

**UTILITIES**

THERE ARE NO KNOWN UNDERGROUND, OR OVERHEAD UTILITIES, WITHIN THE PROJECT CONSTRUCTION LIMITS.

**SURVEYING PARAMETERS**

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE BELOW 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: ODOT VRS  
 MONUMENT TYPE: IRON PIN \*ODOT CAP\* (SET)

**VERTICAL POSITIONING**

ORTHOMETRIC HEIGHT DATUM: NAVD88  
 GEOID: GEOID18

**HORIZONTAL POSITIONING**

REFERENCE FRAME: NAD83/2011 (EPOCH 2010)  
 ELLIPSOID: GRS80  
 MAP PROJECTION: LAMBERT CONFORMAL CONIC  
 COORDINATE SYSTEM: OHIO STATE PLANE, SOUTH ZONE (3402)  
 COMBINED SCALE FACTOR: 1.00007146  
 ORIGIN OF COORDINATE SYSTEM: 0, 0

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.

POINT	NORTHING (GROUND)	EASTING (GROUND)	STA.	OFFSET	ELEV.	DESCR.
CP01	368880.7779	1901461.4113	185+75.00	0.000	702.39	CMON
CP02	369007.8320	1901938.1463	190+64.45	-62.180	703.41	IPINS
CP03	368902.2019	1902082.7355	191+93.64	61.848	704.43	IPINS

**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.

**SEEDING AND MULCHING**

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

- 659, SEEDING AND MULCHING 2,500 SQ. YD.
- 659, REPAIR SEEDING AND MULCHING 125 SQ. YD. (5% OF PERMANENT SEEDING AND MULCHING)
- 659, COMMERCIAL FERTILIZER 0.34 TON (FIRST APPLICATION @ 20 LBS./1,000 SQ. FT. AND SECOND APPLICATION @ 10 LBS./1,000 SQ. FT.)
- 659, LIME 0.52 ACRES
- 659, WATER 13.5 M. GAL. (TWO APPLICATIONS @ 300 GAL./1,000 SQ. FT.)

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.

**CLEARING AND GRUBBING**

REMOVE ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	16	0	16
30"	1	0	1

**OPTION A: ITEM 611 - CONDUIT MISC.: EXPAND-IN-PLACE GLASS-FIBER LINER PIPE**

INSTALL AN EXPAND-IN-PLACE GLASS-FIBER LINER PIPE THAT IS BONDED TO THE INTERIOR SURFACE OF THE CONCRETE HOST PIPE TO BE REHABILITATED. ENSURE THE LINER PIPE FITS TIGHTLY AND CONFORMS TO THE SHAPE OF THE EXISTING PIPE WHEN THE EXPANSION IS COMPLETE. GLASS ALL SEAMS AND JOINTS A MINIMUM THICKNESS EQUAL TO THE DESIGN THICKNESS TO PRODUCE A CONTINUOUS JOINT-LESS LINER THAT IS IMPERVIOUS TO INFILTRATION AND EXFILTRATION.

PROVIDE CALCULATIONS PERFORMED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER. DESIGN THE PIPE AS A STATE III LINER THAT INDEPENDENTLY SUPPORTS THE DEAD LOAD, LIVE LOAD, AND HYDRAULIC LOAD PER ASCE MOP 145, DESIGN OF CLOSE-FIT LINERS. USE A DESIGN SERVICE LIFE OF 75 YEARS. INCLUDE A LOAD RATING ANALYSIS, IF REQUIRED, PER THE BRIDGE DESIGN MANUAL SECTION 900 TO THE DISTRICT BRIDGE ENGINEER.

PROVIDE LINER PIPE CONFORMING TO 707.75, WITH THE EXCEPTION OF MEETING THE REQUIREMENTS OF ASTM D2412.

PROVIDE A 2-PART BONDING SYSTEM CONSISTING OF A PRIMER AND BONDING AGENT, BOTH SOURCED FROM THE SAME PRODUCER, DESIGNED TO WORK IN CONJUNCTION TO BOND THE LINER PIPE TO THE CONCRETE HOST PIPE. FILL VOIDS WITH GROUT COMPATIBLE WITH THE 2-PART BONDING SYSTEM WHERE THEY EXIST BETWEEN THE LINER AND HOST PIPE DUE TO THE DETERIORATION OF THE HOST PIPE (SPALLING, JOINT SEPARATION/MISALIGNMENT) AND FULL CONTACT CANNOT BE ACHIEVED.

CURED BONDING AGENT PROPERTIES	
TENSILE STRENGTH	1700 PSI (MINIMUM)
ELONGATION	480% (MAXIMUM)
MODULUS (100%)	430 PSI (MINIMUM)

INSTALL LINER PIPE AND BONDING SYSTEM AS PER THE DIRECTION OF THE MANUFACTURER USING ONLY MANUFACTURER CERTIFIED PERSONNEL.

CLEAN AND REMOVE DEBRIS FROM THE HOST PIPE PRIOR TO INSTALLING THE LINER PIPE. DEWATER PIPE AND BYPASS FLOW DURING INSTALLATION. RESTORE ACTIVE SERVICE CONNECTIONS AFTER INSTALLATION OF THE LINER PIPE. PERFORM A POST-INSTALLATION VIDEO SURVEY OF THE PIPE AND PROVIDE A COPY OF THE VIDEO TO THE ENGINEER AS DESCRIBED IN SS902 SECTION 902.01 C.

PAYMENT FOR THE ABOVE WORK IS INCLUDED THE CONTRACT PRICE FOR ITEM 611, CONDUIT MISC.: EXPAND-IN-PLACE GLASS-FIBER LINER PIPE.

**OPTION B: ITEM 833 - CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ELLIPTICAL CONDUIT, AS PER PLAN (113" SPAN x 72" RISE)**

PROVISIONS FOR SS 833 SHALL BE FOLLOWED EXCEPT MODIFIED HEREIN. THE MAXIMUM SPRAY LINER THICKNESS SHALL BE 0.60 INCHES. SIGNED AND STAMPED CALCULATIONS BY A PROFESSIONAL ENGINEER ARE STILL REQUIRED. MATERIALS REQUIRING A THICKNESS THAT EXCEED 0.60 INCHES WILL REDUCE THE HYDRAULIC CAPACITY OF THE PIPE BEYOND ACCEPTANCE AND ARE THEREFORE NOT ALLOWED.

THE AREAS OF LOOSE CONCRETE WITHIN THE PIPE SHALL BE REMOVED WITH HAND HELD TOOLS. THE USE OF PNEUMATIC TOOLS SHALL BE PROHIBITED AND THE ONLY CONCRETE THAT WILL REQUIRE REMOVAL IS THAT WHICH CAN BE REMOVED WITH HAND TOOLS. AREAS WHERE REBAR IS EXPOSED AND/OR THE CONCRETE HAS BEEN REMOVED SHALL BE CLEANED PRIOR TO THE APPLICATION OF THE SPRAY LINER. CLEANING SHALL PRECEDE APPLICATION OF THE SPRAY LINER BY NOT MORE THAN 24 HOURS. THE SURFACE TO BE PATCHED SHALL BE CLEANED BY ABRASIVE BLASTING FOLLOWED BY AN AIR BLAST. BLASTING ABRASIVES CONTAINING MORE THAN 1% FREE SILICA WILL NOT BE ALLOWED. EXPOSED REINFORCING STEEL SHALL BE CLEANED TO REMOVE ALL LOOSE AND BUILT-UP RUST AND ALL OTHER CONTAMINANTS DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND. THE SURFACE SHALL BE FREE OF SPALLS, LAITANCE, AND ALL TRACES OF FOREIGN MATERIAL. THE PREPARATORY WORK SHALL BE INCIDENTAL TO SS 833.

**ENDANGERED BAT HABITAT**

ENSURE IMPACTS TO THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT AND THE STATE LISTED AND PROTECTED LITTLE BROWN BAT AND TRICOLORED BAT ARE AVOIDED AND MINIMIZED. DO NOT REMOVE TREES FROM APRIL 1 THROUGH SEPTEMBER 30. PERFORM ALL NECESSARY TREE REMOVAL FROM OCTOBER 1 THROUGH MARCH 31. DEMARCATÉ CLEARING LIMITS IN THE FIELD TO AVOID ANY UNAUTHORIZED TREE CLEARING. 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.

DESIGN AGENCY



DESIGNER

JEM

REVIEWER

JAZ MM-DD-YY

PROJECT ID

116023

SHEET TOTAL

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