

## CONSTRUCTION SEQUENCE

- Excavate to finished grade of required section and slope.
- Dig trenches on upstream end and downstream toe.
- Hand rake grade to prepare seedbed. If seedbed is difficult to rake, topsoil may be added. Do not use herbicide contaminated topsoil. Remove all rocks, clods, and clumps larger than 1 inch diameter. Spread fertilizer and lime. Rake into seedbed. Fertilize according to soil tests or at a minimum rate of 2 lbs. of 12-12-12 fertilizer (or its equivalent) per 100 sq.ft.
- Seed onto the prepared seedbed at the following rates:

| Seed                | Lbs./100 sq.ft. |
|---------------------|-----------------|
| Perennial Rye       | 0.25            |
| Tall Fescue         | 0.5             |
| Smooth Brome        | 0.5             |
| Creeping Red Fescue | 0.5             |

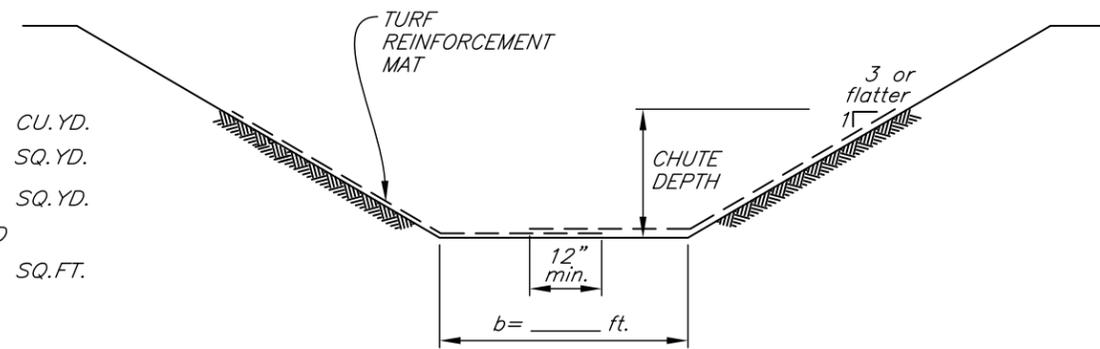
- Place Turf Reinforcement Mat (TRM) in bottom of lined outlet. Extend TRM into trenches for anchorage at upstream and downstream ends as shown. Staple TRM at 1 ft. intervals across the entrance apron. Note: An ECB with equivalent erosion resistance may be used in place of the TRM on slopes 6:1 or flatter.
- Staple TRM at 2 ft. intervals starting at the centerline of the channel and working out toward each side. Additional staples shall be placed where the TRM does not contact the soil.
  - Longitudinal overlap shall consist of 2 staggered rows of staples 6" apart. The staples in each row shall be placed 12" o.c.
  - Shingle laps shall consist of 2 staggered rows of staples 4" apart. The staples in each row shall be placed 6" o.c.
 Refer to the Staple Pattern Detail. If manufacturer literature shows staples at closer intervals, then that criteria shall be used.
- Fill upstream trench with soil and compact. Fill material shall be placed in 4" lifts and compacted to a density equivalent to that of the surrounding native soil. Fill downstream trench with riprap. Note: Riprap may be used in the upstream trench in place of compacted fill.

## MATERIAL REQUIREMENTS

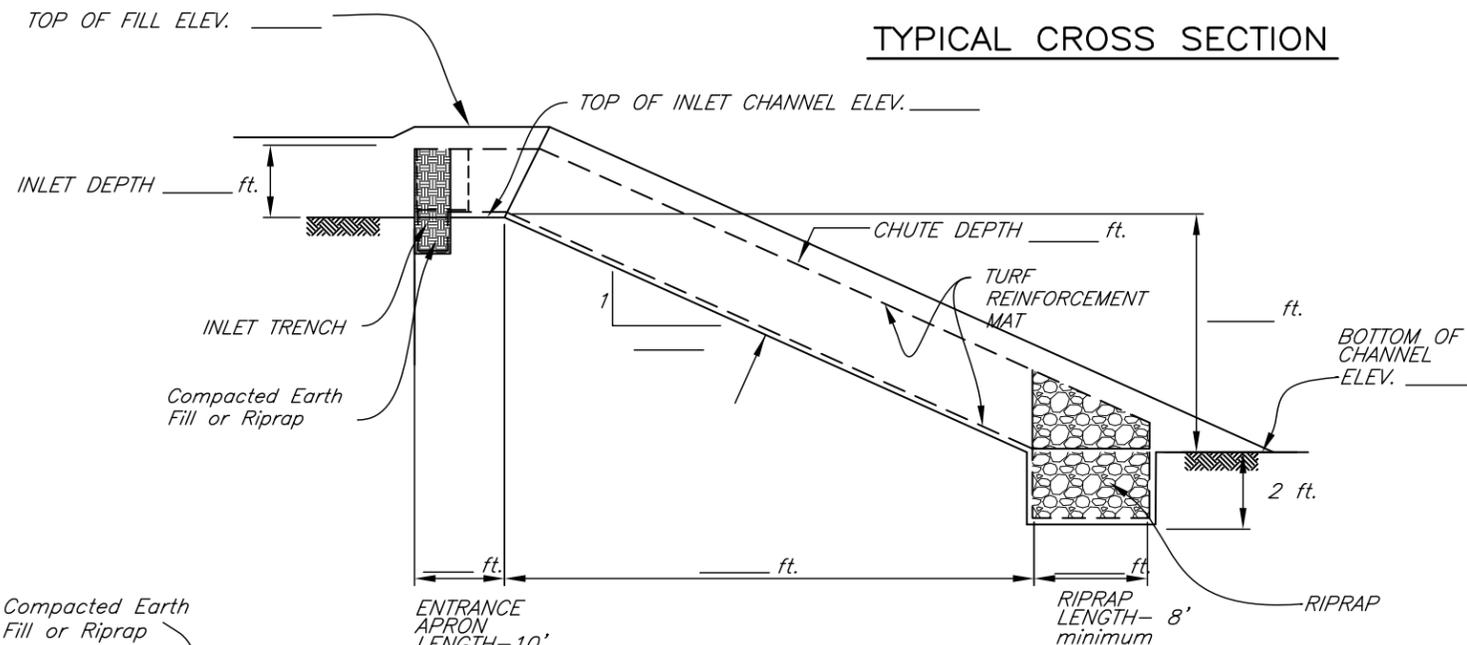
- Turf Reinforcement Mat:** The TRM shall consist of three layers. The top net shall be extra heavyweight UV-stabilized polypropylene weighing at least 0.7 oz/sq yd. The material in the center shall be a UV-stabilized poly fiber weighing at least 0.7 lbs/sq yd. The bottom net shall be heavyweight UV-stabilized polypropylene weighing at least 0.4 oz/sq yd. The threads shall be UV-stabilized polypropylene.
- Erosion Control Blanket (ECB):** The erosion control blanket shall use straw, wood excelsior, or straw/coconut mulch at the rate of approximately 0.5 lb/sq.yd. Grass seed may be embedded in the ECB as long as the seeding rates and species are similar to those in the above table.
- Riprap:** The riprap shall meet the requirements of Construction Specification IA-61, Loose Rock Riprap.
- U-staples are to have a 1" crown and be 11 gauge or heavier wire. Manufacturers may have an alternative fastener type compatible with their product. Staples shall have a minimum length of 6".

## ESTIMATE OF QUANTITIES

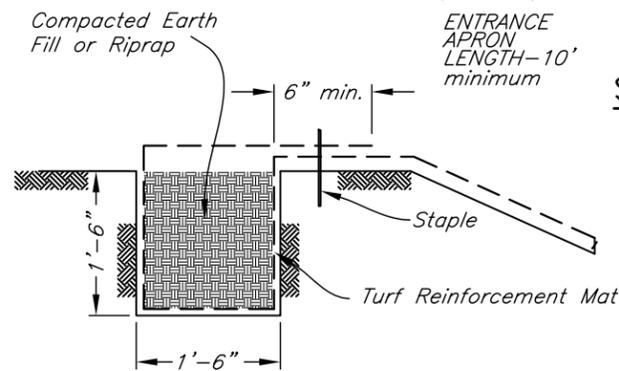
|                            |           |        |
|----------------------------|-----------|--------|
| RIPRAP ( $D_{50} = 8$ in.) | _____     | CU.YD. |
| TURF REINFORCEMENT MAT     | _____     | SQ.YD. |
| EROSION CONTROL BLANKET    | _____     | SQ.YD. |
| STAPLES OR STAKES          | AS NEEDED |        |
| SEEDING AND MULCHING       | _____     | SQ.FT. |



TYPICAL CROSS SECTION



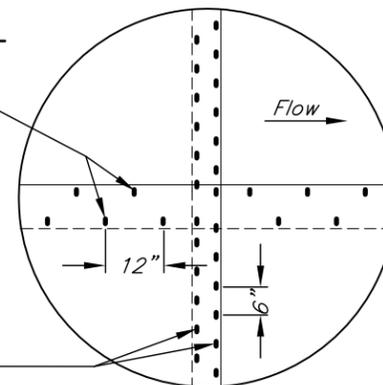
SECTION ON CENTERLINE



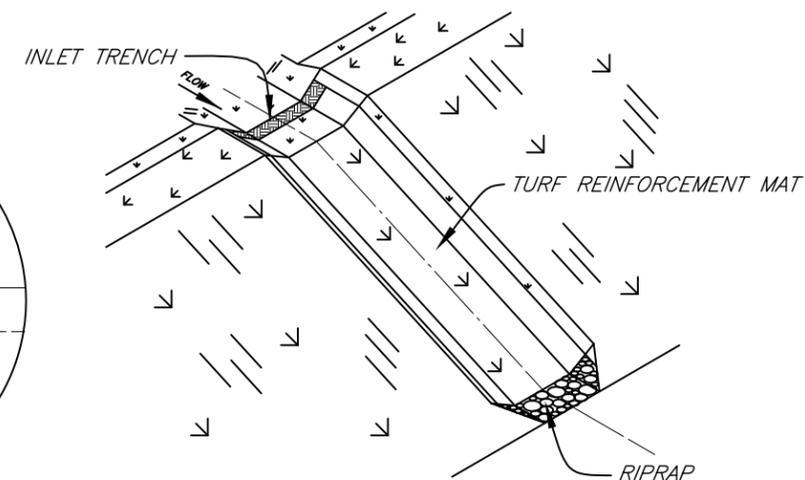
INLET TRENCH DETAIL

longitudinal overlap:  
12" min. fabric overlap,  
2 staggered rows,  
6" apart, 12" O.C.

shingle lap:  
6" min. fabric overlap,  
2 staggered rows,  
4" apart, 6" O.C.



STAPLE PATTERN  
DETAIL



ISOMETRIC VIEW

NOT TO SCALE

STANDARD DWG. IA-1402B

### RIPRAP GRADATION

| SIZE (INCHES) | (POUNDS) | % SMALLER BY WEIGHT |
|---------------|----------|---------------------|
| 14            | 200      | 100                 |
| 12            | 130      | 40-80               |
| 8             | 40       | 25-50               |
| 3             | 2        | 5-10                |