

RETAINING WALLS

The Contractor shall furnish and construct a new retaining wall on the south side of Magnolia Avenue from approximately Station 75+50 to Station 76+75 as directed by the Engineer. The retaining wall is estimated to be 135 feet long and will vary in height between 5 feet and 7 feet. The face of the new retaining walls shall be placed 18 feet from the back of the new concrete curb.

The exact location of the retaining walls will be determined in the field by the Engineer after the new concrete curb and gutter has been installed. The location and/or length of the retaining wall may change slightly. The exact height of the retaining walls will also be determined in the field.

The new retaining walls shall be constructed with Keystone Sculptured Rockface Grey, Standard Units. The new retaining walls shall be installed in accordance with the manufacturer's recommendations.

There is a detail sheet included in the plans, which shows the dimensions of the block units and the general construction details.

The first row of blocks for the retaining wall shall be embedded a minimum of 8 inches below the existing ground grade or the top of the new curb elevation. The first row of blocks shall be set on top of the base-leveling pad.

The base-leveling pad shall be constructed with a minimum of six (6") inches of $\frac{3}{4}$ inch crushed stone material. Pea stone or rounded aggregate is not acceptable material for the leveling pad. The base-leveling pad shall be compacted to 90% Modified Proctor density.

The new retaining wall shall be constructed with an 8.8-degree batter. The batter shall be going to the south (away from the street) back into the hillside.

The area behind the wall known as the drainage zone shall be no less than three (3') feet behind the back of the retaining wall modular unit. The voids in the modular unit as well as the drainage zone shall be filled with $\frac{3}{4}$ inch crushed stone and compacted. The drainage zone shall be compacted in eight (8") inch layers.

The top of each unit shall be swept clean prior to the placement of the next row of units.

The Contractor shall furnish and install geogrid material in the construction of the retaining walls. The geogrid material shall be placed between the 4th and 5th layer of block and the 8th and 9th layer of block. The geo-grid material shall be placed under the block and shall extend behind the wall for a minimum distance of three (3') feet. All costs for furnishing and install the geogrid material shall be included in the unit price bid per square foot of "Retaining Wall".

The Contractor shall use one of the following geogrids:

1. Miragrid 2T manufactured by Mirafi.
2. UX1400 manufactured by Tensar Corporation.
3. Stratagrid 200 manufactured by Strata Systems.

The ends of all retaining walls shall terminate with a curve going into the hillside.

The Keystone caps shall be glued in place.

The Contractor shall furnish and install a 3-inch diameter perforated PVC pipe for the drainage system behind the retaining wall. The 3-inch perforated pipe shall discharge into the new storm sewer as shown on the plans.

All costs for furnishing and installing a completely new retaining wall system shall be included in the unit price bid per square feet of "Retaining Wall". The retaining wall shall be measured from the top of the base leveling pad to the top of the Keystone cap of the retaining wall.

After the Contractor has completed the retaining wall work, the City of Manitowoc Department of Public Works will construct a split rail wood fence with wire mesh on top of the new retaining wall as a public safety measure.

MAILBOXES

The Contractor shall carefully remove all existing mailboxes within the construction limits on all of the streets included in this project. The Contractor shall carefully place the existing mailboxes in a safe place on each respective property.

The Manitowoc Post Office is willing to furnish the Contractor with temporary mailboxes and deliver them to the location of the temporary mailbox site. The temporary mailboxes come in a bank of boxes, having one support column, with each bank of boxes having 8, 12, 16 or 32 individual mailboxes. The mailbox support column must be anchored to a slab of concrete. The concrete shall be furnished and installed by the Contractor and the concrete slab shall be a minimum of two feet (2') wide by three feet (3') long and four inches (4") thick or built to the dimensions required by the Post Office.

The Contractor should contact Mrs. Lou Brown (Delivery Manager) or Mr. Mike Kirby of the Manitowoc Post Office at (920) 682-6166 to arrange and discuss the delivery and installation requirements of the temporary bank of mailboxes. The Contractor shall affix the property owner's address to each individual mailbox as directed by the Post Office.

The Contractor may, as an alternate, furnish and install his own bank of mailboxes, which shall be supported on wooden supports, all to the satisfaction of the Engineer and the Post Office. The Contractor shall affix the property owner's address to each individual mailbox.

The Contractor shall remove the temporary bank of mailboxes at the completion of the project and shall restore all disturbed areas with topsoil and seed.

The Contractor shall install the temporary bank of mailboxes at the following location and as directed by the Engineer and/or Post Office.

1. One bank of temporary mailboxes (with 32 individual boxes) shall be installed on the northeast corner of Fleetwood Drive and Pleasant Street Intersection.