



CITY OF ANN ARBOR ENGINEERING

LIBERTY STREET CREEK RESTORATION

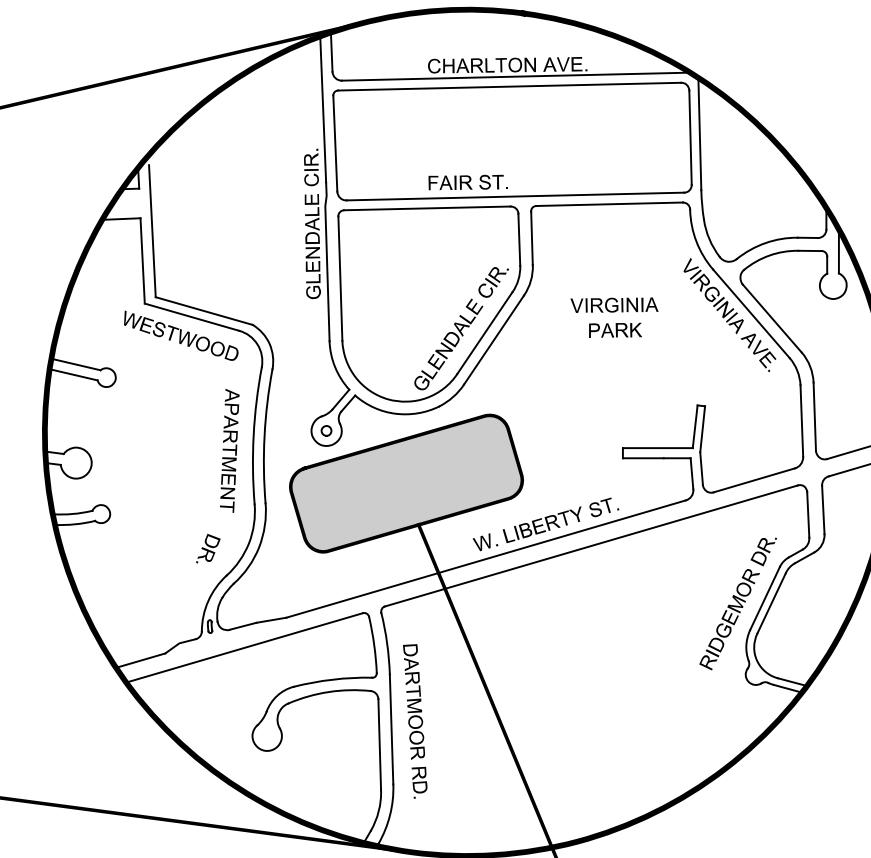
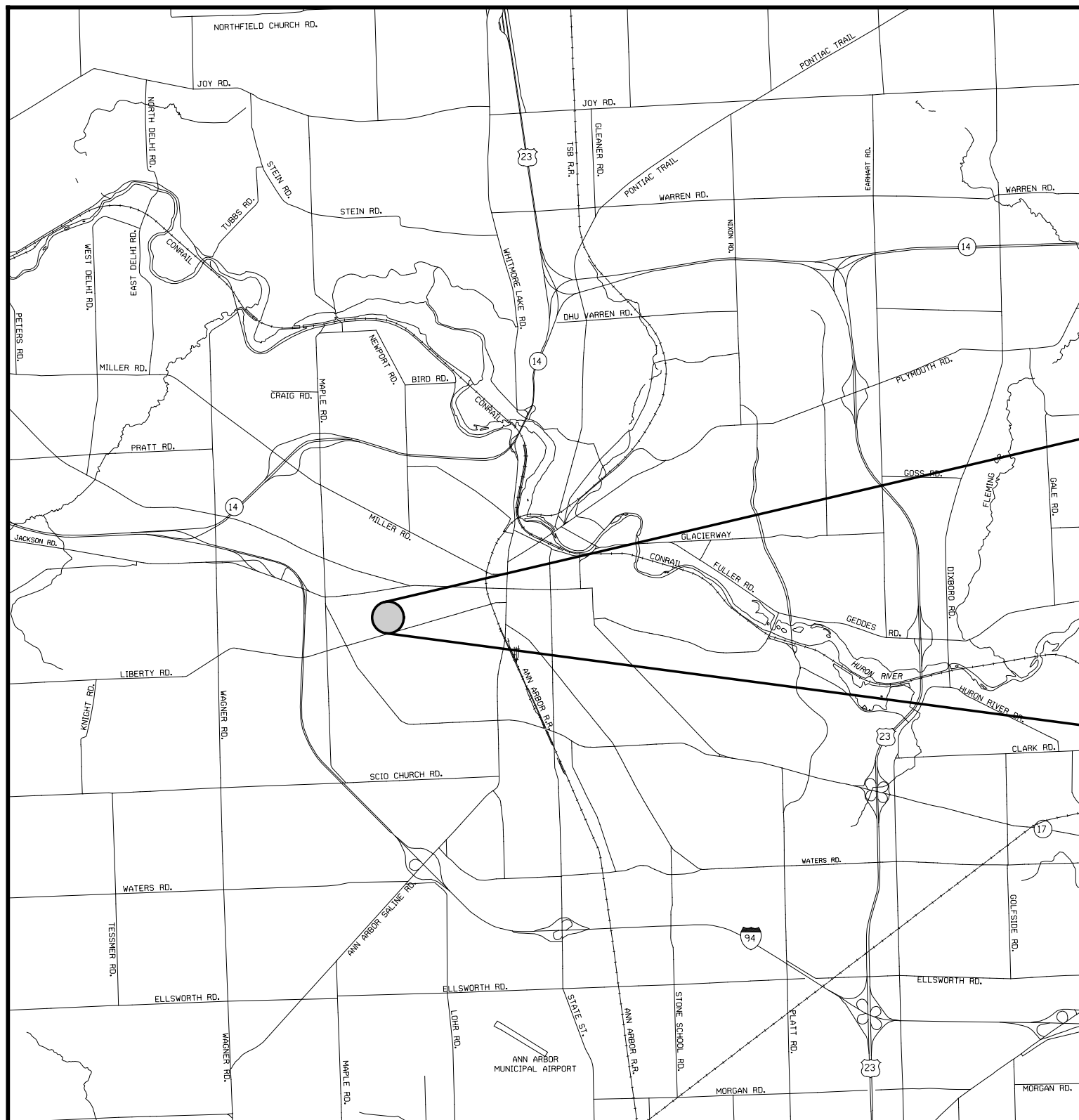
NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR EXISTING UTILITIES ON THESE PLANS ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE ANY OF THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 2024 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS DETAILS WHICH ARE INCLUDED FOR REFERENCE AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAILS DOES NOT RELIEVE THE CONTRACT FROM THIS REQUIREMENT.

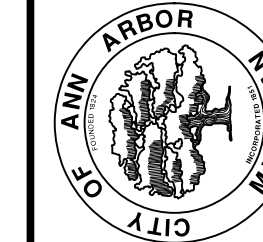
SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
	COVER SHEET
01 - 04	PLAN VIEW
05 - 06	PROFILE
07 - 15	CROSS SECTIONS
16 - 17	PROJECT DETAILS



PROJECT
LOCATION

PREPARED UNDER THE SUPERVISION OF		CITY APPROVAL	
JOHN V. BALINT, P.E. - MI LICENSE No. 6201054062 HUBBELL, ROTH & CLARK, INC.		TRACY ANDERSON, P.E. - MI LICENSE No. 6201065162 PROJECT MANAGER	
DATE		DATE	

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-8647
www.a2gov.org



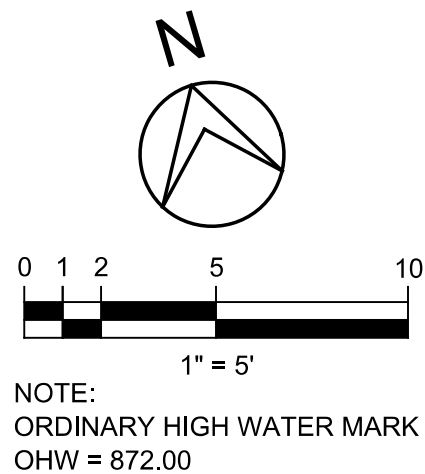
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
LIBERTY STREET CREEK RESTORATION

SCALE	DRAWING No.

SHEET No.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR CONCEPT REVIEW	10-31-2024	J.A.R.	F.B.
	ISSUED FOR PRELIMINARY REVIEW	01-16-2025	J.A.R.	F.B.
	ISSUED FOR ECL PERMIT	02-24-2025	J.A.R.	F.B.
	REVISED PER ECL COMMENTS	05-16-2025	J.A.R.	F.B.





QUANTITIES (THIS SHEET)			
No.	DESCRIPTION	UNIT	QTY
1	Bank Stabilization, Toe Wood	Lft	57
2	Instream Structure, Constructed Riffle (CR)	Ea	3
3	Instream Structure, Pools, 59 Lft	Ea	5
4	Native Plant Plugs	Ea	238
5			
6			
7			

TOE WOOD BANK STABILIZATION STRUCTURES (THIS SHEET)	
DESCRIPTION	LOCATION
Toe Wood (Left Bank) no Bench	Sta. 1+55 to Sta. 2+05

TOE WOOD NOTES:

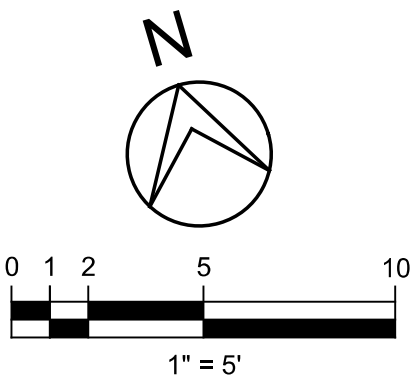
1. TOE WOOD STRUCTURE ORIENTATION IS LEFT AND RIGHT BANK LOOKING UPSTREAM.
2. TOE WOOD LENGTHS ARE MEASURED ALONG THE OUTSIDE, OUTER BANK OF THE STRUCTURE.
3. TOE WOOD STATIONS ARE BASED OFF OF THE CREEK CENTERLINE.
4. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
5. TOE WOOD SHALL BE EMBEDDED INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.
6. TOE WOOD WITH A BENCH SHALL HAVE PLANT PLUGS INSTALLED ON THE BENCH. TOE WOOD WITH NO BENCH WILL HAVE NO PLANT PLUGS INSTALLED.

RIPRAP NOTES:

1. PLACE RIPRAP AT THE 4 LOCATIONS SHOWN ON THE PLAN. ALONG THE LEFT BANK (LOOKING UPSTREAM) AT THE EXISTING SANITARY MANHOLE. AT THE INVERTS OF THE EXISTING 15" AND 24" CMP's, RIGHT BANK AND AT THE INVERT OF THE EXISTING CMP ARCH PIPE.
2. ALL RIPRAP SHALL BE 18" - 24" DIA. STONE AND PAID FOR UNDER THE PAY ITEM "Riprap, Plain - Cyd".
3. PLACE 4 Cyd OF RIPRAP ALONG THE LEFT BANK AS BANK STABILIZATION AND TO PROTECT THE EXISTING SANITARY MANHOLE. PLACE STONE FROM STA. 2+35 TO STA. 2+63. FROM THE CREEK BED TO EXISTING GRADE. DO NOT PLACE STONE INSIDE THE CREEK.
4. PLACE 2 Cyd OF RIPRAP AT THE INVERT OF THE EXISTING 15" CMP OUTLET, STA. 3+19. STONE SHALL BE PLACED FROM THE OUTLET TO THE NEW CREEK BED. APPROX. 4' Wide x 9' Long. DO NOT PLACE STONE INSIDE THE CREEK.
5. PLACE 1 Cyd OF RIPRAP AT THE INVERT OF THE EXISTING 24" CMP OUTLET, STA. 3+23. STONE SHALL BE PLACED FROM THE OUTLET TO THE NEW CREEK BED. APPROX. 4' Wide x 8' Long. DO NOT PLACE STONE INSIDE THE CREEK.
6. PLACE 2 Cyd OF RIPRAP AT THE INVERT OF THE EXISTING CMP ARCH PIPE, INVERT EL. = 872.80. STONE SHALL BE PLACED SO AS TO FILL THE VOID BETWEEN THE CMP INVERT AND THE PROPOSED CROSS VANE CREST STONE.

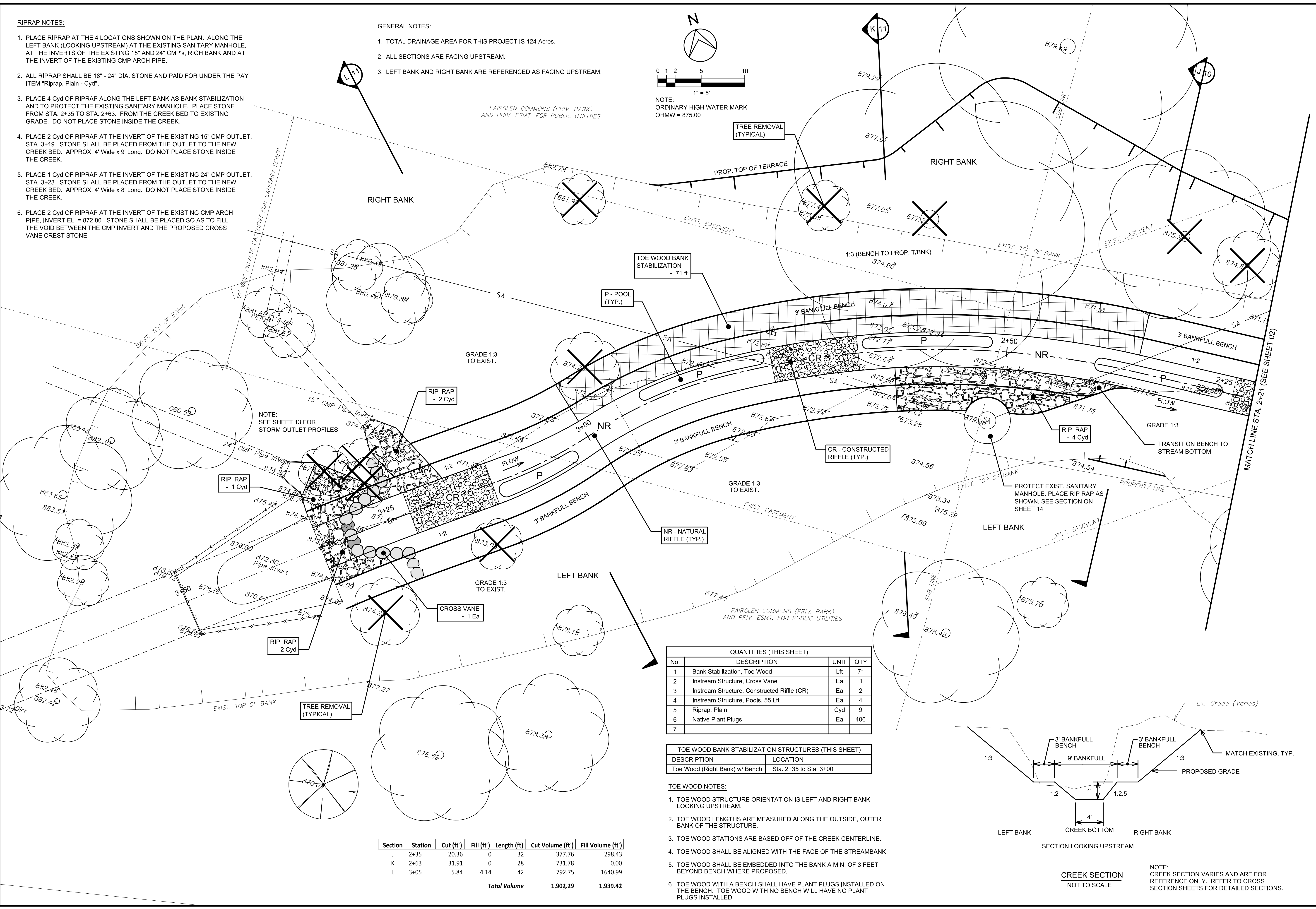
GENERAL NOTES:

1. TOTAL DRAINAGE AREA FOR THIS PROJECT IS 124 Acres.
2. ALL SECTIONS ARE FACING UPSTREAM.
3. LEFT BANK AND RIGHT BANK ARE REFERENCED AS FACING UPSTREAM.



NOTE:
ORDINARY HIGH WATER MARK
OHMW = 875.00

FAIRGLEN COMMONS (PRIV. PARK)
AND PRIV. ESMT. FOR PUBLIC UTILITIES



NOTE:
SEE SHEET 13 FOR
STORM OUTLET PROFILES

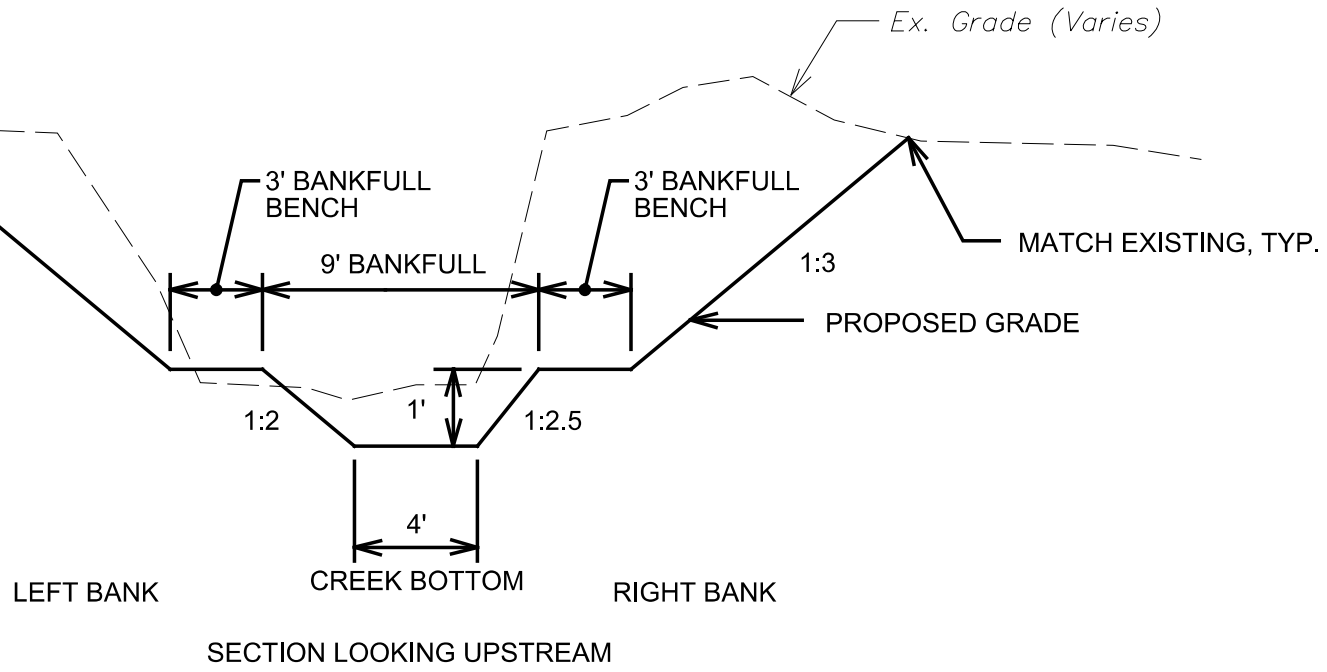
QUANTITIES (THIS SHEET)			
No.	DESCRIPTION	UNIT	QTY
1	Bank Stabilization, Toe Wood	Lft	71
2	Instream Structure, Cross Vane	Ea	1
3	Instream Structure, Constructed Riffle (CR)	Ea	2
4	Instream Structure, Pools, 55 Lft	Ea	4
5	Riprap, Plain	Cyd	9
6	Native Plant Plugs	Ea	406
7			

TOE WOOD BANK STABILIZATION STRUCTURES (THIS SHEET)	
DESCRIPTION	LOCATION
Toe Wood (Right Bank) w/ Bench	Sta. 2+35 to Sta. 3+00

TOE WOOD NOTES:

1. TOE WOOD STRUCTURE ORIENTATION IS LEFT AND RIGHT BANK LOOKING UPSTREAM.
2. TOE WOOD LENGTHS ARE MEASURED ALONG THE OUTSIDE, OUTER BANK OF THE STRUCTURE.
3. TOE WOOD STATIONS ARE BASED OFF OF THE CREEK CENTERLINE.
4. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
5. TOE WOOD SHALL BE EMBEDDED INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.
6. TOE WOOD WITH A BENCH SHALL HAVE PLANT PLUGS INSTALLED ON THE BENCH. TOE WOOD WITH NO BENCH WILL HAVE NO PLANT PLUGS INSTALLED.

Section	Station	Cut (ft)	Fill (ft)	Length (ft)	Cut Volume (ft ³)	Fill Volume (ft ³)
J	2+35	20.36	0	32	377.76	298.43
K	2+63	31.91	0	28	731.78	0.00
L	3+05	5.84	4.14	42	792.75	1640.99
				Total Volume	1,902.29	1,939.42



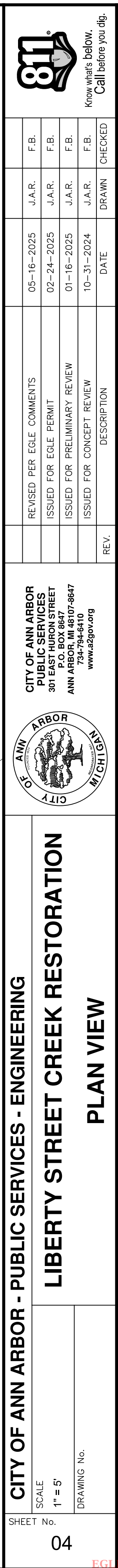
CREEK SECTION
NOT TO SCALE

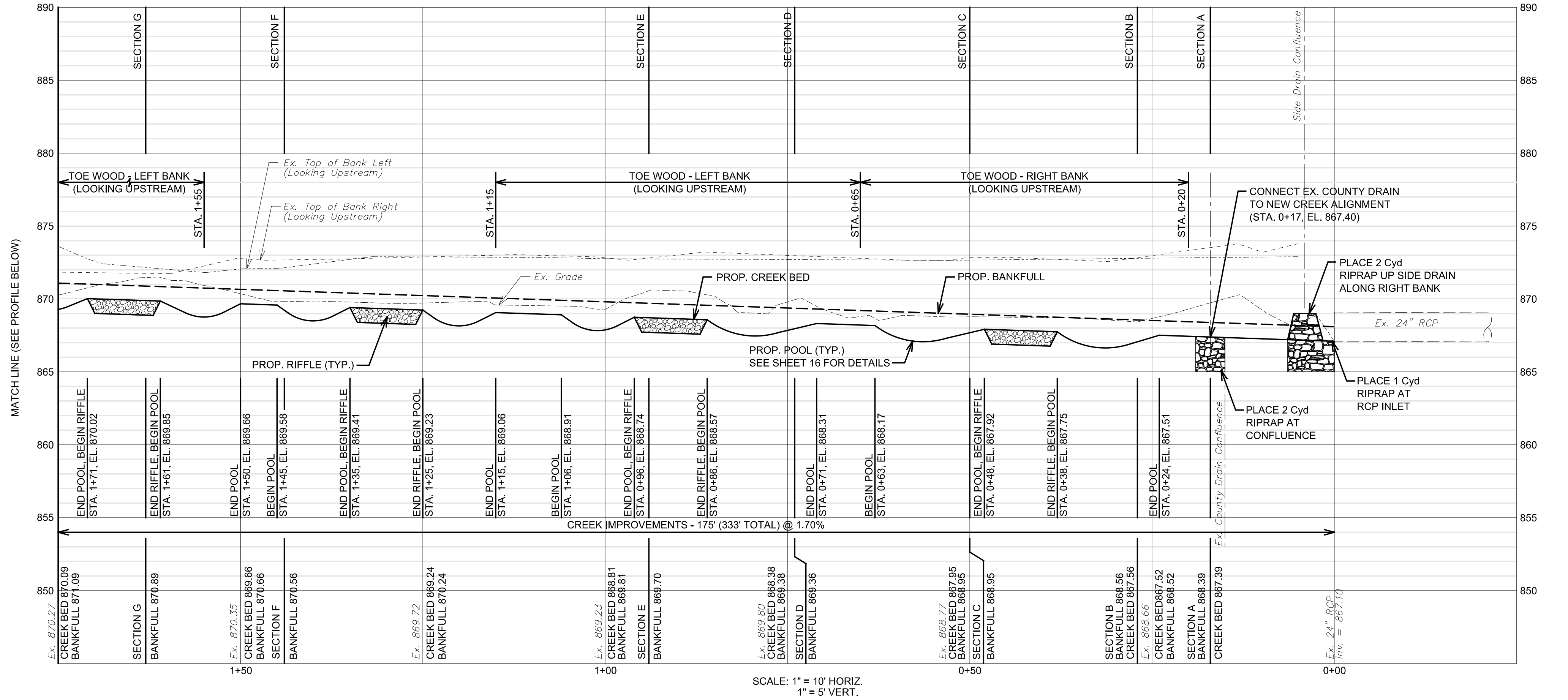
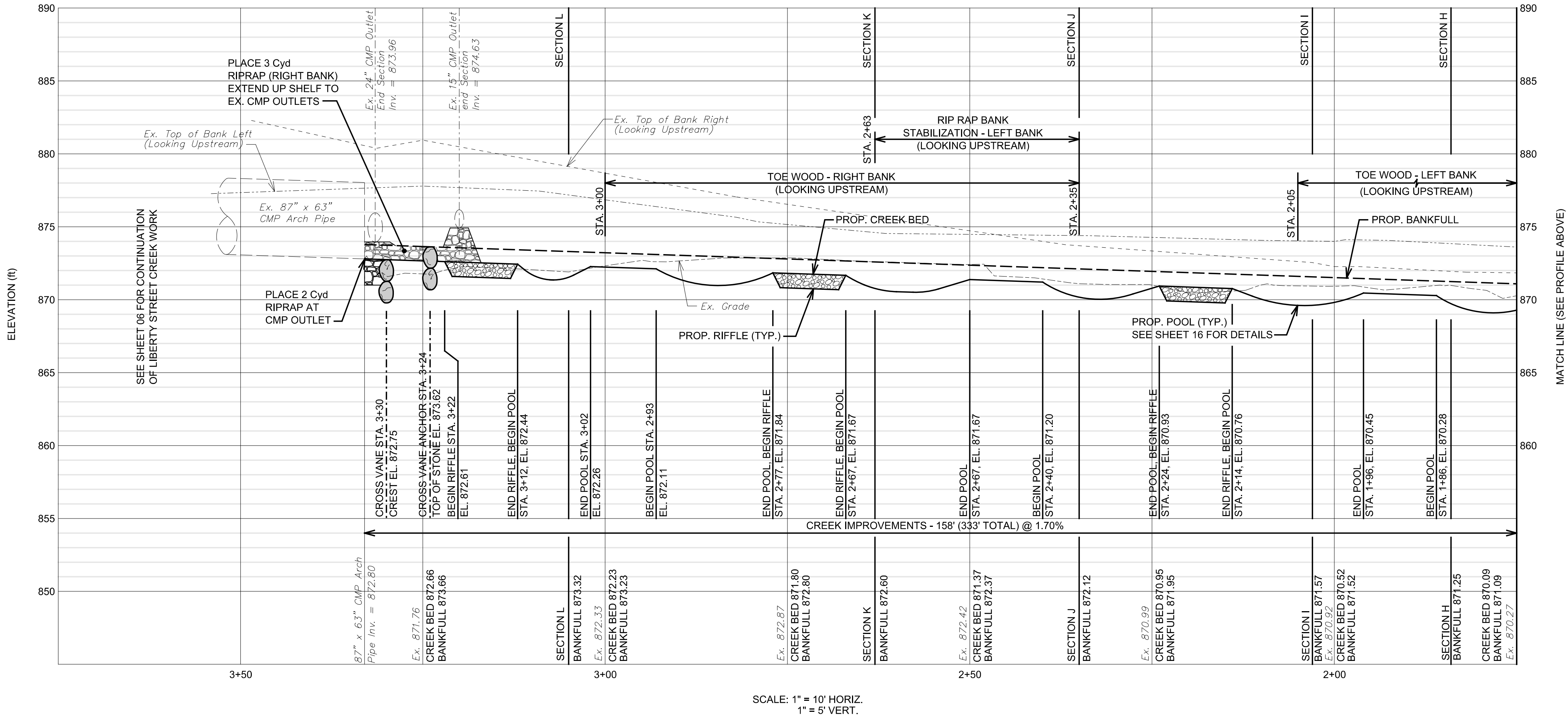
NOTE:
CREEK SECTION VARIES AND ARE FOR
REFERENCE ONLY. REFER TO CROSS
SECTION SHEETS FOR DETAILED SECTIONS.

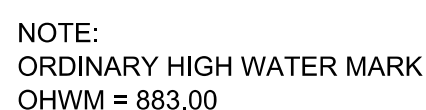


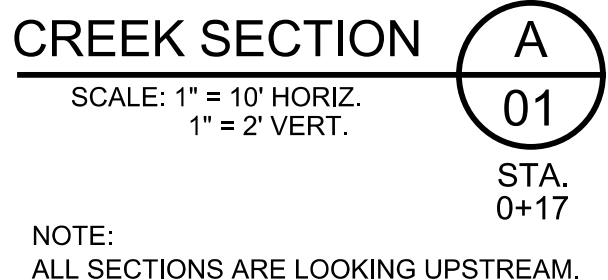
REV.	DATE	DESCRIPTION	REV.	DATE	DESCRIPTION
05-16-2025	J.A.R.	REVISED PER EOLE COMMENTS	02-24-2025	J.A.R.	ISSUED FOR EOLE PERMIT
01-16-2025	J.A.R.	ISSUED FOR PRELIMINARY REVIEW	10-31-2024	J.A.R.	ISSUED FOR CONCEPT REVIEW

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR MI 48106-8647
www.a2gov.org

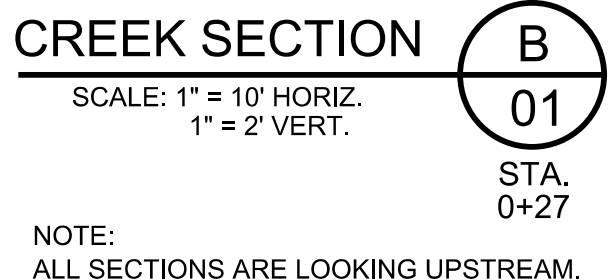








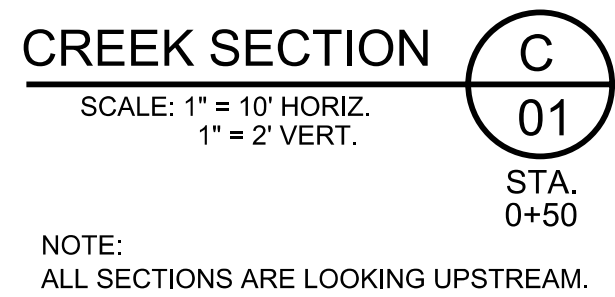
1. ALL PROPOSED BANKS AND BANKFULL SHELVES SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS.
2. EXISTING BANKS SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS UP TO THE EXISTING TOP OF BANK WHERE APPLICABLE.
3. REFER TO THE PROJECT SPECIFICATIONS FOR DETAILED SPECIES, PROPORTIONS AND APPLICATION RATES OF THE SEED MIXES.



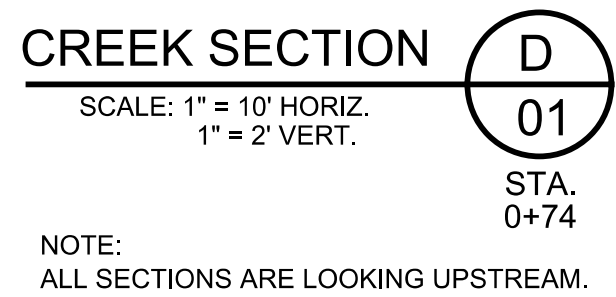
TOE WOOD NOTES:

1. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
2. EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.

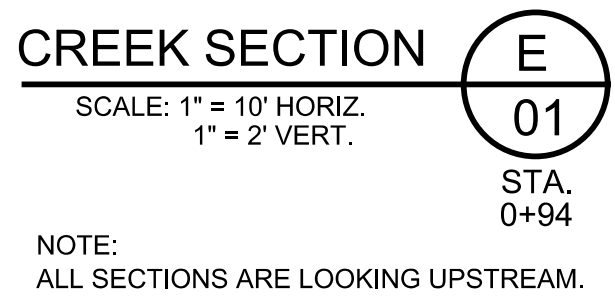
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING		LIBERTY STREET CREEK RESTORATION		CROSS SECTIONS	
SCALE	1" = 10' HORIZ. 1" = 2' VERT.				
DRAWING No.					
SHEET No. 07		 CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET P.O. BOX 8447 ANN ARBOR MI 48106-8447 734-794-6410 www.a2gov.org		REVISED PER ECLC COMMENTS ISSUED FOR ECLC PERMIT ISSUED FOR PRELIMINARY REVIEW ISSUED FOR CONCEPT REVIEW DESCRIPTION REV.	
				05-16-2025 02-24-2025 01-16-2025 10-31-2024 DATE	
				J.A.R. F.B. J.A.R. F.B. J.A.R. F.B. J.A.R. F.B. CHECKED DRAWN	
				Know what's below. Call before you dig.	



1. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
2. EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.



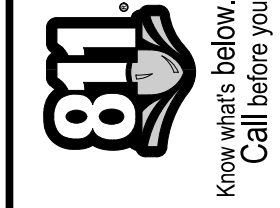
NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

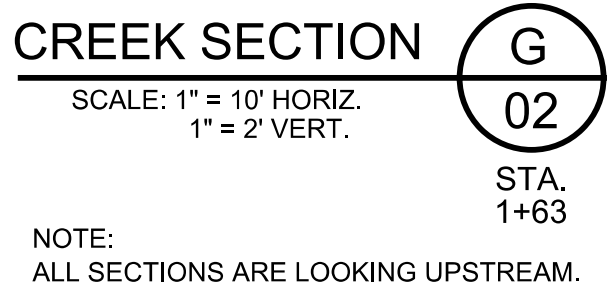
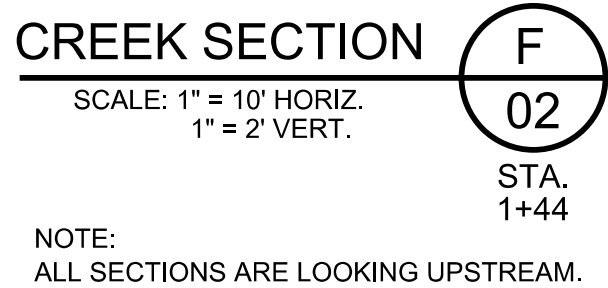


NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

**CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-9647
734-794-6410
www.a2gov.org**

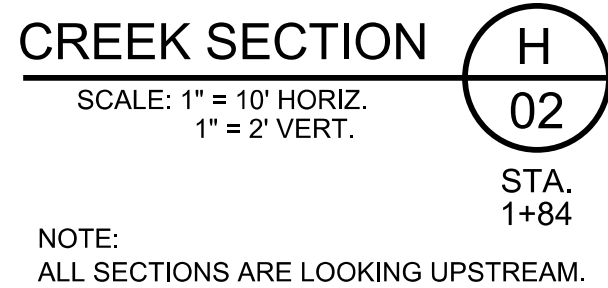
			J.A.R.	F.B.
REVISED PER EGLE COMMENTS			09-16-2025	
ISSUED FOR EGLE PERMIT			02-24-2025	J.A.R.
				F.B.
ISSUED FOR PRELIMINARY REVIEW			01-16-2025	J.A.R.
				F.B.
ISSUED FOR CONCEPT REVIEW			10-31-2024	J.A.R.
				F.B.
DESCRIPTION			DATE	CHECKED
REFV			DRAWN	



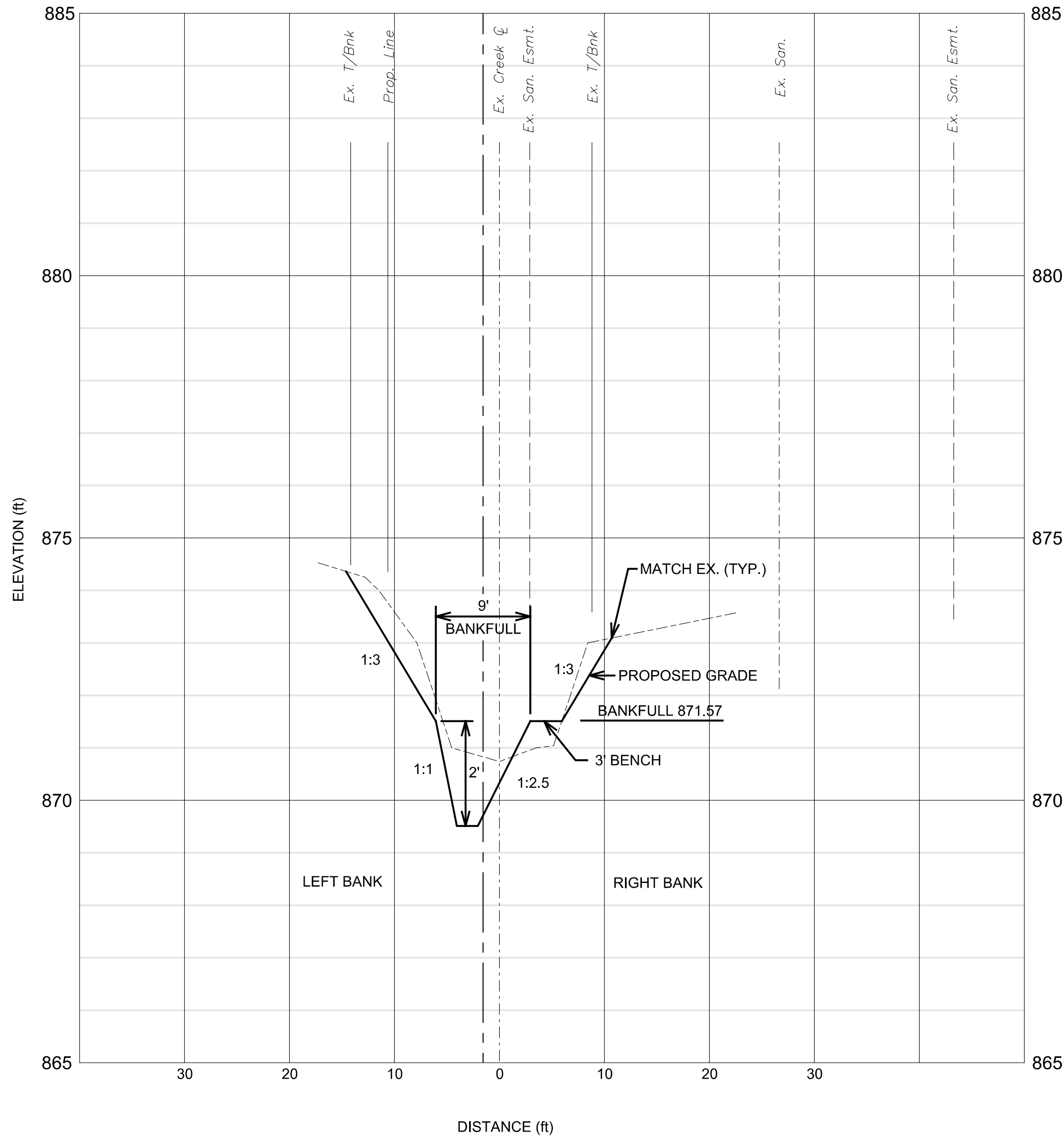


SEEDING AND STABILIZATION NOTES:

1. ALL PROPOSED BANKS AND BANKFULL SHELVES SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS.
2. EXISTING BANKS SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS UP TO THE EXISTING TOP OF BANK WHERE APPLICABLE.
3. REFER TO THE PROJECT SPECIFICATIONS FOR DETAILED SPECIES, PROPORTIONS AND APPLICATION RATES OF THE SEED MIXES.



1. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
2. EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.



CREEK SECTION I
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 2+03
NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

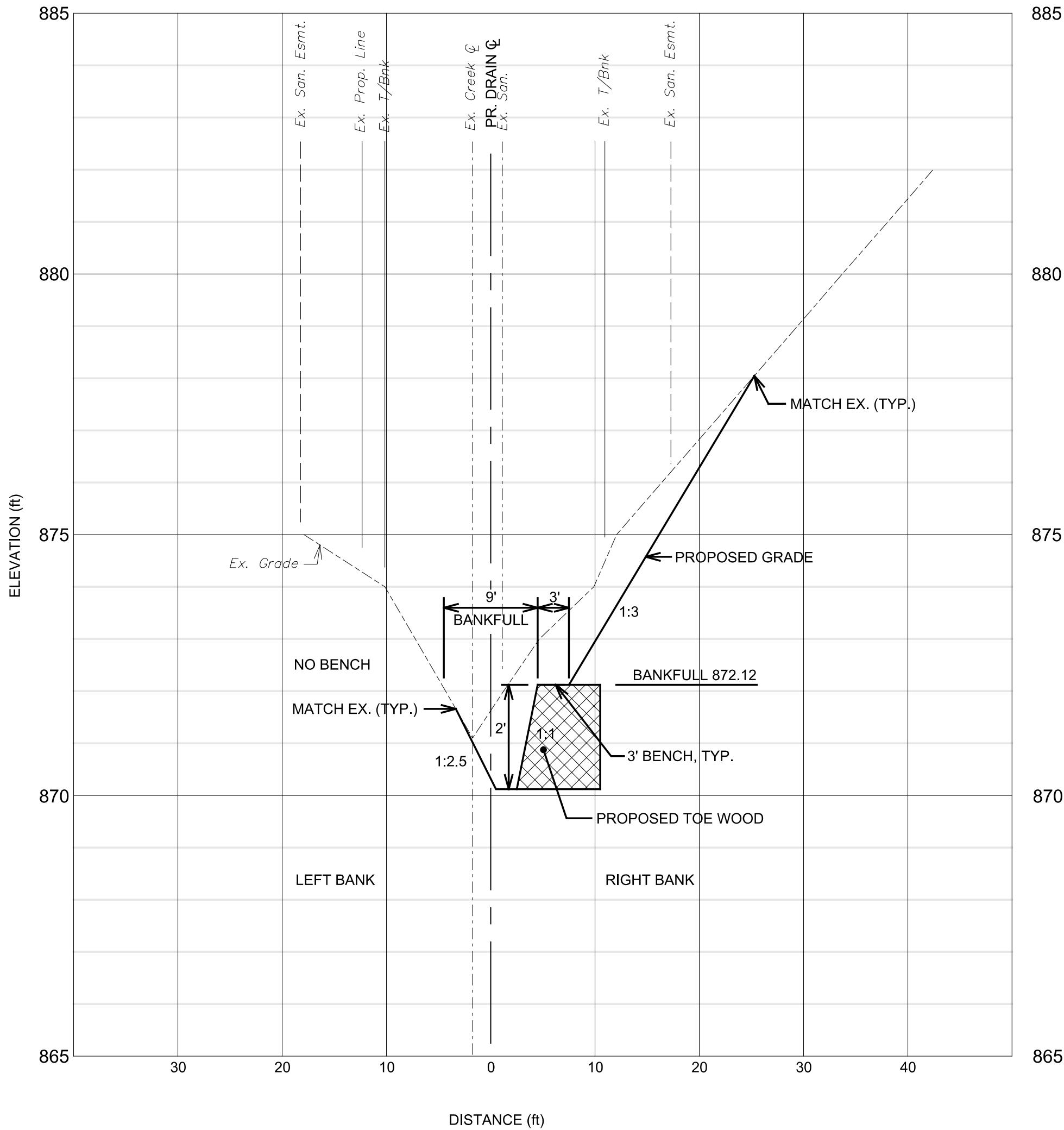
NOTE:
ORDINARY HIGH WATER MARK
OHWM = 872.00

SEEDING AND STABILIZATION NOTES:

1. ALL PROPOSED BANKS AND BANKFULL SHELVES SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS.
2. EXISTING BANKS SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS UP TO THE EXISTING TOP OF BANK WHERE APPLICABLE.
3. REFER TO THE PROJECT SPECIFICATIONS FOR DETAILED SPECIES, PROPORTIONS AND APPLICATION RATES OF THE SEED MIXES.

TOE WOOD NOTES:

1. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
2. EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.



CREEK SECTION J
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 2+35
NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

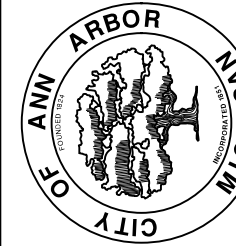
NOTE:
ORDINARY HIGH WATER MARK
OHWM = 875.00



Know what's below.
Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR CONCEPT REVIEW	10-31-2024	J.A.R.	F.B.
	ISSUED FOR PRELIMINARY REVIEW	01-16-2025	J.A.R.	F.B.
	ISSUED FOR ECL PERMIT	02-24-2025	J.A.R.	F.B.
	REVISED PER ECL COMMENTS	05-16-2025	J.A.R.	F.B.

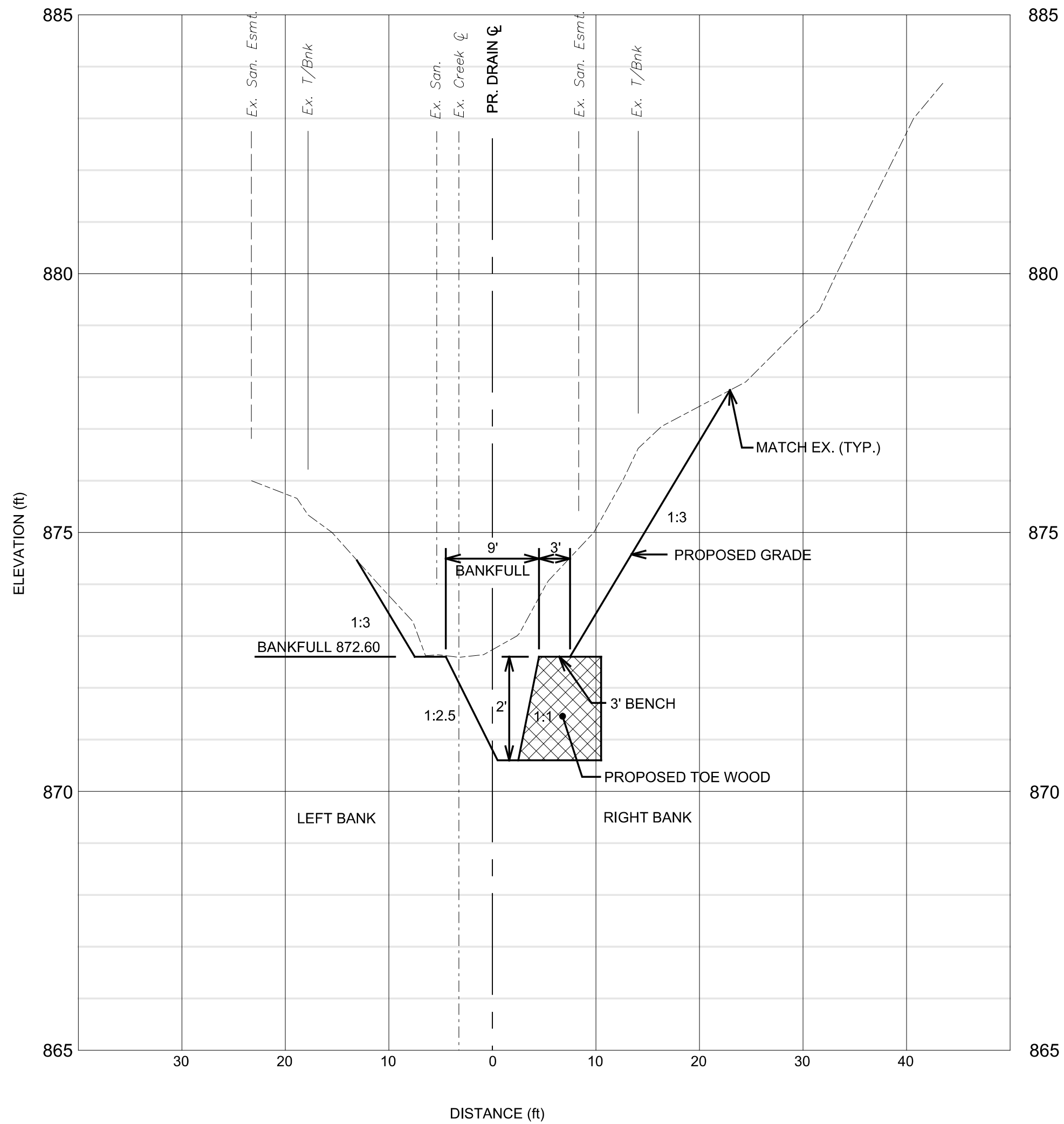
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
P.O. BOX 8647
ANN ARBOR, MI 48106-8647
www.a2gov.org



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
LIBERTY STREET CREEK RESTORATION
CROSS SECTIONS

SCALE	DRAWING No.
1" = 10' HORIZ. 1" = 2' VERT.	

SHEET No. 10



CREEK SECTION **K**
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 2+03

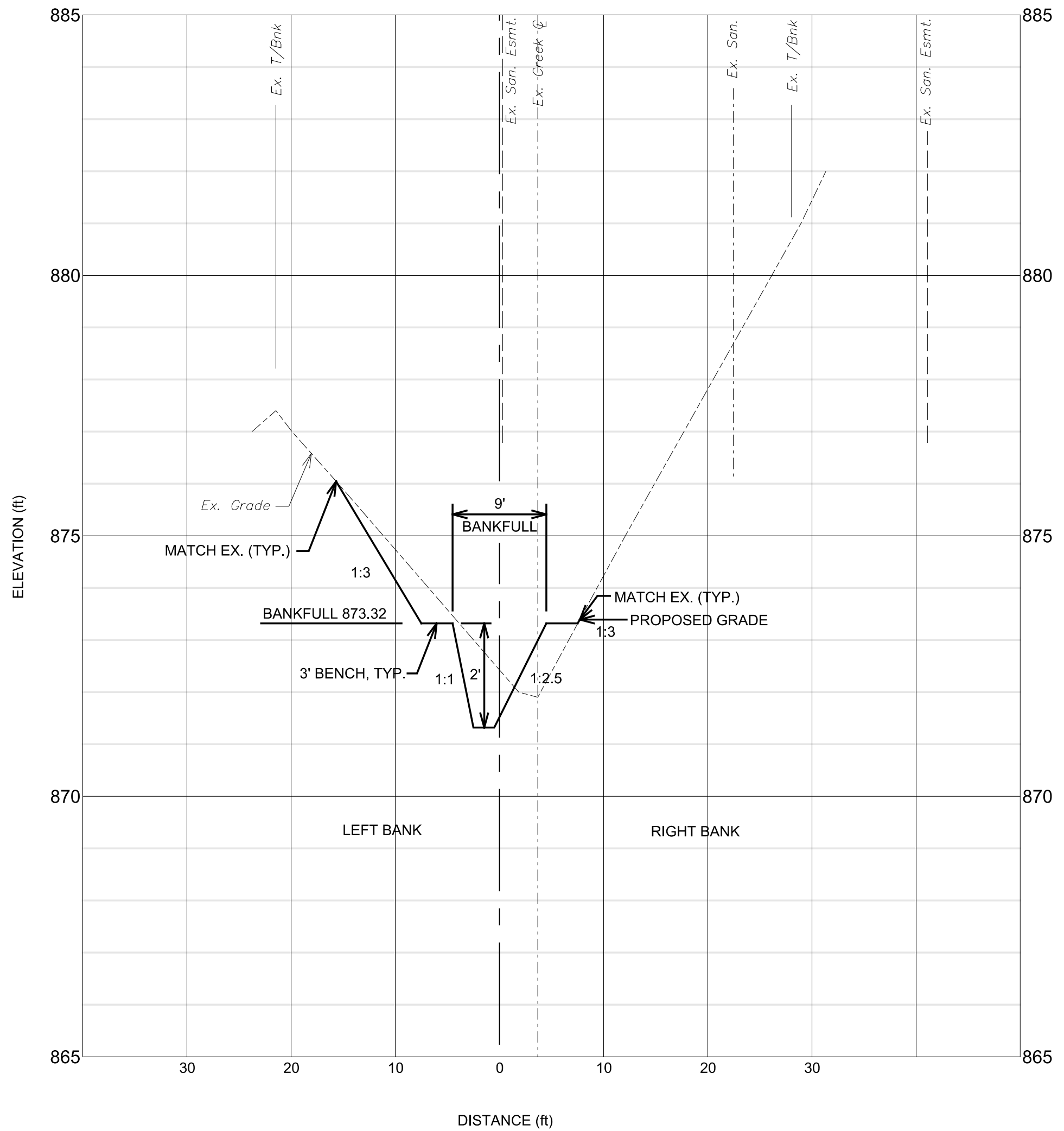
NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

TOE WOOD NOTES:

- TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
- EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.

SEEDING AND STABILIZATION NOTES:

- ALL PROPOSED BANKS AND BANKFULL SHELVES SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS.
- EXISTING BANKS SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS UP TO THE EXISTING TOP OF BANK WHERE APPLICABLE.
- REFER TO THE PROJECT SPECIFICATIONS FOR DETAILED SPECIES, PROPORTIONS AND APPLICATION RATES OF THE SEED MIXES.



CREEK SECTION **L**
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 3+05

NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.



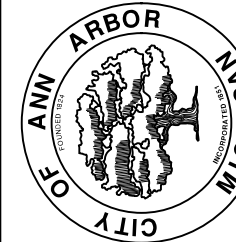
Know what's below.
Call before you dig.

REVISED PER ECL E COMMENTS	05-16-2025	J.A.R.	F.B.
ISSUED FOR ECL PERMIT	02-24-2025	J.A.R.	F.B.
ISSUED FOR PRELIMINARY REVIEW	01-16-2025	J.A.R.	F.B.
ISSUED FOR CONCEPT REVIEW	10-31-2024	J.A.R.	F.B.

REV.	DATE	DRAWN	CHECKED
------	------	-------	---------

REV.	DATE	DRAWN	CHECKED
------	------	-------	---------

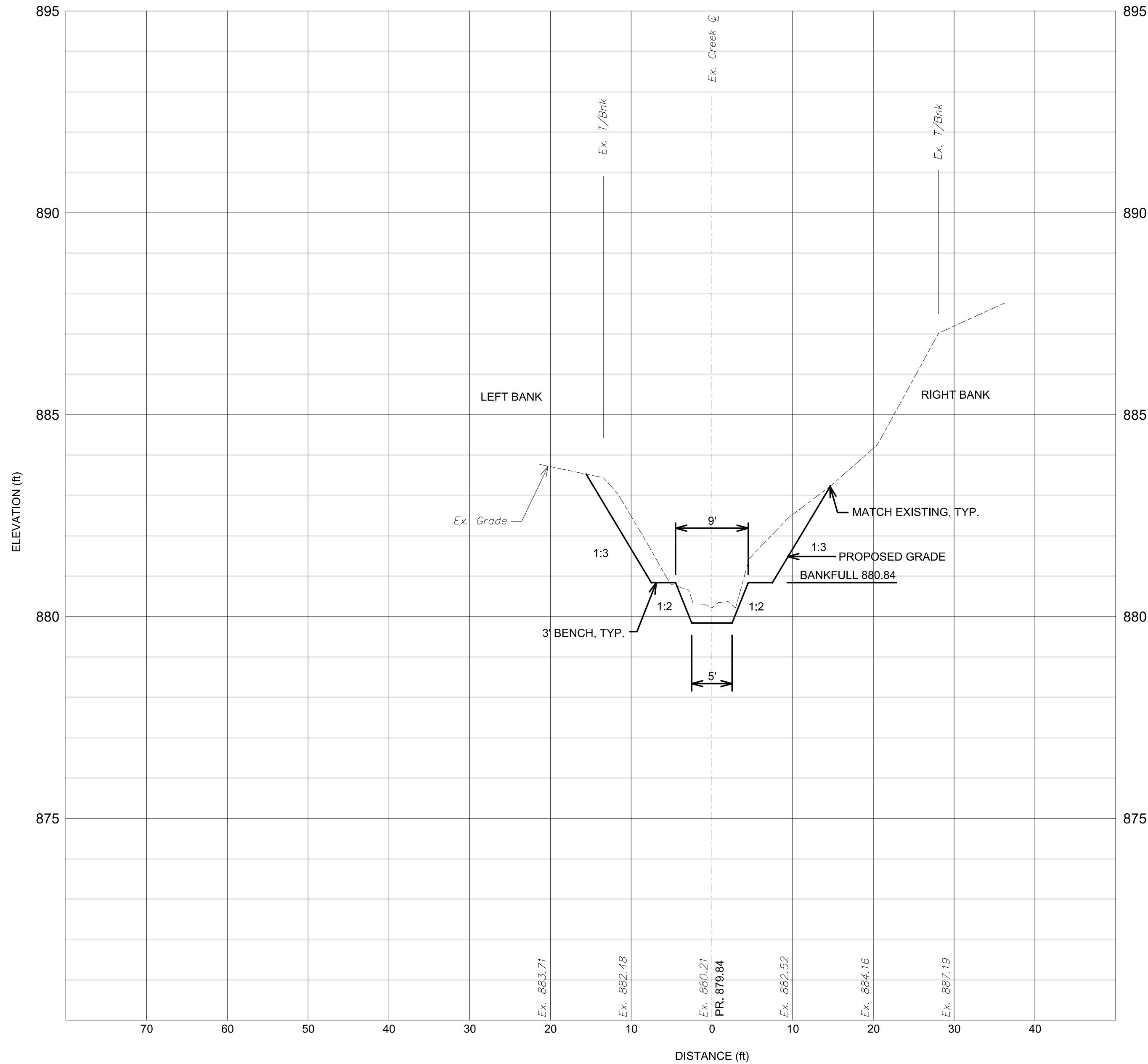
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-6647
www.a2gov.org



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
LIBERTY STREET CREEK RESTORATION
CROSS SECTIONS

SCALE	1" = 10' HORIZ. 1" = 2' VERT.
DRAWING No.	

SHEET No.	11
-----------	----

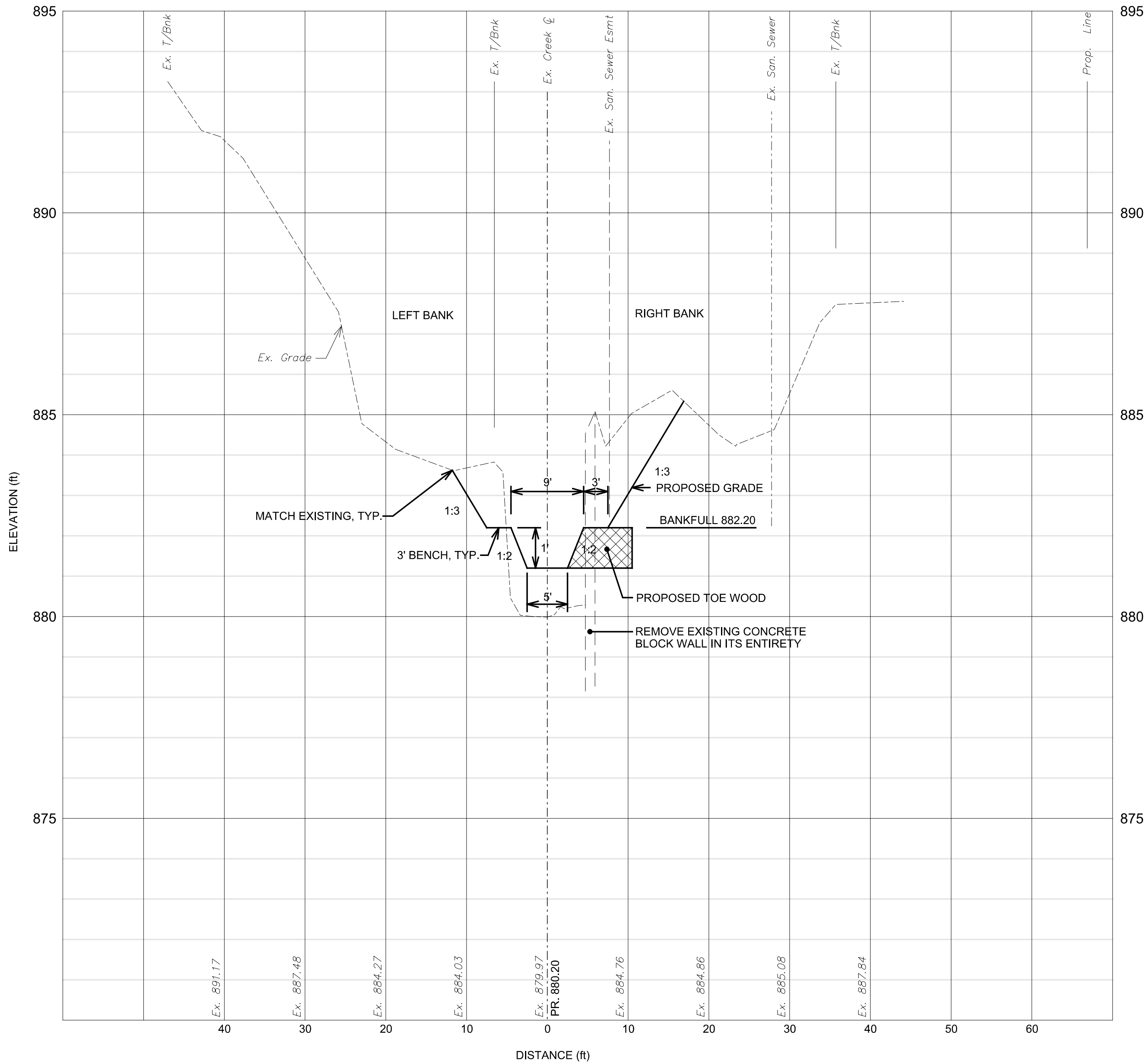


CREEK SECTION M 04
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 6+82

NOTE:
ALL CREEK SECTIONS ARE LOOKING UPSTREAM

SEEDING AND STABILIZATION NOTES:

1. ALL PROPOSED BANKS AND BANKFULL SHELVES SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS.
2. EXISTING BANKS SHALL BE SEEDED WITH NATIVE SEED MIX AND STABILIZED WITH TURF REINFORCEMENT BLANKETS UP TO THE EXISTING TOP OF BANK WHERE APPLICABLE.
3. REFER TO THE PROJECT SPECIFICATIONS FOR DETAILED SPECIES, PROPORTIONS AND APPLICATION RATES OF THE SEED MIXES.



CREEK SECTION N 04
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.
STA. 7+15

NOTE:
ALL CREEK SECTIONS ARE LOOKING UPSTREAM

TOE WOOD NOTES:

1. TOE WOOD SHALL BE ALIGNED WITH THE FACE OF THE STREAMBANK.
2. EMBED TOEWOOD INTO THE BANK A MIN. OF 3 FEET BEYOND BENCH WHERE PROPOSED.

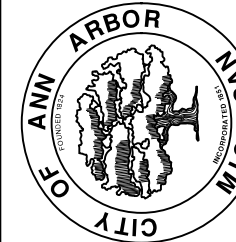


Know what's below.
Call before you dig.

REV.	DATE	DRAWN	CHECKED
05-16-2025	J.A.R.	F.B.	
02-24-2025	J.A.R.	F.B.	
01-16-2025	J.A.R.	F.B.	
10-31-2024	J.A.R.	F.B.	

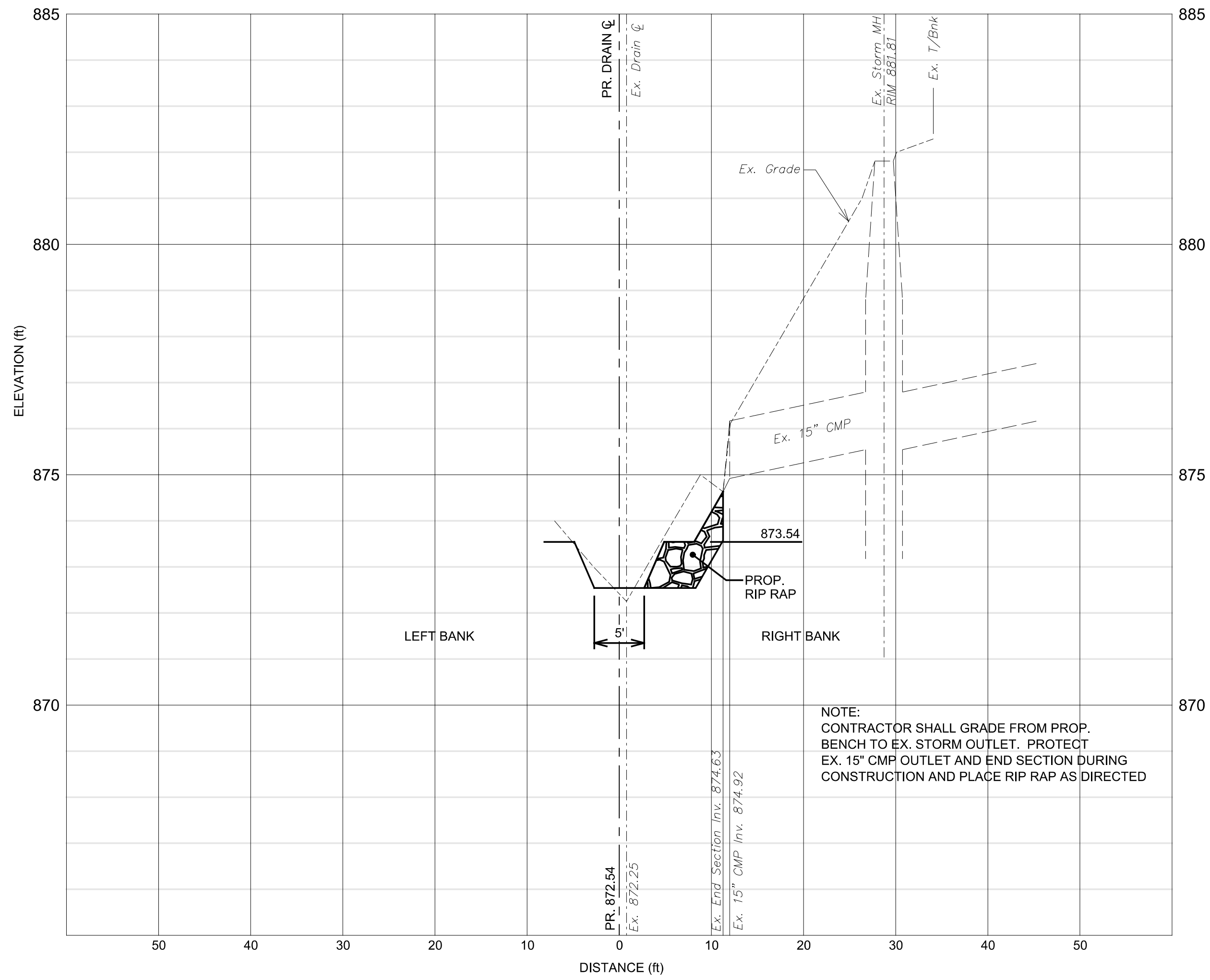
REV.	DESCRIPTION
	ISSUED FOR CONCEPT REVIEW
	ISSUED FOR PRELIMINARY REVIEW
	ISSUED FOR ECL PERMIT
	REVISED PER ECL COMMENTS

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
www.a2gov.org



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
LIBERTY STREET CREEK RESTORATION
CROSS SECTIONS

SCALE 1" = 10' HORIZ. 1" = 2' VERT.	DRAWING No.
---	-------------

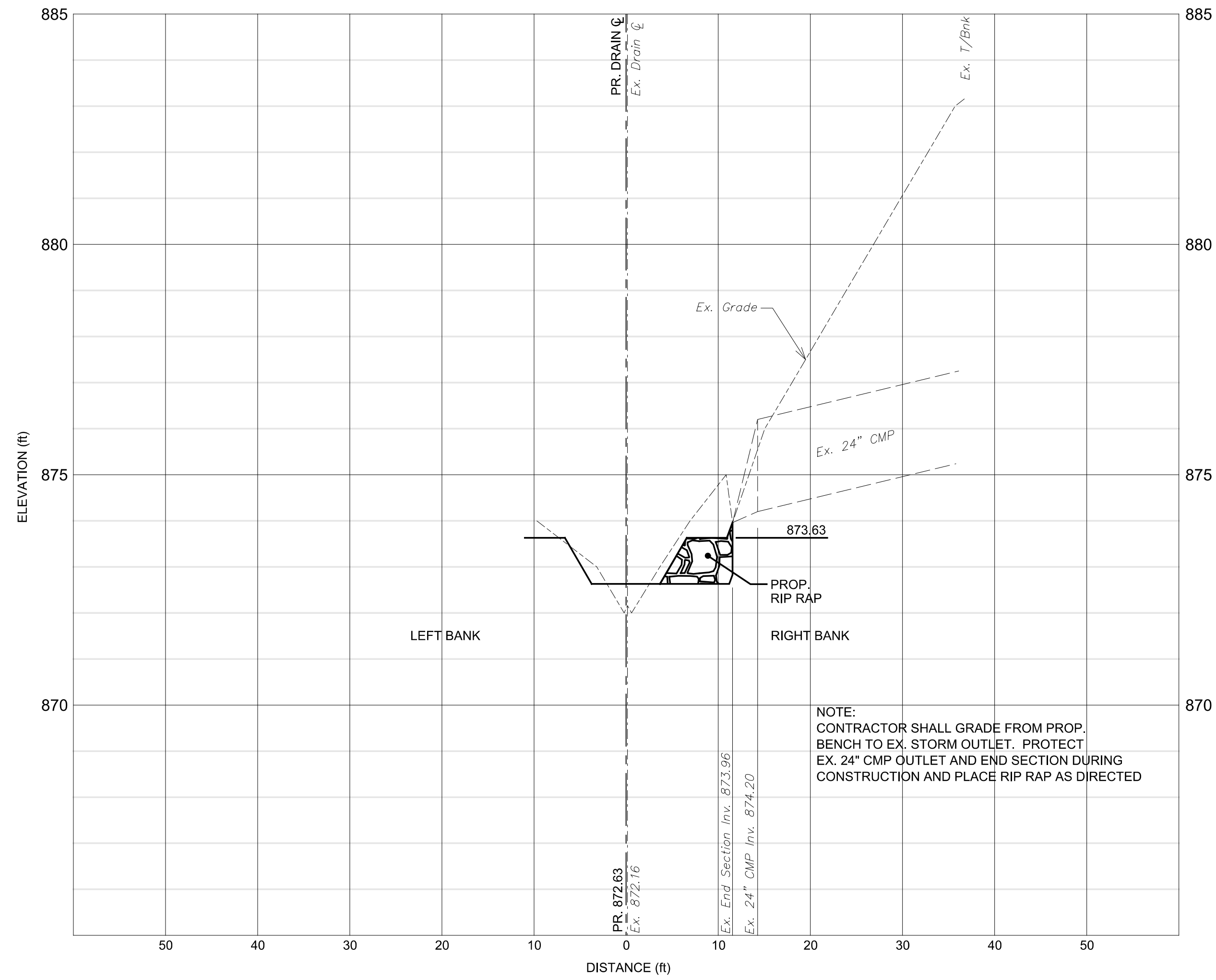


15" CMP CULVERT SECTION

SCALE: 1" = 10' HORIZ.
1" = 2' VERT.

NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

NOTE:
ORDINARY HIGH WATER MARK
OHWM = 875.00

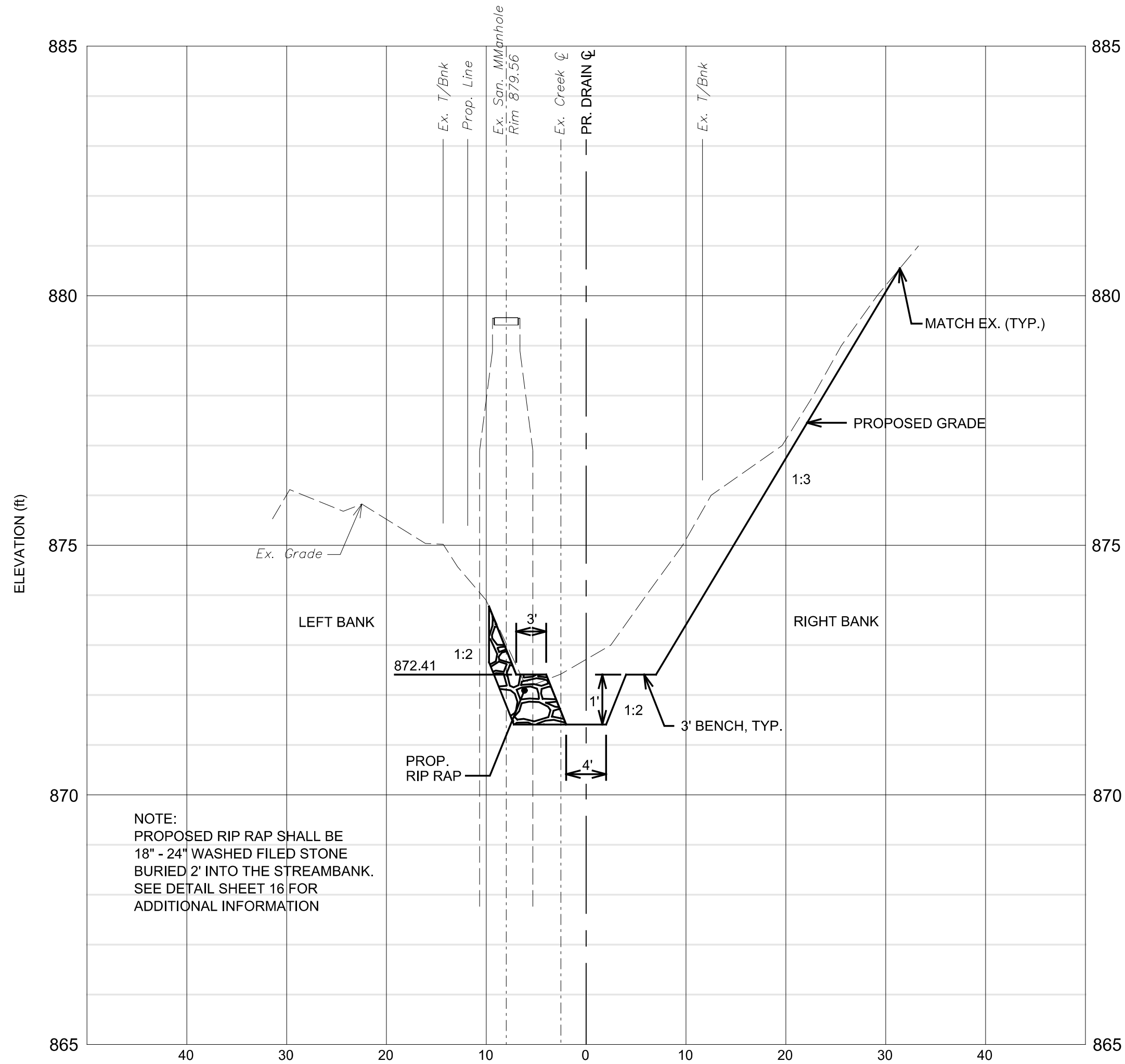


24" CMP CULVERT SECTION

SCALE: 1" = 10' HORIZ.
1" = 2' VERT.

NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR PRELIMINARY REVIEW	01-16-2025	J.A.R.	F.B.
	ISSUED FOR EGE PERMIT	02-24-2025	J.A.R.	F.B.
	REVISED PER EGE COMMENTS	05-16-2025	J.A.R.	F.B.



SECTION AT EX. SANITARY MANHOLE

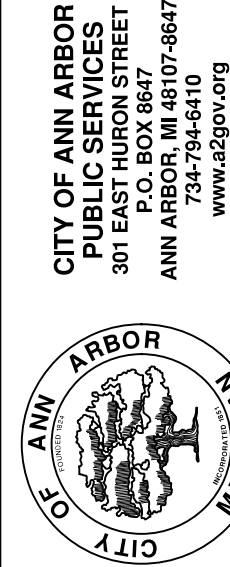
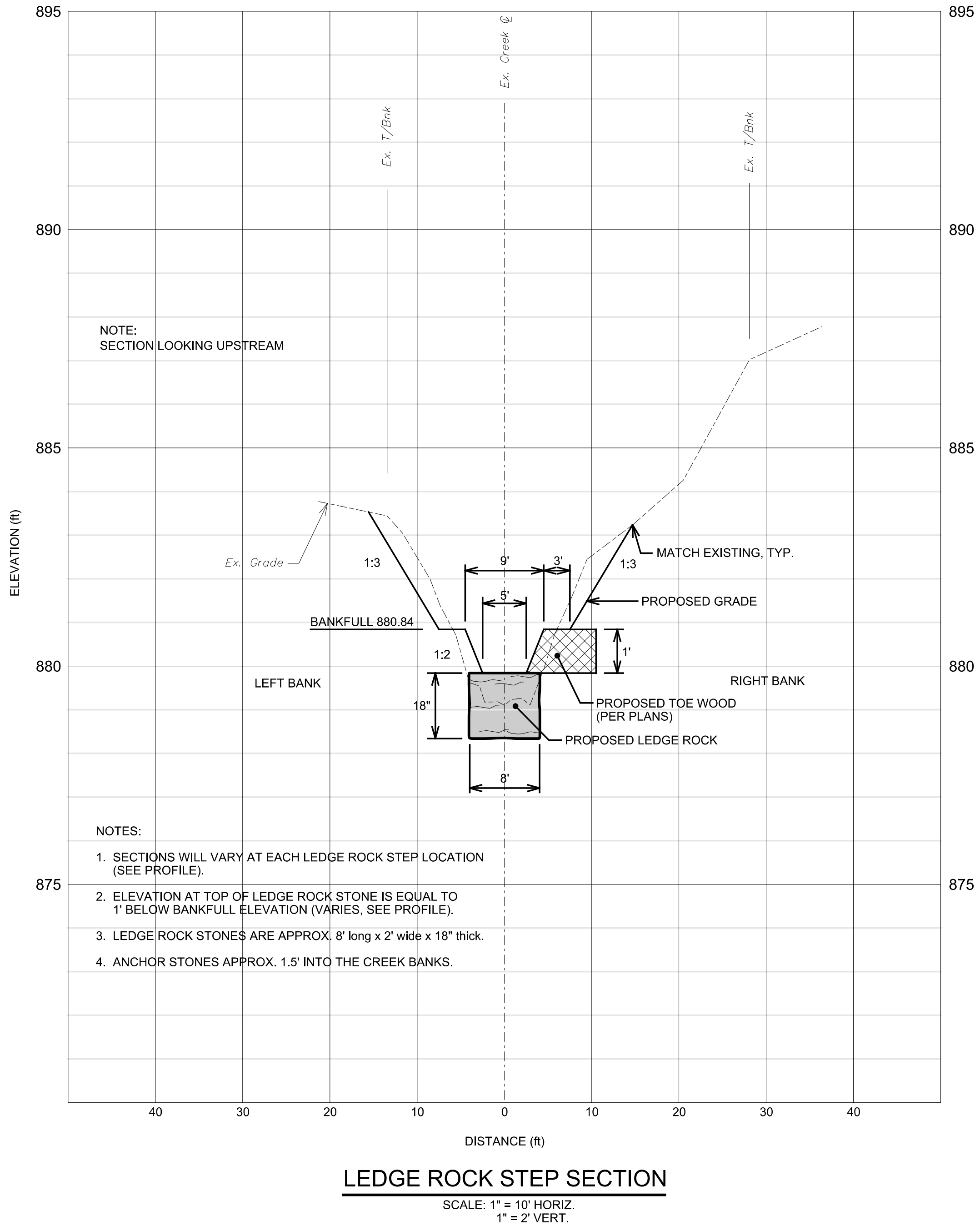
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.

NOTE:
ALL SECTIONS ARE LOOKING UPSTREAM.

NOTE:
ORDINARY HIGH WATER MARK
OHWM = 875.00



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	REVISED PER EGLE COMMENTS	05-16-2025	J.A.R.	F.B.
	ISSUED FOR EGLE PERMIT	02-24-2025	J.A.R.	F.B.
	ISSUED FOR PRELIMINARY REVIEW	01-16-2025	J.A.R.	F.B.



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

LIBERTY STREET CREEK RESTORATION

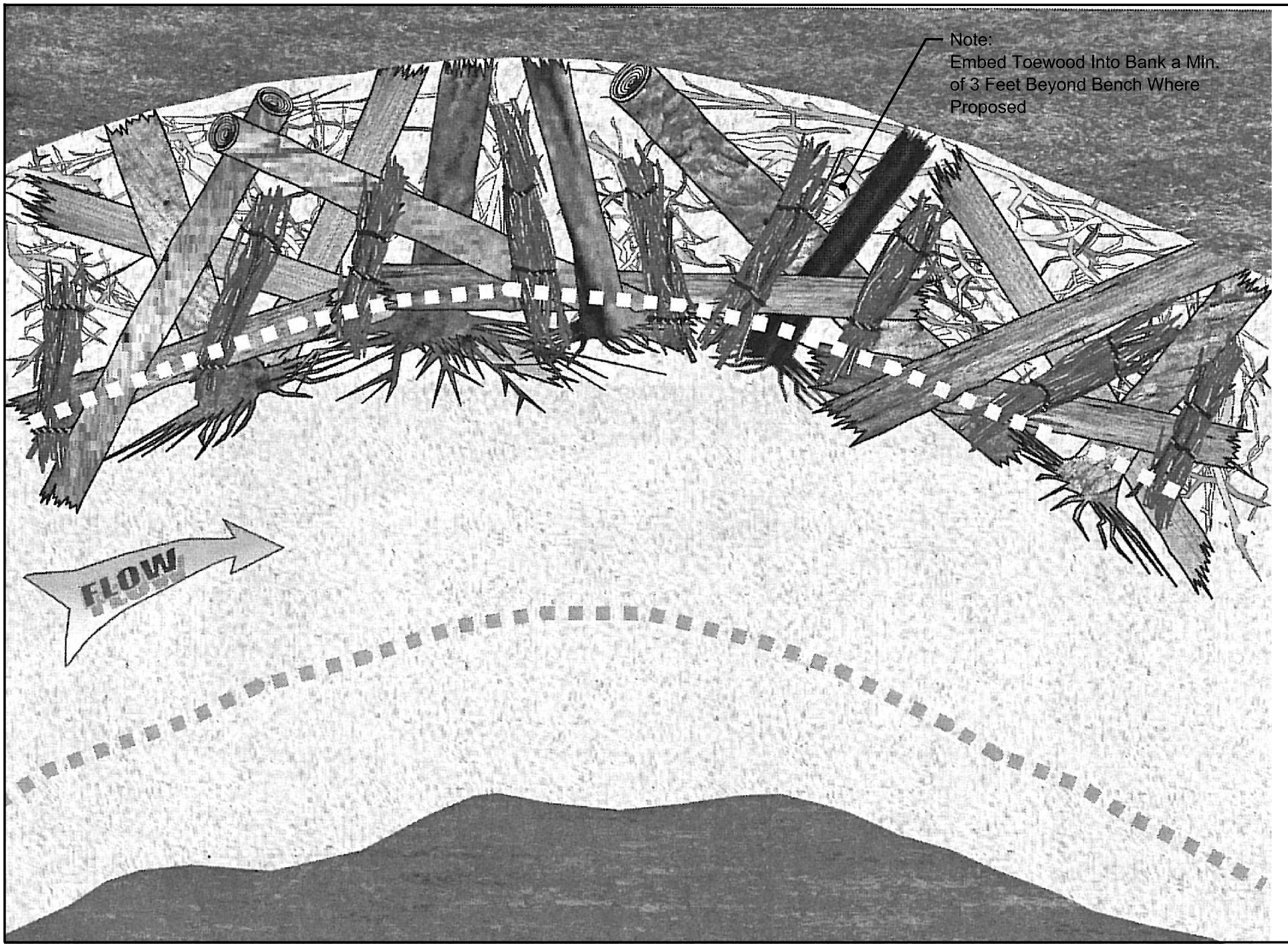
CROSS SECTIONS

SCALE 1" = 10' HORIZ. 1" = 2' VERT.
DRAWING No.

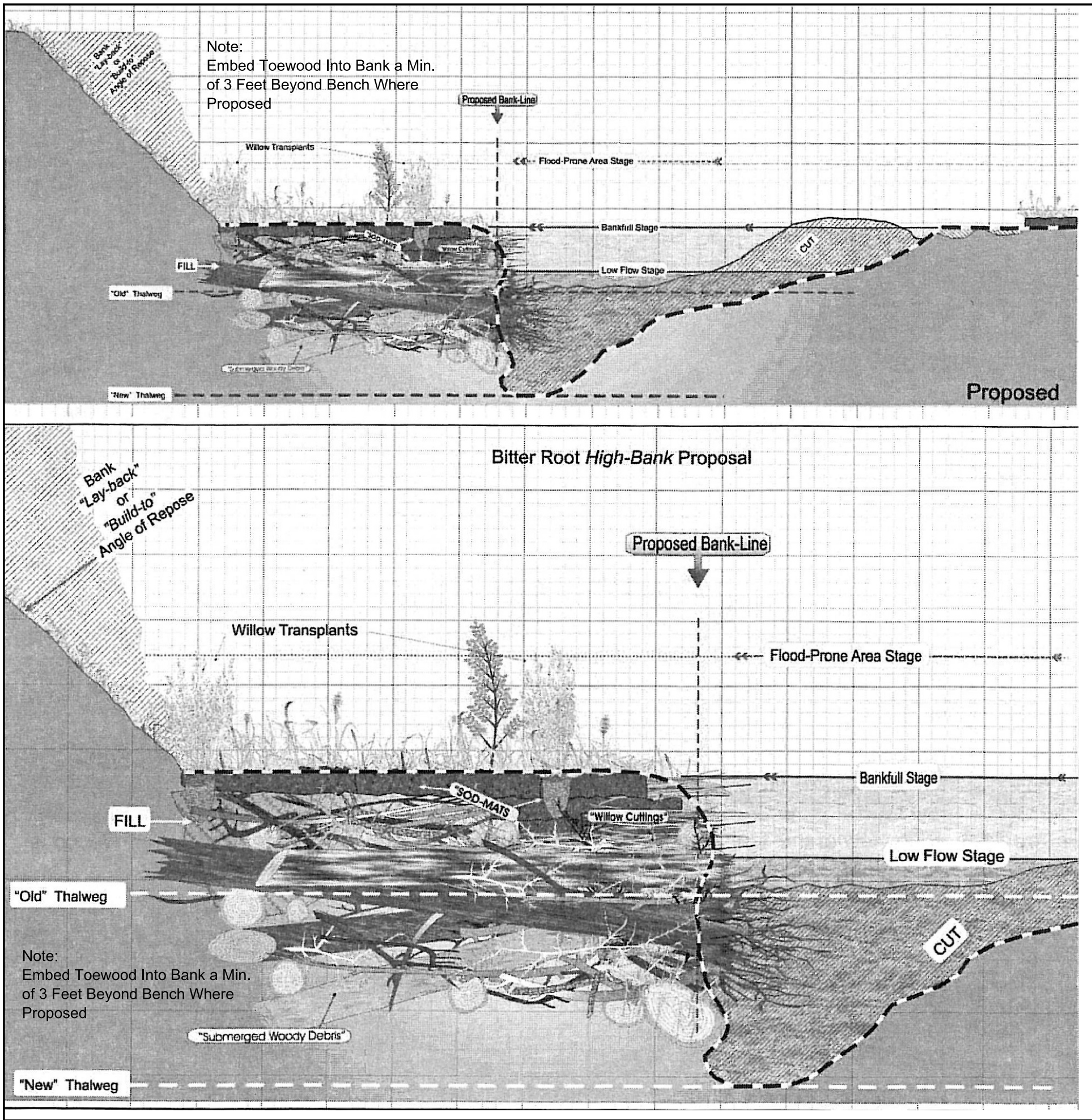
SHEET No.
15

REV.	DATE	DESCRIPTION	REV.
		ISSUED FOR CONCEPT REVIEW	
	10-31-2024	J.A.R.	F.B.
		DRAWN	CHECKED
		ISSUED FOR PRELIMINARY REVIEW	
	01-16-2025	J.A.R.	F.B.
		ISSUED FOR ECL PERMIT	
	02-24-2025	J.A.R.	F.B.
	05-16-2025	J.A.R.	F.B.
		REVISED PER ECL COMMENTS	





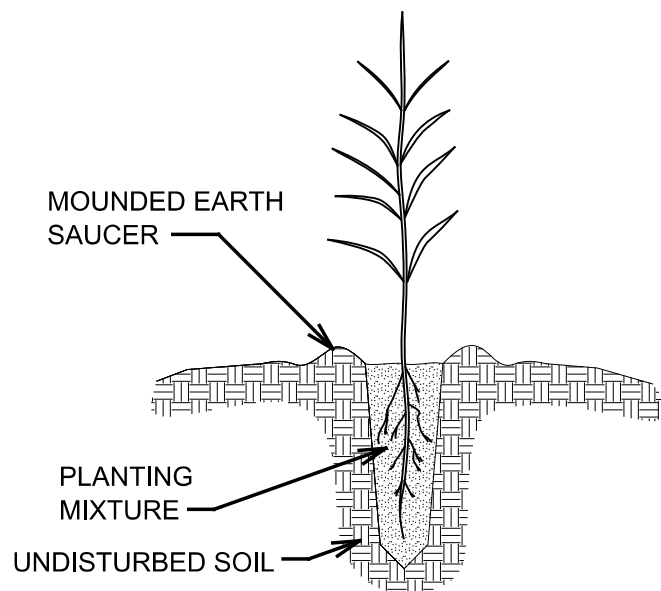
TOE WOOD PLAN
NO SCALE



TOE WOOD SECTION
NO SCALE

TOE WOOD GENERAL NOTES:

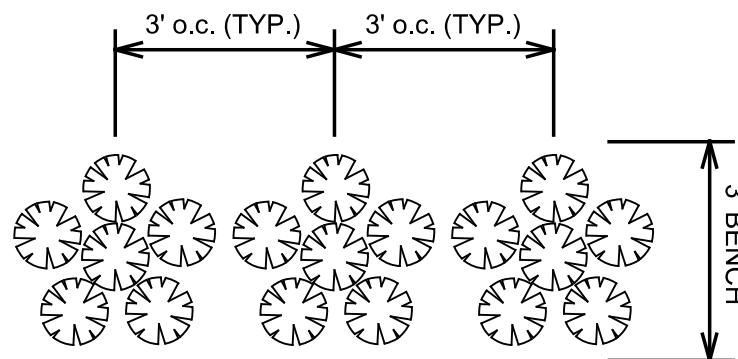
1. ALL WOODY MATERIAL REQUIRED TO CONSTRUCT THE TOE WOOD STRUCTURE SHALL BE TAKEN FROM EXISTING ON SITE MATERIALS THAT HAVE BEEN DESIGNATED FOR REMOVAL, i.e. TREES, LOGS, BRUSH, WOODY DEBRIS, ETC. ANY OUTSIDE MATERIALS MUST FIRST BE APPROVED BY THE OWNER AND / OR THE PROJECT ENGINEER.
2. COARSE WOODY DEBRIS SHALL CONSIST OF LOGS, ROOTWADS AND LARGE BRANCHES.
3. TOE WOOD SHALL BE CONSTRUCTED WITH THE LARGEST MATERIAL PLACED FIRST WITH NO LOGS BEING PLACED PARALLEL TO THE FLOW OF THE CREEK. LOGS SHALL BE PLACED IN A CROSSING PATTERN SUCH THAT EACH LOG IS ANCHORED BY ANOTHER LOG.
4. SMALL / FINE WOODY DEBRIS SHALL CONSIST OF MEDIUM TO SMALL LIMBS, BRANCHES, BUSHES AND/OR LOGS.
5. SMALL / FINE WOODY DEBRIS SHALL BE PLACED ABOVE THE COARSE WOODY DEBRIS WITH THE LARGEST MATERIAL BEING PLACED FIRST AND THE SMALLEST MATERIAL PLACED LAST.
6. ALL WOODY DEBRIS SHALL BE COMPACTED WITH THE EXCAVATOR BUCKET IN ORDER TO REDUCE THE PRESENCE OF VOIDS IN THE SMALL/FINE WOODY DEBRIS LAYER.
7. AT THE UPSTREAM AND DOWNSTREAM LIMITS OF THE TOE WOOD STRUCTURE, TRANSITION THE WOODY DEBRIS BY BURYING THEM SECURELY INTO THE BANK.
8. THE SOIL BACKFILL AND TOPSOIL USED FOR LAYERING WITH THE LIVE BRANCHES SHALL BE FREE OF ANY LARGE ROOTS OR WOODY DEBRIS AND SHALL GENERALLY BE FREE FROM ANY GRAVEL OR COBBLE MATERIAL.
9. SOIL BACKFILL SHALL BE COMPACTED IN SUCH A MANNER THAT FUTURE SETTLEMENT OF THE MATERIAL IS KEPT TO A MINIMUM, YET NOT SUCH THAT THE UNDERLAYING BRUSH IS NOT DISPLACED OR DAMAGED.
10. CONTINUE PLACING SOIL BACKFILL, LIVE BRANCHES AND SMALL / FINE WOODY DEBRIS AS NECESSARY UNTIL THE DESIRED HEIGHT IS REACHED.
11. SOD MATS MAY BE USED FOR THE FINAL LAYER OF THE TOE WOOD STRUCTURE.
12. INSTALL ADDITIONAL EROSION CONTROL BLANKET AS NEEDED ALONG THE TOP OF BANK.
13. INSTALL PLANT PLUGS AS DIRECTED ON TOP OF THE TOE WOOD STRUCTURE.
14. RESTORE DISTURBED AREAS WITH TOPSOIL.
15. THE UNIT PRICE BID FOR TOE WOOD STRUCTURES DOES NOT INCLUDE WOODY MATERIAL. THE OWNER WILL PROVIDE ALL WOODY MATERIAL FOR THE CONSTRUCTION OF THE TOE WOOD STRUCTURES.
16. SEE PLAN & PROFILE SHEETS FOR TOE WOOD QUANTITIES.



PLANT PLUG NOTES:

1. PLUGS TO BE PLANTED 3 ft ON CENTER (o.c.) ALONG THE TOP OF ALL BANKFULL BENCHES INCLUDING TOE WOOD STRUCTURES THAT HAVE A BENCH.
2. NOT ALL TOE WOOD STRUCTURES WILL HAVE A BENCH FOR PLANTINGS.
3. PLANT PLUGS IN CLUSTERS OF 5 - 9 PLANTS OR AS DIRECTED BY THE PROJECT ENGINEER.
4. PLANT PLUG CLUSTERS SHALL CONSIST OF ONE SPECIES PER CLUSTER.
5. SEE THE SPECIAL PROVISION FOR NATIVE PLANTINGS IN THE PROJECT SPECIFICATIONS.

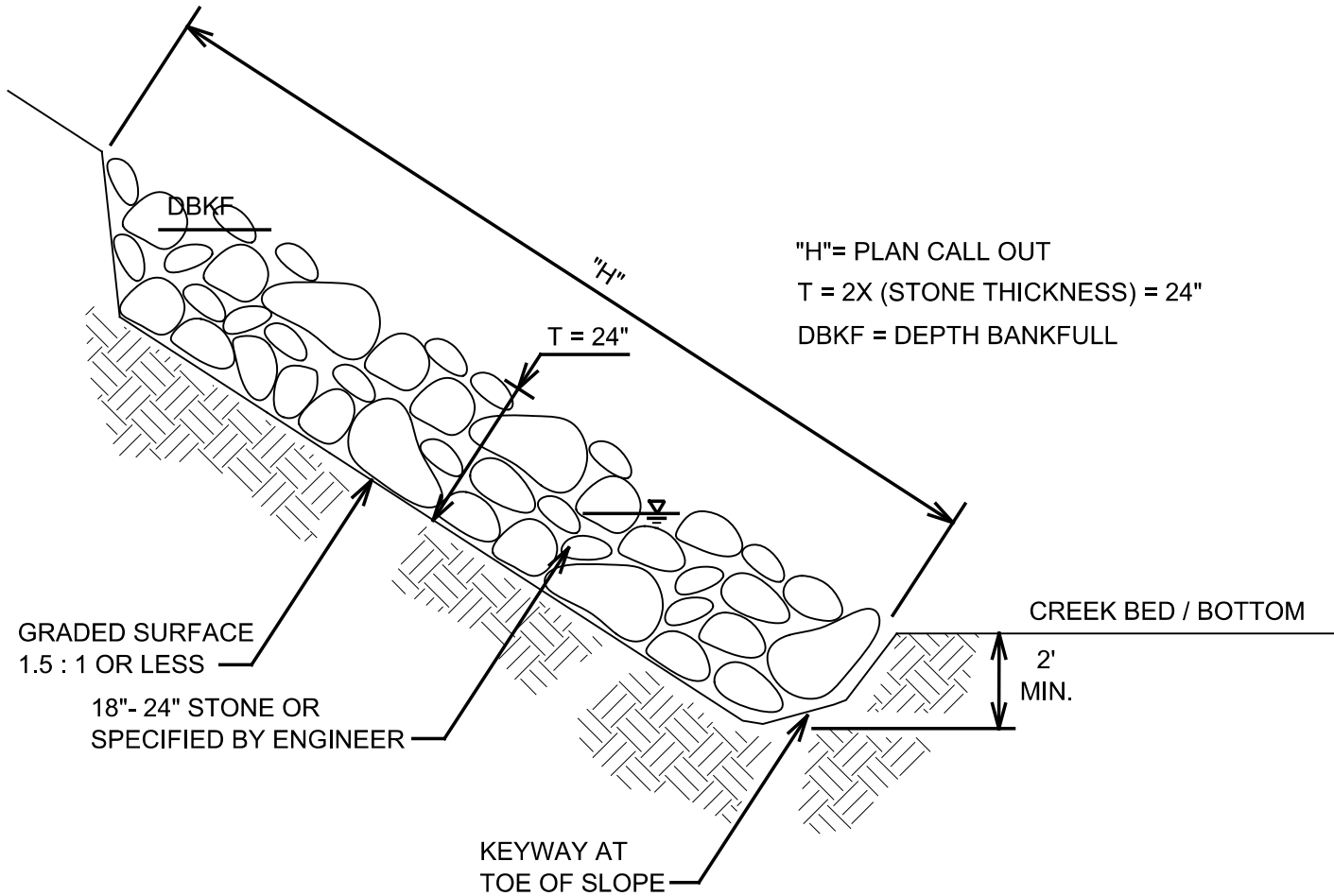
PLANT PLUG
NO SCALE



PLANT PLUG
PLANTING PATTERN
NO SCALE

NATIVE SEED MIX AND PLANTINGS LIST

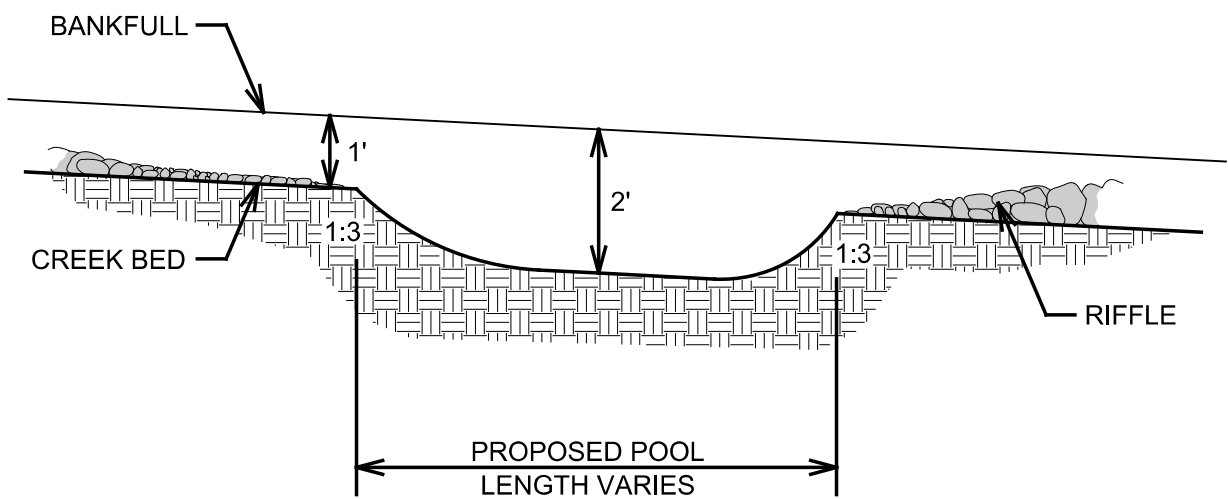
Big Bluestem	Frost Aster
Little Bluestem	Heart-leaved Blue Wood Aster
Side Oats Grama	Turtlehead
Fox Sedge	Canada Thimbleweed
Bebb's Oval Sedge	Marsh Marigold
Crested Sedge	Blue Flag Iris
Palm Sedge	Cardinal Lobelia
Lance-fruited Oval Sedge	Great Blue Lobelia
Great Bulrush	Wild Columbine
Great Spikerush	Pickeral Weed
Dudley's Rush	Purple Coneflower
Canada Wild Rye	Black-eyed Susan
Silky Wild Rye	Common Arrowhead
Virginia Wild Rye	Golden Ragwort
Fowl Manna Grass	
Rice Cut Grass	
Prairie Switch Grass	
Indian Grass	
Prairie Cord Grass	
Common Water Plantain	



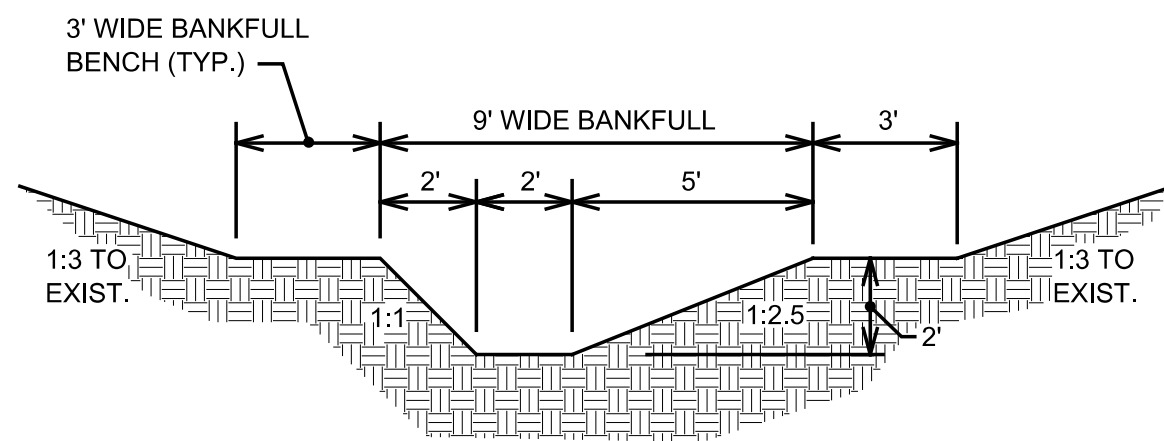
RIP RAP BANK STABILIZATION NOTES:

1. EXCAVATE A 2 FT. DEEP AND 1.5 FT. WIDE TRENCH ALONG THE TOE (BASE) OF THE CREEK BANK. INCLUDED IN UNIT PRICE. EXCESS MATERIAL TO BE USED ON SITE AS CALLED FOR OR DISPOSED OF OFF SITE.
2. PLACE A (MIN. 2 FT. HIGH, 2 - 2.5 FT. THICK) STONE REVETMENT ALONG THE BASE OF THE CREEK BANK.
3. USE 18" - 24" WASHED FIELD STONE FOR THE RIP RAP UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
4. FILL IN VOIDS WITH SMALLER STONES 4" - 12".
5. INSTALL TO HEIGHT CALLED FOR ON PLANS OR AS DIRECTED BY PROJECT ENGINEER. HEIGHT TO BE MEASURED ALONG SLOPE FROM CUT IN TRENCH.

RIP RAP BANK STABILIZATION
NOT TO SCALE



POOL PROFILE
NO SCALE



POOL CROSS SECTION
NO SCALE

NOTE:
POOLS SHALL BE CONSTRUCTED AS DIRECTED ACROSS THE WIDTH OF THE CREEK UNLESS OTHERWISE SPECIFIED BY THE PROJECT ENGINEER

POOL DETAILS
NO SCALE

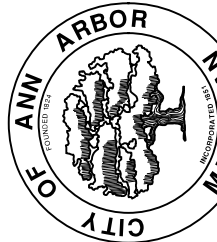


Know what's below.
Call before you dig.

F.B.	J.A.R.	05-16-2025
F.B.	J.A.R.	02-24-2025
F.B.	J.A.R.	01-16-2025
F.B.	J.A.R.	10-31-2024
CHECKED	DRAWN	DATE

REVISED PER ECLF COMMENTS	ISSUED FOR ECLF PERMIT	ISSUED FOR PRELIMINARY REVIEW	ISSUED FOR CONCEPT REVIEW	REV.

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR MI 48106
www.a2gov.org



CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

LIBERTY STREET CREEK RESTORATION

PROJECT DETAILS

SCALE NOT TO SCALE	DRAWING No.
SHEET No.	16

GENERAL NOTES:

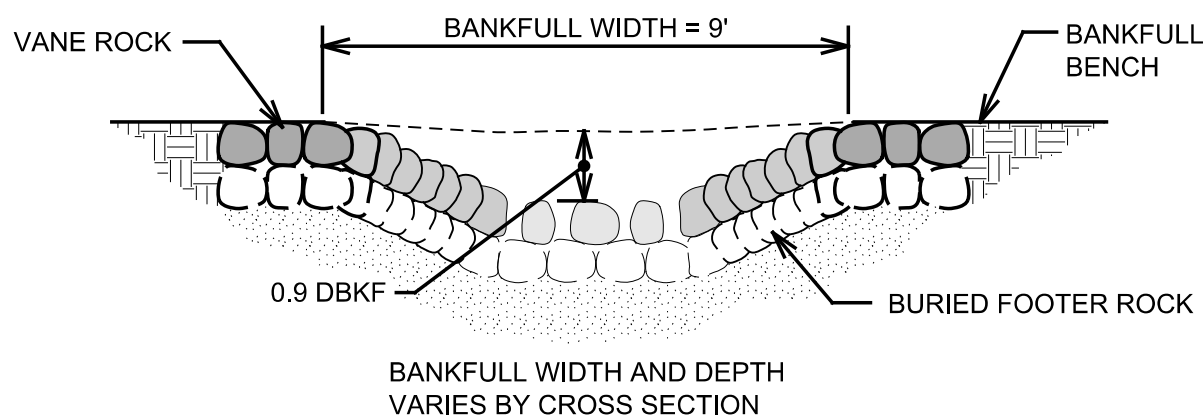
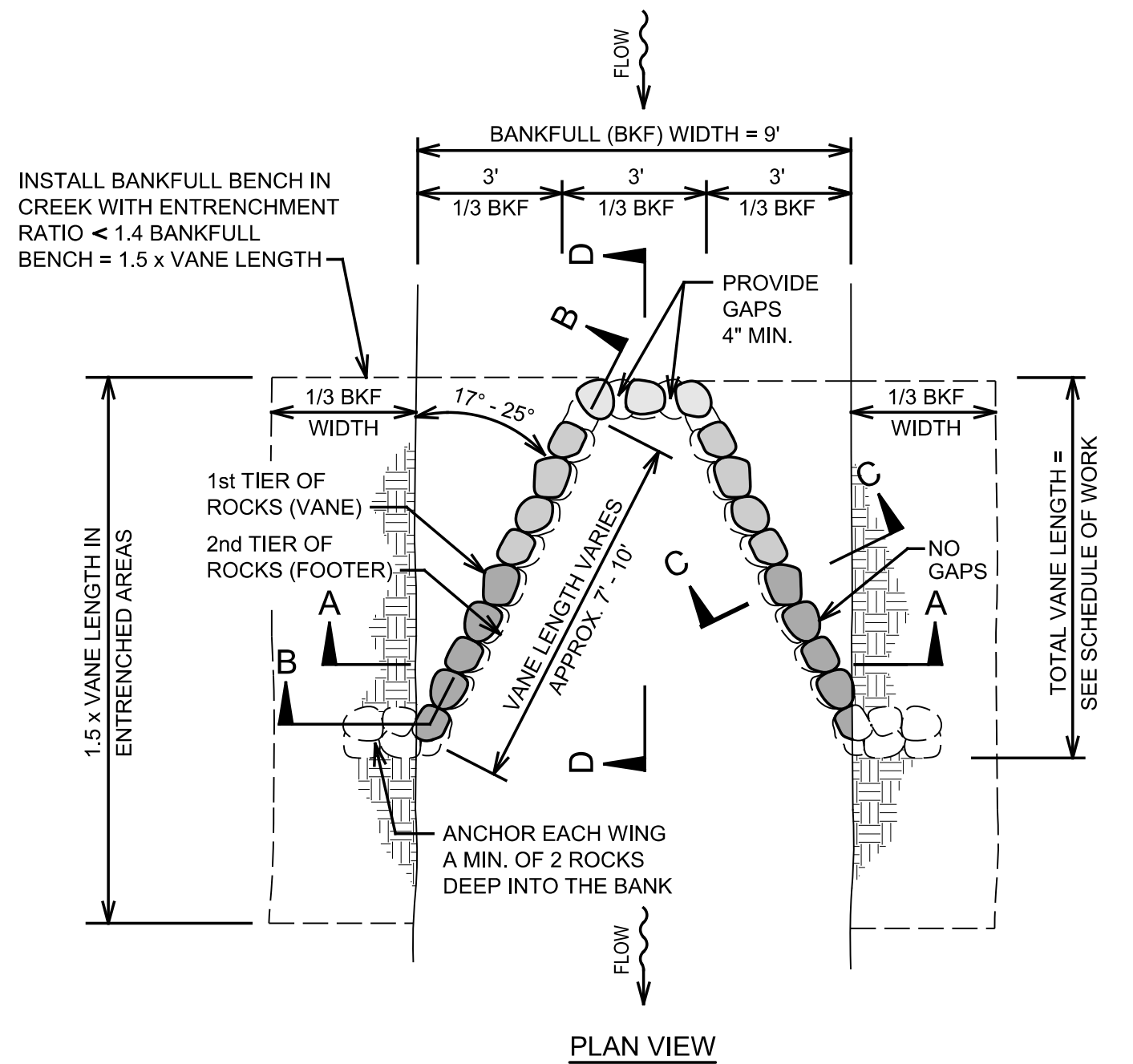
1. ALL VANE & FOOTER ROCKS FOR THE PROPOSED CROSS VANES SHALL BE 18" - 24" DIA. NATURAL ROUND FIELD STONE. FOOTER ROCKS SHALL BE ONE (1) LAYER AND BURIED INTO THE CREEK BED.

2. STONES FOR THE PROPOSED LEDGE ROCK STEPS SHALL BE AS FOLLOWS:

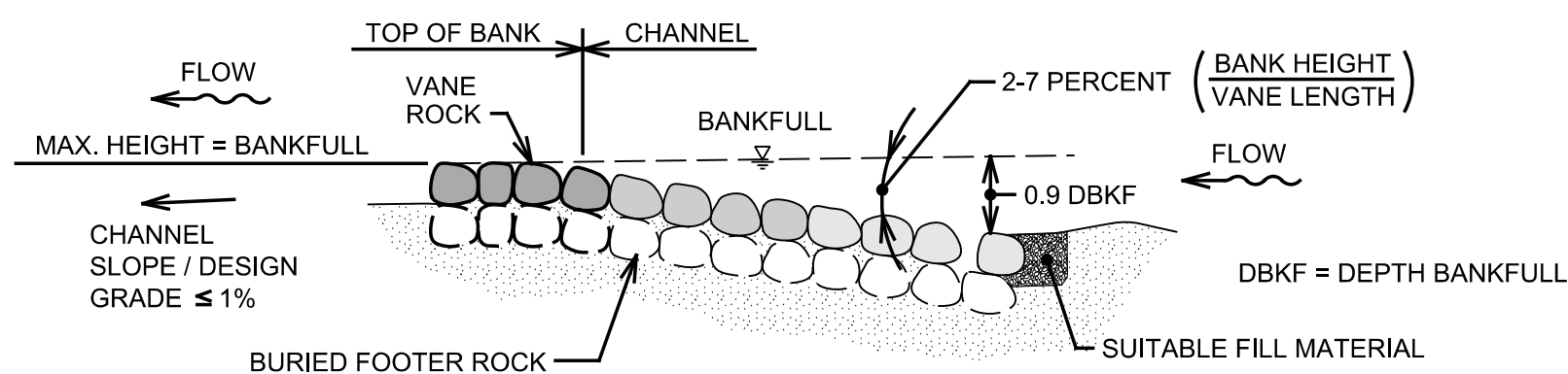
LEDGE ROCK STONE DIMENSIONS SHALL BE 18" H x 24" W x 96" L (APPROX.).

12" - 18" NATURAL ROUND FIELD STONE CHOKED OFF WITH RIVER RUN GRAVEL.

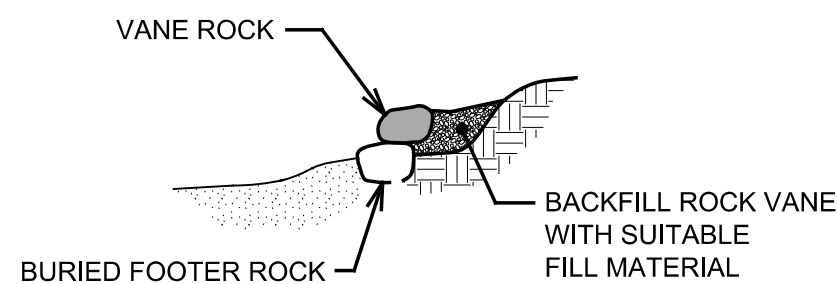
SEE PLAN & PROFILE SHEETS 04 & 06 FOR ADDITIONAL INFORMATION.



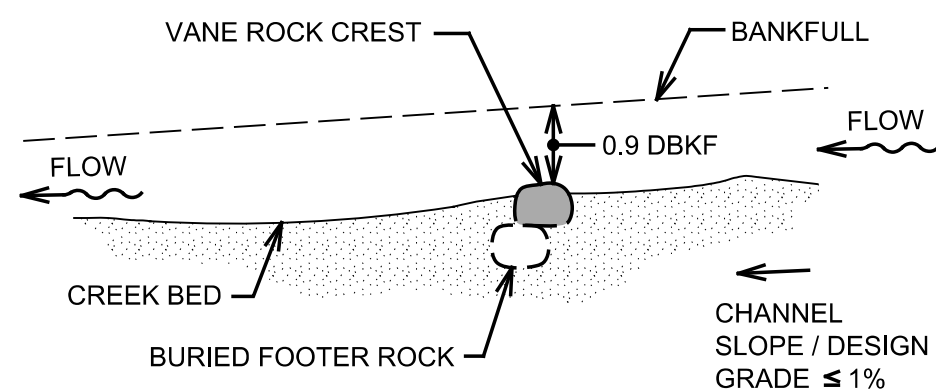
SECTION A-A



SECTION B-B

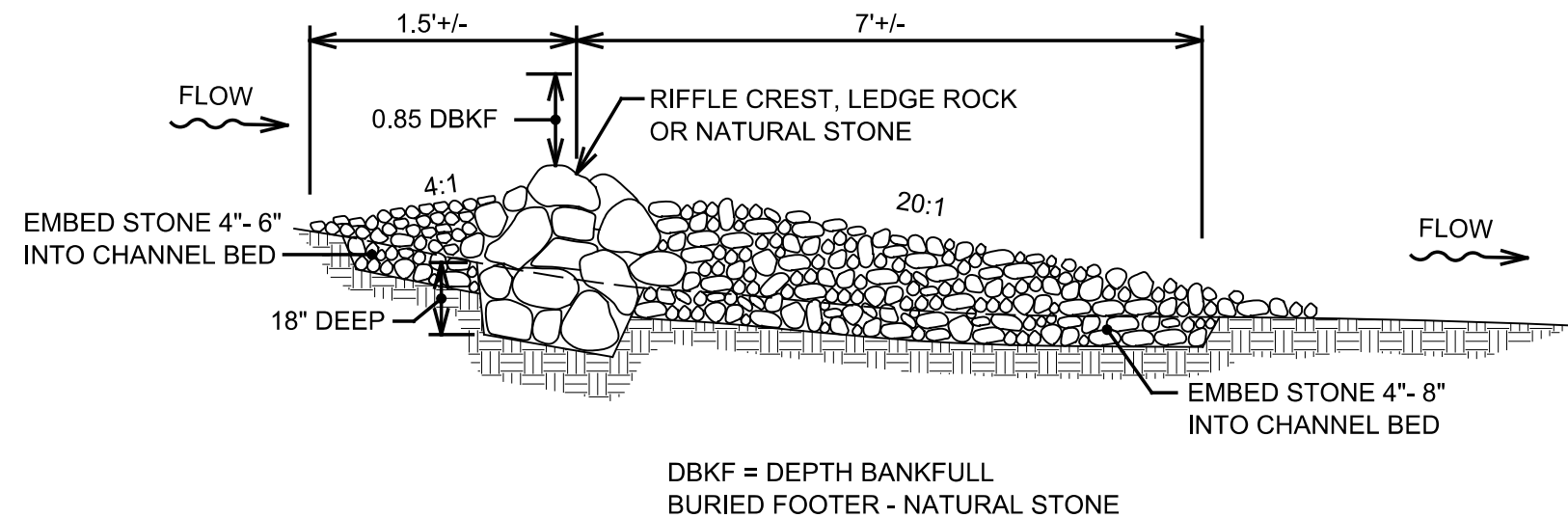
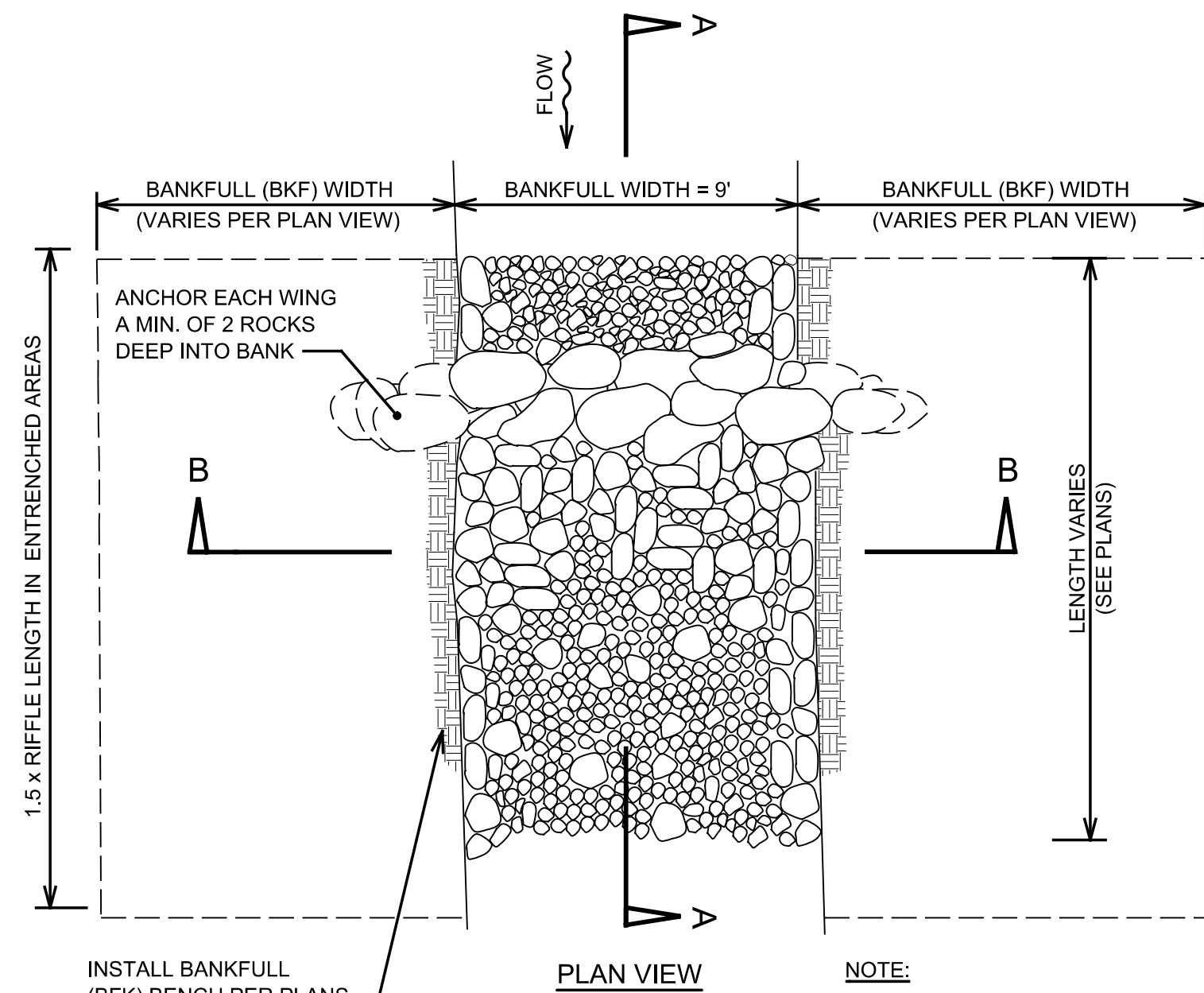


SECTION C-C

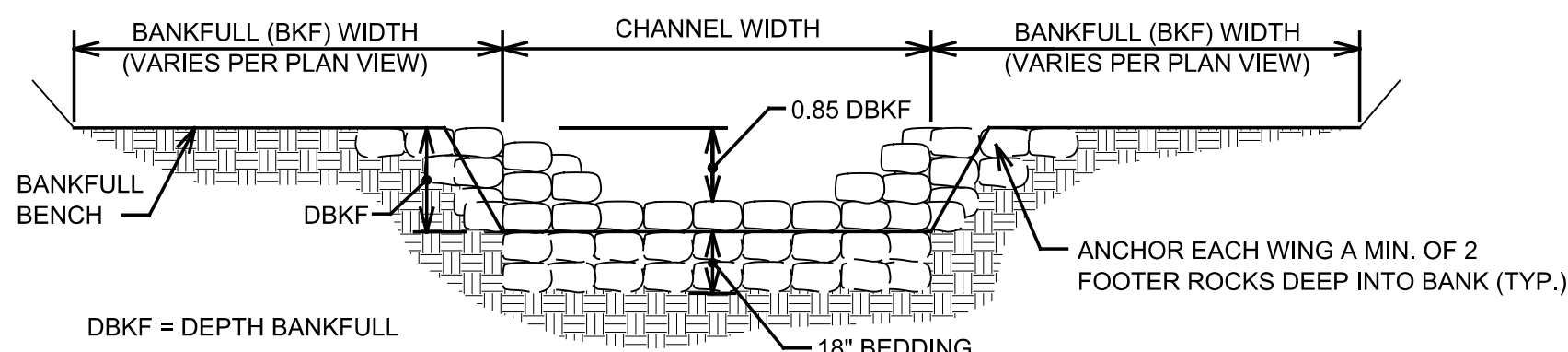


SECTION D-D

CROSS VANE DETAIL
NO SCALE



SECTION A-A



RIFFLE MATERIALS:	
18" - 24" NATURAL FIELD STONE	20%
12" - 18" NATURAL FIELD STONE	15%
3" - 8" NATURAL FIELD STONE	15%
1/2" - 3" RIVER RUN GRAVEL	50%

SECTION B-B

RIFFLE DETAIL
NO SCALE

NOTE:
ALL RIFFLES FOR THIS PROJECT, CONSTRUCTED AND NATURAL SHALL HAVE THE SAME DIMENSIONS