

STATE OF OHIO  
COUNTY OF SUMMIT  
**SURFACE WATER  
MANAGEMENT DISTRICT  
WYE ROAD FLOOD  
MITIGATION AND  
IMPROVEMENT PLANS**  
**WYE ROAD PHASE 2 - 100% DESIGN  
JUNE 2024**

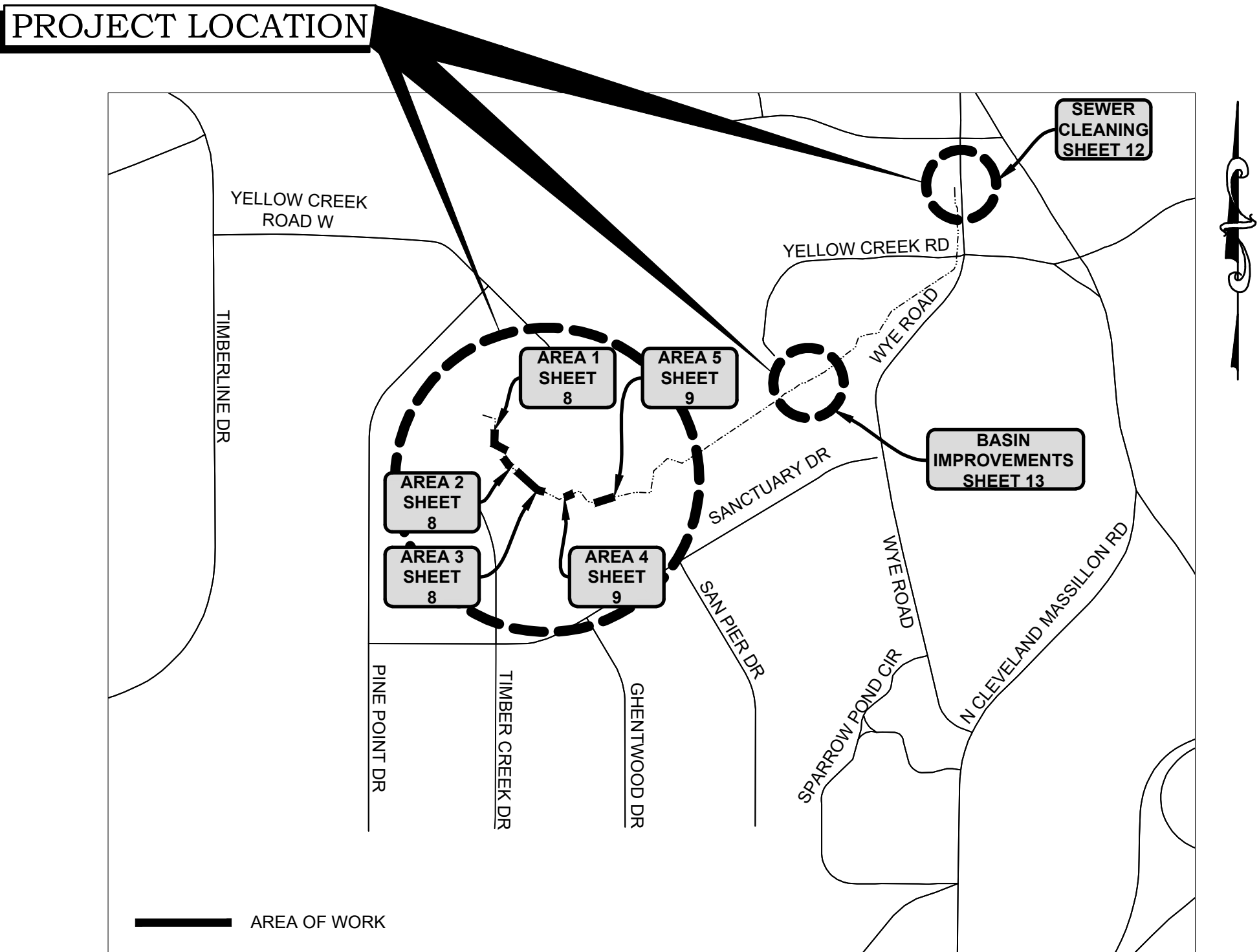
LINETYPE LEGEND:	
ROADWAY CENTERLINE.....	— — — — —
RIGHT-OF-WAY.....	— R/W —
PROPERTY LINES.....	— P/L —
EXISTING EASEMENTS.....	— — — — —
EXISTING RIPARIAN SETBACK.....	— — — — —
PROPOSED EASEMENTS.....	— — — — —
BUILDING FOOTPRINTS.....	— — — — —
PROPOSED PIPE NETWORKS.....	— — — — —
PROPOSED SWALE CENTERLINE.....	— — — — —
EXISTING CONTOURS.....	- - - - - 1015
EXISTING STORM SEWER.....	- - - - - ST
EXISTING GAS LINE.....	- - - - - G
EXISTING SANITARY SEWER.....	- - - - - SAN
PROPOSED SILT FENCE.....	SF
PROPOSED RIFFLE.....	
PROPOSED CASCADE.....	
PROP REINFORCED TURF DRIVE.....	
PROP STABILIZED CONSTRUCTION.....	
PROP ACCESS DRIVE TO BE DETERMINED BY CONTRACTOR.....	
PROPOSED TREE OR SHRUB REMOVAL.....	X
PROPOSED TREE OR SHRUB REMOVAL – LESS THAN 12" AS PART OF CLEARING AND GRUBBING.....	⊗

ABBREVIATIONS LEGEND:	
BM.....	BENCH MARK
CB.....	CATCH BASIN
C/L.....	CENTERLINE
(DND).....	DO NOT DISTURB
EL.....	ELEVATION
EX.....	EXISTING
INV.....	INVERT
LF.....	LINEAR FEET
PROP.....	PROPOSED
SAN.....	SANITARY SEWER
STA.....	STATION
STM.....	STORM SEWER
(TBA).....	(TO BE ABANDONED)
(TBR).....	(TO BE REMOVED)
(TYP).....	TYPICAL

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	1.65 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	1.65 ACRES

PER THE OHIO EPA CONSTRUCTION GENERAL PERMIT (CGP) (OHC000006) SECTION B.1, THIS PROJECT CAUSES EARTH DISTURBANCE THAT EXCEEDS 1 ACRE, RESULTING IN THE NEED FOR A NOTICE OF INTENT (NOI). PER SECTION G.2.E.III OF THE CGP, STREAM RESTORATION ACTIVITIES ARE EXEMPT FROM POST-CONSTRUCTION STORMWATER BMPS, ALTHOUGH THE DISTURBANCE EXCEEDS THE DE MINIMIS THRESHOLD OF 1 ACRE.



VICINITY PLAN

PROJECT DESCRIPTION

THIS PROJECT INCLUDES IMPROVEMENTS TO AN EXISTING INLINE DETENTION BASIN ON WYE CREEK, IN ADDITION TO GENERAL STREAM CLEANUP AND STABILIZATION WITH HAND TOOLS AND THE INCORPORATION OF NATURAL CHANNEL IMPROVEMENTS (STEP POOLS) TO REDUCE CHANNEL VELOCITIES, SCOUR, AND FLOODING OF WYE CREEK IN THE SANCTUARY NEIGHBORHOOD IN SUMMIT COUNTY, OHIO.

2023 SPECIFICATIONS

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

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SUMMIT COUNTY

REVIEWED BY: \_\_\_\_\_  
DAVID L. KOONTZ, PE, SI

DATE: \_\_\_\_\_

APPROVED: \_\_\_\_\_  
B. ALAN BRUBAKER, PE, PS  
SUMMIT COUNTY ENGINEER

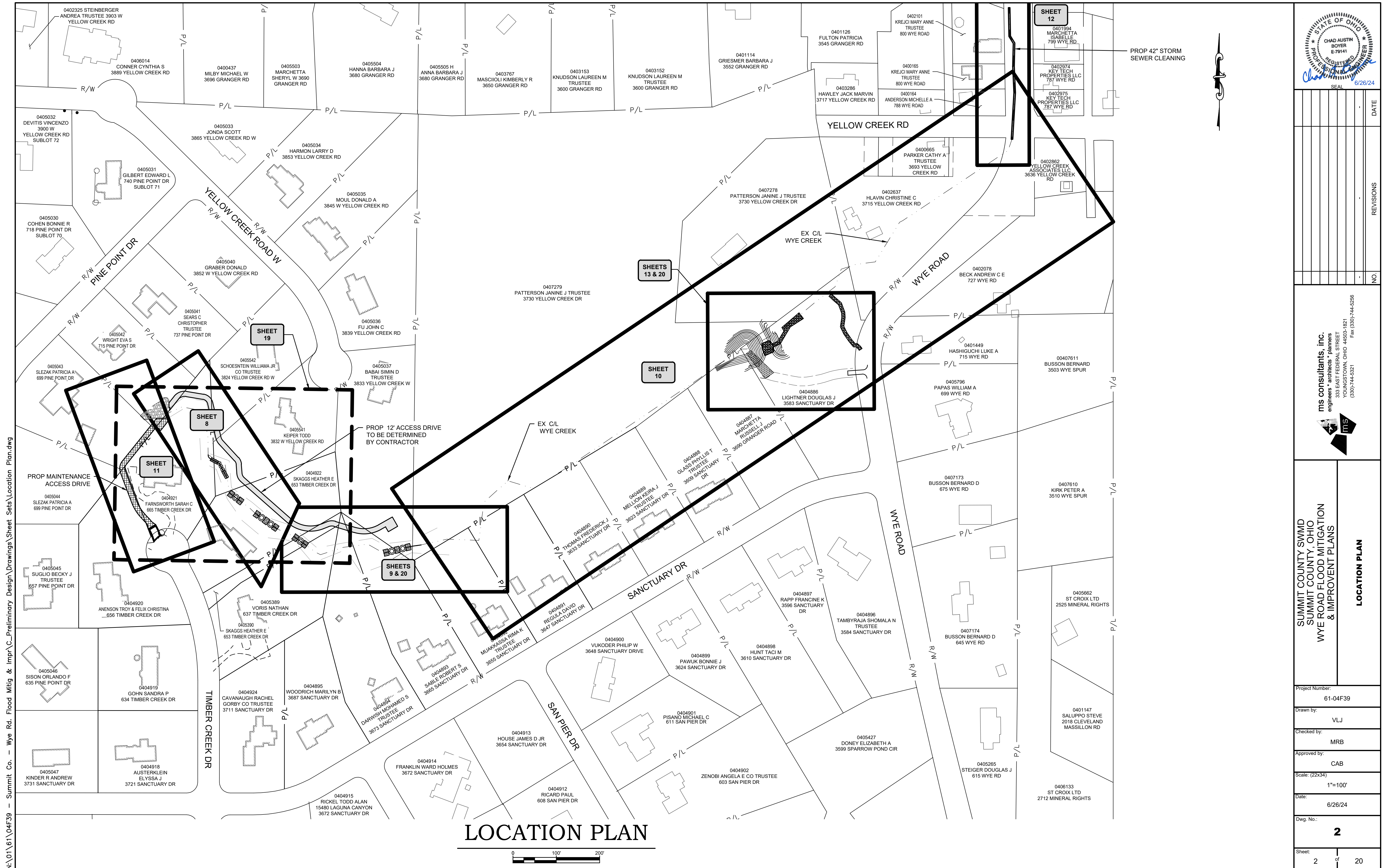
DATE: \_\_\_\_\_

ENGINEERS SEAL:

SIGNED: *Stephen Preston*  
DATE: June 27, 2024









THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER, THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY.

CITY OF AKRON WATER  
ATTN: BOB LEACH  
1460 TRIPLETT BLVD  
AKRON, OHIO 44306  
PHONE: 330-375-2420  
EMAIL: DLEACH@AKRONOHIO.GOV

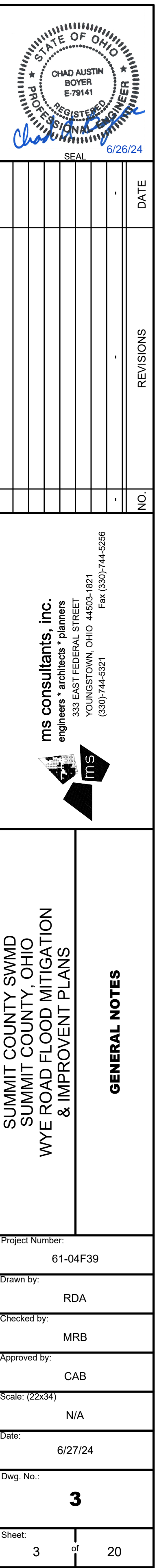
DOMINION ENERGY OHIO - AKRON  
320 SPRINGSIDE DRIVE, SUITE 320  
AKRON, OHIO 44333  
ATTN: RELOCATION DESIGN  
PHONE: 330-664-2575  
EMAIL: W.MICHAEL.NORTH@DOMINIONENERGY.COM

DOMINION ENERGY OHIO: IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LATERAL AND SUBJACENT SUPPORT OF DOMINION ENERGY'S PIPELINE(S), IN COMPLIANCE TO 29 CFR, PART 1926, SUBPART P, (SAFE EXCAVATION & SHORING), ONE-FOOT MINIMUM VERTICAL AND HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN DOMINION ENERGY OHIO'S (DEO) EXISTING PIPELINE(S) AND ALL OTHER IMPROVEMENTS. EXTREME CARE SHOULD BE TAKEN NOT TO HARM ANY DEO FACILITY (PIPELINES, ETC.) OR APPURTENANCE (PIPE COATING, TRACER WIRE, CATHODIC PROTECTION TEST STATION WIRES & DEVICES, VALVE BOXES, ETC.). DEO FACILITIES MUST BE PROTECTED WITH A TARP DURING BRIDGE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE AND LIABLE FOR ENSURING THAT ALL DEO EXISTING FACILITIES, ABOVE AND BELOW GROUND, REMAIN UNDAMAGED, ACCESSIBLE AND IN WORKING ORDER. THE CROSSING OF DEO'S PIPELINE WITH ANOTHER STEEL FACILITY MAY CREATE A POTENTIAL CORROSION ISSUE FOR THE PROPOSED FACILITY AND THE EXISTING DEO FACILITY. AT POINTS WHERE THE LOCATION AND ELEVATION OF DOMINION'S PIPELINE NEEDS TO BE KNOWN, THE CONTRACTOR MAY EXCAVATE BY HAND DIGGING TO TEMPORARILY EXPOSE THE PIPELINE AND OBTAIN THE NECESSARY INFORMATION. IN ADDITION TO HAND DIGGING, THE CONTRACTOR MAY USE NON-DESTRUCTIVE LOCATION METHODS, SUCH AS VACUUM POTHOLING AND GROUND PENETRATING RADAR (GPR). CONTACT OH0811 PRIOR TO EXCAVATION OR HAND DIGGING AND SUBMIT AN EXCAVATION TICKET.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, AND EXERCISE PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF ALL PERSONS, INCLUDING EMPLOYEES, AND PROPERTY. CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AT ALL TIMES, PARTICULARLY WHEN WORKING NEAR UNDERGROUND OR OVERHEAD ELECTRICAL LINES.

9. THE CONTRACTOR SHALL VERIFY TO HIS OWN SATISFACTION THE TYPE OF SURFACE AND BASE OF EACH STREET AND DRIVE PRIOR TO THE SUBMISSION OF BIDS. PAVEMENT REPLACEMENT SHALL CONSIST OF THE MATERIALS AS SHOWN ON THE DETAILS.

- GENERAL NOTES CONTINUED TO SHEET 4**









**GENERAL NOTES CONTINUED FROM SHEET 4**

**SPECIAL - NATIVE WETLAND SEED MIX**

NATIVE WETLAND SEED MIX MAY BE SPREAD ON ALL RIFFLE WEIRS AS A SUPPLEMENT TO PLUG PLANTING. THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

SPECIAL	NATIVE WETLAND SEED MIX	153 SY
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### SPECIAL - NATIVE WETLAND SPECIES PLANTING

THE STREAM IMPROVEMENTS SHALL CONSIST OF THE PLANTING OF NATIVE SPECIES WHICH ENCOURAGE DIVERSITY AND ARE APPROPRIATE FOR THE HYDROLOGIC AND GEOGRAPHIC ZONES OF THE PROJECT SITE. THE IMPROVEMENTS ARE BEST PLANTED WITH WET-TOLERANT, RHIZOMATOUS PLANTS SUCH AS SEDGES, RUSHES, AND SWITCHGRASS WHICH CAN BE PLANTED AS PLUGS. THE CONTRACTOR SHALL COORDINATE PLANT SELECTION WITH SUMMIT COUNTY DURING CONSTRUCTION.

SPECIES NATIVE TO OHIO THAT ARE SUITABLE FOR RIFFLE PLANTINGS MAY INCLUDE, BUT ARE NOT LIMITED TO:

BRISTLY SEDGE	SWITCH GRASS	SOFT STEM BULLRUSH	SAWTOOTH SUNFLOWER
FRINGED SEDGE	RIVER BULRUSH	TALL COREOPSIS	SWAMP MILKWEED
PORCUPINE SEDGE	HARD STEM BULLRUSH	WILD BLUE INDIGO	JOE-PYE WEED

A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR THIS ITEM.

SPECIAL	NATIVE WETLAND SPECIES PLANTING	1 LS
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**SPECIAL - GEOGRID, AS PER PLAN**

THE TEMPORARY MAINTENANCE ACCESS DRIVE SHALL BE STABILIZED THROUGHOUT WITH TENSAR BX 1100 GEOGRID OR APPROVED EQUAL. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

SPECIAL    TENSAR BX 1100 GEOGRID                      1,568 SY

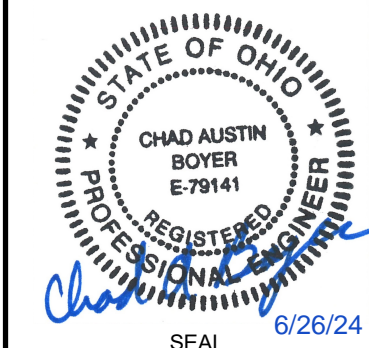
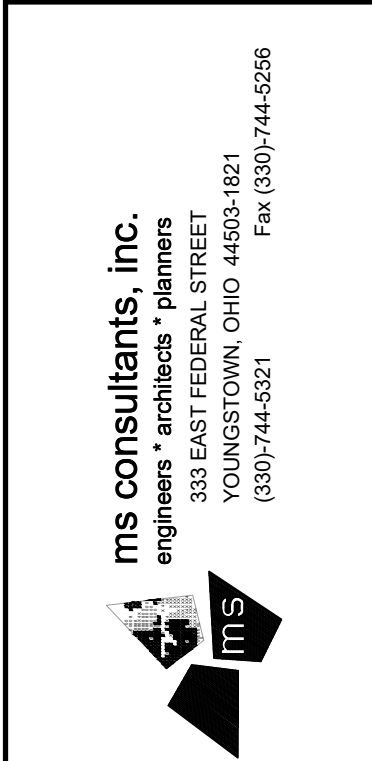
### SPECIAL - BYPASS PUMPING

BYPASS PUMPING WILL BE NECESSARY TO KEEP THE PROPOSED STREAM IMPROVEMENTS DRY DURING CONSTRUCTION. A LUMP SUM QUANTITY FOR BYPASS PUMPING HAS BEEN CARRIED TO THE GENERAL SUMMARY.

SPECIAL	BYPASS PUMPING	1 LS
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PHASE 1B QUANTITIES				
ODOT ITEM NO.	ITEM	UNITS	QUANTITY	SHEET
201	CLEARING/GRUBBING	LS	1	13
201	TREE REMOVAL ASSOCIATED WITH BASIN IMPROVEMENTS	AC	0.53	13
203	EXCAVATION	CY	193	13
203	EXCAVATION OF UNSUITABLE MATERIAL - AS PER PLAN	CY	1,296	13
203	EMBANKMENT	CY	1,230	13
203	ADDITIONAL EMBANKMENT REQUIRED TO MEET PROPOSED GRADE - BERM	CY	419	13
601	ROCK CHANNEL PROTECTION - TYPE A	CY	348	13
601	ROCK CHANNEL PROTECTION - TYPE C	CY	75	13
601	RIP RAP WITH GROUT	CY	25	13
623	CONSTRUCTION LAYOUT STAKES AND MONUMENTS	LS	1	13
624	MOBILIZATION	LS	1	13
653	TOPSOIL	CY	286	13
659	SEEDING AND MULCHING	SY	2,577	13
659	REPAIR SEEDING AND MULCHING	SY	2,577	13
670	SLOPE EROSION PROTECTION MAT, TYPE G	SY	159	13
832	INLET PROTECTION - DROP INLET SEDIMENT FILTER	EA	1	20
832	SILT FENCE	LF	1,130	20
SPECIAL	BONDS & INSURANCE	LS	1	N/A
SPECIAL	EXISTING 27" PIPE - CIPP LINER - 15.0 MM	LF	11	13
SPECIAL	EXISTING 30" PIPE - CIPP LINER - 15.0 MM	LF	83	13
SPECIAL	12" ORIFICE PLATE	EA	1	13
SPECIAL	24" ORIFICE PLATE	EA	1	13
SPECIAL	GROUNDWATER MONITORING	LS	1	13
SPECIAL	ANTI-SEEP COLLAR	EA	1	13
SPECIAL	ALTERNATE - LINER PIPE	LF	94	13

PHASE 2 QUANTITIES				
ODOT ITEM NO.	ITEM	UNITS	QUANTITY	SHEET
201	CLEARING/GRUBBING	LS	1	8-9, 11-12
201	TREE REMOVAL (12" - 24")	EA	6	8
201	TREE REMOVAL (>24" - 48")	EA	3	8
201	TREE REMOVAL ASSOCIATED WITH CONSTRUCTION ACCESS	AC	0.20	8-9
203	EXCAVATION	CY	1,256	8-9
203	ADDITIONAL EXCAVATION ALLOWANCE	CY	189	8-9
203	EMBANKMENT - STREAM IMPROVEMENTS	CY	142	8-9
203	UNDERCUT - EXCAVATE & HAUL/REMOVAL UNSUITABLE MATERIAL	CY	126	N/A
203	UNDERCUT - EMBANKMENT	CY	126	N/A
204	SUBGRADE COMPACTION	SY	1,568	8-9
204	GEOTEXTILE FABRIC	SY	90	8-9
304	AGGREGATE BASE (REINFORCED TURF DRIVE)	CY	262	11
304	AGGREGATE FOR STABILIZED CONSTRUCTION ENTRANCE - NO. 1 STONE	CY	12	11
304	ALTERNATE - AGGREGATE FOR STABILIZED CONSTRUCTION ENTRANCE AND MAINTENANCE ACCESS DRIVE - NO. 1 STONE	CY	178	8-9
304	ALTERNATE - AGGREGATE FOR MAINTENANCE ACCESS DRIVE - NO. 57 STONE	CY	89	8-9
623	CONSTRUCTION LAYOUT STAKES AND MONUMENTS	LS	1	8-9
624	MOBILIZATION	LS	1	8-9
653	TOPSOIL	CY	181	8-9
659	SEEDING AND MULCHING	SY	5,409	8-9
659	REPAIR SEEDING AND MULCHING	SY	5,409	8-9
670	SLOPE EROSION PROTECTION MAT, TYPE G	SY	966	8-9
671	EROSION CONTROL MAT, TYPE G	SY	146	8-9
832	SILT FENCE	LF	1,565	19-20
832	STRAW WATTLE	LF	103	19-20
832	INLET PROTECTION - DANDY BAG	EA	1	19-20
832	HIGH VISIBILITY CONSTRUCTION FENCE	LF	815	19-20
832	ROCK CHECK DAM	EA	6	19-20
SPECIAL	SAND	CY	84	8-9
SPECIAL	SANDSTONE CASCADE AND POOL BOULDERS - 36"	CY	54	8-9
SPECIAL	SANDSTONE RIFFLE COBBLES - 12"	CY	145	8-9
SPECIAL	WOODCHIPS	CY	21	8-9
SPECIAL	TENSAR BX 1100 GEOGRID OR APPROVED EQUAL	SY	1,568	11
SPECIAL	BYPASS PUMPING	LS	1	8-9
SPECIAL	NATIVE WETLAND PLANTINGS	LS	1	8-9
SPECIAL	NATIVE WETLAND SEED	SY	153	8-9
SPECIAL	BONDS & INSURANCE	LS	1	N/A
SPECIAL	PIPE CLEANING - HEAVY	LF	75	12
SPECIAL	PIPE CLEANING - LIGHT	LF	234	12
SPECIAL	PIPE INSPECTION & CLEANING - 699 & 715 PINE POINT DRIVE	LF	252	N/A
SPECIAL	ALLOWANCE - AS DIRECTED BY THE OWNER	LS	1	N/A
SPECIAL	ALLOWANCE - REMOVAL OF DOWNED TREES GREATER THAN 12" AND STREAMBANK STABILIZATION WITH HAND-PLACED LOGS	LS	1	8-10
SPECIAL	ALLOWANCE - TREE PRESERVATION PLAN	LS	1	8-10

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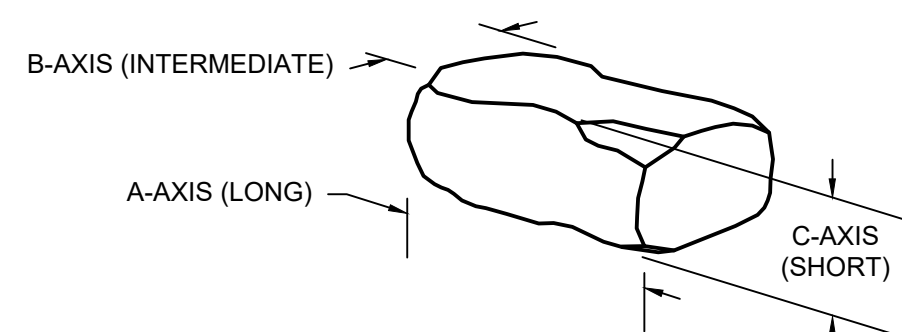
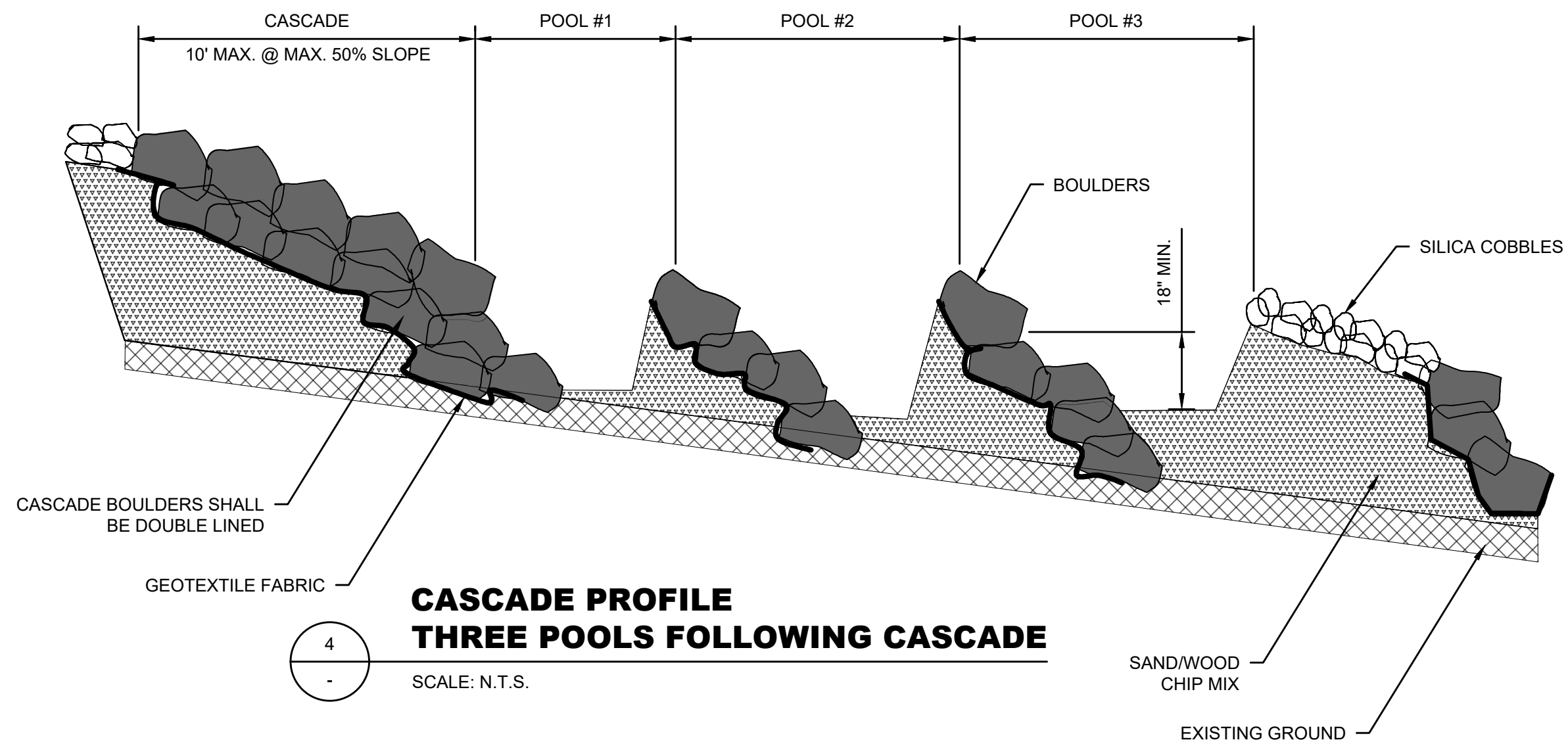
SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

Project Number:			61-04F39		
Drawn by:			RDA		
Checked by:			MRB		
Approved by:			CAB		
Scale: (22x34)			N/A		
Date:			5/22/24		
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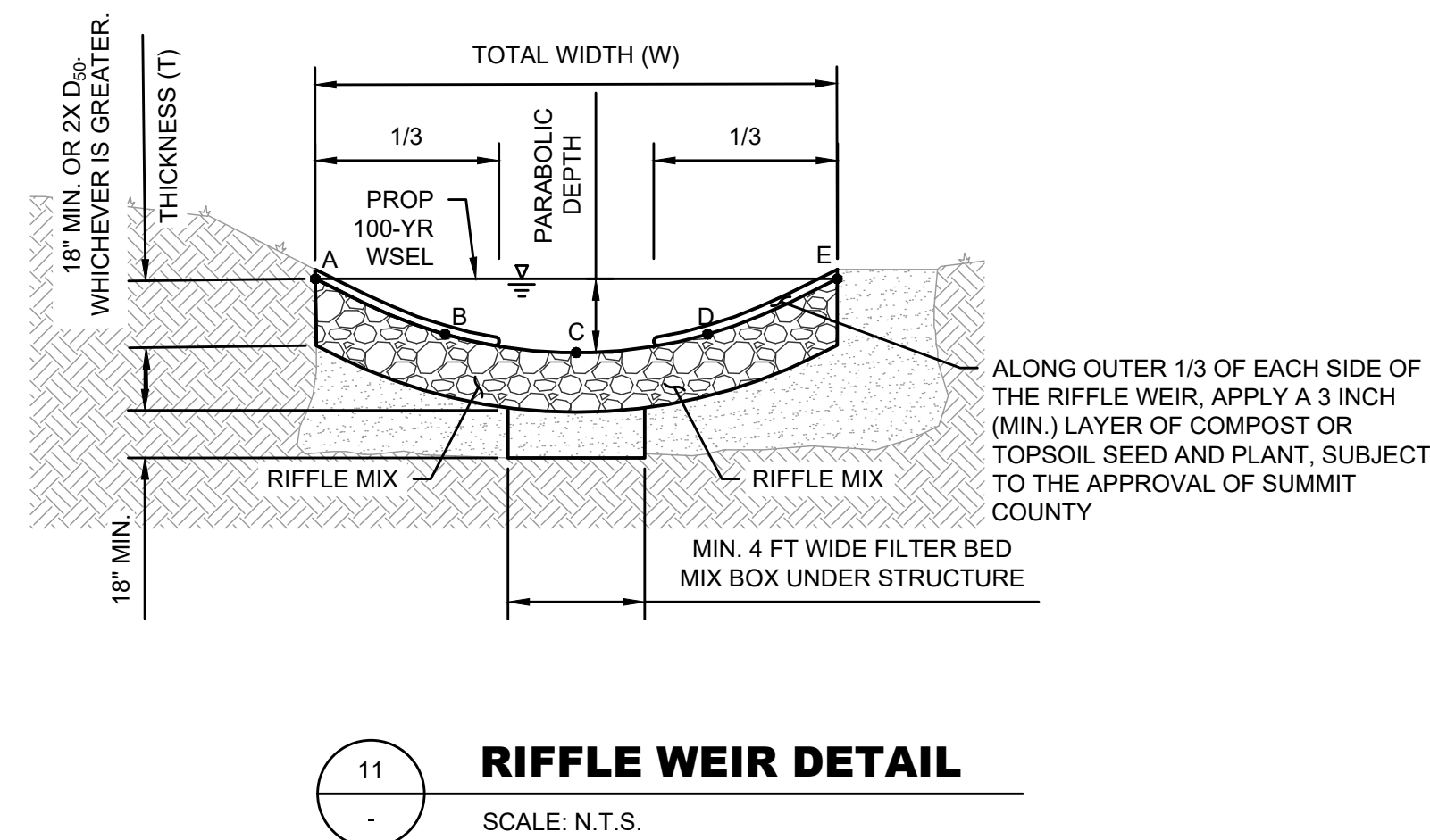
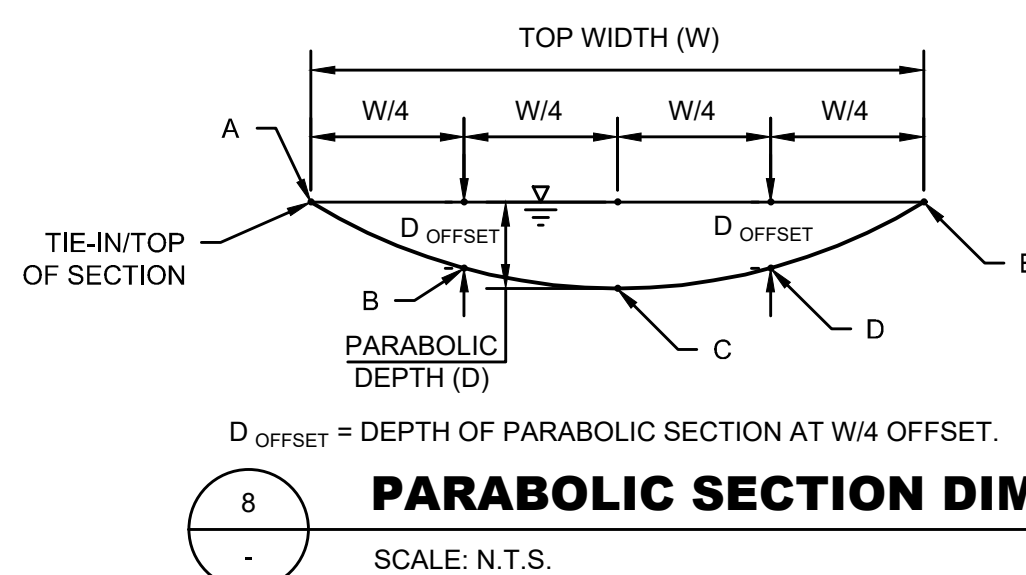
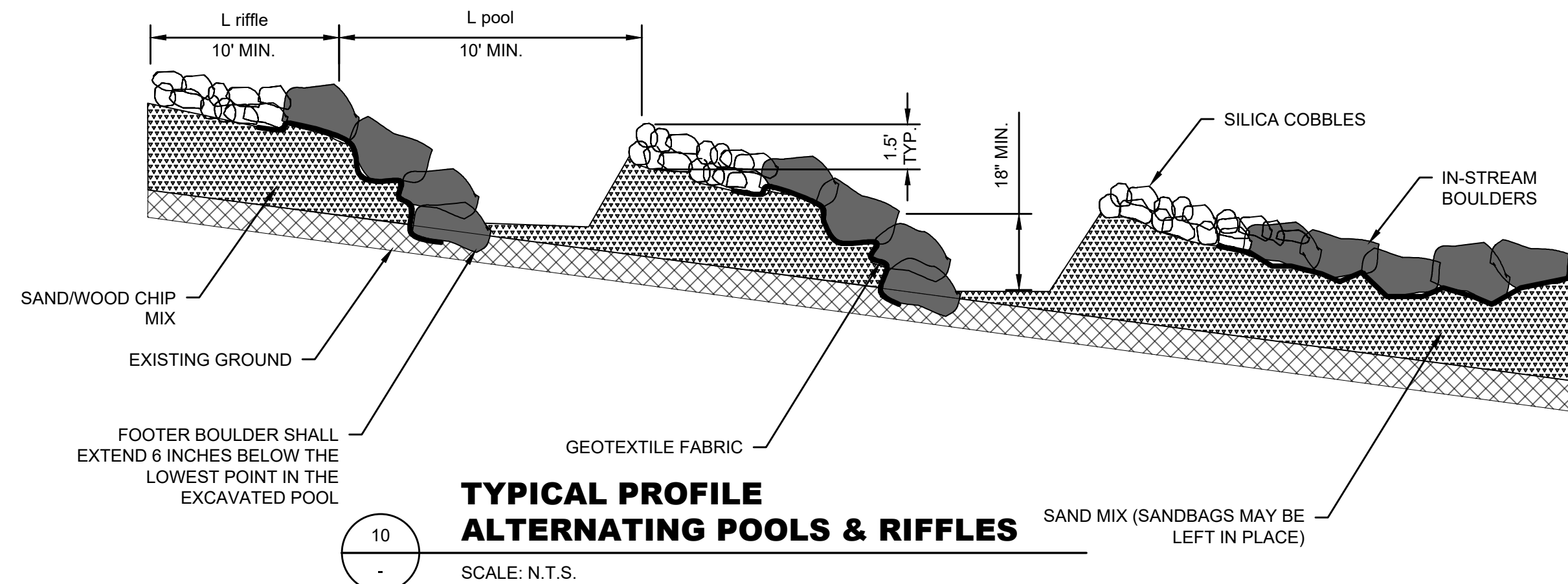
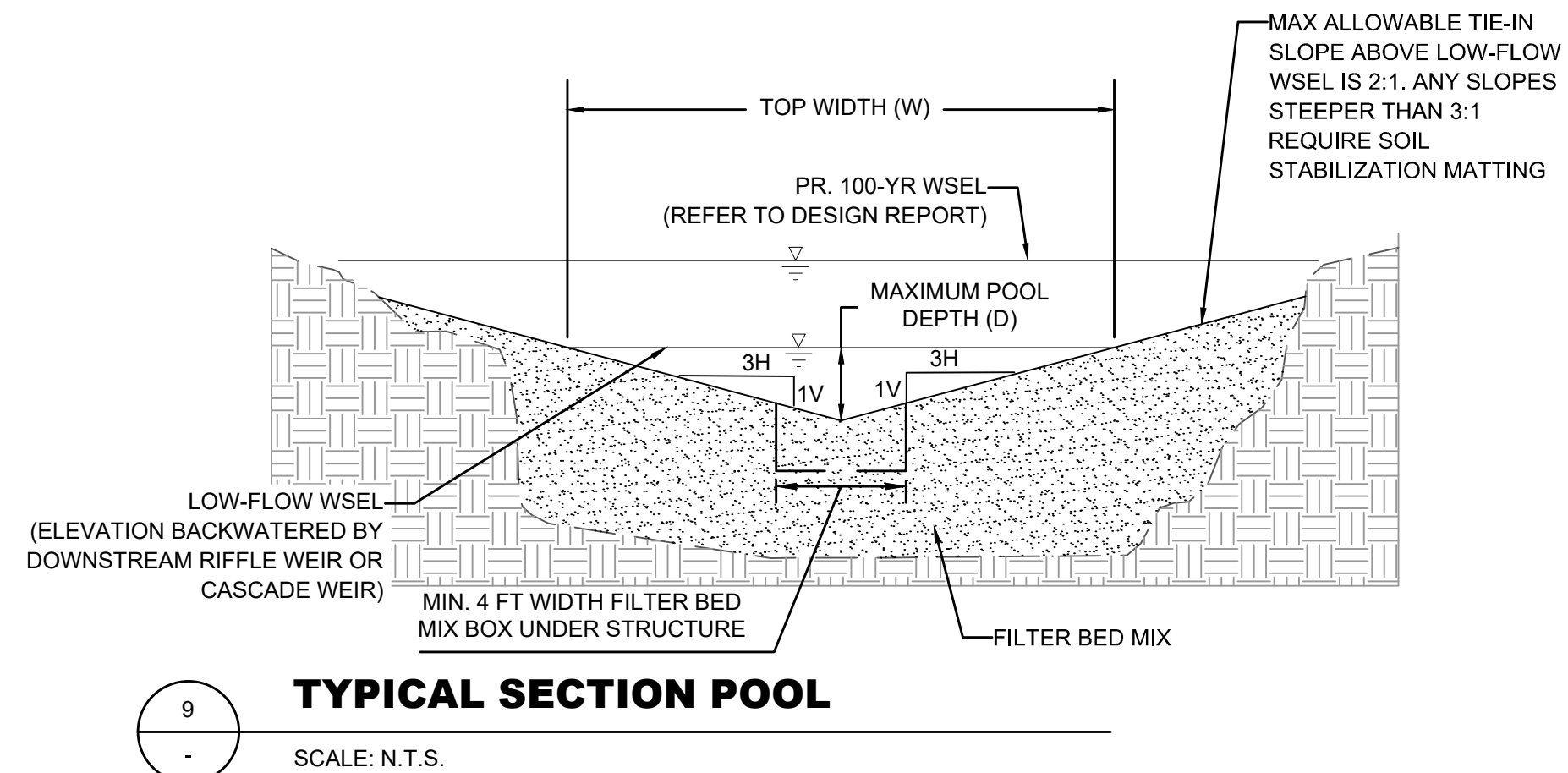
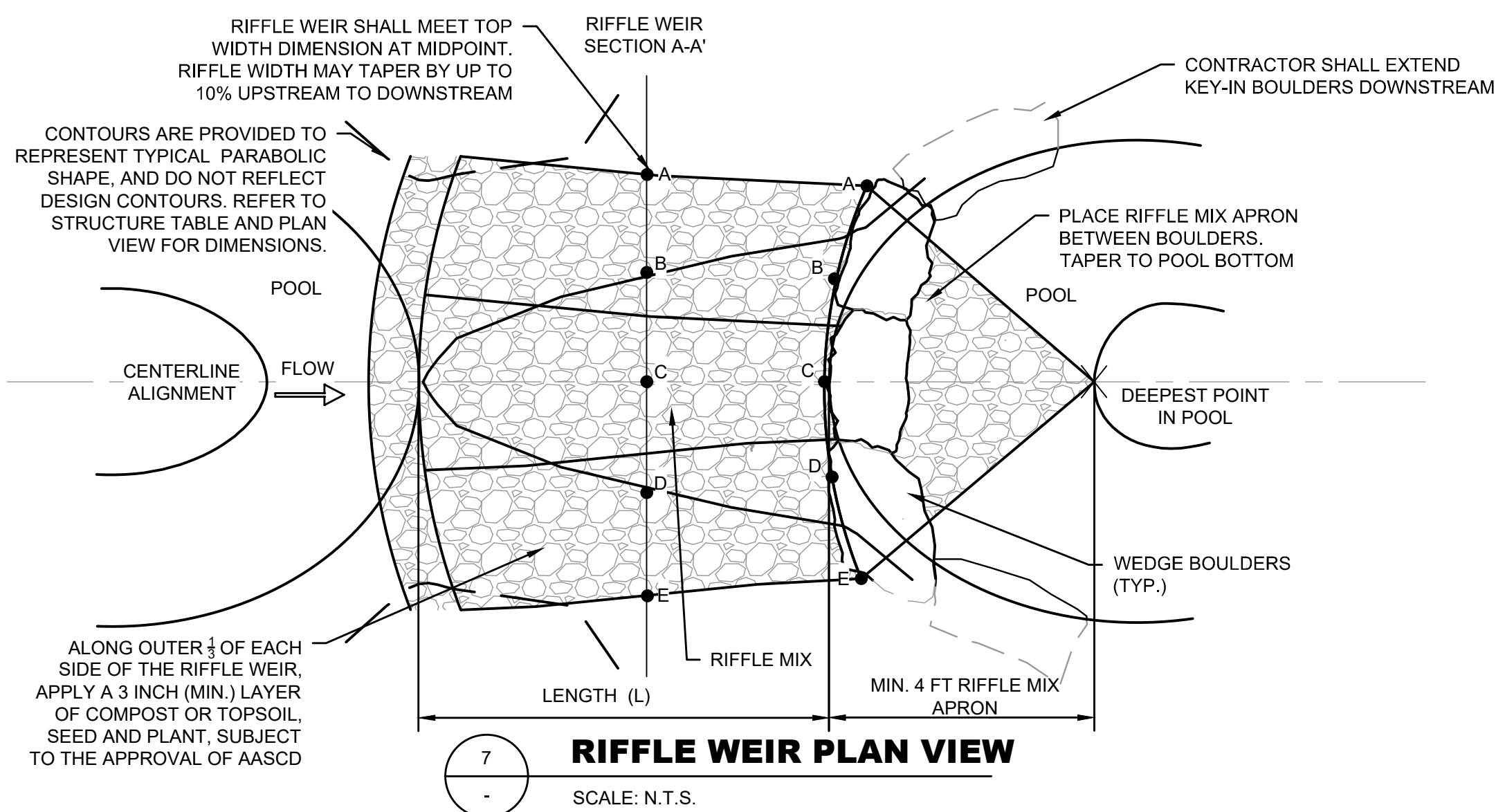
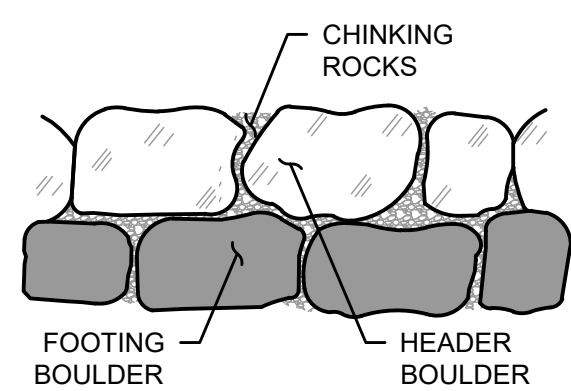






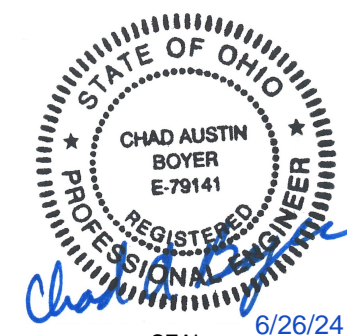


BOULDER DIMENSIONS (IN)				
	A-AXIS	B-AXIS	C-AXIS	UNIT WEIGHT, LBS/FT**
WEDGE BOULDERS & CASCADE BOULDERS	24-36"	24-36"	12-24"	
FOOTER AND ENERGY DISSIPATION BOULDERS	24-36"	24-36"	12-24"	



- RIFFLE WEIR NOTES:

1. THE CROSS SECTION SHALL BE CONSTRUCTED IN A PARABOLIC SHAPE BETWEEN GIVEN NODES.
2. NATURAL CHANNEL MATERIAL MAY BE HARVESTED ON-SITE PRIOR TO INSTALLATION OF RIFFLE WEIR IF IT MEETS THE SPECIFICATIONS FOR USE AS WASH-IN OR RIFFLE MIX.
3. THE NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTION WIDTH AND BOULDER DIMENSIONS.
4. THE BOULDERS SHALL BE TILTED DOWNSTREAM AS SHOWN ON THE DETAIL AND NOT STACKED.
5. TIE-OUT BOULDER SHALL EXTEND PAST THE DOWNSTREAM CORNER NODES A & E 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.
6. CHANNEL WASH-IN MATERIAL SHALL BE REPEATEDLY WORKED INTO FULL DEPTH OF THE RIFFLE MIX TO FILL VOIDS.
7. TRIM ALL GEOTEXTILE AT OR BELOW FINISHED GRADE, IF USED.
8. ONCE RIFFLE WEIR IS CONSTRUCTED, STABILIZE ALL DISTURBED LOCATIONS AS SPECIFIED.
9. CONTOURS ARE PROVIDED TO REPRESENT TYPICAL PARABOLIC SHAPE, AND DO NOT REFLECT DESIGN CONTOURS. REFER TO STRUCTURE TABLE AND PLAN VIEW FOR DIMENSIONS.

[illegible]

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(330)-744-5321  
Fax (330)-744-5256

SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYVE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

## STREAM IMPROVEMENT DETAILS

Project Number:

-04F39

Drawn by:

RDA

Checked by:

MRB

Approved by:

CAB

Scale: (22x3)

N/A

Date:

/5/24

Dwg. No.:

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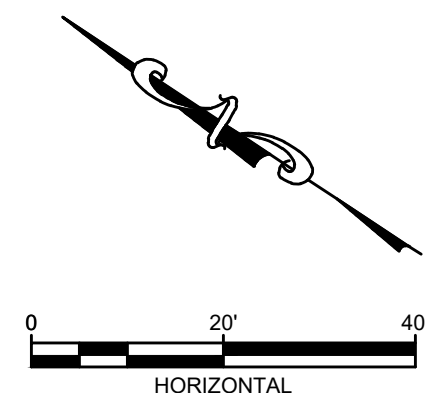
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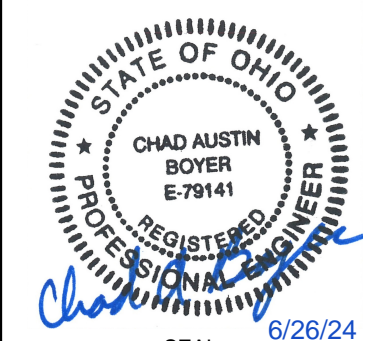
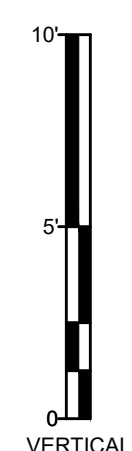
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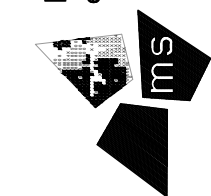




- ## NOTES:
1. SEE STREAM IMPROVEMENT DETAILS, SHEETS 6 AND 7
  2. THE MAINTENANCE ACCESS DRIVE IS TO BE CONSTRUCTED THROUGH CONTRACTOR'S MEANS AND METHODS FOR BOTH SECTION AND EXACT ROUTE. THE PATH SHOULD FOLLOW ROUGHLY WHAT IS SHOWN ON THESE SHEETS AND SHALL BE CONTAINED WITHIN THE RIPARIAN CORRIDOR (50' ON EITHER SIDE OF THE WYE CREEK CENTERLINE AT PROJECT COMPLETION.
  3. DO NOT DISPOSE OF MATERIALS IN REGULATED AQUATIC RESOURCES.
  4. SIDE CASTING OF MATERIALS ADJACENT TO WATERWAYS IS NOT RECOMMENDED.
  5. CONTRACTOR IS TO REVISE THE SIDE SLOPES OF THE ROCK CHANNEL PROTECTION BETWEEN APPROXIMATE STATIONS 3+10 AND 3+140 IN ORDER TO CREATE A PATH THAT WILL BE TRAVERSABLE FOR MAINTENANCE VEHICLES. BOTH THE SLOPE RATIO AND THE ROCK SIZE WILL NEED TO BE ALTERED. THE ROCK CHANNEL PROTECTION MAY NEED TO BE EXTEND DOWNSTREAM TO TRANSITION.

[illegible]

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(330)-744-5321 Fax (330)-744-5256



SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

## WYE CREEK PLAN & PROFILE

Project Number:

Drawn by:

Checked by:

Approved by:

Scale: (22x34)  
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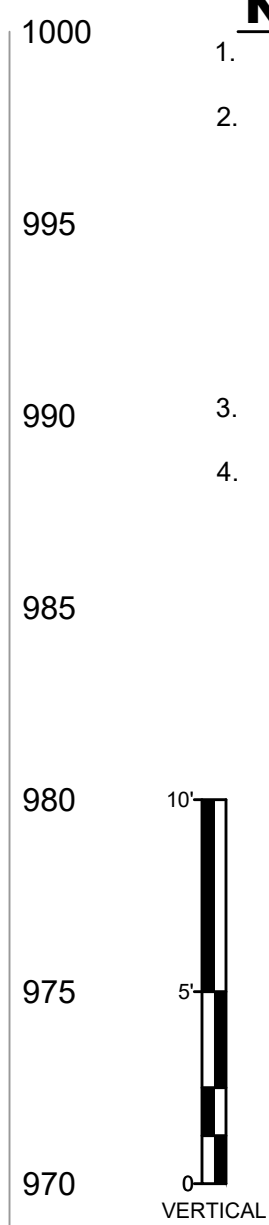
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Dwg. No.:

10/10/2014

8





1. SEE STREAM IMPROVEMENT DETAILS, SHEETS 6 AND 7
2. THE MAINTENANCE ACCESS DRIVE IS TO BE CONSTRUCTED THROUGH CONTRACTOR'S MEANS AND METHODS FOR BOTH SECTION AND EXACT ROUTE. THE PATH SHOULD FOLLOW ROUGHLY WHAT IS SHOWN ON THESE SHEETS AND SHALL BE CONTAINED WITHIN THE RIPARIAN CORRIDOR (50' ON EITHER SIDE OF THE WYE CREEK CENTERLINE AT PROJECT COMPLETION.
3. DO NOT DISPOSE OF MATERIALS IN REGULATED AQUATIC RESOURCES.
4. SIDE CASTING OF MATERIALS ADJACENT TO WATERWAYS IS NOT RECOMMENDED.

[illegible]

Fax (330)-744-5256

## WYE CREEK PLAN AND PROFILE

-04F39

RDA

MRB

CAB

1" = 20

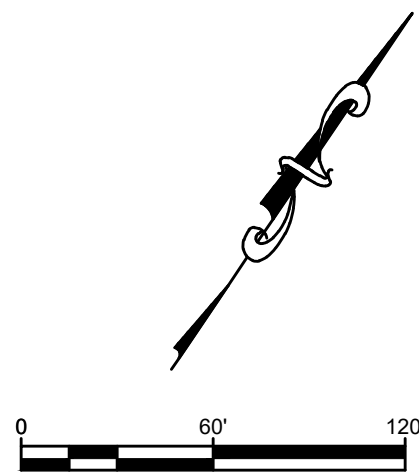
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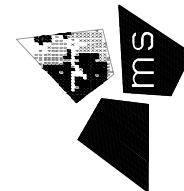
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SIDE CASTING OF MATERIALS ADJACENT TO WATERWAYS IS NOT RECOMMENDED.

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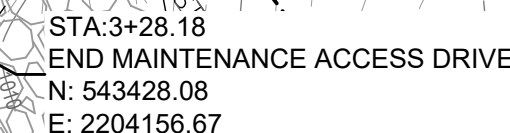
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(330) 744-5321 Fax



## EXISTING STREAM CLEANUP PLAN

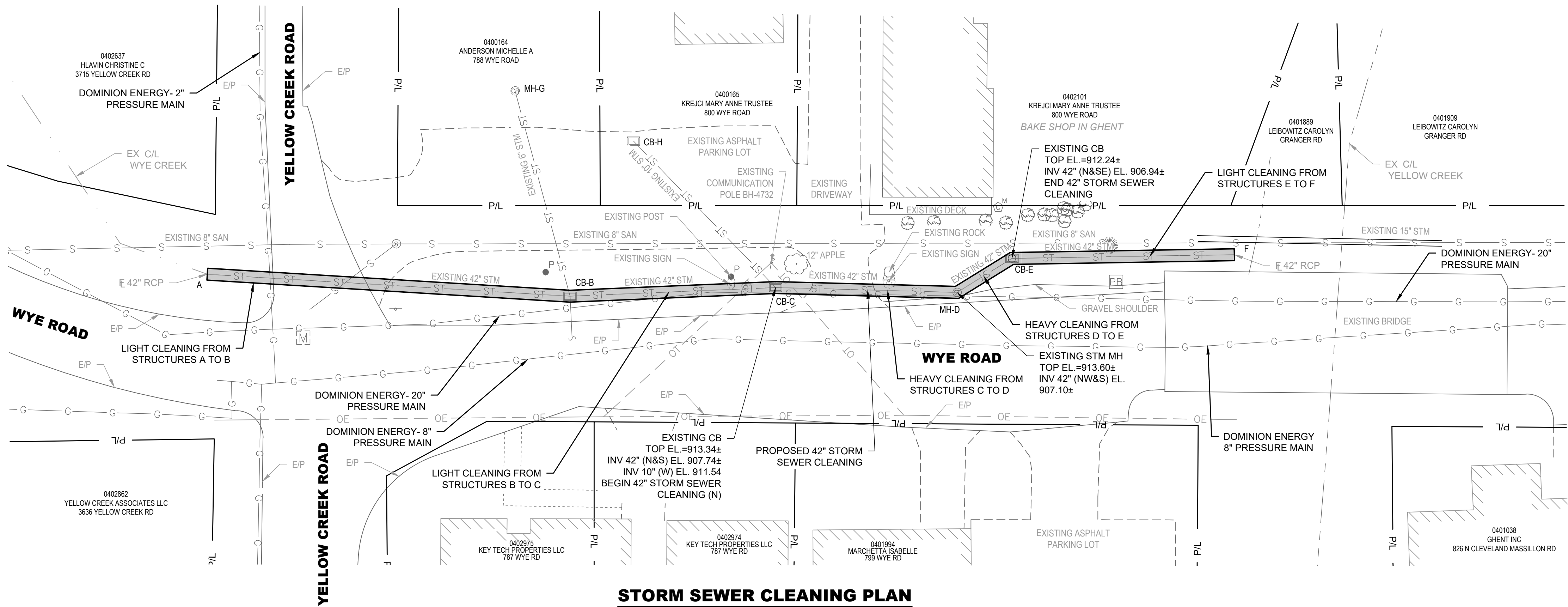
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N:\01\61\04F39 - Summit Co. - Wye Rd. Flood Mitig. & Impr\C\_Preliminary Design\Drawings\Sheet Sets\4F39\_STORM CLEANING PLAN.dwg



STORM SEWER CLEANING PLAN  
SCALE=1"=20'

NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CLEAN THE SEWER AND MANHOLES AS SPECIFIED WITHIN OR AS DESIGNATED BY THE ENGINEER.
2. ALL WORK SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES RECOMMENDED SPECIFICATIONS FOR SEWER COLLECTION SYSTEM REHABILITATION (LATEST EDITION).
3. THE SEWER SHALL BE CLEANED OF BRICKS, CONCRETE, SAND, DIRT, ROOTS, GREASE, MINERAL DEPOSITS THICKER THAN 1", AND ANY OTHER SOLID OR SEMISOLID MATERIAL USING HIGH VELOCITY HYDRAULIC SEWER CLEANING EQUIPMENT OR PHYSICAL MEANS WITHOUT DAMAGE TO THE EXISTING SEWER. SELECTION OF THE EQUIPMENT USED SHALL BE BASED ON THE CONDITION OF THE SEWER AT THE TIME THE WORK COMMENCES.
4. DURING SEWER CLEANING OPERATION, PRECAUTIONS SHALL BE TAKEN TO PROTECT THE SEWER FROM DAMAGE THAT MIGHT BE INFLECTED BY THE IMPROPER USE OF CLEANING EQUIPMENT.
5. HIGH VELOCITY HYDRAULIC SEWER CLEANING EQUIPMENT SHALL BE CONSTRUCTED FOR EASE AND SAFETY OF OPERATION. THE EQUIPMENT CONSISTS OF 3/4-INCH INSIDE DIAMETER HIGH PRESSURE HOSE WITH A SELECTION OF TWO OR MORE HIGH VELOCITY NOZZLES. THE NOZZLES SHALL HAVE A MINIMUM CAPACITY OF 30 GALLONS PER MINUTE (GPM) AT A WORKING PRESSURE OF 1,000 TO 1,500 POUNDS PER SQUARE INCH (PSI). THE NOZZLES SHALL BE CAPABLE OF PRODUCING A SCOURING ACTION FROM 15 DEGREES TO 45 DEGREES IN ALL SIZE SEWERS. THE EQUIPMENT SHALL CARRY ITS OWN WATER TANK, AUXILIARY ENGINES, PUMPS, AND HYDRAULICALLY & DRIVEN HOSE REEL. ALL CONTROLS SHALL BE LOCATED SO THAT THE EQUIPMENT CAN BE OPERATED ABOVE GROUND.
6. ROOT REMOVAL MAY INCLUDE THE USE OF MECHANICAL DEVICES, SUCH AS RODDING MACHINES, EXPANDING ROOT CUTTERS AND PORCUPINES, AND HYDRAULIC CLEANING EQUIPMENT.
7. ALL MATERIAL RESULTING FROM THE CLEANING OPERATION SHALL BE REMOVED FROM THE SEWER SECTION BEING CLEANED. ALL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE AT THE END OF EACH WORKDAY. THE CONTRACTOR SHALL NOT ACCUMULATE MATERIAL ON THE SITE OF WORK.
8. THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT, AND MATERIALS NECESSARY TO CLEAN THE SEWER AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. ANY SEWER WASTE MATERIAL DISPOSAL COSTS ARE TO BE INCLUDED IN THIS ITEM AS WELL.
9. THIS ITEM SHALL BE PAID AT THE UNIT PRICE BID PER LINEAR FOOT OF SEWER CLEANING AS MEASURED ALONG THE CENTERLINE OF THE SEWER THAT IS BEING CLEANED.
10. STRUCTURE NAMES ON THIS SHEET CORRESPOND WITH CCTV FOOTAGE AND REPORTS COMPLETED BY ENVIROLINK ON JUNE 3, 2019.

STATE OF OHIO  
CHAD AUSTIN  
BOYER  
E-79141  
REGISTERED  
PROFESSIONAL ENGINEER  
6/26/24  
SEAL

NO.

REVISIONS

DATE

ms consultants, inc.  
engineers • architects • planners  
333 EAST FEDERAL STREET  
YOUNGSTOWN, OHIO 44503-1821  
(330)-744-5321  
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SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

STORM SEWER CLEANING PLAN

Project Number:  
61-04F39

Drawn by:  
RDA

Checked by:  
MRB

Approved by:  
CAB

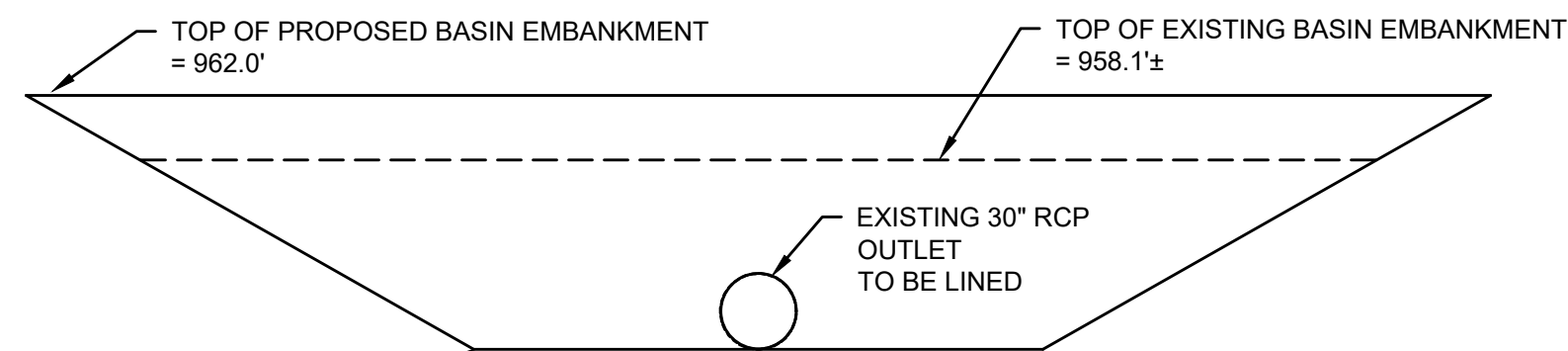
Scale: (22x34)  
1"=20'

Date:  
5/20/24

Dwg. No.:  
12

Sheet:  
12 of 20





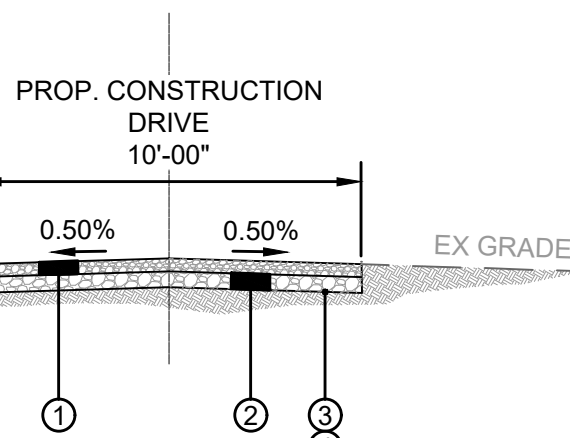
## OUTLET STRUCTURE DETAIL

**SCALE: NONE**

1. DURING THE CONSTRUCTION OF THE BASIN IMPROVEMENTS, TEMPORARY BYPASS TO BE CONDUCTED VIA MEANS AND METHODS OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SIZING BYPASS AND DE-WATERING ACTIVITIES BASED ON INCOMING WEATHER CONDITIONS
2. AFTER BASIN IMPROVEMENTS ARE COMPLETED, THE EXISTING GRASS ACCESS DRIVE SHALL BE AMENDED WITH AGGREGATE AS SHOWN IN THE DETAIL BELOW. SILT FENCE SHALL STAY IN PLACE DURING DISTURBANCE FOR AGGREGATE PLACEMENT AND MAY BE REMOVED ONLY ONCE THE AREA IS STABILIZED.
3. AN ALTERNATE BID ITEM HAS BEEN PROVIDED BY THE OWNER FOR INSTALLATION OF A PVC, HDPE, OR POLYPROPYLENE LINER PIPE IN PLACE OF CURED-IN-PLACE PIPE LINING FOR THE EXISTING 27" AND 30" BASIN OUTLET PIPES. THE ALTERNATE BID ITEM SHALL INCLUDE ALL NECESSARY WORK, MATERIAL, AND LABOR FOR THE PRE-INSTALLATION CLEANING AND CCTV OF THE EXISTING SEWER AND INSTALLATION OF THE LINER IN ACCORDANCE WITH LINER MANUFACTURER RECOMMENDATIONS. THE BASIS OF DESIGN FOR THE ALTERNATE PIPE LINER IS CONTECH A2 LINER OR AN OWNER APPROVED EQUAL. THE MINIMUM LINER SIZE INNER DIAMETER FOR THE 30" RCP MUST BE 24" OR GREATER BASED UPON THE EXISTING RCP PIPE INNER DIAMETER AND EXISTING PIPE CONDITION. THE 24" ORIFICE PLATE FOR THE 30" RCP WILL NOT BE NECESSARY IF THE LINER SIZE IS 24" IF GREATER THAN THE ORIFICE PLATE. SHALL BE INSTALLED. THE 27" RCP SHALL UTILIZE THE LARGEST AVAILABLE LINER, BASED UPON THE EXISTING RCP PIPE INNER DIAMETER AND EXISTING PIPE CONDITION. THE CONTRACTOR SHALL VERIFY THE LINER SIZE FOR THE EXISTING 27" AND 30" RCP SEWERS PRIOR TO SUBMISSION OF SHOP DRAWINGS FOR THE OWNERS REVIEW AND APPROVAL.
4. A UNIT PRICE BID (ACRE) HAS BEEN PROVIDED FOR REMOVAL OF TREES WITHIN THE BASIN IMPROVEMENT AREA. CONTRACTOR SHALL ONLY REMOVE TREES AS NECESSARY FOR INSTALLATION OF IMPROVEMENTS. PRESERVATION OVER REMOVAL IS PREFERRED.
5. TREE REMOVAL OUTSIDE THE LIMITS OF THE EXISTING INLINE BASIN EASEMENT IS PROHIBITED. TREES WITHIN 100 FEET OF THE WYE ROAD CENTERLINE MAY BE REMOVED AS NECESSARY BY THE CONTRACTOR UPON APPROVAL BY THE ENGINEER.

POINT TABLE		
Point #	Northing	Easting
100	543617.47	2205511.51
101	543626.40	2205559.72
102	543597.04	2205556.73
103	543574.67	2205566.51
104	543554.05	2205546.84
105	543558.49	2205526.53
106	543580.12	2205538.59
107	543597.73	2205533.52

NOTE: POINT NUMBERS 100-1000  
ARE APPROXIMATE LIMITS OF  
UNSUITABLE MATERIAL.



- ① CMS ITEM 304 - 4" AGGREGATE BASE
- ② 5" AGGREGATE BASE NO. 2
- ③ CMS ITEM 712 TYPE D - GEOTEXTILE FABRIC
- ④ CMS ITEM 204 - SUBGRADE COMPACTION

## ACCESS DRIVE TYPICAL SECTION

**SCALE= NOT TO SCALE**

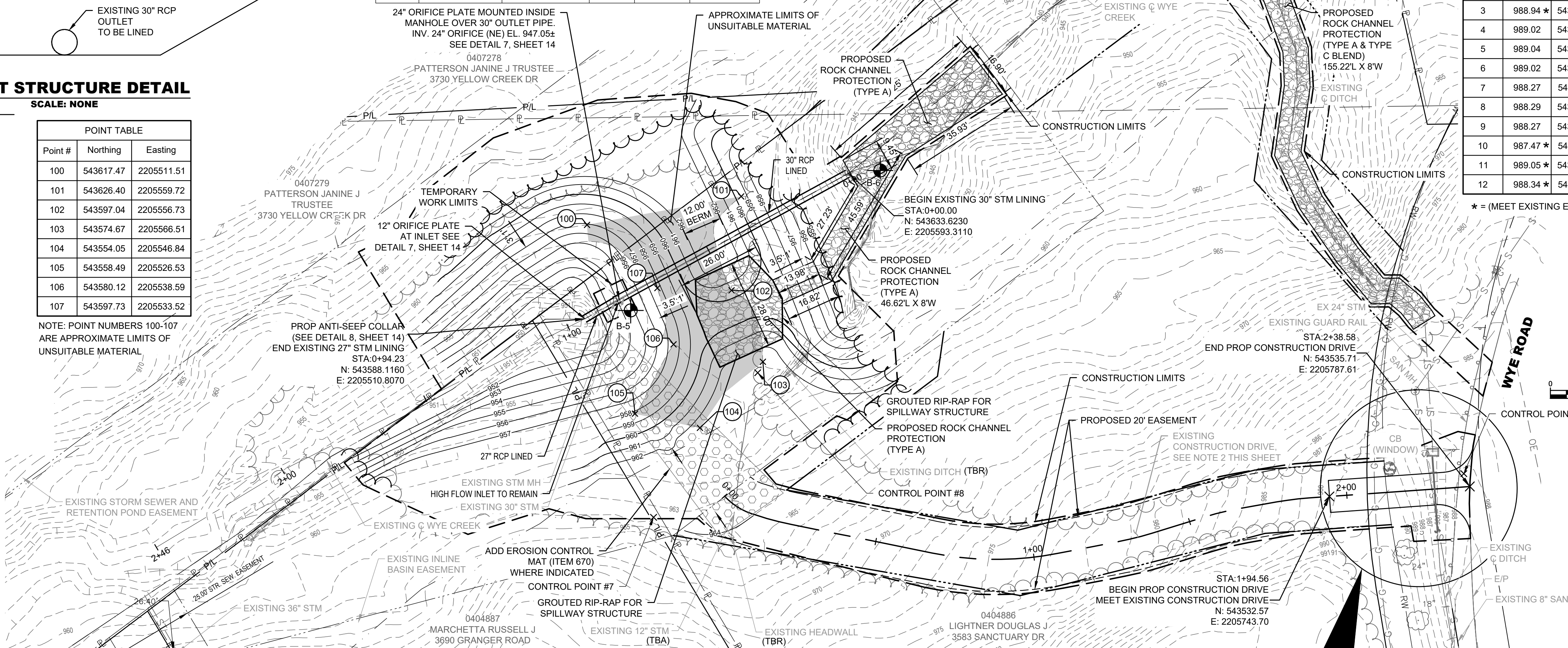
## HYDRAULIC DATA

Q(10) = 55.94 cfs HW(10) = 955.94 V(10) = 17.81 ft/s  
Q(25) = 61.41 cfs HW(25) = 958.21 V(25) = 19.55 ft/s

CURVE TABLE					
CURVE	CHORD LENGTH	CHORD BEARING	RADIUS	DELTA	ARC LENGTH
C1	12.19	N48° 22' 38"E	10.00'	75° 05' 11"	13.11'
C2	14.38	N48° 07' 07"W	10.00'	91° 55' 19"	16.04'

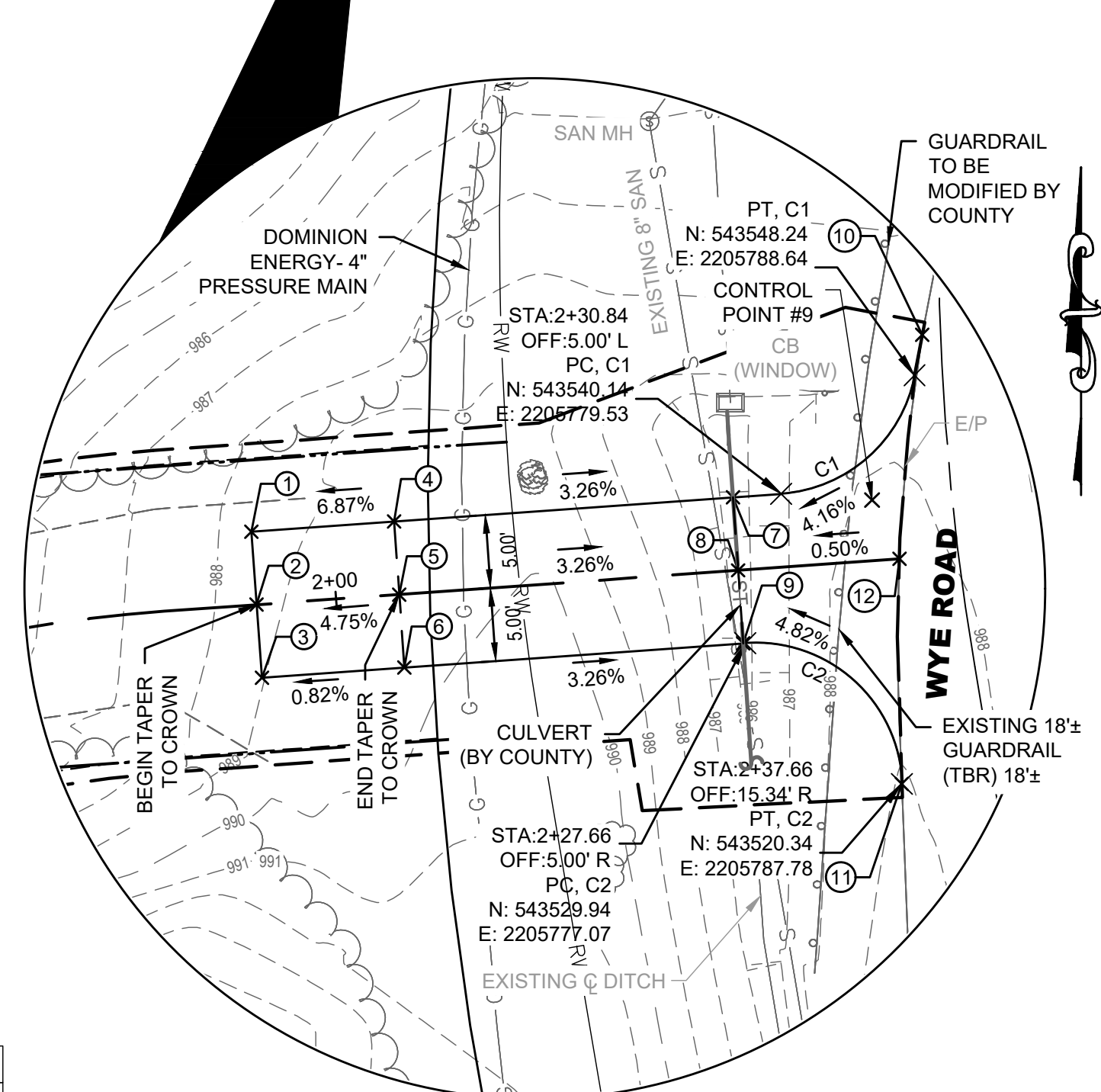
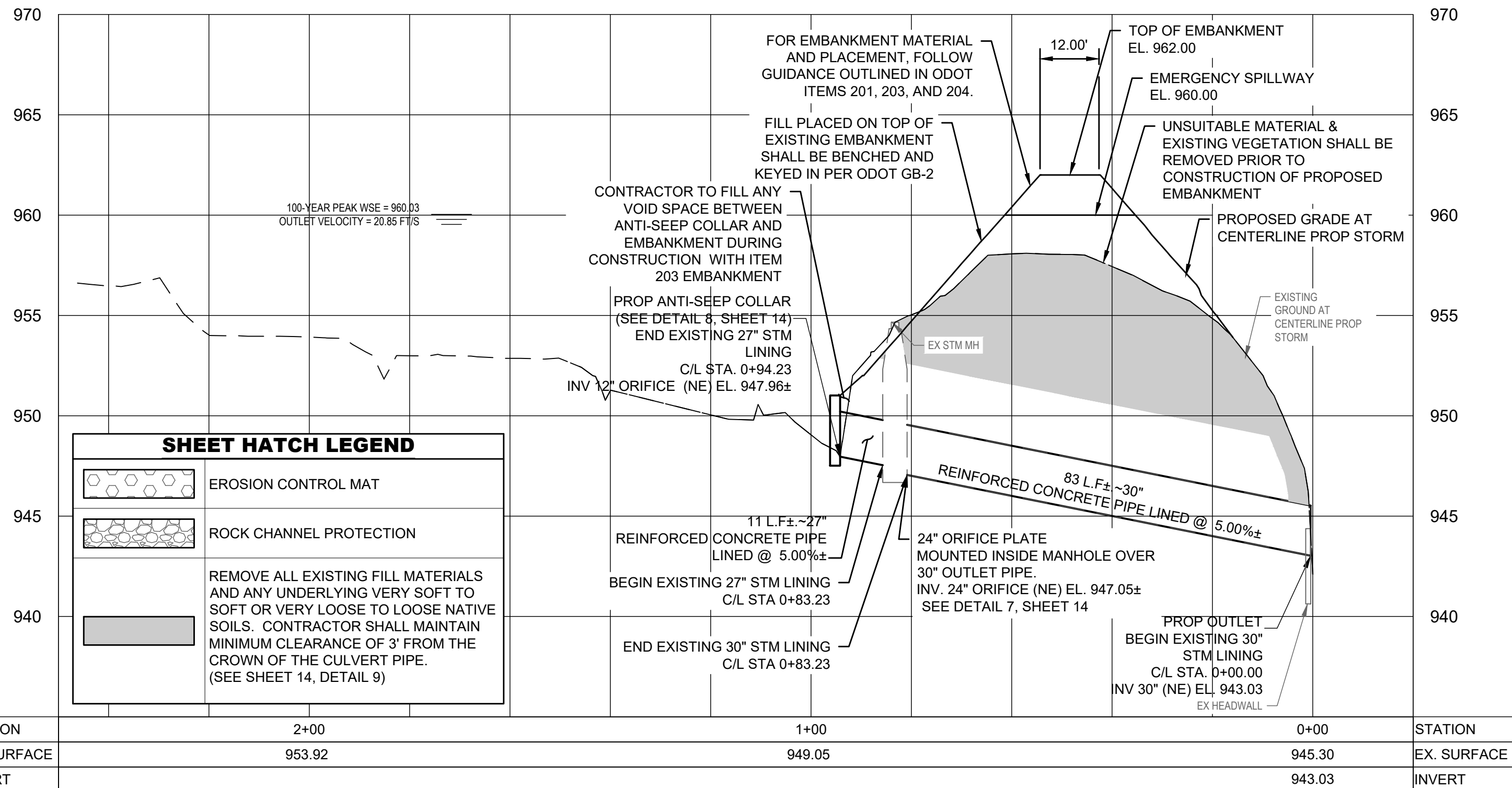
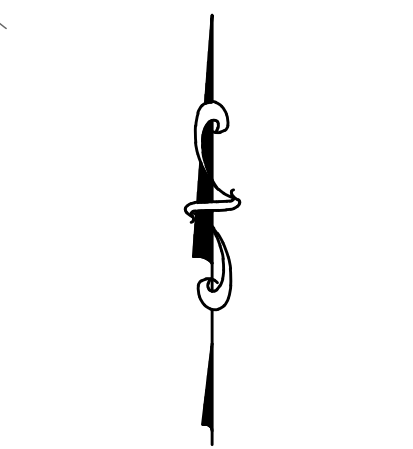
24" ORIFICE PLATE MOUNTED INSIDE —  
MANHOLE OVER 30" OUTLET PIPE.  
INV. 24" ORIFICE (NE) EL. 947.05±  
SEE DETAIL 7, SHEET 14

- APPROXIMATE LIMITS OF  
UNSUITABLE MATERIAL



POINT TABLE			
Point #	Elevation	Northing	Easting
1	988.35 *	543537.56	2205744.35
2	988.58 *	543532.57	2205743.70
3	988.94 *	543527.59	2205744.06
4	989.02	543538.26	2205753.09
5	989.04	543533.27	2205753.44
6	989.02	543528.28	2205753.80
7	988.27	543539.91	2205776.24
8	988.29	543534.92	2205776.59
9	988.27	543529.93	2205776.94
10	987.47 *	543551.01	2205789.17
11	989.05 *	543520.34	2205787.78
12	988.34 *	543535.71	2205787.61

\* = (MEET EXISTING ELEVATION)±



### CONSTRUCTION DRIVE APPROACH DETAIL

**SCALE=1"=10'**

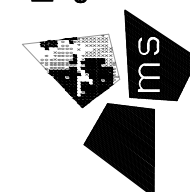


SEAL 6/26/24

[illegible]

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SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

### EXISTING INLINE DETENTION BASIN IMPROVEMENTS PHASE 1B

Project Number:

Drawn by:

Checked by:

Approved by:

Scale: (22x34)

Date: 5/18/20

Dwg. No.:

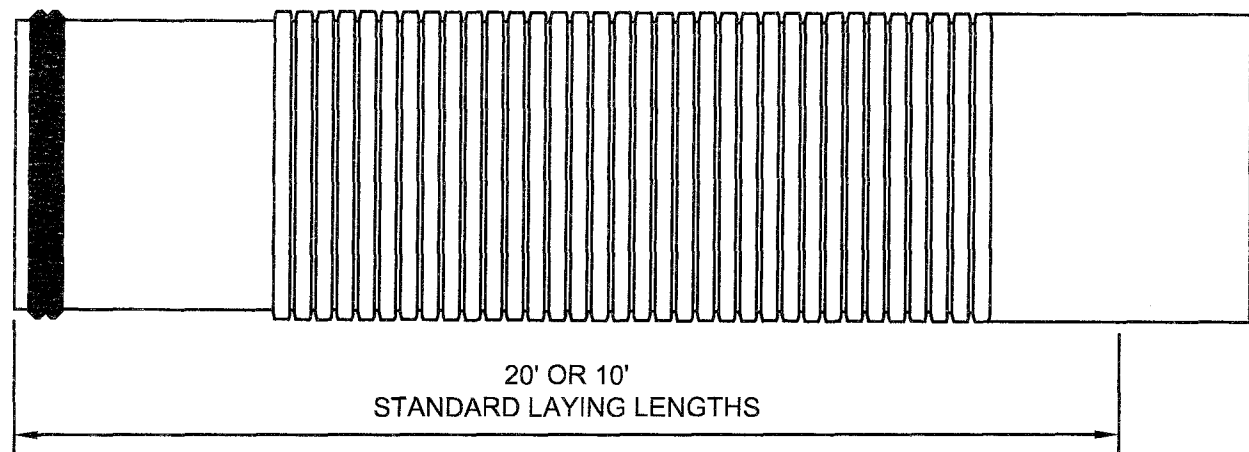
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Sheet: 13 of 20

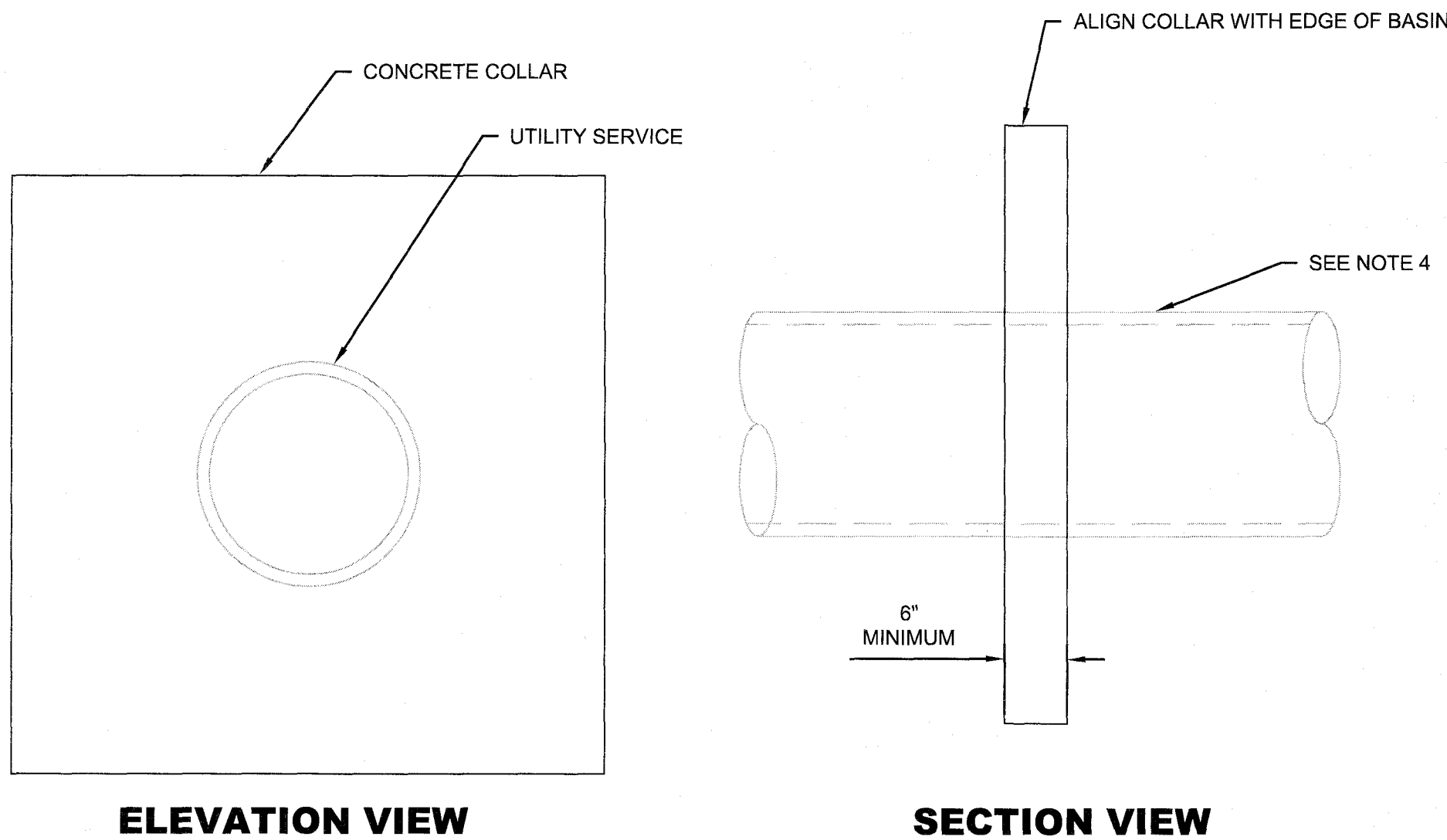


SCALE: N.T.S.

2. ORIFICE PLATE SHALL BE SEALED ON ALL SIDES. GAPS FROM  $\frac{1}{8}$ " TO  $\frac{1}{4}$ " IN WIDTH BETWEEN THE ORIFICE PLATE AND INSIDE WALL OF THE STRUCTURE SHALL BE SEALED WITH SILICONE RUBBER-BASED CAULK OR POLYURETHANE. GAPS GREATER THAN  $\frac{1}{4}$ " SHALL BE SEALED WITH NON-SHRINK GROUT.



**JOINTS:**  
THE PIPE SHALL BE CONNECTED WITH A PVC COUPLING UTILIZING ELASTOMERIC SEALING GASKETS. WHEN JOINED, THE COUPLING SHOULD NOT REDUCE THE INTERIOR DIAMETER WHILE MAINTAINING A CONSTANT OUTSIDE DIAMETER. THE ASSEMBLED JOINT SHALL MEET THE PERFORMANCE REQUIREMENT OF ASTM D3212 AND SHALL REMAIN WATERTIGHT AT 5° DEGREES ANGULARITY WHEN TESTED IN ACCORDANCE WITH SECTION 7.3. ELASTOMERIC SEALS (GASKETS) SHALL MEET THE REQUIREMENTS OF ASTM F477.



SCALE: N.T.S.

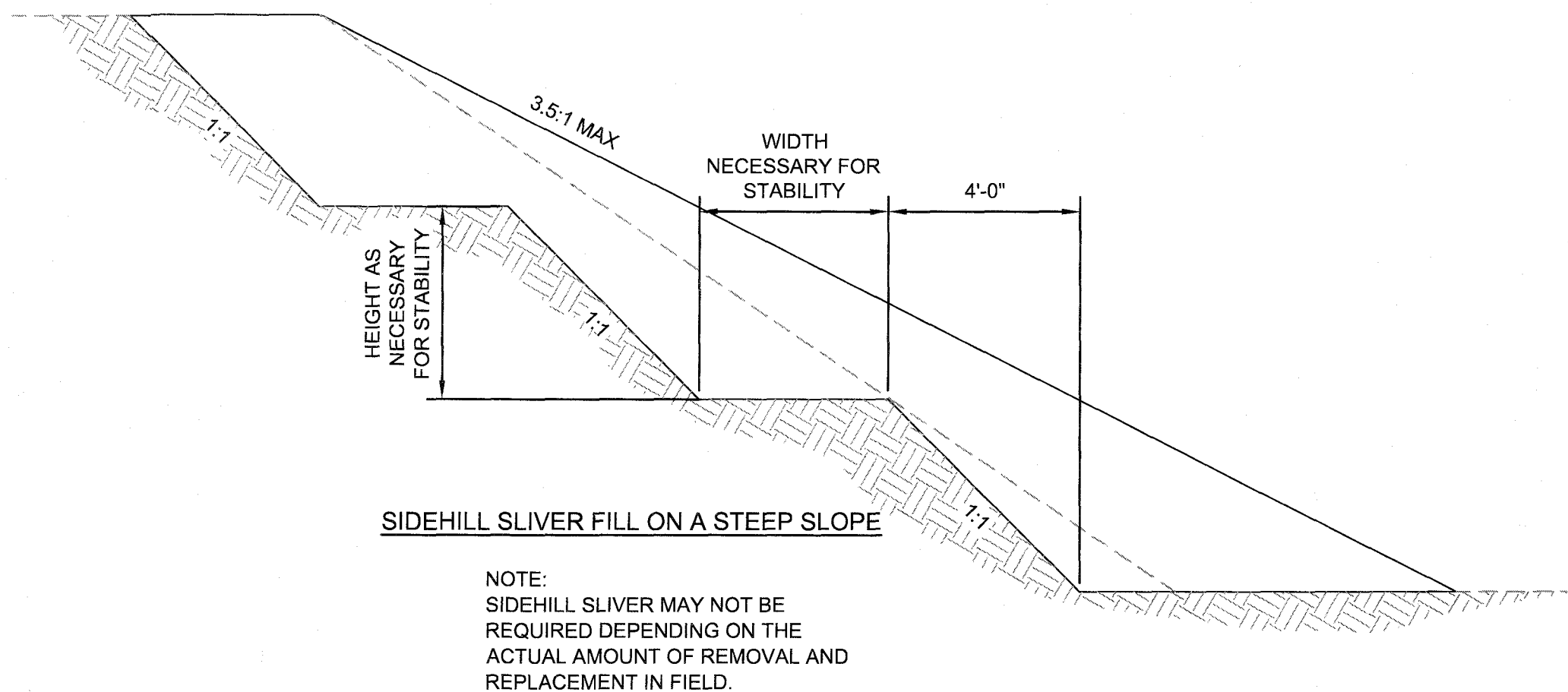
**NOTE:**  
THE ALTERNATE BID ITEM BASIS OF DESIGN FOR THE LINER PIPE SHOWN ABOVE IS CONTECH A2 LINER. THE OWNER MAY ACCEPT HDPE OR POLYPROPYLENE APPROVED EQUALS AT THEIR DISCRETION.

## SCALE: N.T.S.

<b>NOTES:</b>	
1. ANTI-SEEP COLLAR SHOULD BE USED IN CONJUNCTION WITH UTILITY SLEEVE.	3. COLLAR SHALL BE CONSTRUCTED OF 4000 PSI COMPRESSIVE STRENGTH CONCRETE OR OTHER MATERIAL APPROVED BY THE CITY.
2. DIMENSION W ABOVE SHALL BE 3' FOR PIPES 12" AND SMALLER. REFER TO ODOT STD. DWG WQ-1.2 FOR SIZE REQUIREMENTS FOR LARGER PIPES.	4. PIPE MATERIAL AND SIZING WILL VARY BY FUNCTION.

COHESIVE FILL MATERIALS AND/OR NATIVE COHESIVE SOILS CLASSIFIED AS LEAN CLAY OR SANDY LEAN CLAY (CL). AS PER THE USCS/ASTM SHALL BE REUSED AS STRUCTURAL FILL, PROVIDED THAT THEY ARE FREE OF ORGANIC MATTER AND/OR ANY OTHER UNSUITABLE OR DELETERIOUS MATERIALS AND IF THEY MEET THE REQUIREMENTS OF THE "EMBANKMENT STRUCTURAL FILL" NOTE. FOLLOWING SITE CLEARING, STRIPPING, AND UNDERCUTTING, AND PRIOR TO PLACING STRUCTURAL FILL, THE EXPOSED SUBGRADE SHALL BE CRITICALLY PROOF-ROLL TESTED UNTIL THE GRADE OFFERS AN UNYIELDING SURFACE. AREAS OF EXCESS YIELDING OR PUMPING, AS OBSERVED BY THE


1. GROUNDWATER CONTROL AND DRAINAGE
  - A. GROUNDWATER LEVELS FLUCTUATE SEASONALLY AND GROUNDWATER SEEPAGE MAY BE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION. GROUNDWATER IS SHALL BE CONTROLLED AND MAINTAINED AT AN ELEVATION OF AT LEAST 2 FEET BELOW EXCAVATION BOTTOMS. CONTRACTOR SHALL KEEP THE EXCAVATIONS DRY IF WATER IS ENCOUNTERED. DEWATERING/REWATERING METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2. EXCAVATION
  - A. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT STABLE, TEMPORARY EXCAVATIONS AND SHALL SHORE SLOPE, OR BENCH THE SIDES OF THE EXCAVATIONS AS REQUIRED TO MAINTAIN STABILITY OF BOTH THE EXCAVATION SIDES AND BOTTOM.
3. WEATHER CONSIDERATIONS
  - A. THE CONTRACTOR SHALL MAINTAIN POSITIVE SITE DRAINAGE. IF WET/PUMPING CONDITIONS OCCUR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OVER EXCAVATING THE WET SOILS AND REPLACING THEM WITH COMPACTED STRUCTURAL FILL.
4. UTILITY TRENCHING
  - A. BACKFILL SHALL BE PLACED IN FOUR TO SIX INCH LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. TRENCHES SHALL NOT BE BACKFILLED WITH STANDING WATER LOCATED IN THE TRENCH.



NOTE:  
SIDEHILL SLIVER MAY NOT BE  
REQUIRED DEPENDING ON THE  
ACTUAL AMOUNT OF REMOVAL AND  
REPLACEMENT IN FIELD.

SCALE: N.T.S.

SIGNED: Raymond M. Kiper  
DATE: 6/7/2024

[illegible]

## ILS & A2 LINER PIPE DETAILS

Sheet: 14 of 20



N:\01\61\04F39 - Summit Co. - Wye Rd. Flood Mitig & Imp\C\_Preliminary Design\Drawings\Sheet Sets\4F39\_Notes.dwg

<b>PART 1 - GENERAL</b>			
1.01	<b>SUMMARY</b>		
A. FURNISH AND INSTALL THE CURED-IN-PLACE RESIN IMPREGNATED FLEXIBLE TUBE PIPE LINER IN ACCORDANCE WITH THE PLANS AND AS SPECIFIED HEREIN. WHEN INSTALLED, CURED, AND COMPLETE, THE LINER SHALL EXTEND FROM BEGINNING TO END IN A CONTINUOUS TIGHT-FITTING, WATERTIGHT, PIPE-WITHIN-A-PIPE MANNER WITH A UNIFORMLY SMOOTH INTERIOR PROVIDING HYDRAULIC FLOW EQUAL TO OR GREATER THAN THE EXISTING SEWER IN ORIGINAL CONDITION.			
1.02	<b>SUBMITTALS</b>		
SUBMITTAL A SHALL BE SUBMITTED WITH THE BID. SUBMITTALS B-H SHALL BE MADE AT THE PRE-CONSTRUCTION MEETING. SUBMITTALS I-J SHALL BE MADE A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO LINING. SUBMITTALS K-L SHALL BE MADE WITHIN ONE WEEK AFTER LINING.			
A. CONTRACTOR'S QUALIFICATIONS. SUBMIT COPY OF MANUFACTURER'S LICENSEE CERTIFICATE. SUBMIT LIST OF TEN (10) SIMILAR REGIONAL JOBS WITHIN THE PAST THREE (3) YEARS. PROVIDE PROJECT INFORMATION SUCH AS LENGTH OF PROJECT, PIPE DIAMETER, DATE COMPLETE, PROJECT COST, OWNER CONTACT (NAME AND PHONE NUMBER), AND INSTALLATION/CURING METHOD. IN ADDITION, THREE (3) OF THE TEN (10) REGIONAL JOBS MUST INDICATE THE SUCCESSFUL USE OF STEAM CURING IF THIS METHOD IS TO BE UTILIZED BY THE CONTRACTOR.			
B. PRODUCT DATA. FURNISH MANUFACTURER'S GENERAL PRODUCT DATA.			
C. MATERIAL CERTIFICATIONS. WRITTEN CERTIFICATION IS REQUIRED FROM THE MANUFACTURER THAT ALL LINER AND RESIN USED IN THE WORK WERE MANUFACTURED AND TESTED IN ACCORDANCE WITH THE ASTM STANDARDS SPECIFIED HEREIN, AND IS BEING USED OR INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.			
D. STORAGE AND DELIVERY PROCEDURES. THE CONTRACTOR SHALL PROVIDE THE RESIN AND LINER MANUFACTURER'S RECOMMENDED STORAGE AND DELIVERY PROCEDURES. THIS SHALL INCLUDE STORAGE AND DELIVERY TEMPERATURES, MAXIMUM TIME FROM WET-OUT TO INSTALLATION, AND OTHER PERTINENT INFORMATION.			
E. MATERIAL SAFETY DATA SHEETS. THE CONTRACTOR SHALL SUBMIT MATERIAL SAFETY DATA SHEETS (MSDS) FOR EACH COMPONENT OF THE CIPP SYSTEM.			
F. TEST RESULTS. PRIOR TO THE USE OF ANY MATERIALS, THE CONTRACTOR SHALL FURNISH, AT ITS EXPENSE, THE RESULTS OF TESTING OF THE PROPOSED MATERIALS BY AN INDEPENDENT LABORATORY IN CONFORMANCE WITH THESE SPECIFICATIONS. ALL SUBMITTED TEST DATA SHALL HAVE BEEN PERFORMED ON FIELD INSTALLED SAMPLES WITHIN THE LAST TWELVE (12) MONTHS. ANY MATERIAL NOT MEETING THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL BE COMPLETELY REMOVED FROM THE PROJECT. MATERIALS ACCEPTABLE TO THE ENGINEER SHALL BE SUBSTITUTED FOR REJECTED ITEMS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING:			
1. TESTING BY AN INDEPENDENT LABORATORY TO VERIFY THAT THE PRODUCTS TO BE USED MEET ALL MINIMUM STRENGTH STANDARDS AS SET FORTH IN ASTM F-1216, TABLE 1.			
2. TESTING BY AN INDEPENDENT LABORATORY TO VERIFY THAT THE PRODUCTS USED MEET THE CREEP FACTOR SPECIFIED WITHIN. THE SUBMITTAL SHALL INCLUDE THE LONG-TERM FLEXURAL AND TENSILE MODULUS OF ELASTICITY MEASURED IN ACCORDANCE WITH ASTM D2990.			
G. INSTALLATION PROCEDURES. THE CONTRACTOR SHALL SUBMIT THE CIPP LINER MANUFACTURER'S DETAILED INSTALLATION PROCEDURES FOR THE INSTALLATION METHOD(S) TO BE UTILIZED ON THIS PROJECT.			
H. CURING CYCLE AND COOLING RATE. THE CONTRACTOR SHALL SUBMIT THE RESIN MANUFACTURER'S RECOMMENDED CURING CYCLE AS WELL AS THE RECOMMENDED COOLING RATE. THE CONTRACTOR SHALL SUBMIT INVERSION PRESSURE (DESIRED AND MAXIMUM), CURING PRESSURE (DESIRED AND MAXIMUM) AND TIMES (PART OF THE CURING CYCLE) FOR AIR INVERSION/STEAM CURING.			
I. PRE-REHABILITATION VIDEO RECORDINGS AND LOGS. THE CONTRACTOR SHALL SUBMIT 2 COPIES OF THE PRE-REHABILITATION VIDEO RECORDINGS AND LOGS TO THE ENGINEER THAT DOCUMENT EXISTING CONDITIONS AFTER THE CONTRACTOR HAS CLEARED THE SEWER LINE.			
J. CIPP LINER THICKNESS CALCULATIONS. THE CONTRACTOR SHALL PERFORM CIPP LINER THICKNESS CALCULATIONS FOR EACH SECTION AND FURNISH THEM TO THE ENGINEER WITH SUPPORTING ASSUMPTIONS, INCLUDING THE ACTUAL PIPE CONDITION OBSERVED BASED UPON THE PRE-REHABILITATION VIDEO. ALL CALCULATIONS SHALL BE PREPARED UNDER AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO. CALCULATIONS SHALL BE DONE AFTER CLEANING, TELEVISION, AND OTHER FIELD INSPECTIONS HAVE BEEN ACCOMPLISHED. DESIGN PARAMETERS GIVEN IN SECTION 2.01.B SHALL BE USED IN CALCULATIONS.			
K. CURE LOGS. THE CONTRACTOR SHALL SUBMIT A COPY OF THE CURE LOGS FOR EACH INSTALLATION. THE CURE LOGS SHALL CONTAIN RECORDS OF THE CURING CYCLE AND THE COOLING CYCLE. EACH CURE LOG SHALL CLEARLY INDICATE THE PROJECT NAME, CAPITAL IMPROVEMENT PROJECT (CIP) NUMBER, AND THE SECTION THAT WAS LINED.			
L. POST-REHABILITATION VIDEO RECORDINGS AND LOGS. THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE FINAL TELEVISION INSPECTION THAT SHOW THE REHABILITATED SEWER ALONG WITH REINSTATED SERVICE CONNECTIONS.			
1.03	<b>QUALITY ASSURANCE</b>		
A. STANDARDS. ALL WORK AND MATERIALS USED SHALL BE IN COMPLIANCE WITH THE FOLLOWING STANDARDS THAT ARE MADE PART OF THIS SPECIFICATION:			
1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) (LATEST EDITION): A. ASTM D-543, PRACTICES FOR EVALUATING THE RESISTANCE OF PLASTICS TO CHEMICAL REAGENTS. B. ASTM D-638, TEST METHOD FOR TENSILE PROPERTIES OF PLASTICS. C. ASTM D-790, TEST METHODS FOR FLEXURAL PROPERTIES OF UNREINFORCED AND REINFORCED PLASTICS AND ELECTRICAL INSULATING MATERIALS. D. ASTM D-5813, "STANDARD SPECIFICATION FOR CURED-IN-PLACE THERMOSETTING RESIN PIPE" E. ASTM F-1216, STANDARD PRACTICE FOR REHABILITATION OF EXISTING PIPELINES AND CONDUITS BY THE INVERSION AND CURING OF A RESIN IMPREGNATED TUBE. F. ASTM F-1743, STANDARD PRACTICE FOR REHABILITATION OF EXISTING PIPELINES AND CONDUITS BY PULLED-IN-PLACE INSTALLATION OF CURED-IN-PLACE THERMOSETTING RESIN PIPE (CIPP) (IF GIVEN APPROVAL ON A CASE-BY-CASE BASIS).			
2. NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES (NASSCO). A. CONTRACTOR'S QUALIFICATIONS. INSTALLATION OF THE SEWER PIPE LINING SYSTEM SHALL BE PERFORMED BY AN EXPERIENCED CONTRACTOR FULLY LICENSED AND APPROVED BY THE LINING PROCESS MANUFACTURER. THE CONTRACTOR SHALL HAVE A MINIMUM OF THREE (3) YEARS OF EXPERIENCE IN SUCH WORK AND SHALL HAVE SATISFACTORILY COMPLETED TEN (10) SIMILAR REGIONAL PROJECTS FOR AT LEAST THREE (3) DIFFERENT UTILITIES OR AGENCIES. IF THE CONTRACTOR ANTICIPATES UTILIZING STEAM CURING, THREE (3) OF THESE TEN (10) REGIONAL PROJECTS MUST BE A STEAM CURED APPLICATION.			
1.04	<b>DELIVERY, STORAGE AND HANDLING</b>		
A. DELIVERY. 1. CIPP MATERIAL SHALL BE DELIVERED TO THE JOB SITE IN A COVERED REFRIGERATED TRUCK TO MINIMIZE EXPOSURE TO SUNLIGHT AND TO MAINTAIN THE TEMPERATURE OF THE PRODUCT WITHIN MANUFACTURER'S RECOMMENDATIONS TO AVOID PREMATURE CURING. 2. DELIVERY OF MATERIAL SHALL BE COORDINATED WITH OTHER TRADES TO AVOID DELAYS. 3. PIPE PREPARATIONS AND FIELD INSPECTIONS SHALL BE COMPLETED PRIOR TO DELIVERY OF LINER TO SITE.			
B. STORAGE OF MATERIALS 1. MATERIAL SHALL BE STORED IN THE DELIVERY TRUCK IN ORDER TO MINIMIZE EXPOSURE TO SUNLIGHT AND TO MAINTAIN THE TEMPERATURE OF THE PRODUCT TO WITHIN MANUFACTURER'S RECOMMENDATION TO AVOID PREMATURE CURING. 2. NO MATERIAL SHALL BE STORED IN THE OPEN OR IN CONTACT WITH THE GROUND. 3. TEMPERATURE LOGS OF LINER FROM TIME OF WET-OUT TO INSTALLATION SHALL BE GIVEN TO THE COUNTY ON SITE AT THE TIME OF INSTALLATION. THESE LOGS SHALL CONTAIN THE CALCULATED VOLUME OF RESIN REQUIRED AND THE ACTUAL VOLUME OF RESIN PROVIDED. THE COUNTY SHALL VERIFY THAT THE VOLUME OF RESIN PROVIDED IS 5 TO 10 PERCENT GREATER THAN THE CALCULATED VOLUME OF RESIN REQUIRED PER ASTM F-1216, 7.2.			
C. HANDLING 1. HANDLE ALL PRODUCTS WITH CARE. ONLY SOUND, UNDAMAGED PRODUCTS SHALL BE ACCEPTED.			
1.05	<b>PROJECT/SITE CONDITIONS</b>		
A. ENVIRONMENTAL REQUIREMENTS 1. CONTRACTOR MAY BE REQUIRED TO MONITOR STYRENE ODORS AS NECESSARY IN BUSINESSES AND RESIDENCES TO ENSURE THAT CONCENTRATION LEVELS ARE UNDER RECOMMENDED LIMITS. 2. CONTRACTOR SHALL USE CAUTION WHEN WORKING IN PROJECT SEWERS. DURING RAIN EVENTS, PROJECT SEWERS MAY REACH CAPACITY QUICKLY AND/OR HEAD UP.			
B. SAFETY. ALL WORK TO BE COMPLETED IN CONFORMANCE WITH ALL APPLICABLE SAFETY STANDARDS, IN PARTICULAR <u>OSHA STANDARD 29CFR 1910.146, PERMIT REQUIRED CONFINED SPACE ENTRY</u> .			
1.06	<b>WARRANTY</b>		
A. THE CONTRACTOR SHALL GUARANTEE ALL WORK.			
<b>PART 2 - PRODUCTS</b>			
2.01	<b>MATERIALS</b>		
A. PRODUCTS. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. INSITUFORM® 2. INLINER USA® 3. CIPP CORP 4. NATIONAL LINER			
5. SPINIELLO LINER 6. UNITED LINER			
B. DESIGN PARAMETERS AND MECHANICAL PROPERTIES. THE FOLLOWING VALUES ARE TO BE USED TO VERIFY THAT THE LINER THICKNESS EQUALS OR EXCEEDS THAT SHOWN IN THE PLANS AND, WHERE INDICATED BY AN ASTM STANDARD, SHALL SERVE AS THE MINIMUM ACCEPTABLE STRENGTH REQUIREMENTS FOR THE FINAL CURED LINER.  FLEXURAL STRENGTH (ASTM D-790) 4,500 PSI SHORT-TERM FLEXURAL MODULUS (ASTM D-790) 400,000 PSI CREEP FACTOR 50% FACTOR OF SAFETY 2 OVALITY 2% SOIL MODULUS 700  EACH TUBE SHALL BE DESIGNED TO WITHSTAND INTERNAL AND/OR EXTERNAL PRESSURES AS DICTATED BY SITE AND PIPE CONDITIONS AS WELL AS THE INSTALLATION PROCESS USED BY THE CONTRACTOR.  THE CIPP LINER THICKNESS SHALL BE CALCULATED TO WITHSTAND THE SOIL LOADING AT THE DEEPEST POINT (THE MAXIMUM DIFFERENCE BETWEEN THE SURFACE ELEVATION AND THE PIPE ELEVATION). ASSUME THE WATER TABLE TO BE AT THE SAME ELEVATION AS THE AVERAGE SURFACE ELEVATION.  D. FABRIC TUBE. THE FLEXIBLE FABRIC TUBE SHALL CONSIST OF ONE OR MORE LAYERS OF FLEXIBLE NEEDLED FELT OR AN EQUIVALENT WOVEN AND/OR NONWOVEN MATERIAL CAPABLE OF CARRYING RESIN, WITHSTANDING INSTALLATION PRESSURES AND CURING TEMPERATURES, AND COMPATIBLE WITH THE RESIN SYSTEM USED. THE TUBE SHALL BE SIZED TO ACCOMMODATE THE FORCES OF INSTALLATION, HOST PIPE CONFIGURATION, AND ANY OTHER PERTINENT FACTORS TO ASSURE A TIGHT FITTING FINAL PRODUCT WITH A SMOOTH FINISH.  E. RESIN SYSTEM. THE RESIN SYSTEM SHALL BE A POLYESTER, EPOXY, OR VINYL ESTER RESIN AND CATALYST SYSTEM COMPATIBLE WITH THE INSERTION PROCESS. THE RESIN SYSTEM SHALL NOT CONTAIN FILLERS OR ADDITIVES, EXCEPT THOSE REQUIRED FOR VISCOSITY CONTROL, FIRE RETARDANT, MODULUS ENHANCEMENT, CHEMICAL RESISTANCE, OR LIFE EXTENSION. THE FOLLOWING ADDITIVES MAY NOT INTERFERE WITH THE VISUAL INSPECTION OF THE CURED-IN-PLACE LINER PIPE OR ITS REQUIRED PROPERTIES: THIXOTROPIC AGENTS ADDED FOR VISCOSITY CONTROL, THE OPAQUENESS OF THE PLASTIC COATING, AND RESINS THAT MAY CONTAIN PIGMENTS, DYES, OR COLORS. RESIN SELECTED SHALL BE REFLECTED IN THE CIPP LINER THICKNESS CALCULATIONS.  THE TUBE SHALL BE VACUUM IMPREGNATED WITH RESIN (WET-OUT) UNDER CONTROLLED CONDITIONS. THE VOLUME OF RESIN USED SHALL BE SUFFICIENT TO FILL ALL VOIDS IN THE TUBE MATERIAL AT NOMINAL THICKNESS AND DIAMETER AND AN ALLOWANCE FOR MIGRATION OF RESIN INTO THE CRACKS AND JOINTS IN THE HOST PIPE. A ROLLER SYSTEM SHALL BE USED TO UNIFORMLY DISTRIBUTE THE RESIN THROUGHOUT THE TUBE.  PET OR RECYCLED RESINS WILL NOT BE PERMITTED.  F. INVERTING/CURING MEDIUM. THE INVERTING/CURING MEDIUM SHALL BE HEATED POTABLE WATER OR STEAM. IN NO INSTANCE WILL SEWAGE BE USED TO INVERT OR CURE LINERS OR CALIBRATION TUBES. IF A PRIVATE WATER SOURCE IS PROPOSED FOR USE, A WRITTEN AGREEMENT SHALL BE OBTAINED FROM THE OWNER OF THE PRIVATE WATER SOURCE AND A COPY OF SAID AGREEMENT GIVEN TO THE ENGINEER.			
2.02 <b>EQUIPMENT</b>			
A. ALL EQUIPMENT REQUIRED FOR THE INSTALLATION AND CURING OF THE RESIN IMPREGNATED FLEXIBLE FABRIC TUBE, INCLUDING CABLES, SLEEVES, ROLLERS, COMPRESSORS, GENERATORS, PUMPS, VALVES, GAUGES, WATER HEATERS, AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.			
<b>PART 3 - EXECUTION</b>			
3.01	<b>EXAMINATION</b>		
A. GENERAL. EXAMINE AREAS AND CONDITIONS WITHIN THE SEWER SYSTEM IN WHICH MATERIALS AND PRODUCTS ARE TO BE INSTALLED.  B. MATERIAL. ALL SEWER PIPE LINER MATERIALS SHALL BE CAREFULLY INSPECTED FOR DEFECTS PRIOR TO INSTALLATION. THE LINER SHALL BE HOMOGENEOUS THROUGHOUT, UNIFORM IN COLOR, FREE OF TEARS, HOLES, FOREIGN MATERIALS, BLISTERS, OR OTHER DELETERIOUS FAULTS. ANY MATERIAL FOUND DURING THE PROGRESS OF THE WORK TO HAVE FLAWS OR DEFECTS SHALL BE REJECTED. ALL DEFECTIVE MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR FROM THE PROJECT SITE.  C. RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS FURNISHED AND SHALL REPLACE AT ITS OWN EXPENSE ALL SUCH MATERIAL FOUND DEFECTIVE IN MANUFACTURE OR DAMAGED IN HANDLING AFTER DELIVERY BY THE MANUFACTURER. THIS SHALL INCLUDE THE FURNISHING OF ALL MATERIAL AND LABOR REQUIRED FOR THE REPLACEMENT OF INSTALLED MATERIAL DISCOVERED DEFECTIVE PRIOR TO THE FINAL ACCEPTANCE OF THE WORK.			
3.02	<b>PREPARATION</b>		
A. CLEANING. ALL SEWERS TO BE LINED SHALL BE CLEANED AS REQUIRED PRIOR TO LINING WITH CIPP. THE TERM "CLEANED" SHALL MEAN THE REMOVAL OF ALL SAND, DIRT, ROOTS, GREASE, AND ALL OTHER SOLIDS OR SEMISOLID MATERIALS FROM THE INTERIOR FACE OF THE SEWER LINES.  B. SEWER VIDEO RECORDING AND INSPECTION. THE CONTRACTOR SHALL TELEVIEW THE SEWER TO PROVIDE A DETAILED RECORD OF EXISTING CONDITIONS AND LATERAL CONNECTIONS. TWO (2) COPIES OF THE PRE-REHABILITATION INSPECTION SHALL BE SUBMITTED TO THE COUNTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A COPY OF THE PRE-REHABILITATION INSPECTIONS IN THE FIELD AS WELL. IMMEDIATELY PRIOR TO CIPP LINER INSERTION, THE CAMERA SHALL TRAVERSE THE SEWER TO INSPECT FOR DEBRIS WHICH MAY HAVE ENTERED THE SEWER LINE AFTER THE EXISTING CONDITION VIDEO RECORDING. A COUNTY REPRESENTATIVE MUST SIGN OFF ON THIS RECONNAISSANCE TELEVISION INSPECTION FOR THE CIPP LINING WORK TO PROCEED.  C. LATERALS. LATERAL SEWER PIPES PROTRUDING INTO THE MAIN SEWER SHALL BE TRIMMED FLUSH WITH THE INSIDE OF THE MAIN SEWER WALL PRIOR TO LINING. TRIMMING MUST BE DONE IN A NEAT, WORKMANLIKE MANNER, CAUSING NO DAMAGE TO THE LATERAL PIPE BEYOND THE INSIDE FACE OF THE MAIN SEWER. POINT REPAIRS SHALL BE MADE AS NEEDED AROUND LATERALS TO ENSURE A SMOOTH, WATERTIGHT OPENING FOLLOWING LINING OF THE MAIN AND REESTABLISHMENT OF THE LATERAL. THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CIPP UNLESS A PAY ITEM IS PROVIDED.  E. LINE OBSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAR THE SEWER OF OBSTRUCTIONS, SOLIDS, PROTRUDING SERVICES, OR COLLAPSED PIPE THAT WILL PREVENT THE PROPER INSTALLATION OF THE LINER.  IF THE PRE-REHABILITATION VIDEO RECORDING AND INSPECTION REVEALS AN OBSTRUCTION THAT CANNOT BE REMOVED BY TRENCHLESS MEANS FROM WITHIN THE SEWER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MAKE A POINT REPAIR EXCAVATION TO REMOVE THE OBSTRUCTION AND REPAIR THE SEWER.  IF THE PRE-REHABILITATION VIDEO RECORDING AND INSPECTION REVEALS A SAG IN THE SEWER THAT HAS A VERTICAL DISPLACEMENT GREATER THAN ONE-HALF THE PIPE DIAMETER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MAKE A POINT REPAIR EXCAVATION TO ELIMINATE THE SAG.  IN ADDITION, ANY EQUIPMENT THAT IS LOST, BROKEN, WEDGED, OR STUCK IN A LINE SECTION SHALL BE REMOVED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.			
G. PROTECTIVE MEASURES. TO PREVENT BURNT GRASS, THE CONTRACTOR SHALL PROVIDE PROTECTIVE MEASURES (E.G. FELT, BLOCKS OF WOOD) TO CREATE A BARRIER BETWEEN THE BOILER HOSES AND THE GRASS FOR EACH INSTALLATION.  FOR STEAM CURING, THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT NON-WATER RESIDUALS/BYPRODUCTS OF STEAM CURING DO NOT ENTER NEARBY STREAMS, STORM SEWERS, ETC.			
H. RIGHT OF ENTRY. WHEN PRIVATE PROPERTY MUST BE CROSSED THE CONTRACTOR SHALL OBTAIN WRITTEN RIGHT OF ENTRY (ROE) SIGNED BY THE PROPERTY OWNER. THE ROE SHALL DESCRIBE THE EXTENT OF WORK, ITEMS TO BE RESTORED, WARRANTY AND SCHEDULE. A SIGNED COPY OF THE ROE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING WORK. THE COST FOR OBTAINING THE RIGHT OF ENTRY AND ASSOCIATED RESTORATION WORK SHALL BE INCLUDED IN THE UNIT BID PRICES FOR CURED-IN-PLACE PIPE.			
3.03	<b>INSTALLATION</b>		
A. GENERAL. INSTALLATION SHALL BE BY INVERSION (ASTM F-1216). PULLED-IN-PLACE INSTALLATION (ASTM F-1743) MAY BE ALLOWED ON A CASE-BY-CASE BASIS, IF APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL DELIVER THE LINER TO THE SITE AND PROVIDE ALL EQUIPMENT REQUIRED TO INSERT THE LINER INTO THE SEWER AND CURE IT IN PLACE. THE CONTRACTOR SHALL DESIGNATE THE LOCATION WHERE THE TUBE WILL BE VACUUM IMPREGNATED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL ALLOW THE OWNER TO INSPECT THE MATERIALS AND THE "WET-OUT" PROCEDURE UPON REQUEST. ALL PROCEDURES TO PREPARE THE LINER FOR INSTALLATION WILL BE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATION. ANY MATERIAL NOT PROPERLY PREPARED SHALL BE REJECTED AND REPLACED WITH ACCEPTABLE MATERIALS AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOT PROCEED WITH WORK UNTIL SATISFACTORY CONDITIONS ARE PRESENT IN THE SEWER.  B. INSTALLATION. A SCAFFOLD, ELEVATED PLATFORM, OR OTHER MEANS OF PROVIDING REQUIRED PRESSURE SHALL BE PROVIDED AT THE ACCESS POINT. THE RESIN-IMPREGNATED TUBE SHALL BE PULLED AND/OR INVERTED INTO THE HOST PIPE BY METHODS APPROVED BY THE MANUFACTURER AND PROVEN THROUGH PREVIOUS SUCCESSFUL INSTALLATIONS. THE INSERTION METHOD USED SHALL NOT CAUSE ABRASION OR SCUFFING OF THE TUBE. HYDROSTATIC OR AIR PRESSURE SHALL BE USED TO INFLATE THE TUBE, MOLDING IT AGAINST THE WALLS OF THE HOST PIPE. TUBE INSTALLATION PRESSURES SHALL BE LIMITED SO AS NOT TO STRETCH THE TUBE LONGITUDINALLY BY MORE THAN FIVE (5) PERCENT OF THE ORIGINAL LENGTH.  C. CURING. 1. USING CIRCULATED HEATED WATER: AFTER THE INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL SUPPLY A SUITABLE HEAT SOURCE, WATER RECIRCULATION EQUIPMENT, AND A CURING MEDIUM AS APPROVED BY THE ENGINEER. THE EQUIPMENT SHALL BE CAPABLE OF UNIFORMLY RAISING THE WATER TEMPERATURE TO A LEVEL REQUIRED TO EFFECTIVELY CURE THE RESIN.			
2. USING STEAM: AFTER THE INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL SUPPLY SUITABLE HEAT STEAM-GENERATING EQUIPMENT AS APPROVED BY THE ENGINEER. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING STEAM THROUGHOUT THE SECTION TO UNIFORMLY RAISING THE TEMPERATURE WITHIN THE PIPE TO A LEVEL REQUIRED TO EFFECTIVELY CURE THE RESIN.			
3. GENERAL. THE EQUIPMENT SHALL BE MUFFLED TO REDUCE EXCESS NOISE DURING THE CURING PROCESS.  THE HEAT SOURCE SHALL BE FITTED WITH SUITABLE MONITORS TO GAUGE THE TEMPERATURE OF THE INCOMING AND OUTGOING WATER SUPPLY. ANOTHER SUCH GAUGE SHALL BE PLACED BETWEEN THE TUBE AND THE HOST PIPE IN THE DOWNSTREAM MANHOLE AT OR NEAR THE BOTTOM TO DETERMINE THE TEMPERATURES DURING CURE. WATER TEMPERATURE IN THE PIPE DURING THE CURE PERIOD SHALL BE AS RECOMMENDED BY THE RESIN MANUFACTURER.  INITIAL CURE SHALL BE DEEMED COMPLETE WHEN THE EXPOSED PORTIONS OF THE TUBE APPEAR TO BE HARD AND SOUND AND THE TEMPERATURE SENSOR INDICATES THE RECOMMENDED TEMPERATURE OF THE MANUFACTURER. THE CURE PERIOD SHALL BE OF A DURATION RECOMMENDED BY THE RESIN MANUFACTURER AND MAY REQUIRE CONTINUOUS RECIRCULATION OF THE WATER TO MAINTAIN THE TEMPERATURE.  D. COOL DOWN. 1. AFTER HEATED WATER CURE. THE CONTRACTOR SHALL COOL THE HARDENED PIPE TO A TEMPERATURE BELOW 100 DEGREES FAHRENHEIT BEFORE RELIEVING THE HYDROSTATIC HEAD. COOL-DOWN SHALL BE ACCOMPLISHED BY INTRODUCING COOL WATER INTO THE INVERSION STANDPIPE TO REPLACE WATER BEING DRAINED FROM A SMALL HOLE MADE IN THE DOWNSTREAM END. RATE OF COOLING SHALL NOT EXCEED RESIN MANUFACTURER'S RECOMMENDATIONS. 2. AFTER STEAM CURE. THE CONTRACTOR SHALL COOL THE HARDENED PIPE TO A TEMPERATURE BELOW 113 DEGREES FAHRENHEIT BEFORE RELIEVING THE INTERNAL PRESSURE WITHIN THE SECTION. COOL-DOWN MAY BE ACCOMPLISHED BY INTRODUCING COOL WATER INTO THE SECTION TO REPLACE THE MIXTURE OF AIR AND STEAM BEING DRAINED FROM A SMALL HOLE MADE IN THE DOWNSTREAM END. RATE OF COOLING SHALL NOT EXCEED RESIN MANUFACTURER'S RECOMMENDATIONS.  E. FINISH. THE NEW PIPE SHALL BE CUT OFF AT A SUITABLE LOCATION. EXCAVATION WILL NOT BE ALLOWED AT CLEANOUTS UNLESS APPROVED BY A COUNTY REPRESENTATIVE. THE FINISHED PRODUCT SHALL BE CONTINUOUS OVER THE LENGTH OF THE PIPE RECONSTRUCTED AND BE FREE FROM DRY SPOTS, DELAMINATION, LIFTS, AND DEBRIS UNDER THE LINER. IF ANY UNSATISFACTORY CONDITION IS PRESENT IN THE LINED PIPE, THE ENGINEER RESERVES THE RIGHT TO REQUIRE A SUITABLE REPAIR.  F. INVERT THROUGH STRUCTURES. THE INVERT SHALL BE CONTINUOUS AND SMOOTH THROUGH ALL STRUCTURES. IF A LINER IS INSTALLED THROUGH A STRUCTURE, THE BOTTOM PORTION OF THE LINER SHALL REMAIN AND THE BENCH OF THE STRUCTURE SHALL BE GROUTED WITH A RESIN MIXTURE COMPATIBLE WITH THE CIPP AND SHOWN AS NECESSARY TO SUPPORT THE LINER. IF THE LINER TERMINATES ON EITHER SIDE OF A STRUCTURE, THE INVERT SHALL BE BUILT UP TO REMOVE ANY FLOW RESTRICTIONS AND TO FORM A CONTINUOUS INVERT THROUGH THE STRUCTURE. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CIPP.  G. SEALING PIPE IN STRUCTURES. A TIGHT SEAL SHALL BE FORMED BETWEEN THE CIPP AND THE STRUCTURE WALL AT THE PIPE PENETRATION. PRIOR TO LINER INSTALLATION, A 1/2-INCH THICK ACTIVATED OAKUM BAND SOAKED IN CHEMICAL SEALANT, OR EQUIVALENT HYDROPHILIC WATERSTOP, SHALL BE INSTALLED INSIDE THE HOST PIPE NEAR THE STRUCTURE. SEAL ANY ANNULAR SPACE GREATER THAN 1/2-INCH WITH STRUCTURE WALL AND CEMENT. SEAL ANY ANNULAR SPACES LESS THAN 1/2-INCH WITH URETHANE, GROUT OR FIBER REINFORCED CEMENTITIOUS MATERIAL PLACED AROUND THE PIPE OPENING FROM INSIDE THE STRUCTURE IN A BAND AT LEAST 4-INCHES WIDE.  H. FINAL TELEVISION INSPECTION. THE CONTRACTOR SHALL TELEVIEW THE REHABILITATED SEWER TO PROVIDE A DETAILED RECORD OF FINISHED CONDITIONS AND LATERAL CONNECTIONS. LATERAL CONNECTIONS SHALL BE OBSERVED WHILE THE CAMERA IS STOPPED AND VIEWING THE CONNECTION SQUARELY. WITHIN 14 DAYS AFTER LINING OF SEWER, THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE REHABILITATED SEWER INSPECTION, ALONG WITH THE ACCOMPANYING LOGS, WHICH SHALL BE PRINTED CLEARLY OR TYPED.			
3.04 <b>REPAIR/RESTORATION</b>			
A. WHERE PORTIONS OF THE SITE, EITHER INSIDE OR OUTSIDE THE CONTRACT LIMITS, NOT DESIGNATED FOR CHANGE OR NEW WORK BECOME DAMAGED DURING THE COURSE OF CONSTRUCTION BY THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE COUNTY SUCH DAMAGE TO ORIGINAL OR BETTER CONDITION IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, RESEEDING, REPLACING SHRUBBERY IN KIND, REPLACING DAMAGED FENCE, ETC.  B. STRUCTURE RECONSTRUCTION TO ACCOMMODATE CIPP LINER INSTALLATION SHALL BE INCLUDED IN THE LINING COSTS.			
3.05 <b>FIELD QUALITY CONTROL</b>			
A. GENERAL. THE REHABILITATED PIPE SHALL BE CONTINUOUS (WITHOUT JOINTS) OVER THE ENTIRE LENGTH OF AN INSERTION RUN. THE LINER SHALL BE AS FREE AS COMMERCIALLY PRACTICABLE FROM VISUAL DEFECTS SUCH AS FOREIGN INCLUSIONS, DRY SPOTS, PINHOLES, AND DELAMINATION. THE LINER SURFACE SHALL BE FREE OF LEAKS, CRACKS, AND CRAZING WITH A SMOOTH FINISH. SOME MINOR WAIVNESS THAT, IN THE OWNER'S OPINION, WILL NOT APPRECIABLY DECREASE THE FLOW CROSS SECTION OR AFFECT THE FLOW CHARACTERISTICS SHALL BE PERMISSIBLE.  ANY DEFECTS IN THE PRODUCT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER MUTUALLY AGREED UPON BY THE OWNER AND CONTRACTOR. THE CONTRACTOR SHALL REINSPECT THESE REPAIRS BEFORE THE ONE (1) YEAR GUARANTEE PERIOD EXPIRES. DURING THE ONE (1) YEAR GUARANTEE PERIOD, ANY DEFECTS THAT ARE DISCOVERED THAT WILL AFFECT THE INTEGRITY OR STRENGTH OF THE PRODUCT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER MUTUALLY AGREED UPON BY THE OWNER AND THE CONTRACTOR. THESE REPAIRS SHALL BE GRANTED A THREE (3) YEAR EXTENDED GUARANTEE PERIOD BY THE CONTRACTOR FROM THE DATE OF REPAIR. THE CONTRACTOR SHALL REINSPECT THESE REPAIRS PRIOR TO THE EXPIRATION OF THE THREE (3) YEAR EXTENDED GUARANTEE PERIOD.  B. TESTING. THE FOLLOWING TESTS SHALL BE PERFORMED FOR EACH LENGTH OF CIPP LENGTH INSTALLED PER ASTM F-1216 AND/OR F-1743 (WHEN APPROVED). 1. SHORT-TERM FLEXURAL (BENDING) PROPERTIES - THE INITIAL TANGENT FLEXURAL MODULUS OF ELASTICITY AND FLEXURAL YIELD STRENGT SHALL BE MEASURED IN ACCORDANCE WITH ASTM D790. 2. THICKNESS - THE THICKNESS OF THE INSTALLED LINER SHALL BE MEASURED IN ACCORDANCE WITH ASTM D5947. 3. CONDITIONING - THE CONDITIONING OF THE INSTALLED LINER SHALL BE MEASURED IN ACCORDANCE WITH ASTM D618.  THE CONTRACTOR IS TO PROVIDE TEST SAMPLES TO AN INDEPENDENT LABORATORY IN ACCORDANCE WITH ASTM F-1216, ITEM 8.1.1. THE SAME SHOULD BE CUT FROM A SECTION OF CURED CIPP AT AN INTERMEDIATE POINT OR AT THE TERMINATING POINT THAT HAS BEEN INVERTED THROUGH A LIKE DIAMETER PIPE WHICH HAS BEEN HELD IN PLACE BY A SUITABLE HEAT SINK, SUCH AS SANDBAGS.  THE CONTRACTOR WILL BE RESPONSIBLE FOR RETAINING AN INDEPENDENT, THIRD-PARTY LABORATORY TO PERFORM THESE TESTS. PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER EACH TEST COMPLETED. ALL LABORATORIES UTILIZED FOR TESTING OF CIPP SAMPLES SHALL BE LOCATED WITHIN 100 MILES OF SUMMIT COUNTY TO FACILITATE EASE OF INSPECTION FOR ALL PARTIES INVOLVED. ALL SAMPLES SHALL BE LABELED BEFORE SHIPMENT FOR TESTING. THE OWNER ALSO RETAINS THE RIGHT TO TEST COUPONS RETRIEVED FROM THE SEWER AND TURNED OVER TO THE COUNTY. IF THE CONTRACTOR PERFORMS INDEPENDENT TESTS FOR THEIR PURPOSES, ADDITIONAL SAMPLES SHALL BE PROVIDED BY THE CONTRACTOR FOR THAT USE.  C. FINAL INSTALLED LINER THICKNESS. THE FINAL INSTALLED LINER THICKNESS SHALL NOT BE LESS THAN THE THICKNESS SPECIFIED IN THE CONTRACT DOCUMENTS OR APPROVED SHOP DRAWINGS. THE FINAL INSTALLED LINER THICKNESS SHALL NOT BE MORE THAN 10% GREATER THAN THE SPECIFIED OR APPROVED THICKNESS. THE FINAL INSTALLED LINER THICKNESS MEASUREMENT SHALL BE DETERMINED FROM PIPE SAMPLES, COUPONS RETRIEVED FROM THE SEWER, OR AS DEEMED NECESSARY BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONSIDER SITE CONDITIONS AND THEIR INSTALLATION PROCESS TO DETERMINE THE LINER THICKNESS TO INSTALL.  D. NON-COMPLIANCE. IN THE EVENT THE SAMPLES DO NOT MEET THE REQUIRED THICKNESS OR FLEXURAL STRENGTH OF 4,500 PSI AND FLEXURAL MODULUS OF ELASTICITY OF 400,000 PSI AS OUTLINED IN SECTION 2.01 B, ACTUAL INSTALLED SAMPLES MUST BE TAKEN AND TESTED. THE INSTALLED SAMPLES SHALL BE TAKEN AS DIRECTED BY THE COUNTY AND IN ACCORDANCE WITH ALL APPLICABLE ASTM REQUIREMENTS, AND THE AREA REPAIRED TO THE SATISFACTION OF THE COUNTY. ALL WORK ASSOCIATED WITH OBTAINING SAMPLE AND REPAIR SHALL BE AT THE CONTRACTOR'S EXPENSE.  IN THE EVENT THAT ANY LINER INSTALLATION DOES NOT MEET SPECIFIED STRENGTHS AND/OR THICKNESSES, THE CONFORMITY OF THE WORK WITH THE PLANS AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH SECTION 105.03 OF THE CMS.			
3.06 <b>SCHEDULES</b>			
A. LINER. THIS ITEM OF WORK SHALL INCLUDE ALL NECESSARY TELEVISION OBSERVATION, PROTRUDING LATERAL REMOVAL AND REPAIR, SEWER CLEANING, PIPE PREPARATIONS, LINER RESINS, WATER, EQUIPMENT, LABOR, TESTING, CLEAN UP, MANHOLE RECONSTRUCTION REQUIRED BY CONSTRUCTION MEANS AND METHODS OF CIPP INSTALLATION, AND ALL OTHER EXPENSES WHETHER SPECIFICALLY MENTIONED OR NOT TO INSTALL THE CURED-IN-PLACE PIPE.  THE CIPP THICKNESS IS THE FINAL CURED THICKNESS, NOT THE THICKNESS OF THE BAG PRIOR TO INSTALLATION  PAYMENT WILL BE MADE AT THE UNIT PRICE, BID PER LINEAL FOOT AS MEASURED FROM ALONG THE HORIZONTAL CENTERLINE OF THE REHABILITATED SEWER, COMPLETE, TESTED, AND READY FOR SERVICE.  B. INCREASE/DECREASE PAY ITEM. CONTRACTOR SHALL INCLUDE A PRICE FOR INCREASE OR DECREASE OF PIPE WALL THICKNESS. THE BASIS FOR PAYMENT SHALL BE IN 1.5 MM INCREMENTS PER LINEAR FOOT. THE MINIMUM ACCEPTABLE THICKNESS SHALL BE 6 MM.			

	
SEAL	6/26/24
	DATE
	REVISIONS
	NO.
	
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SUMMIT COUNTY SWMD SUMMIT COUNTY, OHIO WYE ROAD FLOOD MITIGATION & IMPROVMENT PLANS  CIPP LINING SPECIFICATIONS	
Project Number: 61-04F39	
Drawn by: JDB	
Checked by: MRB	
Approved by: CAB	
Scale: (22x34) N/A	
Date: 5/15/24	
Dwg. No.: 15	
Sheet: 15	of 20

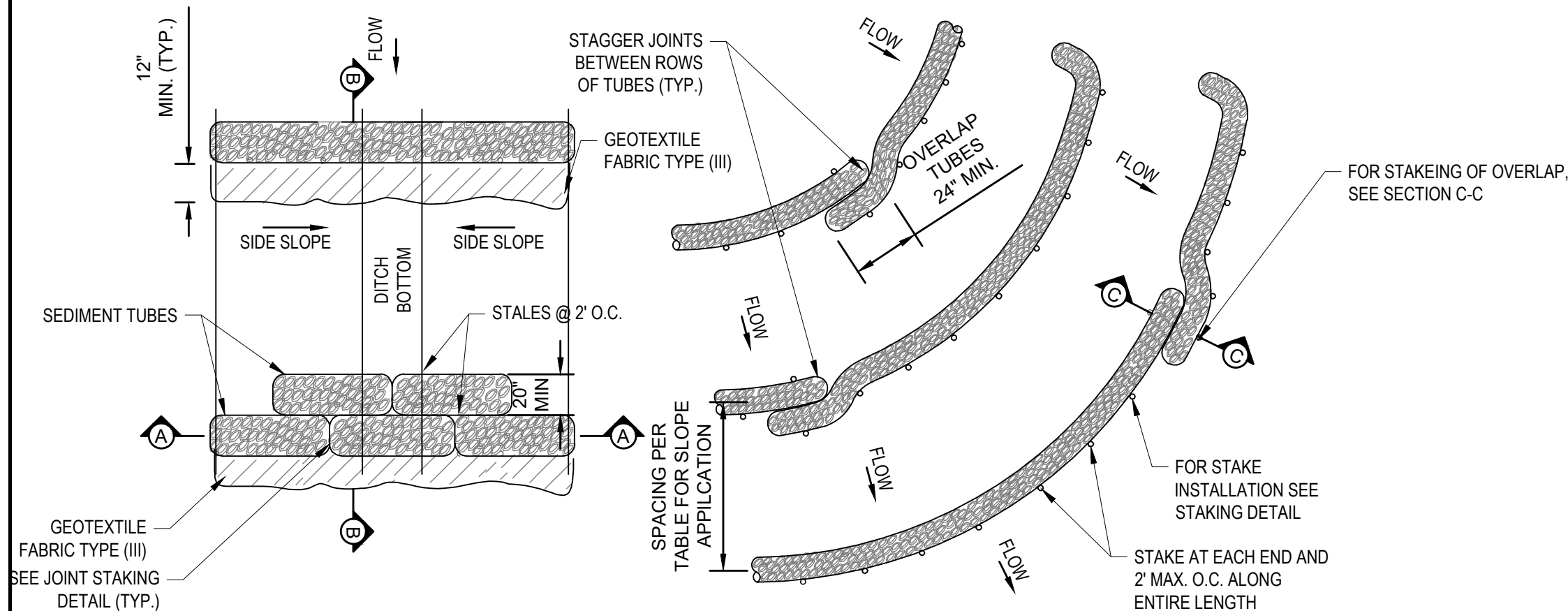


<div><div><div>SITE DESCRIPTION:</div><div>PLAN DESIGNER: MS CONSULTANTS, INC. 333 E FEDERAL STREET #1821 YOUNGSTOWN, OHIO 44503 PHONE: 614-898-7100 NAME: STEPHEN PRESTON, PE EMAIL: SPRESTON@MSCONSULTANTS.COM</div><div>OWNER NAME AND ADDRESS: SUMMIT COUNTY ENGINEER 538 EAST SOUTH STREET AKRON, OHIO 44311 PHONE: 330-643-2840 FAX: 330-762-7829 NAME: DAVID KOONTZ, PE, SI EMAIL: DKOONTZ@SUMMITENGINEER.NET</div><div>ON SITE CONTACT: ON SITE CONTACT WILL BE DESIGNATED AFTER CONTRACT HAS BEEN AWARDED.</div><div>DESCRIPTION: THE PROJECT WILL CONSIST OF CHANNEL IMPROVEMENTS TO WYE CREEK. NUMEROUS SERIES OF STEP-POOL CONVEYANCE STRUCTURES WILL BE INSTALLED WITHIN THE CHANNEL TO SLOW CHANNEL VELOCITIES AND MITIGATE SCOUR AND SEDIMENTATION.</div><div>SOIL DISTURBING ACTIVITIES WILL INCLUDE: CLEARING AND GRUBBING, INSTALLING EROSION AND SEDIMENT CONTROLS, THE CONSTRUCTION OF THE PROPOSED STREAM IMPROVEMENTS, AND ALL NECESSARY EXCAVATION AND EMBANKMENT.</div><div>SITE AREA: A TOTAL OF 1.65 ACRES WILL BE DISTURBED BY CONSTRUCTION ACTIVITIES.</div><div>SEQUENCE OF MAJOR ACTIVITIES:</div><div>THE ORDER OF CONSTRUCTION ACTIVITIES WILL BE AS FOLLOWS: 1. INSTALLATION OF EROSION &amp; SEDIMENTATION CONTROL MEASURES. 2. EARTHWORK &amp; CONSTRUCTION OF THE PROPOSED CHANNEL IMPROVEMENTS. 3. FINAL GRADING, RESTORATION, AND LANDSCAPING.</div><div>NAME OF RECEIVING WATERS: WYE CREEK</div><div>GENERAL NOTES: CONTRACTOR SHALL NOTIFY THE CITY FORTY-EIGHT (48) HOURS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY.</div><div>ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH ALL LOCAL EROSION AND SEDIMENT CONTROL REGULATIONS.</div><div>DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO THE COUNTY'S SEWER SYSTEM OR A RECEIVING STREAM IS A VIOLATION OF OHIO EPA AND SUMMIT COUNTY REGULATIONS. THE CONTRACTOR WILL BE HELD LIABLE FOR THE VIOLATION AND SUBSEQUENT FINES.</div><div>ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST MEET THE STANDARDS AND SPECIFICATIONS OF THE OHIO RAINWATER AND LAND DEVELOPMENT MANUAL. OTHER EROSION CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS DURING CONSTRUCTION.</div><div>REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURES TAKEN.</div><div>SEDIMENT PONDS/TRAPS AND PERIMETER CONTROLS SHALL BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED.</div><div>ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.</div><div>THE CONTRACTOR SHALL USE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT MOVEMENT INTO AREAS DESIGNATED AS WETLANDS.</div><div>NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF.</div><div>THIS PLAN MUST BE POSTED ON-SITE. A COPY OF THE SWPPP PLAN AND THE APPROVED EPA STORMWATER PERMIT (WITH THE SITE-SPECIFIC NOI NUMBER) SHALL BE KEPT ON-SITE AT ALL TIMES.</div><div>UPPER BANK ABOVE NORMAL WATER ELEVATION SHOULD BE STABILIZED QUICKLY WITH STRAW BLANKETS, JUTE MATTING, OR SIMILAR GEO-TEXTILE.</div><div>CONTROLS EROSION AND SEDIMENT CONTROLS STABILIZATION PRACTICES</div><div>ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATION AT THE DISCRETION OF THE SUMMIT COUNTY ENGINEER AND/OR THE OHIO EPA.</div><div>CONSTRUCTION SEEDING AND MULCHING:</div><div>TOP SOIL STOCK PILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 21 DAYS WILL BE STABILIZED WITH TEMPORARY SEED AND MULCH NO LATER THAN 7 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA.</div><div>IF PERMANENT SEED IS NOT APPLIED AT THIS TIME, TEMPORARY SEEDING SHALL BE DONE AT THE FOLLOWING RATES:</div><div><div><div>MARCH 1 TO AUGUST 15</div><div>SEED: OATS FERTILIZER: (12:12:12) MULCH: (STRAW OR HAY)</div><div>2 LBS./1,000 SQ.FT. 10 LBS./1,000 SQ.FT. 2 TONS/ACRE</div></div><div><div>AUGUST 15 TO NOVEMBER 1</div><div>SEED: ANNUAL RYEGRASS FERTILIZER: (12:12:12) MULCH: (STRAW OR HAY)</div><div>2 LBS./1000 SQ.FT. 10 LBS./1,000 SQ.FT. 2 TONS/ACRE</div></div><div><div>NOVEMBER 1 TO MARCH 1</div><div>MULCH (ONLY): (STRAW OR HAY)</div><div>2 TONS/ACRE</div></div></div><div>AREAS OF THE SITE WHICH ARE TO BE PAVED WILL BE TEMPORARILY STABILIZED BY APPLYING STONE SUB-BASE UNTIL PAVEMENT CAN BE APPLIED.</div><div>DO NOT APPLY CONSTRUCTION SEEDING TO FROZEN GROUND.</div></div></div>		<div><div>PERMANENT SEEDING:</div><div>DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASES SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY.</div><div>"PERMANENT SEEDING" SHALL BE DONE BETWEEN MARCH 15 AND SEPTEMBER 15. IF SEEDING IS DONE BETWEEN SEPTEMBER 15 AND MARCH 15, IT SHALL BE CLASSIFIED AS "TEMPORARY SEEDING." PERMANENT SEED SHALL BE 40% KENTUCKY BLUEGRASS, 40% CREEPING RED FESCUE, 20% ANNUAL RYEGRASS. PERMANENT SEEDING SHALL CONSIST OF FERTILIZING, WATERING AND SEEDING RATES INDICATED UNDER ITEM 659. SEEDING SHALL BE APPLIED WITHIN TWO (2) DAYS AFTER FINAL GRADING OR FOLLOWING SEED BED PREPARATION.</div><div>RATES OF APPLICATION OF ITEM 659: SEEDS: 4 LBS./1,000 SQ.FT. FERTILIZER: (12:12:12) 20 LBS./1,000 SQ.FT. MULCH: STRAW (HAY) 2 TONS/ACRE (3 TONS/ACRE)</div><div>WHERE VEGETATIVE STABILIZATION TECHNIQUES MAY CAUSE STRUCTURAL INSTABILITY OR ARE OTHERWISE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUES MUST BE EMPLOYED. PERMANENT AND TEMPORARY STABILIZATION ARE DEFINED IN PART VII.</div><div>OTHER CONTROLS: WASTE DISPOSAL:</div><div>WASTE MATERIALS: ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER RENTED FROM A LICENSED SOLID WASTE MANAGEMENT COMPANY. THE DUMPSTER WILL MEET ALL LOCAL, COUNTY AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF TWICE PER WEEK OR MORE OFTEN IF NECESSARY, AND THE TRASH WILL BE HAULED OFF-SITE TO AN APPROVED DISPOSAL SITE. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES WILL BE POSTED IN THE OFFICE TRAILER. THE INDIVIDUAL WHO MANAGES THE DAY-TO-DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.</div><div>HAZARDOUS WASTE: ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES. THE INDIVIDUAL WHO MANAGES DAY-TO-DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.</div><div>SANITARY WASTE: ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF THREE TIMES PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR, AS REQUIRED BY LOCAL REGULATION.</div><div>OFFSITE VEHICLE TRACKING: A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. ALL PAVED STREETS ADJACENT TO THE SITE WILL BE SWEEPED DAILY TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPULIN.</div><div>CONTRACTOR MUST HAVE A WELL MAINTAINED STABILIZED CONSTRUCTION ENTRANCE (SCE), OR A CONSTRUCTION TRAFFIC WHEEL WASH. LOCATION TO BE DETERMINED BY CONTRACTOR.</div><div>STREET CLEANING: STREET CLEANING (ON AN AS-NEEDED BASIS) IS REQUIRED THROUGH THE DURATION OF THIS CONSTRUCTION PROJECT. THIS INCLUDES SWEEPING, POWER CLEANING AND (IF NECESSARY) MANUAL REMOVAL OF DIRT OR MUD FIN THE STREET GUTTERS.</div><div>MAINTENANCE/INSPECTION PROCEDURES</div><div>EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:</div><div>THESE ARE THE INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS.</div><div>LESS THAN 50% OF THE SITE WILL BE DENUDED AT ONE TIME.</div><div>ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE EACH WEEK AND FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.</div><div>SILT FENCE WILL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO SEE THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE FENCE.</div><div>TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.</div><div>A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION.</div><div>THE SITE SUPERINTENDENT WILL SELECT INDIVIDUALS WHO WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.</div><div>NON-STORMWATER DISCHARGES: IT IS EXPECTED THAT THE FOLLOWING NON-STORMWATER DISCHARGES WILL OCCUR FROM THE SITE DURING THE CONSTRUCTION PERIOD: PAVEMENT WASH WATERS (WHERE NO SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE OCCURRED). UNCONTAMINATED GROUNDWATER (FROM DEWATERING EXCAVATION).</div><div>MATERIAL MANAGEMENT PRACTICES: THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF.</div><div>GOOD HOUSEKEEPING:</div><div>1. THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.</div><div>2. AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.</div><div>3. ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.</div><div>4. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.</div><div>5. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.</div><div>6. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.</div></div>	<div><div>7. MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.</div><div>8. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.</div><div>HAZARDOUS PRODUCTS:</div><div>1. THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.</div><div>2. PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.</div><div>3. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION.</div><div>4. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURERS' OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.</div><div>PRODUCT SPECIFIC PRACTICES: THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ONSITE:</div><div>PETROLEUM PRODUCTS: ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.</div><div>FERTILIZERS: FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.</div><div>PAINTS: ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.</div><div>SPILL CONTROL PRACTICES: CONTRACTOR TO NOTIFY DIVISION OF WATER IMMEDIATELY OF ALL SPILLS.</div><div>IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:</div><div>MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.</div><div>MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.</div><div>ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.</div><div>THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE</div></div>
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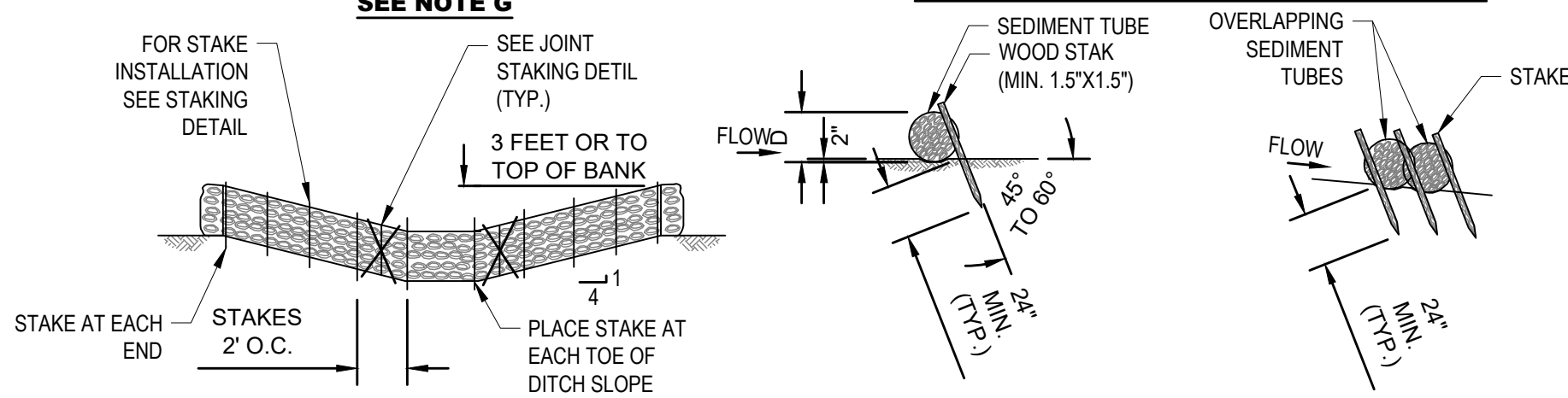
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## SEDIMENT TUBE



PLAN VIEW FOR DITCH APPLICATION  
SEE NOTE G

PLAN VIEW FOR SLOPE APPLICATION



SECTION A-A

STAKING DETAIL

SECTION C-C

SECTION B-B

JOINT STAKING DETAIL  
(DITCH APPLICATION ONLY)

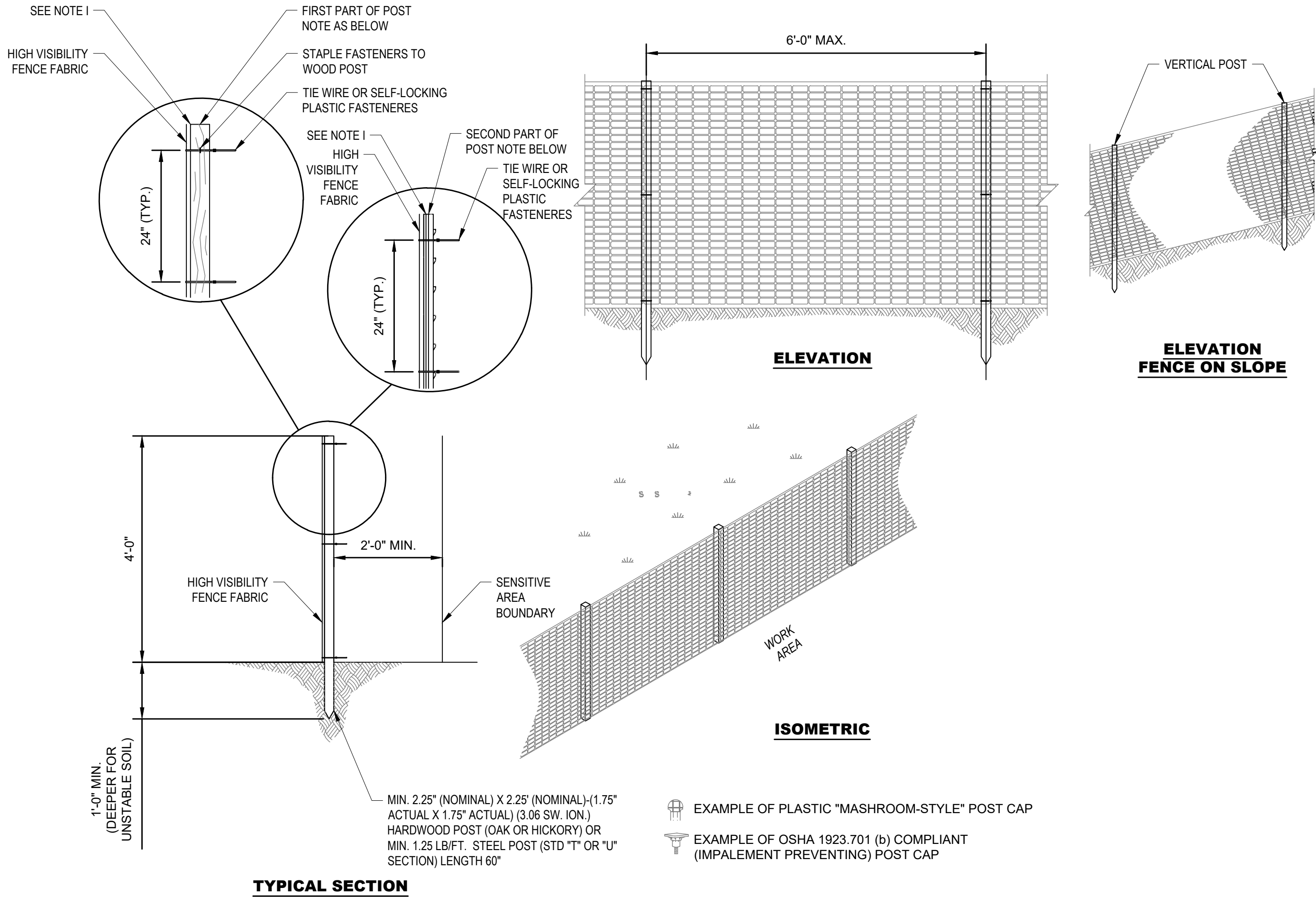
SEDIMENT TUBE SPACING FOR SLOPE APPLICATION					
SLOPE	8"	12"	18"	20"	24"
2%	70'	80'	N/A	N/A	N/A
5%	30'	60'	80'	N/A	N/A
10%	20'	30'	70'	80'	80'
6:1	N/A	20'	40'	50'	55'
4:1	N/A	20'	30'	30'	30'
3:1	N/A	N/A	20'	20'	25'
2:1	N/A	N/A	20'	20'	20'

N/A = NOT RECOMMENDED  
SPACING NOT TO EXCEED 80'

## NOTES:

- SEDIMENT TUBES CAN BE PLACED AT THE TOP, ON THE FACE, OR AT THE TOE OF SLOPES TO INTERCEPT RUNOFF, REDUCE FLOW VELOCITY, RELEASE THE RUNOFF AS SHEET FLOW AND PROVIDE REMOVAL OF SEDIMENT FROM THE RUNOFF.
- SEDIMENT TUBES SHALL BE INSTALLED ALONG OR ON THE GROUND CONTOUR, AT THE TOE OF SLOPES, OR IN A DITCH TO HELP REDUCE THE EFFECTS OF SOIL EROSION AND RETAIN SEDIMENT. SEDIMENT TUBES SHOULD NOT BE USED IN DITCHES OR STREAMS.
- FOR DITCH APPLICATIONS, THE MAXIMUM DRAINAGE AREA SHALL BE 15 ACRES. AT SITES WHICH DRAIN TO SEDIMENT-IMPAIRED STREAMS, THE MAXIMUM DRAINAGE AREA SHALL BE 10 ACRES. FOR SLOPE APPLICATIONS, THE MAXIMUM DRAINAGE AREAS SHALL BE 4 ACRE PER 100 LF OF TUBE.
- SEDIMENT TUBES SHALL NOT BE USED ON PAVEMENT, ROCKY SOILS, OR AT ANY OTHER LOCATIONS WHERE THE STAKES CANNOT BE DRIVEN TO THE REQUIRED DEPTH.
- SEDIMENT TUBES SHALL BE MANUFACTURED FROM WOOD EXCELSIOR, RICE OR WHEAT STRAW, COCONUT FIBERS, OR HARDWOOD MULCH THAT IS ENCLOSED BY A TUBULAR FLEXIBLE NETTING MATERIAL. ALL MATERIALS INCLUDING THE NETTING SHALL BE BIODEGRADABLE.
- PINE NEEDLE AND LEAF MULCH FILLED SEDIMENT TUBES AND STRAW BALES ARE NOT ACCEPTABLE MATERIALS.
- THE DIAMETER OF A SEDIMENT TUBE SHALL BE A MINIMUM OF 8 INCHES AND A MAXIMUM OF 24 INCHES. DIAMETER TOLERANCE IS 2 INCHES. FOR DITCH APPLICATIONS, SEDIMENT TUBES SHALL BE A MINIMUM OF 20 INCHES.
- SEDIMENT TUBES SHALL BE INSTALLED WITH WOODEN STAKES (MIN. 1.5" x 1.5" ACTUAL). THE STAKE SHALL BE EMBEDDED A MINIMUM OF 2 FEET.
- SEDIMENT TUBES SHALL BE TRENCHED IN A MINIMUM OF 2 INCHES.
- IF MORE THAN ONE SEDIMENT TUBE IS PLACED IN A ROW IN SLOPE APPLICATION, THE TUBES SHALL BE OVERLAPPED A MINIMUM OF 24 INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. WHEN USED IN DITCHES, TWO ROWS OF TUBE SHALL BE PLACED ON THE CHANNEL BOTTOM WITH STAGGERED JOINTS AS SHOWN.
- FOR DITCH APPLICATIONS, SEDIMENT TUBES SHALL BE A MINIMUM OF 20 INCH DIAMETER AND SHALL BE PLACED PERPENDICULAR TO THE DIRECTION OF FLOW OF WATER. SEDIMENT TUBES SHALL CONTINUE UP THE SIDES OF SLOPES A MINIMUM OF 3 FEET PLUS THE DIAMETER OF THE TUBE, OR TO THE TOP OF THE DITCH, WHICHEVER IS LESS.
- SEDIMENT TUBES USED IN SLOPE APPLICATIONS MAY REMAIN IN PLACE TO BIODEGRADE. FOR DITCH APPLICATIONS SEDIMENT TUBES SHALL BE COMPLETELY REMOVED AFTER FULLY ESTABLISHED VEGETATION HAS COMPLETELY DEVELOPED.
- PAYMENT SHALL INCLUDE ALL MATERIALS (INCLUDING GEOTEXTILE FABRIC IF USED) AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF SEDIMENT TUBE. ONLY SEDIMENT TUBES LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE SEDIMENT TUBE WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 2D9-D5, SEDIMENT REMOVAL PER CUBIC YARD.
- GEOTEXTILE FABRIC REQUIRED FOR SLOPE APPLICATION STEEPER THAN 6:1.

## HIGH VISIBILITY FENCE



## NOTES:

- HIGH VISIBILITY FENCE IS INTENDED TO BE PLACED TO PREVENT DISTURBANCE OF SENSITIVE AREAS, THEIR BUFFERS, AND OTHER AREAS REQUIRED TO BE LEFT UNDISTURBED DURING CONSTRUCTION. IT MAY ALSO BE USED TO MARK APPROVED CLEARING LIMITS AND TO CONTROL VEHICLE ACCESS TO AND ON THE PROJECT SITE.
- HIGH VISIBILITY FENCE FABRIC SHALL BE MACHINED PRODUCED ORANGE COLORED MESH MANUFACTURED FROM POLYPROPYLENE OR POLYETHYLENE. IT SHALL BE FULLY STABILIZED ULTRAVIOLET RESISTANT.
- HIGH VISIBILITY FENCE FABRIC MAY BE MADE FROM RECYCLED MATERIALS. MATERIALS SHALL NOT CONTAIN BIODEGRADABLE FILLER MATERIALS THAT CAN DEGRADE THE PHYSICAL OR CHEMICAL CHARACTERISTICS OF THE FINISHED FABRIC.
- HIGH VISIBILITY FENCE FABRIC SHALL HAVE A MINIMUM 4 FOOT WIDTH AND SHALL BE FURNISHED IN ONE CONTINUOUS WIDTH AND SHALL NOT BE SPLICED TO CONFORM TO THE SPECIFIED WIDTH DIMENSION.
- STEEL POST SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POST SHALL BE HOT-DIPPED GALVANIZED OR PAINT. STEEL POST MAY BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. IF POSTS ANCHOR PLATES USED THEY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.
- HIGH VISIBILITY FENCE FABRIC SHALL BE FASTENED TO THE POST USING TIE WIRE OR SELF-LOCKING PLASTIC FASTENERS WITH A MAXIMUM FASTENERS SPACING OF 2 FEET. WHEN WOOD POSTS ARE USED THE FASTENERS SHALL BE STAPLED TO THE POST.
- HIGH VISIBILITY FENCE THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE CONSTRUCTORS EXPENSE ON THE SAME DAY THE DAMAGE OCCURS.
- PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION MAINTENANCE, AND REMOVAL OF HIGH VISIBILITY FENCE.
- OSHA 1926.701(b) COMPLIANT (IMPALEMENT PREVENTING) POST CAPS SHALL BE REQUIRED FOR ANY METAL POST ABOVE WHICH PEOPLE MAY BE WORKING AND THE RISK OF FALLING DOWN ONTO THE POST IS PRESENT. REGARDLESS OF HOW HIGH THE POST STICKS UP OUT OF THE GROUND, PLASTIC "MUSHROOM-STYLE" POST CAPS SHALL BE REQUIRED FOR ANY METAL POST WITH AN INSTALLED HEIGHT LESS THAN 36" ABOVE THE GROUND AND WHEN THERE ARE NO WORKERS CONDUCTING WORK ABOVE THE POSTS. NO CAPS SHALL BE REQUIRED FOR METAL POSTS WITH AN INSTALLED HEIGHT OF 36" OR GREATER AND WHEN THERE ARE NO WORKERS CONDUCTING WORK ABOVE THE POSTS. ALL CAPS SHALL BE ORANGE OR YELLOW TO ENHANCE VISIBILITY. WHEN REQUIRED, PAYMENT OF POST CAPS SHALL BE INCLUDED IN THE TOTAL COST OF HIGH VISIBILITY FENCE.

STATE OF OHIO  
CHAD AUSTIN  
BOYER  
E-79141  
REGISTERED PROFESSIONAL ENGINEER  
6/26/24  
SEAL

DATE

NO.

REVISIONS

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engineers • architects • planners  
333 EAST FEDERAL STREET  
YOUNGSTOWN, OHIO 44503-1821  
(330) 744-5321  
Fax (330) 744-5266

ms

ms

SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS

STORMWATER POLLUTION PREVENTION  
DETAILS

Project Number:  
61-04F39

Drawn by:  
RDA

Checked by:  
MRB

Approved by:  
CAB

Scale: (22x34)  
NOT TO SCALE

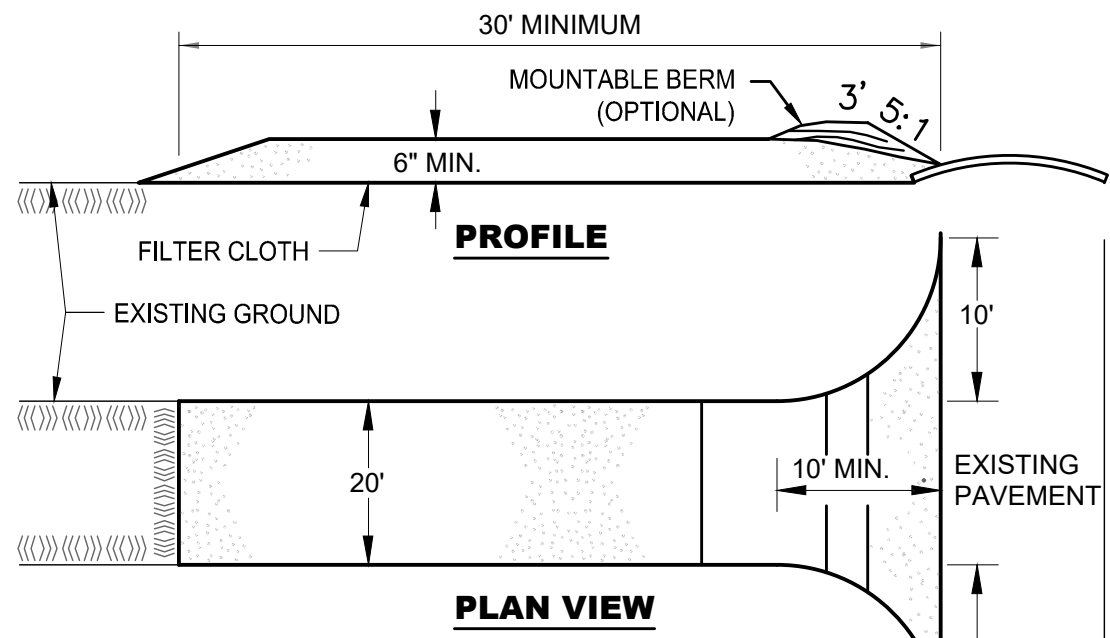
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5/15/24

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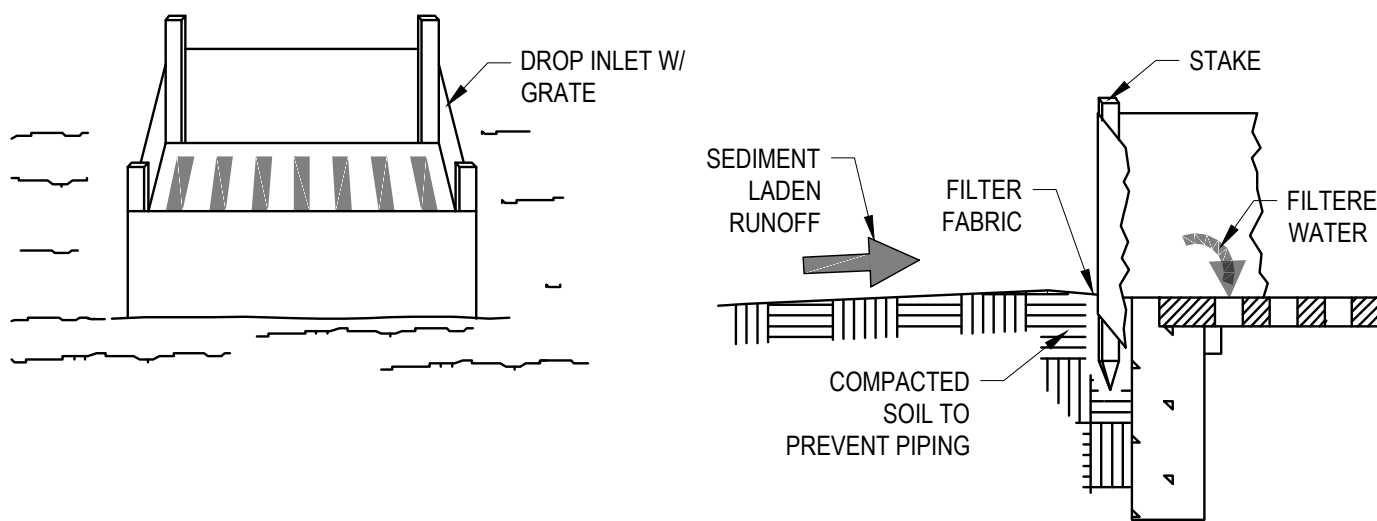
## STABILIZED CONSTRUCTION ENTRANCE



### CONSTRUCTION SPECIFICATIONS

- STONE SIZE - USE 2 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED.
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TO CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NECESSARY MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

## DROP INLET SEDIMENT FILTER



### SPECIFIC APPLICATION:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING .5 CFS) ARE TYPICAL. THIS METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET AND HIGHWAY MEDIANS.

TO BE USED ON STRUCTURES: CB100, CB101, CB102, CB103, CB105, CB106, CB107, CB108, CB109, CB110, CB111, CB112, CB113

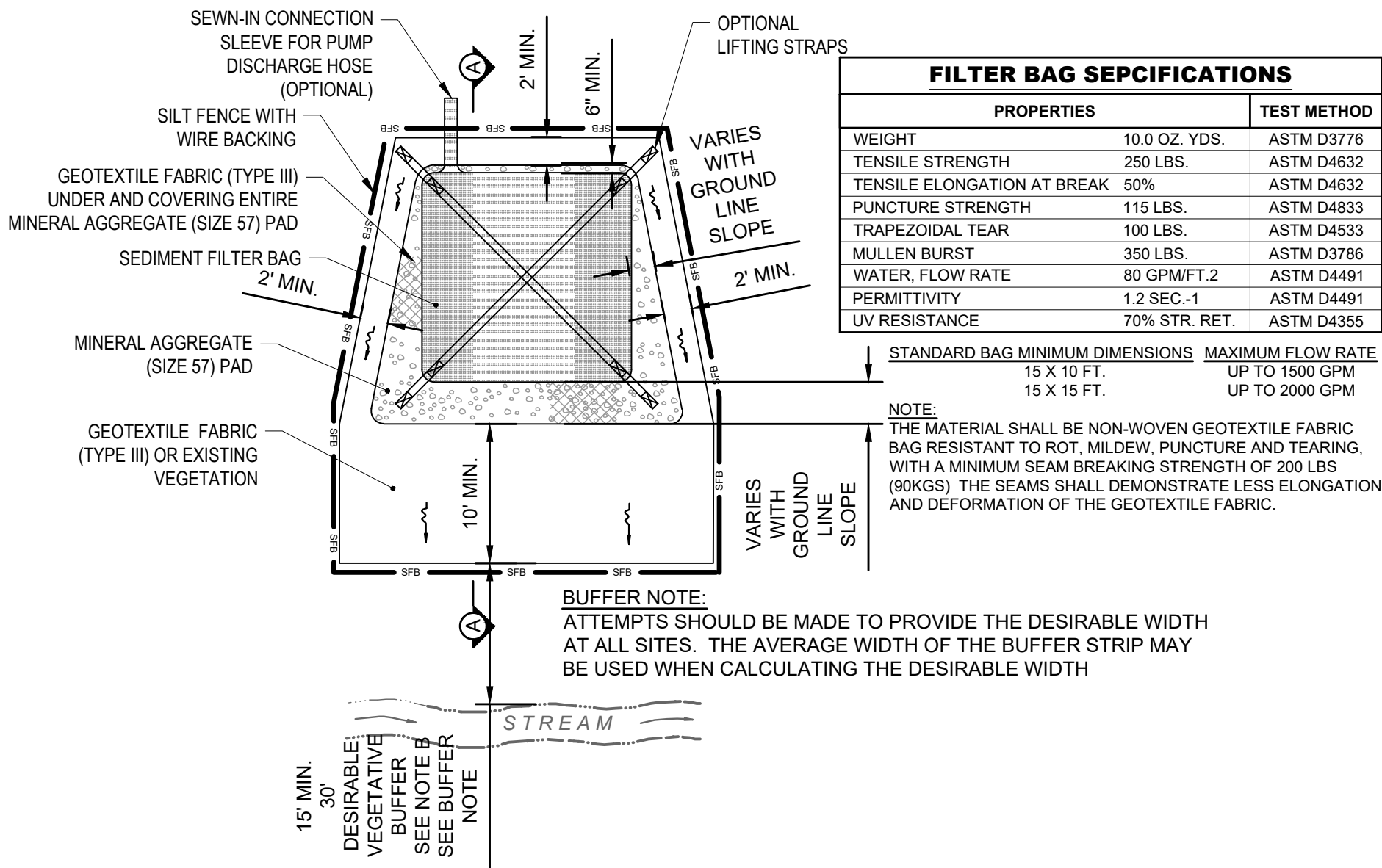
### ROCK CHECK DAM CONSTRUCTION STANDARDS

- OBTAIN APPROPRIATE PERMITS OR APPROVALS FROM LOCAL OR STATE REGULATORY AGENCIES.
- THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
- ROCK DAMS SHALL BE CONSTRUCTED OF 2 TO 15-INCH ROCK. KEEP THE CENTER ROCK (SPILLWAY) SECTION AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES.
- EXTEND THE ABUTMENTS 18" INTO THE CHANNEL BANK.
- SOON DISINTEGRATE AND MAY ALLOW THE BALE TO FALL APART.
- CONSTRUCT AN ENERGY DISSIPATOR TO REDUCE DOWNSTREAM EROSION.

### INSPECTION AND MAINTENANCE

- THE CHECK DAMS SHALL BE INSPECTED FOR DAMAGE PERIODICALLY DURING THE WINTER AND AFTER EACH SIGNIFICANT STORM (1" IN 24 HOURS). PROMPT REPAIRS SHALL BE MADE TO ENSURE THAT THE DAM IS FUNCTIONING PROPERLY. ANY EROSION CAUSED BY FLOWS AROUND THE EDGES OF THE DAM OR UNDER THE STRUCTURE SHALL BE CORRECTED IMMEDIATELY.
- REMOVE SEDIMENT FROM BEHIND THE DAMS WHEN THEY BECOME 60 PERCENT FULL, OR AS NEEDED. THE REMOVED SEDIMENT SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF SITE AND CAN BE PERMANENTLY STABILIZED.
- REMOVE CHECKDAMS AND STAKES WHEN STABILIZATION IS COMPLETE.

## SEDIMENT FILTER BAG



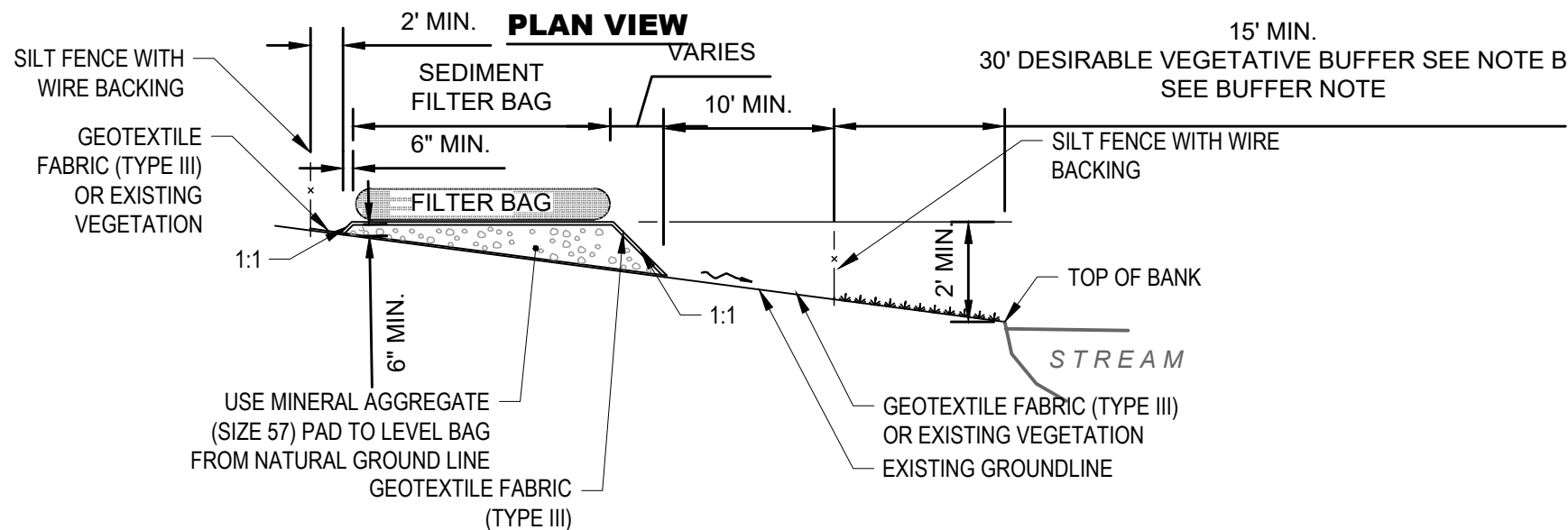
### FILTER BAG SEPCIFICATIONS

PROPERTIES		TEST METHOD
WEIGHT	10.0 OZ. YDS.	ASTM D3776
TENSILE STRENGTH	250 LBS.	ASTM D4632
TENSILE ELONGATION AT BREAK	50%	ASTM D4632
PUNCTURE STRENGTH	115 LBS.	ASTM D4833
TRAPEZOIDAL TEAR	100 LBS.	ASTM D4833
MULLEN BURST	350 LBS.	ASTM D3786
WATER FLOW RATE	80 GPM/FT <sup>2</sup>	ASTM D4491
PERMITTIVITY	1.2 SEC.-1	ASTM D4491
UV RESISTANCE	70% STR. RET.	ASTM D4355

STANDARD BAG MINIMUM DIMENSIONS	MAXIMUM FLOW RATE
15 X 10 FT.	UP TO 1500 GPM
15 X 15 FT.	UP TO 2000 GPM

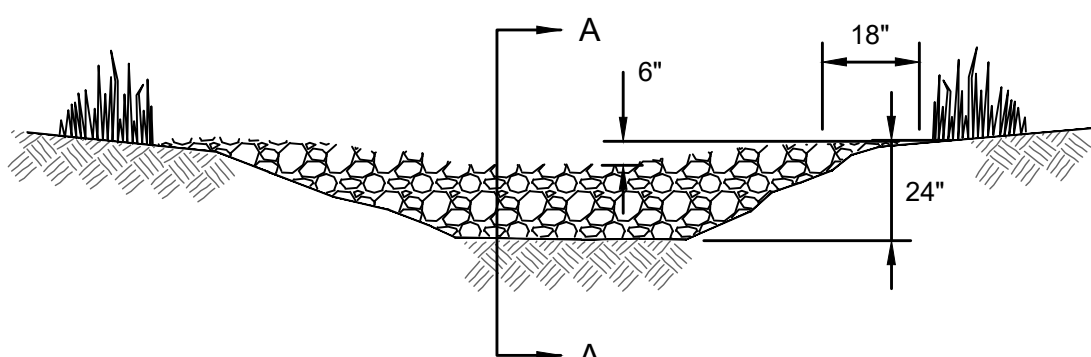
NOTE: THE MATERIAL SHALL BE NON-WOVEN GEOTEXTILE FABRIC BAG RESISTANT TO ROT, MILDEW, PUNCTURE AND TEARING, WITH A MINIMUM SEAM BREAKING STRENGTH OF 200 LBS (90KGS). THE SEAMS SHALL DEMONSTRATE LESS ELONGATION AND DEFORMATION OF THE GEOTEXTILE FABRIC.

BUFFER NOTE: ATTEMPTS SHOULD BE MADE TO PROVIDE THE DESIRABLE WIDTH AT ALL SITES. THE AVERAGE WIDTH OF THE BUFFER STRIP MAY BE USED WHEN CALCULATING THE DESIRABLE WIDTH



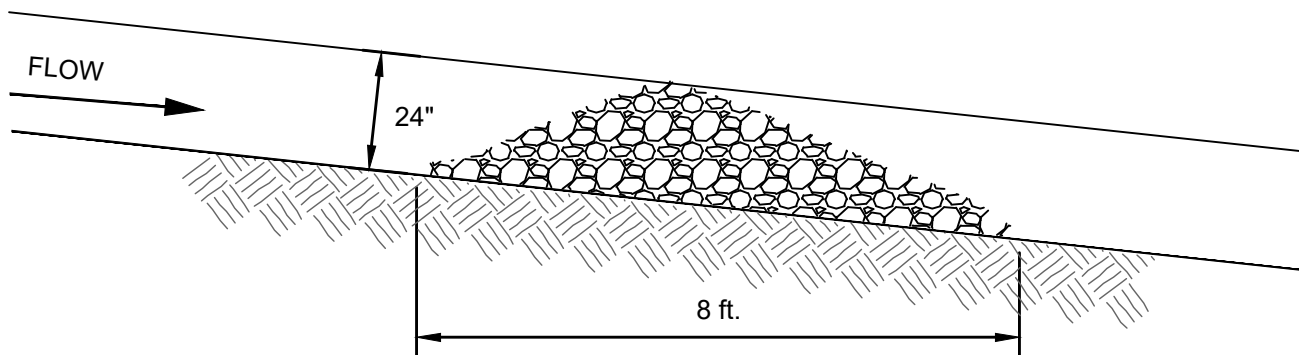
### SECTION A-A

## ROCK CHECK DAM DETAIL



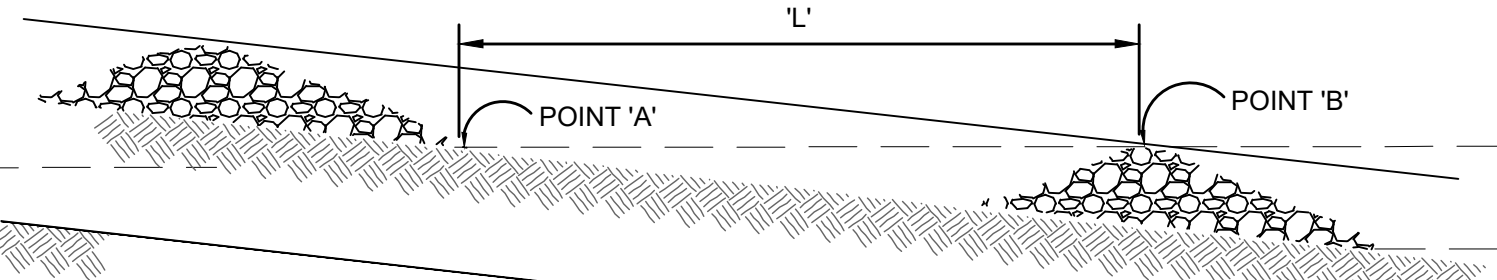
### VIEW LOOKING UPSTREAM

NOTE: KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.



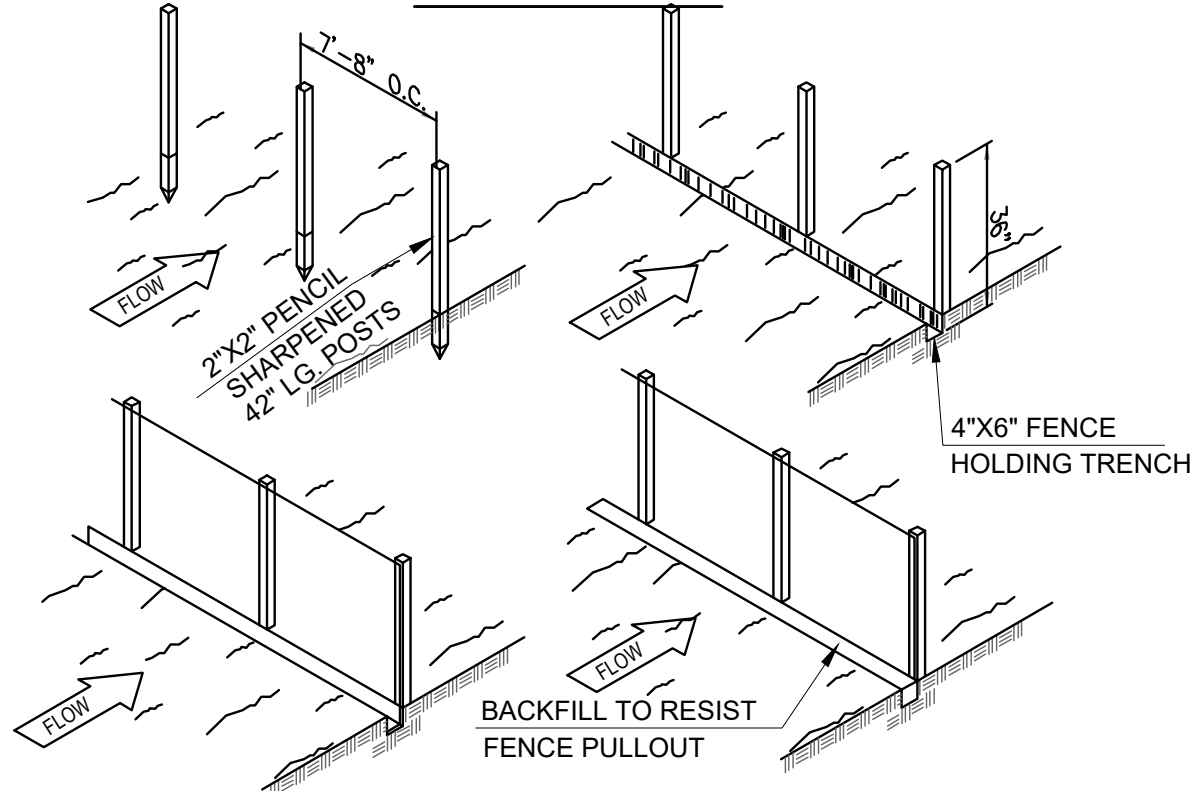
### SECTION A - A

'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.



### SPACING BETWEEN CHECK DAMS

## SILT FENCE



FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MINIMUM	ASTM 1682
MULLEN BURST STRENGTH	190 PSI MINIMUM	ASTM 3786
SLURRY FLOW RATE	.3 GAL./MIN./F <sup>2</sup> MAXIMUM	
EQUIVALENT OPENING SIZE	40-80	U.S. STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MINIMUM	ASTM-G-26

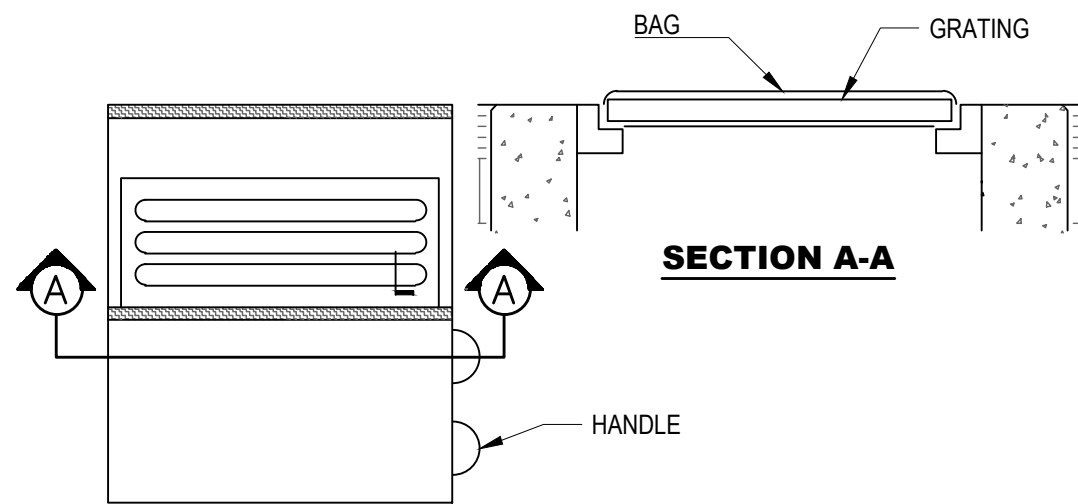
### MAINTENANCE:

SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED.

## DANDY BAG DETAIL



THE PATENTED DANDY BAG® IS DESIGNED FOR USE WITH FLAT GRATES (INCLUDING ROUND) AND MOUNTABLE CURBS TO DETAIN SEDIMENT-LADEN STORM WATER. THE SUSPENDED SOLIDS ARE ALLOWED TO SETTLE OUT OF THE SLOWED FLOW PRIOR TO ENTERING THE DANDY BAG®.

### INSTALLATION:

- STAND THE GRATE ON END
- PLACE THE DANDY BAG® OVER THE GRATE
- ROLL THE GRATE OVER SO THAT THE OPEN END IS UP
- PULL UP THE SLACK
- TUCK THE FLAP IN
- PRESS THE VELCRO STRIPS TOGETHER
- BE SURE THAT THE END OF THE GRATE IS COMPLETELY COVERED BY THE FLAP OR THE DANDY BAG® WILL NOT WORK PROPERLY. HOLDING THE HANDLES, CAREFULLY PLACE THE DANDY BAG® WITH THE GRATE INSERTED INTO THE CATCH BASIN FRAME.

### MAINTENANCE:

REDUCE LIKELIHOOD OF PONDING AND MAINTAIN OPERATIONS, REMOVE SILT, SEDIMENT, AND DEBRIS FROM THE SURFACE AND THE VICINITY OF THE UNIT WITH A SQUARE POINT SHOVEL OR STIFF BRISTLE BROOM AWAY FROM ENVIRONMENTALLY SENSITIVE AREAS AND WATERWAYS IN MANNER SATISFACTORY TO THE ENGINEER/INSPECTOR. REMOVE FINE MATERIAL FROM INSIDE DANDY BAG AS NEEDED. DISPOSE OF DANDY BAG® NO LONGER IN USE AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.

### INLET INSPECTION:

TO INSPECT INLET, REMOVE DANDY BAG® WITH GRATE INSIDE. INSPECT CATCH BASIN AND REPLACE DANDY BAG® BACK INTO GRATE FRAME.

STATE OF OHIO  
CHAD AUSTIN  
BOYER  
E-79141  
REGISTERED PROFESSIONAL ENGINEER  
6/26/24  
SEAL

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333 EAST FEDERAL STREET  
YOUNGSTOWN, OHIO 44503-1821  
(330)-744-5321  
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SUMMIT COUNTY SWMD  
SUMMIT COUNTY, OHIO  
WYE ROAD FLOOD MITIGATION  
& IMPROVEMENT PLANS  
STORMWATER POLLUTION PREVENTION  
DETAILS

Project Number:  
61-04F39

Drawn by:  
RDA

Checked by:  
MRB

Approved by:  
CAB

Scale: (22x34)  
NOT TO SCALE

Date:  
5/15/24

Dwg. No.:  
18

Sheet:  
18 of 20







