MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD CULVERT REPLACEMENT PROJECT - PHASE II

WOODLANE DRIVE, NORTH WOODLANE DRIVE, NORMAN LANE, AND SOUTH WOODLANE DRIVE

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811
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EXISTING UNDERGROUND UTILITY NOTE:

THE SIZE AND LOCATION, BOTH HORIZONTAL AND VERTICAL, OF THE UNDERGROUND UTILITIES SHOWN HEREON, HAVE BEEN OBTAINED BY A DILIGENT AND COMPREHENSIVE SEARCH OF AVAILABLE RECORDS. VERIFICATION BY FIELD OBSERVATION HAS BEEN CONDUCTED WHERE PRACTICAL. HOWEVER, STEPHEN HOVANCSEK AND ASSOCIATES INC. DOES NOT GUARANTEE THE COMPLETENESS NOR ACCURACY THEREOF.

REVISIONS			
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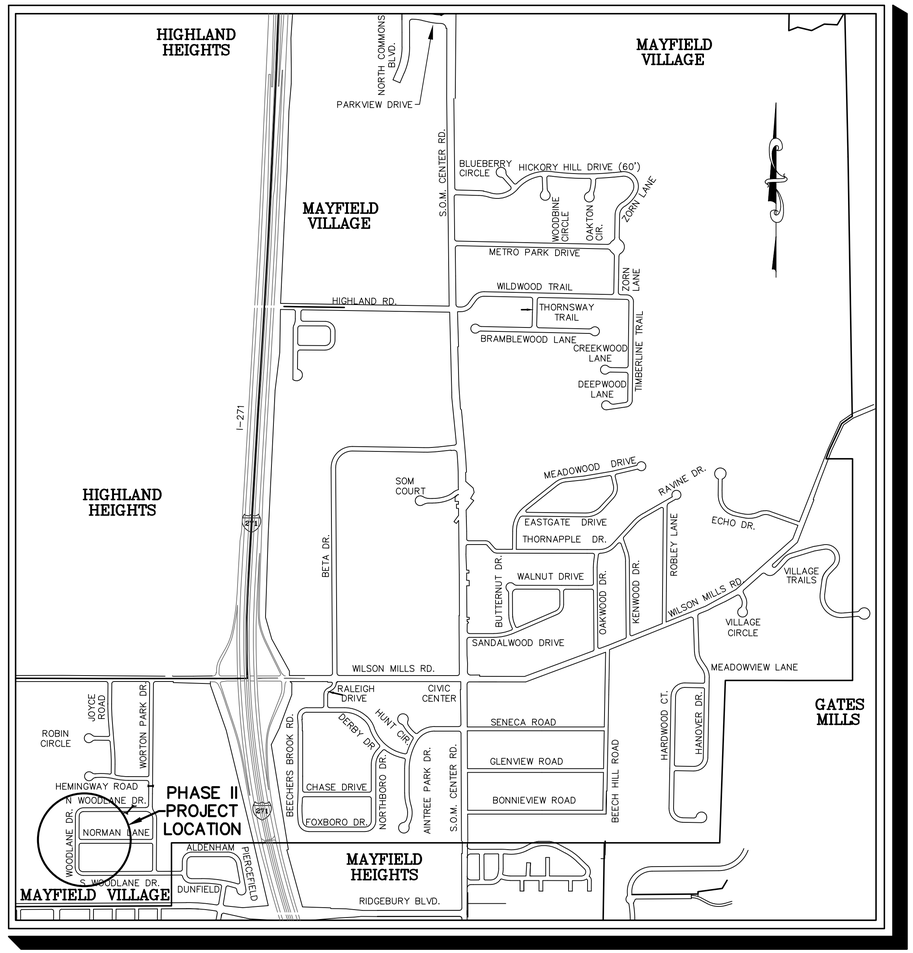

LOCATION MAP
NOVEMBER 2026

0 1000 2000

1"=1000'

PREPARED FOR
MAYFIELD VILLAGE
MAYOR
BRENDA T. BODNAR

COUNCIL

AT LARGE – PRESIDENT	STEPHEN SCHUTT
WARD 1	BILL MARQUARDT
WARD 2	MARK W. ARNDT
WARD 3	DENNY MURPHY
WARD 4	PETER GALL
AT LARGE	MICHAEL GIRBINO
AT LARGE – PRESIDENT PRO TEM	JENNIFER JURCISEK

PREPARED BY
STEPHEN HOVANCSEK & ASSOC., INC.
CONSULTING ENGINEERS & PLANNERS
TWO MERIT DRIVE RICHMOND HEIGHTS, OHIO

FRANK STUPCZY
DIRECTOR OF SERVICE

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

THOMAS CAPPELLO, P.E., P.S.
VILLAGE ENGINEER

BID SET 11/24/2026

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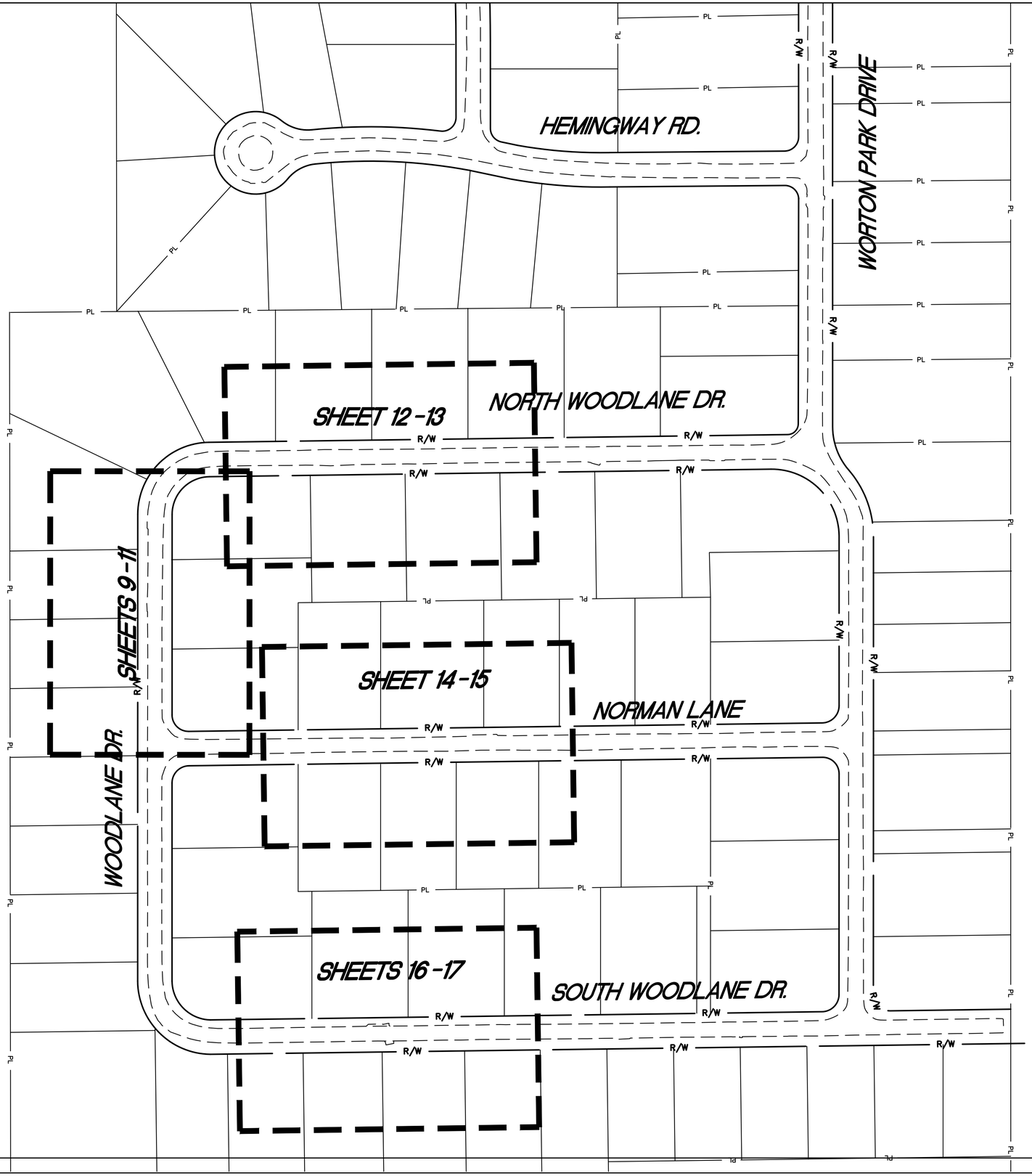

NORTH

SCALE IN FEET (HORIZONTAL)
160
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STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS			
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
SCHEMATIC PLAN

NOVEMBER 2026

JOB NO. 22-187

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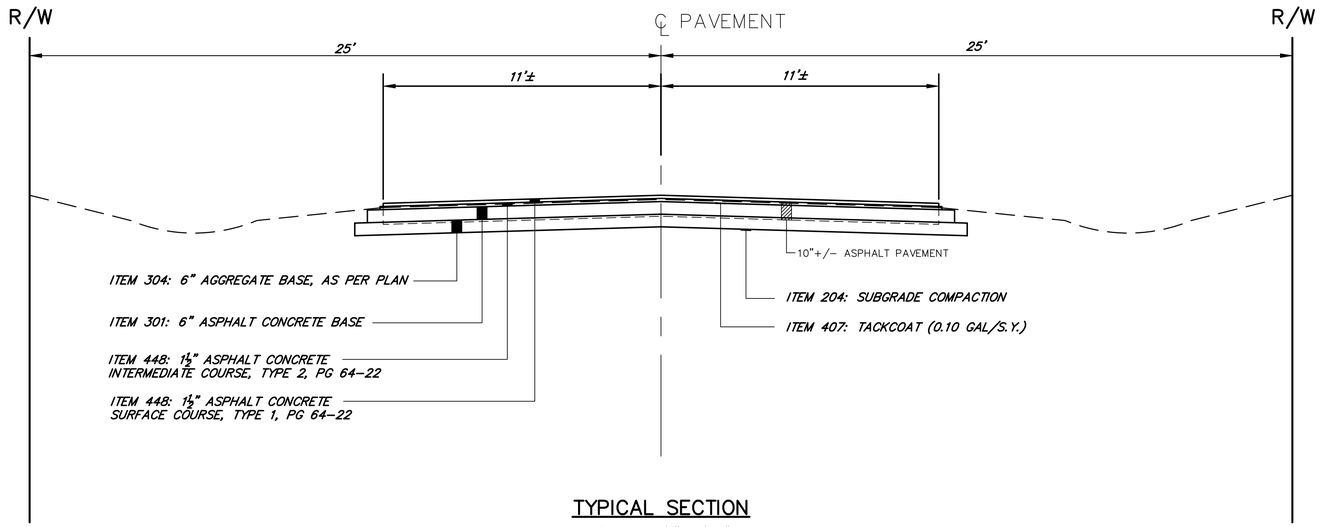

TYPICAL SECTION

SCALE: 3/8" =1'-0"

WOODLANE DRIVE, NORMAN LANE AND SOUTH WOODLANE DRIVE

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
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REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
TYPICAL SECTION

NOVEMBER 2026
JOB NO. 22-187

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UTILITIES

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

CHARTER COMMUNICATIONS (SPECTRUM)
7820 DIVISION DRIVE
MENTOR, OHIO 44060
PHONE: (440) 974–3401 EXT. 123
FAX: (440) 974–3201

AT&T
13630 LORAIN AVE. 4TH FLOOR
CLEVELAND, OHIO 44111
PHONE: (216) 476–6142
FAX: (216) 573–5792

CITY OF CLEVELAND DIVISION OF WATER
1201 LAKESIDE AVE.
CLEVELAND, OHIO 44114
PHONE: (216) 664–2444, EXT. 75590
FAX: (216) 664–2378

CUYAHOGA COUNTY SANITARY ENGINEER
6100 WEST CANAL ROAD
VALLEY VIEW, OHIO 44125
PHONE: (216) 443–8205
FAX: (216) 443–8236

ENBRIDGE GAS OHIO
320 SPRINGSIDE DRIVE
FAIRLAWN, OHIO 44333
PHONE: (330) 664–2488

ILLUMINATING COMPANY
6896 MILLER ROAD
BRECKSVILLE, OHIO 44141
PHONE: (440) 717–6845
FAX: (440) 546–8780

CALL OHIO UTILITIES PROTECTION SERVICE
TWO (2) WORKING DAYS BEFORE YOU DIG
TOLL FREE NO. 1–800–362–2764

CALL OHIO OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE (OGPUPS)
TOLL FREE NO. 1–800–925–0988
(NON–MEMBERS MUST BE CALLED DIRECTLY)

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL SUBSIDIARY AGREEMENT GOVERNING COMPLETION OF THIS PROJECT.

ELEVATION DATUM

ELEVATIONS SHOWN ARE BASED ON CLEVELAND REGIONAL GEODETIC SURVEY (C.R.G.S.) DATA. MONUMENTS ARE DESCRIBED ON THE PLANS.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION, AND OPERATION (INCLUDING ERECTION, MAINTENANCE AND REMOVAL) OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS, EXCEPT WHERE OTHERWISE NOTED, SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN DEVELOPED FROM SITE MEASUREMENTS AND RECORD PLANS AND ARE BELIEVED TO REPRESENT THE WIDTH AND COMPOSITION OF THE EXISTING PAVEMENT, BUT THE VILLAGE DOES NOT GUARANTEE THE ACCURACY OF SAME.

PROJECT PROGRESS MEETINGS

PROGRESS MEETINGS WILL BE HELD EVERY WEEK AT THE PROJECT OFFICE OR OTHER LOCATION DESIGNATED BY THE VILLAGE ENGINEER, AND WILL BE ATTENDED BY THE VILLAGE REPRESENTATIVES AND CONTRACTOR DECISION–MAKING PERSONNEL.

THE PURPOSE OF THESE MEETINGS IS TO DISCUSS CRITICAL OPERATIONS AND POTENTIAL PROBLEMS. ALSO, THE CONTRACTOR WILL CONFIRM THE NUMBER AND DURATION OF WORK SHIFTS, NUMBER OF WORK CREWS, AND SPECIFIC PORTIONS OF THE WORK TO BE PERFORMED DURING THE FOLLOWING WEEKS.

THESE MEETINGS CAN ONLY BE WAIVED BY THE VILLAGE SERVICE DIRECTOR OR VILLAGE ENGINEER.

DEFINITIONS AND TERMS

WHEREVER THERE APPEARS, IN THE STANDARD SPECIFICATIONS (ODOT ITEMIZED CMS), SUPPLEMENTAL SPECIFICATIONS OR PROPOSAL NOTES, THE TERM "THE STATE", "DIRECTOR OF TRANSPORTATION", "DEPARTMENT" "DISTRICT CONSTRUCTION ENGINEER (DCE)", "ENGINEER", OR ANY OTHER TERM DESIGNATING ANY REPRESENTATIVE OR EMPLOYEE OF THE STATE OR ITS DEPARTMENT OF TRANSPORTATION, SUCH TERM SHALL, FOR THE PURPOSE OF THIS CONTRACT, BE CONSIDERED AND TAKEN AS MEANING AND DESIGNATING THE RESPECTIVE BOARD OFFICER OR EMPLOYEE OF MAYFIELD VILLAGE WHOSE DUTY OR FUNCTION IT IS TO DEAL WITH THE SUBJECT MATTER IN CONNECTION WITH WHICH SUCH TERM IS USED AND SPECIFICALLY:

THE STATE – SHALL MEAN MAYFIELD VILLAGE.

DEPARTMENT – SHALL MEAN THE MAYFIELD VILLAGE ENGINEER'S OFFICE.

DIRECTOR – SHALL MEAN THE MAYFIELD VILLAGE ENGINEER, HIS DEPUTIES OR ANY ENGINEER DESIGNATED AS THE MAYFIELD VILLAGE ENGINEER'S REPRESENTATIVE.

DISTRICT CONSTRUCTION – SHALL MEAN THE DULY AUTHORIZED AGENT OR REPRESENTATIVE OF THE MAYFIELD VILLAGE ENGINEER MAYFIELD VILLAGE ENGINEER'S OFFICE ACTING WITHIN THE SCOPE OF HIS/HER AUTHORITY FOR (DCE) OR ENGINEER THE PURPOSES OF CONSTRUCTION ENGINEERING AND ADMINISTRATION OF THE CONTRACT.

LABORATORY – SHALL MEAN ANY LABORATORY DESIGNATED BY MAYFIELD. VILLAGE.

ROADWAY

ITEM 201 – CLEARING AND GRUBBING, AS PER PLAN

ALL APPLICABLE PROVISIONS OF ODOT ITEM 201: CLEARING AND GRUBBING SHALL APPLY EXCEPT AS MODIFIED AS FOLLOWS:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ALL TREES, OF VARIOUS SIZES, AND UNDERGROWTH, SHOWN ON THE PLAN. PRIOR TO ANY REMOVAL, THE CONTRACTOR SHALL MEET WITH THE VILLAGE ENGINEER AND VILLAGE SERVICE DIRECTOR/ARBORIST AND PHYSICALLY MARK ALL OF THE TREES TO BE REMOVED.

ITEM 203 – EXCAVATION (INCLUDING ROCK), AS PER PLAN

ALL APPLICABLE PROVISIONS OF ODOT ITEM 203: EXCAVATION SHALL APPLY EXCEPT AS MODIFIED AS FOLLOWS:

ALL ROCK EXCAVATION REQUIRED TO PERFORM THIS WORK SHALL BE INCLUDED IN THIS ITEM. CONTRACTOR SHALL BE RESPONSIBLE TO VISIT THE SITE TO OBSERVE THE ROCK IN THE EXISTING STREAM.

ITEM 203 – EMBANKMENT, AS PER PLAN

USE OF SLAG, IN ANY FORM, IS NOT PERMITTED.

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

ALL APPLICABLE PROVISIONS OF ODOT ITEM 601: SHALL APPLY EXCEPT AS MODIFIED AS FOLLOWS:

MATERIAL LISTED UNDER 703.19(B) SHALL BE LIMITED TO NATURAL ROCK AND STONE BOULDERS. THE USE OF RPCC AND LIMESTONE SHALL NOT BE PERMITTED.

ITEM 659 – SEEDING AND MULCHING, AS PER PLAN

WHEN THE ABOVE ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 659, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY UNLESS MODIFIED HEREIN.

659.07 SEEDS. UNLESS OTHERWISE DIRECTED/APPROVED BY THE ENGINEER, HIGH QUALITY GERMINATION RATES ARE REQUIRED.

659.10 SITE PREPARATION. IN ADDITION TO "AREAS IN FRONT OF RESIDENCES, COMMERCIAL PROPERTIES, ETC." REFERRED TO IN 659.10(A), THE SPECIAL PREPARATION SHALL BE EXTENDED TO ENCOMPASS ALL LAWNS AND/OR LAWN–LIKE AREAS AS DETERMINED BY THE ENGINEER. REMOVE ALL STONES 1–INCH OR GREATER BY APPROVED METHODS/EQUIPMENT SUCH AS "ROCK HOUNDING", RAKING, ETC.

659.11 PLACING TOPSOIL. TOPSOIL SHALL BE PLACED AND SPREAD TO A MINIMUM COMPACTED DEPTH OF FOUR (4) INCHES. THE FINISHED TOPSOIL SURFACES SHALL BE SEEDED AND MULCHED WITHIN SEVENTY–TWO (72) HOURS OF THEIR ACCEPTED COMPLETION.

659.13 MULCHING OPERATION. UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER, STRAW MULCH (PER 659.14) OR COMPOST MULCH (PER 659.16) SHALL BE USED.

659.17 WATERING. IN ADDITION TO THE REQUIREMENTS OF 659.17, THE SEED BED SHALL BE KEPT ACCEPTABLY MOIST UNTIL THE SEED HAS GERMINATED; ALL AT THE DIRECTION OR APPROVAL OF THE ENGINEER.

659.23 PERFORMANCE. THE VILLAGE WILL INSPECT ALL SEEDED AREAS NO EARLIER THAN ONE (1) MONTH AND NO LATER THAN NINE (9) MONTHS AFTER FINAL/COMPLETED SEEDING; ALL AT THE DISCRETION/DETERMINATION OF THE ENGINEER.

659.24 METHOD OF MEASUREMENT. 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 ITEM 659 – SEEDING AND MULCHING, AS PER PLAN ARE BASED ON THESE LIMITS.

659.25 BASIS OF PAYMENT. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITIES OF:

ITEM 659 – SEEDING AND MULCHING, AS PER PLAN (LUMP SUM)

ITEM 832 – EROSION CONTROL

THE FOLLOWING ESTIMATED QUANTITY IS PROVIDED FOR TEMPORARY SEDIMENT AND EROSION CONTROL (TSEC) IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 832 :

ITEM 832 – EROSION CONTROL, LUMP

SUPPORTING EXISTING UTILITY POLES

THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH FIRST ENERGY (THE ILLUMINATING COMPANY) TO SUPPORT THE EXISTING UTILITY POLES AND/OR DE–ENERGIZING ANY ELECTRIC LINES THAT MAYBE EFFECTED BY THE PROJECT EXCAVATION, INSTALLATION OF NEW BOX CULVERTS AND OTHER ITEMS.

EXISTING OVERHEAD COMMUNICATION LINES ALSO EXIST IN THE RIGHT OF WAY AND CROSS OVER THE ROADWAY TO SERVICE THE INDIVIDUAL HOMES. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE RESPECTIVE UTILITIES TO SUPPORT AND PROTECT THESE OVERHEAD LINES.

ALL COSTS FOR COORDINATION BY THE CONTRACTOR WITH FIRST ENERGY (THE ILLUMINATING COMPANY) AS WELL AS WORK PERFORMED BY FIRST ENERGY (THE ILLUMINATING COMPANY) OR OTHER UTILITY SHALL BE INCLUDED IN OTHER ITEMS BID.

COORDINATION WITH ENBRIDGE GAS OHIO

CONTRACTOR SHALL CONTACT AND COORDINATE WITH ENBRIDGE GAS OHIO TO INSURE THAT THE TEMPORARY CUTTING AND CAPPING OF THE EXISTING GAS MAINS REQUIRED TO PERFORM THE CULVERT INSTALLATIONS HAVE BEEN PERFORMED AND SHALL WORK WITH ENBRIDGE GAS OHIO ON THE RECONNECTION OF SAID GAS LINES, THROUGH THE SLEEVE PROVIDED DURING THE CULVERT INSTALLATION, IS MADE.

ALL COSTS FOR COORDINATION BY THE CONTRACTOR WITH ENBRIDGE GAS OHIO SHALL BE INCLUDED IN OTHER ITEMS BID.

DRAINAGE

BEDDING, BACKFILL AND JOINTS FOR ITEM 611 – CONDUITS, AS PER PLAN AND ITEM 611 – STRUCTURES, AS PER PLAN

STRUCTURAL BACKFILL (703.11) MATERIAL FURNISHED FOR BEDDING AND BACKFILL OPERATIONS SHALL BE LIMITED TO LIMESTONE FOR ALL CONDUITS OTHER THAN TYPE A (BOX CULVERTS)

BEDDING FOR TYPE A CONDUITS (BOX CULVERTS), SHALL MEET THE ABOVE MENTIONED 703.11 MATERIAL.

BACKFILL FOR TYPE A CONDUITS (BOX CULVERTS), SHALL BE ITEM 613: LOW STRENGTH MORTAR BACKFILL, TYPE 2 AND BE PLACED TO AN ELEVATION EQUAL TO THE TOP OF THE BOX CULVERT.

SANITARY

ITEM 611: 6" SANITARY CONNECTION LOWERING, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIAL, INCLUDING EXCAVATION, 6" PVC SDR 35 PIPE, TEST TEES, FITTINGS, COUPLINGS AND ANY OTHER ITEMS REQUIRED TO LOWER THE EXISTING 6" SANITARY CONNECTIONS UNDER THE LOWERED STREAM BED ACCORDING TO THE PLANS AND SPECIFICATIONS. THIS WORK SHALL INCLUDE CONCRETE ENCASEMENT THROUGH THE PORTION OF THE LOWERING THROUGH THE STREAM BED. CONTRACTOR IS RESPONSIBLE TO COORDINATE INSPECTION WITH THE CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS, SANITARY ENGINEER, TO OBTAIN ANY REQUIRED PERMITS, PAY ANY REQUIRED FEES AND ARRANGE FOR CONSTRUCTION OBSERVATION WHEN THIS WORK IS TO BE PERFORMED.

BASIS OF PAYMENT: PAYMENT FOR ALL WORK DESCRIBED ABOVE SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITY OF:

ITEM 611 – 6" SANITARY CONNECTION LOWERING, AS PER PLAN (EACH)

WATERWORK

ITEM 638: WATER DEPARTMENT FEES, AS PER PLAN

THREE SEPARATE 8" WATER MAIN LOWERINGS WILL BE REQUIRED TO BE PERFORMED ON THIS PROJECT: THE CLEVELAND WATER DEPARTMENT CHARGES FOR THESE LOWERINGS IS $4,497.38. CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR THESE FEES AND ARRANGE FOR ALL CITY OF CLEVELAND, DIVISION OF WATER INSPECTION, CHLORINATION AND TESTING. CONTRACTOR SHALL ALSO PROVIDE A DETAILED AS–BUILT OF ALL WORK PERFORMED AS PART TO THESE LOWERINGS. PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 638– WATER DEPARTMENT FEES, AS PER PLAN (LUMP)

ITEM 638: 1" WATER SERVICE CONNECTION LOWERING, AS PER PLAN

1" WATER SERVICE CONNECTIONS AT THREE LOCATIONS, 6184, 6196 AND 6206 NORTH WOODLANE DRIVE WILL REQUIRE LOWING DUE TO THE LOWERING OF THE EXISTING STREAM FLOWLINE ELEVATIONS AT THESE LOCATIONS. MATERIAL FOR THE LOWERING'S SHALL BE K–COPPER. A MINIMUM OF 3'–0" OF COVER OVER THE LOWERED CONNECTION IS REQUIRED.

BASIS OF PAYMENT: PAYMENT FOR THIS WORK SHALL INCLUDE ALL LABOR AND MATERIALS NEEDED TO PERFORM THIS WORK AT THE CONTRACT UNIT PRICE BID FOR:

ITEM 638 – 1" WATER SERVICE CONNECTION LOWERING, AS PER PLAN (EACH)

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
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REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731–6255 FAX: (216) 731–4483

MAYFIELD VILLAGE, OHIO
WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
GENERAL NOTES

NOVEMBER 2026
JOB NO. 22–187

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PAVEMENT

ITEM 304 – AGGREGATE BASE, AS PER PLAN

MATERIAL FURNISHED FOR THIS ITEM SHALL BE LIMITED TO LIMESTONE.

ITEM 452: 6" NON–REINFORCED CONCRETE PAVEMENT, USING MS CONCRETE, AS PER PLAN

THE PROPOSED LOCATIONS AND LIMITS OF DRIVE AND/OR DRIVE APRON REMOVALS/REPLACEMENTS ARE AS SHOWN ON THE PLANS WITH THE ASSOCIATED PLAN QUANTITIES TABULATED AND CARRIED TO THE GENERAL SUMMARY.

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE DESIGNATED PORTIONS OF EXISTING DRIVES AND/OR DRIVE APRONS PER 202.05 OR 203.04(E), AS APPLICABLE, AND BY METHODS THAT WILL NOT DISTURB, DAMAGE OR UNDERMINE THE ADJACENT PAVEMENT, CURB, SIDEWALK OR THE PORTIONS OF EXISTING DRIVES/DRIVE APRONS INTENDED TO REMAIN IN PLACE. ANY ADJACENT FACILITIES DAMAGED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE, AS DETERMINED BY THE ENGINEER, AND WHICH ARE NOT OTHERWISE DESIGNATED FOR REPLACEMENT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE, ALL AT THE DIRECTION OF THE ENGINEER.

EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER, THE CONFIGURATIONS OF COMPLETELY REPLACED DRIVE APRONS SHALL CONFORM TO THE ORIGINAL DRIVE APRON DIMENSIONS.

CONFIGURATIONS AND COMPOSITIONS OF PARTIALLY REPLACED DRIVES/DRIVE APRONS SHALL GENERALLY MATCH THE EXISTING, AS DIRECTED BY THE ENGINEER.

"CLASS MS" CONCRETE SHALL BE USED FOR THE ITEM 452 CONCRETE DRIVES.

THE CONTRACTOR SHALL STAGE HIS/HER OPERATIONS SUCH THAT THE MAXIMUM OUT OF SERVICE TIME FOR ANY RESIDENTIAL DRIVE IS THREE (3) DAYS. THE CONTRACTOR SHALL NOTIFY EACH RESIDENT OF ANY RESTRICTED ACCESS TO THEIR PROPERTY NO LATER THAN ONE (1) WEEK IN ADVANCE. ACCESS TO COMMERCIAL AND HANDICAP PROPERTY SHALL BE MAINTAINED AT ALL TIMES.

STRUCTURES (20' AND UNDER)

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, LATEST EDITION AND THE ODOT BRIDGE DESIGN MANUAL

DESIGN LOADING:

AASHTO LRFD HL–93 LOADING AND FUTURE WEARING SURFACE OF 60 PSF.

DESIGN STRESSES:

CAST–IN–PLACE STRUCTURES:
CONCRETE CLASS "C" – ALLOWABLE UNIT STRESS 1333 PSI, f'c=4000 PSI
REINFORCING STEEL – ASTM A615, A616 OR A617 GRADE 60
– ALLOWABLE UNIT STRESS 24,000 PSI (EPOXY COATED PER 709.00)
PRECAST STRUCTURES: FOR BOX CULVERTS SEE CMS 611 & 706.05.

REMOVAL OF EXISTING STRUCTURE:

PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED IN STAGES TO CONFORM WITH THE STAGING IN THE MAINTENANCE OF TRAFFIC PLANS.

FOUNDATION BEARING PRESSURE:

RETAINING WALLS AND CULVERT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 8,000 POUNDS PER SQUARE FOOT.

REINFORCED CONCRETE BOX CULVERT WALL AND TOP SLAB THICKNESS:

THE WALL AND TOP SLAB THICKNESSES SHOWN ON THE PLANS WERE OBTAINED FROM THE MANUFACTURERS AT THE TIME THE PLANS WERE PREPARED. IF THE WALL AND/OR TOP SLAB THICKNESS OF THE CULVERT PROPOSED ARE DIFFERENT FROM WHAT IS SHOWN ON THE PLANS, A MARKED COPY OF THE PROJECT PLANS, INCLUDING ALL PLAN NOTES AND DETAILS SHOWING ALL ITEMS AFFECTED BY THE DIFFERENT CULVERT DIMENSIONS, SHALL BE SUBMITTED FOR APPROVAL WITH THE SHOP DRAWINGS. ALL WORK REQUIRED TO ACCOMMODATE ANY REVISED DIMENSIONS SHALL BE AT NO EXTRA COST TO THE COUNTY

ITEM 503 – COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

THE CONTRACTOR SHALL DESIGN ALL COFFERDAMS, CRIBS, SHEETING, SHORING, BRACING, OR OTHER MEANS NECESSARY TO SAFELY SUPPORT THE SIDES OF EXCAVATIONS, EMBANKMENTS, ADJACENT BUILDINGS, TRACKS OR OTHER PREMISES IMPACTED BY THE PROPOSED CONSTRUCTION WORK. ALL STREAM DIVERSION AND/OR PUMPING OF GROUND AND/OR STREAM WATER SHALL ALSO BE INCLUDED IN THIS WORK. THE CONTRACTOR SHALL PREPARE AND PROVIDE DETAILED PLANS IN ACCORDANCE WITH CMS 501.05. PAYMENT FOR THE DESIGN AND CONSTRUCTION OF ALL MEANS OF TEMPORARY SUPPORT SHALL BE AT THE LUMP SUM PRICE FOR ITEM 503 – COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

ITEM 509 REINFORCING STEEL

THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL REINFORCING STEEL SHOWN ON THE PLAN DETAILS. ALL REINFORCING STEEL SHALL BE EPOXY COATED MEETING THE DESIGN SPECIFICATION OF THE PLANS.

ALL PROVISIONS OF ITEM 509 REINFORCING STEEL SHALL BE FOLLOWED EXCEPT THAT THE PAYMENT FOR THIS ITEM SHALL BE INCLUDED IN THE VARIOUS ITEM 511 CONCRETE FOR STRUCTURES BID.

ITEM 511 RETAINING WALLS, WINGWALLS, HEADWALLS, AND FOOTERS FOR 611 ITEMS

COST OF ALL REINFORCING STEEL REQUIRED AND SHOWN ON THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR VARIOUS ITEM 511 CONCRETE FOR STRUCTURES.

FOR ITEMS 706.05, 706.051 AND 706.052 WITH A CAST–IN–PLACE WINGWALL, HEADWALL, OR FOOTER, A PRECAST ALTERNATIVE MAY BE FURNISHED PER 602.03. THE PRECAST ALTERNATIVE WILL MEET THE CAST–IN–PLACE STRUCTURAL DESIGN LOADINGS, DESIGN HEIGHT, AND DESIGN LENGTH DIMENSIONS. APPROVAL FROM THE VILLAGE ENGINEER MUST BE OBTAINED PRIOR TO ALLOWING THIS PRECAST ALTERNATIVE.

ITEM 511 – CONCRETE, MISC.: ARCHITECTURAL TREATMENT

A. GENERAL

THE WORK TO BE DONE UNDER THIS ITEM SHALL INCLUDE THE CONSTRUCTION OF TEXTURED AND COLORED CONCRETE SURFACES USING FORM LINERS AND A COLOR STAIN SYSTEM [DESIGNED TO DUPLICATE CLOSELY THE APPEARANCE OF NATURAL STONE].

THE MANUFACTURER(S) OF THE FORM LINER AND COLOR STAIN SYSTEM SHALL HAVE FIVE (5) YEARS EXPERIENCE MAKING FORM LINERS AND COLOR STAINS [TO MATCH NATURAL STONE SHAPES, SURFACE TEXTURES AND COLORS]. THE PATTERN AND COLORING SHALL FOLLOW THE MANUFACTURER'S STANDARD DETAILS AND SPECIFICATIONS FOR THE CHOSEN DESIGN. THE CONTRACTOR SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE WITH CONSTRUCTING VERTICALLY FORMED ARCHITECTURAL CONCRETE AND SHALL BE TRAINED IN THE MANUFACTURER'S SPECIAL TECHNIQUES IN ORDER TO ACHIEVE THE DESIRED CONCRETE APPEARANCE.

THE FORM LINER TO BE USED SHALL BE FITZGERALD FORM LINERS AGED MARYLAND ASHLAR STONE PATTERN 16984LP, GREENSTREAK ASHLAR STONE PATTERN NO. 330, OR AN APPROVED EQUAL MEETING THE DETAILS SHOWN ON THE PLANS. THE FORM LINER MANUFACTURER SHALL SUBMIT AT LEAST FIVE YEARS RELATED EXPERIENCE. THE AESTHETIC TREATMENT SYSTEM SHALL BE FURNISHED BY ONE OF THE FOLLOWING MANUFACTURERS OR AN APPROVED EQUAL;

FITZGERALD
1341 EAST POMONA STREET
SANTA ANA, CA 92705
TEL. 1–800–547–7760
WWW.FORMLINERS.COM

GREENSTREAK
3400 TREE COURT INDUSTRIAL BLVD.
ST. LOUIS, MO 63122
TEL. 1–800–325–9504
WWW.GREENSTREAK.COM

THE ARCHITECTURAL RELIEF SHALL BE 1 1/2". THERE SHALL BE A SIMULATED GRANITE CAP ON ALL PARAPETS, AND END POSTS AS SHOWN ON THE DRAWINGS.

THE COLOR SCHEME SHALL BE, SIMILAR TO THE COLOR SCHEME USED FOR THE WILSON MILLS ROAD CULVERT JUST EAST OF I–271 AND WEST OF THE WILSON MILLS ROAD INTERSECTION WITH BETA DRIVE AND RALEIGH DRIVE IN MAYFIELD VILLAGE OHIO.

B. PRODUCTS

FORM LINERS SHALL BE REUSABLE, MADE OF HIGH STRENGTH URETHANE AND BE EASILY ATTACHABLE TO CONCRETE FORMS. THEY SHALL NOT COMPRESS MORE THAN ONE–QUARTER INCH (1/4") WHEN CONCRETE IS POURED AT A RATE OF TEN VERTICAL FEET (10'–0") PER HOUR. FORM LINERS SHALL BE REMOVABLE WITHOUT CAUSING DETERIORATION OF THE CONCRETE SURFACE OR ANY UNDERLINING CONCRETE. USE A RELEASE AGENT THAT IS COMPATIBLE WITH THE FORM LINER AND WITH THE COLOR STAIN SYSTEM TO BE APPLIED TO THE CONCRETE SURFACES AND PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION.

METAL OR FIBERGLASS FORM TIES SHALL BE USED. FORM TIES SHALL BE DESIGNED TO SEPARATE A MINIMUM OF ONE INCH (1") BACK FROM THE FINISHED SURFACE LEAVING ONLY A NEAT HOLE THAT CAN BE PLUGGED WITH PATCHING MATERIAL. A SAMPLE AND/OR DESCRIPTION OF THE FORM TIE SHOWING ITS METHOD OF SEPARATION WHEN FORMS ARE REMOVED SHALL BE SUPPLIED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

THE COLOR STAIN MIX SHALL BE [AN ACRYLIC RESIN–BASED STAIN] FORMULATED TO PENETRATE FINISHED CONCRETE SURFACES. THE COLOR(S) NEEDED SHALL BE THOSE REQUIRED TO ACHIEVE THE DESIRED [NATURAL STONE] COLOR VARIATION IN THE FINISHED CONCRETE. THE STAIN MIX SHALL CREATE A SURFACE FINISH THAT IS BREATHABLE (WILL ALLOW WATER VAPOR TRANSMISSION) AND THAT RESISTS DETERIORATION FROM WATER, ACID, ALKALI, FUNGI AND SUNLIGHT (UV). IT SHALL ALSO MEET MILDEW RESISTANCE REQUIREMENTS IN ACCORDANCE WITH FEDERAL TEST METHOD STD. 144, METHOD 6271, AND REQUIREMENTS FOR WEATHERING RESISTANCE OF 2000 HOURS ACCELERATED EXPOSURE MEASURED IN ACCORDANCE WITH ASTM G–23.

CLEAR SEALER: THE MANUFACTURER OF THE COLOR STAIN SHALL ALSO SUPPLY OR RECOMMEND A COMPATIBLE CLEAR SEALER TO BE APPLIED TO ALL TEXTURED AND COLOR STAINED CONCRETE SURFACES. THE CLEAR SEALER SHALL PROVIDE PROTECTION AGAINST FADING OF THE STAIN COLOR DUE TO SUNLIGHT EXPOSURE.

C. SHOP DRAWINGS AND MOCKUPS

PRIOR TO BEGINNING ANY WORK, REPRESENTATIVE SHOP DRAWINGS DETAILING THE LAYOUT OF THE FINISHED PATTERN AND JOINT LOCATIONS, FORM TIE LOCATIONS AND END, EDGE AND OTHER SPECIAL CONDITIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. A PRE–INSTALLATION MEETING SHALL BE SCHEDULED WITH THE ENGINEER, CONTRACTOR AND MANUFACTURER'S REPRESENTATIVE TO ASSURE THE UNDERSTANDING OF FORM LINER USE, COLOR APPLICATION, REQUIREMENTS FOR CONSTRUCTING THE MOCKUPS AND COORDINATION OF THE WORK.

ONCE THE REPRESENTATIVE SHOP DRAWINGS HAVE BEEN APPROVED, THE CONTRACTOR SHALL CONSTRUCT A MOCKUP(S) ON SITE BEFORE ANY PERMANENT ARCHITECTURAL TREATMENT IS ADDED TO THE STRUCTURE. THE MOCKUP(S) MUST UTILIZE THE SAME MATERIALS, METHODS AND WORK FORCE THAT WILL BE USED FOR THE PROJECT. THE ENGINEER AND THE MUNICIPALITY MAY DETERMINE ANY SPECIFIC REQUIREMENTS, LOCATION OR SPECIAL CONSIDERATIONS TO BE INCORPORATED IN THE MOCKUP(S). THE MOCKUP(S) MUST DEMONSTRATE THE FOLLOWING:

1. A SUFFICIENT SIZE TO ADEQUATELY SHOW THE SELECTED PATTERN, TEXTURE AND COLORATION.

2. FORM LINER BUTT JOINTS AND, IF APPROPRIATE, CONTINUATION OF THE PATTERN THROUGH AN EXPANSION JOINT.

3. TEXTURE ACROSS THE TOP OF THE PARAPET/WALL IF INCLUDED IN THE PLAN DETAILS.

4. APPLICATION OF THE COLOR STAIN AND CLEAR SEALER. ALL CONCRETE WORK MUST BE COMPLETED AND CURED FOR A MINIMUM OF 28 DAYS BEFORE THE STAIN IS APPLIED.

AFTER THE TEXTURE AND COLORING IS COMPLETE, THE MUNICIPALITY, STAKEHOLDERS AND/OR THE ENGINEER SHALL CHOOSE WHICH MOCKUP WILL SERVE AS THE QUALITY CONTROL STANDARD FOR THE PROJECT.

DISPOSE OF THE MOCKUP(S) AFTER COMPLETION OF THE PROJECT.

D. CONSTRUCTION

SCHEDULE COLOR STAIN APPLICATION AFTER ADJACENT EARTHWORK IS COMPLETED TO AVOID CONTAMINATING OR DAMAGING THE CONCRETE SURFACES. DELAY ADJACENT PLANTINGS UNTIL COLOR STAIN AND CLEAR SEALER APPLICATIONS HAVE BEEN COMPLETED AND CURED. COORDINATE ALL WORK TO PERMIT COLORING AND SEALING WITHOUT INTERFERENCE FROM OTHER TRADES.

PREPARE THE FORM LINERS BY CLEANING AND REMOVING ALL BUILD–UP AND FOREIGN MATTER PRIOR TO EACH CONCRETE POUR. THE FORM LINERS SHALL BE INSPECTED FOR ANY BLEMISHES OR TEARS. REPAIR ANY SUCH DEFECTS PER MANUFACTURER'S RECOMMENDATIONS. REPLACE ANY FORM LINER IF, AFTER BEING REPAIRED, IT YIELDS A CONCRETE TEXTURE THAT IS INCONSISTENT WITH THE APPROVED MOCKUP. REPLACE ANY FORM LINER THAT CANNOT BE REPAIRED AT NO ADDITIONAL COST TO THE PROJECT.

PLACE ADJACENT FORM LINERS WITH LESS THAN ONE–QUARTER INCH (1/4") SEPARATION BETWEEN LINERS. SECURELY ATTACH LINERS TO FORMWORK AS PER THE MANUFACTURER'S RECOMMENDATIONS. APPLY A FORM LINER RELEASE AGENT PER THE MANUFACTURER'S RECOMMENDATIONS. PLACE FORM TIES AT THE THINNEST POINTS OF THE FORM LINER (HIGH POINTS OF THE FINISHED SURFACE).

FORM STRIPPING AND RELATED CONSTRUCTION SHALL AVOID CREATING DEFECTS IN THE FINISHED CONCRETE SURFACES. WHERE FORM LINERS ABUT, CAREFULLY BLEND THE CONCRETE TO MATCH THE BALANCE OF THE PATTERN, AVOIDING VISIBLE SEAMS OR FORM MARKS. NEATLY PATCH THE HOLES REMAINING AFTER DISENGAGING THE PROTRUDING PORTION OF THE FORM TIES SO THAT THEY WILL NOT BE VISIBLE AFTER COLORING THE CONCRETE SURFACE.
WHERE THE TEXTURE IS TO CONTINUE ACROSS THE TOP OF THE WALL, A FINISH TO ACHIEVE A CONTINUITY OF THE FORMED PATTERN MUST BE DONE BY HAND WHEN THE CONCRETE IS BEING POURED. HAND–CARVE AND EMBOSS THE WET, PLIABLE CONCRETE, ALIGNING RUSTICATION JOINTS WITH THOSE IN THE FORMED PATTERN. GREAT CARE MUST BE TAKEN TO ACHIEVE AS MUCH RELIEF AS POSSIBLE.

WHERE AN EXPANSION JOINT MUST OCCUR AT A POINT OTHER THAN AT THE MORTAR OF RUSTICATION JOINTS, SUCH AS AT THE FACE OF CONCRETE TEXTURE THAT IS TO HAVE THE APPEARANCE OF [STONE], THE CONTRACTOR SHALL CONTACT THE MANUFACTURER FOR THE PROPER TREATMENT OF THE EXPANSION MATERIAL.

CLEAN SURFACE PRIOR TO APPLYING THE COLOR STAIN TO ASSURE THAT THE SURFACE IS FREE OF LATENCE, DIRT, DUST, GREASE, EFFLORESCENCE, PAINT, OR FOREIGN MATERIAL FOLLOWING THE MANUFACTURER'S INSTRUCTIONS FOR SURFACE PREPARATION. THE PREFERRED METHOD TO REMOVE LATENCE IS PRESSURE WASHING WITH CLEAN WATER AT A MINIMUM OF 3000 PSI USING A FAN NOZZLE PERPENDICULAR TO AND AT A DISTANCE OF 12"–24" FROM THE CONCRETE SURFACE. THE COMPLETED SURFACE SHALL BE FREE OF BLEMISHES, DISCOLORATION, SURFACE VOIDS AND UNNATURAL FORM MARKS. DO NOT SANDBLAST. ETCHING IS NOT REQUIRED.

THE COLOR STAIN SYSTEM AND CLEAR SEALER SHALL BE APPLIED PER THE MANUFACTURER'S SPECIFICATIONS FOR EACH PRODUCT. APPLY THE PRODUCTS IN DRY WEATHER CONDITIONS WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50°F AND 90°F. SHOULD WEATHER CONDITIONS DIFFER FROM THESE REQUIREMENTS OR FROM THE MANUFACTURER'S SPECIFICATIONS, CONSULT THE MANUFACTURER FOR PROPER APPLICATION RECOMMENDATIONS.

THE DESIRED FINISH COLOR EFFECT SHALL BE ACHIEVED BY APPLYING ONE COLOR, ONE COLOR OVER ANOTHER OR BY INTER–MIXING SEVERAL COLORS OF STAIN, AS PER MANUFACTURER'S SPECIFICATIONS. GROUT PATTERN JOINTS SHALL DISPLAY A UNIFORM COLOR AND APPEARANCE OF MORTARED JOINTS. USE COLORS AND APPLICATION TECHNIQUES AS APPROVED FOR THE FINAL MOCKUP. ACTUAL COLORS USED ARE SUBJECT TO CHANGE AT THE DIRECTION OF THE ENGINEER UPON REVIEWING THE APPEARANCE OF THE FINAL MOCKUP.

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

No.	DESCRIPTION	DATE	BY
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
GENERAL NOTES

NOVEMBER 2026

JOB NO. 22–187

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PROVIDE TEMPORARY COVER FOR THE COMPLETED WORK WHERE EXPOSED SOIL OR PAVEMENT MAY SPLATTER DIRT OR SOIL FROM RAINFALL OR WHERE SURFACE MAY BE SUBJECTED TO OVERSPRAY FROM OTHER PROCESSES UNTIL THE STAIN AND SEALER HAVE CURED.

E. PAYMENT

PAYMENT FOR ALL WORK DESCRIBED HEREIN, INCLUDING ANY ADDITIONAL CONCRETE NEEDED TO CREATE THE FORMLINED AESTHETIC TREATMENT AND THAT DOES NOT CONTRIBUTE TO THE CORE DESIGN OF THE HEADWALL, PARAPET, BARRIER, ETC. TO WHICH IT IS APPLIED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 511: CLASS C CONCRETE, HEADWALL, AS PER PLAN.

ITEM 512, TYPE 2 WATERPROOFING, AS PER PLAN

MEMBRANE WATERPROOFING (SHEET TYPE 2) SHALL BE APPLIED TO THE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND VERTICALLY DOWN ALL SIDES FOR THE PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER LUMP SUM FOR ITEM 512 – TYPE 2 WATERPROOFING.

IN ADDITION TO ALL APPLICABLE REQUIREMENTS OF CMS 512, PROVIDE SELF–ADHERING TYPE 2 MEMBRANE WATERPROOFING AS AVAILABLE FROM:

MEL–ROL CCW MIRADRI 860/861
W.R. MEADOWS, INC. CARLISLE COATINGS & WATERPROOFING
P.O. BOX 338 900 HENSLEY LANE
HAMPSHIRE, IL 60140–0338 WYLIE, TX 75098
PHONE: 847–214–2100 PHONE: 800–527–7092
800–342–5976 WWW.CARLISLE–CCW.COM
WWW.WRMEADOWS.COM

BAKOR BLUESKIN WP 200
HENRY COMPANY CANADA
15 WALLSEND AVENUE
SCARBOROUGH, ON M1E 3X6
PHONE: 800–387–9598
WWW.BAKOR.COM

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITY OF:

ITEM 512 – TYPE 2 WATERPROOFING, AS PER PLAN SQ. YD.

ITEM 517: ALUMINUM PICKET RAILING, AS PER PLAN

THE ALUMINUM PICKET RAILING SHALL BE 3–LINE PICKET STYLE WITH EITHER CIRCLE OR DIAMOND (OWNER TO DECIDE) WITH 2" SQUARE x 1/8" THICK POSTS AND TC–1 TOP CAP PER DRAWING FILE P3CD.2.TC1.DWG AND AS MANUFACTURED BY "RAILING WORKS, ARCHITECTURAL RAILING SYSTEMS BY NEXAN", WWW.NEXANINC.COM.

RAILING SHALL BE INSTALLED BY CORE MOUNT METHOD PER THE MANUFACTURES RECOMMENDATIONS.

PAYMENT FOR THIS ITEM SHALL BE PER FEET OF RAILING INSTALLED AND SHALL INCLUDE ALL CORE DRILLING, NON–SHRINK NON–CORROSIVE ANCHORING CEMENT, RAILING TOP CAP, PICKETS, POSTS AND FASTENERS AND ANY OTHER ITEMS REQUIRED TO COMPLETE THIS WORK.

ITEM 517: WOOD POST AND RAIL RAILING, AS PER PLAN

THE WOOD POST AND RAIL RAILING SHALL BE PRESSURE TREATED AND CONSTRUCTED AS PER THE DETAILS ON THE PLAN.

PAYMENT FOR THIS ITEM SHALL BE PER FEET OF RAILING INSTALLED AND SHALL INCLUDE ALL BRACKETS, ANCHOR BOLTS, FASTENERS, WOOD POSTS AND RAILINGS AND ANY OTHER ITEMS REQUIRED TO COMPLETE THIS WORK.

ITEM 611 – 10' X 3' AND 12' X 3' CONDUIT, TYPE A, 706.05, AS PER PLAN

THIS ITEM SHALL CONSIST OF REPLACING THE EXISTING STRUCTURE ON WOODLANE DRIVE, SOUTH WOODLAND DRIVE WITH A 10' X 3' PRECAST CONCRETE BOX AND THE EXISTING STRUCTURE ON NORMAN LANE WITH A 12' X 3' PRECAST CONCRETE BOX. ALL APPLICABLE REQUIREMENTS OF CMS 611, 706.05 AND ASTM C1577 SHALL BE MET EXCEPT AS DETAILED IN THE PLANS AND/OR NOTED HEREIN.

NOTE: THE NORMAN LANE 12' X 3' PRECAST CONCRETE BOX SHALL HAVE THE BOTTOM 6–INCHES SET BELOW THE STREAM FLOW LINE TO PROVIDE A 12' X 2.5' FLOW AREA.

DESIGN OF THE PRECAST REINFORCED CONCRETE BOX SECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR . FOUR (4) COPIES OF THE SHOP DRAWINGS SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL ALONG WITH CALCULATIONS FOR THE REBAR SPACING, SIZE, CLEARANCE, CONCRETE THICKNESS, ETC. MANUFACTURING OF THE PRECAST SECTIONS SHALL NOT BEGIN UNTIL AFTER WRITTEN ACCEPTANCE HAS BEEN RECEIVED FROM THE VILLAGE ENGINEER.

THE DESIGN SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AASHTO LRFD HL–93 LOADING AND FUTURE WEARING SURFACE OF 60 PSF.

JOINTS BETWEEN ADJACENT CONCRETE BOX SECTIONS SHALL BE SEALED PER CMS 611.08, SECTION 3. APPLY TYPE 2 MEMBRANE WATERPROOFING TO ALL EXTERNAL SURFACES OF THE CONCRETE BOX SECTIONS AS PER CMS 611.09 AND AS DETAILED IN THE PLANS.

WHERE OPENINGS IN THE BOX CULVERT ARE REQUIRED FOR PROPOSED UNDERDRAINS OR SEWERS, THE OPENING SHALL BE LOCATED COMPLETELY BETWEEN SUCCESSIVE JOINTS OF THE CULVERT STRUCTURE, IF POSSIBLE. THE DIAMETER OF THE OPENING SHALL BE THE OUTSIDE DIAMETER OF THE PIPE BEING CONNECTED PLUS SIX INCHES (6") WHEN FABRICATED OR FIELD CUT. THE INTERSTITIAL SPACE SHALL BE FILLED WITH CLASS C CONCRETE OR LEAN CONCRETE PER CMS 511, NON–SHRINK MORTAR PER CMS 705.22, OR OTHER MATERIAL FOUND ACCEPTABLE BY THE ENGINEER. ALL COSTS FOR MATERIAL AND LABOR ASSOCIATED WITH THE PIPE OPENINGS SHALL BE CONSIDERED INCIDENTAL TO ITEM 611 – 10' X 3' AND 10' X 3' CONDUIT, TYPE A, 706.05, AS PER PLAN.

GRANULAR EMBANKMENT (203.02.R) AND STRUCTURAL BACKFILL (703.11) MATERIAL FURNISHED FOR BEDDING OPERATIONS SHALL BE LIMITED TO LIMESTONE. THE USE OF SLAG MATERIAL IS PROHIBITED. BEDDING SHALL BE PLACED AND COMPACTED PER 611.06.

CULVERT BACKFILL SHALL BE ITEM 613: LOW STRENGTH MORTAR BACKFILL, TYPE 2 AND SHALL EXTEND UP TO THE TOP OF THE NEW CULVERT.

THIS WORK SHALL INCLUDE FURNISHING ALL MATERIALS, LABOR, TOOLS AND EQUIPMENT NECESSARY TO INSTALL ALL SECTIONS OF THE PROPOSED CONCRETE STRUCTURE, INCLUDING END BOX SECTION DOWELS, WITH THIS ITEM FOR PAYMENT.

BASIS OF PAYMENT:

PAYMENT FOR ALL WORK DESCRIBED ABOVE SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITY OF:

ITEM 611 – 10' X 3' CONDUIT, TYPE A, 706.05, AS PER PLAN FT
ITEM 611 – 12' X 3' CONDUIT, TYPE A, 706.05, AS PER PLAN FT

ITEM 611 – 48" CONDUIT, TYPE B, 707.33 FOR TEMPORARY RESIDENT ACCESS, AS PER PLAN

THIS ITEM IS TO PROVIDE TEMPORARY ACCESS TO THE RESIDENTS LOCATED AT 6184 AND 6198 NORTH WOODLANE DRIVE DURING THE INSTALLATION OF THE NEW 10'X3' CONCRETE BOX CULVERT LOCATED ON SAID PROPERTY DRIVEWAYS. THIS ITEM SHALL ALSO INCLUDE A 4' WIDE ITEM 304: AGGREGATE WALK FROM THE EXISTING DRIVEWAY OVER THE STREAM TO THE OTHER SIDE OF THE EXISTING DRIVEWAY.

ITEM SPECIAL: STREAM RESTORATION AND FLOOD PLAIN ENHANCEMENT, AS PER PLAN

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF A NEW STREAM ALIGNMENT AND PROFILE, EXCAVATION AND GRADING FOR ENHANCED FLOODPLAIN AS WELL AS THE CONSTRUCTION OF RIFFLES, CULVERT OUTLET PLUNGE POOLS, AND FLOODPLAIN LOG SILLS AS SHOWN ON THE PLANS AND DETAILS ON SHEETS 10, 18–22.

NO SOIL BORINGS HAVE BEEN PERFORMED. THE CONTRACTOR MAY EXCAVATE TEST HOLES TO DETERMINE THE EXISTING SOIL CONDITIONS UPON APPROVAL FROM THE VILLAGE ENGINEER. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME ACQUAINTED WITH THE EXISTING CONDITIONS INCLUDING THE EXISTING STREAM BED AND MATERIAL. NOTE THAT PHASE I OF THE WORTON PARK CULVERT PROJECT ENCOUNTERED ROCK/SHALE IN THE EXISTING STREAM BED.

BASIS OF PAYMENT:

PAYMENT FOR ALL WORK DESCRIBED ABOVE SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL: STREAM RESTORATION AND FLOODPLAIN ENHANCEMENT, AS PER PLAN AND SHALL INCLUDE ALL LABOR AND MATERIAL INCLUDING ALL EXCAVATION, INCLUDING ROCK EXCAVATION, EMBANKMENT, RIFFLE BOULDERS AND RIFLE STONE MIX, FILTER FABRIC, FLOODPLAIN LOG SILLS, CEDAR ANCHOR STAKES, AND COIR FIBER MATTING.

ITEM SPECIAL: FLOODPLAIN ENHANCEMENT AREA SEEDING AND MULCHING

THIS ITEM SHALL INCLUDE THE PLACEMENT OF 4" OF TOPSOIL, SEEDING WITH A LOW MOW SEED MIX, FERTILIZING AND MULCHING.

THE FOLLOWING QUANTITIES SHALL BE INCLUDED IN THIS ITEM:

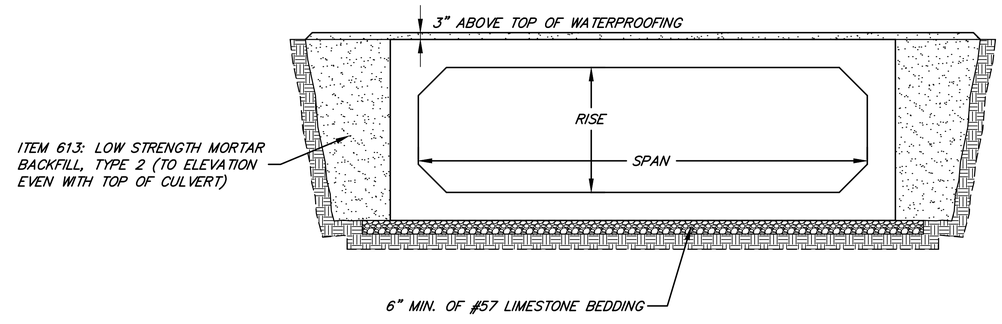
ITEM 659: SEEDING AND MULCHING, CLASS 4B	3,905 SY
ITEM 659: WATER (10,500 GAL/APPLICATION X 3 TIMES)	31.5 MGAL
ITEM 659: MOWING (35 MSF X 3 MOWINGS)	105 MSF

ITEM 661: GROUND COVER AND VINES, NATIVE PACHYSANDRA (BROCUMBENS), AS PER PLAN

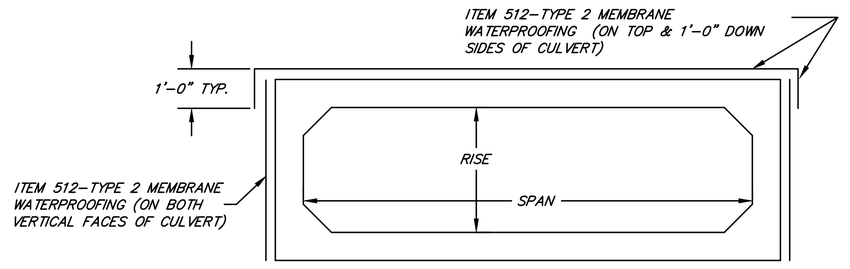
THIS ITEM CONSISTS OF PLANTING PACHYSANDRA (BROCUMBENS) GROUND COVER ON THE 2:1 GRADED SIDE SLOPE OF A STREAM.

THE CONTRACTOR SHALL PREPARE THE SURFACE WITH ANY REQUIRED TOPSOIL AND PLACE AND ANCHOR THE COIR FIBER MAT ON THE SLOPE PRIOR TO PLANTING. IT IS INTENDED THAT THIS GROUND COVER WILL BE SUBSTANTIALLY ESTABLISHED IN TWO (2) GROWING SEASONS. THEREFOR, THE SIZE OF THE BARE ROOTS OR PLUGS USED SHALL DETERMINE THE PLANTING DENSITY TO ACHIEVE THIS GOAL.

PAYMENT FOR ALL WORK DESCRIBED ABOVE SHALL BE MADE FOR AT THE CONTRACT UNIT PRICE, OF ACTUAL PLANTING INSTALL, ON A SQUARE YARD BASIS AND SHALL INCLUDE ALL LABOR AND MATERIAL TO COMPLETE THIS ITEM.



BOX CULVERT BEDDING AND BACKFILL DETAIL



BOX CULVERT WATERPROOFING DETAIL

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
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WORTON PARK NEIGHBORHOOD
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GENERAL NOTES

NOVEMBER 2026

JOB NO. 22–187

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| SHEET NUMBER | REF. NUMBER | LOCATION STATION | TO | STATION | SIDE | 202 PAVEMENT REMOVED SY | 202 STRUCTURE REMOVED, INCLUDING HEADWALLS EACH | 202 PIPE REMOVED, 24 " AND UNDER FEET | 202 CONCRETE BLOCK WALLAND BROKEN CONCRETE RETAINING WALL REMOVED FEET | 203 EXCAVATION OF EAST BANK OF STREAM CHANNEL SLOPE 6189 SOUTH WOODLANE CY | 204 SUBGRADE COMPACTION SY | 301 6" ASPHALT CONCRETE BASE CY | 304 4" AGGREGATE BASE CY | 304 6" AGGREGATE BASE CY | 407 TACK COAT (0.1 GAL/SY) GAL | 441 1-1/2" ASPHALT SURFACE COURSE, TYPE 1, (448), PG 64-22 CY | 441 1-1/2" ASPHALT INTERMEDIATE COURSE, TYPE 2, (448), PG 64-22 CY | 452 6" NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, CLASS QC MS, AS PER PLAN SY | 452 8" NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, CLASS QC MS, AS PER PLAN SY | 601 ROCK CHANNEL PROTECTION, TYPE B, AS PER PLAN CY | 601 ROCK CHANNEL PROTECTION, TYPE B, LARGE BOULDER PLACED IN SINGLE ROW AT TOE OF SLOPE, AS PER PLAN CY | 611 4" CONDUIT , TYPE C , 707.33, AS PERPLAN FEET | 611 6" CONDUIT , TYPE C , 707.33, AS PERPLAN FEET | 611 6" SANITARY CONNECTION LOWERING, AS PERPLAN EACH | 611 8" CONDUIT , TYPE C , 707.33, AS PERPLAN FEET | 611 8" CONDUIT ,HDPE 4710 SDR 9 (SLEEVE FOR FUTURE GAS MAIN) FEET | 611 12" CONDUIT , TYPE B, 707.33, AS PERPLAN FEET | 611 12" CONDUIT , TYPE C , 707.33, AS PERPLAN FEET | 611 48" CONDUIT , TYPE C , 707.33 FOR TEMPROARY RESIDENT ACCESS, AS PER PLAN FEET | 611 8" TEST TEE FOR STORM SEWER EACH | 611 CATCH BASIN CB2-2B EACH | 638 1" WATER SERVICE CONNECTION LOWERING, AS PER PLAN EACH | 638 6" CUT-IN-VALVE, AS PER PLAN EACH | 638 ITEM SPECIAL: 8" WATER MAIN, DUCTILE IRON PIPE, BOLTLESS RESTRAINED PUSH-ON JOINTS, TYPE II, WITH RETAINED MECHANICAL JOINT FITTINGS, ANSI CLASS 52 (FOR LOWERING) FEET | 638 16" STEEL CASING PIPE, AS PER PLAN FEET | 503 COFFERDAMS AND EXCAVATION BRACING LUMP | 503 UNCLASSIFIED EXCAVATION LUMP | 511 CLASS C CONRETE, CULVERT, HEADWALL AND WINGWALL FOOTING CY | 511 CLASS C CONCRETE, HEADWALL, AS PER PLAN CY | 511 CLASS C CONCRETE, WINGWALL, AS PER PLAN CY | 511 CLASS C CONCRETE, HEADWALL AND WINGWALL, AS PER PLAN CY | 512 TYPE 2, MEMBRANE WATERPROOFING SY | 512 SEALING CONCRETE SURFACES (NON-EPOXY) SY | 516 1" PREFORMED EXPANSION JOINT FILLER SF | 517 ALUMINUM PICKET RAILING, AS PER PLAN FT | 517 TREATED WOOD RAILING, AS PER PLAN FT | 518 POROUS BACKFILL, WITH FILTER FABRIC CY | 611 10"X3" CONDUIT, TYPE A, 706.05, AS PER PLAN FT | 611 12"X3" CONDUIT, TYPE A, 706.05, AS PER PLAN FT | 661 GROUNDCOVER AND VINES, NATIVE PACHYSANDRA (BROOJUMBERS) AS PER PLAN SY | 671 EROSION CONTROL MAT (COIR FIBER MATTING) SY | SPECIAL STREAM RESTORATION AND FLOODPLAIN ENHANCEMENT, AS PER PLAN LUMP | SPECIAL 6198 & 6206 NORTH WOODLINE SIDE YARD STREAM EROSION PROTECTION: TYPE 'A' ROCK CHANNEL PROTECTION, ONE LAYER HIGH USING LARGE STONES, AS PER PLAN (BID ALTERNATE) FT | SPECIAL 6198 & 6206 NORTH WOODLINE SIDE YARD STREAM EROSION PROTECTION: BOULDER TOE PROTECTION, TWO LAYERS HIGH WITH LAYERING, AS PER PLAN (BID ALTERNATE) FT |
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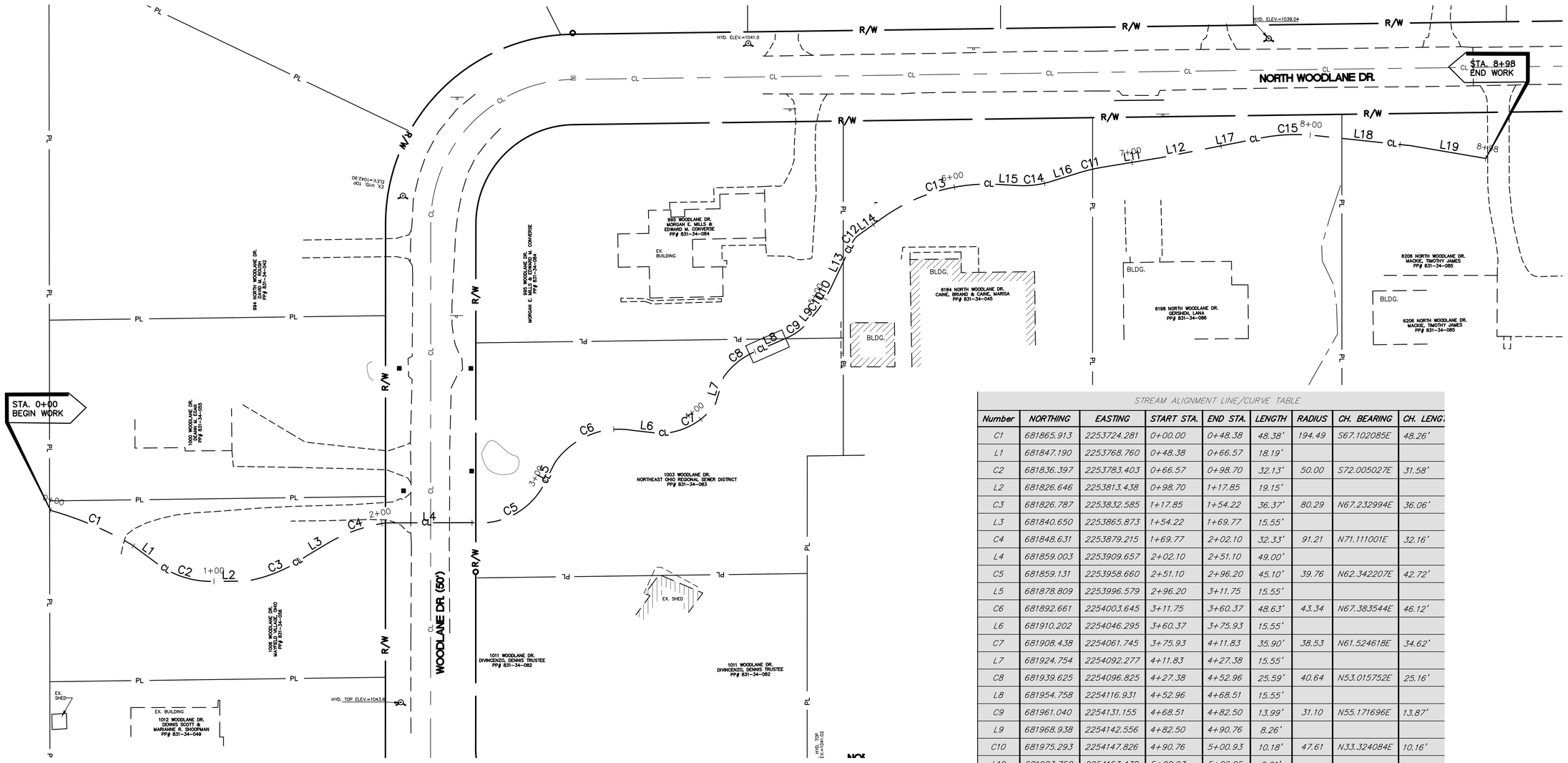

STREAM ALIGNMENT LINE/CURVE TABLE

Number	NORTHING	EASTING	START STA.	END STA.	LENGTH	RADIUS	CH. BEARING	CH. LENG:
C1	681865.913	2253724.281	0+00.00	0+48.38	48.38'	194.49	S67.102085E	48.26'
L1	681847.190	2253768.760	0+48.38	0+66.57	18.19'			
C2	681836.397	2253783.403	0+66.57	0+98.70	32.13'	50.00	S72.005027E	31.58'
L2	681826.646	2253813.438	0+98.70	1+17.85	19.15'			
C3	681826.787	2253832.585	1+17.85	1+54.22	36.37'	80.29	N67.232994E	36.06'
L3	681840.650	2253865.873	1+54.22	1+69.77	15.55'			
C4	681848.631	2253879.215	1+69.77	2+02.10	32.33'	91.21	N71.111001E	32.16'
L4	681859.003	2253909.657	2+02.10	2+51.10	49.00'			
C5	681859.131	2253958.660	2+51.10	2+96.20	45.10'	39.76	N62.342207E	42.72'
L5	681878.809	2253996.579	2+96.20	3+11.75	15.55'			
C6	681892.661	2254003.645	3+11.75	3+60.37	48.63'	43.34	N67.383544E	46.12'
L6	681910.202	2254046.295	3+60.37	3+75.93	15.55'			
C7	681908.438	2254061.745	3+75.93	4+11.83	35.90'	38.53	N61.524618E	34.62'
L7	681924.754	2254092.277	4+11.83	4+27.38	15.55'			
C8	681939.625	2254096.825	4+27.38	4+52.96	25.59'	40.64	N53.015752E	25.16'
L8	681954.758	2254116.931	4+52.96	4+68.51	15.55'			
C9	681961.040	2254131.155	4+68.51	4+82.50	13.99'	31.10	N55.171696E	13.87'
L9	681968.938	2254142.556	4+82.50	4+90.76	8.26'			
C10	681975.293	2254147.826	4+90.76	5+00.93	10.18'	47.61	N33.324084E	10.16'
L10	681983.758	2254153.438	5+00.93	5+06.95	6.01'			
L13	681989.044	2254156.303	5+06.95	5+34.86	27.92'			
C12	682014.277	2254168.243	5+34.86	5+39.92	5.06'	10.00	N39.491077E	5.01'
L14	682018.122	2254171.449	5+39.92	5+56.21	16.29'			
C13	682027.622	2254184.678	5+56.21	6+24.12	67.92'	100.00	N73.461970E	66.62'
L15	682046.239	2254248.641	6+24.12	6+35.61	11.49'			
C14	682045.592	2254260.110	6+35.61	6+53.43	17.82'	50.00	N83.010732E	17.73'
L16	682047.747	2254277.704	6+53.43	6+69.93	16.50'			
C11	682052.623	2254293.467	6+69.93	6+83.68	13.75'	100.00	N76.445384E	13.74'
L11	682055.773	2254306.841	6+83.68	7+16.85	33.17'			
L12	682061.141	2254339.576	7+16.85	7+33.53	16.67'			
L17	682064.360	2254355.935	7+33.53	7+72.74	39.21'			
C15	682071.931	2254394.410	7+72.74	8+02.72	29.98'	100.00	N87.272356E	29.87'
L18	682073.257	2254424.250	8+02.72	8+56.08	53.36'			
L19	682067.637	2254477.309	8+56.08	8+98.11	42.04'			

NORTH

SCALE IN FEET (HORIZONTAL)
60 30 0 30

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

No.	DESCRIPTION	DATE	BY
6.)			
5.)			
4.)			
3.)			
2.)			
1.)			

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
STREAM ALIGNMENT GEOMETRY

NOVEMBER 2026

JOB NO. 22-187

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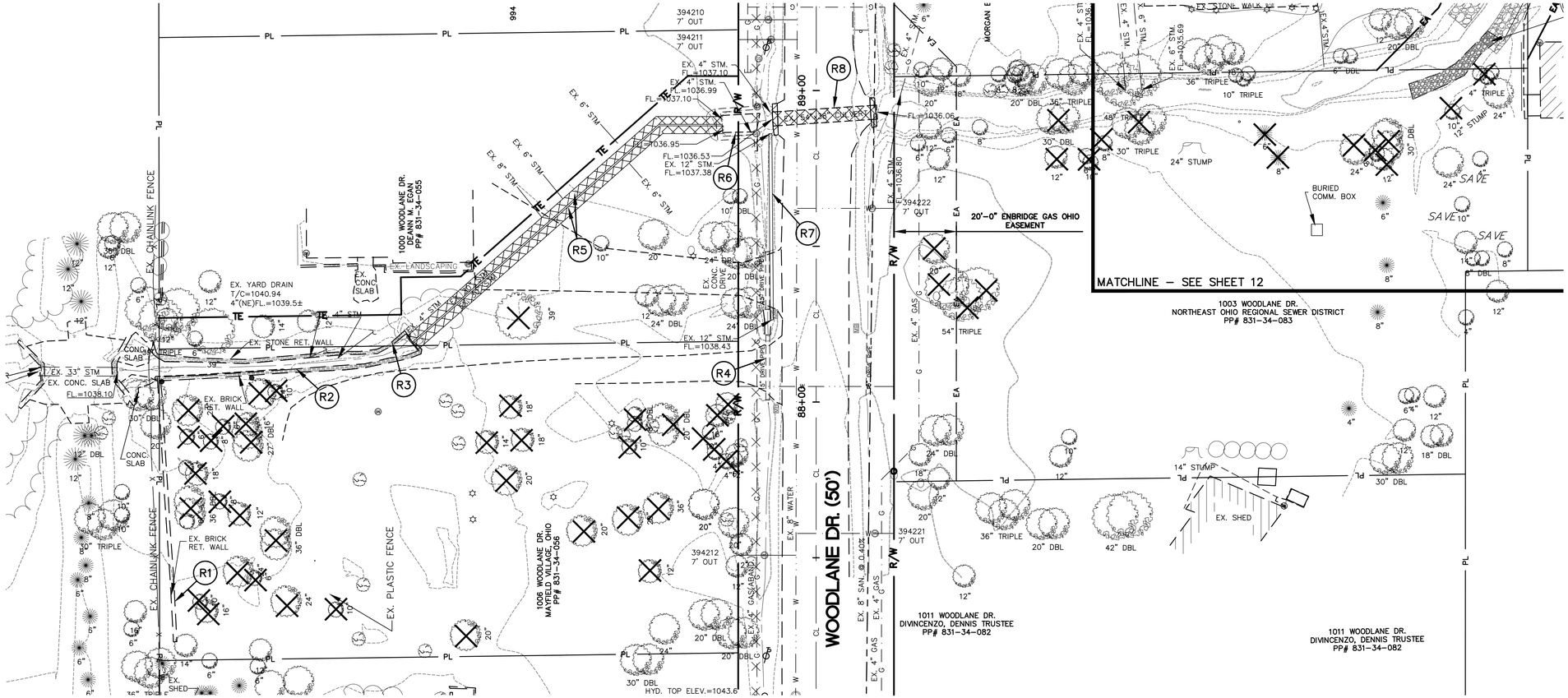
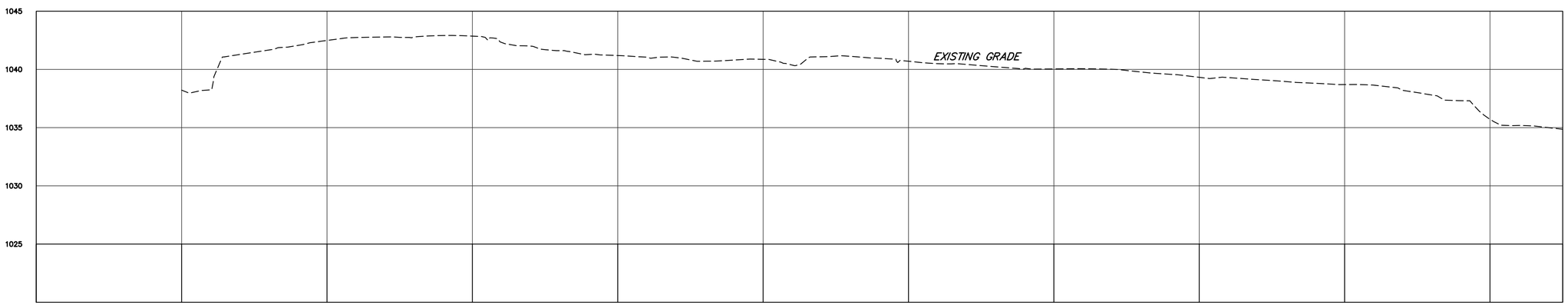


REFERENCE	SHEET #
SUB–SUMMARY	7
STREAM ALIGNMENT GEOMETRY	8

LEGEND

- EXISTING TREE TO BE REMOVED
- EXISTING STORM PIPE TO BE REMOVED
- (REMOVE) EXISTING ITEM TO BE REMOVED



NORTH

SCALE IN FEET (HORIZONTAL) 0 20 40

SCALE IN FEET (VERTICAL) 0 5 10

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
(6.)			
(5.)			
(4.)			
(3.)			
(2.)			
(1.)			

REVISIONS

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CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731–6255 FAX: (216) 731–4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II – CULVERT REPLACEMENT
WOODLANE DRIVE
EX. CONDITIONS + DEMOLITION PLAN

NOVEMBER 2026

JOB NO. 22–187

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-20 WOODLANE-P&P.dwg 11/24/2026 4:49:10 PM

TBM
HYDRANT TOP
STA. 89+83, 17' LT.
IN FRONT OF #994 N. WOODLANE DR.
ELEV. =1042.90

994 NORTH DAVID PP# 8

995 MORGAN E. MILL PP#

1000 WOODLANE DR. DEANN M. EGAN PP# 831-34-055

1006 WOODLANE DR. MAYFIELD VILLAGE, OHIO PP# 831-34-056

1012 WOODLANE DR. DENNIS SCOTT & MARIANNE R. SHOOPMAN PP# 831-34-049

1003 WOODLANE DR. NORTHEAST OHIO REGIONAL SEWER DISTRICT PP# 831-34-085

1011 WOODLANE DR. DIVINCENZO, DENNIS TRUSTEE PP# 831-34-082

6181 NORMA BOLDEN, SEQUIA & J PP# 831-3

WOODLANE DR. (50')

81LF-8" STM @ 0.44%

6" TEST TEE

EX. CHAINLINK FENCE

EX. LANDSCAPING

EX. YARD DRAIN T/C=1040.94 4"(NE)FL.=1039.5±

EX. METAL DOOR FL.=1038.20

EX. 33" STM EX. CONC. SLAB FL.=1038.10

EX. CONC. SLAB

EX. SHED

EX. BUILDING

EX. LANDSCAPING

EX. STONE WALK

EX. 4" STM. FL.=1036.32

EX. 6" STM. FL.=1035.69

EX. 8" STM FL.=1036.80

EX. 8" SAN. @ 0.40%

EX. 4" GAS

EX. 4" GAS (ABANDONED)

EX. 6" STM

EX. 8" STM

EX. 4" STM

EX. 12" STM

EX. 24" STM

EX. 30" DBL HYD. TOP ELEV.=1043.6

EX. CONC. DROP INLET

EX. CATCH BASIN

EX. MANHOLE

EX. CONC. SLAB

EX. GAS VALVE

EX. TELE. BOX

12" STUMP

14" STUMP

ITEM SPECIAL: STREAM RESTORATION AND FLOODPLAIN ENHANCEMENT AS PER PLAN LIMITS

NOTE: ITEM 66730" TREES HAVE BEEN INCLUDED IN THE FLOODPLAIN ENHANCEMENT AREAS. THE VILLAGE SERVICE DIRECTOR/ARBORIST SHALL STAKE THE LOCATIONS OF THE PROPOSED TREE PLATING AFTER FINAL; GRADING.,

REFERENCE	SHEET #
SUB-SUMMARY	7
STREAM ALIGNMENT GEOMETRY	8
STREAM RESTORATION & FLOODPLAIN ENHANCEMENT DETAILS	18-22
CROSS SECTIONS	31-41

LEGEND

- FULL DEPTH ASPHALT PAVEMENT
- CONC. DRIVE APRON REMOVAL & REPLACEMENT, AS PER PLAN
- PROPOSED ROCK CHANNEL
- STREAM RESTORATION AND FLOODPLAIN ENHANCEMENT LIMITS

℄ WOODLANE DR.

ITEM 611: 48 LF-10' x 3' CONDUIT, TYPE A, 706.05, AS PER PLAN

FL=1036.29

FL=1035.83

RELOCATED GAS LINE TOP OF PIPE EL.=1032.70

-0.95%

-0.95%

PVI STA = -0+04.58 PVI ELEV = 1038.27
PVI STA = 0+03.55 PVI ELEV = 1037.64
PVI STA = 0+08.18 PVI ELEV = 1037.64
PVI STA = 0+17.29 PVI ELEV = 1038.27
PVI STA = 0+41.55 PVI ELEV = 1038.06
PVI STA = 0+45.55 PVI ELEV = 1037.06
PVI STA = 0+65.55 PVI ELEV = 1037.06
PVI STA = 0+68.22 PVI ELEV = 1037.73
PVI STA = 0+96.22 PVI ELEV = 1037.47
PVI STA = 1+00.22 PVI ELEV = 1036.47
PVI STA = 1+20.22 PVI ELEV = 1036.47
PVI STA = 1+22.89 PVI ELEV = 1037.13
PVI STA = 1+48.89 PVI ELEV = 1036.89
PVI STA = 1+52.89 PVI ELEV = 1035.89
PVI STA = 1+72.89 PVI ELEV = 1035.89
PVI STA = 1+75.56 PVI ELEV = 1036.55
PVI STA = 2+03.56 PVI ELEV = 1036.29
PVI STA = 2+51.56 PVI ELEV = 1035.83
PVI STA = 2+52.59 PVI ELEV = 1035.20
PVI STA = 2+64.32 PVI ELEV = 1035.20
PVI STA = 2+73.43 PVI ELEV = 1035.83
PVI STA = 2+90.00 PVI ELEV = 1035.69
PVI STA = 2+94.00 PVI ELEV = 1034.69
PVI STA = 3+14.00 PVI ELEV = 1034.69
PVI STA = 3+16.67 PVI ELEV = 1035.35
PVI STA = 3+44.67 PVI ELEV = 1035.09
PVI STA = 3+48.67 PVI ELEV = 1034.09
PVI STA = 3+68.67 PVI ELEV = 1034.09
PVI STA = 3+71.34 PVI ELEV = 1034.76
PVI STA = 4+05.00 PVI ELEV = 1034.44
PVI STA = 4+09.00 PVI ELEV = 1033.44
PVI STA = 4+23.00 PVI ELEV = 1033.44
PVI STA = 4+31.67 PVI ELEV = 1034.11
PVI STA = 4+47.00 PVI ELEV = 1033.96

1045 1040 1035 1030 1025

-0+50 0+00 1+00 2+00 3+00 4+00 4+50

NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO THOMAS CAPPELLO NO. 55466 REGISTERED PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
6.)			
5.)			
4.)			
3.)			
2.)			
1.)			

REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD PHASE II - CULVERT REPLACEMENT WOODLANE DRIVE PROPOSED FLOODPLAIN ENHANCEMENT PLAN

NOVEMBER 2026

JOB NO. 22-187

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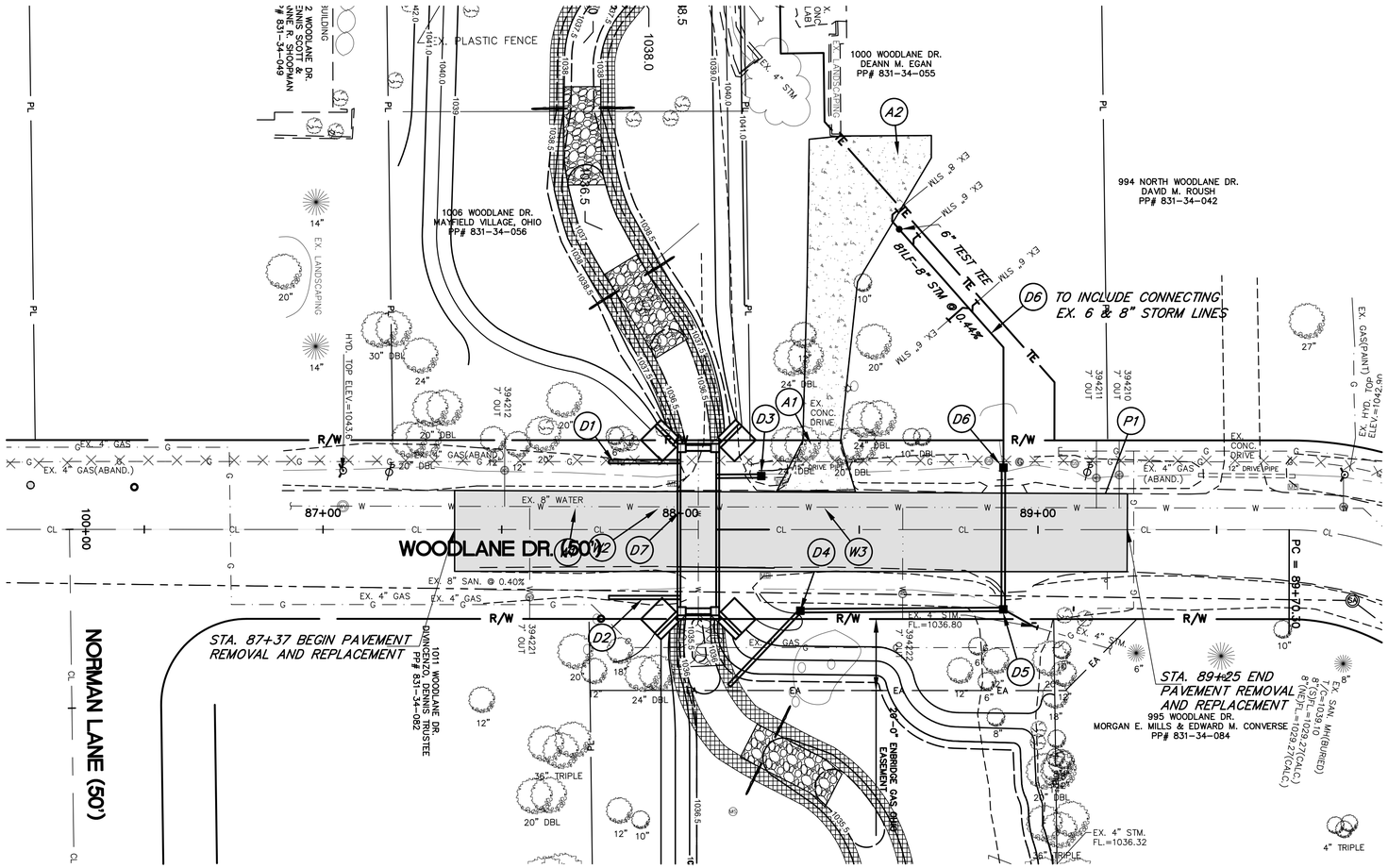

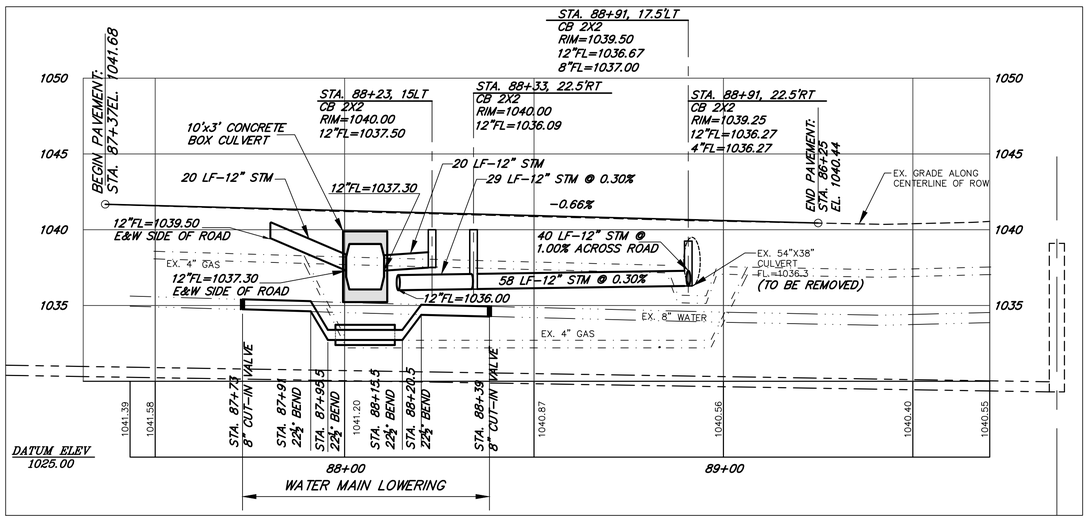

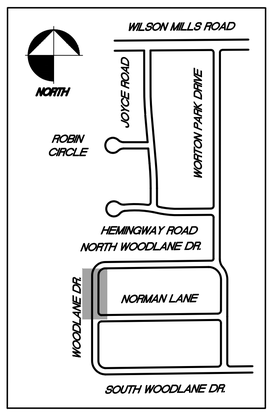

KEY PLAN

TBM
HYDRANT TOP
STA. 89+83, 17' LT.
IN FRONT OF #994 N. WOODLANE DR.
ELEV. =1042.90

SUB SUMMARY (CARRIED TO SHEET 7)

ITEM	TOTAL	UNIT	DESCRIPTION
202	1	EACH	STRUCTURE REMOVED, AS PER PLAN
503	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
503	LUMP	LUMP	UNCLASSIFIED EXCAVATION
511	17.5	CU. YD.	CLASS C CONCRETE, CULVERT, HEADWALL AND WINGWALL FOOTING
511	15.7	CU. YD.	CLASS C CONCRETE, HEADWALL , AS PER PLAN
511	11.7	CU. YD.	CLASS C CONCRETE, WINGWALL, AS PER PLAN
512	128	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
512	137	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	38	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	15.33	FT.	ALUMINUM PICKET RAILING, AS PER PLAN
518	11	CU. YD.	POROUS BACKFILL, WITH FILTER FABRIC
611	48	FT.	10' x 3 CONDUIT, TYPE A, 706.05, AS PER PLAN

EXISTING STRUCTURE

TYPE: CORRUGATED STEEL PIPE ARCH CULVERT
SIZE: 54"x38"
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: N/A
SUPERELEVATION: NONE
DATE BUILT: EARLY 1950's
STRUCTURE FILE NO. NONE
SKEW: 0° REFERENCE TANGENT
CONDITION: POOR
LOADING:

PROPOSED STRUCTURE

TYPE: PRECAST REINFORCED CONCRETE FOUR-SIDED BOX
SIZE: 10'-0" SPAN x 3'-0" RISE
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: NONE
SUPERELEVATION: NONE
SKEW: 0°
WEARING SURFACE: ASPHALT
LOADING: AASHTO LRFD HL-93 LOADING AND FUTURE WEARING SURFACE OF 60 PSF

LEGEND

- FULL DEPTH ASPHALT PAVEMENT
- CONC. DRIVE APRON REMOVAL & REPLACEMENT, AS PER PLAN
- PROPOSED ROCK CHANNEL

REFERENCE	SHEET #
SUB-SUMMARY	7
CROSS SECTIONS	31-41
CULVERT DETAILS AND QUANTITIES	23-24

NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
1.			
2.			
3.			
4.			
5.			
6.			

REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO
WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
WOODLANE DRIVE CULVERT
CULVERT PLAN + PROFILE

NOVEMBER 2026
JOB NO. 22-187
11 42

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6175 NORTH WOODLANE DR.
MELNICK,LAURA M & DAVID W
PP# 831-34-046

6185 NORTH WOODLANE DR.
GROSS JEFFERY P & ANN MARIE
PP# 831-34-067

6195 NORTH WOODLANE DR.
KECK RONALD P
PP# 831-34-068

6205 NORTH WOODLANE DR.
SCHOLL, VIRGINIA I TRUSTEE
PP# 831-34-040

TBM
HYDRANT TOP
STA. 94+80, 17.5' LT.
IN FRONT OF #6205 N. WOODLANE DR.
ELEV. =1038.04

HYD. ELEV.=1038.04

HYD. ELEV.=1041.0

NORTH WOODLANE DR.

EX. 12" PIPE

EX. SAN MH
T/C=1035.50
8"(W) FL.=1026.1
8"(E) FL.=1026.0

12" DRIVE PIPE

EX. 8" WATER

EX. 8" SAN

EX. CONC. SLAB

EX. ASPH. DRIVE

EX. CONC. DRIVE

TOP SAN CO
ELEV.=1035.51
6"(N+S)FL.=1030.4±

EX. RIPRAP

C/L SWALE

EX. 7.5'x3' CULVERT

EX. 4'x4' CULVERT

EX. LANDSCAPING

EX. CONC. RET. WALL

4.0'X14.0' CULVERT

CULVERT FL.=1029.65

CULVERT FL.=1029.49

EX. STONE AREA

EX. CONC.WALK

995 WOODLANE DR.
MORGAN E. MILLS &
EDWARD M. CONVERSE
PP# 831-34-084

EX. BUILDING

EX. YARD DRAIN
T/C=1037.55
4"(SE)FL.=1036.5

EX. BRICK SLAB

65' DBL EX. BRIDGE

EX. YARD DRAIN
T/C=1036.2

TOP SAN CO
ELEV.=1035.98
6"(SW+NE)FL.=1034.7±

6184 NORTH WOODLANE DR.
CAINE, BRIAND & CAINE, MARISA
PP# 831-34-045

6198 NORTH WOODLANE DR.
GERSHEN, LANA
PP# 831-34-086

6206 NORTH WOODLANE DR.
MACKIE, TIMOTHY JAMES
PP# 831-34-085

EX. CONC. WALK

EX. STONE WALK

EX. 4" STM

EX. 6" STM. FL.=1035.69

EX. 6" STM. FL.=1035.70

EX. 6" SAN. FL.=1029.70

81LF-8" STM @ 0.44%

6" TEE

BURIED COMM. BOX

EX. WIRE FENCE

EX. STOCKADE FENCE

EX. WOOD PILE

EX. STONE PILE

EX. GAS(PAINT)

EX. ASPH. DRIVE

394227
7' OUT

394235
7' OUT

10" DRIVE PIPE

10" STM
FL.=1032.45

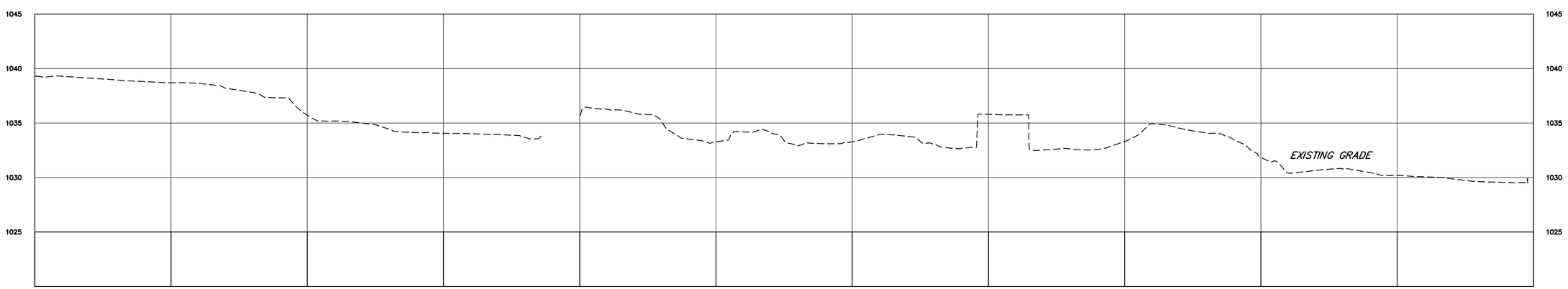
MATCHLINE – SEE SHEET 9

REFERENCE	SHEET #
SUB-SUMMARY	7
STREAM ALIGNMENT GEOMETRY	8
PROPOSED WORK	13

LEGEND

(16") EXISTING TREE TO BE REMOVED

(REMOVE) EXISTING ITEM TO BE REMOVED



NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
6.)			
5.)			
4.)			
3.)			
2.)			
1.)			

REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
NORTH WOODLANE DRIVE
EXISTING PLAN + PROFILE

NOVEMBER 2026

JOB NO. 22-187

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-10 N-Woodlane-P&P.dwg 11/24/2026 4:44:31 PM

6175 NORTH WOODLANE DR.
MELNICK,LAURA M & DAVID W
PP# 831-34-046

6185 NORTH WOODLANE DR.
GROSS JEFFERY P & ANN MARIE
PP# 831-34-067

6195 NORTH WOODLANE DR.
KECK RONALD P
PP# 831-34-068

6205 NORTH WOODLANE DR.
SCHOLL, VIRGINIA I TRUSTEE
PP# 831-34-040

TBM
HYDRANT TOP
STA. 94+80, 17.5' LT.
IN FRONT OF #6205 N. WOODLANE DR.
ELEV. =1038.04

NORTH WOODLANE DR.

995 WOODLANE DR.
MORGAN E. MILLS &
EDWARD M. CONVERSE
PP# 831-34-084

6184 NORTH WOODLANE DR.
CAINE, BRIAND & CAINE, MARISA
PP# 831-34-045

6198 NORTH WOODLANE DR.
GERSHEN, LANA
PP# 831-34-086

6206 NORTH WOODLANE DR.
MACKIE, TIMOTHY JAMES
PP# 831-34-085

6214 NORTH WOODLANE DR.
REED, JOSEPH & MARY
PP# 831-34-041

EX. 12" PIPE
EX. 8" WATER
EX. 8" SAN
EX. SAN MH
T/C=1035.50
8"(W) FL.=1026.1
8"(E) FL.=1026.0
EX. CONC. SLAB
EX. ASPH. DRIVE
EX. STONE AREA
EX. CONC.WALK
EX. YARD DRAIN
T/C=1037.55
4"(SE)FL.=1036.5
EX. BUILDING
EX. BRICK SLAB
EX. STONE WALK
81LF-8" STM @ 0.44%
6" TEST TEE
CATCH BASIN
EX. 4" STM
EX. 6" STM
EX. 12" STM
EX. 24" STM
EX. 6" SAN.
EX. GAS(PAINT)
EX. ASPH. DRIVE
EX. CONC. DRIVE
EX. LANDSCAPING
EX. STOCKADE FENCE
EX. WIRE FENCE
EX. CONC. RET. WALL
HYD. ELEV.=1041.0
HYD. ELEV.=1038.04
12" DRIVE PIPE
10" DRIVE PIPE
15" DRIVE PIPE
24" DRIVE PIPE
4.0'x1.5' CULVERT
CULVERT FL.=1029.29
CULVERT FL.=1029.49
CULVERT FL.=1029.65
TOP SAN CO
ELEV.=1035.51
6"(N+S)FL.=1030.4±
TOP SAN CO
ELEV.=1035.98
6"(SW+NE)FL.=1034.1
TEMPORARY RESIDENT ACCESS
5FT. WIDE x 4" ITEM 304: AGGREGATE
SAVE
BUSH
TRIPLE
DBL
SWALE
BLDG.
394227 7" OUT
394231 7" OUT

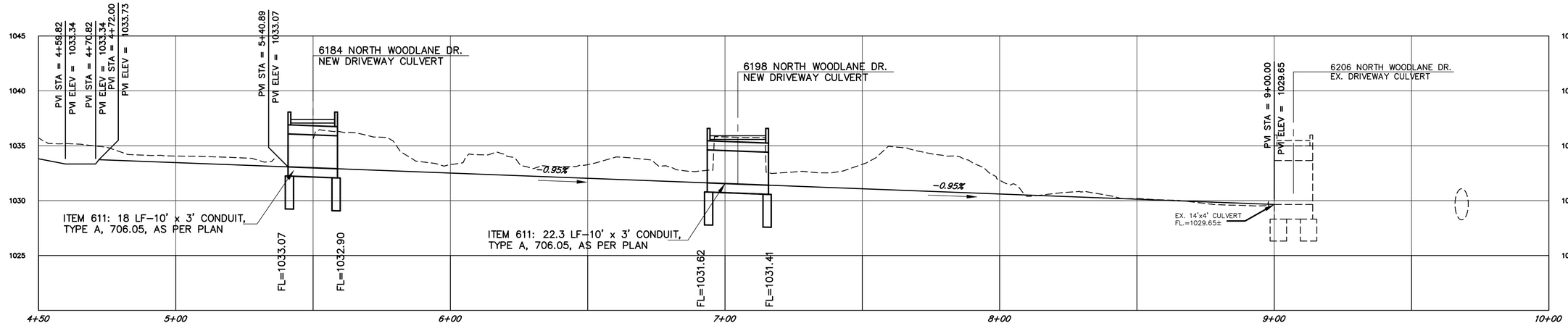
LEGEND

- PROPOSED ROCK CHANNEL
- ASPHALT DRIVE REMOVAL & REPLACEMENT, AS PER PLAN
- CONCRETE DRIVE REMOVAL & REPLACEMENT, AS PER PLAN

D6 50' TYPE 'A' ROCK CHANNEL PROTECTION ONE LAYER HIGH USING LARGE STONES (BID ALTERNATE)

D7 50' BOULDER TOE PROTECTION WITH LIVE BRANCH LAYERING (BID ALTERNATE)

REFERENCE	SHEET #
SUB-SUMMARY	7
CROSS SECTIONS	31-41
CULVERT PLANS AND QUANTITIES	23-24
SANITARY & WATER CONNECTION LOWERING PROFILES	42



REVISIONS

No.	DESCRIPTION	DATE	BY
6.)			
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1.)			

SCALE IN FEET (HORIZONTAL) 40 20 0 20
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

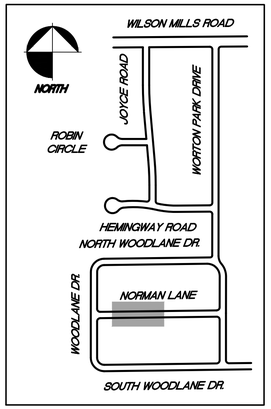
MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
N-WOODLANE-PROPOSED-P+P
EXISTING PLAN + PROFILE

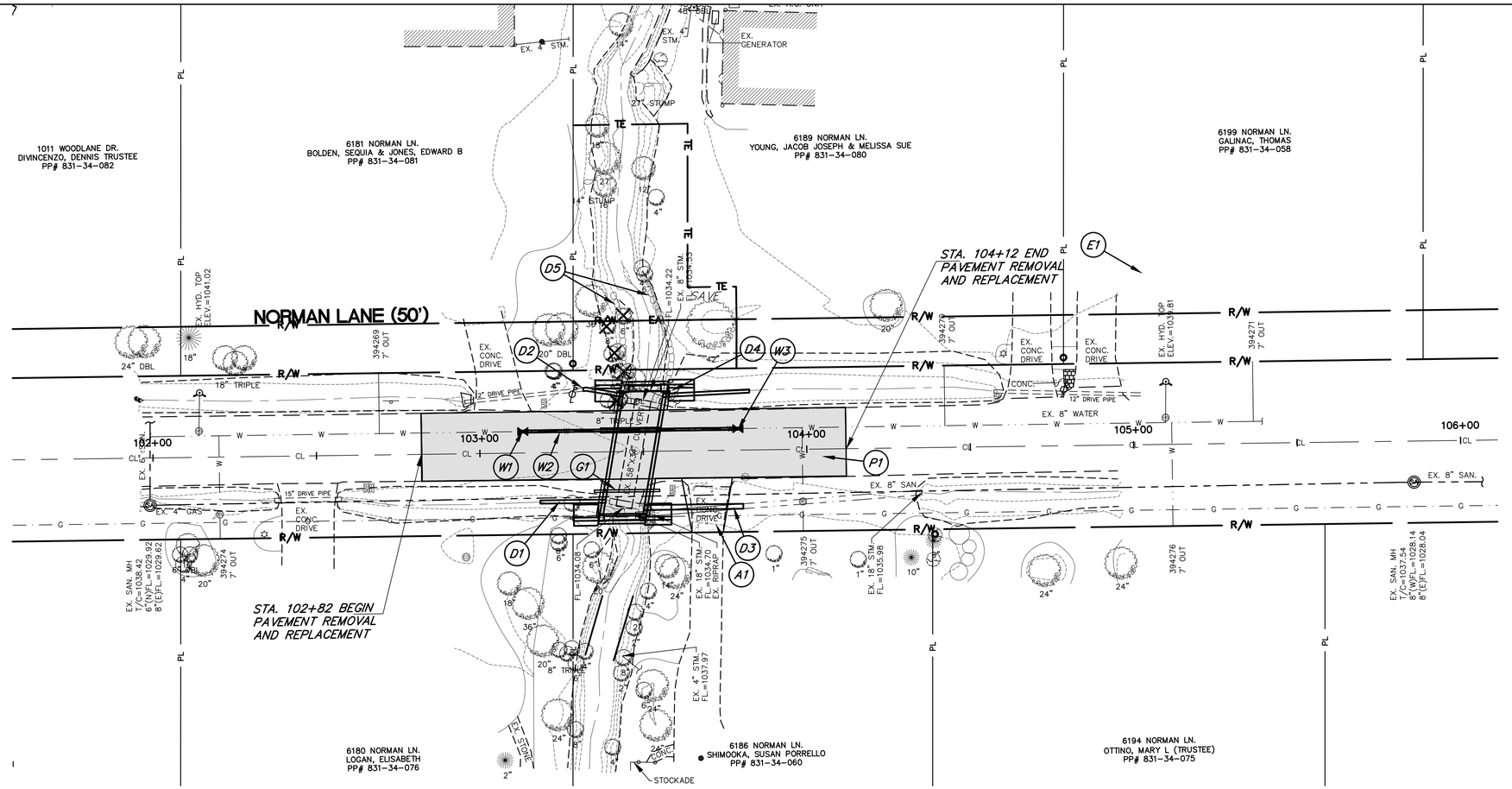
NOVEMBER 2026
JOB NO. 22-187

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-34 N-Woodlane-PROPOSED-P&P.dwg 11/24/2026 4:49:26 PM

TBM
HYDRANT TOP
STA. 102+14, 19.8' LT.
IN FRONT OF #6181 NORMAN LN.
ELEV. =1041.02

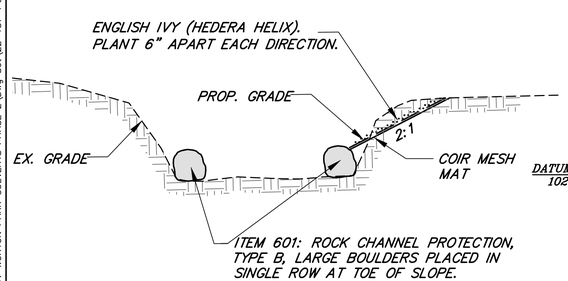


KEY PLAN



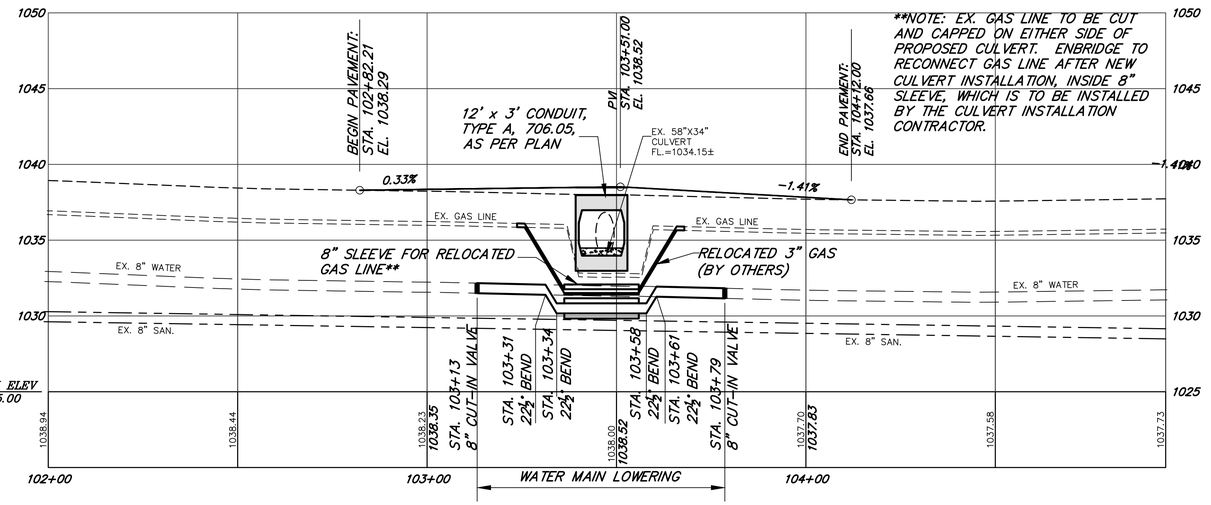
PLAN

REFERENCE	SHEET #
SUB-SUMMARY	7
CULVERT PLAN AND PROFILE	15
CULVERT DETAILS	23-24
WATER WORK DETAILS	27-28



BOULDER TOE DETAIL

NOT TO SCALE



PROFILE

LEGEND

- EXISTING TREE TO BE REMOVED
- FULL DEPTH ASPHALT PAVEMENT
- CONC. DRIVE APRON REMOVAL & REPLACEMENT, AS PER PLAN

NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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TWO MERIT DRIVE
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PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD PHASE II - CULVERT REPLACEMENT NORMAN LANE PLAN + PROFILE

NOVEMBER 2026
JOB NO. 22-187
14 42

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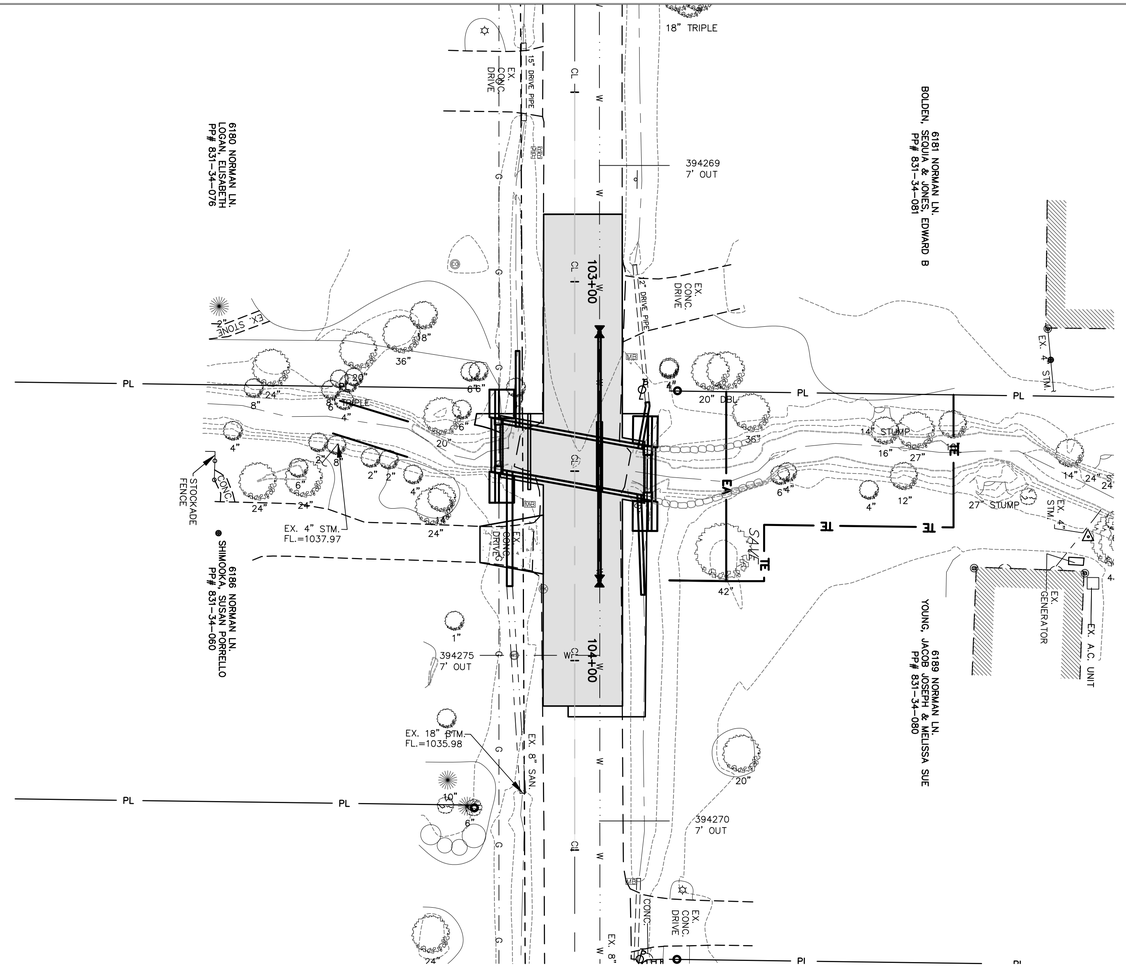
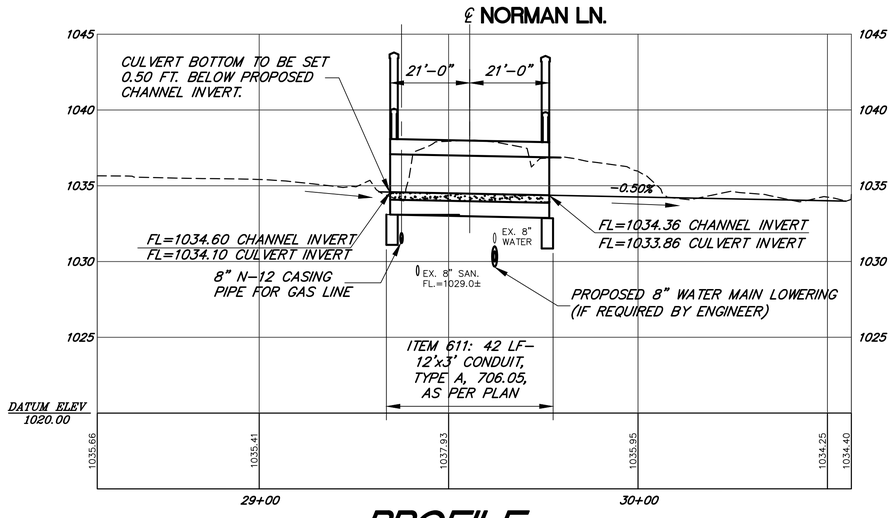
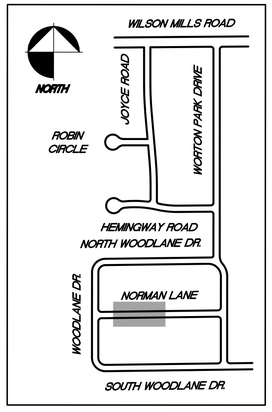


PLAN



PROFILE



KEY PLAN

LEGEND

TBM
HYDRANT TOP
STA. 102+14, 19.8' LT.
IN FRONT OF #6181 NORMAN LN.
ELEV. =1041.02

FULL DEPTH ASPHALT PAVEMENT

DRIVE APRON REMOVAL & REPLACEMENT, AS PER PLAN

EXISTING STRUCTURE

TYPE: CORRUGATED STEEL PIPE ARCH CULVERT
SIZE: 58"x37"
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: N/A
SUPERELEVATION: NONE
DATE BUILT: EARLY 1950's
STRUCTURE FILE NO. NONE
SKEW: 10°13'54"
CONDITION: CRITICAL
LOADING:

PROPOSED STRUCTURE

TYPE: PRECAST REINFORCED CONCRETE FOUR-SIDED BOX
SIZE: 12'-0" SPAN x 3'-0" RISE
(FLOW AREA 12'-0" X 2'-6") BOTTOM 6" BURIED
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: NONE
SUPERELEVATION: NONE
SKEW: 10°13'54"
WEARING SURFACE: ASPHALT
LOADING: AASHTO LRFD HL-93 LOADING AND FUTURE WEARING SURFACE OF 60 PSF

SUB SUMMARY (CARRIED TO SHEET 7)

ITEM	TOTAL	UNIT	DESCRIPTION
202	1	EACH	STRUCTURE REMOVED, AS PER PLAN
503	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
503	LUMP	LUMP	UNCLASSIFIED EXCAVATION
511	19	CU. YD.	CLASS C CONCRETE, CULVERT, HEADWALL AND WINGWALL FOOTING
511	16.1	CU. YD.	CLASS C CONCRETE, HEADWALL , AS PER PLAN
511	11.7	CU. YD.	CLASS C CONCRETE, WINGWALL, AS PER PLAN
512	122	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
512	137	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	38	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	20	FT.	ALUMINUM PICKET RAILING, AS PER PLAN
518	11	CU. YD.	POROUS BACKFILL, WITH FILTER FABRIC
611	42	FT.	12' x 3 CONDUIT, TYPE A, 706.05, AS PER PLAN

NORTH

SCALE IN FEET (HORIZONTAL): 40 20 0 20
SCALE IN FEET (VERTICAL): 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE	BY
6.)			
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REVISIONS

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CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
NORMAN LANE CULVERT
PLAN + PROFILE

NOVEMBER 2026
JOB NO. 22-187
15 42

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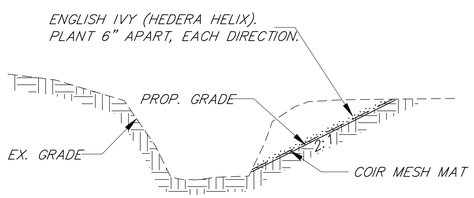
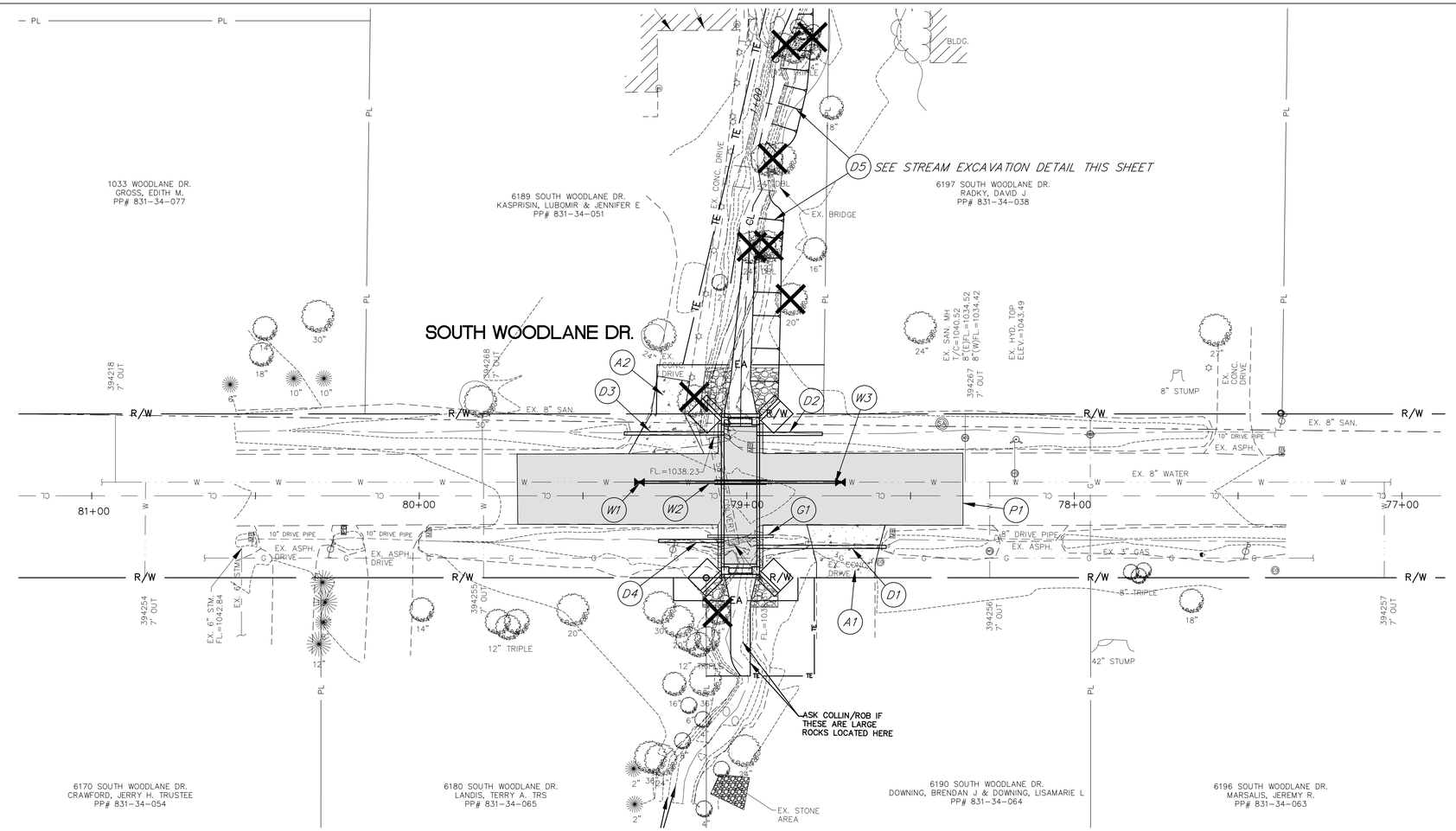
TBM
HYDRANT TOP
STA. 78+18, 17' RT.
IN FRONT OF
#6197 SOUTH WOODLANE DR.
ELEV. =1043.49

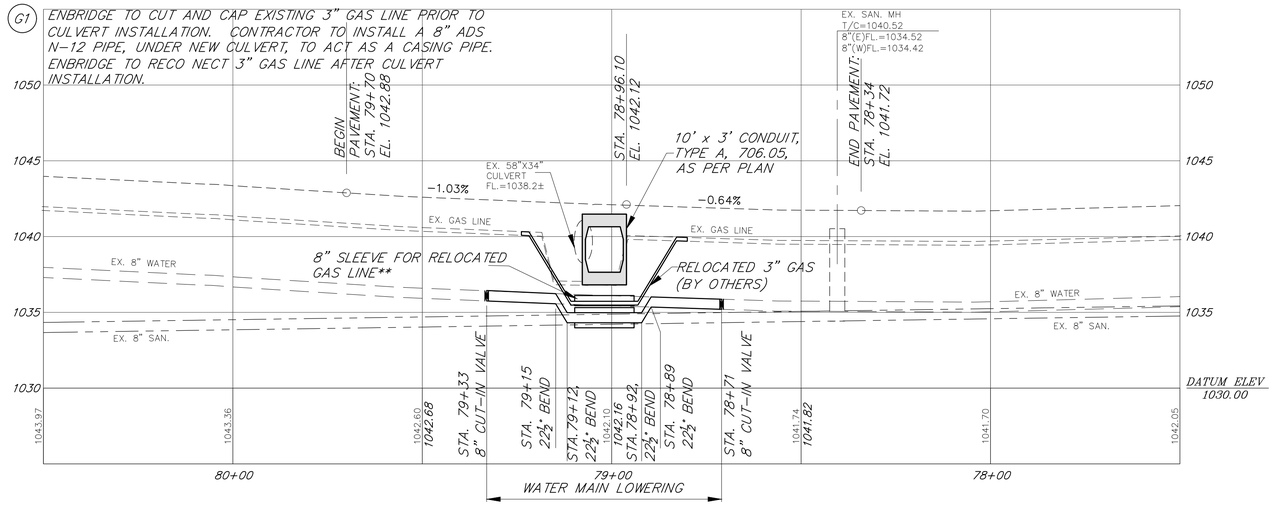


STREAM EXCAVATION DETAIL

NOT TO SCALE



PLAN



PROFILE

LEGEND

- EXISTING TREE TO BE REMOVED
- FULL DEPTH ASPHALT PAVEMENT
- CONC. DRIVE APRON REMOVAL & REPLACEMENT, AS PER PLAN

REFERENCE	SHEET #
SUB-SUMMARY	7
CULVERT PLANS AND QUANTITIES	17

NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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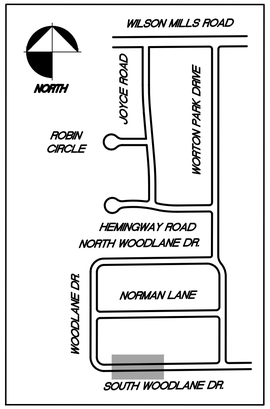
MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
SOUTH WOODLANE DRIVE
PLAN + PROFILE

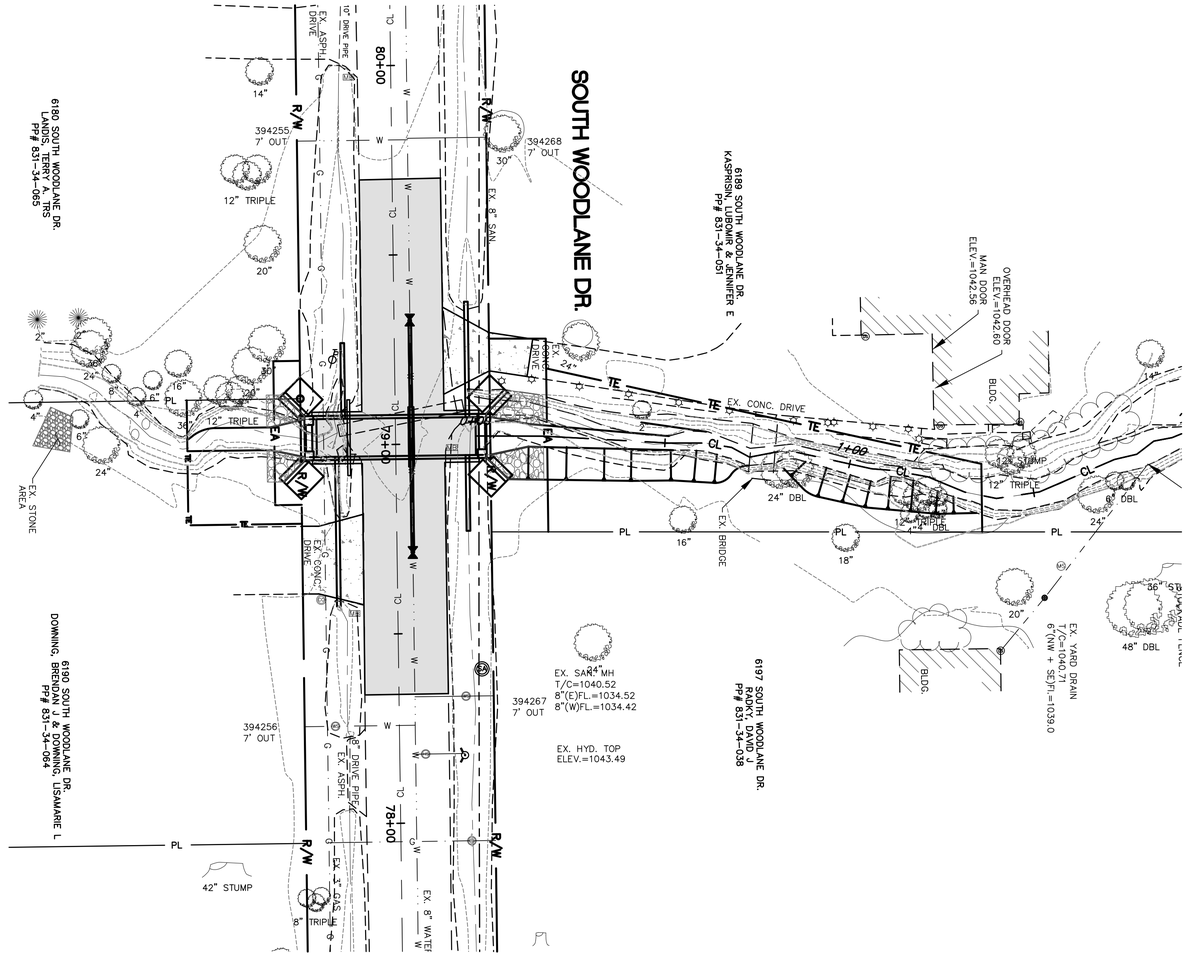
NOVEMBER 2026
JOB NO. 22-187
16 42

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-23 South Woodlane-Dr-P&P.dwg 11/24/2026 4:34:12 PM

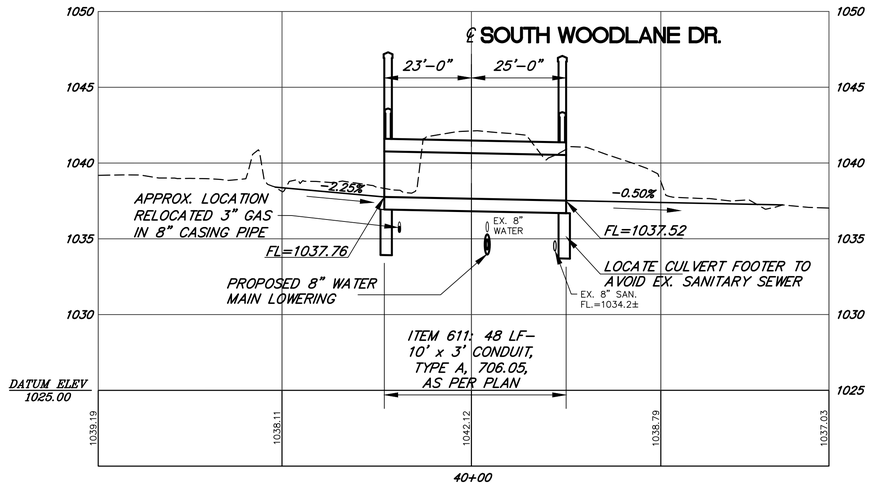
TBM
HYDRANT TOP
STA. 78+18, 17' RT.
IN FRONT OF
#6197 SOUTH WOODLANE DR.
ELEV. =1043.49



KEY PLAN



PLAN



PROFILE

REFERENCE	SHEET #
ROADWAY SUB-SUMMARY	7

EXISTING STRUCTURE

TYPE: CORRUGATED STEEL PIPE ARCH CULVERT
SIZE: 58"x37"
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: N/A
SUPERELEVATION: NONE
DATE BUILT: EARLY 1950's
STRUCTURE FILE NO. NONE
SKEW: 0° REFERENCE TANGENT
CONDITION: POOR
LOADING:

PROPOSED STRUCTURE

TYPE: PRECAST REINFORCED CONCRETE FOUR-SIDED BOX
SIZE: 10'-0" SPAN x 3'-0" RISE
ROADWAY: 22' EDGE TO EDGE
ALIGNMENT: TANGENT
APPROACH SLAB: NONE
SUPERELEVATION: NONE
SKEW: 0°
WEARING SURFACE: ASPHALT
LOADING: AASHTO LRFD HL-93 LOADING AND FUTURE WEARING SURFACE OF 60 PSF

SUB SUMMARY (CARRIED TO SHEET 7)

ITEM	TOTAL	UNIT	DESCRIPTION
202	1	EACH	STRUCTURE REMOVED, AS PER PLAN
503	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
503	LUMP	LUMP	UNCLASSIFIED EXCAVATION
511	17.5	CU. YD.	CLASS C CONCRETE, CULVERT, HEADWALL AND WINGWALL FOOTING
511	15.7	CU. YD.	CLASS C CONCRETE, HEADWALL , AS PER PLAN
511	11.7	CU. YD.	CLASS C CONCRETE, WINGWALL, AS PER PLAN
512	128	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
512	137	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	38	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	15.33	FT.	ALUMINUM PICKET RAILING, AS PER PLAN
518	11	CU. YD.	POROUS BACKFILL, WITH FILTER FABRIC
601	33	CU. YD.	ROCK CHANNEL PROTECTION, TYPE B, AS PER PLAN
611	48	FT.	10' x 3 CONDUIT, TYPE A, 706.05, AS PER PLAN

NORTH

SCALE IN FEET (HORIZONTAL) 40 20 0 20
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO NO. 55466 REGISTERED
PROFESSIONAL ENGINEER

REVISIONS			
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
SOUTH WOODLANE DRIVE CULVERT
PLAN + PROFILE

NOVEMBER 2026
JOB NO. 22-187

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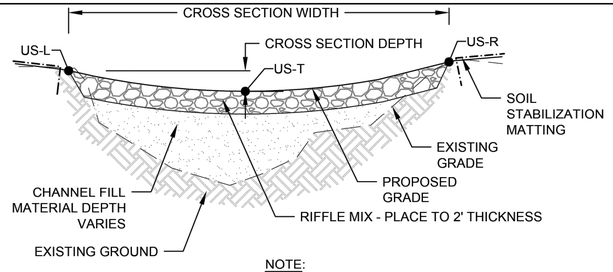
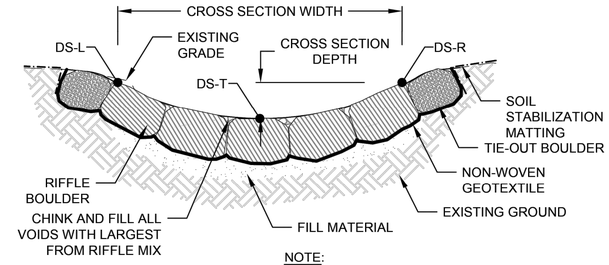


RIFFLE
RIFFLE CREST CROSS SECTION

NOTE:
SEE TYPICAL SECTION FOR TOP WIDTH AND DEPTH

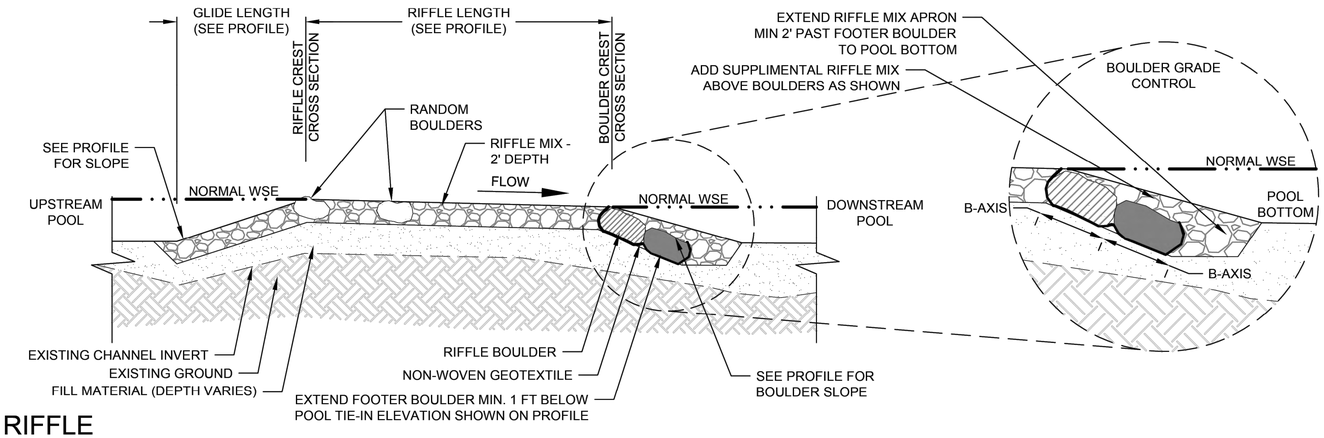
NOT TO SCALE



RIFFLE
BOULDER CROSS SECTION

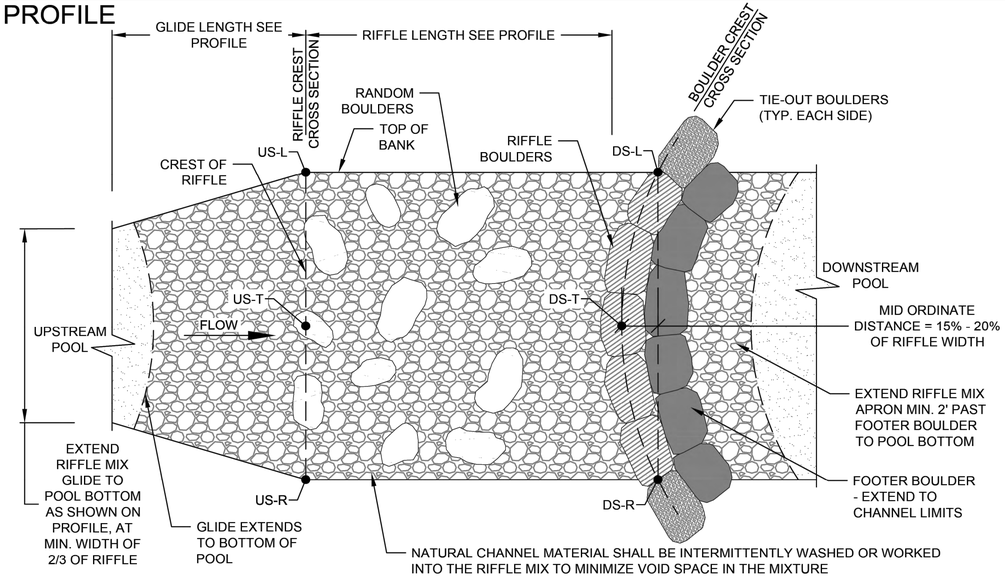
NOTE:
SEE TYPICAL SECTION FOR TOP WIDTH AND DEPTH

NOT TO SCALE



RIFFLE
PROFILE

NOT TO SCALE

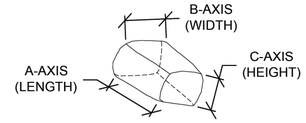


RIFFLE
PLAN VIEW

NOT TO SCALE

RIFFLE NOTES:

1. SEE TYPICAL SECTIONS FOR DEPTH AND WIDTH OF CHANNEL CROSS SECTION. THE CROSS SECTION SHALL BE CONSTRUCTED IN A PARABOLIC SHAPE.
2. FOR ALL MATERIAL SIZES, REFER TO TABLES PROVIDED ON THIS DETAIL.
3. NATURAL CHANNEL MATERIAL MAY BE HARVESTED ON-SITE PRIOR TO INSTALLATION OF RIFFLE IF IT MEETS THE SPECIFICATIONS.
4. RIFFLE MIX SHALL BE A MINIMUM THICKNESS OF TWICE THE SPECIFIED D50 OF THE MATERIAL OR 2', WHICHEVER IS LARGER.
5. THE NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTION WIDTH AND BOULDER DIMENSIONS.
6. IN AREAS OF CUT, CHANNEL FILL MATERIAL UNDER RIFFLE MIX IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL TO BE FILLED IN 8" LIFTS WITH CHANNEL FILL MATERIAL.
7. AS NEEDED, EXCAVATE THE DOWNSTREAM TIE OUT AREA FOR FOOTER BOULDERS AND INSTALL THE BOULDER GRADE CONTROL FOOTERS AND RIFFLE BOULDERS, LAYING A CONTINUOUS SHEET OF GEOTEXTILE UNDER ALL BOULDERS. TOP OF RIFFLE BOULDERS SHALL BE PARABOLIC IN SHAPE AND MEET FINISHED GRADE.
8. THE BOULDERS SHALL BE TILTED DOWNSTREAM AS SHOWN ON THE DETAIL AND NOT STACKED. STAGGER SEAMS OF BOULDERS BETWEEN EACH ROW. INSTALL RIFFLE MIX APRON TO BLEND INTO DOWN STREAM POOL AS SHOWN ON DETAIL.
9. TIE-OUT BOULDER SHALL EXTEND PAST THE CORNER NODES DS-R & DS-L A MIN. OF ONE BOULDER LENGTH (B-AXIS) INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS OR BEDROCK, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF ENGINEER.
10. PLACE RIFFLE MIX UPSTREAM OF THE BOULDER GRADE CONTROL TO THE FINISHED GRADES, COMPRESSING MATERIALS TO MAINTAIN PARABOLIC CROSS SECTION SHAPE.
11. CHANNEL WASH-IN MATERIAL SHALL BE REPEATEDLY WORKED INTO FULL DEPTH OF THE RIFFLE MIX TO FILL VOIDS.
12. EXCAVATE UPSTREAM POOL AND INSTALL RIFFLE MIX GLIDE AS SHOWN ON DETAIL.
13. TRIM ALL GEOTEXTILE AT OR BELOW FINISHED GRADE.
14. ONCE RIFFLE IS CONSTRUCTED, STABILIZE ALL DISTURBED TIE-IN LOCATIONS AS SPECIFIED.



RIFFLE
BOULDER AXIS

NOT TO SCALE

BOULDER DIMENSIONS (FT)			
BOULDER TYPE	A-AXIS	B-AXIS	C-AXIS
FOOTER	24	18	12
RIFFLE/TIE OUT	24	18	12
RANDOM	18	24	6

RIFFLE MIX GRADATION TABLE	
% OF MIX	STONE TYPE
75	TYPE D RIPRAP OR COBBLE
15	1.5-2-IN GRAVEL
10	0.25-1-IN GRAVEL

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS			
No.	DESCRIPTION	DATE	BY
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
FLOODPLAIN ENHANCEMENT DETAILS

NOVEMBER 2026

JOB NO. 22-187

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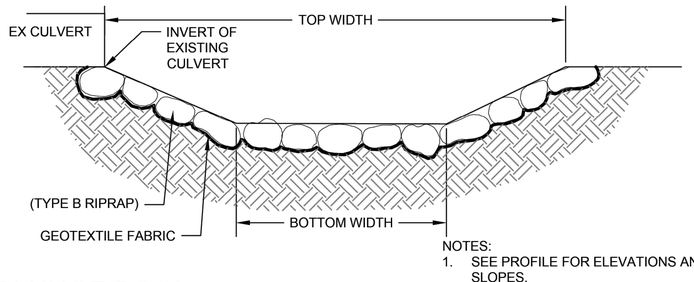
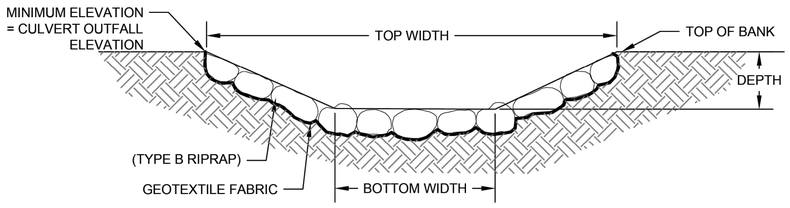


NOTES:
1. SEE PROFILE FOR ELEVATIONS AND SLOPES.

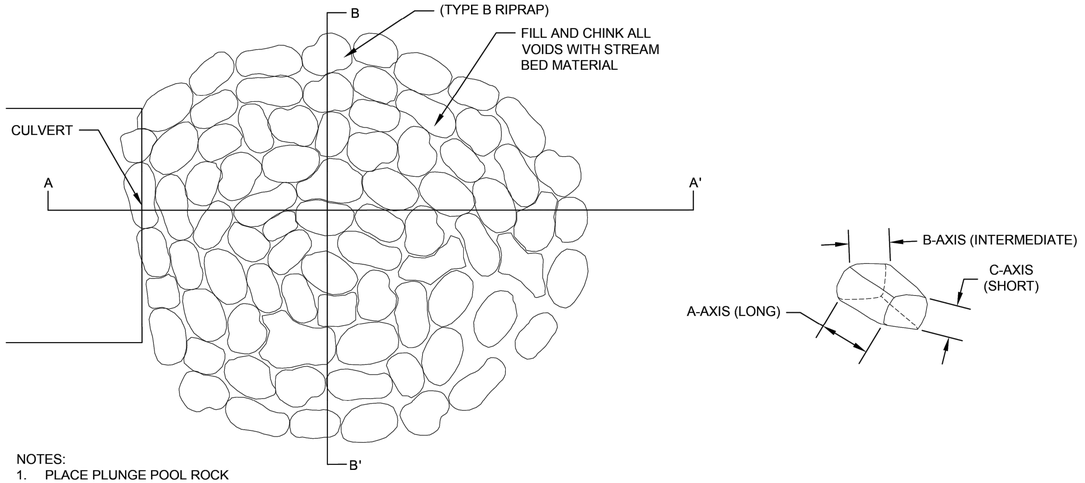
PLUNGE POOL
SECTION A-A'

NOT TO SCALE



PLUNGE POOL
SECTION B-B'

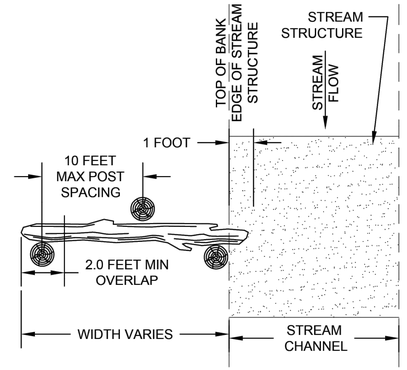
NOT TO SCALE



NOTES:
1. PLACE PLUNGE POOL ROCK UNDERNEATH CULVERT OUTFALL AT OUTFALL INVERT ELEVATIONS

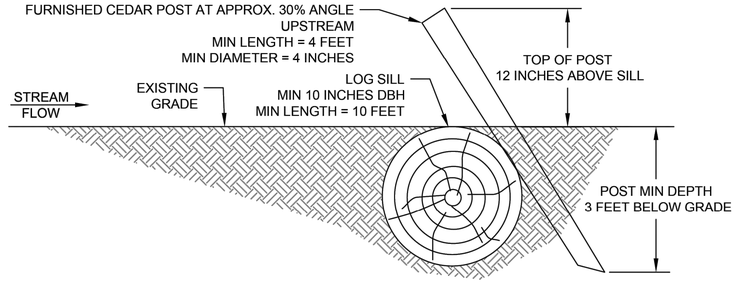
PLUNGE POOL
PLAN VIEW

NOT TO SCALE



FLOODPLAIN LOG SILL
PLAN VIEW

NOT TO SCALE



NOTES:
1. LOGS SHALL BE INSTALLED AT APPROXIMATE LOCATION SHOWN ON GRADING PLAN. EXACT SILL ALIGNMENT SHALL BE FIELD LOCATED TO AVOID SIGNIFICANT IMPACTS TO EXISTING NATURAL RESOURCES/ROOT STRUCTURES, AT DIRECTION OF ENGINEER/DESIGNATED SPECIALIST.
2. THE CROWN OF UPSTREAM LOGS SHALL BE PLACED AT PROPOSED GRADE OF FLOODPLAIN.
3. INSTALLATION OF SILLS SHALL BE DONE IN A MANNER THAT MINIMIZED EXCAVATION/DISTURBANCE OF SURROUNDING GRADE, UNLESS GRADING IS SHOWN ON GRADING PLAN. SILLS SHALL BE PRESSED INTO EXISTING GRADE WHEN POSSIBLE TO ACHIEVE GRADES SHOWN.
4. POSTS SHALL BE INSTALLED ACROSS FULL WIDTH OF SILL, ONE ON EITHER END OF EACH LOG, AND EVERY 10 FEET MAX SPACING.
5. LOGS USED FOR SILLS SHALL BE A MINIMUM LENGTH OF 10 FEET AND MINIMUM DIAMETER OF 10 INCHES. ROT-RESISTANT SPECIES ARE PREFERRED FOR USE IF AVAILABLE, BUT ANY WOOD FREE OF DEFECTS, MAJOR DAMAGE AND DECAY CAN BE USED AS NEEDED.

FLOODPLAIN LOG SILL
SECTION A-A

NOT TO SCALE

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
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PROFESSIONAL ENGINEER

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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
FLOODPLAIN ENHANCEMENT DETAILS

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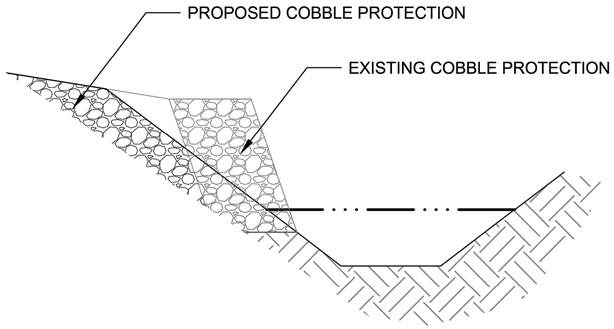
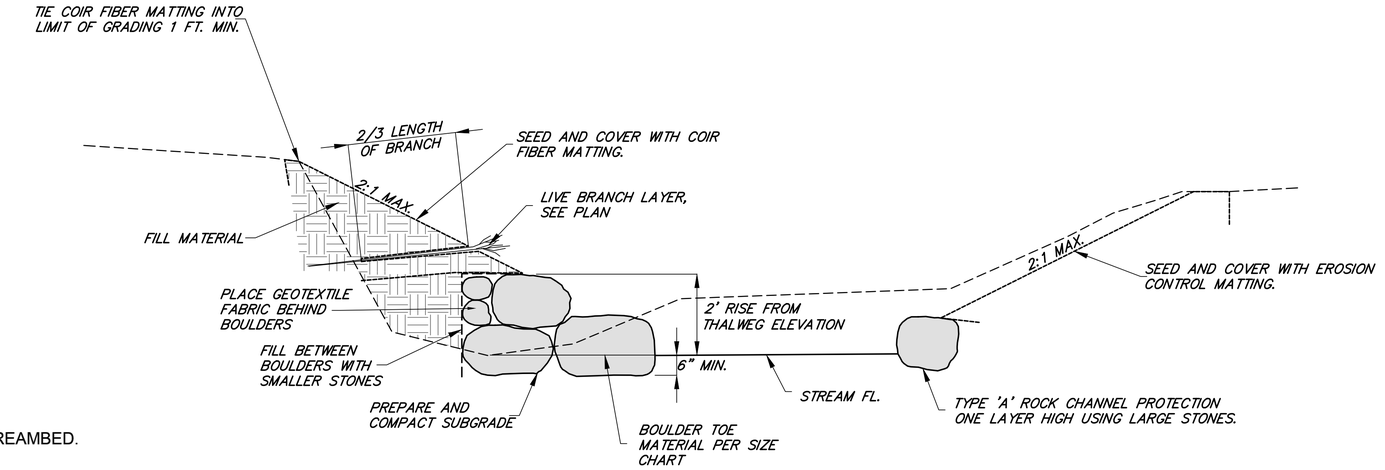


` STOCKPILE.
'G GRADE.
` SLOPE ON THE STREAMBED.

NOT TO SCALE

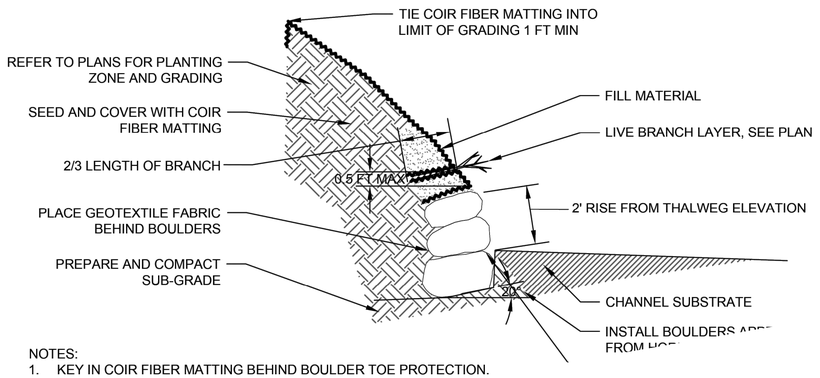


NOTES:
1. KEY IN COIR FIBER MATTING BEHIND BOULDER TOE PROTECTION.
2. APPLY LIVE BRANCH LAYERING ONLY WHERE GRADING EXTENDS UPSLOPE OF BOULDER TOE ON BANKS. REFER TO PLAN VIEW FOR AREAS OF LIVE BRANCH LAYERING APPLICATION.
3. FILL BOULDER VOIDS SPACE WITH EXISTING CHANNEL SUBSTRATE AND TYPE D ROCK CHANNEL PROTECTION SIZE STONE MATERIAL.

BOULDER TOE PROTECTION WITH LIVE BRANCH LAYERING
CROSS SECTION

NOT TO SCALE

NOT TO SCALE



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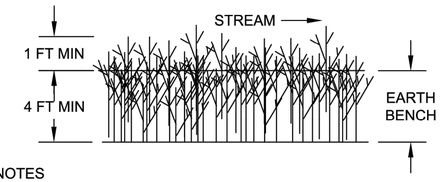
BRANCH LAYERING APPLICATIO
3. FILL BOULDER VOI



NOTES
1. PLACE A MINIMUM OF 16 LIVE BRANCHES PER LINEAR FOOT.
2. PLACE LIVE BRANCHES EVENLY ACROSS BENCH IN A CRISS-CROSS CONFIGURATION.
3. USE THE FOLLOWING SPECIES FOR LIVE BRANCH LAYERING: *CORNUS AMOMUM*, *CORNUS SERICEA*, *SALIX DISCOLOR*, AND *SALIX SERICEA*.

LIVE BRANCH LAYERING
PLAN VIEW

NOT TO SCALE

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STATE OF OHIO
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
FLOODPLAIN ENHANCEMENT DETAILS

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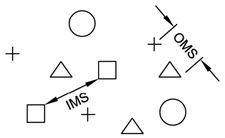
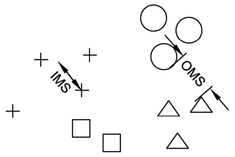


NOTES
1. EACH SYMBOL INDICATES A DIFFERENT SPECIES FOR ILLUSTRATIVE PURPOSES OF RANDOM SPACING CONCEPT. CONTRACTOR MAY ASSIGN SPECIES FROM PLANT SCHEDULES TO INDIVIDUAL SYMBOLS FOR CLARIFICATION.
2. IMS: AN INDIVIDUAL MINIMUM SPACING (IMS) DISTANCE IS ASSIGNED TO EACH INDIVIDUAL SPECIES. SEE PLANT SCHEDULES.
3. OMS: AN OVERALL MINIMUM SPACING (OMS) DISTANCE IS ASSIGNED TO THE PLANTING CONFIGURATION. SEE PLANT SCHEDULES.

PLANT SPACING - RANDOM

NOT TO SCALE

PLAN VIEW

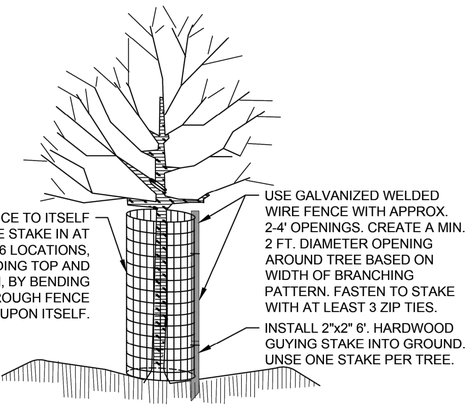


NOTES
1. EACH SYMBOL INDICATES A DIFFERENT SPECIES FOR ILLUSTRATIVE PURPOSES OF CLUSTER SPACING CONCEPT. CONTRACTOR MAY ASSIGN SPECIES FROM PLANT SCHEDULES TO INDIVIDUAL SYMBOLS FOR CLARIFICATION.
2. CLUSTERS CONTAIN AT LEAST 3 INDIVIDUALS BUT NO MORE THAN 11.
3. IMS: AN INDIVIDUAL MINIMUM SPACING (IMS) DISTANCE IS ASSIGNED TO EACH INDIVIDUAL SPECIES. SEE PLANT SCHEDULES.
4. OMS: AN OVERALL MINIMUM SPACING (OMS) DISTANCE IS ASSIGNED TO THE PLANTING CONFIGURATION. SEE PLANT SCHEDULES.

PLANT SPACING - CLUSTER

NOT TO SCALE

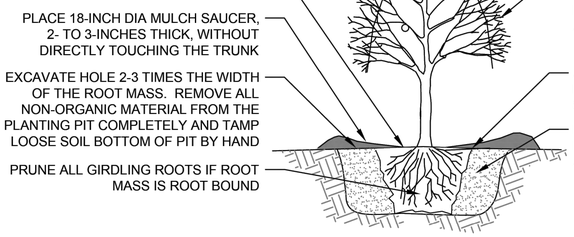
PLAN VIEW



NOTES
1. INSTALL FENCE AROUND ALL TREES AND SHRUBS.
2. FENCE HEIGHT SHALL BE 5 FEET MINIMUM.
3. FASTEN FENCE TO STAKE WITH MINIMUM OF THREE 11-INCH RELEASABLE CABLE TIES: ONE AT TOP, ONE IN THE MIDDLE, AND ONE 6 INCHES MINIMUM ABOVE THE GROUND.
4. DO NOT DAMAGE PLANT DURING INSTALLATION.
5. REMOVE FENCE AND STATE AT DIRECTION OF ENGINEER OR DISTRICT.

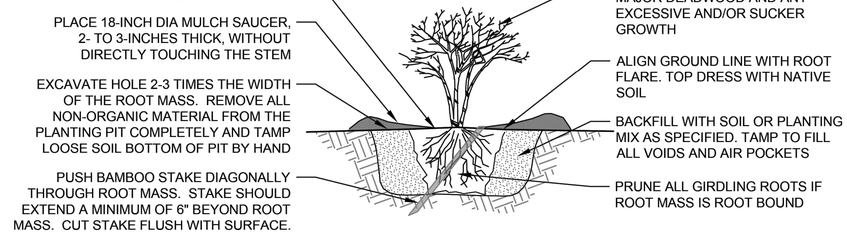
DEER PROTECTION

NOT TO SCALE



TREE PLANTING - CONTAINER GROWN

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE

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STATE OF OHIO
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD PHASE II - CULVERT REPLACEMENT FLOODPLAIN ENHANCEMENT DETAILS

NOVEMBER 2026

JOB NO. 22-187

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EROSION AND SEDIMENT CONTROL NOTES

1. FUEL ALL MACHINERY WITHIN THE STOCKPILE AREA.

2. TEMPORARY STABILIZATION NOTES:
   2.1. FOR DISTURBED AREAS WITHIN 50 FEET OF A STREAM REMAINING DORMANT FOR OVER 14 DAYS, APPLY TEMPORARY EROSION CONTROLS WITHIN 2 DAYS.
   2.2. FOR DISTURBED AREAS OVER 50 FEET OF A STREAM REMAINING DORMANT FOR OVER 14 DAYS, APPLY TEMPORARY EROSION CONTROLS WITHIN 7 DAYS.
   2.3. FOR DISTURBED AREAS LEFT IDLE OVER WINTER, APPLY TEMPORARY EROSION CONTROLS PRIOR TO ONSET OF WINTER WEATHER.

3. PERMANENT STABILIZATION NOTES:
   3.1. FOR DISTURBED AREAS WITHIN 50 FEET OF A STREAM AT FINAL GRADE, APPLY PERMANENT EROSION CONTROLS WITHIN 2 DAYS OF REACHING FINAL GRADE.
   3.2. FOR DISTURBED AREAS REMAINING DORMANT FOR OVER 1 YEAR OR AT FINAL GRADE, APPLY PERMANENT EROSION CONTROLS WITHIN 7 DAYS.

4. IMPLEMENT SEDIMENT CONTROL DEVICES IN AREAS THAT WILL REMAIN DISTURBED FOR OVER 14 DAYS.

5. FOR SMALL RELEASES OF PETROLEUM WASTE LESS THAN 25 GALLONS, APPLY AN ABSORBENT KEPT ON SITE TO THE PETROLEUM BASED AND CONCRETE CURING COMPOUNDS.

6. IF A RELEASE OF GREATER THAN 25 GALLONS OF PETROLEUM OCCURS, CONTACT OHIO EPA (1-800-282-9378), THE LOCAL FIRE DEPARTMENT (1-330-468-1234), AND THE LOCAL EMERGENCY SERVICE DEPARTMENT(1-800-828-2085) WITHIN 30 MINUTES OF A SPILL.

7. MINIMIZE OFF-SITE TRACKING OF SEDIMENT.

8. OPEN BURNING IS PROHIBITED ON SITE.

9. PROVIDE SANITARY FACILITIES DURING CONSTRUCTION ACTIVITY.

10. TREAT AND/OR DISPOSE OF ALL CONTAMINATED SOILS IN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITIES OR HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES (TSDFs).

11. DO NOT DISPOSE TOXIC OR HAZARDOUS WASTES INTO STORM DRAINS, SEPTIC TANKS, OR BY BURYING BURNING, OR MIXING THE WASTES.
12. USE COVERED AND LEAK-PROOF DISPOSAL CONTAINERS FOR DEBRIS, TRASH, HAZARDOUS, AND/OR PETROLEUM WASTES.

13. DISPOSE OF ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY OHIO REVISED CODE (ORC) 3714 AND LOCAL REGULATIONS. FILL MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH AIR POLLUTION REGULATIONS (SEE OHIO ADMINISTRATIVE CODE 3745-20).

14. DO NOT USE USED OIL AS A DUST SUPPRESSANT.

15. WEEKLY INSPECTIONS ARE REQUIRED OF BMPS BY QUALIFIED INSPECTION PERSONNEL AND WITHIN 24 HRS OF A RAIN EVENT OF 0.5 IN WITHIN 24 HR PERIOD. AN INSPECTION CHECKLIST WILL BE COMPLETED AND SIGNED BY THE INSPECTOR AFTER EVERY INSPECTION. KEEP INSPECTION RECORDS FOR 3 YEARS AFTER COMPLETION OF CONSTRUCTION. FOR BMPS THAT REQUIRE REPAIR OR MAINTENANCE, REPAIR NONSEDIMENT POND BMPS WITHIN 3 DAYS OF INSPECTION. ALL BMPS THAT DON'T MEET THE INTENDED FUNCTION OR ARE MISSING AND REQUIRED BY THE SWPPP, INSTALL A NEW BMP WITHIN 10 DAYS OF THE INSPECTION.

16. MIX FERTILIZERS AND LIME ONLY IN LOCATIONS APPROVED BY A QUALIFIED INSPECTOR.

17. UTILIZE PERTINENT PLAN DATA FOR CONSTRUCTION LAYOUT.

18. NOTIFY THE CITY OF MACEDONIA POLICE AND FIRE DEPARTMENT AT LEAST 72 HOURS PRIOR TO THE CLOSING OF ANY STREET OR ANY TRAFFIC CHANGE.

19. PERFORM WORK SO AS TO NOT DISTURB, DAMAGE OR DESTROY ANY MAILBOX, PAPERBOX, TELEPHONE OR POWER POLES, SIGNS, FENCES, RETAINING WALLS,LANDSCAPING ITEMS, ETC. REPLACE ANY ITEM DAMAGED OR DESTROYED AT NO ADDITIONAL COST TO THE PROJECT. REMOVE AND RESET ANY ITEM DISTURBED OR IN CONFLICT WITH THE WORK TO BE PERFORMED AT NO ADDITIONAL COST TO THE PROJECT. PRIOR CITY ENGINEER APPROVAL IS REQUIRED BEFORE ANY OF THE ABOVE ITEMS ARE PERFORMED.

Soil Stabilization

Guidelines for Permanent Seeding

1. Disturbed areas must be permanently stabilized as specified in the following table:

Area requiring permanent stabilization:	Time frame to apply erosion controls:
Any area that will lie dormant one year or more.	Within seven (7) days of the most recent disturbance.
Any area within fifty (50) feet of a stream and at final grade.	Within two (2) days of reaching final grade.
Any area at final grade.	Within seven (7) days of reaching final grade within that area.

2. Reduce soil compaction as much as possible so as to promote infiltration, which will aid in seed germination and long-term survivability.
3. Lime and fertilizer requirements should be determined through soil testing. If either is necessary, they should be worked into the soil to a depth of 3-inches.
4. Optimal seeding dates are from March 1 to May 31 and Aug 1 to September 30. However, with the use of mulch and irrigation, seedings may be made at any time during the growing season.
5. Seedings shall not be planted between October 1 and November 20. Although germination of seed is likely, it will probably not survive the winter.
6. To complete a **dormant seeding**, increase the seeding rates by 50% and only apply them after November 20 and before March 15. Seedbed preparation can take place any time prior to seeding.
7. Seeded areas shall be inspected for failure and vegetation re-established as needed. Depending on site conditions, it may be necessary to irrigate, fertilize, overseed, or re-establish plantings in order to provide permanent vegetation for adequate erosion control.
8. Maintenance fertilization rates shall be established by soil test recommendations.
9. After permanent seeding is applied, the area shall be covered with straw fiber or coir fiber matting - see special provisions for further detail.

Suggested rates for permanent seedings (other approved species may be substituted):

Seed Mix	Seeding Rate lbs./Acre	Seeding Rate lbs./1000ft²
(General Use)		
Creeping Red Fescue	20 - 40	½ - 1
Domestic Ryegrass	10 - 20	¼ - ½
Kentucky Bluegrass	10 - 20	¼ - ½
(Lawns – Shaded areas)		
Kentucky Bluegrass	60	1 ½
Creeping Red Fescue	60	1 ½
(Lawns)		
Kentucky Bluegrass	60	1 ½
Perennial Ryegrass	60	1 ½

Guidelines for Temporary Seeding

1. Disturbed areas must be temporarily stabilized as specified in the following table:

Area requiring temporary stabilization:	Time frame to apply erosion controls:
Any disturbed area within fifty (50) feet of a stream and not at final grade.	Within two (2) days of the most recent disturbance if that area will remain idle for more than fourteen (14) days.
For all construction activities, any disturbed area, including soil stockpiles that will be dormant for more than fourteen (14) days but less than one year, and not within fifty (50) feet of a stream.	Within seven (7) days of the most recent disturbance within the area.
Disturbed areas that will be idle over winter.	Prior to November 1st.
Note: Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. These techniques may include mulching or erosion matting.	

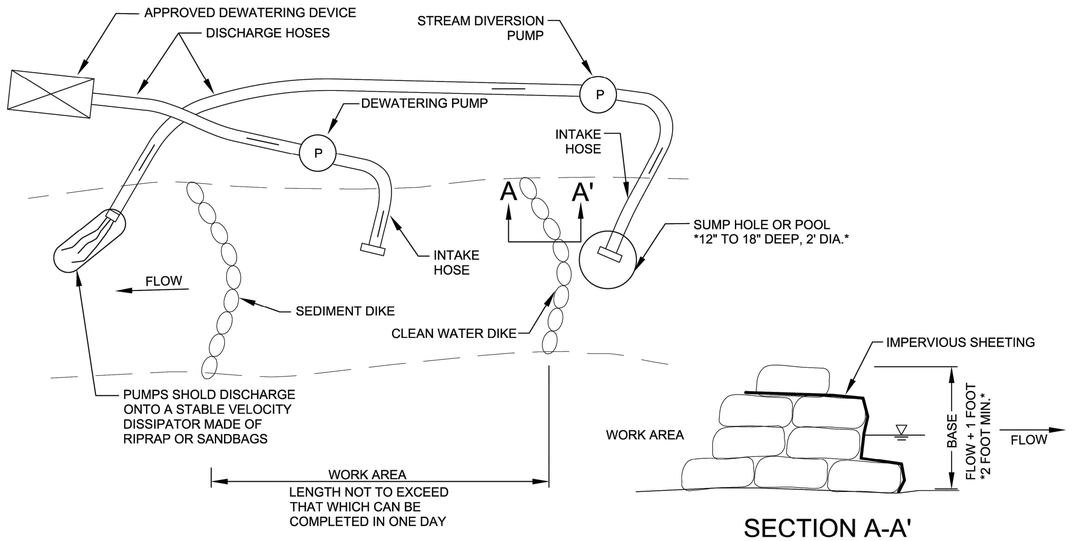
2. The seedbed should be loose to ensure the success of establishing vegetation. However, temporary seeding shall not be postponed if ideal seedbed preparation is not possible.
3. Establishment of temporary vegetation may require the use of soil amendments. Soil tests should be taken on the site to predict the need for lime and fertilizer.
4. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker.
5. Seeded areas shall be inspected for failure and vegetation re-established as needed. Depending on site conditions, it may be necessary to irrigate, fertilize, overseed, or re-establish plantings in order to provide permanent vegetation for adequate erosion control.

Suggested rates for temporary seedings (other approved species may be substituted):

Seeding Dates	Seed Mix	Seeding Rate Per Acre	Seeding Rate lbs./1000ft²
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	4 Bushel 40 lbs 40 lbs	3 1 1
August 16 to November 1	Rye Tall Fescue Annual Ryegrass	2 Bushel 40 lbs 40 lbs	3 1 1
November 1 to Spring Seeding	Use mulch only, sodding practices, or dormant seeding		

Guidelines for Mulching

1. Mulching shall be applied after seedbeds have been prepared and seed has been applied. It can also be used as a stand-alone practice to provide a temporary cover over idle bare areas.
2. Straw mulch shall be unrotted and applied uniformly at 2 tons/Ac or 90-lbs/1000 ft² (2-3 bales).
3. Wood chips shall be applied uniformly at a rate of 10-20 tons/Ac.
4. Straw mulch shall be anchored immediately to minimize loss by wind or runoff. Acceptable means of anchoring include disking, crimping, netting, synthetic binders, and wood cellulose fiber.
5. Mulch shall be re-applied in areas where it has been displaced by surface flow and/or wind.



SECTION A-A'

PUMP AROUND

NOT TO SCALE

NOTES

1. PRACTICE MAY BE COMBINED WITH SEDIMENT CONTROL FENCING.
2. LOCATION AND LIMITS OF FENCING SHALL COORDINATED IN FIELD WITH ARBORIST.
3. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED PRIOR TO INSTALLING PROTECTIVE DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE IS REQUIRED.
6. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION AREA
NO DISTURBANCE PERMITTED BEYOND THIS POINT
AREA DE PROTECCION DE ARBOLES
NO SE PERMITE TRABAJAR NI DEJAR MATERIALES EN EL AREA ATRAS DE ESTE ROTULO

STANDARD SYMBOL
——TPF——

TREE PROTECTION FENCE DETAIL

NOT TO SCALE

STATE OF OHIO
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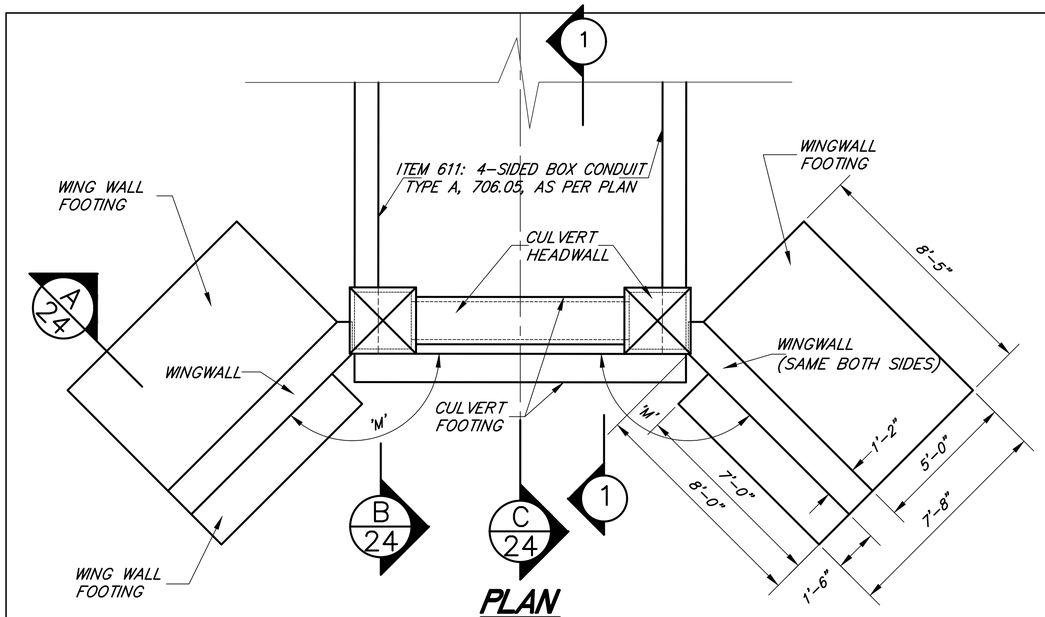
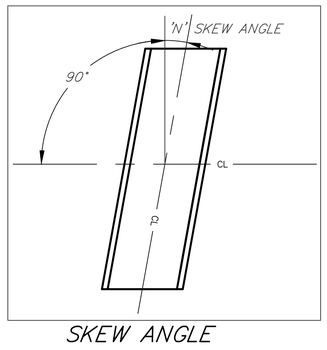


PLAN

INLET AND OUTLET HEADWALL

SCALE IN FEET

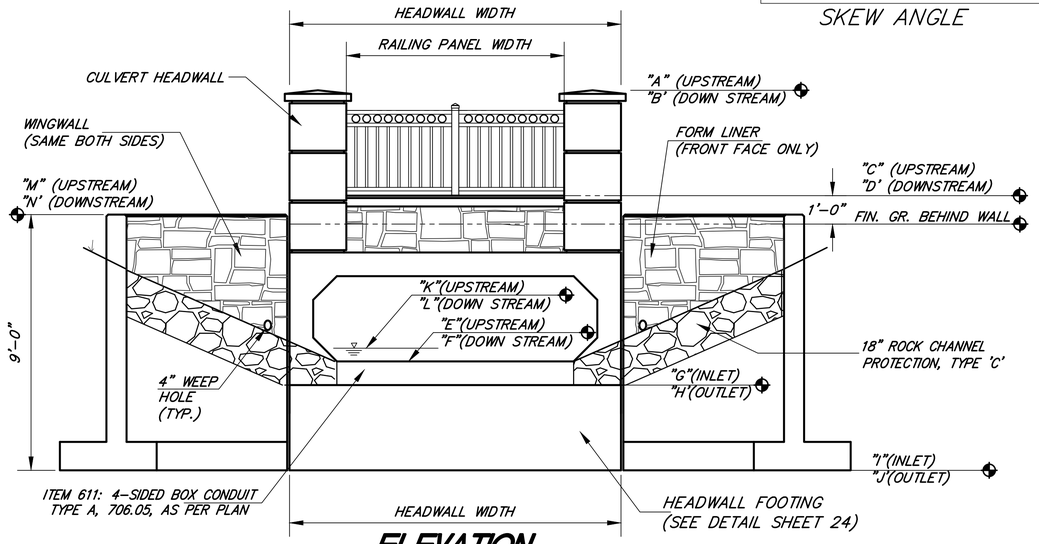


SKEW ANGLE

CULVERT DIMENSIONS AND ELEVATIONS

DESCRIPTION	REFERENCE I.D.	WOODLANE DR.	SOUTH WOODLANE DR.	NORMAN LN.
HEADWALL WIDTH		11'-8"	11'-8"	14'-0"
RAILING PANEL WIDTH		2 PANELS @ 3'-10"=7'-8"	2 PANELS @ 3'-10"=7'-8"	2 PANELS @ 5'-0"=10'-0"
ITEM 611: 4-SIDED BOX CULVERT SIZE		10'x3'	10'x3'	12'x3'
TOP OF PILLAR: (UPSTREAM)	"A"	1045.83	1047.31	1044.14
TOP OF PILLAR: (DOWNSTREAM)	"B"	1045.83	1047.31	1044.14
TOP OF HEADWALL: (UPSTREAM)	"C"	1042.12	1043.60	1040.43
TOP OF HEADWALL: (DOWNSTREAM)	"D"	1042.12	1043.60	1040.43
INVERT OF BOX CULVERT: (UPSTREAM)	"E"	1036.29	1037.77	1034.10**
INVERT OF BOX CULVERT: (DOWNSTREAM)	"F"	1035.83	1037.53	1033.86**
TOP OF CULVERT FOOTING: (UPSTREAM)	"G"	1035.46	1036.94	1033.77
TOP OF CULVERT FOOTING: (DOWNSTREAM)	"H"	1035.00	1036.70	1033.53
BOTTOM OF CULVERT & WINGWALL FOOTING: (UPSTREAM)	"I"	1032.46	1033.94	1030.77
BOTTOM OF CULVERT & WINGWALL FOOTING: (DOWNSTREAM)	"J"	1032.00	1033.70	1030.53
PROP. STREAM INVERT (UPSTREAM)	"K"	1036.29	1037.77	1034.60**
PROP. STREAM INVERT (DOWNSTREAM)	"L"	1035.83	1037.53	1034.36**
WINGWALL ANGLE	'M'	135°	135°	180°
CULVERT SKEW ANGLE	'N'	0°	0°	10°13'54"

**NOTE: THE NORMAN LANE 12'x3' BOX CULVERT IS TO BE SET 0.50' BELOW PROPOSED STREAM INVERT. ANY STREAM EXCAVATION, UPSTREAM OR DOWNSTREAM OF CULVERT, SHALL BE PERFORMED FROM THE PROPOSED STREAM INVERT AND NOT THE 12'x3' BOX CULVERT BOTTOM. THE BOTTOM 0.50' OF CULVERT IS TO FILL IN WITH NATURAL STREAM BED MATERIAL OVER TIME.

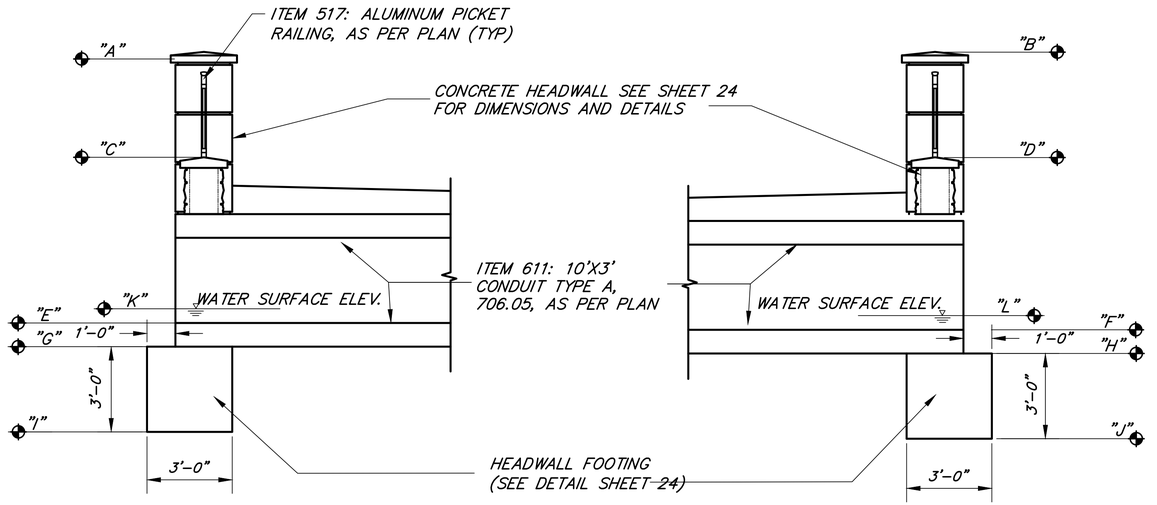


ELEVATION

INLET AND OUTLET HEADWALL

0 5 10

SCALE IN FEET



UPSTREAM

SECTION-1

DOWNSTREAM

0 5 10

SCALE IN FEET

NOTE:
CULVERT, CULVERT FOOTING AND ITEM 601: RIPRAP TO BE INSTALLED IN ROCK.

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS			
No.	DESCRIPTION	DATE	BY
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CULVERT DETAILS
10'X3' BOX CULVERT DETAILS

NOVEMBER 2026

JOB NO. 22-187

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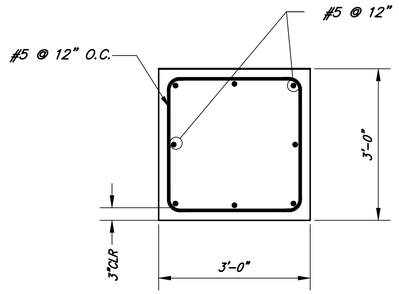
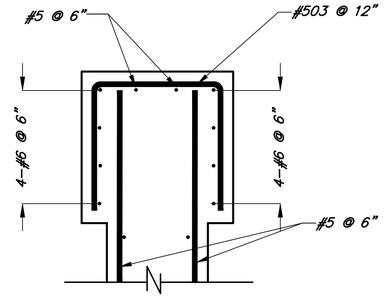
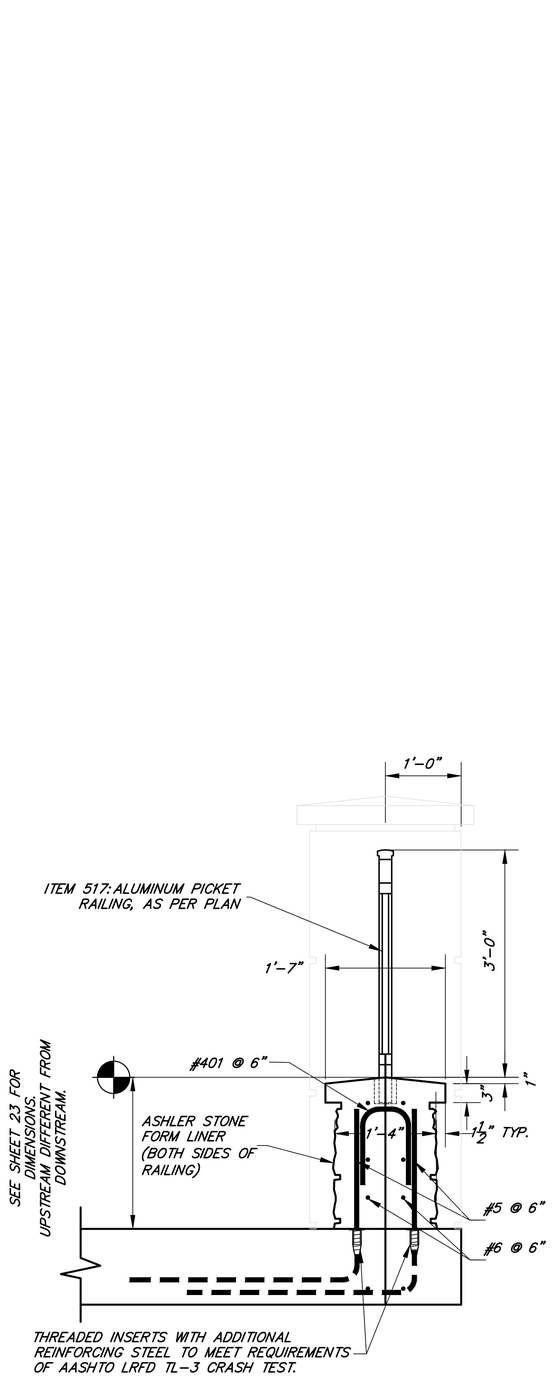


CULVERT FOOTING REINFORCING DETAIL

NOT TO SCALE



SECTION 1-1

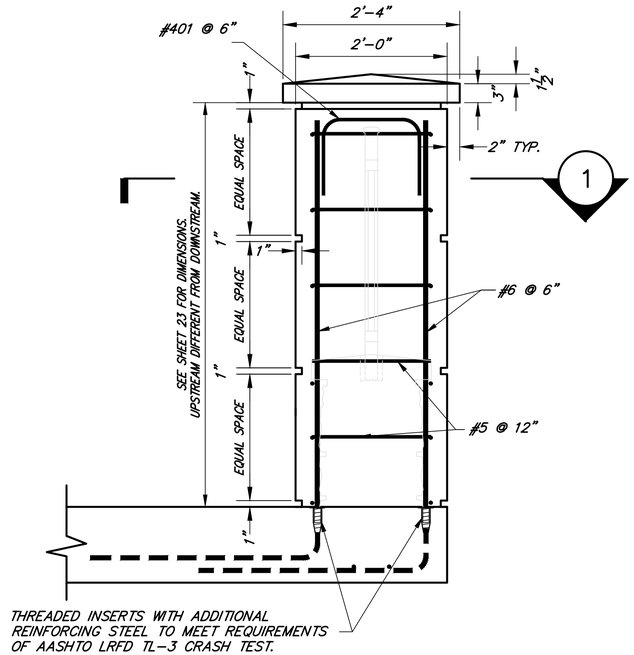


SECTION -C

(HEADWALL ABOVE CULVERT)

0 0.5 1 2 3

SCALE IN FEET



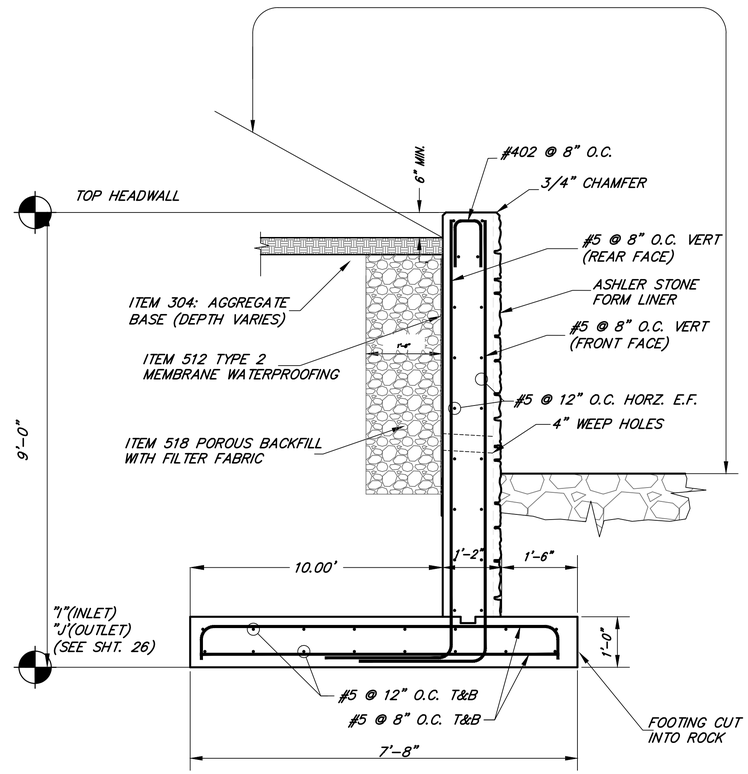
SECTION -B

(HEADWALL ABOVE CULVERT)

0 0.5 1 2 3

SCALE IN FEET

ITEM 512 SEALING OF CONCRETE SURFACES (NON-EPOXY)



SECTION -2

(HEADWALL)

0 1 2 3 4 5

SCALE IN FEET

REVISIONS

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STATE OF OHIO
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD PHASE II - CULVERT REPLACEMENT
CULVERT DETAILS
10'X4' BOX CULVERT DETAILS

NOVEMBER 2026

JOB NO. 22-187

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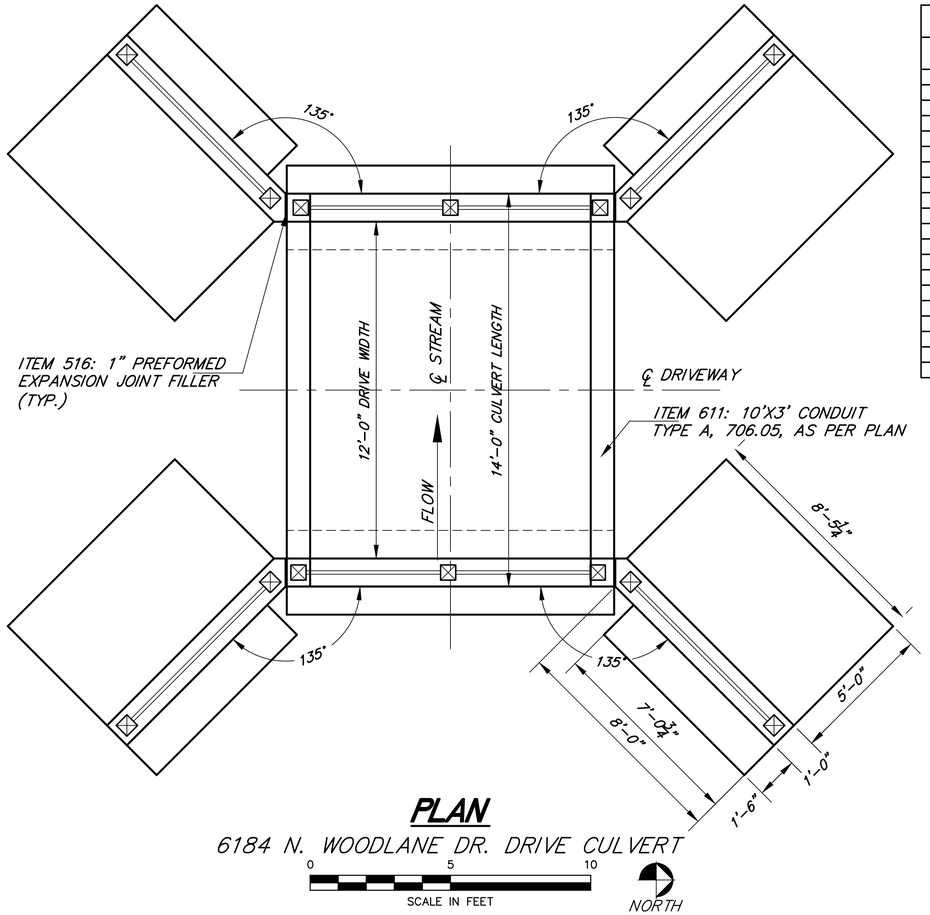


PLAN

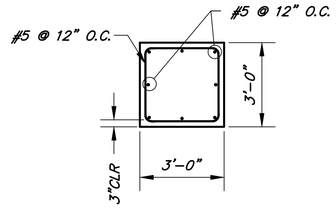
6184 N. WOODLANE DR. DRIVE CULVERT

0 5 10

SCALE IN FEET

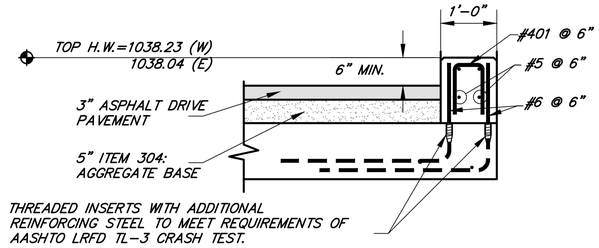
NORTH

SUB SUMMARY (CARRIED TO SHEET 7)			
ITEM	TOTAL	UNIT	DESCRIPTION
202	1	EACH	STRUCTURE REMOVED, AS PER PLAN
503	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
503	LUMP	LUMP	UNCLASSIFIED EXCAVATION
511	16.8	CU. YD.	CLASS C CONCRETE, CULVERT, WINGWALL FOOTING
511	11.1	CU. YD.	CLASS C CONCRETE, HEADWALL & WINGWALL AS PER PLAN
512	38	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
512	38	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	32	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	50.33	FT.	WOOD RAILING, AS PER PLAN
518	11	CU. YD.	POROUS BACKFILL, WITH FILTER FABRIC
611	14	FT.	10' x 3 CONDUIT, TYPE A, 706.05, AS PER PLAN



CULVERT FOOTING REINFORCING DETAIL

NOT TO SCALE



DETAIL-A (HEADWALL ABOVE CULVERT)

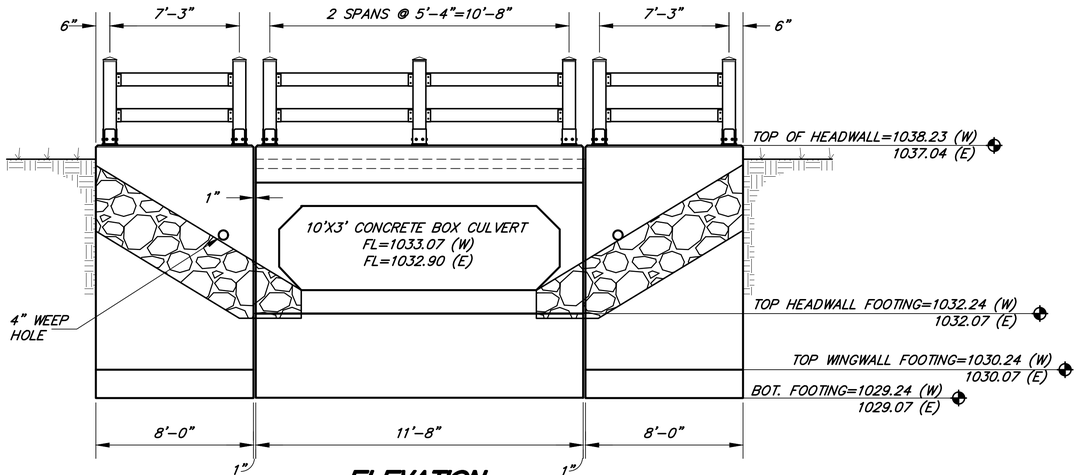
NOT TO SCALE

RAILING NOTES

6X6 BLACK ALUMINUM ORNIMENTAL PYRAMID POST CAP BY NUVO IRON.

POST BASE SHALL BE OZCO 51708 IRONWOOD 6X6 POST BASE, BLACK GALVANIZED STEEL. (1 EA.) 5/8"x 7" LONG AND (4 EA.) 1/4"x3-1/4" STAINLESS STEEL STUD CONRETE ANCHORS PER BASE.

2X6 RAIL BRACKET SHALL BE SIMPSON APLH26R ROUGH CUT 2X6 CONCEALED FLANGE LIGHT JOIST HANGER-BLACK POWDER COAT.

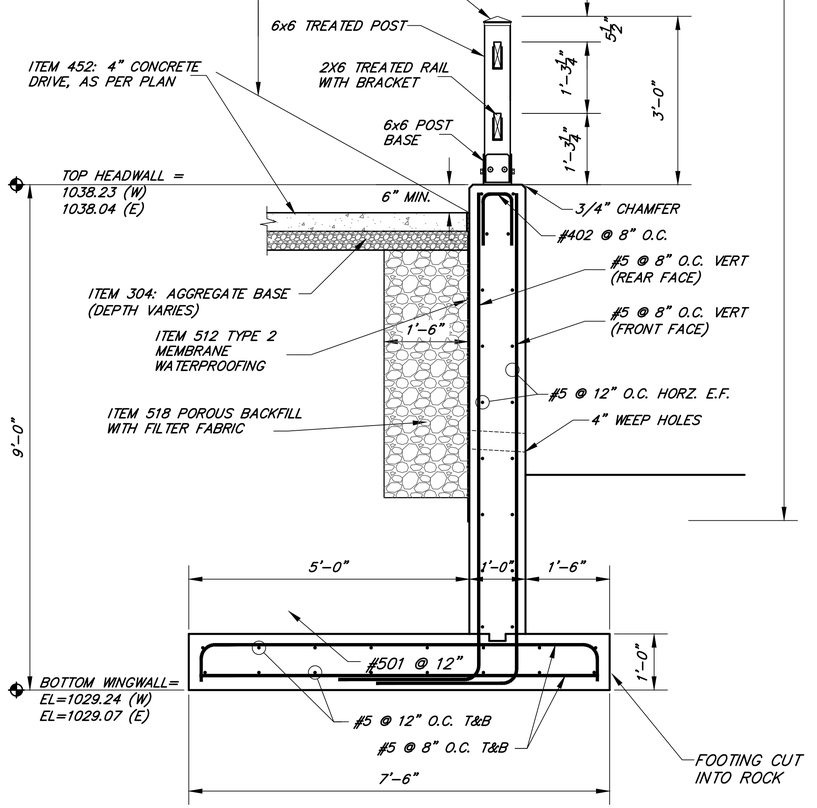


ELEVATION

EAST & WEST HEADWALL

0 5 10

SCALE IN FEET



SECTION -2 (HEADWALL)

0 1 2 3 4 5

SCALE IN FEET

PRELIMINARY-NOT FOR CONSTRUCTION

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
6184 N. WOODLANE DRIVE CULVERT
10'X3' BOX DRIVE CULVERT DETAILS

NOVEMBER 2026

JOB NO. 22-187

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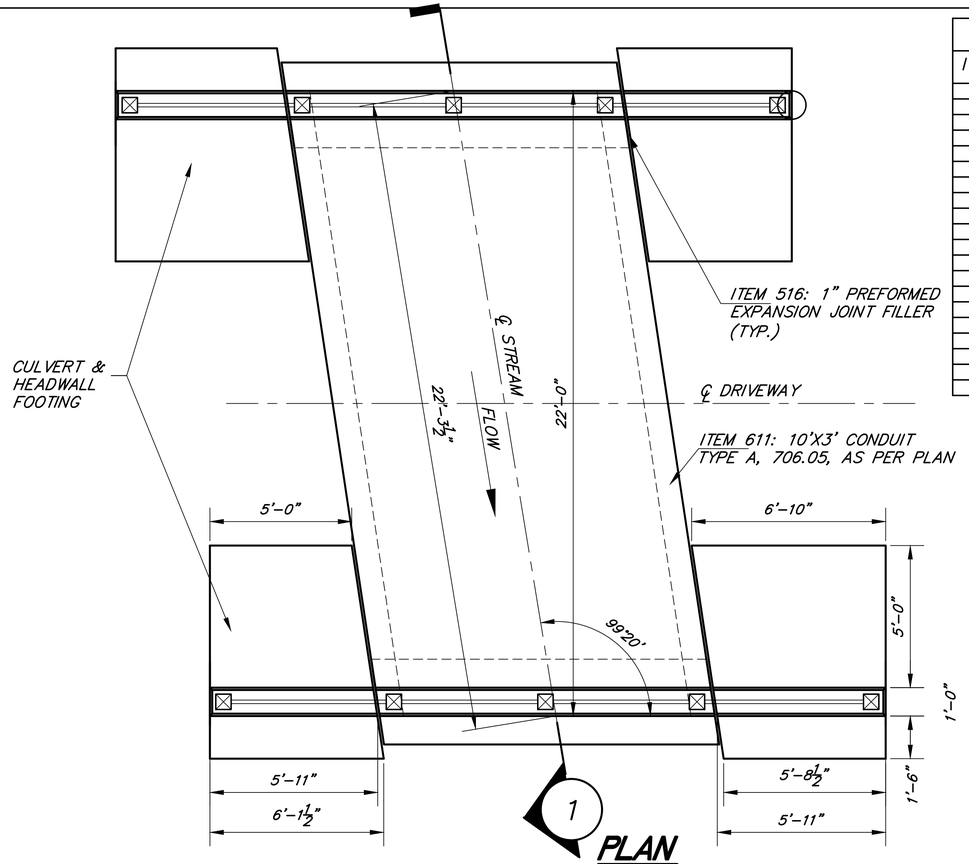


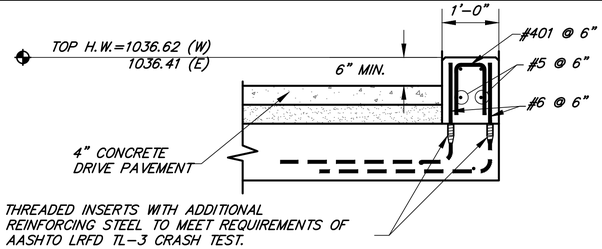
PLAN

6198 N. WOODLANE DR. DRIVE CULVERT

SCALE IN FEET 0 5 10

NORTH

SUB SUMMARY (CARRIED TO SHEET 7)			
ITEM	TOTAL	UNIT	DESCRIPTION
202	1	EACH	STRUCTURE REMOVED, AS PER PLAN
503	LUMP	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
503	LUMP	LUMP	UNCLASSIFIED EXCAVATION
511	14.3	CU. YD.	CLASS C CONCRETE, CULVERT, WINGWALL FOOTING
511	8.3	CU. YD.	CLASS C CONCRETE, HEADWALL & WINGWALL AS PER PLAN
512	60	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
512	31	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	32	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	47.58	FT.	WOOD RAILING, AS PER PLAN
518	9	CU. YD.	POROUS BACKFILL, WITH FILTER FABRIC
611	22.29	FT.	10' x 3 CONDUIT, TYPE A, 706.05, AS PER PLAN



DETAIL-A (HEADWALL ABOVE CULVERT)

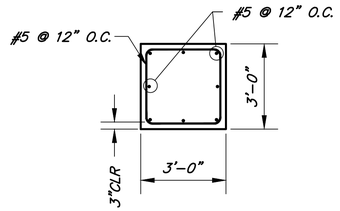
NOT TO SCALE

RAILING NOTES

6X6 BLACK ALUMINUM ORNIMENTAL PYRAMID POST CAP BY NUVO IRON.

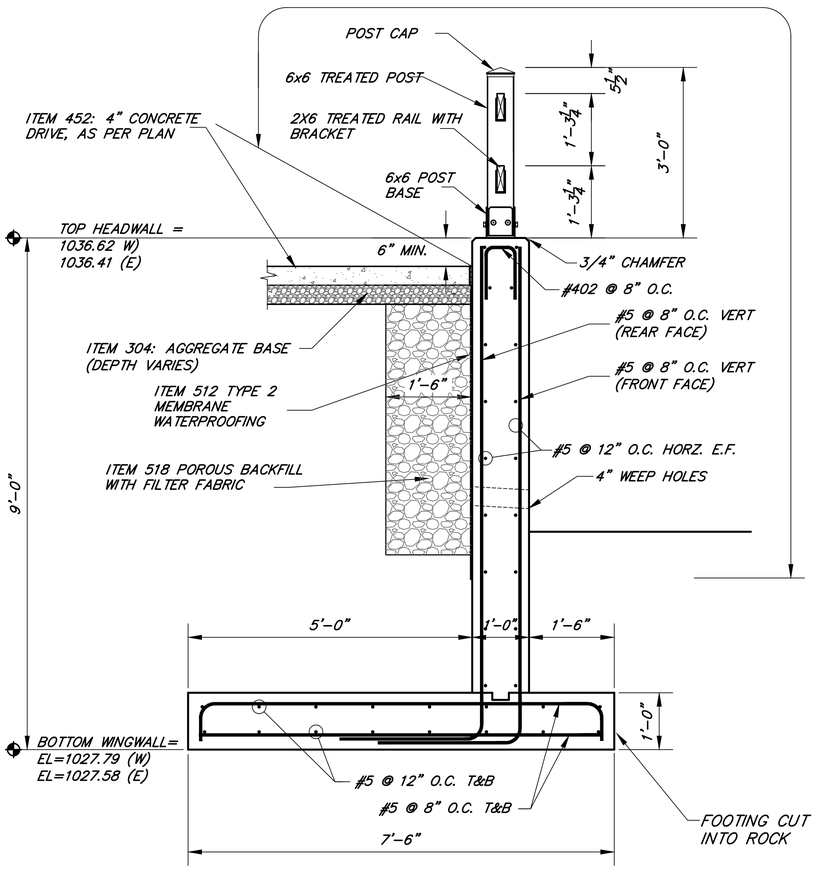
POST BASE SHALL BE OZCO 51708 IRONWOOD 6X6 POST BASE, BLACK GALVANIZED STEEL. (1 EA.) 5/8"x 7" LONG AND (4 EA.) 1/4"x3-1/4" STAINLESS STEEL STUD CONRETE ANCHORS PER BASE.

2X6 RAIL BRACKET SHALL BE SIMPSON APLH26R ROUGH CUT 2X6 CONCEALED FLANGE LIGHT JOIST HANGER-BLACK POWDER COAT.



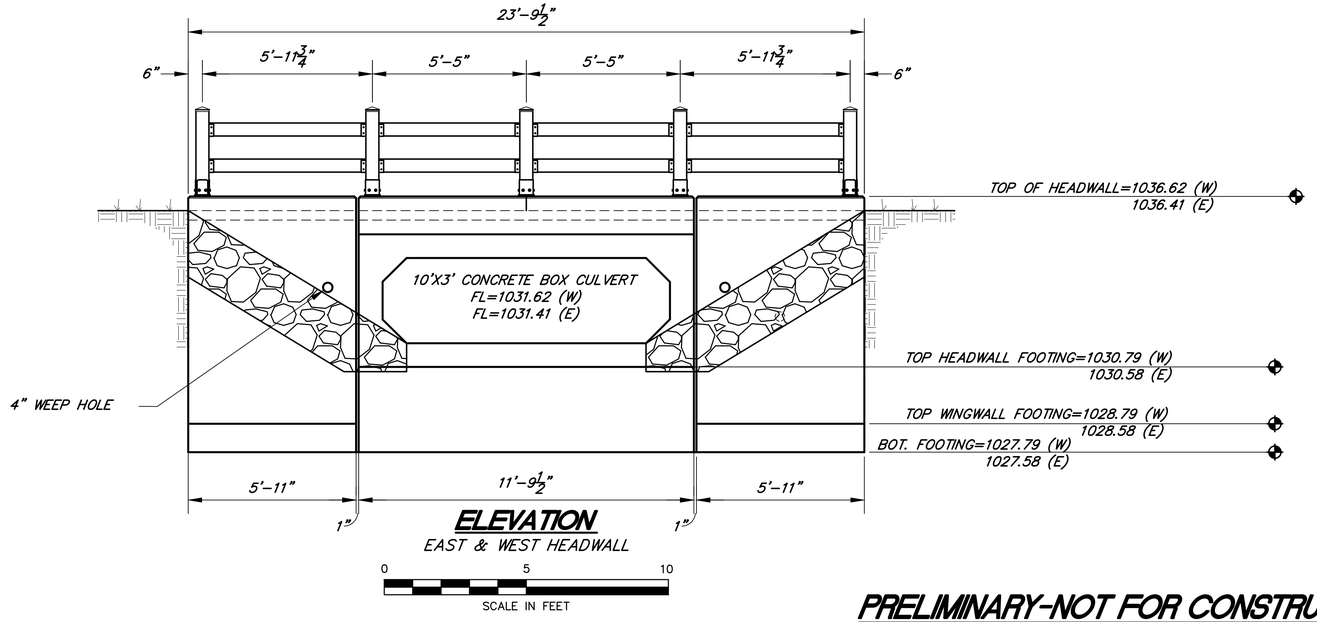
CULVERT FOOTING REINFORCING DETAIL

NOT TO SCALE



SECTION -2 (HEADWALL)

SCALE IN FEET 0 1 2 3 4 5



ELEVATION

EAST & WEST HEADWALL

SCALE IN FEET 0 5 10

PRELIMINARY-NOT FOR CONSTRUCTION

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
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REVISIONS			
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6198 N. WOODLANE DRIVE CULVERT
10'X3' BOX DRIVE CULVERT DETAILS

NOVEMBER 2026

JOB NO. 22-187

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-10-11 6184 N Woodlane Dr Culvert Details1.dwg 11/24/2026 4:29:45 PM

REFERENCE STANDARDS

1. ASTM A276- STAINLESS STEEL BARS AND SHAPES
2. ASTM A193/A194- ALLOY-STEEL AND STAINLESS-STEEL BOLTING FOR HIGH TEMPERATURE OR HIGH-PRESSURE SERVICE AND OTHER SPECIAL PURPOSE APPLICATIONS
3. ASTM A536- DUCTILE IRON CASTINGS
4. ASTM A1097- STEEL CASING PIPE, CARBON, ELECTRIC-FUSION (ARC)-WELDED (NPS 10 AND LARGER)
5. ASTM D2774- STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING
6. ASTM F1668- STANDARD GUIDE FOR CONSTRUCTION PROCEDURES FOR BURIED PLASTIC
7. ANSI/AWWA C111- RUBBER-GASKET JOINTS FOR DUCTILE IRON PRESSURE PIPE AND FITTINGS
8. ANSI/AWWA C151-DUCTILE-IRON PIPE, CENTRIFUGALLY CAST
9. ANSI/AWWA C153- DUCTILE IRON COMPACT FITTINGS
10. ANSI/AWWA C110- DUCTILE IRON FLANGED FITTINGS
11. AWWA C219- BOLTED SLEEVE-TYPE COUPLINGS FOR PLAIN-END PIPE
12. AWWA C509- RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE
13. AWWA C515- REDUCED-WALL, RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE
14. AWWA C900- POLYVINYL CHLORIDE PVC PRESSURE PIPE AND FABRICATED FITTINGS
15. AWWA C909- MOLECULARLY ORIENTED POLYVINYL CHLORIDE
16. ODOT 499- CONCRETE

DUCTILE IRON PIPE

1. ALL PIPE SHALL BE AWWA C151 DUCTILE IRON, MINIMUM CLASS 52, WITH A CEMENT MORTAR LINING, HAVING PUSH-ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET. MAINS 36" AND LARGER SHALL BE MINIMUM PRESSURE CLASS 350.

PVC PIPE

1. AWWA C900 CLASS 235 PSI (DR18) *OR* AWWA C909 CLASS 235 PSI (DR18)
2. INSIDE DIAMETER: NO LARGER THAN 12", NO SMALLER THAN 4".

GATE VALVES

1. AWWA C509 *OR* C515 APPROVED MODEL RESILIENT SEATED GATE VALVES
2. VALVE OPERATING NUTS: TAPERED (1 7/8" TO 2" FROM TOP TO BOTTOM) AND 2" DEEP
3. MIDDLE RING AND FOLLOWER GLANDS TO BE DUCTILE IRON ASTM A536

AIR RELIEF VALVES

1. AIR RELIEF VALVE COMPONENT PARTS SHALL CONFORM TO AWWA C800 AND ASTM B584 FOR MATERIALS THAT COME INTO CONTACT WITH POTABLE WATER.
2. VALVE INLET AND OUTLET SIZE SHALL BE 2". INSTALL ***ONLY*** CLEVELAND WATER-APPROVED AIR RELIEF VALVE PRODUCTS.

HYDRANTS

1. INSTALL ***ONLY*** CLEVELAND WATER-APPROVED HYDRANT MODELS .
2. HYDRANTS SHALL BE FACTORY EQUIPPED WITH THE APPROPRIATE HYDRANT NOZZLE, INCLUDING STORZ IF REQUESTED BY THE LOCAL MUNICIPALITY.
3. INSTALL ALL HYDRANTS WITH APPROVED PVC PIPE (ITEM 2) AND AWWA C509 6" RW GATE VALVES .
4. HYDRANT CONNECTIONS ARE TO BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY CLEVELAND WATER.
5. HYDRANT BRANCHES TO BE FULLY RESTRAINED. IF BRANCH IS SHORTENED, USE ONLY 1 SLEEVE OR COUPLING WITH NO NEW PIPE REQUIRED.
6. MIDDLE RING AND FOLLOWER GLANDS TO BE EITHER STEEL OR DUCTILE IRON ASTM A536.
7. FLUSHING HYDRANTS SHALL CONSIST OF 2" FIP VERTICAL INLET, 2" MIP OUTLET AND BE SELF-DRAINING. FLUSHING HYDRANT SHALL BE FULLY OPERABLE AND SERVICEABLE FROM ABOVE GROUND. EQUAL TO KUPERFERLE TRUFLO MODEL NO. TF500.

COMPRESSION COUPLINGS - VALVES AND HYDRANTS

1. CLASS 250 AWWA C219 GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END PIPE
2. MINIMUM WORKING PRESSURE: 250 PSI
3. EQUAL TO DRESSER STYLE NO. 38, 138, OR 162 (TRANSITION TYPE) OR ROMAC 501/ SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.
4. EACH COUPLING TO CONSIST OF 1 DUCTILE IRON MIDDLE RING WITHOUT STOPS (ASTM-A536), 2 DUCTILE IRON FOLLOWER GLANDS (ASTM A536), 2 RUBBER COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS, AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS OF ASTM A276/A193/194 TYPE 304 EXTRA HEAVY HEX TO PROPERLY COMPRESS THE GASKETS.

FITTINGS/JOINTS

1. ALL FITTINGS/JOINTS TO BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED, OR FUSION BONDED EPOXY COATED (UNLESS OTHERWISE CALLED FOR ON PLANS) .
2. ALL FITTINGS TO BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANSI/AWWA C110/A21.10 AND ANSI/AWWA C111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C153/A21.53.
3. MUST HAVE APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.
4. ALL FITTINGS ARE TO HAVE BELL ENDS.

GASKETS AND LUBRICANTS

1. ELASTOMERIC GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477 FOR HIGH-HEAD APPLICATIONS.
2. GASKETS AND LUBRICANTS INTENDED FOR USE WITH POTABLE WATER SHALL BE CERTIFIED BY AN ACCREDITED TESTING AGENCY FOR COMPLIANCE WITH NSF/ANSI 61.

ANODE PROTECTION

1. MAGNESIUM ALLOY ANODES SHALL MEET ASTM B843 AND ASTM G97.
2. THERMITE WELDS ARE TO BE COATED WITH A PREFABRICATED ONE-PIECE PLASTIC CAP.
3. COPPER SLEEVES ARE REQUIRED FOR THERMITE WELD WIRE CONNECTIONS USING #10 AWG WIRE OR SMALLER.

WATER MAIN TRENCH

1. BEDDING, INITIAL, AND PREMIUM BACKFILL MATERIAL: # 57 OR #67 COARSE LIMESTONE AGGREGATE COMPLYING WITH ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 703.11; WRITTEN APPROVAL REQUIRED BY CWD FOR SAND BEDDING FOR DUCTILE IRON PIPE.
2. SUITABLE BACKFILL: EXCAVATED MATERIAL FREE OF ROCK LARGER THAN 1.5", FROZEN MATERIALS, ORGANIC MATERIAL, AND DEBRIS.
3. TYPE 2 CONTROLLED LOW-STRENGTH MORTAR (CLSM) SHALL CONFORM TO ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 613.03. CLSM MAY BE USED AS DIRECTED BY CLEVELAND WATER.

CASING

1. CASING SPACER: 8" WIDE STAINLESS STEEL WITH EPDM LINER AND REINFORCED PLASTIC RUNNERS
2. CASING PIPE: ASTM A1097 COATED OR UNCOATED STEEL WITH A MIN. 35,000 PSI SMYS.
3. FOR 8" WATER MAIN USE 16" CASING
4. FOR 12" WATER MAIN USE 20" CASING

TRACER WIRE

1. MUST BE INSTALLED WITH A CONTINUOUS RUN OF 12-GAUGE COPPER-CLAD STEEL WIRE.
2. BREAKING LOAD: MIN. 450 POUNDS
3. MIN. 30 MILS OF BLUE HDPE INSULATION CERTIFIED FOR DIRECT BURIAL
4. GROUND ROD: MIN 1.5 LB MAGNESIUM DRIVE-IN ANODE ROD WITH CONNECTED GROUND WIRE.
5. CONNECTORS: WATERPROOF, CONTAIN DIELECTRIC SILICONE AND RATED FOR DIRECT BURIAL.
6. NON-LOCKING FRICTION FIT, TWIST-ON, AND TAPED CONNECTIONS ARE NOT PERMITTED.

SERVICE CONNECTIONS

1. ALL SERVICE CONNECTIONS SHALL BE A MINIMUM OF 1"
2. FOR CONNECTIONS 2" AND SMALLER: USE TYPE K COPPER
3. FOR CONNECTIONS 3" AND LARGER: USE CLASS 52 DUCTILE IRON WRAPPED IN V-BIO® ENHANCED POLYETHYLENE ENCASEMENT.

BOLTS AND NUTS

1. ALL BOLTS AND NUTS ON ALL RETAINED MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE 1 COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF V-BIO® POLYETHYLENE WRAP OR APPROVED EQUAL WRAPPING IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 MODIFIED METHOD "A" .

CONCRETE

1. FOR BULKHEAD: CLASS QC 1 OR 4,000 PSI HIGH STRENGTH BAGGED CONCRETE MIX
2. FOR THRUST BLOCK: CLASS QC 1 WITH 4,000 PSI 28 DAY COMPRESSIVE STRENGTH (ODOT 499)

FROST PROOFING

1. USE PRE-FORMED CELLULAR CONCRETE FOAM "GILSULATE 500 XR" AS MANUFACTURED BY GILSULATE INTERNATIONAL, INC. OR APPROVED EQUAL.

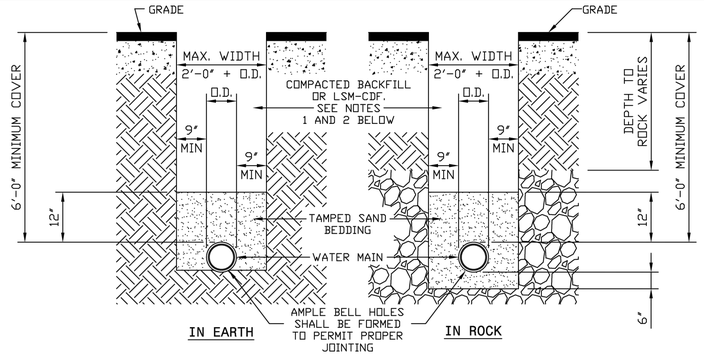
LOWERING

1. PIPE USED SHALL BE 8" (MIN.) AND 12" (MAX.) IN DIAMETER.
2. MAXIMUM BEND ALLOWED TO BE 22.5 DEGREES.

TEE

1. PIPE TO BE USED ON TEE: 8" (MIN.) AND 12" (MAX)
2. AWWA C110 OR C153 DI CLASS 350 MJ FITTINGS WITH FBE COATING, CEMENT LINING, POLYETHYLENE ENCASEMENT
3. AWWA C219 PIPE COUPLINGS- ROMAC 501 OR SMITH BLAIR 441 DI ONLY
4. AWWA C509 DUCTILE IRON RESILIENT WEDGE GATE VALVE (MJ X MJ)
5. MECHANICAL JOINT RETAINER GLAND FOR PVC PIPE-TYLER UNION OR APPROVED EQUAL

CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	REVISIONS			MATERIAL CRITERIA FOR WATER MAIN INSTALLATION AND REPLACEMENT
	NO.	DATE	BY	
				DETAIL NO.: GEN-000A
				SCALE: N.T.S. DATE: 7/12/2024



WATER MAIN TRENCH DETAILS

– NOT TO SCALE –

NOTES:

1) PREMIUM BACKFILL CONSISTING OF LOW STRENGTH MORTAR – CONTROLLED DENSITY FILL (LSM-CDF) "FLOWABLE FILL" IS REQUIRED:
   A) UNDER ALL EXISTING OR FUTURE PAVEMENTS, SIDEWALKS AND DRIVES WITHIN THE CITY OF CLEVELAND CORPORATION LIMITS.
   B) AS SPECIFIED IN LOCAL MUNICIPALITIES SERVED BY CWD (SEE LOCAL REQUIREMENTS)
2) WHEN PREMIUM BACKFILL IS REQUIRED BY THE LOCAL MUNICIPALITY FOR CASES OTHER THAN THOSE LISTED IN NOTE 1 ABOVE, IT SHALL BE LIMESTONE GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.
3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
4) MINIMUM COMPACTION FOR ALL SAND BEDDING, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.

STD-001

DATE: 6-21-2012

DEVELOPERS, ENGINEERS, AND CONTRACTORS ARE TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND WATER NOTES AND DETAILS. THE MOST UP-TO-DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM/CONSTRUCTION/ OR AS PROVIDED BY CLEVELAND WATER *STAFF.*

REFERENCE STANDARDS

1. AWWA C600 - INSTALLATION OF DUCTILE-IRON MAINS AND THEIR APPURTENANCES
1. AWWA C605- UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS
2. AWWA C651- DISINFECTING WATER MAINS
3. ASTM D2774- STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING
4. ASTM F1668- STANDARD GUIDE FOR CONSTRUCTION PROCEDURES FOR BURIED PLASTIC PIPE

OVERALL PIPE PREPARATION AND EXECUTION

1. ALL DUCTILE IRON PIPE SHALL BE INSTALLED PER THE MOST CURRENT REVISION OF AWWA C600, AWWA MANUAL M41, DIPRA'S "INSTALLATION GUIDE FOR DUCTILE IRON PIPE" (ISBN 0-9642194-0-9) AND "DIRECT TAPPING OF DUCTILE IRON PIPING ENCASED IN POLYETHYLENE", AS WELL AS THE MANUFACTURER'S INSTRUCTIONS.
2. ALL DUCTILE IRON BURIED WATER MAINS, FITTINGS, VALVES, FIRE HYDRANT BRANCH PIPING AND APPURTENANCES SHALL BE ENCASED WITH V-BIO® ENHANCED POLYETHYLENE ENCASEMENT INSTALLED IN ACCORDANCE WITH THE MOST CURRENT REVISION OF ANSI/AWWA C-105/A21.5 MODIFIED METHOD "A" AND ASTM A674.
3. PIPE AND ACCESSORIES SHOULD BE INSPECTED FOR DEFECTS AND CLEANLINESS BEFORE THEY ARE LOWERED INTO THE TRENCH. ANY DEFECTIVE OR DAMAGED MATERIAL SHOULD BE REPAIRED OR REPLACED, AND ALL FOREIGN MATTER OR DIRT REMOVED FROM THE INTERIOR OF THE PIPE AND ACCESSORIES BEFORE LOWERING INTO TRENCH.
4. ALL PVC PIPE SHALL BE INSTALLED PER AWWA, C605, ASTM D2774, ASTM F1668, AND MANUFACTURER'S INSTRUCTIONS.
5. ONCE DELIVERED, ALL PVC PIPE MUST BE PROTECTED FROM DIRECT SUN EXPOSURE UNTIL THE PIPE IS INSTALLED AND BACKFILLED.
6. ANY PIPE JOINT THAT HAS BEEN OVER-INSERTED SHALL HAVE BOTH THE BELL PIPE AND THE SPIGOT PIPE REMOVED AND DISCARDED.
7. IN NO CASE SHALL MAINS BE LAID WITH LESS THAN 3'-6" OF COVER IN UNPAVED AREAS AND 3'-0" TO BOTTOM OF SLAB IN PAVED AREAS. MAINS SHALL BE LAID AT A BURY DEPTH OF 6 FT MIN. UNLESS WRITTEN PERMISSION IS PROVIDED BY CLEVELAND WATER.
8. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT CLEVELAND WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH CLEVELAND DIVISION OF WATER STANDARDS.
9. TWO FEET ABOVE THE MAIN, DETECTABLE TRACER TAPE NOTING THE PRESENCE OF A WATER MAIN SHALL BE INSTALLED FOR THE ENTIRE LENGTH OF THE MAIN, INCLUDING HYDRANT LATERALS AND OPEN CUT INSTALLED SERVICE CONNECTIONS.
10. ALL MATERIALS USED SHALL ABIDE BY REQUIREMENTS LISTED ON MATERIAL SPECIFICATION LIST (GEN-000A).

TRACER WIRE FOR PVC PIPE

1. ALL NEW TRACER WIRE INSTALLATIONS SHALL HAVE THEIR FUNCTION VERIFIED BY BEING LOCATED USING TYPICAL LOW FREQUENCY (512HZ) LINE TRACING EQUIPMENT. THE LOCATING FIRM SHALL PROVIDE WRITTEN CERTIFICATIONS THAT THE SYSTEM IS COMPLETELY FUNCTIONAL AT TEST COMPLETION.
2. MAGNESIUM GROUND ANODE RODS ARE TO BE INSTALLED AT EACH DEAD END PER THE MANUFACTURER'S INSTRUCTIONS.
3. TRACER LINES SHALL TERMINATE AT A DEDICATED AT-GRADE ACCESS POINT/TEST STATION IDENTIFIED WITH "WATER" ON THE CAP. AT LEAST 2 FEET OF SLACK WIRE SHALL BE PROVIDED AT EACH TERMINATION POINT.
4. LATERAL TRACER LINES ON HYDRANTS, TEES, AND CROSSES ARE NOT TO CUT THE MAIN TRACER WIRE.

HYDROSTATIC PRESSURE TESTING

1. CLEAN PIPE PRIOR TO CONDUCTING HYDROSTATIC PRESSURE TESTING. CLEANING MAY BE COMPLETED VIA FLUSHING OR SWABBING EXCEPT IF DISINFECTION IS CONDUCTED USING THE TABLET METHOD.
2. FILL WATER MAIN AT A CONTINUOUS RATE, 1 FT/SEC MAXIMUM. ONCE FULL, FLUSH THE LINE NOT LESS THAN 3 FT/SEC UNLESS DIRECTED BY CLEVELAND WATER THAT CONDITIONS DO NOT PERMIT THE REQUIRED FLOW RATE TO BE ACHIEVED. FLUSHING SHALL CONTINUE UNTIL THE VOLUME OF WATER IN THE NEWLY INSTALLED MAIN HAS TURNED OVER AT LEAST ONE TIME.
3. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI.
4. DURATION: 2 HOURS (WITH PRESSURE MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE).
5. SHOULD THE PRESSURE TEST FAIL, THE CONTRACTOR SHALL IDENTIFY THE SOURCE(S) AND CORRECT THE DEFICIENCY. THE HYDROSTATIC PRESSURE TEST SHALL BE REPEATED FOR THE PRESCRIBED DURATION TO VERIFY THAT THE NEW WATER MAIN MEETS THE TEST CRITERIA. WORK PERFORMED TO IDENTIFY AND CORRECT FAILURE SOURCE(S) AND THEIR REMEDIATION MUST BE COMPLETED TO THE SATISFACTION OF CLEVELAND WATER AT NO ADDITIONAL COST.

DISINFECTION

1. DISINFECTION FOR WATER MAINS SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MOST CURRENT REVISION OF AWWA C651.

SERVICE CONNECTIONS

1. SADDLE TAPPING SHALL BE PERFORMED FOR PIPES OF ANY NOMINAL SIZE AND PRESSURE CLASS. TAP SIZE IS LIMITED TO 2-INCHES MAXIMUM.
2. TAPPING SLEEVE AND VALVE IS REQUIRED FOR SERVICE CONNECTIONS LARGER THAN 2-INCHES. THRUST RESTRAINT IS REQUIRED.
3. SERVICE CLAMPS OF SADDLES SHALL PROVIDE FULL SUPPORT AROUND THE CIRCUMFERENCE OF THE PIPE AND PROVIDE A BEARING AREA OF SUFFICIENT WIDTH ALONG THE AXIS OF THE PIPE TO PREVENT DISTORTION WHEN THE SADDLE IS TIGHTENED. NARROW U-BOLT-TYPE STRAPS AND SADDLES HAVING LUGS ARE PROHIBITED.

PIPE JOINTS

1. PIPE JOINTS SHALL ADHERE TO ANSI/AWWA C110/A21.10, C111/A21.11, C153/A21.53, C900, C905, C907 AND C909 REQUIREMENTS AND PROCEDURES FOR JOINT METHODS AND MATERIALS.
4. RESTRAINED JOINTS, AS INDICATED ON THE PLANS, SHALL COMPLY WITH ANSI/AWWA C111/A21.11.

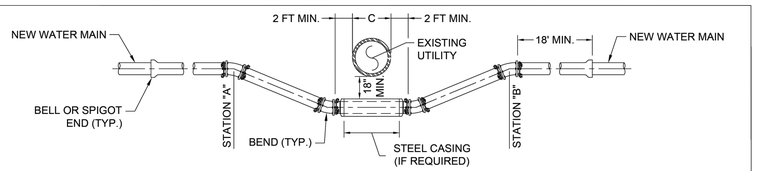
FITTINGS AND APPURTENANCES

1. ALL FITTINGS SHALL BE APPROVED DUCTILE IRON CLASS 350, CEMENT LINED AND FUSION BOND EPOXY COATED CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C110/A21.10 OR ANSI/AWWA C153/A21.53.
2. ALL FITTINGS AND PIPES CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT. JOINTS SHALL COMPLY WITH ANSI/AWWA C111/A21.11.
3. ALL FITTINGS MUST HAVE BELL ENDS UNLESS APPROVED BY CLEVELAND WATER.
4. PROVIDE PROPER SUPPORT FOR VALVES, HYDRANTS, AND FITTINGS SUCH THAT THE WEIGHT IS NOT APPLIED TO THE PIPE.

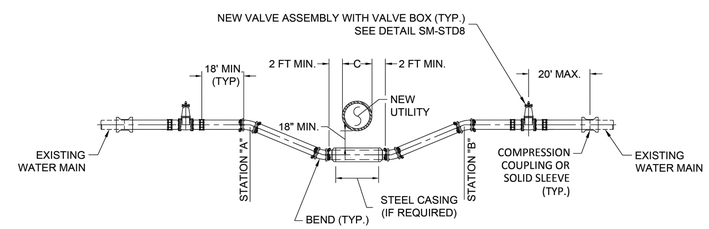
FIELD QUALITY CONTROL

1. PIPE SPIGOT END, BELL END, COUPLER OR FITTING, AND ELASTOMERIC GASKET SHALL BE CLEANED IMMEDIATELY BEFORE ASSEMBLY. DO NOT REMOVE FACTORY INSTALLED GASKETS. APPROVED LUBRICANTS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. PIPE CUTTING SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C600, C900, AND MANUFACTURER REQUIREMENTS. PIPE SHALL BE MARKED AROUND ITS ENTIRE CIRCUMFERENCE TO ENSURE A SQUARE CUT.
3. CUT ENDS OF PIPE SHALL BE BEVELED TO ENSURE PROPER JOINT ASSEMBLY. USE FACTORY-FINISHED PIPE END AS A GUIDE TO DETERMINE THE ANGLE AND LENGTH OF THE BEVEL. DEBURR AND CLEAN CUT PIPE END PRIOR TO BELL INSERTION.
4. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATERTIGHT PLUGS AS PER THE "PREVENTATIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED BY USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END. PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CLEVELAND WATER INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUBMITTAL. PHOTOS ARE TO INCLUDE STATIONING MARKERS. AS-BUILTS SHALL BE DEEMED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.
5. CLEVELAND WATER INSPECTORS SHALL BE INVITED TO WITNESS TRACER WIRE VERIFICATION FOR PVC PIPE INSTALLATIONS. THIS VERIFICATION SHALL BE PERFORMED UPON COMPLETION OF ROUGH GRADING AND AGAIN PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT. CONTINUITY TESTING IN LIEU OF ACTUAL LINE TRACING SHALL NOT BE ACCEPTED. CLEVELAND WATER WILL REQUIRE COMPLETION OF THE FIRST VERIFICATION PRIOR TO CHLORINATION, WITH CERTIFICATION SUBMITTED ALONG WITH RED LINE DRAWINGS. CERTIFICATION OF THE SECOND VERIFICATION SHALL BE PROVIDED WITH AS-BUILT DRAWINGS.

CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	REVISIONS			GUIDELINES FOR WATER MAIN INSTALLATION AND REPLACEMENT
	NO.	DATE	BY	
				DETAIL NO.: GEN-000B
				SCALE: N.T.S. DATE: 5/31/2024



INSTALL NEW WATER MAIN UNDER EXISTING UTILITY



LOWER EXISTING WATER MAIN UNDER NEW UTILITY

NOTES:

1. MAX. BEND ANGLE IS 22.5 DEGREES.
2. NO JOINTS ARE PERMITTED WITHIN 18 FT OF UPPER VERTICAL BENDS.
3. DO NOT INSTALL NEW WATER SERVICE LINES BETWEEN STATIONS "A" AND "B".
4. PROVIDE TEMPORARY WATER SERVICE TO EXISTING CUSTOMERS THROUGHOUT CONSTRUCTION.
5. STEEL CASING IS REQUIRED IF "C" IS 24" OR LARGER.

REVISIONS			CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	WATER MAINS UNDER UTILITIES
NO.	DATE	BY		DETAIL NO.: GEN-L02
				SCALE: N.T.S. DATE: 5/31/2024

REVISIONS

No.	DESCRIPTION	DATE	BY
6.)			
5.)			
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STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
WATER WORK DETAILS

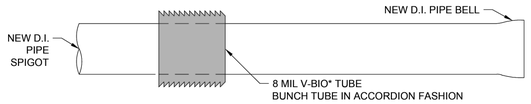
NOVEMBER 2026

JOB NO. 22-187

G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-PG-xx WATERWORK.dwg 11/24/2026 4:28:12 PM

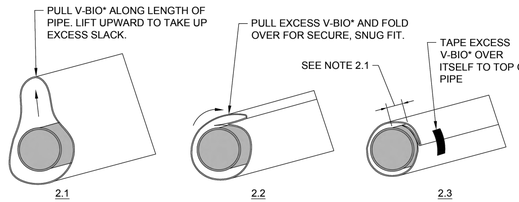
STEP 1:

1.1 REMOVE ALL LUMPS OF CLAY, MUD, CINDERS, OR OTHER MATERIAL THAT MIGHT HAVE ACCUMULATED ON THE PIPE SURFACE DURING STORAGE.
1.2 PLACE TUBE OF V-BIO* AROUND PIPE PRIOR TO LOWERING INTO TRENCH.



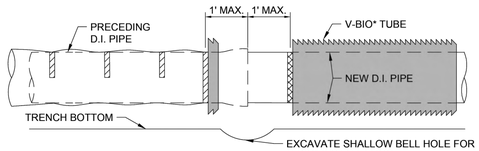
STEP 2:

2.1 MAINTAIN 1 FT MIN. BETWEEN END OF V-BIO* TUBE AND PIPE SPIGOT.



STEP 3:

3.1 INSERT D.I. PIPE SPIGOT INTO PRECEDING PIPE BELL.

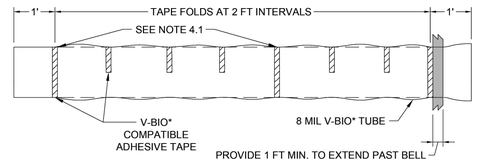


*NOTE: - V-BIO ENHANCED POLYETHYLENE ENCASEMENT OR APPROVED EQUAL.

REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	V-BIO* POLYWRAP ENCASEMENT
			DETAIL NO.:	PWE-001A
			SCALE: N.T.S.	DATE: 5/28/2024

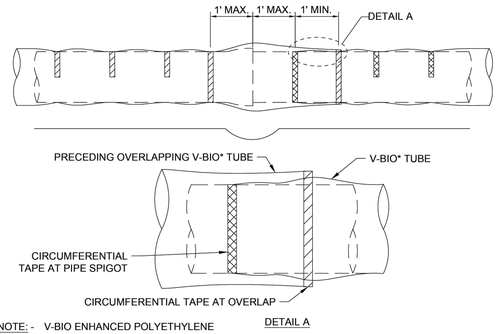
STEP 4:

4.1 TAPE V-BIO* FOLDS ALONG PIPE AT 2 FT INTERVALS. TAPE CIRCUMFERENTIALLY EVERY 4 FT (EVERY OTHER).
4.2 MAKE SURE THAT NO DIRT, BEDDING MATERIAL, OR WATER BECOMES TRAPPED BETWEEN THE WRAP AND THE PIPE.
4.3 ALLOW 1 FT MIN. V-BIO* WRAP TO EXTEND BEYOND PIPE BELL END.



STEP 5:

5.1 OVERLAP V-BIO* WITH PRECEDING V-BIO* TUBE AND TAPE CIRCUMFERENTIALLY. OVERLAP MUST EXTEND AT LEAST 1 FT MIN. PAST V-BIO* TUBE END.

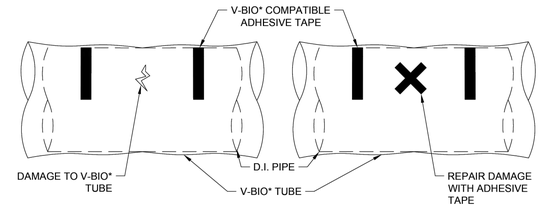


*NOTE: - V-BIO ENHANCED POLYETHYLENE ENCASEMENT OR APPROVED EQUAL.

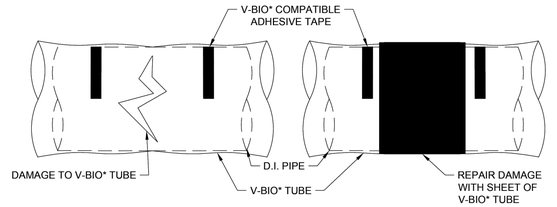
REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	V-BIO* POLYWRAP ENCASEMENT
			DETAIL NO.:	PWE-001B
			SCALE: N.T.S.	DATE: 5/28/2024

STEP 6:

6.1 REPAIR ALL SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE.
6.2 REPAIR BADLY DAMAGED AREAS WITH SEPARATE V-BIO* SHEETS AND SEAL EDGES WITH CIRCUMFERENTIAL ADHESIVE TAPE.
6.3 BACKFILL TRENCH IN ACCORDANCE WITH AWWA C600 STANDARD. AVOID DAMAGING V-BIO* DURING BACKFILL OPERATIONS.



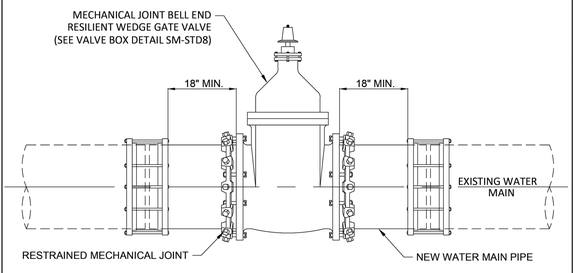
6.1: REPAIR FOR SMALL TEARS AND RIPS



6.2: REPAIR FOR LARGE TEARS AND RIPS

*NOTE: - V-BIO ENHANCED POLYETHYLENE ENCASEMENT OR APPROVED EQUAL.

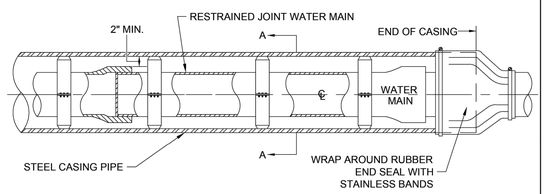
REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	V-BIO* POLYWRAP ENCASEMENT REPAIR
			DETAIL NO.:	PWE-001C
			SCALE: N.T.S.	DATE: 4/1/2024

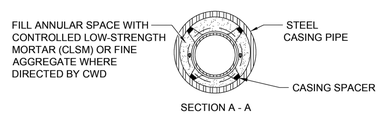


NOTES:

1. CWD WILL DETERMINE THE FIELD LOCATION AND SCHEDULE VALVE INSTALLATION. CONTRACTOR WILL PERFORM THE INSTALLATION WORK UNDER CWD SUPERVISION.
2. CONNECT PIPE SPOOLS TO THE GATE VALVE BEFORE CUTTING THE EXISTING WATER MAIN. AFTER CUTTING PIPE, MAKE FINAL CONNECTIONS WITH SPECIFIED COUPLINGS.

REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	CUT-IN-VALVE DETAIL
			DETAIL NO.:	GEN-005
			SCALE: N.T.S.	DATE: 5/31/2024





NOTES:

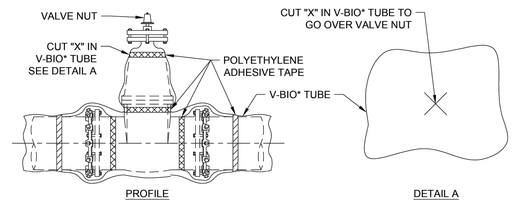
STEEL CASING PIPE:
- ASTM A1097
- MIN. 35,000 PSI SMYS
- MIN. WALL THICKNESS = 3/8"
- MIN. 2" CLEARANCE BETWEEN OUTSIDE DIAMETER OF PIPE JOINT AND INSIDE DIAMETER OF CASING.

CASING SPACERS:
- 8" WIDE STAINLESS STEEL WITH EPDM LINER AND REINFORCED PLASTIC RUNNERS.

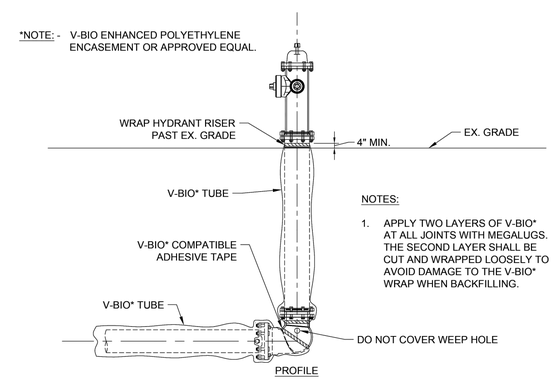
SPACING ON PVC PIPE:
- 1 AT END OF BELL
- 1 AT JOINT INSERTION LINE
- 1 AT PIPE MIDPOINT

SPACING ON DUCTILE IRON PIPE:
- MAX. 8 FT

REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	WATER MAIN IN STEEL CASING
			DETAIL NO.:	GEN-016
			SCALE: N.T.S.	DATE: 7/9/2024



V-BIO* ON VALVES



V-BIO* ON HYDRANTS

REVISIONS NO.	DATE	BY	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER (CWD)	V-BIO* POLYWRAP ENCASEMENT FOR APPURTENANCES
			DETAIL NO.:	PWE-002A
			SCALE: N.T.S.	DATE: 5/28/2024

REVISIONS

NO.	DESCRIPTION	DATE	BY
6.)			
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STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
WATER WORK DETAILS

NOVEMBER 2026
JOB NO. 22-187
28 42

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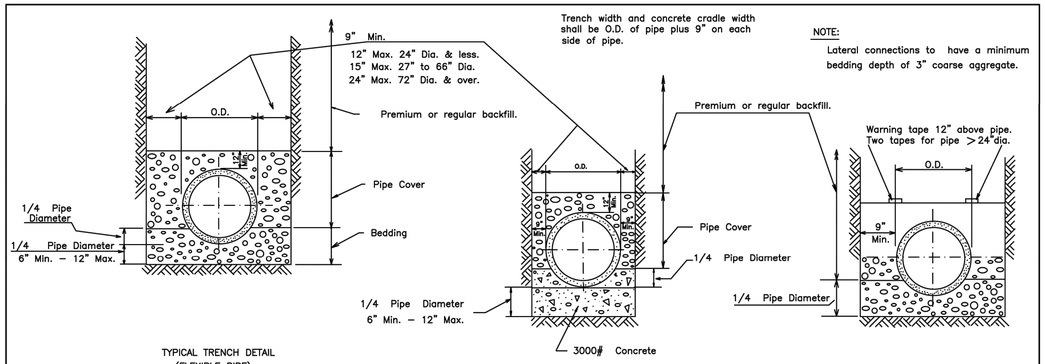


Pipe Cover shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,or8.

Bedding shall consist of coarse interlocking aggregate no.57,6,67, 68, 7, 78, or 8 for 60" or smaller diameter pipe. For 66" or larger diameter pipe no. 4 aggregate may also be used.

Premium Backfill shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,8,304, also limestone screenings.

For concrete and ductile iron pipe, pipe cover is to the springline or greater.

In paved areas coarse interlocking aggregate to the top of the trench on all types of pipe.

TYPICAL TRENCH DETAILS

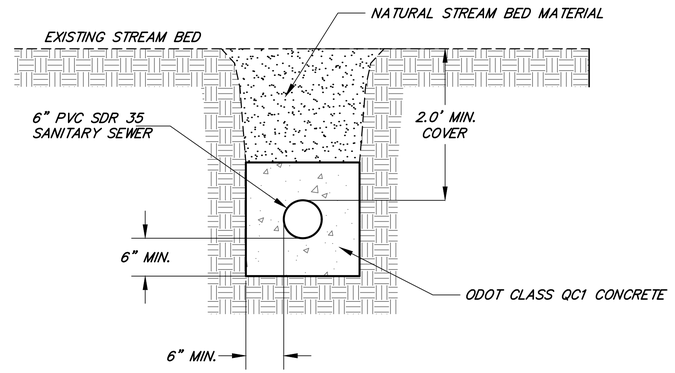
REVISIONS:

SCALE NO SCALE

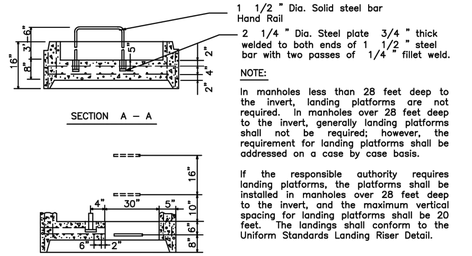
DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 12



SANITARY SEWER STREAM CROSSING
CONCRETE ENCASEMENT DETAIL

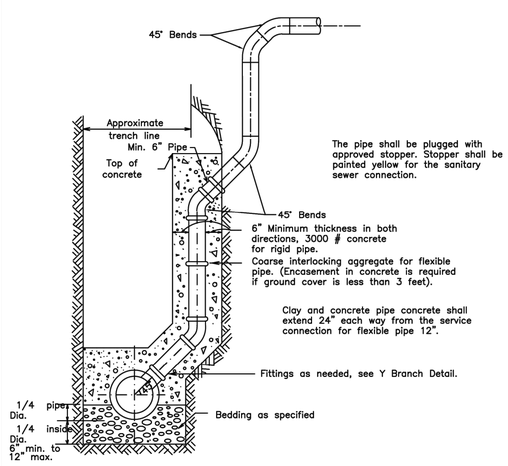


NOTE:

In manholes less than 28 feet deep to the invert, landing platforms are not required. In manholes over 28 feet deep to the invert, generally landing platforms shall not be required; however, the requirement for landing platforms shall be addressed on a case by case basis.

If the responsible authority requires landing platforms, the platforms shall be installed in manholes over 28 feet deep to the invert, and the maximum vertical spacing for landing platforms shall be 20 feet. The landings shall conform to the Uniform Standards Landing Riser Detail.

LANDING PLATFORM DETAIL FOR PRECAST MANHOLE



TYPICAL RISER DETAIL

REVISIONS:

SCALE NO SCALE

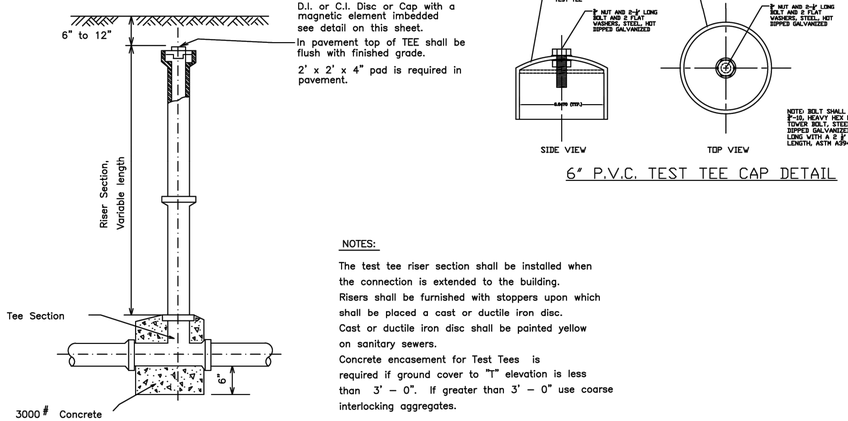
DATE: JANUARY 2020

SCALE NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 10



6" P.V.C. TEST TEE CAP DETAIL

TEST TEE

REVISIONS:

SCALE NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 16

REVISIONS

No.	DESCRIPTION	DATE	BY
1.)			
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STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
MISCELLANEOUS DETAILS

NOVEMBER 2026

JOB NO. 22-187

29 42

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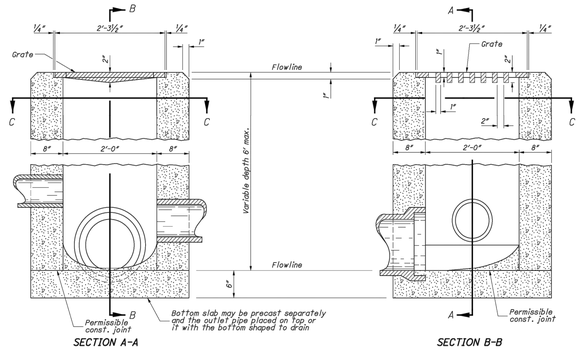
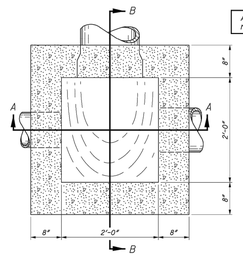
CB-2-2A,2B,2C



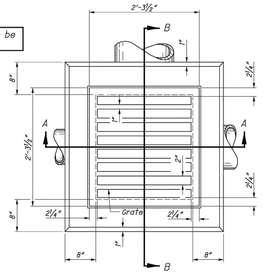
SECTION A-A

SECTION B-B



SECTION C-C

All grate edges to be rounded 1/4" radii.



PLAN

CATCH BASIN No. 2-2B

NOTES

CATCH BASINS 2-2A, 2-2B & 2-2C: This sheet depicts Catch Basin 2-2B & 2-2C. See Sheet 1 of 2 for Catch Basin 2-2A.

CB-2-2B GRATE: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information Table), or meet the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-4853-S or EJ No. 5110M3 (00511043) grates or approved equals.

Place grate elevation 4" to 6" below normal ditch and return to normal 10' to 15' each side of inlet.

CB-2-2C FRAME & GRATE: Where the catch basin is specified for use in a parking lot, furnish Neenah No. R-1878-ASC or EJ No. V-5822 (45622010) frame and V-5821 (45622030) grate or approved equals. If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-3405 grate or EJ No. 5250M (00525031) grate or approved equals.

CB-2-2C APRON: On cast-in-place and precast units, provide a level surface on the catch basin 4" below the plan grate elevation for setting the frame and grate assembly. Install a 4000 psi concrete apron to encase and secure the frame with a minimum width not less than the thickness of the catch basin walls. Slope the apron to provide a local depression. Include a 1" expansion joint where the apron abuts PCC pavement. The cost is included in the catch basin bid price.

GRATE TEXT: Cast the following text into the top of the grate:

"DRAINS TO WATERWAY" and **"DUMP NO WASTE"**

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct cast-in-place walls with a nominal 8" thickness. Provide precast walls at least 6" thick with sufficient reinforcement to permit shipping and handling without damage.

CONCRETE: Provide Class QC1 concrete for cast-in-place structures. When precast, provide concrete meeting the requirements of CMS 706.13. Mark the catch basin number on the structure.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

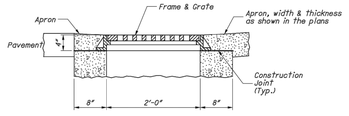
LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate.

MINIMUM DEPTH: The minimum depth of CB No. 2-2B is the outside diameter (O.D.) of the outlet pipe plus 4". The minimum depth of CB No. 2-2C is the outside diameter (O.D.) of the outlet pipe plus 8".

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under **Item 611 - Catch Basin, No. 2-12B or 2C).**

CONSTRUCTION INFORMATION
Minimum weight of grate, 120 lbs.



CATCH BASIN No. 2-2C

STANDARD HYDRAULIC CONSTRUCTION DRAWING
CATCH BASIN No.'s 2-2A, 2-2B, 2-2C

OFFICE OF HYDRAULIC ENGINEERING

REVISIONS
1-15-2016
7-20-2018
7-19-2019
1-18-2013
7-16-2021
7-15-2022
1-20-2023
7-19-2024

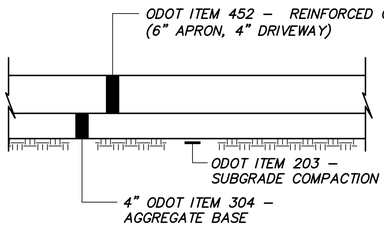
CHIEF ENGINEER
K. Brandon

STATE OF OHIO OFFICE OF HYDRAULIC ENGINEERING ADMINISTRATOR
Jeffery E. Syar

DESIGN AGENCY

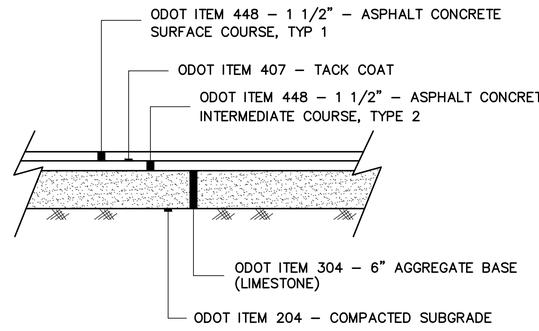
CAD NUMBER
CB-2-2A,2B,2C

SHEET P.2 | TOTAL 2



CONCRETE DRIVE AND APRON DETAIL

N.T.S.



RESIDENTIAL ASPHALT DRIVE DETAIL

N.T.S.

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
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PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
6.)			
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REVISIONS

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TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
MISCELLANEOUS DETAILS

NOVEMBER 2026

JOB NO. 22-187

30 42

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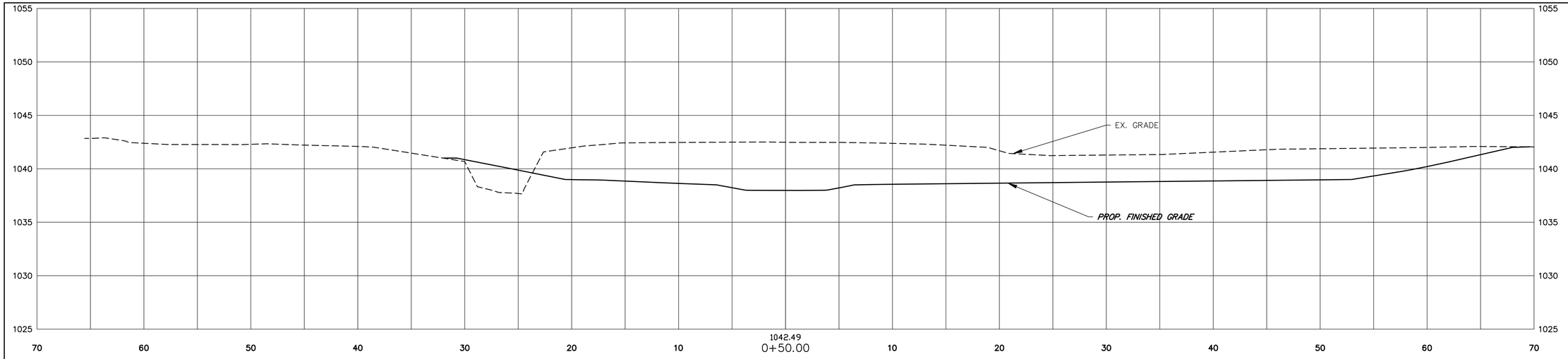

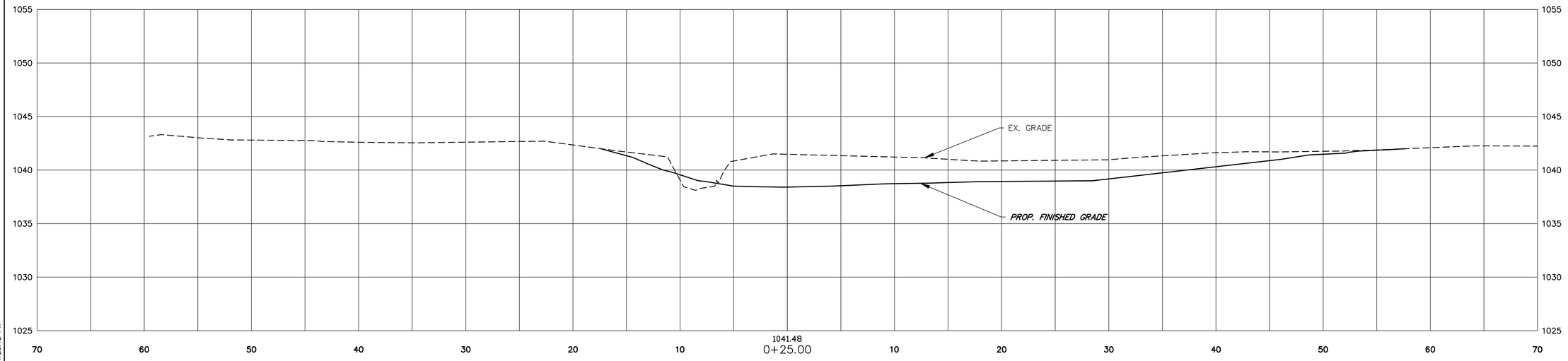

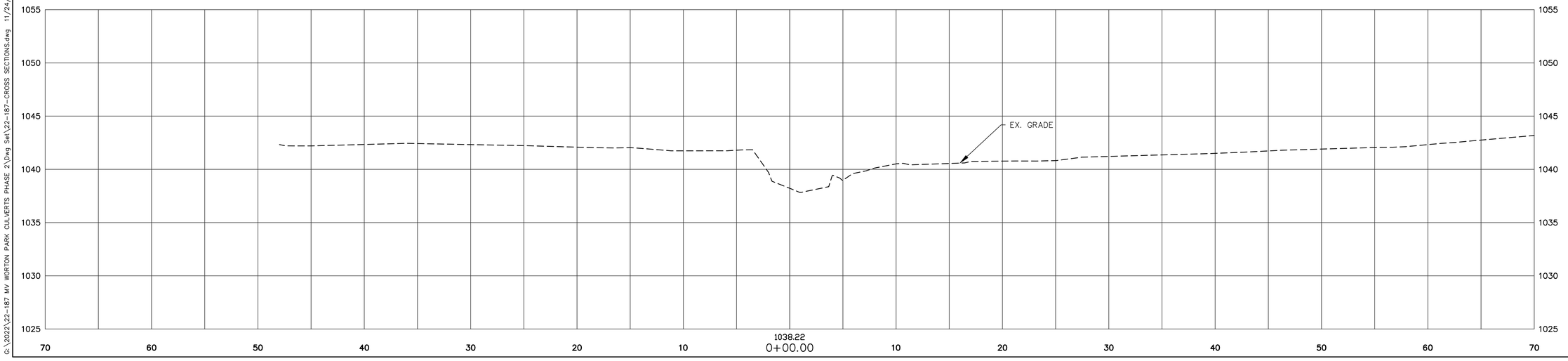

SCALE IN FEET (HORIZONTAL)
10 5 0 5

SCALE IN FEET (VERTICAL)
10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 0+00 TO 0+50

NOVEMBER 2026

JOB NO. 22-187

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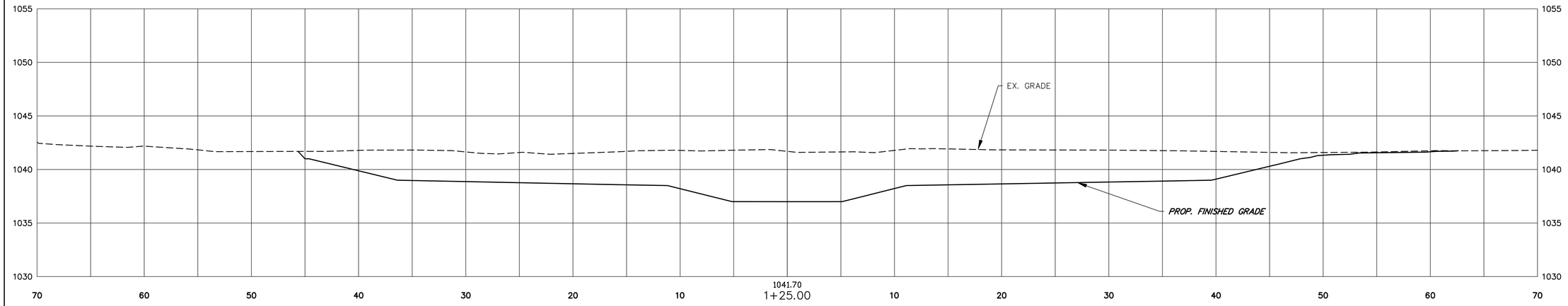

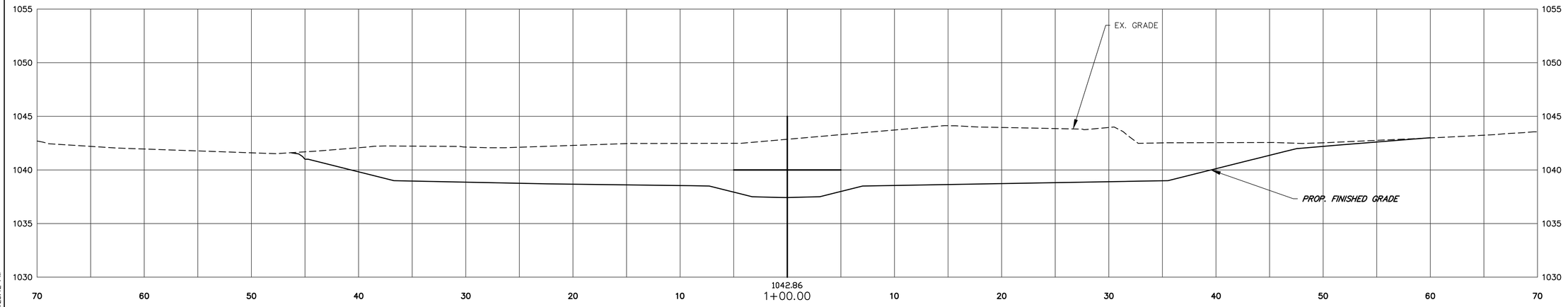

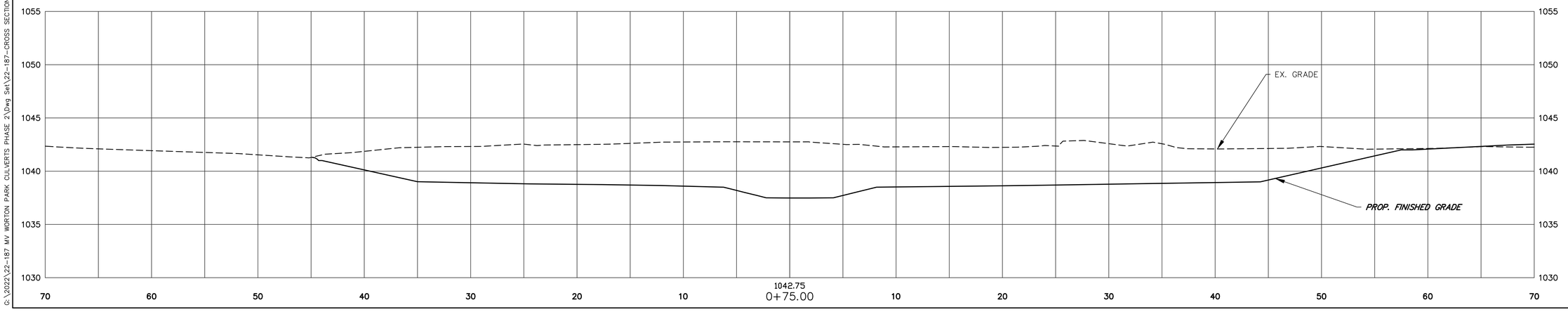

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SCALE IN FEET (HORIZONTAL) 10 5 0 5

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
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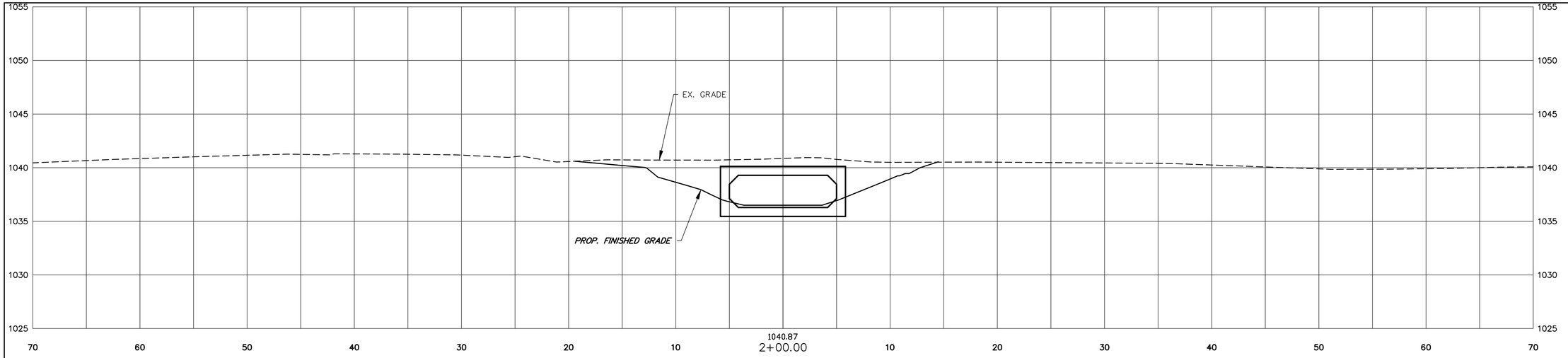
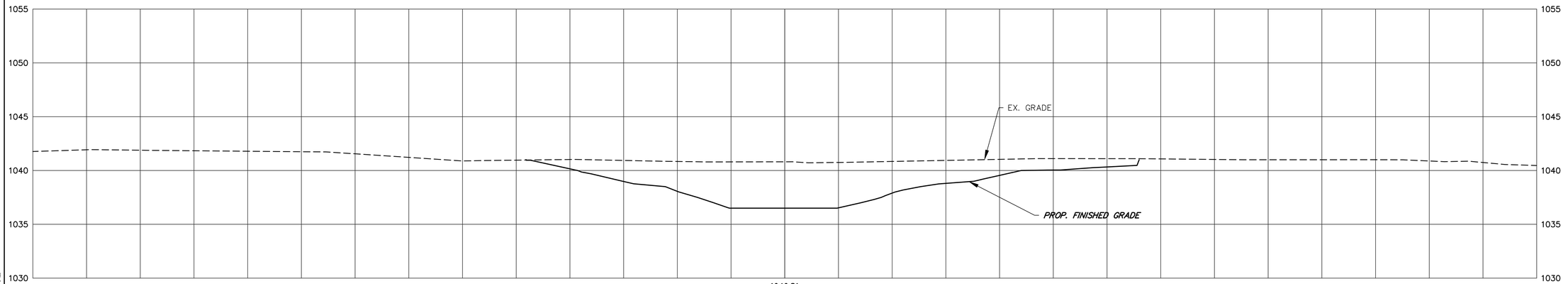
MAYFIELD VILLAGE, OHIO

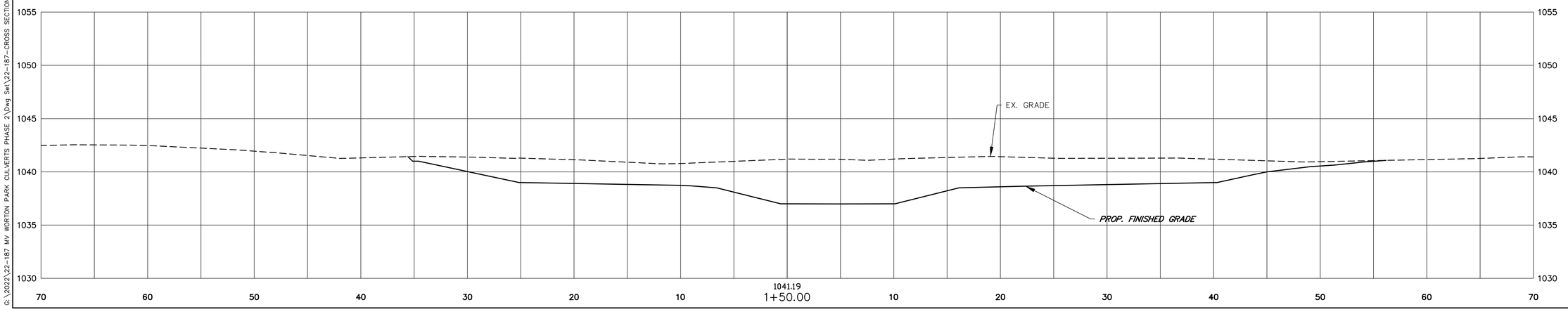
WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 0+75 TO 1+25

NOVEMBER 2026

JOB NO. 22-187







SCALE IN FEET (HORIZONTAL) 10 5 0 5
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 1+50 TO 2+00

NOVEMBER 2026

JOB NO. 22-187

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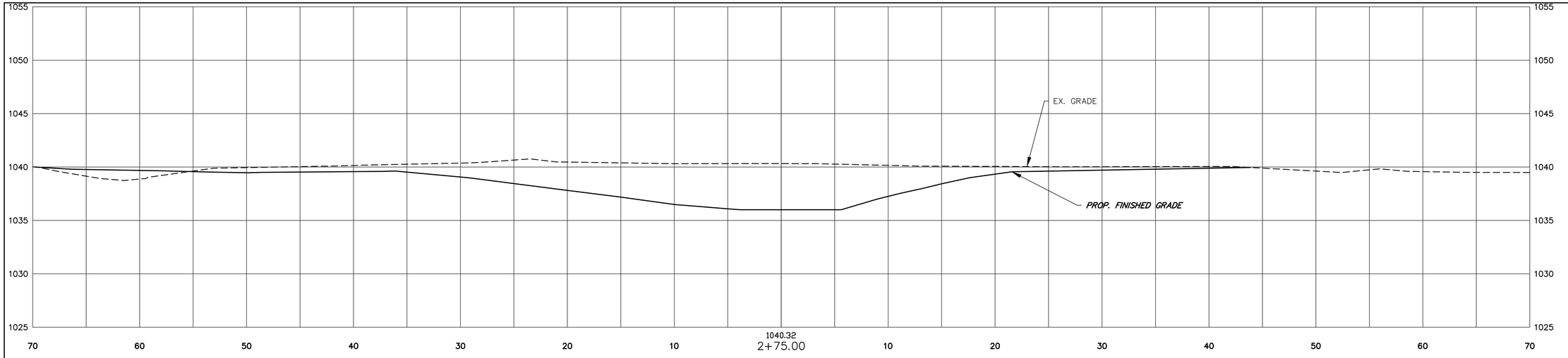

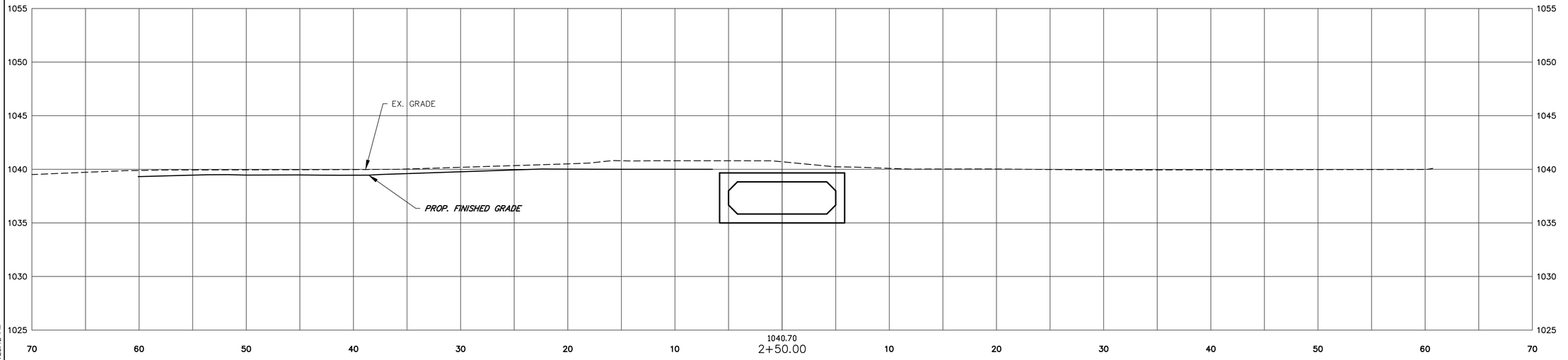

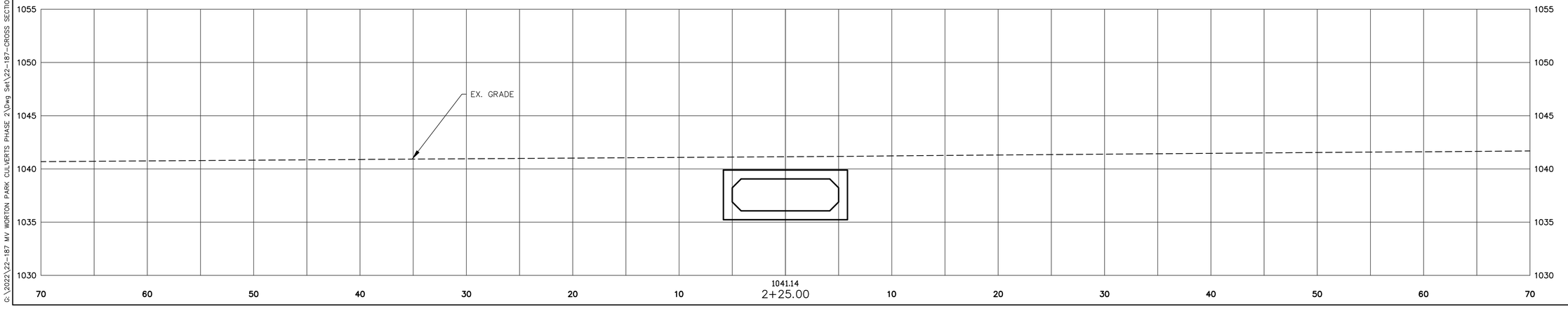

SCALE IN FEET (HORIZONTAL) 10 5 0 5

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 2+25 TO 2+75

NOVEMBER 2026

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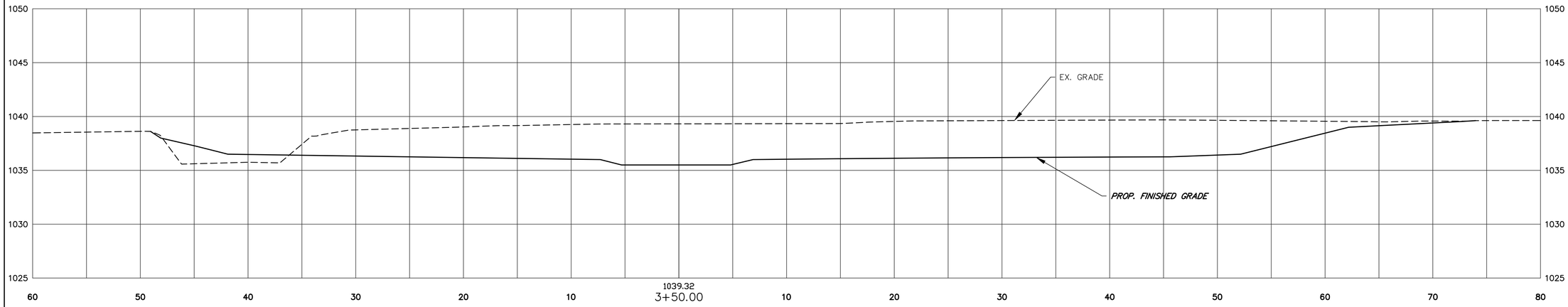

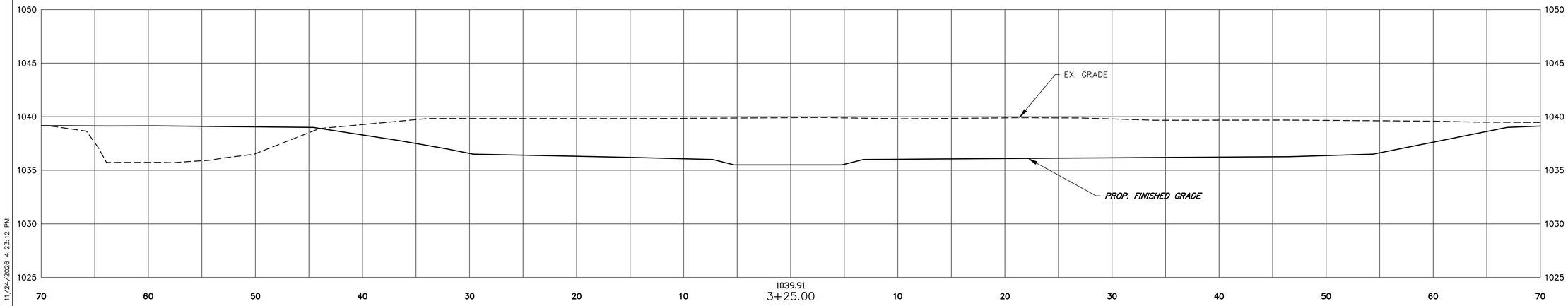

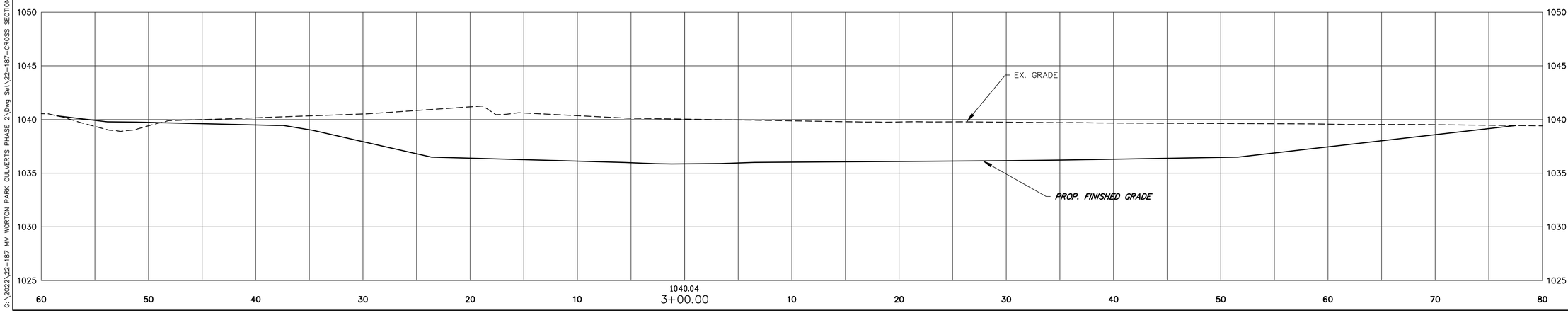

SCALE IN FEET (HORIZONTAL)
SCALE IN FEET (VERTICAL)
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STATE OF OHIO
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MAYFIELD VILLAGE, OHIO

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PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 3+00 TO 3+50

NOVEMBER 2026

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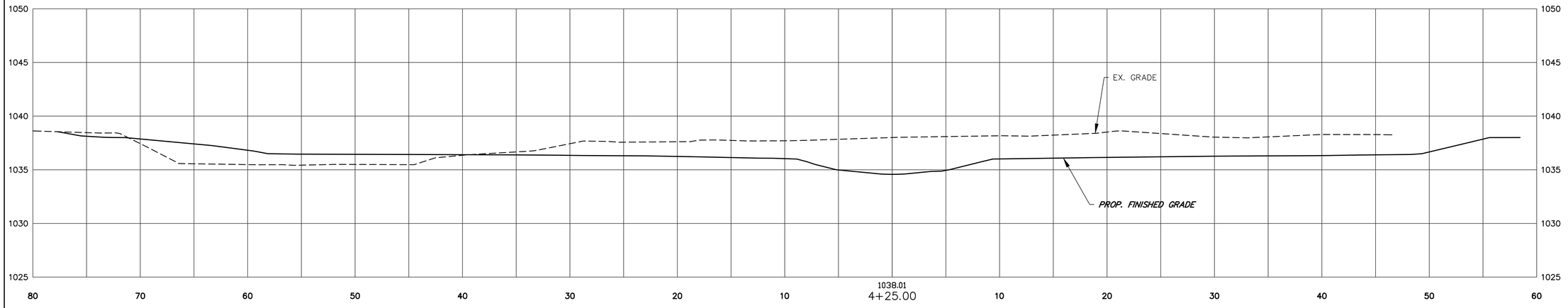

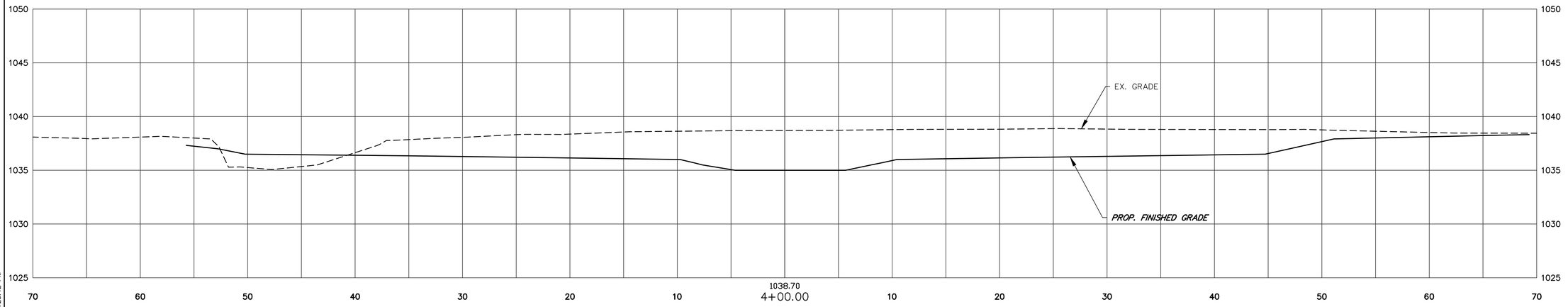

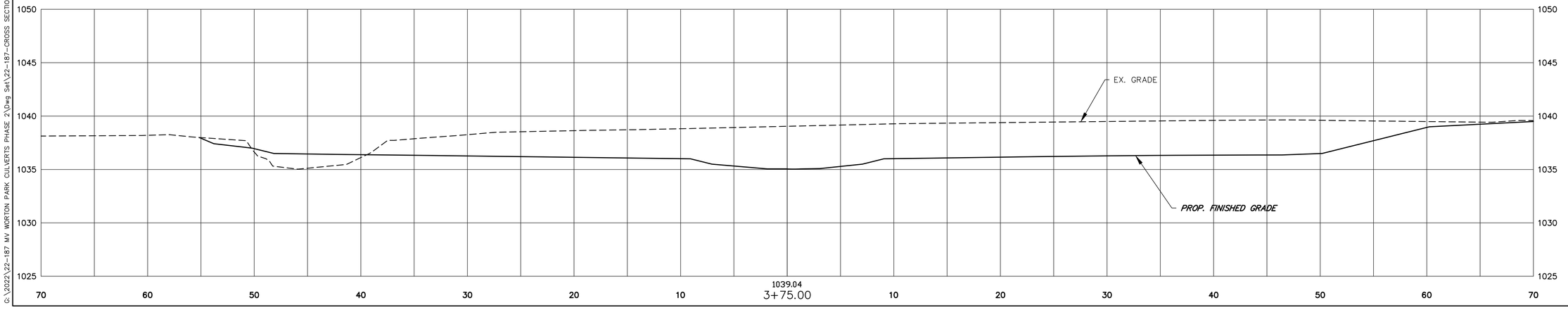

SCALE IN FEET (HORIZONTAL) 10 5 0 5

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 3+75 TO 4+25

NOVEMBER 2026

JOB NO. 22-187

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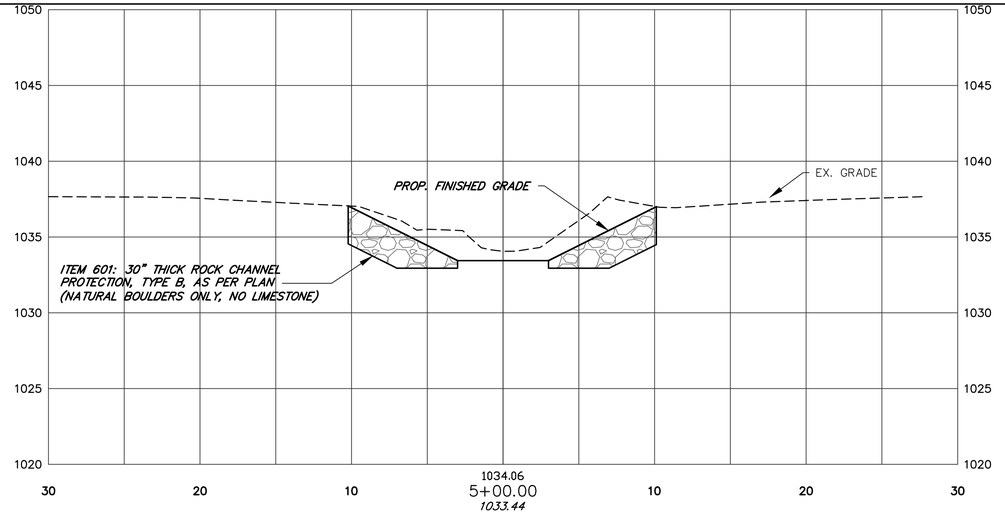
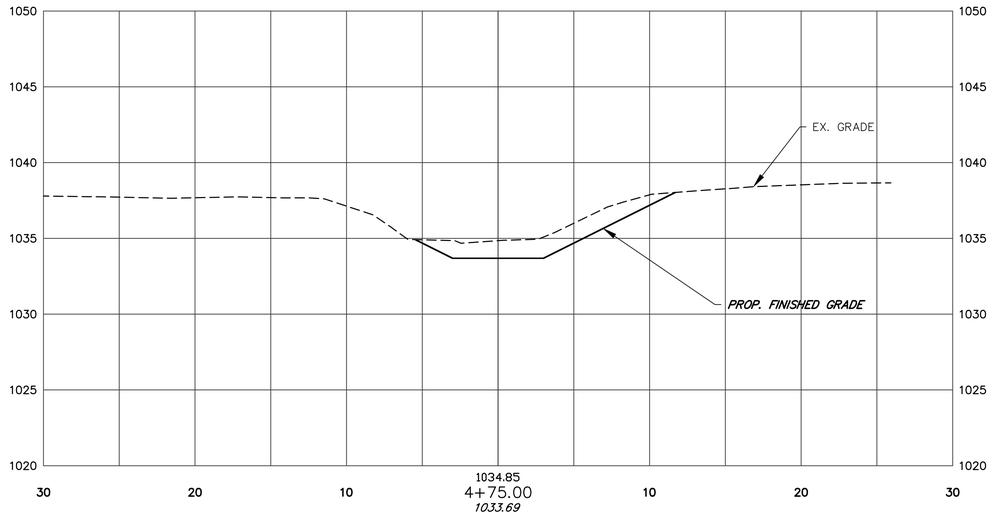
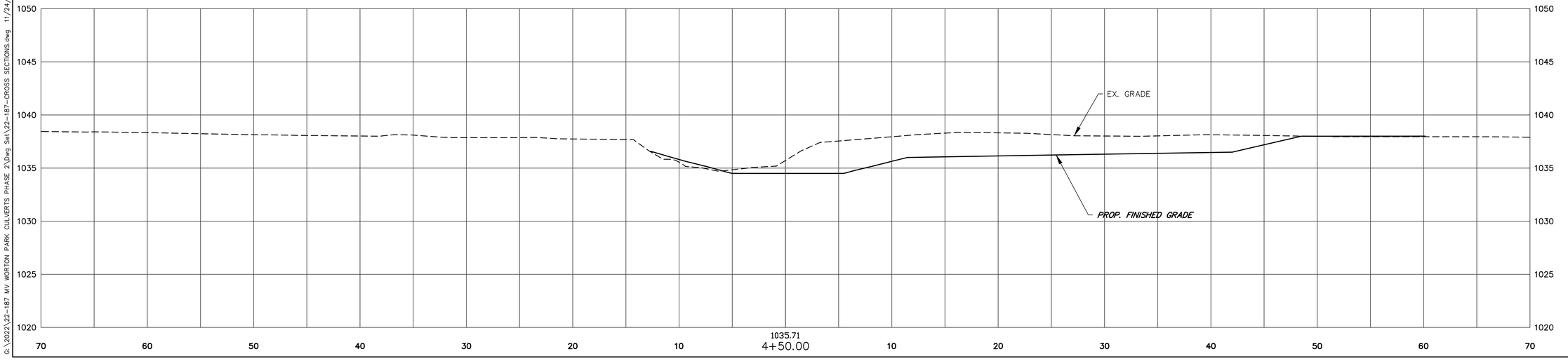






NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED

SCALE IN FEET (HORIZONTAL) 10 5 0 5

SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

No.	DESCRIPTION	DATE	BY
6.)			
5.)			
4.)			
3.)			
2.)			
1.)			

REVISIONS

STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

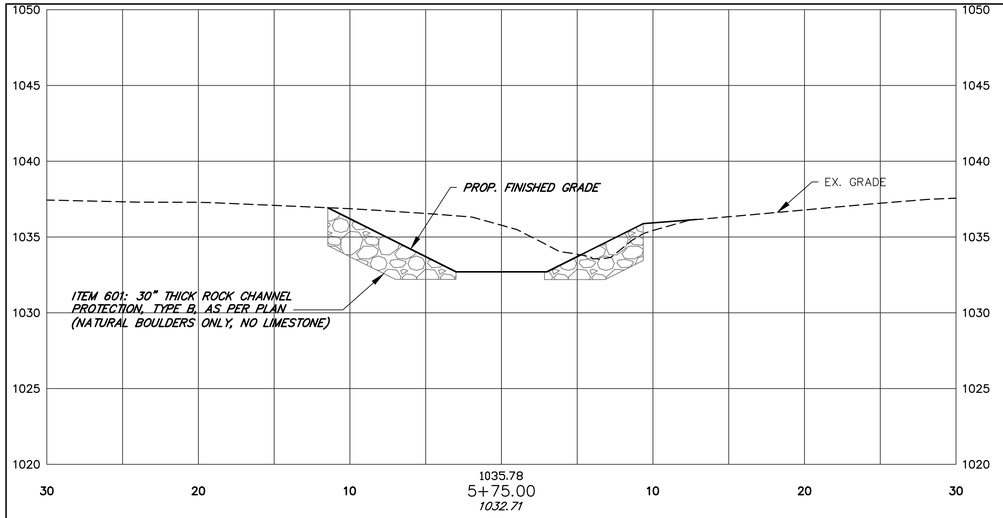
MAYFIELD VILLAGE, OHIO

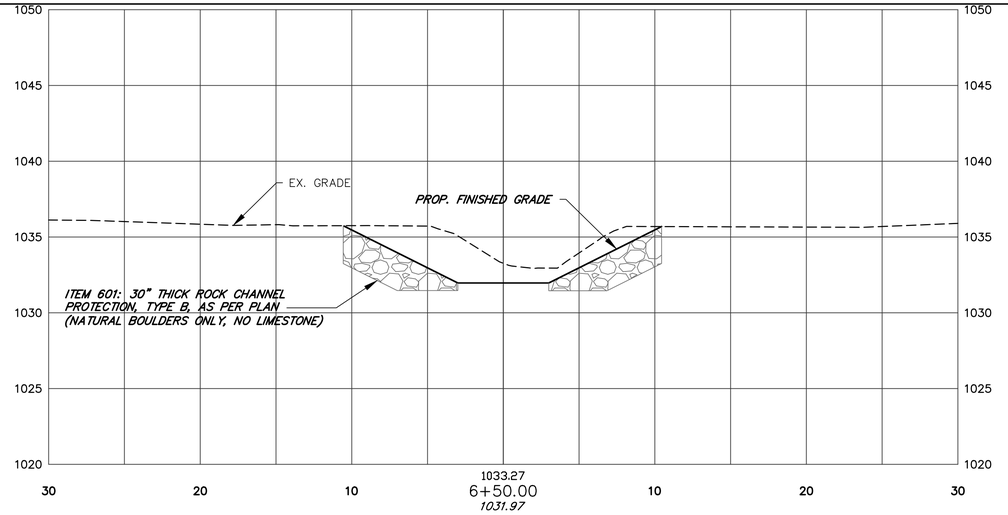
WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 4+50 TO 5+00

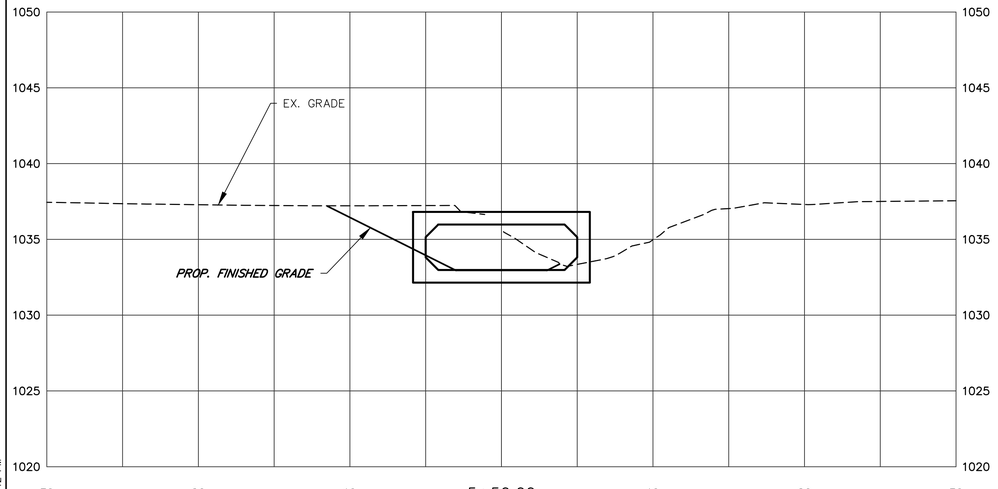
NOVEMBER 2026

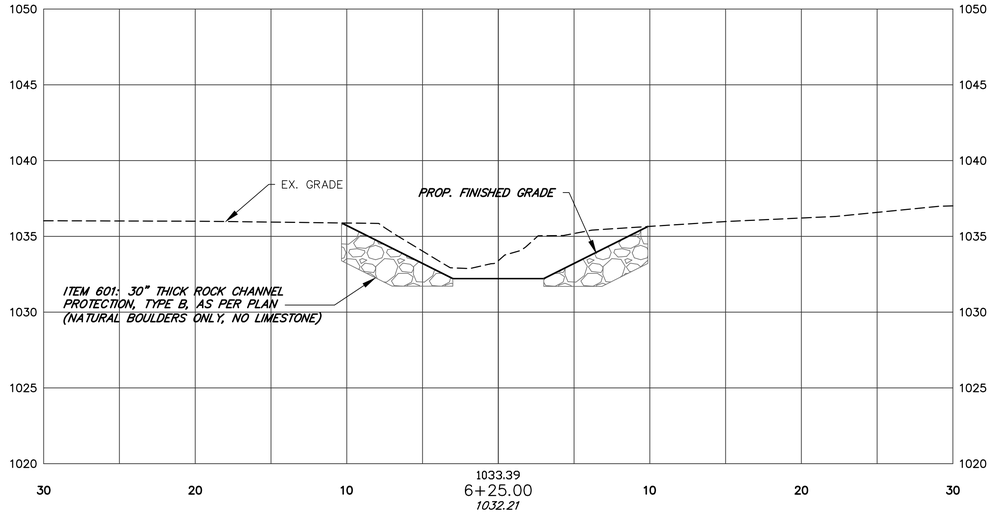
JOB NO. 22-187

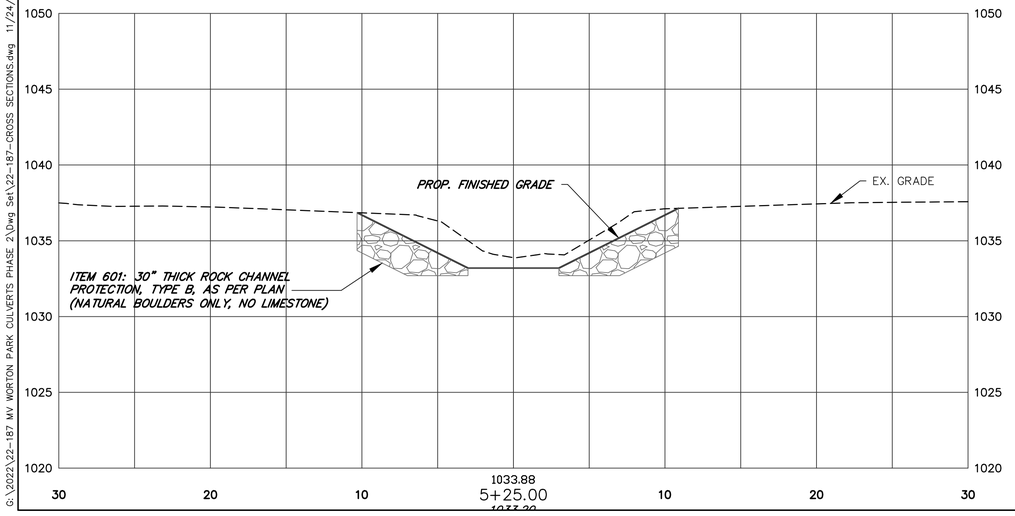
G:\2022\22-187 MV WORTON PARK CULVERTS PHASE 2\Dwg Set\22-187-CROSS SECTIONS.dwg 11/24/2026 4:23:12 PM

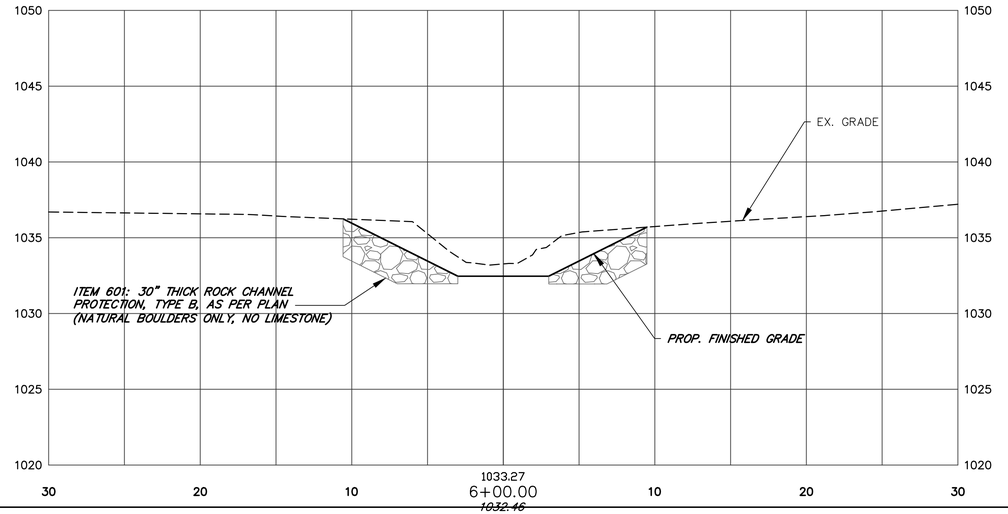












NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED

SCALE IN FEET (HORIZONTAL) 5 0 5 10

SCALE IN FEET (VERTICAL) 5 0 5 10

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

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TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 5+25 TO 6+50

NOVEMBER 2026

JOB NO. 22-187

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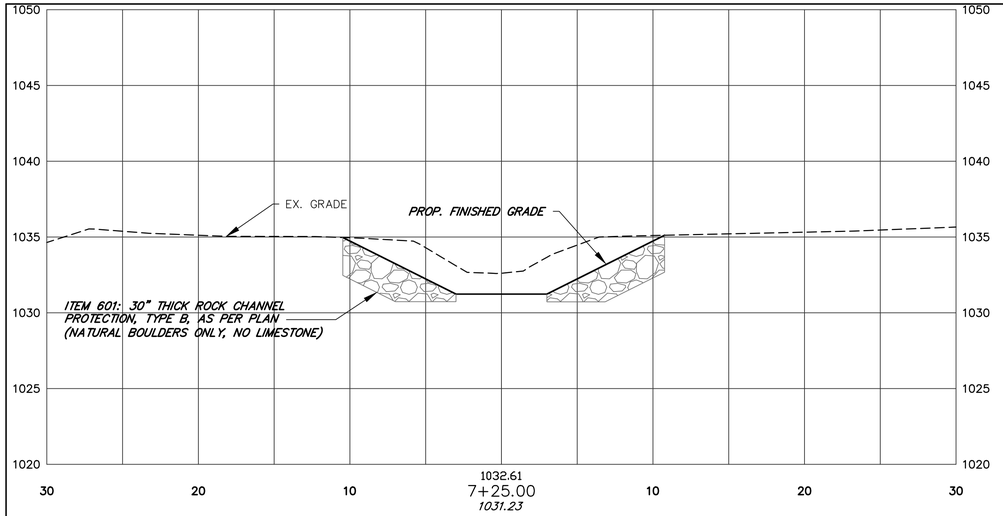

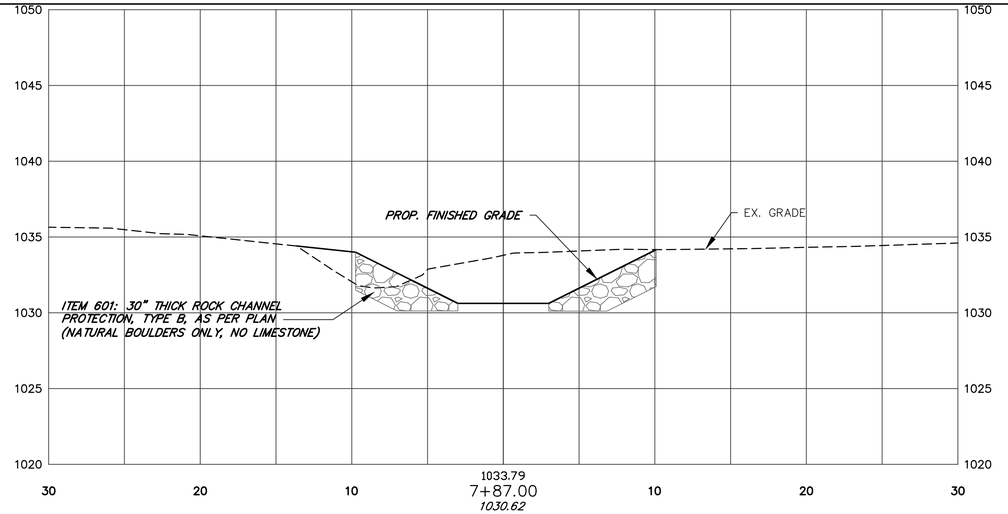

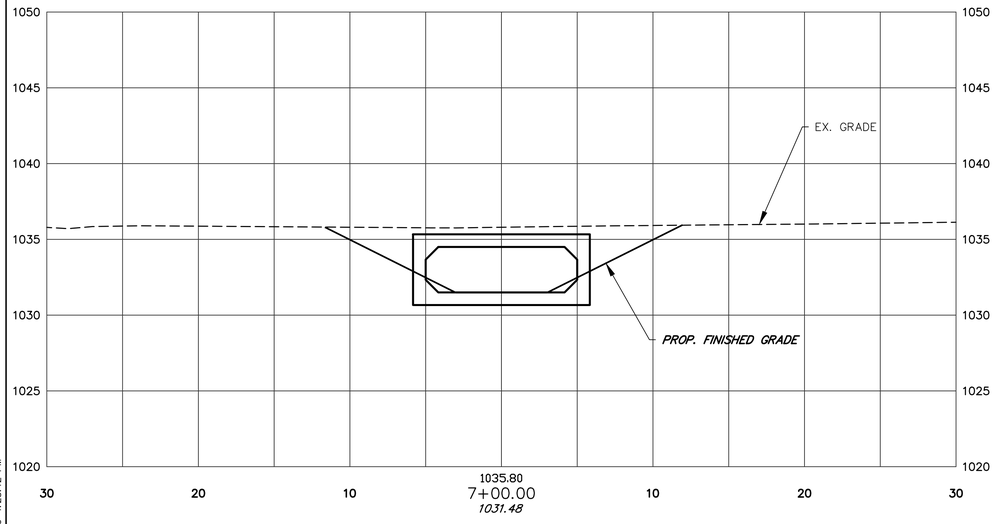

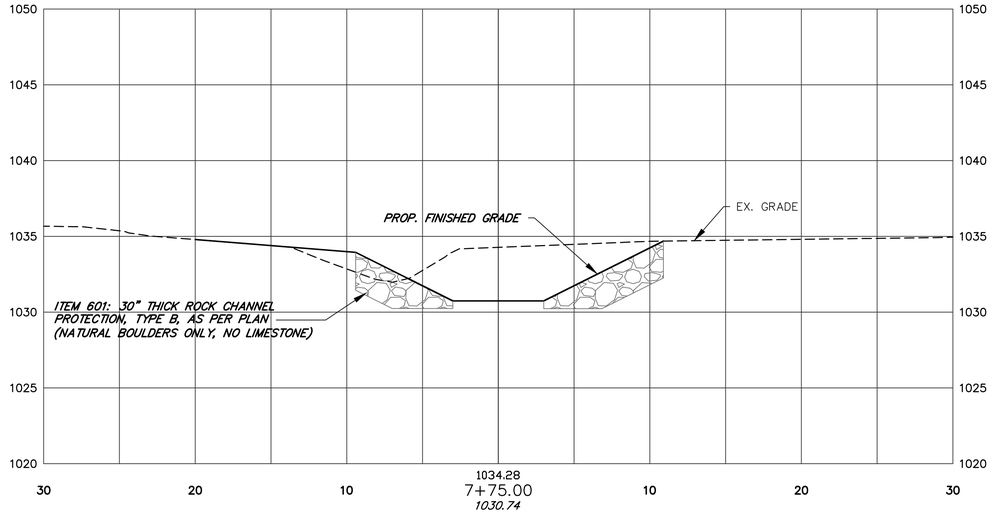

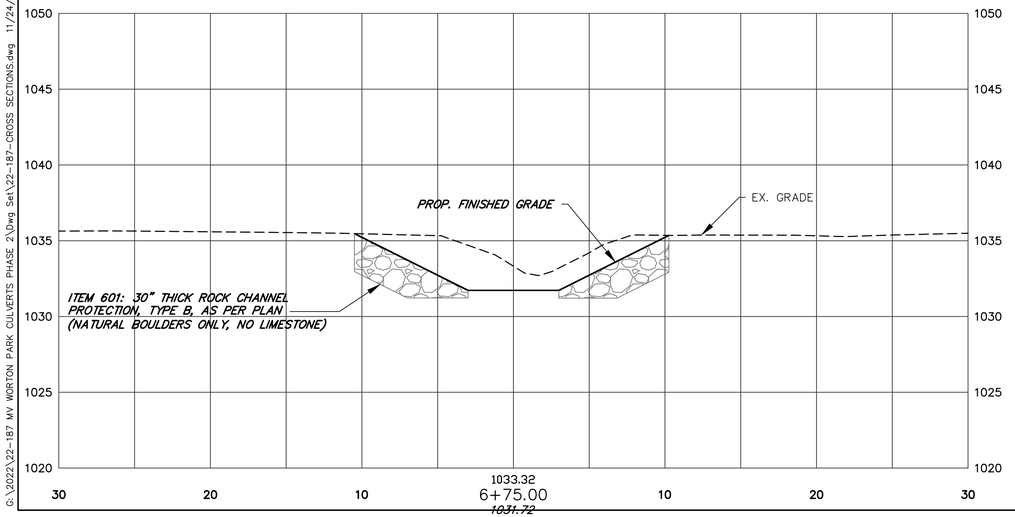

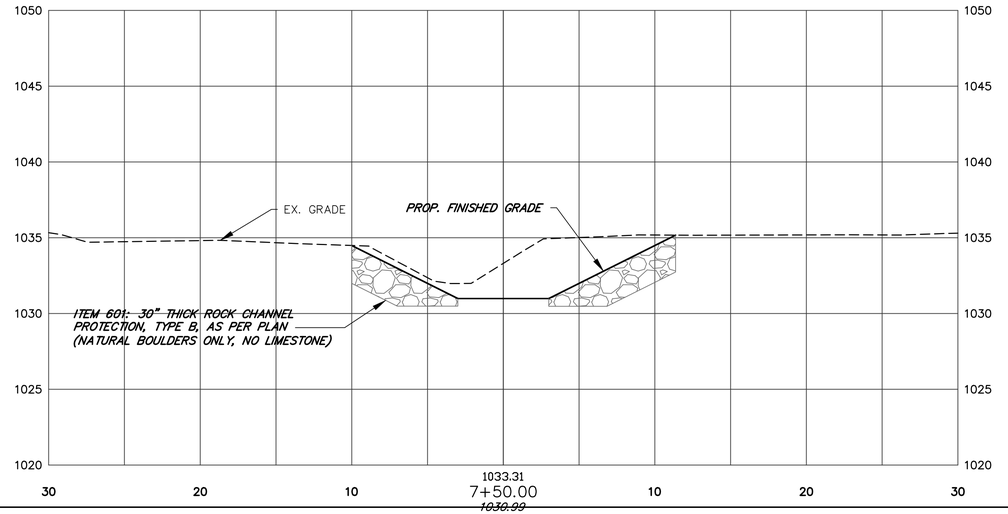

NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED

SCALE IN FEET (HORIZONTAL) 5 0 5 10

SCALE IN FEET (VERTICAL) 5 0 5 10

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

Nos.	DESCRIPTION	DATE	BY
6.)			
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1.)			

REVISIONS

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TWO MERIT DRIVE
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MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 6+75 TO 7+87

NOVEMBER 2026

JOB NO. 22-187

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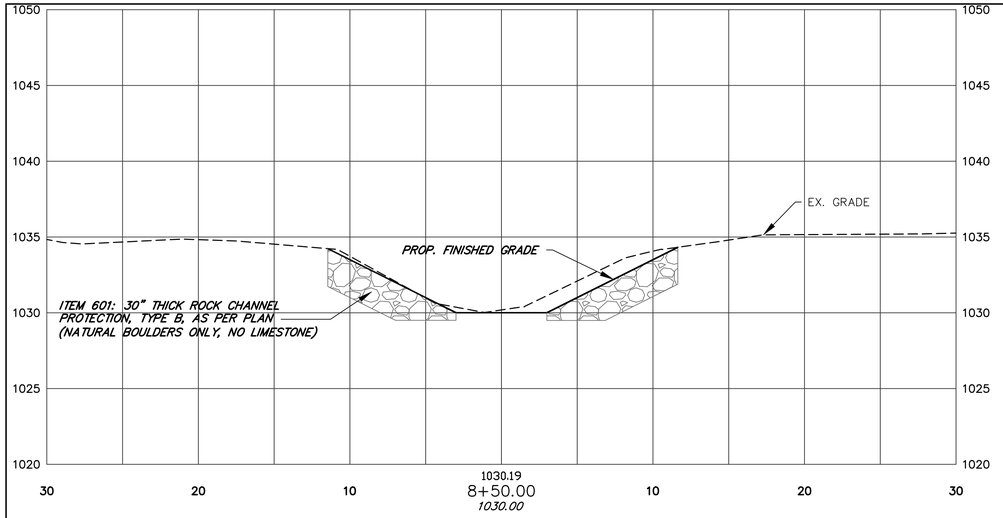

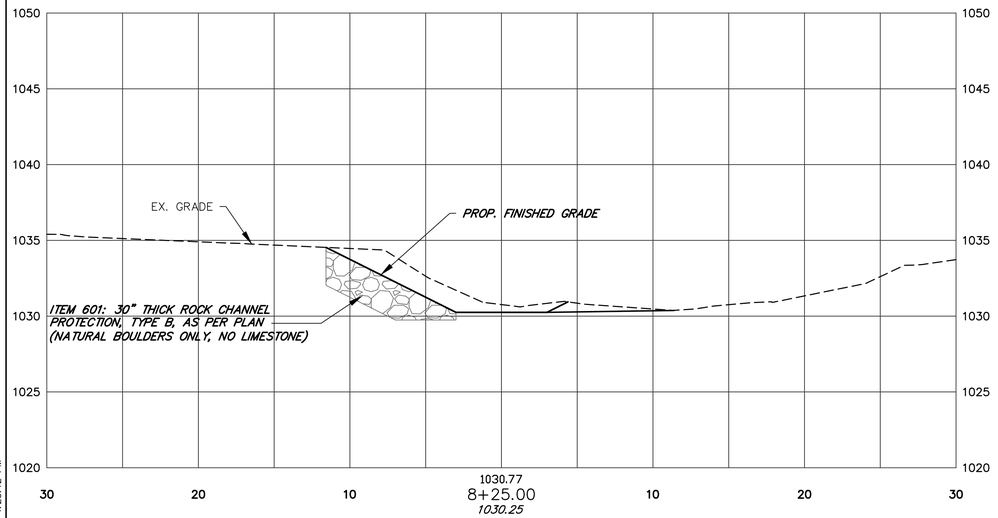

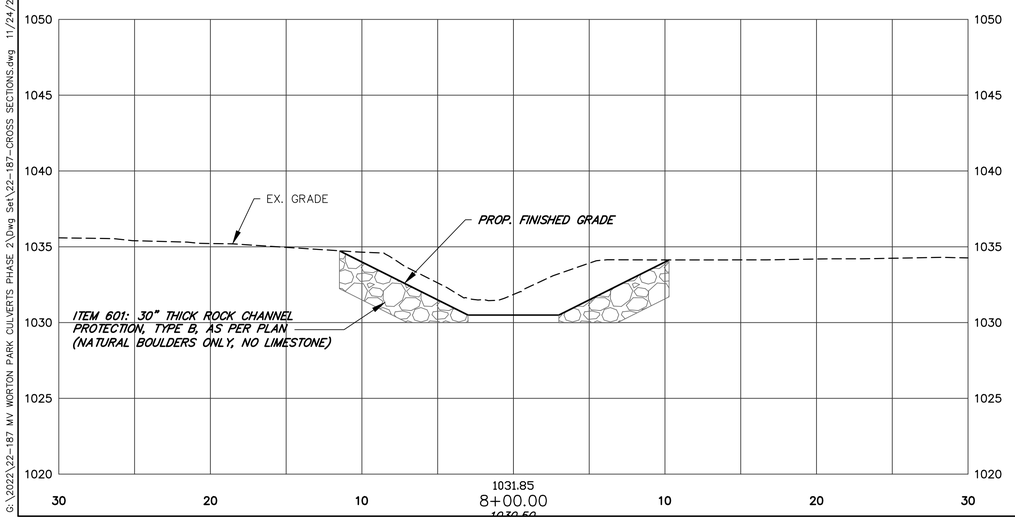

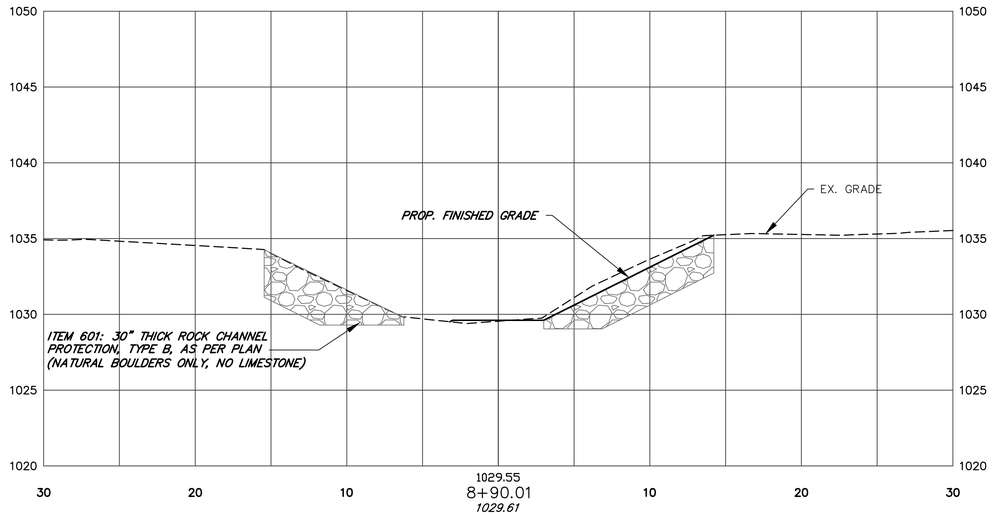

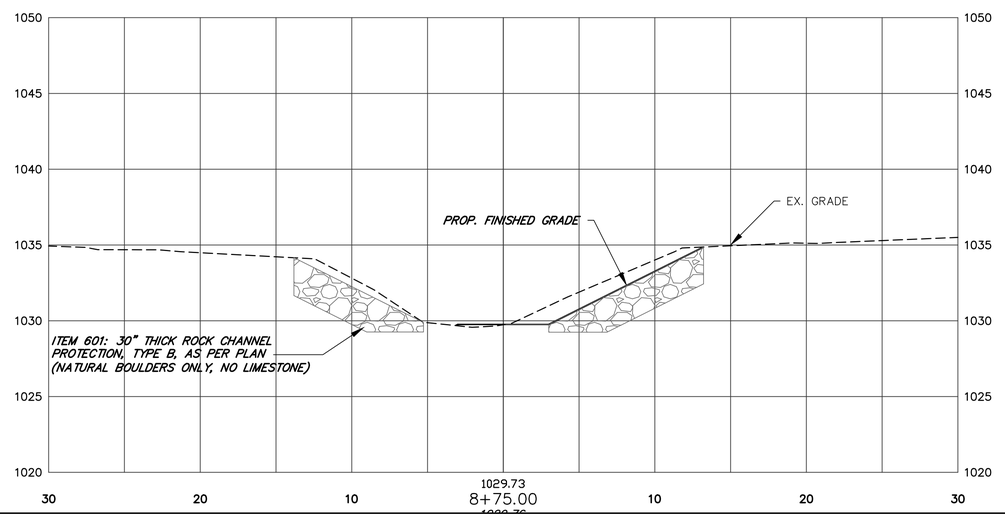

NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED

SCALE IN FEET (HORIZONTAL) 5 0 5 10

SCALE IN FEET (VERTICAL) 5 0 5 10

STATE OF OHIO
THOMAS CAPPELLO
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REVISIONS			
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 8+00 TO 8+90

NOVEMBER 2026

JOB NO. 22-187

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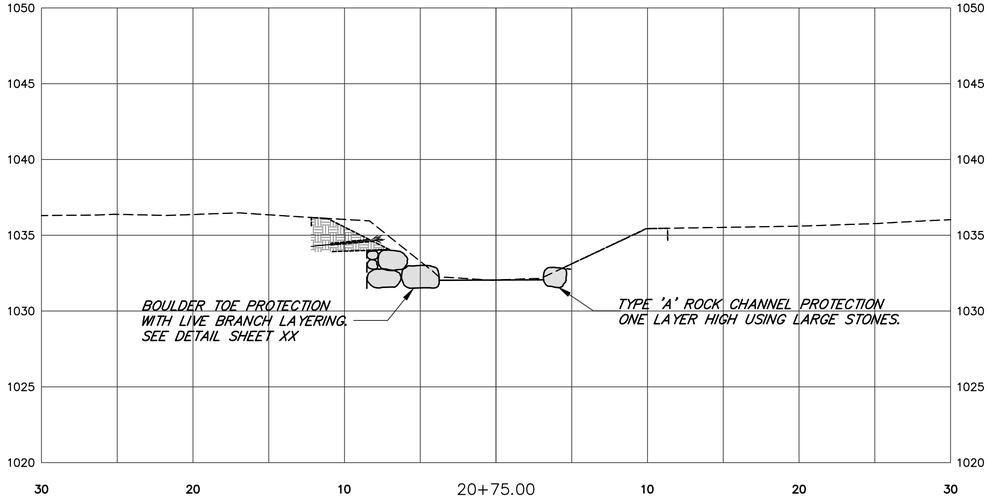

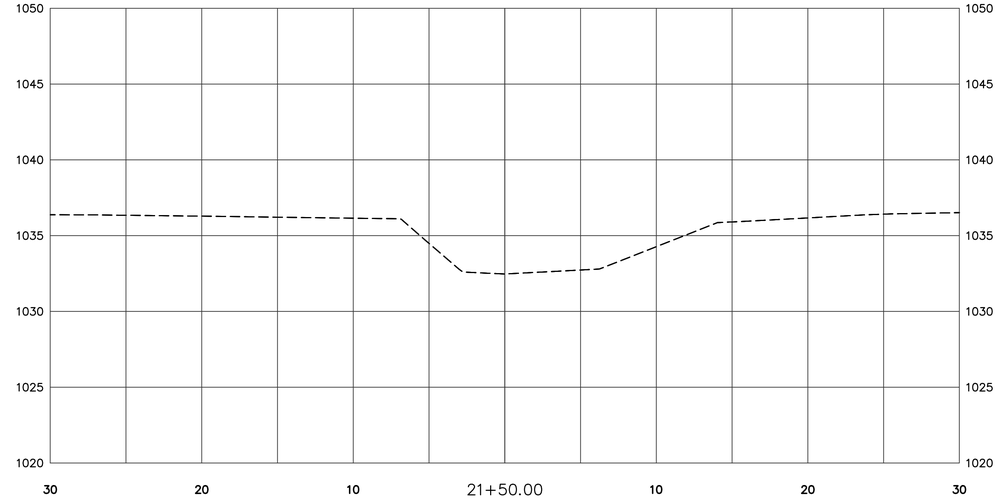

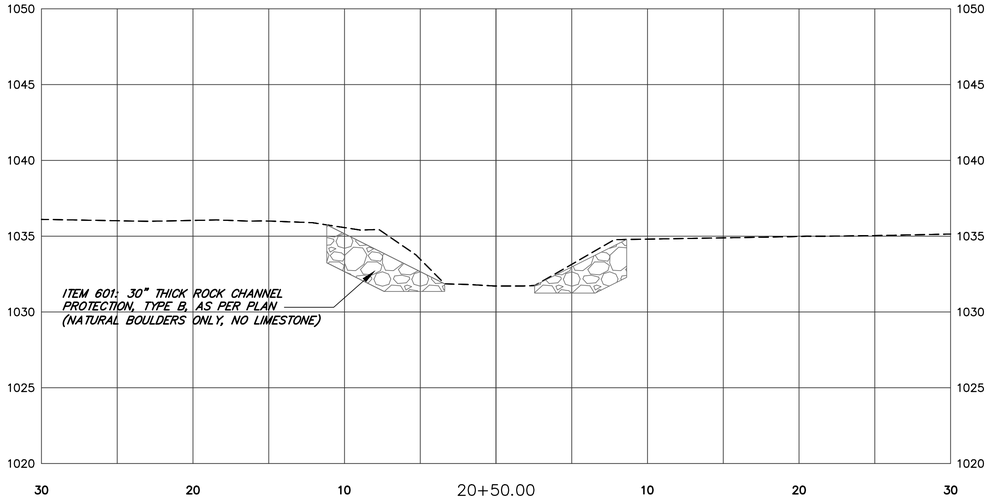

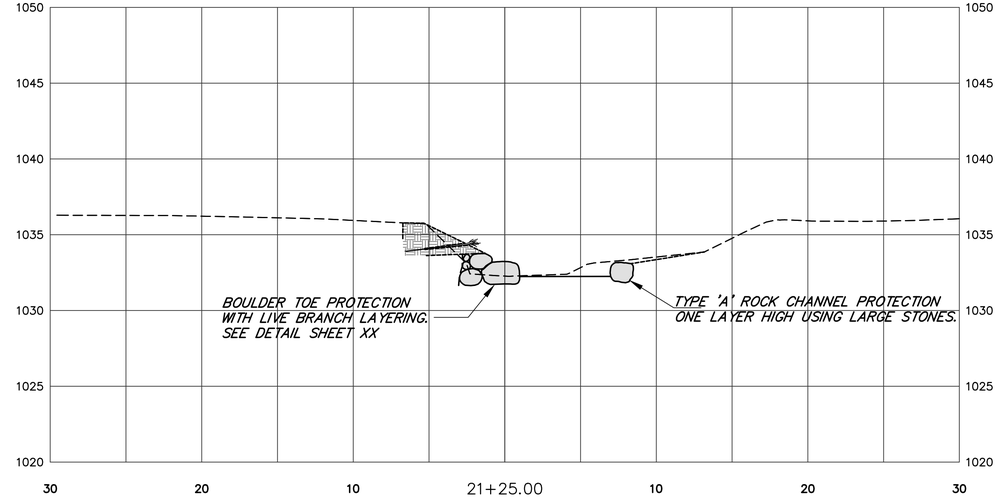

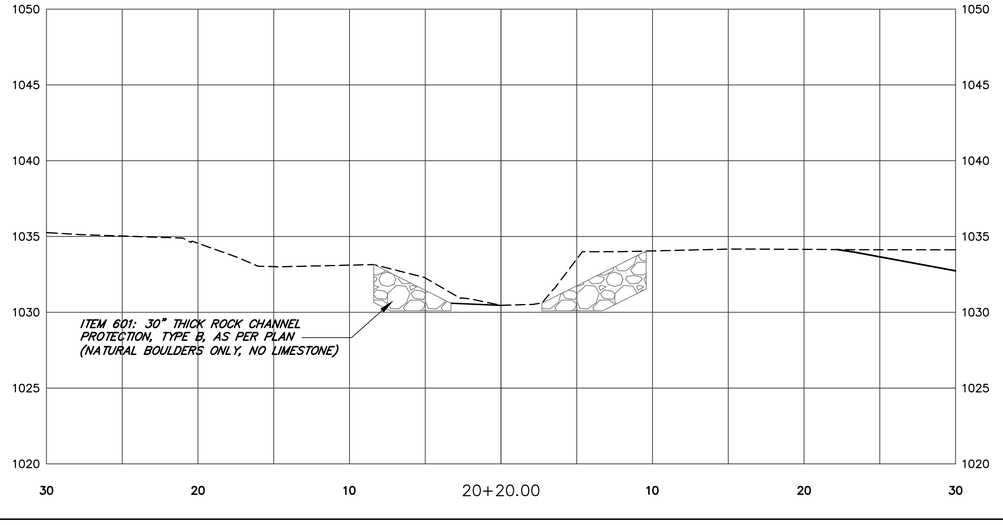

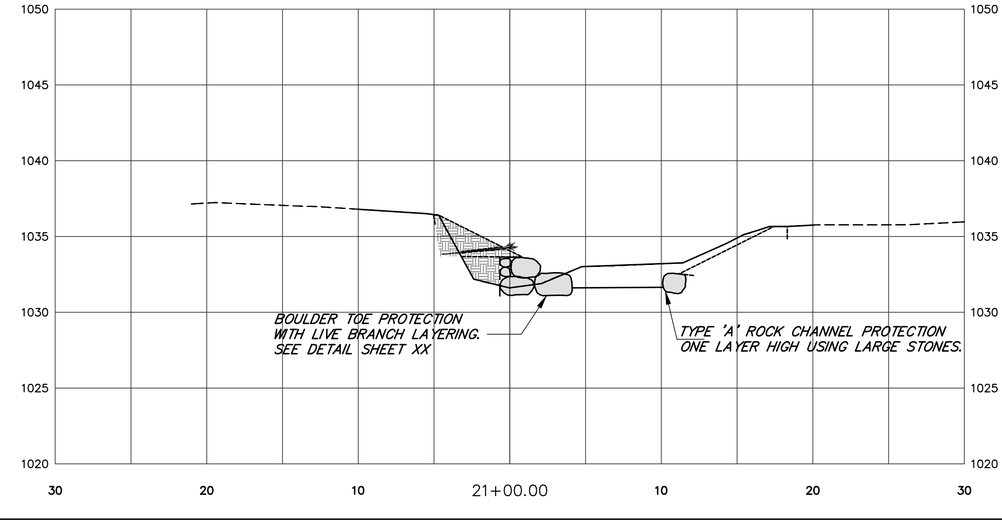

NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED

SCALE IN FEET (HORIZONTAL) 10 5 0 5 10

SCALE IN FEET (VERTICAL) 10 5 0 5 10

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

No.	DESCRIPTION	DATE	BY
6.)			
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STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE
RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731-6255 FAX: (216) 731-4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD
PHASE II - CULVERT REPLACEMENT
CROSS SECTIONS - STA. 20+20 TO 21+50

NOVEMBER 2026

JOB NO. 22-187

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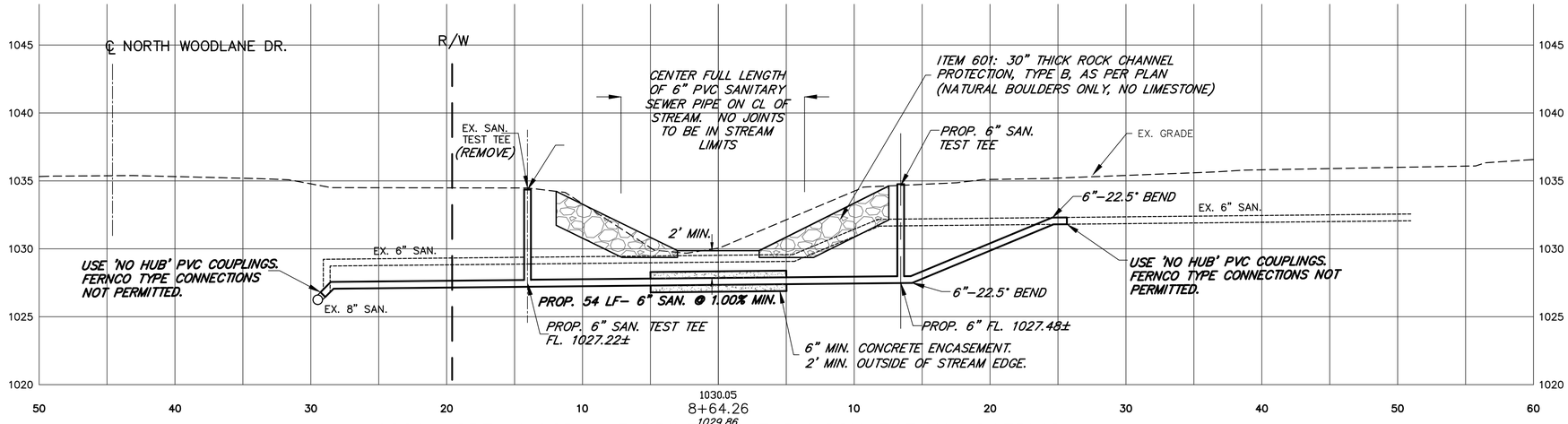
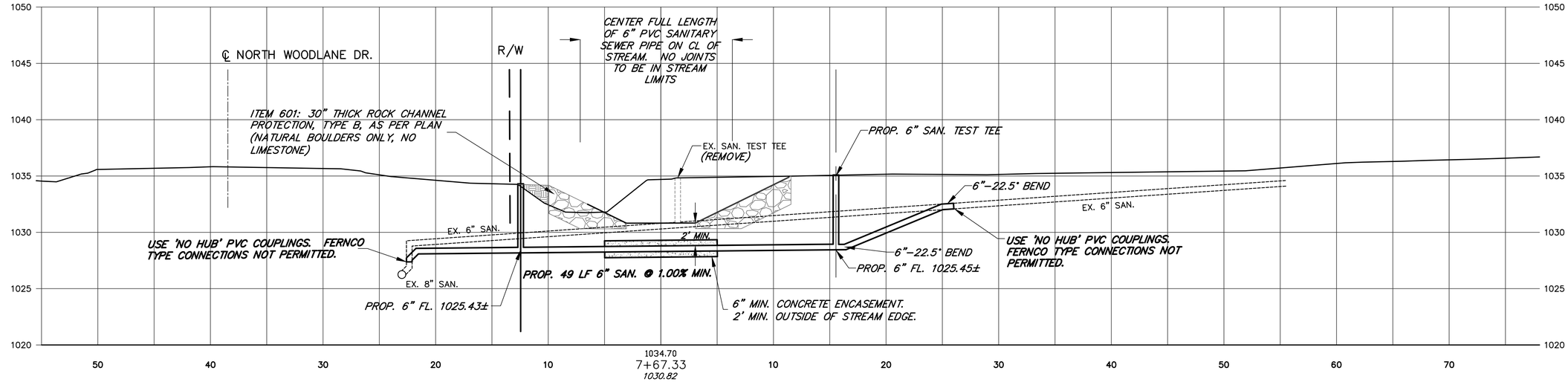
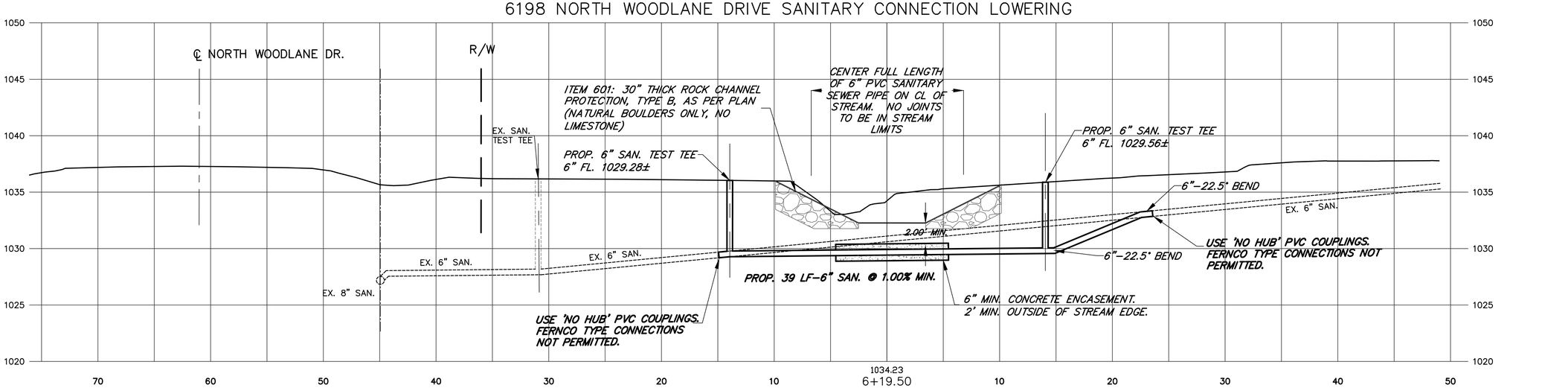
NOTE: ITEM 601: ROCK CHANNEL PROTECTION SHALL BE KEYED 6" MIN. BELOW STREAM BED



6206 NORTH WOODLANE DRIVE SANITARY CONNECTION LOWERING



6198 NORTH WOODLANE DRIVE SANITARY CONNECTION LOWERING



6184 NORTH WOODLANE DRIVE SANITARY CONNECTION LOWERING

SCALE IN FEET (HORIZONTAL) 10 5 0 5
SCALE IN FEET (VERTICAL) 10 5 0 5

STATE OF OHIO
THOMAS CAPPELLO
NO. 55466
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS			
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TWO MERIT DRIVE RICHMOND HEIGHTS, OHIO 44143
PH: (216) 731–6255 FAX: (216) 731–4483

MAYFIELD VILLAGE, OHIO

WORTON PARK NEIGHBORHOOD PHASE II - CULVERT REPLACEMENT
N. WOODLANE SANITARY LOWERINGS
SANITARY LOWERING PROFILES

NOVEMBER 2026

JOB NO. 22–187

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