RSW CONSTRUCTION METHODOLOGY WITH BLOCK

EXCAVATION AND FOUNDATION PREPARATION:

- Excavate the site to the alignments, widths and grades as shown in the approved construction drawings. In the reinforced soil zone, the ground should be excavated to the grade of top of leveling pad. Any unsuitable soils, if present, should be removed and replaced by specified compacted fill as directed by the Engineer. All pits and depressions shall be backfilled with fill free of deleterious, organic matter, and compacted as directed by the Engineer.

FOUNDATION LEVELING PAD:

- Mark the centerline of the top most facial unit on the ground. Mark the centerline of the leveling pad on the bottom of the trench, ensuring the required set back to accommodate the facing batter as shown on the construction drawings.
- Fix side forms for the leveling pad Pour concrete, compact using needle vibrators, screed to the correct level and finish using wooden floats to a flat and smooth finish.
- Cure for a minimum period of 24 hours prior to the commencement of block placement.

PLACEMENT OF FIRST COURSE OF SEGMENTAL BLOCKS:

The first course of segmental blocks shall be placed to the correct line as marked on the leveling pad. If required, a thin layer of stiff cement mortar may be provided on top of leveling pad, to ensure accurate placement and leveling of blocks. It is extremely important to place the first course of blocks to the correct line and level. Drainage aggregate shall be used to fill openings between segmental units. The drainage fill shall be lightly compacted using hand held tampers.

FILL PLACEMENT BEHIND FIRST COURSE OF SEGMENTAL BLOCKS:

Following the placement of the first course of segmental blocks, the drainage fill of required width, and the reinforced fill shall be placed to the grade of the Material Specification sheet.

PLACEMENT OF FIRST LAYER OF GEOGRID REINFORCEMENT:

Ensure that drainage infill between the blocks and fill is level with or slightly above the top of the segmental unit. Clean debris off the top of the segmental units. Position the geogrid of the required type and length as shown on drawings with the longitudinal direction (Machine Direction) perpendicular to wall face. Adjacent rolls of geogrid should be butting each other. Place next course of segmental units in a running bond configuration. Move segmental unit forward to engage shear key and ensuring proper alignment and set back of the segmental units.

PLACEMENT OF FILL ABOVE THE GEOGRID:

Pull geogrid taut using uniform tension, hold or stake to maintain tension throughout the fill placement process. Place drainage infill in the openings between segmental units. Thereafter, place the remaining drainage fill and the reinforced fill in layer of specified thickness and compact.

PLACEMENT OF SUBSEQUENT COURSES OF SEGMENTAL BLOCK UNITS:

Segmental blocks are to be placed in a running bond configuration. Care shall be taken to clean the top surface of the blocks with a stiff brush or broom to remove any fill, drainage aggregate etc., before placing the subsequent course of blocks. At each level blocks should be properly aligned and pushed forward to engage the shear key to ensure proper set back. Drainage aggregate should be used and lightly compacted to fill openings between segmental units. Geogrid reinforcement should be installed as shown on drawings & cross-sections.

PLACEMENT OF GEOGRID REINFORCEMENT:

Geogrids of the required type and length should be placed at elevations as shown on the drawings. Geogrids shall be placed with the machine direction perpendicular to the wall face. No overlap is required between adjacent rolls. No joints or seaming shall be permitted in the geogrid in the longitudinal direction. Geogrids shall be placed between the segmental blocks with the connection detail as shown in the construction drawings. The geogrid should be pulled tight and held with small tension during fill placement until the weight of fill is adequate to keep the geogrid tight. At the same time it must be ensured that, excessive tension is not applied to geogrid, which may lead to misalignment of blocks.

PLACEMENT AND COMPACTION OF FILL:

The deposition, spreading, leveling and compaction of the fill should be carried out generally in a direction parallel to the facing. No equipment with a weight exceeding 1500 Kg should be allowed to operate within 1.5m from the facing & move directly over the geogrid. Always ensure that there is a minimum soil cover of 150 mm over the geogrid. Avoid abrupt stopping, turning etc. of the equipment to minimize misalignment of geogrids. Care should taken during the deposition, spreading, leveling and compaction of the fill to avoid any damage, disturbance or misalignment of segmental blocks, geotextile filter and geogrid reinforcement. Fill placement methods near the facing shall ensure that no voids exist directly below the geogrid reinforcement. Fill should be placed and compacted in lifts, with thickness appropriate for the compaction equipment used so as to ensure the required density. Compaction of the fill should be carried out using appropriate equipment, which will not induce excessive loads on the facing and at the same time achieves the required compaction. Towards this the following equipments are recommended for different zones: Within 300-600mm of the facing, the fill/drainage material should be compacted by a light-weight plate compactor or by hand held tampers. Beyond 300-600mm and within 1.5m from the facing the fill should be compacted using a walk behind vibratory roller or plate compactor with a total weight less than 1500 Kg. Beyond a distance of 1.5m from the facing, the fill may be compacted using vibratory rollers of 8 - 10 MT weight. The fill shall be compacted to a minimum of 97% of the maximum dry density (MDD) obtained from the proctor test performed as per IS 2720 (Part 8). Fill within 0.5 m of the bottom of pavement (sub grade) shall be compacted to a minimum of 95% of the MDD. The fill shall be compacted to the criteria noted in the material specifications. The testing frequency shall be as follows: The compaction shall be done as per MORTH specifications. One

set of tests for friction angle, fines content & MDD for every 1000 cum of fill. One moisture and density test for each lift of fill placed in an area of 6m (width) by 15m (length).

PLACEMENT OF DRAINAGE SYSTEM:

The drainage fill shall be placed in the same manner as the reinforced and retained earth fill. During the placement and compaction of the drainage material, care must be taken to ensure that there is no contamination with undesirable materials. The drainage fill should be brought up at the same rate as the adjoining reinforced fill material. Graded granular filter shall be provided behind the drainage bay for purpose of filtration. Perforated outlet pipes shall be installed at 6m interval along the length of the wall. At the inner end of the pipes slotted caps shall be provided to prevent the entry of drainage fill into the pipe.

It is recommended to provide longitudinal pipe (150mm dia, 2/3 perforated, wrapped with Nonwoven Geotextile) at ground level, behind the facing for drainage. Proper drainage to be ensured at top of the wall (Either End V-notch, drain or down take pipe @ 10 to 20m intervals), at carriage way edge.

COPING BEAM:

On the topmost segmental unit, erect form work and cast coping beam to the level as shown in construction drawings. Reinforcement and other details are as per Material specification sheet. Minimum 25mm of gap shall be ensured while placing crash barrier over the coping beam, to avoid the load transfer over the wall. This gap shall be filled with compressible fill (Thermo coal).

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