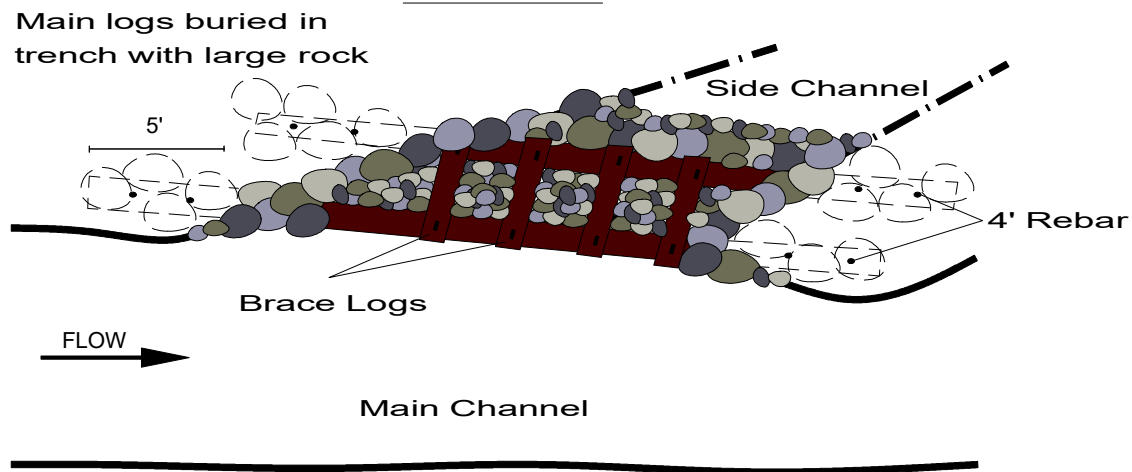
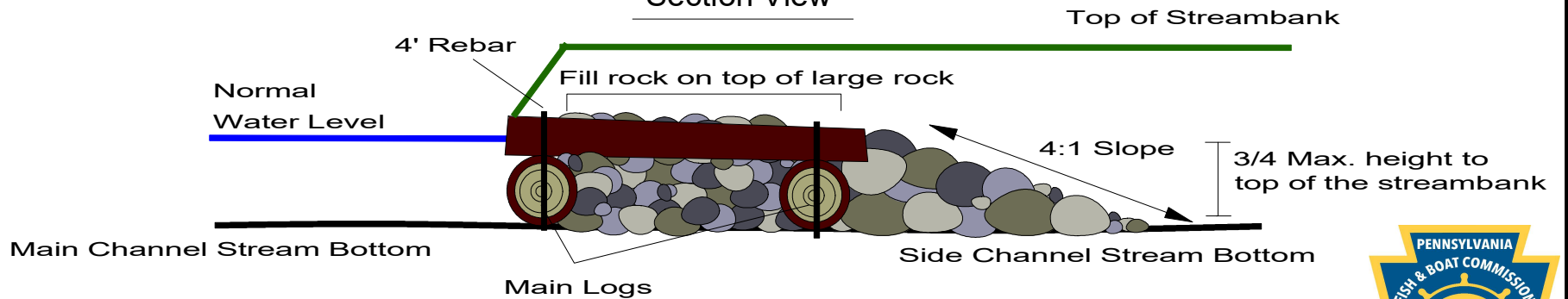


CHANNEL BLOCK WITH LOG FRAME

Plan View



Section View

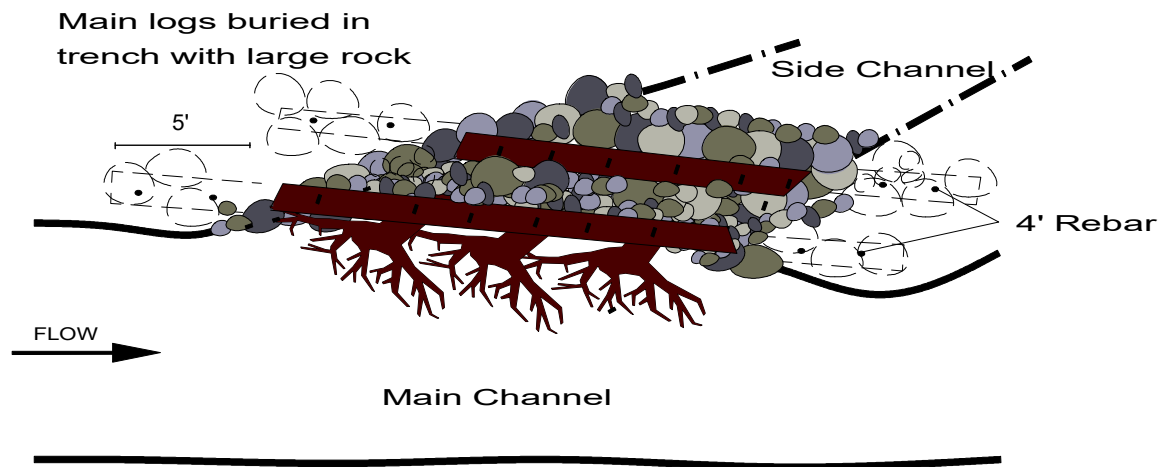


Note: Channel block built lower than surrounding streambanks while maintaining normal water level height
Maximum device height is 3/4 to the top of the bank

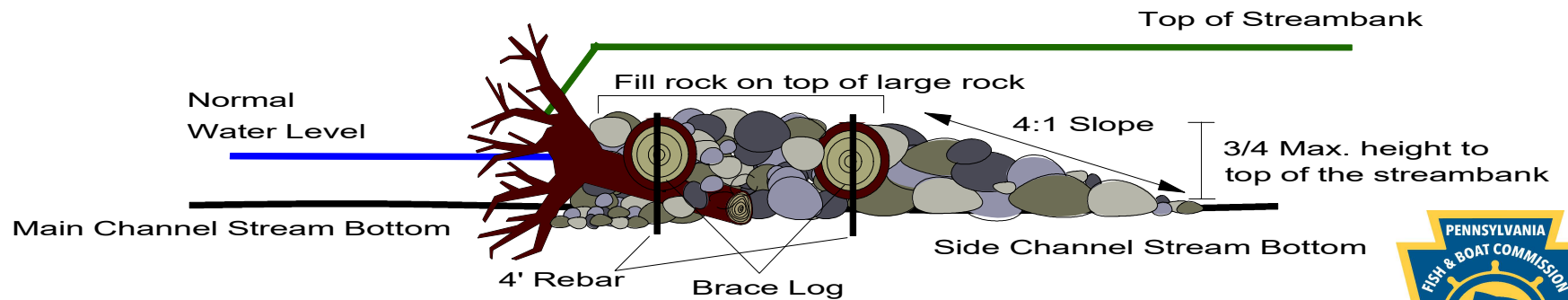


CHANNEL BLOCK WITH ROOTWADS

Plan View



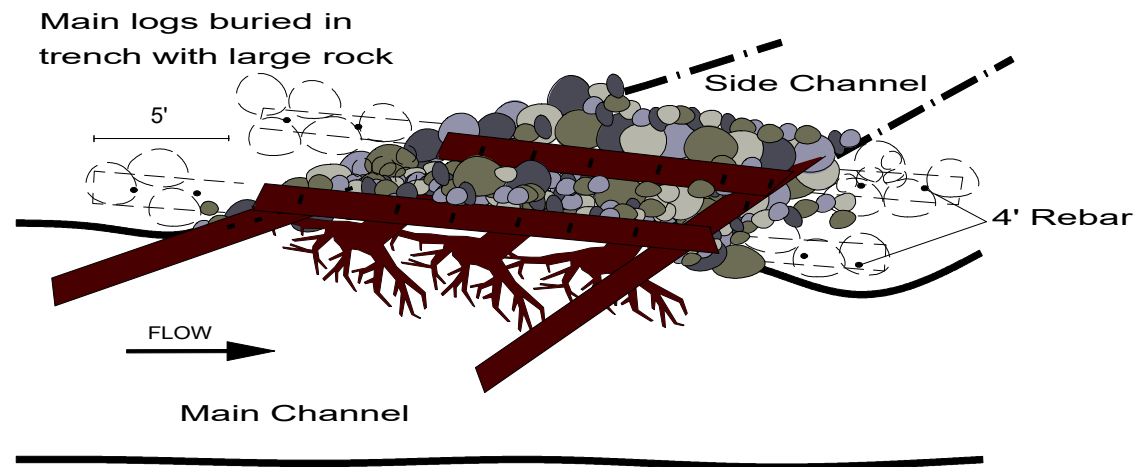
Section View



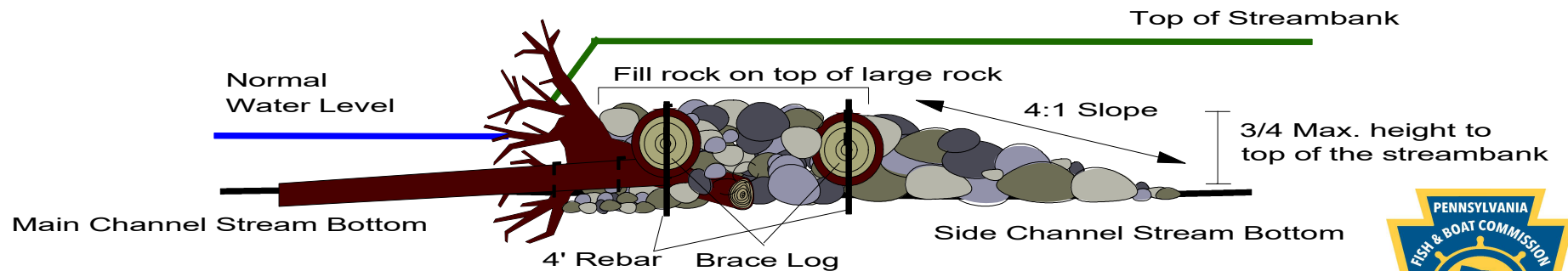
Note: Channel block built lower than surrounding streambanks while maintaining normal water level height
Maximum device height is 3/4 to the top of the bank

CHANNEL BLOCK WITH SINGLE LOGS AND ROOTWADS

Plan View



Section View



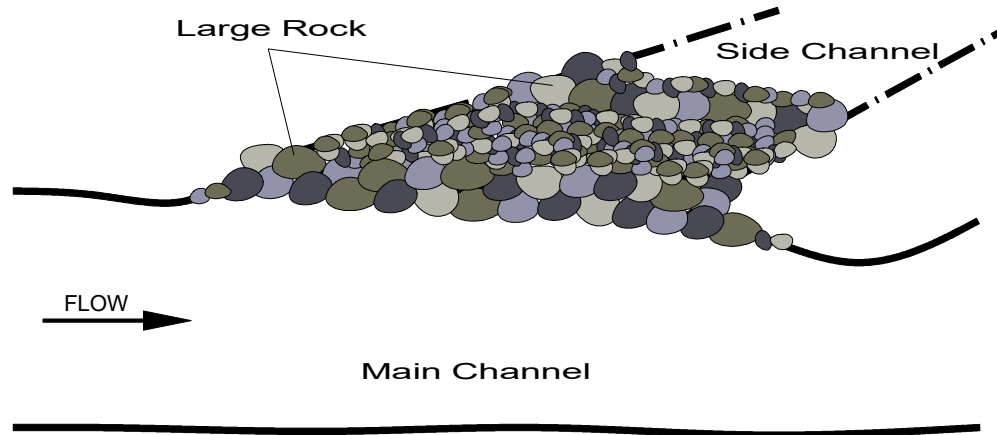
Note: Channel block built lower than surrounding streambanks while maintaining normal water level height
Maximum device height is 3/4 to the top of the bank

DHM, PFBC 2022

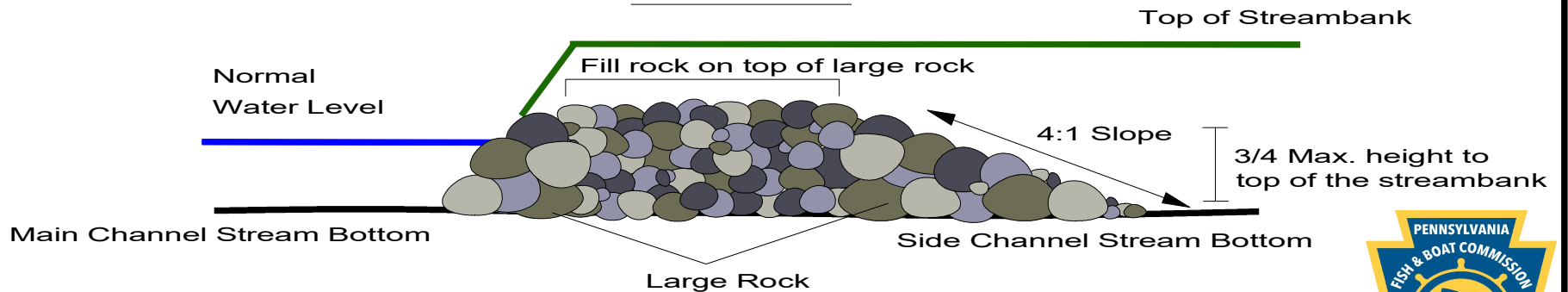


CHANNEL BLOCK WITH STONE

Plan View



Section View



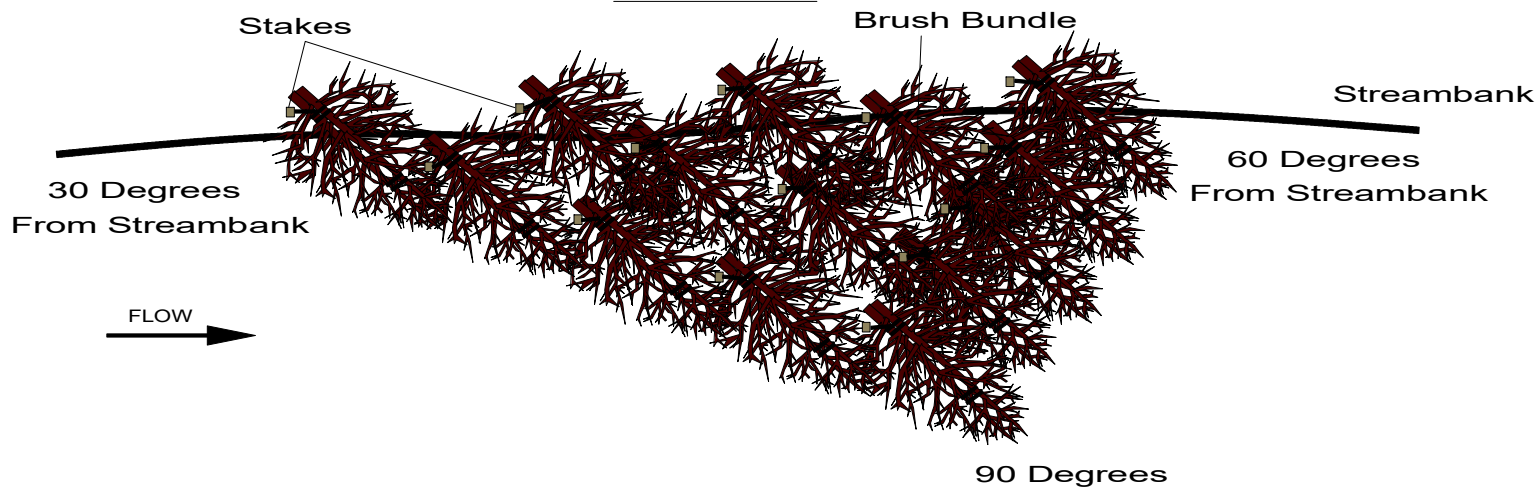
Note: Channel block built lower than surrounding streambanks while maintaining normal water level height
Maximum device height is 3/4 to the top of the bank

DHM, PFBC 2022

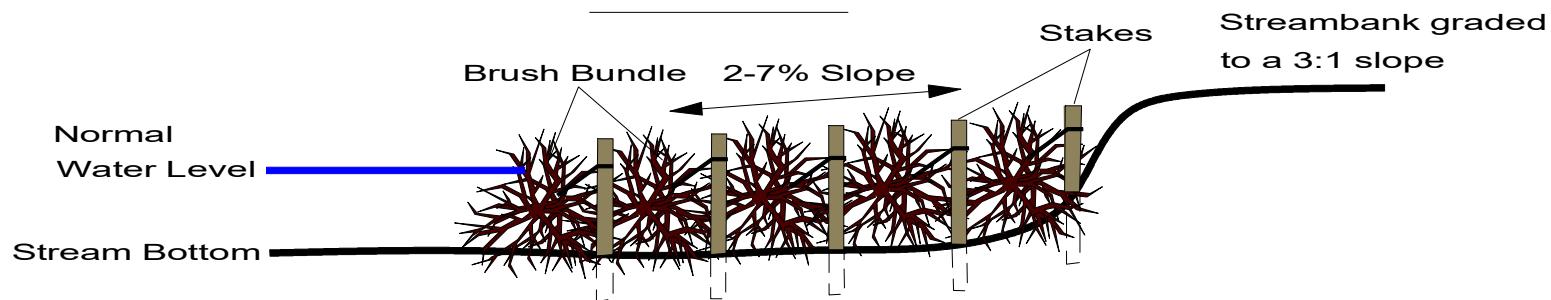


BRUSH DEFLECTOR (LOW GRADIENT STRUCTURE)

Plan View



Section View



Note: Christmas tree/brush bundles attached to stakes and to other bundles with natural fiber twine
Stakes must be made of wood or other natural material

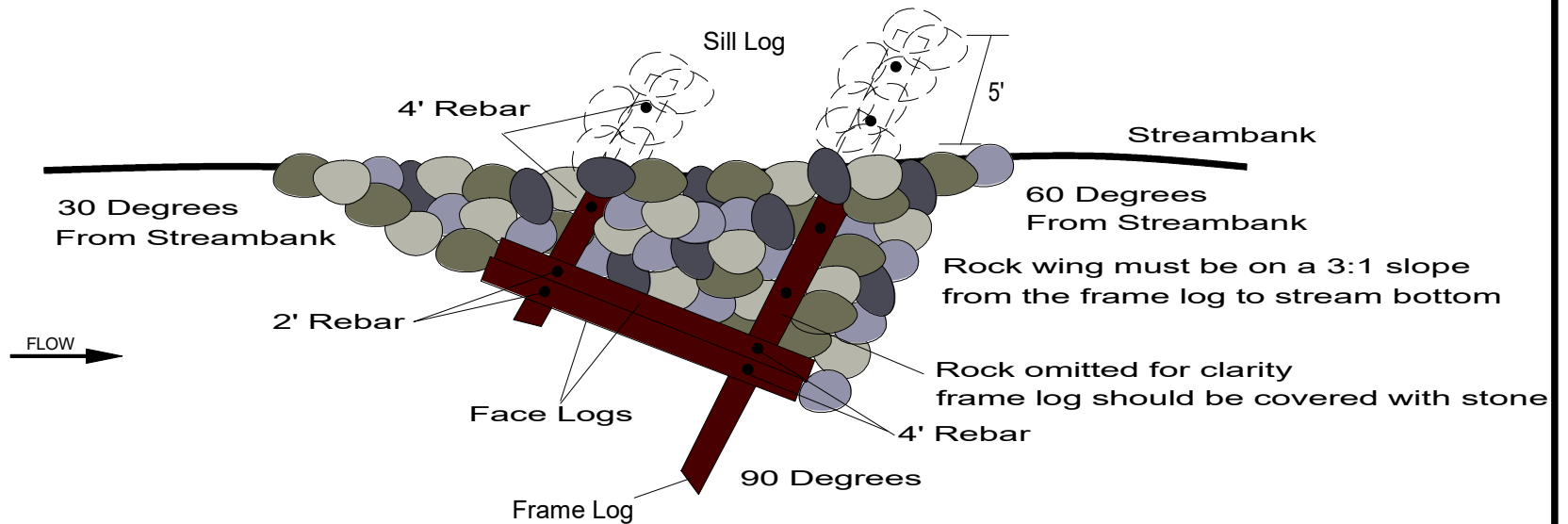
Note: Recommended only for use in low gradient systems

DHM, PFBC 2022

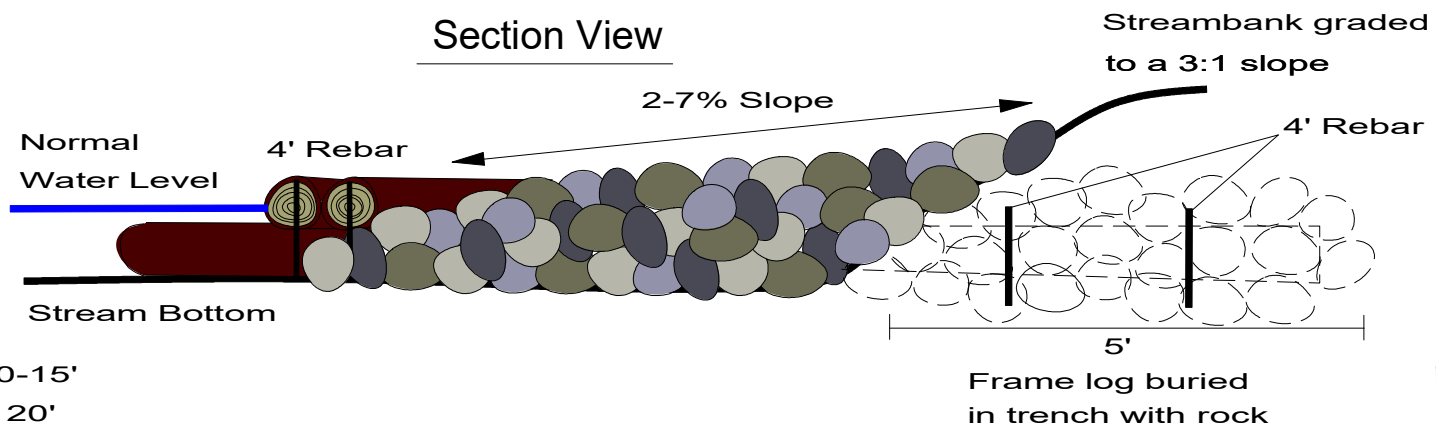


LOG FACED STONE DEFLECTOR

Plan View



Section View



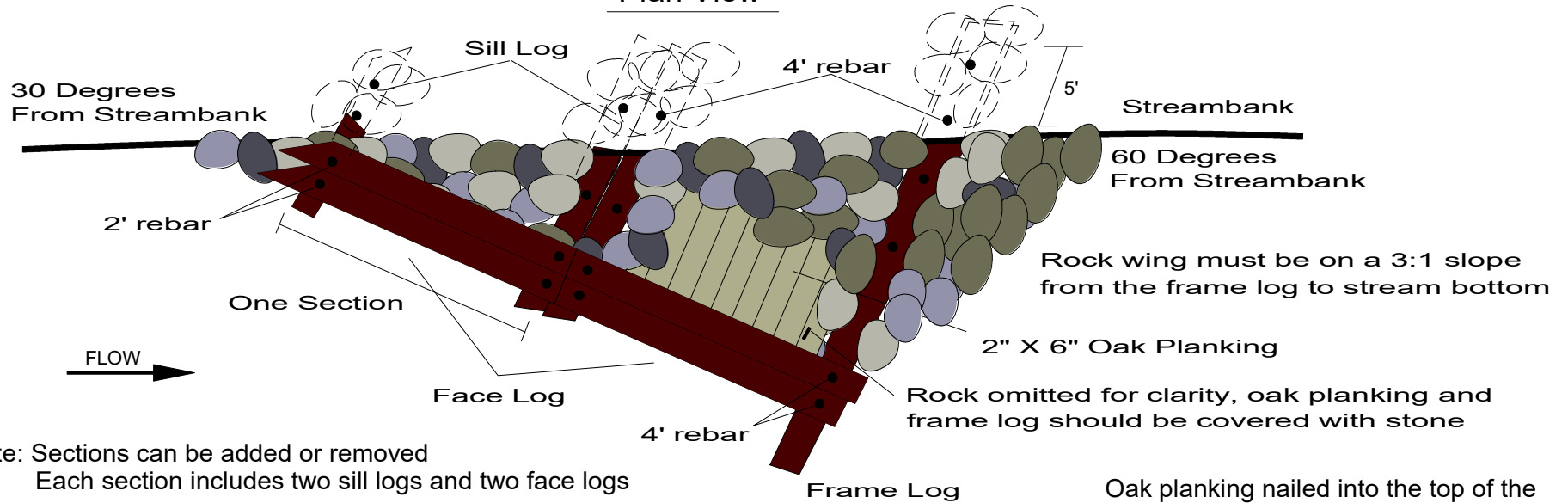
Sill Logs = 10-15'
 Face Logs = 20'
 Frame Log = 20-30'
 Log Dia. = 8-12"

DHM, PFBC 2022



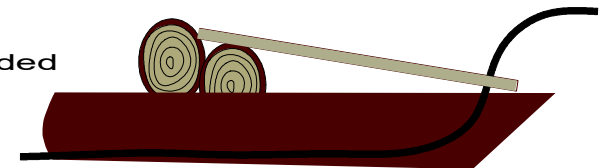
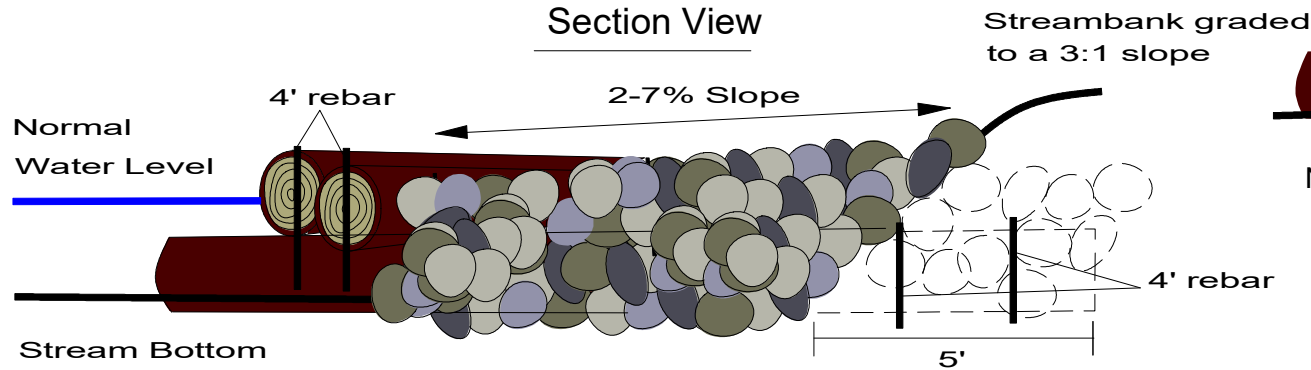
LOG FRAMED DEFLECTOR WITH BOARDS

Plan View



Note: Sections can be added or removed
Each section includes two sill logs and two face logs

Section View



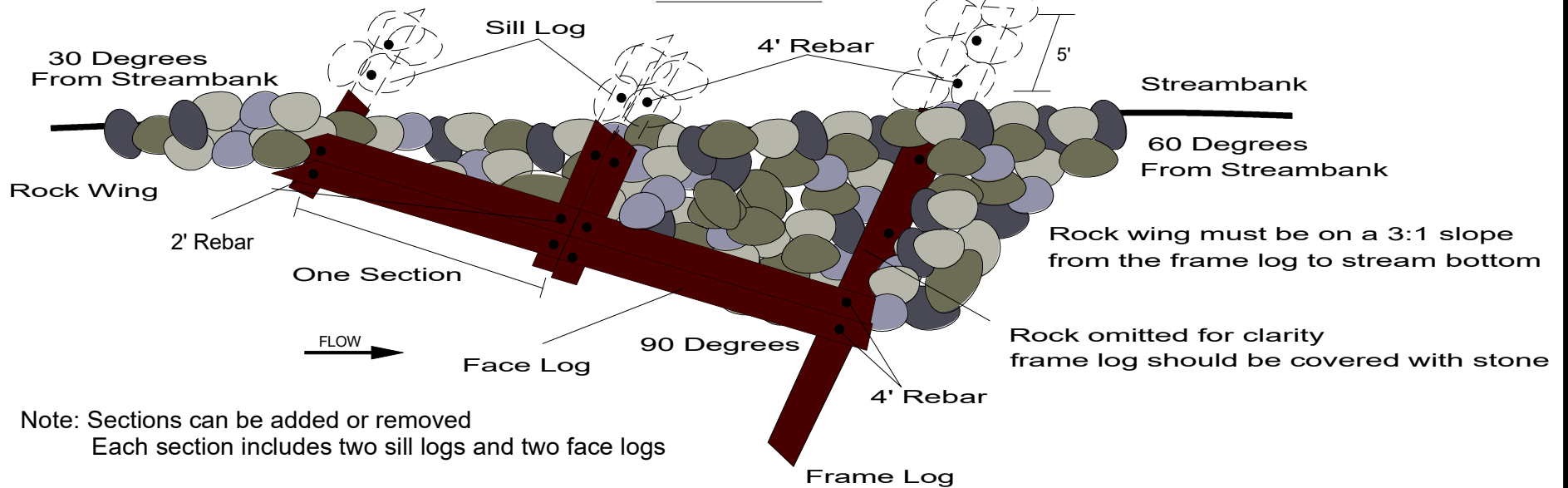
Note: Front face log kept higher to protect edge of oak planks

Sill Logs = 10-15'
Face Logs = 20'
Frame Logs = 20'-30'
Log Dia. = 8-12"

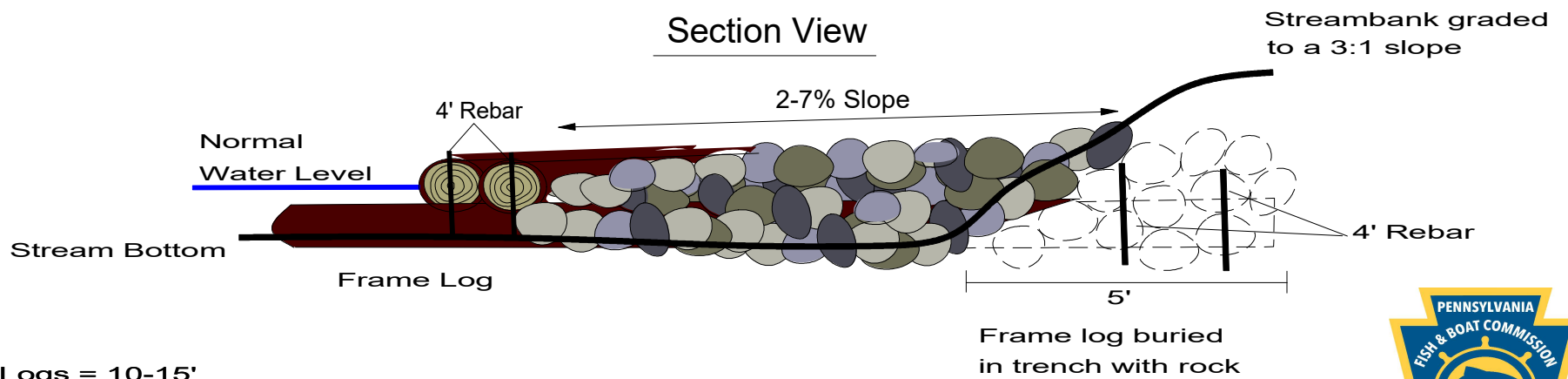
Frame log buried in trench with rock

LOG FRAMED STONE DEFLECTOR

Plan View



Section View



Sill Logs = 10-15'

Face Logs = 20'

Log Dia.= 8-12"

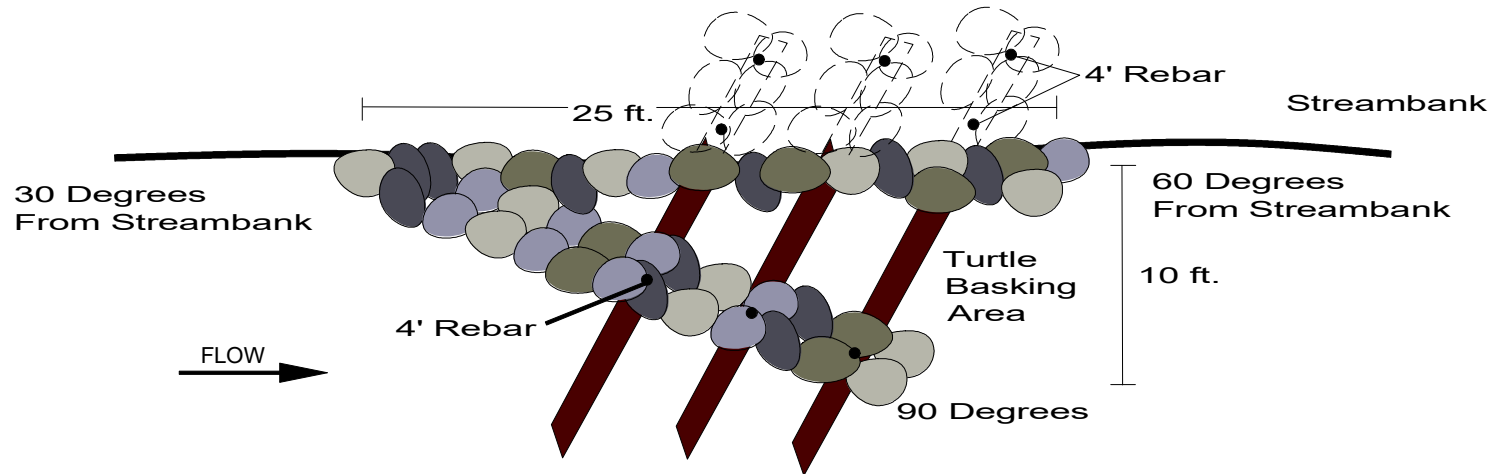
DHM, PFBC 2022



OPEN CENTER STONE DEFLECTOR WITH LOGS

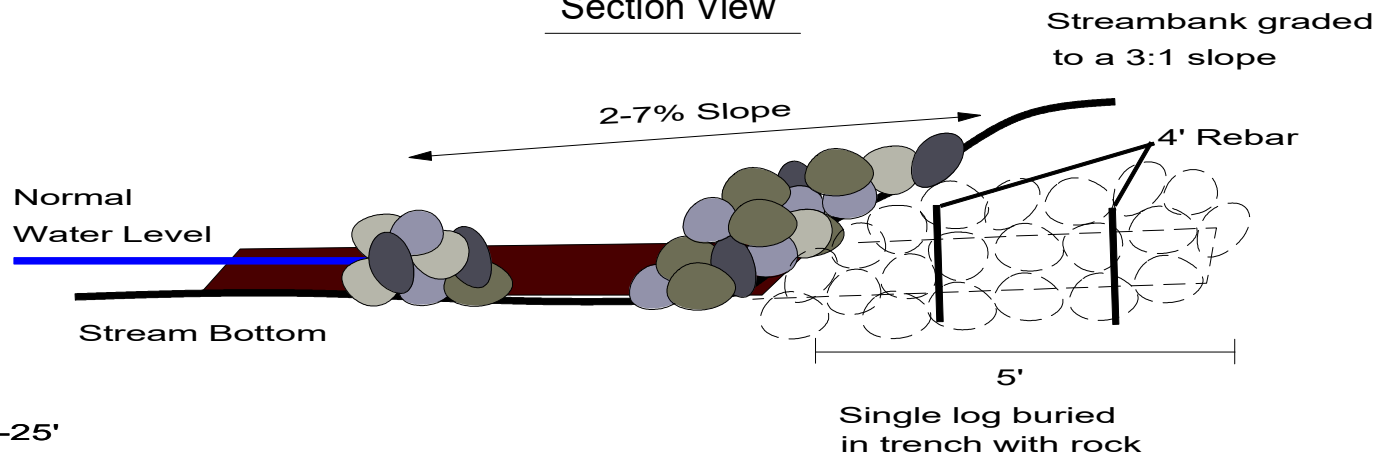
(LOW GRADIENT STRUCTURE)

Plan View



Note: Length measurement is 2.5 times the width
Deflector sizes may vary

Section View



Log Length = 15-25'

Log Dia. = 8-12"

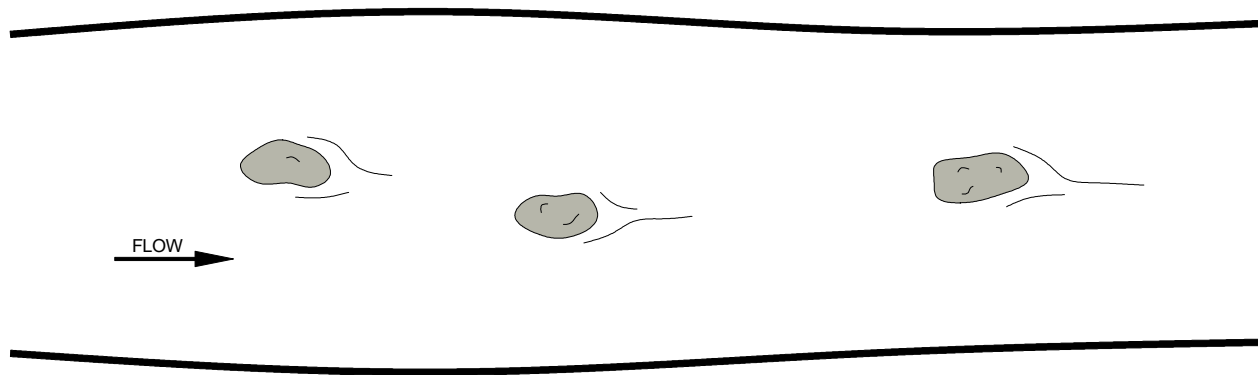
Note: Recommended only for use in low gradient systems

DHM, PFBC 2022



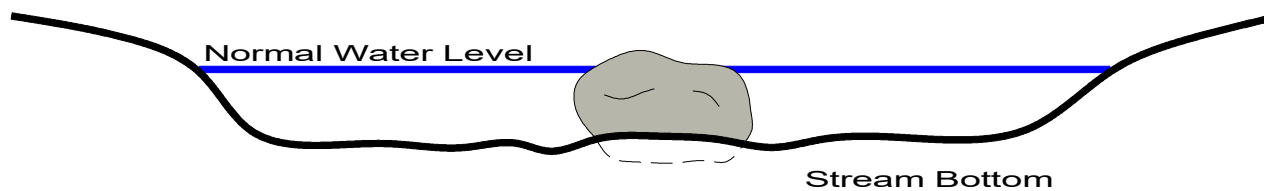
RANDOM BOULDER PLACEMENT

Plan View



Note: Place boulders in the middle third of the wetted width of the stream to prevent flow deflection into the streambanks

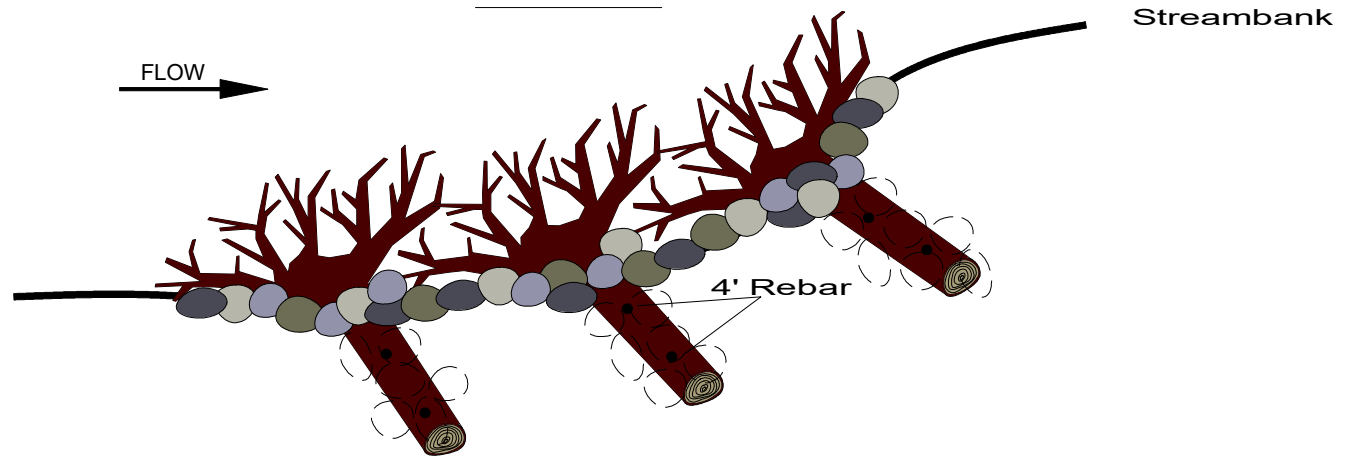
Section View



Note: Boulder should be large enough not to be displaced during high flow periods
Boulder height should be within 2" of normal water level

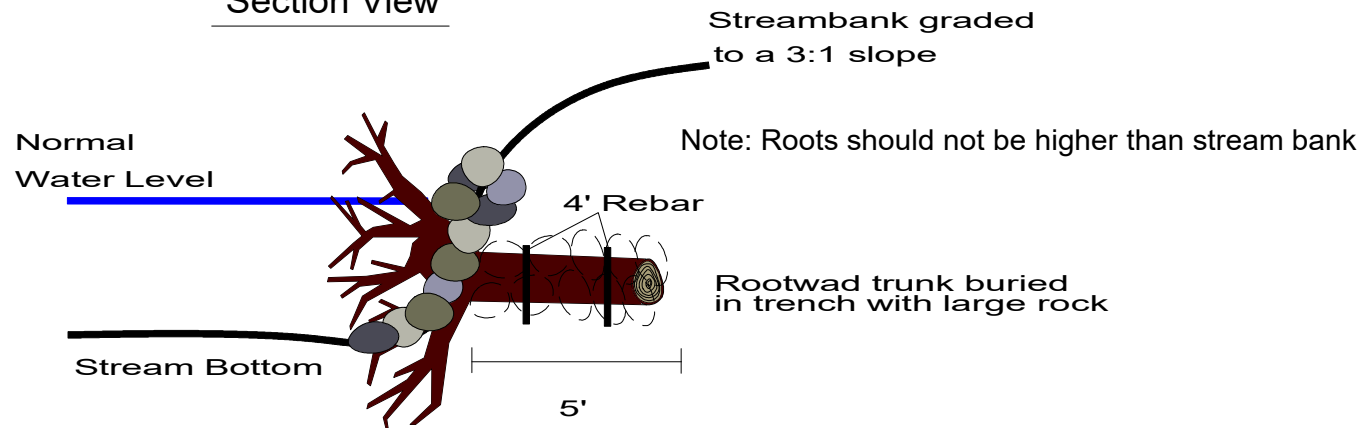
ROOTWAD DEFLECTOR

Plan View



Note: Can be placed as a single deflector or overlapping as shown

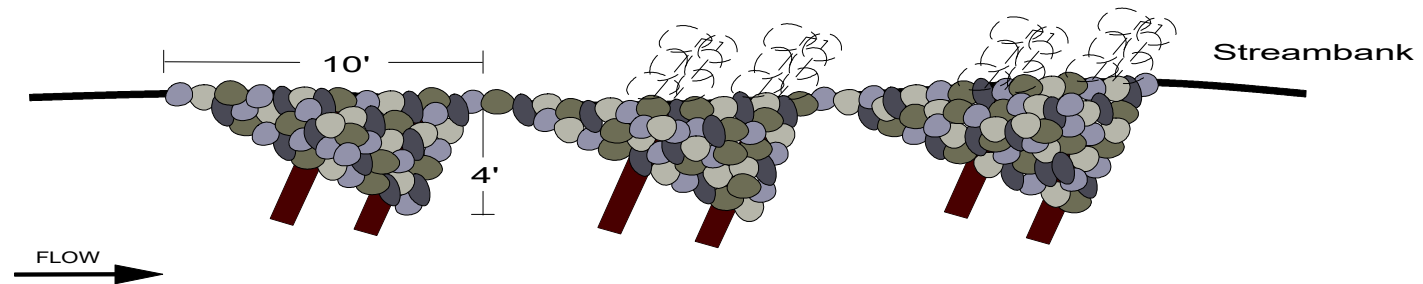
Section View



Rootwad Dia. = 3-6'
Rootwad Length = 10-15'

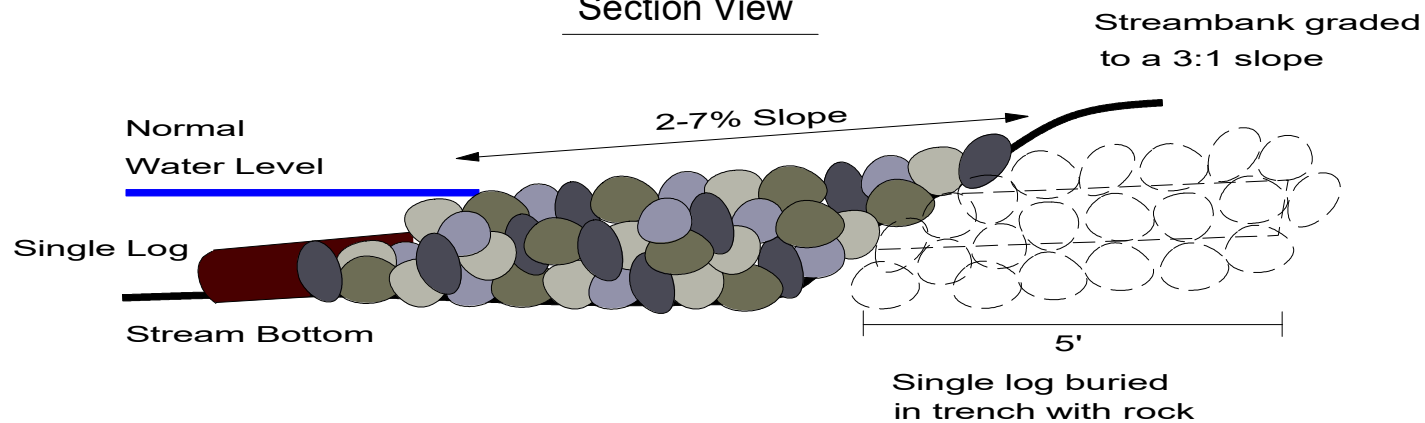
SAWTOOTH STONE DEFLECTORS WITH LOGS

Plan View



Note: Logs should be protruding 2 to 3 feet from rock face

Section View



Log Length = 10-15'

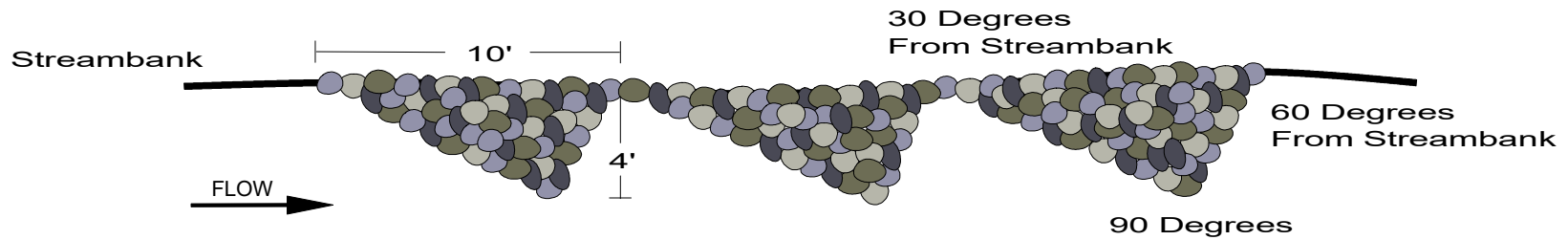
Log Dia.= 8-12"

DHM, PFBC 2022



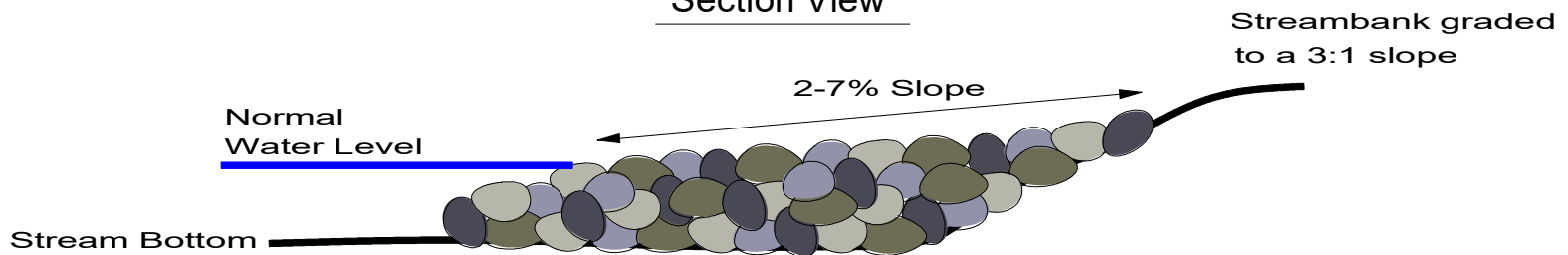
SAWTOOTH STONE DEFLECTORS

Plan View

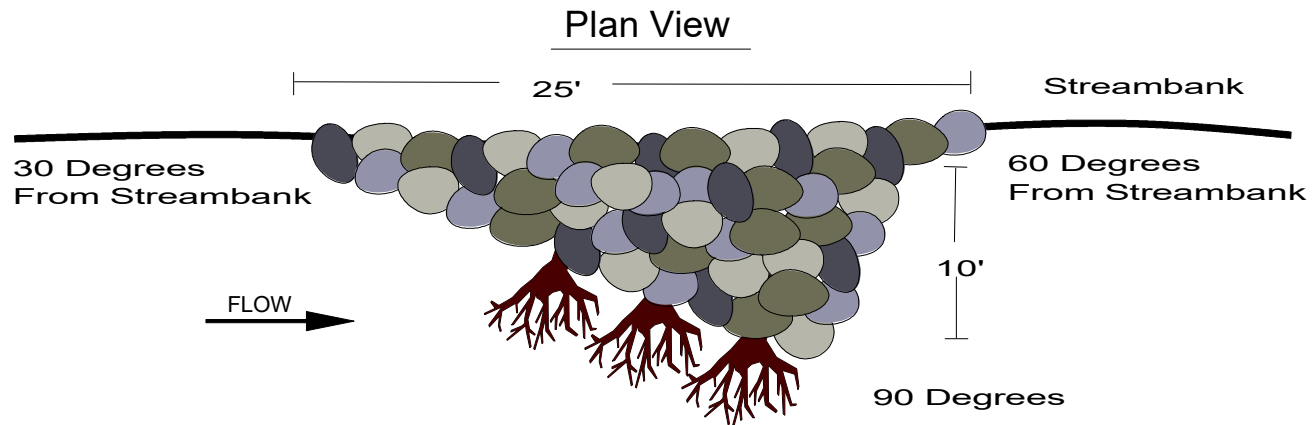


Note: Sections can be added or removed, and the length measurement is 2.5 times the width

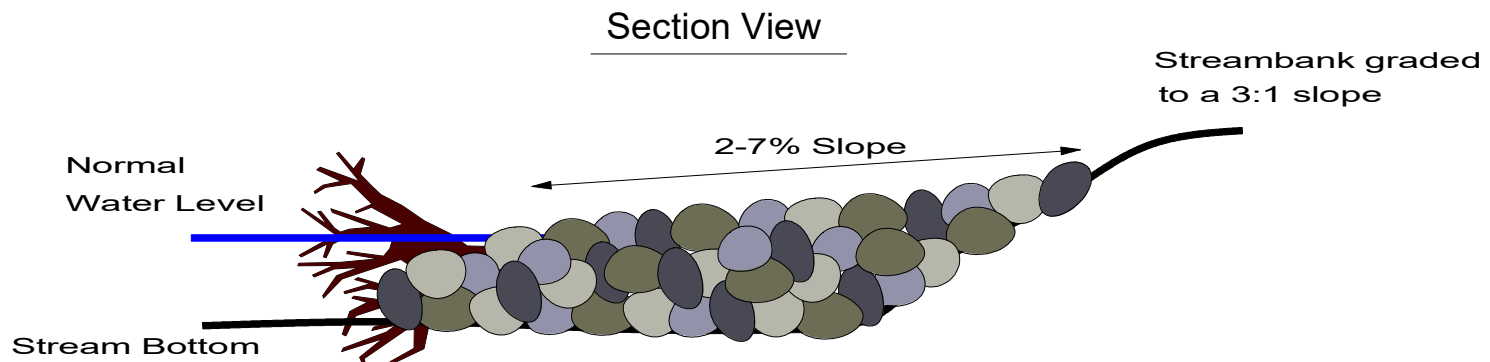
Section View



STONE DEFLECTOR WITH ROOTWADS

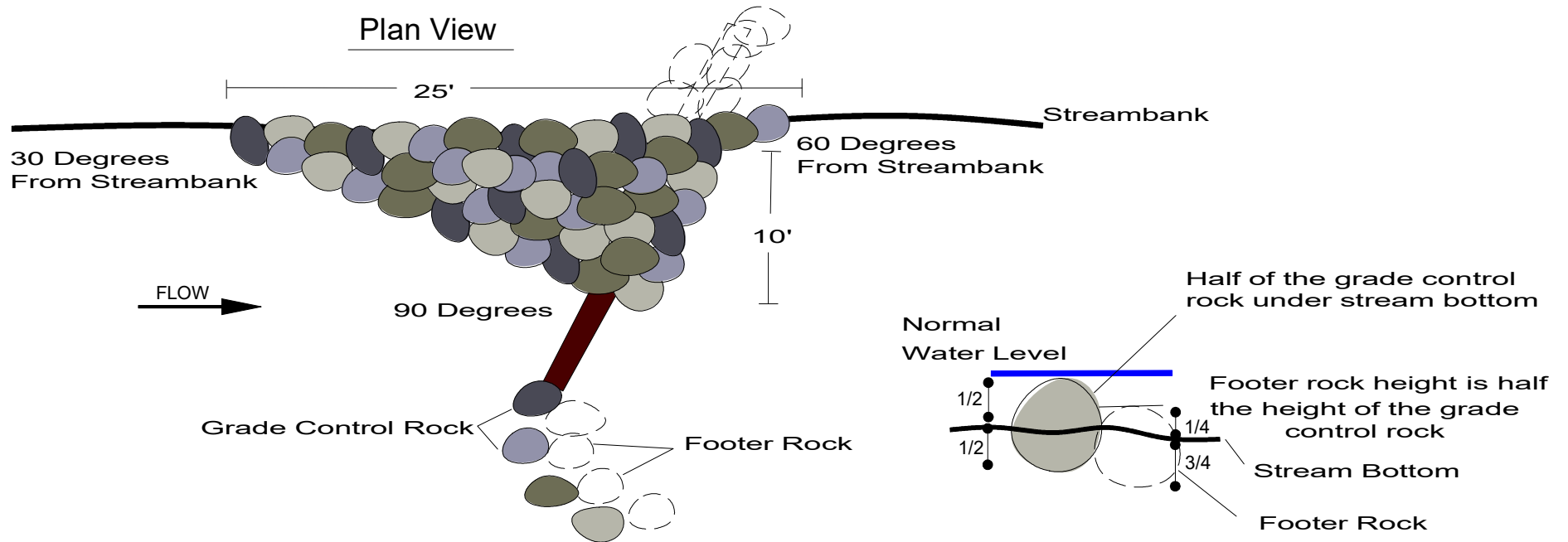


Note: Length measurement is 2.5 times the width
Deflector sizes may vary

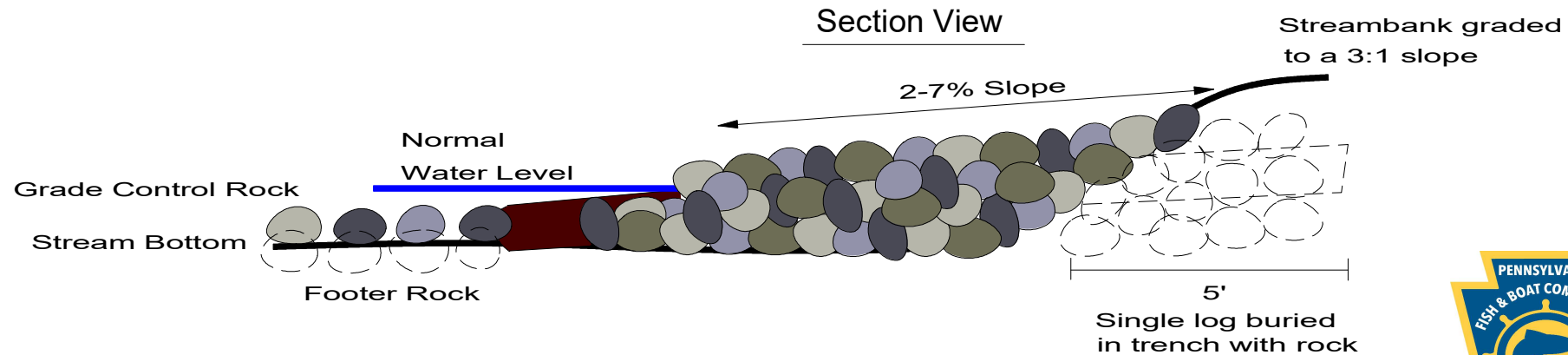


Rootwad Dia. = 3-6'
Rootwad Length = 10-15'

STONE DEFLECTOR WITH SINGLE LOG AND J-HOOK

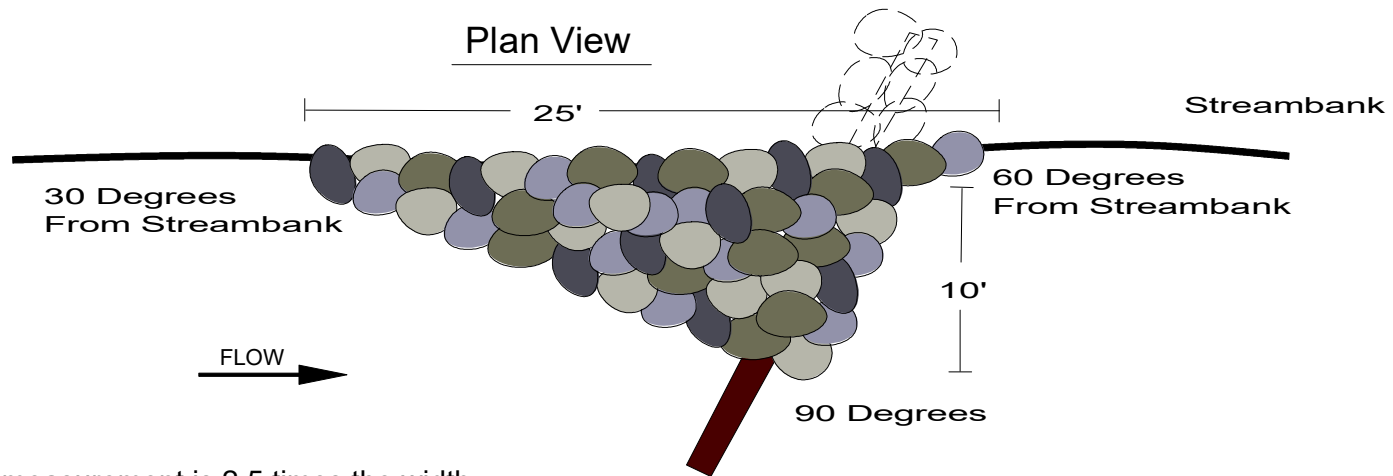


Note: Length measurement is 2.5 times the width
Deflector sizes may vary

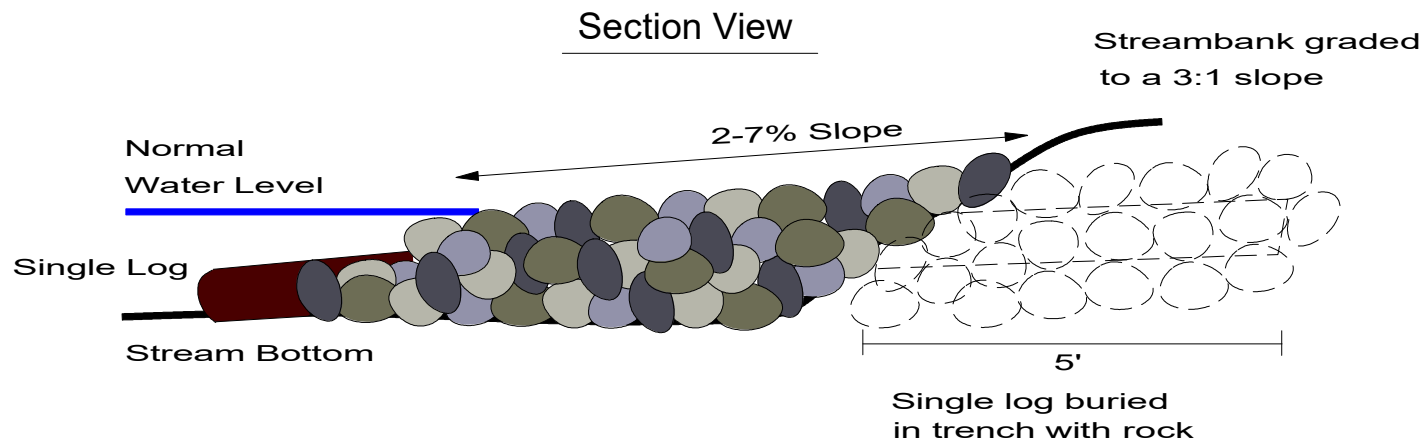


Log Length = 15-25'
Log Dia. = 8-12"

STONE DEFLECTOR WITH SINGLE LOG



Note: Length measurement is 2.5 times the width
Deflector sizes may vary



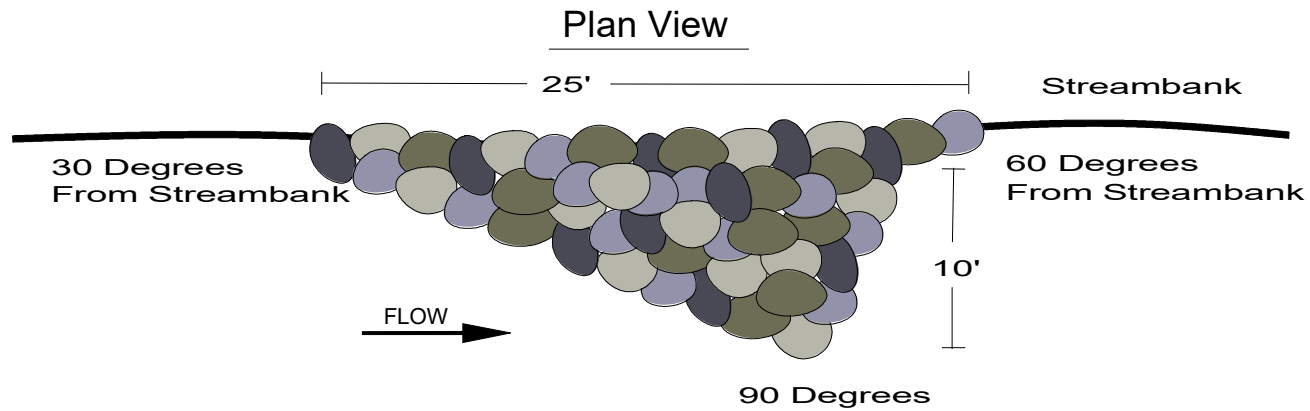
Log Length = 15-25'

Log Dia. = 8-12"

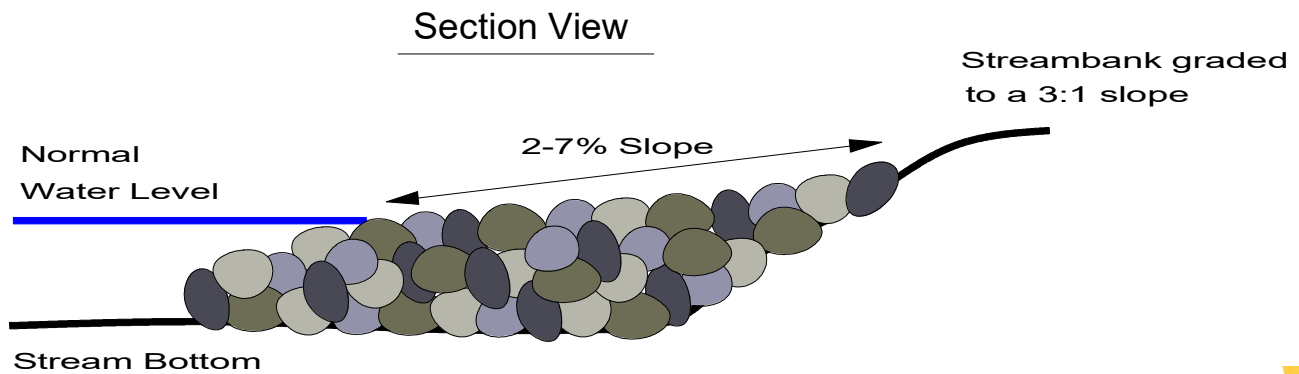
DHM, PFBC 2022



STONE DEFLECTOR

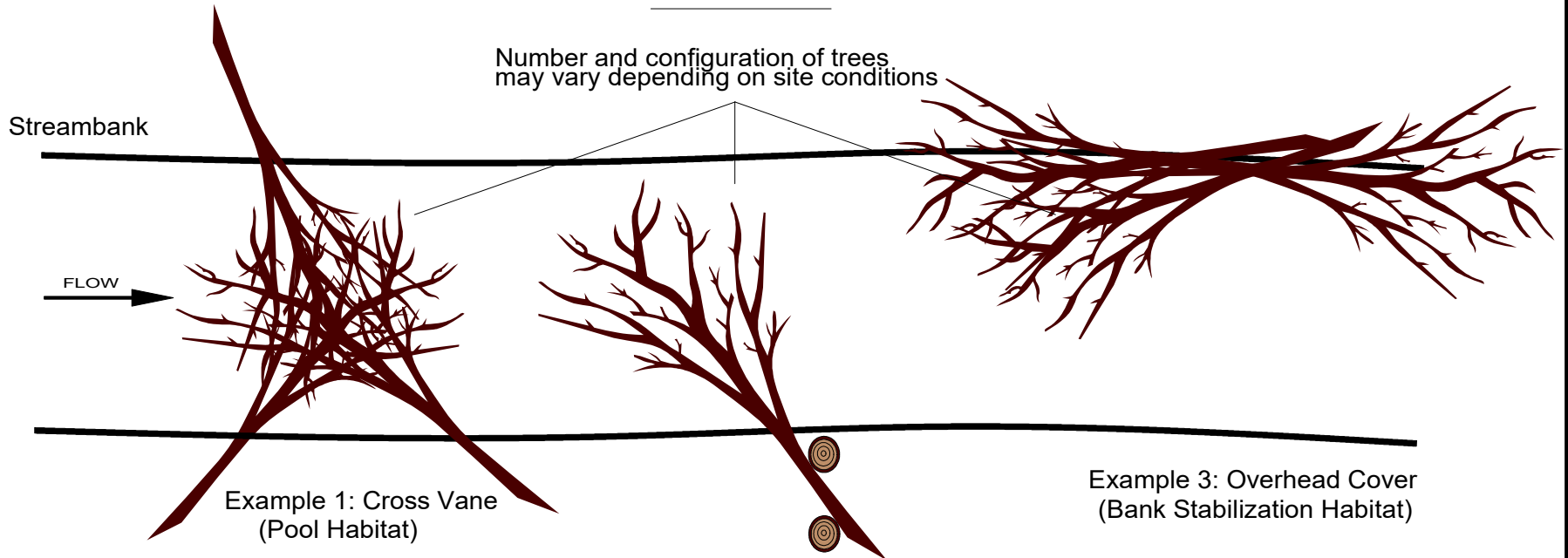


Note: Length measurement is 2.5 times the width
Deflector sizes may vary



LARGE WOOD DEVICES

Plan View

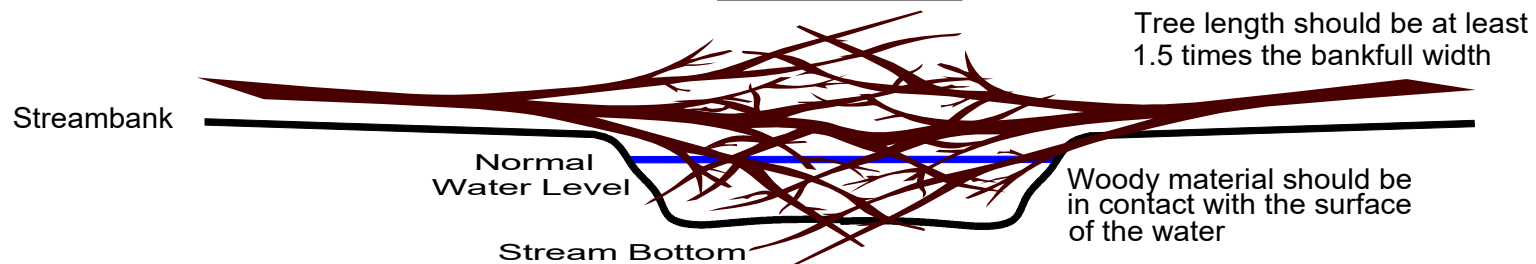


Note: Trees should be large enough and have enough ballast to prevent movement during high flow periods

Example 2: Directional Flow (Riffle/Run Habitat)

Note: When possible trees should be "pinned" between stumps and or living trees to reduce likelihood of movement

Section View



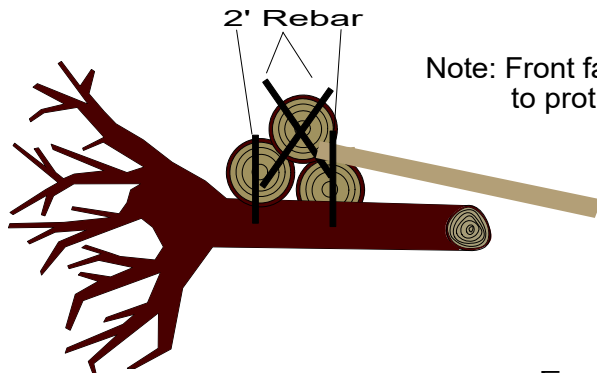
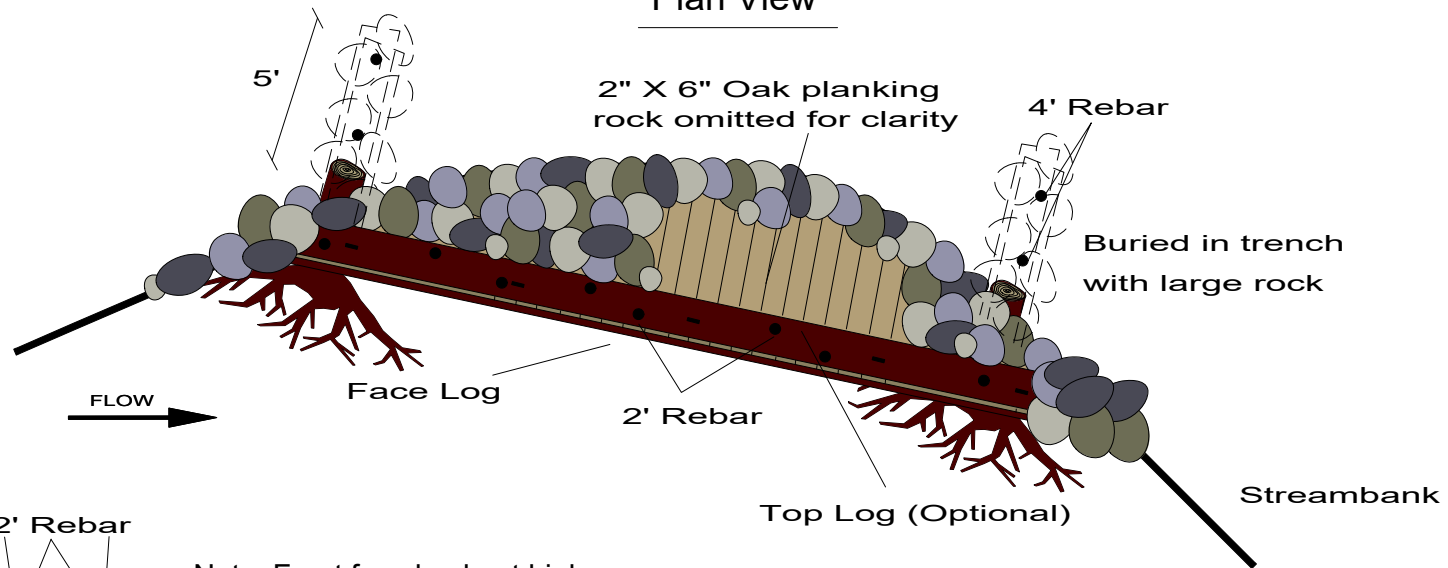
Trees = minimum 10" dia.

DHM, PFBC 2022

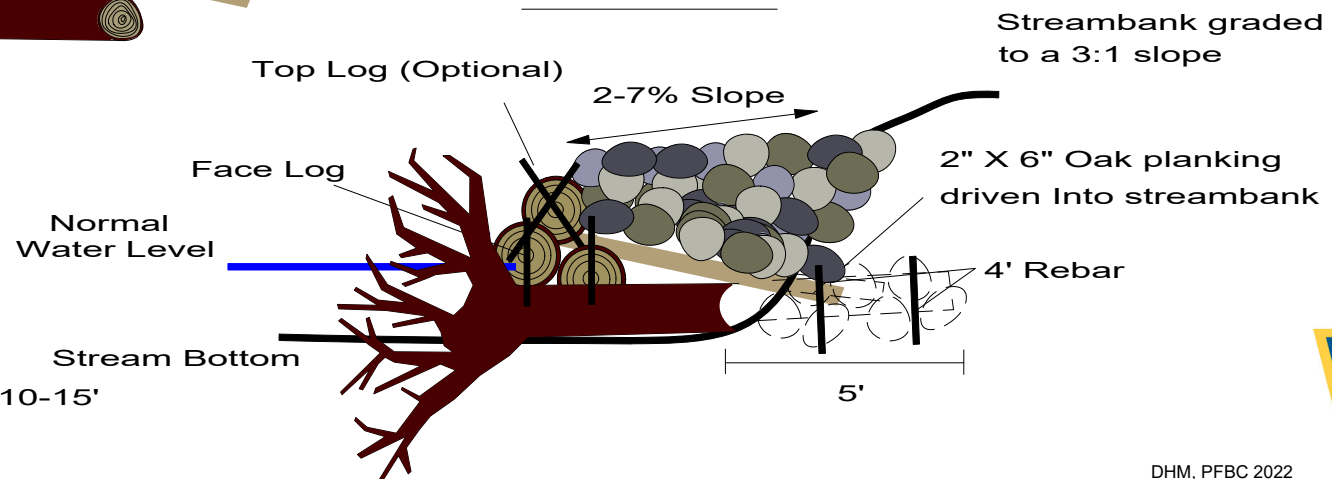


BANK COVER CRIBBING WITH ROOTWADS

Plan View



Section View



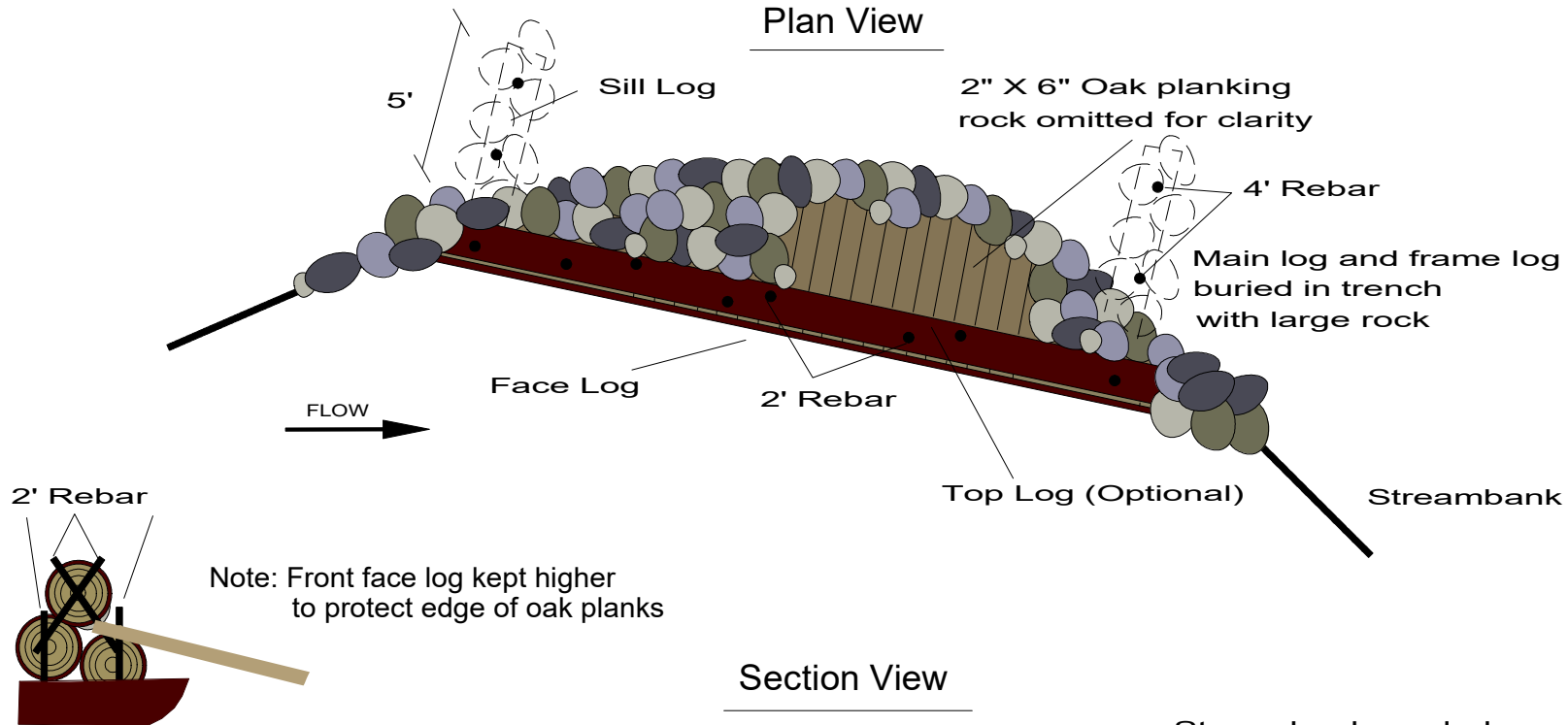
Rootwad Length = 10-15'
Face Logs = 20'
Log Dia.= 8-12"

DHM, PFBC 2022

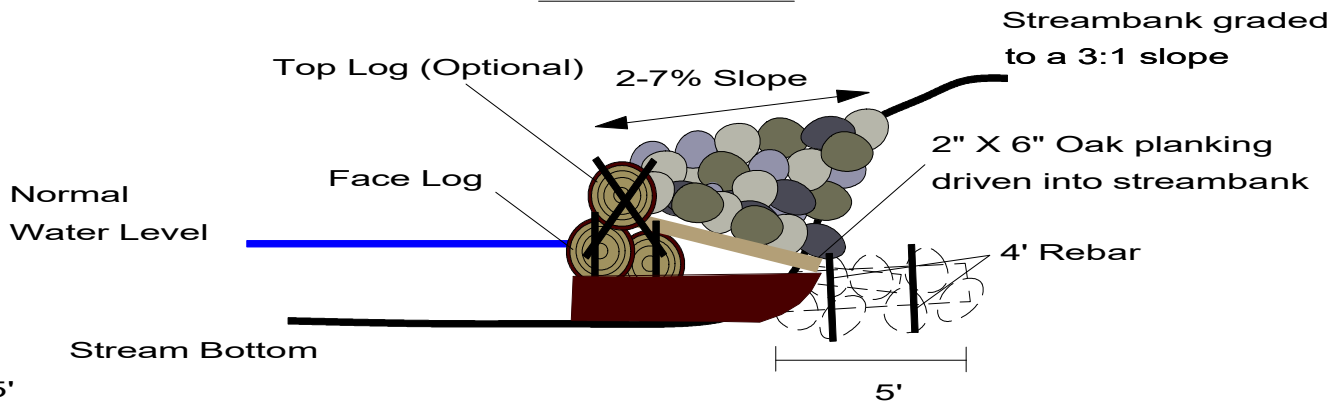


BANK COVER CRIBBING

Plan View



Section View

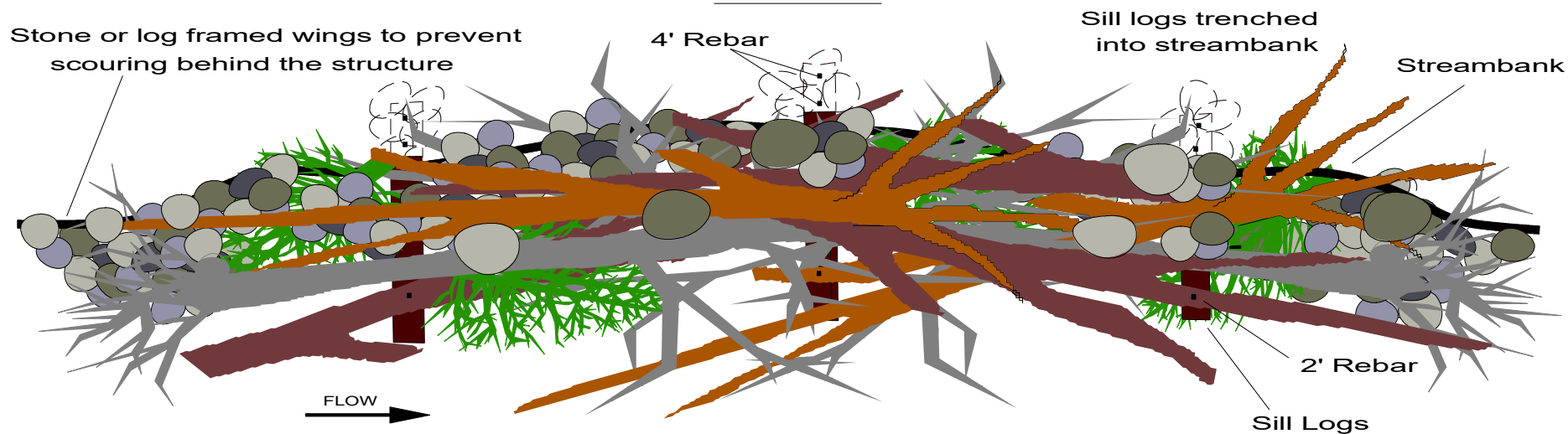


Sill Logs = 10-15'
 Face Logs = 20'
 Log Dia. = 8-12"



BRUSH REVETMENT

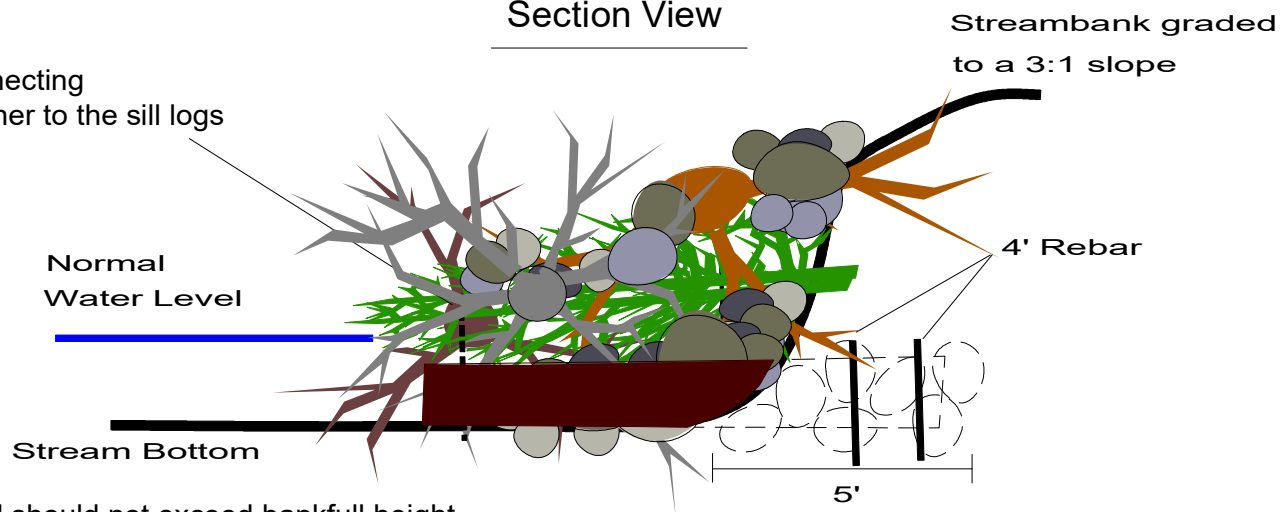
Plan View



Note: Sill logs should be placed every 15-20 ft and attached to other trees using rebar if necessary
Stone can be added on top of the brush/trees for structural integrity/ballast

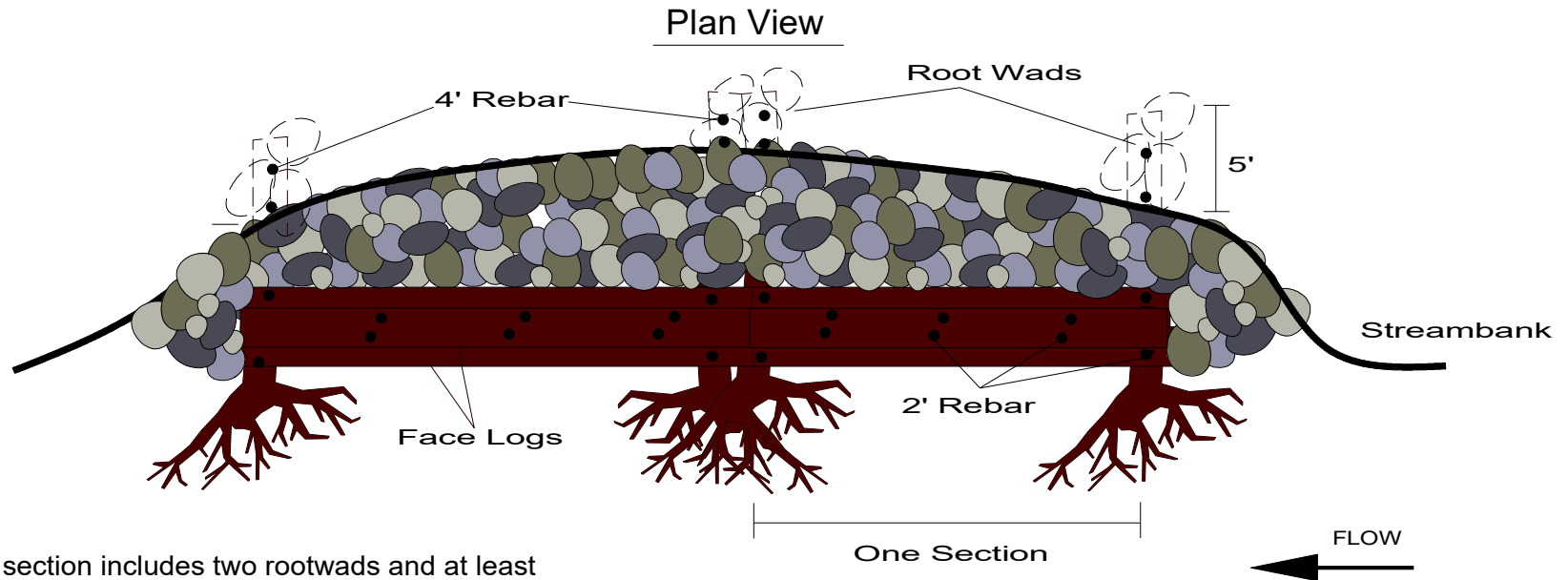
Section View

Note: 2' or 4' rebar connecting brush/trees together to the sill logs

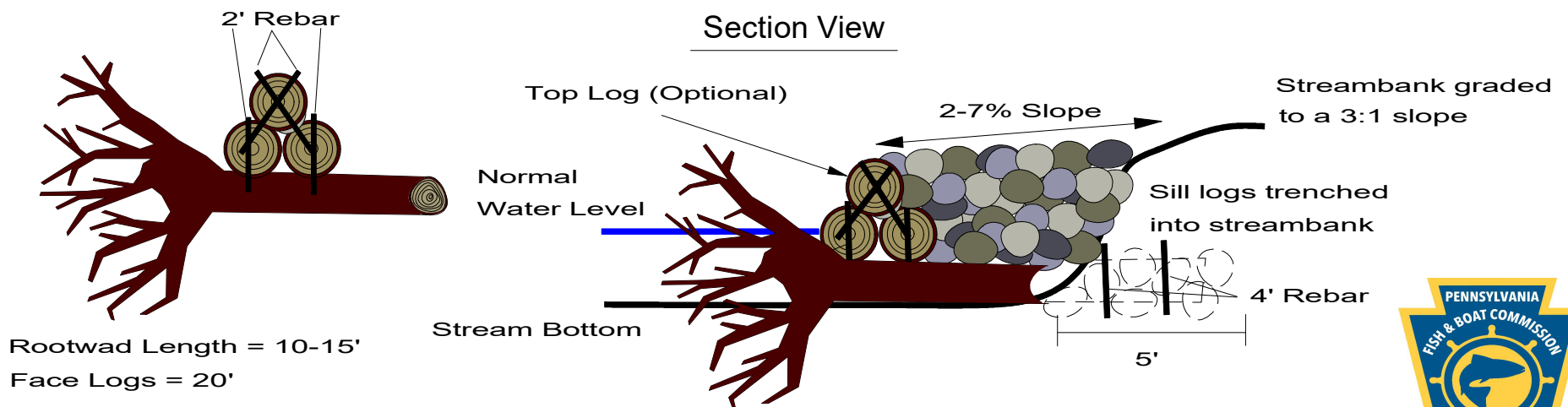


Note: Structure material should not exceed bankfull height

MODIFIED MUD SILL CRIBBING WITH ROOTWADS



Note: Each section includes two rootwads and at least two face logs, sections can be added or removed

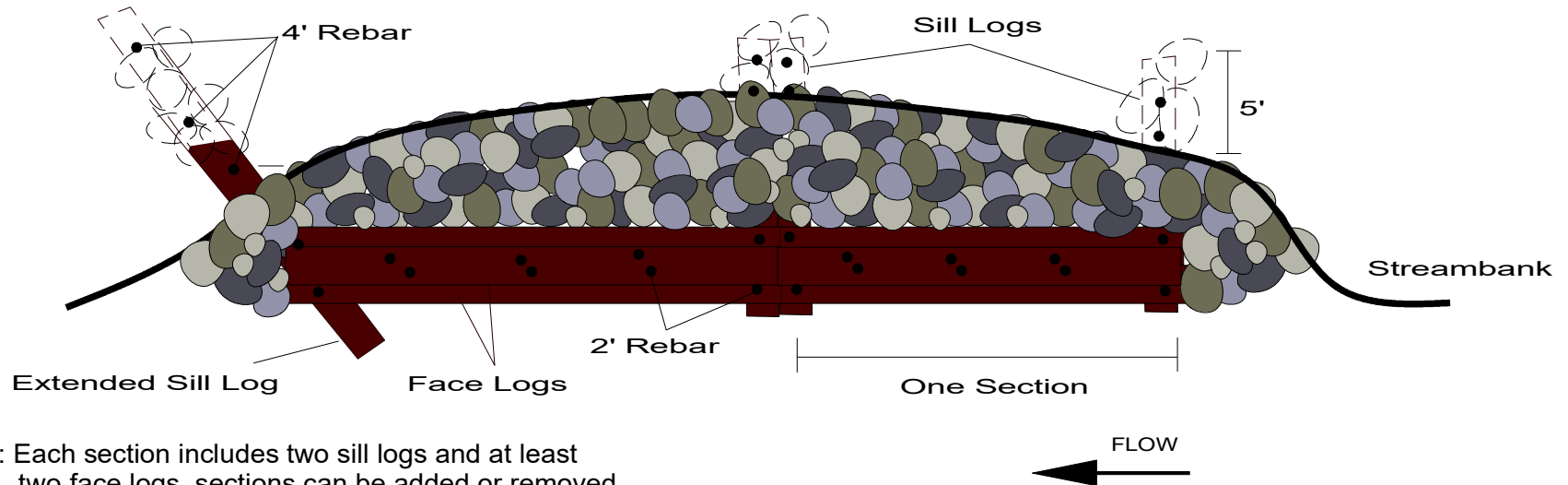


DHM, PFBC 2022



MODIFIED MUD SILL CRIBBING

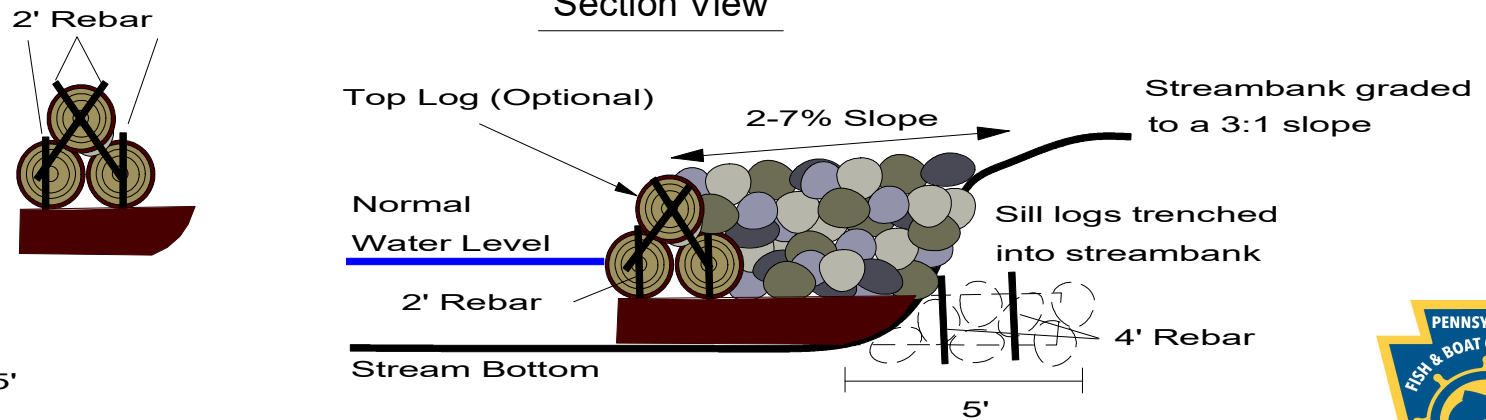
Plan View



Note: Each section includes two sill logs and at least two face logs, sections can be added or removed

Note: Ending section can have extended sill log

Section View



Sill Logs = 10-15'

Face Logs = 20'

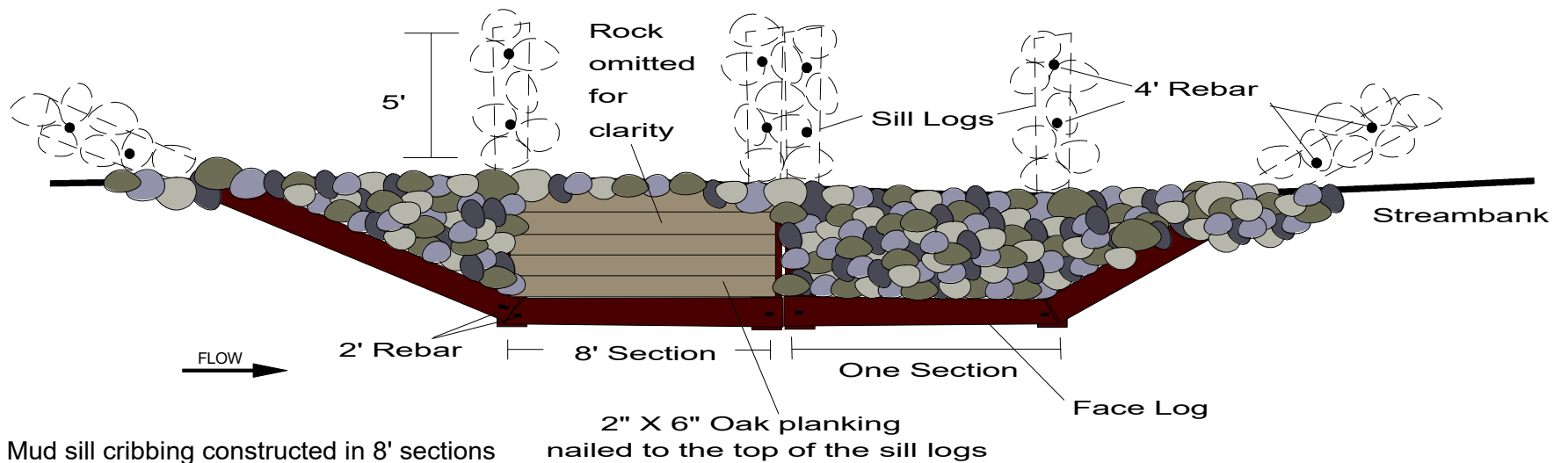
Log Dia. = 8-12"

DHM, PFBC 2022



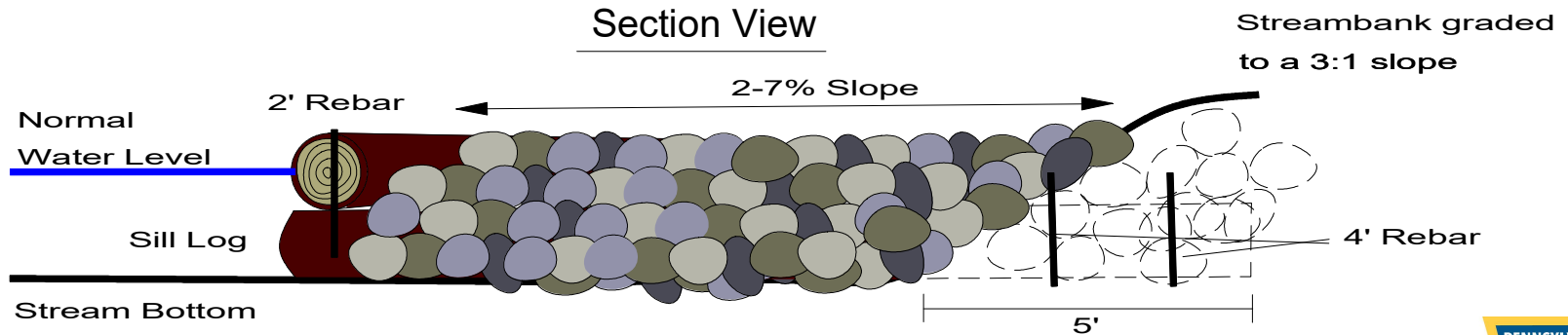
MUD SILL CRIBBING

Plan View



Note: Mud sill cribbing constructed in 8' sections
Sections can be added or removed

Section View



Sill Logs = 10-15'

Face Logs = 8'

Log Dia. = 8-12"

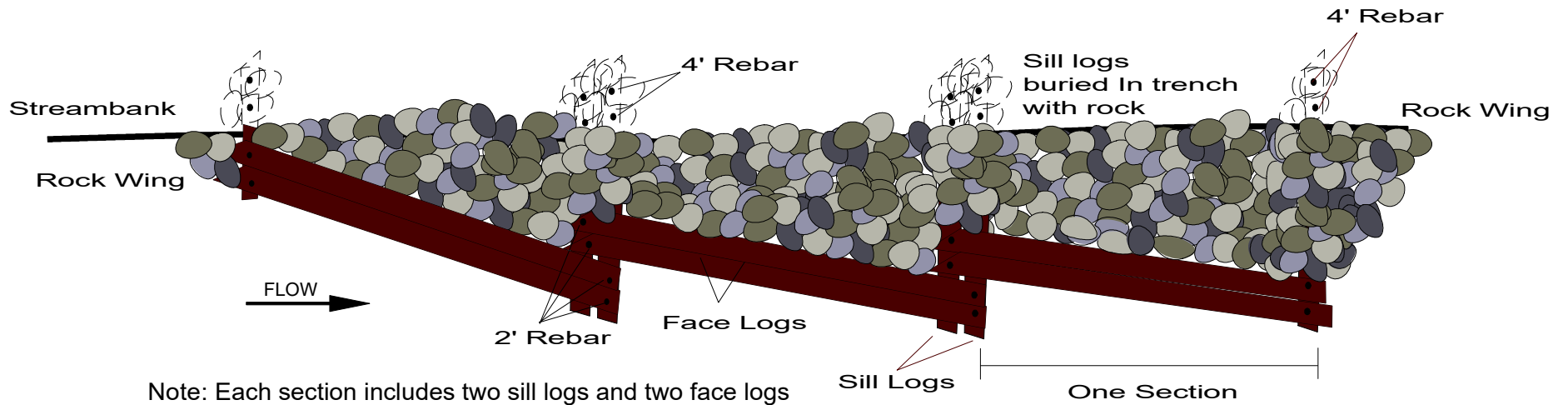
Sill logs buried in trench with rock

DHM, PFBC 2022



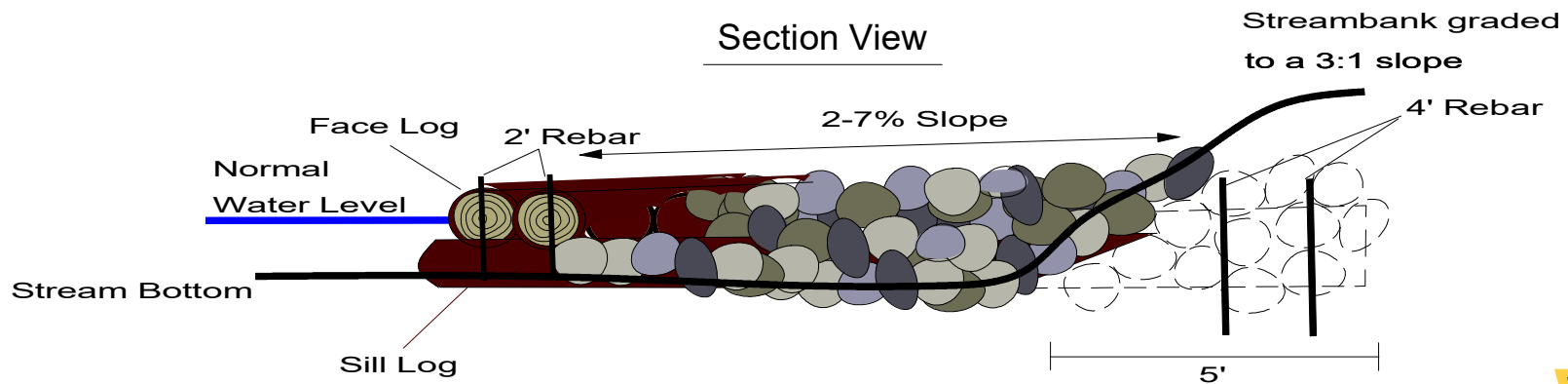
SAWTOOTH MODIFIED MUDSILL CRIBBING

Plan View



Note: Each section includes two sill logs and two face logs
Sections can be added or removed

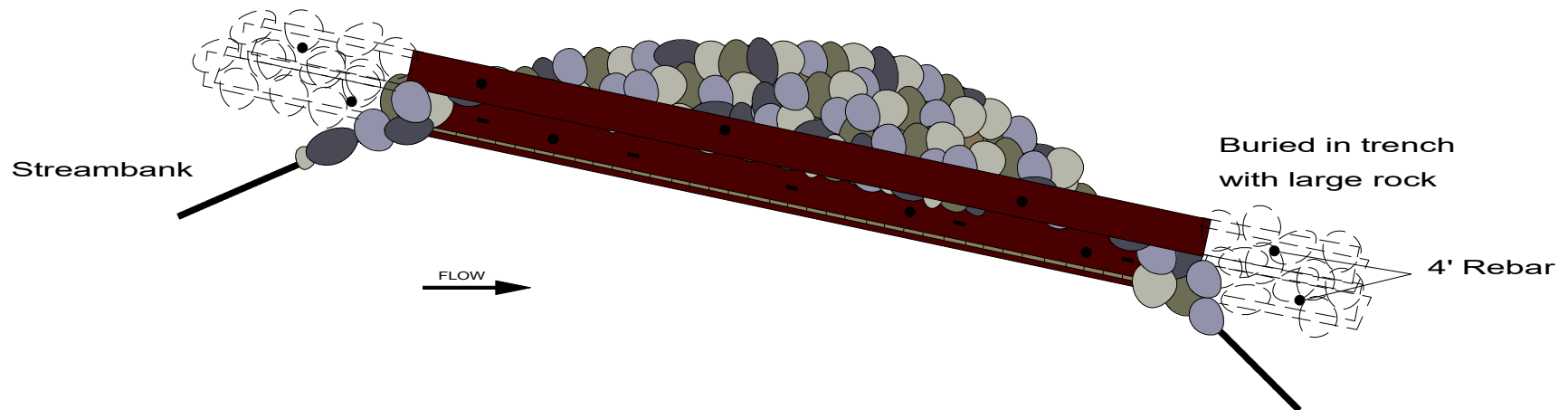
Section View



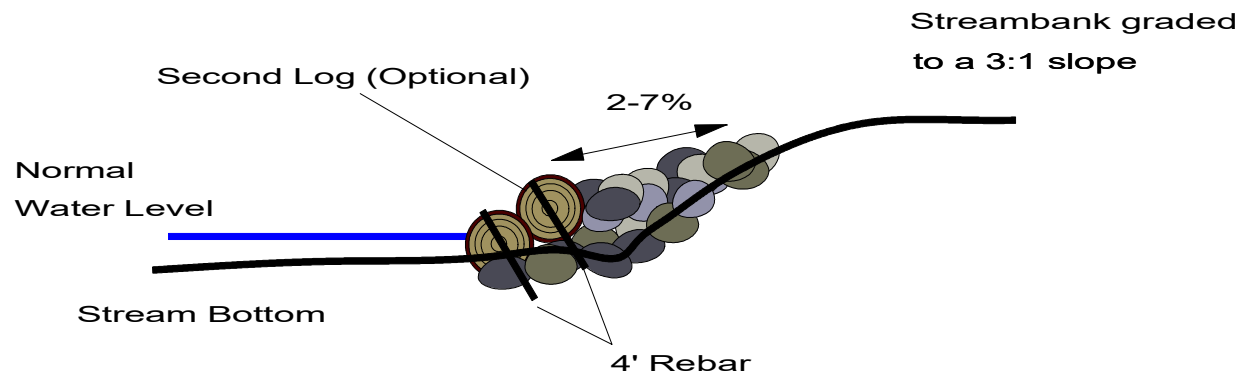
Sill Logs = 10-15'
Face Logs = 20'
Log Dia. = 8-12"

TOE LOG CRIBBING (LOW GRADIENT STRUCTURE)

Plan View



Section View



Log Dia.= 8-12"

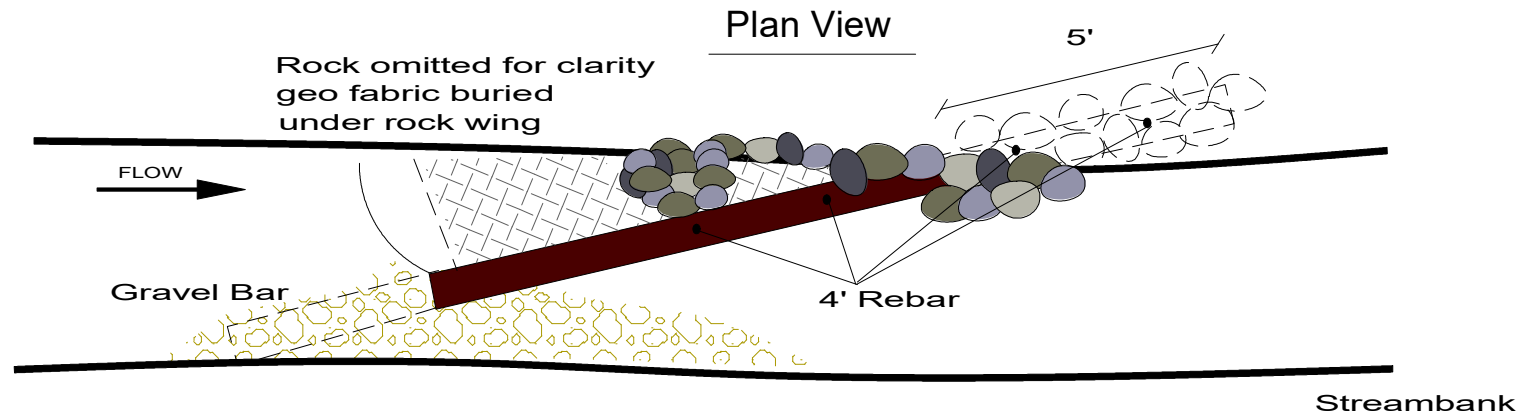
Note: Recommended only for use in low gradient systems

DHM, PFBC 2022



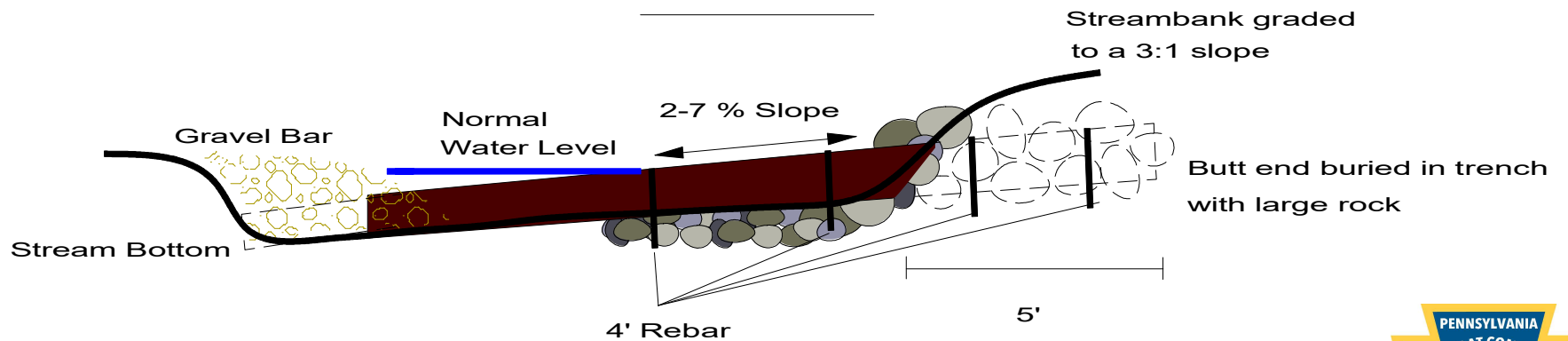
CROSS LOG VANE

(LOW GRADIENT STRUCTURE)



4' Rebar Pin

Section View



Log Length = 15-25'

Log Dia. = 8-12"

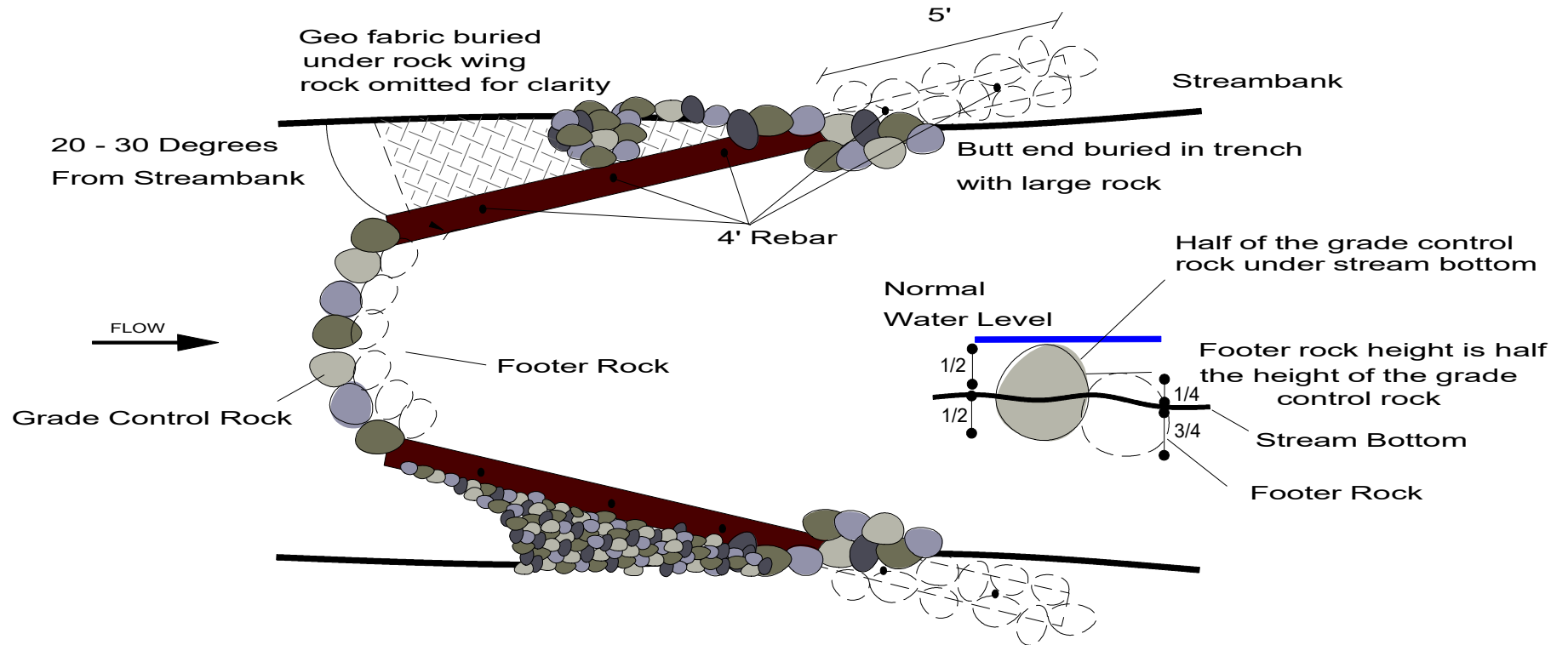
Note: Low gradient structure designed to prevent gravel bar growth

DHM, PFBC 2022

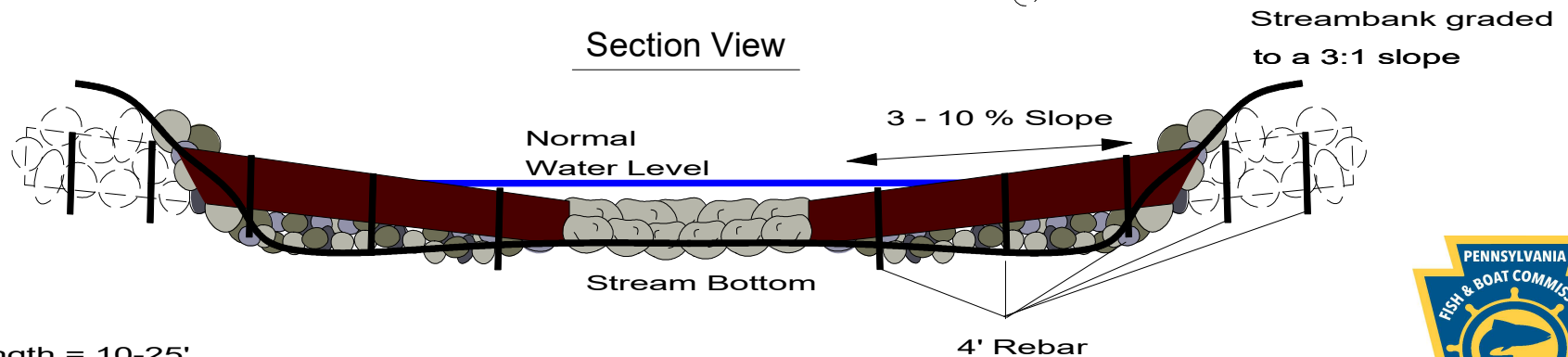


LOG CROSS VANE WITH ROCK THROAT

Plan View



Section View



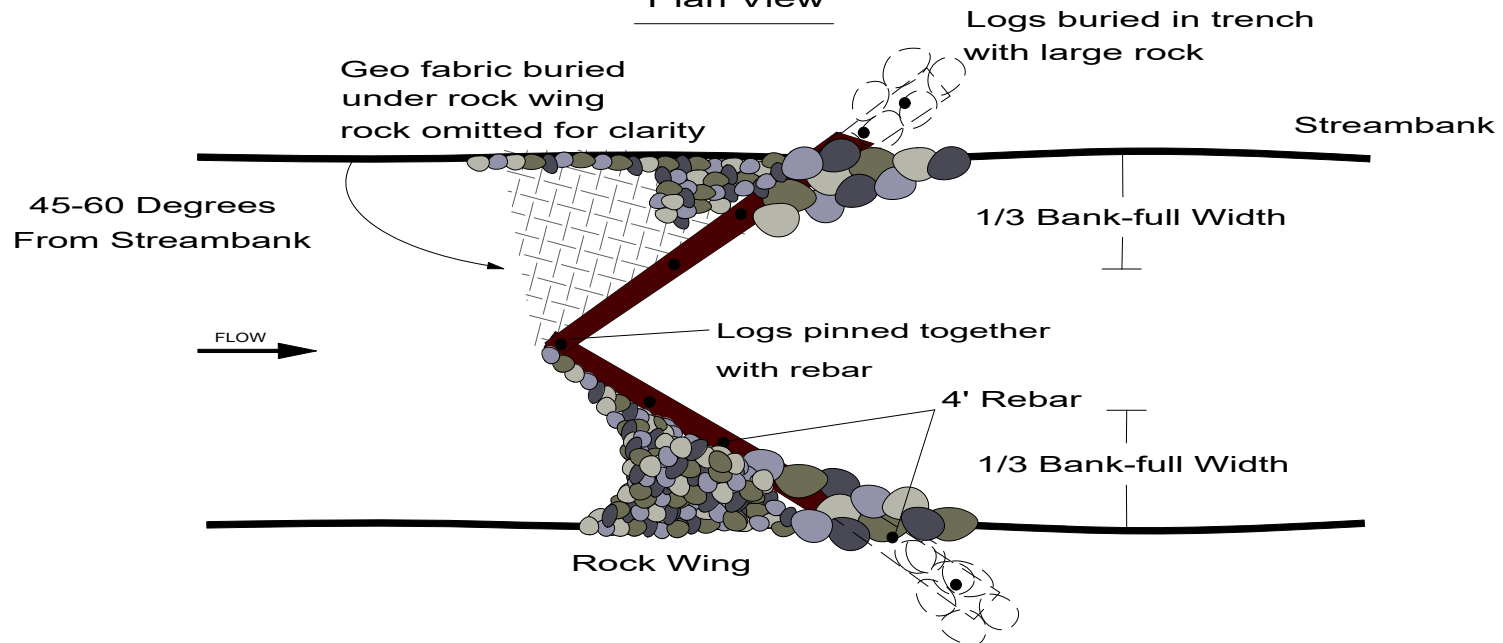
Log Length = 10-25'
Log Dia. = 8-12"

DHM, PFBC 2022

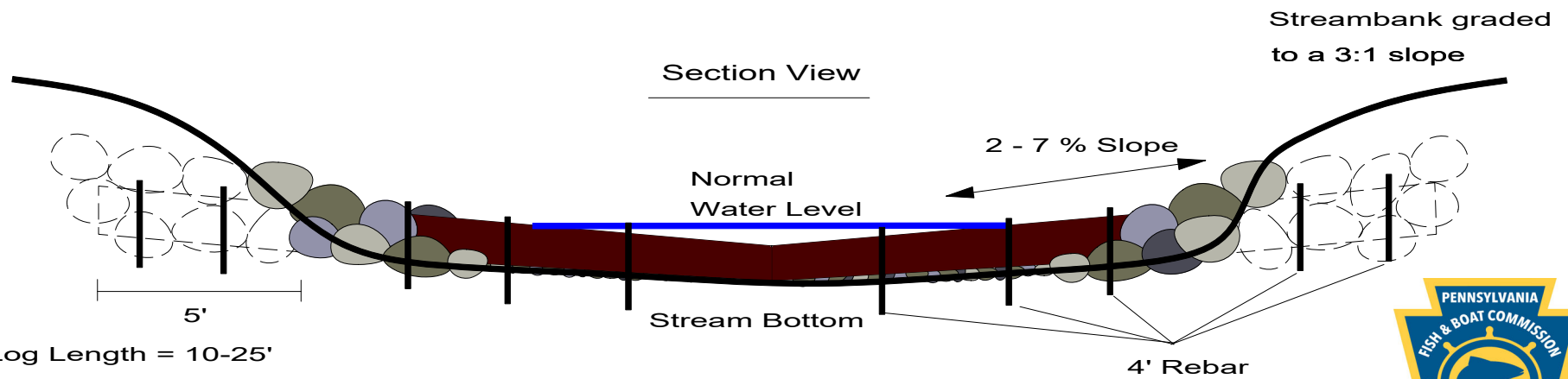


LOG CROSS VANE (LOW GRADIENT STRUCTURE)

Plan View



Section View



Log Length = 10-25'

Log Dia. = 8-12"

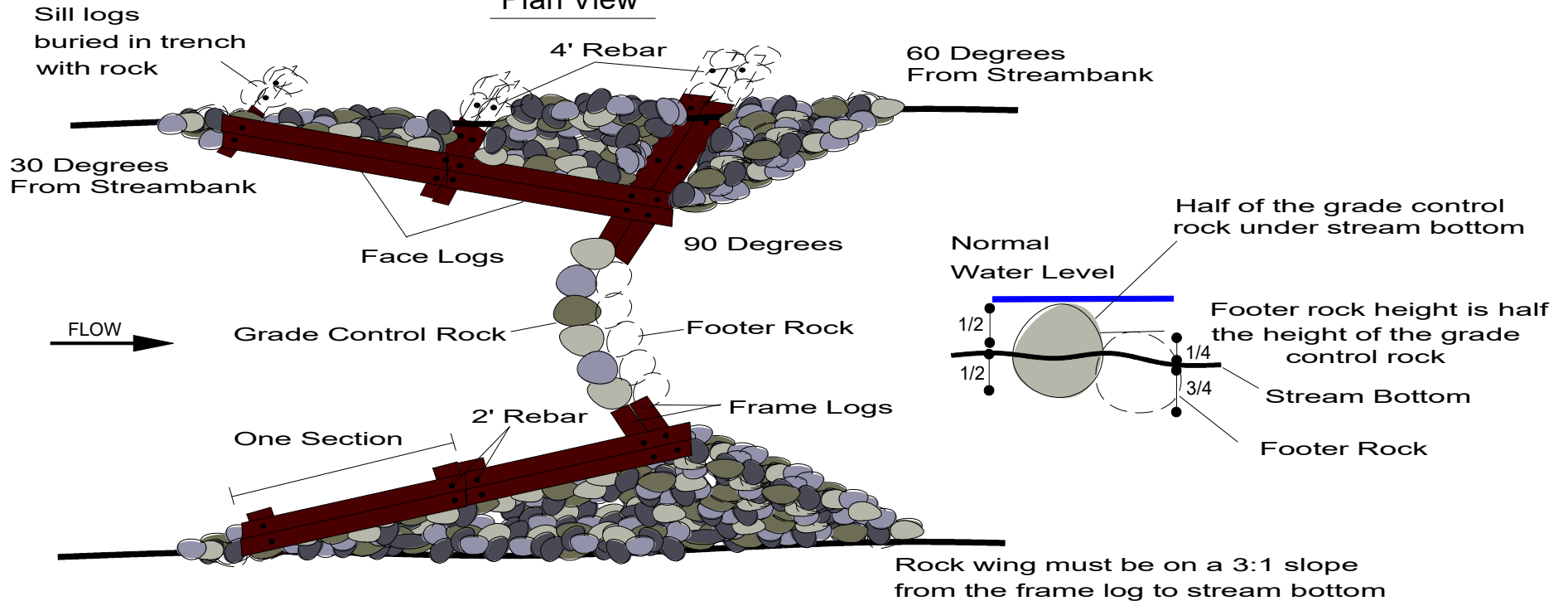
Note: Recommended only for use in low gradient systems

DHM, PFBC 2022



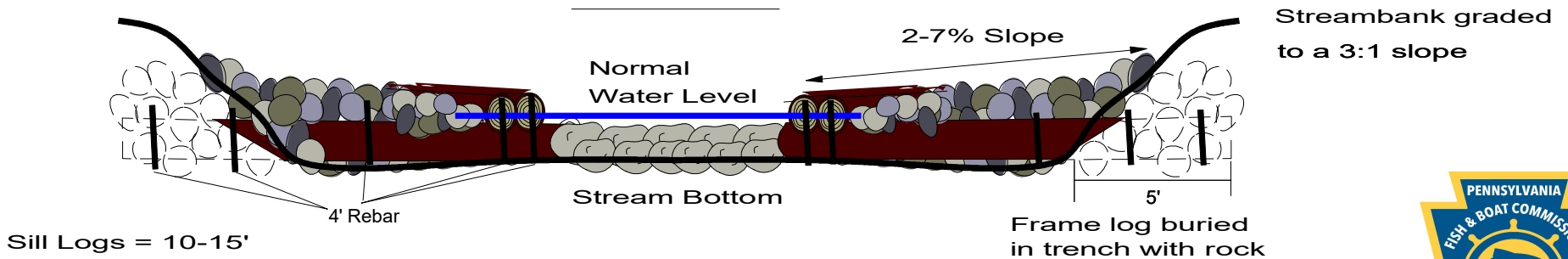
LOG FRAMED CROSS VANE WITH ROCK THROAT

Plan View



Note: Sections can be added or removed

Section View



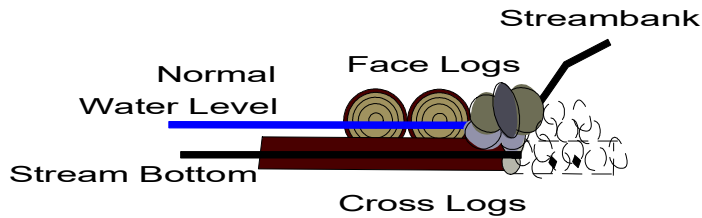
Sill Logs = 10-15'
 Face Logs = 20'
 Frame Logs = 20-30'
 Log Dia. = 8-12"

DHM, PFBC 2022



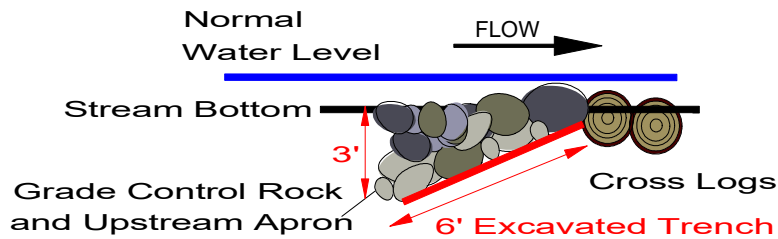
LOG FRAMED CROSS VANE

Profile View



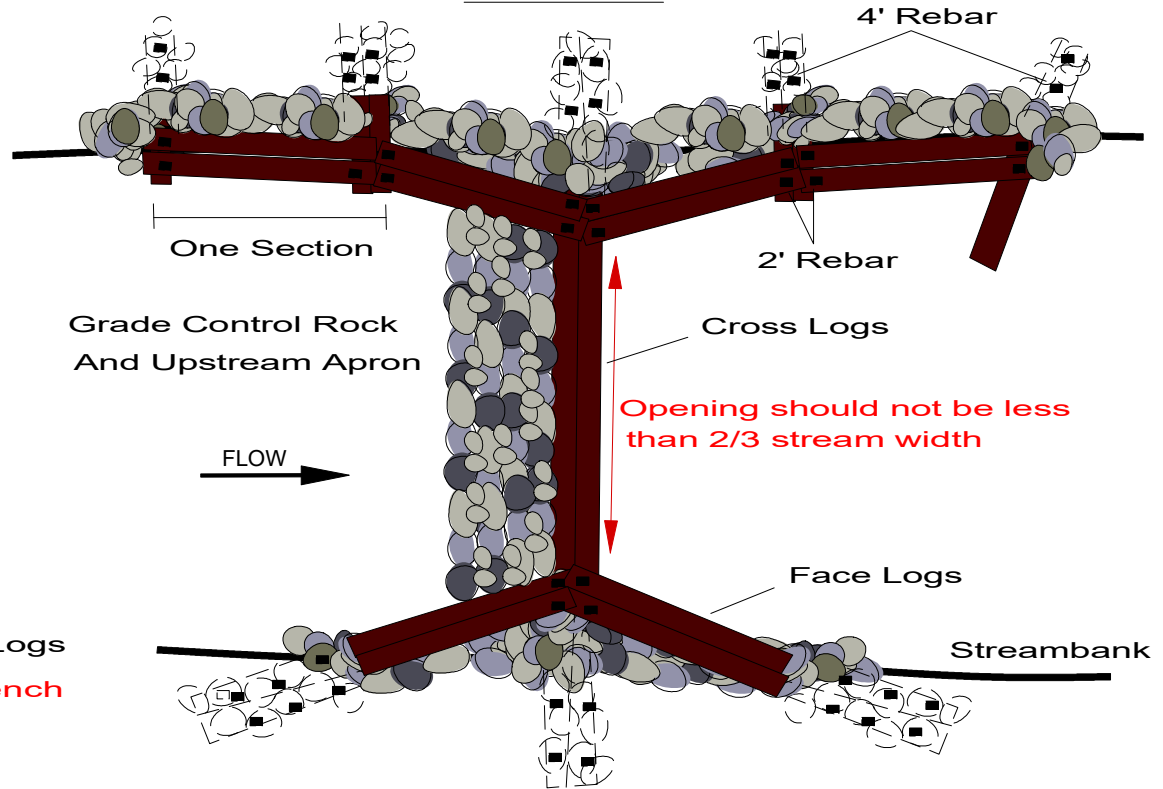
Note: Upstream wings can be log or stone

Note: Additional upstream or downstream wing sections can be added

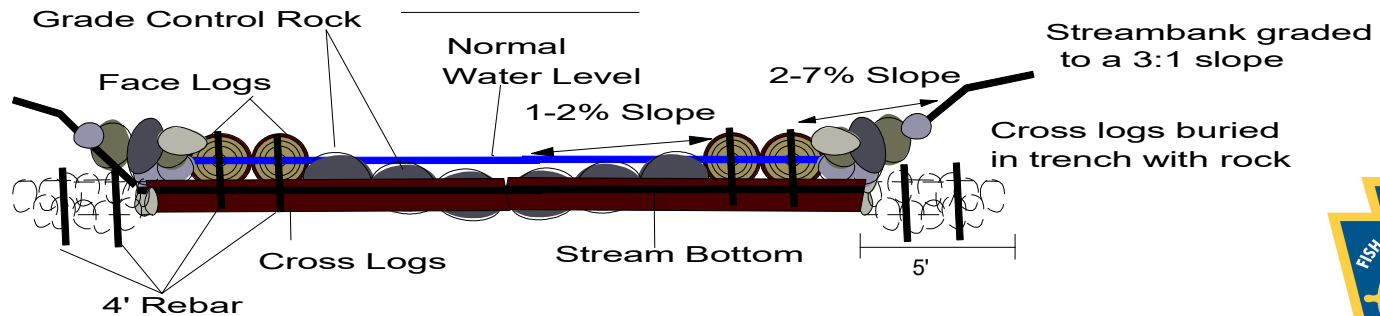


Note: Excavated trench in stream bottom
3' deep x 6' sloped x width of the stream

Plan View



Section View



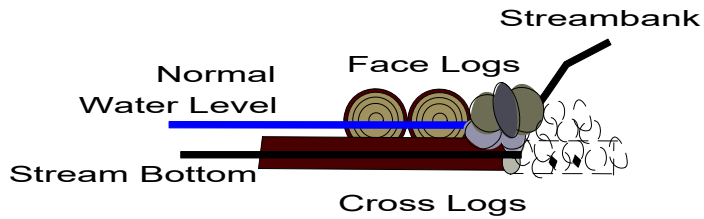
Sill Logs = 10-15'
Face Logs = 20'
Cross Logs = 10-30'
Log Dia. = 8-12"

DHM, PFBC 2022



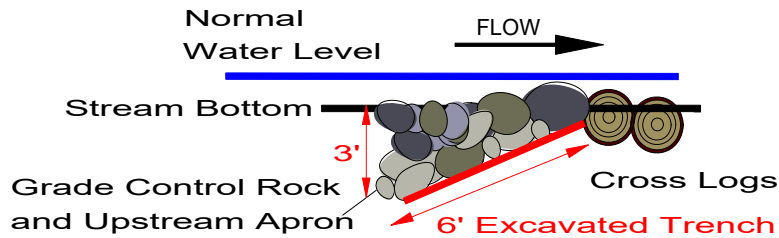
LOG FRAMED CROSS VANE WITH WING EXTENSIONS

Profile View



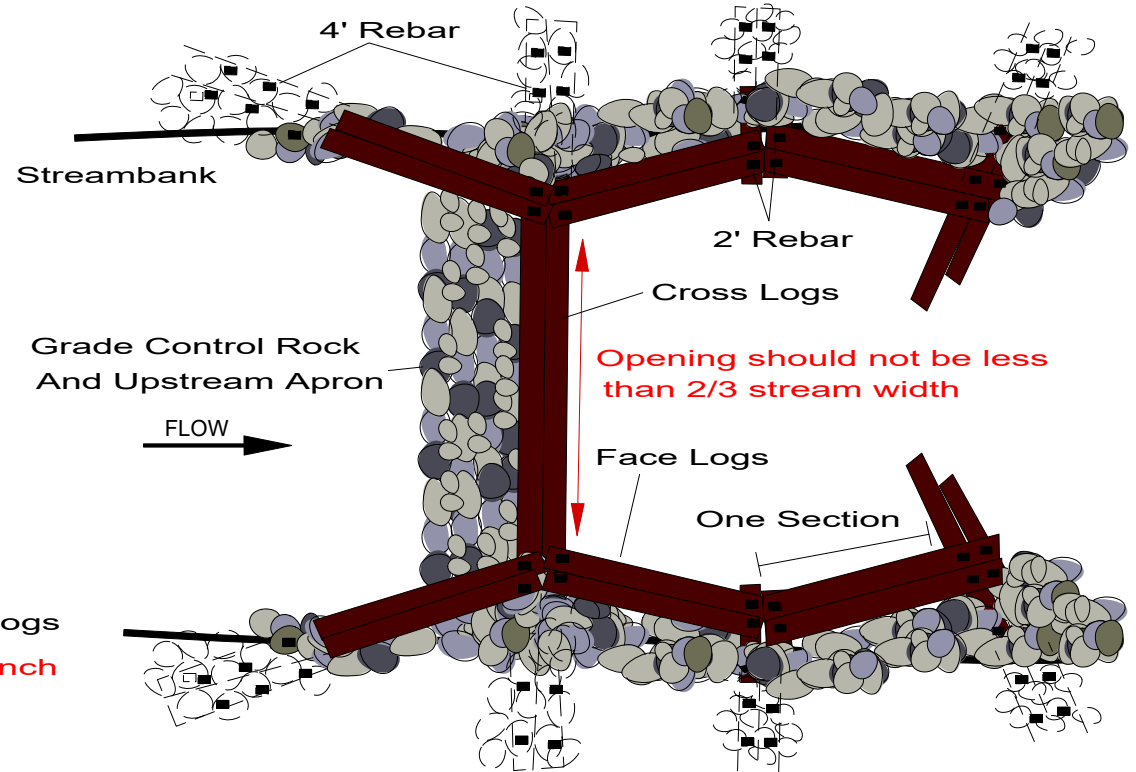
Note: Upstream wings can be log or stone

Note: Additional upstream or downstream wing sections can be added

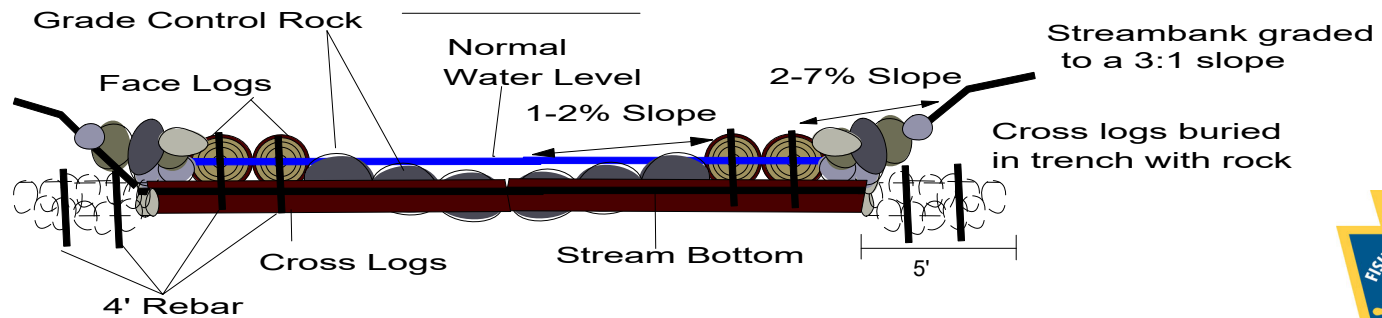


Note: Excavated trench in stream bottom
3' deep x 6' sloped x width of the stream

Plan View



Section View



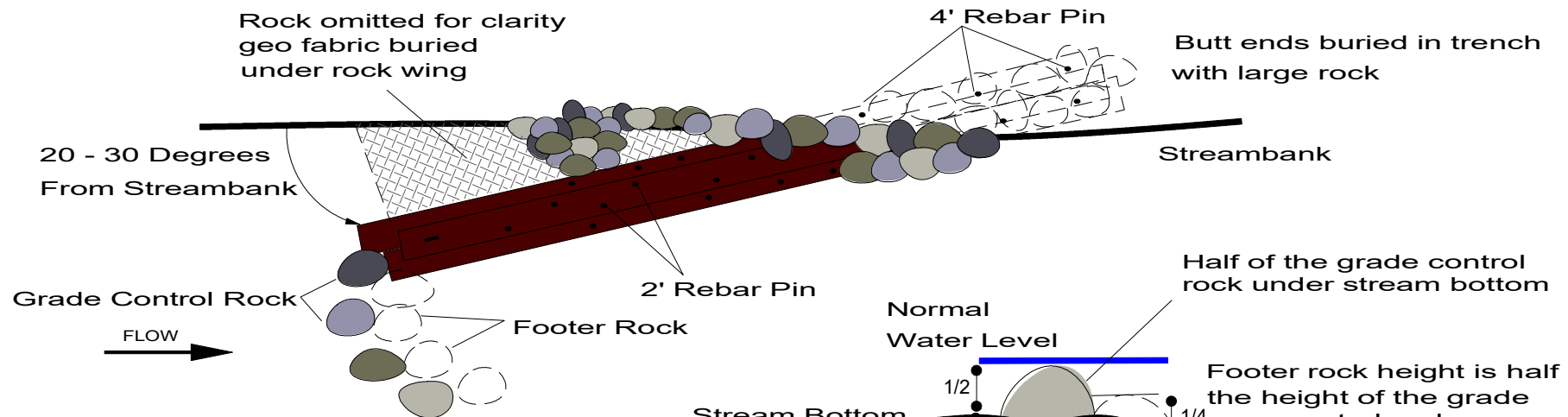
Sill Logs = 10-15'
Face Logs = 20'
Cross Logs = 10-30'
Log Dia. = 8-12"

DHM, PFBC 2022

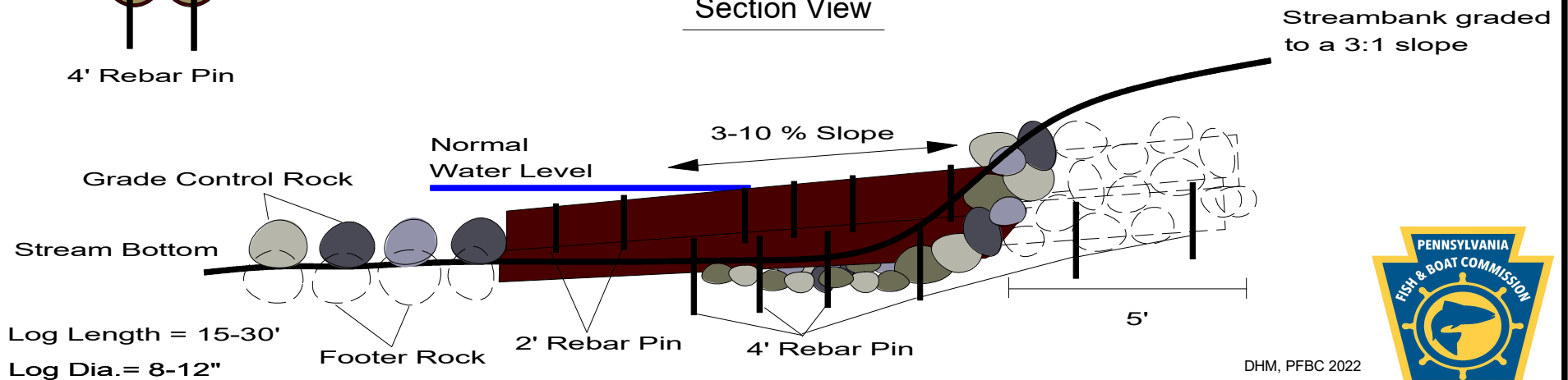


MULTI-LOG VANE DEFLECTOR WITH J-HOOK

Plan View

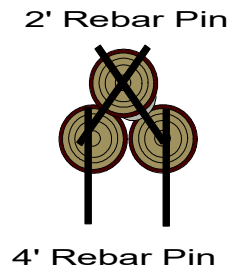
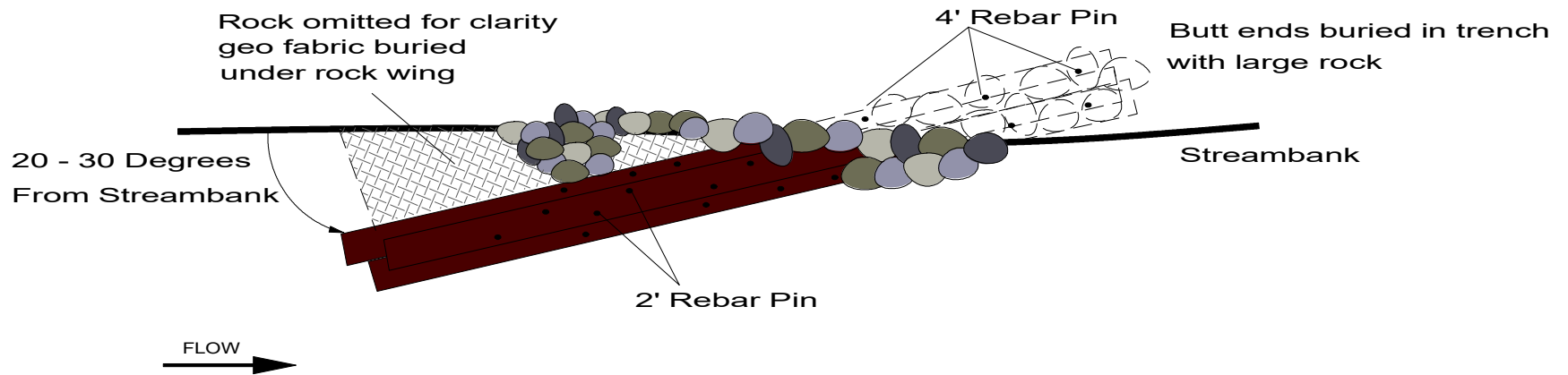


Section View

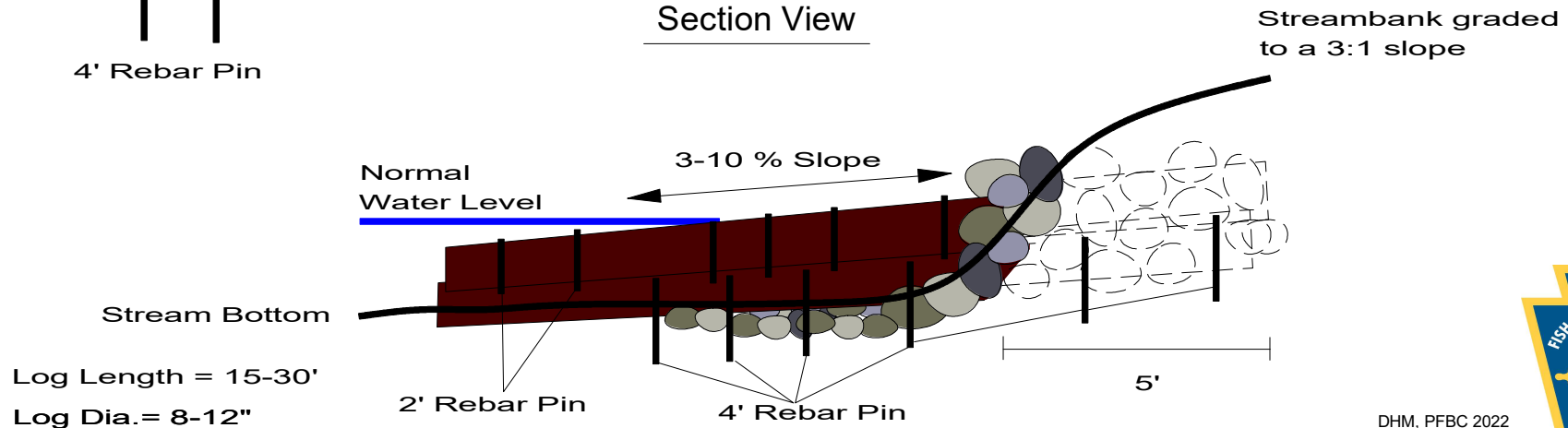


MULTI-LOG VANE DEFLECTOR

Plan View

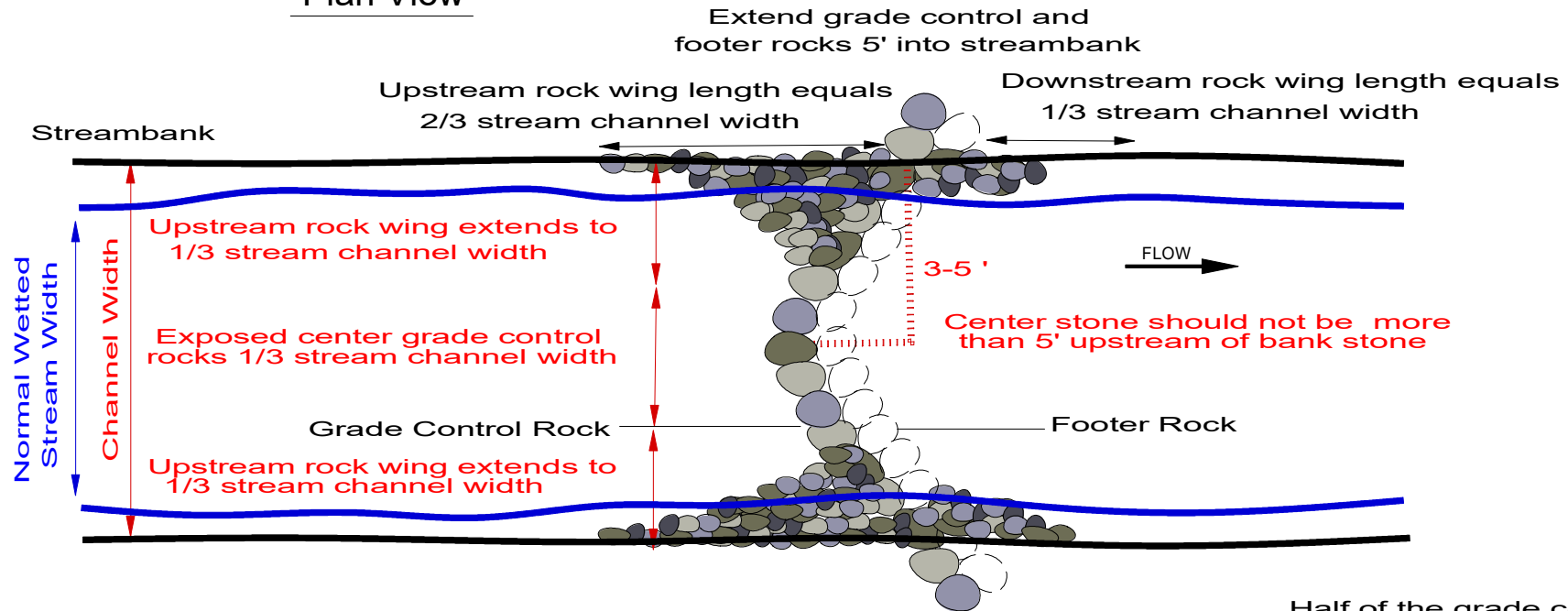


Section View



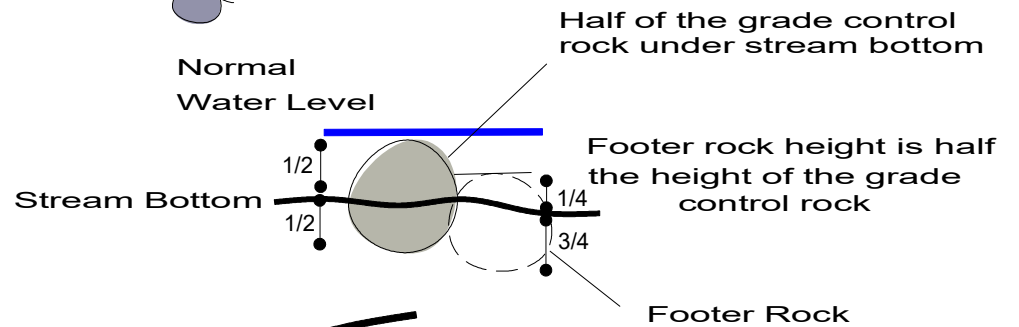
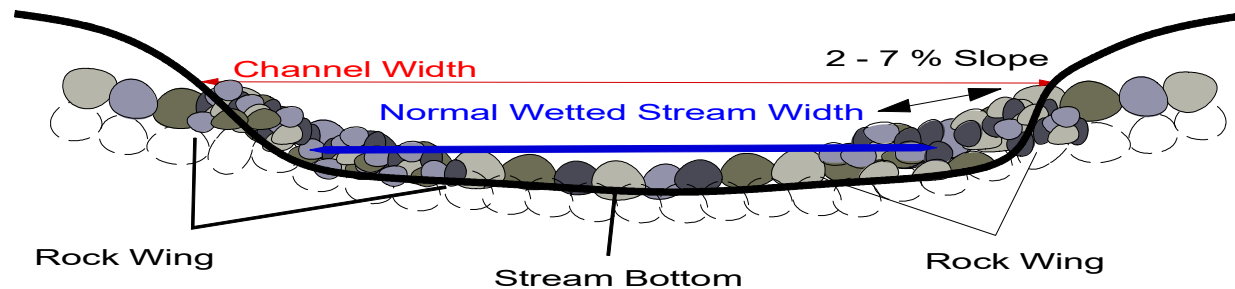
ROCK CROSS VANE

Plan View



Streambank graded to a 3:1 slope

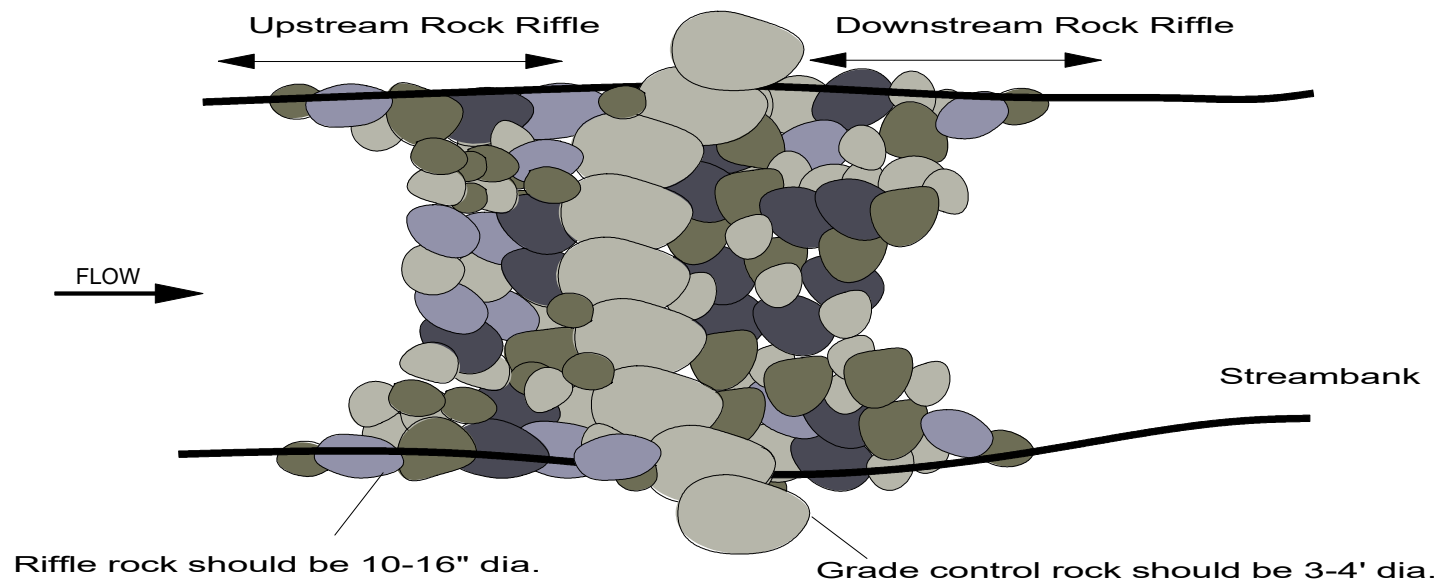
Section View



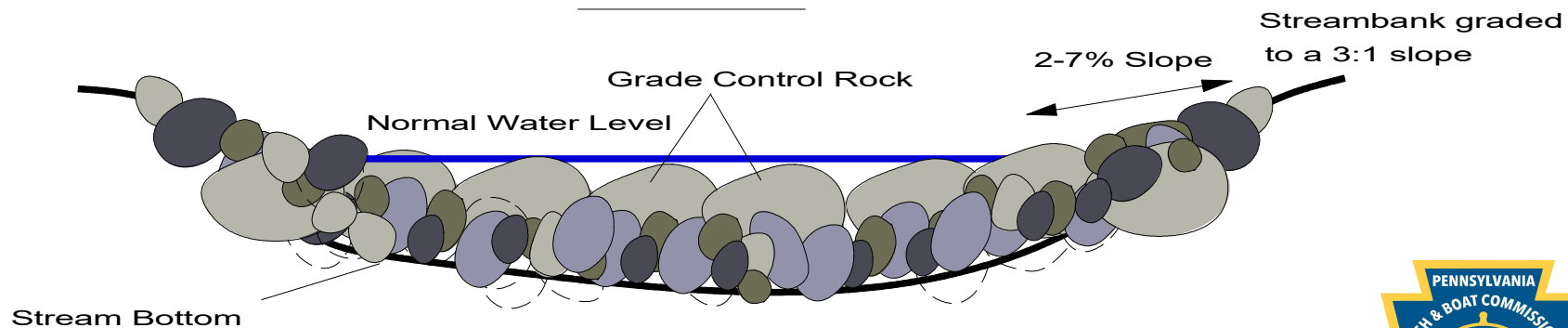
ROCK RIFFLE

(LOW GRADIENT STRUCTURE)

Plan View



Section View



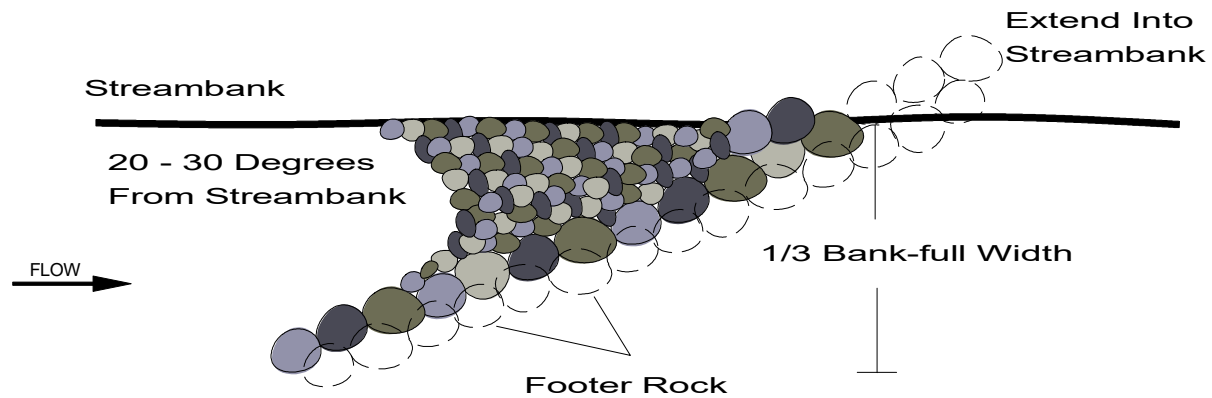
Note: Recommended only for use in low gradient systems

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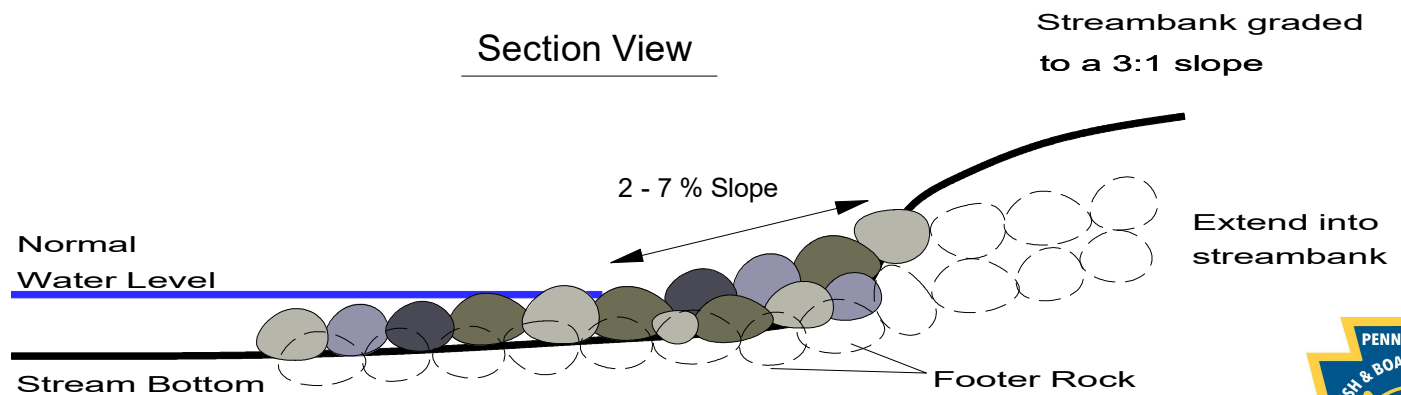


ROCK VANE DEFLECTOR

Plan View

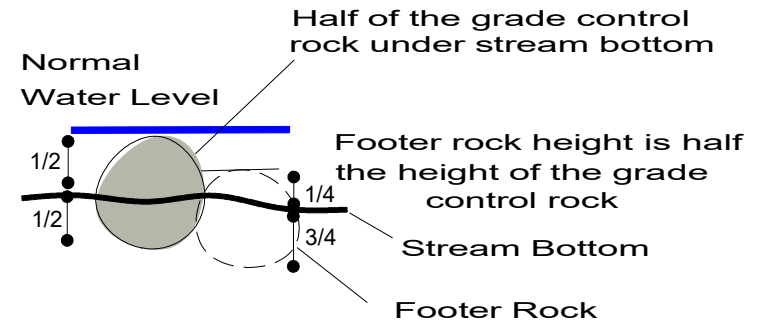
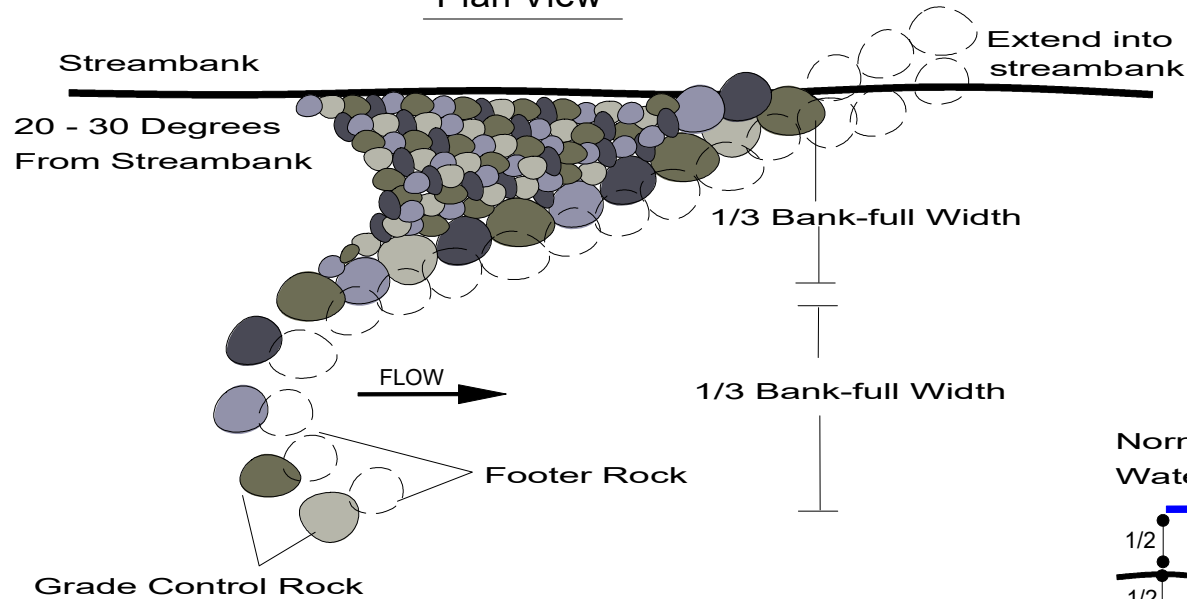


Section View

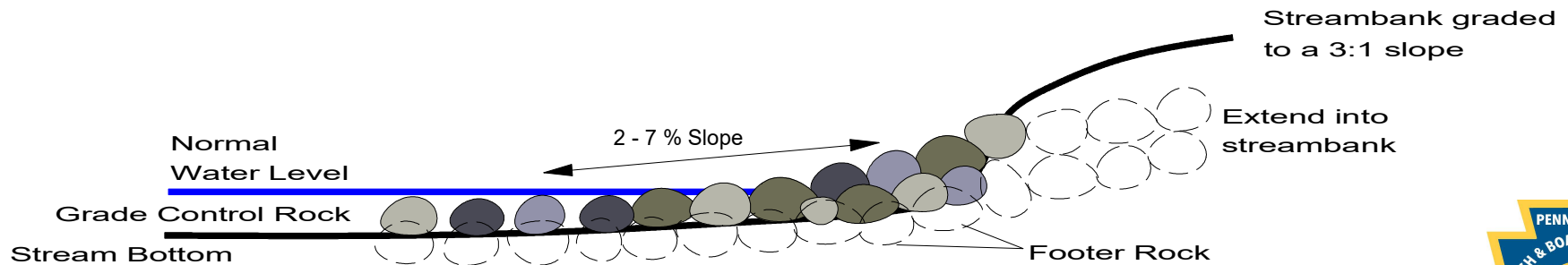


ROCK VANE DEFLECTOR WITH J-HOOK

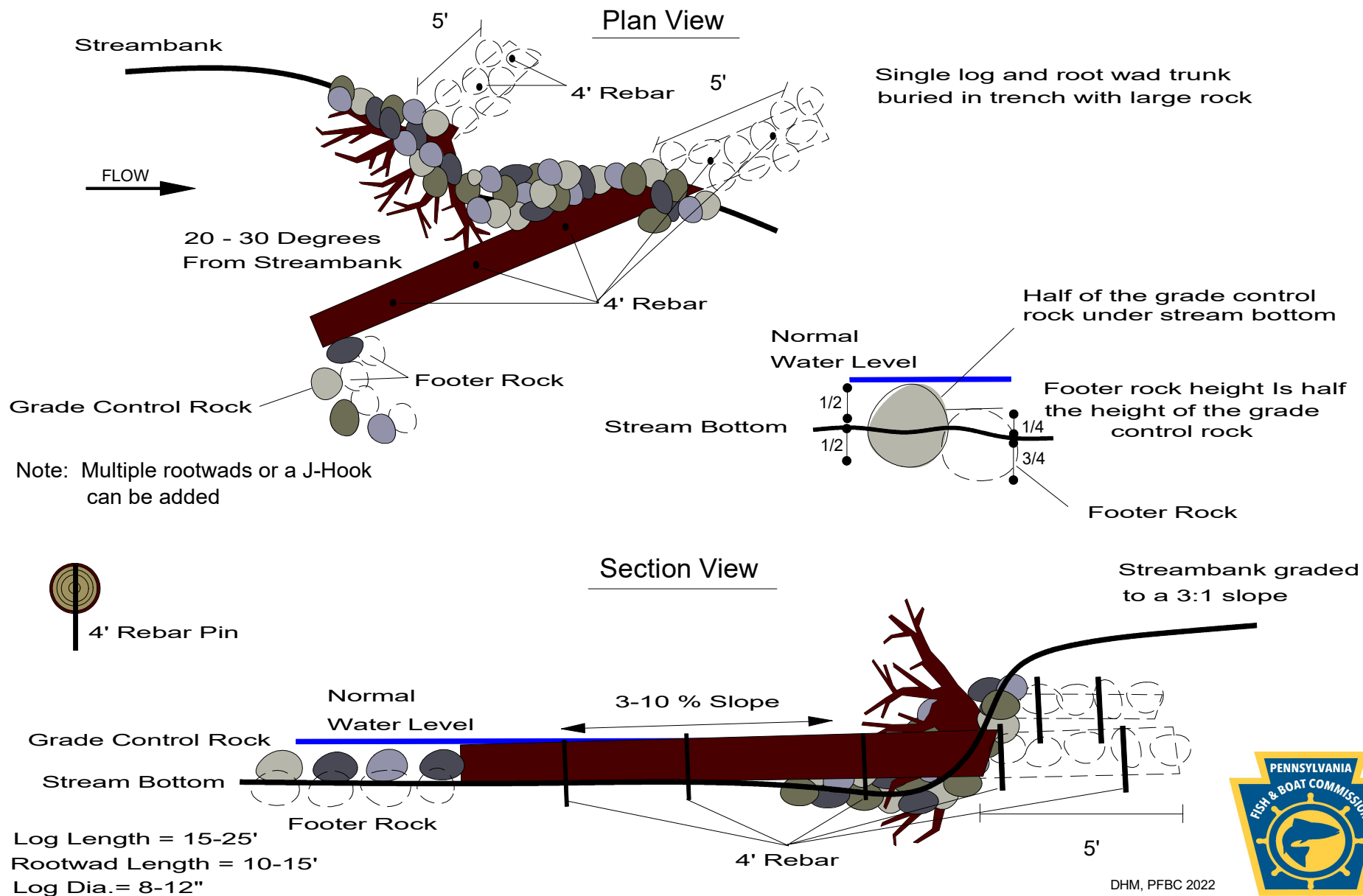
Plan View



Section View

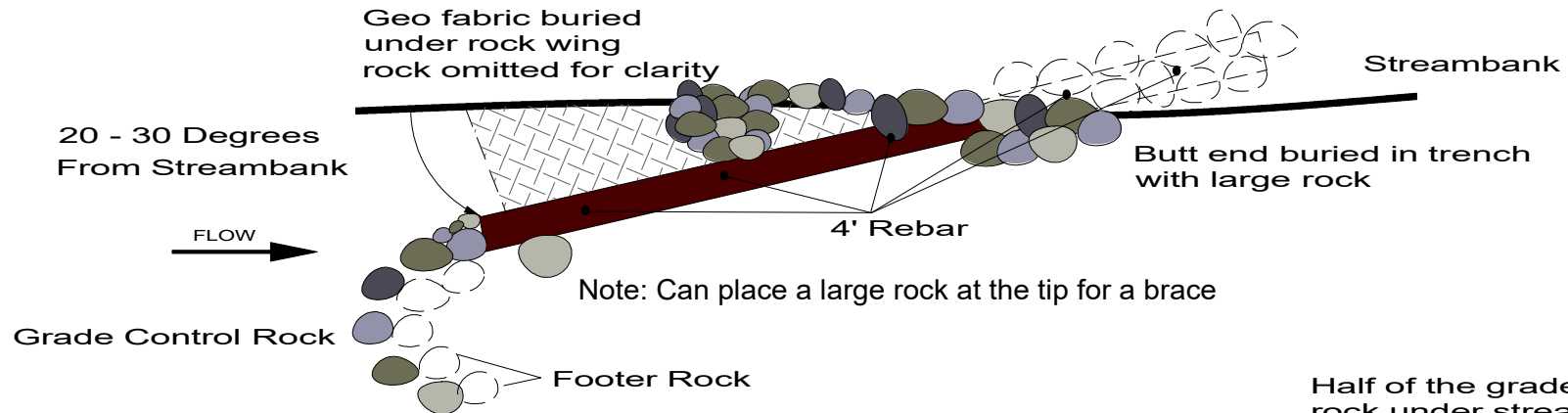


SINGLE LOG VANE DEFLECTOR WITH J-HOOK AND ROOTWAD

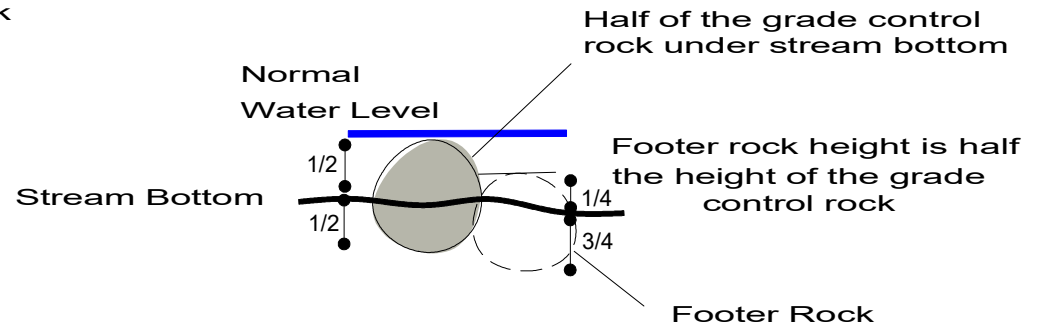


SINGLE LOG VANE DEFLECTOR WITH J-HOOK

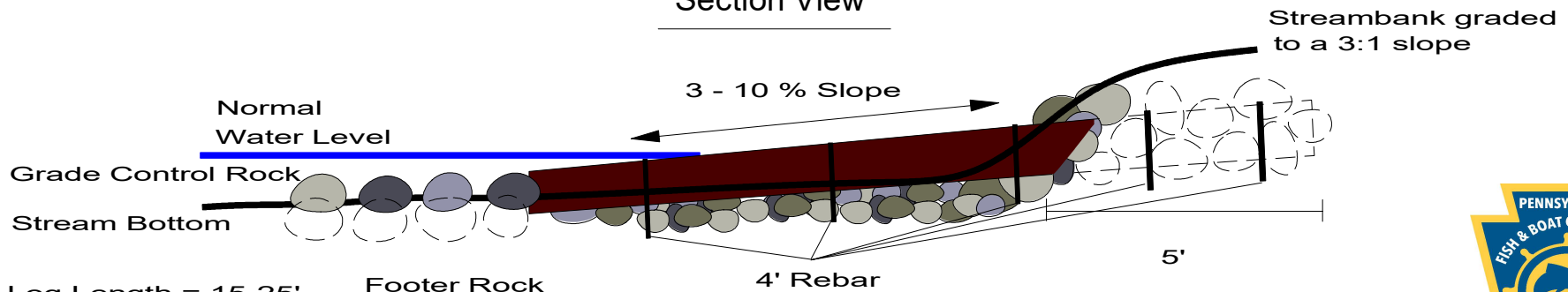
Plan View



4' Rebar Pin



Section View



Log Length = 15-25'

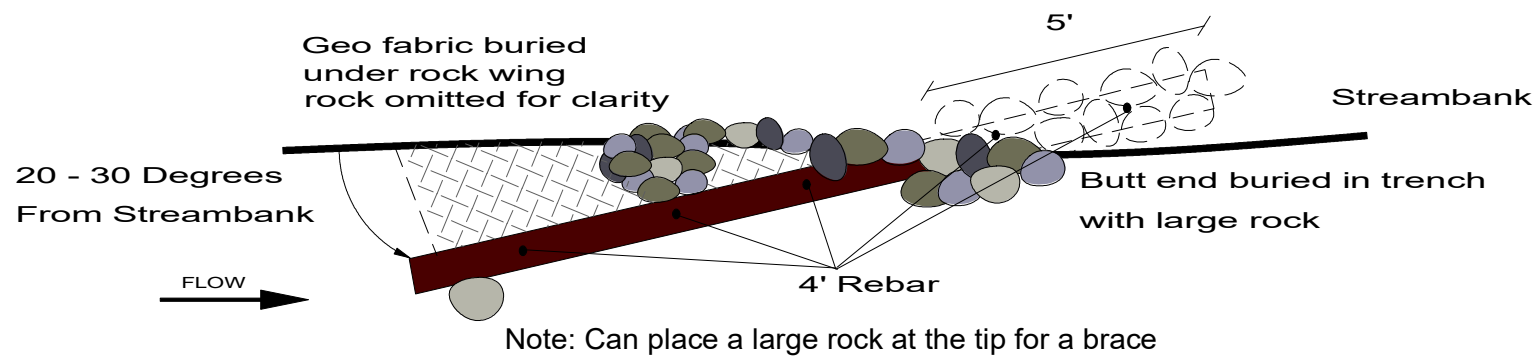
Log Dia. = 8-12"

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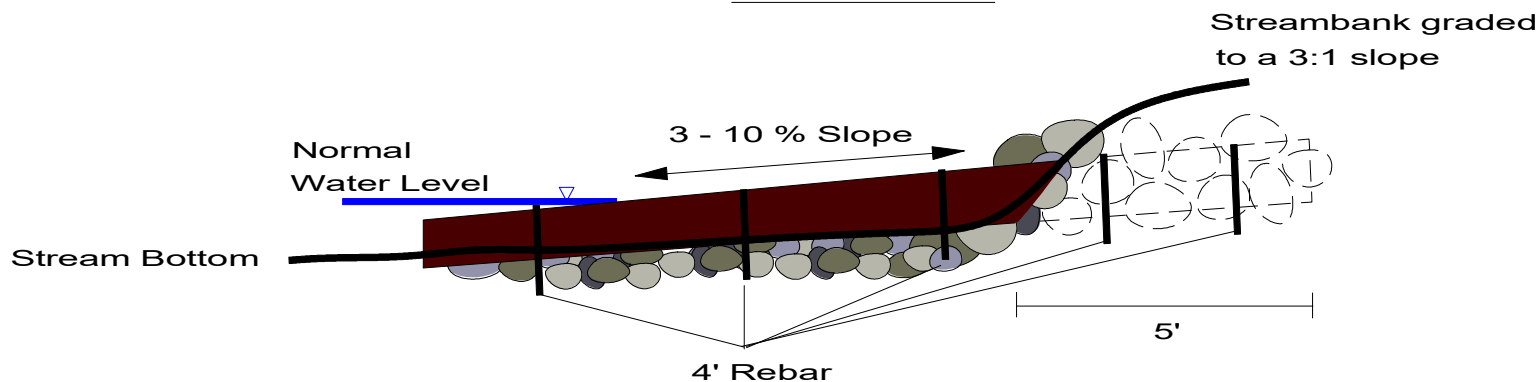


SINGLE LOG VANE DEFLECTOR

Plan View



Section View



Log Length = 15-25'
Log Dia. = 8-12"

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