

**ROUNDING (G101)**

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS SECTIONS, EVEN THOUGH OTHERWISE SHOWN.

**UTILITIES (G102A)**

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

COMMUNICATION LUMEN ATTN: TIM BOWSER 175 ASHLAND ROAD, P.O. BOX 3555 MANSFIELD, OH 44907 419.755.7251	COMMUNICATION CHARTER COMMUNICATIONS ATTN: RON FERDINAND 1575 LEXINGTON AVENUE MANSFIELD, OH 44907 419.756.3338
GAS COLUMBIA GAS OF OHIO ATTN: MITCH SWEETING 1021 N. MAIN STREET MANSFIELD, OH 44903 419.348.9110	ELECTRIC OHIO EDISON ATTN: RICH HAAS 1717 ASHLAND ROAD MANSFIELD, OH 44905 419.521.6275
COMMUNICATION EVERSTREAM SOLUTIONS ATTN: JOE VALA 1228 EUCLID AVENUE, SUITE 250 CLEVELAND, OH 44115 216.440.7804	COMMUNICATION ZAYO GROUP ATTN: DAVE GALUSKA 4199 KINROSS LAKES PARKWAY, SUITE 10 RICHFIELD, OH 44286 234.281.0025

THE AFOREMENTIONED UTILITY COMPANIES AND AGENCIES HAVE VARIOUS FACILITIES IN THE AREA THAT WILL REMAIN IN PLACE DURING CONSTRUCTION.

EXTREME CAUTION SHOULD BE EXERCISED IN AREAS WITH UTILITIES. SECTIONS 105.07 AND 107.16 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS REQUIRE, AMONG OTHER THINGS, THAT THE CONTRACTOR COOPERATE WITH ALL UTILITIES LOCATED WITHIN THE LIMITS OF THIS CONSTRUCTION PROJECT AND TAKE RESPONSIBILITY FOR THE PROTECTION OF THE UTILITY PROPERTY AND SERVICES.

**SURVEYING PARAMETERS (G105)**

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE THE PROJECT COORDINATE CONTROL TABLE SHEET FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL  
POSITIONING METHOD: GPS OBSERVATIONS PER THE ODOT VRS NETWORK  
MONUMENT TYPE: TYPE B (REBAR WITH CAPS SET)

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) SCALED BY A COMBINED GRID SCALE AND ELEVATION PROJECT ADJUSTMENT FACTOR ABOUT THE GRID ORIGIN N=0, E=0 COORDINATE  
COMBINED SCALE FACTOR: UNITLESS GRID TO PROJECT ADJUSTMENT FACTOR (PAF)  
MULTIPLIER = 1.00009575  
GRID (METERS) TO PROJECT (U.S. SURVEY FEET)  
MULTIPLIER = 3.28114743  
ORIGIN OF COORDINATE SYSTEM: N=0, E=0 COORDINATE

PROJECT COORDINATE UNITS ARE IN U.S. SURVEY FEET, GRID COORDINATE UNITS ARE IN METERS. USE THE FOLLOWING CONVERSION FACTOR:  
1 METER = 39.37 INCHES = 3.280833333 U.S. SURVEY FEET

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.

**WORK LIMITS (G106)**

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.

**ROUTINE MAINTENANCE**

BETWEEN THE TIME THAT BIDS ARE TAKEN AND THE START OF CONSTRUCTION, THE MAINTAINING AGENCY MAY ENTER UPON THE PROJECT AND PERFORM ROUTINE MAINTENANCE SUCH AS CRACK SEALING, PATCHING, AND BERM AND SHOULDER REPAIR. THE EFFECTS, IF ANY, OF THE PERFORMANCE OF ROUTINE MAINTENANCE SHALL BE CONSIDERED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLAN AND THE RESULTING CONDITIONS SHALL NOT BE CONSIDERED AS DIFFERING MATERIALLY FROM THOSE EXISTING AT THE TIME BIDS WERE TAKEN.

**MONUMENT ASSEMBLIES (G110)**

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON THE PROJECT COORDINATE CONTROL TABLES IN THE RIGHT OF WAY PLANS.

**ITEM 201 - CLEARING AND GRUBBING (G108B)**

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS WILL BE REMOVED UNDER A SEPARATE CONTRACT. A LUMP SUM QUANTITY FOR ITEM 201, CLEARING AND GRUBBING HAS BEEN INCLUDED IN THE GENERAL SUMMARY. ALL PROVISIONS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 201, CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED UNDER THE SEPARATE CONTRACT.

RIC-42-6.51:

SIZES	NO. TREES	NO. STUMPS	TOTAL
8"	3	0	3
10"	3	0	3
12"	4	0	4
15"	1	0	1
16"	2	0	2
18"	2	0	2
24"	1	0	1

RIC-42-6.74:

SIZES	NO. TREES	NO. STUMPS	TOTAL
6"	3	0	3
8"	7	0	7
10"	1	0	1
16"	2	0	2
18"	3	0	3
30"	1	0	1

**ENVIRONMENTAL COMMITMENTS**

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT. THE CONTRACTOR SHALL NOT REMOVE TREES UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

ODOT WILL OBTAIN ALL APPROPRIATE WATERWAY PERMITS PRIOR TO ANY WORK BELOW THE ORDINARY HIGH WATER MARK OF ANY WATERWAY AND ALL SPECIAL PROVISIONS FOR WATERWAY PERMITS WILL BE INCLUDED IN THE PROJECT PLANS.

TO PROTECT THE GORMAN NATURE CENTER AND THE PUBLIC, THE CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING ALONG THE KNOWN BOUNDARIES OF GORMAN NATURE CENTER WITHIN THE PROJECT CONSTRUCTION LIMITS PRIOR TO START OF CONSTRUCTION ACTIVITIES.

ACCESS TO GORMAN NATURE CENTER MUST BE MAINTAINED AT ALL TIMES.

THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH ODOT CONSTRUCTION ENGINEER, AND THE GORMAN NATURE CENTER (JASON LARSON, 419-884-3764), 30 DAYS PRIOR TO START OF CONSTRUCTION ACTIVITIES.

**UTILITY LINES**

ALL EXPENSES INVOLVED IN RELOCATING OR INSTALLING THE AFFECTED UTILITY LINES SHALL BE THE RESPONSIBILITY OF THEIR RESPECTIVE OWNERS. THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

**REVIEW OF DRAINAGE FACILITIES (D114)**

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.

**LOCATIONS OF GUARDRAIL**

THE GUARDRAIL PROTECTION PROVIDED IN THIS PLAN SHALL BE LOCATED IN THE FIELD TO ASSURE THAT THE INSTALLATION WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC. THIS LOCATION SHALL BE POSITIONED AS FAR AS POSSIBLE FROM THE EDGE OF PAVEMENT WHILE MAINTAINING PROPER GRADE IN FRONT OF GUARDRAIL AS PER STANDARD DRAWINGS AND PLAN DETAILS.

**SUGGESTED SEQUENCE OF GUARDRAIL WORK**

1. GUARDRAIL WORK IS TO BEGIN AFTER THE EMBANKMENT WORK IS COMPLETED AND THE 304 MATERIAL IS PLACED.
2. CONSTRUCT THE GUARDRAIL RUN.
3. INSTALL BARRIER REFLECTORS.

**ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE MGS TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

THE CONTRACTOR MAY USE A SALVAGED EXTRUDER WHEN ASSEMBLING THE ITEM 606 ANCHOR ASSEMBLY, MGS TYPE E. ALL WELDS ON THE EXTERIOR OF THE SALVAGED EXTRUDER SHALL NOT BE DAMAGED AND THE FEEDER SHUTE SHALL NOT BE BENT.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**EXISTING CULVERT VERIFICATION**

DETAILS AND DIMENSIONS SHOWN ON THESE PROPOSED PLANS PERTAINING TO THE EXISTING CULVERT HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING CULVERT AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, SUCH DETAILS AND DIMENSIONS ARE INDICATIVE OF THE EXISTING CULVERT AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C&MS SECTIONS 102.05 AND 105.02. BASE THE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING CULVERT. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

**ITEM 611 - MANHOLE, NO. 3, AS PER PLAN**

AT STA. 355+68 FURNISH MANHOLE WITH 72" BASE PER MH-1.2 WITH A NEENAH R-2423 TYPE C OPEN GRATE OR EQUIVALENT. ALL MATERIALS AND LABOR, INCLUDING EXCAVATION AND BACKFILL, ARE PAID AT THE CONTRACT PRICE FOR ITEM 611 - MANHOLE, NO. 3, AS PER PLAN.

AT STA. 355+92 FURNISH MANHOLE WITH 60" BASE PER MH-1.2 WITH A NEENAH R-2423 TYPE C OPEN GRATE OR EQUIVALENT. ALL MATERIALS AND LABOR, INCLUDING EXCAVATION AND BACKFILL, ARE PAID AT THE CONTRACT PRICE FOR ITEM 611 - MANHOLE, NO. 3, AS PER PLAN.

**CONNECTION OF REPLACEMENT CONDUIT INTO CATCH BASINS**

THE CONNECTION OF REPLACEMENT CONDUIT SECTIONS INTO CATCH BASINS AS DETAILED ON THE CULVERT DETAILS SHEETS SHALL BE DONE AS FOLLOWS: CREATE HOLE FOR CONDUIT IN CATCH BASIN WALL BY METHOD APPROPRIATE FOR DETAILS SHOWN ON THE CULVERT DETAILS SHEETS. (IF CATCH BASIN IS FORMED, CONDUIT OPENING SHALL BE INCLUDED IN FORMING PROCESS; IF CATCH BASIN IS PRE-CAST, OPENING FOR CONDUIT SHALL BE ACCOMMODATED IN THE MANUFACTURE OF PRE-CAST CATCH BASINS. SUBSEQUENTLY, CONCRETE MASONRY SHALL BE USED TO GROUT AROUND THE PIPE WHERE IT INSERTS THROUGH THE HOLE IN THE CATCH BASIN WALL).

**ITEM 611 - FARM DRAINS (D107)**

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE (RIGHT OF WAY) (CONSTRUCTION) LIMITS BY ITEM 611 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLET INTO THE ROADWAY DITCH BY 611 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 611, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM-1.1, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEMS.

PAYMENT FOR ALL LABOR AND MATERIALS WILL BE PERFORMED BY CHANGE ORDER.

CALCULATED  
ACM  
CHECKED  
KRB

GENERAL NOTES

RIC-42-6.51  
RIC-42-6.74

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**ITEM 611 – RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS**

EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

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

PAYMENT FOR ALL LABOR AND MATERIALS WILL BE PERFORMED BY CHANGE ORDER.

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES (D104)**

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.

**ITEM 611 – 6' X 5' CONDUIT, TYPE A, 706.05, AS PER PLAN**

THIS ITEM SHALL BE USED FOR THE INSTALLATION OF THE BOX CULVERT END SECTIONS ON THE RIC-42-6.51 LOCATION. THE CULVERT SECTIONS SHALL UTILIZE AN 8 INCH THICKNESS ON THE WALLS AND TOP AND BOTTOM SLABS. THE PROPOSED CULVERT SECTIONS SHALL BE ATTACHED TO THE EXISTING BOX CULVERT WITH A CONCRETE MASONRY COLLAR AS PER STANDARD CONSTRUCTION DRAWING DM-1.1.

AT THE INLET END OF THE CULVERT, DUE TO THE PRESENCE OF UNDERGROUND UTILITIES THAT WILL REMAIN IN PLACE DURING CONSTRUCTION, A PRECAST REINFORCED CONCRETE BOX CULVERT SECTION SHALL NOT BE USED IN PLACE OF A CAST-IN-PLACE ALTERNATIVE FOR THE CULVERT SECTION. ALL REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

AT THE OUTLET END OF THE CULVERT, FOR ITEMS 706.05, 706.051, 706.052 AND 706.053 WITH A CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERT SECTION, AT THE OPTION OF THE CONTRACTOR, PRECAST ALTERNATIVES MAY BE USED IN ACCORDANCE WITH CMS 602.03.E. THE PRECAST ALTERNATIVE WILL MEET THE CAST-IN-PLACE STRUCTURAL DESIGN LOADINGS, DESIGN HEIGHT, AND DESIGN LENGTH DIMENSIONS.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE CONTRACT PRICE BID PER FOOT FOR ITEM 611 – 6' X 5' CONDUIT, TYPE A, 706.05, AS PER PLAN, AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**ITEM 611 – CONDUIT MISC.: VIDEO LOG**

PRIOR TO THE ACCEPTANCE OF THE PIPE CLEANOUT BY THE ENGINEER AND THE APPLICATION OF THE PIPE LINER, A VIDEO LOG OF THE DRAINAGE SYSTEM SHALL BE PERFORMED.

IF A BLOCKAGE IS ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND THE VIDEO LOG SHALL BE SUSPENDED UNTIL THE PIPE HAS BEEN THOROUGHLY CLEANED OUT.

IF A COLLAPSE OR FAILURE IN THE PIPE IS ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND THE VIDEO LOG AND NOTIFY THE ENGINEER. PAYMENT FOR REPLACEMENT OF ANY SECTION OF THE TRUNK LINE SHALL BE APPROVED BY THE DISTRICT DESIGN ENGINEER. PAYMENT FOR REPLACEMENT OF ANY SECTION OF TRUNK LINE SHALL BE PROVIDED IN A SUPPLEMENTAL AGREEMENT AS PER CMS 109.05.

THE VIDEO LOG OF THE DRAINAGE SYSTEM LINE SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 611 - CONDUIT MISC.: VIDEO LOG. THIS PRICE SHALL INCLUDE THE COST OF MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE ABOVE STATED WORK.

**ITEM SPECIAL – PIPE CLEANOUT (D121)**

THIS WORK SHALL CONSIST OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. ALL MATERIAL REMOVED SHALL BE DISPOSED OF AS PER 105.16 AND 105.17. ALL SEWERS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CLEANOUT OF THE PIPE SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL - PIPE CLEANOUT. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE ABOVE NOTED WORK:

SPECIAL - PIPE CLEANOUT, 27" TO 48"	97 FT
SPECIAL - PIPE CLEANOUT, OVER 48"	55 FT

**ITEM 202 – REMOVAL MISC.: LARGE ROCK (RIC-42-6.74)**

THIS ITEM SHALL BE USED TO REMOVE THE LARGE LANDSCAPING ROCKS AT THE DRIVE ENTRANCE TO ADDRESS #2078.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE CONTRACT BID PRICE PER EACH FOR ITEM 202 – REMOVAL MISC.: LARGE ROCK AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**ITEM 659 – SEEDING AND MULCHING (E101A)**

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

RIC-42-6.51:

659	COMMERCIAL FERTILIZER	0.20	TON
659	LIME	0.29	ACRE
659	WATER	7.65	M GAL
659	REPAIR SEEDING AND MULCHING	69	SQ YD
659	INTERSEEDING	69	SQ YD
659	TOPSOIL	153	CU YD
659	SOIL ANALYSIS TEST	2	EACH
659	SEEDING AND MULCHING	1381	SQ YD

RIC-42-6.74:

659	COMMERCIAL FERTILIZER	0.06	TON
659	LIME	0.10	ACRE
659	WATER	2.63	M GAL
659	REPAIR SEEDING AND MULCHING	24	SQ YD
659	INTERSEEDING	24	SQ YD
659	TOPSOIL	53	CU YD
659	SOIL ANALYSIS TEST	2	EACH
659	SEEDING AND MULCHING	475	SQ YD

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS. QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

**ITEM 833 – CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, BOX CULVERT, AS PER PLAN (6' SPAN X 5' RISE) (RIC-42-6.51)**

IN ADDITION TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 833 THE FOLLOWING REQUIREMENTS APPLY FOR THIS PROJECT:

**1. CALCULATIONS**

PERFORM ALL DESIGN AND RATING CALCULATIONS WITHOUT ANY CONSIDERATION OF ANY CONTRIBUTING OF ANY KIND BY THE EXISTING SANDSTONE/CONCRETE BOX CULVERT. THE LINER SHALL CONFORM TO THE 9TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020, AND THE ODOT BRIDGE DESIGN MANUAL, 2020. REINFORCEMENT SHALL BE PROVIDED AS REQUIRED. A FINITE ELEMENT ANALYSIS MAY BE USED FOR THE DESIGN. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S BROCHURES AND RECOMMENDATIONS FOR INSTALLATION TO THE ENGINEER PRIOR TO BEGINNING WORK.

THE MAXIMUM DESIGN THICKNESS OF THE LINER SHALL NOT EXCEED 6".

**2. MATERIALS**

FURNISH ONLY CEMENTITIOUS OR GEOPOLYMER-BASED LINER MATERIAL. PROVIDE EPOXY COATED STEEL REINFORCEMENT OR OTHER NON-METALLIC REINFORCEMENT AS REQUIRED BY THE DESIGN.

**3. QUALITY CONTROL**

A MANUFACTURER'S REPRESENTATIVE SHALL BE ON-SITE TO OVERSEE ALL OPERATIONS. AT A MINIMUM, THE DUTIES OF THE REPRESENTATIVE SHALL INCLUDE:

- A. INSPECTION OF EQUIPMENT AND MATERIAL
- B. APPROVAL OF THE WORK
- C. INSPECTION OF THE WORK WITH THE ENGINEER OR INSPECTOR
- D. VERIFICATION THAT THE CONTRACTOR PERFORMED WORK ACCORDING TO THE CONTRACT DOCUMENTS
- E. NOTIFICATION OF THE SUPERINTENDENT OF NONCONFORMING WORK
- F. STOPPING WORK WHEN NECESSARY TO ENSURE THE WORK IS PERFORMED ACCORDING TO THE CONTRACT

THE ENGINEER MAY CONDUCT SUPPLEMENTAL SAMPLING AND TESTING OF THE LINER.

AT THE COMPLETION OF ALL WORK, THE REPRESENTATIVE SHALL PROVIDE THE ENGINEER A LETTER THAT INCLUDES:

- A. THE NAME AND CONTACT INFORMATION OF THE REPRESENTATIVE
- B. DOCUMENTATION OF ISSUES THAT AROSE DURING WORK (ATTACHING PHOTOGRAPHS IF AVAILABLE)
- C. DOCUMENTATION OF STEPS TAKEN TO RESOLVE THOSE ISSUES
- D. DOCUMENTATION OF ACCEPTANCE OF THE LINER SYSTEM

PREPARE AT LEAST TWO (2) TEST SPECIMENS FOR EVERY DAY OF PRODUCTION FOR THE FIRST THREE (3) DAYS OF PRODUCTION AND FOR EVERY TWO (2) DAYS OF PRODUCTION THEREAFTER AS REQUIRED PER ASTM C109 UTILIZING ACI-CERTIFIED LEVEL ONE SAMPLE TECHNICIANS TO PROPERLY OBTAIN AND TRANSPORT THE TEST SPECIMENS TO AN ACCREDITED THIRD PARTY LABORATORY. IF A SINGLE COMPRESSIVE STRENGTH TEST RESULT IS LESS THAN THE DESIGN STRENGTH USED IN THE STRUCTURAL CALCULATIONS SUBMITTED BY THE CONTRACTOR, THE MATERIAL WILL BE CONSIDERED UNACCEPTABLE AND THE DEPARTMENT WILL DETERMINE ACCEPTANCE ACCORDING TO ITEM 106.7. THE CONTRACTOR MAY SUBMIT ADDITIONAL STRUCTURAL CALCULATIONS BASED UPON THE ACTUAL MEASURED THICKNESS OF THE LINER AND THE TESTED STRENGTH OF THE MATERIAL FOR CONSIDERATION OF THE ACCEPTANCE OF THE MATERIAL.

**4. PRECONSTRUCTION TESTING**

BEFORE THE START OF PLACING ANY LINER MATERIAL BY MANUAL METHOD, PERFORM A PRECONSTRUCTION TEST TO VERIFY THE OPERATION OF THE EQUIPMENT, TO CONFIRM THE APPLICATION CREW'S CAPABILITY, AND TO ENSURE THE SPRAY APPLIED LINER WILL BE OF ACCEPTABLE QUALITY.

**ITEM 833 – CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, BOX CULVERT, AS PER PLAN (6' SPAN X 5' RISE) (RIC-42-6.51) (CONTINUED)**

ADJUST THE MIXING WATER TO PROVIDE LINER MATERIAL OF THE PROPER CONSISTENCY, BUT DO NOT EXCEED A TOTAL WATER CONTENT THAT EXCEEDS THE MANUFACTURER MIX DESIGN.

ALLOW THE ENGINEER TO CAREFULLY EXAMINE THE INTERIOR PORTIONS OF THE LINER. ENSURE THAT THEY ARE SUBSTANTIALLY FREE OF HOLLOW AREAS AND POCKETS OF UNMIXED MATERIAL.

HAVE EACH CREW PROPOSED TO PERFORM THIS WORK FABRICATE SATISFACTORY PANELS BEFORE ALLOWING THAT CREW TO APPLY LINER TO THE STRUCTURE.

**5. APPLICATION**

REMOVE ALL DEBRIS AND OBSTRUCTIONS FROM THE HOST PIPE. CLEAN AND PREPARE THE SURFACE OF THE HOST PIPE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

PLACE EACH COAT SO THAT IT WILL NEITHER SAG NOR DECREASE THE BOND OF THE PRECEDING COAT.

FILL IN ANY VOIDS IN THE EXISTING WALLS AND SLABS OF THE SANDSTONE/CONCRETE BOX CULVERT AND APPLY THE DESIGN THICKNESS AT THE PEAK OF THE WALL AND SLAB PROFILES.

APPLY THE LINER IN A MANNER THAT RESULTS IN A FINISHED SURFACE APPEARANCE AND CONSISTENCY EQUAL TO THE APPEARANCE AND CONSISTENCY EXHIBITED IN THE MANUFACTURER'S BROCHURES, LITERATURE, AND WEBSITE.

SEE RIC-42-6.51 CULVERT DETAILS SHEETS FOR ADDITIONAL APPLICATION DETAILS.

**6. PAYMENT**

PAYMENT FOR THE WORK OUTLINED ABOVE AND THAT REQUIRED IN SUPPLEMENTAL SPECIFICATION 833 SHALL BE MADE AT THE UNIT BID PRICE FROM ITEM 833, CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, BOX, AS PER PLAN AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT, MOBILIZATION AND MATERIALS NECESSARY TO CONSTRUCT THE PROPOSED SPRAY LINER UNLESS SEPARATELY ITEMIZED IN THE PLANS.

**ITEM 833 – CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT (48" DIAMETER) (RIC-42-6.74)**

IN ADDITION TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 833 THE FOLLOWING REQUIREMENTS APPLY FOR THIS PROJECT:

**1. CALCULATIONS**

PERFORM ALL DESIGN AND RATING CALCULATIONS WITHOUT ANY CONSIDERATION OF ANY CONTRIBUTING OF ANY KIND BY THE EXISTING STEEL CULVERT.

THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S BROCHURES AND RECOMMENDATIONS FOR INSTALLATION TO THE ENGINEER PRIOR TO BEGINNING WORK.

**2. MATERIALS**

FURNISH ONLY CEMENTITIOUS OR GEOPOLYMER-BASED LINER MATERIAL.

**3. QUALITY CONTROL**

A MANUFACTURER'S REPRESENTATIVE SHALL BE ON-SITE TO OVERSEE ALL OPERATIONS. AT A MINIMUM, THE DUTIES OF THE REPRESENTATIVE SHALL INCLUDE:

- A. INSPECTION OF EQUIPMENT AND MATERIAL
- B. APPROVAL OF THE WORK
- C. INSPECTION OF THE WORK WITH THE ENGINEER OR INSPECTOR
- D. VERIFICATION THAT THE CONTRACTOR PERFORMED WORK ACCORDING TO THE CONTRACT DOCUMENTS
- E. NOTIFICATION OF THE SUPERINTENDENT OF NONCONFORMING WORK
- F. STOPPING WORK WHEN NECESSARY TO ENSURE THE WORK IS PERFORMED ACCORDING TO THE CONTRACT

THE ENGINEER MAY CONDUCT SUPPLEMENTAL SAMPLING AND TESTING OF THE LINER.

AT THE COMPLETION OF ALL WORK, THE REPRESENTATIVE SHALL PROVIDE THE ENGINEER A LETTER THAT INCLUDES:

- A. THE NAME AND CONTACT INFORMATION OF THE REPRESENTATIVE
- B. DOCUMENTATION OF ISSUES THAT AROSE DURING WORK (ATTACHING PHOTOGRAPHS IF AVAILABLE)
- C. DOCUMENTATION OF STEPS TAKEN TO RESOLVE THOSE ISSUES
- D. DOCUMENTATION OF ACCEPTANCE OF THE LINER SYSTEM

PREPARE AT LEAST TWO (2) TEST SPECIMENS FOR EVERY DAY OF PRODUCTION FOR THE FIRST THREE (3) DAYS OF PRODUCTION AND FOR EVERY TWO (2) DAYS OF PRODUCTION THEREAFTER AS REQUIRED PER ASTM C109 UTILIZING ACI-CERTIFIED LEVEL ONE SAMPLE TECHNICIANS TO PROPERLY OBTAIN AND TRANSPORT THE TEST SPECIMENS TO AN ACCREDITED THIRD PARTY LABORATORY. IF A SINGLE COMPRESSIVE STRENGTH TEST RESULT IS LESS THAN THE DESIGN STRENGTH USED IN THE STRUCTURAL CALCULATIONS SUBMITTED BY THE CONTRACTOR, THE MATERIAL WILL BE CONSIDERED UNACCEPTABLE AND THE DEPARTMENT WILL DETERMINE ACCEPTANCE ACCORDING TO ITEM 106.7. THE CONTRACTOR MAY SUBMIT ADDITIONAL STRUCTURAL CALCULATIONS BASED UPON THE ACTUAL MEASURED THICKNESS OF THE LINER AND THE TESTED STRENGTH OF THE MATERIAL FOR CONSIDERATION OF THE ACCEPTANCE OF THE MATERIAL.

CALCULATED  
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GENERAL NOTES

RIC-42-6.51  
RIC-42-6.74

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