

539

OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

| PART | COUNTY | ROUTE | SECTIONS | PROJECT TERMINI | | NET LENGTH MILES | TOWNSHIP | CITY | VILLAGE |
|------|--------|-------|---------------|-----------------|-------|------------------|----------|------|---------|
| | | | | BEGIN | END | | | | |
| 1 | CRA | 19 | (16,09-17,21) | 16,09 | 23,31 | 7,22 | | | |
| 2 | CRA | 100 | (18,05) | 18,05 | 18,06 | 0,01 | | | |
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SR-336(9)

539 (85)

L & D

| FHWA Region | State | Federal Project |
|-------------|-------|-----------------|
| 5 | Ohio | |

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| 1 |
| 36 |

PLAN NO. 224

20-63

21-54

The Standard 19 85 Specifications of the State of Ohio, Department of Transportation, including changes and Supplemental Specifications listed in the plans and proposal shall govern these improvements.

I hereby approve these plans and declare that the making of these improvements will require the closing of the highways to traffic on Parts No. 2 and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Parts No. 1 and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Approved
Date 12/28/84

Harry W. Pinn
District Deputy Director of Transportation

DEM Approved
Date 1-8-85

Walter J. Jennings
Engineer of Bridges

Approved
Date

Engineer of Maintenance

Approved
Date 4-8-85

James R. Longenecker
Chief Engineer, Operations

Approved
Date

Assistant Deputy Director, Program Development

Approved
Date

Chief Engineer, Construction

Approved
Date

Chief Engineer, Design

Approved
Date

Assistant Director, Department of Transportation

Approved
Date 4-9-85

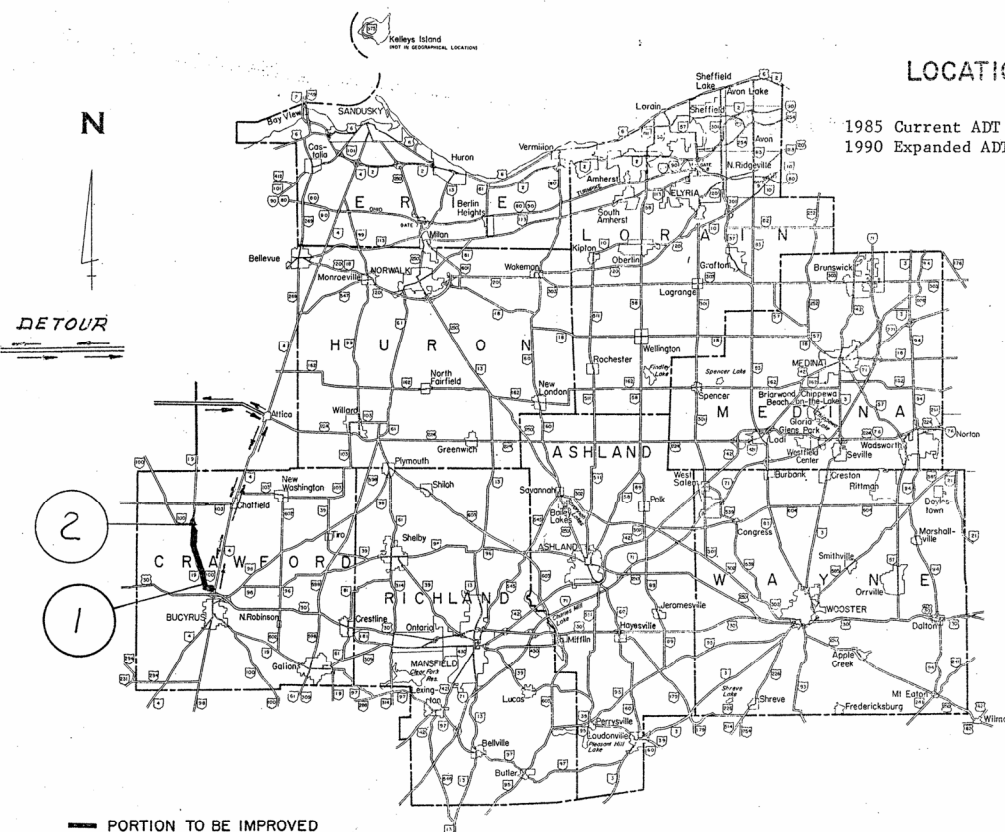
Walter J. Smith
Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Approved

Div. Administrator

Date



LOCATION MAP

1985 Current ADT
1990 Expanded ADT

| | |
|-------|-------|
| Pt. 1 | Pt. 2 |
| 1950 | 750 |
| 2100 | 800 |

DETOUR

2

1

— PORTION TO BE IMPROVED

6-11-85

| STANDARD DRAWINGS | | STANDARD DRAWINGS | | SUPPLEMENTAL SPECIFICATIONS | |
|-------------------|---------|-------------------|----------|-----------------------------|----------|
| GR-1 | 2-05-82 | BP-5 | 7-16-81 | SS-847 | 10-17-83 |
| GR-2B | 2-05-82 | TC 71-10 | 4-09-79 | SS-947 | 10-17-83 |
| GR-3 | 2-05-82 | AS-1-81 | 11-27-81 | SS-939 | 6-28-82 |
| GR-4 | 2-05-82 | CS-2-73 | 4-10-73 | SS-824 | 10-08-82 |
| GR-4A | 1-30-84 | CSB-12-39 | 1-8-81 | SS-836 | 3-12-75 |
| CB-2-2A-2B | 5-01-79 | DBR-2-73 | 4-10-73 | SS-955 | 6-03-78 |
| CSB-2-47 | 9-18-47 | AP-1-47 | 9-18-47 | | |
| ICD-1-82 | 8-01-84 | | | | |

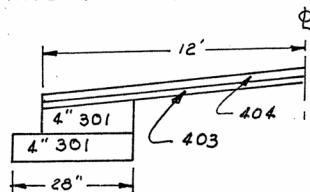
REV 4-26-85 JDP

ASPHALT CONCRETE

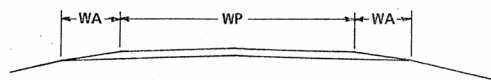
PLAN NO.
224

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36

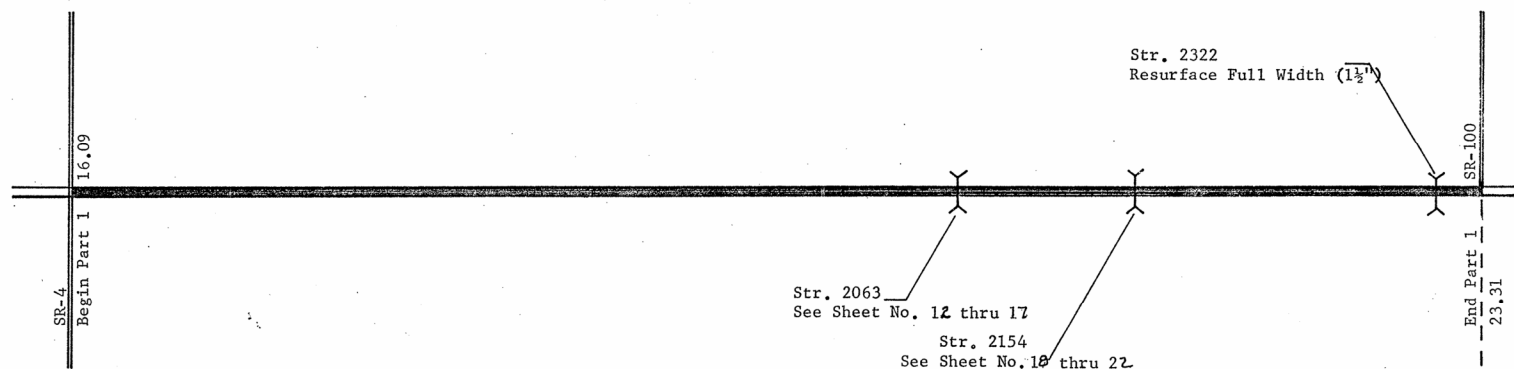
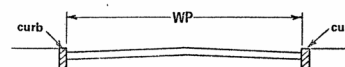
WIDENING TYPICAL 3



TYPICAL 1



TYPICAL 2



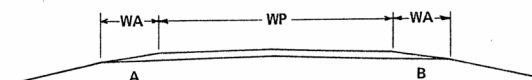
* One Station Equals 100 L.F. Stations shall be measured along each edge of pavement.

PAVEMENT DATA

| PAVEMENT DATA | | | | | | | | | | | | | | | | | | | Proposed Base Widening | | | |
|---------------|-------|------------------------|--------|----------|---------|---------|------------------------|------------------------|----------------------------------|-------------------------------------|------------------|------|--------------|------|----------|---|---|--------------------------------------|--|-----------------------|--------------------------------------|--------------------------|
| PART | ROUTE | LOG POINT TO LOG POINT | LENGTH | | WP FEET | TYPICAL | EXISTING TYPE PAVEMENT | PAVEMENT AREA SQ. YDS. | PROPOSED PAVEMENT | | | | | | | | 604 Monument Boxes Adjusted to Grade Each | 202. Wearing Course, Removed Sq.Yds. | 202 Raised Pavement Markers Removed for Storage Each | Base Widening Sq.Yds. | 301 Bit. Aggr. Base 8" Thick Cu.Yds. | 203 Linear Grading Sta.* |
| | | | MILES | LIN. FT. | | | | | 407 | | ASPHALT CONCRETE | | | | | | | | | | | |
| | | | | | | | | | TACK COAT @ 0.10 gal./s.y. GALS. | COVER AGGR. @ .7.... lbs./s.y. TONS | ITEM 403 | | ITEM 404 | | ITEM | | | | | | | |
| | | | | | | | | | THICK INCHES | | THICK INCHES | | THICK INCHES | | CU. YDS. | | | | | | | |
| 1 | 19 | 16.09 to 16.82 | 0.73 | 3854 | 24 | 1 | 404 | 10277 | 1028 | 36 | 0 | 143 | 1 | 285 | | | | | | | | |
| | | 16.82 to 23.31 | 6.49 | 34267 | 20 | 1 | 404 | 76149 | 7615 | 267 | 0 | 1058 | 1 | 2115 | | | | | | | | |
| | | 16.82 to 23.31 | (6.49) | (34267) | 2@2 | 3 | 404 | 15230 | 1523 | 53 | 0 | 212 | 1 | 423 | | | | 16486 | 3664 | 685 | | |
| | | | | | | | EA for Intr. & Drives | 3344 | 334 | 12 | | | 1½ | 139 | | | | | | | | |
| | | Total Part 1 | 7.22 | 38121 | | | | 105000 | 10500 | 368 | | 1413 | | 2962 | | 4 | 100 | 255 | 16486 | 3664 | 685 | |
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SHOULDER TREATMENT

TYPICAL I



TYPICAL 2



*NOTES

1. SEAL COAT: After completion of the mix the Seal Coat shall be applied when directed by the Engineer.
2. PENETRATION CHOKE: Choke to be applied in two applications; approximately 0.004 cu. yd./sq. yd. shall be applied immediately on the mix after initial rolling. Not earlier than two days nor later than five days following the final rolling the penetration coat and final choke application shall be performed in accordance with the provisions of 409.07 and 409.08.
3. MIX BITUMINOUS MATERIAL: Include 0.20 gal./sq. yd. to be applied as a penetration.
4. PRIME COAT: A minimum of 36 hours shall elapse after completion of Prime Coat before any subsequent treatment.
5. MIX: Mix to be completed on shoulders within _____ days following completion of the adjacent pavement.
6. SHIELD: The contractor shall provide a shield to prevent the spraying or drifting of liquid bituminous material onto the edge of the pavement or edgelines. The attention of the contractor is directed to 107.12 of the Specifications.
7. APPLICATION RATE: The rate of application for mix bituminous material shall be _____ gal. per sq. yd. for slag or _____ gal. per sq. yd. for gravel or stone.
8. CENTRAL MIXING: When central mixing is used, the mix bituminous material shall be reduced 0.20 - 0.25 gal./sq. yd. to prevent in-transit drainage and applied as a penetration.

PLAN NO.
224

SHOULDER DATA

[illegible]

GENERAL NOTES



PLAN NO.
224

ROUTINE MAINTENANCE:

Between the time that bids are taken and the start of construction, the maintaining agency may enter upon the project and perform routine maintenance such as crack sealing, patching, and berm and shoulder repair. The effects, if any, of the performance of routine maintenance shall be considered as inherent in work of the character provided for in the contract and the resulting conditions shall not be considered as differing materially from those existing at the time bids were taken.

INTERSECTIONS:

Rural - Intersections shall be paved to end of radii or as directed by the Engineer to provide a smooth transition between the two highways. Urban - Intersections shall be paved to back of crosswalks or as directed by the Engineer. Drives - Paved drives and paved mailbox approaches shall be resurfaced as directed by the Engineer. Care shall be taken to eliminate water pockets in curbed sections.

PAVEMENT CONTROL:

An automatic screed control having a 30 ft. minimum ski-arm shall be used for placing the 403 Pre-level and 404 course on existing pavement widths of 20 ft. and over.

Special attention shall be given to superelevated curves. The superelevation shall be maintained and/or restored, if necessary, as directed by the Engineer.

BUTT JOINTS:

Butt joints shall not be cut and left open to traffic for a time period longer than one (1) day. If cut is not paved within one (1) day, it shall be filled in with a temporary asphalt concrete wedge, of sufficient length as directed by the Engineer.

Construction "Bump" signs (OW-62 and OW-143) shall be erected and maintained during the period that the cut for the butt joint is left open.

ITEM 404:

In addition to Item 404.12, the surface of feathered areas shall be uniformly coated with a 6" wide band of A.C. at the junction with the existing pavement, to be included within the cost of Item 404.

Under Item 401.15 (all cold joints on surface courses) shall be sealed by coating the vertical face. The coating of the finished surface with A.C., 6" wide will not be allowed.

ITEM 202, RAISED PAVEMENT MARKERS REMOVED FOR STORAGE:

Raised pavement markers shall be removed in a manner that prevents damage to the castings. All depressions caused by removal of the markers shall be tacked and filled with compacted 404 to the level of existing road surface at the time they are removed. Removed markers are to be stored at one location on the project, to be picked up by State forces. All costs to be included in the contract price bid for Item 202 - Raised Pavement Markers Removed for Storage.

GENERAL NOTES



PLAN NO.
224

BERM AND BASE WIDENING AT INTERSECTIONS AND DRIVES:

Pavement and berm quantities are calculated through all intersections and drives. Any portion may be non-performed if so directed by the Engineer.

TRENCH FOR WIDENING:

Trench excavation for base and berm widening shall be performed only on one side of the pavement at a time. The open trench shall be adequately maintained and protected at all times with drums or barricades, with Type "C" steady burn lights attached after working hours.

Placement of proposed base material shall follow as closely as possible behind the excavation operation. The length of widening trench which is open at any one time shall be held to a minimum and shall at all times be subject to approval by the Engineer.

TACK MATERIAL:

The amount of tack material required to coat the existing pavement edges prior to 301 or 402 operations shall be included in the Unit Price Bid for Item 402, Asphalt Concrete or Item 301, Bituminous Aggregate Base.

BASE AND BERM WIDENING:

The Cubic Yard of asphalt concrete shall be paid by ticket weight conversion, within a tolerance of plus or minus 5% of the required calculated weight per unit of area, as per 401.16. The above final quantity shall be calculated within the tolerance on a daily basis.

ITEM 202, EXISTING WEARING COURSE REMOVED AND DISPOSED OF:

Surface removal is to be performed as directed and in areas designated by the Engineer. Removal of existing pavement surface may be required to eliminate adverse surface distortion which in the judgement of the Engineer cannot be satisfactorily corrected in the paving courses.

These areas may include material displaced by rutting or shoving, surface patches and transverse bumps at joints with structures, adjoining pavements or railroads.

ITEM 604, CASTINGS ADJUSTED TO GRADE:

Any unit of this item may be nonperformed if so directed by the Engineer and the surface shall be feathered to meet the existing casting or inlet in a manner acceptable to the Engineer. All adjusting rings shall have the Engineer's prior approval before using.

Under Item 604.03, Adjustment to Grade, paragraph (a), the casting to be adjusted may or may not have an existing frame. The work shall consist of adjusting the existing casting or grate to the satisfaction of the Engineer. The Contractor is reminded to field check all adjustment to grade items prior to bidding, as no additional compensation will be granted for labor and material required to satisfactorily adjust castings without frames.

GENERAL NOTES

| | | | |
|-----------------|-------|---------|----|
| FED RD DIVISION | STATE | PROJECT | 6 |
| 5 | OHIO | | 36 |

ITEM 511, CLASS S CONCRETE, AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE. THE COARSE AGGREGATE SHALL BE LESTONE.

QUANTITIES PER CUBIC YARD (USING NO. 8 LESTONE)

| AGGREGATE | CEMENT | WATER/ |
|-------------------|---------|--------|
| FINE COARSE TOTAL | CONTENT | CEMENT |
| (LB) (LB) (LB) | (LB) | RATIO |
| 1591 1127 2718 | 715 | 0.40 |

AIR CONTENT- 8% PLUS OR MINUS 2%

HIGH RANGE WATER REDUCER (SUPERPLASTICIZER) MAY BE USED AT THE OPTION OF THE CONTRACTOR IF REQUIRED FOR PLACEMENT. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F, AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

TYPE A OR D CHEMICAL ADMIXTURE CONFORMING TO 705.12 ASTM TYPE F AND NOT CONTAINING CALCIUM CHLORIDE SHALL BE ADDED TO THE CONCRETE AT THE PLANT.

ALL ADDITIVES INCLUDING AIR ENTRAINMENT SHALL BE MANUFACTURED BY THE SAME COMPANY AND CERTIFIED AS COMPATIBLE BY THE MANUFACTURING COMPANY.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1 1/2" PLUS OR MINUS 1/2". THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6" PLUS OR MINUS 1". THE CONTRACTOR SHALL FURNISH A VOLUMERIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINMENT AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINMENT AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

ALL INITIAL TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE TESTS SHALL BE PERFORMED BY A COMPETENT CONCRETE TECHNICIAN. THIS INFORMATION SHALL BE PROVIDED TO THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL MAKE ONLY THE FINAL TESTS AS THE CONCRETE IS PLACED ON THE DECK.

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE A WATER CURING.

THE CONTRACTOR SHALL MAKE ONE OR MORE TRIAL BATCHES OF THE SUPERPLASTICIZED DENSE CONCRETE OF THE SIZE TO BE HAULED AT LEAST FOUR DAYS BEFORE THE DECK IS TO BE PLACED. HE SHALL CAST ONE OR MORE TEST SLABS, E.G. 8 FT. LONG X A WIDTH WHICH IS WIDE ENOUGH TO ACCOMMODATE HIS TING EQUIPMENT X 4 IN. THICK, FOR TEXTURING ACCORDING TO 511.16 AND SHALL PREPARE OTHER SAMPLES AND SPECIMENS AS DIRECTED BY THE PROJECT ENGINEER. THE CONTRACTOR SHALL FURNISH THE REQUIRED MATERIALS AND SAMPLES WITHOUT CHARGE TO THE STATE AS PER 106.03. THE PROJECT ENGINEER SHALL BE NOTIFIED SEVEN (7) DAYS IN ADVANCE OF THE TEST BATCH PREPARATION AND HE WILL CONDUCT ALL THE REQUIRED TESTS.

PLACEMENT

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENINGS (6:00 P.M. TO OFFICIAL SUNSET), NIGHT (OFFICIAL SUNSET TO OFFICIAL SUNRISE) OR EARLY MORNING (SUNRISE TO 8:00 A.M.).

IF PLACEMENT OF THE CLASS S CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST FIFTEEN (15) CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

ALL OTHER PROVISIONS OF ITEM 511 SHALL REMAIN IN EFFECT.

PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

| ITEM | UNIT | DESCRIPTION |
|------|---------|---|
| 511 | CU. YD. | CLASS S CONCRETE, ABUTMENT, AS PER PLAN |
| 511 | CU. YD. | CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN |

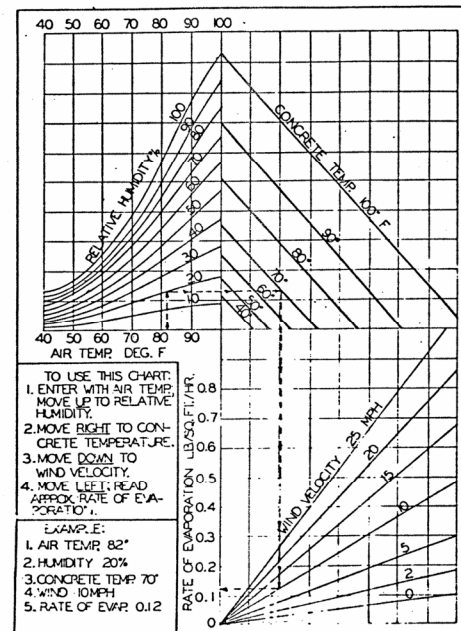


FIGURE 1

GENERAL NOTES

| | | |
|------------------------|---------------|--------------------|
| FED. RD. DIVISION 5 | STATE OHIO | PROJECT 7 36 |
|------------------------|---------------|--------------------|

VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATION AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE ARE AVAILABLE UPON REQUEST AT THE DISTRICT 3 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, ASHLAND OHIO.

CONTRACT BID PRICES SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

STREAM POLLUTION

THE CONTRACTOR SHALL MAKE PROVISIONS DURING THE BRIDGE REPAIR OPERATION NOT TO ALLOW ANY MATERIALS, EQUIPMENT, ETC., TO FALL INTO OR ENTER THE WATER. MATERIALS MAY BE ALLOWED TO FALL ONTO THE STREAM BANK IF ALL OF THESE MATERIALS ARE REMOVED THE SAME DAY.

THE EXISTING DECK MAY BE USED AS ROCK CHANNEL PROTECTION. ALL EXPOSED REINFORCING STEEL MUST BE REMOVED.

ALL WASTE MATERIAL FROM THE STRUCTURE OR APPROACHES SHALL BE DISPOSED OF BY THE CONTRACTOR, BUT IN NO CASE SHALL THE CONTRACTOR OR HIS AGENT USE THE MATERIALS AS FILL AT ANY LOCATION ALONG THE STREAM. THE COST TO COMPLY WITH ALL OF THE ABOVE SHALL BE INCLUDED IN THE RESPECTIVE BID ITEMS.

ITEM 202 PORTIONS OF STRUCTURE REMOVED, SUPERSTRUCTURE, AS PER PLAN

THIS ITEM SHALL CONSIST OF REMOVING THE EXISTING CONCRETE DECK AND THE STEEL BEAMS ON STRUCTURE CRA-19-2063. CARE SHALL BE TAKEN NOT TO DAMAGE THE STEEL BEAMS DURING THE REMOVAL OF THE CONCRETE DECK. A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE WORK.

THE STEEL BEAMS SHALL BECOME THE PROPERTY OF THE STATE OF OHIO. THE BEAMS SHALL BE CUT APART AT THE PIERS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL STORE THE BEAMS ON THE JOB SITE UNTIL THEY CAN BE PICKED-UP BY STATE FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, SUBSTRUCTURE, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 PORTIONS OF STRUCTURES REMOVED, DECK, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING CONCRETE DECK ON STRUCTURE CRA-19-2154. CARE SHOULD BE TAKEN NOT TO DAMAGE THE STEEL BEAMS DURING REMOVAL OF THE CONCRETE DECK. A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE WORK.

ALL IMPREFECTIONS AND EXISTING TACK WELDS SHALL BE GROUND SMOOTH. EXISTING BOLTS AND PROJECTIONS SHALL BE CUT 1-1/2" AROUND EXISTING WELDS. ANY DAMAGE TO STRUCTURAL STEEL CAUSED BY THE CONTRACTOR SHALL BE CORRECTED BY THE CONTRACTOR AS REQUIRED BY THE DISTRICT CONSTRUCTION ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 202, PORTIONS OF STRUCTURES REMOVED, DECK, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS ITEM SHALL CONSIST OF REMOVING PORTIONS OF THE ABUTMENT AND PIERS AS PER DETAILS ON SHEET NO.14,15,20. THE PARAPET SHALL BE REMOVED BY A HYDRAULIC SPLITTING METHOD. A LINE OF HOLES SHALL BE DRILLED ALONG THE REMOVAL LINE AND A HYDRAULIC SPLITTER USED AS PER THE MANUFACTURER'S RECOMMENDATIONS. THIRTY-FIVE (35) AND FIFTEEN (15) POUND JACK HAMMERS MAY BE USED FOR THE FINAL FINISH WORK. A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE WORK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING, OR DAMAGING OF THE EXISTING REINFORCING STEEL TO BE SALVAGED. IF EXISTING REINFORCING STEEL DESIGNATED FOR SALVAGE IS DAMAGED DURING REMOVAL OPERATIONS, DOWELLED REINFORCING STEEL MUST BE ADDED AT THE CONTRACTOR'S EXPENSE.

PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS, WILL BE MADE AT THE CONTRACT BID PRICE FOR:

| ITEM | UNIT | DESCRIPTION |
|------|---------|--|
| 202 | CU. YD. | PORTIONS OF STRUCTURE REMOVED, ABUTMENT, AS PER PLAN |
| 202 | CU. YD. | PORTIONS OF STRUCTURE REMOVED, PIER, AS PER PLAN |

ITEM 518 POROUS BACKFILL, AS PER PLAN

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER FABRIC AS PER DETAILS ON SHEET NO.15,20.

THE FILTER FABRIC SHALL BE TYPE B AS PER SUPPLEMENTAL SPECIFICATION 939. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD, DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518, POROUS BACKFILL, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 601 ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER, AS PER PLAN

THE FILTER UNDER THE ROCK CHANNEL PROTECTION SHALL BE LIMITED TO THE FILTER FABRIC OPTION ONLY. THE FILTER FABRIC SHALL BE TYPE B DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD, DIRT, DUST, AND OTHER DEBRIS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 601 ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 511 CLASS C CONCRETE, ABUTMENT, AS PER PLAN

PORTIONS OF THE BACKWALL AND ABUTMENT SEATS SHALL BE REPLACED AS PER DETAILS ON SHEET NO.15,20. ALL LOOSE AND DISINTEGRATED CONCRETE AND CALCIUM CARBONATE DEPOSITS SHALL BE REMOVED WITH HAND TOOLS AND NOMINAL 15 POUND CHIPPING HAMMERS. BEFORE PLACING THE CONCRETE THE SURFACE OF THE EXISTING ABUTMENT AGAINST WHICH THE CONCRETE SHALL BE PLACED AND EXISTING REINFORCING STEEL SHALL BE THOROUGHLY CLEANED BY SANDBLASTING. THE EXISTING CONCRETE SURFACE AGAINST WHICH CONCRETE SHALL BE POURED SHALL BE KEPT WET FOR AT LEAST ONE (1) HOUR BEFORE PLACING CONCRETE, AND BE APPROACHING DRYNESS AT THE TIME OF THE PLACING OF THE CONCRETE TO FACILITATE THE BOND.

ALL OTHER PROVISIONS OF ITEM 511 SHALL REMAIN IN EFFECT.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT UNIT PRICE BID PER CUBIC YARD FOR ITEM 511, CLASS C CONCRETE, ABUTMENT, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES

THE CONCRETE DECK EDGE SHALL BE SEALED USING AN EPOXY SEALER. THE DETAILS ON SHEET NO. 20, FOR AREAS TO BE SEALED. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ITEM SPECIAL SUPPORTING STRUCTURE

AFTER THE REMOVAL OF THE EXISTING DECK AND BEFORE THE PLACING OF THE NEW DECK THE SUPERSTRUCTURE AT THE ABUTMENTS OF CRA-19-2154 WILL BE SUPPORTED AS INDICATED IN PLANS.

DETAILED PLANS OF THE SUPPORTING PROCEDURES SHALL BE PREPARED BY A REGISTERED ENGINEER AND SHALL BEAR HIS SIGNATURE AND NUMBER OR PROFESSIONAL ENGINEERING SEAL.

THE CONTRACTOR SHALL SUBMIT THREE (3) COPIES OF THE PLANS AND TWO (2) COPIES OF DESIGN CALCULATIONS TO THE DIRECTOR FIFTEEN (15) DAYS PRIOR TO SUPPORTING OPERATIONS AND RECEIVE APPROVAL BEFORE STARTING SUPPORTING OPERATIONS.

ATTACHMENTS MADE BY WELDING TO ANY MAIN STRUCTURAL MEMBER SHALL BE APPROVED BY THE DIRECTOR BEFORE SUCH ATTACHEMENTS ARE MADE. DETAILS OF THE ATTACHEMENTS SHALL BE SUBMITTED FOR APPROVAL AS PART OF THE SUPPORTING PROCEDURE PLANS, OR INDEPENDENTLY BY A SIMILAR SUBMISSION.

APPROVAL OF THE ABOVE PLANS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR THE BEHAVIOR OF THE SUPPORTING PROCEDURES PROPOSED.

PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM SPECIAL SUPPORTING SUPERSTRUCTURE, AND SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS TO COMPLETE THE ABOVE WORK.

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SURFACE PREPARATION

ALL SURFACES TO BE PAINTED SHALL BE WASHED WITH WATER HAVING A NOZZLE PRESSURE OF AT LEAST 1,000 PSI AND A DELIVERY RATE OF NOT LESS THAN 4 GALLONS PER MINUTE. THE CONTRACTOR SHALL PROVIDE EQUIPMENT SPECIFICATIONS TO VERIFY THE ABOVE. THE EQUIPMENT SHALL ALSO BE EQUIPPED WITH GAGES TO VERIFY THE PRESSURE. THE WATER SHALL CONTAIN A DETERGENT AT THE RATE SPECIFIED BY THE MANUFACTURER, TO REMOVE OIL, GREASE, SALT AND DIRT TO THE ENGINEER'S SATISFACTION. BEFORE THE SURFACES DRY, TWO RINSES WITH NO DRY BETWEEN, SHALL BE USED TO REMOVE ALL REMAINING DETERGENT. THE NOZZLE SHALL BE HELD A MAXIMUM OF TWELVE (12) INCHES FROM THE SURFACE BEING WASHED OR RINSED. THE FINISH COAT SHALL BE APPLIED WITHIN ONE (1) MONTH OF WASHING THE STRUCTURE.

ALL DIRT, SAND, AND DEBRIS SHALL BE COMPLETELY REMOVED FROM THE STRUCTURE SCUPPERS, BULB ANGLES AND ALL OTHER SECTIONS OF THE BRIDGE AS DIRECTED BY THE ENGINEER. ALL DIRT, SAND AND DEBRIS FROM THE ABOVE AREAS SHALL BE REMOVED FROM THE BRIDGE.

TO AVOID A TRAFFIC HAZARD THE CONTRACTOR SHALL REMOVE ALL SAND FROM THE ROADWAY AND SHOULDER AREAS EACH DAY. THE SAND SHALL BE DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY. WHEN DISPOSING OF THE SAND, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OR FEDERAL, STATE OR LOCAL AGENCIES.

ALL STEEL TO BE PAINTED SHALL BE BLAST CLEANED TO GRADE SA 2 1/2 ACCORDING TO ASTM D2200 OR SSPC-SP10 (SSPC VIS 1). THE AVERAGE SURFACE PROFILE SHALL BE THREE (3) MILS. THE AVERAGE SURFACE PROFILE SHALL BE CONSIDERED THE AVERAGE OF THREE (3) SEPARATE READINGS IN 2000 SQ. FT. BLASTING SHALL NOT PROCEED WHEN THE STEEL TEMPERATURE IS WITHIN FIVE (5) DEGREES OF THE DEW POINT TO PREVENT RUST BACK. ALL FINS, TEARS, SLIVERS, AND BURRED OR SHARP EDGES THAT ARE PRESENT ON ANY STEEL MEMBER AFTER BLASTING SHALL BE REMOVED BY GRINDING AND THE AREA REBLASTED.

THE FOLLOWING TESTS SHALL BE DONE TO INSURE THAT THE AIR AND ABRASIVES ARE NOT CONTAMINATED. OPEN THE AIR VALVE FOR THIRTY (30) SECONDS AND TEST THE AIR CLEANLINESS WITH A WHITE BLOTTER. ANY OIL OR CONTAMINANTS ON THE BLOTTER REQUIRES CORRECTIVE ACTION. THIS TEST SHALL BE DONE AT THE START OF THE SHIFT AND AT FOUR (4) HOUR INTERVALS. WHEN USING BLACK ABRASIVES, PLACE A QUANTITY OF ABRASIVE IN A CONTAINER OF CLEAN FRESH WATER WITH A PH OF SEVEN (7). TEST THE SOLUTION WITH STANDARD LITHUS PAPER. STOP SANDBLASTING IF AN OIL FILM OR A PH OTHER THAN SEVEN (7) IS RECORDED. CONDUCT THE TEST ON EACH BATCH OR LOAD DELIVERED.

BEFORE ANY SANDBLASTING IS DONE THE CONTRACTOR WILL PREPARE A TEST SECTION. ON THE FIRST BRIDGE TO BE PAINTED THE TEST SECTION WILL BE A REPRESENTATIVE AREA TO BE SANDBLASTED. THE PROJECT ENGINEER AND THE CONTRACTOR WILL PHOTOGRAPH THE TEST SECTION AREA AFTER THEY AGREE THAT THE AREA HAS BEEN SANDBLASTED ACCORDING TO PLAN REQUIREMENTS. ONLY AFTER A TEST SECTION AREA HAS BEEN APPROVED AND DOCUMENTED BY PHOTOGRAPHS MAY THE CONTRACTOR PROCEED WITH HIS SANDBLASTING OPERATION. THE PHOTOGRAPHS SHALL BE USED IN ADDITION TO PLAN SPECIFICATIONS TO DETERMINE ACCEPTANCE OF SANDBLASTING PROCEDURES.

CAMERA

THE CONTRACTOR SHALL PROVIDE ONE (1) CAMERA IN WORKING ORDER AT ALL TIMES AND AT LEAST 10 ROLLS OF COLOR FILM AS NEEDED FOR USE BY THE PROJECT INSPECTOR FOR THE DURATION OF THE PROJECT. THE CAMERAS SHALL BE: POLAROID SLR 680 SE

PAYMENT FOR ALL OF THE ABOVE WILL BE MADE AT THE CONTRACT BID PRICE FOR:

| ITEM | UNIT | DESCRIPTION |
|---------|----------|----------------------------|
| SPECIAL | LUMP SUM | SURFACE PREPARATION |
| SPECIAL | LUMP SUM | TEST SECTION, SANDBLASTING |

BRIDGE PAINTING, COMPLETE SYSTEM

THIS ITEM SHALL CONSIST OF FURNISHING ALL PAINT AND INCIDENTAL MATERIAL, AND APPLYING THE PAINT AS SPECIFIED.

ALL STRUCTURAL STEEL, SCUPPERS, BULB ANGLES, STEEL RAILING AND OTHER AREAS AS INDICATED IN THE PLANS SHALL BE PAINTED.

ONE OF THE FOLLOWING MANUFACTURERS AND PAINT SYSTEMS MAY BE USED ON THIS PROJECT. ALL MIL THICKNESSES ARE DRY.

SYSTEM I

MANUFACTURER: KOPPERS COMPANY, INC.
ORGANIC MATERIALS GROUP
ELMHURST, ILLINOIS 60126
TELEPHONE: (312)-530-6300

MATERIAL:
PRIME COAT: KOPPERS ORGANIC ZINC 3.0 MILS
INTERMEDIATE COAT: KOPPERS 200 HB EPOXY 5.0 MILS
COLOR: DIFFERENT THAN PRIME AND FINISH COAT
FINISH COAT: KOPPERS 1122BRS LINEAR POLYURETHANE 2.0 MILS
COLOR: LIGHT GREY 306

THE FOLLOWING DATA SHALL BE STENCILED IN A CONTRASTING COLOR ON THE BRIDGE AS DIRECTED BY THE ENGINEER:

KOPPERS
OZ/HBEP/U
3/5/2 MILS
MONTH/YEAR

SYSTEM II

MANUFACTURER: AMERON
PROTECTIVE COATING DIVISION
P.O. BOX 349
AKRON, OHIO 44809
TELEPHONE: (216)-896-3602

MATERIAL:
PRIME COAT: AMERCOAT 68A ZINC RICH EPOXY PRIMER 3.0 MILS
INTERMEDIATE COAT: AMERCOAT 383HS POLYAMIDE EPOXY 5.0 MILS
COLOR: DIFFERENT THAN PRIME AND FINISH COAT
FINISH COAT: AMERCOAT 450GL ALIPHATIC POLYURETHANE 2.0 MILS
COLOR: BR-3 BUFF BROWN

THE FOLLOWING DATA SHALL BE STENCILED IN A CONTRASTING COLOR ON THE BRIDGE AS DIRECTED BY THE ENGINEER:

AMERON
OZ/HBEP/U
3/5/2 MILS
MONTH/YEAR

SYSTEM III

MANUFACTURER: MOBIL CHEMICAL COMPANY
MAINTENANCE, TRANSPORTATION, AND STEEL CONTAINER
COATINGS DEPARTMENT
901 NORTH GREENWOOD AVENUE
KANKAKEE, ILLINOIS 60901
TELEPHONE: (815)-933-5561

MATERIAL

| | | |
|--------------------|--------------------------------------|--------------------|
| PRIME COAT: | MOBILZINC 4 EPOXY ZINC RICH | 3.0 MILS |
| INTERMEDIATE COAT: | VAL-CHEM HI-BUILD EPOXY 89 SERIES | 5.0 MILS |
| COLOR: | DIFFERENT THAN PRIME AND FINISH COAT | |
| FINISH COAT: | MOBILTHANE ENAMEL | 40 SERIES 2.0 MILS |
| COLOR: | G-3 BRILLIANT GREEN | |

THE FOLLOWING DATA SHALL BE STENCILED IN A CONTRASTING COLOR ON THE BRIDGE AS DIRECTED BY THE ENGINEER:

MOBIL
OZ/HBEP/U
3/5/2 MILS
MONTH/YEAR

MANUFACTURER

SUFFICIENT IDENTIFIABLE CHARACTERISTICS OTHER THAN TRADE OR BRAND NAME OR DESIGNATED NUMBER OR SYMBOL SHALL BE PROVIDED TO PERMIT LABORATORY TEST VERIFICATION OF COATING IDENTITY. THESE CHARACTERISTICS SHALL INCLUDE FORMULATION INFORMATION READILY DERIVABLE IN A LABORATORY, INCLUDING THE GENERAL NATURE OF THE VEHICLE, PIGMENT AND VOLATILE PORTIONS, THE WEIGHT PER GALLON, THE PERCENT SOLIDS BY VOLUME, THE ZINC CONTENT AND OTHER PROCEDURES USED FOR QUALITY CONTROL DURING MANUFACTURE OF THE COATING.

MATERIALS HANDLING AND USE

ALL PAINT AND THINNER SHALL BE DELIVERED TO THE SHOP OR JOB SITE IN ORIGINAL, UNOPENED CONTAINERS WITH LABELS INTACT. MINOR DAMAGE TO CONTAINERS IS ACCEPTABLE PROVIDED THE CONTAINER HAS NOT BEEN PUNCTURED OR THE LID SEAL BROKEN.

EACH CONTAINER OF PAINT AND THINNER SHALL BE CLEARLY MARKED OR LABELLED TO SHOW PAINT IDENTIFICATION, DATE OF MANUFACTURE, BATCH NUMBER, ANALYSIS OF CONTENTS, IDENTIFICATION OF ALL TOXIC SUBSTANCES AND SPECIAL INSTRUCTIONS.

ALL CONTAINERS OF PAINT AND THINNER SHALL REMAIN UNOPENED UNTIL REQUIRED FOR USE. THOSE CONTAINERS WHICH HAVE BEEN PREVIOUSLY OPENED SHALL BE USED FIRST. THE LABEL INFORMATION SHALL BE LEGIBLE AND SHALL BE CHECKED AT THE TIME OF USE.

PAINT WHICH HAS LIVERED, GELLED OR OTHERWISE DETERIORATED DURING STORAGE SHALL NOT BE USED. HOWEVER, THIXOTROPIC MATERIALS WHICH CAN BE STIRRED TO ATTAIN NORMAL CONSISTENCY MAY BE USED.

THE OLDEST PAINT OF EACH KIND SHALL BE USED FIRST. IN EVERY CASE, PAINT IS TO BE USED BEFORE ITS SHELF LIFE HAS EXPIRED. IN ORDER TO USE PAINTS WHICH HAVE EXCEEDED THEIR SHELF LIFE OR HAVE NO STATED SHELF LIFE AND ARE MORE THAN ONE YEAR OLD, THE SPECIFIER OR MANUFACTURER MUST CERTIFY THAT THE PAINT IS STILL SUITABLE FOR USE.

GENERAL NOTES

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MIXING AND THINNING

ALL INGREDIENTS IN ANY CONTAINER OF PAINT SHALL BE THOROUGHLY MIXED BEFORE USE AND SHALL BE AGITATED OFTEN ENOUGH DURING APPLICATION TO KEEP THE PAINT UNIFORM. THE PAINT SHALL BE MIXED IN A MANNER WHICH WILL INSURE THE BREAK-UP OF ALL LUMPS, COMPLETE DISPERSION OF PIGMENT AND A UNIFORM COMPOSITION. PAINT SHALL BE CAREFULLY EXAMINED AFTER MIXING FOR UNIFORMITY AND TO VERIFY THAT NO UNMIXED PIGMENT REMAINS ON THE BOTTOM OF THE CONTAINER. THE PAINT SHALL BE MIXED WITH A HIGH SHEAR MIXER (SUCH AS JIFFY MIXER). PADDLE MIXERS OR PAINT SHAKERS ARE NOT ALLOWED.

ALL PIGMENTED PAINT SHALL BE STRAINED AFTER MIXING EXCEPT WHERE APPLICATION EQUIPMENT IS PROVIDED WITH STRAINERS. STRAINERS SHALL BE OF A TYPE TO REMOVE ONLY SKINS AND UNDESIRABLE MATTER BUT NOT TO REMOVE THE PIGMENT.

WHERE A SKIN HAS FORMED IN THE CONTAINER, THE SKIN SHALL BE CUT LOOSE FROM THE SIDES OF THE CONTAINER, REMOVED AND DISCARDED. IF THE VOLUME OF SUCH SKINS ARE MORE THAN 2% OF THE REMAINING PAINT, THE PAINT SHALL NOT BE USED.

MIXING IN OPEN CONTAINERS SHALL BE DONE IN A WELL VENTILATED AREA AWAY FROM SPARKS OR FLAMES.

PAINT SHALL NOT BE MIXED OR KEPT IN SUSPENSION BY MEANS OF AN AIR STREAM BUBBLING UNDER THE PAINT SURFACE.

PAINT WHICH DOES NOT HAVE A LIMITED POT LIFE (TIME INTERVAL) OR DOES NOT DETERIORATE ON STANDING MAY BE MIXED AT ANY TIME BEFORE USING, BUT IF SETTLING HAS OCCURRED IT MUST BE REMIXED IMMEDIATELY BEFORE USE.

PAINT SHALL NOT REMAIN IN SPRAY POTS, PAINTERS BUCKETS, ETC. OVERNIGHT, BUT SHALL BE STORED IN A COVERED CONTAINER AND REMIXED BEFORE USE.

NO THINNER SHALL BE ADDED TO THE PAINT WITHOUT THE ENGINEER'S APPROVAL, AND ONLY IF NECESSARY FOR PROPER SPRAY APPLICATION AS RECOMMENDED BY THE MANUFACTURER. PAINTS TO BE APPLIED BY BRUSH WILL USUALLY REQUIRE NO THINNING. WHEN THE USE OF THINNER IS PERMISSIBLE, THINNER SHALL BE ADDED SLOWLY TO PAINT DURING THE MIXING PROCESS. THE TYPE OF THINNER SHALL COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS. ALL THINNING SHALL BE DONE UNDER SUPERVISION OF THE ENGINEER. IN NO CASE SHALL MORE THINNER BE ADDED THAN THAT RECOMMENDED BY THE MANUFACTURER'S INSTRUCTIONS. ONLY THINNERS SUPPLIED BY THE PAINT MANUFACTURER MAY BE ADDED TO THE PAINT.

APPLICATION

BEFORE ANY PAINTING IS DONE, THE CONTRACTOR SHALL PREPARE A TEST SECTION. THERE WILL BE ONE TEST SECTION FOR EACH PAINT SYSTEM AND THE TEST SECTION WILL INCLUDE EACH DIFFERENT COAT OF PAINT TO BE APPLIED. EACH COAT OF PAINT MUST BE APPROVED BY THE PROJECT ENGINEER AND THE CONTRACTOR FOR METHOD OF APPLICATION, QUALITY OF APPLICATION, AND DRY MIL THICKNESS IN ACCORDANCE WITH THE PLAN REQUIREMENTS. AFTER A TEST SECTION FOR EACH COAT HAS BEEN APPROVED, THAT COAT MAY BE APPLIED TO THE BRIDGE BEFORE THE NEXT COAT MAY BE APPROVED.

IF THE SURFACE IS DEGRADED OR CONTAMINATED SUBSEQUENT TO SURFACE PREPARATION AND PRIOR TO PAINTING, THE SURFACE SHALL BE RESTORED BEFORE PAINT APPLICATION. ALL SURFACE CLEANING SHALL BE APPROVED BY THE ENGINEER PRIOR TO PAINTING. IN ORDER TO PREVENT THE DEGRADATION OR CONTAMINATION OF CLEANED SURFACES, THE PRIME COAT OF PAINT SHALL BE APPLIED THE SAME DAY THE SURFACE HAS BEEN CLEANED. SUCCEEDING COATS SHALL BE APPLIED BEFORE CONTAMINATION OF THE UNDER SURFACE OCCURS.

CLEANING AND PAINTING SHALL BE SO PROGRAMMED THAT DETRIMENTAL AMOUNTS OF DUST OR OTHER CONTAMINANTS DO NOT FALL ON WET, NEWLY-PAINTED SURFACES. SURFACES NOT INTENDED TO BE PAINTED SHALL BE SUITABLY PROTECTED FROM THE EFFECTS OF CLEANING AND PAINTING OPERATIONS. OVERSPRAY OF THE ZINC RICH PRIMER WILL RESULT IN IMPROPER ADHESION OF THE TOPCOAT. OVERSPRAY SHALL BE REMOVED WITH A STIFF BRISTLE BRUSH OR WIRE SCREEN.

TEMPERATURE

PAINT SHALL NOT BE APPLIED WHEN THE TEMPERATURE OF THE STEEL, OR PAINT IS BELOW 45 DEGREES F (7 DEGREES C) OR WHEN THE AIR TEMPERATURE IS BELOW 45 DEGREES F (7 DEGREES C). PAINT SHALL NOT BE APPLIED WHEN THE SURFACE TEMPERATURE IS EXPECTED TO DROP TO 45 DEGREES F (7 DEGREES C) BEFORE THE PAINT HAS DRIED. PAINT SHALL NOT BE APPLIED TO STEEL WHICH IS AT A TEMPERATURE THAT WILL CAUSE BLISTERING OR POROSITY OR OTHERWISE WILL BE DETRIMENTAL TO THE LIFE OF THE PAINT. WHEN PAINT IS APPLIED IN HOT WEATHER, OR THINNED IN COLD WEATHER, PRECAUTIONS MUST BE TAKEN TO INSURE THAT THE SPECIFIED THICKNESS OF PAINT IS OBTAINED.

MOISTURE

PAINT SHALL NOT BE APPLIED IN RAIN, WIND, SNOW, FOG OR MIST, OR WHEN THE STEEL SURFACE TEMPERATURE IS LESS THAN 5 DEGREES F (3 DEGREES C) ABOVE THE DEW POINT. PAINT SHALL NOT BE APPLIED TO WET OR DAMP SURFACES UNLESS THE PAINT IS OF THE WATER-THINNED TYPE. PAINT SHALL NOT BE APPLIED ON FROSTED OR ICE-COATED SURFACES. PAINT SHALL NOT BE APPLIED WHEN THE RELATIVE HUMIDITY IS GREATER THAN 85%.

DAMAGE

DAMAGED AREAS OF PAINT WHICH ARE DETRIMENTAL TO THE SERVICE LIFE SHALL BE REMOVED, THE SURFACE SHALL AGAIN BE PREPARED TO THE ORIGINAL SPECIFICATIONS AND REPAINTED WITH THE SAME NUMBER OF COATS OF PAINT OF THE SAME KIND AS THE UNDAIMAGED AREAS.

CONTINUITY

TO THE MAXIMUM EXTENT PRACTICAL, EACH COAT OF PAINT SHALL BE APPLIED AS A CONTINUOUS FILM OF UNIFORM THICKNESS FREE OF PORES. ALL THIN SPOTS OR AREAS MISSED IN THE APPLICATION SHALL BE REPAINTED AND PERMITTED TO DRY BEFORE THE NEXT COAT OF PAINT IS APPLIED.

THICKNESS

EACH COAT OF PAINT MUST HAVE THE REQUIRED MIL THICKNESS AS REQUIRED BY THE PLANS. A TOOKEE GAGE WILL BE USED BY THE ENGINEER TO VERIFY THE REQUIRED MIL THICKNESS.

WHEN THE AVERAGE TOTAL DRY FILM THICKNESS OF ANY COAT IS LESS THAN PLAN REQUIREMENTS, THE WORK SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS TO OBTAIN THE DESIRED MIL THICKNESS. THE AVERAGE TOTAL DRY FILM THICKNESS SHALL BE CONSIDERED THE AVERAGE OF THREE (3) SEPARATE READINGS IN 2000 SQ. FT.

RECOATING

EACH COAT OF PAINT SHALL BE IN A PROPER STATE OF CURE OR DRYNESS BEFORE THE APPLICATION OF THE SUCCEEDING COAT. PAINT SHALL BE CONSIDERED DRY FOR RECOATING WHEN AN ADDITIONAL COAT CAN BE APPLIED WITHOUT THE DEVELOPMENT OF ANY DETRIMENTAL FILM IRREGULARITIES, SUCH AS LIFTING, WRINKLING OR LOSS OF ADHESION OF THE UNDERCOAT. THE TIME INTERVAL BETWEEN COATING APPLICATIONS SHALL BE IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN NO CASE MORE THAN FORTY- EIGHT (48) HOURS.

ALTERNATE COATS OF PAINT SHALL BE DIFFERENT COLORS TO PROVIDE ENOUGH CONTRAST TO INDICATE COMPLETE COVERAGE OF THE SURFACE. TINTING PASTES SHALL NOT BE ALLOWED.

THE MAXIMUM PRACTICAL TIME SHALL BE ALLOWED FOR PAINT TO DRY BEFORE RECOATING. SOME PAINTS MAY DRY TOO HARD FOR GOOD ADHESION OF SUBSEQUENT COATS. THESE SHALL BE RECOATED WITHIN THE TIME PERIOD IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. IF NOT RECOATED WITHIN THE SPECIFIED TIME THEN THE PREVIOUSLY APPLIED COATINGS SHALL BE ROUGHENED PRIOR TO RE COATING.

NO DRIER SHALL BE ADDED TO PAINT ON THE JOB UNLESS SPECIFICALLY CALLED FOR IN THE MANUFACTURER'S INSTRUCTIONS.

PAINT SHALL BE PROTECTED FROM RAIN, CONDENSATION, CONTAMINATION, SNOW AND FREEZING UNTIL DRY TO THE FULLEST EXTENT PRACTICAL.

SPRAY APPLICATION (GENERAL)

ALL SPRAY APPLICATION OF PAINT, WHETHER AIR SPRAY, AIRLESS SPRAY, HOT AIR SPRAY OR HOT AIRLESS SPRAY, SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

THE EQUIPMENT USED SHALL BE SUITABLE FOR THE INTENDED PURPOSES, SHALL BE CAPABLE OF PROPERLY ATOMIZING THE PAINT TO BE APPLIED AND SHALL BE EQUIPPED WITH SUITABLE PRESSURE REGULATORS AND GAGES. THE EQUIPMENT SHALL BE MAINTAINED IN PROPER WORKING CONDITION.

PAINT INGREDIENTS SHALL BE KEPT UNIFORMLY MIXED IN THE SPRAY POTS OR CONTAINERS DURING PAINT APPLICATION EITHER BY CONTINUOUS MECHANICAL AGITATION OR BY INTERMITTENT AGITATION AS FREQUENTLY AS NECESSARY.

SPRAY EQUIPMENT SHALL BE KEPT SUFFICIENTLY CLEAN SO THAT DIRT, DRIED PAINT AND OTHER FOREIGN MATERIALS ARE NOT DEPOSITED IN THE PAINT FILM. ANY SOLVENTS LEFT IN THE EQUIPMENT SHALL BE COMPLETELY REMOVED BEFORE USING.

PAINT SHALL BE APPLIED IN A UNIFORM LAYER WITH OVERLAPPING AT THE EDGES OF THE SPRAY PATTERN. DURING APPLICATION, THE GUN SHALL BE HELD PERPENDICULAR TO THE SURFACE AND AT A DISTANCE WHICH WILL ENSURE THAT A WET LAYER OF PAINT IS DEPOSITED ON THE SURFACE. THE TRIGGER OF THE GUN SHOULD BE RELEASED AT THE END OF EACH STROKE. ALL BOLTS AND RIVET HEADS SHALL BE SPRAYED FROM AT LEAST TWO (2) DIRECTIONS.

EACH SPRAY OPERATOR SHALL DEMONSTRATE TO THE ENGINEER HIS ABILITY TO APPLY THE PAINT AS SPECIFIED. ANY OPERATOR WHO DOES NOT DEMONSTRATE THIS ABILITY SHALL NOT SPRAY.

ALL RUNS AND SAGS SHALL BE BRUSHED OUT IMMEDIATELY OR THE COATING SHALL BE REMOVED AND THE SURFACE REPAINTED.

IF MUD CRACKING OCCURS, THE AFFECTED AREA SHALL BE CLEANED TO BARE METAL AND REPAINTED.

CRACKS, CREVICES, BLIND AREAS OF ALL RIVETS, BOLTS AND ALL OTHER INACCESSIBLE AREAS SHALL BE PAINTED BY BRUSH, DAUBERS OR SHEEPSKINS.

PAINT SHALL BE SUITABLE FOR THE PARTICULAR SPRAY APPLICATION METHOD USED.

CAUTION MUST BE EXERCISED SO THAT HOT COATINGS ARE NOT APPLIED TO COLD SURFACES AND CONVERSELY, THAT COLD COATINGS ARE NOT APPLIED TO HOT SURFACES.

ALL CRACKS AND CREVICES SHALL BE FILLED WITH PAINT IF PRACTICAL.

WET PAINT SHALL BE PROTECTED AGAINST DAMAGE FROM DUST OR OTHER DETRIMENTAL FOREIGN MATTER.

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AIRLESS SPRAY APPLICATIONS

AIRLESS OR HIGH PRESSURE SPRAY APPLICATION OF PAINT SHALL BE IN ACCORDANCE WITH THE ABOVE PROVISIONS AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING.

FLUID TIPS SHALL BE OF PROPER ORIFICE SIZE AND FAN ANGLE, AND THE FLUID CONTROL GUN OF PROPER CONSTRUCTION, AS RECOMMENDED BY THE MANUFACTURER OF THE MATERIAL BEING SPRAYED AND THE EQUIPMENT BEING USED. FLUID TIPS SHALL BE OF THE SAFETY TYPE WITH SHIELDS TO PREVENT PENETRATION OF THE SKINS BY THE HIGH PRESSURE STREAM OF PAINT.

THE AIR PRESSURE TO THE PAINT PUMP SHALL BE ADJUSTED SO THAT THE PAINT PRESSURE TO THE GUN IS PROPER FOR OPTIMUM SPRAYING EFFECTIVENESS. THIS PRESSURE SHALL BE SUFFICIENTLY HIGH TO PROPERLY ATOMIZE THE PAINT. PRESSURES CONSIDERABLY HIGHER THAN THOSE NECESSARY TO PROPERLY ATOMIZE THE PAINT SHOULD NOT BE USED. THIS WILL CAUSE DRY SPRAY TO BE APPLIED.

SPRAYING EQUIPMENT SHALL BE KEPT CLEAN AND SHALL UTILIZE PROPER FILTERS IN THE HIGH PRESSURE LINE SO THAT DIRT, DRY PAINT AND OTHER FOREIGN MATERIALS ARE NOT DEPOSITED IN THE PAINT FILM. ANY SOLVENTS LEFT IN THE EQUIPMENT SHALL BE COMPLETELY REMOVED BEFORE APPLYING PAINT.

THE TRIGGER OF THE GUN SHOULD BE PULLED FULLY OPEN AND HELD FULLY OPEN DURING ALL SPRAYING TO INSURE PROPER APPLICATION OF PAINT.

AIRLESS PAINT SPRAY EQUIPMENT SHALL ALWAYS BE PROVIDED WITH AN ELECTRIC GROUND WIRE IN THE HIGH PRESSURE LINE BETWEEN THE GUN AND THE PUMPING EQUIPMENT. FURTHER, THE PUMPING EQUIPMENT SHALL BE SUITABLY GROUNDED TO AVOID THE BUILD-UP OF ANY ELECTROSTATIC CHARGE ON THE GUN. THE MANUFACTURER'S INSTRUCTIONS ARE TO BE FOLLOWED REGARDING THE PROPER USE OF EQUIPMENT.

INSPECTION

ALL WORK AND MATERIALS SUPPLIED UNDER THIS SPECIFICATION SHALL BE SUBJECT TO TIMELY INSPECTION BY THE ENGINEER. THE CONTRACTOR SHALL CORRECT SUCH WORK OR REPLACE SUCH MATERIAL THAT IS FOUND DEFECTIVE UNDER THE SPECIFICATION.

SAMPLES OF PAINTS USED UNDER THIS SPECIFICATION SHALL BE SUPPLIED UPON REQUEST ALONG WITH THE SUPPLIER'S NAME AND IDENTIFICATION FOR THE MATERIALS.

THE CONTRACTOR SHALL LEAVE HIS LADDERS, PLATFORM OR SCAFFOLD IN PLACE FOR A SUFFICIENT LENGTH OF TIME AND IN SUCH A MANNER TO PERMIT THE ENGINEER TO SAFELY EXAMINE THE WORK PERFORMED.

SAFETY REQUIREMENTS AND PRECAUTIONS

THE CONTRACTOR IS REQUIRED TO MEET THE APPLICABLE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION.

THE PAINT MATERIALS SPECIFIED ON THIS PROJECT CAN BE HAZARDOUS TO THE HEALTH OF THE APPLICATOR IF NOT APPLIED AS PER MANUFACTURERS INSTRUCTIONS. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS CONTAINED ON THE MATERIAL SAFETY DATA SHEET, PRODUCT DATA SHEET AND THE LABEL ON THE PAINT CONTAINERS. THESE PRECAUTIONS SHALL INCLUDE THE USE OF RESPIRATORS AND EYE AND SKIN PROTECTION AS SPECIFIED.

THE MATERIAL SAFETY DATA SHEET SHALL BE PROVIDED AT THE PRECONSTRUCTION MEETING FOR ALL PAINTS AND THINNERS USED ON THIS PROJECT. NO WORK SHALL START UNTIL THE MATERIAL SAFETY DATA SHEET HAS BEEN SUBMITTED.

PRIOR INSPECTION OF WORK

PROSPECTIVE BIDDERS ARE REQUIRED TO MAKE AN INSPECTION OF THE BRIDGES IN THE FIELD AND TO REVIEW THE PLANS AND SPECIFICATIONS BEFORE SUBMITTING BIDS. SEE SECTION 102.05 OF THE "CONSTRUCTION AND MATERIALS SPECIFICATIONS", DATED JANUARY 1, 1983.

PROTECTION OF PERSONS AND PROPERTY

THE CONTRACTOR SHALL COLLECT, REMOVE AND DISPOSE OF ALL BUCKETS, RAGS OR OTHER DISCARDED MATERIALS AND HE SHALL LEAVE THE JOB SITE IN A CLEAN CONDITION.

THE CONTRACTOR SHALL PROTECT ALL PORTIONS OF THE STRUCTURE WHICH ARE NOT TO BE PAINTED, AGAINST DAMAGE OR DISFIGUREMENT BY SPLASHES, SPATTERS, AND SMIRCHES OF PAINT.

TO PREVENT DAMAGE TO ADJACENT BUILDINGS, PARKED CARS OR BOATS, OR TO VEHICLES TRAVELING UNDER SPANS WHICH ARE BEING PAINTED, THE CONTRACTOR SHALL INSTALL AND MAINTAIN SUITABLE SHIELDS BETWEEN HIS OPERATIONS AND THE ABOVE. THE SHIELDS SHALL BE OF A TYPE AND CONSTRUCTION, APPROVED BY THE ENGINEER, THAT WILL PREVENT PAINT FROM DROPPING ONTO OR BEING BLOWN INTO PAVEMENT LANES OPEN TO TRAFFIC. THEY SHALL BE SUITABLY ANCHORED AND REINFORCED TO PREVENT INTERFERING WITH NORMAL TRAFFIC OPERATIONS IN THE OPEN LANES. PAYMENT FOR THE SHIELDS SHALL BE INCLUDED AS INCIDENTAL TO THE APPLICABLE FIELD COATING ITEM. WORK SHALL BE SUSPENDED WHEN DAMAGE TO ADJACENT BUILDINGS, PARKED CARS OR BOATS, OR TRAVELING VEHICLES IS OCCURRING.

WHEN OR WHERE ANY DIRECT OR INDIRECT DAMAGE OR INJURY IS DONE TO PUBLIC OR PRIVATE PROPERTY BY OR ON ACCOUNT OF ANY ACT, OMISSION, NEGLIGENCE OR MISCONDUCT IN THE EXECUTION OF THE WORK, HE SHALL RESTORE, AT HIS OWN EXPENSE, SUCH PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE, BY REPAIRING, REBUILDING OR OTHERWISE RESTORING AS MAY BE DIRECTED, OR HE SHALL MAKE GOOD SUCH DAMAGE OR INJURY IN AN ACCEPTABLE MANNER.

POLLUTION CONTROL

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OR FEDERAL, STATE OR LOCAL AGENCIES.

WORK LIMITATIONS

ALL WORK SHALL BE DONE BETWEEN MARCH 15 AND OCTOBER 15.

THE CONTRACTOR SHALL NOT PERFORM WORK ON SATURDAYS, SUNDAYS OR LEGAL HOLIDAYS WITHOUT THE APPROVAL OF THE DIRECTOR.

ALL WORK SHALL BE SUSPENDED BETWEEN THE HOURS OF 5:00 P.M. FRIDAY AND 5:00 A.M. MONDAY. WORK SHALL ALSO BE SUSPENDED AT 5:00 P.M. THE DAY PRECEDING ALL LEGAL HOLIDAYS AND SHALL NOT RESUME UNTIL 7:00 A.M. THE DAY FOLLOWING THE HOLIDAY.

PAYMENT FOR ALL OF THE ABOVE WILL BE MADE AT THE CONTRACT BID PRICE, FOR:

| ITEM | UNIT | DESCRIPTION |
|---------|----------|-------------------|
| SPECIAL | LUMP SUM | TEST SECTION |
| SPECIAL | LUMP SUM | PRIME COAT |
| SPECIAL | LUMP SUM | INTERMEDIATE COAT |
| SPECIAL | LUMP SUM | FINISH COAT |

* Item 606 Guard Rail With Steel Tubular Back-up, As Per Plan. See Sheet No. For Details.

60' f/w both sides

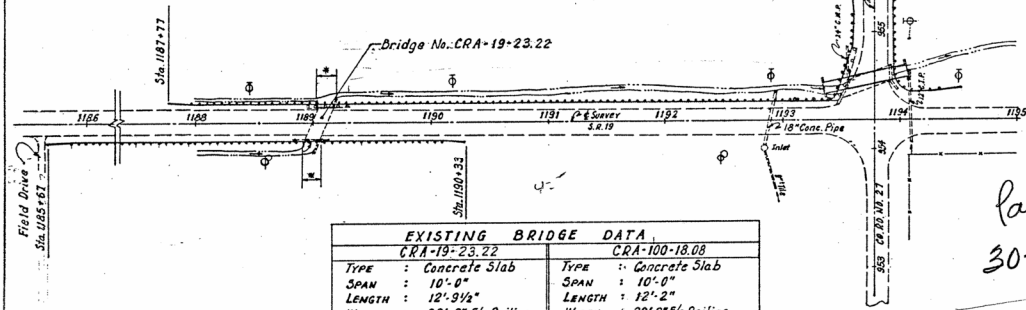
Alfred A Wood
406/931

Oliver & Anthony M Wood
406/929

Parcel
30-00-08020.000

See notes on sheet 11A

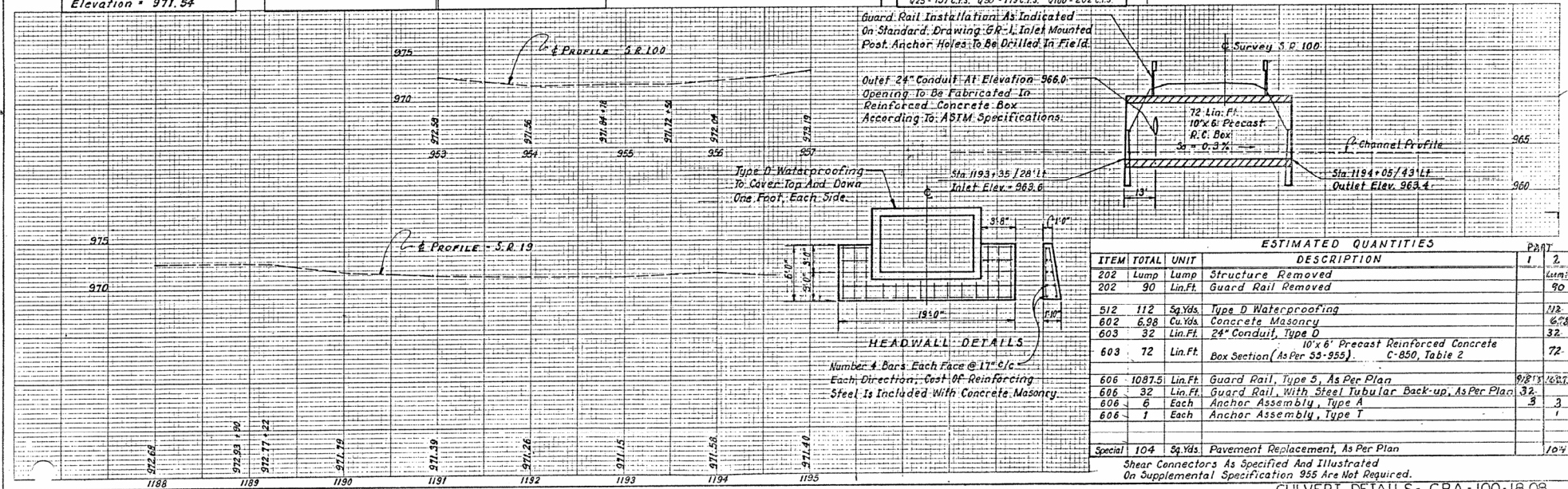
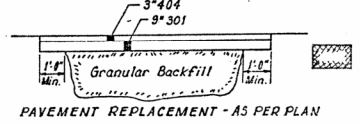
| NO. | DIVISION | STATE | PROJECT | 11 |
|-----|----------|-------|---------|----|
| 2 | OHIO | 224 | | 36 |



| EXISTING BRIDGE DATA | |
|----------------------------------|-------------------------------|
| CRA-19-23.22 | CRA-100-18.08 |
| TYPE : Concrete Slab | TYPE : Concrete Slab |
| SPAN : 10'-0" | SPAN : 10'-0" |
| LENGTH : 12'-3 1/2" | LENGTH : 12'-2" |
| WIDTH : 23'-8" f/w Railing | WIDTH : 28'-2" f/w Railing |
| WEARING SURFACE : Asphalt | WEARING SURFACE : Asphalt |
| LOADING : H-15 | LOADING : H-15 |
| ALIGNMENT : Tangent | ALIGNMENT : Tangent |
| SKREW : 27'-30" L.F. | SKREW : 20'-0" R.F. |
| SUB-STRUCTURE : Conc. Gravity | SUB-STRUCTURE : Conc. Gravity |
| HIGH WATER ELEV. : 973.6' (1979) | |

B.M. N.E. Corner East Headwall
Bridge - CRA-19-23.22
Elevation = 971.54

| PROPOSED STRUCTURE DATA | |
|---|--|
| 10'x6' Precast Reinforced Concrete Box | |
| SKEW : 12° R.F. DESIGN : HW25+968.1 HW100+968.7 | |
| HYDROLOGIC DATA | |
| DRAINAGE AREA : 0.83 Square Miles | |
| Q25+157 cfs. Q50+179 cfs. Q100+202 cfs | |



Guard Rail Installation As Indicated
On Standard Drawing: GR-1, Inlet Mounted
Post Anchor Holes To Be Drilled In Field

Outlet 24" Conduit At Elevation 966.0
Opening To Be Fabricated In
Reinforced Concrete Box
According To ASTM Specifications.

Type D Waterproofing
To Cover Top And Down
One Foot, Each Side.

Sta. 1193+35 / 28' L.F.
Inlet Elev. 968.6

Channel Profile
Sta. 1194+05 / 43' L.F.
Outlet Elev. 963.4

HEADWALL DETAILS

Number 4 Bars, Each Face @ 17" c/c
Each Direction; Cost Of Reinforcing
Steel Is Included With Concrete Masonry.

| | | ESTIMATED QUANTITIES | | PART | |
|---------|--------|----------------------|--|--------|----|
| ITEM | TOTAL | UNIT | DESCRIPTION | 1 | 2 |
| 202 | Lump | Lump | Structure Removed | 1 | 2 |
| 202 | 90 | Lin.Ft. | Guard Rail Removed | | 90 |
| 512 | 112 | Sq.Yds. | Type D Waterproofing | 112 | |
| 602 | 6.98 | Cu.Yds. | Concrete Masonry | 6.98 | |
| 603 | 32 | Lin.Ft. | 24" Conduit, Type D | 32 | |
| 603 | 72 | Lin.Ft. | Box Section (As Per 53-955) | 72 | |
| 606 | 1087.5 | Lin.Ft. | Guard Rail, Type 5, As Per Plan | 1087.5 | |
| 606 | 32 | Lin.Ft. | Guard Rail With Steel Tubular Back-up, As Per Plan | 32 | |
| 606 | 6 | Each | Anchor Assembly, Type A | 6 | |
| 606 | 1 | Each | Anchor Assembly, Type T | 1 | |
| Special | 104 | Sq.Yds. | Pavement Replacement, As Per Plan | 104 | |

Shear Connectors As Specified And Illustrated
On Supplemental Specification 955 Are Not Required.

CULVERT DETAILS - CRA-100-18.08



PLAN NO.
224

PRECAST REINFORCED CONCRETE BOX SECTIONS

DESCRIPTION:

This item shall consist of furnishing and constructing precast reinforced concrete box sections as per Supplemental Specification 955 at the location indicated.

MATERIALS:

Material for the precast reinforced concrete box sections shall be in accordance with Supplemental Specification 955. Granular bedding and backfill material shall meet the requirements of 603.02 and fill material, when specified, shall be in accordance with 203.

INSTALLATION:

The structure shall be installed in accordance with Section 603 of the Construction and Material Specifications, State of Ohio, Department of Transportation, except as modified herein.

Specifications for Type A Conduit in

603.03

Where the box section is to be placed in a trench, a minimum trench width of 2 feet on each side of the box section shall be required. Where the box section is to be placed within an embankment or the box section is above the existing ground, the requirement that the embankment shall be constructed at least to the springline before trenching is waived.

603.04

The bedding shall consist of a bed of granular material having a thickness of at least 6 inches below the bottom of the box section and extending 2 feet on each side of the box section.

603.06

The joints shall be sealed with a flexible plastic material conforming to AASHTO M-198 Type B. The cross section of the joint sealing material shall have a minimum height of twice the annular space of the joint and a minimum width of 150% the height. The concrete joint shall be primed with a primer as recommended by the manufacturer before installation. Box sections shall be forced to a maximum of 1/2" gap between sections. The exterior joint gap on the top of the box shall be filled with Portland Cement mortar.

The upstream end shall be a recessed type joint.

603.08

When the top of the trench is above the top of the box, backfilling shall be in accordance with Type A or Type B conduit. When the top of the box section is above the top of the trench, granular material shall be placed and

compacted to a minimum depth of 2 feet ^{2'} over the top of the box sections (where applicable) and for a width of ^{4'} 4 feet on each side of the box section or as directed by the engineer. The remainder of the adjacent embankment material shall be furnished, placed, and paid for in accordance with 203. Backfill and fill material shall be placed uniformly on both sides of the box section.

Fill material at the sides of the box sections may be compacted by heavy compaction equipment.

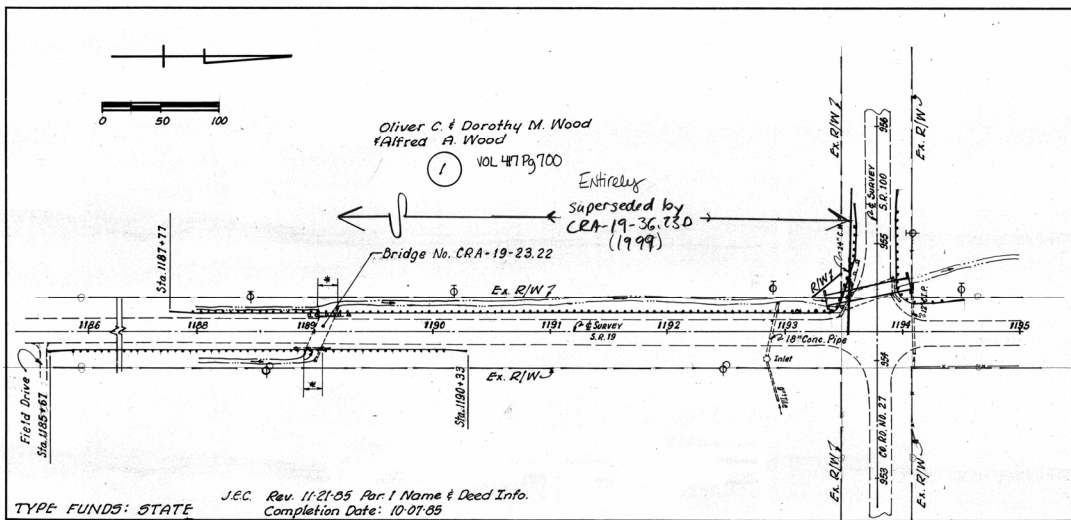
Type D waterproofing shall be provided on the top surface of the box sections and shall extend 1' vertically down each side. The waterproofing shall be provided for the full length of the structure or within the limits which are in contact with the backfill ~~(as specified in the plan)~~. *Paid for under Item 512.*

BASIS FOR PAYMENT:

Payment shall be made at the contract unit price for:

| | | |
|-----|---------------------------|---------------------------------------|
| 603 | Linear Foot Span' x Rise' | Precast Reinforced Concrete |
| | | Box Sections (as per SS 955) |
| | | C-850 Table <u> </u> As Per Plan |

Payment shall be full compensation for all material, labor and equipment necessary to complete the installation.

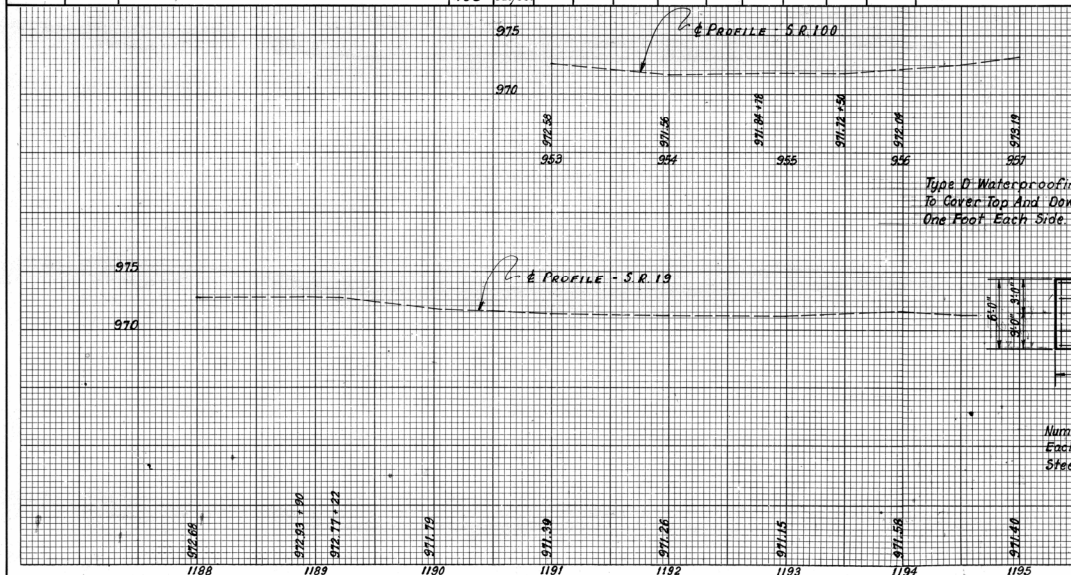


J.E.C. Rev. 11-21-05 For Name & Deed Info.
Completion Date: 10-07-05

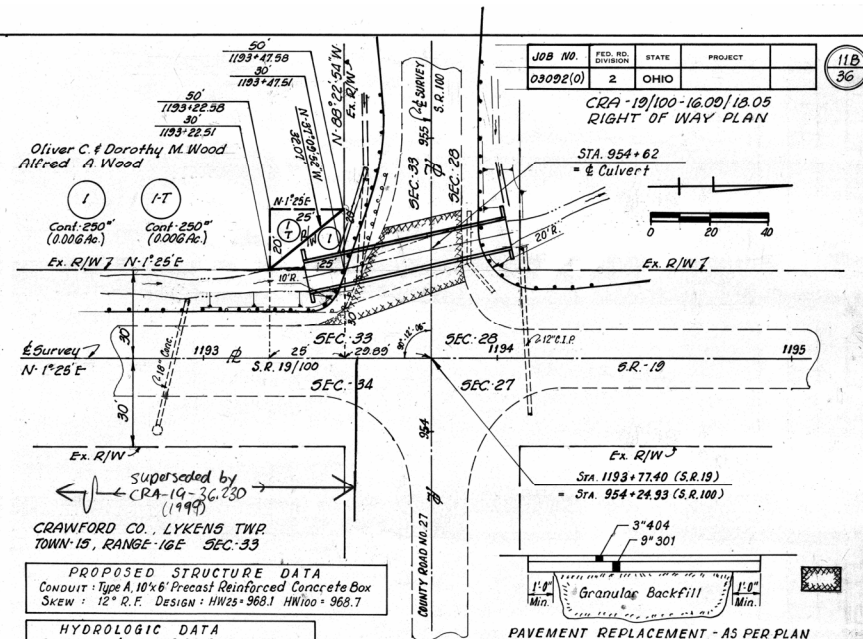
TYPE FUNDS: STATE

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

| NO. OF STRUCTURES | | NO. OF PROPERTY OWNERS | | NO. OF TOTAL TAKES | |
|-------------------|------------|--|------------------------------|--------------------|-----------------|
| 0 | | 1 | | 0 | |
| PARCEL NO. | TYPE FUNDS | PROPERTY OWNERS | RECORDED DEED VOL. PAGE AREA | TOTAL GROSS TAKE | P.R.O. NET TAKE |
| 1 | 5 | Oliver C., Dorothy M. & Alfred A. Wood | 204 434 80Ac. 2.727 | 0.006 | 0 0.006 |
| 1-T | 5 | " | 275 215 0 | 0.006 | 0 0.006 |
| | | | 406 329.931 | | |
| | | | Work room for Culvert Const. | | |



CRA-19/100-16.09/18.05 RIGHT OF WAY PLAN 11B/36



PROPOSED STRUCTURE DATA
CONDUIT: Type A, 10'x6' Precast Reinforced Concrete Box
SKEW: 12° R.F. DESIGN: HW25+968.1 HW100+968.7

HYDROLOGIC DATA
DRAINAGE AREA: 0.83 Square Miles
Q25+157 cfs. Q50+179 cfs. Q100+202 cfs.

Guard Rail Installation As Indicated
On Standard Drawing GR-1, Inlet Mounted
Post Anchor Holes To Be Drilled In Field.

Outlet 24" Conduit At Elevation 965.0
Opening To Be Fabricated In
Reinforced Concrete Box
According To ASTM Specifications.

Sta. 1193+35/28 LT
Inlet Elev. 963.6

Sta. 1194+05/43 LT
Outlet Elev. 963.4

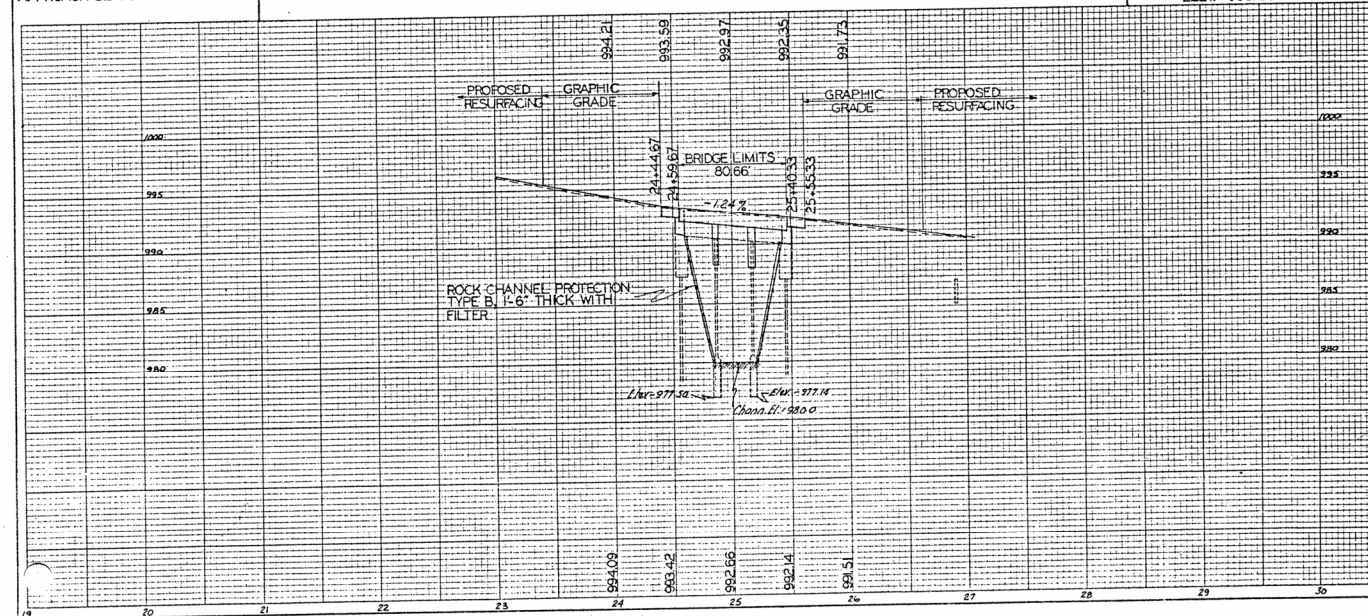
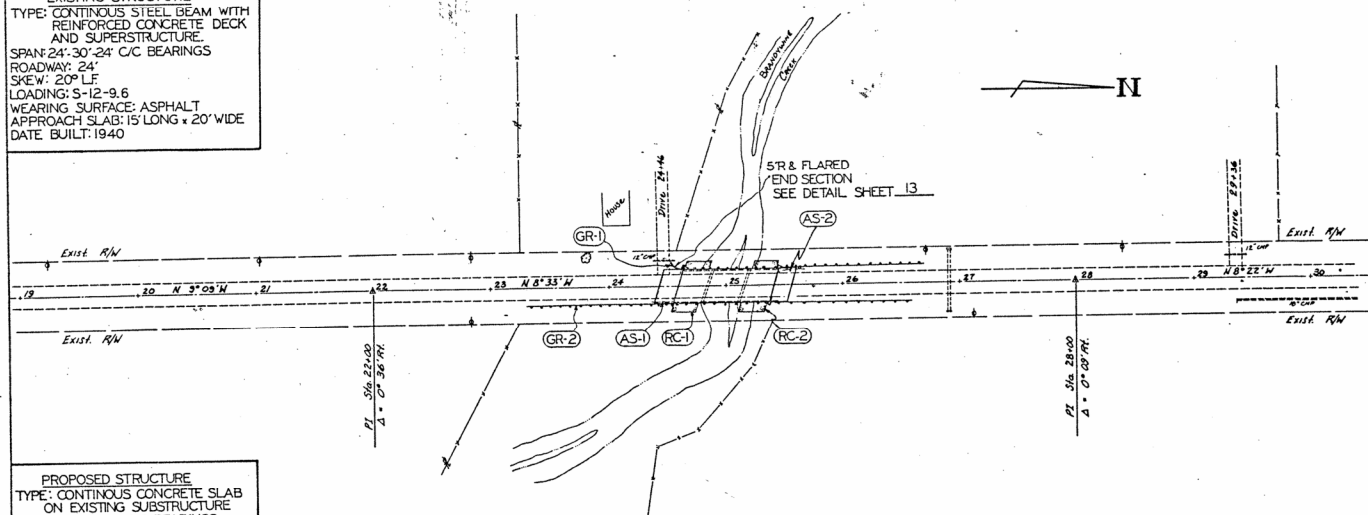
HEADWALL DETAILS
Number 4 Bars Each Face @ 17" c/c
Each Direction. Cost Of Reinforcing
Steel Is Included With Concrete Masonry.

ESTIMATED QUANTITIES

| ITEM | TOTAL | UNIT | DESCRIPTION |
|---------|--------|---------|---|
| 202 | Lump | Lump | Structure Removed |
| 202 | 90 | Lin.Ft. | Guard Rail Removed |
| 512 | 112 | Sq.Yds. | Type D Waterproofing |
| 602 | 6.98 | Cu.Yds. | Concrete Masonry |
| 603 | 32 | Lin.Ft. | 24" Conduit, Type D |
| 603 | 72 | Lin.Ft. | Conduit, Type A, 10'x6' Precast Reinforced Concrete Box Section, As Per S5-955, ASTM C-850, Table 2 * |
| 606 | 1087.5 | Lin.Ft. | Guard Rail, Type S, As Per Plan |
| 606 | 32 | Lin.Ft. | Guard Rail, With Steel Tubular Back-up, As Per Plan |
| 606 | 6 | Each | Anchor Assembly, Type A |
| 606 | 7 | Each | Anchor Assembly, Type T |
| Special | 104 | Sq.Yds. | Pavement Replacement, As Per Plan |

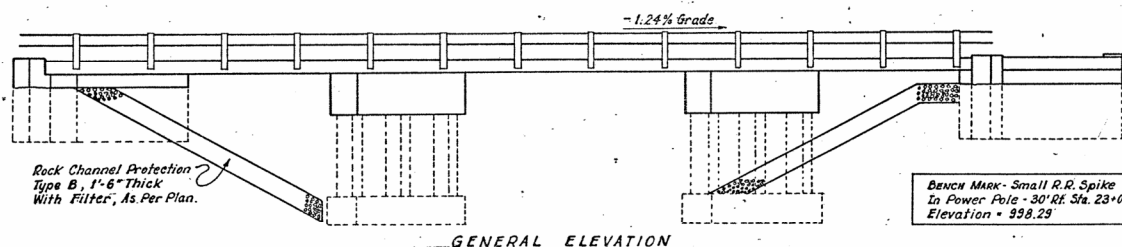
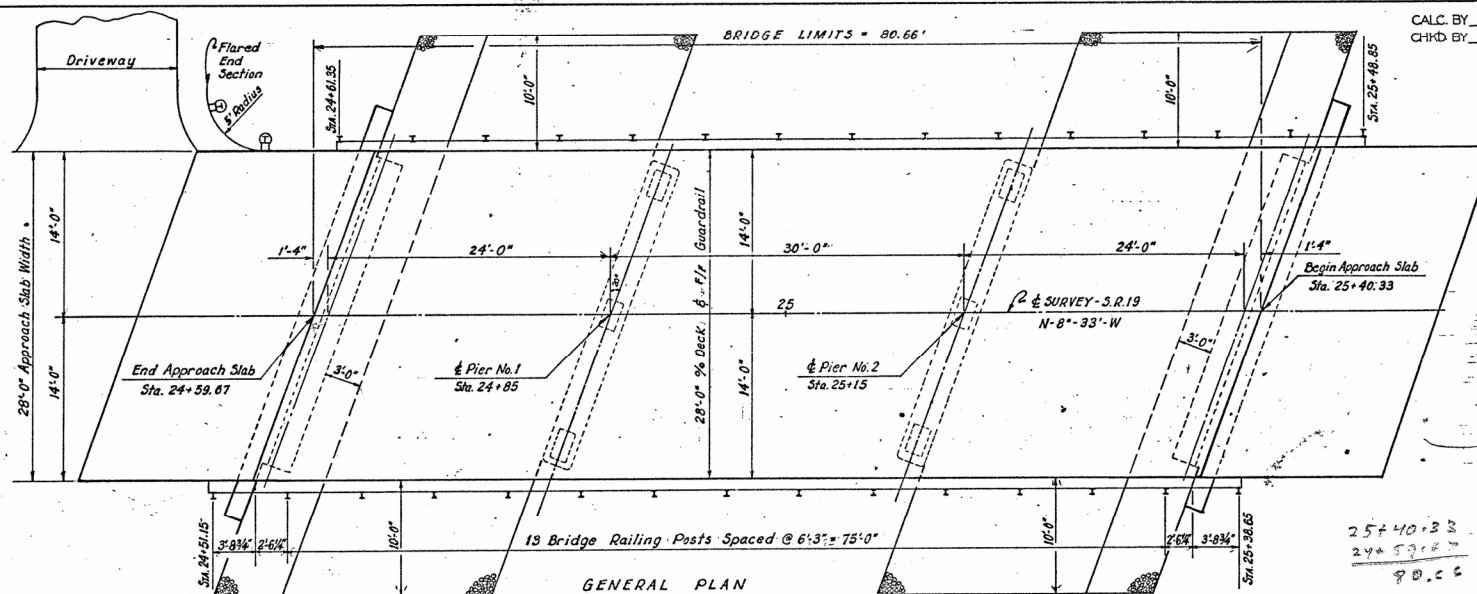
* Shear Connectors As Specified And Illustrated
On Supplemental Specification 955 Are Not Required.

PROPOSED STRUCTURE
TYPE: CONTINUOUS CONCRETE SLAB
ON EXISTING SUBSTRUCTURE
SPAN: 24'-30'-24' C/C BEARINGS
ROADWAY: 28'
SKEW: 20° L.F.
LOADING: HS-20-44 (DECK ONLY)
WEARING SURFACE: CONCRETE
APPROACH SLABS: 15' LONG x 28' WIDE



| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 2 | OHIO | 224 |

[illegible]



| ESTIMATED QUANTITIES | | | | | | | |
|----------------------|-------|----------|--|--------|-------|--------|---------|
| ITEM | TOTAL | UNIT | DESCRIPTION | ABUTS. | PIERS | SUPER. | GENERAL |
| 202 | Lump | | Portions Of Structure Removed, Superstructure, As Per Plan | | | Lump | |
| 202 | 7 | Cu Yds | Portions Of Structure Removed, Abutment, As Per Plan | 7 | | | |
| 202 | 8 | Cu Yds | Portions Of Structure Removed, Pier Cap, As Per Plan | | 8 | | |
| 503 | 11 | Cu Yds | Unclassified Excavation | 11 | | | |
| 509 | 15908 | Lbs. | Reinforcing Steel | | 2232 | 13676 | |
| 510 | 36 | Each | Dowel Holes | 36 | | | |
| 511 | 19 | Cu Yds | Class "C" Concrete, Pier Cap | | 19 | | |
| 511 | 13 | Cu Yds | Class "S" Concrete, Abutment, As Per Plan | 13 | | | |
| 511 | 113 | Cu Yds | Class "S" Concrete, Superstructure, As Per Plan | | | 113 | |
| 517 | 150 | Lin. Ft. | Railing (Deep Beam Rail With Steel Tubular Back-up) Type 2 Posts And Bolts | | | 150 | |
| 518 | 11 | Cu Yds | Porous Backfill, As Per Plan | 11 | | | |
| 824 | 13840 | Lbs. | Epoxy Coated Reinforcing Steel | 2058 | 1377 | 10405 | |
| Special | 57 | Sq. Yds | Sealing Of Concrete Surfaces (Epoxy) | 17 | | 40 | |

CALC. BY *JKG*
CHKD BY *JKG* 11-84

| FED. REGION | STATE | PROJECT | 13 |
|-------------|-------|---------|----|
| 5 | OHIO | 224 | 36 |

Reference Shall Be Made To Standard Drawings:
A3-1-84 - Dated 11-27-81
C3-2(83) - Dated 4-10-73
C38-12-39 - Dated 7-25-39
DBR-2-73 - Dated 4-10-73

And To Supplemental Specifications:
824 - Dated 10-8-82
836 - Dated 3-12-75

DESIGN SPECIFICATIONS - This Structure
Conforms To "Standard Specifications For
Highway Bridges" Adopted By The American
Association Of State Highway And Trans-
portation Officials, 1977, Including The 1978,
1979, 1980, 1981 And 1982 Interm. Specifications
And The Ohio "Supplement" To These Specifications.

DESIGN DATA: Design Loading - H5 20-44 And
The Alternate Military Loading:
Concrete Class "S" - Unit Stress 1500 P.S.I.
Concrete Class "C" - Unit Stress 1333 P.S.I.
Reinforcing Steel - ASTM A615, A616, or A617
Unit Stress 20,000 P.S.I.

DECK PROTECTION METHOD: Epoxy Coated
Reinforcing Steel, Top Mat Only.
2 1/2" Clearance Of Top Reinforcing
From Surface Of Deck.

MONOLITHIC WEARING SURFACE: Is Assumed,
For Design Purposes, To Be 1" Thick.

EXISTING STRUCTURE
Type: Continuous Steel Beam With Reinforced
Concrete Deck And Substructure
SPAN: 24'-30'-24' 9/16" Bearings
ROADWAY: 24'-0"
SKEW: 20° L.F.
LOADING: 5-12-9.6
WEARING SURFACE: Asphalt
APPROACH SLABS: 15' Long x 20' Wide
DATE BUILT: 1940

PROPOSED STRUCTURE
Type: Continuous Concrete Slab On Existing Substructure
SPAN: 24'-30'-24'
ROADWAY: 28'-0"
SKEW: 20° L.F.
LOADING: H5 20-44 (Slab Only)
WEARING SURFACE: Concrete
APPROACH SLABS: 15' Long x 20' Wide

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

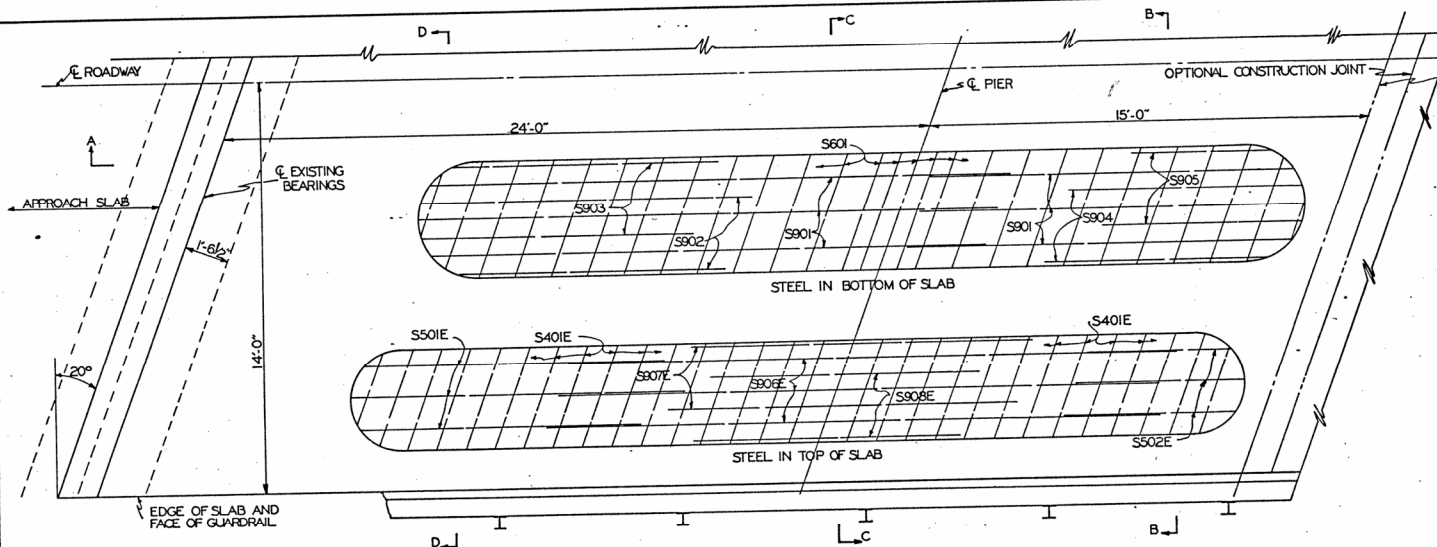
GENERAL PLAN-ELEVATION
AND
ESTIMATED QUANTITIES

CRA-19-2063
OVER BRANDYWINE CREEK

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISOR |
|------------|------------|-------------|------------|----------|------|---------|
| <i>JKG</i> | <i>JKG</i> | <i>W.T.</i> | <i>JKG</i> | | | |

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| FHWA REGION | STATE | PROJECT | 14 |
|-------------|-------|---------|----|
| 5 | OHIO | | 36 |



PART PLAN

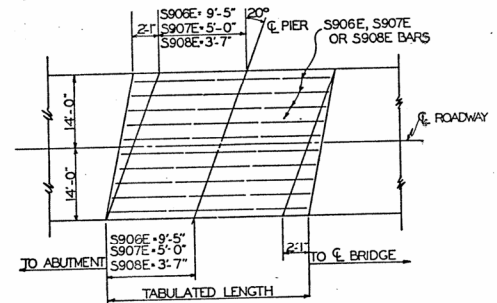
GENERAL NOTES

CONSTRUCTION JOINTS: ONE CONSTRUCTION JOINT IN BRIDGE SLAB MAY BE PLACED ON TRANSVERSE CENTERLINE OF MIDDLE SPAN OR 1'-0" OFF TRANSVERSE CENTERLINE IF NECESSARY TO MISS RAILING POST AND TRANSVERSE REINFORCING STEEL.

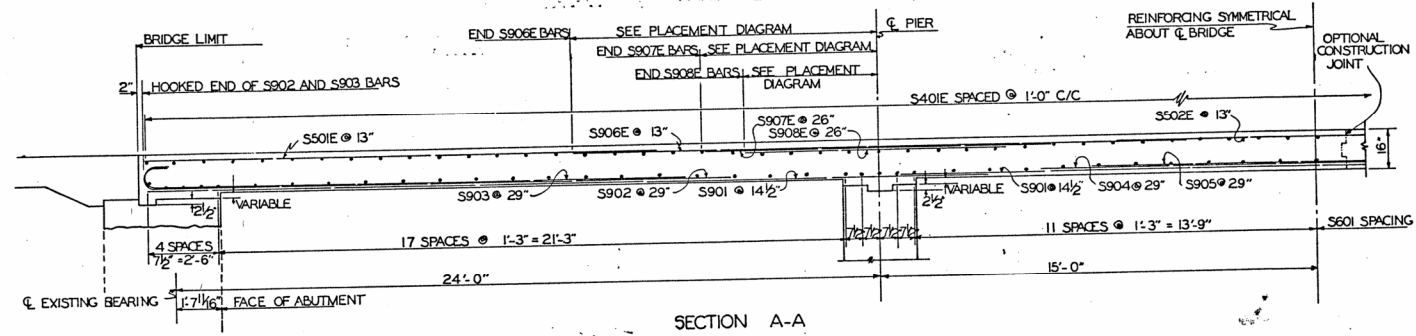
ONE LONGITUDINAL JOINT WILL BE PERMITTED, ON CENTERLINE OF ROADWAY.

REINFORCING STEEL: AT THE OPTION OF THE CONTRACTOR, THE S601 AND S401E BARS MAY BE FURNISHED IN PAIRS OF EQUAL LENGTH, LAPPED THIRTY DIAMETERS AT THE CENTERLINE OF ROADWAY, OR IN PAIRS OF DIFFERENT LENGTHS, IN ORDER TO PLACE THE THIRTY DIAMETER LAP BEYOND A LONGITUDINAL CONSTRUCTION JOINT AT THE CENTER OF ROADWAY. DETERMINATION OF THE PAY QUANTITY WILL BE ACCORDING TO THE NUMBER AND LENGTH OF BARS SHOWN ON THE PROJECT PLANS.

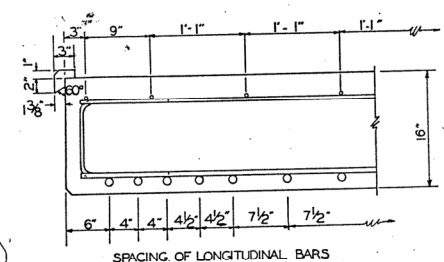
CAMBER OF 1/800 OF THE SPAN SHALL BE PROVIDED IN EACH SPAN (IN ADDITION TO THAT REQUIRED FOR CONFORMANCE WITH THE PROFILE OF THE HIGHWAY) TO ALLOW FOR DEAD LOAD DEFLECTION. THIS IS THE AMOUNT OF CAMBER REQUIRED BEFORE FALSEWORK IS RELEASED. TO OBTAIN THIS, PROPER ALLOWANCE SHALL BE MADE FOR THE DEFLECTION OF FALSEWORK MEMBERS.



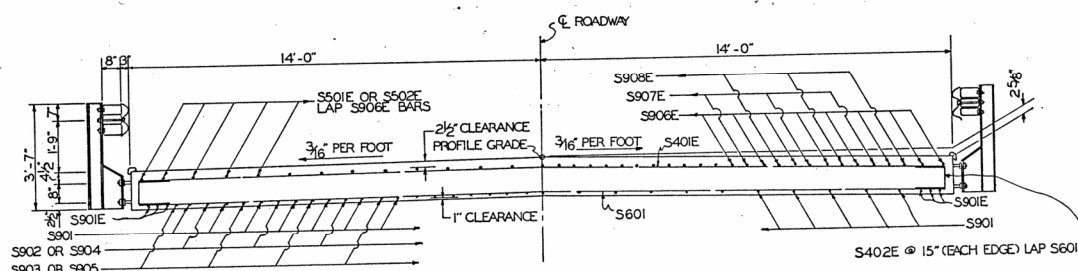
PLACEMENT DIAGRAM FOR S906E, S907E AND S908E BARS OVER PIERS



SECTION A-A



SPACING OF LONGITUDINAL BARS



SECTION B-B AND D-D

SECTION C-C

| | | | | | | | |
|---|-------|--------|---------|----------|------|---------|--|
| STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT THREE | | | | | | | |
| SUPERSTRUCTURE DETAILS | | | | | | | |
| CRA-19-2063 | | | | | | | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED | |
| KW | SS | SD | JA | | | | |

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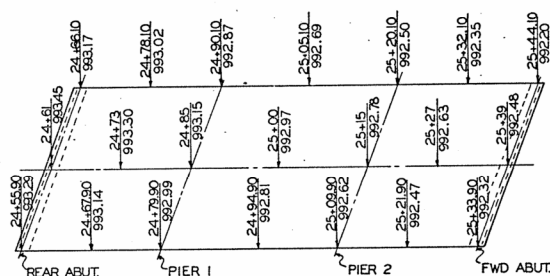
REINFORCING STEEL LIST

CALC. BY: JKG
CHK'D BY: JKG 11-84

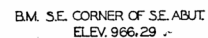
| FEDERAL REGION | STATE | PROJECT |
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| 5 | OHIO | |

17
36

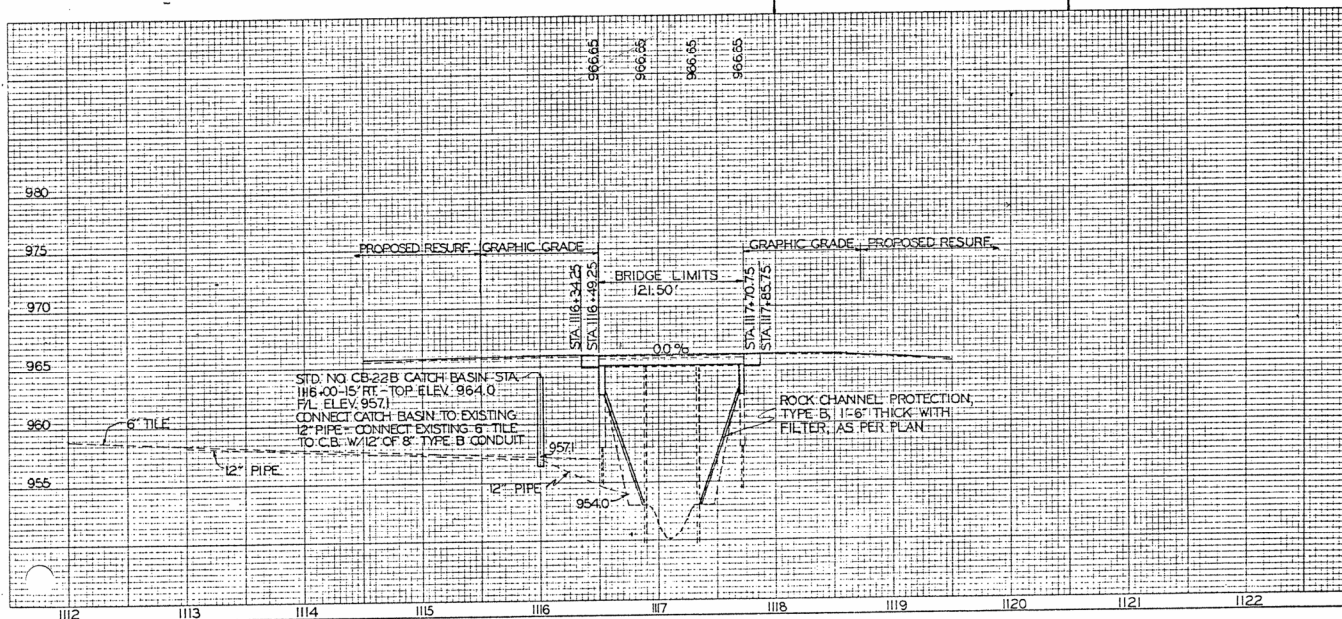
| SUPERSTRUCTURE | | | | | ABUTMENTS | | | | | PIERS | | | | | | | | |
|------------------------------------|-----|---------|-------|--------|--|---------------------------|--------------|--------|--------|-----------------------|------|------------------------------------|--------------------------|--------------|--------------|--------|--------|------|
| 509-REINFORCING STEEL | | | | | 824-EPOXY COATED REINFORCING STEEL | | | | | 509-REINFORCING STEEL | | | | | | | | |
| MARK | NO. | LENGTH | SHAPE | WEIGHT | MARK | NUMBER RB, A, FW, S, A | TOTAL NO. | LENGTH | SHAPE | WEIGHT | MARK | NUMBER PIER 1, PIER 2 | TOTAL NO. | LENGTH | SHAPE | WEIGHT | | |
| S601 | 73 | 29'-3" | S | 3207 | A501E | 18 | 18 | 36 | 6'-2" | B | 232 | P401 | 15 | 15 | 30 | 5'-0" | B | 100 |
| S901 | 63 | 28'-8" | S | 6140 | A502E | 6 | 6 | 12 | 3'-4" | S | 42 | P501 | 2 | 2 | 4 | 28'-0" | S | 117 |
| S902 | 20 | 21'-3" | B | 1445 | A503E | 6 | 6 | 12 | 3'-0" | S | 38 | P502 | 6 | 6 | 12 | 6'-11" | B | 87 |
| S903 | 24 | 19'-8" | B | 1605 | A1001E | 3 | 3 | 6 | 27'-4" | S | 706 | P1001 | 8 | 8 | 16 | 28'-0" | S | 1928 |
| S904 | 10 | 18'-11" | S | 643 | A1002E | 2 | 2 | 4 | 29'-5" | S | 506 | TOTAL - 2232 | | | | | | |
| S905 | 12 | 15'-7" | S | 636 | D801E | 20 | 20 | 40 | 5'-0" | B | 534 | 824-EPOXY COATED REINFORCING STEEL | | | | | | |
| TOTAL - 13676 | | | | | TOTAL - 2058 | | | | | | | MARK | NUMBER PIER 1, PIER 2 | TOTAL NO. | LENGTH | SHAPE | WEIGHT | |
| 824-EPOXY COATED REINFORCING STEEL | | | | | BENDING DIAGRAM | | | | | BENDING DIAGRAM | | | | | | | | |
| MARK | NO. | LENGTH | SHAPE | WEIGHT | | | | | | | | | | | | | | |
| S401E | 81 | 29'-3" | S | 1583 | | | | | | | | | | | | | | |
| S402E | 130 | 2'-10" | B | 246 | REINFORCING STEEL SAMPLES: REFER TO QMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPliced IN ACCORDANCE WITH 509.08. | | | | | | | | | | TOTAL - 1377 | | | |
| S501E | 54 | 17'-6" | S | 986 | CHAIRS: ALL CHAIRS SHALL BE EPOXY COATED. | | | | | | | | | | | | | |
| S502E | 27 | 13'-9" | S | 387 | | | | | | | | | | | | | | |
| S901E | 18 | 28'-8" | S | 1754 | | | | | | | | | | | | | | |
| S906E | 54 | 20'-5" | S | 3749 | | | | | | | | | | | | | | |
| S907E | 24 | 11'-10" | S | 966 | | | | | | | | | | | | | | |
| S908E | 24 | 9'-0" | S | 734 | | | | | | | | | | | | | | |
| TOTAL - 10405 | | | | | | | | | | | | | | | | | | |



| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2 | OHIO | | |



PROPOSED STRUCTURE
TYPE: CONTINUOUS STEEL BEAM WITH
CONCRETE DECK WITH SUBSTRUCTURE..
SPANS: 36'-45'-36' C/C BEARINGS
ROADWAY: 28'
LOADING: HS-20-44
SKEW: NONE
WEARING SURFACE: CONCRETE
APPROACH SLABS: 15' LONG x 28' WIDE



| REF. NO. | STATION TO STATION | SIDE |
|----------|---|-------|
| 604 | CATCH BASIN NO. 2-2-B | RIGHT |
| 603 | 8" CONDUIT TYPE B | RIGHT |
| 606 | ANCHOR ASSEMBLY TYPE T | RIGHT |
| 611 | REINFORCED CONCRETE APPROACH SLAB T=12" | RIGHT |
| 203 | EXCAVATION NOT INCLUDING EMBANK- MENT CONSTRUCTION | RIGHT |
| 202 | PAVEMENT REMOVED | RIGHT |
| 601 | ROCK CHANNEL PROTECTION, TYPE B WITH FILTER, ASPER PLAN | RIGHT |
| 606 | ANCHOR ASSEMBLY TYPE A | RIGHT |
| 606 | BRIDGE TERMINAL ASSEMBLY, TYPE B | RIGHT |
| 606 | GUARDRAIL TYPE 5 | RIGHT |
| 202 | GUARDRAIL REMOVED | RIGHT |

CRA-19-2154 PLAN & PROFILE

224

CALC. BY gac 10-2-84
CHKD. BY JKG 11-84

| FED. REGION | STATE | PROJECT | 19 |
|-------------|-------|---------|----|
| 5 | OHIO | | 36 |

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

AP-1-47 DATED 9-18-47
AS-1-82 DATED 11-27-81
CSB-2-47 DATED 9-18-47
DBB-2-73 DATED 4-10-73
ICD-1-82 DATED 8-1-84

AND TO SUPPLEMENTAL SPECIFICATIONS:

834 DATED 10-8-82
939 DATED 6-28-82

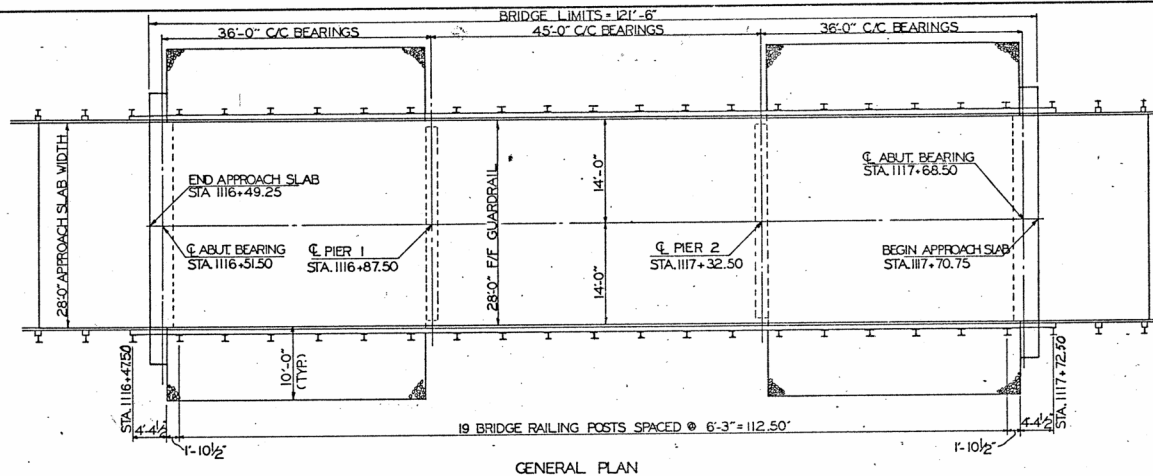
DESIGN SPECIFICATION: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980, 1981 AND 1982 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

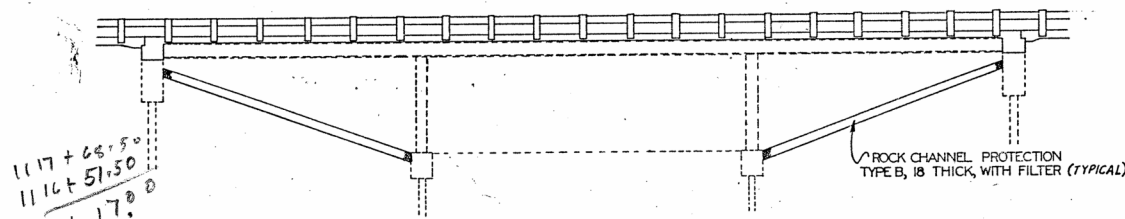
DESIGN LOADING: HS-20-44
CONCRETE CLASS S 4500 PSI
CONCRETE CLASS C 4000 PSI
REINFORCING STEEL ASTM A615, A616 OR A617

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY, 2 1/2" CLEARANCE OF TOP REINFORCING STEEL FROM SURFACE OF DECK.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.



GENERAL PLAN



GENERAL ELEVATION

APPROXIMATE STRUCTURAL STEEL SURFACE AREA: 4602 SQ. FT.

ESTIMATED QUANTITIES

| ITEM | TOTAL | UNIT | DESCRIPTION | ABUTS. | SUPER. |
|---------|-------|----------|--|--------|---------|
| 202 | - | LUMP | PORTIONS OF STRUCTURES REMOVED, DECK, AS PER PLAN | - | LUMP |
| 202 | - | CU. YD. | PORTIONS OF STRUCTURES REMOVED, ABUTMENT, AS PER PLAN | ✓ 10 | - |
| 509 | - | L.B. | REINFORCING STEEL | - | 7538 |
| 510 | - | EACH | DOWEL HOLES | ✓ 104 | ✓ 101 |
| 511 | - | CU. YD. | CLASS S CONCRETE, DECK, AS PER PLAN | - | - |
| 511 | - | CU. YD. | CLASS C CONCRETE, ABUTMENT, AS PER PLAN | ✓ 19 | - |
| 516 | - | SQ. FT. | PREFORMED EXPANSION JOINT FILLER | - | ✓ 135 |
| 517 | - | LIN. FT. | RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP), TYPE I POSTS & BOLTS | - | ✓ 237.5 |
| SPECIAL | 104 | SQ. YD. | SEALING OF CONCRETE SURFACES EPOXY (SEE PROPOSAL NOTE) | - | ✓ 104 |
| SPECIAL | LUMP | LUMP | SUPPORTING SUPERSTRUCTURE | - | LUMP |
| 518 | - | CU. YD. | POROUS BACKFILL, AS PER PLAN | ✓ 10 | - |
| 824 | - | L.B. | EPOXY COATED REINFORCING STEEL | ✓ 2691 | ✓ 13027 |
| SPECIAL | LUMP | LUMP | SURFACE PREPARATION | - | LUMP |
| SPECIAL | LUMP | LUMP | TEST SECTION, SANDBLASTING | - | LUMP |
| SPECIAL | LUMP | LUMP | TEST SECTION | - | LUMP |
| SPECIAL | LUMP | LUMP | PRIME COAT | - | LUMP |
| SPECIAL | LUMP | LUMP | INTERMEDIATE COAT | - | LUMP |
| SPECIAL | LUMP | LUMP | FINISH COAT | - | LUMP |

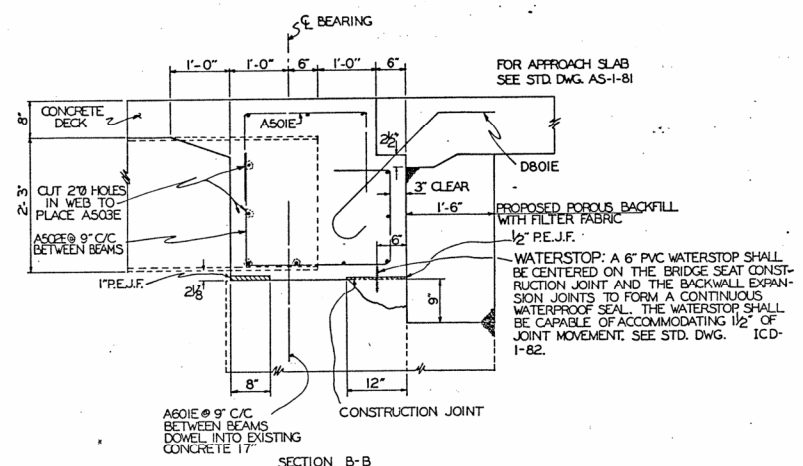
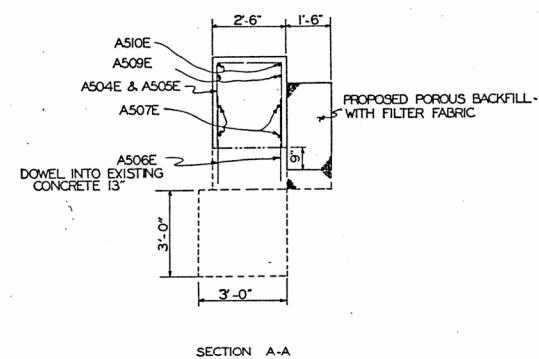
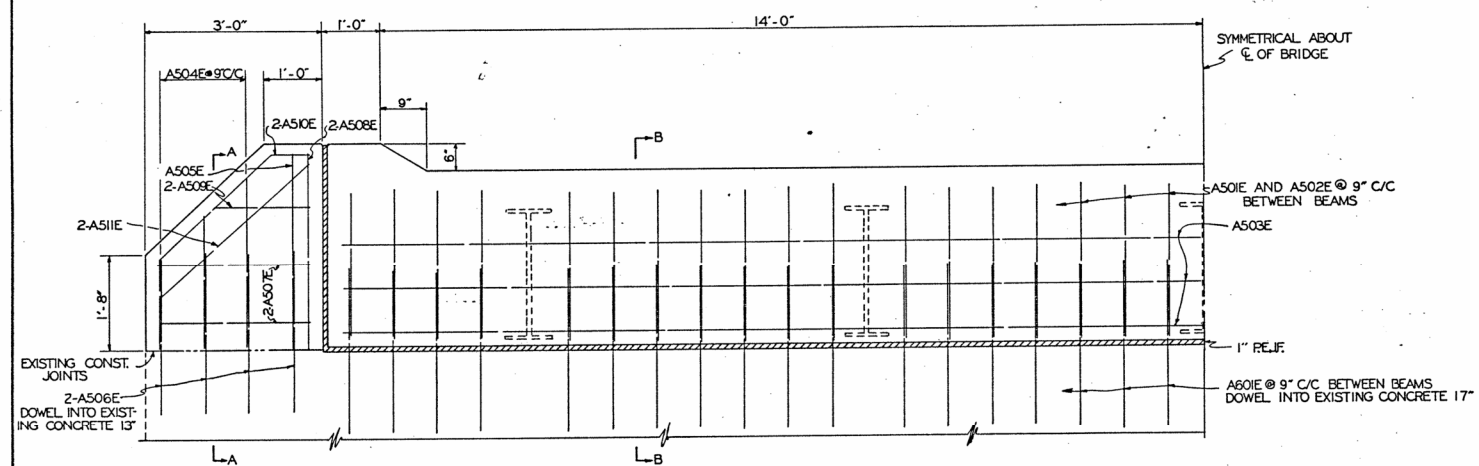
EXISTING STRUCTURE
TYPE: CONTINUOUS STEEL BEAM WITH CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 36'-45'-36' C/C BEARINGS
ROADWAY: 24' WITH 1'-6" SAFETY CURBS
LOADING: HS-20-44
SKEW: NONE
WEARING SURFACE: BITUMINOUS
APPROACH SLABS: NONE
DATE BUILT: 1948

PROPOSED STRUCTURE
TYPE: EXISTING CONTINUOUS STEEL BEAMS AND CONCRETE SUBSTRUCTURE, PROPOSED NEW DECK.
SPANS: 36'-45'-36' C/C BEARINGS
ROADWAY: 28'
LOADING: HS-20-44
SKEW: NONE
WEARING SURFACE: CONCRETE
APPROACH SLABS: 15' LONG x 28' WIDE

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

GENERAL PLAN, ELEVATION
AND
ESTIMATED QUANTITIES
CRA-19-2154 OVER
BROKEN SWORD CREEK

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|----------|-------|--------|---------|----------|------|---------|
| gac | gsc | gsc | JK | | | |



| | | | | | | | |
|---|-------|---------|----------|------|---------|--|--|
| STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT THREE | | | | | | | |
| ABUTMENT DETAILS | | | | | | | |
| CRA-19-2154 | | | | | | | |
| DESIGNED | DRAWN | CHECKED | APPROVED | DATE | REVISED | | |
| gac | DES | DES | JK | | | | |

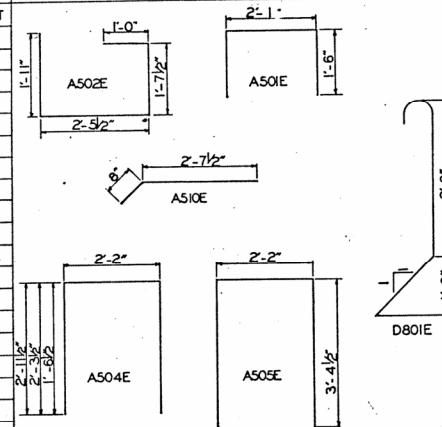
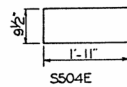
22

REINFORCING STEEL

CALC. BY JKG 10-18-84
CHK'D BY JKG 11-84

| FHWA REGION | STATE | PROJECT | 22 |
|-------------|-------|---------|----|
| 5 | OHIO | | 36 |

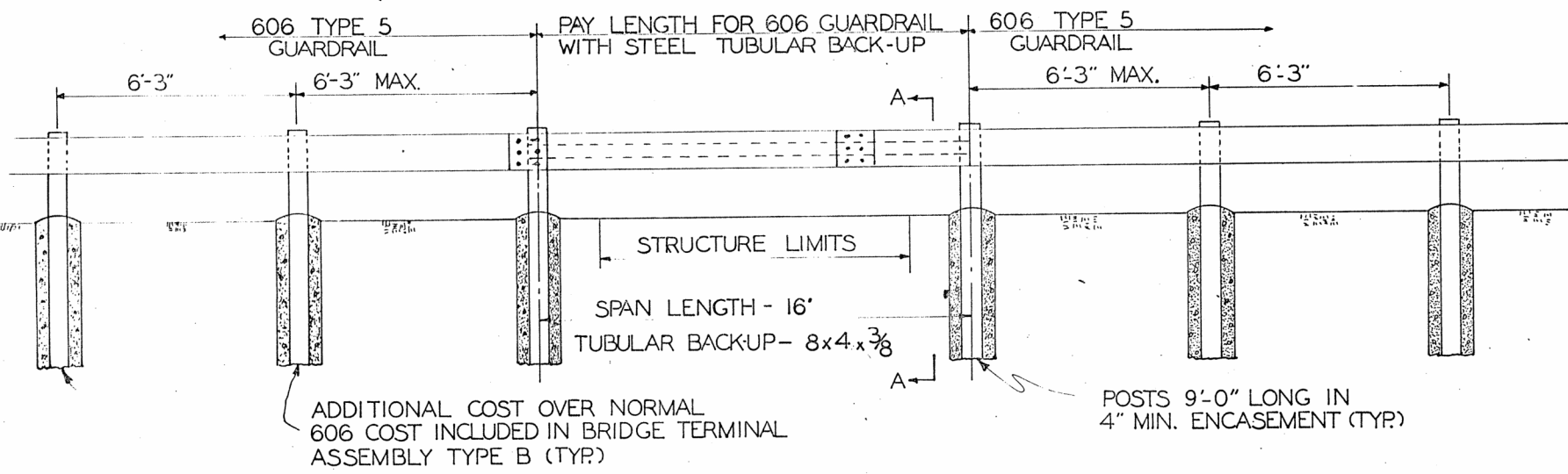
| SUPERSTRUCTURE | | | | | ABUTMENT | | | | |
|---|--------|--------|-------|--------|---|---------------|-----------------|-------|--------|
| ITEM 509 - REINFORCING STEEL | | | | | ITEM 824 - EPOXY COATED REINFORCING STEEL | | | | |
| MARK | NUMBER | LENGTH | SHAPE | WEIGHT | MARK | NUMBER | LENGTH | SHAPE | WEIGHT |
| S501 | 170 | 27'-8" | S | 4906 | A501E | 72 | 4'-10" | B | 363 |
| S502 | 80 | 30'-0" | S | 2503 | A502E | 72 | 6'-7" | B | 494 |
| S503 | 20 | 6'-2" | S | 129 | A503E | 22 | 29'-6" | S | 677 |
| TOTAL - 7538 | | | | | A504E | 4 SERIES OF 3 | 5'-0" TO 7'-10" | B | 81 |
| ITEM 824 - EPOXY COATED REINFORCING STEEL | | | | | A505E | 4 | 8'-8" | B | 36 |
| MARK | NUMBER | LENGTH | SHAPE | WEIGHT | A506E | 32 | 2'-9" | S | 92 |
| S401E | 100 | 30'-0" | S | 2004 | A507E | 16 | 2'-6" | S | 42 |
| S402E | 25 | 4'-10" | S | 81 | A508E | 8 | 3'-5" | S | 29 |
| S403E | 104 | 18'-0" | S | 1250 | A509E | 8 | 1'-9" | S | 15 |
| S504E | 238 | 4'-5" | B | 1096 | A510E | 8 | 3'-3" | B | 27 |
| S601E | 170 | 27'-8" | S | 7064 | A511E | 8 | 3'-7" | S | 30 |
| S602E | 32 | 30'-0" | S | 1442 | A601E | 72 | 2'-10" | S | 306 |
| S603E | 8 | 7'-6" | S | 90 | D801E | 38 | 4'-11" | B | 499 |
| TOTAL - 13027 | | | | | TOTAL - 2691 | | | | |



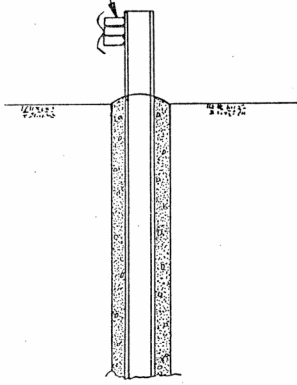
| | | | |
|------------|-----------|-----------|------------|
| 966.47 | 966.47 | 966.47 | 966.47 |
| 966.56 | 966.56 | 966.56 | 966.56 |
| 966.65 | 966.65 | 966.65 | 966.65 |
| 966.56 | 966.56 | 966.56 | 966.56 |
| 966.47 | 966.47 | 966.47 | 966.47 |
| REAR ABUT. | PIER NO.1 | PIER NO.2 | FWD. ABUT. |

DECK ELEVATIONS

| STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT THREE | | | | | | |
|---|-------|--------|---------|---------|------|---------|
| REINFORCING STEEL LIST AND DECK ELEVATIONS CRA-19-2154 | | | | | | |
| DESIGNED | DRAWN | TRACED | CHECKED | REVISED | DATE | REVISED |
| gac | 8/83 | 8/83 | JKG | | | |



TUBULAR BACK-UP
(SEE STD. DRWG.
DBR 2-73)



SECTION A-A

NOTE: IF UNABLE TO INSTALL A POST LENGTH GREATER THAN 7'-6" A SECOND POST (W6x25) SPACED AT 3'-3" SHALL BE ADDED AND ALSO ENCASED IN CONCRETE. COST TO BE INCLUDED IN TYPE B BRIDGE TERMINAL ASSEMBLY.

Concrete bridge railing shall be removed on structure (13 feet each side) as directed. Lump sum pay item will include all of the requirements for removing the concrete railing as required.

TYPICAL DETAILS FOR GUARDRAIL WITH TUBULAR BACK-UP SPANNING A STRUCTURE

CRA-19-2322

REV. 5-8-85 UDP

DES

539-R.

GENERAL NOTES

GUARDRAIL REPLACEMENT:

No hazard shall be left unprotected except for the actual time necessary to remove, grade and reinstall guardrail in a continuous operation. The removal of all guardrail shall at all times be as directed by the Engineer. No guardrail shall be removed until the replacement material is on the site, ready for installation. Failure to comply with this requirement shall be deemed sufficient cause to order work suspended on this project until such time that the Engineer is assured of said compliance.

ITEM 606, GUARDRAIL WITH STEEL TUBULAR BACKUP, AS PER PLAN:

This item shall be used to span across small bridges when construction of standard bridge railing is impracticable. Steel tubing shall be used as a backup for the deep beam rail spanning the structure. The posts on each side of the structure shall be encased in concrete. The size of the tubular backup and the posts shall be as per details on Sheet No. 23.

Payment for all of the above shall be at the unit price bid per linear foot, measured center to center of the posts spanning the structure, for Item 606, Guardrail with Steel Tubular Backup, as per plan, which shall include all labor, equipment, materials and incidentals necessary to complete the above work.

ITEM 606, GUARDRAIL, TYPE 5, AS PER PLAN:

The guardrail included in this item shall be built as per Standard Drawing GR-2B except the posts shall be nine (9) feet long.

Payment for all of the above shall be included in the unit price bid per linear foot for Item 606, Guardrail, Type 5, as per plan, which shall include all labor, equipment, materials and incidentals necessary to complete the above work.

614 WORK ZONE PAVEMENT MARKINGS

| | | | |
|------|--|--------|----|
| DATE | | OHIO | 25 |
| BY | | FHWA | 36 |
| DATE | | REGION | 5 |

224

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISUAL EFFECTIVENESS AND NIGHT VISIBILITY AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING CMUTD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167) SIGN OR "UNMARKED NO PASSING ZONES" (CW-168) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL BE REPEATED EVERY 1 TO 2 MILES AND AT OTHER LOCATIONS AS NECESSARY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY. THE COST FOR FURNISHING AND ERECTING AND SUBSEQUENTLY REMOVING THESE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC, UNLESS SPECIFICALLY ITEMIZED.

TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR C PREFORMED MATERIAL. * *

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT THE INCREASE OF 25 PERCENT IN THE APPLICATION RATE FOR NEW BITUMINOUS PAVEMENT AND PARAGRAPH 621.14 SHALL NOT APPLY.

TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

* Where pavement markings are not liable to be tracked, either conventional or fast-drying paint may be used for 612.02.

CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS, WHITE 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 1.6 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 16 GALLONS PER MILE FOR GORE MARKINGS.

CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS OR EQUIVALENT 614 CLASS I, PAINT MARKINGS SHALL BE APPLIED. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE PROVISIONS OF 108.07 WILL BE INVOKED, EXCEPT THAT BETWEEN NOVEMBER 15 AND APRIL 15 WEATHER CONDITIONS SHALL NOT BE AN ACCEPTABLE REASON FOR EXTENSION.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

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 PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

| ITEM | UNIT | DESCRIPTION |
|--|-------------|--|
| 614 | MILES | TEMPORARY LANE LINES, CLASS _____, * |
| 614 | MILES | TEMPORARY CENTER LINES, CLASS II, * |
| 614 | LIN. FT. | TEMPORARY CHANNELIZING LINES, CLASS I, * |
| 614 | MILES | TEMPORARY EDGE LINES, CLASS I, * |
| 614 | LIN. FT. | TEMPORARY GORE MARKINGS, CLASS II, * |
| 614 | LIN. FT. | TEMPORARY STOP LINES, CLASS I, * |
| 614 | LIN. FT. | TEMPORARY CROSSWALK LINES, CLASS I, * |
| 614 | EACH | TEMPORARY LANE ARROWS, CLASS I, * |
| 614 | EACH | TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, * |
| 614 | EACH | TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, * |
| 614 | LIN. FT. | TEMPORARY TRANSVERSE LINES, CLASS I, * |
| 614 | LIN. FT. | TEMPORARY DOTTED LINES, CLASS I, * |
| *621 PAINT, 947.03 TYPE B OR 947.03 TYPE C | | |
| Sub | Sub Summary | |
| Pt. 1 | 14.44 Miles | |

PAVEMENT MARKING SUB-SUMMARY

| | | | |
|-------------------|-------|---------|----|
| FED. RD. DIVISION | STATE | PROJECT | 26 |
| 5 | OHIO | | 36 |

PLAN NO. 224

| CO. | ROUTE | FROM | | TO | | 621 QUANTITIES | | | PARTICIPATION | 621 CENTER LINE |
|-------------------|-------|--------|--------|-------|--------|--------------------|------|------|---------------|-----------------|
| | | | | | | CENTER LINES MILES | | | | REMARKS |
| | | S.L.M. | S.L.M. | TOTAL | DASHED | SOLID | | | | |
| CRA | SR-19 | 16.09 | SR-4 | 23.31 | SR-100 | 7.22 | 6.48 | 3.91 | | PART 1 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| CENTER LINE TOTAL | | | | | | 7.22 | 6.48 | 3.91 | | |

| CO. | ROUTE | FROM | | TO | | 621 QUANTITIES | | | PARTICIPATION | 621 LANE LINE |
|-----------------|-------|--------|--------|-------|--------|---------------------|---------|--|---------------|---------------|
| | | | | | | 4" LANE LINES MILES | | | | |
| | | S.L.M. | S.L.M. | TOTAL | DASHED | SOLID | REMARKS | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| LANE LINE TOTAL | | | | | | | | | | |

| CO. | ROUTE | FROM | | TO | | WHITE EDGE LINE QUANTITIES | | | | YELLOW EDGE LINE QUANTITIES | | | | 621 EDGE LINE |
|-----------------|-------|--------|------|--------|--------|----------------------------|---------------|------------|-------|-----------------------------|---------------|------------|-------|---------------|
| | | | | | | TOTAL MILES | HIGHWAY MILES | RAMP MILES | PART. | TOTAL MILES | HIGHWAY MILES | RAMP MILES | PART. | |
| | | S.L.M. | | S.L.M. | | | | | | | | | | |
| CRA | SR-19 | 16.09 | SR-4 | 23.31 | SR-100 | 14.44 | 14.44 | | 1 | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| EDGE LINE TOTAL | | | | | | 14.44 | 14.44 | | | | | | | |

| CO. | ROUTE | FROM | | TO | | 621 QUANTITIES | | PARTICIPATION | 621 CHANNELIZING LINE |
|-------------------------|-------|--------|--------|-------|----------|-----------------------|--|---------------|-----------------------|
| | | | | | | 8" CHANNELIZING LINES | | | REMARKS |
| | | S.L.M. | S.L.M. | MILES | LIN. FT. | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| CHANNELIZING LINE TOTAL | | | | | | | | | |

847 AUXILIARY MARKING (947.03 TYPE A) INLAID

| CO. | ROUTE | S.L.M. | | 24" TRANSVERSE LINES | | STOP LINE | 12" CROSSWALK LINES | | WORD ON PAVEMENT | | LANE ARROWS | | | | RAILROAD SYMBOL ON PAVEMENT | DOTTED LINES | | REMARKS |
|--------------------------|-------|--------|-------|----------------------|----------|-----------|---------------------|------|------------------|------|-------------|-------|-------|------|-----------------------------|--------------|--------|---------|
| | | FROM | TO | WHITE | YELLOW | 24" | WHITE | 96" | SCHOOL | TURN | RIGHT | THRU. | COMB. | EACH | WHITE | YELLOW | | |
| | | | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | EACH | | | | | | LEFT | EACH | EACH | |
| CRA | SR-19 | 16.09 | 23.31 | | | 161 | | | 2 | | | | | | | | PART 1 | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| AUXILIARY MARKING TOTALS | | | | | | 161 | | | 2 | | | | | | | | | |

INITIAL PAVEMENT MARKINGS FOR RESURFACED SECTIONS
GENERAL NOTES

| | | | |
|----------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

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| PLAN NO. | 224 |
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| 27 36 |
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In addition to the requirements of 621 and 847 the following shall apply:

621 Materials

Glass beads shall be kept dry during storage and prior to use.

621 SPECIAL EQUIPMENT

The Contractor's striping shall be equipped with an odometer graduated to 1/100 of a mile. The Engineer will determine the degree of accuracy of the Contractor's odometer and establish an adjustment factor as may be required to accurately determine the pay item quantities. The Engineer will periodically check the odometer's operation to assure maintenance of accurate measurements.

Failure of the odometer to function properly shall be cause to stop the work until the odometer is made to function properly. On short projects the Engineer may approve alternate methods to accurately measure the length of the various types of markings applied. If measurement of the work has to be done by the Department, the cost of the Department labor and equipment plus 10 percent shall be deducted from payment due the Contractor for the work. When measuring lane, edge and center line marking the odometer shall be started at the first marked line and remain in operation, until the end of the section being marked, where it shall be shut off and the reading of the odometer recorded.

Electrical foot counters shall be provided and installed in the striping. The counters shall individually tabulate the amount of footage applied by each striping gun on the center line carriage and lane line carriage, whether solid or dashed. The counters shall be 6 digit type with a reset feature.

The pavement marking equipment shall be equipped with a pressure regulated air jet which shall remove all debris from the pavement in advance of the applicator gun. The air jet shall operate when marking material is being applied and shall be synchronized with marking material application or remain "on" at all times.

The Contractor shall use an accurate dashing mechanism, capable of being easily adjusted

Provision for the above special equipment by the Contractor shall be incidental to the application.

847 LAYOUT AND PREMARKING

In addition to the requirements of 847 premarking for auxiliary markings shall be located from schematic forms provided at the pre-construction conference.

621 MATERIAL QUANTITY MEASUREMENT

The quantity of marking material or glass beads per unit of measurement will be computed by the Engineer at the end of each day's work. A day's applied mileage of less than 2 miles may be included in the next day's applied markings for the purpose of computing marking material and bead application rates.

The Contractor shall provide a calibrated measuring device acceptable to the Engineer for measuring material in the striping tanks.

The quantity of marking material used shall be determined by measuring the marking material in the tanks before and after marking material is applied. The Contractor shall cooperate with the Engineer in providing measurements whenever requested. The marking material application rate shall be determined by dividing the total gallons used by the appropriate marking length as determined from the foot counter as described within the Special Equipment Section of these notes. Any determination of pay deduction resulting from shortages in marking quantities shall be based on the measurements obtained by this method. The amount of glass beads applied will be ascertained by the Engineer by observation and from information supplied by the Contractor as to quantity used.

847 AUXILIARY PAVEMENT MARKING

For this project auxiliary markings shall be defined as: stop lines, crosswalk lines, transverse lines, railroad symbol markings, lane arrows, word on pavement and dotted lines except when used to extend edge lines.

STANDARD CONSTRUCTION DRAWING TC 71.10

The dimensions shown on Standard Construction Drawing TC 71.10 are nominal. Letters, numerals and symbols conforming to the requirements of section 3B-17 of the 1978 National Manual On Uniform Traffic Control Devices may also be used. Any of the following standards for letters, numeral or symbol dimensioning may be used: A.) Standard dimensions shown on this detail or B.) Standard dimensions (either metric or their hard converted English unit equivalents) in accord with the 1977 Metric Edition Standard Alphabets For Highway Signs and Pavement Marking with Errata or C.) Standard dimensions shown in figures 3-17, 3-18, 7-2, 7-3, 8-2 or 9-6 of the 1978 National Manual On Uniform Traffic Control Devices.

TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS

GENERAL

In addition to 614, traffic shall be maintained in accordance with the following requirements.

The purpose of the following requirements for Traffic Control for Pavement Marking operations is to provide safety for highway users, workers and equipment and to protect the markings from damage during application. These requirements are the required minimums. If at any time during the application of markings it is found by the Engineer that these minimum traffic control device requirements are not achieving the necessary safety and marking protection, additional traffic control devices shall be implemented in accordance with 104.02.

The Engineer may suspend work in order to relieve traffic congestion at any time. No work shall be done during peak hours, as determined by the Engineer.

LEAD VEHICLE

A lead vehicle is to be used to warn opposing traffic of the approach of centerline and other marking equipment when this equipment extends into the adjacent opposing traffic lane. The lead vehicle shall precede the "left of center" marking equipment a distance that will provide advance safe warning to approaching traffic. The operator of this unit should drive ahead of the crest of a vertical curve or around a horizontal curve and wait until the "left of center" marking equipment nears and then proceed, maintaining an advance location of 400 feet to 600 feet.

A lead vehicle shall be equipped and operated with the following traffic control devices:

1. A 360° rotating or flashing amber beacon clearly visible a minimum of $\frac{1}{2}$ mile.
2. Lighted head lights and tail lights, and
3. A KEEP RIGHT sign (OC-31R-48) and WET PAINT sign (OC-52-48) mounted a minimum of 5' above the road surface measured to the bottom of the sign and visible to opposing traffic.

POWER BROOM EQUIPMENT

Power broom equipment shall be equipped and operated during pavement preparations (Item 621.04) with the following traffic control devices:

1. A 360° rotating or flashing amber beacon clearly visible a minimum of $\frac{1}{2}$ mile.
2. Lighted head lights and tail lights, and
3. A flashing arrow panel 54" x 30" (Type B) visible to the rear mounted a minimum of 7' above the road surface measured to the bottom of the panel and used only on multi-lane highways.

LINE MARKING MACHINE

All traffic line marking machines shall be equipped and operated with the following traffic control equipment:

1. Three 360° rotating or flashing amber beacons clearly visible a minimum of $\frac{1}{2}$ mile mounted a minimum of 7' above the road surface; one forward, one on the right rear and one on the left rear of the vehicle.
2. (a) A flashing arrow panel 54" x 30" (Type B) displayed to the rear mounted a minimum of 7' above the road surface measured to the bottom of the panel and used only on multi-lane highways, or
(b) A DO NOT PASS sign (R-33A-48) visible to the rear during centerline marking on two lane, two way roadways and mounted a minimum of 7' above the road surface measured to the bottom of the sign. This sign may be

used to cover the arrow panel, which shall Not be used on two lane, two way roadways.

3. A WET PAINT with arrow sign (OC-50-24 or OC-51-48) shall face the rear. The sign shall be positioned with the arrow pointing to the wet line. When used, OC-50-24 shall be mounted on the in use carriage side of the vehicle. OC-50-24 and OC-51-48 signs shall be mounted a minimum of 1' above the road surface.
4. A KEEP RIGHT sign (OC-31R-48) and WET PAINT sign (OC-52-48) mounted a minimum of 5' above the road surface measured to the bottom of the sign and facing opposing traffic when this unit extends into the adjacent opposing traffic lane.
5. The guide and side mounted marking carriages shall each be equipped with a clean red flag not less than 16" square and fastened to staffs of sufficient length so as to permit the flags to move freely of any obstruction.

TRAIL VEHICLE

When required a trail vehicle shall be positioned at the track free end of the wet line. An additional trail vehicle shall be used when applying lane lines of fast dry material (i.e. ≤ 2 min. dry) to protect the wet line between the line marking machine and the track free end of the wet line. All pavement marking application, protection and support equipment following the line marking machine shall be equipped with the traffic control of a trail vehicle.

Trail vehicles shall be equipped and operated with the following traffic control equipment:

1. A 360° rotating or flashing amber beacon clearly visible a minimum of $\frac{1}{2}$ mile.
2. (a) A flashing arrow panel 54" x 30" (Type B) visible to the rear mounted at a minimum height of 7' above the road surface measured to the bottom of the panel and used only on multi-lane highways, or
(b) A DO NOT PASS sign ((R-33A-48) visible to the rear during centerline marking on two lane, two way roadways, and mounted a minimum of 7' above the road surface measured to the bottom of the sign. This sign may be used to cover the arrow panel, which shall Not be used on two lane, two way roadways.
3. A WET PAINT with arrow sign (OC-50-24 or OC-51-48) shall face the rear. The sign shall be positioned with the arrow pointing to the wet line. When used, OC-50-24 shall be mounted on the side of the vehicle nearest the wet marking material. When used, OC-50-24 shall be mounted a minimum of 4'6" above the road surface and OC-51-48 shall be mounted a minimum of 5'0" above the road surface, both measured to the bottom of the sign.

CONES AND WET PAINT-KEEP OFF SIGNS

Cones and WET PAINT-KEEP OFF signs (R-87-24) shall be placed to protect the line whenever the track free time exceeds two minutes. These devices shall not be removed until the line has dried to a track free condition. Retrieval equipment shall have traffic control of a trail vehicle. Cones shall have a minimum height of 18". They shall be spaced to protect the wet line, normally between 120' and 200'. In areas of traffic congestion, on curves and at other locations where tracking of the wet line is expected, spacings as close as 20' may be required. The WET PAINT-KEEP OFF signs (R-87-24) shall be placed facing traffic at:

- A. The beginning and end of line application,
- B. All side and cross roads, and
- C. Maximum intervals of one mile.

DATE
3-82
12-82

MOBILE OPERATIONS

When loading material, cleaning or performing other operations in the field every effort shall be made to have all equipment completely off of the traveled roadway. When it becomes necessary to enter upon private property, permission shall be obtained in advance. When the Contractor cannot remove his equipment from the traveled roadway all traffic control devices on the vehicles shall be in operation and flaggers and vehicles shall be stationed to protect the work site and the travelling public.

Two way traffic shall be maintained. Flaggers shall be equipped in accordance with Item 614.03.

AUXILIARY MARKINGS

Pavement preparation and placing of auxiliary markings are considered to be stationary operations and traffic control shall be in accordance with plan details shown on Sheet(s) _____ and Part 7, Ohio Manual of Uniform Traffic Control Devices (OMUTCD).

LAYOUT AND PREMARKING

The vehicle used in layout and premarking (Item 621.051) shall be equipped and operated with the following equipment:

1. A 360° rotating or flashing amber beacon clearly visible a minimum of 1 mile.
2. Lighted head lights and tail lights, and
3. A KEEP RIGHT sign (OC-31R-48) mounted a minimum of 5' above the road surface measured to the bottom of the sign and visible to opposing traffic.

NIGHTTIME OPERATION

Nighttime operation is defined to include the time from one-half hour after sunset to one-half hour before sunrise, and at any other time when there are unfavorable atmospheric conditions or when there is not sufficient natural light to render discernible persons, vehicles, and substantial objects on the highway at a distance of one thousand feet.

During nighttime conditions the following additional traffic control shall be provided:

1. Cones shall be reflectorized or equipped with lighting devices for maximum visibility (See 7F-5, OMUTCD), and
2. The guide and side mounted carriages shall be illuminated.

The presence of highway lighting does not waive these requirements.

MINIMUM PAVEMENT MARKING TRAFFIC CONTROL EQUIPMENT REQUIREMENTS

This table indicates the traffic control equipment which shall be furnished for each type of long line pavement marking operation. In addition, those types of traffic control equipment which shall be furnished when directed by the Engineer are indicated.

| EQUIPMENT | PAVEMENT MARKING LINE TYPE 1 | | | | | |
|---------------------------------------|------------------------------|--------------------|--------------------|--------------------|----------------------------------|--------------------|
| | CENTER LINE | | EDGE LINE | | LANE LINE 2 CHANNELIZING LINE | |
| | > 2 MIN. DRY | ≤ 2 MIN. DRY | > 2 MIN. DRY | ≤ 2 MIN. DRY | > 2 MIN. DRY | ≤ 2 MIN. DRY |
| LEAD VEHICLE | Required Equipment | Required Equipment | Not Required | Not Required | Not Required | Not Required |
| POWER BROOM EQUIPMENT | Required Equipment | Required Equipment | Required Equipment | Required Equipment | Required Equipment | Required Equipment |
| LINE MARKING MACHINE | Required Equipment | Required Equipment | Required Equipment | Required Equipment | Required Equipment | Required Equipment |
| TRAIL VEHICLE | Not Required | Required Equipment | Required Equipment | Required Equipment | Not Required | Required Equipment |
| TRAIL VEHICLE (ADDITIONAL) | Not Required | Required Equipment | Required Equipment | Required Equipment | Not Required | Required Equipment |
| TRAIL VEHICLE (SIGN & CONE RETRIEVAL) | Required Equipment | Not Required | Required Equipment | Not Required | Not Required | Not Required |

1. For equipment requirements for auxiliary operations see plan sheet(s) 28 and Part 7, OMUTCD.
2. Includes both dashed and solid lane lines.



Required Equipment



Equipment Required When Directed by the Engineer



Not Required

TRAFFIC CONTROL FOR LONG
LINE PAVEMENT MARKING
OPERATIONS

DATE
9-82
12-82

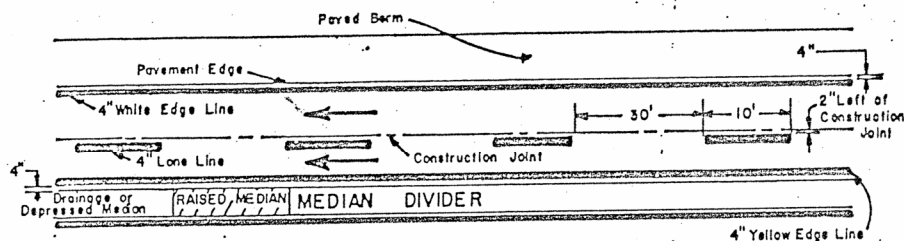
PAVEMENT MARKING TYPICAL DETAILS

| FED. RD. DIST. | STATE | PROJECT |
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| 5 | OHIO | |

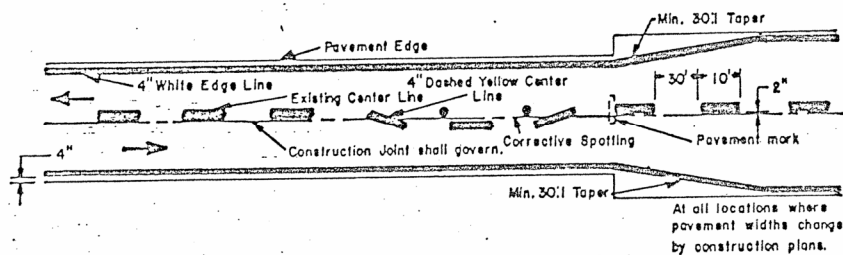
30
36

PLAN NO. 224

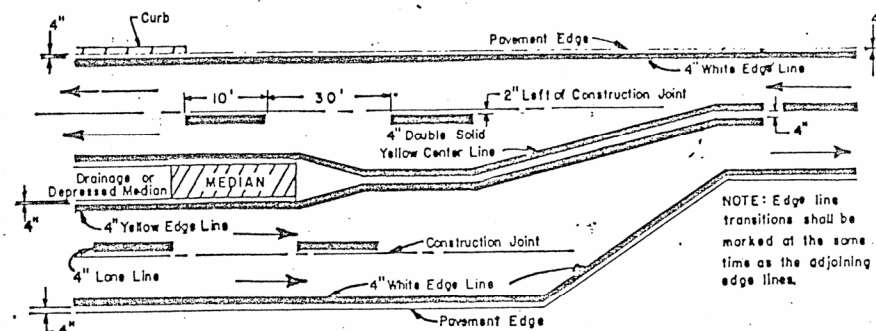
FREEWAY & EXPRESSWAY MAINLINE MARKINGS



TWO LANE MARKINGS



MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



NOTES:

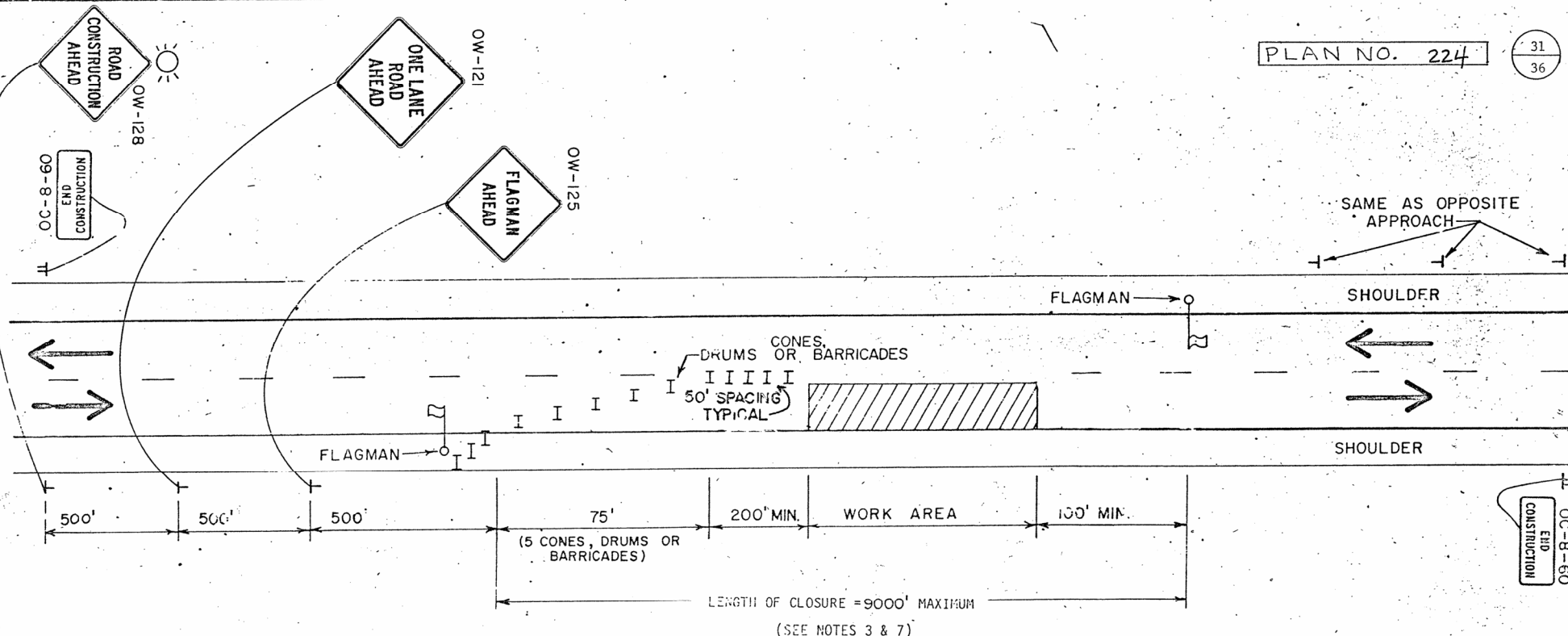
1. THE DISTANCE FROM THE PAVEMENT EDGE TO THE NEAR-SIDE EDGE OF THE EDGELINE MAY BE INCREASED WITH THE APPROVAL OF THE ENGINEER IN ORDER TO MAINTAIN UNIFORM LANE WIDTH.
2. SEE TC 72.20 FOR PAVEMENT ENTRANCE AND EXIT RAMP TERMINALS.

| OHIO DEPARTMENT OF TRANSPORTATION | |
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| PAVEMENT MARKING TYPICAL DETAILS | DATE 11/80 |
| JOL - CDR. | |

12/81

PLAN NO. 224

31
36



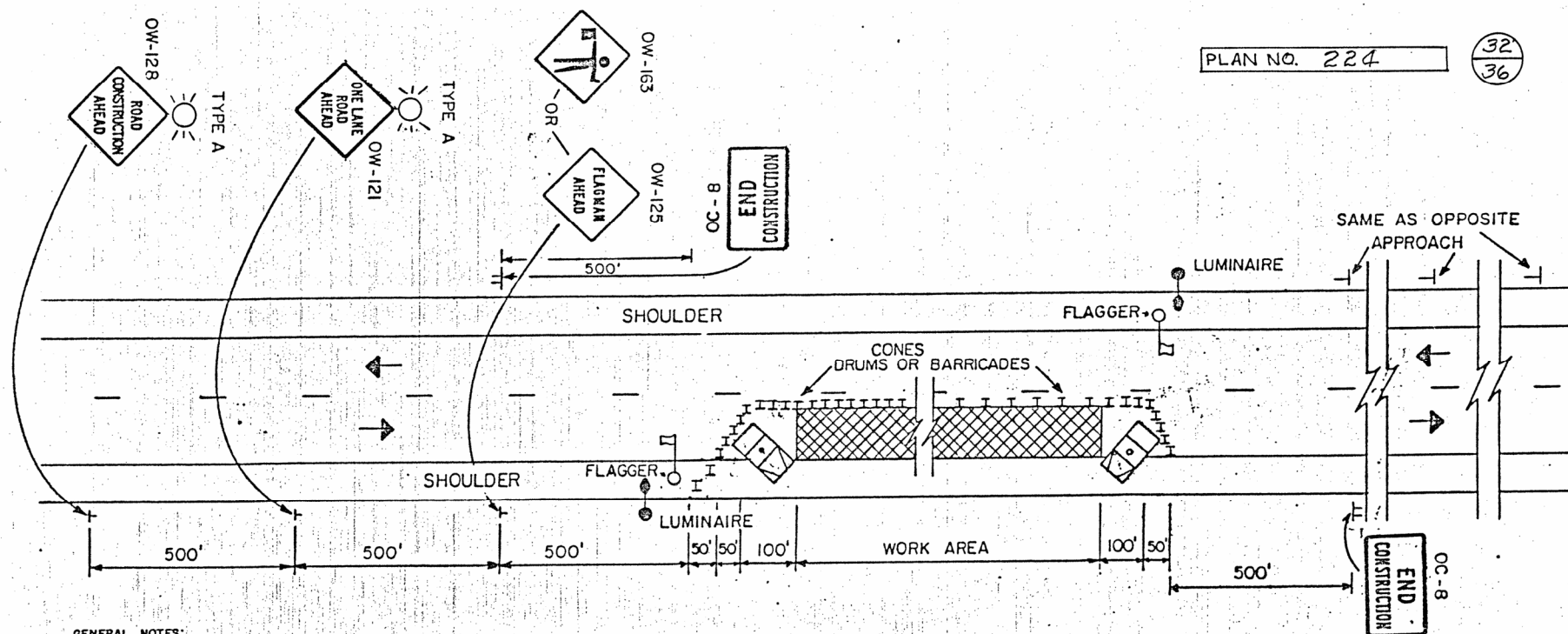
GENERAL NOTES

1. FLAGMEN SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS ONE LANE OPERATION IS IN EFFECT. FLAGMEN SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES EITHER VERBALLY OR BY MEANS OF RADIO OR FIELD TELEPHONES. FLAGMAN STATIONS SHALL BE ADEQUATELY ILLUMINATED FOR NIGHT TIME OPERATIONS BY USE OF A 175 WATT MINIMUM LUMINAIRE.
2. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.
3. WHEN THE AMBIENT TEMPERATURE EXCEEDS 80 DEGREES F, THE ENGINEER MAY INCREASE THE LENGTH OF CLOSURE TO ALLOW FOR SUFFICIENT COOLING OF THE NEW PAVEMENT.
4. THE TYPE B-HIGH INTENSITY BARRICADE WARNING LIGHT SHOWN ON THE ROAD CONSTRUCTION AHEAD SIGN IS REQUIRED WHENEVER NIGHT LANE CLOSURE IS NECESSARY.
5. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.
6. THE ADVANCE WARNING SIGNS "OW-128" "OW-121" AND "OW-125" SHALL BE MOVED BACK AS REQUIRED BY THE QUEUING OF STOPPED VEHICLES.
7. WITHIN THE LENGTH OF CLOSURE, PROVISION SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND MAJOR DRIVES AS NECESSARY TO PREVENT WRONG WAY MOVEMENTS AND TO KEEP VEHICLES OFF OF NEW PAVEMENT NOT READY FOR TRAFFIC.

THE ENGINEER MAY SHORTEN THE MAXIMUM ALLOWABLE LENGTH OF CLOSURE TO RELIEVE EXCESSIVE TRAFFIC BACKUPS.

ALL TRAFFIC CONTROL SIGNS, CHANNELIZING DEVICES, AND FLAGMEN SHALL BE MOVED FORWARD BEFORE THE CLOSURE REACHES THE MAXIMUM ALLOWABLE LENGTH. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED AT ANY TIME IN A K AREA.

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| OHIO DEPARTMENT OF TRANSPORTATION | |
| FLAGMEN CLOSING 1 LANE OF A 2 LANE HIGHWAY | DATE 2/80 |
| PAVING OPERATIONS | |
| DR | CK |



GENERAL NOTES:

1. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. The distances shown are minimums.
2. Flaggers shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall communicate with each other at all times as described in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) in Section 7H: Control of Traffic Through Work Areas.
3. Cones, drums or barricades shall be spaced at approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100' to 120' center to center for the balance of the work area. Cones, drums or barricades on the advance and return tapers shall be spaced at 10' center to center. Cones may be substituted for barricades or drums for the lane closures during daylight hours only.
4. Several small work sites close together shall be combined into one work area to make a closure not more than 2000 feet long including tapers. Closures of more than 2000 feet may be approved by the Engineer. The minimum length between closures shall be 2000 feet. Only one side of the road shall be closed in any one work area.
5. The work vehicles shown at the beginning and end of the work area shall be in place and unoccupied whenever workers are in the work area. These work vehicles shall be removed from the pavement whenever workers are not in the work area. Other protective devices may be used in lieu of the work vehicles shown when approved by the Engineer. The vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible in all directions a minimum of a 1/2 mile.
6. The Type A flashing barricade warning lights shown on the "Road Construction Ahead" and the "One Lane Road Ahead" signs are required whenever a night lane closure is necessary.
7. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. The maximum spacing shall be identical to the channelizing device spacing requirements described in Note 3.
8. Adequate area illumination to clearly identify the flagger station at night for long term operations shall be provided by using 150 watt minimum high pressure sodium luminaires or 250 watt minimum mercury luminaires. Luminaires shall be located adjacent to one flagger station for each direction of traffic as shown above. The mounting height for temporary luminaires shall be a minimum of 27 feet above the pavement and the overhead conductor clearance shall be 20 feet above the pavement.

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| OHIO DEPARTMENT OF TRANSPORTATION | | |
| FLAGGERS CLOSING 1 LANE OF A 2 LANE HIGHWAY | | DATE |
| DR. | CK. | |

* Non Federal Participation

GENERAL SUMMARY

| ITEM | PART 1 RS Fund/State | PART 2 RS Fund/State | | | GRAND TOTAL <i>PARTS 1 & 2</i> | UNIT | DESCRIPTION |
|------|-------------------------|-------------------------|--|--|--|----------|--|
| 407 | 10,500 | | | | 10,500 | Gal. | Tack Coat |
| 407 | 368 | | | | 368 | Ton | Cover Aggregate |
| 403 | 1413 | | | | 1413 | Cu. Yd. | Asphalt Concrete AC-20 |
| 404 | 2962 | | | | 2962 | Cu. Yd. | Asphalt Concrete AC-20 |
| 604 | 4 | | | | 4 | Each | Monument Boxes Adjusted to Grade |
| 202 | 100 | | | | 100 | Sq. Yd. | Wearing Course Removed |
| 202 | 255 | | | | 255 | Each | Raised Pavement Markers Removed for Storage |
| 301 | 3664 | | | | 3664 | Cu. Yd. | Bituminous Aggregate Base, AC-20 or RT (11 or 12) |
| 203 | 685 | | | | 685 | Sta. | Linear Grading |
| 621 | 7.22 | | | | 7.22 | Miles | Center Line |
| 621 | 14.44 | | | | 14.44 | Miles | Edge Line |
| 847 | 161 * | | | | 161 | Lin. Ft. | Stop Line (947.03, Type A) Inlaid |
| 847 | 2 * | | | | 2 | Each | SCHOOL Word on Pavement, 96", (947.03, Type A) Inlaid |
| 617 | 51 | | | | 50 | M. Gal. | Water |
| 624 | Lump | | | | Lump | Lump | Mobilization |
| 617 | 25415 | | | | 25415 | Sq. Yd. | Shoulder Preparation |
| 617 | 1059 | | | | 1059 | Cu. Yd. | Compacted Aggregate |
| 614 | Lump | | | | Lump | Lump | Maintaining Traffic |

GENERAL NOTES

TRAFFIC:

Traffic shall be maintained at all times. The length of restricted traffic zones shall be kept to a minimum consistent with the specification requirements for protection of completed courses.

RAILROAD CROSSINGS:

The new surface course shall be feathered or butt jointed to meet the rail grades as specified.

ALIGNMENT AND PROFILE:

The work proposed by this project is for the resurfacing of the existing pavement. The alignment of the existing pavement will not be changed, and the profile of the proposed surface will be similar to that of existing pavement except that it will be raised an amount equal to the thickness of the resurfacing course or courses specified in these plans.

INTERMEDIATE COURSE, SPOT LEVELING AND PATCHING:

This material shall be placed in a separate operation where and as directed by the engineer.

TACK COAT:

The tack coat operation shall be as determined at a pre-construction conference as per 407.05, and application rates shall not exceed 0.10 gal. per sq. yd. A complete surface coverage is required.

COVER AGGREGATE:

Cover aggregate shall conform to 703.06.

GENERAL SUMMARY

| ITEM | PART 1 RS Fund/State | PART 2 RS Fund/State | GRAND TOTAL | UNIT | DESCRIPTION |
|------|-------------------------|-------------------------|----------------|----------|--|
| 202 | 150 | 90 | 240 | Lin. Ft. | Guardrail Removed |
| 202 | | | | Lin. Ft. | Guardrail Removed for Storage |
| 202 | | | | Lin. Ft. | Guardrail Removed for Re-Use |
| 606 | 600 563.18 | | 600 563.18 | Lin. Ft. | Guardrail, Type 5 |
| 606 | 918.75 | 168.75 | 1087.50 | Lin. Ft. | Guardrail, Type 5, as per Plan |
| 606 | 9 | 3 | 12 | Each | Anchor Assembly, Type A |
| 606 | | | | Each | Anchor Assembly, Barrier Design |
| 606 | 1 | 1 | 2 | Each | Anchor Assembly, Type T |
| 606 | 8 | | 8 | Each | Bridge Terminal Assembly, Type B |
| 606 | 32 | | 32 | Lin. Ft. | Guardrail with Steel Tubular Backup, as per Plan |
| 517 | 237.5 243 | | 237.5 243 | Lin. Ft. | Railing (Deep Beam Rail with Steel Tubular Backup), Type I Posts and Bolts |
| 606 | | | | Each | 9' Guardrail Posts, as per plan |
| 517 | 150 461.32 | | 150 461.32 | Lin. Ft. | Railing (Deep Beam Rail with Steel Tubular Backup), Type 2 Posts and Bolts |
| 603 | 12 | | 12 | Lin. Ft. | 8" Conduit, Type B |
| 604 | 1 | | 1 | Each | Catch Basin No. 2-2B |
| 614 | | | | | |

GENERAL NOTES

MAINTENANCE OF TRAFFIC: Traffic shall be maintained on the existing pavement without interruption during construction of the work except as otherwise approved by the Engineer. The contractor shall set up and operate his equipment in such a manner that encroachment upon the traveled width of the pavement will be kept to a minimum.

Berm reshaping and guardrail removal and construction shall be performed only on one side of the pavement at any given time. The open area due to guardrail removal shall be adequately maintained and protected with temporary guide markers or barricades at all times. Where existing guardrail is removed, new guardrail shall be erected as soon as practical. Any areas left unguarded overnight shall be protected by the use of barricades, drums, or other warning devices satisfactory to the Engineer.

All traffic control devices required inside the work limits, except regulatory, guide signs, and pavement markings shall be furnished, erected and maintained by the contractor.

GUARDRAIL: The top points of the proposed guardrail shown are approximate. Exact locations will be determined and marked by stakes or other marks by the Engineer. Mail boxes that interfere with the removal or replacement of guardrail shall be relocated by the contractor as approved by the Engineer. The cost of this item shall be included in the unit bid price for item 606 Guardrail.

GUARDRAIL OVER CULVERTS: When sufficient post depth is not available due to a culvert, guardrail posts directly over the culvert shall be set in holes, encased in a minimum of 4" thickness of Class C concrete for the full depth of the hole, or as detailed on GR-1 for inlet mounted posts. Method shall be approved by the Engineer. Payment for the above shall be included in the unit price bid for the applicable guardrail item.

GUARDRAIL POST AND GUARD POST HOLES: All holes remaining after removal of guardrail posts or guard posts shall be filled with granular material, excess material resulting from guardrail reconstruction or excess material from berm reshaping. Fill material containing sod shall not be used. All fill material shall be approved by the Engineer. Material placed in holes shall be thoroughly compacted and leveled off as directed by the Engineer. Payment for the above shall be included in the unit price bid for the applicable guardrail item.

GENERAL SUMMARY

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| FED. RD. DIVISION | STATE | PROJECT | |
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PLAN NO. 224

| ITEM | PART 1 RS Fund/ State | PART 2 RS Fund/ State | | | | | | | GRAND TOTAL PARTS 1 & 2 | UNIT | DESCRIPTION |
|------------------|-----------------------------|-----------------------------|--|--|--|--|--|--|-------------------------------|----------------|--|
| 614 | 14.44 | | | | | | | | 14.44 | Miles | Temporary Center Line, Class II |
| Special | Lump | | | | | | | | Lump | Lump | Prime Coat |
| Special | Lump | | | | | | | | Lump | Lump | Intermediate Coat |
| Special | Lump | | | | | | | | Lump | Lump | Finish Coat |
| 601 | 366 | | | | | | | | 366 | Cu.Yd. | Rock Channel Protection, Type B, with Filter, as per Plan |
| 202 | 134.6 | | | | | | | | 134.6 | Sq.Yd. | Pavement Removed |
| 203 | 26 | | | | | | | | 26 | Cu.Yd. | Excavation not Including Embankment Construction |
| 611 | 186.8 | | | | | | | | 186.8 | Sq.Yd. | Reinforced Concrete Approach Slab, T=12" |
| 202 | Lump | | | | | | | | Lump | Lump | Portions of Structure Removed, Superstructure, as per Plan |
| 202 | 17 | | | | | | | | 17 | Cu.Yd. | Portions of Structure Removed, Abutment, as per Plan |
| 202 | 8 | | | | | | | | 8 | Cu.Yd. | Portions of Structure Removed, Pier Cap, as per Plan |
| 503 | 11 | | | | | | | | 11 | Cu.Yd. | Unclassified Excavation |
| 509 | 23446 | | | | | | | | 23446 | lb. | Reinforcing Steel |
| 510 | 140 | | | | | | | | 140 | Each | Dowell Holes |
| 511 | 19 | | | | | | | | 19 | Cu.Yd. | Class "C" Concrete, Pier Cap |
| 511 | 13 | | | | | | | | 13 | Cu.Yd. | Class "S" Concrete, Abutment, as per Plan |
| 511 | 113 | | | | | | | | 113 | Cu.Yd. | Class "S" Concrete, Superstructure, as per Plan |
| 518 | 21 | | | | | | | | 21 | Cu.Yd. | Porous Backfill, as per Plan |
| 824 | 29558 | | | | | | | | 29558 | lb. | Epoxy Coated Reinforcing Steel |
| Special | 161 | | | | | | | | 161 | Sq.Yd. | Sealing of Concrete Surface (Epoxy) |
| 511 | 101 | | | | | | | | 101 | Cu.Yd. | Class "S" Concrete, Deck, as per Plan |
| 516 | 135 | | | | | | | | 135 | Sq.Ft. | Preformed Expansion Joint Filler |
| 70106 | | | | | | | | | 70106 | 101 | Class "S" Concrete, Deck, as per Plan |

