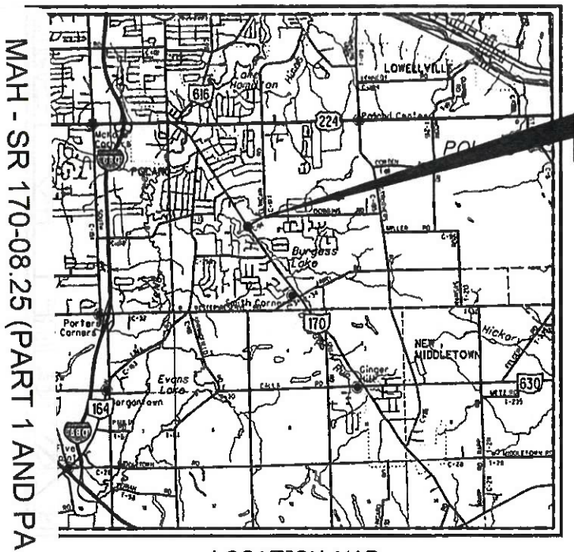
MAH - SR 170-08.25 (PART 1 AND PA

200208 PID - 106230

Dist 4 4/9/2020



LOCATION MAP

'TUDE: 41°0'13" LONGITUDE: 80°35'43"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY

FEDERAL ROUTES

STATE ROUTES

COUNTY & TOWNSHIP ROADS

OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2020)	7800
DESIGN YEAR ADT (2040)	7800
DESIGN HOURLY VOLUME (2020)	700
DIRECTIONAL DISTRIBUTION	0.52
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	40MPH
LEGAL SPEED	40MPH

DESIGN FUNCTIONAL CLASSIFICATION:
URBAN MINOR ARTERIAL

NHS PROJECT NO

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

PLAN PREPARED BY:
ODOT DISTRICT 4
2088 SOUTH ARLINGTON RD
AKRON OH 44306

ENGINEERS SEAL:

STATE OF OHIO · MATTHEW A. CHANEY · E-78423 · REGISTERED PROFESSIONAL ENGINEER

SIGNED:
DATE: 1-8-20

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

MAH-170-8.25 PART 1

POLAND TOWNSHIP
MAHONING COUNTY

FOR PART 2 SEE MAH-170-8.02

PROJECT DESCRIPTION

CONSTRUCTION OF SOUTHBOUND LEFT TURN LANE ON SR 170 AT DOBBINS RD IN MAHONING COUNTY.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	0.73 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.25 ACRES
NOTICE OF INTENT EDA:	N/A (NOI NOT REQUIRED)

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2019 SPECIFICATIONS

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

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

APPROVED
DATE 1/3/20 DISTRICT DEPUTY DIRECTOR

APPROVED
DATE 1/22/20 DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
BP-2.1	7/17/15	MT-97.10	4/19/19	AS-1-15	7/17/15			800-2019	1/17/20	
BP-3.1	10/18/19	MT-97.12	1/20/17	DBR-3-11	7/15/11			821	4/20/12	
BP-3.2	1/18/19	MT-99.20	4/19/19	DS-1-92	7/18/03			832	10/19/18	
BP-4.1	7/19/13	MT-101.90	7/21/17					848	1/20/17	
BP-7.1	7/20/18	MT-105.10	7/19/13					921	4/20/12	
		MT-110.10	7/19/13							
CB-1.1	7/19/19									
		TC-41.20	10/18/13							
HW-2.1	7/20/18	TC-41.30	10/18/13							
		TC-52.10	10/18/13							
DM-1.1	7/21/17	TC-52.20	7/20/18							
DM-1.2	1/18/13	TC-65.10	1/17/14							
DM-3.1	1/18/13	TC-65.11	7/21/17							
DM-4.3	1/15/16	TC-71.10	1/19/18							
DM-4.4	1/15/16									

FEDERAL PROJECT NO. E180(377)

PID NO. 106230

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

MAH-170-8.25

1/30

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

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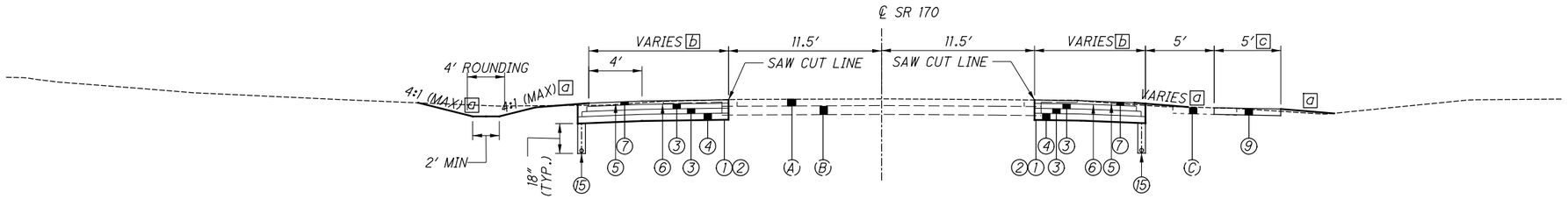
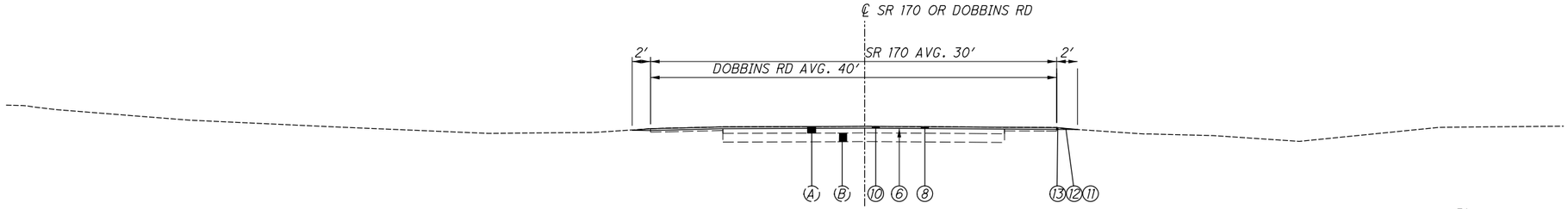
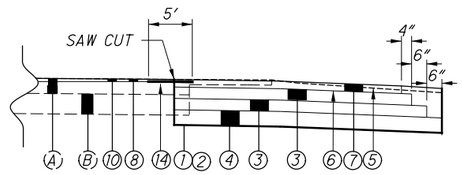


TYPICAL SECTION 1 - WIDENING
STA 436+31 TO STA 443+65 (SLM 8.22 TO SLM 8.36)



TYPICAL SECTION 2 - RESURFACING
SR 170 STA 434+51 TO STA 445+45 (SLM 8.19 TO SLM 8.40)
DOBBINS RD STA 1+13 TO STA 1+75



SAW CUT/STEP DETAIL

NOTE: REINFORCEMENT MESH IS TO BE PLACED FROM STA 436+31 TO STA 443+65, AFTER MILLING ROADWAY PRIOR TO SURFACE PLACEMENT

LEGEND

(1) 204, SUBGRADE COMPACTION
(2) 204, PROOF ROLLING
(3) 301, 4 ½" ASPHALT CONCRETE BASE PG64-22
(4) 304, 6" AGGREGATE BASE, AS PER PLAN
(5) 407, NON-TRACKING TACK COAT @ 0.05 GAL/SY
(6) 407, NON-TRACKING TACK COAT @ 0.08 GAL/SY
(7) 441, ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (448) (T = 3")
(8) 424, FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN (T = 1 ¼")
(9) 608, 4" CONCRETE WALK
(10) 254, PAVEMENT PLANING ASPHALT CONCRETE (T = 1 ¼")
(11) 408, PRIME COAT, AS PER PLAN @ 0.40 GAL/SY
(12) 617, COMPACTED AGGREGATE, AS PER PLAN
(13) SAFETY EDGE, PER SCD BP-3.2
(14) ITEM SPECIAL, REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS (CENTER OVER JOINT)
(15) ITEM 605, 4" BASE PIPE UNDERDRAINS W/ GEOTEXTILE FABRIC

(A) EXISTING ASPHALT PAVEMENT
(B) EXISTING CRUSHED AGGREGATE BASE
(C) EXISTING SIDEWALK

NOTE:

[a] SEE CROSS SECTIONS

[b] SEE CROSS SECTIONS FOR SHOULDER BREAK LOCATION
SR 170 LEFT:
STA 436+31 (4FT) TO STA 438+18 (10.5 FT)
STA 438+18 (10.5FT) TO STA 441+78 (10.5FT)
STA 441+78 (10.5FT) TO STA 443+65 (2.5FT)

SR 170 RIGHT:
STA 436+31 (3.1 FT) TO STA 438+18 (7.5 FT)
STA 438+18 (7.5 FT) TO STA 441+78 (7.5 FT)
STA 441+78 (7.5 FT) TO STA 443+65 (4.2 FT)

[c] WALK IS FROM STA 437+89.78 TO STA 443+65

TYPICAL SECTIONS

MAH-170-8.25

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UTILITIES

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS:

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE OHIO & GAS PROCEDURES UNDERGROUND PROTECTION SERVICE (OGPUPS), THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEAD-QUARTERS AND ALL NON REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIORTO COMMENCING CONSTRUCTION OPERATIONS IN ALL AREAS.

OUPS 1-800-362-2764 (CONTACT LIMITED BASIS PARTICIPANTS DIRECTLY)
OGPUPS 1-800-925-0988
ODOT 330-786-2267 MICHELLE CHANEY

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

OHIO EDISON
ATTN: RAYMOND JENKINS
730 SOUTH AVENUE
YOUNGSTOWN, OH 44502
330-740-7625

AT&T
THE OHIO BELL TELEPHONE CO.
ATTN: HAROLD MAYNARD
50 W. BOWERY ST.
6TH FLOOR
AKRON, OH 44308
330-384-8974

ACCESS COUNCIL
ATTN: PATRICK RAGER
493 BEV ROAD, UNIT 1
BOARDMAN, OH 44512
330-702-7876

AQUA OHIO
ATTN: LORI MCCLARY
6650 SOUTH AVENUE
BOARDMAN, OH 44512
330-397-0795

MAHONING COUNTY SANITARY ENGINEER
ATTN: PAT GINNETTI, P.E., P.S.
761 INDUSTRIAL ROAD
YOUNGSTOWN, OH 44509
330-793-5514 EXT: 8209

DOMINION EAST OHIO
ATTN: STEVEN JOHNS
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OH 44333
330-664-2456

CHARTER
ATTN: JASON SPRAGUE
2904 STATE ROAD
ASHTABULA, OH 44004
216-575-8016
EXT: 216-555-5740

ARMSTRONG CABLE
ATTN: GENO SHONCE
9328 WOODWORTH RD
NORTH LIMA, OH 44452
330-726-0115 EXT. 224

SURVEYING PARAMETERS

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID12B

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83 (2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE (3401)
COMBINED SCALE FACTOR: 0.99989230
ORIGIN OF COORDINATE SYSTEM: GP2

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

ITEM 304 - AGGREGATE BASE, AS PER PLAN

GRANULATED SLAG (GS) SHALL NOT BE PERMITTED FOR THIS ITEM. ALL OTHER REQUIREMENTS OF SECTIONS 304 AND 703.17 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL STILL BE APPLICABLE.

ITEM 408 - PRIME COAT, AS PER PLAN

APPLY "MC-70" AT A RATE OF 0.4 GALLONS PER SQUARE YARD, OR AS DETERMINED BY THE ENGINEER, TO THE COMPLETED COMPACTED AGGREGATE SHOULDER.

UNSTABLE OR UNSUITABLE SOILS

THE FOLLOWING ITEMS AND QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO ADDRESS UNSTABLE OR UNSUITABLE SOILS ENCOUNTERED IN THE AREAS OF PAVEMENT CONSTRUCTION:

ITEM 204, EXCAVATION OF SUBGRADE, 15 CU YD
ITEM 204, GRANULAR MATERIAL, TYPE B, 15 CU YD
ITEM 204, GEOTEXTILE FABRIC, 712.09, TYPE D, 35 SQ YD
ITEM 204, GEOGRID FOR SUBGRADE STABILIZATION, 35 SQ YD

EXCAVATION AND EMBANKMENT

THE FOLLOWING QUANTITES HAVE BEEN TAKEN FROM SHEETS 18-23 AND CARRIED TO THE GENERAL SUMMARY.

203, EXCAVATION, 782 CY
203, EMBANKMENT, 101 CY

ITEM 424 - FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN

703.05 DO NOT USE ANY AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

CALCULATED CNC
CHECKED MAC

GENERAL NOTES

MAH-170-8.25

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DRAINAGE DISCHARGE CONTINUANCE

FURNISH A DRAINAGE DISCHARGE CONTINUANCE FOR ANY DRAINAGE DISCHARGE DISTURBED BY THE WORK AND NOT SHOWN IN THE PLANS. THE LOCATION, TYPE (CONDUIT OR SWALE), SIZE AND GRADE OF THE DRAINAGE DISCHARGE CONTINUANCE WILL BE AGREED TO BY THE ENGINEER

FURNISH AN INSPECTION WELL AT THE RIGHT OF WAY LINE IN ACCORDANCE WITH SCD DM-3.1 FOR EACH DRAINAGE DISCHARGE THAT OUTLETS THROUGH A CURB OPENING, OR INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST IS INCLUDED IN ITEM 611, INSPECTION WELL.

FURNISH A WELL GRADED TRANSITION BETWEEN THE DITCH AND THE SWALE WHEN OUTLETTING A SWALE TO A DITCH. THE COST FOR THE GRADED TRANSITION IS INCLUDED IN ITEM 203, EMBANKMENT, AS PER PLAN

FURNISH AN EROSION CONTROL PAD AS SHOWN IN SCD DM-1.1 WHEN OUTLETTING A CONDUIT TO A DITCH. THE COST FOR THE EROSION CONTROL PAD IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE.

FURNISH A DRILLED CORE HOLE WHEN OUTLETTING INTO A STORM SEWER OR DRAINAGE STRUCTURE. THE COST OF THE DRILLED CORE HOLE IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE B FOR DRAINAGE DISCHARGE CONTINUANCE.

DOCUMENTATION: THE CONTRACTOR SHALL FURNISH WRITTEN DOCUMENTATION TO THE ENGINEER AND TO THE DISTRICT R/W PERMIT OFFICE. THE DOCUMENTATION INCLUDES THE CONSTRUCTION PROJECT NUMBER, PID, COUNTY, ROUTE, SECTION, LATITUDE AND LONGITUDE OF THE DRAINAGE DISCHARGE AT THE R/W, THE NAME OF PROPERTY OWNER WITH ADDRESS, THE DATE THE DRAINAGE DISCHARGE WAS LOCATED, THE DATE THE DRAINAGE DISCHARGE CONTINUANCE WAS FURNISHED, A DETAILED DESCRIPTION OF THE WORK AND PICTURES OF THE DRAINAGE DISCHARGE CONTINUANCE (IN PDF OR JPEG FORMAT). THE DOCUMENTATION IS INCLUDED IN ITEM 611, CONDUIT, MISC TYPE _ FOR DRAINAGE DISCHARGE CONTINUANCE OR ITEM 203, EMBANKMENT, AS PER PLAN

DRAINAGE DISCHARGE CONTINUANCE REMOVAL: THE ENGINEER MAY REQUIRE THE NEWLY INSTALLED DRAINAGE DISCHARGE CONTINUANCE TO BE REMOVED.

REMOVE THE NEWLY INSTALLED CONDUIT AND ANY EXISTING CONDUIT TO THE RIGHT OF WAY LINE. FOR CONDUIT THAT OUTLETS THROUGH THE CURB, RESTORE THE CURB BY FILLING THE HOLE WITH CLASS QC 1 CONCRETE OR REPLACE THE CURB SECTION. FOR CONDUIT THAT OUTLETS TO A STORM SEWER OR DRAINAGE STRUCTURE LEAVE 6 INCHES PROTRUDING OUTSIDE OF THE CONDUIT. PLUG THE PROTRUDING CONDUIT WITH EITHER A MANUFACTURED CAP OR CLASS QC 1 CONCRETE. FOR CONDUIT THAT OUTLETS TO THE DITCH REMOVE THE EROSION CONTROL PAD. RESTORE ALL AREAS AS REQUIRED. PLUG THE EXISTING CONDUIT REGARDLESS OF SIZE AT THE RIGHT OF WAY LINE WITH CLASS QC 1 CONCRETE AND RESTORE ALL AREAS AS REQUIRED. ALL COSTS ARE INCLUDED IN ITEM 202, REMOVAL MISC. CONDUIT.

DAM THE SWALE THAT OUTLETS TO THE DITCH AT THE R/W AS DIRECTED BY THE ENGINEER. ALL COSTS ARE INCLUDED IN ITEM 203, EMBANKMENT AS PER PLAN

REMOVE THE INSPECTION WELL AND RESTORE ALL AREAS AS REQUIRED. THE COST IS INCLUDED IN ITEM 202, REMOVAL MISC. INSPECTION WELL.

CONDUIT MATERIAL TYPES: THE FOLLOWING CONDUIT MATERIAL TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, AND 707.52 SDR35.

PAY ITEMS: EACH OF THE PAY ITEMS LISTED BELOW FOR CONDUIT MISCELLANEOUS, TYPES B, C, E AND F FOR DRAINAGE DISCHARGE CONTINUANCE INCLUDE CONDUIT SIZES 2 INCH TO 10 INCH. THERE IS NO COST DIFFERENTIATION FOR SIZE IN THESE PAY ITEMS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN MAKING THE ABOVE DRAINAGE DISCHARGE CONTINUANCE:

ITEM 611, 1 EACH INSPECTION WELL
ITEM 611, 10 FT.CONDUIT, MISC TYPE B, FOR DRAINAGE DISCHARGE CONTINUANCE
ITEM 611, 10 FT.CONDUIT, MISC TYPE C, FOR DRAINAGE DISCHARGE CONTINUANCE
ITEM 611, 10 FT.CONDUIT, MISC TYPE E, FOR DRAINAGE DISCHARGE CONTINUANCE
ITEM 202, 10 FT. REMOVAL MISC.: CONDUIT
ITEM 202, 1 EACH REMOVAL MISC.: INSPECTION WELL
ITEM 203, 50 CUBIC YARD EMBANKMENT, AS PER PLAN

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, TOPSOIL, 392 CY
659, SEEDING AND MULCHING, 3533 SQ. YD.
659, REPAIR SEEDING AND MULCHING, 177 SQ. YD.
659, INTER-SEEDING, 177 SQ. YD.
659, COMMERICAL FERTILIZER, 0.48 TON
659, LIME, 0.73 ACRES
659, WATER, 19 M. GAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

ITEM 611 - CONDUIT TYPE B AND TYPE C, AS PER PLAN

CONDUITS THAT VIOLATE THE 10-STATE STANDARD SPECIFICATIONS ARE LIMITED TO POYLVINYL CHLORIDE (PVC) PIPE AND JOINTS MEETING THE REQUIREMENTS OF 748.02, AWWA C905. IF THE CONDUIT DIAMETER CALLED OUT IN THE PLANS IS NOT A STANDARD PVC DIAMETER, USE THE NEXT LARGEST STANDARD DIAMETER PVC PIPE. CONDUITS SHALL BE PLACED PER ITEM 611.

ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN

IN LOW SHOULDER AREAS EXCEEDING 1", AND ADJACENT TO THE SAFETY EDGE, OR AS DIRECTED BY THE ENGINEER, RECYCLED ASPHALT PAVEMENT (RAP) SHALL BE USED IN AREAS ADJACENT TO THE PAVED BERM. THE RAP SHALL HAVE A MINIMUM PG CONTENT OF 4.5% AND MEET THE FOLLOWING GRADATION. ONCE THE STOCKPILE MEETS THE GRADATION, THE PG CONTENT OF THE RAP SHALL BE DETERMINED PER 441.03. THE RAP ANALYSIS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO USE. METHOD OF MEASUREMENT SHALL BE AS PER 617.06. PLACEMENT AND COMPACTION SHALL MEET THE REQUIREMENTS OF ITEM 617. ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 617 COMPACTED AGGREGATE, AS PER PLAN.

MODIFIED GRADATION SHALL APPLY:

SIEVE	TOTAL PERCENT PASSING
1-½"	100
¾"	50-100
NO. 4	35-70
NO. 30	9-33
NO. 200	0-13

ITEM 625 - PULL BOX REMOVED

THIS ITEM SHALL BE USED TO REMOVE THE EXISTING PULL BOX AT STA 440+53.08.

625 - PULL BOX REMOVED, 1 EACH

621 - RPM

THE FOLLOWING QUANTITES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE PLACED ON SR 170 AS SHOWN ON STANDARD CONSTRUCTION DRAWING TC-65.11.

621, RPM (YELLOW / YELLOW), 14 EACH
621, RPM (WHITE), 32 EACH
621, RAISED PAVEMENT MARKER REMOVED, 36 EACH

630 - SIGN, FLAT SHEET

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO PLACE THE NEW R3-Hba SIGN, REMOVE THE EXISTING M3-1 AND M1-5 SIGNS, AND PLACE NEW M3-1 AND M1-5 SIGNS ON SR 170 AS SHOWN ON SHEET 29.

630, SIGN FLAT SHEET, 13.3 SQ FT
630, GROUND MOUNTED SUPPORT, NO. 3 POST, 26.5 FT
630, REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL, 2 EACH
630, REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL, 1 EACH

ITEM SPECIAL - MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND RE-ATTACHING THE EXISTING MAILBOXES AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D., AND CONFORM TO AASHTO M 181.

ALL HARDWARE INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, AND ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL MAILBOX SUPPORT SYSTEM, SINGLE.

690, MAILBOX SUPPORT, SINGLE, 5 EACH

CALCULATED CNC | CHECKED MAC

GENERAL NOTES

MAH-170-8.25

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ITEM SPECIAL - REINFORCEMENT MESH FOR LONGITUDINAL JOINTS

DESCRIPTION:
THIS WORK CONSISTS OF PLACEMENT OF A SELF ADHESIVE GLASS FIBER MESH OVER JOINTS DESIGNATED IN THE PLAN AND/OR BY THE ENGINEER PRIOR TO PLACEMENT OF ASPHALT CONCRETE.

MATERIAL:
WHERE REINFORCEMENT IS PLACED BETWEEN SURFACE AND INTERMEDIATED COURSES, FURNISH GLASGRID FIBERGLASS REINFORCEMENT WITH MODIFIED POLYMER COATING AND PRESSURE-SENSITIVE ADHESIVE BACKING MEETING THE FOLLOWING PROPERTIES:

PROPERTIES	GlasGrid 8502
Material Width	5 ft.
Material - Self Adhesive fiberglass strand coated with elastomeric polymer ASTM D6637	25% minimum dry pickup
Tensile Strength ASTM D6637	655 x 1230 ± 85 lbs/in
Tensile Elongation ASTM D6637	2.5 ± 0.5%
Melting Point ASTM D276	>450°F
Mass/Unit Area ASTM D5261	18 oz/sq yd
Grid pattern	0.5 in x 0.5 in

WHERE REINFORCEMENT IS PLACED BETWEEN SURFACE COURSE AND A PLANED SURFACE, FURNISH GLASGRID FIBERGLASS REINFORCEMENT WITH MODIFIED POLYMER COATING AND PRESSURE-SENSITIVE ADHESIVE BACKING BONDED TO A NONWOVEN POLYPROPYLENE MEETING THE FOLLOWING PROPERTIES:

PROPERTIES	GlasGrid CG200
Material Width	5 ft.
Material - Self Adhesive fiberglass strand coated with elastomeric polymer ASTM D4595	25% minimum dry pickup
Tensile Strength ASTM D4595	655 x 1230 ± 85 lbs/in
Tensile Elongation ASTM D4595	2.5 ± 0.5%
Melting Point ASTM D276	>450°F
Mass/Unit Area ASTM D5261	22 oz/sq yd
Grid pattern	1.0 in x 0.75 in

BEFORE INSTALLATION SUBMIT A LETTER TO THE PROJECT ENGINEER WITH A STATEMENT CERTIFYING MATERIAL RECEIVED MEETS THE ABOVE PROPERTIES. SUBMIT TO THE PROJECT ENGINEER ACTUAL DATED (SALES FLYER DATA NOT ACCEPTABLE) TEST DATA WITH THE CERTIFICATION LETTER.

CONSTRUCTION:
PERFORM ALL REQUIRED REPAIRS PRIOR TO PLACING MESH.

ENSURE ALL AREAS WHERE MESH IS TO BE PLACED ARE FREE OF ALL DIRT AND OTHER LOOSE MATERIALS BY SWEEPING OR OTHER APPROVED METHOD. PLACE NON-TRACKING TACK COAT AT RATE SPECIFIED IN CMS AND WAIT 2 HOURS BEFORE PLACING THE MESH ON A PAVEMENT SURFACE THAT IS BETWEEN 40° F AND 140° F.

PLACE MESH UNDER TENSION TO PREVENT RIPPLING. REMOVE RIPPLES BY PULLING, OR IF NECESSARY (IN CURVES FOR EXAMPLE), BY CUTTING AND FLATTENING THE MESH. OVERLAP TRANSVERSE JOINTS OF THE MESH 3 TO 6 INCHES. OVERLAP LONGITUDINAL JOINTS OF THE MESH BY 1 INCH MINIMUM. ROLL THE MESH SURFACE 2 PASSES WITH A RUBBER COATED DRUM ROLLER, RUBBER TIRED ROLLER OR OTHER METHOD ACCEPTABLE TO THE MANUFACTURER. CLEAN RUBBER ROLLER IF BUILDUP ON THE RUBBER SURFACE INTERFERES WITH MESH PLACEMENT. DO NOT USE A STEEL DRUM ROLLER. PLACED MESH WILL HANDLE SPEED CONTROLLED EMERGENCY OR CONSTRUCTION TRAFFIC BUT DAMAGED SECTIONS MUST BE REMOVED AND/ OR REPAIRED, AT THE CONTRACTOR'S EXPENSE. DO NOT ALLOW MUD OR OTHER MATERIAL TO COLLECT ON THE MESH PRIOR TO ASPHALT CONCRETE PLACEMENT. COVER MESH WITH ASPHALT CONCRETE THE SAME DAY UNLESS WEATHER BECOMES UNSUITABLE.

MEASUREMENT:
MEASURE MESH PLACEMENT BY THE LINEAL FEET OF JOINT COVERED. DO NOT ALLOW FOR MESH OVERLAP.

PAYMENT:
THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES, COMPLETED IN PLACE, AT THE CONTRACT PRICES, AS DESCRIBED ABOVE, AS FOLLOWS:

ITEM	UNIT	DESCRIPTION
SPECIAL	FT.	REINFORCEMENT MESH FOR LONGITUDINAL JOINTS

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.

2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05.

   IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

3. COMPACT THE SUBGRADE ACCORDING TO 204.03.

4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.

   PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.

5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.

7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

THE FOLLOWING QUANTITIES HAVE BEEN TAKEN AND CARRIED TO THE GENERAL SUMMARY.

204, SUBGRADE COMPACTION, 1490 SY
204, PROOF ROLLING, 2 HR

ITEM 252 - FULL DEPTH PAVEMENT SAWING

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

252, FULL DEPTH PAVEMENT SAWING, 1500 FT

CALCULATED MJP
CHECKED MAC

GENERAL NOTES

MAH-170-8.25

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MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF ONE TEN FOOT LANE BIDIRECTIONAL LANE SHALL BE MAINTAINED ON THE EXISTING PAVEMENT AND COMPLETED PAVEMENT DURING CONSTRUCTION OF THE WORK.

2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

3. LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

4. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE SUCCESSIVE WORK ZONES UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS ONE [1] MILE.

5. TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.

6. ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

7. IN ADDITION TO THE REQUIREMENTS OF 614.11 WORK ZONE PAVEMENT MARKINGS, AT THE END OF EACH DAY OF WORK, THE CONTRACTOR SHALL REPLACE (WITH WORK ZONE MARKINGS) ALL LANE, CENTER, STOP OR CHANNELIZING LINES THAT WERE REMOVED OR COVERED DURING THE PAVEMENT REMOVAL OR PLACEMENT OPERATIONS. QUANTITIES FOR SUCH PLACEMENT ARE CARRIED AS PART OF THE ITEMS LISTED UNDER 614 WORK ZONE PAVEMENT MARKINGS.

8. A QUANTITY OF 10 CU. YDS. OF ITEM 614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC SHALL BE PROVIDED FOR USE IN MAINTAINING PAVEMENT, SHOULDERS AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.

9. PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULDER WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREVER THERE ARE PAVEMENT ELEVATION DIFFERENCES.

10. THE CONTRACTOR SHALL PLACE THE SIGNS: W8-1 [BUMP] PER OMUTCD 2C.28; W8-11 [UNEVEN LANES] PER OMUCTD 6F.45; AND W6-3 [TWO-WAY TRAFFIC] PER OMUTCD 6F.32. PAYMENT FOR THESE SIGNS SHALL BE INCIDENTAL TO THE LUMP SUM ITEM 614-MAINTAINING TRAFFIC. A QUANTITY OF ITEM 614 WORK ZONE MARKING SIGNS HAS BEEN INCLUDED IN THE PLANS PER CMS 614.04.

INTERIM START DATE

NO WORK ON THE PROJECT SHALL BEGIN PRIOR TO JUNE 4, 2020.

THE FOLLOWING QUANTITIES SHALL BE USED FOR THE MAINTENANCE OF TRAFFIC ON THIS PROJECT:

PHASE 1: PLANED SURFACE
ITEM 614, WORK ZONE MARKING SIGNS (ALL PHASES), 12 EACH
ITEM 614, WORK ZONE CENTERLINE, CLASS I, 0.18 MILES
ITEM 614, WORK ZONE CHANNELIZING LINE,
CLASS I, 8", 289 FT
ITEM 614, WORK ZONE STOP LINE, CLASS I, 59 FT

PHASE 2: SURFACE COURSE
ITEM 614, WORK ZONE CENTERLINE, CLASS III,
642 PAINT, 0.18 MILES
ITEM 614, WORK ZONE CHANNELIZING LINE,
CLASS III, 8", 642 PAINT, 289 FT
ITEM 614, WORK ZONE STOP LINE, CLASS III,
642 PAINT, 59 FT

TO BE USED AS DIRECTED BY THE ENGINEER,
614, WORK ZONE EDGE LINE, CLASS III, 6",
642 PAINT, 0.42 MILES

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISS- ING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

TRENCH FOR WIDENING [SPEED LIMIT< 45MPH, INTERSECTION WIDENING]

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH MAY BE PROTECTED BY BARRELS PLACED AT TEN [10] FOOT INTERVALS FOR THE FIRST 72 HOURS THAT THE TRENCH IS OPEN. IF THE WIDENING IS NOT COMPLETED WITHIN THE 72 HOUR PERIOD, PLACEMENT OF PROPOSED BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. 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 THE APPROVAL OF THE ENGINEER.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 3 M. GAL.

ADVANCED NOTICE TO PAVE

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL TO THE DISTRICT CONSTRUCTION ENGINEER A DETAILED SCHEDULE 15 DAYS PRIOR TO THE PLACEMENT OF THE OVERLAY COURSES, ON HOW THEY PROPOSE TO PROSECUTE THE PAVING OPERATIONS. THE DETAILS SHALL SHOW THE ORDER OF PERFORMANCE OF EACH STAGE (START TO FINISH) OF THE WORK INCLUDING THE MAINTENANCE OF TRAFFIC THAT WILL BE USED.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
ROAD & RAMP CLOSURES	>= 2WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>=2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERNS CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

633 CONTROLLER ITEM, MISC.: CONTROLLER MODIFICATION

THE CONTRACTOR SHALL DISCONNECT AND LEAVE THE LOOP DETECTOR AMPLIFIERS IN THE CONTROLLER. PHASING AND TIMING OF THE EXISTING SIGNALS WILL BE CHANGED.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE ABOVE WORK AND FOR DISCONNECTING THE LOOP UNITS FROM THE CONTROLLER:

633 CONTROLLER ITEM, MISC.:
CONTROLLER MODIFICATION LS
809 ADVANCE RADAR DETECTION 2 EACH
809 STOP LINE RADAR DETECTION 2 EACH

REFER TO THE SIGNAL PLANS ON SHEET 30 FOR MORE INFORMATION.

809 STOP-LINE RADAR DETECTION
809 ADVANCE RADAR DETECTION

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX STOP BAR DETECTION UNIT AS WELL AS WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.

2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.

3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.

4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.

5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.

6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).

7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO MILLING THE EXISTING LOOPS IN ORDER TO PREVENT TRAFFIC SIGNAL DELAY.

9. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE (330-786-2267) THREE WORKING DAYS PRIOR TO INSTALLING THE DETECTION TO REMOVE THE CABINET LOCKS. ANY LOOP DETECTORS DISTURBED BY THE PLANING SHOULD BE ABANDONED IN PLACE.

PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION AND ITEM 809 STOP-LINE RADAR DETECTION SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

REFER TO THE SIGNAL PLANS ON SHEET 30 FOR MORE INFORMATION.

CALCULATED CNC CHECKED MAC

MAINTENANCE OF TRAFFIC GENERAL NOTES

MAH-170-8.25

SR 170 SOUTHBOUND LEFTHAND TURN LANE INSTALLATION

THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON SR 170 AND DOBBINS RD AS SHOWN ON SHEETS 9-10 FOR PHASE 1 AND 2 OF THE CONSTRUCTION. DURING WORKING HOURS FOR PHASE 1 AND 2 THE CONTRACTOR MAY FLAG TRAFFIC PER STANDARD CONSTRUCTION DRAWING MT-97.10.

THE SIGNAL AT SR 170 AND DOBBINS RD SHALL BE DISABLED AND STOP SIGNS INSTALLED ON DOBBINS RD IN ORDER TO COMPLETE ALL WIDENING WORK. THE SIGNAL SHALL ONLY BE DISABLED FROM JUNE 4, 2020 TO AUGUST 15, 2020.

FIVE (5) DAYS PRIOR TO THE SIGNAL BEING DISABLED THE CONTRACTOR SHALL ERECT PORTABLE CHANGEABLE MESSAGE BOARDS ON SR 170 NORTH AND SOUTH BOUND AND DOBBINS ROAD WITH THE MESSAGE "SIGNAL OUT OF SERVICE MM/DD TO MM/DD". THE CONTRACTOR SHALL ALSO CONTACT THE DISTRICT OFFICE (330-786-2267) FIVE (5) DAYS PRIOR TO THE SIGNAL DEACTIVATION.

WHEN THE SIGNAL IS REACTIVATED, THE CONTRACTOR SHALL HAVE SIGNS W3-4 (BE PREPARED TO STOP) AND W3-3 (SIGNAL) WITH FLAGS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-120.00 ERECTED FOR SEVEN (7) CONSECUTIVE DAYS.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE ABOVE REQUIREMENTS, A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $2,000 PER CALENDAR DAY.

THE FOLLOWING QUANTITES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED TO MAINTAIN TRAFFIC AS SHOWN IN PHASE 1 AND 2 AS SHOWN ON SHEETS 9-10.

ITEM 630, SIGN, FLAT SHEET, 48 SQ FT
ITEM 630, GROUND MOUNTED SUPPORT, NO. 3 POST, 52 FT
ITEM 630, SIGN POST REFLECTOR, 4 EACH
ITEM 630, REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL, 4 EACH
ITEM 630, REMOVAL OF GROUND MOUNTED SIGN AND REERECTION, 4 EACH
ITEM 630, REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL, 4 EACH
ITEM 630, REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION, 4 EACH
ITEM 632, COVERING OF VEHICULAR SIGNAL HEAD, 6 EACH
ITEM 614, WORK ZONE EDGE LINE, CLASS I, 6", 0.74 MILES
ITEM 614, WORK ZONE CENTERLINE, CLASS I, 0.39 MILES
ITEM 614, WORK ZONE STOP LINE, CLASS I, 11 FT

ALL ITEMS ASSOCIATED WITH REMOVAL OF PAVEMENT MARKINGS FOR BOTH PHASES SHALL BE INCLUDED WITH THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 630, SIGNING MISC.: SOLAR POWERED LED ENHANCED STOP (R1-1)

THIS ITEM SHALL BE USED AT THE STOP SIGNS INSTALLED ON DOBBINS RD DURING CONSTRUCTION AND SHALL BE IN ACCORDANCE WITH THE TRAFFIC ENGINEERING MANUAL 242-9. THIS ITEM SHALL INCLUDE REMOVAL AND INSTALLATION OF THE SOLAR POWERED LED ENHANCED STOP AND ALL MATERIALS, LABOR, AND INCIDENTALS.

ITEM 630, SIGNING MISC.: SOLAR POWERED LED ENHANCED STOP (R1-1), 2 EACH
ITEM 630, REMOVAL OF GROUND MOUNTED SIGN AND DELIVERY, 2 EACH

AT THE CONCLUSION OF THE PROJECT, THE SIGNS SHALL BE GIVEN TO DISTRICT 4. TURNOVER SHALL BE COORDINATED THROUGH MICHELLE CHANEY (330-786-2267).

GENERAL ELECTRICAL REQUIREMENTS FOR SOLAR-POWERED DEVICES

RUN REQUIREMENTS OF THIS DEVICE ARE 24 HOURS PER DAY, 7 DAYS PER WEEK.

UTILIZE ENVIRONMENTALLY-SEALED, HIGH-EFFICIENCY LED LIGHT SOURCES FOR THIS SOLAR-POWERED APPLICATION.

HOUSE THE SOLAR POWER SUPPLY CONTROLLER AND BATTERY IN ONE OR TWO STAINLESS STEEL OR ALUMINUM ENCLOSURES WITH A MINIMUM NEMA 3 OR 3X RATING.

IF THE EXTERIOR SIZE OF THE ENCLOSURE NECESSARY TO MEET THE REQUIREMENTS BELOW IS LESS THAN 1000 CUBIC INCHES, A SINGLE POLYMER ENCLOSURE RATED NEMA 4 AND LISTED AS SUNLIGHT-RESISTANT MAY BE INSTALLED, WITH APPROVAL OF THE ENGINEER.

SEAL ENCLOSURE CONDUIT ENTRIES TO PREVENT INSECT AND/OR RODENT ENTRY. PROVIDE METAL ENCLOSURES WITH AN EXTERIOR OF BARE OR POWDER-COATED ALUMINUM, OR STAINLESS STEEL.

PROVIDE A LOCKING ENCLOSURE USING EITHER AN INTEGRATED LOCKING MECHANISM OR A PADLOCK PER C&MS 631.06.

SMALL ENCLOSURES OF 300 CUBIC INCHES OR LESS (EXTERIOR) MAY BE PROVIDED WITH SECURITY FASTENERS IN LIEU OF A LOCKING MECHANISM OR PADLOCK.

SEPARATE THE CONTROL ELECTRONICS AND BATTERY, IF CONTAINED WITHIN A SINGLE ENCLOSURE, TO PREVENT DAMAGE TO THE CONTROL ELECTRONICS IF THE BATTERY ENVELOPE IS COMPROMISED.

PROVIDE SEALED GEL-CELL OR AGM (ABSORBED GLASS MAT) LEAD-ACID BATTERIES FOR ALL INSTALLATIONS WITH INSTANTANEOUS LOAD REQUIREMENTS OF 4 WATTS OR ABOVE, REGARDLESS OF DUTY CYCLE.

FOR INSTALLATIONS WITH INSTANTANEOUS LOAD REQUIREMENTS OF LESS THAN 4 WATTS, RECHARGEABLE NICD, LI-ION, OR NIMH BATTERIES MAY BE USED INSTEAD OF AGM OR GEL-CELL, IF APPROVED BY THE ENGINEER.

PROVIDE SIGNED COPIES FROM THE SOLAR PANEL AND/OR CONTROLLER MANUFACTURER OF ALL CALCULATIONS USED TO SIZE THE SOLAR PANEL AND BATTERIES.

INCLUDE IN THESE CALCULATIONS THE INSOLATION VALUE USED AND ITS REFERENCE SOURCE, THE SOLAR PANEL EFFICIENCY, CHARGER/CONTROLLER EFFICIENCY, INVERTER EFFICIENCY, PROPOSED LED LAMP AND/OR EQUIPMENT LOAD, AND A FIGURE REPRESENTING ANTICIPATED MISCELLANEOUS LOSSES.

SHOW CALCULATIONS DOCUMENTING A RESERVE CAPACITY OF TWO WEEKS OPERATION UNDER CONTINUOUS WORST-CASE (MINIMUM) INSOLATION FIGURES (USUALLY DECEMBER) FOR THE PROPOSED GEOGRAPHIC LOCATION, USING A PANEL ELEVATION ANGLE APPROPRIATE TO THE SITE, AT A SUSTAINED TEMPERATURE OF 25 DEGREES FAHRENHEIT (-4 DEGREES CELSIUS).

DELIVER A COPY OF THE CALCULATIONS TO THE ENGINEER AND ANOTHER COPY TO THE OFFICE OF ROADWAY ENGINEERING FOR APPROVAL.

PROVIDE DOCUMENTATION SHOWING THAT THE SOLAR PANEL MANUFACTURER TESTED THE PANEL ACCORDING TO IEC61215 OR EQUIVALENT APPROVED STANDARD.

PROVIDE DOCUMENTATION SHOWING THAT SOLAR PANEL MOUNTING IS RATED FOR 90 MPH DESIGN WIND AND DESIGNED TO RESIST VANDALISM.

ENSURE NEC GROUNDING AND BONDING REQUIREMENTS ARE MET IF VOLTAGES OVER 50V AC OR DC ARE PRESENT.

PROVIDE A TIMER (IF REQUIRED) THAT SATISFIES THE REQUIREMENTS OF C&MS 731.10 AND IS LISTED ON THE ODOT QUALIFIED PRODUCTS LIST.

PROVIDE COMPLETE PHOTO-CONTROLLER SPECIFICATIONS, INCLUDING ON/OFF PHOTOMETRIC SWITCH POINTS (TYPICALLY GIVEN IN FOOT-CANDLES), IF A PHOTO-CONTROLLER IS UTILIZED.

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN A NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING THE SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 50 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

TIME LIMITATION, TRAFFIC ON A MILLED SURFACE

THE MAXIMUM ALLOWABLE TIME FOR TRAFFIC TO BE PLACED ON A MILLED SURFACE SHALL BE 7 CONSECUTIVE CALENDAR DAYS. SHOULD THE CONTRACTOR FAIL TO MEET THIS REQUIREMENT, THE CONTRACTOR SHALL BE ASSSESSED A DISINCENTIVE IN THE AMOUNT OF $2000 PER DAY THAT THE TRAFFIC IS PLACED ON A MILLED SURFACE BEYOND THE SPECIFIED LIMT.

ITEM 632 - VEHICULAR SIGNAL HEAD, MISC.: RELOCATION OF VEHICULAR SIGNAL HEAD

THIS ITEM OF WORK SHALL CONSIST OF THE RELOCATION OF A VEHICULAR SIGNAL HEAD ALONG AN EXISTING SPAN WIRE. THE CONTRACTOR SHALL VERIFY THAT THE RELOCATION ALIGNS THE SIGNAL HEAD ALONG THE CENTER OF THE THROUGH LANE. THE CONTRACTOR SHALL PROVIDE NEW WIRING TO THE RELOCATED SIGNAL HEAD IF NEEDED. NO SPLICING OF THE EXISTING WIRING IS PERMITTED. PAYMENT FOR THIS ITEM WILL INCLUDE ALL NECESSARY LABOR, MISCELLANEOUS HARDWARE AND EQUIPMENT REQUIRED TO PROVIDE FOR THIS ITEM OF WORK IN ACCORDANCE WITH SPECIFICATION 632.

CALCULATED CNC CHECKED MAC

MAINTENANCE OF TRAFFIC GENERAL NOTES

MAH-170-8.25

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ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE CHANGEABLE MESSAGE SIGN, THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCE OF 800 FEET AND 650 FEET RESPECTIVELY.

EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO DIM THE SIGN DURING DARKNESS AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHOULD BE DELINEATED.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE PCMS SHOULD NOT BE LOCATED IN THE MEDIAN OF THE HIGHWAY UNLESS IT IS PROTECTED FROM BOTH DIRECTIONS OF TRAFFIC. THE PCMS SHALL BE LOCATED. IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE THE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF. ADDITIONALLY WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE CONTRACTOR. A LIST OF ALL PROPOSED PREPROGRAMMED MESSAGES WILL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE LINE PRESENTATION FORMATS WITH UP TO OF SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DE-ACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL [IN ACTIVE CELLULAR AREAS] ALLOW REMOTE SIGN ACTIVATION, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614.07. THE CONTRACTOR SHALL PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THEIR USE. THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AS OUTLINED IN 614.02.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 6 SIGN MONTH
(ASSUMING 3 PCMS SIGNS FOR 2 MONTHS)

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL BE ADVISED THAT PROJECT MAH-170-0.78/VAR (PID: 98413) MAY BE ONGOING IN AN AREA IMMEDIATELY ADJACENT TO AND WITHIN THE PROJECT LIMITS OF THIS PROJECT. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO AS TO CAUSE A MINIMUM OF DELAY OR CONFLICT WITH THE OTHER PROJECTS. IN ACCORDANCE WITH 105.08, THE CONTRACTOR SHALL ARRANGE WITH THE OTHER CONTRACTORS APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL RECEIVE DAILY APPROVALS FROM THE ENGINEER PRIOR TO COMMENCING ANY OPERATIONS. ANY CONFLICT BETWEEN CONTRACTORS INVOLVING WORK SCHEDULES, WORK AREA, OR COOPERATION SHALL BE RESOLVED BY THE ENGINEER. COMPENSATION FOR THE ABOVE COOPERATION SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS INCLUDED WITHIN THIS PROJECT.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.

2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR POLAND TOWNSHIP FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 8 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6 AM TO 6 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;

2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;

3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;

4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;

5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

CALCULATED CNC CHECKED MAC

MAINTENANCE OF TRAFFIC GENERAL NOTES

MAH-170-8.25

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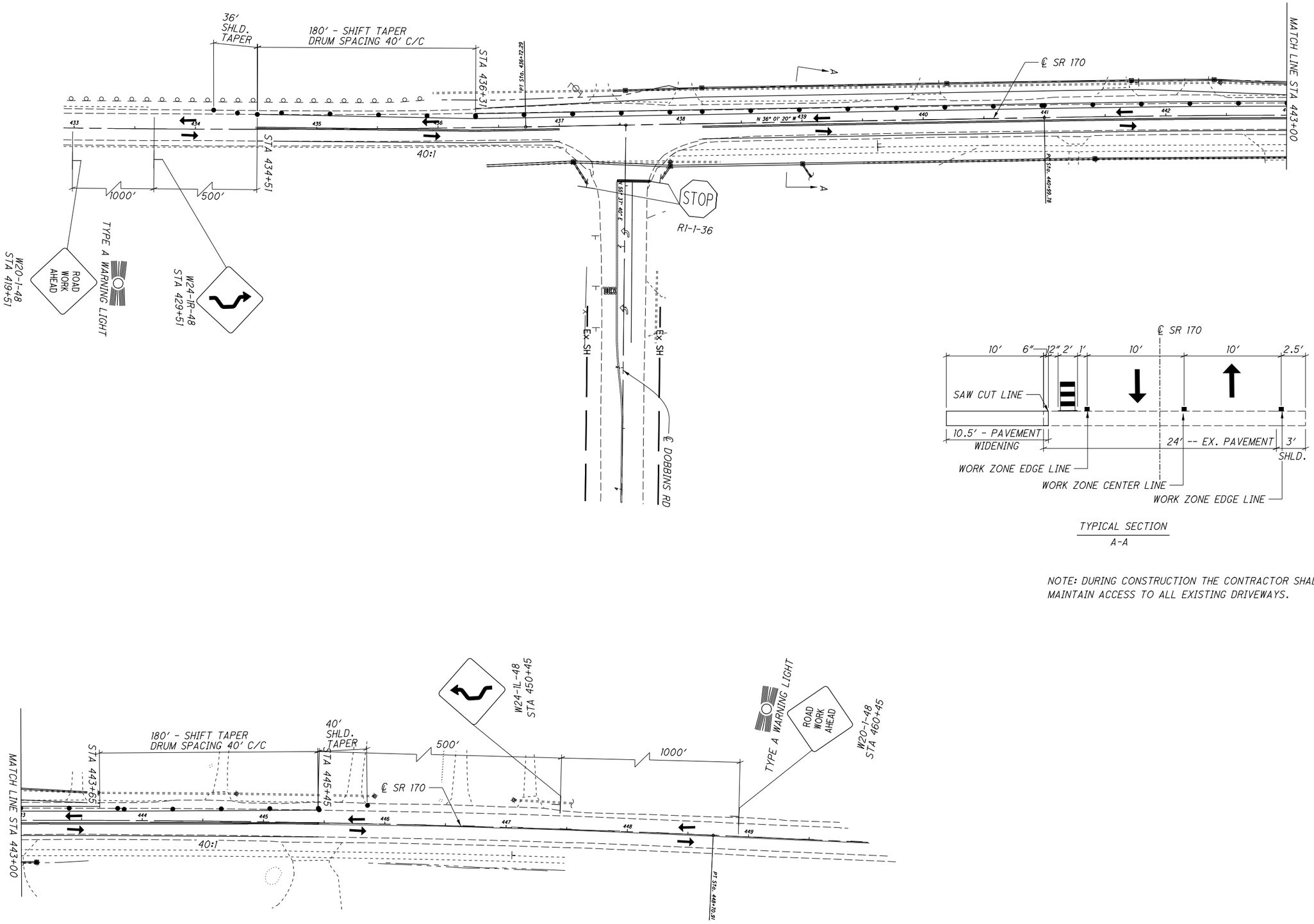

NOTE: DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING DRIVEWAYS.

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HORIZONTAL SCALE IN FEET 0 20 80

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MAINTENANCE OF TRAFFIC PHASE 1: SR 170 WIDENING

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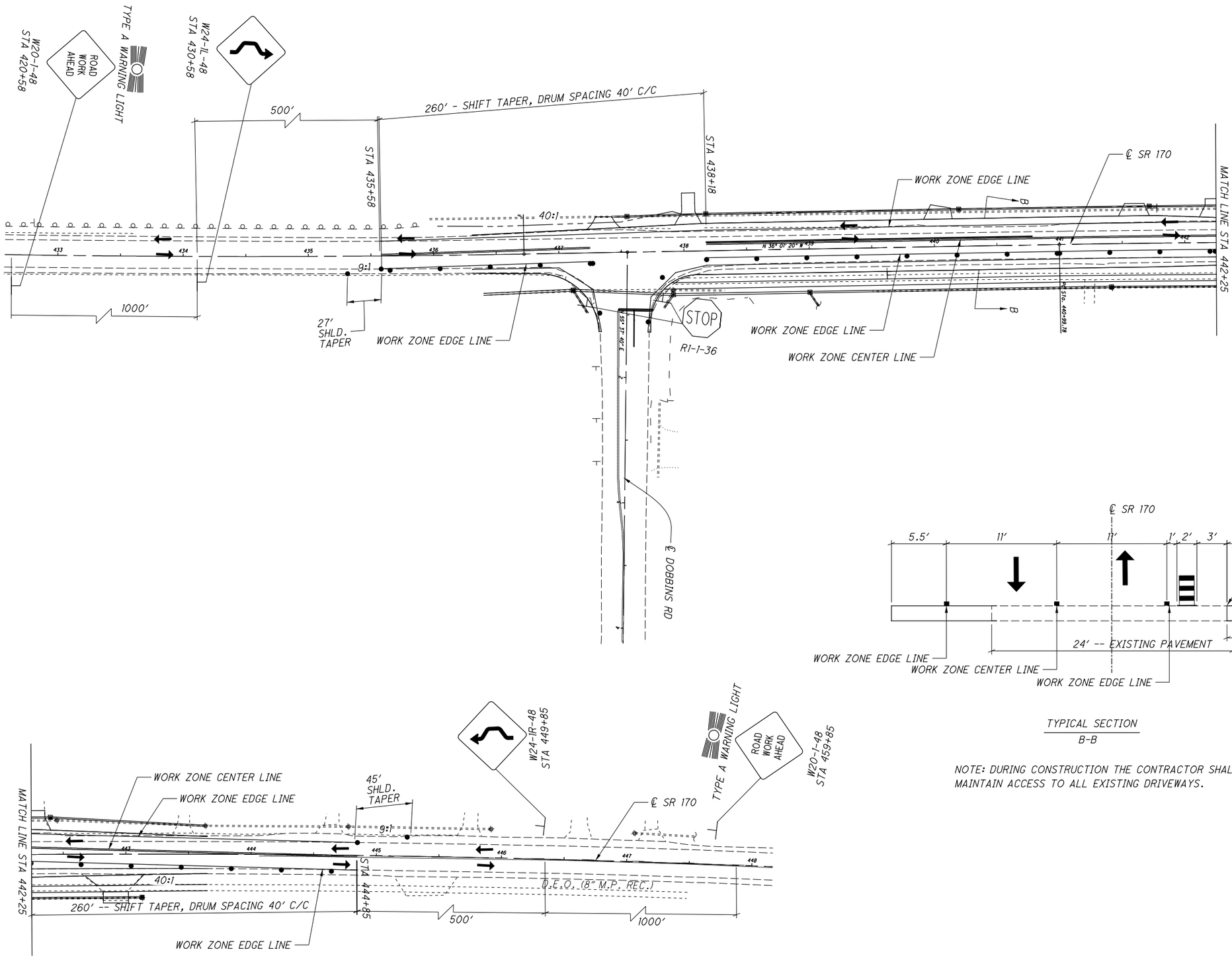
9 30



TYPICAL SECTION
B-B

NOTE: DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING DRIVEWAYS.

HORIZONTAL SCALE IN FEET
0 20 40 80

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MAINTENANCE OF TRAFFIC
PHASE 2: SR 170 WIDENING

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SHEET NUM.													PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
					3	4	5	13	14	15	25		01/CMQ/PV		EXT	TOTAL			
																		ROADWAY	
										2,877			2,877	202	30000	2,877	SF	WALK REMOVED	
								1,203					1,203	202	35100	1,203	FT	PIPE REMOVED, 24" AND UNDER	
								5					5	202	58100	5	EACH	CATCH BASIN REMOVED	
						1							1	202	98100	1	EACH	REMOVAL MISC.: INSPECTION WELL	4
						10							10	202	98200	10	FT	REMOVAL MISC.: CONDUIT	4
					782						63		845	203	10000	845	CY	EXCAVATION	
					101								101	203	20000	101	CY	EMBANKMENT	
						50							50	203	20001	50	CY	EMBANKMENT, AS PER PLAN	4
							1,490						1,490	204	10000	1,490	SY	SUBGRADE COMPACTION	
					15								15	204	13000	15	CY	EXCAVATION OF SUBGRADE	
					15								15	204	30010	15	CY	GRANULAR MATERIAL, TYPE B	
							2						2	204	45000	2	HOUR	PROOF ROLLING	
					35								35	204	50000	35	SY	GEOTEXTILE FABRIC, 712.09, TYPE D	
					35								35	204	51000	35	SY	GEOGRID	
										16			16	209	72000	16	STA	PREPARING SUBGRADE FOR SHOULDER PAVING	
										2,877			2,877	608	10000	2,877	SF	4" CONCRETE WALK	
										8			8	608	53020	8	SF	DETECTABLE WARNING	
						1							1	625	31510	1	EACH	PULL BOX REMOVED	
						5							5	SPECIAL	69050100	5	EACH	MAILBOX SUPPORT SYSTEM, SINGLE	4
										734			734	690	98100	734	FT	SPECIAL - REINFORCEMENT MESH FOR LONGITUDINAL JOINTS	5
																		EROSION CONTROL	
									2				2	601	21050	2	SY	TIED CONCRETE BLOCK MAT, TYPE 1	
						392							392	659	00300	392	CY	TOPSOIL	
						3,533							3,533	659	10000	3,533	SY	SEEDING AND MULCHING	
						177							177	659	14000	177	SY	REPAIR SEEDING AND MULCHING	
						177							177	659	15000	177	SY	INTER-SEEDING	
						0.48							0.48	659	20000	0.48	TON	COMMERCIAL FERTILIZER	
						0.73							0.73	659	31000	0.73	ACRE	LIME	
						19							19	659	35000	19	MGAL	WATER	
													3,000	832	30000	3,000	EACH	EROSION CONTROL	
																		DRAINAGE	
								1					1	602	20000	1	CY	CONCRETE MASONRY	
									124				124	605	05210	124	FT	4" UNCLASSIFIED PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC	
									1,342				1,342	605	06020	1,342	FT	4" BASE PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC	
									62				62	611	00410	62	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
								10					10	611	03100	10	FT	10" CONDUIT, TYPE B 707.01, 707.04, 707.05	
								172					172	611	04401	172	FT	12" CONDUIT, TYPE B, AS PER PLAN 707.01, 707.04, 707.05	4
								35					35	611	04601	35	FT	12" CONDUIT, TYPE C, AS PER PLAN	4
								619					619	611	04900	619	FT	12" CONDUIT, TYPE D	
								241					241	611	06101	241	FT	15" CONDUIT, TYPE C, AS PER PLAN	4
								80					80	611	07401	80	FT	18" CONDUIT, TYPE B, AS PER PLAN 707.01, 707.04, 707.05	4
								181					181	611	07601	181	FT	18" CONDUIT, TYPE C, AS PER PLAN	4
						10							10	611	97400	10	FT	CONDUIT, MISC.: TYPE B FOR DRAINAGE DISCHARGE CONTINUANCE	4
						10							10	611	97400	10	FT	CONDUIT, MISC.: TYPE C FOR DRAINAGE DISCHARGE CONTINUANCE	4
						10							10	611	97400	10	FT	CONDUIT, MISC.: TYPE E FOR DRAINAGE DISCHARGE CONTINUANCE	4
								9					9	611	98470	9	EACH	CATCH BASIN, NO. 2-2B	
									1				1	611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
						1							1	611	99720	1	EACH	INSPECTION WELL	

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GENERAL SUMMARY

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SHEET NUM.													PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
			4	5	6	7	8	15	25	28			01/CMQ/PV		EXT	TOTAL			
																		PAVEMENT	
				1,500									1,500	252	01500	1,500	FT	FULL DEPTH PAVEMENT SAWING	
								4,706					4,706	254	01000	4,706	SY	PAVEMENT PLANING, ASPHALT CONCRETE	
								328	36				364	301	46000	364	CY	ASPHALT CONCRETE BASE, PG64-22	
								234	24				258	304	20001	258	CY	AGGREGATE BASE, AS PER PLAN	3
								178	18				196	407	20000	196	GAL	NON-TRACKING TACK COAT	
								206					206	408	10001	206	GAL	PRIME COAT, AS PER PLAN	3
									3				3	411	10000	3	CY	STABILIZED CRUSHED AGGREGATE	
								164	5				169	424	12001	169	CY	FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN	3
								103	7				110	441	50300	110	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	
									52				52	452	10010	52	SY	6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	
									20				20	452	12010	20	SY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	
								29					29	617	10101	29	CY	COMPACTED AGGREGATE, AS PER PLAN	4
																		TRAFFIC CONTROL	
			46										46	621	00100	46	EACH	RPM	
			36										36	621	54000	36	EACH	RAISED PAVEMENT MARKER REMOVED	
			26.5			52							78.5	630	03100	78.5	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
						4							4	630	08600	4	EACH	SIGN POST REFLECTOR	
			13.3			48							61.3	630	80100	61.3	SF	SIGN, FLAT SHEET	
			2			4							6	630	84900	6	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
						4							4	630	85100	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
						2							2	630	85200	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DELIVERY	
			1			4							5	630	86002	5	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
						4							4	630	86010	4	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION	
						2							2	630	97700	2	EACH	SIGNING, MISC.: SOLAR POWERED LED ENHANCED STOP STOP (R1-1)	7
										0.42			0.42	646	10010	0.42	MILE	EDGE LINE, 6"	
										0.18			0.18	646	10200	0.18	MILE	CENTER LINE	
										289			289	646	10300	289	FT	CHANNELIZING LINE, 8"	
										59			59	646	10400	59	FT	STOP LINE	
										10			10	646	10800	10	SF	ISLAND MARKING	
										3			3	646	20300	3	EACH	LANE ARROW	
																		TRAFFIC SIGNALS	
						6							6	632	25000	6	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
						1							1	632	90400	1	EACH	SIGNALIZATION, MISC.: RELOCATION OF VEHICULAR SIGNAL HEAD	7
					LS								LS	633	99300	LS		CONTROLLER ITEM, MISC.: CONTROLLER MODIFICIATION	6
					2								2	809	69000	2	EACH	ADVANCE RADAR DETECTION	
					2								2	809	69100	2	EACH	STOP LINE RADAR DETECTION	
																		MAINTENANCE OF TRAFFIC	
						50							50	614	11110	50	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
					12								12	614	12460	12	EACH	WORK ZONE MARKING SIGN	
					10								10	614	13000	10	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
							6						6	614	18601	6	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	8
					0.18	0.39							0.57	614	21000	0.57	MILE	WORK ZONE CENTER LINE, CLASS I	
					0.18								0.18	614	21550	0.18	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
						0.74							0.74	614	22010	0.74	MILE	WORK ZONE EDGE LINE, CLASS I, 6"	
					0.42								0.42	614	22360	0.42	MILE	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT	
					289								289	614	23000	289	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8"	
					289								289	614	23680	289	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 8", 642 PAINT	
					59	11							70	614	26000	70	FT	WORK ZONE STOP LINE, CLASS I	
					59								59	614	26610	59	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
					3								3	616	10000	3	MGAL	WATER	
																		INCIDENTALS	
													LS	614	11000	LS		MAINTAINING TRAFFIC	
													6	619	16010	6	MNTH	FIELD OFFICE, TYPE B	
													LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
													LS	624	10000	LS		MOBILIZATION	

CALCULATED CNC
CHECKED MAC

GENERAL SUMMARY

MAH-170-8.25

I:\Project Data\MAH\106230_I70_08.25\Design\Roadway\Sheets\106230_GG001.dgn Sheet 2 12/20/2019 8:31:51 AM mpalagan

REF NO.	SHEET NO.	STATION TO STATION						202	202		611	611	611	611	611	611	611	611	602										
								PIPE REMOVED, 24" AND UNDER	CATCH BASIN REMOVED		CATCH BASIN, NO. 2-2B	10" CONDUIT, TYPE B 707.01, 707.04, 707.05	12" CONDUIT, TYPE D	12" CONDUIT, TYPE C, AS PER PLAN	12" CONDUIT, TYPE B, AS PER PLAN 707.01, 707.04, 707.05	15" CONDUIT, TYPE C, AS PER PLAN	18" CONDUIT, TYPE B, AS PER PLAN 707.01, 707.04, 707.05	18" CONDUIT, TYPE C, AS PER PLAN	CONCRETE MASONRY									
								FT	EACH		EACH	FT	FT	FT	FT	FT	FT	FT	CY										
R1	16	436+39.62	RT	TO	437+11.09	RT		72	1																				
R2	16	437+11.09	RT	TO	437+22.17	RT		22																					
R3	16	437+11.09	RT	TO	437+91.01	RT		80	1																				
R4	16	437+91.01	RT	TO	437+83.48	RT		41																					
R5	16	439+06.80	RT					5																					
R6	16-17	439+50.01	RT	TO	441+41.41	RT		192	1																				
R7	17	441+41.41	RT	TO	443+13.11	RT		172	1																				
R8	17	437+45.00	LT	TO	442+45.16	LT		119																					
R9	17	442+45.16	LT	TO	443+63.51	LT		500	1																				
D1	16	436+39.62	RT	TO	437+11.00	RT					1							72	0.21										
D2	16	437+11.00	RT	TO	437+22.49	RT								22					0.21										
D3	16	437+11.00	RT	TO	437+91.00	RT					1						80												
D4	16	437+83.48	RT	TO	437+91.00	RT								13					0.33										
D5	16	437+91.00	RT	TO	439+00.00	RT					1							109											
D6	16	439+00.00	RT	TO	439+00.00	RT						10																	
D7	16-17	439+00.00	RT	TO	441+41.00	RT					1						241												
D8	17	441+41.00	RT	TO	443+13.00	RT										172													
D9	16	437+45.00	LT	TO	437+55.00	LT					1		10																
D10	16	437+55.00	LT	TO	438+18.00	LT					1		63																
D11	16	438+18.00	LT	TO	440+20.00	LT					1		202																
D12	17	440+20.00	LT	TO	441+72.00	LT					1		152																
D13	17	441+72.00	LT	TO	442+40.00	LT					1		68																
D14	17	442+40.00	LT	TO	443+63.51	LT							124																
TOTALS CARRIED TO GENERAL SUMMARY								1203	5		9	10	619	35	172	241	80	181	1										

CALCULATED CNC
CHECKED MAC

DRAINAGE SUB SUMMARY

MAH-170-8.25

I:\ProjectData\MAH\106230_I70_08.25\Design\Roadway\Sheets\106230_GS001.dgn Sheet1 12/20/2019 8:32:28 AM mpalagan

REF NO.	SHEET NO.	STATION TO STATION					BEGIN ELEVATION	END ELEVATION	OUTLET BEGIN ELEVATION	OUTLET BEGIN OFFSET	OUTLET STATION SHALLOW UNDERDRAIN OUTLET	OUTLET STATION OUTLET TO DRAINAGE STRUCTURE	OUTLET END ELEVATION	OUTLET END OFFSET	601 TIED CONCRETE BLOCK MAT, TYPE 1	611 4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	611 PRECAST REINFORCED CONCRETE OUTLET	605 4" UNCLASSIFIED PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC	605 4" BASE PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC				FOR INFORMATION ONLY TEE	FOR INFORMATION ONLY 45° BEND	FOR INFORMATION ONLY 90° BEND	FOR INFORMATION ONLY END CAP
															SY	FT	EACH	FT	FT				EACH	EACH	EACH	EACH
U-1	16	436+31.00	LT	TO	437+55.00	LT	1102.26	1102.22	1102.22	20.3		437+55.00	1102.14	27.5		8		124					1			
U-2	16	436+31.00	RT	TO	437+15.00	RT	1101.27	1101.40	1101.27	15.04	436+31.00		1101.15	25.27	2	12	1		84						1	
U-3	16	437+17.00	RT	TO	437+31.00	RT	1101.40	1101.98	1101.40	30.98		437+12.00	1100.86	30.98		5			36					1		
U-4	16	437+55.00	LT	TO	440+20.00	LT	1102.22	1104.56	1102.22	20.3	TEE INTO U-1		1102.14	27.5					265							
U-5	16	437+72.00	RT	TO	437+73.00	RT	1102.49	1101.89	1101.89	36.46		437+90.00	1101.78	35.4		11			29					1		
U-6	16-17	440+20.00	LT	TO	443+65.00	LT	1104.56	1107.70	1104.56	22.37		440+20.00	1104.50	27.83		6			345				1			
U-7	16	437+86.00	RT	TO	441+41.00	RT	1101.92	1105.71	1101.92	28.65		437+90.00	1101.86	32.83		6			359						1	
U-8	16-17	441+41.00	RT	TO	443+65.00	RT	1105.71	1107.56	1105.71	19.48		441+41.00	1105.57	32.83		14			224				1			
TOTALS CARRIED TO GENERAL SUMMARY															2	62	1	124	1342				3	2	2	0

CALCULATED MJP
CHECKED MAC

UNDERDRAIN SUBSUMMARY

MAH-170-8.25

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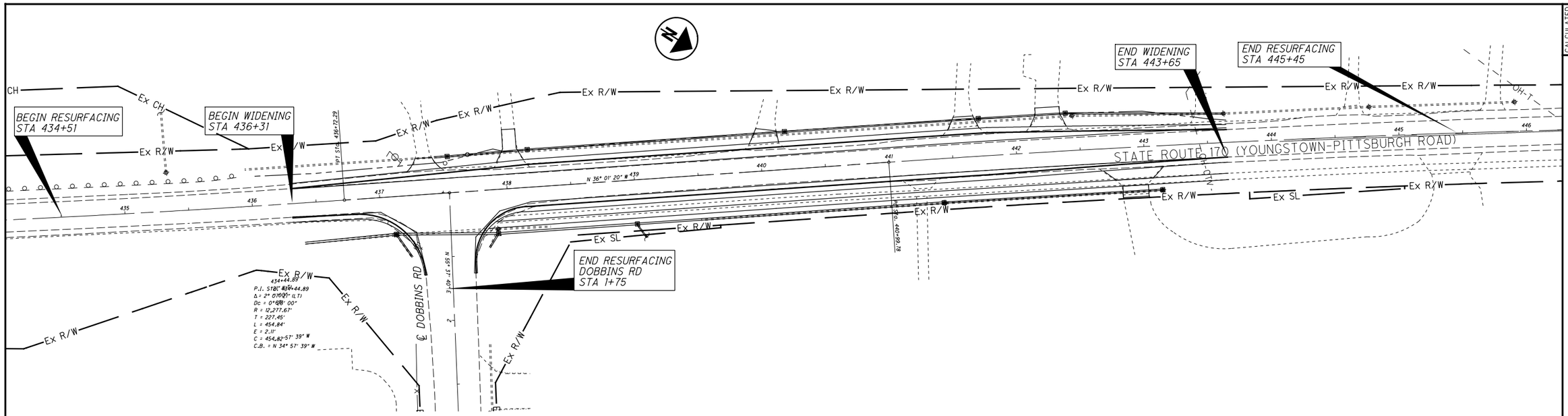

STATION RANGE			TYPICAL SECTION	SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW/9	CADD GENERATED AREA		209 PREPARING SUBGRADE FOR SHOULDER PAVING	304 AGGREGATE BASE, AS PER PLAN (T=6")	301 ASPHALT CONCRETE BASE, PG64-22 (T=9")	407 NON-TRACKING TACK COAT @ 0.05 GAL/SY	407 NON-TRACKING TACK COAT @ 0.08 GAL/SY	441 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) (T=3")	254 PAVEMENT PLANING, ASPHALT CONCRETE (T= 1 1/4")	424 FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN (T= 1 1/4")		408 PRIME COAT, AS PER PLAN @ 0.40 GAL/SY	617 COMPACTED AGGREGATE, AS PER PLAN (T=2")	690 SPECIAL - REINFORCEMENT MESH FOR LONGITUDINAL JOINTS	202 WALK REMOVED	608 4" CONCRETE WALK	608 DETECTABLE WARNING
					FT	FT	SY	SY		STA	CY	CY	GAL	GAL	CY	SY	CY		GAL	CY	FT	SF	SF	SF
SR 170																								
436+31.00	TO	438+18.00	1	LT	187.00	VARIES		153.79		1.87	29.15	40.69	8.14	13.99	12.82									
438+18.00	TO	441+78.00	1	LT	360.00	10.50	420.00			3.60	77.78	110.83	22.17	37.33	35.00									
441+78.00	TO	443+65.00	1	LT	187.00	VARIES		136.76		1.87	26.55	36.79	7.36	12.74	11.40									
436+31.00	TO	437+00.00	1	RT	69.00	VARIES		31.81		0.69	6.73	8.98	1.80	3.23	2.65									
437+93.00	TO	438+18.00	1	RT	25.00	VARIES		15.56		0.25	3.13	4.29	0.86	1.50	1.30									
438+18.00	TO	441+78.00	1	RT	360.00	7.50	300.00			3.60	57.78	80.83	16.17	27.73	25.00									
441+78.00	TO	443+65.00	1	RT	187.00	VARIES		119.94		1.87	24.30	33.42	6.68	11.66	9.99									
434+51.00	TO	436+31.00	2	LT/RT	180.00	30.00	600.00									600.00	20.83		32.00	4.44				
436+31.00	TO	438+18.00	2	LT/RT	187.00	VARIES		705.97								705.97	24.51		33.24	4.62	187.00			
438+18.00	TO	441+78.00	2	LT/RT	360.00	41.00	1640.00									1640.00	56.94		64.00	8.89	360.00			
441+78.00	TO	443+65.00	2	LT/RT	187.00	VARIES		731.94								731.94	25.41		33.24	4.62	187.00			
443+65.00	TO	445+45.00	2	LT/RT	180.00	32.00	640.00									640.00	22.22		32.00	4.44				
437+89.78	TO	443+65.00		RT	575.22	5.00	319.57															2876.10	2876.10	8.00
DOBBINS RD																								
1+15.89	TO	1+63.55		LT	47.66	VARIES		16.88		0.48	2.81	4.22	0.84	1.35	1.41									
1+13.07	TO	1+63.60		RT	50.53	VARIES		30.55		0.51	5.09	7.64	1.53	2.44	2.55									
1+13.52	TO	1+75.00	2	LT/RT	61.48	VARIES		387.25		1.23						387.25	13.45		10.93	1.52				
								SUBTOTALS	0.00	15.96	233.32	327.70	65.54	111.99	102.11	4705.16	163.37	0.00	205.42	28.53	734.00	2876.10	2876.10	8.00
								TOTALS CARRIED TO GENERAL SUMMARY	0	16	234	328	66	112	103	4706	164	0	206	29	734	2877	2877	8

CALCULATED CNC
CHECKED MAC

PAVEMENT CALCULATIONS

MAH-170-8.25

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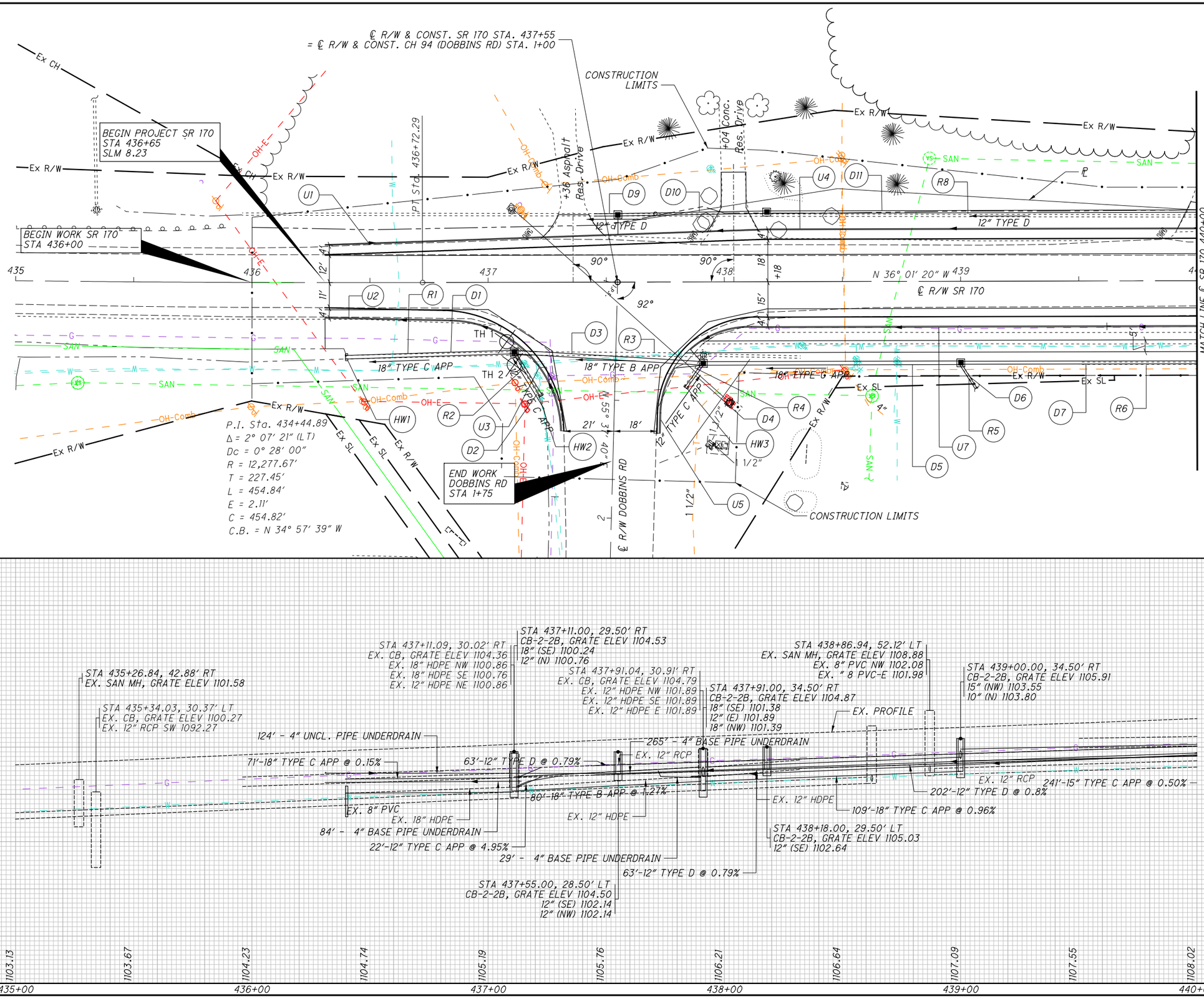

PLAN AND PROFILE
STA 440+00 TO STA 445+00

MAH-170-8.25

16
30

CALCULATED CNC
CHECKED MAC

HORIZONTAL SCALE IN FEET
0 10 20 40

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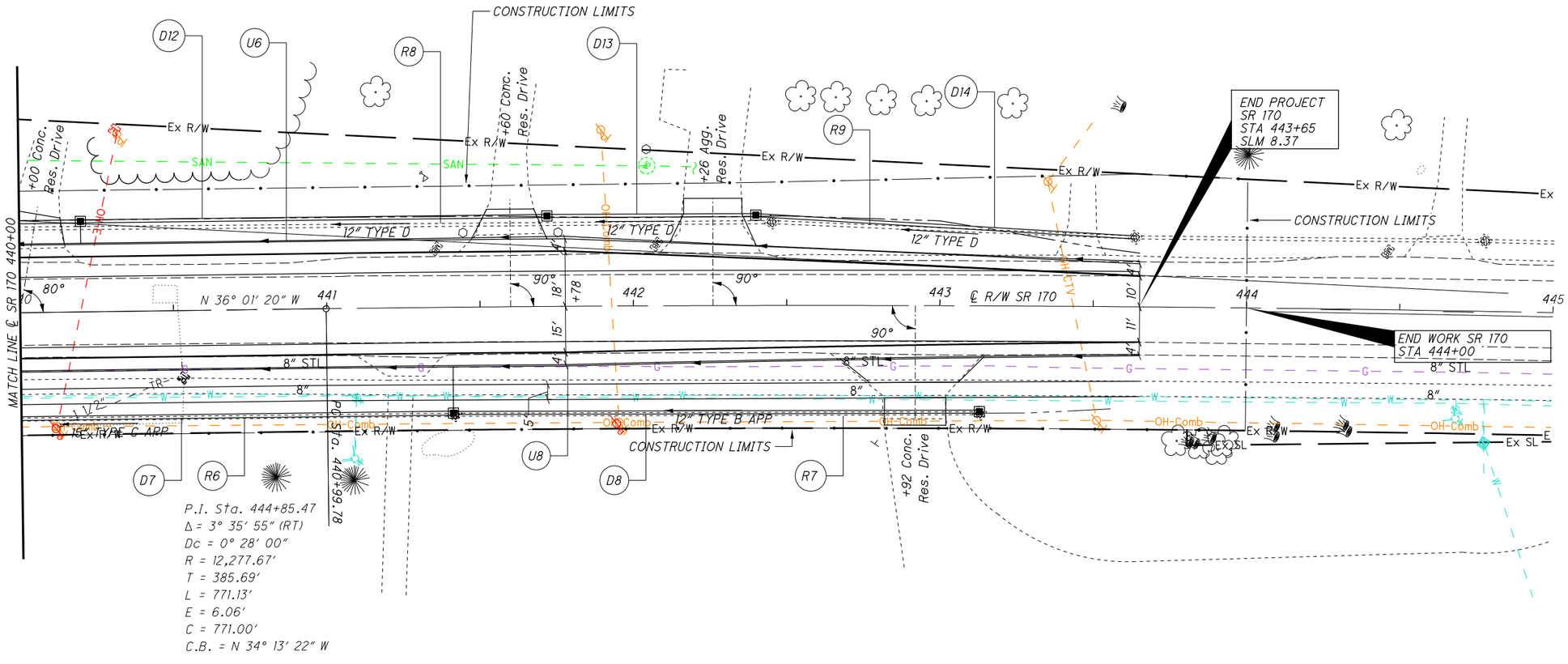

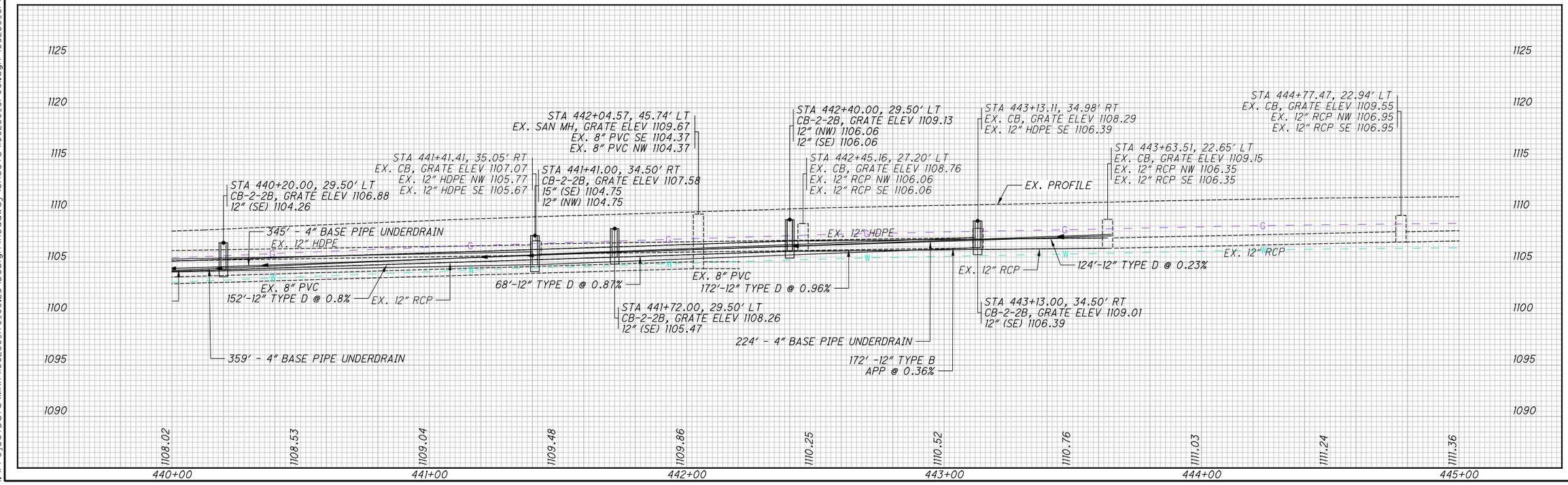

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CNC
CHECKED MAC

PLAN AND PROFILE
STA 440+00 TO STA 445+00

MAH-170-8.25

17
30

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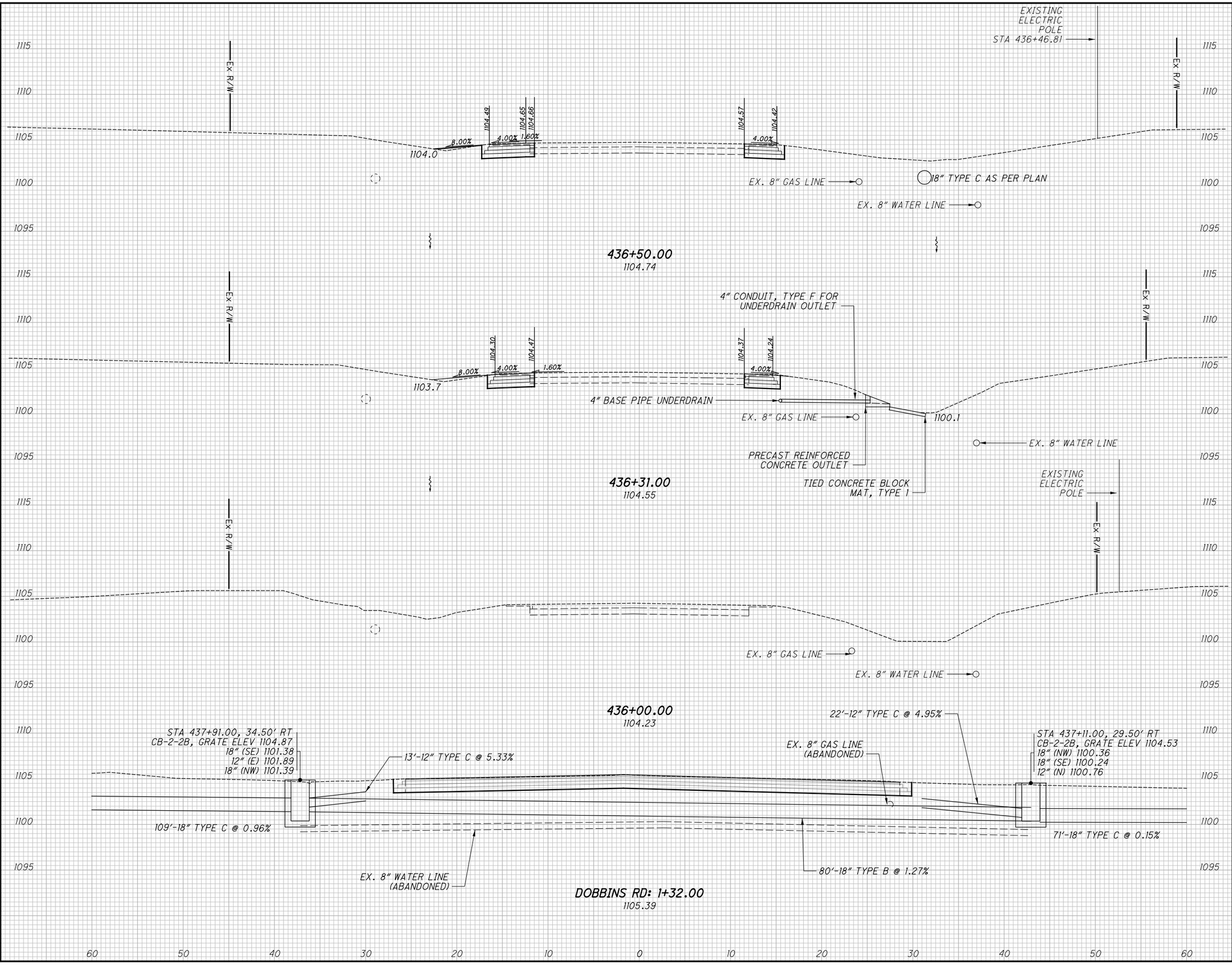
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
16	1		
		11	1
14	1		
		8	1
		19	2

CALCULATED CNC
CHECKED MAC

CROSS SECTIONS SR 170
STA. 436+00.00 TO STA. 436+50.00

MAH-170-8.25

18
30

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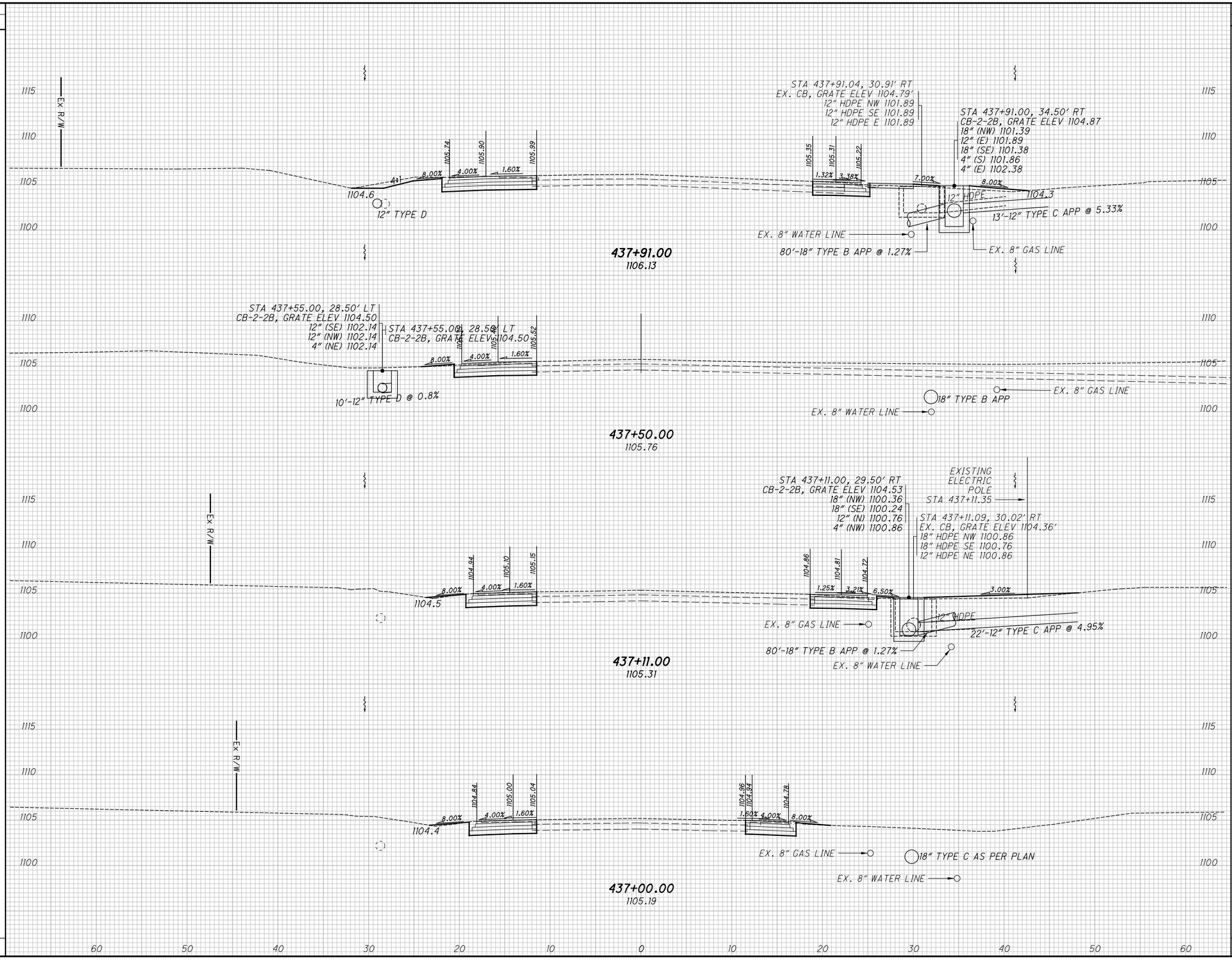
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL
29	3
31	2
12	
25	
22	5
9	1
20	1
33	1
98	4

VOLUME	
CUT	FILL

CALCULATED CNC
CHECKED MAC



CROSS SECTIONS SR 170
STA. 437+00.00 TO STA. 437+91.00

MAH-170-8.25

19
30

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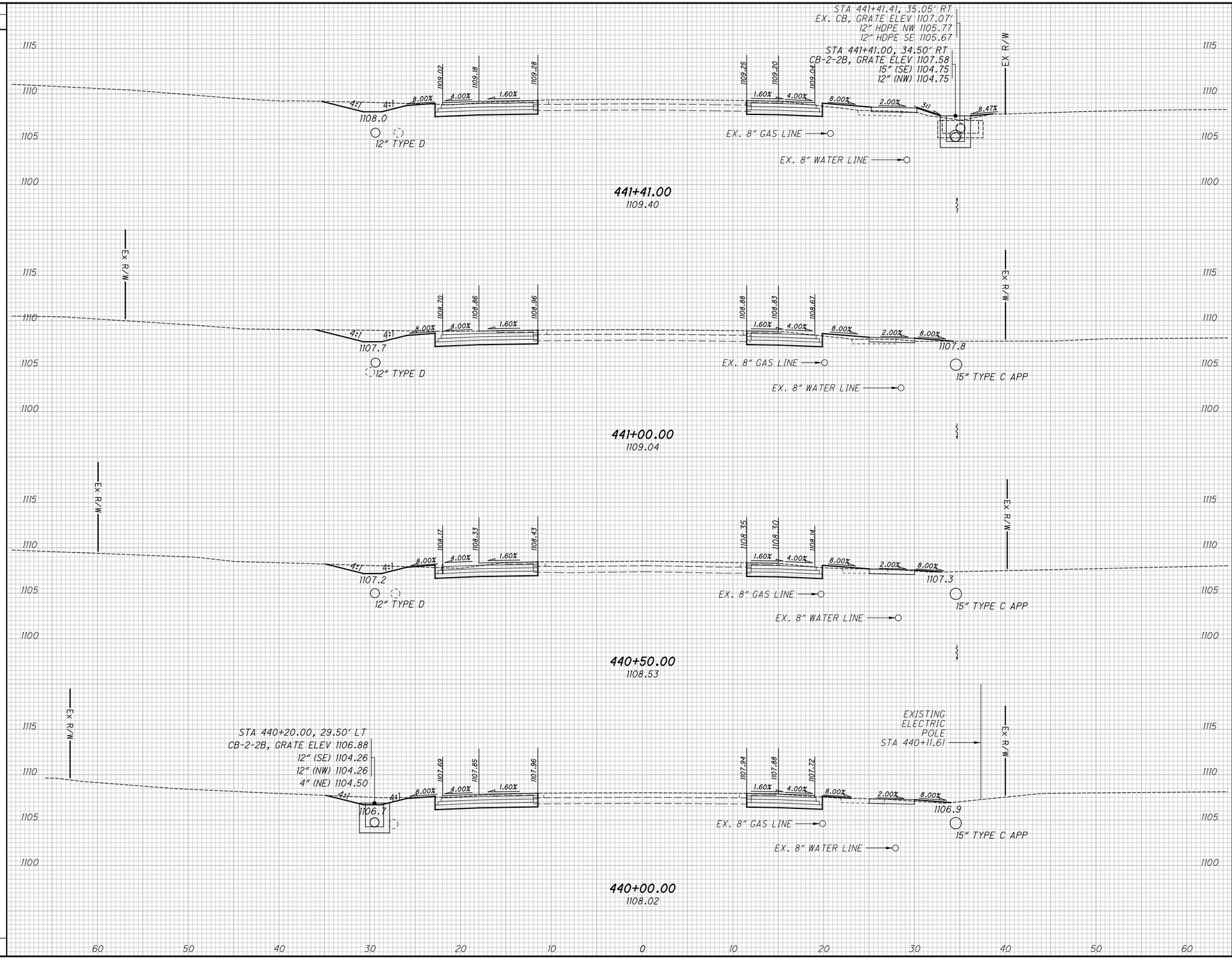
SEEDING	
END WIDTH	SQ. YDS.

SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
34	4		
		55	5
38	2		
		64	4
31	2		
		58	3
32	1		
		64	9
		241	21

CALCULATED CNC
CHECKED MAC

CROSS SECTIONS SR 170
STA. 440+00.00 TO STA. 441+41.00

MAH-170-8.25

21
30

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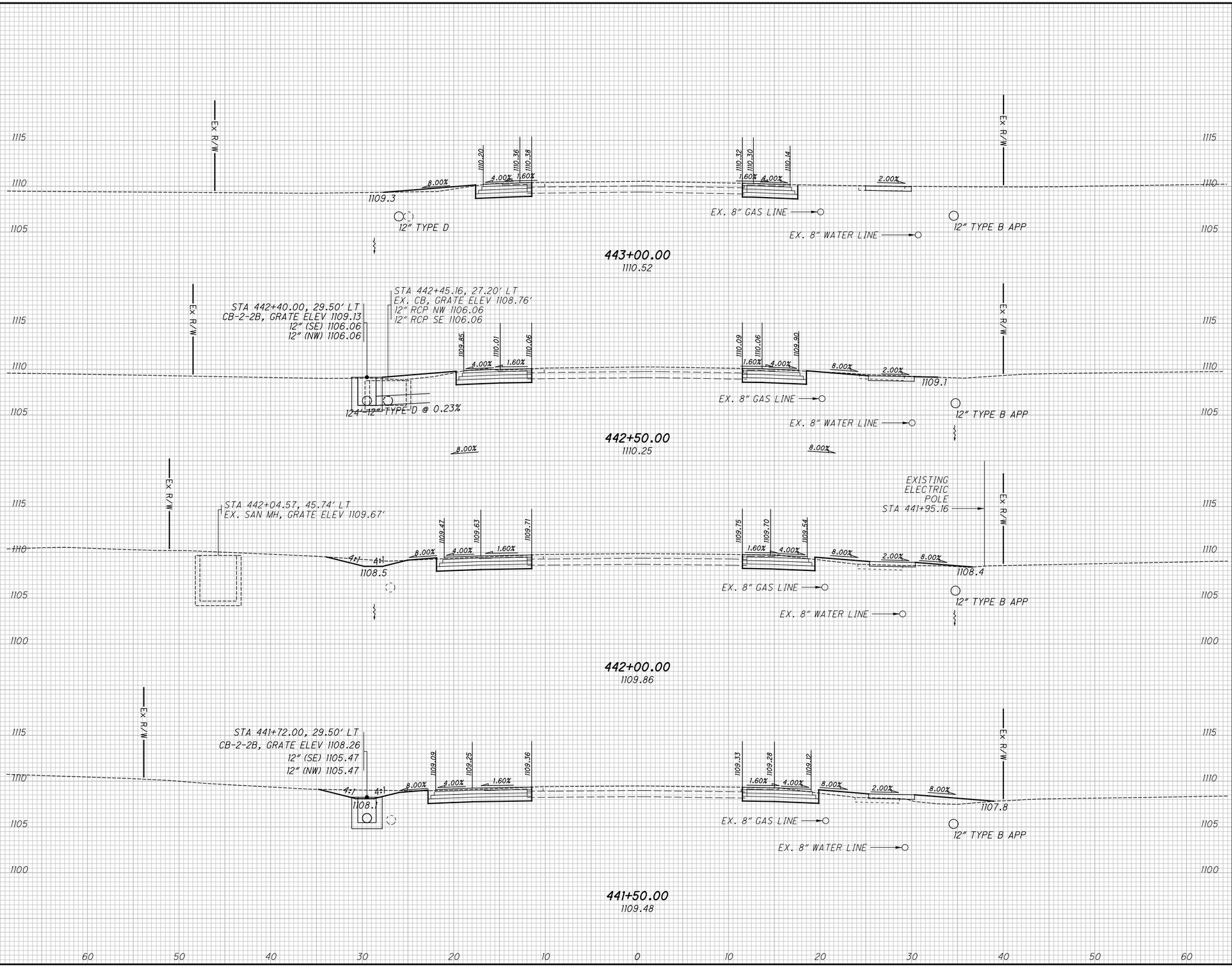
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
10	2		
		31	5
23	3		
		49	6
30	3		
		57	9
32	7		
		11	2
		148	22

CALCULATED CNC
CHECKED MAC

CROSS SECTIONS SR 170
STA. 441+50.00 TO STA. 443+00.00

MAH-170-8.25

22
30

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		8	1
13	2		
		8	2
14	4		
		23	4
20	2		
		7	1
		46	8

CALCULATED CNC
CHECKED MAC

CROSS SECTIONS SR 170
STA. 443+13.00 TO STA. 444+00.00

MAH-170-8.25

23
30

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P.I. Sta. 434+44.89
Δ = 2° 07′ 21″ (LT)
Dc = 0° 28′ 00″
R = 12,277.67′
T = 227.45′
L = 454.84′
E = 2.11′
C = 454.82′
C.B. = N 34° 57′ 39″ W

PT Sta. 436+72.29

12″ TYPE D

12″ TYPE D

PROPOSED EDGE OF PAVEMENT

PROPOSED EDGE OF SHOULDER

1104.46 +31, 11.83′ LT BEGIN TAPER
1104.64 +50
1104.81 +75
1105.00 +00
1105.22 +25
1105.45 +50
1105.73 +75
1106.00 +00
1106.19 +18, 18′ LT END TAPER
1106.26 +25
1106.49 +50
1106.72 +75
1106.95 +00, 18′ LT

1104.47 +31, 11.50′ LT
1104.66 +50
1104.84 +75
1105.04 +00
1105.27 +25
1105.52 +50
1105.81 +75
1106.09 +00
1106.36 +25
1106.59 +50
1106.82 +75
1107.05 +00, 11.50′ LT

SAW CUT

4′
11.8′
6.5′
11.5′

437
438
439

℄ R/W S.R. 170 (YOUNGSTOWN-PITTSBURGH ROAD)
N 36° 01′ 20″ W

88°21′
91°39′
℄ R/W & CONST. SR 170 STA. 437+55
= ℄ R/W & CONST. DOBBINS RD STA. 1+00

SAW CUT LINE

1104.37 +31, 11.50′ RT
1104.57 +50
1104.80 +75
1104.96 +00, 11.50′ RT

1105.56 +00, 15.46′ RT
1106.07 +18, 11.50′ RT
1106.16 +25
1106.45 +50
1106.73 +75
1106.96 +00, 11.50′ RT

1105.44 +93, 17′ RT
1106.10 +25
1106.39 +50
1106.67 +75
1106.90 +00, 15′ RT

10.6′
4′
3.5′

PROPOSED EDGE OF SHOULDER

PROPOSED EDGE OF PAVEMENT

SAW CUT

1104.85
1104.93
1104.88
1104.82
1104.79 +25, 27.70′ RT
1104.78 +27, 29′ RT
1104.65
1104.57
1104.76

1105.63
1105.97
1105.36
1105.64 +75, 34.10′ RT
1105.07 +73, 36′ RT
1105.00
1105.14

18″ TYPE C APP

18″ TYPE B APP

12″ TYPE C APP

PROPOSED EDGE OF PAVEMENT

18″ TYPE C

15″ TYPE C APP

10″ TYPE B

Sta. 436+79.92, 63.77′ Rt., ℄ SR 170
Sta. 1+65.90, 73.01′ Rt., ℄ DOBBINS RD
Δ = 87° 42′ 33″
R = 52.00′
L = 79.60′

1105.04
1105.07 +33, 63′ RT
1′

Sta. 438+13.52, 56.91′ Rt., ℄ SR 170
Sta. 1+55.19, 60.34′ Lt., ℄ DOBBINS RD
Δ = 89° 16′ 51″
R = 42.00′
L = 65.45′

1105.47
1105.68 +70, 64′ RT
1105.65 +71.30, 64.05′ RT
1′

2 ℄ R/W DOBBINS ROAD (C.H. 94)
N 55° 37′ 40″ E

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED RCB
CHECKED MAC

INTERSECTION DETAIL
S.R. 170 AT DOBBINS RD.

MAH-170-8.25

24
30

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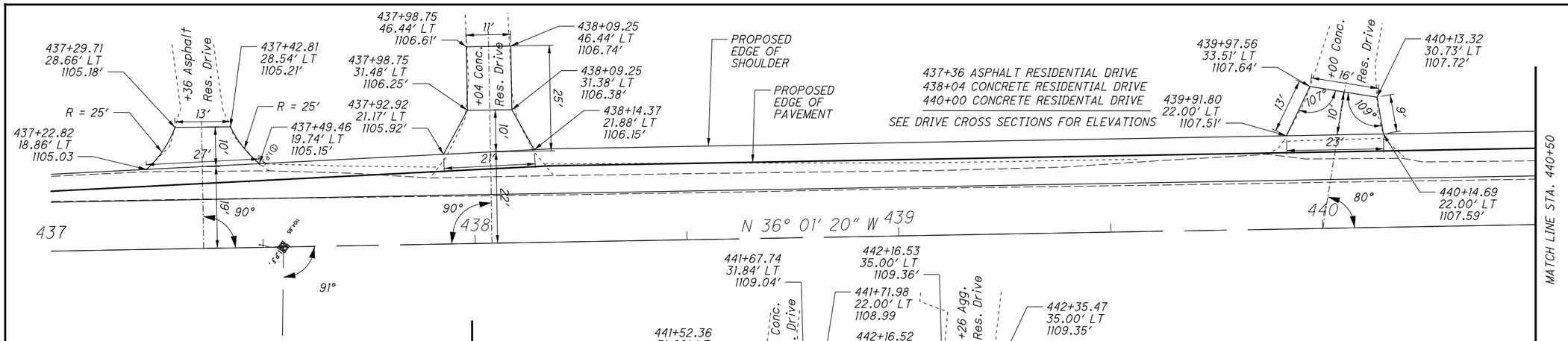

ALL EXISTING APRONS:
304, 6" AGGREGATE BASE, AS PER PLAN
301, 9" ASPHALT CONCRETE BASE, PG64-22 (TWO 4 ½" LIFTS)
407, NON-TRACKING TACK COAT @ 0.06 GAL/SY
441, 1 ¾" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (448)
407, NON-TRACKING TACK COAT @ 0.06 GAL/SY
441, 1 ¼" FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN (PG70-22M)

CONCRETE RESIDENTAL DRIVES:
452, 6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P

CONCRETE COMMERCIAL DRIVES:
452, 8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P

AGGREGATE DRIVES:
411, 10" STABILIZED CRUSHED AGGREGATE

LOCATION		SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW/9	CADD GENERATED AREA				203				301	304	407	411	424	441	452	452			
										EXCAVATION				ASPHALT CONCRETE BASE, PG64-22 (TWO 4 1/2" LIFTS)	AGGREGATE BASE, AS PER PLAN (T = 6")	NON-TRACKING TACK COAT @ 0.06 GAL/SY	STABILIZED CRUSHED AGGREGATE (T=10")	FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B, AS PER PLAN (T = 1 1/4")	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)(T = 1 3/4")	6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P			
			FT	FT	SY	SY				CY				CY	CY	GAL	CY	CY	CY	SY	SY			
	SR 170																							
DRIVE @ 437+36	ASP. RES. APRON	LT	10.00	19.87		21.49				10.75				5.37	3.58	2.58		0.75	1.04					
DRIVE @ 438+04	ASP. RES. APRON	LT	10.00	16.00		17.78				8.89				4.45	2.96	2.13		0.62	0.86					
	CON. RES. DRIVE	LT	15.00	10.50		17.50				5.83										17.50				
DRIVE @ 440+00	ASP. RES. APRON	LT	10.00	19.50		21.61				0.00				5.40	3.60	2.59		0.75	1.05					
DRIVE @ 441+60	ASP. RES. APRON	LT	10.00	20.05		22.28				0.00				5.57	3.71	2.67		0.77	1.08					
DRIVE @ 442+26	ASP. RES. APRON	LT	10.00	23.75		26.39				13.20				6.60	4.40	3.17		0.92	1.28					
	AGG. RES. DRIVE	LT	5.00	19.00		10.56				2.93							2.93							
DRIVE @ 442+92	ASP. RES. APRON	RT	8.00	38.05		33.82				16.91				8.46	5.64	4.06		1.17	1.64	33.82				
	CON. COMM. DRIVE	RT	9.00	20.00		20.00				4.44											20.00			
					SUBTOTALS		0.00	0.00	0.00	62.95	0.00	0.00	0.00	35.84	23.90	17.20	2.93	4.98	6.97	51.32	20.00	0.00	0.00	0.00
					TOTALS CARRIED TO GENERAL SUMMARY		0	0	0	63	0	0	0	36	24	18	3	5	7	52	20	0	0	0

CALCULATED MJP
CHECKED MAC

DRIVEWAY SUB SUMMARY (SR 170)

MAH-170-8.25

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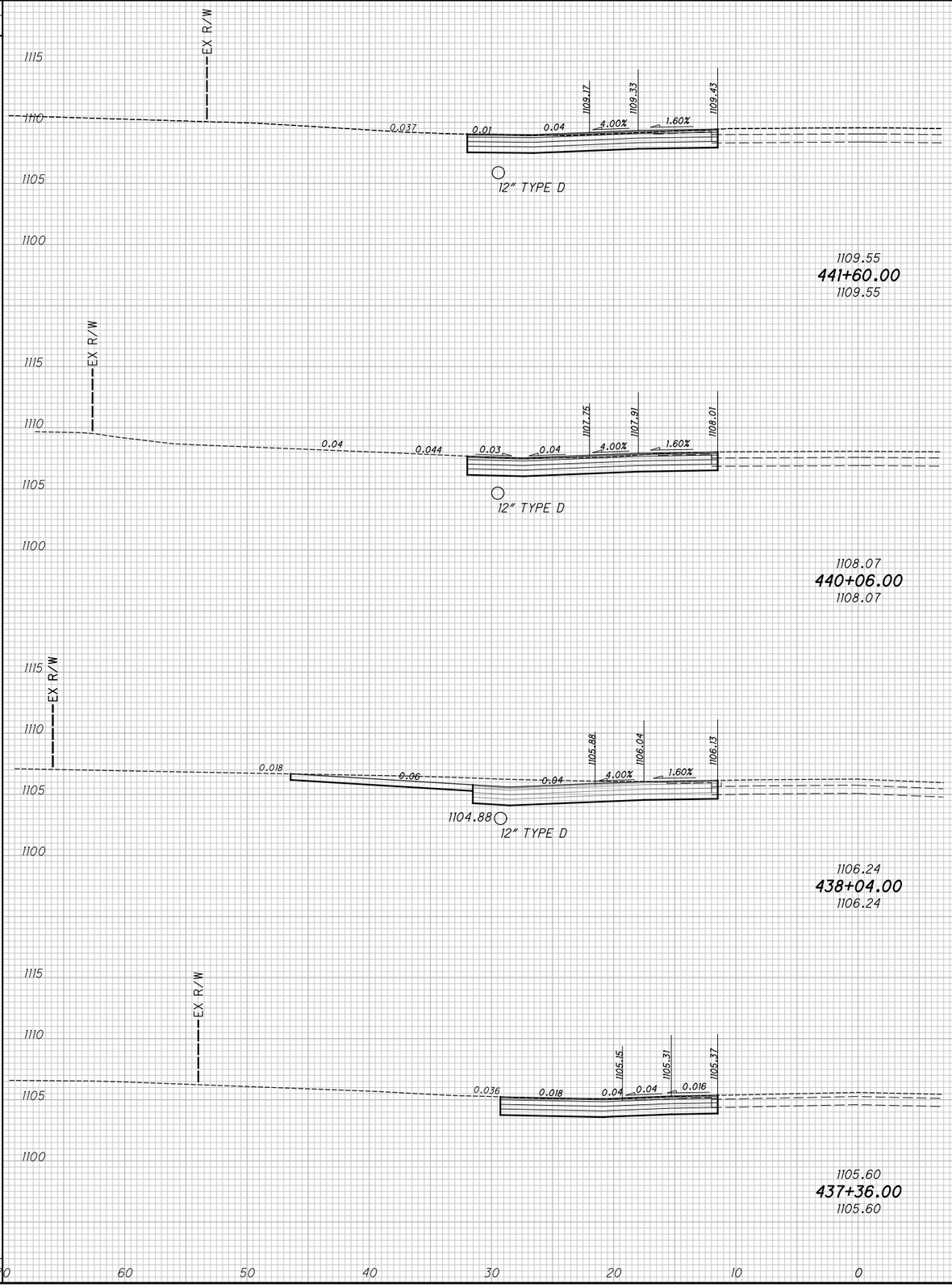
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	CHECKED
MJP	MAC

SR 170 DRIVE PROFILES

STA. 437+36.00 TO STA. 441+60.00

MAH-170-8.25

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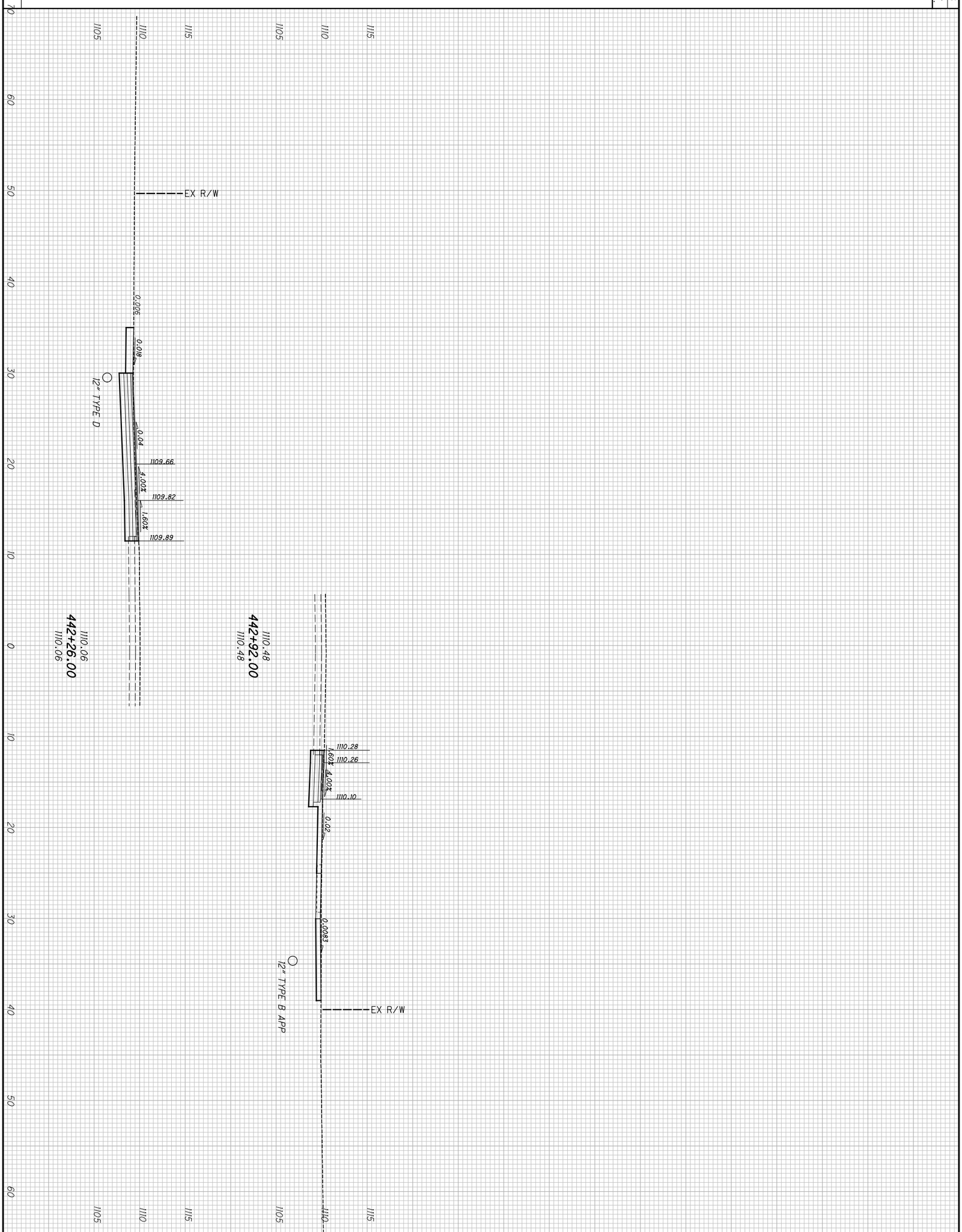
SEEDING
END SQ. YDS.
WIDTH



END AREA
CUT
FILL

VOLUME
CUT
FILL

27
30

MAH-170-8.25

SR 170 DRIVE PROFILES
STA. 442+26.00 TO STA. 442+92.00

CALCULATED MJP
CHECKED MAC

EDGE LINE

GENERAL SPEC: 640
MATERIAL TYPE: 646
CALCULATED: CNC
CHECKED: MAC

CTY	ROUTE	TRUE LOG	FROM	TRUE LOG	TO	WHITE EDGE LINE, 6" TOTAL	WHITE EDGE LINE, 6" HIGHWAY	WHITE EDGE LINE, 6" RAMP	YELLOW EDGE LINE, 6" TOTAL	YELLOW EDGE LINE, 6" HIGHWAY	YELLOW EDGE LINE, 6" RAMP	COMMENTS
MAH	170	8.19	0.06 MILES S OF DOBBINS RD	8.40	0.15 MILES N OF DOBBINS RD	0.42						
TOTAL						0.42			0			

LANE LINE

CTY	ROUTE	TRUE LOG	FROM	TRUE LOG	TO	TOTAL MILES	6" LANE LINE DASHED	6" LANE LINE SOLID	COMMENTS
TOTAL									

CENTER LINE

CTY	ROUTE	TRUE LOG	FROM	TRUE LOG	TO	TOTAL MILES	EQUIVALENT SOLID LINE	COMMENTS
MAH	170	8.19	0.06 MILES S OF DOBBINS RD	8.40	0.15 MILES N OF DOBBINS RD	0.17	0.34	
MAH	94	1+46	SR 170	1+75	END PROJECT	0.01	0.02	
TOTAL						0.18	0.36	

AUXILIARY

CTY	ROUTE LOCATION	TRUE LOG	CHANNEL LINE, 8"	CHANNEL LINE, 12"	STOP LINE	CROSS WALK LINES	TRANSVERSE DIAGONAL LINES WHITE	TRANSVERSE DIAGONAL LINES YELLOW	ISLAND MARKING	SYMBOL MARKINGS RxR	SYMBOL MARKINGS SCHOOL 72"	SYMBOL MARKINGS SCHOOL 96"	LANE ARROWS TURN LEFT	LANE ARROWS TURN RIGHT	LANE ARROWS THRU	LANE ARROWS COMB.	REDUCT. ARROW	WORD ON PVMT ONLY 72"	WORD ON PVMT ONLY 96"	DOTTED LINES, 6"	COMMENTS
			FT	FT	FT	FT	FT	FT	SF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	FT	
MAH	SR 170	8.25	260		33				10				3								
MAH	DOBBINS RD (CH 94)	1+46	29		26																
TOTAL			289		59				10				3								

PAVEMENT MARKING SUB SUMMARY

MAH-170-8.25

28
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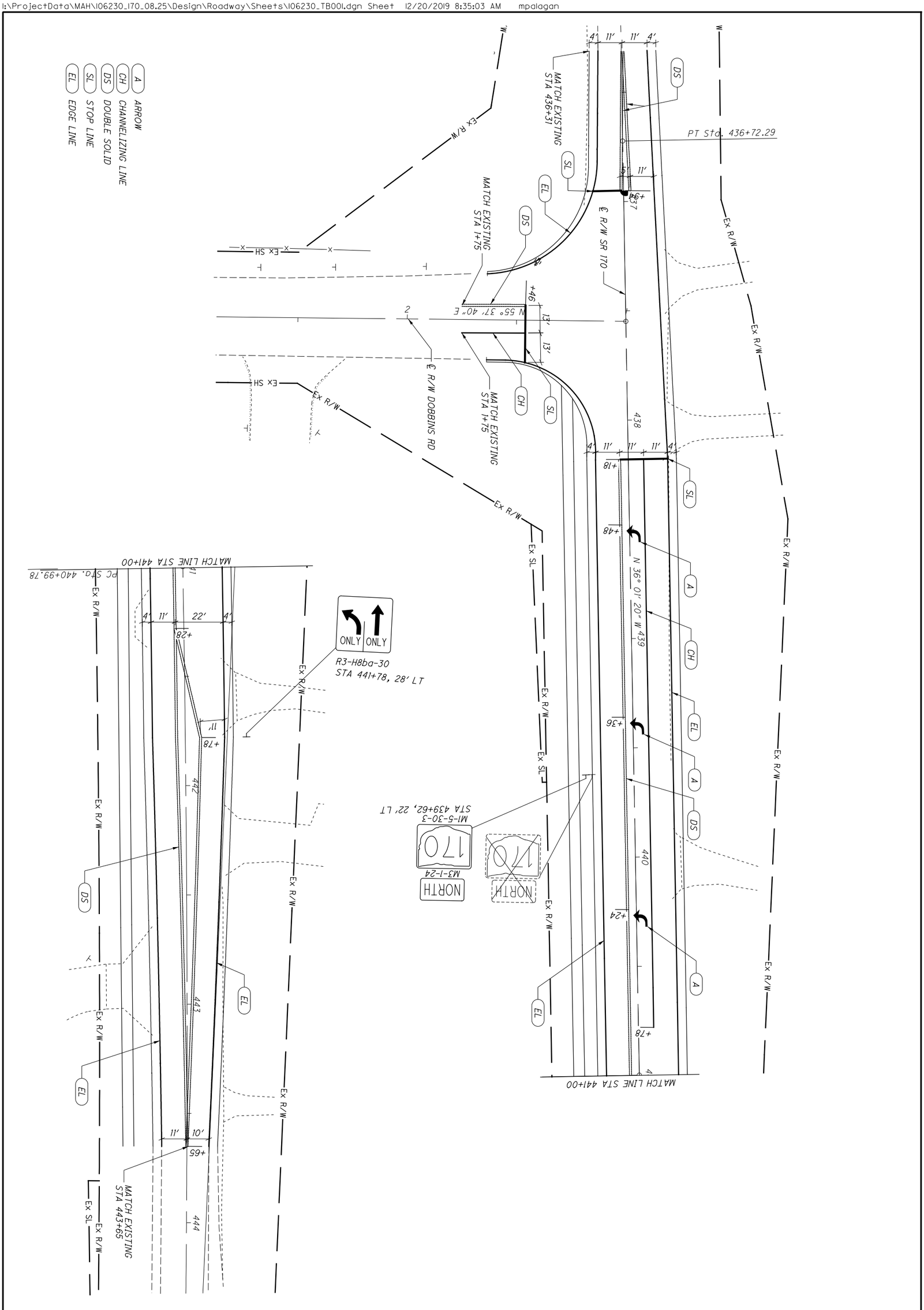
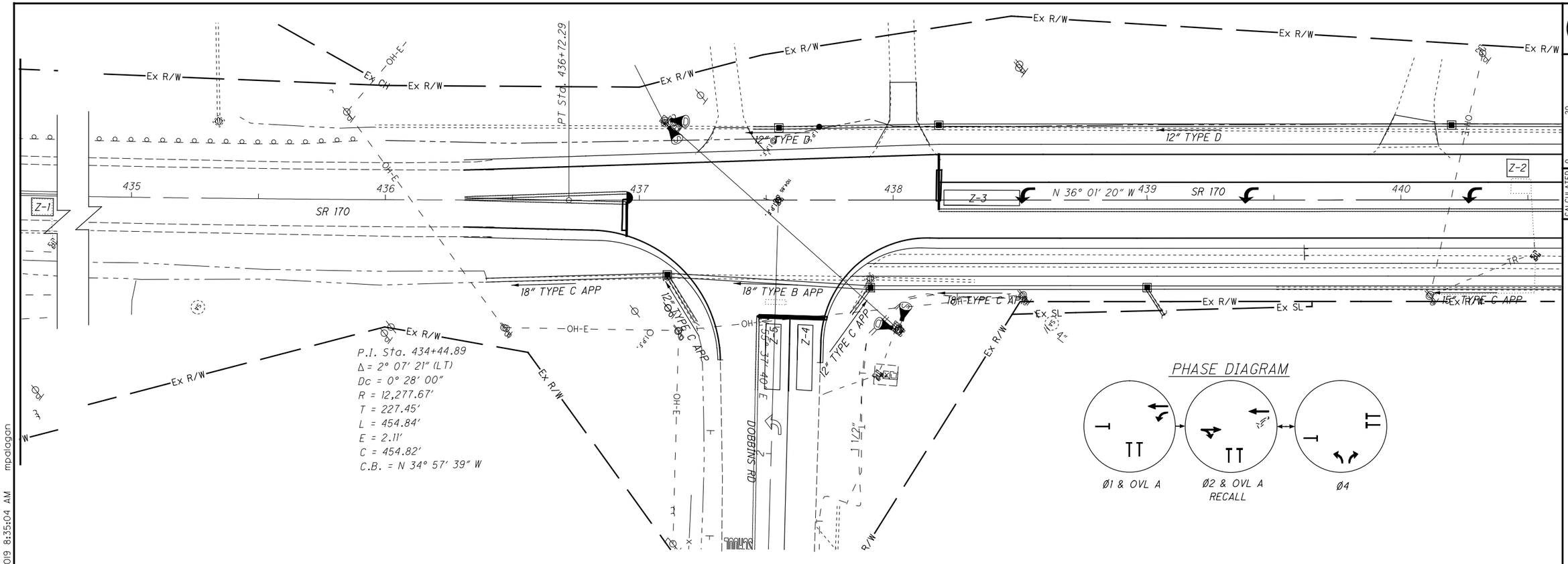


29/30	MAH-170-8.25	SR 170 SIGN AND PAVMENT MARKING PLAN	CALCULATED CNC CHECKED MAC	0 10 20 40 HORIZONTAL SCALE IN FEET



ADVANCE RADAR DETECTION (TO BE INSTALLED AT THE TOP OF THE SIGNAL POLES)

STOP BAR RADAR DETECTION (TO BE INSTALLED AT THE TOP OF THE SIGNAL POLES)

Radar Detection Chart

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	EXTENSION PROGRAMMED IN CONTROLLER (SEC.)	DETECTOR NO.	PURPOSE	DETECTION ZONE LENGTH (FT)
Z-1	NB EXT	PRESENCE					ADD	6x8
Z-2	SB EXT	PRESENCE					ADD	6x8
Z-3	SB LT	PRESENCE	φ1	5			STOP	30x6
Z-4	WB RT	PRESENCE	φ4	15			STOP	30x6
Z-5	WB LT	PRESENCE	φ4	5			STOP	30x6

SIGNAL TIMING CHART			
PHASE	1	2	4
MINIMUM GREEN	7	20	10
ADDED INITIAL (SEC/ACT)			
PASSAGE		4	3
TBR			
MINIMUM GAP			
TTR			
MAXIMUM GREEN	17	31	17
MAXIMUM GREEN II			
YELLOW CLEARANCE	3	4.9	3.6
RED CLEARANCE	1	2	2
RECALL		MIN	
MEMORY		LOCK	

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED RMB
CHECKED CNC

SIGNAL PLAN
SR 170 AND DOBBINS RD

MAH-170-8.25

30
30

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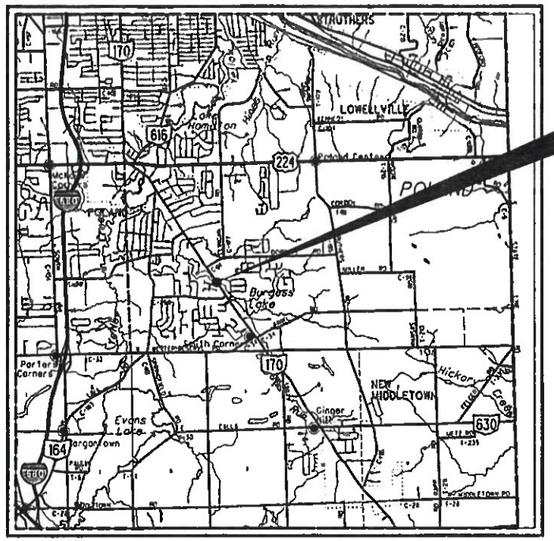
STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

MAH-170-8.02 PART 2

POLAND TOWNSHIP
MAHONING COUNTY

FOR PART 1 SEE MAH-170-8.25



LOCATION MAP

LATITUDE: 41°00'04" LONGITUDE: 80°35'35"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY

FEDERAL ROUTES

STATE ROUTES

COUNTY & TOWNSHIP ROADS

OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2020)	7800
DESIGN YEAR ADT (2040)	7800
DESIGN HOURLY VOLUME (2020)	700
DIRECTIONAL DISTRIBUTION	0.52
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	40 MPH
LEGAL SPEED	40 MPH
DESIGN FUNCTIONAL CLASSIFICATION: URBAN MINOR ARTERIAL	
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

Contact Two Working Days Before You Dig

OHIO811.org Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

PLAN PREPARED BY:
ODOT DISTRICT 4 - PLANNING AND ENGINEERING
2088 S. ARLINGTON RD
AKRON, OH 44306

ENGINEERS SEAL:

STATE OF OHIO · MATTHEW A. CHANEY · E-78423 · REGISTERED PROFESSIONAL ENGINEER

SIGNED: M. Chaney

DATE: 1-3-20

STANDARD CONSTRUCTION DRAWINGS	SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS

PROJECT DESCRIPTION

CONCRETE OVERLAY ON STRUCTURE MAH-170-0802.

EARTH DISTURBED AREAS

PROJECT EDA:	N/A (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EDA:	N/A (MAINTENANCE PROJECT)
NOTICE OF INTENT EDA:	N/A (MAINTENANCE PROJECT)

INDEX OF SHEETS:

TITLE SHEET	1
GENERAL NOTES	2
MAINTENANCE OF TRAFFIC	3
MAINTENANCE OF TRAFFIC PLAN	4-5
GENERAL SUMMARY	6
STRUCTURES	7-9

2019 SPECIFICATIONS

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

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

APPROVED _____ DISTRICT DEPUTY DIRECTOR
DATE 1/3/20

APPROVED _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION
DATE 1/22/20

FEDERAL PROJECT NO. E180(317)

PID NO. 106230

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

MAH-170-8.02

1/9

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UTILITIES

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, OHIO811, THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEADQUARTERS (MICHELLE CHANEY AT 330-786-2267) AND ALL NON REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ALL AREAS.

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE NOT SHOWN ON THE PLANS, BUT CAN BE OBTAINED FROM THE OWNERS OF THE UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT.

PAVEMENT MARKING LANE WIDTHS

THE NORMAL LANE WIDTH FOR THE PAVEMENT MARKINGS ON THIS PROJECT SHALL BE AS FOLLOWS [AT LEAST 3 DAYS PRIOR TO PERFORMING THE WORK CONTACT THE TRAFFIC OFFICE AT 330-786-3147 TO CONFIRM THE WIDTHS]:

ROUTE	S.L.M. TO S.L.M.		LANE WIDTH
170	8.02	8.05	11'

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CALCULATED MJP
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GENERAL NOTES

MAH-170-8.02

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MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF ONE TEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED THROUGH THE AREA OF THE TEMPORARY SIGNAL DURING CONSTRUCTION OF THE WORK.

2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

3. LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

4. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE SUCCESSIVE WORK ZONES UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS ONE [1] MILE.

5. FOR ROUTES NOT ON THE PERMITTED LANE CLOSURE CHART, ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

ADVANCED NOTICE TO PAVE

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL TO THE DISTRICT CONSTRUCTION ENGINEER A DETAILED SCHEDULE 15 DAYS PRIOR TO THE PLACEMENT OF THE OVERLAY COURSES, ON HOW THEY PROPOSE TO PROSECUTE THE PAVING OPERATIONS. THE DETAILS SHALL SHOW THE ORDER OF PERFORMANCE OF EACH STAGE (START TO FINISH) OF THE WORK INCLUDING THE MAINTENANCE OF TRAFFIC THAT WILL BE USED.

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE CHANGEABLE MESSAGE SIGN, THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCE OF 800 FEET AND 650 FEET RESPECTIVELY.

EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO DIM THE SIGN DURING DARKNESS AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHOULD BE DELINEATED.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE PCMS SHOULD NOT BE LOCATED IN THE MEDIAN OF THE HIGHWAY UNLESS IT IS PROTECTED FROM BOTH DIRECTIONS OF TRAFFIC. THE PCMS SHALL BE LOCATED. IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE THE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF. ADDITIONALLY WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE CONTRACTOR. A LIST OF ALL PROPOSED PREPROGRAMMED MESSAGES WILL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE LINE PRESENTATION FORMATS WITH UP TO OF SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DE-ACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL [IN ACTIVE CELLULAR AREAS] ALLOW REMOTE SIGN ACTIVATION, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614.07. THE CONTRACTOR SHALL PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THEIR USE. THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AS OUTLINED IN 614.02.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

614 PORTABLE CHANGEABLE MESSAGE SIGN,
AS PER PLAN, 2 SIGN MONTH
ASSUMING 2 SIGNS FOR 1 MONTH

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
ROAD & RAMP CLOSURES	>= 2WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>=2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERNS CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME

INTERIM START DATE

NO WORK ON THE PROJECT SHALL BEGIN PRIOR TO JUNE 4, 2020.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL BE ADVISED THAT PROJECT MAH-170-0.78/VAR (PID: 98413) MAY BE ONGOING IN AN AREA IMMEDIATELY ADJACENT TO AND WITHIN THE PROJECT LIMITS OF THIS PROJECT. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO AS TO CAUSE A MINIMUM OF DELAY OR CONFLICT WITH THE OTHER PROJECTS. IN ACCORDANCE WITH 105.08, THE CONTRACTOR SHALL ARRANGE WITH THE OTHER CONTRACTORS APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL RECEIVE DAILY APPROVALS FROM THE ENGINEER PRIOR TO COMMENCING ANY OPERATIONS. ANY CONFLICT BETWEEN CONTRACTORS INVOLVING WORK SCHEDULES, WORK AREA, OR COOPERATION SHALL BE RESOLVED BY THE ENGINEER. COMPENSATION FOR THE ABOVE COOPERATION SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS INCLUDED WITHIN THIS PROJECT.

FULLY-ACTUATED OPERATION OF WORK ZONE TRAFFIC SIGNAL

THE WORK ZONE SIGNAL CONTROL REQUIRED FOR THIS PROJECT AND SHOWN ON SHEETS 4-5 AND TRAFFIC SCDS MT-96.11, 96.20, AND 96.26 SHALL BE FULLY TRAFFIC-ACTUATED AND OPERATE IN A MANNER SIMILAR TO THAT DESCRIBED IN SECTION 733.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

THE INITIAL CONTROLLER TIMING SHALL BE AS FOLLOWS:

SIGNAL TIMING CHART

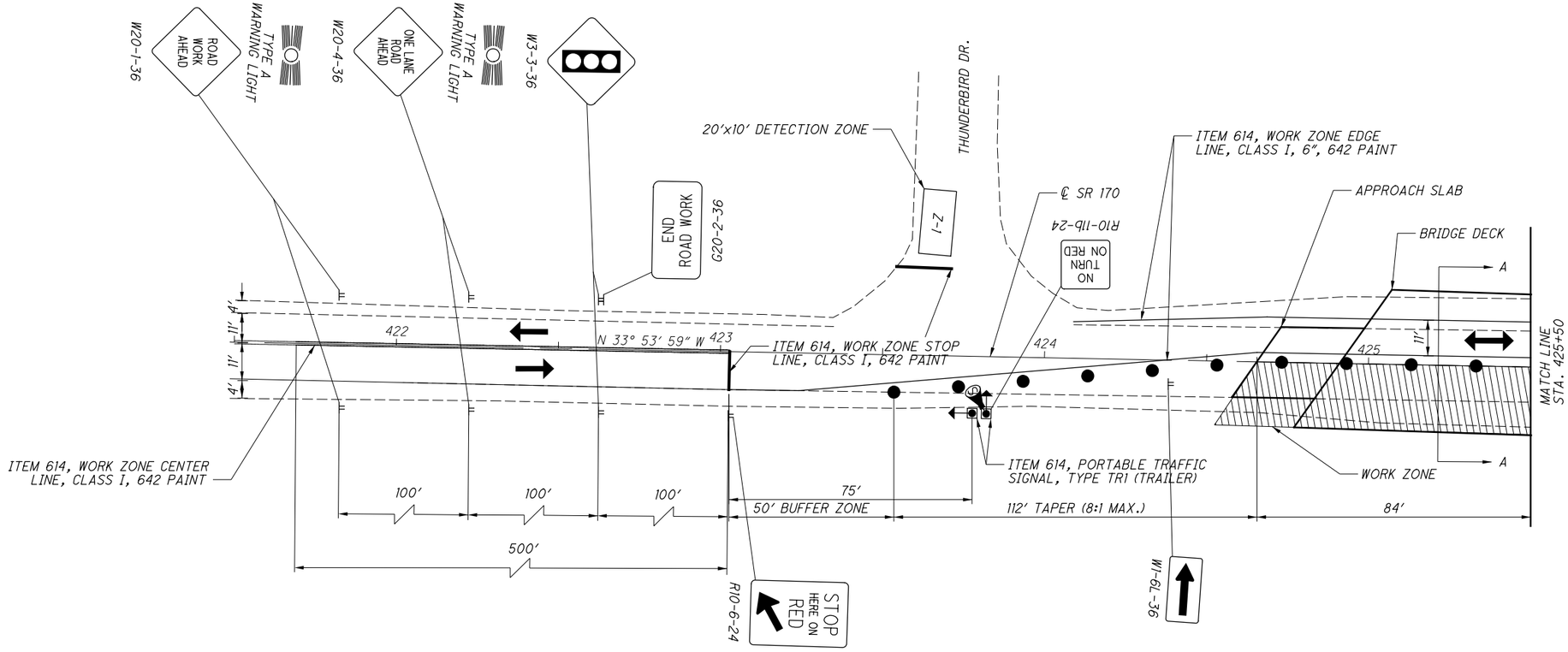
PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN		14		10		14		10
EXTENSION		4				4		
MAXIMUM GREEN		28				28		
YELLOW CLEARANCE		4		4		4		4
RED CLEARANCE	3		13		3		13	
RECALL		ON				ON		

THE CONTRACTOR SHALL ALSO DESIGN, FURNISH, INSTALL AND MAINTAIN A TRAFFIC DETECTOR ON EACH TRAFFIC APPROACH WHICH WILL RELIABLY DETECT ALL LEGAL TRAFFIC APPROACHING (BUT NOT LEAVING) THE SIGNAL AS IT PASSES OR WAITS IN THE DESIGNATED DETECTOR ZONE SHOWN IN THE PLANS. DETECTOR DESIGNS WHICH DO NOT PROVIDE RELIABLE DETECTION, FREE FROM FALSE CALLS, SHALL BE IMMEDIATELY REPLACED BY THE CONTRACTOR.

ITEM 630 - COVERING OF SIGN

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE COVERING OF THE CONFLICTING W20-1 (ROAD WORK AHEAD) SIGN ON MAH-170-8.25 PART 1:

ITEM 630, COVERING OF SIGN 16 SF



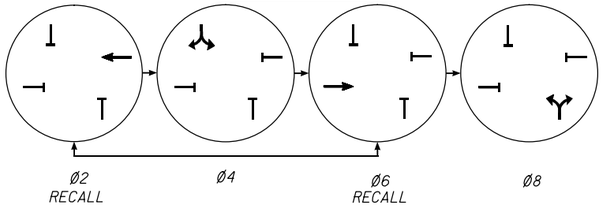
ALL CONFLICTING PAVEMENT MARKING REMOVALS SHALL BE INCIDENTAL TO ITEM 614, MAINTAINING TRAFFIC.

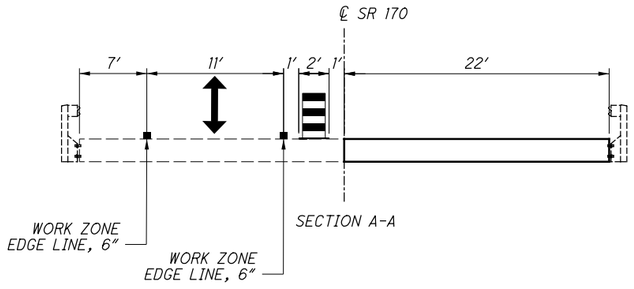
SIDE STREET APPROACH SIGNING SHALL BE AS PER SCD MT-96.11

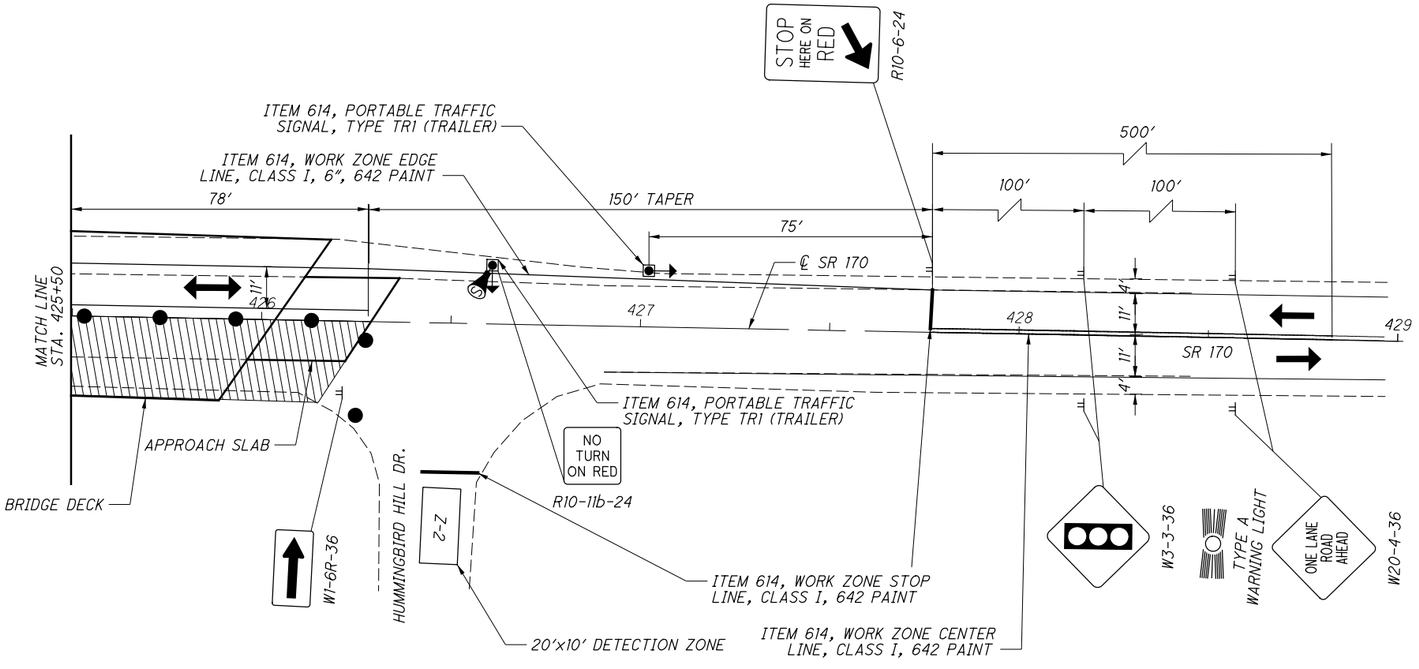
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

614, PORTABLE TRAFFIC SIGNAL, TYPE TR1 (TRAILER), 4 EA
614, WORK ZONE CENTER LINE, CLASS I, 642 PAINT, 0.19 MI
614, WORK ZONE EDGE LINE, CLASS I, 6", 642 PAINT, 0.13 MI
614, WORK ZONE STOP LINE, CLASS I, 642 PAINT, 53 FT

PHASE DIAGRAM







HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJP
CHECKED LAB

MAINTENANCE OF TRAFFIC PLAN
PHASE 1

MAH-170-8.02

4
9

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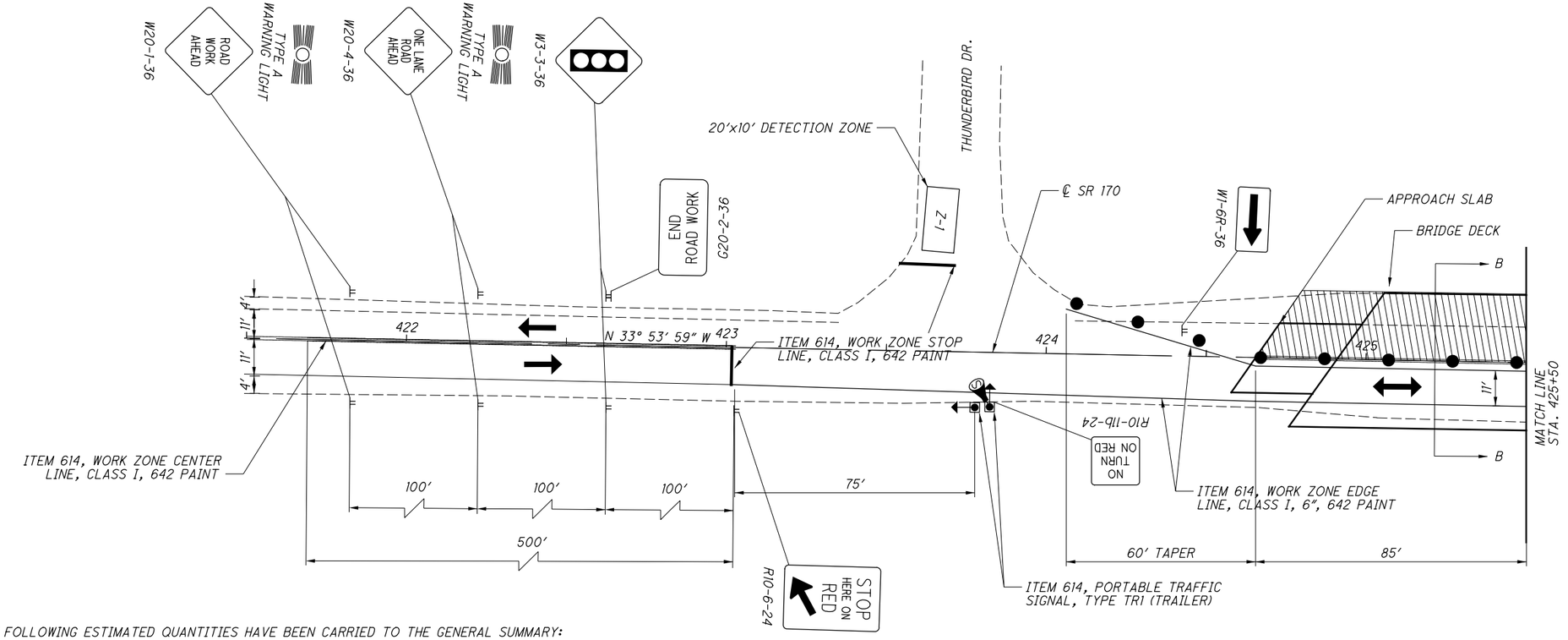


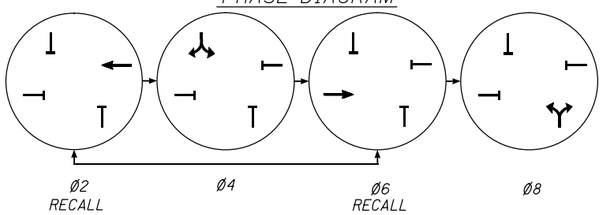
ALL CONFLICTING PAVEMENT MARKING REMOVALS SHALL BE INCIDENTAL TO ITEM 614, MAINTAINING TRAFFIC.

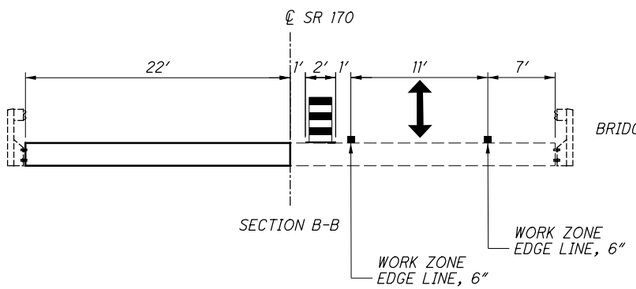
SIDE STREET APPROACH SIGNING SHALL BE AS PER SCD MT-96.11

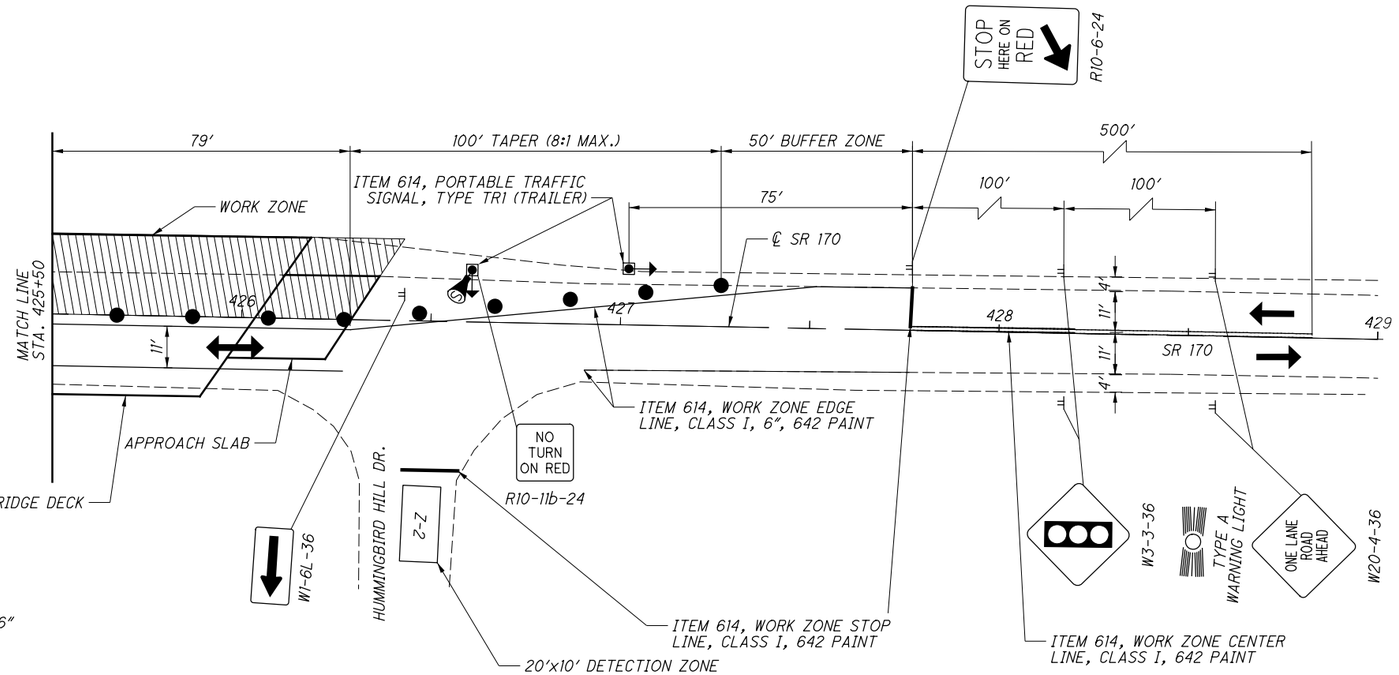
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

614, WORK ZONE CENTER LINE, CLASS I, 642 PAINT, 0.19 MI
614, WORK ZONE EDGE LINE, CLASS I, 6", 642 PAINT, 0.13 MI
614, WORK ZONE STOP LINE, CLASS I, 642 PAINT, 53 FT

PHASE DIAGRAM







HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJP
CHECKED LAB

MAINTENANCE OF TRAFFIC PLAN PHASE 2

MAH-170-8.02

5
9

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SHEET NUM.												PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
									3	4	5	02/BRO/BR		EXT	TOTAL			
																	EROSION CONTROL	
												1,000	832	30000	1,000	EACH	EROSION CONTROL	
																	TRAFFIC CONTROL	
									16			16	630	83000	16	SF	COVERING OF SIGN	
																	STRUCTURE REPAIRS	
																	FOR MAH-170-0802 ESTIMATED QUANTITIES	8
																	MAINTENANCE OF TRAFFIC	
										4		4	614	11320	4	EACH	PORTABLE TRAFFIC SIGNAL, TYPE TR1 (TRAILER)	
									2			2	614	18601	2	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	3
										0.19	0.19	0.38	614	21100	0.38	MILE	WORK ZONE CENTER LINE, CLASS I, 642 PAINT	
										0.13	0.13	0.26	614	22110	0.26	MILE	WORK ZONE EDGE LINE, CLASS I, 6", 642 PAINT	
										53	53	106	614	26200	106	FT	WORK ZONE STOP LINE, CLASS I, 642 PAINT	
																	INCIDENTALS	
												LS	614	11000	LS		MAINTAINING TRAFFIC	
												6	619	16010	6	MNTH	FIELD OFFICE, TYPE B	
												LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS	624	10000	LS		MOBILIZATION	

CALCULATED MJP
CHECKED MAC

GENERAL SUMMARY

MAH-170-8.02

6
9

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DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH EDITION, INCLUDING THE 2019 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-15 DATED 7/17/15
DBR-3-11 DATED 7/15/11
DS-1-92 DATED 7/18/03

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

848 DATED 1/20/17

EXISTING STRUCTURE VERIFICATION

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

PROPOSED WORK

MAH-170-0802 (OVER BURGESS LAKE)
-REMOVE AND REPLACE THE EXISTING CONCRETE WEARING SURFACE WITH A FIBER REINFORCED CONCRETE OVERLAY, INCLUDING APPROACH SLABS
-REPLACE EXISTING STEEL DRIP STRIPS
-INSTALL DEEP BEAM RETROFIT ON BRIDGE GUARDRAIL
-REPLACE PREFORMED EXPANSION JOINT SEALS
-NEW STRUCTURE IDENTIFICATION SIGNS

STRUCTURE/CULVERT IDENTIFICATION SIGNS

STRUCTURE IDENTIFICATION SIGNS (I-H25b) WILL BE PLACED ON EACH APPROACH OFF THE RIGHT SHOULDER, FACING TRAFFIC, AND BEHIND THE GUARDRAIL IF APPLICABLE. A QUANTITY OF ONE SIGN PER APPROACH WILL BE INSTALLED. THE SIGNS WILL HAVE A NON-REFLECTIVE WHITE SHEETING BACKGROUND.

THE SIGNS WILL BE MOUNTED ON NEW NO. 2 POSTS AND WILL BE INSTALLED AS PER STANDARD CONSTRUCTION DRAWING TC-41.20, MOST CURRENT REVISION. EACH POST WILL BE 7.5' IN LENGTH.

INSTALL SIGNS FOR THE FOLLOWING STRUCTURES:
(ADD LIST OF STRUCTURES HERE)

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED FOR EACH APPROACH:
- ITEM 630 - SIGN, FLAT SHEET, 730.20, 1 SQ FT
- ITEM 630 - GROUND MOUNTED SUPPORT, NO. 2 POST, 7.5 FT
- ITEM 630 - REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL, 1 EACH
- ITEM 630 - REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL, 1 EACH

CORRECTING BRIDGE IDENTIFICATION SIGN NUMBERS:

SOME OF THE EXISTING BRIDGE NUMBER SIGNS HAVE INCORRECT BRIDGE NUMBERS ON THEM. THE FOLLOWING BRIDGE NUMBERS ARE THE CORRECT ONES AND WILL BE USED ON THE NEW BRIDGE IDENTIFICATIONS SIGNS.

STRUCTURE MAH-170-0802 (SFN: 5004020) THE EXISTING SIGN SHOWS 0803. THE CORRECT BRIDGE IDENTIFICATION NUMBER IS 0802.

ITEM 848 - MICRO-SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN
ITEM 848 - SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN
ITEM 848 - MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN
ITEM 848 - FULL DEPTH REPAIR, AS PER PLAN
ITEM 848 - WEARING COURSE REMOVED, ASPHALT, AS PER PLAN
ITEM 848 - EXISTING CONCRETE OVERLAY REMOVED, AS PER PLAN

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRO DEMOLITION" WITH THE FOLLOWING REVISIONS:

THE THICKNESS OF THE CONCRETE OVERLAY REMOVED, ASPHALT WEARING COURSE REMOVED, PROPOSED OVERLAY, AND THE DEPTH OF HYDRODEMOLITION SHALL BE AS SPECIFIED IN THE PLANS.

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICRO-SILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS.

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

AGG TYPE	FINE AGG (LB)	#8 COARSE AGG (LB) *	AGG TOTAL (LB) *	CEMENT CONTENT (LB)	MICRO SILICA (LB)	WATER TO CEMENT-ITIOUS RATIO	AIR CONTENT +/- 2%	FIBER (1 1/4" POLYPROPY-LENE) (LB) **
GRAVEL	1410	1430	2840	600	50	0.4	8	1
LIME-STONE	1410	1450	2860	600	50	0.4	8	1
SLAG	1300	1350	2650	600	50	0.4	8	1

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1 ½" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN.

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.

(SEE 848.21) THE FINAL DECK SOUNDING MAY TAKE PLACE WITHIN 24 HOURS OF A RAIN, AND THE DECK DOES NOT HAVE TO BE COMPLETELY DRY.

(SEE 848.23) FULL DEPTH REPAIR IS NOT REQUIRED IF LESS THAN ONE HALF OF THE DECK ORIGINAL CONCRETE THICKNESS IS SOUND.

(SEE 848.29) THE WET CURE TIME IS REDUCED FROM 72 HOURS TO 24 HOURS OR UNTIL A BEAM BREAK OF 600 PSI IS ACHIEVED, WHICHEVER IS GREATER. AFTER THE 24 HOUR WET CURE, THE FINISHED OVERLAY SURFACE SHALL BE CURED BY SPRAYING A UNIFORM APPLICATION OF CURING MATERIAL OF 705.07, TYPE 1 OR 1D, AS PER CMS 511.14 METHOD (B) MEMBRANE CURING. IF THE CURING COMPOUND CAN NOT BE PLACED WITHIN THE SAME SHORT TERM CLOSURE PERIOD AS THE OVERLAY, THE CONTRACTOR MAY ALLOW TRAFFIC ONTO THE OVERLAY, AND SHALL, AT THE NEXT AVAILABLE SHORT TERM CLOSURE PERIOD, APPLY THE MEMBRANE CURING COMPOUND.

(SEE 848.29) TRAFFIC WILL NOT BE PERMITTED ON THE FINISHED OVERLAY SURFACE UNTIL AFTER THE COMPLETION OF THE 24 HOUR WET CURE, AND AFTER TWO TEST BEAMS HAVE ATTAINED AN AVERAGE MODULUS OF RUPTURE OF 600 PST (4.2 Mpa).

(SEE 848.30) THE OVERLAY SURFACE EVAPORATION RATE REQUIREMENTS ARE IN EFFECT FROM 9:30 AM TO 11:00 PM. THEY ARE NOT IN EFFECT FROM 11:00 PM TO 11:00 AM.

(SEE 848.31) FOR EACH PHASE, THE CONTRACTOR SHALL PROVIDE ENOUGH MATERIAL FOR TWO BEAM BREAKS EACH AT 12 HOURS, 24 HOURS, 36 HOURS, AND 48 HOURS. THE DEPARTMENT WILL PERFORM THE BEAM BREAK TESTS AND DOCUMENT THE TIME OF THE POUR, THE TIME OF THE BEAM BREAK TESTS, AND THE MODULUS OF RUPTURE FOR EACH BEAM UNTIL THE MODULUS OF RUPTURE OF THE TWO TESTS IS NOT LESS THAN 650 PSI (4.5 MPa). TRAFFIC IS ALLOWED ON THE OVERLAY AT 600 PSI (4.5 Mpa).

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.

DESIGN AGENCY
ODOT DISTRICT 4
PLANNING AND ENGINEERING

DESIGNED	DRAWN	REVIEWED	DATE
MJP	MJP	MAC	12/16/19
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MAC	MAC	5004020	

STRUCTURE GENERAL NOTES

MAH-170-0802
OVER BURGESS LAKE

MAH-170-8.02
PID No. 106230

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CALC:	MJP	DATE:	11/25/2019
CHECKED:	MAC	DATE:	12/6/2019

ESTIMATED QUANTITIES (02/BRO/BR)

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	SUPER.	GEN.	SEE SHEET
512	44450	6	SY	TYPE E WATERPROOFING		6	
516	10000	100	FT	PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL		100	
517	75600	240	FT	DEEP BEAM BRIDGE RETROFIT RAILING		240	
SPECIAL	51822300	280	FT	STEEL DRIP STRIP		280	
630	02100	15	FT	GROUND MOUNTED SUPPORT, NO. 2 POST		15	1 / 3
630	80100	2	SF	SIGN, FLAT SHEET, 730.20		2	1 / 3
630	84900	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL		2	1 / 3
630	86002	2	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL		2	1 / 3
646	10010	0.06	MILE	EDGE LINE, 6"		0.06	
646	10200	0.03	MILE	CENTER LINE		0.03	
848	10001	687	SY	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (T = 2 1/2")		687	1 / 3
848	20001	687	SY	SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN (T = 1/2")		687	1 / 3
848	30001	7	CY	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN		7	1 / 3
848	50000	21	SY	HAND CHIPPING		21	
848	50100	LS		TEST SLAB		LS	
848	50201	2	CY	FULL DEPTH REPAIR, AS PER PLAN		2	1 / 3
848	50321	687	SY	EXISTING CONCRETE OVERLAY REMOVED, AS PER PLAN (T = 2")		687	1 / 3
848	50341	21	SY	REMOVAL OF DEBONDED OR DETERIORATED EXISTING VARIABLE THICKNESS CONCRETE OVERLAY, AS PER PLAN		21	1 / 3

DESIGN AGENCY
ODOT DISTRICT 4
PLANNING AND ENGINEERING

DESIGNED	DRAWN	REVIEWED	DATE
MJP	MJP	MAC	12/16/19
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MAC	MAC	5004020	

STRUCTURE ESTIMATED QUANTITIES

MAH-170-8.02
PID No. 106230

MAH-170-0802
OVER BURGESS LAKE

2 / 3

8 / 9

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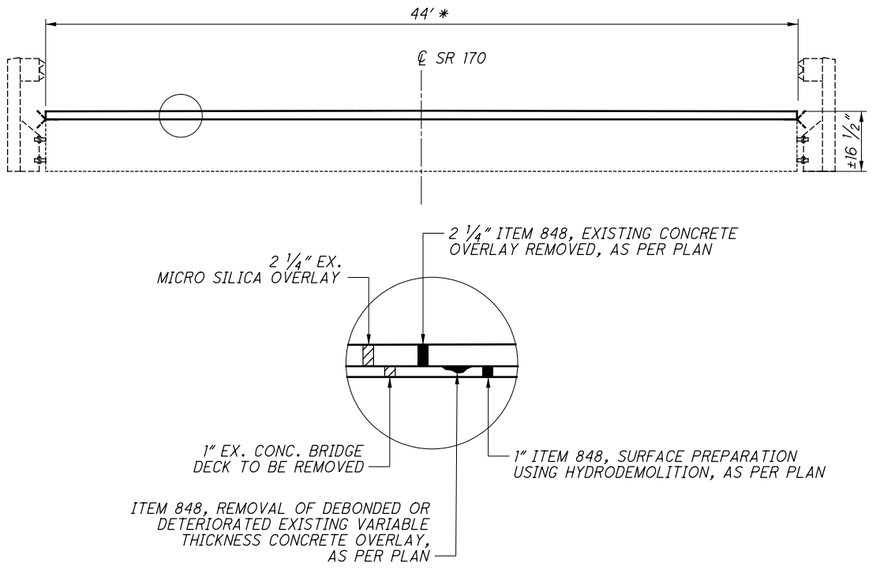
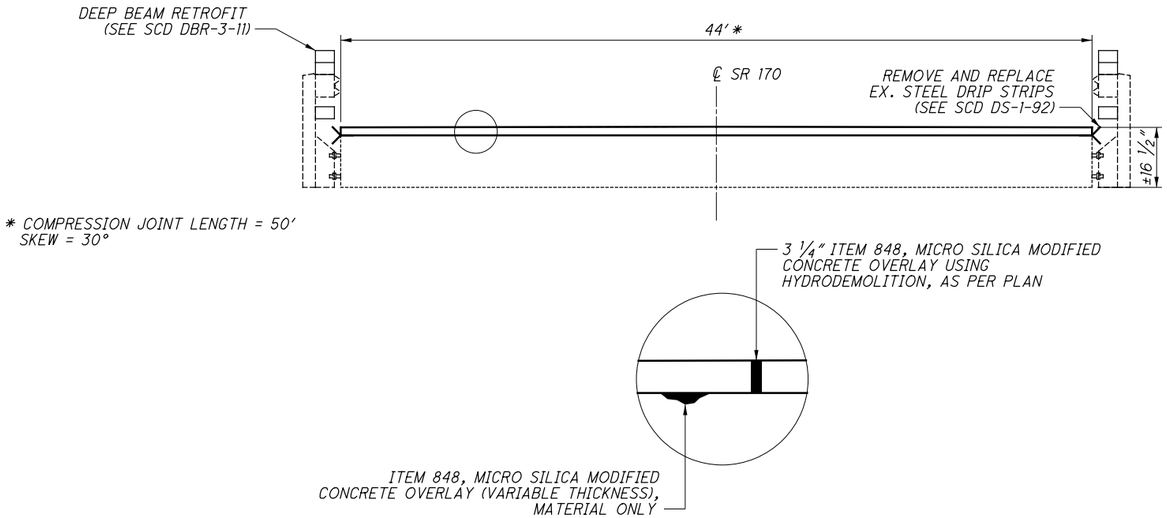


MAH-170-0802 EXISTING SECTION

APPROACH SLABS SIMILAR



MAH-170-0802 PROPOSED SECTION

APPROACH SLABS SIMILAR

	BRIDGE DECK												APPROACH SLABS											
BRIDGE NUMBER	LENGTH (BRIDGE LIMITS)	BRIDGE WIDTH	DECK AREA		848 MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (T = 3 1/4")	848 SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN (T = 1")	848 MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	848 HAND CHIPPING	848 TEST SLAB	848 FULL DEPTH REPAIR, AS PER PLAN	848 EXISTING CONCRETE OVERLAY REMOVED, AS PER PLAN (T = 2 1/4")	848 REMOVAL OF DEBONDED OR DETERIORATED EXISTING VARIABLE THICKNESS CONCRETE OVERLAY, AS PER	LENGTH (APPROACH SLABS)	APPROACH SLAB WIDTH	APPROACH SLAB AREA	APPROACH (FORWARD / REAR)		848 MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (T = 3 1/4")	848 SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN (T = 1")	848 MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	848 HAND CHIPPING	848 EXISTING CONCRETE OVERLAY REMOVED, AS PER PLAN (T = 2 1/4")	848 REMOVAL OF DEBONDED OR DETERIORATED EXISTING VARIABLE THICKNESS CONCRETE OVERLAY, AS PER		
	FT	FT	SQ YD		SY	SY	CY	SY		CY	SY	SY	FT	FT	SQ YD			SY	SY	CY	SY	SY	SY		
MAH-170-0802	113.00	44.00	552.44		552.44	552.44	4.60	16.57	LS	2.00	552.44	16.57	25.00	24.00	66.67	FORW		66.67	66.67	0.56	2.00	66.67	2.00		
													25.00	24.00	66.67	REAR		66.67	66.67	0.56	2.00	66.67	2.00		
			TOTALS		553	553	5	17	LS	2	553	17				TOTALS		134	134	2	4	134	4		

DESIGN AGENCY
ODOT DISTRICT 4
PLANNING AND ENGINEERING

DESIGNED	DRAWN	REVIEWED	DATE
MJP	MJP	MAC	12/16/19
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MAC	MAC	5004020	

STRUCTURE DETAILS
MAH-170-0802
OVER BURGESS LAKE

MAH-170-8.02
PID No. 106230

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