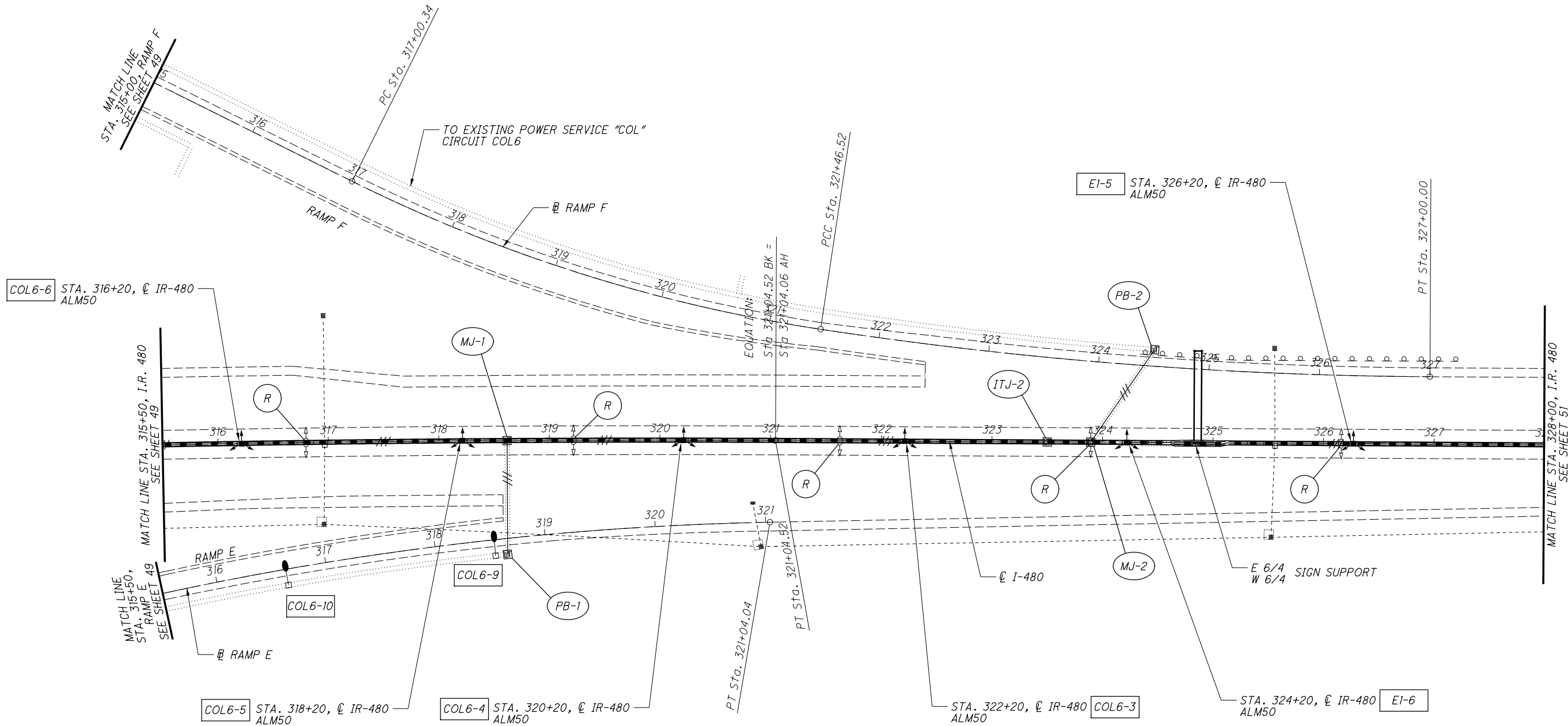
CHECKED
DAB

CUY -480-3.98

I.R. 480, STA. 303+00 TO STA. 315+50

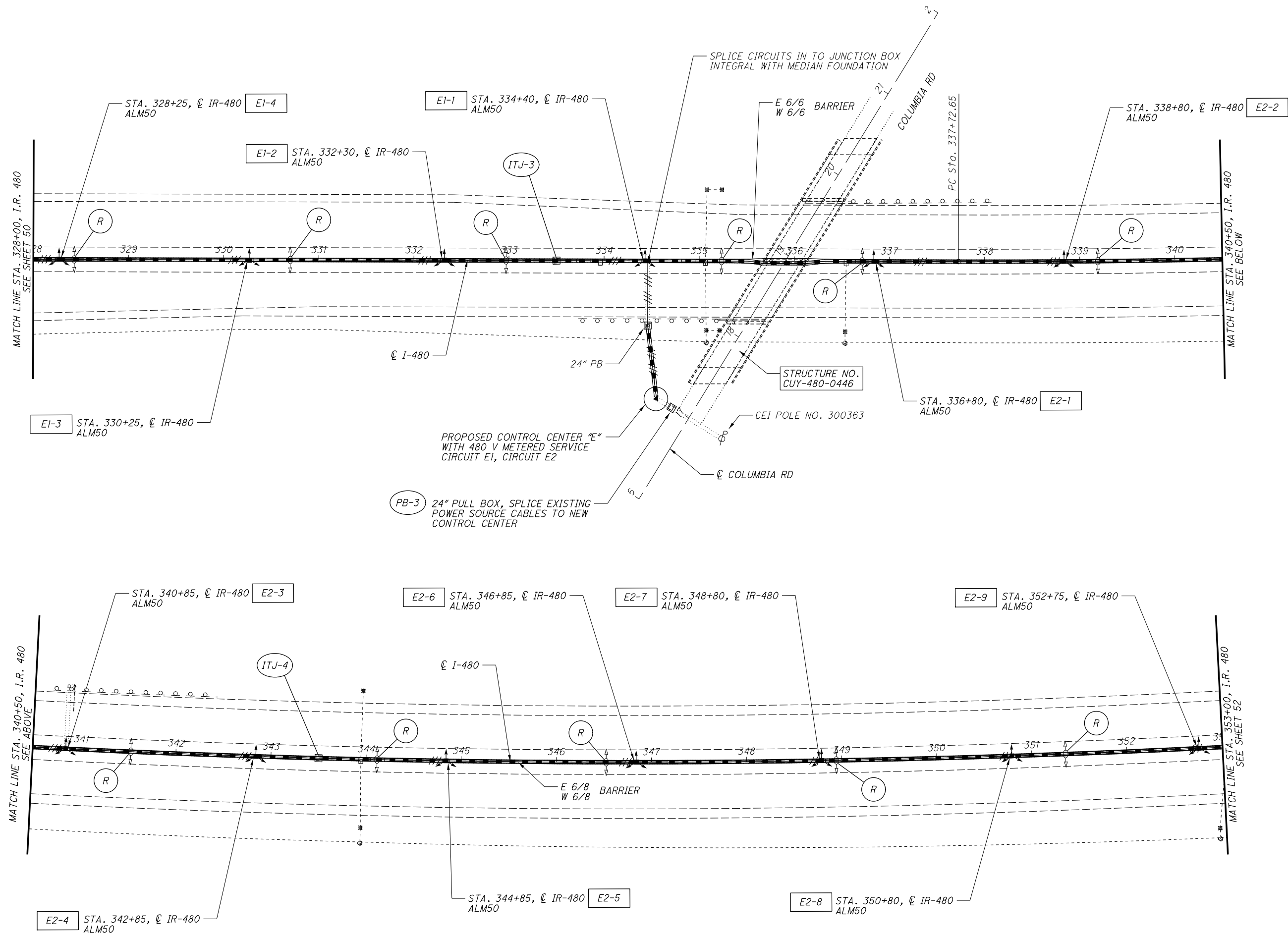
49

57



FOR LEGEND SEE SHEET 49.

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LP003.dgn Sheet 9/25/2018 10:23:10 AM dbrauer



 0 50 100 HORIZONTAL SCALE IN FEET	CALCULATED FLK CHECKED DAB	LIGHTING PLAN SHEET I.R. 480, STA. 328+00 TO STA. 353+00	CUY-480-3.98	51
				57

FOR LEGEND SEE SHEET 49.

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LP004.dgn Sheet 9/25/2018 10:23:22 AM dbrauer

E2-10 STA. 354+75, \angle IR-480
ALM50

CLA7-14 STA. 358+65, \angle IR-480
ALM50

CLA7-13 STA. 360+65, \angle IR-480
ALM50

CLA7-15 STA. 356+75, \angle IR-480
ALM50

EXISTING HAR BEACON SIGN
DO NOT DISTURB
MAINTAIN OPERATION

CLA7-12 STA. 362+75, \angle IR-480
ALM50

2-4" MULTICELL CONDUITS JACKED
UNDER PAVEMENT

CLA7-10 STA. 366+55, \angle IR-480
ALM50

* NEW LIGHT POLE TO BE ERECTED
ON EXISTING MEDIAN BARRIER
FOUNDATION.

CLA7-9 STA. 369+45, \angle IR-480
ALM50

STRUCTURE NO.
CUY-480-0501

PT Sta. 370+71.64

2-4" MULTICELL CONDUITS JACKED
UNDER PAVEMENT

STA. 371+30, \angle IR-480
ALM50

CLA7-8

CLA7-7 STA. 373+30, \angle IR-480
ALM50

CLA7-6 STA. 375+15, \angle IR-480
ALM50

CLA7-11

STA. 364+00, \angle IR-480
ALM50

LIGHT POLE E 7/2
W 7/2

MATCH LINE
STA. 364+00, I.R. 480
SEE ABOVE

MATCH LINE
STA. 84+75, SR-17
SEE ABOVE

MATCH LINE
STA. 364+00, I.R. 480
SEE ABOVE

MATCH LINE STA. 376+50, I.R. 480
SEE SHEET 53

MATCH LINE
STA. 82+00, SR-17
BEGIN SHEET

MATCH LINE
STA. 84+75, SR-17
SEE BELOW

0

50

100

CALCULATED

FLK

CHECKED

DAB

0

25

50

75

100

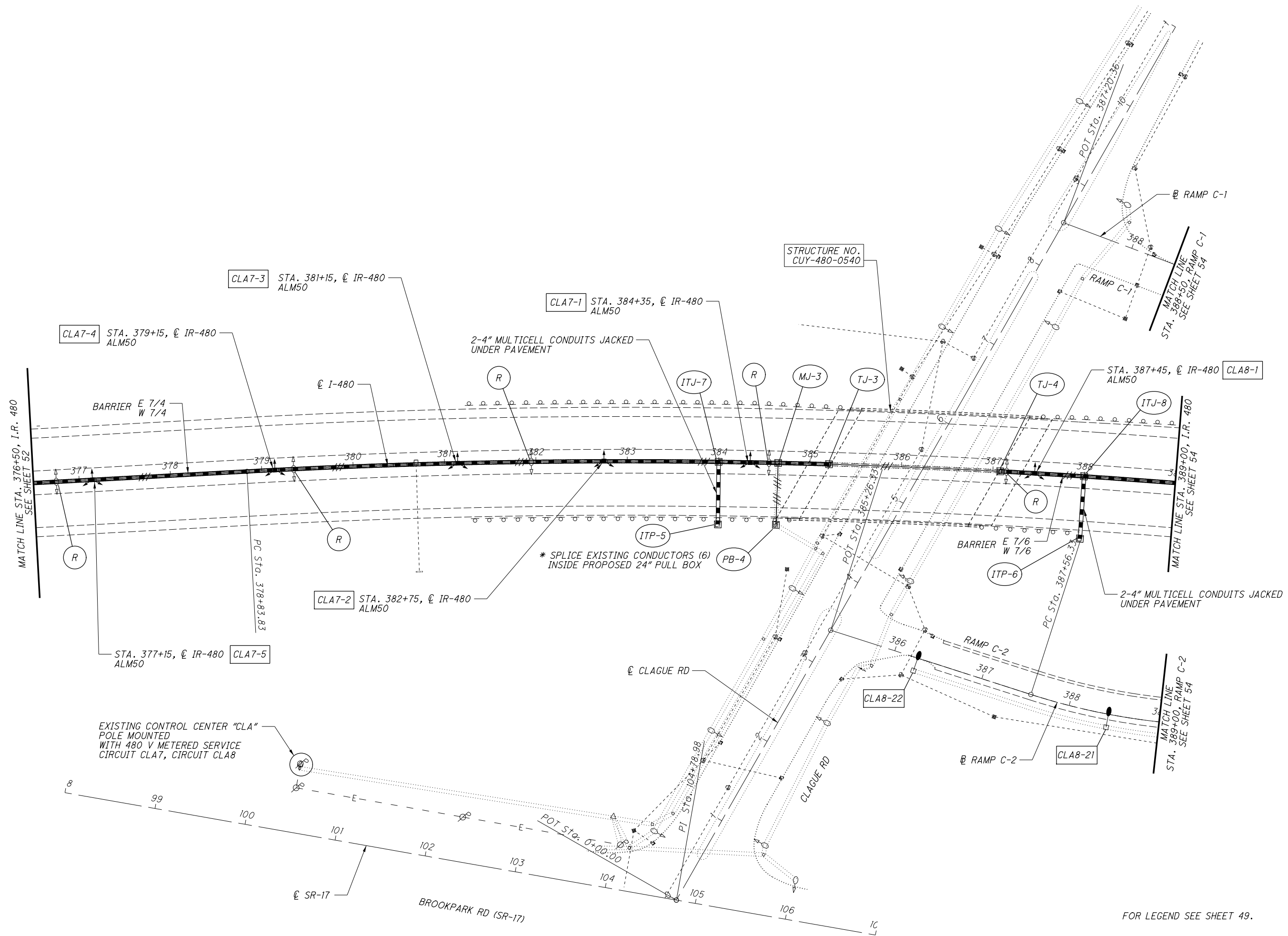
HORIZONTAL
SCALE IN FEET

LIGHTING PLAN SHEET

I.R. 480, STA. 353+00 TO STA. 376+50

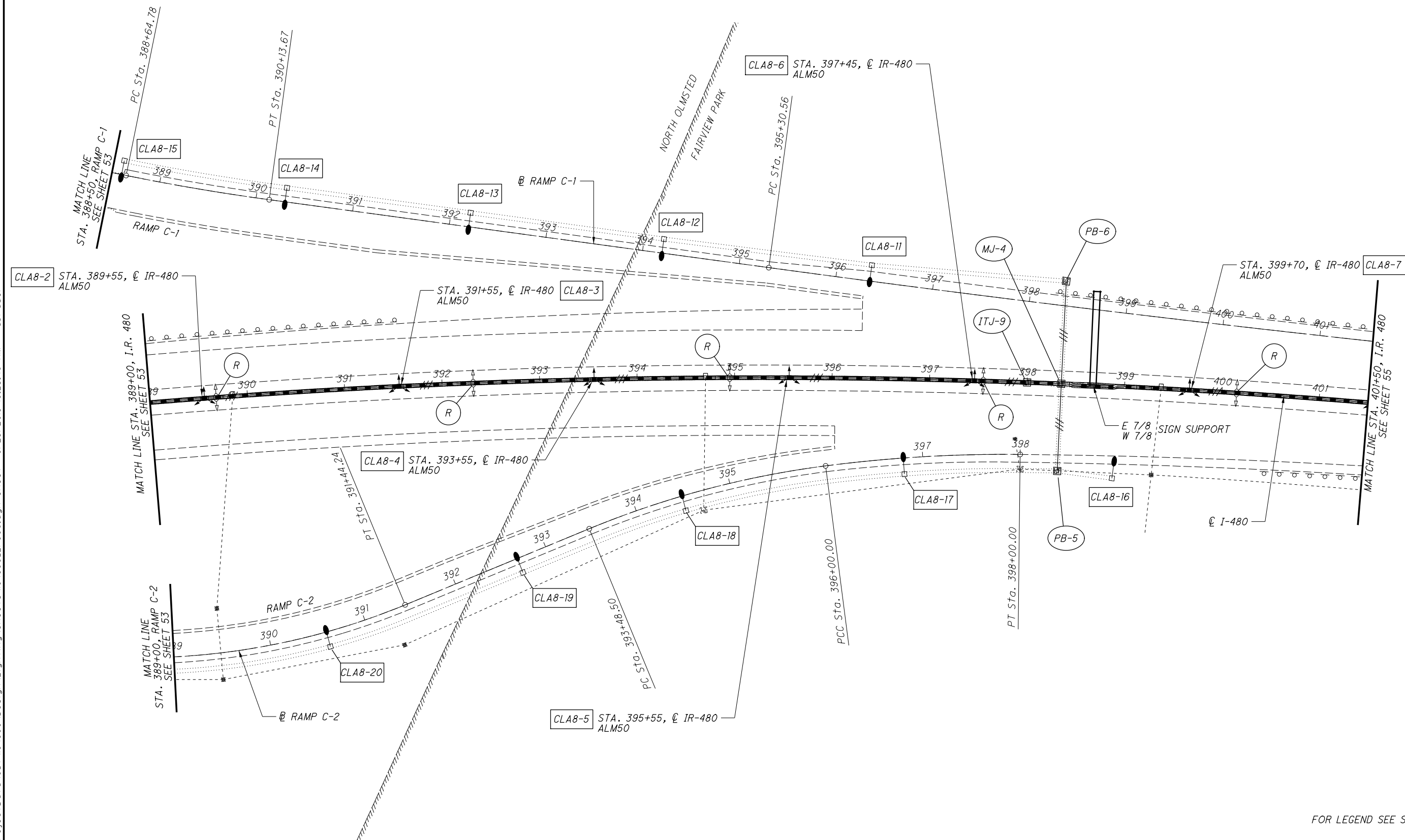
FOR LEGEND SEE SHEET 49.

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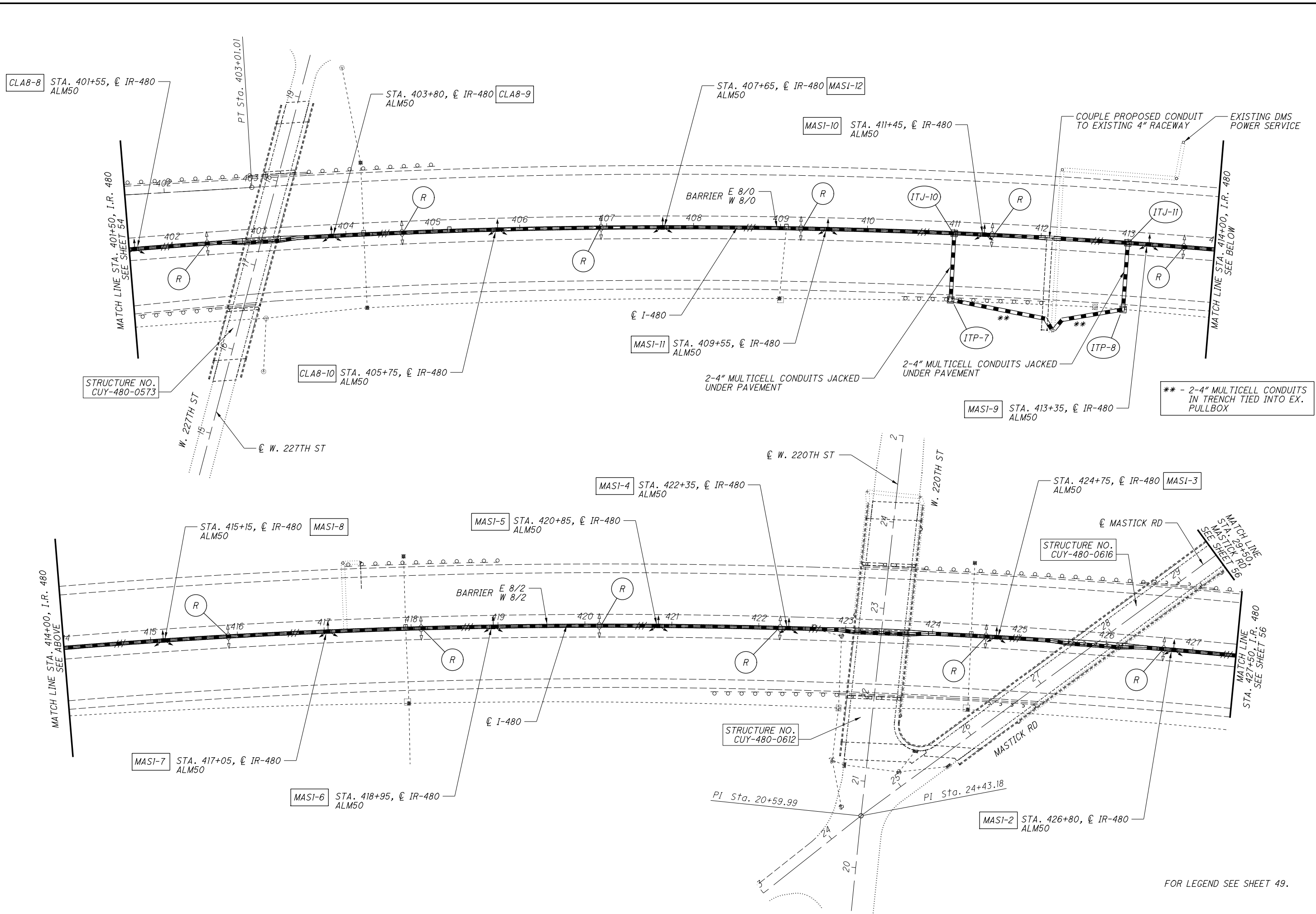
FOR LEGEND SEE SHEET 49.

0 50 100 HORIZONTAL SCALE IN FEET	
CALCULATED FLK	CHECKED DAB
LIGHTING PLAN SHEET I.R. 480, STA. 376+50 TO STA. 389+00	
CUY-480-3.98	
53 57	



FOR LEGEND SEE SHEET 49.

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LP007.dgn Sheet 9/25/2018 10:23:58 AM dbrauer



0

25

50

100

0

25

50

100

CALCULATED

FLK

CHECKED

DAB

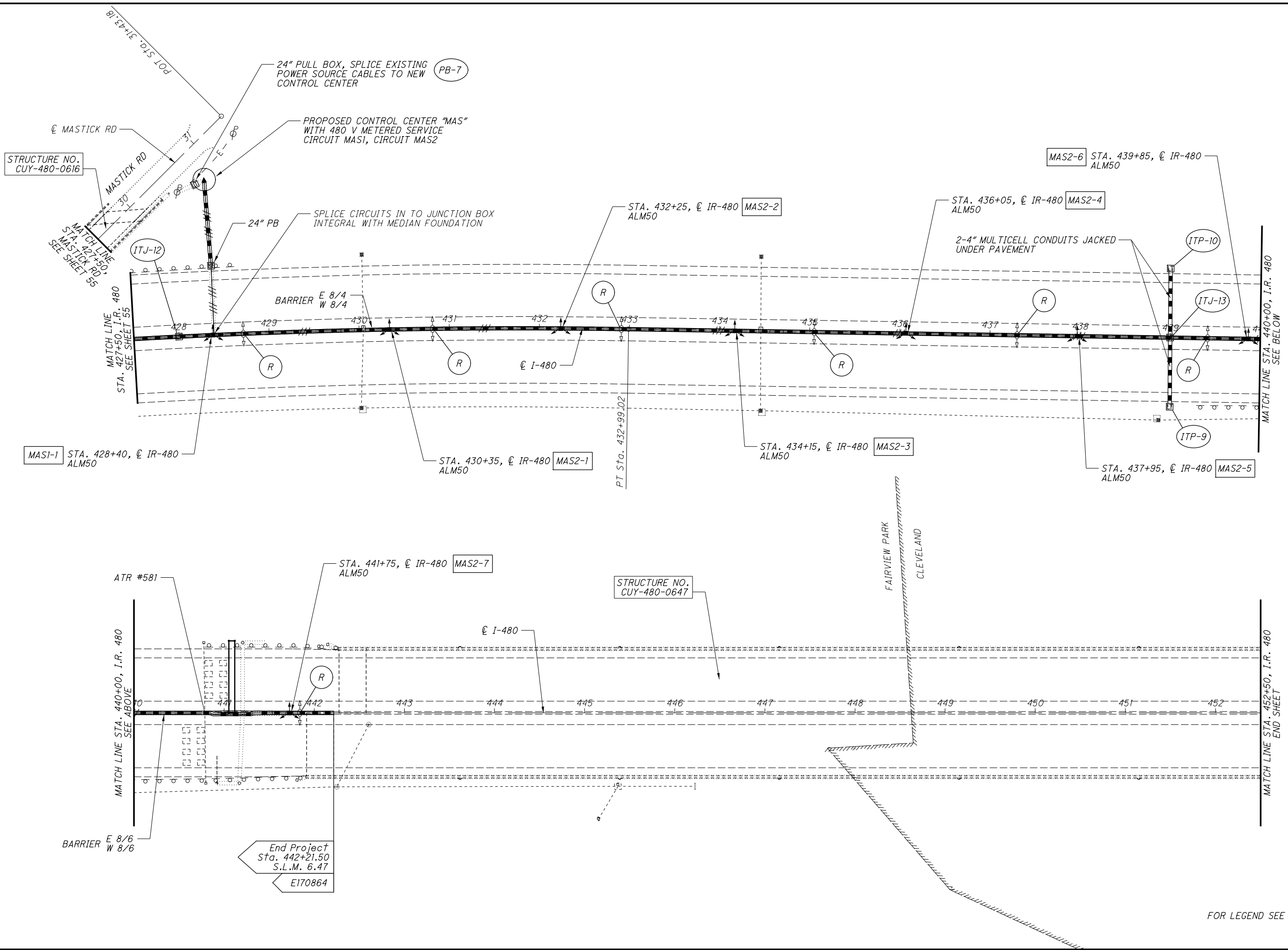
LIGHTING PLAN SHEET

I.R. 480, STA. 401+50 TO STA. 427+50

CUY-480-3.98

55
57

I:\ProjectData\CUY\04800\Design\Lighting\Sheets\04800_LP008.dgn Sheet 9/25/2018 10:24:09 AM dbrauer



FOR LEGEND SEE SHEET 49.

050100HORIZONTALSCALE IN FEET

CALCULATED

FLK

CHECKED

DAB

LIGHTING PLAN SHEET

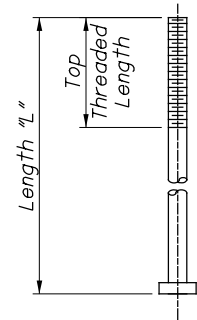
I.R. 480, STA. 427+50 TO STA. 452+50

CUY-480-3.98

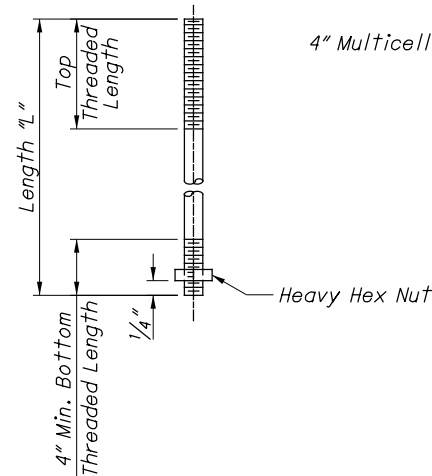
5657

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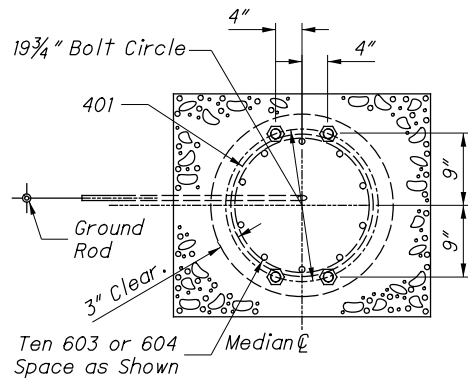
ANCHOR BOLT LENGTH		
Barrier Section Type	Length "L" (in)	Anchor Bolt Embedment "E" (in)
B1	69	64



HEADED ANCHOR BOLT OPTION



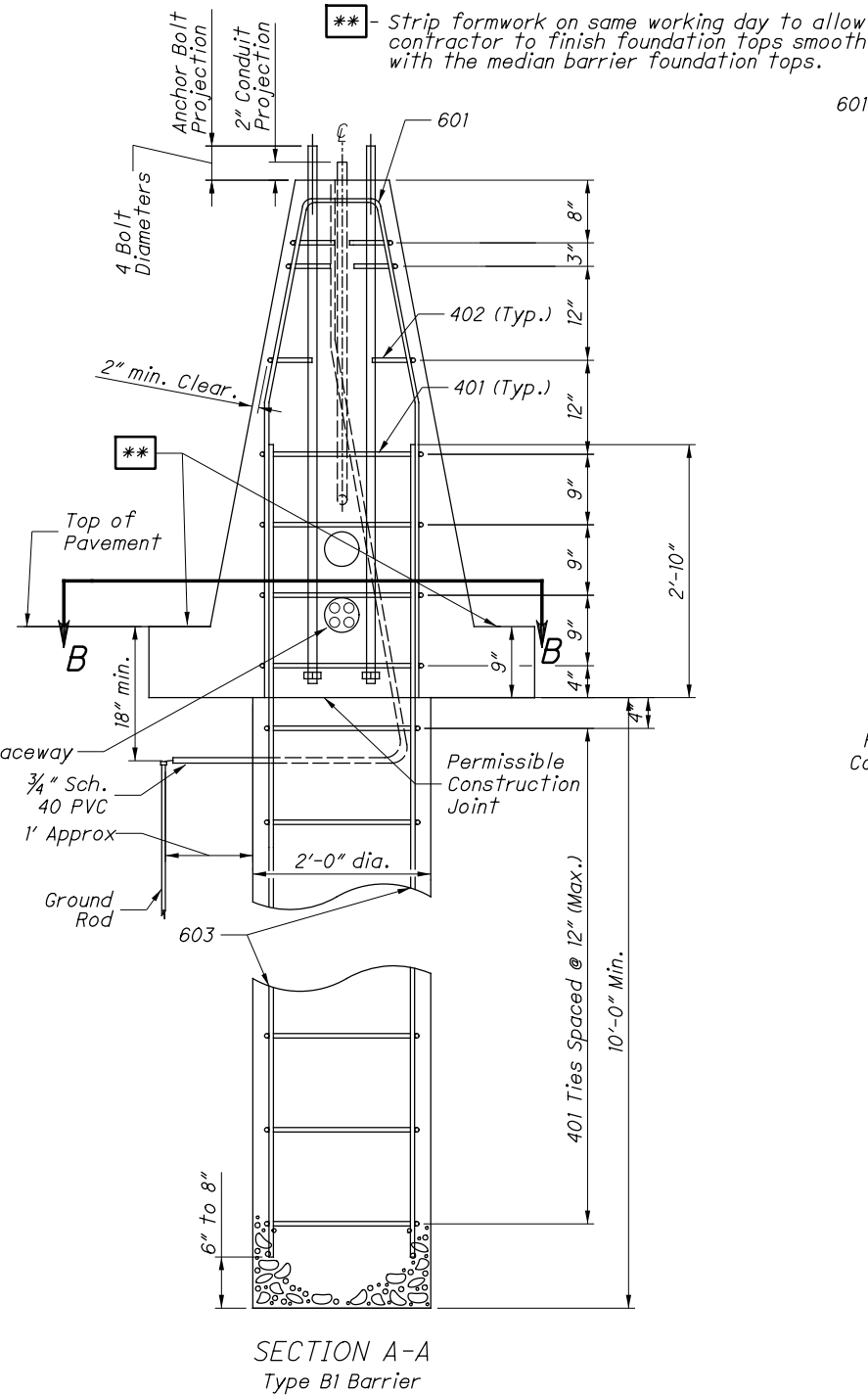
NUTTED ANCHOR BOLT OPTION



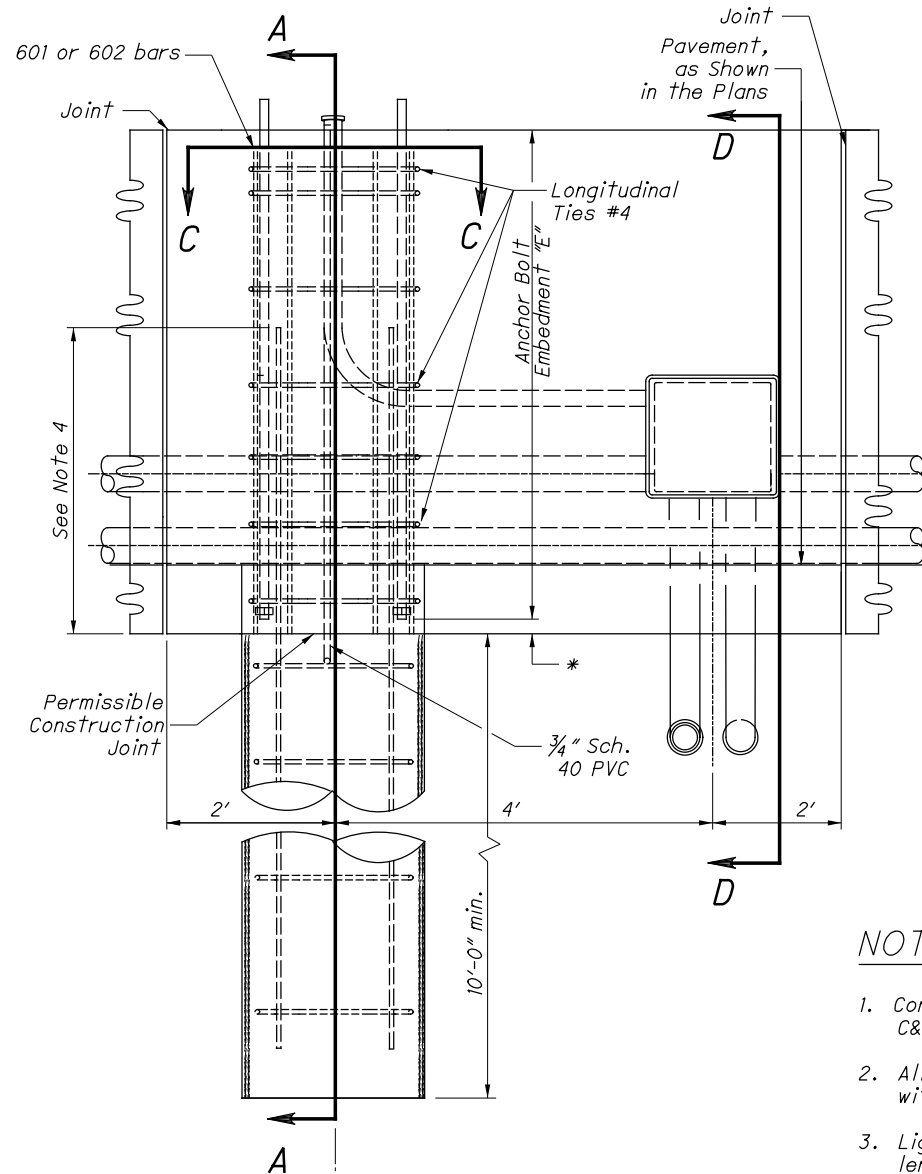
SECTION B-B

**MEDIAN LIGHT POLE FOUNDATION,
10' DEEP, AS PER PLAN**

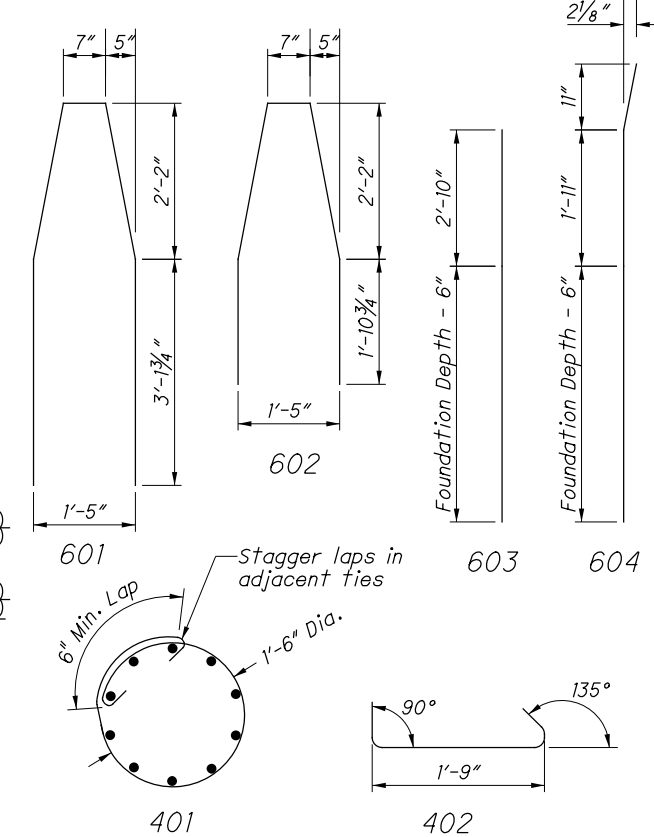
Note: See Standard Construction Drawing HL-10.13 for steel anchor bases on median barrier.



SECTION A-A
Type B1 Barrier



* Provide 2" of cover between bottom of bolt head/rod and permissible construction joint



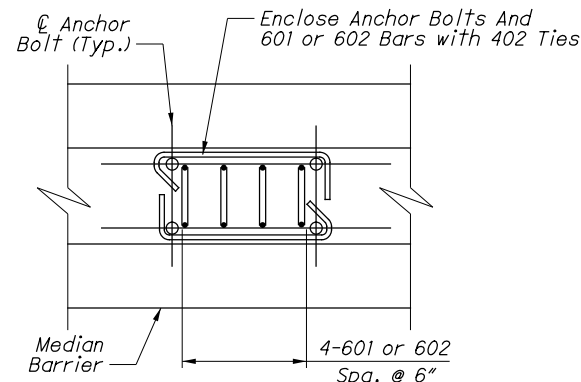
Bar Bending Diagrams

NOTES:

- Construction shall conform to the requirements of C&MS 622 and 625.
- All reinforcing steel shall be epoxy coated and comply with and be placed in accordance with C&MS 509.
- Light pole anchor bolts to be 1 1/4" diameter x length "L", Grade 55, with a top thread length of 5 bolt diameters. Threads shall be UNC-2A, and may be either rolled or cut, and coarse threaded. The embedded end of the anchor bolt shall be headed or threaded with a heavy hex nut.

Anchor bolt material may be smooth steel rod that is threaded at the ends or threaded over its entire length. Hex nuts shall be ASTM A563, American Standard heavy hex, Grade DH, with UNC-2B threads. Anchor bolts shall be hot-dip galvanized over their entire length, as per C&MS 711.02, after fabrication and threading. Nuts shall also be galvanized per C&MS 711.02.

- Maintain a 2'-10" minimum lap length for vertical drilled shaft rebar and U-bars.
- The top of the concrete barrier shall be flat, smooth and level to eliminate need for light pole shims. Grind surface, if required, to make concrete level.
- Refer to the Roadway Barrier Standard Construction Drawing for barrier dimensions.
- Provide continuity of equipment ground between junction box and light pole.
- Dowel foundation to adjacent barrier in accordance with the requirements of the standard drawings for the barrier.



SECTION C-C