

TOWN OF COLLIERVILLE TN. DEPT. OF ENV. & CONSERVATION

Development Department
Engineering Division

DEC 11 2017

DIVISION OF WATER RESOURCES



Dale Perryman, P.E.
Town Engineer

500 Poplar View Parkway • Collierville, TN 38017 • (901) 457-2300 • FAX (901) 457-2354

December 8, 2017

Mr. Robert Wayne
Department of Environment and Conservation
Division of Water Resources
Natural Resources Unit
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

Subject: Request for Additional Information - NRS 17.147 - *RJW*
Stream Stabilization – Lateral J of the Wolf River
Collierville, Shelby County, Tennessee

Dear Mr. Wayne:

In working with our engineering consultant, we are pleased to respond to the request you have made regarding the application for an Aquatic Resource Alteration Permit that the Town has filed in order to obtain a permit to proceed with a much needed project to stabilize the gradient and restore the stream banks of the stream known as Wolf River Lateral J. The project is made necessary by years of ongoing and unchecked incising as the stream gradient has adjusted in response to the head cutting processes of the Wolf River occurring at the same time. Our responses are numbered to correspond to the numbering you used in your request for information.

1. Since the original filing to the ARAP application we have been re-evaluating the project and determined that due to fiscal restraints we must reduce the scope of the project to do the minimum necessary to stabilize the stream gradient by curtailing the head cutting and stabilize the stream banks in areas where existing infrastructure must be protected. This has eliminated the need to perform any work that would affect the two ditches that discharge into the stream from the east as shown in the original plans accompanying our application.
2. It has been our opinion that since the project efforts will stabilize a stream that has been, for some time, and continues to erode and degrade that the proposed work will produce a net positive result. Following this line of reasoning we have thought of the impact as de minimis. We understand that the length of the bank stabilization exceed the regulatory limits established to define a de minimis impact; therefore, we have added sections 10.1 and 10.2 to

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the application. Section 10.3 has been revised to add a statement that the objectives of this project do not include any measures to accommodate any development in the area.

3. The following wording will be included in the final plan set that will be issued for construction to insure that erosion control matting used meets with the divisions approval:

THE SLOPE WILL BE PROTECTED BY APPLYING AN EROSION CONTROL BLANKET COMPRISED OF 100% COCONUT FIBER WITH A FUNCTIONAL LONGEVITY OF UP TO 24 MONTHS. THE BLANKET SHALL BE OF A UNIFORM THICKNESS AND COVERED ON THE TOP AND BOTTOM WITH A 100% BIODEGRADABLE NETTING MADE OF NATURAL ORGANIC FIBER STRANDS. THE STRADS SHALL BE FORMED INTO THE NETTING USING THE LENO WEAVE METHOD. MONOFILAMENT NETTING IS NOT ACCEPTABLE.

The turf reinforcing matting is a permanent material that reinforces the vegetation as it grows to form a matrix between the matting, the root system of the vegetation and the underlying soil. If designed and installed properly to resist the stream forces this system ensures that the slope remains stable. The plans stipulate specific matting: Tensar North American Green VMax SC250. This matting has a three dimensional matrix that is stitch bonded with a heavy duty polypropylene netting.

4. The lineal feet of the stream channel bottom and banks immediately downstream of the Shelton Road bridge that are currently armored with rip rap is 189 lineal feet. This number is reported in Figure 3 or the report which has been revised to reflect the reduced scope of the project.
5. It seems logical to assume that erosion will continue to occur upstream of the project. There has been no stream monitoring that would aide in estimating the volume of material that the stream transports. Although, approximately 2 miles of the lateral upstream of Shelton Road remains in a natural state. The surrounding drainage basin it serves is highly urbanized. There are no models that could calculate a stream bed load with any degree of accuracy. Any time frame that we would place upon the time required to fill the low stream bottom upstream of the weirs would be a guess. Your inquiry did cause us to think about what might happen when the silt does reach the top of the weir. We decided that it would be wise to create a 3 feet wide by 6 inch notch in the weir to promote the formation of a thalweg.

The original applications support materials have been modified to reflect the reduced project slope as well as incorporate the changes you have suggested. A copy of the revised support materials are attached. The pages where a change was made contains a revision note. All changes have be italicized to aide you in finding the changes.

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We hope that we have fully addressed the issues to which you have concerns. Should you need additional information please let us know.

Sincerely,

A handwritten signature in blue ink that reads "Dale Perryman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Dale Perryman P.E.
Town Engineer

Enclosures

ARAP#NRS17.147

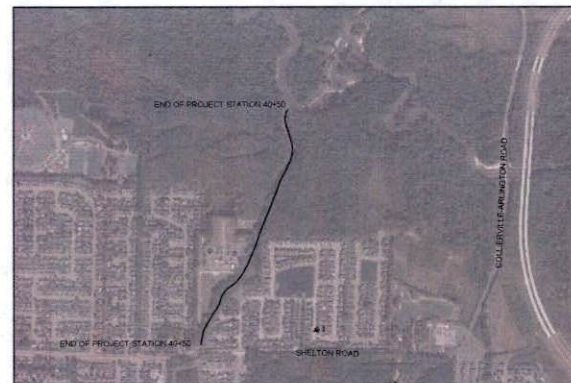
STREAM GRADIENT STABILIZATION OF WOLF RIVER LATERAL "J" DOWNSTREAM OF SHELTON ROAD FOR TOWN OF COLLIERVILLE, TN

NOVEMBER 3, 2017



GENERAL	
Sheet Number	Sheet Name
000	COVER

CIVIL	
Sheet Number	Sheet Name
CG0	GENERAL NOTES
CS1	SPECIFICATIONS
CT0	PROPERTY MAP
CA0	PROFILES STATION: 0+00 TO 14+00
CA1	PROFILES STATION: 14+00 TO 20+00
CA2	PROFILES STATION: 20+00 TO END
CS0	EROSION CONTROL
CD0	DETAILS
CA1	DETAILS
CA2	DETAILS
CD3	DETAILS
CS0	CROSS SECTIONS STA 1+00 TO STA 7+00
CS1	CROSS SECTIONS STA 7+00 TO STA 13+00
CS2	CROSS SECTIONS STA 13+00 TO STA 19+00
CS3	CROSS SECTIONS STA 19+00 TO STA 25+00
CS4	CROSS SECTIONS STA 25+00 TO STA 31+00
CS5	CROSS SECTIONS STA 31+00 TO STA 37+00
CS6	CROSS SECTIONS STA 37+00 TO STA 39+00



VICINITY MAP
N.T.S.



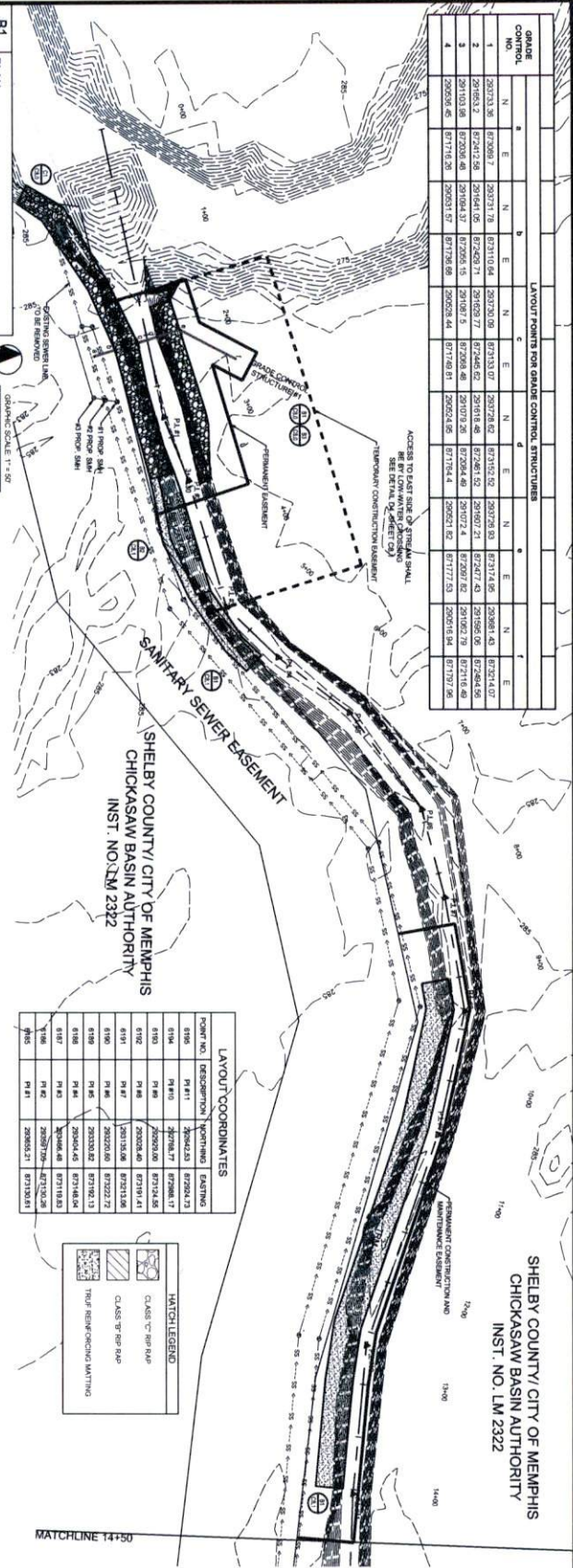
TN. DEPT. OF ENV. & CONSERVATION

DEC 11 2017

DIVISION OF WATER RESOURCES

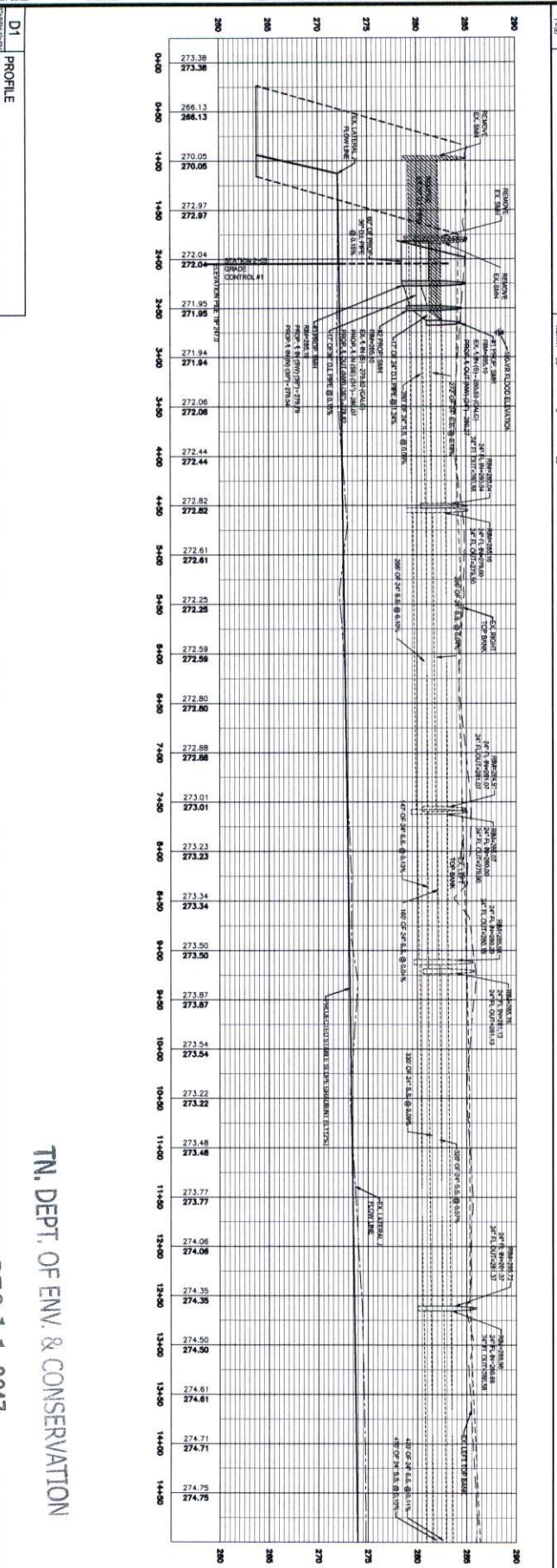
A2H PROJECT #14264.01

GRADE CONTROL NO.	LAYOUT POINTS FOR GRADE CONTROL STRUCTURES									
	A	B	C	D	E	F	G	H	I	J
1	292733.36	292731.78	292730.09	292728.02	292726.02	292724.00	292722.00	292720.00	292718.00	292716.00
2	291953.32	291951.56	291949.04	291946.00	291943.00	291940.00	291937.00	291934.00	291931.00	291928.00
3	291103.98	291094.37	291084.37	291074.37	291064.37	291054.37	291044.37	291034.37	291024.37	291014.37
4	290296.46	290287.37	290278.00	290268.44	290258.44	290248.44	290238.44	290228.44	290218.44	290208.44



POINT NO.	DESCRIPTION	NORTHING	EASTING
5186	P1-11	292824.53	292524.12
5187	P1-10	292824.53	292524.12
5188	P1-9	292824.53	292524.12
5189	P1-8	292824.53	292524.12
5190	P1-7	292824.53	292524.12
5191	P1-6	292824.53	292524.12
5192	P1-5	292824.53	292524.12
5193	P1-4	292824.53	292524.12
5194	P1-3	292824.53	292524.12
5195	P1-2	292824.53	292524.12
5196	P1-1	292824.53	292524.12

HATCH/LEGEND	CLASS
[Symbol]	CLASS OF RIP RAP
[Symbol]	CLASS OF RIP RAP
[Symbol]	TRAP REINFORCED MATTING



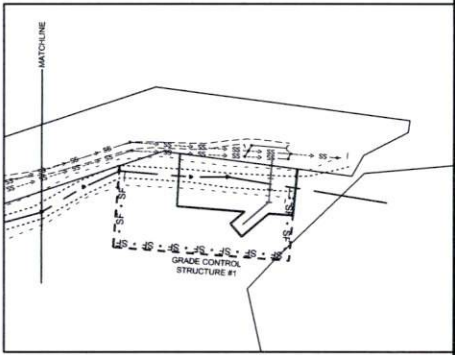
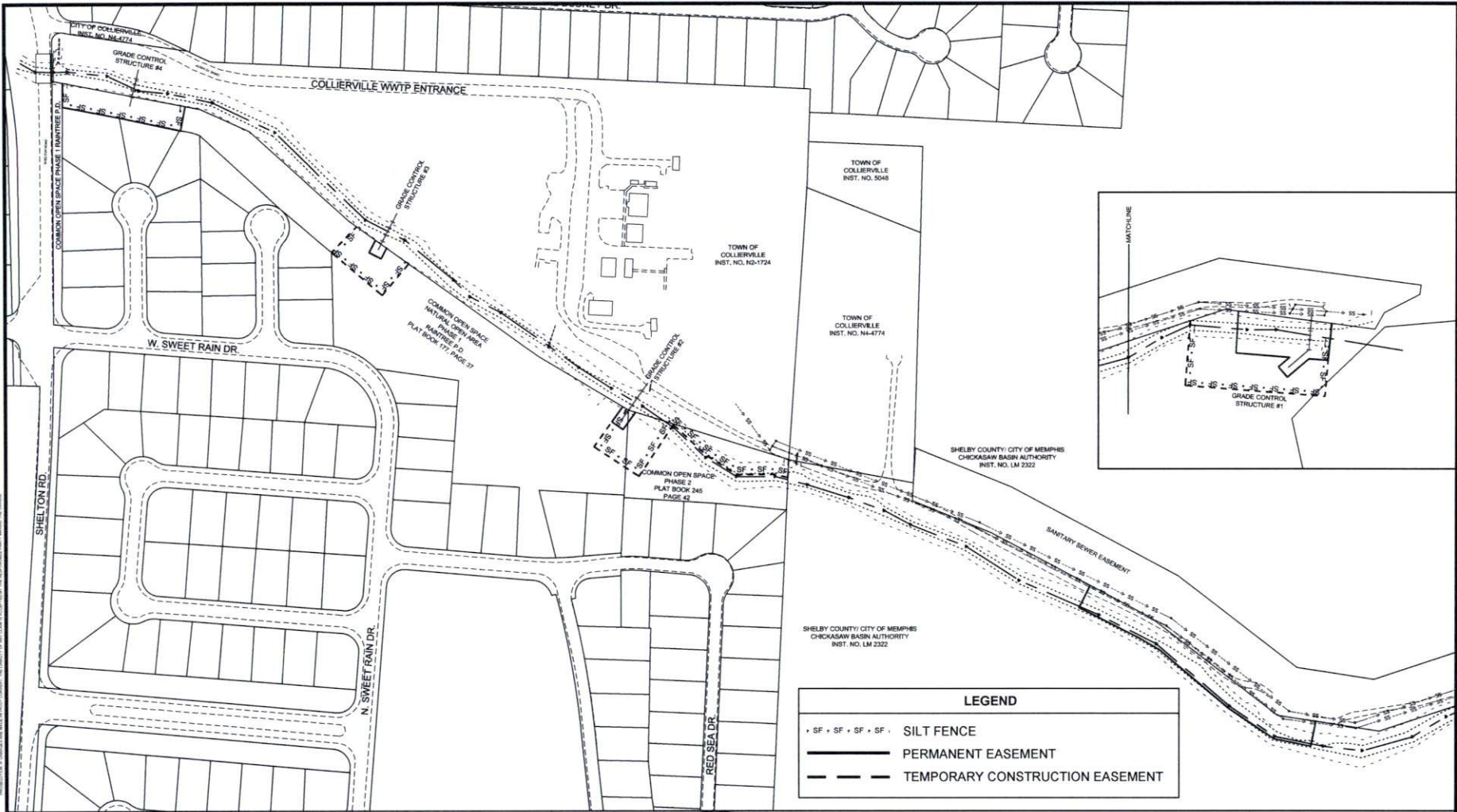
TN. DEPT. OF ENV. & CONSERVATION
 DEC 11 2017

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SHEET NO.	C4.0
PROJECT NO.	14664-01
DATE	NOVEMBER 2017
DRAWN / CHECKED	[Signature]
SHEET TITLE	PROFILE STATION 0+00 TO 14+00

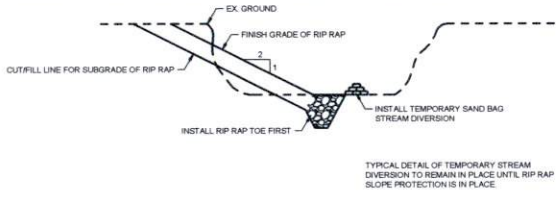
LATERAL J, STREAM BANK STABILIZATION
 THE TOWN OF COLLIERVILLE
 500 KEOUGH ROAD, COLLIERVILLE, TN 38017

A2H
 ENGINEERS - ARCHITECTS - PLANNERS
 302 East Poplar Avenue
 Memphis, TN 38102

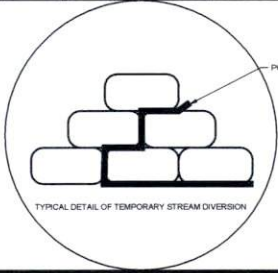


LEGEND

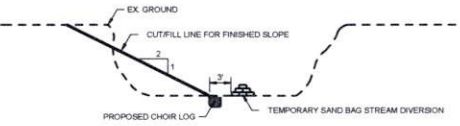
- SF • SF • SF • SF • SILT FENCE
- PERMANENT EASEMENT
- - - - - TEMPORARY CONSTRUCTION EASEMENT



TYPICAL DETAIL OF TEMPORARY STREAM DIVERSION TO REMAIN IN PLACE UNTIL RIP RAP SLOPE PROTECTION IS IN PLACE



TYPICAL DETAIL OF TEMPORARY STREAM DIVERSION



TYPICAL DETAIL OF TEMPORARY STREAM DIVERSION TO REMAIN IN PLACE UNTIL THE TURF REINFORCEMENT MATTING IS INSTALLED

D1 EPSC



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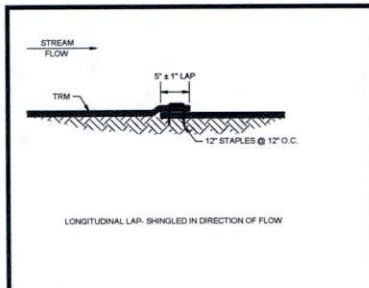
DIVISION OF WATER RESOURCES



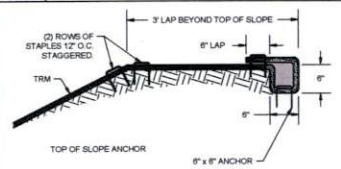
LATERAL J, STREAM BANK STABILIZATION
 THE TOWN OF COLLIERVILLE
 500 KEOUGH ROAD, COLLIERVILLE, TN 38017

REVISIONS	
NO.	DESCRIPTION

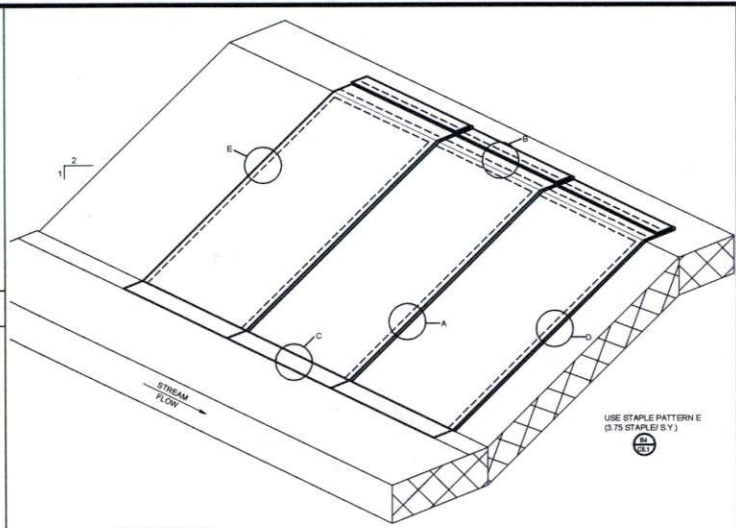
PROJECT NO. 14284 01
 DATE: NOVEMBER 3, 2017
 DRAWN: [initials] CHECKED: [initials]
 SHEET TITLE: EROSION PREVENTION AND SEEDING CONTROL
 SHEET NO. C5.0



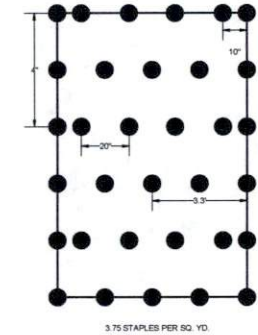
A1 DETAIL A
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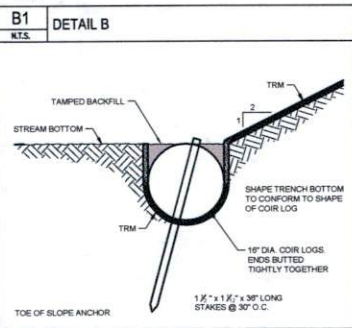
TRENCH: FIT TRM INTO BOTTOM AND WALLS AS SHOWN. STAPLE TO BOTTOM OF TRENCH (12" O.C.)
TAMP BACKFILL INTO TRENCH. FOLD TRM BACK OVER TRENCH WITH A 6" OVER LAP. STAPLE LAP EVERY 12" O.C.



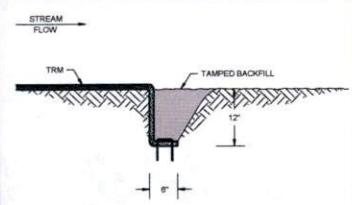
B2 BANK STABILIZATION
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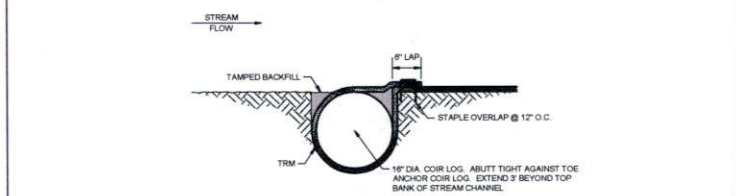
B4 DETAIL F
N.T.S.



C1 DETAIL C
N.T.S.

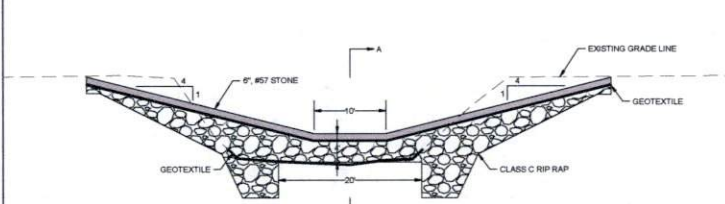
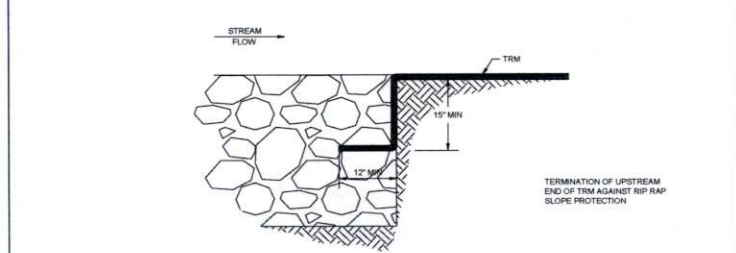


D1 DETAIL D
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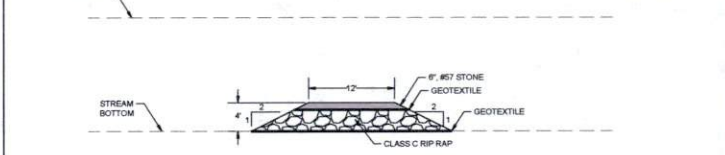


SHAPE TRENCH BOTTOM TO CONFORM TO SHAPE OF CHOR LOG
TERMINATION OF UPSTREAM END OF TRM AT INTERFACE WITH NATURAL CHANNEL BANK

D2 DETAIL E
N.T.S.



1) CONSTRUCT AS SHOWN AT GRADE CONTROL STRUCTURE #1.
2) CROSSINGS AT GRADE CONTROL STRUCTURES #2 AND #3 SHALL BE CONSTRUCTED ON THE DOWNSTREAM SIDE OF THE SHEET PILE WEIR. PLACE STONE ACROSS STREAM BOTTOM PER DETAIL C3. REMOVE FROM CHANNEL BOTTOM WHEN CONSTRUCTION OF GRADE CONTROL STRUCTURE #1.



D4 LOW WATER CROSS SECTION-GR
N.T.S.

REVISIONS

NO.	DATE	DESCRIPTION

PROJECT NO. 14084 D1
DATE NOVEMBER 3, 2017
DRAWN BY [Signature]
CHECKED BY [Signature]
SHEET TITLE: DETAILS

SHEET NO. **C8.1**