TOWPATH MILE MARKER (MM) 20 SOUTH BANK STABILIZATION

PMIS NO. 224822

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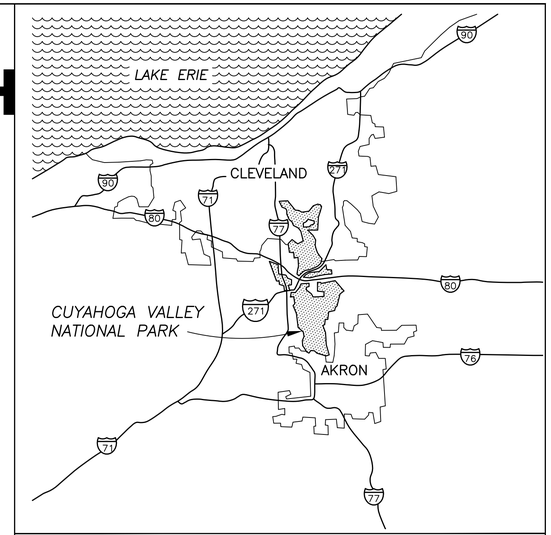
DESIGN-DEVELOPEMENT DOCUMENTS

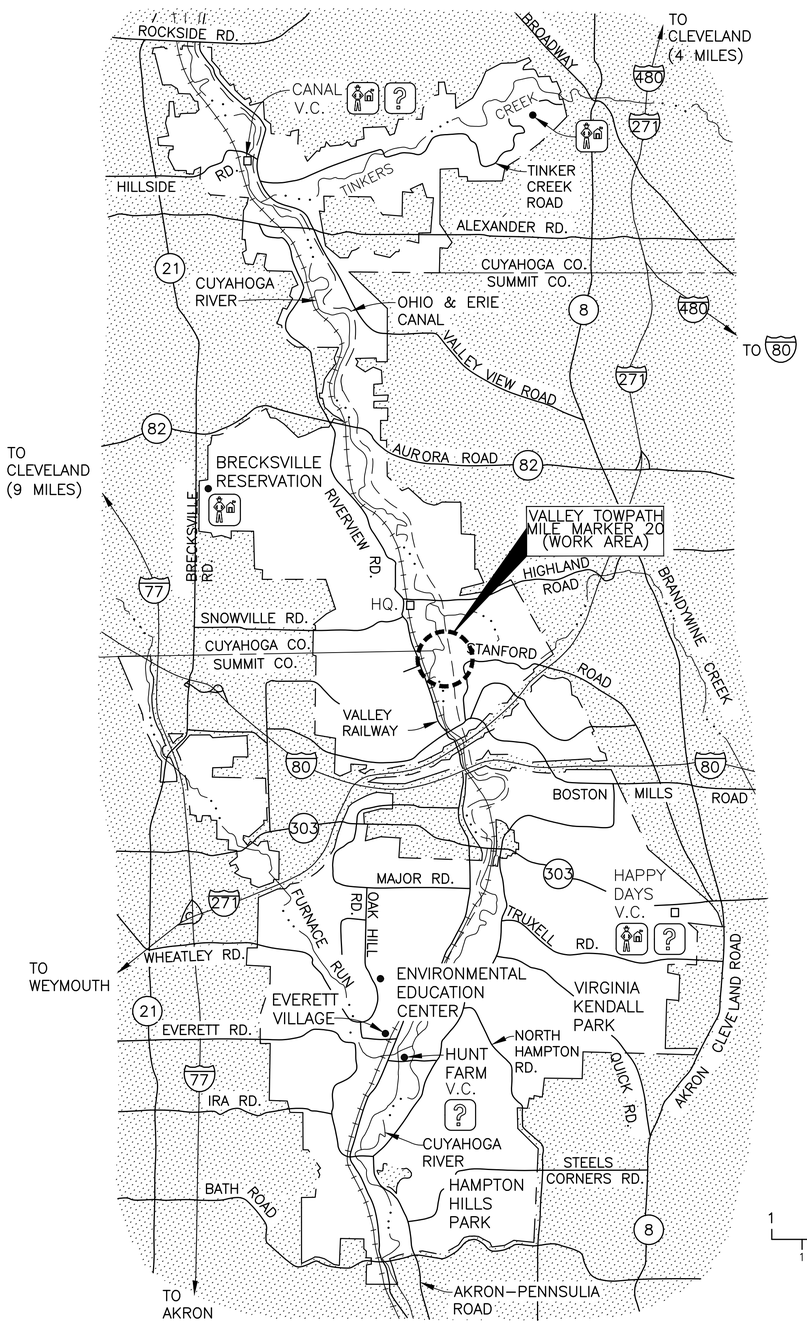
AUGUST 2023



VICINITY MAP

PARK MAP LEGEND

- PARK BOUNDARY
- STATE LINE
- COUNTY LINE
- PAVED ROAD
- OHIO & ERIE CANAL (UNWATERED)
- CREEK
- V.C. VISITOR CENTER
- HQ. PARK HEADQUARTERS
- RANGER STATION
- INFORMATION CENTER



CUYAHOGA VALLEY NATIONAL PARK MAP

SCALE OF MILES
1 0 1 2
SCALE OF KILOMETERS
1 0 1 2 3
SCALE: 1" = 5000'

ACCEPTED BY _____ DATE : _____

JIM MOYER, P.E.
EVIROSCIENCE ENGINEER
PAGES 1–XX COVERED BY THIS SEAL.

Ohio Utilities Protection Service
Call 811 before you dig

DESIGNED BY	MARK	SHEET	REVISION	DATE	INITIAL
CIVIL & ENVIRONMENTAL: ENVIROSCIENCE STOW, OHIO					
HYDRAULICS & GEOTECHNICAL: GPD GROUP AKRON, OHIO					
CONTRACTOR: RIVERREACH CONSTRUCTION BARBERTON, OHIO					

QUALITY DESIGN CERTIFICATION
- ☐ PREPARED IN ACCORDANCE WITH DESIGN DEVELOPMENT (TITLE I) _____ DRAWING NO. _____
- OR
- ☐ VARIANCE FROM DESIGN DEVELOPMENT (TITLE I) APPROVED BY SUPERINTENDENT ON _____ DATE _____
- OR
- ☐ CONSTRUCTION DRAWING NOT PRECEDED BY DESIGN DEVELOPMENT (TITLE I)

PROJECT MANAGER _____ DATE _____

100% DRAFT DESIGN–BUILD CONSTRUCTION DOCUMENTS

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE DENVER SERVICE CENTER

SUB SHEET NO. G1

TITLE OF DRAWING: TITLE SHEET
LOCATION WITHIN PARK: MM20 SOUTH
NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK
REGION: MIDWEST | COUNTY: SUMMIT/CUYAHOGA | STATE: OHIO

DRAWING NO. 644 176923
PMIS/PKG NO. 224822
01 OF 18

P:\10_PROJECTS\RIVERS\RREACH\CSRR\1886_CVNP BANK STABILIZATION\RESTORATION DESIGN\MM20 DESIGN 30\SHEETS\MM20_TITLE SHEET.DWG - TITLE SHEET ---- PLOTTED MAY 2021
P:\10_Projects\Rivers\Rreach\CSRR\1886_CVNP Bank Stabilization\Restoration Design\MM20 Design 30\xref\XG-CUYA-MAP.DWG
P:\10_Projects\Rivers\Rreach\CSRR\1886_CVNP Bank Stabilization\Restoration Design\MM20 Design 30\xref\XG-TITLE SHEET BORDER.dwg
P:\10_Projects\Rivers\Rreach\CSRR\1886_CVNP Bank Stabilization\Restoration Design\MM20 Design 30\xref\XG-TITLE SHEET BORDER.dwg

LEGEND

– – – XXXX – – –	EXISTING CONTOUR
——— XXXX ———	PROPOSED CONTOUR
——— P/L ———	PROPERTY LINE
	EXISTING WETLAND
	STREAM – EDGE OF WATER
	PROPOSED CREEK BASELINE CONSTRUCTION
	EXISTING TREES
	EXISTING BRUSH LINE/LANDSCAPING
	EXISTING CONTROL POINT
	SOIL BORING (#)
	PROPOSED GRADING LIMITS
	PROPOSED ACCESS ROUTE
	PROPOSED STAGING AREA
	PROPOSED LIVE STAKE LIMITS

ABBREVIATIONS

BKF	BANKFULL ELEVATION
B/L	BASELINE
BMPS	BEST MANAGEMENT PRACTICES
C/L	CENTERLINE
CONST	CONSTRUCTION
DND	DO NOT DISTURB
EL/ELEV	ELEVATION
EX	EXISTING
MIN	MINIMUM
MAX	MAXIMUM
NTS	NOT TO SCALE
OFF	OFFSET
PI	POINT OF INTERSECTION
PROP	PROPOSED
STA	STATION
TW	THALWEG

PROJECT DESCRIPTION

THE VALLEY TOWPATH MILE MARKER 20 BANK STABILIZATION PROJECT ALONG THE CUYAHOGA RIVER WILL INCLUDE SELECT CLEARING OF THE BANKS, REBUILDING BANKS USING A COMBINATION OF ROCK AND BIO-ENGINEERED ARMORING, PLANTING NATIVE VEGETATION TO STABILIZE THE SOIL, AND RESTORATION OF THE CONSTRUCTION SITE AND EQUIPMENT ACCESS ROUTES, AS NECESSARY.

WHEN ON SITE, THE CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) IN ACCORDANCE WITH OHIO EPA. BMP ACTIVITIES SHALL ALSO BE CONDUCTED IN COMPLIANCE WITH THE NATIONAL PARK SERVICE. THE VARIABILITY OF EROSION AND SEDIMENT CONTROL BMP'S MAY BE MODIFIED AS APPROPRIATE TO COMPLETE THE NECESSARY RESTORATION ACTIVITIES.

GENERAL NOTES

THE RIVERBANK STABILIZATION PROJECT DETAILED IN THESE PLANS REPRESENT AN APPROACH BASED ON FIELD SURVEY AND ASSESSMENTS COMPLETED DURING THE WINTER OF 2022. THE PROJECT WILL BE IMPLEMENTED BY THE DESIGN-BUILD TEAM AND MAY VARY FROM THE PLAN BASED ON ACTUAL FIELD CONDITIONS AND MODIFICATIONS NECESSARY TO BEST SUIT THE NEEDS OF THE PROJECT GOALS. ALL RESTORATION\ENHANCEMENT WILL BE COMPLETED WITH THE INTENT OF PROVIDING A STABLE AND FUNCTIONAL RIVERBANK AND ECOLOGICAL SYSTEM.

THE CONTRACTOR SHALL PERFORM WORK AS TO NOT DISTURB, DAMAGE OR DESTROY ANY FENCES, LANDSCAPING ITEMS, ETC., UNLESS SPECIFIED. ANY ITEM DAMAGED OR DESTROYED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY ITEM DISTURBED OR IN CONFLICT WITH THE PROPOSED WORK SHALL BE REMOVED AND RESET AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE MUD FROM VEHICLES USING PUBLIC ROADS. THE CONTRACTOR WILL BE RESPONSIBLE TO CLEAN PUBLIC ROADS, TOWPATH TRAIL AND VALLEY RAILWAY WHERE DIRT AND MUD ARE TRACKED BY THEIR EQUIPMENT.

THE CONTRACTOR SHALL KEEP THE CONSTRUCTION AREA CLEAR OF GARBAGE AND OTHER WASTE.

ANY SIGNIFICANT CHANGES SHALL BE COORDINATED AND APPROVED BY THE CONTRACTING OFFICER.

SITE ACCESS – CONSTRUCTION ACCESS TO THE SITE SHALL BE PROVIDED, AS SHOWN ON THE 'ACCESS & EROSION CONTROL PLAN'. ALL CONSTRUCTION VEHICLES SHALL ACCESS/LEAVE SITE FROM DESIGNATED ACCESS POINTS.

NO TREE REMOVAL SHALL BE PERMITTED BETWEEN APRIL 1ST AND SEPTEMBER 30TH. TREE REMOVAL SHALL NOT BE PERMITTED OUTSIDE THE LIMITS OF WORK INDICATED ON THE PLANS UNLESS AUTHORIZED.

EARTHWORK

THE CONTRACTOR SHALL PERFORM EARTHWORK GRADING IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS. UNLESS OTHERWISE SPECIFIED IN THE PLANS OR SPECIFICATIONS, THE SITE GRADING, EXCAVATION, AND

SPECIFICATIONS

WETLAND PRESERVATION

THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE THE NECESSARY PRECAUTIONS TO MINIMIZE WETLAND DISTURBANCE WITHIN THE DESIGNATED CONSTRUCTION LIMITS, AS WELL AS MAINTAINING ALL MEASURES THROUGHOUT THE DURATION OF THE PROJECT. NO SITE PREPARATION WORK, INCLUDING DELIVERY OF MATERIALS, SHALL BEGIN IN ANY WETLAND AREAS UNTIL PROTECTION AND TREATMENT [I.E. TIMBER MATS] MEASURES HAVE BEEN AGREED UPON AND COMPLETED. DURING DRY PERIODS, THE CONTRACTOR SHALL KEEP ALL TRAVELED AREAS WATERED REGULARLY OR APPLY OTHER APPROVED DUST CONTROL METHODS TO PREVENT EXCESSIVE DUST ACCUMULATION ON WETLANDS TO BE PRESERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO WETLANDS RESULTING FROM EQUIPMENT, INCLUDING FLUID LEAKAGE OR DAMAGE RESULTING FROM EQUIPMENT FAILURE. ANY INCIDENTS OF THIS TYPE SHALL BE REPORTED IMMEDIATELY TO THE OWNER. UPON PROJECT COMPLETION, THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIALS, SOIL, DEBRIS, AND EQUIPMENT DIRECTLY RELATED TO WETLAND PRESERVATION ACTIVITIES.

CLEARING AND GRUBBING

THE CONTRACTOR SHALL CLEAR AREAS REQUIRED FOR ACCESS TO SITE AND EXECUTION OF WORK. THE CONTRACTOR SHALL REMOVE TREES, SHRUBS, CLEAR UNDERGROWTH, DEADWOOD, AND SURFACE DEBRIS WITHOUT DISTURBING SUBSOIL. ANY EXISTING AREA THAT WILL BE DISTURBED SHALL HAVE THE TOPSOIL STRIPPED AND STOCKPILED ON SITE FOR REUSE. TREES DEEMED SUITABLE FOR FUTURE RESTORATION USE SHALL BE HARVESTED AND STOCKPILED AT AN APPROVED AREA. ALL OTHER MATERIALS SHALL BE DISPOSED OF AND REMOVED OFF-SITE.

GRADING

THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY SUBGRADE IS CONTOURED AND COMPACTED AS WELL AS VERIFY BACKFILL HAS BEEN INSPECTED. THE CONTRACTOR SHALL FINE GRADE TO ELIMINATE UNEVEN AREAS AND DEPRESSION BY FOLLOWING CONTOURS, PROFILES, AND CROSS SECTIONS PROVIDED IN THE DESIGN PLANS.

THE CONTRACTOR SHALL REMOVE UNUSED STOCKPILES, GRADE AREA TO PREVENT STANDING WATER, PROTECT FROM EROSION, AND STABILIZE. SITE SHALL BE LEFT CLEAN AND RAKED, READY TO RECEIVE LANDSCAPING. UNSUITABLE MATERIALS SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF AT AN APPROVED AREA. REFER TO THE 'EXCAVATION AND FILL' SPECIFICATION (THIS SHEET) FOR APPROPRIATE COMPACTION REQUIREMENTS.

EROSION CONTROL BLANKET

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING EROSION CONTROL BLANKETS FOR EXPOSED RIVER EMBANKMENTS. MATERIAL SHALL BE 700 SERIES COIR BLANKETS, OR APPROVED EQUAL BY THE OWNER. EROSION CONTROL BLANKETS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND WITH ODOT CONSTRUCTION STANDARDS. BLANKETS SHALL BE INSTALLED IMMEDIATELY AFTER SEEDING OPERATIONS HAVE BEEN COMPLETED.

EXCAVATION AND FILL

PRIOR TO SITE EXCAVATIONS AND FILL PLACEMENT, EXISTING TOPSOIL, TREES, SHRUBS, AND OTHER DELETERIOUS MATERIALS SHALL BE STRIPPED AND GRUBBED. THESE MATERIALS SHALL BE EITHER REMOVED FROM THE SITE OR STOCKPILED IN A DESIGNATED AND APPROVED AREA OF THE SITE. EXCAVATION CONSISTS OF THE REMOVAL OF MATERIAL ENCOUNTERED TO SUBGRADE ELEVATIONS AND, WHERE APPLICABLE, THE REUSE OF DISPOSAL OF MATERIALS REMOVED.

THE CONTRACTOR IS RESPONSIBLE TO CONSTRUCT THE PROPOSED GRADES WITH SUITABLE MATERIALS. SUITABLE MATERIALS SHALL BE APPROVED BY A SOILS TECHNICIAN OR SOILS ENGINEER.

ON-SITE/IMPORTED FILL, BACKFILL, AND EMBANKMENT MATERIALS SHOULD MEET THE FOLLOWING REQUIREMENTS:

- UNLESS OTHERWISE SHOWN OR SPECIFIED, FILL, BACKFILL, AND EMBANKMENT MATERIALS SHALL BE EXISTING EXCAVATED SOILS FREE OF DEBRIS LARGER THAN 6-INCHES IN ANY DIMENSION, GRASS, ROOTS, VEGETATION, AND OTHER LARGE DEBRIS FRAGMENTS.
- MAXIMUM PARTICLE SIZE OF 6 INCHES
- PLACED IN MAXIMUM 8 INCH LIFTS
- ON-SITE FILL MATERIALS SHALL BE CAPABLE OF SPECIFIED COMPACTION REQUIREMENTS
- SOILS IDENTIFIED AS BEING CLASSIFIED AS SILT "ML" PER USCS ASTM D 2487 OR EXHIBITING PLASTIC LIMIT VALUES IN EXCESS OF 25 PERCENT MAY NOT BE SUITABLE FOR PROPER COMPACTION AND SLOPE CONSTRUCTION

THE CONTRACTOR SHALL PROTECT NEWLY GRADED AREAS FROM TRAFFIC, FREEZING, AND EROSION. IN THE EVENT FILL MATERIALS BECOME ERODED, RUTTED, SETTLED, OR LOSE COMPACTION DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS OR WEATHER CONDITIONS, THE CONTRACTOR SHALL REPAIR AND RE-ESTABLISH GRADES TO THE SPECIFIED TOLERANCES. THE CONTRACTOR SHALL SCARIFY OR REMOVE AND REPLACE MATERIAL TO DEPTH DIRECTED BY THE ENGINEER AND RESHAPE AND RE-COMPACT AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED DENSITY. CONTRACTOR SHALL RESTORE APPEARANCE, QUALITY, AND CONDITION OF FINISHED SURFACING TO MATCH ADJACENT WORK, AND ELIMINATE EVIDENCE OF RESTORATION TO THE GREATEST EXTENT POSSIBLE.

RIPRAP

THIS WORK CONSISTS OF FURNISHING ROCK TO BE USED FOR RIVERBANK PROTECTION. THE FOLLOWING SPECIFICATIONS SHALL BE CONSIDERED SUPPLEMENTAL TO THE ODOT CMS FOR MATERIAL SPECIFICATIONS AND CONSTRUCTION STANDARD PROCEDURES UNLESS OTHER SPECIFIED ON THE CONTRACT DRAWINGS. RIPRAP IS DEFINED AS ANGULAR IN SHAPE AND COMPRISED OF SANDSTONE, GRANITE, LIMESTONE OR SIMILAR HARD MATERIAL. FRIABLE MATERIAL OR LOW QUALITY SANDSTONE IS NOT ACCEPTABLE. ANGULAR MATERIAL IS PREFERRED AS IT INCREASES THE INTERLOCKING ABILITY OF THE STONE AND IS LESS LIKELY TO ROLL OR MOVE.

RIPRAP SIZING IS DEFINED AS FOLLOWS:

RIPRAP SPECIFICATIONS [ODOT PARAMETERS]		
TYPE	SIZE (INCHES)	SIZE (FEET)
A	18–30+ IN	1.5–2.5+ FT
B	12–24 IN	1.0–2.0 FT
C	6–18 IN	0.5–1.5 FT
D	3–12 IN	0.25–1.0 FT

ODOT TYPE A RIPRAP:

- ODOT TYPE A RIPRAP SHALL BE TYPE A DUMPED ROCK FILL AND ROCK CHANNEL PROTECTION AS SPECIFIED IN SECTION 703.19 OF THE ODOT CMS.
- HARD AND DURABLE QUARRY STONE FREE FROM FRACTURES, BEDDING PLANES, PRONOUNCED WEATHERING, CALCITE INTRUSIONS, EARTH, OR OTHER ADHERENT COATINGS.
- FREE OF FINES, ROOTS, ORGANIC MATTER, OIL, GREASE, DEBRIS, WOOD, REFUSE, PLASTER, BROKEN CONCRETE WITH EXPOSED REBAR, ASPHALT, TOXIC CONTAMINANTS IN ANYTHING OTHER THAN TRACE QUANTITIES, AND OTHER DELETERIOUS MATTER.
- AT LEAST 85 PERCENT OF THE TOTAL MATERIAL BY WEIGHT SHALL BE LARGER THAN AN 18-INCH (0.5 M BUT LESS THAN A 30-INCH (0.8 M) SQUARE OPENING AND AT LEAST 50 PERCENT OF THE TOTAL MATERIAL BY WEIGHT LARGER THAN A 24-INCH (0.6 M) SQUARE OPENING. FURNISH MATERIAL SMALLER THAN AN 18-INCH (0.5 M) SQUARE OPENING THAT CONSISTS PREDOMINANTLY OF ROCK SPALLS AND ROCK FINES, AND THAT IS FREE OF SOIL.
- MINIMUM DIMENSION OF INDIVIDUAL PIECES: NOT LESS THAN 2/3 MAXIMUM DIMENSION.

ODOT TYPE B RIPRAP:

- ODOT TYPE B RIPRAP SHALL BE TYPE B DUMPED ROCK FILL AND ROCK CHANNEL PROTECTION AS SPECIFIED IN SECTION 703.19 OF THE ODOT CMS.
- HARD AND DURABLE QUARRY STONE FREE FROM FRACTURES, BEDDING PLANES, PRONOUNCED WEATHERING, CALCITE INTRUSIONS, EARTH, OR OTHER ADHERENT COATINGS.
- FREE OF FINES, ROOTS, ORGANIC MATTER, OIL, GREASE, DEBRIS, WOOD, REFUSE, PLASTER, BROKEN CONCRETE WITH EXPOSED REBAR, ASPHALT, TOXIC CONTAMINANTS IN ANYTHING OTHER THAN TRACE QUANTITIES, AND OTHER DELETERIOUS MATTER.
- AT LEAST 85 PERCENT OF THE TOTAL MATERIAL BY WEIGHT SHALL BE LARGER THAN A 12-INCH (0.3 M BUT LESS THAN A 24-INCH (0.6 M) SQUARE OPENING AND AT LEAST 50 PERCENT OF THE TOTAL MATERIAL BY WEIGHT LARGER THAN AN 18-INCH (0.5 M) SQUARE OPENING. FURNISH MATERIAL SMALLER THAN A 12-INCH (0.3 M) SQUARE OPENING THAT CONSISTS PREDOMINANTLY OF ROCK SPALLS AND ROCK FINES, AND THAT IS FREE OF SOIL.
- MINIMUM DIMENSION OF INDIVIDUAL PIECES: NOT LESS THAN 1/3 MAXIMUM DIMENSION.

ODOT TYPE C RIPRAP:

- ODOT TYPE C RIPRAP SHALL BE TYPE C DUMPED ROCK FILL AND ROCK CHANNEL PROTECTION AS SPECIFIED IN SECTION 703.19 OF THE ODOT CMS.
- HARD AND DURABLE QUARRY STONE FREE FROM FRACTURES, BEDDING PLANES, PRONOUNCED WEATHERING, CALCITE INTRUSIONS, EARTH, OR OTHER ADHERENT COATINGS.
- FREE OF FINES, ROOTS, ORGANIC MATTER, OIL, GREASE, DEBRIS, WOOD, REFUSE, PLASTER, BROKEN CONCRETE WITH EXPOSED REBAR, ASPHALT, TOXIC CONTAMINANTS IN ANYTHING OTHER THAN TRACE QUANTITIES, AND OTHER DELETERIOUS MATTER.
- AT LEAST 85 PERCENT OF THE TOTAL MATERIAL BY WEIGHT SHALL BE LARGER THAN A 6-INCH (150 MM) BUT LESS THAN AN 18-INCH (0.5 M) SQUARE OPENING AND AT LEAST 50 PERCENT OF THE TOTAL MATERIAL BY WEIGHT LARGER THAN A 12-INCH (0.3 M) SQUARE OPENING. FURNISH MATERIAL SMALLER THAN A 6-INCH (150 MM) SQUARE OPENING THAT CONSISTS PREDOMINANTLY OF ROCK SPALLS AND ROCK FINES, AND THAT IS FREE OF SOIL.
- MINIMUM DIMENSION OF INDIVIDUAL PIECES: NOT LESS THAN 1/3 MAXIMUM DIMENSION.

ODOT TYPE D RIPRAP:

- ODOT TYPE D RIPRAP SHALL BE TYPE D DUMPED ROCK FILL AND ROCK CHANNEL PROTECTION AS SPECIFIED IN SECTION 703.19 OF THE ODOT CMS.
- HARD AND DURABLE QUARRY STONE FREE FROM FRACTURES, BEDDING PLANES, PRONOUNCED WEATHERING, CALCITE INTRUSIONS, EARTH, OR OTHER ADHERENT COATINGS.
- FREE OF FINES, ROOTS, ORGANIC MATTER, OIL, GREASE, DEBRIS, WOOD, REFUSE, PLASTER, BROKEN CONCRETE WITH EXPOSED REBAR, ASPHALT, TOXIC CONTAMINANTS IN ANYTHING OTHER THAN TRACE QUANTITIES, AND OTHER DELETERIOUS MATTER.
- AT LEAST 85 PERCENT OF THE TOTAL MATERIAL BY WEIGHT SHALL BE LARGER THAN A 3-INCH (75 MM) BUT LESS THAN A 12-INCH (0.3 M) SQUARE OPENING AND AT LEAST 50 PERCENT OF THE TOTAL MATERIAL BY WEIGHT LARGER THAN A 6-INCH (150 MM) SQUARE OPENING. FURNISH MATERIAL SMALLER THAN A 3-INCH (75 MM) SQUARE OPENING THAT CONSISTS PREDOMINANTLY OF ROCK SPALLS AND ROCK FINES, AND THAT IS FREE OF SOIL.
- MINIMUM DIMENSION OF INDIVIDUAL PIECES: NOT LESS THAN 1/3 MAXIMUM DIMENSION.

SEE SHEET 16 FOR MIX DESIGN AND PLACEMENT LOCATIONS.

SEEDING

SEEDING SHALL CONFORM WITH THE INFORMATION PROVIDED ON THE SEEDING NOTES AND DETAILS SHEET, LOCATED WITHIN THE CONTRACT DRAWINGS.

LIVE STAKES

LIVE STAKES SHALL CONFORM WITH THE INFORMATION PROVIDED ON THE SEEDING NOTES AND DETAILS SHEET, LOCATED WITHIN THE CONTRACT DRAWINGS.

UTILITIES

THROUGH FIELD INVESTIGATION AND COORDINATION WITH THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE FOLLOWING UTILITIES WERE FOUND WITHIN THE PROJECT LIMITS AND HAVE BEEN IDENTIFIED WITHIN THE CONTRACT DRAWINGS:

FIBER OPTIC LINE–UTILITY OWNER UNKNOWN

OHIO811.org Before You Dig

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: GENERAL NOTES & LEGEND	DRAWING NO. 644 / 176923
DRAWN BY: TG	G2	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023 5/16/23		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	02 OF 18

P:\10_PROJECTS\R\RIVERREACH\430R\16986_CVNP BANK STABILIZATION\RESTORATION DESIGN\MM20 DESIGN 30\SHEETS\GENERAL NOTES AND LEGEND.DWG - GENERAL NOTES & LEGEND - DESIGN REVIEW.CTB - PLOTTED MAY 2021
XREFS: ..\Xref\XG-SHEET BORDER.dwg

EX. TOWPATH TRAIL

APPROXIMATE LOCATION FOR CONSTRUCTION AHEAD SIGN, SEE DETAIL THIS SHEET.

APPROXIMATE LOCATION FOR RIVER CONSTRUCTION ZONE SIGN, SEE DETAIL THIS SHEET.

APPROXIMATE RIVERBANK ENTRANCE LOCATION

PROPOSED RIVER CROSSING LOCATION

CUYAHOGA RIVER

EX. WETLANDS LIKELY PRESENT

EX. FIBER OPTIC [DND]

PROP. ACCESS ROUTE TO BE CONSTRUCTED WITH TIMBERMATS (MIN. 16' WIDTH)

PROP. STAGING AREA

PROP. ACCESS ROUTE

APPROXIMATE LOCATION FOR HEAVY EQUIPMENT CROSSING SIGN, SEE DETAIL THIS SHEET.

APPROXIMATE LOCATION FOR CONSTRUCTION ENTRANCE SIGN, SEE DETAIL THIS SHEET.

PROP. GRADING LIMITS

EX. WETLAND

EX. WETLAND

EX. WETLANDS LIKELY PRESENT

EX. WETLANDS LIKELY PRESENT

APPROXIMATE LOCATION FOR CONSTRUCTION AHEAD SIGN, SEE DETAIL THIS SHEET.

EX. TOWPATH TRAIL

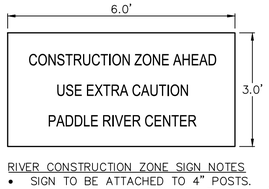
ABANDONED STANFORD RD.

PROP. ACCESS ROUTE

FOR GENERAL LEGEND, SEE SHEET 2

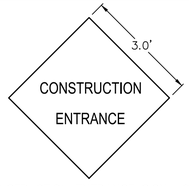
LEGEND

- P/L — PROPERTY LINE
- EXISTING WETLAND
- PROPOSED MAINTENANCE OF TRAFFIC SIGN
- PROPOSED GRADING LIMITS
- PROPOSED ACCESS ROUTE
- PROPOSED STAGING AREA



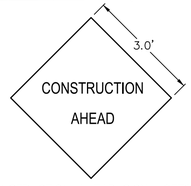
RIVER CONSTRUCTION ZONE SIGN NOTES
- SIGN TO BE ATTACHED TO 4" POSTS.
- SIGN TO BE WHITE WITH RED BOLD LETTERING.
- FACING UPSTREAM

RIVER CONSTRUCTION ZONE SIGN
SCALE: NTS



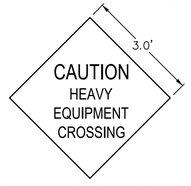
CONSTRUCTION ENTRANCE SIGN NOTES
- SIGN TO BE PLACED ON STAND.
- SIGN TO BE ORANGE WITH BLACK BOLD LETTERING

CONSTRUCTION ENTRANCE SIGN
SCALE: NTS



CONSTRUCTION AHEAD SIGN NOTES
- SIGN TO BE PLACED ON STAND.
- SIGN TO BE ORANGE WITH BLACK BOLD LETTERING

CONSTRUCTION AHEAD SIGN
SCALE: NTS



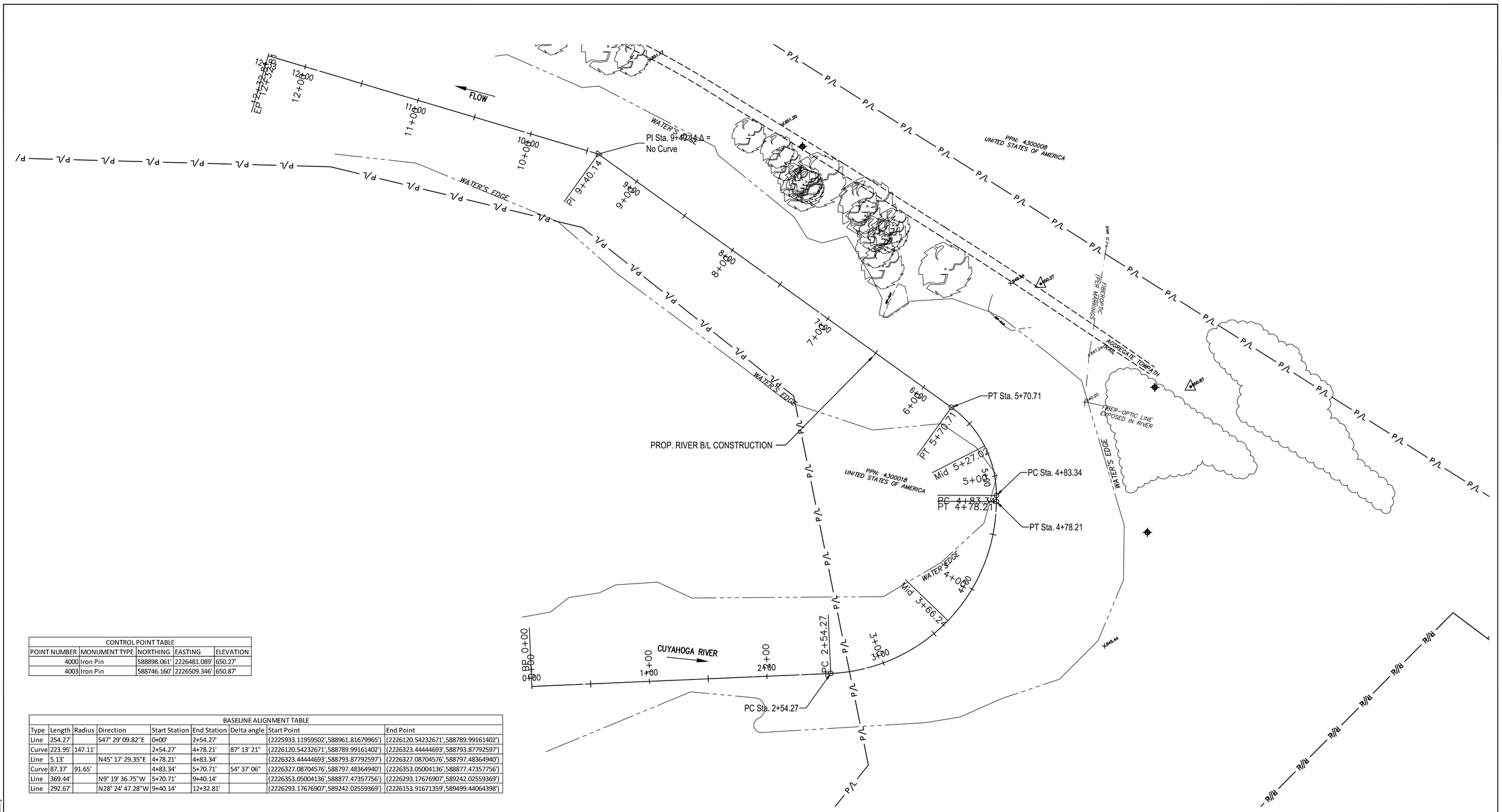
CAUTION HEAVY EQUIPMENT CROSSING NOTES
- SIGN TO BE PLACED ON STAND.
- SIGN TO BE ORANGE WITH BLACK BOLD LETTERING

HEAVY EQUIPMENT CROSSING SIGN
SCALE: NTS

0 100 200
GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: ACCESS & MAINTENENCE OF TRAFFIC PLAN	DRAWING NO. 644 176923
DRAWN BY: TG	G-3	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	03 OF 18

P:\10_PROJECTS\RIVER\ERDACH\RIVER\19996_CVNP BANK STABILIZATION\RESTORATION DESIGN\MMDO DESIGN 100\SHEETS\MAINTENANCE OF TRAFFIC PLAN.DWG - MOT_DESIGN REVIEW\CTB - PLOTTED MAY 2021
XREFS: J:\work\GIS\SITE BORDER.dwg | J:\work\GIS\CONTOUR400.dwg | J:\work\GIS\ACCESS_ROAD.dwg | J:\work\GIS\MM20.dwg



CONTROL POINT TABLE				
POINT NUMBER	MONUMENT TYPE	NORTHING	EASTING	ELEVATION
4000	Iron Pin	588898.061'	2226481.089'	650.27'
4003	Iron Pin	588746.160'	2226509.346'	650.87'

BASELINE ALIGNMENT TABLE								
Type	Length	Radius	Direction	Start Station	End Station	Delta angle	Start Point	End Point
Line	254.27'		S47° 29' 09.82"E	0+00'	2+54.27'		(2225933.11959502',588961.81679965')	(2226120.54232671',588789.99161402')
Curve	223.95'	147.11'		2+54.27'	4+78.21'	87° 13' 21"	(2226120.54232671',588789.99161402')	(2226323.44444693',588793.87792597')
Line	5.13'		N45° 17' 29.35"E	4+78.21'	4+83.34'		(2226323.44444693',588793.87792597')	(2226327.08704576',588797.48364940')
Curve	87.37'	91.65'		4+83.34'	5+70.71'	54° 37' 06"	(2226327.08704576',588797.48364940')	(2226353.05004136',588877.47357756')
Line	369.44'		N9° 19' 36.75"W	5+70.71'	9+40.14'		(2226353.05004136',588877.47357756')	(2226293.17676907',589242.02559369')
Line	292.67'		N28° 24' 47.28"W	9+40.14'	12+32.81'		(2226293.17676907',589242.02559369')	(2226153.91671359',589499.44064398')

SURVEYING PARAMETERS

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

PROJECT CONTROL
- POSITIONING METHOD: ODOT VRS
- MONUMENT TYPE: B

VERTICAL POSITIONING
- ORTHOMETRIC HEIGHT
  DATUM: NAVD88
- GEOID: GEOID 12B

HORIZONTAL POSITIONING
- REFERENCE FRAME: NAD83 (2011)
- ELLIPSOID: GRS80
- MAP PROJECTION: LAMBERT CONFORMAL CONIC
- COORDINATE SYSTEM: OHIO STATE PLANE – NORTH

COMBINED SCALE FACTOR, TO GO FROM GRID TO GROUND: 1.0000000000
[UNITS ARE IN U.S. SURVEY FEET]

LEGEND

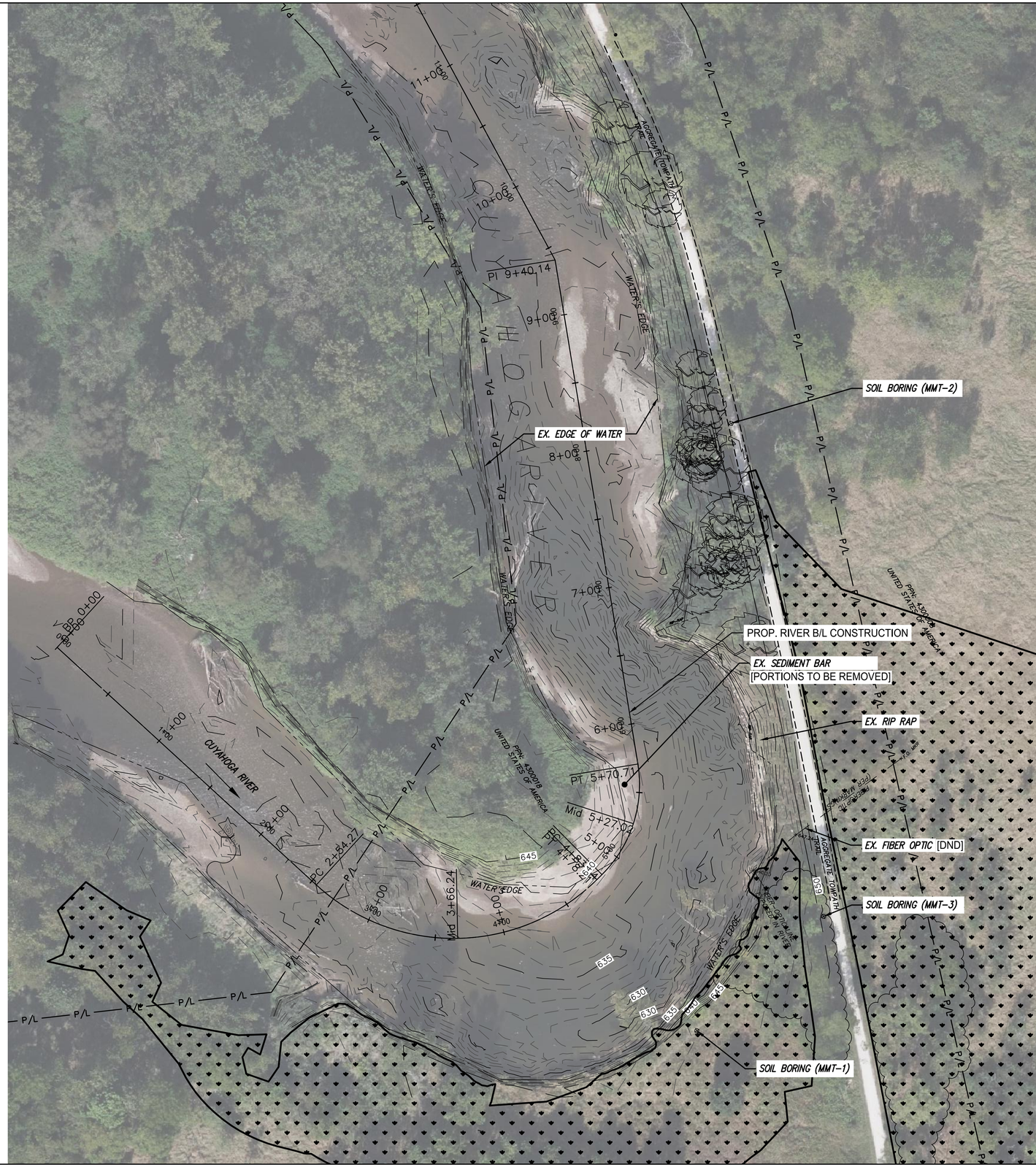
P/L — PROPERTY LINE
STREAM – EDGE OF WATER
PROPOSED CREEK BASELINE CONSTRUCTION

FOR GENERAL LEGEND, SEE SHEET 2

0 40 80
GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING	DRAWING NO.
DRAWN BY: TG	C1	SURVEY CONTROL PLAN	644 / 176923
TECH REVIEW: JB		LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
DATE: August 2023		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	04 OF 18
		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	

P:\10_PROJECTS\R\RIVERREACH\430\16986_CVNP BANK STABILIZATION\RESTORATION DESIGN\MM20 DESIGN 30\SHEETS\SURVEY CONTROL PLAN.DWG - SURVEY CONTROL PLAN - DESIGN REVIEW.CTB - PLOTTED MAY 2021
XREFS: ..\Xref\XG-SHEET BORDER.dwg | ..\Xref\XV-VBASE-OVRL.dwg | ..\Xref\XC-CIVIL-MM20.dwg



NOTES:

1. EX. WETLANDS WILL BE FLAGGED PRIOR TO THE START OF CONSTRUCTION.

LEGEND

P/L	PROPERTY LINE
685	EX. CONTOURS
	EX. THALWEG
	EX. TOP OF BANK
	EX. TOE OF SLOPE
	EX. WOODED AREA
	DISTURBANCE LIMITS
	EX. SPOIL AREA
	EX. TEMP. STOCKPILE STAGING AREA
	EX. DELINEATED WETLAND
	EX. CULVERT TO BE REMOVED
	EX. PAVEMENT TO BE REMOVED
	EX. TREE TO REMAIN
	EX. TREE TO BE REMOVED (REUSE)
	STREAM – EDGE OF WATER
	PROPOSED CREEK BASELINE CONSTRUCTION

0 60 120
GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING	DRAWING NO.
DRAWN BY: TG	C2	EX. CONDITIONS PLAN	644 / 176923
TECH REVIEW: JB		LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
DATE: August 2023		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	05 OF 18
		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	

P:\10_PROJECTS\RIVERREACH\430R16986_CVNP BANK STABILIZATION\RESTORATION DESIGN\MM20 DESIGN 30\SHEETS\MM20_EXCONDITIONSDEMO.DWG - C-01 - DESIGN REVIEW.CTB - PLOTTED MAY 2021
XREFS: ..\Xref\XG-SHEET BORDER.dwg | ..\Xref\XV-VBASE-OVRL.dwg | ..\Xref\XC-CIVIL-MM20.dwg

CONSTRUCTION SITE POLLUTION – EROSION CONTROL NOTES

1. THESE CONTRACT DRAWINGS SHALL BE MADE AVAILABLE ON SITE AT ALL TIMES AND PRESENTED UPON REQUEST. IF UNFORESEEN STORM WATER POLLUTION IS ENCOUNTERED, ADDITIONAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO MANAGE THE CURRENT SITE CONDITIONS WHICH MAY BE REQUESTED BY THE CONTRACTING OFFICER OR PROJECT ENGINEER AT ANYTIME. SUCH REQUESTS AND CHANGE IN SITE CONDITIONS SHALL BE IMPLEMENTED IMMEDIATELY.

2. ALL EROSION CONTROL MEASURES WILL BE INSTALLED BEFORE ANY OTHER EARTH MOVING OCCURS.

3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN OR NOTED IN THESE PLANS.

4. EROSION CONTROL MEASURES SHALL BE INSTALLED AROUND ALL DIRT OR TOPSOIL STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS SHOWN ON THESE PLANS AND AS DIRECTED BY THE ENGINEER OR CONTRACTING OFFICER.

5. CONSTRUCTION ENTRANCES, AND SILT PERIMETER CONTROLS SHALL REMAIN IN PLACE UNTIL A GOOD STAND OF PERMANENT NATIVE SEED HAS BEEN OBTAINED AND/OR OPERATIONS ARE COMPLETE. CONTRACTOR SHALL KEEP SILT FROM ENTERING ANY STORM DRAINAGE SYSTEM. ONCE SITE HAS BEEN COMPLETELY STABILIZED, ANY SILT IN PIPES AND DRAINAGE SWALES SHALL BE REMOVED WITHIN 10 DAYS.

6. UTILITY COMPANIES MUST COMPLY WITH ALL EROSION CONTROL MEASURES AS DEFINED ON THE EROSION CONTROL PLANS, DETAILS AND NOTES.

7. ALL EXISTING WATER COURSES WITHIN THE PROJECT LIMITS SHALL BE TEMPORARILY PROTECTED DURING LAND CLEARING AND GRADING OPERATIONS. SOILS WITHIN 50 FEET OF SAID WATER COURSES SHALL BE STABILIZED WITHIN 2 DAYS OF THE INITIAL CLEARING / GRADING OPERATION AS SHOWN ON PLANS.

8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND EROSION CONTROL ITEMS AT ALL TIMES.

9. DUST CONTROL SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. IF POSSIBLE GRADING SHALL BE DONE BY PHASING. IF PHASING IS NOT AN OPTION, DUST SHALL BE CONTROLLED WITH WATER DURING EARTHWORK.

10. ANY DISCHARGE OF HAZARDOUS MATERIALS / REGULATED SUBSTANCES ONTO A PERVIOUS SURFACE SHALL BE LEGALLY REMOVED AND PROPERLY TREATED OR PROPERLY DISPOSED OF, OR OTHERWISE REMEDIATED, SO THAT NO CONTAMINATION FROM THE DISCHARGE REMAINS ON-SITE.

11. IN THE EVENT OF HAZARDOUS MATERIALS / REGULATED SUBSTANCES SPILLS (25 OR MORE GALLONS OR ENOUGH TO CAUSE A SHEEN), THE CONTRACTOR MUST CONTACT THE OHIO EPA (1-800-282-9378), THE LOCAL FIRE DEPARTMENT, SUMMIT COUNTY LOCAL EMERGENCY PLANNING COMMITTEE (330-643-2522), THE CONTRACTING OFFICER, AND CUYAHOGA VALLEY NATIONAL PARK EMERGENCY SERVICES (440-546-5945) WITHIN 30 MINUTES. CONTACT INFORMATION BELOW:

    CUYAHOGA VALLEY NATIONAL PARK EMERGENCY SERVICES
    440-546-5945
    10340 RIVERVIEW ROAD
    BRECKSVILLE, OH 44141

    SUMMIT COUNTY LOCAL EMERGENCY PLANNING COMMITTEE
    (330) 643-2522
    175 S. MAIN ST.
    AKRON, OH 44308

    SAGAMORE HILLS TWP FIRE DEPARTMENT
    (330) 468-1234
    11550 VALLEY VIEW RD.
    SAGAMORE HILLS, OH 44067

12. IF CONDITIONS ARE SUCH THAT MUD IS COLLECTING ON VEHICLE TIRES, THE TIRES MUST BE CLEANED BEFORE THE VEHICLES ENTER THE PUBLIC ROADWAY. THE SITE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHT-OF-WAY. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO THE ROADWAY MUST BE REMOVED PROMPTLY.

13. IF NECESSARY, THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.

14. IF NECESSARY, ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. CONTRACTOR SHALL PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN ANY ROAD RIGHT OF WAY DURING CONSTRUCTION.

15. CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT. IF AN EXISTING FENCE IS PARTIALLY AROUND THE PERIMETER OF THE SITE IT COULD BE UTILIZED AS A CONSTRUCTION FENCE DURING INFRASTRUCTURE WORK.

16. IF, FOR ANY REASON, THE PROJECT IS SUSPENDED, THE CONTRACTOR SHALL ENSURE THAT ALL INSTALLED EROSION MEASURES ARE FUNCTIONING AND PROPERLY MAINTAINED DURING THIS PERIOD, AND THAT ALL BARE SOILS ARE SEEDED AND MULCHED WITH TEMPORARY SEED MIXTURE.

17. PERIMETER CONTROLS SHALL BE INSTALLED/IMPLEMENTED PER THE CONSTRUCTION SEQUENCE IN THIS PLAN SET (AS REQUIRED). IN AREAS WHERE THE PLANS DO NOT SPECIFY, OR AREAS WHICH ARE IN ADDITION TO PLAN SPECIFICATIONS, PERIMETER CONTROLS SHALL BE INSTALLED/IMPLEMENTED WITHIN 7 DAYS OF GRUBBING ACTIVITIES AND PRIOR TO GRADING OF THE AREA THEY WILL CONTROL.

18. SPILL REPORTING REQUIREMENTS: SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LAND FIILL. HAZARDOUS MATERIALS / REGULATED SUBSTANCES OR INDUSTRIAL WASTES SUCH AS MOST SOLVENTS, GASOLINE, OIL-BASED PAINTS, AND CEMENT CURING COMPOUNDS REQUIRE SPECIAL HANDLING. SPILLS SHALL BE REPORTED TO OHIO EPA (1-800-282-9378). SPILLS OF 25 GALLONS OR MORE OR ENOUGH TO CAUSE A SHEEN SHALL BE REPORTED TO OHIO EPA, THE LOCAL FIRE DEPARTMENT (330-655-2257), THE LOCAL EMERGENCY PLANNING COMMITTEE (330-643-2522), THE CONTRACTING OFFICER, AND CUYAHOGA VALLEY NATIONAL PARK SERVICES (440-546-5945) WITHIN 30 MINUTES OF THE DISCOVERY OF THE RELEASE. ALL SPILLS WHICH CONTACT WATERS OF THE STATE MUST BE REPORTED TO OHIO EPA.

19. HAZARDOUS MATERIALS/REGULATED SUBSTANCES. IF SUBSTANCES SUCH AS OIL, DIESEL FUEL, HYDRAULIC FLUID, ANTIFREEZE, ETC. ARE SPILLED, LEAKED, OR RELEASED ONTO THE SOIL, THE SOIL SHOULD BE DUG UP AND DISPOSED OF AT A LICENSED SANITARY LAND FILL OR OTHER APPROVED PETROLEUM CONTAMINATED SOIL REMEDIATION FACILITY (NOT A CONSTRUCTION/DEMOLITION DEBRIS LAND FILL). NOTE THOSE STORM WATER RUNOFFS ASSOCIATED WITH CONTAMINATED SOILS ARE NOT AUTHORIZED UNDER OHIO EPA'S GENERAL STORM WATER PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

20. OPEN BURNING, NO MATERIALS CONTAINING RUBBER, GREASE, ASPHALT, OR PETROLEUM PRODUCTS, SUCH AS TIRES, AUTO PARTS, PLASTICS OR PLASTIC COATED WIRE MAY BE BURNED (OAC 3745-19). OPEN BURNING IS NOT ALLOWED IN RESTRICTED AREAS, AS FOLLOWS:
    1) WITHIN CORPORATION LIMITS
    2) WITHIN 1000 FEET OUTSIDE A MUNICIPAL CORPORATION HAVING A POPULATION OF 1,000 TO 10,000
    3) A ONE MILE ZONE OUTSIDE OF A CORPORATION OF 10, 000 OR MORE. OUTSIDE OF RESTRICTED AREAS.

    NO OPEN BURNING IS ALLOWED WITHIN 1000 FEET OF AN INHABITED BUILDING ON ANOTHER PROPERTY. OPEN BURNING IS PERMISSIBLE IN A RESTRICTED AREA FOR: HEATING TAR, WELDING, SMUDGE POTS AND SIMILAR OCCUPATIONAL NEEDS, AND HEATING FOR WARMTH OR OUTDOOR BARBEQUES. OUTSIDE OF RESTRICTED AREAS, OPEN BURNING IS PERMISSIBLE FOR LANDSCAPE OR LAND-CLEARING WASTES (PLANT MATERIAL, WITH PRIOR WRITTEN PERMISSION FROM OHIO EPA), AND AGRICULTURAL WASTES, EXCLUDING BUILDINGS.

26. DUST CONTROL OR DUST SUPPRESSANTS SHALL BE USED TO PREVENT NUISANCE CONDITIONS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IN A MANNER, WHICH PREVENT A DISCHARGE TO WATERS OF THE STATE. SUFFICIENT DISTANCE MUST BE PROVIDED BETWEEN APPLICATIONS AND NEARBY BRIDGES, CATCH BASINS, AND OTHER WATERWAYS. APPLICATION (EXCLUDING WATER) MAY NOT OCCUR WHEN RAIN IS IMMINENT AS NOTED IN THE SHORT TERM FORECAST. USED OIL MAY NOT BE APPLIED FOR DUST CONTROL.

27. PROCESS WASTE WATER/LEACHATE MANAGEMENT. OHIO EPA'S CONSTRUCTION GENERAL PERMIT ONLY ALLOWS THE DISCHARGE OF STORM WATER AND DOES NOT INCLUDE OTHER WASTE STREAMS/DISCHARGES SUCH AS VEHICLE AND/OR EQUIPMENT WASHING, ON-SITE SEPTIC LEACHATE CONCRETE WASH OUTS, WHICH ARE CONSIDERED PROCESS WASTEWATERS. ALL PROCESS WASTEWATERS MUST BE COLLECTED AND PROPERLY DISPOSED AT AN APPROVED DISPOSAL FACILITY. IN THE EVENT, LEACHATE OR SEPTAGE IS DISCHARGED; IT MUST BE ISOLATED FOR COLLECTION AND PROPER DISPOSAL AND CORRECTIVE ACTIONS TAKEN TO ELIMINATE THE SOURCE OF WASTE WATER.

28. PLEASE REFER TO THE OHIO RAINWATER AND LAND DEVELOPMENT MANUAL, OHIO'S STANDARDS FOR STORMWATER MANAGEMENT LAND DEVELOPMENT AND URBAN STREAM PROTECTION, CURRENT EDITION, FOR ADDITIONAL INFORMATION.

STORMWATER MANAGEMENT BMPS

BMP 1 TEMPORARY SEEDING:
- PLANT TEMPORARY SEEDING AND MULCHING IN ALL AREAS THAT SHALL BE INACTIVE FOR 14 DAYS OR MORE.
- ALL DISTURBED AND ERODED EARTH SHALL BE REGRADED AND SEEDED WITHIN 7 DAYS WITH SEEDING, AS DEFINED ABOVE AND AS SHOWN ON THE TABLE BELOW, TO ESTABLISH STABILITY AND PROVIDE SEDIMENT CONTROL.
- WHERE POSSIBLE, TEMPORARY SEEDING GROWTH SHALL NOT BE MOWED UNTIL IT HAS GONE TO SEED FOR 1 YEAR.

TEMPORARY SEEDING SPECIFICATIONS:

SEEDING DATES	*SEED TYPE*	*APPLICATION RATE*	
MARCH 1 – NOVEMBER 1	*OATS*	*50#*	*PER ACRE*
AFTER NOVEMBER 1	*STRAW OR HAY MULCH*	*80 – 120 BALES*	
SEED BED PREPARATION	*LIME*	*4300#*	
	10-10-10 OR 12-12-12 FERTILIZER	*516 – 645#*	

BMP 2 PERMANENT SEEDING:
- EMBANKMENT AND FLOODPLAIN SEED MIXES
- SEE SHEET 18 FOR LOCATIONS.
- SEE SHEET 17 FOR NOTES.

BMP 3 SILT FENCE:
- SEE SHEET 07 FOR NOTES AND DETAILS.

BMP 4 CONSTRUCTION ENTRANCE:
- SEE SHEET 07 FOR NOTES AND DETAILS.

BMP 5 WASTE DISPOSAL, SOLID WASTE MATERIALS, HAZARDOUS WASTES, AND SANITARY WASTE:
- CONSTRUCTION PERSONNEL, INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES REGARDING DISPOSAL AND HANDLING OF HAZARDOUS AND CONSTRUCTION WASTES:

    A. PREVENT SPILLS
    B. USE PRODUCTS UP
    C. FOLLOW LABEL DIRECTIONS FOR DISPOSAL
    D. REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TRASH
    E. RECYCLE WASTES WHENEVER POSSIBLE
    F. DON'T POUR INTO WATERWAYS, STORM DRAINS OR ONTO THE GROUND
    G. DON'T POUR DOWN THE SINK, DOOR DRAIN OR SEPTIC TANKS
    H. DON'T BURY CHEMICALS OR CONTAINERS
    I. DON'T BURN CHEMICALS OR CONTAINERS
    J. DON'T MIX CHEMICALS TOGETHER

- CONTAINERS SHALL BE PROVIDED FOR THE PROPER COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBRIS, TRASH, PETROLEUM PRODUCTS AND ANY HAZARDOUS MATERIALS USED ON-SITE. CONTAINERS SHALL BE COVERED AND NOT LEAKING.
- ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL. CONSTRUCTION DEMOLITION AND DEBRIS (CD&D) WASTE MUST BE DISPOSED OF AT AN OHIO EPA APPROVED CD&D LAND FILL.
- NO CONSTRUCTION RELATED WASTE MATERIALS ARE TO BE BURIED ON-SITE. BY EXCEPTION, CLEAN FILL (BRICKS, HARDENED CONCRETE, SOIL) MAY BE UTILIZED IN A WAY WHICH DOES NOT ENCROACH UPON NATURAL WETLANDS, STREAMS OR PLAINS OR RESULT IN THE CONTAMINATION OF WATERS OF THE STATE.
- WASTES GENERATED BY CONSTRUCTION ACTIVITIES (I.e. CONSTRUCTION MATERIALS SUCH AS PAINTS, SOLVENTS, FUELS, CONCRETE, WOOD, ETC) MUST BE DISPOSED OF IN ACCORDANCE WITH ORC 3734 AND OR5C 3714.

BMP 6 MATERIAL HANDLING:
- STOCKPILED MATERIALS (STONE, TOPSOIL, ETC.) SHALL BE SURROUNDED WITH SILT FENCE. SILT FENCE SHALL BE INSPECTED AS SPECIFIED ON THIS SHEET.
- ALL PETROLEUM PRODUCTS SHALL BE KEPT IN SEALED TANKS/CONTAINERS. TANKS/CONTAINERS AND VEHICLES SHALL BE INSPECTED REGULARLY FOR LEAKS. SPILLS SHALL BE REPORTED AS SPECIFIED ON THIS SHEET.
- MIXING, PUMPING, TRANSFERRING OR OTHER HANDLING OF CONSTRUCTION CHEMICALS SUCH AS FERTILIZER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE PERFORMED IN AN AREA AWAY FROM ANY WATERCOURSE, DITCH OR STORM DRAIN.

BMP 7 EQUIPMENT FUELING AND MAINTENANCE:
- EQUIPMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC., SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES OR STORM DRAINS, IN AN AREA DESIGNATED FOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS. SECONDARY CONTAINMENT SHALL BE PROVIDED FOR ALL FUEL OIL STORAGE TANKS. THESE AREAS MUST BE INSPECTED EVERY SEVEN DAYS AND WITHIN 24 HRS. OF A 0.5 INCH OR GREATER RAIN EVENT TO ENSURE THERE ARE NO EXPOSED MATERIALS WHICH WOULD CONTAMINATE STORM WATER.
- SITE OPERATORS MUST BE AWARE THAT SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) REQUIREMENTS MAY APPLY. A SPCC PLAN IS REQUIRED FOR SITES WITH ONE SINGLE ABOVE GROUND TANK OF 660 GALLONS OR MORE, ACCUMULATIVE ABOVE GROUND STORAGE OF 1330 GALLONS OR MORE, OR 42,000 GALLONS OF UNDERGROUND STORAGE.
- CONTAMINATED SOILS MUST BE DISPOSED OF AS SPECIFIED ON THIS SHEET.

BMP 8 TIMBER MAT WETLAND CROSSING (OR APPROVED EQUAL):
- SEE SHEET 07 FOR NOTES AND DETAILS
- USE WHEN NECESSARY
- RESTORE ALL TEMPORARY IMPACTS UPON PROJECT COMPLETION.

BMP 9 EROSION CONTROL MATTING – STREAM BANKS
- TO BE INSTALLED PER MANUFACTURERS SPECS.
- SEE SHEET 07 FOR NOTES AND DETAILS

FOR PERMANENT SEEDING AND MULCHING NOTES, SEE SHEET 17
FOR COMPLETE LEGEND, SEE SHEET 02

SITE INSPECTIONS SHALL BE DONE WEEKLY AND AFTER EVERY RAINFALL EVENT EXCEEDING 1/2" OF RAINFALL. ALL NECESSARY REPAIRS SHOULD BE IMPLEMENTED IMMEDIATELY AFTER SUCH INSPECTIONS.

ONLY A QUALIFIED INSPECTION PERSONNEL IS TO PERFORM INSPECTIONS.

INSPECTOR SHALL BE RESPONSIBLE FOR PREPARING AND SIGNING WEEKLY AND ALL INTERMEDIATE EROSION CONTROL INSPECTION REPORTS AFTER EVERY INSPECTION. SUCH REPORTS SHALL BE MADE AVAILABLE TO CONTRACTING OFFICER, ENGINEER, AND CITY / STATE OFFICIALS UPON THEIR REQUEST.

SUCH REPORTS SHALL BE KEPT FOR 3 YEARS AFTER TERMINATION OF CONSTRUCTION ACTIVITIES.

** REVISIONS TO THESE PLANS MUST BE AUTHORIZED BY THE CONTRACTING OFFICER AND/OR GPD GROUP PRIOR TO IMPLEMENTATION.

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XREFS: ..\Xref\XG-SHEET BORDER.dwg | ..\Xref\XV-VBASE-OVRL.dwg | ..\Xref\pr-base-MM20.dwg | ..\Xref\XC-CIVIL-MM20.dwg

TABLE 6.3.2 MINIMUM CRITERIA FOR SILT FENCE FABRIC (ODOT, 2013)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs. (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs. (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10−2 sec.−1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM D 4355

NOTES:

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
2. ALL SILT FENCES SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
4. SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
5. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FEET (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
6. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE GROUND SURFACE.
7. THE SILT FENCE SHALL BE PLACED IN AN EXCAVATED OR SLICED TRENCH CUT A MINIMUM OF 6 INCHES DEEP. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
8. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE. A MINIMUM OF 8 INCHES OF GEOTEXTILE MUST BE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6-INCH DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED ON BOTH SIDES OF THE FABRIC.
9. SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6-IN. OVERLAP PRIOR TO DRIVING INTO THE GROUND, (SEE DETAILS).
10. MAINTENANCE – SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER THE FABRIC OR AROUND THE FENCE ENDS, OR IN ANY OTHER WAY ALLOWS A CONCENTRATED FLOW DISCHARGE, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE:

    1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED
    2) ACCUMULATED SEDIMENT SHALL BE REMOVED
    3) OTHER PRACTICES SHALL BE INSTALLED

    SEDIMENT DEPOSITS SHALL BE ROUTINELY REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE.

    SILT FENCES SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY DURING A PROLONGED RAINFALL. THE LOCATION OF EXISTING SILT FENCE SHALL BE REVIEWED DAILY TO ENSURE ITS PROPER LOCATION AND EFFECTIVENESS. IF DAMAGED, THE SILT FENCE SHALL BE REPAIRED IMMEDIATELY.

CRITERIA FOR SILT FENCE MATERIALS

1. FENCE POST – THE LENGTH SHALL BE A MINIMUM OF 32 INCHES. WOOD POSTS SHALL BE 2-BY-2-IN. NOMINAL DIMENSIONED HARDWOOD OF SOUND QUALITY. THEY SHALL BE FREE OF KNOTS, SPLITS AND OTHER VISIBLE IMPERFECTIONS, THAT WILL WEAKEN THE POSTS. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FT. POSTS SHALL BE DRIVEN A MINIMUM 16 INCHES INTO THE GROUND, WHERE POSSIBLE. IF NOT POSSIBLE, THE POSTS SHALL BE ADEQUATELY SECURED TO PREVENT OVERTURNING OF THE FENCE DUE TO SEDIMENT/WATER LOADING.
2. SILT FENCE FABRIC – SEE CHART IN THIS DETAIL.

SILT FENCE DETAIL
(BMP 3)
SCALE: NTS

NOTES:

1. THE EXISTING GRAVEL DRIVE SHALL BE UTILIZED FOR CONSTRUCTION ENTRANCE. IF NECESSARY, INSTALL CONSTRUCTION ENTRANCE AS NOTED BELOW.
2. STONE SIZE – NO. 2 STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
3. THICKNESS – STONE LAYER SHALL BE 6" THICK FOR STANDARD DUTY ACTIVITY AND 10" THICK FOR HEAVY DUTY ACTIVITY.
4. DRIVEWAY WIDTH – THE ENTRANCE SHALL BE AT LEAST 16' WIDE. CONTRACTOR SHALL ENSURE ALL VEHICLES UTILIZE THE CONSTRUCTION ENTRANCE UNTIL PAVEMENT IS IN PLACE.
5. BEDDING–A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LBS. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LBS.
6. CULVERT–A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
7. WATER BAR – A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
8. MAINTENANCE – TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
9. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SHALL BE RESTRICTED FROM MUDDY AREAS.
10. THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.

TEMPORARY CONSTRUCTION DRIVE ACCESS
(BMP 4)
SCALE: NTS

NOTES:

1. THIS TYPE OF CROSSING IS GENERALLY USED FOR SMALL STREAM CROSSINGS LESS THAN 30 FEET IN WIDTH AND A PROPER STREAM BANK CONFIGURATION.
2. TIMBER MAT SHALL BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE FOR CROSSING.
3. TIMBER MAT TO REMAIN IN PLACE UNTIL COMPLETION OF FINAL RESTORATION.
4. A SKIRT FORMED OF SILT FENCE, GEOTEXTILE FABRIC, OR EQUIVALENT SHALL BE PLACED ON THE BOTTOM OF THE BRIDGE TO TRAP SEDIMENT AS NECESSARY.
5. INDIVIDUAL MATS SHALL BE ANCHORED AND BUTTED TIGHTLY TO MINIMIZE THE INTRODUCTION OF SEDIMENT TO THE WATERBODY.
6. IF NECESSARY, HAY BALES WILL BE PLACED AT THE EDGE OF THE TIMBER MAT AT THE END OF EACH WORK DAY TO PREVENT EROSION, BUT WILL BE REMOVED DURING CONSTRUCTION ACTIVITY.
7. TEMPORARY WETLAND CROSSING SHALL BE INSPECTED ON A DAILY BASIS.
8. DAMAGED CROSSING SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION, AND BEFORE ANY SUBSEQUENT USE.
9. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF INSPECTION.

TIMBER MAT EQUIPMENT CROSSING OVER WETLAND
(BMP 8)
SCALE: NTS

EROSION FABRIC NOTES:

- EMBANKMENT: 700 SEMES COIR BLANKET OR APPROVED EQUAL, INSTALLED PER MANUFACTURER SPECIFICATIONS
- DISTURBED AREA ABOVE THE PROPOSED EMBANKMENT AREA [I.E. STAGING AREAS AND TREE LAWNS]: STRAW BLANKET

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF WOODY STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF WOODY STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING WOODY STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP DEPENDING ON THE RECPS TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 10" OVERLAP. SECURED THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPS WIDTH.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S

EROSION CONTROL FABRIC DETAIL
(BMP 9)
SCALE: NTS
[DETAIL PER NORTH AMERICAN GREEN – EROSION CONTROL PRODUCTS]

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: EROSION CONTROL DETAILS	DRAWING NO. 644 / 176923
DRAWN BY: TG	C4	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	07 OF 18

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FOR GENERAL LEGEND, SEE SHEET 2
FOR PERMANENT SEEDING LOCATIONS AND QUANTITIES, SEE SHEET 18 AND 17

LEGEND

- P/L — PROPERTY LINE
- 685 — EX. CONTOUR
- 685 — PROP. CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED ACCESS ROUTE
- PROPOSED SILT FENCE
- PROPOSED STAGING AREA
- EXISTING WETLAND
- STREAM – EDGE OF WATER
- PROPOSED CREEK BASELINE CONSTRUCTION

0 100 200
GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: EROSION CONTROL PLAN	DRAWING NO. 644 / 176923
DRAWN BY: TG	C5	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST · COUNTY: SUMMIT/CUYAHOGA · STATE: OHIO	08 OF 18

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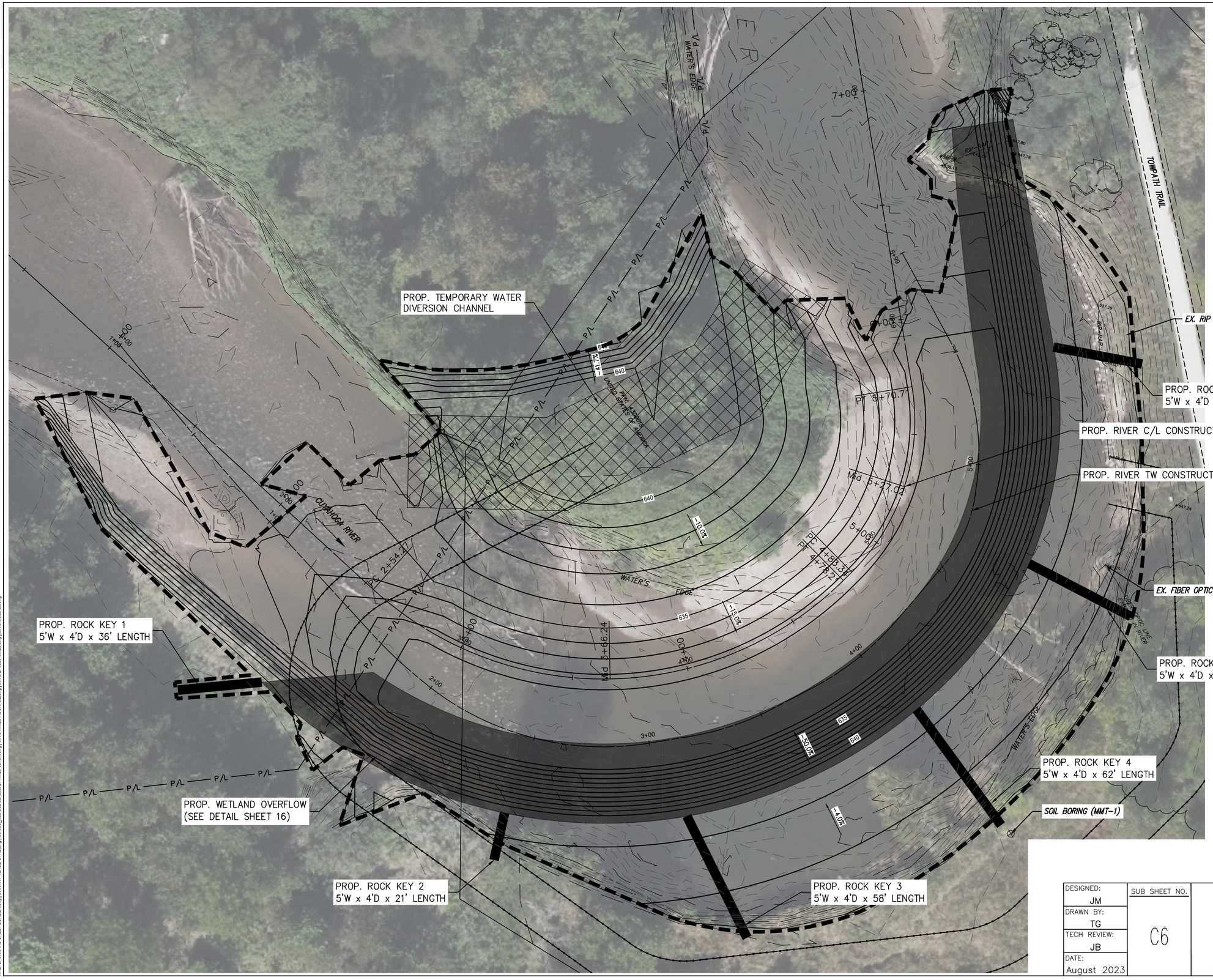

DESIGNED: JM	SUB SHEET NO. C6	TITLE OF DRAWING: PROP. GRADING PLAN	DRAWING NO. 644 / 176923
DRAWN BY: TG		LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	09 OF 18
DATE: August 2023		REGION: MIDWEST / COUNTY: SUMMIT/CUYAHOGA / STATE: OHIO	

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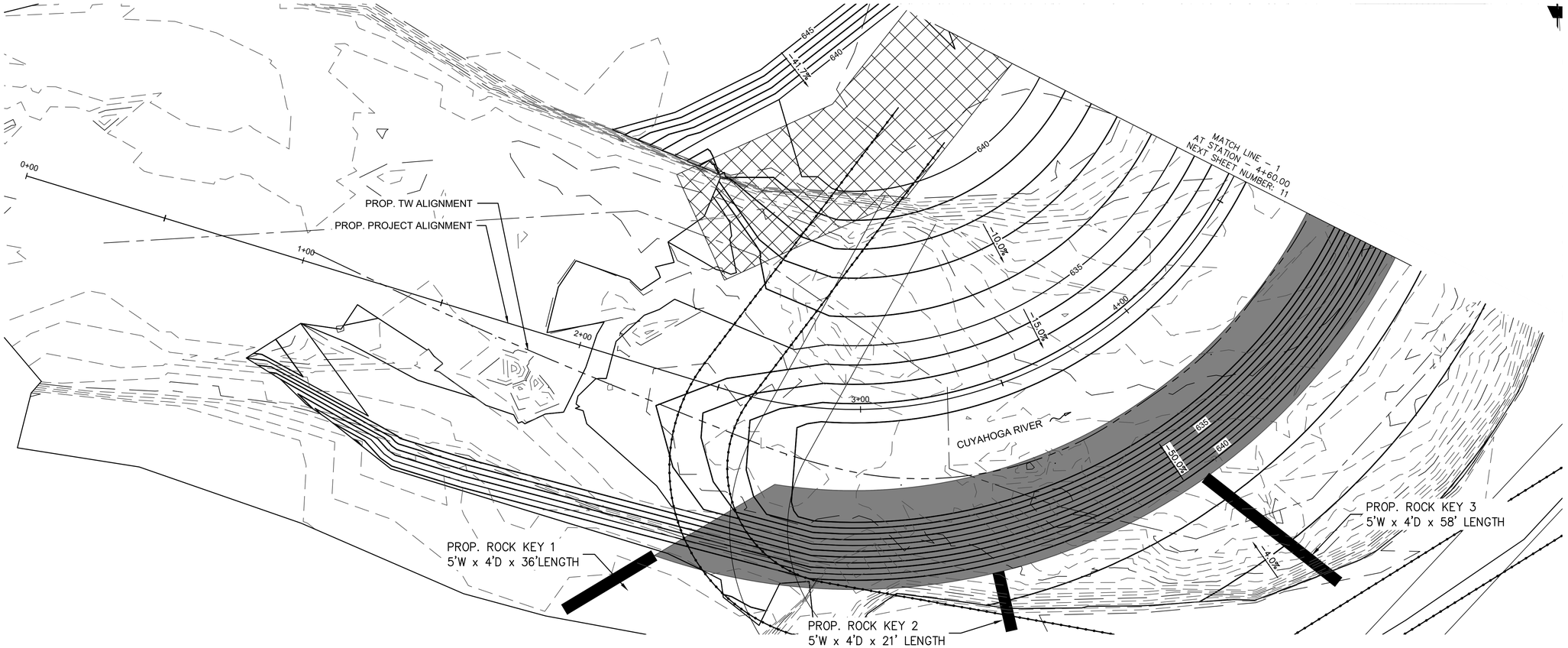

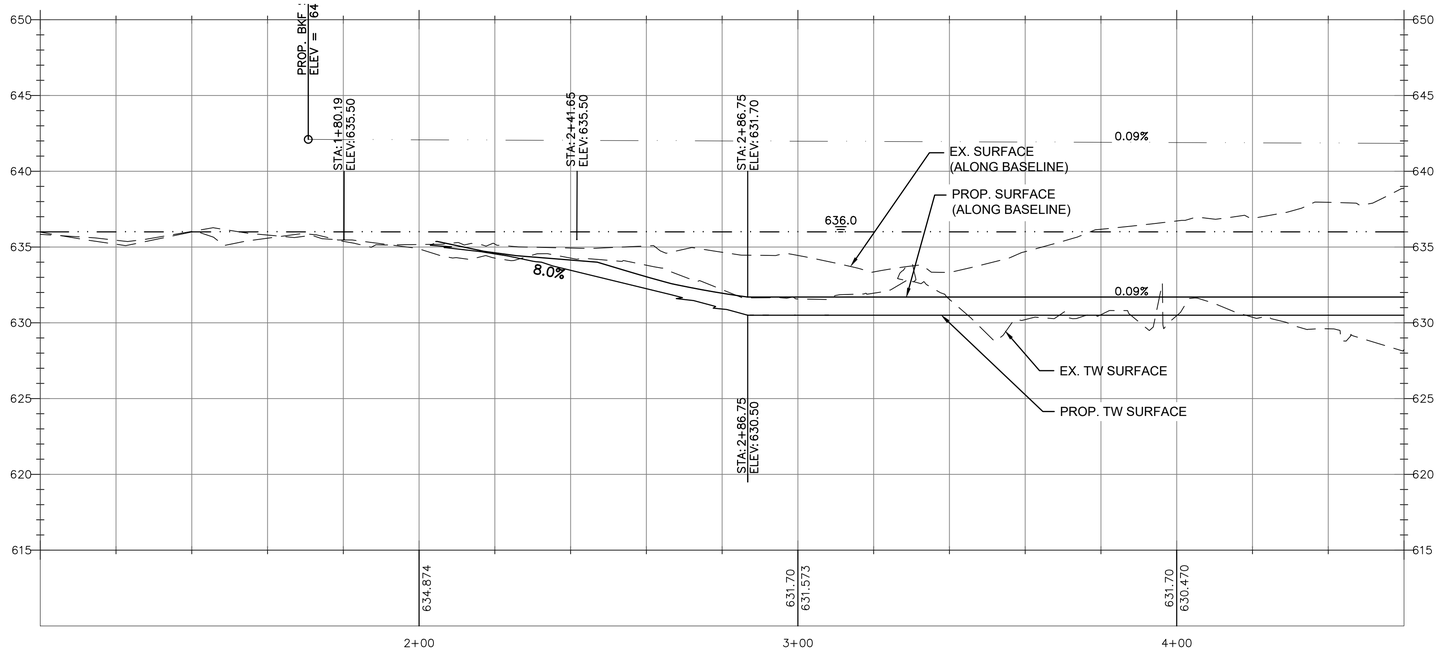

LEGEND

- P/L — PROPERTY LINE
- 685 — EX. CONTOURS
- 685 — PROP. CONTOURS
- PROPOSED ACCESS ROUTE
- PROPOSED GRADING LIMITS
- PROP. ROCK KEY
- PROP. BANK STABILIZATION
- PROPOSED WATER DIVERSION CHANNEL

PROFILE LEGEND

- EX. SURFACE
- PROP. THALWEG
- PROP. BANKFULL
- APPROX. LOW FLOW WATER SURFACE

0 5 10
GRAPHIC SCALE IN FEET
VERTICAL SCALE

0 20 40
GRAPHIC SCALE IN FEET
HORIZONTAL SCALE

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: PROP. PLAN AND PROFILE	DRAWING NO. 644 / 176923
DRAWN BY: TG	C7	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST / COUNTY: SUMMIT/CUYAHOGA / STATE: OHIO	10 OF 18

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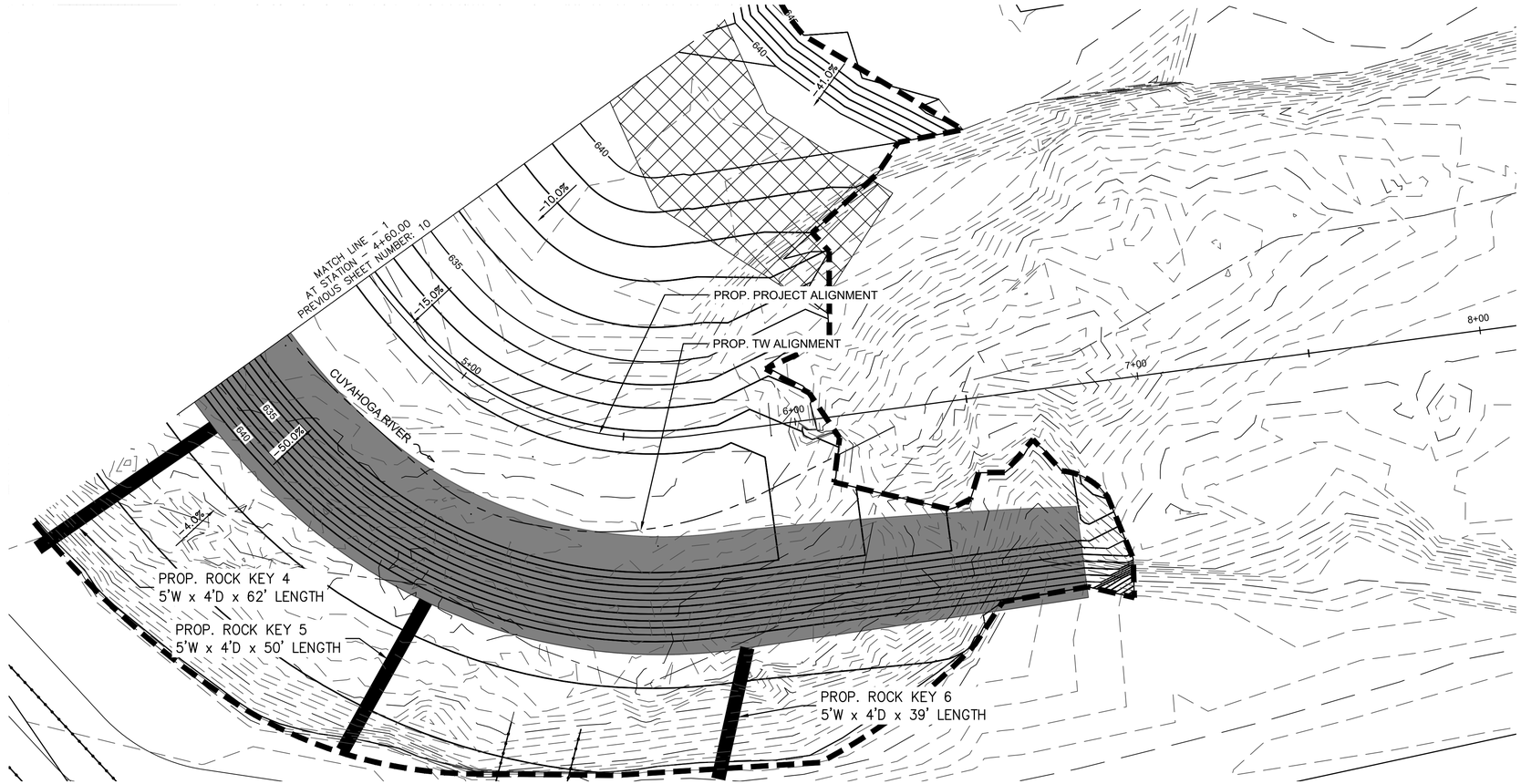

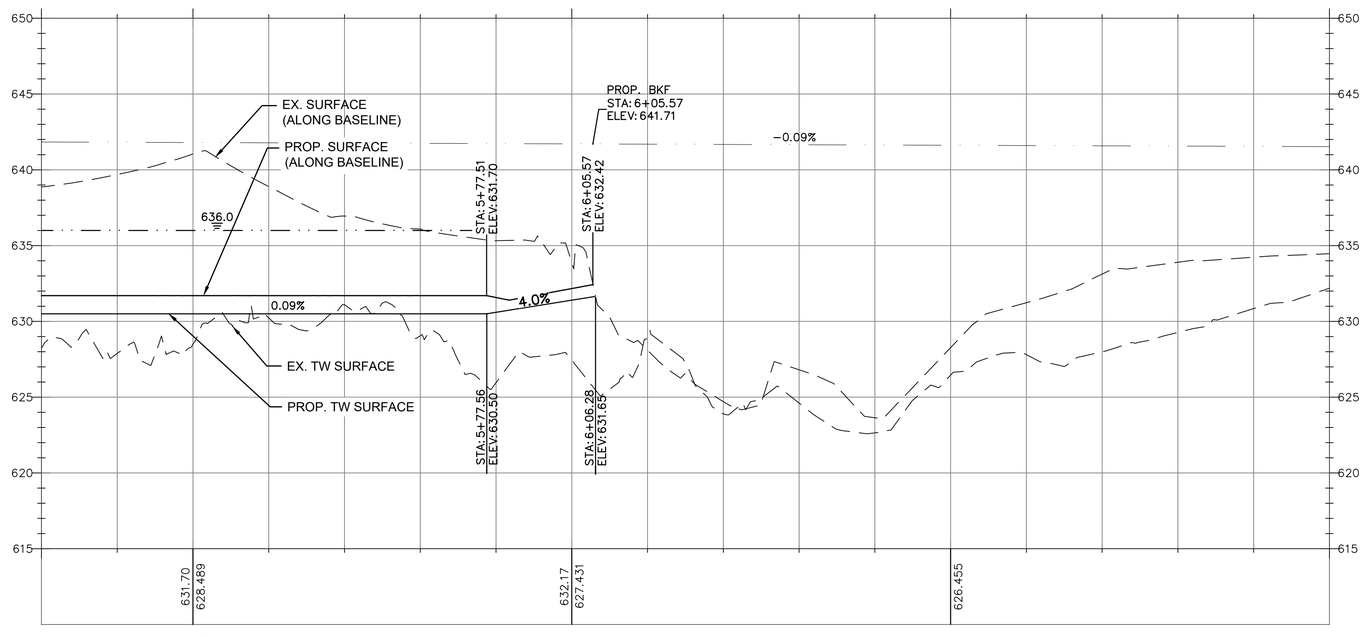

LEGEND

- P/L — PROPERTY LINE
- 685 — EX. CONTOURS
- 685 — PROP. CONTOURS
- PROPOSED ACCESS ROUTE
- PROPOSED GRADING LIMITS
- PROP. ROCK KEY
- PROP. BANK STABILIZATION
- PROPOSED WATER DIVERSION CHANNEL

PROFILE LEGEND

- EX. SURFACE
- PROP. THALWEG
- PROP. BANKFULL
- APPROX. LOW FLOW WATER SURFACE

0 5 10
GRAPHIC SCALE IN FEET
VERTICAL SCALE

0 20 40
GRAPHIC SCALE IN FEET
HORIZONTAL SCALE

DESIGNED: JM DRAWN BY: TG TECH REVIEW: JB DATE: August 2023	SUB SHEET NO. C8	TITLE OF DRAWING PROP. PLAN AND PROFILE LOCATION WITHIN PARK MM20 SOUTH NAME OF PARK CUYAHOGA VALLEY NATIONAL PARK REGION: MIDWEST COUNTY: SUMMIT/CUYAHOGA STATE: OHIO	DRAWING NO. 644 176923 PMIS/PKG NO. 224822 11 OF 18

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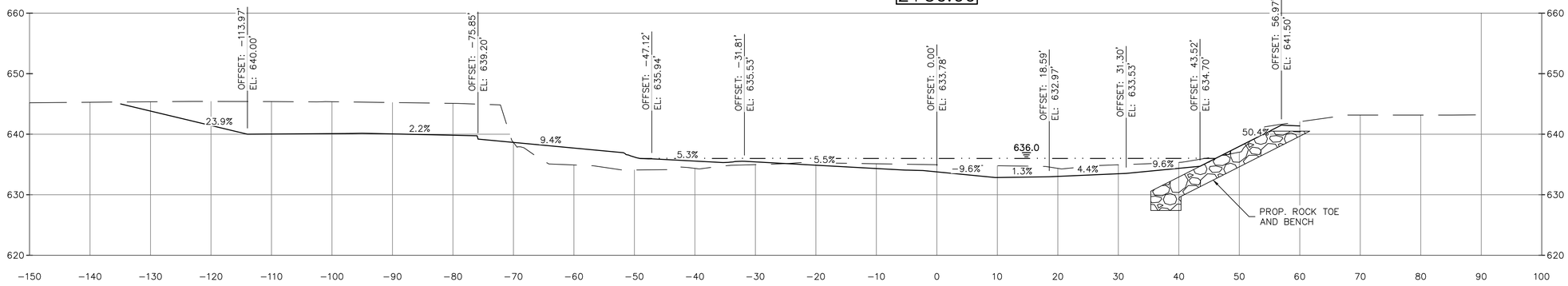

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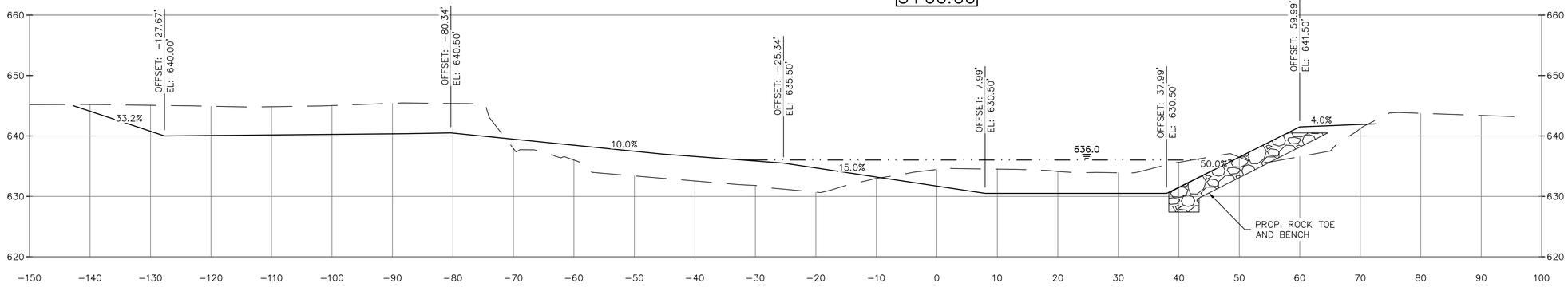

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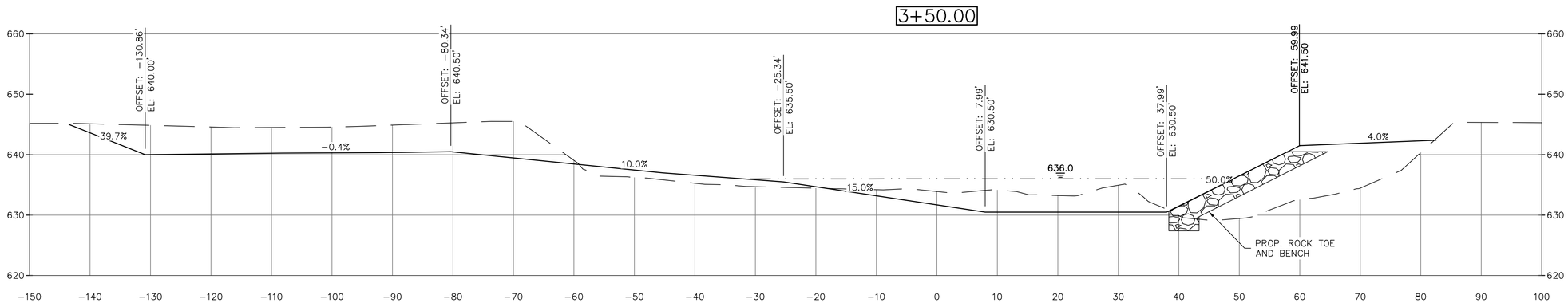

NOTES:

1. ELEVATIONS PROVIDED IN CROSS SECTIONS REPRESENT FINISHED GRADE.
2. FINAL GRADES AND SLOPES WILL BE ADJUSTED IN THE FIELD AS NECESSARY AT THE DIRECTION OF THE ENVIROSCIENCE CONSTRUCTION REPRESENTATIVE. SLOPES WILL BE GRADED TO CREATE A NATURAL APPEARANCE.

LEGEND

EX GROUND
PROP. GRADE
636.0 APPROX. LOW FLOW WATER SURFACE

0 10 20
GRAPHIC SCALE IN FEET

DESIGNED:	JM
DRAWN BY:	TG
TECH REVIEW:	JB
DATE:	August 2023

SUB SHEET NO.: C9

TITLE OF DRAWING
RIVER CROSS SECTIONS
LOCATION WITHIN PARK
MM20 SOUTH
NAME OF PARK
CUYAHOGA VALLEY NATIONAL PARK
REGION: MIDWEST | COUNTY: SUMMIT/CUYAHOGA | STATE: OHIO

DRAWING NO. 644 176923
PMIS/PKG NO. 224822
12 OF 18

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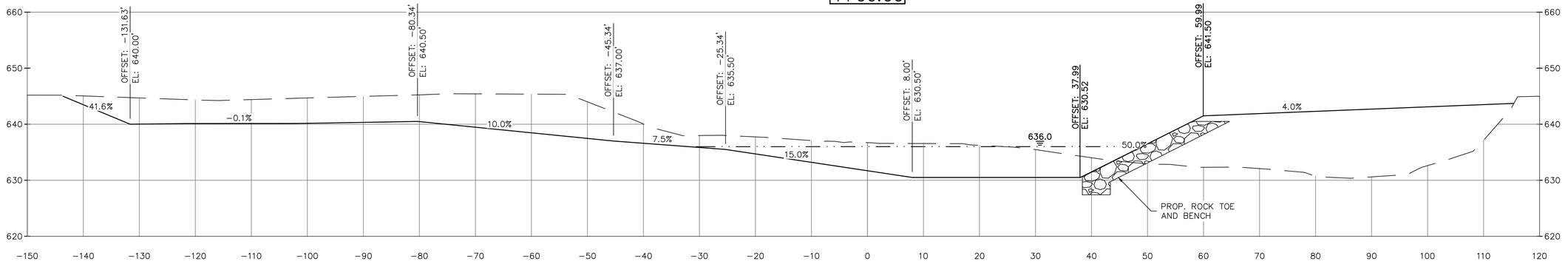

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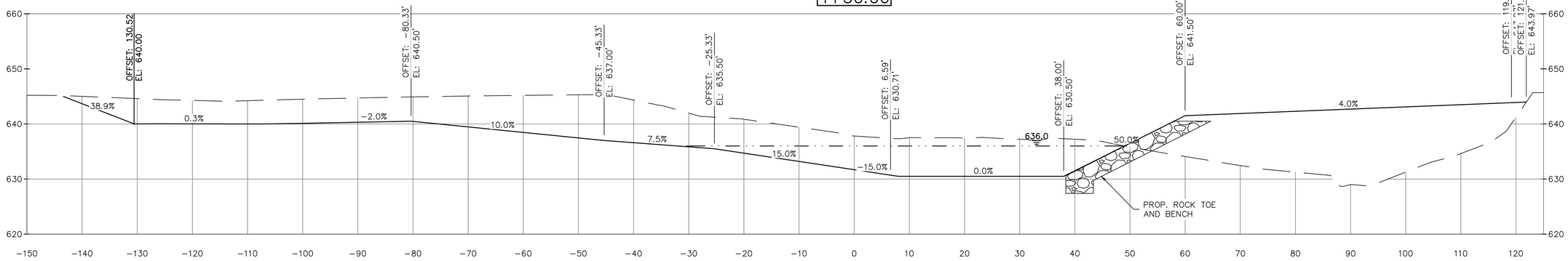

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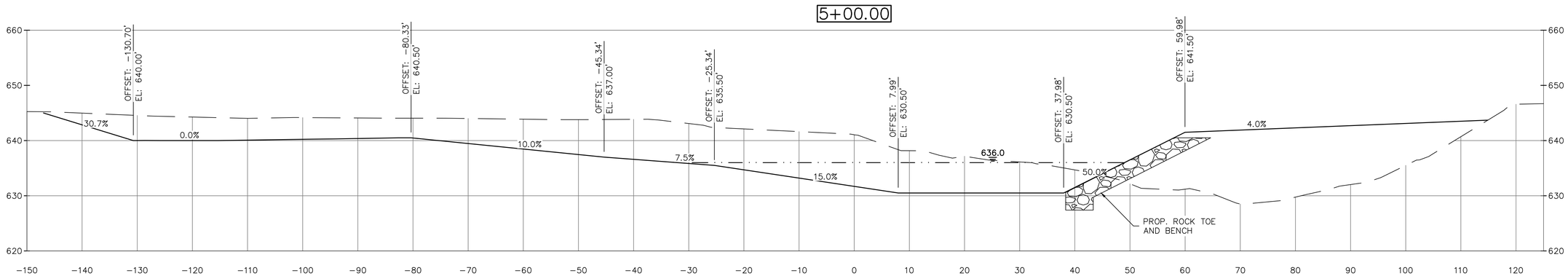

NOTES:

1. ELEVATIONS PROVIDED IN CROSS SECTIONS REPRESENT FINISHED GRADE.
2. FINAL GRADES AND SLOPES WILL BE ADJUSTED IN THE FIELD AS NECESSARY AT THE DIRECTION OF THE ENVIROSCIENCE CONSTRUCTION REPRESENTATIVE. SLOPES WILL BE GRADED TO CREATE A NATURAL APPEARANCE.

LEGEND

- EX GROUND
- PROP. GRADE
- 636.0 APPROX. LOW FLOW WATER SURFACE

0 10 20
GRAPHIC SCALE IN FEET

DESIGNED:	JM
DRAWN BY:	TG
TECH REVIEW:	JB
DATE:	August 2023

SUB SHEET NO. C10

TITLE OF DRAWING
RIVER CROSS SECTIONS
LOCATION WITHIN PARK
MM20 SOUTH
NAME OF PARK
CUYAHOGA VALLEY NATIONAL PARK
REGION: MIDWEST | COUNTY: SUMMIT/CUYAHOGA | STATE: OHIO

DRAWING NO. 644 176923
PMIS/PKG NO. 224822
13 OF 18

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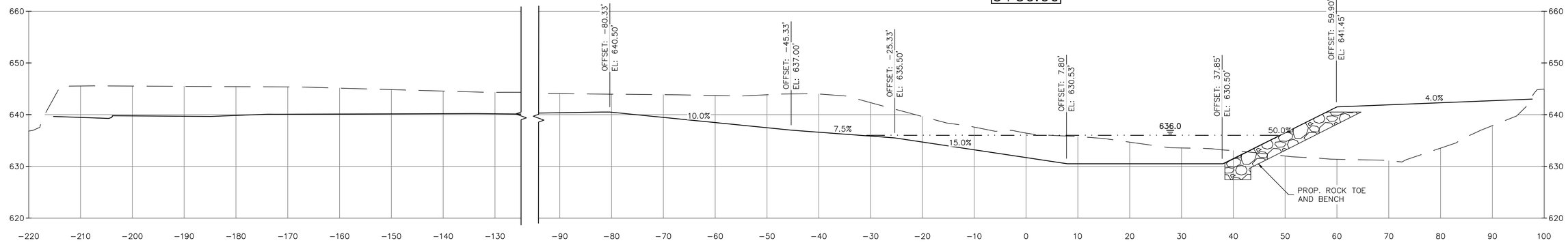

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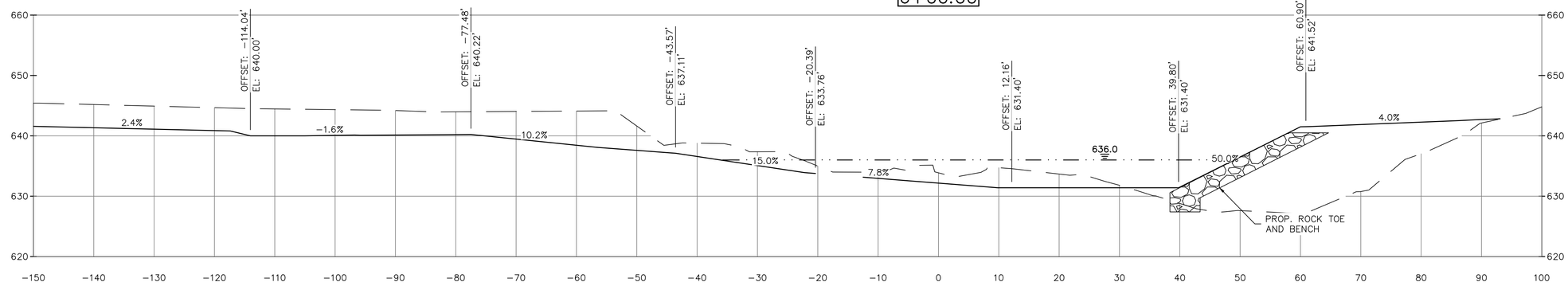

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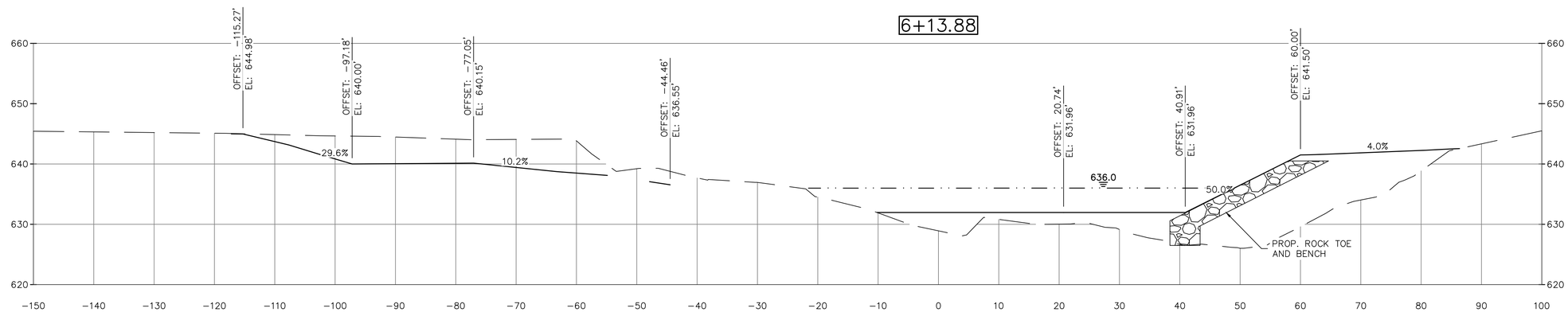

NOTES:

1. ELEVATIONS PROVIDED IN CROSS SECTIONS REPRESENT FINISHED GRADE.
2. FINAL GRADES AND SLOPES WILL BE ADJUSTED IN THE FIELD AS NECESSARY AT THE DIRECTION OF THE ENVIROSCIENCE CONSTRUCTION REPRESENTATIVE. SLOPES WILL BE GRADED TO CREATE A NATURAL APPEARANCE.

LEGEND

EX GROUND

PROP. GRADE

636.0 APPROX. LOW FLOW WATER SURFACE

0 10 20

GRAPHIC SCALE IN FEET

DESIGNED:	JM
DRAWN BY:	TG
TECH REVIEW:	JB
DATE:	August 2023

SUB SHEET NO. C11

TITLE OF DRAWING
RIVER CROSS SECTIONS
LOCATION WITHIN PARK
MM20 SOUTH
NAME OF PARK
CUYAHOGA VALLEY NATIONAL PARK
REGION: MIDWEST | COUNTY: SUMMIT/CUYAHOGA | STATE: OHIO

DRAWING NO. 644 176923

PMIS/PKG NO. 224822

14 OF 18

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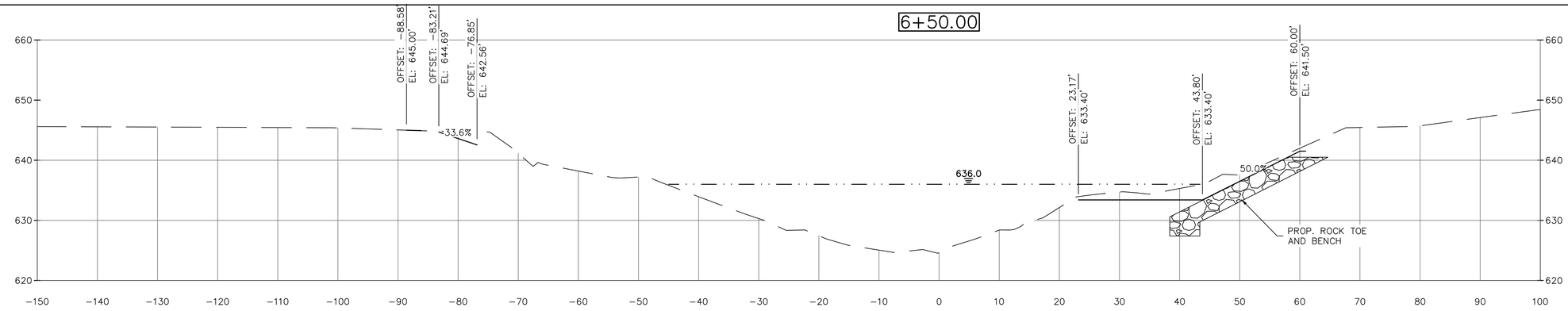

NOTES:

1. ELEVATIONS PROVIDED IN CROSS SECTIONS REPRESENT FINISHED GRADE.
2. FINAL GRADES AND SLOPES WILL BE ADJUSTED IN THE FIELD AS NECESSARY AT THE DIRECTION OF THE ENVIROSCIENCE CONSTRUCTION REPRESENTATIVE. SLOPES WILL BE GRADED TO CREATE A NATURAL APPEARANCE.

LEGEND

EX GROUND

PROP. GRADE

636.0 APPROX. LOW FLOW WATER SURFACE

0 10 20

GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING	DRAWING NO. 644
DRAWN BY: TG	C12	RIVER CROSS SECTIONS	176923
TECH REVIEW: JB		LOCATION WITHIN PARK MM20 SOUTH	PMIS/PKG NO. 224822
DATE: August 2023		NAME OF PARK CUYAHOGA VALLEY NATIONAL PARK	15 OF 18
		REGION MIDWEST / COUNTY SUMMIT/CUYAHOGA / STATE OHIO	

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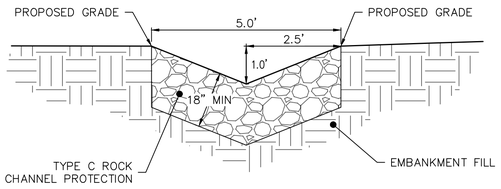
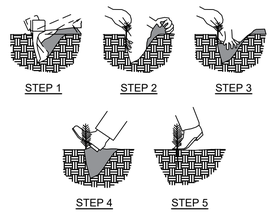


NOTE:
1. ROCK FOR WETLAND OVERFLOW TO EXTEND FROM TOP OF BANK TO ELEVATION 636, TOP OF ROCK CHANNEL PROTECTION.

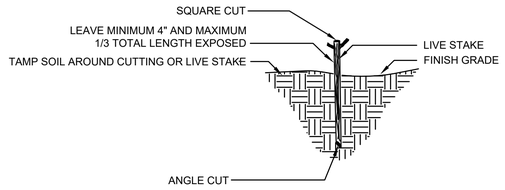
WETLAND OVERFLOW DETAIL
SCALE: NTS



INSTALLATION STEPS

1. DRIVE GRAB HOE INTO THE GROUND, LIFT HANDLE, AND PULL HOE BACK.
2. PLACE SEEDLING AGAINST STRAIGHT SIDE AT CORRECT DEPTH.
3. FILL BORROW OF HOLE AND PACK SOIL AGAINST ROOTS.
4. FINISH FILLING IN SOIL AND PACK IT WITH HEEL.
5. FIRM AROUND SEEDLING WITH THE FOOT.

BARE ROOT SEEDLING INSTALLATION

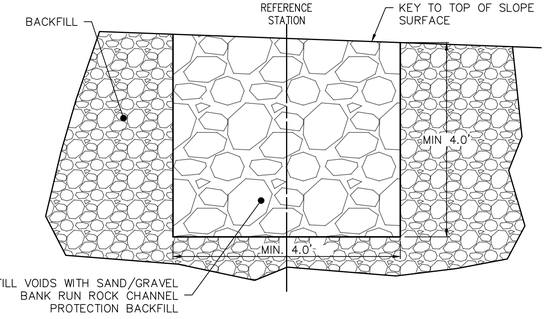


LIVE STAKE CROSS SECTION

INSTALLATION SPECIFICATIONS

1. LIVE STAKES SHALL RANGE FROM 1/2" TO 1" IN DIAMETER AND BE FROM 2 TO 3 FT IN LENGTH
2. CARE SHALL BE TAKEN NOT TO DAMAGE THE LIVE STAKES DURING INSTALLATION.
3. A PILOT HOLE WILL BE REQUIRED TO ENSURE THAT THE LIVE STAKE IS NOT DAMAGED WHEN DRIVEN THROUGH THE SUBSOIL. PILOT HOLE SHALL BE MADE THROUGH THE USE OF A STEEL SPIKE, REBAR, OR SIMILAR TOOL TO WORK AN OPENING THROUGH THE SUBSOIL.
4. LIVE STAKES SHALL BE CUT TO A POINT ON THE BASAL END FOR INSERTION IN THE GROUND.
5. SEE CONTRACT DOCUMENTS FOR SPECIES, SIZE, SPACING, LOCATION, AND FINAL DETERMINATION ON USE OF LIVE STAKES.
6. USE A DEAD BLOW HAMMER TO DRIVE LIVE STAKES INTO THE PILOT HOLE.
7. LEAVE BETWEEN 4" AND 8" OF LIVE STAKE EXPOSED ABOVE FINISH GRADE.
8. TAMP SOIL AROUND LIVE STAKES.

LIVE STAKE PLANTING



NOTE:
1. FILL VOIDS WITH BANK RUN MIX.
2. VOIDS ARE FILLED IN LIFTS.
3. ROCK TRENCH KEY TO EXTEND A MIN. 10.0' INTO THE NATIVE SOIL ALONG THE EXISTING BANK OR AS FIELD DIRECTED.

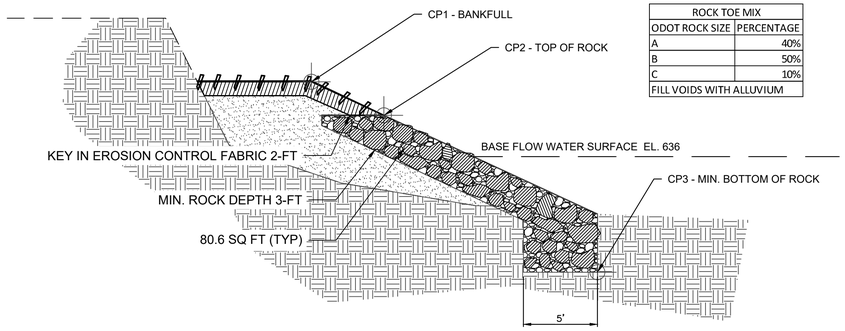
TYPICAL ROCK TRENCH KEY MIX		NO CONCRETE OR RECYCLED CONCRETE ALLOWED. NATURAL STONE ONLY.
ROCK SIZES: A	40%	
B	50%	
C	10%	
FILL VOIDS WITH SAND/GRAVEL BANK RUN ROCK CHANNEL PROTECTION BACKFILL		
EXCAVATED SEDIMENT BAR MATERIAL MAY BE USED AS BANK RUN		

ROCK TRENCH KEY LOCATIONS			
ROCK KEY NO.	SIDE*	B/L CONST. STATION**	LENGTH
1	RT.	2+46	36'
2	RT.	3+33	21'
3	RT.	3+89	58'
4	RT.	4+66	62'
5	RT.	5+18	50'
6	RT.	5+77	39'

SAND/GRAVEL (BANK RUN) ROCK CHANNEL PROTECTION BACKFILL
AGGREGATE FOR THIS MIX SHALL BE A NATURAL MATERIAL COMPOSED OF A MIXTURE OF HARD, DURABLE PARTICLES OR FRAGMENTS OF STONE OR GRAVEL AND SAND, AND SMALL AMOUNTS OF SILT, CLAY OR OTHER SIMILAR BINDING MATERIAL. BANK RUN IS DEFINED AS A NON-CRUSHED SAND/GRAVEL SUBSTRATE MATERIAL AND SHALL BE UNWASHED/UNSORTED RAW MATERIAL. MATERIAL SHALL BE BIASED TOWARD LESS FINES AND MORE COARSE MATERIAL. LIMESTONE SHALL NOT BE USED FOR THIS MIX.

ROCK TRENCH KEY DETAIL
SCALE: NTS

POTENTIAL LIVE STAKE LOCATIONS ON BANK STABILIZATION AREAS*
BETWEEN CP1 AND CP2 (BANKFULL)
1-FT ABOVE BASE FLOW WATER SURFACE



ROCK TOE MIX	
ODOT ROCK SIZE	PERCENTAGE
A	40%
B	50%
C	10%
FILL VOIDS WITH ALLUVIUM	

ROCK TOE AND BENCH DETAIL
SCALE: NTS

ROCK TOE STRUCTURE TABLE							
STRUCTURE NUMBER	BANK	BEGIN STA	END STA	TOTAL LENGTH	CP 1	CP 2	CP 3
RT-1	RIGHT	2+87	6+77	527 LF	641.5	640.5	627.42

DESIGNED: JM	SUB SHEET NO. C13	TITLE OF DRAWING: STABILIZATION DETAILS	DRAWING NO. 644 176923
DRAWN BY: TG		LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST COUNTY: SUMMIT/CUYAHOGA STATE: OHIO	16 OF 18

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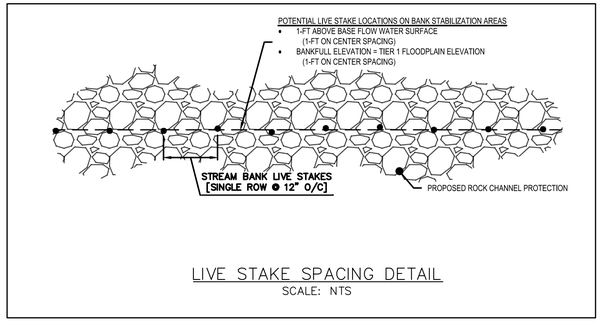
XREFS: XMAPSHEET BORDER.dwg

LANDSCAPE PLANT QUANTITIES AND SCHEDULES

STREAM BANK LIVE STAKES PLANT LIST

Botanical Name	Common Name	Percent	Quantity	Min. Size	Spacing
Cornus amomum	Silky Dogwood	20	158	3–4'	12" o/c, 1 Row
Cornus sericea	Redosier Dogwood	–	–	3–4'	12" o/c, 1 Row
Salix Exigua	Sand Bar Willow	40	315	3–4'	12" o/c, 1 Row
Salix lucida	Shining Willow	–	–	3–4'	12" o/c, 1 Row
Salix nigra	Black Willow	–	–	3–4'	12" o/c, 1 Row
Salix sericea	Silky Willow	40	315	3–4'	12" o/c, 1 Row

FOR PLANTINGS AND SEEDING, SEE SHEET 17,



LIVE STAKE SPACING DETAIL
SCALE: NTS

SEED MIX AREAS

Seed Mix Type	Total AC
Floodplain Mix	0.54
Upland Mix	N/A
Lawn Mix	N/A

FLOODPLAIN – SEED MIX
APPLICATION RATE: 15 LBS/ACRE, 1.7 ACRES

PERCENT	SPECIES	SCIENTIFIC NAME
16.90%	BLUE SPIKE	Agastache foeniculum
10.50%	SWAMP MILKWEED	Asclepias incarnata
10.10%	WILD BERGAMOT	Monarda fistulosa
10.00%	PURPLEHEAD SNEEZEWEED	Helenium flexuosum
8.30%	BLACKEYED SUSAN	Rudbeckia hirta
7.00%	GREY HEADED CONEFLOWER	Ratibida pinnata
6.30%	PLAINS COREOPSIS	Coreopsis tinctoria
5.40%	MARSH BLAZING STAR	Liatris spicata
5.10%	LANCELEAF COREOPSIS	Coreopsis lanceolata
5.10%	PURPLE CONEFLOWER	Echinacea purpurea
5.10%	OXEYE SUNFLOWER	Heliopsis helianthoides
3.00%	GIANT IRONWEED	Vernonia gigantea
2.80%	PRAIRIE BLAZING STAR	Liatris pycnostachya
2.50%	HAIRY BEARDTONGUE	Penstemon hirsutus
1.70%	SPOTTED BEEBALM	Monarda punctata
0.20%	GREAT BLUE LOBELIA	Lobelia siphilitica

LIVESTAKE NOTES

LIVE STAKE PLANTING SHALL BE OF THE SPECIES AS INDICATED IN THE PLANT LIST. LIVE STAKES SHOULD BE HARVESTED OR PURCHASED CLOSE TO INSTALLATION DATE, KEPT MOIST AND OUT OF DIRECT SUNLIGHT. STAKES MUST BE KEPT COVERED AND MOIST DURING STORAGE AND TRANSPORT. THE LOWER ½ OF THE STAKES SHALL BE PRE-SOAKED IN WATER FOR 24 HOURS PRIOR TO INSTALLATION. LIVE STAKES SHALL BE ½ INCH OR LARGER IN DIAMETER, AND THREE TO FOUR FEET IN LENGTH, HAVE SIDE BRANCHES REMOVED AND BARK INTACT.

THE DEPTH OF PLANTING THAT WILL BE ACHIEVED INSTALLING THE LIVE STAKES AFTER CONSTRUCTION ACTIVITIES MAY BE SOMEWHAT VARIABLE AND DICTATED BY WHAT CAN BE ACHIEVED IN THE FIELD BY A HAND EFFORT TO INSTALL THE INDIVIDUAL STAKES. THE EXPECTED DEPTH THAT WILL BE ACHIEVED USING THIS METHOD SHOULD BE BETWEEN 16 TO 24 ON AVERAGE. CONTRACTOR SHALL INSTALL THE LIVE STAKE INTO THE GROUND AND FIRMLY PACK THE SOIL / BANK RUN / SAND AND GRAVEL AROUND THE STAKE. CONTRACTOR SHALL TAMP LIVE STAKES INTO OPENINGS OF THE ROCK DURING OR AFTER PLACEMENT OF THE ROCK. A STEEL ROD OR HYDRAULIC PROBE MAY BE USED TO PREPARE A HOLE THROUGH THE ROCK. ADDITIONALLY, ANY LIVES TAKES BEING INSTALLED FOR WARRANTY PURPOSES WILL BE INSTALLED WITH THE SAME METHOD DESCRIBED. REMOVE AND REPLACE ANY STAKES THAT SPLIT DURING INSTALLATION.

LIVE STAKES WILL BE PLANTED DURING THE APPROPRIATE SEASON IF POSSIBLE, FEBRUARY 15TH THROUGH APRIL 15TH. SEE BANK STABILIZATION DETAIL ON SHEET 16 FOR LIVE STAKE PLANTING ELEVATION. LIVE STAKES SHALL BE ORIENTED PERPENDICULAR TO THE SLOPE WITH GROWING TIPS PROTRUDING SLIGHTLY FROM THE FINISHED FACE OF THE ROCK, INSTALLED AT AN ANGLE SLIGHTLY DOWNSTREAM AND SHALL BE PLACED PER PLAN.

LIVE STAKE SOURCE
ERNST CONSERVATION SEEDS
8884 MERCER PIKE
MEADVILLE, PA 16335
800-873-3321

FOLLOWING A WARRANTY INSPECTION PERFORMED BY THE OWNER, REMOVE AND REPLACE UP TO 80% OF WARRANTED LIVE STAKES FOUND TO BE DEAD OR IN UNHEALTHY CONDITION DURING WARRANTY PERIOD. MAKE LIVE STAKE REPLACEMENTS DURING DORMANT SEASON OF WARRANTY PERIOD. ANY LIVE STAKES REQUIRING REPLACEMENT WITHIN THE ORIGINAL WARRANTY PERIOD SHALL BE WARRANTED FOR AN EXTENDED PERIOD OF ONE ADDITIONAL YEAR BEYOND THE ORIGINAL WARRANTY. A SECOND WARRANTY INSPECTION SHALL BE CONDUCTED AT THE END OF THE EXTENDED WARRANTY PERIOD. REMOVE AND REPLACED WARRANTED LIVE STAKES FOUND TO BE DEAD OR UNHEALTHY CONDITION DURING THE EXTENDED WARRANTY PERIOD.

LANDSCAPE NOTES

GENERAL:

1. CONTRACTOR SHALL GET APPROVAL FROM ECOLOGIST (ENVIROSCIENCE) OR LANDSCAPE ARCHITECT (GPD GROUP) FOR ANY PLANT VARIATIONS FROM ALL PLANT LISTS AND SEED MIXES.
2. TOPSOIL FOR PLANTING OPERATIONS SHALL BE FURNISHED BY THE CONTRACTOR, AND APPROVED BY ECOLOGIST OR LANDSCAPE ARCHITECT.
3. THE DEPTH OF PLANTING AREAS IS THE DEPTH BELOW THE FINISHED GRADE. NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVED BY OTHERS.
4. PLANT MATERIAL LOCATIONS MAY BE SUBJECT TO CHANGE AS DIRECTED BY LANDSCAPE ARCHITECT OR ECOLOGIST.
5. PLANT SIZING: MEASURE TREES AND SHRUBS ACCORDING TO ANSI Z60.1 STANDARDS.
6. ALL PLANTS SHALL BE DELIVERED ON TRUCKS WITH THE ENTIRE LOAD COMPLETELY COVERED WITH TARPS MANUFACTURED FOR PLANT PROTECTION. THE FOLLOWING IS A LIST OF REASONS FOR PLANT REJECTION: WIND BURNED PLANS, WOUNDS ON TREE TRUNKS, IMPROPER LOADING, UNLOADING, OR HANDLING PRIOR TO, DURING, OR SUBSEQUENT TO SHIPPING, RESULTING IN DROPPED OR DAMAGED ROOT BALLS, CONTAINERIZED MATERIAL BEING THROWN, KICKED, TOSSED, HANDLED BY THE PLANT AND NOT BY THE CONTAINER ITSELF, IMPROPER WATERING IN THE HOLDING YARD RESULTING IN LEAF DROP NOT GREATER THAN 10 PERCENT OF THE TOTAL PLANT FOLIAGE. THIS IS NOT INTENDED AS A COMPREHENSIVE LIST TO THE EXCLUSION OTHER DAMAGE CAUSED BY IGNORING COMMON HORTICULTURE PRACTICE.
7. PLANTS SHALL NOT REMAIN IN A STORAGE AREA FOR A PERIOD LONGER THAN 4 WEEKS FROM THE TIME OF DELIVERY.
8. DO NOT HANDLE, MOVE, BIND, TIE OR OTHERWISE TREAT PLANTS SO AS TO DAMAGE THE ROOT BALL, ROOTS, TRUNK, OR BRANCHES IN ANY WAY.
9. WHILE PLANTS ARE IN THE STORAGE AREA, ALL TREES AND SHRUBS WILL BE HEELED IN WITH BARK MULCH IMMEDIATELY UPON DELIVERY AND WATERED IN AT A RATE OF 1 INCH PER WEEK, OR ADEQUATE TO MAINTAIN ALL PLANTS IN A HEALTHY, THRIVING CONDITION. ALL BARE ROOT TREES AND SHRUBS WILL BE KEPT IN COLD STORAGE WITH MOIST STRAW COVERING THE ROOT SYSTEMS, UNTIL THEY ARE PLANTED. ALL CONTAINERIZED MATERIAL WILL BE KEPT MOIST, NOT ALLOWING THE SOIL TO DRY OUT RESULTING IN STRESSED PLANTS.

SEEDING AND MULCHING NOTES

SEEDING PERIOD

SEEDING SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETION OF GRADING OPERATIONS. ALL SEEDING SHALL BE DONE "IN THE DRY." SEEDING SHALL NOT NOT TAKE PLACE WHEN THE GROUND OR OVERLYING WATER IS FROZEN OR WHEN CONDITIONS ARE OTHERWISE UNSATISFACTORY FOR PLANTING. INUNDATED AREAS SHALL NOT BE SEEDED. NATIVE SEED SHALL BE SOWN BETWEEN MARCH 1 AND JUNE 15, OR SEPT. 1 TO NOV. 30.

SEEDING APPLICATION

THE NATIVE SEED MIX SHALL BE APPLIED IN CONFORMANCE WITH THE FOLLOWING: SEED SHALL BE APPLIED AT 15LBS/ACRE AND THE SEED SHALL BE BROADCAST IN AN EVEN COVERAGE BY HAND. THE SEED SHALL THEN BE PRESSED INTO GOOD CONTACT WITH THE SOIL. SCARIFY THE SOIL TO AVOID PLACING THE SEEDS DEEPER THAN ½ INCH. FOR SMALL AREAS, HAND RAKING IS ACCEPTABLE.

MULCH SHALL BE APPLIED TO ALL SEEDED AREAS. MULCH SHALL BE AS PER ODOT CMS SECTION 659.06 AND SHALL BE APPLIED IN ACCORDANCE WITH ODOT CMS SECTION 659.09.

NATIVE SEED SOURCES

OHIO PRAIRIE NURSERY	CARDNO NATIVE PLANT NURSERY	ERNST SEED
P.O. BOX 174	128 SUNSET DRIVE	8884 MERCER PIKE
HIRAM, OH 44234	WALKERTON, INDIANA 46574	MEADVILLE, PA 16335
866-569-380	574-586-2412	800-873-3321

ALL PERMANENT SEEDED AREAS SHALL HAVE A ONE YEAR WARRANTY PERIOD. SURVIVABILITY AFTER ONE YEAR IS 95% COVERAGE WITH NO MORE THAN A 4 FOOT BARE AREA. CORRECT DEFECTIVE WORK WITHIN A ONE-YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION, WITHIN THE SEEDING SCHEDULE OUTLINED IN THESE CONTRACT DRAWINGS.

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: LANDSCAPE NOTES & DETAILS	DRAWING NO. 644 / 176923
DRAWN BY: TG	L1	LOCATION WITHIN PARK: MM#20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	
DATE: August 2023		REGION: MIDWEST / COUNTY: SUMMIT/CUYAHOGA / STATE: OHIO	17 OF 18

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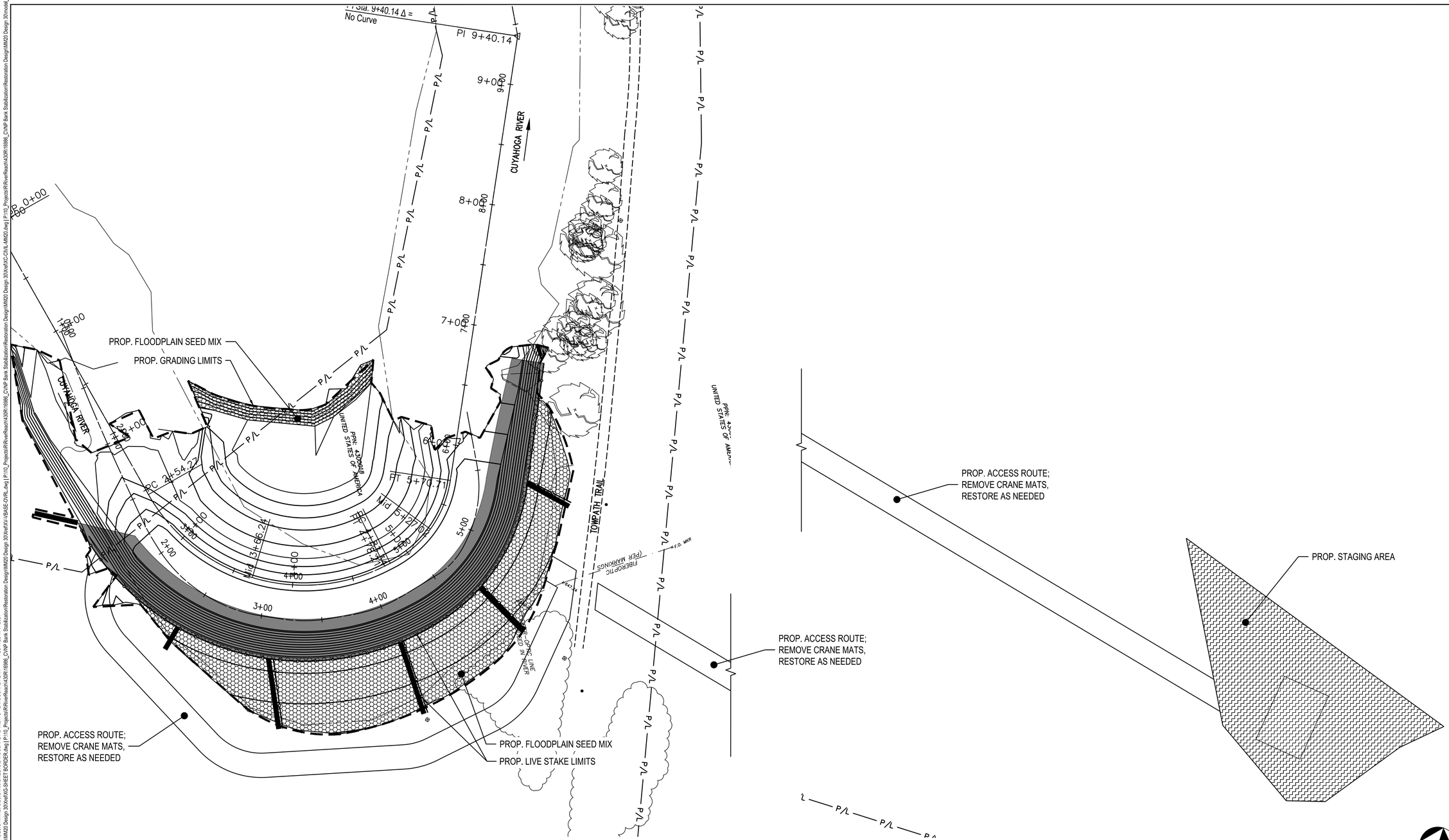

FOR GENERAL LEGEND, SEE SHEET 2
FOR SEED QUANTITIES, SEE SHEET 17
FOR LIVE STAKE TYPE AND QUANTITIES, SEE SHEET 17
FOR LIVE STAKE SPACING DETAIL, SEE SHEET 17

LEGEND

- P/L — PROPERTY LINE
- PROPOSED GRADING LIMITS
- PROPOSED STAGING AREA
- PROPOSED FLOODPLAIN SEED LIMITS 0.54 AC
- PROPOSED UPLAND SEED LIMITS
- PROPOSED LIVE STAKE LIMITS 791 LF
- EXISTING TREES

0 20 40
GRAPHIC SCALE IN FEET

DESIGNED: JM	SUB SHEET NO.	TITLE OF DRAWING: LANDSCAPE PLAN	DRAWING NO. 644 176923
DRAWN BY: TG	L2	LOCATION WITHIN PARK: MM20 SOUTH	PMIS/PKG NO. 224822
TECH REVIEW: JB		NAME OF PARK: CUYAHOGA VALLEY NATIONAL PARK	18 OF 18
DATE: August 2023		REGION: MIDWEST; COUNTY: SUMMIT/CUYAHOGA; STATE: OHIO	

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