

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-1	DUPAGE		
			CONTRACT 60P42	
FED.ROAD.DIST.NO.	ILLINOIS	FED. AID PROJECT		

**PART 1: GENERAL SPECIFICATIONS**

**1.01 Work included**

- A. Work shall consist of furnishing and construction a Rockwood Classic 8TM unit segmental retaining wall in accordance with these specifications to the lines and grades shown on the construction plans and drawings. Alternate wall systems will not be considered.
- B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill, and backfill to the lines and grades shown on the construction plans and drawings.
- C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location and lengths as designated on the construction drawings.
- D. Includes design work with calculations and stamped by a registered/licensed professional engineer.
- E. Work includes the services of a professional surveyor to layout the plan, check elevation, plumb ness, and dimensions are followed and prepare a site plan, grades, elevations and proper drainage is maintained.
- F. Work includes all backfilling, grading, grubbing, clearing, and disposal of all materials and excavating materials off site, plus restoration with sod and seed.
- G. Work includes all materials, transportation, tools, equipment, labor, consumables, and traffic control for a complete job.

**1.02 Related Sections**

- A. See general condition or special condition for additional requirements of the contract
- B. See contract, plans and drawings for locations and dimensions of segmental concrete block wall systems requirements.

**1.03 Reference Documents**

- A. American Society for Testing and Materials (ASTM)
  1. ASTM C1372 Standard Specification for Segmental Retaining Wall Units
  2. ASTM C 140 Sampling and Testing Concrete Masonry Units
  3. ASTM D 422 Particle Size Analysis
  4. ASTM D 698 Laboratory Compaction Characteristics of Soil-Standard Effort
  5. ASTM D 4318 Liquid Limit, Plastic Limit and Plasticity Index of Soils
  6. ASTM D 4595 Tensile Properties of Geotextiles-Wide Width Strip
  7. ASTM D 5262 Unconfined Tension Creep Behavior of Geosynthetics
  8. ASTM D 3034 Polyvinyl Chloride Pipe (PVC)
  9. ASTM D 1248 Corrugated Plastic Pipe
  10. ASTM D 1262 Freeze-Thaw Durability of Concrete Units
  11. ASTM D 6638 Determining Connection Strength between Geogrid and Segmental Unit
- B. Geosynthetic Research Institute (GRI)
  1. GRI-GG4 Determination of Long Term Design Strength of Geogrid
  2. GRI-GG5 Determination of Geogrid (soil) Pullout
- C. National Concrete Masonry Association (NCMA)
  1. NCMA SRWU-2 Test Method for Determining Shear Strength of SRW

**1.04 Submittals/Certification**

- A. Prior to the start of work, the Contractor shall prepare construction drawings and design calculations. All calculations and design drawings shall be stamped by a Professional Engineer registered/licensed in the state of the proposed retaining wall. The Contractor shall have the proposed retaining wall drawn so the City can obtain a permit by the appropriate governing authorities

- B. Prior to start of work, the Contractor shall submit a manufacturers certification for each of the retaining wall system components. The certification shall state that the component meets the requirements of this specification.

**1.05 Quality Assurance**

- A. The Contractor shall be competent and experienced in the construction of reinforced segmental retaining walls. The Contractors competency and experience shall be determined by the Owner thru demonstration of successfully completed projects and/or completion of a nationally recognized course of instruction, such as the NCMA's Segmental Retaining wall Installers Education Program.
- B. The Design Engineer shall be competent and experienced in the design and analysis of reinforced segmental retaining walls. The Design Engineer shall provide proof of current professional liability insurances with an aggregate coverage limit of not less than \$1,000.00
- C. The Contractor shall provide independent soil testing and quality assurance inspection and testing during earthwork and wall construction operations. The quality assurance program does not relieve the Contractor of responsibility for quality control and wall performance.

**1.06 Delivery, Storage and handling**

- A. The Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.
- B. The Contractor shall protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

**PART 2: COMPONENTS**

**2.01 Definitions**

- Block** – a Rockwood Classic 8TM concrete segmental wall unit.
- Cap** – a Rockwood Classic Universal CapTM concrete segmental retaining wall unit.
- Geogrid** – a geosynthetic material manufactured for the primary purpose to reinforce soil. Same as geosynthetic reinforcement and soil reinforcement.
- Filter Fabric** – a geosynthetic material manufactured for the primary purpose to filter soils from water. Same as geosynthetic fabric.
- Drainage Fill** – crushed rock aggregate that is placed within and immediately behind the block. Same as core fill and drainage rock.
- Backfill** – compacted soil that is placed behind the blocks and drainage fill and within the reinforced soil volume of the retaining wall as outlined on the plans. Same as reinforced backfill and infill soil.
- Base leveling Pad** – aggregate base material or concrete used as a foundation for the blocks. Same as leveling pad.

**Drainage Pipe** – typically, a 4" diameter PVC or corrugated HDPE pipe, that is perforated or slotted to accept water from the surrounding soils. Same as drain tile.

**2.02 Blocks and Caps**

- A. Blocks shall be Rockwood Classic 8TM concrete segmental retaining wall units. The Owner shall specify the color and face finish.
- B. Caps shall be Rockwood Classic CapTM concrete segmental retaining wall units.
- C. Blocks and caps shall conform to the following requirements.
  1. Block dimensions shall be: H = 8", L = 18", W = 12".
  2. Blocks shall have a built in lug protruding 5/8" from the base of the block.
  3. Cap dimensions shall be: H = 4", LFRONT = 18", LREAR = 14", W = 10.5"
  4. Permissible variations in block/cap dimensions shall be per ASTM C 1372.
  5. The finish and appearance of blocks/caps shall be per ASTM C 1372.
  6. Strength and absorption requirements shall be per ASTM C 1372.
  7. The unit weight (weight per unit volume) of an in-filled block shall be greater than 115 pcf.

**2.03 Base Leveling Pad Material**

- A. Base leveling pad materials shall consist of compacted aggregate base or non-reinforced concrete, as shown on the construction drawings and/or determined based upon field conditions. Aggregate base materials shall meet the following gradation in accordance with ASTM D-422:

Sieve Size	Percent Passing
1 inch	100
No. 4	35 - 70
No. 200	0 - 15

**2.04 Drainage Fill Material**

- A. Drainage fill material shall consist of crushed rock meeting the following gradation in accordance with ASTM D-422:

Sieve Size	Percent Passing
3 inch	100
¾ inch	75 - 100
No. 4	0 - 25
No. 200	0 - 5

**2.05 Backfill**

- A. Backfill shall consist of soil that is free of debris and deleterious material. Unless the Designer specifies otherwise and accounts for in his/her design analysis, backfill shall meet the following gradation in accordance with ASTM D-422:

Sieve Size	Percent Passing
3 inch	100
1 inch	50 - 100
No. 4	20 - 100
No. 40	0 - 75
No. 200	0 - 35

NAPERVILLE PUBLIC UTILITIES DEPARTMENT	SEGMENTAL CONCRETE BLOCK WALL SYSTEM	DATE: 01-02-08 Page 1 of 6 60468-400
--	--------------------------------------	--

NAPERVILLE PUBLIC UTILITIES DEPARTMENT	SEGMENTAL CONCRETE BLOCK WALL SYSTEM	DATE: 01-02-08 Page 2 of 6 60468-400
--	--------------------------------------	--

NAPERVILLE PUBLIC UTILITIES DEPARTMENT	SEGMENTAL CONCRETE BLOCK WALL SYSTEM	DATE: 01-02-08 Page 3 of 6 60468-400
--	--------------------------------------	--

PROJECT TITLE				ROUTE 59 ROAD IMPROVEMENTS			
PROJECT DESCRIPTION				DETAILS AND STANDARDS			
ENGINEER	DRAFTING DATE	MAP #	SCALE				
BCC	5-11-12	4211,4212,4223	N.T.S.				
GIS DESIGN BY	DRAFTED BY	AT&T JOINT AGREEMENT #	PROJECT #				
DL	PSM	N/A	EU-12				
CHECKED BY	APPROVED BY	CAD FILE	SHEET #				
		0060648001D140.DWG	40 OF 63				
Naperville			Department of Public Utilities Electric Division			WORK REQUEST # 60468	