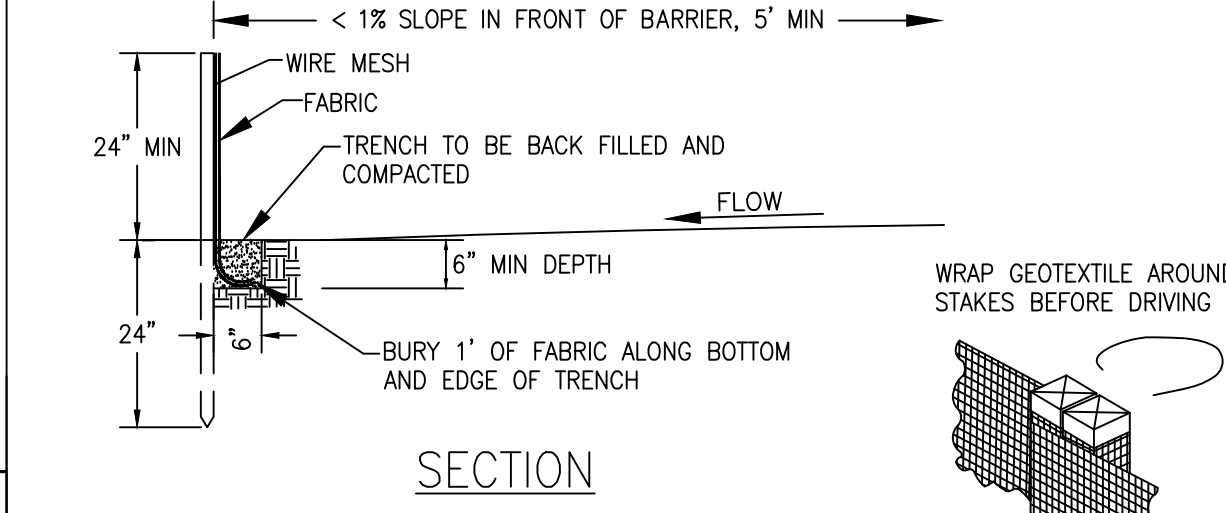
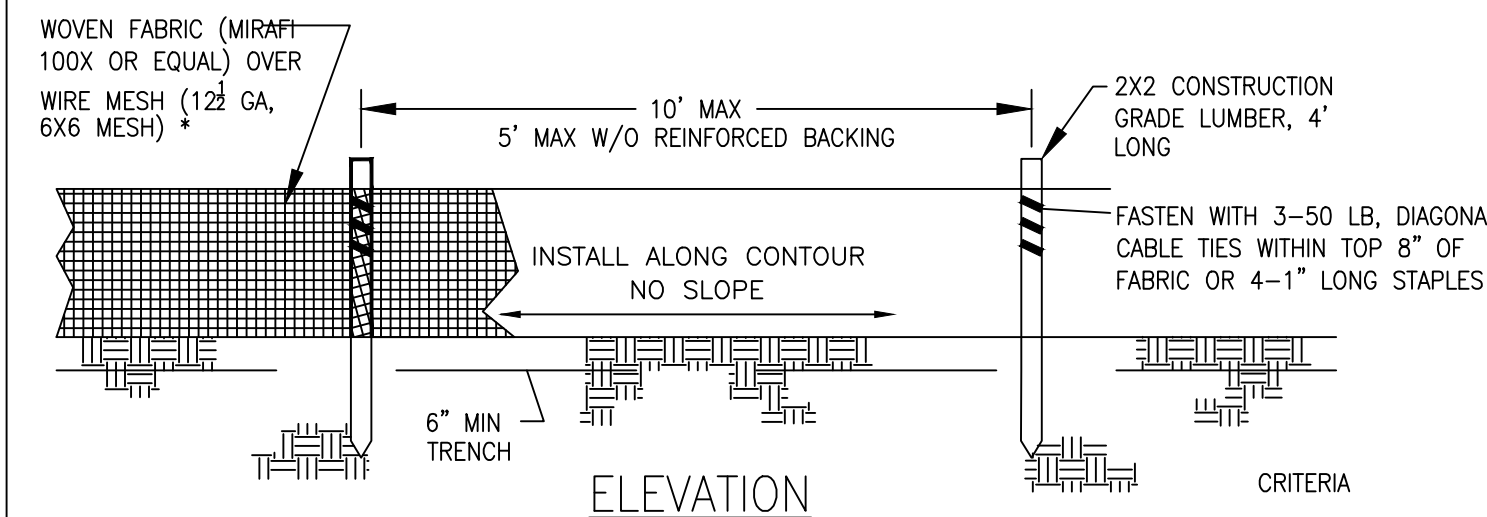


- DESIGN CRITERIA**
- SILT FENCE FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  - STRAW BALE BARRIERS FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  - REFER TO INDIVIDUAL ESC FIGURE FOR INSTALLATION.
  - TERRACING INCLUDES LOGS, WATLES & FILTER SOCKS.

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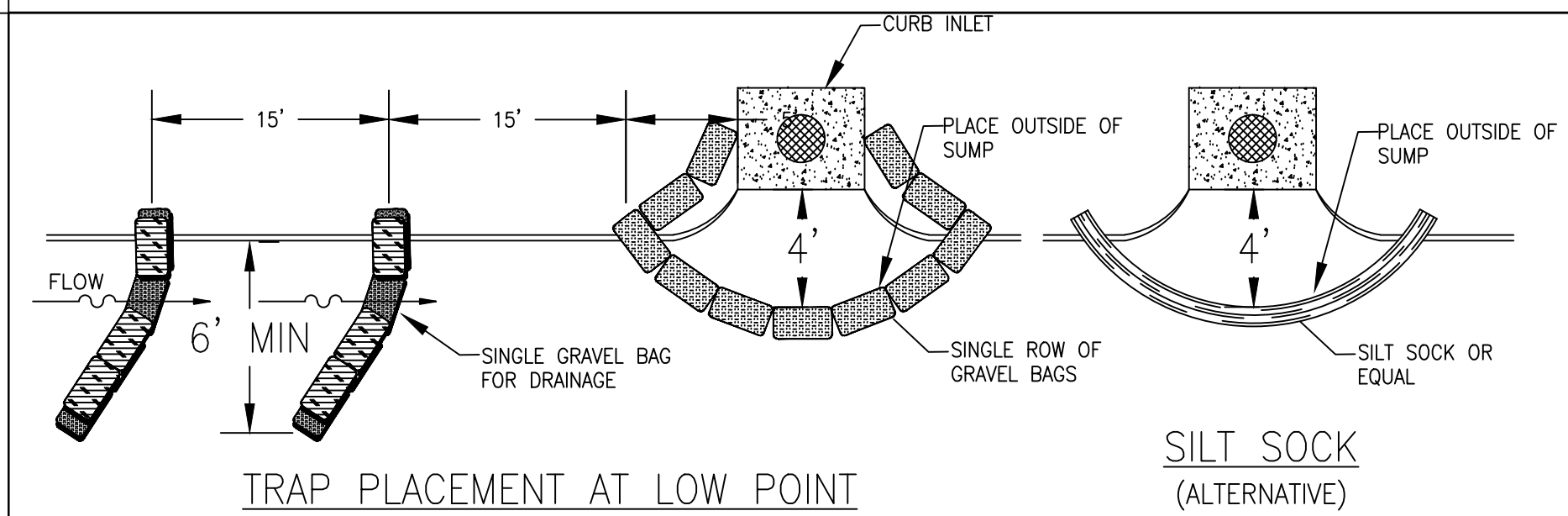
**SPACING CHART  
FOR ESC DEVICES**



- CRITERIA**
- SILT FENCE SHALL BE 24 INCHES HIGH.
  - SILT FENCE SHALL NOT BE USED FOR CONCENTRATED FLOWS.
  - GEOSYNTHETIC REINFORCED SILT FENCE BACKING MAY BE USED IN LIEU OF WIRE MESH.
  - WIRE MESH WILL BE USED AT LOCATIONS SHOWN ON THE APPROVED SWPPP.

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**SILT FENCE INSTALLATION  
SHEET FLOW (ONLY)**



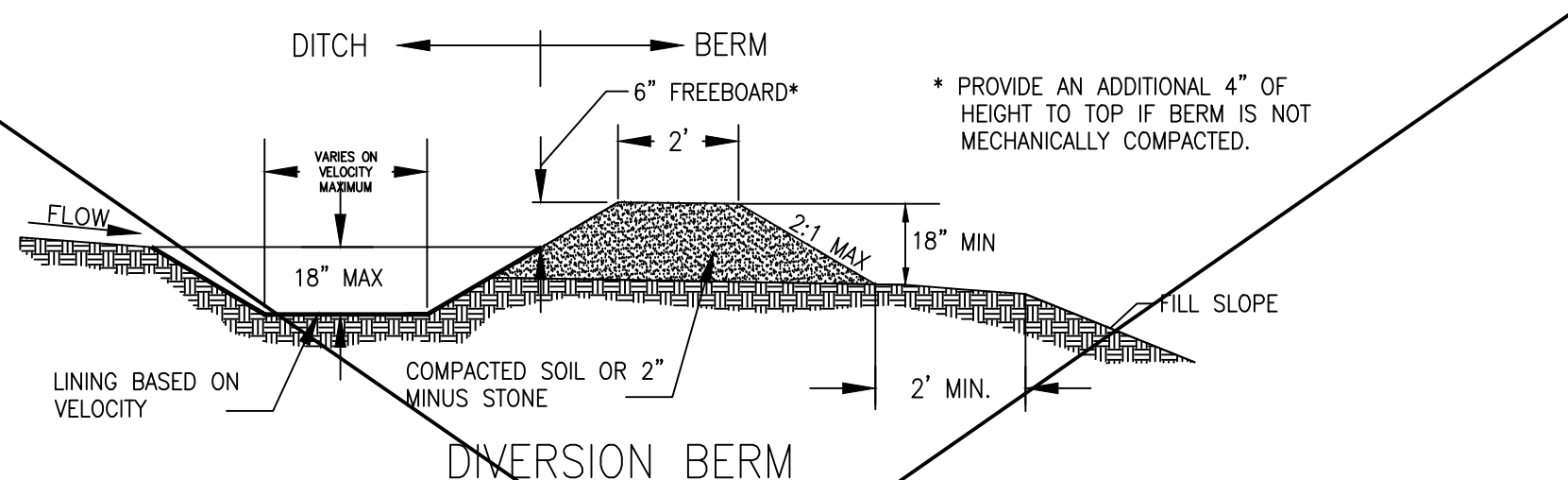
**SPACING OF TRAPS**

Gutter Slope	S
Low Pt	15'
1%	20'
2%	15'
3% Max.	10'

- DESIGN CRITERIA**
- MAXIMUM DRAINAGE AREA - 1 ACRE.
  - PEAK RUNOFF SHALL BE  $\leq 2$  CFS BASED ON THE 6-MONTH STORM.
  - STACK GRAVEL BAGS DOUBLE HIGH. PROVIDE GAP FOR DRAINAGE.

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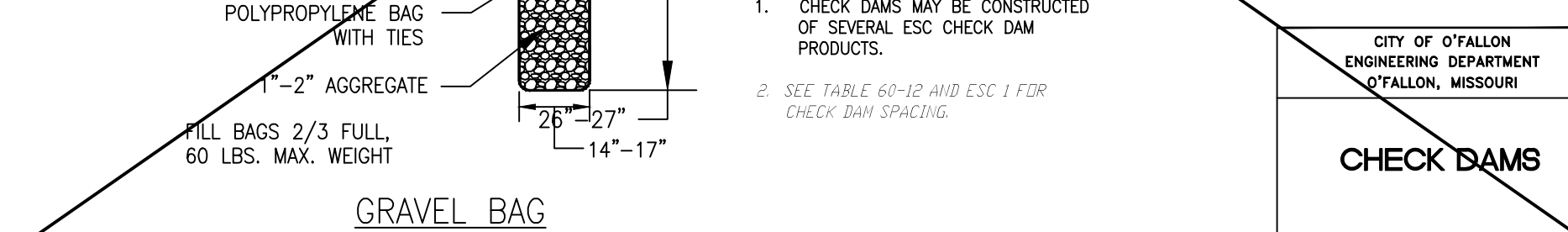
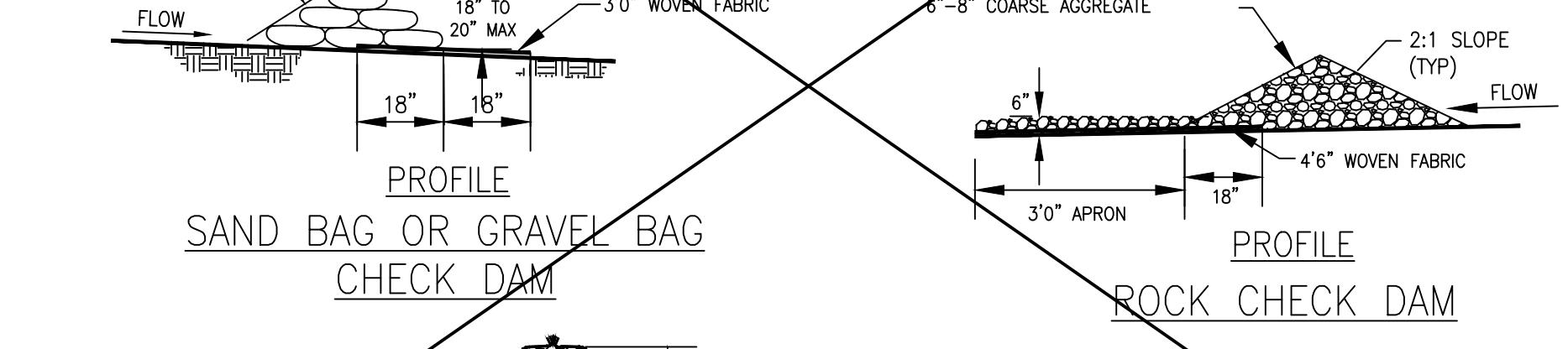
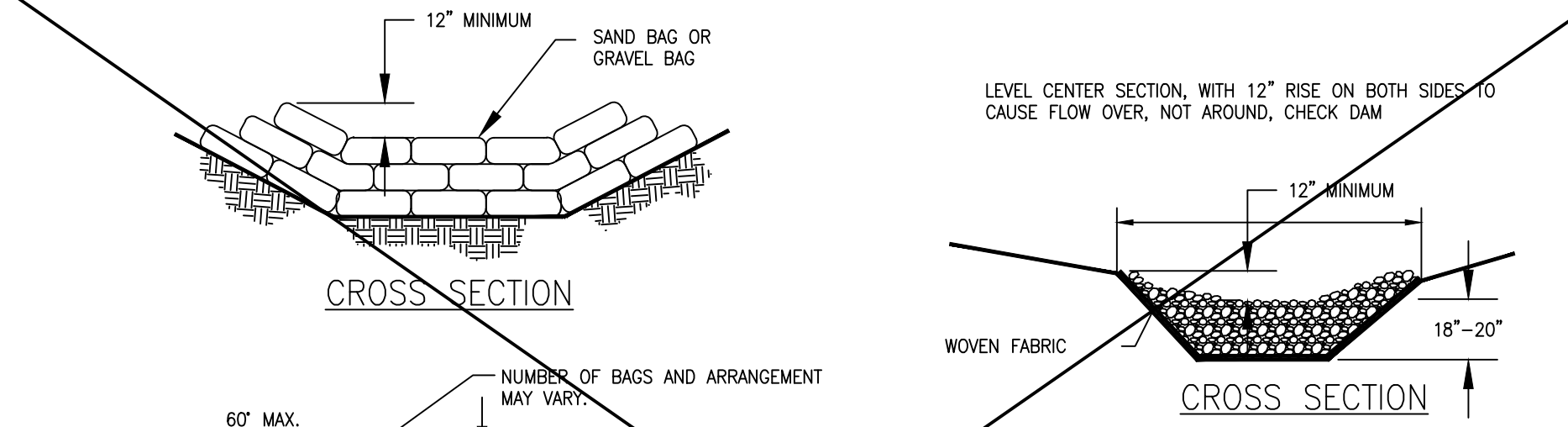
**CURB INLET  
PROTECTION**



- DESIGN CRITERIA**
- DIVERSIONS SHALL BE USED FOR DRAINAGE AREAS  $\leq 3$  ACRES.
  - DIVERSION CHANNELS SHALL BE DESIGNED TO CONVEY THE 6-MO STORM AT NON-EROSIVE VELOCITIES.
  - CRITICAL LOCATIONS SHALL BE DESIGNED FOR THE 15YR / 20Min. STORM.
  - MAXIMUM CHANNEL SLOPE OF 3% WITHOUT CHECK DAMS.
  - SWALE SEDIMENT TRAPS ARE TO BE USED IN HIGHLY EROSION AREAS.
  - CHANNELS SHALL BE PROTECTED USING APPROPRIATE CHANNEL LINERS.
  - CHANNEL OUTLETS MUST BE STABILIZED.
  - STORM SEWERS MAY BE USED IN LIEU OF OPEN CHANNELS.

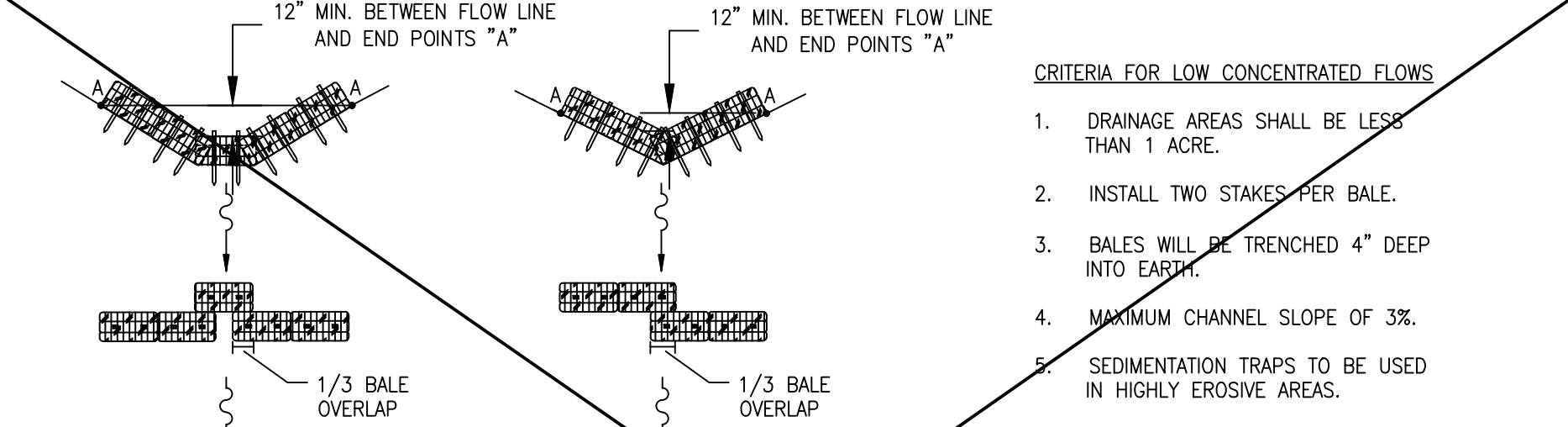
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**DIVERSION BERMS  
+ DIKES**



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**CHECK DAMS**



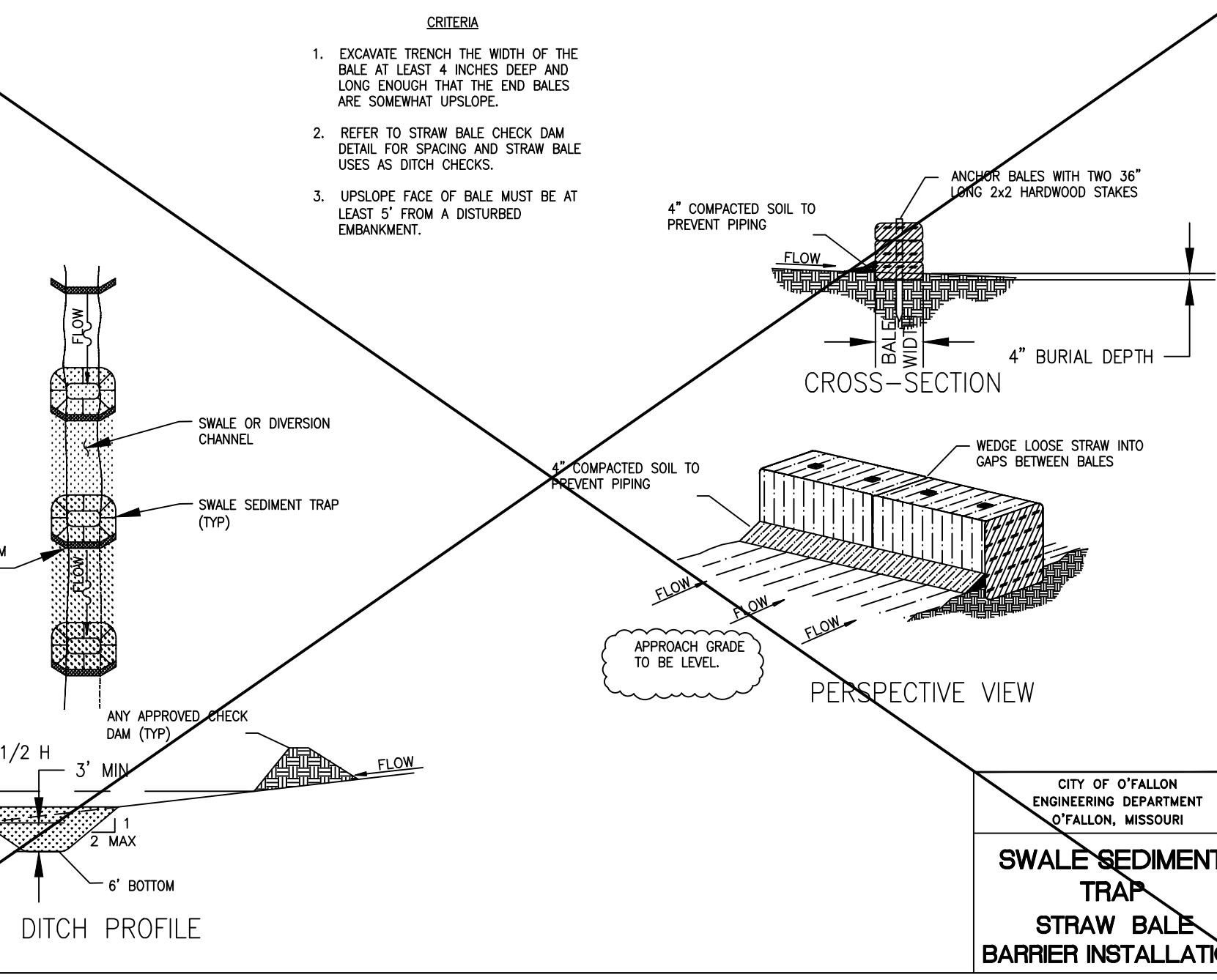
- CRITERIA FOR LOW CONCENTRATED FLOWS**
- DRAINAGE AREAS SHALL BE LESS THAN 1 ACRE.
  - INSTALL TWO STAKES PER BALE.
  - BALES WILL BE TRENCHED 4\"/>

**CHECK DAM SPACING**

Ditch Slope	Maximum Spacing
3%	50'
2%	75'

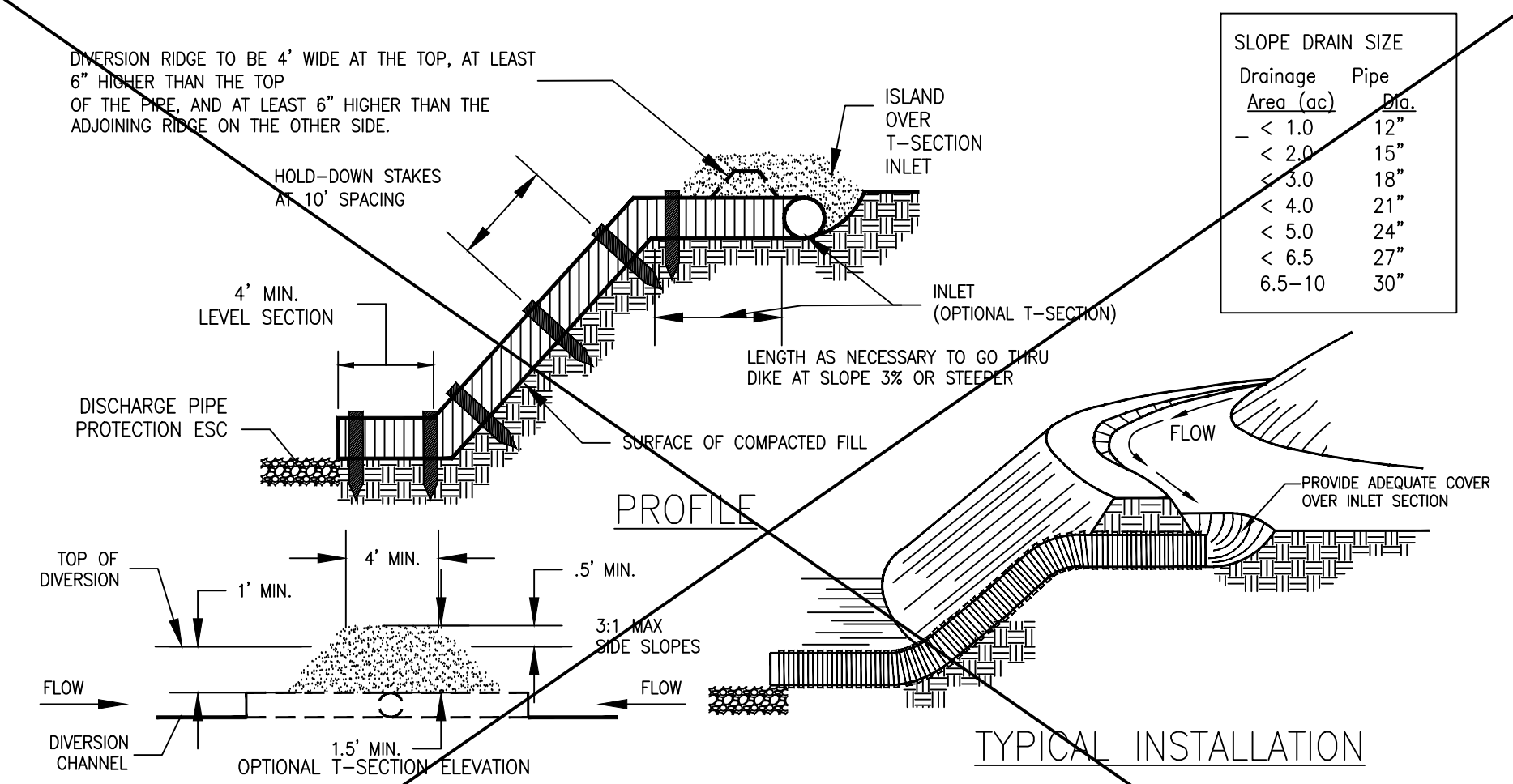
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**STRAW BALE  
CHECK DAM**



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ENGINEERING DEPARTMENT  
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**SWALE SEDIMENT  
TRAP  
STRAW BALE  
BARRIER INSTALLATION**

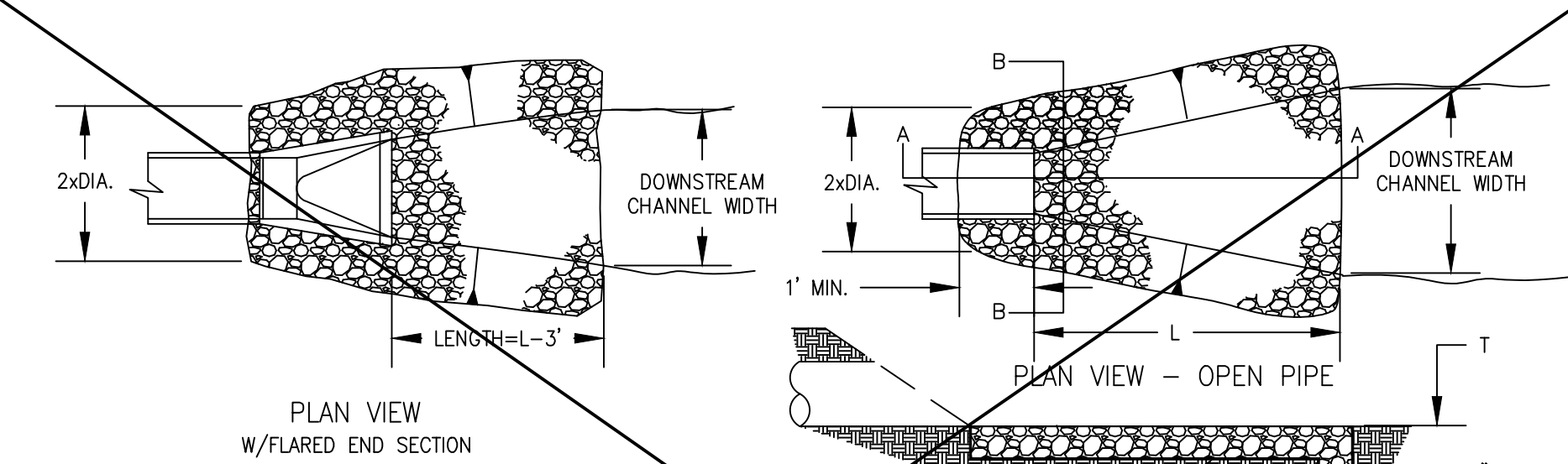


**SLOPE DRAIN SIZE**

Drainage Area (Ac)	Pipe Dia.
< 1.0	12"
< 2.0	15"
< 3.0	18"
< 4.0	21"
< 5.0	24"
< 6.5	27"
6.5-10	30"

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**TEMPORARY  
SLOPE DRAIN**



**RIPRAP SIZE & APRON DIMENSION**

PIPE SIZE (inch)	VELOCITY < 5 FPS				VELOCITY < 10 FPS			
	ROCK SIZE (inch)	APRON DIM (inch)	ROCK SIZE (inch)	APRON DIM (inch)				
12	5	9	15	12	5	9	15	
15	5	9	15	14	5	9	15	
18-24	5	9	15	16	9	14	24	
27-30	5	9	15	18	9	14	24	
36-42	9	14	24	22	18	27	26	
48-54	9	14	24	26	18	27	30	
60-66	12	18	27	34	15	24	30	
72-84	15	24	30	42	15	24	30	
96	18	27	30	50	18	27	30	

- DESIGN CRITERIA**
- FROUDE NUMBER MUST BE  $\leq 2.50$ .
  - USE 3 TIMES PIPE DIAMETER FOR DOWNSTREAM CHANNEL WIDTH IF THERE IS NO DEFINED CHANNEL.
  - BANK PROTECTION HEIGHT TO BE 2/3 TIMES PIPE DIAMETER.
  - ROCK SLOPES SHALL BE NO STEEPER THAN 3:1.

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ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

**TEMPORARY OUTLET  
PIPE DISCHARGE  
PROTECTION**

USER: Kevin Oberknecht TAB: Erosion 1  
 DATE: July 19, 2016 - 10:47:00 AM  
 DRAWING: S:\JOBS\Job2016\16-0063\CADD\C-Plan\Sheet\0-EROSION\_DETAILS\_06-0063.dwg

DEVELOPER/OWNER:  
**M PROPERTY SERVICES, LLC**  
 1001 BOARDWALK SPRINGS PLACE, STE. 10  
 O'FALLON, MO 63368  
 636-961-9337

THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY FOR THE WORK SHOWN ON THIS PLAN, AND ACCEPTS THE OATH OF ARCHITECTS, ENGINEERS, SURVEYORS, REGISTERED PROFESSIONAL LANDSCAPE ARCHITECTS, REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEERS, REGISTERED PROFESSIONAL CIVIL ENGINEERS, REGISTERED PROFESSIONAL ELECTRICAL ENGINEERS, REGISTERED PROFESSIONAL MECHANICAL ENGINEERS, REGISTERED PROFESSIONAL CHEMICAL ENGINEERS, REGISTERED PROFESSIONAL ENVIRONMENTAL ENGINEERS, REGISTERED PROFESSIONAL INDUSTRIAL ENGINEERS, REGISTERED PROFESSIONAL METALLURGICAL ENGINEERS, REGISTERED PROFESSIONAL NUCLEAR ENGINEERS, REGISTERED PROFESSIONAL AERONAUTICAL ENGINEERS, REGISTERED PROFESSIONAL AGRICULTURAL ENGINEERS, REGISTERED PROFESSIONAL FOOD ENGINEERS, REGISTERED PROFESSIONAL SANITARY ENGINEERS, REGISTERED PROFESSIONAL TRANSPORTATION ENGINEERS, REGISTERED PROFESSIONAL MARINE ENGINEERS, REGISTERED PROFESSIONAL AERONAUTICAL ENGINEERS, REGISTERED PROFESSIONAL AGRICULTURAL ENGINEERS, REGISTERED PROFESSIONAL FOOD ENGINEERS, REGISTERED PROFESSIONAL SANITARY ENGINEERS, REGISTERED PROFESSIONAL TRANSPORTATION ENGINEERS, REGISTERED PROFESSIONAL MARINE ENGINEERS.

SEAL: **STATE OF MISSOURI**  
 PROFESSIONAL ENGINEER  
 ERIC W. MORFF  
 No. 22923  
 EXPIRES: 7/19/18

**SHOPPES AT WINGHAVEN**  
**THE PET DOCTOR/YUPPY PUPPY**  
 TECHNOLOGY DRIVE  
 O'FALLON, MO 63368

**EROSION DETAILS**

DESIGN/CALC BY: BJS  
 DRAWN BY: RJG  
 CHECKED BY: EM  
 DRAWING SCALE: NOT TO SCALE  
 DATE: 06/02/2016  
 Job Number: 16-0063  
 Sheet Number: C8.0