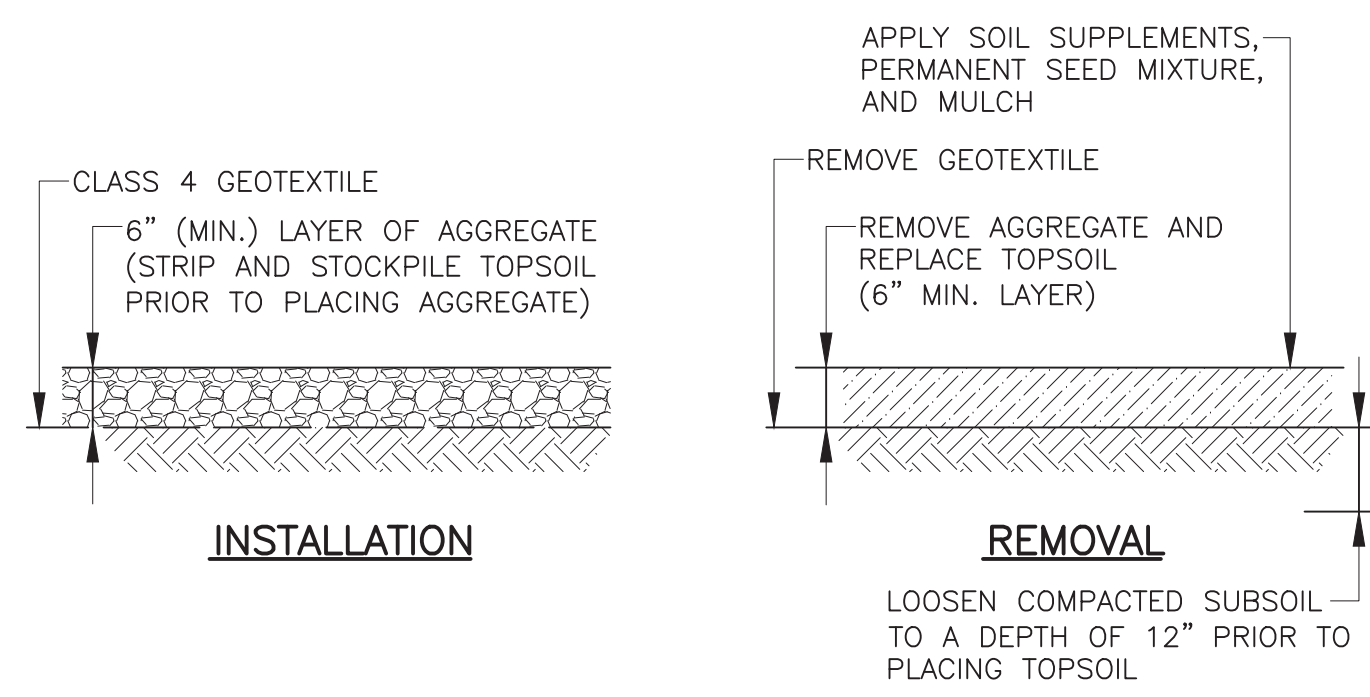


ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

ROCK CONSTRUCTION ENTRANCE NOTES:

- ROCK CONSTRUCTION ENTRANCE(S) SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE PLAN AND CONSTRUCTED TO THE MINIMUM DIMENSIONS AS SHOWN ON THE DETAIL.
- AT LOCATIONS WHERE ROCK CONSTRUCTION ENTRANCES ARE LOCATED OVER EXISTING PAVEMENT, THE PAVEMENT SHALL BE REMOVED UNDER THE FOOTPRINT OF THE FACILITY PRIOR TO INSTALLING SAID CONSTRUCTION ENTRANCE.
- THE ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ONSITE FOR THIS PURPOSE.
- AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. REMOVAL SHALL BE COMPLETED THROUGH THE USE OF MECHANICAL OR HAND TOOLS. WASHING OF THE ROADWAY WITH WATER OR SWEEPING THE DEPOSITS INTO ROADWAY DRAINAGE FACILITIES IS NOT PERMITTED.
- ROCK CONSTRUCTION ENTRANCE(S) SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT WHEN ALL AREAS ARE STABILIZED AND ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE HAS CEASED.
- STABILIZE ALL DISTURBED AREAS CREATED BY THE REMOVAL OF THE ROCK CONSTRUCTION ENTRANCE WITH SEED AND MULCH OR WITH PAVEMENT AS INDICATED ON THE DRAWINGS.

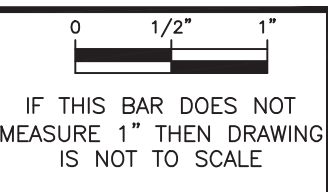


TYPICAL GRAVEL CONTRACTOR STAGING AREA

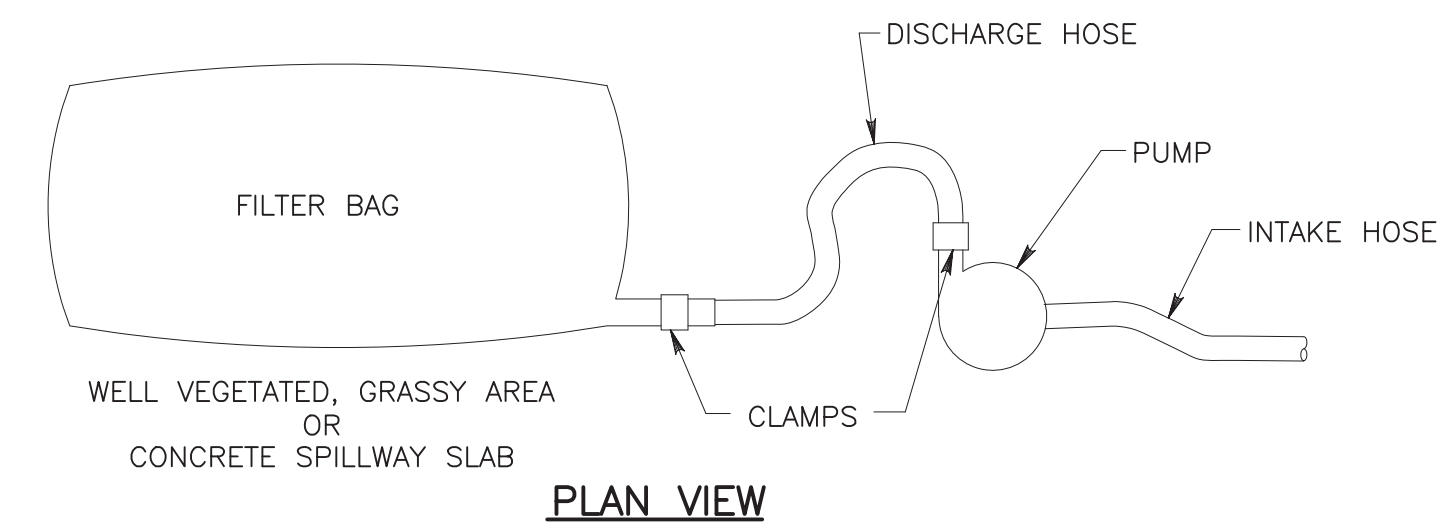
NOT TO SCALE

RESOLUTIONS FOR SOIL LIMITATIONS

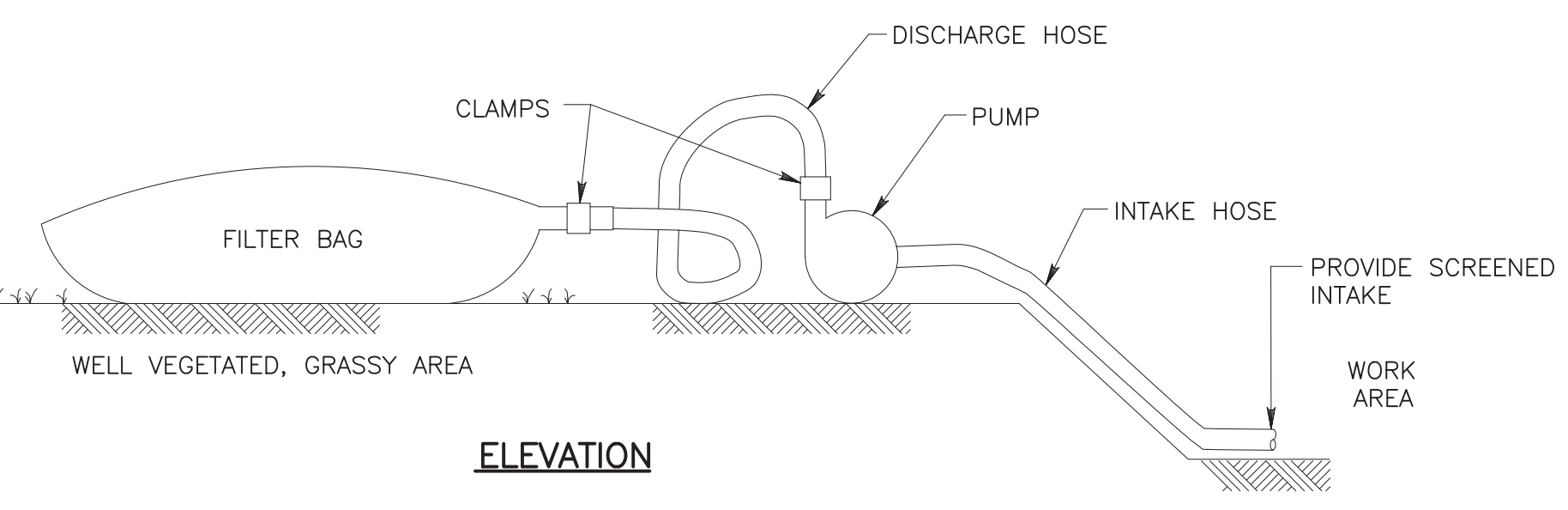
- HIGH WATER TABLE:** CONTRACTOR SHALL DEWATER EXCAVATIONS BY PUMPING TO A PUMPED WATER FILTER BAG OR OTHER APPROVED FILTERING DEVICE. CONTRACTOR SHALL PROVIDE SUFFICIENT NUMBER OF PUMPS AND FILTER BAGS TO KEEP EXCAVATIONS DRY AND PREVENT OFFSITE EROSION AND SEDIMENTATION.
- SHALLOW BEDROCK:** CONTRACTOR SHALL RIP BEDROCK AS NEEDED TO BRING AREAS TO FINAL GRADE. ALL AREAS TO HAVE PERMANENT VEGETATIVE STABILIZATION SHALL BE OVER-EXCAVATED TO ACCOUNT FOR TOPSOIL PLACEMENT. REFER TO THE CONTRACT DOCUMENTS REGARDING BLASTING REQUIREMENTS.
- EMBANKMENT STABILITY:** STRUCTURAL EMBANKMENTS (TEMPORARY AND PERMANENT) SHALL BE PLACED IN LIFTS AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL PROFESSIONAL. FILL SLOPES EXCEEDING 10 FEET IN HEIGHT SHALL BE PERMANENTLY STABILIZED AT REGULAR VERTICAL INCREMENTS OF 10 FEET (MAXIMUM) AS EACH FILL AREA IS BEING CONSTRUCTED.
- LOW SOIL PH:** IN THE ABSENCE OF SOIL TEST RESULTS, THE CONTRACTOR SHALL PROVIDE LIME AT THE FOLLOWING RATES TO PROMOTE VEGETATIVE GROWTH:
 TEMPORARY SEEDING: ONE (1) TON PER ACRE
 PERMANENT SEEDING: TWO (2) TONS PER ACRE



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



PLAN VIEW



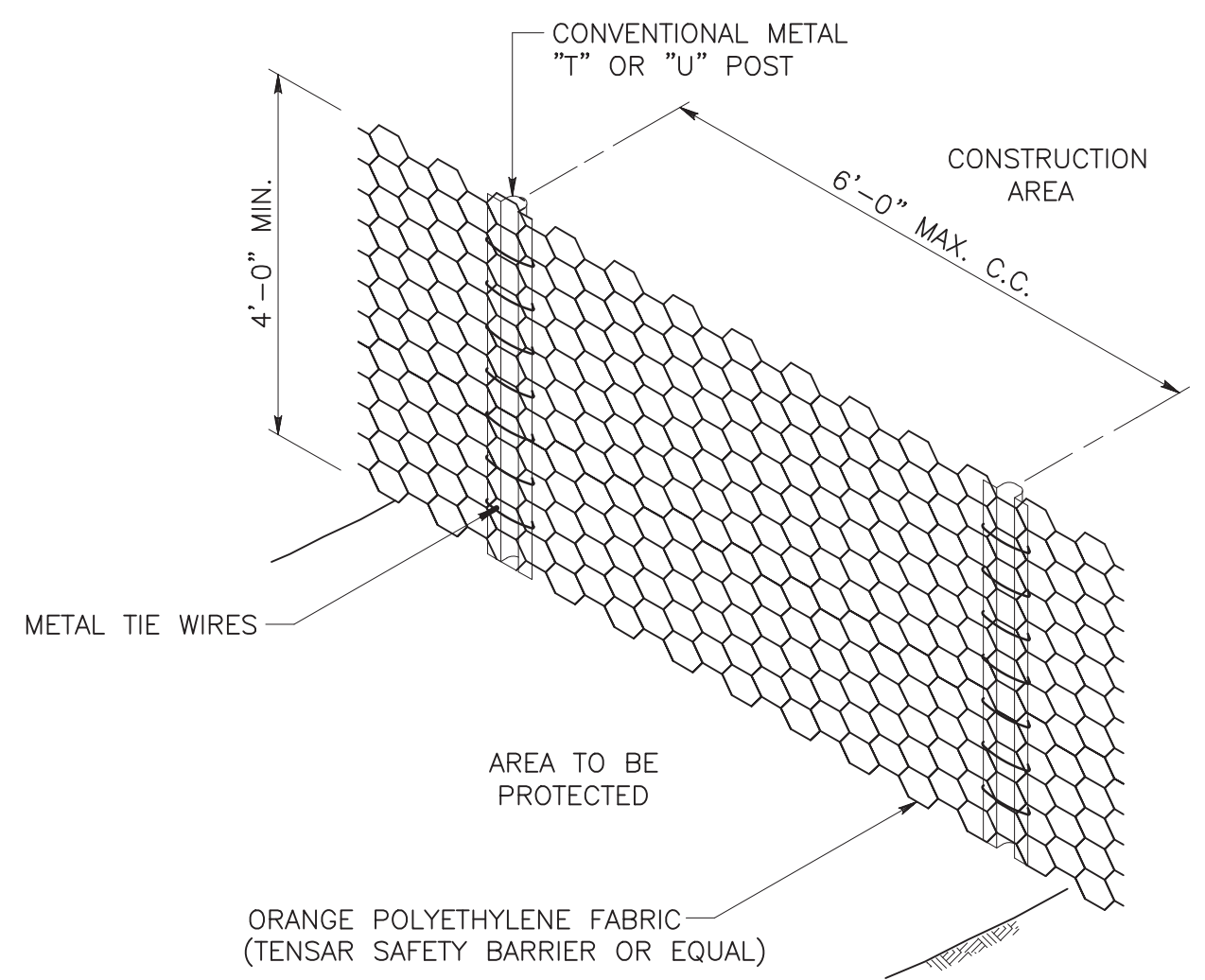
ELEVATION

PUMPED WATER FILTER BAG

NOT TO SCALE

PUMPED WATER FILTER BAG NOTES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING OPERATIONS, INCLUDING THE SELECTION, SIZING, AND OPERATION OF THE FILTERING DEVICE. IF CLAY SOILS ARE PRESENT, THE ADDITION OF A FLOCCULANT MAY BE NECESSARY TO EFFECTIVELY TREAT THE PUMPED WATER AND PREVENT OFFSITE SEDIMENTATION. THE CONTRACTOR SHALL CONSIDER THE ONSITE SOILS AND INCLUDE FILTERING MEASURES IN HIS BASE BID THAT WILL EFFECTIVELY TREAT THE PUMPED WATER. IF A PUMPED WATER FILTER BAG IS UTILIZED, IMPLEMENT SAID DEVICE IN ACCORDANCE WITH THIS DETAIL AND THE TECHNICAL SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF FACILITY WITH PROFESSIONAL PRIOR TO CONSTRUCTION OF SAID FACILITY. FACILITY SHALL BE PLACED AT A LOCATION WHERE THE FILTERED OUTFLOW WILL NOT INTERFERE WITH ONGOING CONSTRUCTION ACTIVITIES OR CAUSE FLOODING OR EROSION PROBLEMS. FILTER BAGS SHALL BE PLACED ON WELL-VEGETATED GRASSY AREAS. LOCATE FACILITY SO AS TO MAXIMIZE THE DISTANCE TO THE RECEIVING WATERCOURSE. FILTER BAGS SHALL DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN FIVE PERCENT.
- THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ONE HALF THE MAXIMUM RATE SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS.
- FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME HALF FULL. A SUPPLY OF SPARE FILTER BAGS SHALL BE KEPT AVAILABLE ONSITE FOR REPLACEMENT OF THOSE BAGS WHICH HAVE BEEN USED OR WHICH HAVE FAILED.
- SEDIMENT COLLECTED FROM THE DEVICE SHALL BE REMOVED AND USED FOR ONSITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR IT SHALL BE HAULED OFFSITE TO A SPOIL AREA WITH AN APPROVED EROSION CONTROL PLAN.
- REMOVE FACILITY WHEN NO LONGER NEEDED. REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT AND EITHER SALVAGE OR DISPOSE OF PROPERLY. IMMEDIATELY STABILIZE ALL DISTURBED AREAS CREATED BY THE INSTALLATION, USE, AND REMOVAL OF THIS FACILITY.

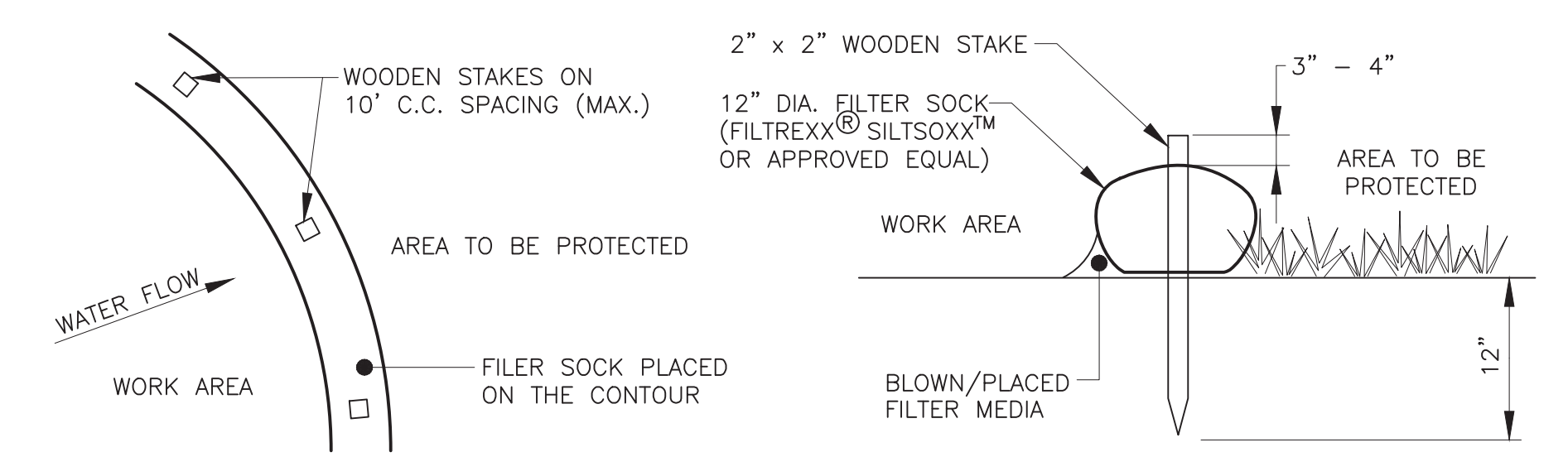


PROTECTIVE FENCE

NOT TO SCALE

PROTECTIVE FENCE NOTES:

- LOCATE PROTECTIVE FENCE AS SHOWN ON THE DRAWINGS AND/OR AS DIRECTED BY THE USING AGENCY. AT A MINIMUM, THE PROTECTIVE FENCING AROUND EXISTING TREES SHOULD BE LOCATED OUTSIDE OF THE DRIP LINE OF ANY TREE TO BE RETAINED AND, IN NO CASE, CLOSER THAN FIVE (5) FEET TO THE TRUNK OF ANY TREE. NO CLEARING OR GRUBBING ACTIVITIES ARE PERMITTED WITHIN THIS RADIUS.
- FENCING TO BE USED SHALL BE 48-INCH-HIGH "INTERNATIONAL ORANGE" PLASTIC (POLYETHYLENE) WEB FENCING SECURED TO CONVENTIONAL METAL "T" OR "U" POSTS DRIVEN TO A MINIMUM DEPTH OF 18 INCHES ON SIX-FOOT-MAXIMUM CENTERS.
- THE FENCE SHALL HAVE THE FOLLOWING PROPERTIES:
 TENSILE YIELD: AVG. 2,000 LBS PER 4-FOOT WIDTH
 ULTIMATE TENSILE YIELD: AVG. 2,900 LBS PER 4-FOOT WIDTH
 ELONGATION AT BREAK (%): GREATER THAN 1,000%
 CHEMICAL RESISTANCE: INERT TO MOST CHEMICALS AND ACIDS
- PROTECTIVE FENCING SHALL BE IN PLACE BEFORE ANY GRADING ACTIVITIES BEGIN AND IS TO BE KEPT IN GOOD REPAIR FOR THE DURATION OF THE CONSTRUCTION ACTIVITIES.
- REMOVE FENCING MATERIALS ONLY AFTER CONSTRUCTION ACTIVITY HAS CEASED ON THE SITE.



PLAN VIEW

SECTIONAL ELEVATION

FILTER SOCK DETAIL

NOT TO SCALE

FILTER SOCK GENERAL NOTES:

- FILTER SOCK MUST BE INSTALLED PARALLEL TO EXISTING CONTOURS OR CONSTRUCTED ON LEVEL ALIGNMENTS. BOTH ENDS OF EACH FILTER SOCK SECTION MUST BE EXTENDED AT LEAST TEN FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
- FILTER SOCK IS NOT PERMITTED IN ANY AREA OF CONCENTRATED FLOWS SUCH AS DITCHES, SWALES OR CHANNELS.
- INSPECT FILTER SOCK AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT. MAKE ALL REQUIRED REPAIRS IMMEDIATELY.
- ACCUMULATED SEDIMENTS SHALL BE REMOVED AS REQUIRED TO KEEP THE FILTER SOCK FUNCTIONAL. IN ALL CASES REMOVE DEPOSITS WHERE ACCUMULATIONS REACH 1/2 THE ABOVE-GROUND HEIGHT OF THE FILTER SOCK.
- THE REMOVED SEDIMENT SHALL BE USED FOR ONSITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
- FILTER SOCK SECTIONS WHICH HAVE BEEN UNDERMINED OR OVERTOPPED SHALL BE IMMEDIATELY REPAIRED AND REINFORCED WITH A SECOND FILTER SOCK RUN.
- ADHERE TO MANUFACTURER'S RECOMMENDATIONS FOR REPLACING FILTER SOCK DUE TO WEATHERING.
- AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, REMOVE ALL FILTER SOCK MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND PERMANENTLY STABILIZE. FILTER SOCK MATERIAL MAY BE LEFT IN PLACE IF SO DIRECTED BY THE USING AGENCY.
- SILT FENCE MAY BE USED AS A SUBSTITUTE FOR FILTER SOCK. SAID SUBSTITUTION MUST BE APPROVED BY THE COUNTY CONSERVATION DISTRICT(S). SEE NOTE B10 ON SHEET ES-2.

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
 PROFESSIONAL'S SIGNATURE DATE

Gannett Fleming
 207 SENATE AVE.
 CAMP HILL, PENNSYLVANIA

Kleinschmidt
 400 HISTORIC DRIVE
 STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

PROJECT NO.
 D.G.S. C-0148-0001 PHASE 1

CONSTRUCTION OF FISH PASSAGE
 ON THE SUSQUEHANNA RIVER
 SHIKELLAMY STATE PARK
 NORTHUMBERLAND AND SNYDER COUNTIES, PA

EROSION AND SEDIMENT CONTROL PLAN - DETAILS

DRAWN BY JPH	DATE OCTOBER 2021	DRAWING NO. ES-4
CHECKED BY ECN	SCALE AS SHOWN	

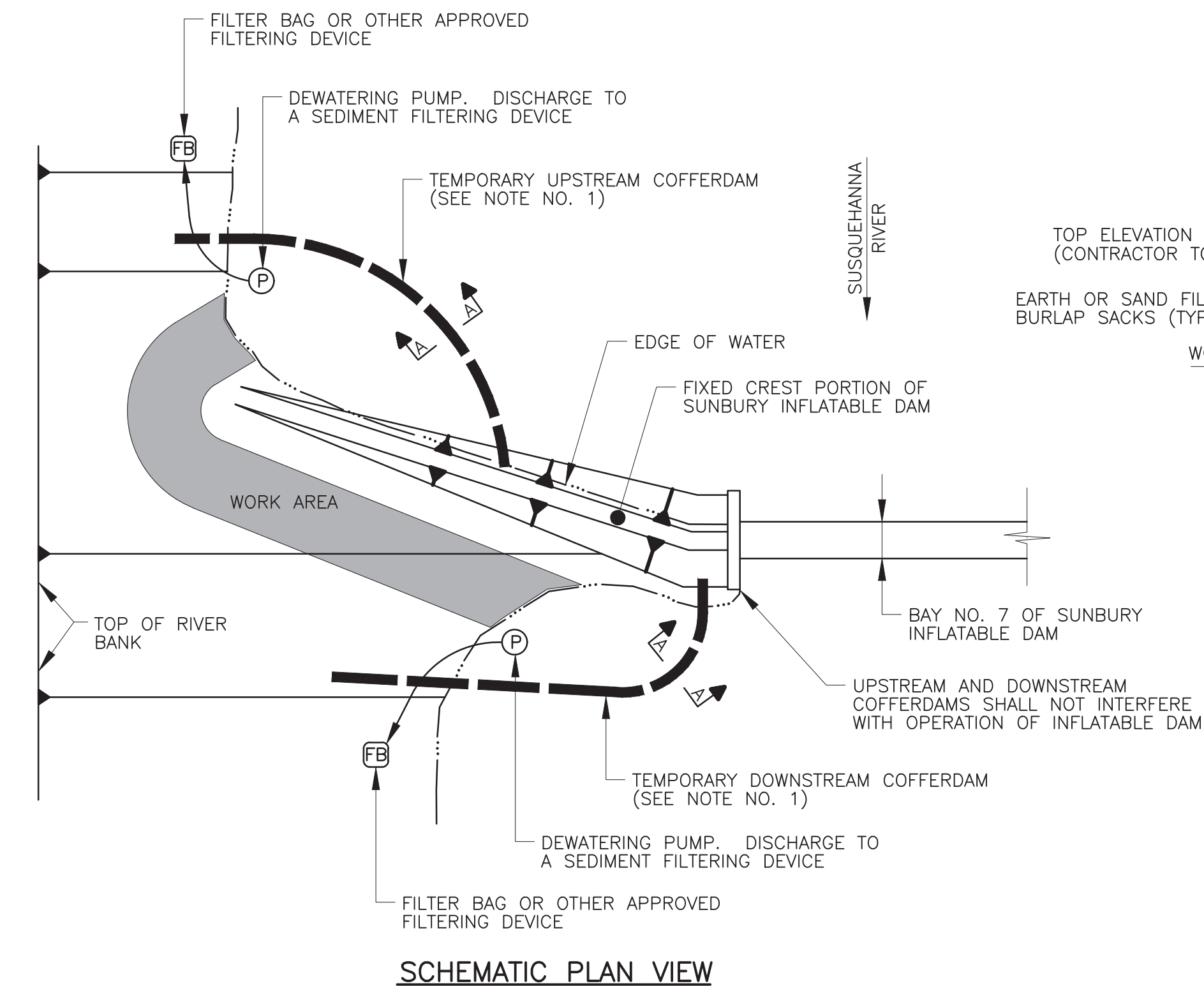
ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

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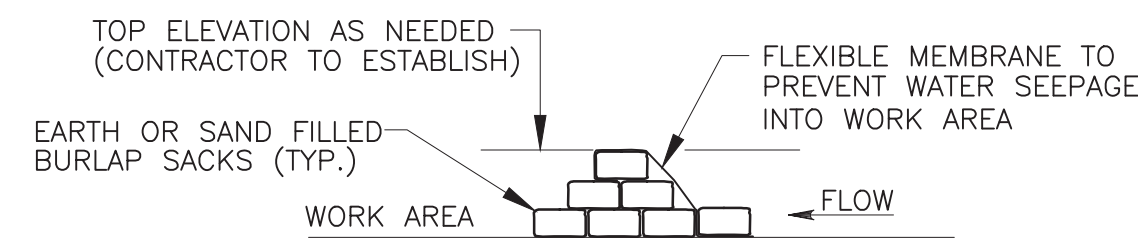
SOILS LEGEND

SOIL SERIES	MAP SYMBOL	DESCRIPTION	ENGINEERING CLASSIFICATION		SEASONAL HIGH WATER TABLE	PLASTICITY INDEX	SOIL REACTION (Ph)	LIQUID LIMIT (%)	AVAILABLE WATER CAPACITY (IN/IN)	PERCENT CLAY (%)	SUITABILITY AS A SOURCE OF...			SOIL FEATURES AFFECTING ENGINEERING PRACTICES FOR...				POTENTIAL FROST ACTION	HYDROLOGIC SOIL GROUP	
			UNIFIED	AASHTO							TOPSOIL	SAND & GRAVEL	ROAD FILL	ROADWAYS	LAWNS	POND STORAGE AREAS	POND EMBANKMENTS			DWELLING UNITS
BASHER	Bd	BASHER SOILS, FREQUENTLY FLOODED, 0 TO 3 % SLOPES	SM, ML	A-1, A-2, A-4	12" - 36"	2 - 7	3.6 - 6.5	15 - 25	0.02 - 0.21	12.4	FAIR	FAIR/POOR	FAIR	VERY LIMITED FROST, FLOODING	VERY LIMITED FLOODING	VERY LIMITED SEEPAGE	VERY LIMITED PIPING, SEEPAGE	VERY LIMITED FLOODING	HIGH	B
URBAN LAND	Ur	URBAN LAND	-	-	-	-	-	-	-	-	NOT RATED	NOT RATED	NOT RATED	NOT RATED	NOT RATED	NOT RATED	NOT RATED	NOT RATED	-	-

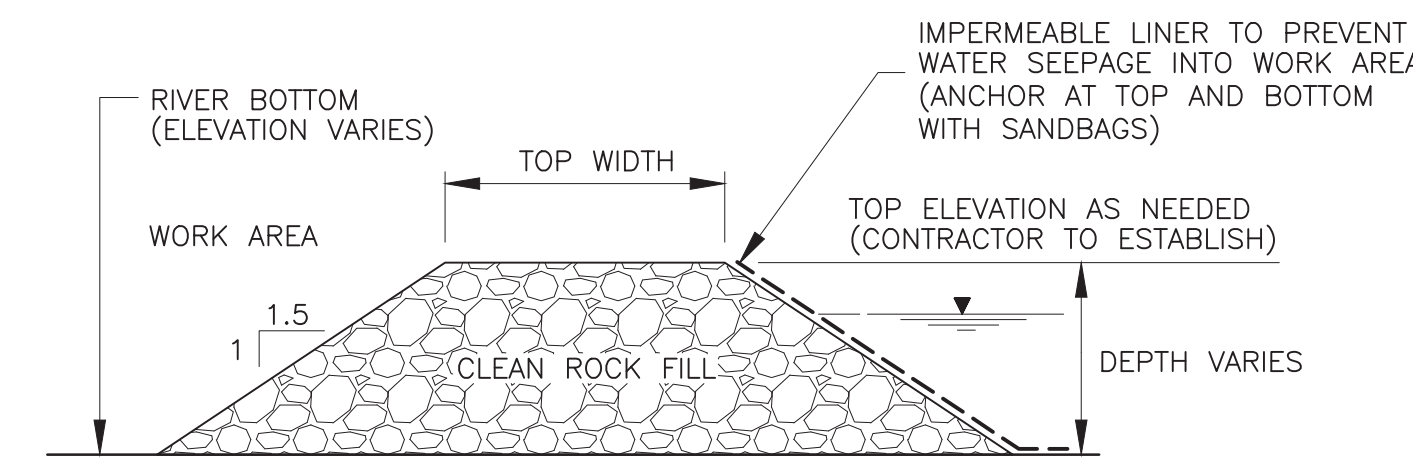
SOURCE: NRCS WEB SOIL SURVEY.



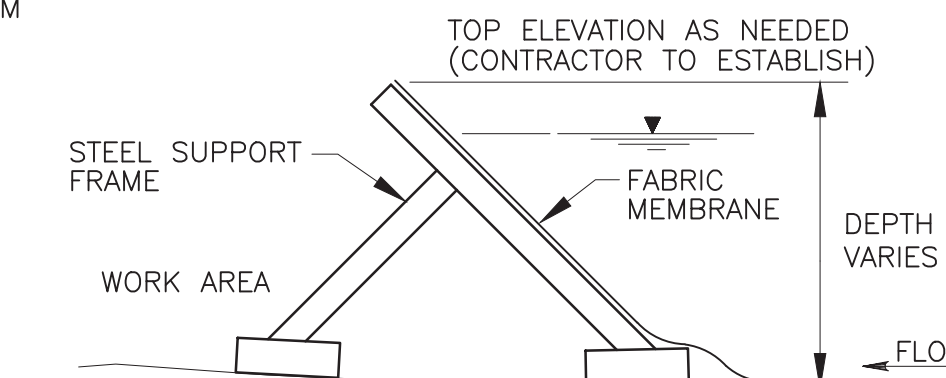
SCHEMATIC PLAN VIEW



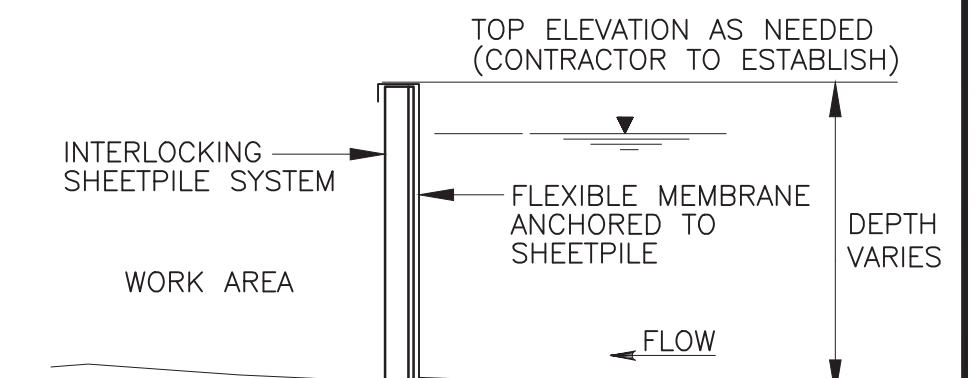
**SECTION A-A
SANDBAG COFFERDAM OPTION**



**SECTION A-A
ROCK FILL COFFERDAM OPTION**



**SECTION A-A
MANUFACTURED PORTABLE DAM OPTION**



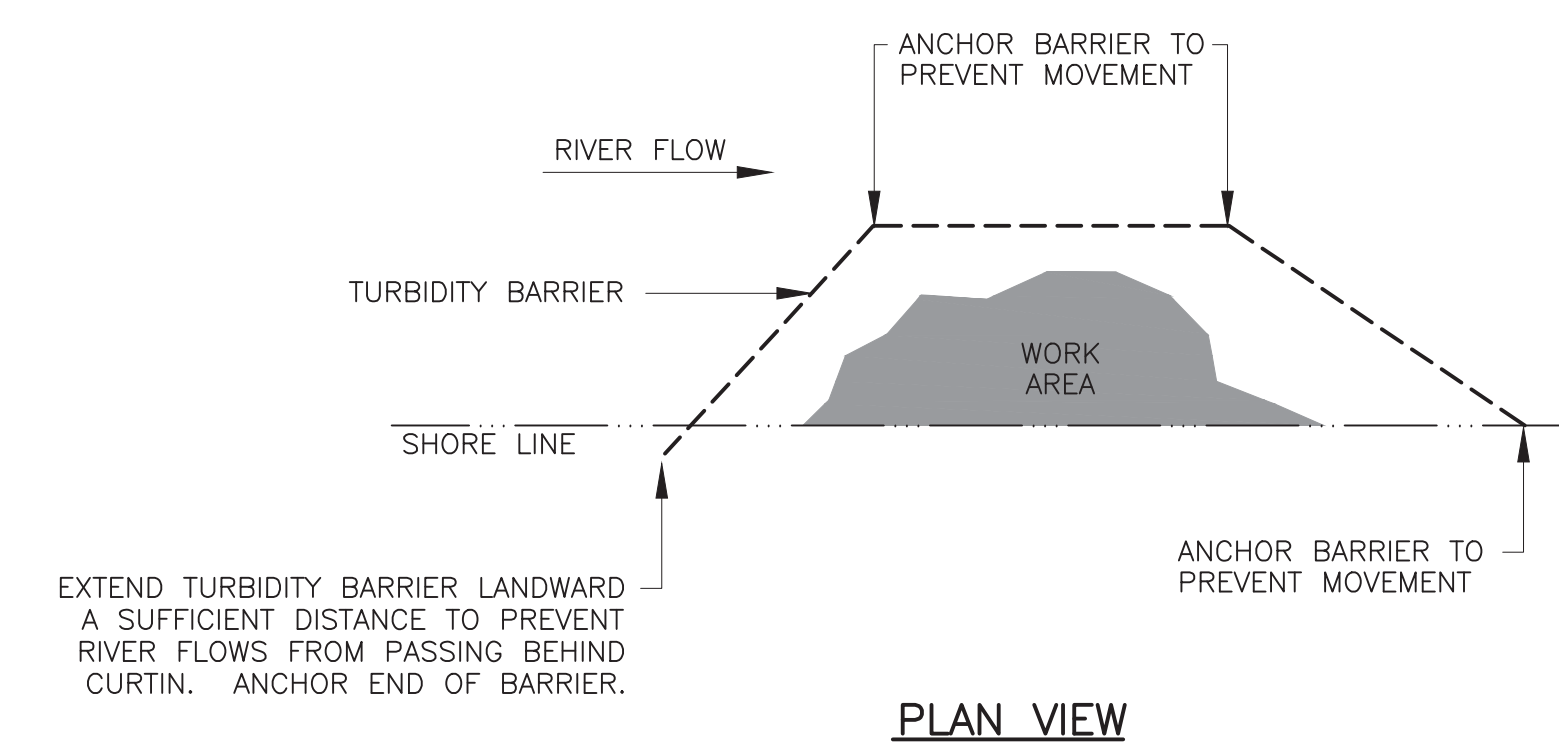
**SECTION A-A
SHEETPILE OPTION**

CONSTRUCTION SEQUENCE NOTES FOR TEMPORARY COFFERDAM SYSTEM

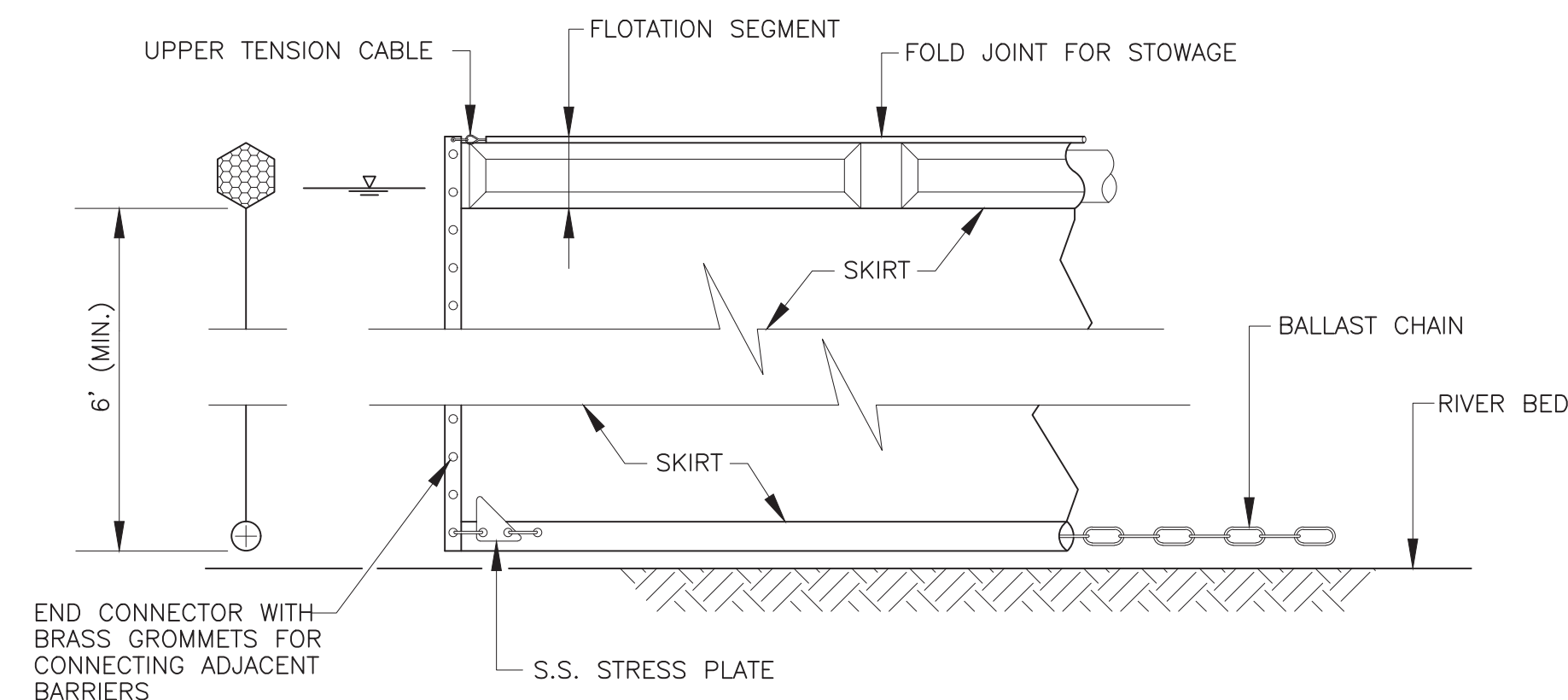
- CONTRACTOR TO PROVIDE DIVERSION OF WATER PLAN TO THE PROFESSIONAL AND COUNTY CONSERVATION DISTRICT FOR APPROVAL. PLAN SHALL PROVIDE DETAILS OF COFFERDAM MATERIAL, COFFERDAM LOCATIONS, SEQUENCING FOR INSTALLATION AND REMOVAL, LOCATION AND TYPE OF DEWATERING FACILITIES AND LOCATION AND TYPE OF EROSION CONTROL FACILITIES.
- CARE SHALL BE TAKEN TO MINIMIZE DISTURBANCE OF THE RIVER BED AND BANKS DURING THE COFFERDAM INSTALLATION OPERATIONS. COFFERDAMS SHALL NOT INTERFERE WITH THE OPERATION OF THE INFLATABLE DAM.
- DEWATER THE WORK AREA WITHIN THE COFFERDAM. ALL PUMPED WATER SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE BEFORE BEING DISCHARGED FROM THE PROJECT SITE. ENSURE THAT THE PUMPED OUTFLOW DOES NOT CAUSE EROSION AT THE DISCHARGE LOCATION. IF NECESSARY, PROVIDE ROCK OF SUFFICIENT SIZE AND COVERAGE TO PROTECT AGAINST EROSION AT THE DISCHARGE LOCATION.
- ONCE EARTH DISTURBANCE ACTIVITIES BEGIN WITHIN THE DEWATERED COFFERDAM AREA, ALL WATER WHICH COLLECTS WITHIN THE WORK AREA IS TO BE PUMPED TO A SEDIMENT FILTERING DEVICE, SUCH AS A PUMPED WATER FILTER BAG, BEFORE BEING DISCHARGED FROM THE SITE.
- AFTER CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE ALL DISTURBED AREAS, REMOVE ALL SEDIMENT DEPOSITS FROM THE DEWATERED WORK AREA AND REMOVE THE TEMPORARY COFFERDAM(S).
- CARE SHALL BE TAKEN TO MINIMIZE DISTURBANCE OF THE RESERVOIR BED AND BANKS DURING THE COFFERDAM REMOVAL OPERATIONS.

TEMPORARY COFFERDAM SYSTEM

NOT TO SCALE



PLAN VIEW



FRONT ELEVATION AND SECTION

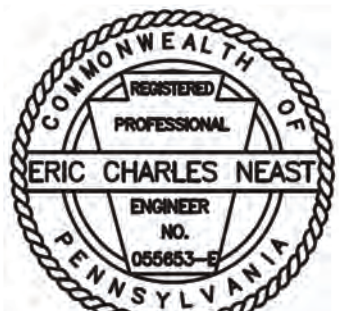
TURBIDITY BARRIER NOTES:

- UTILIZE A TURBIDITY BARRIER FOR ALL EXCAVATION ACTIVITIES PERFORMED IN THE RIVER OUTSIDE THE LIMITS OF THE COFFERDAM.

TURBIDITY BARRIER

NOT TO SCALE

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
PROFESSIONAL'S SIGNATURE DATE

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

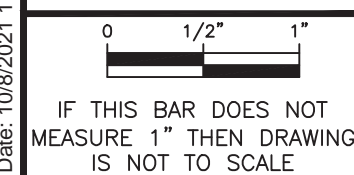
CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

EROSION AND SEDIMENT CONTROL
PLAN - DETAILS

DRAWN BY	DATE	DRAWING NO.
JPH	OCTOBER 2021	ES-5
CHECKED BY	SCALE	
ECN	AS SHOWN	

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

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GENERAL STRUCTURAL NOTES

A. GENERAL

- THE STRUCTURE IS DESIGNED TO ACT AS A STRUCTURAL UNIT UPON COMPLETION. DESIGN AND PROVIDE NECESSARY BRACING, TEMPORARY SUPPORTS, AND SHORING TO RESIST FORCES ON THE STRUCTURE DURING CONSTRUCTION.
- VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO STARTING WORK. NOTIFY THE PROFESSIONAL OF ANY DISCREPANCIES.
- VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING WORK.
- CONTRACTOR SHALL EXERCISE EXTREME CARE DURING THE EXCAVATION AND CONSTRUCTION FOR NEW STRUCTURES TO AVOID DAMAGE TO EXISTING STRUCTURES.
- WORK SHALL BE COORDINATED WITH THE VARIOUS TRADES TO AVOID CONFLICTS OR INTERFERENCES WITH REINFORCING STEEL OR STRUCTURAL STEEL MEMBERS.

B. DESIGN CRITERIA

1. DESIGN CODES

AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, 17th EDITION – LOAD FACTOR DESIGN METHOD FOR REINFORCED CONCRETE DESIGN AND ALLOWABLE STRESS DESIGN METHOD FOR STRUCTURAL STEEL DESIGN.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION – DESIGN MANUAL PART 4 (SEPTEMBER 2007 EDITION) FOR LIVE LOAD VEHICLES (ML80 AND TK527 VEHICLES ONLY) AND STANDARD DRAWINGS BD-629M (DATED JULY 20, 2007) FOR REINFORCEMENT BAR DETAILING IN PIER WALLS AND FOOTINGS

AMERICAN CONCRETE INSTITUTE, ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-97) – SECTION 7.12.2.1 ONLY (CONCRETE COVERS)

US ARMY CORPS OF ENGINEERS, STRENGTH DESIGN FOR REINFORCED-CONCRETE HYDRAULIC STRUCTURES (EM 1110-2-2104) APRIL 30, 1992 – SECTION 2-6 ONLY

2. DESIGN LOADS

A. DEAD LOADS UNIT WEIGHTS

CONCRETE (NORMAL WEIGHT)	150 pcf
EARTH (SATURATED)	130 pcf
STEEL	491 pcf
WATER	62.4 pcf
HEAVY DUTY WELDED STEEL GRATING (DECK)	50 psf
POSTS AND RAILS	50 plf

B. VEHICULAR LIVE LOADS

AASHTO 3.7:	H-20 AND HS-20
DM-4 :	ML80 AND TK527

C. WATERWAY LOAD

STREAM FLOW AND ICE LOAD (AASHTO 3.18)

C. CONCRETE

- ALL CONCRETE FOR STRUCTURES SHALL BE AIR-ENTRAINED CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUAL TO:

ALL STRUCTURAL CONCRETE (CLASS A)	4,500 PSI
BACKFILL CONCRETE (CLASS B)	3,000 PSI

- REINFORCEMENT BARS SHALL BE NEW BILLET STEEL CONFORMING TO A.S.T.M. DESIGNATION A615, GRADE 60, DEFORMED.
- ALL REINFORCING STEEL IS TO BE EPOXY COATED.
- WELDED WIRE FABRIC SHALL CONFORM TO A.S.T.M. DESIGNATION A185.
- CONCRETE DESIGN IS IN CONFORMANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION – LOAD FACTOR DESIGN METHOD.
- DETAIL, FABRICATE AND ERECT REINFORCEMENT BARS, INCLUDING BAR SUPPORTS, SPACERS, ETC. IN ACCORDANCE WITH "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (A.C.I. 315-99).
- WATERSTOPS SHALL BE POLYVINYL CHLORIDE, RIBBED WITH CENTER BULB UNLESS SHOWN OTHERWISE.
 - 9" x 3/8" IN EXPANSION JOINTS
 - 6" x 3/8" IN CONSTRUCTION JOINTS
- CONCRETE COVER FOR REINFORCEMENT BARS SHALL CONFORM TO THE FOLLOWING, UNLESS INDICATED OTHERWISE ON THE DRAWINGS:
 - UNFORMED SURFACES IN CONTACT WITH FOUNDATION 4 INCHES
 - FORMED SURFACES EQUAL TO OR GREATER THAN 24 INCHES IN THICKNESS 4 INCHES
 - FORMED SURFACES LESS THAN 24 INCHES IN THICKNESS 3 INCHES

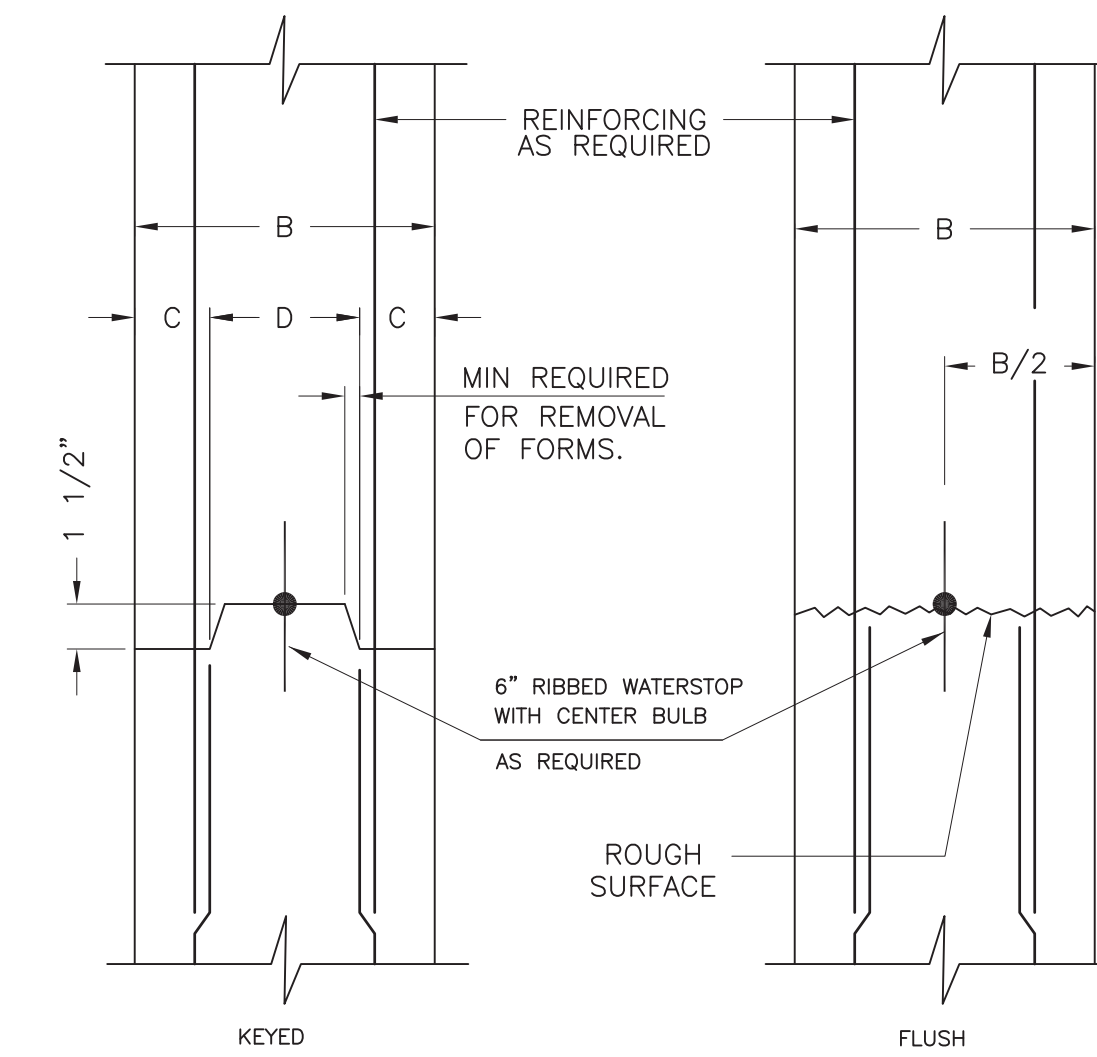
- THE CHAMFER OF ANY CONCRETE EDGES SHALL NOT REDUCE THE RECOMMENDED REINFORCEMENT COVER.
- CHAMFER EXPOSED CONCRETE EDGES 3/4 INCH X 3/4 INCH UNLESS NOTED OTHERWISE.
- CONCRETE JOINT LOCATIONS NOT SHOWN ON STRUCTURAL DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE PROFESSIONAL PRIOR TO START OF WORK.
- NO MATERIAL OR CONSTRUCTION METHOD SHALL BE USED WHICH WILL ADD TASTE, ODOR OR TOXICITY TO THE WATER.
- UNLESS SHOWN OTHERWISE, WHERE NECESSARY, PROVIDE MINIMUM REINFORCING STEEL LAP SPLICES AND EMBEDMENTS AS FOLLOWS:

BAR SIZE	MINIMUM LAP SPLICE (INCHES)		MINIMUM EMBEDMENT LENGTH (INCHES)	
	TOP BARS*	OTHER BARS	TOP BARS*	OTHER BARS
4	35	25	21	15
5	43	31	26	18
6	52	37	31	22
7	61	44	36	26
8	80	57	47	34
9	101	73	60	43
10	129	92	76	54
11	158	113	93	67

*TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES DEPTH OF CONCRETE CAST BELOW THE REINFORCEMENT. HORIZONTAL WALL REINFORCEMENT IS CONSIDERED A TOP BAR.

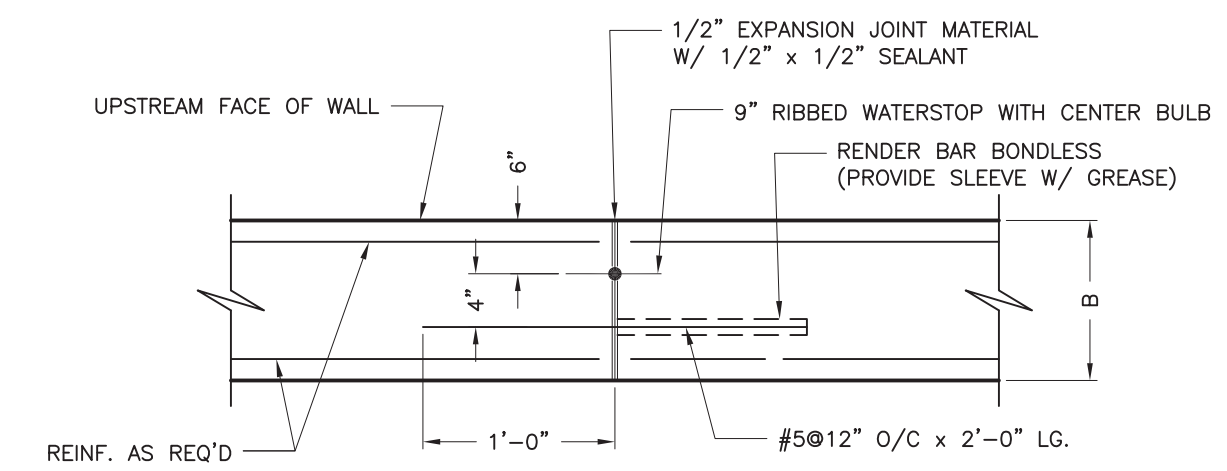
D. FOUNDATIONS

- DEWATERING SYSTEMS ARE REQUIRED TO PRODUCE AN ABSOLUTELY DRY FOUNDATION WITHIN THE REQUIRED LIMITS OF EXCAVATION. SEE SPECIFICATION SECTION 02130 FOR DEWATERING REQUIREMENTS.
- TEMPORARY EXCAVATION SUPPORT MAY BE REQUIRED TO CONSTRUCT THE PROPOSED FISH PASSAGE AND T-WALL STRUCTURES. SEE SPECIFICATION SECTION 02150 FOR SHORING REQUIREMENTS.
- FOUNDATION EXCAVATION WILL INVOLVE BOTH ROCK AND SOIL EXCAVATION. ALL EXCAVATION IS UNCLASSIFIED AND NO CONSIDERATION WILL BE GIVEN TO THE NATURE OF THE MATERIALS BEING EXCAVATED. STRUCTURE SUBGRADES SHALL BE CLEAN AND FREE OF LOOSE MATERIAL PRIOR TO CONCRETE PLACEMENT. ANY AND ALL OPEN FRACTURES IN THE BEDROCK SHALL BE CLEANED, WASHED, AND TREATED WITH DENTAL CONCRETE PRIOR TO CONCRETE PLACEMENT. ALL PORTIONS OF THE FISH PASSAGE SHALL BEAR DIRECTLY ON SUITABLE BEDROCK, AND ALL SUBGRADE SURFACES SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF OVERLYING CONSTRUCTION MATERIALS. BLASTING IS NOT PERMITTED FOR FOUNDATION EXCAVATION.
- ANY DEPICTION OF BEDROCK SURFACES CONTAINED IN THE DRAWINGS IS FOR THE CONVENIENCE OF THE PROFESSIONAL. THE ACCURACY AND COMPLETENESS OF ANY SUCH DEPICTION IS NOT GUARANTEED BY THE USING AGENCY OR THE PROFESSIONAL. CONTRACTORS MUST ASSUME ALL RISK IN EXCAVATING FOR THIS PROJECT AND SHALL NOT BE ENTITLED TO RELY ON ANY SUBSURFACE INFORMATION DEPICTED WITHIN THE CONTRACT DOCUMENTS.
- PROTECTION OF EXISTING STRUCTURES AT THE SITE WILL BE NECESSARY DURING EXCAVATION AND CONSTRUCTION OF THE PROPOSED FISH PASSAGE FACILITY. THE CONTRACTOR SHALL ENSURE THE EXISTING STRUCTURES ARE NOT DAMAGED OR UNDERMINED DURING CONSTRUCTION.
- REMOVAL OF ABANDONED STRUCTURAL REMNANTS MAY BE NECESSARY. IF REQUIRED, REMOVAL SHALL BE PERFORMED CAREFULLY TO AVOID DAMAGE TO THE EXISTING DAM AND/OR ROCK SUBGRADES BENEATH THE PROPOSED FISH PASSAGE.
- ALL FILL MATERIALS SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS. SEE SPECIFICATION SECTION 02210 FOR SPECIFIC FILL PLACEMENT REQUIREMENTS. ADVANCE TESTING OF FILL MATERIALS IS REQUIRED PRIOR TO FILL PLACEMENT.
- IN THOSE AREAS WHERE BEDROCK IS LOCATED BENEATH THE BASE SLAB ELEVATION, OVERBURDEN SHALL BE REMOVED TO SUITABLE ROCK AND REPLACED WITH BACKFILL CONCRETE (CLASS B) PRIOR TO CONSTRUCTION OF THE T-WALL.
- ALL FOUNDATION EXCAVATIONS BELOW THE TOP OF ROCK SHALL BE BACKFILLED WITH BACKFILL CONCRETE (CLASS B) UP TO THE TOP OF ADJACENT ROCK SURFACE.
- A COEFFICIENT OF SLIDING FRICTION OF 0.70 WAS USED FOR STABILITY ANALYSES FOR CONCRETE ON CLEAN SOUND ROCK. AN ALLOWABLE BEARING PRESSURE OF 8 KSF WAS USED.



CONSTRUCTION JOINT DETAILS

NOT TO SCALE



EXPANSION JOINT DETAIL

NOT TO SCALE

CONSTRUCTION JOINT NOTES:

- WATERSTOPS SHALL BE PLACED IN JOINTS AS REQUIRED IN THE SPECIFICATIONS OR AS SHOWN ON STRUCTURAL DRAWINGS. WATERSTOPPED JOINTS ARE REQUIRED AT ALL JOINTS IN THE PROPOSED CONCRETE T-WALL.
- FOR KEYED JOINT IN WALL, TERMINATE KEY 6" FROM TOP OF WALL.
- IN WALLS PROVIDE 3/4" X 3/4" CHAMFER EACH SIDE OF CONSTRUCTION JOINTS WHERE EXPOSED TO VIEW.

SCHEDULE OF DIMENSIONS		
WALL THICKNESS "B"	C	D
LESS THAN 9"	B/3	B/3
9" TO 16"	3 1/2"	VARIABLES
16" TO 21"	5 1/2"	VARIABLES
MORE THAN 21"	B/3	B/3

EXPANSION JOINT NOTES:

- IN WALLS PROVIDE 3/4" X 3/4" CHAMFER EACH SIDE OF EXPANSION JOINTS WHERE EXPOSED TO VIEW.

NO.	DATE	REVISION	APPR.

AS-BUILT REVISIONS



Eric C. Neast 10-15-2021
PROFESSIONAL'S SIGNATURE DATE

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

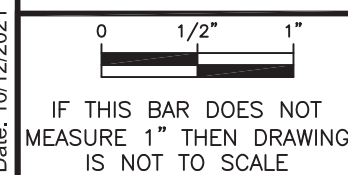
CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

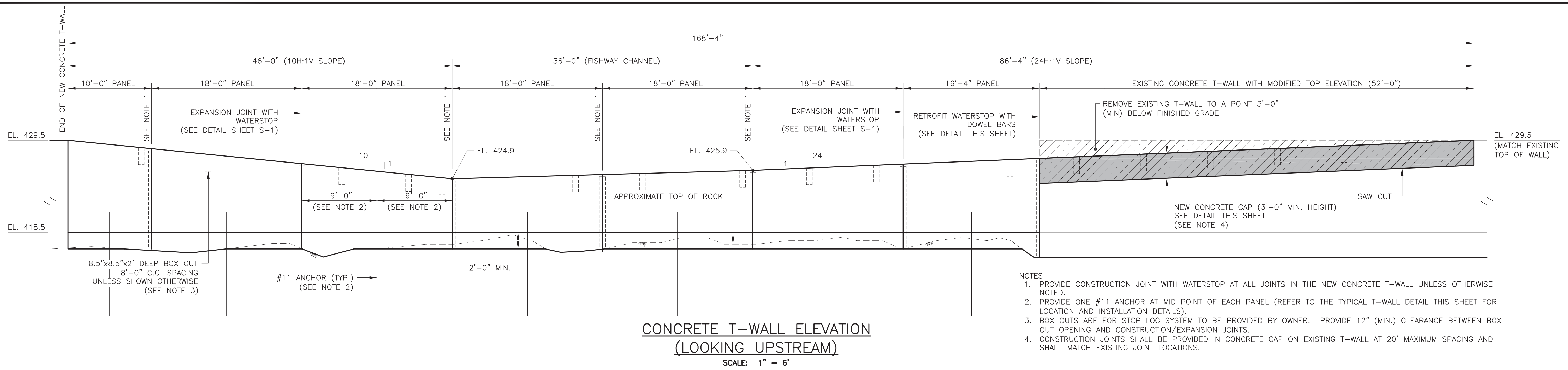
GENERAL STRUCTURAL NOTES AND DETAILS

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

DRAWN BY	DATE	DRAWING NO.
J.P.H.	OCTOBER 2021	S-1
CHECKED BY	SCALE	
P.G.S.	AS SHOWN	

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Plot Date: 10/15/2021 7:48 AM. Plotted By: Neast, Eric C.



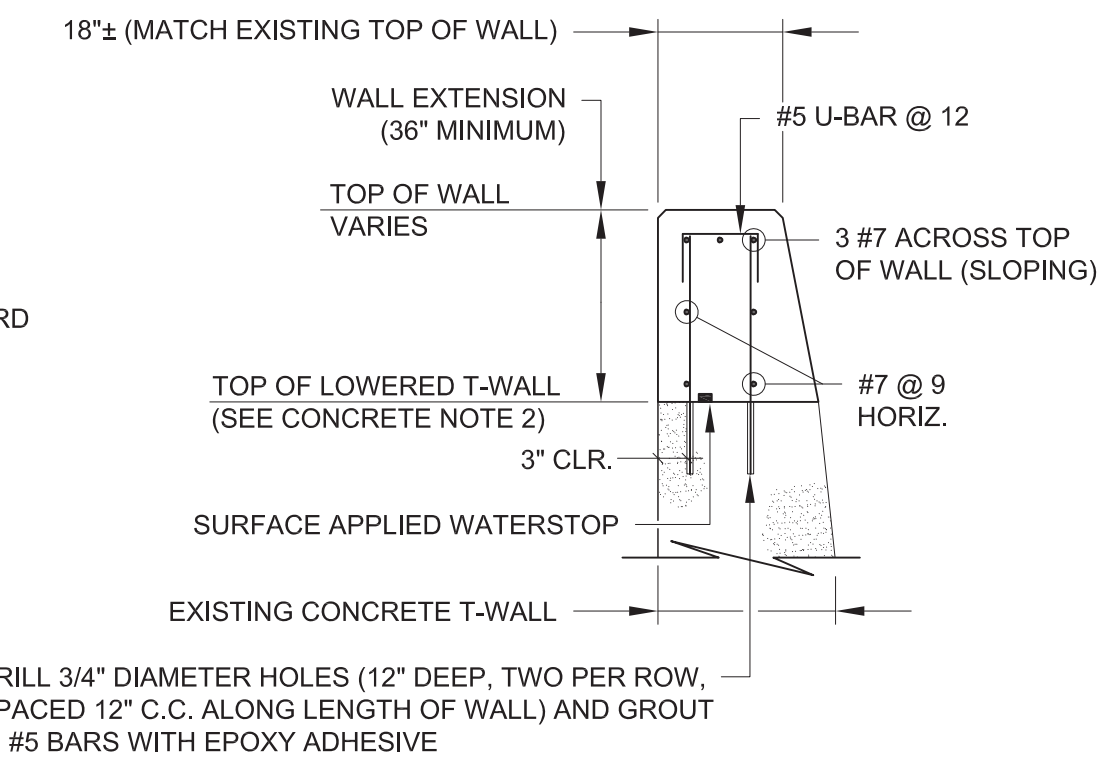


**CONCRETE T-WALL ELEVATION
(LOOKING UPSTREAM)**
SCALE: 1" = 6'

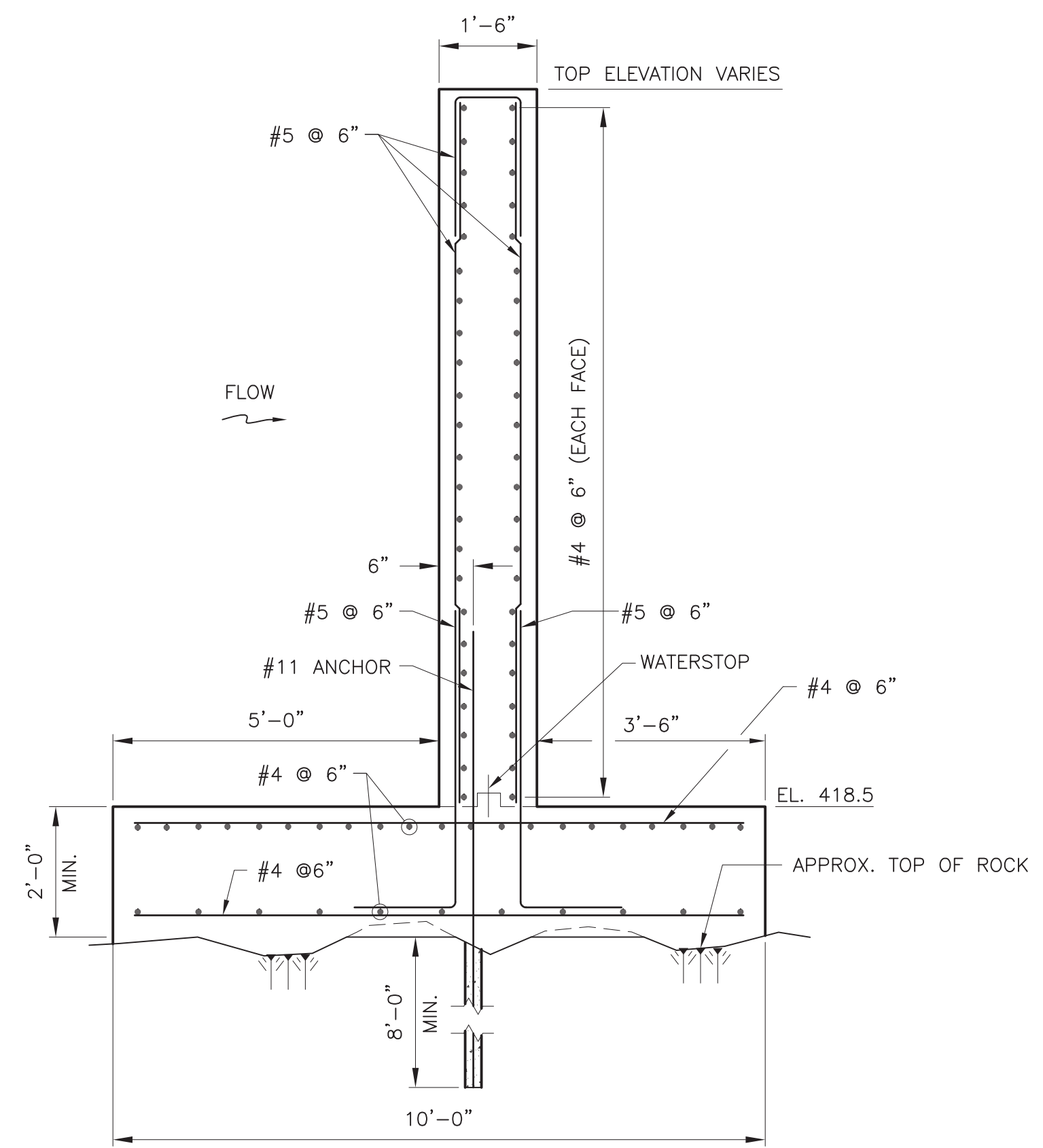
- NOTES:
1. PROVIDE CONSTRUCTION JOINT WITH WATERSTOP AT ALL JOINTS IN THE NEW CONCRETE T-WALL UNLESS OTHERWISE NOTED.
 2. PROVIDE ONE #11 ANCHOR AT MID POINT OF EACH PANEL (REFER TO THE TYPICAL T-WALL DETAIL THIS SHEET FOR LOCATION AND INSTALLATION DETAILS).
 3. BOX OUTS ARE FOR STOP LOG SYSTEM TO BE PROVIDED BY OWNER. PROVIDE 12" (MIN.) CLEARANCE BETWEEN BOX OUT OPENING AND CONSTRUCTION/EXPANSION JOINTS.
 4. CONSTRUCTION JOINTS SHALL BE PROVIDED IN CONCRETE CAP ON EXISTING T-WALL AT 20' MAXIMUM SPACING AND SHALL MATCH EXISTING JOINT LOCATIONS.

CONCRETE NOTES:

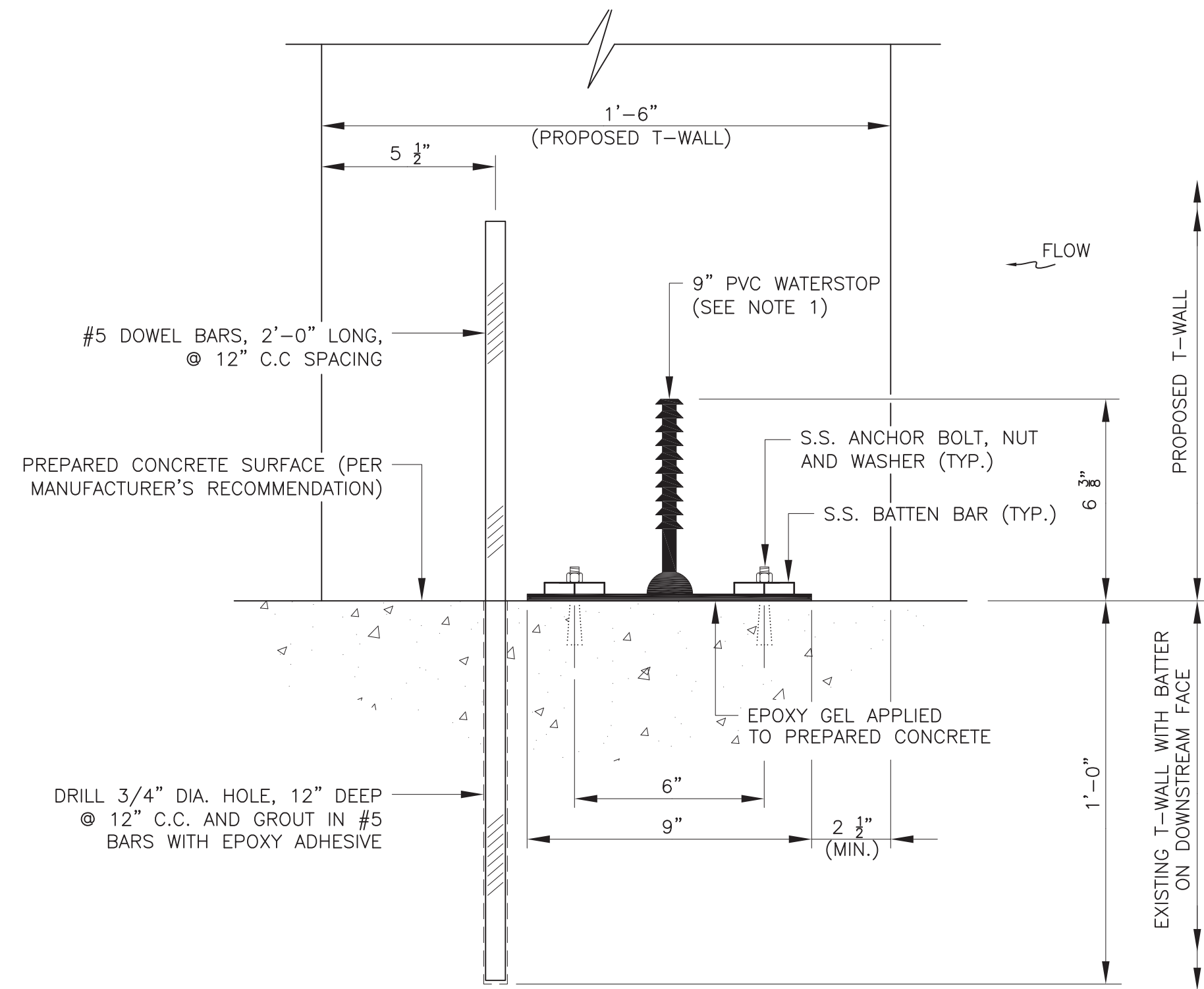
1. REFER TO SHEET S-1 FOR STRUCTURAL NOTES AND DETAILS.
2. LOWER THE EXISTING T-WALL A MINIMUM OF 3'-0" BELOW THE FINISHED GRADE OF THE FORD CROSSING AND CONSTRUCT A CONCRETE CAP WITH TOP ELEVATION FLUSH WITH FORD CROSSING.
3. CHAMFER ALL EXPOSED EDGES 3/4-INCH.
4. ALL CONCRETE SHALL HAVE 4,500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.



**CONCRETE CAP FOR
EXISTING CONCRETE T-WALL**
NOT TO SCALE



TYPICAL CONCRETE T-WALL DETAIL
NOT TO SCALE



RETROFIT WATERSTOP DETAIL WITH DOWEL BARS
NOT TO SCALE

- NOTES:
1. RETROFIT WATERSTOP SYSTEM INCLUDING PREFABRICATED PVC WATERSTOP, STAINLESS STEEL BATTEN BARS AND STAINLESS STEEL ANCHOR BOLTS AND WASHERS ON 1'-0" CENTERS (GREENSTREAK 667 RETROFIT SYSTEM OR APPROVED EQUAL).
 2. ALTERNATE SPACING FOR DOWEL BARS AND ANCHOR BOLTS FOR RETROFIT WATERSTOP AS NEEDED TO PROVIDE A MINIMUM OF SIX INCHES BETWEEN DOWEL BARS AND ANCHOR BOLTS AT ALL LOCATIONS.

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
PROFESSIONAL'S SIGNATURE DATE

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PROJECT NO.
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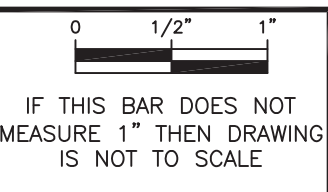
CONSTRUCTION OF FISH PASSAGE
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NORTHUMBERLAND AND SNYDER COUNTIES, PA

CONCRETE T-WALL EXTENSION

DRAWN BY J.P.H.	DATE OCTOBER 2021	DRAWING NO. S-2
CHECKED BY P.G.S.	SCALE AS SHOWN	

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

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Plot Date: 10/12/2021 7:47 AM. Plotted By: Neast, Eric C.



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE