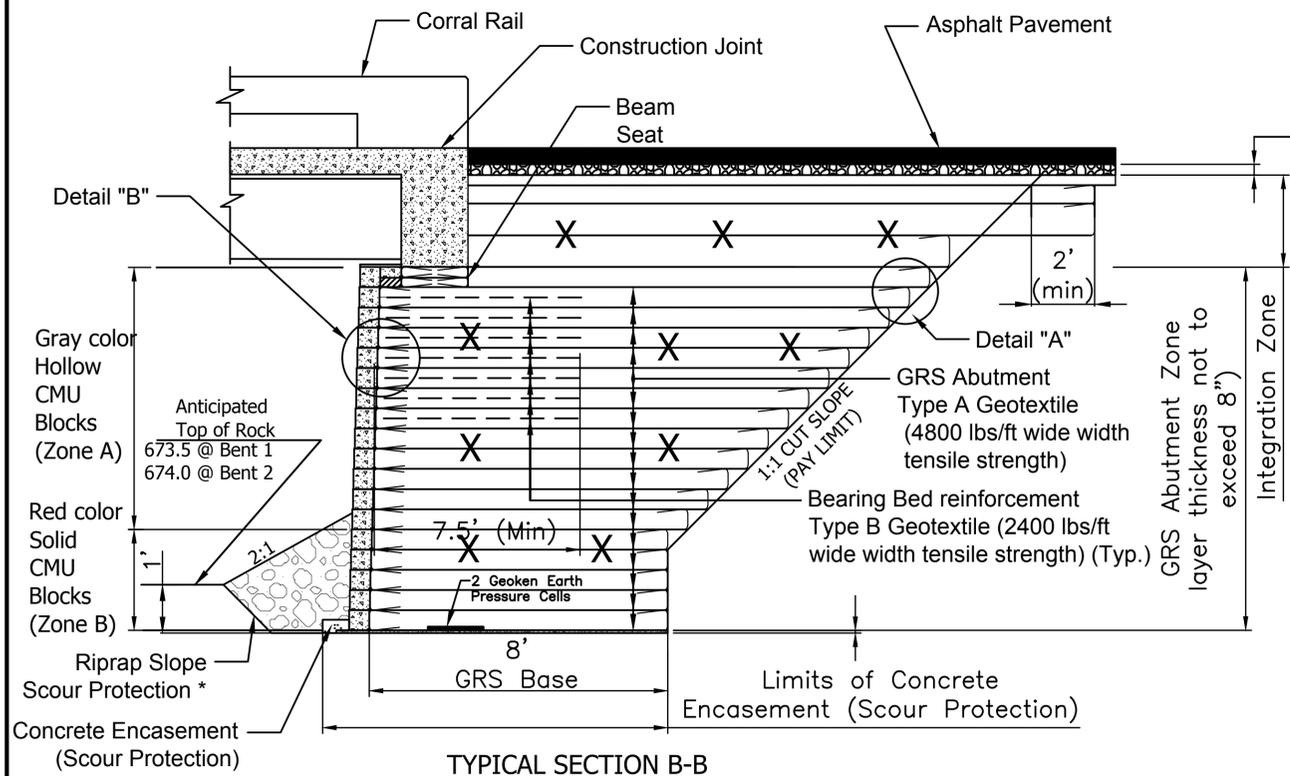


Drawing name: W:\Proj\16000\16137\110\Autocad\Plan Set\GRS\System.dwg Layout name: Mech Fill Plotted by: TD\01295 Plotted on: Aug 29, 2014 - 2:00pm
 Last edit on: 08/09/00



TYPICAL SECTION B-B
(SEE SHEETS 16 & 17 FOR LOCATION OF SECTION B-B)

* Geotextile in front of block wall, embedded in the riprap, shall be doubled up. Extend riprap geotextile between the two bottom layers of facing blocks above the concrete encasement to provide a frictional connection. See sheet no. 2 for details of geotextile and riprap not shown.

Estimated Quantities for Geosynthetic Reinforced Soil (GRS) System at End Bents No. 1 & 2

| Item | Bent 1 | Bent 2 |
|--|------------------|--------|
| Excavation | Cubic Yard 500 | 260 |
| Type B Concrete Encasement (Scour Protection) | Cubic Yard 2 | 2 |
| Fine Aggregate Level Course (1" Thick Minimum) | Square Yard 32 | 32 |
| Select Granular Fill | Cubic Yard 170 | 170 |
| Type A Geosynthetic Reinforcement | Square Yard 1800 | 1800 |
| Type B Geosynthetic Reinforcement | Square Yard 145 | 145 |
| Separation Geotextile Fabric | Square Yard 580 | 580 |
| Area of Facing Blocks (Zones A and B) | Square Feet 1070 | 965 |
| Reinforcing Steel | Pounds 123 | 123 |
| Deadman Anchorage System | Pounds 785 | 785 |

Notes:
 The table of Estimated Quantities for Geosynthetic Reinforced Soil System represents the quantities used in preparing the cost estimate and are for information only. Payment for all materials and labor to construct the GRS System at the end bents, including the items in the above table, will be considered completely covered by the lump sum price for Geosynthetic Reinforced Soil System. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit prices.

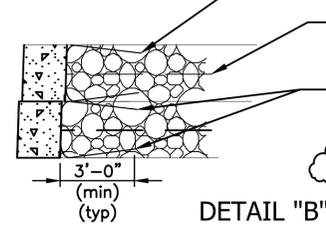
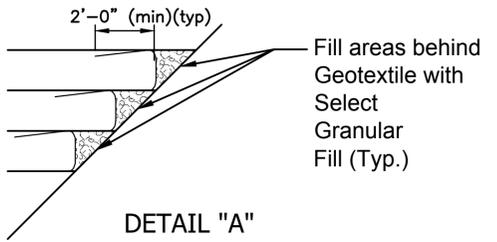
Work this sheet with sheets 14, 16, 17 & 18.

Type A Geosynthetic Reinforcement may be substituted for Type B Geosynthetic Reinforcement. No adjustments will be made to the contract price.

For properties of Select Granular Fill, Block Wall (inc. Zones A & B) and Geosynthetic Reinforcement and Separation Geotextile, see the Job Special Provisions.

For Details and Elevations of Beam Seat see Sheet No. 18.

For Details of the installation of Instrumentation Devices see Sheet No. 14 and the Job Special Provisions.

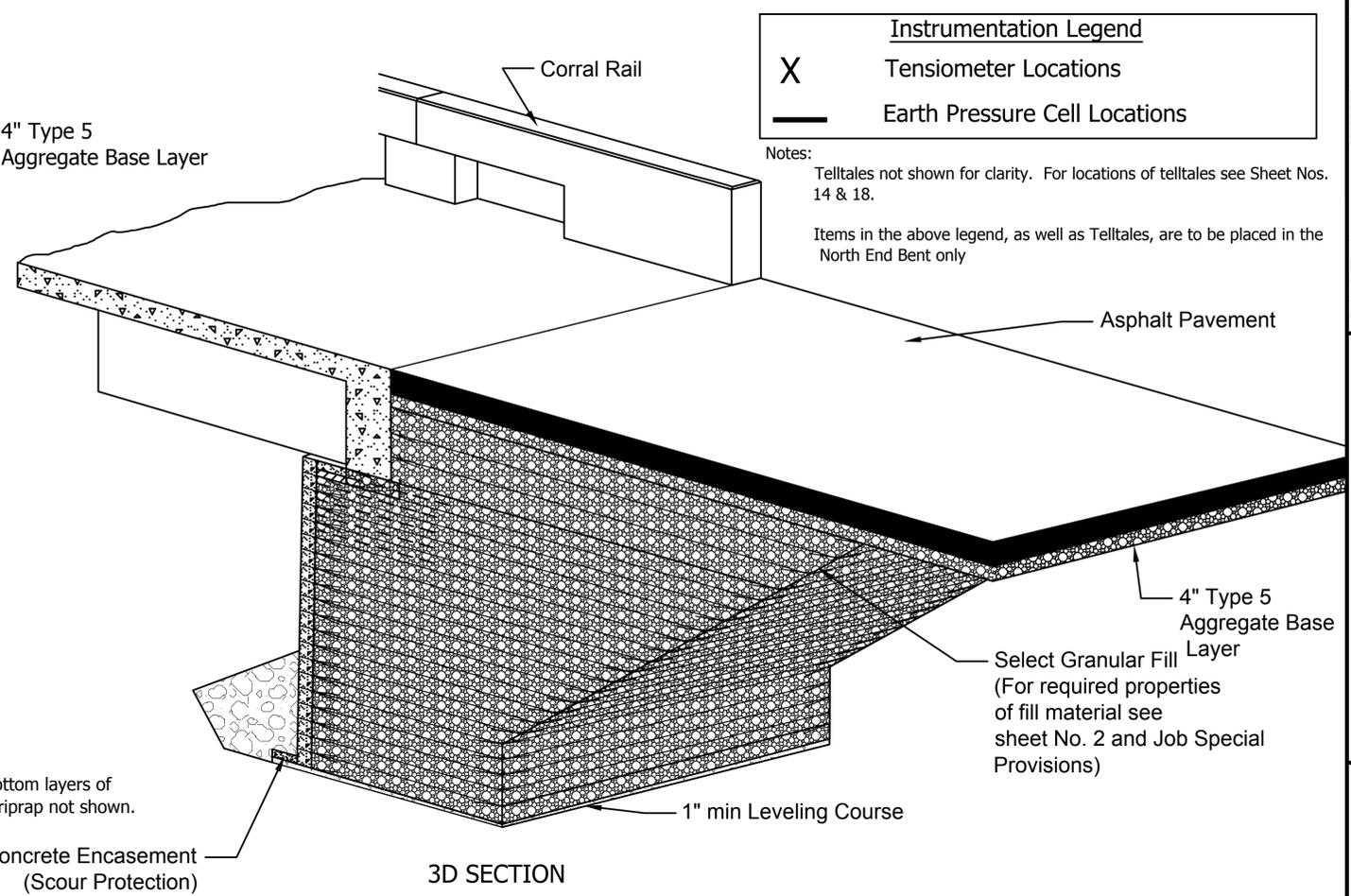


Wrapped sections shall be a separation geotextile material in accordance with the Job Special Provisions and Sec. 1011.3.4.

Type B Geosynthetic placed to back of facing blocks

Add Separation Geotextile and wrap behind the CMU blocks as shown (Front Face of Wall only (typ.))

Note: Drawing is not to scale. Follow dimensions



3D SECTION

Construction Notes (for further details and clarification see the Job Special Provisions):

Leveling Course - Setting the first course of the facing block level and to grade is critical in maintaining wall alignment for the entire height of the abutment. Therefore a leveling course of fine aggregate shall be placed to provide a suitable surface for placing the lowest layer of CMU blocks. The leveling course shall be kept as close as possible to the minimum thickness stated on the plans. Leveling course for facing blocks shall be 6 inches wider than the facing blocks on each side, minimum.

Concrete encasement - This item is to be constructed 4" thick minimum and shall extend to the edge of the rock excavation adjacent to the wings and be a minimum of 3" beyond the edge of the level course elsewhere. Concrete encasement shall be placed to the limits shown above and as shown on sheet no. 14.

Block Wall - Each layer of the block wall shall be constructed entirely before beginning the next layer. A running bond pattern shall be maintained between layers of blocks. Geotextile placed under the Rip-Rap shall be anchored to the lowest two layers of blocks above the concrete encasement. Check the wall for plumbness a minimum of every three layers of blocks and correct any deviations greater than 1/4".

Pin and grout corner blocks for the entire height of the wall. See FHWA GRS-IBS Implementation Guide Section 7.7.6 for example of how to cut blocks at the corners of the wall.

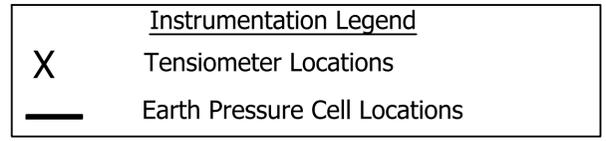
Select Granular Fill (AASHTO 89 Stone) - The stone backfill shall be placed behind each layer of CMU blocks in a lift thickness not to exceed the CMU block height in Zones A & B and not to exceed 12" in the Integration Zone. Placement of the aggregate shall be from the wall face backward to prevent the formation of wrinkles in the geotextile. The backfill shall be compacted in accordance with the Job Special Provisions.

At the end of a day's operations, slope the last lift of backfill away from the wall face to direct surface runoff away from the wall. Do not allow surface runoff from adjacent areas to enter the wall construction area.

Geosynthetic Reinforcement - The geosynthetic layers shall extend between the layers of CMU blocks to provide a frictional connection. Pull the geosynthetic taut prior to backfilling to remove wrinkles. To limit construction damage to the geosynthetic, construction equipment shall not drive directly over the geosynthetic. An aggregate thickness of 6" is sufficient to prevent equipment from damaging the geosynthetic. No lapping of fabric shall be permitted along the face. Where lapped elsewhere, a 1/4" thickness of stone shall be spread between pieces of fabric. See Job Special Provisions for other details related to placing Geosynthetic Reinforcement.

Beam Seat Construction - Beam Seat shall be constructed as described in Section 7.8.1 of the FHWA GRS-IBS Implementation Guide. For Beam Seat elevations see sheet no. 18. Thickness of the beam seat zone is approximately 8" and consists of a minimum of two 4" lifts of wrapped-face GRS. Place precut 4" thick Closed Cell Foam on the top of the bearing bed reinforcement, butted against the back side of the CMU Facing Block. Set half-height CMU blocks on top of the Closed Cell Foam. Closed Cell Foam and Half-height CMU blocks are incidental to the Pay Item "Geosynthetic Reinforced Soil System (GRS)". Wrap 4" lifts across the beam seat. Before folding the final wrap, it may be necessary to grade the surface aggregate of the beam seat slightly high, to about 1/2", to aid in seating the footing and to maximize contact with the bearing area.

Integration Zone Placement - Following the placement of the superstructure beams, Separation Geotextile layers are to be placed along the back of the superstructure backwall, built in maximum lift heights of 6" (maximum vertical spacing of reinforcement ≤ 12"). The top of the final wrap should allow at least 2" of aggregate base cover over the geotextile to protect it from hot mix asphalt.



Notes:
 Telltales not shown for clarity. For locations of telltales see Sheet Nos. 14 & 18.

Items in the above legend, as well as Telltales, are to be placed in the North End Bent only

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GEOSYNTHETIC REINFORCED SOIL SYSTEM
 RUSTIC ROAD BRIDGE REPLACEMENT
 FEDERAL PROJECT NO. IBRD 9900(592)
 BOONE COUNTY, MISSOURI

SEALED DATE: 08/29/14
 DESIGNED BY: TDL
 DRAWN BY: MSS
 APPROVED BY: RAG
 DESIGN PROJ: 16137.110
 SCALE: AS NOTED
 DATE: AUGUST/2014
 DRAWING NO: NONE
 SHEET NO: 15 of 22

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