DIVISION 32 – EXTERIOR IMPROVEMENTS

32 0000 SITE PERFORMANCE REQUIREMENTS

32 0001 General Design Requirements

A. Site design shall be in a manner that storm water drainage is directed away from any building. The consultant shall also plan for an emergency overland flow of storm water as a secondary storm water management plan.

B. When designing a parking lot the minimum grade shall be no less than 1.5%.

C. Parking lot drainage shall be design in a manner that no storm water can pond above 0.75 feet. The Engineer shall design an overland flow that allows water above 0.75 feet to flow to the next downstream storm sewer structure.

32 0002 Landscape Design Requirements

A. The Architect shall hire Ken Ray, Toole Design Group, Silver Spring, MD (301) 927.1900 x 141 for all landscape design. Ken shall set direction by developing the landscape design concept; and review the implementation documents at every SD, DD, and CD review defined in the contract for each project.

32 1200 Parking Lots

A. Paint shall conform to the Michigan Department of Transportation “Pavement Marking Material Usage Guidelines”

B. Parking Lot Striping Color
   a. Yellow – Regular Parking Spaces
   b. Blue – Handicap Parking Spaces
   c. White – Pedestrian Cross Walks
   d. Yellow – Cross Hatches and Non Parking Zones

C. Handicap Parking Spaces
   a. All Handicap parking spaces shall be marked in accordance with the American with Disabilities Act.

D. Refer to CMU standard “Parking Space Detail” for parking space dimension requirements.

E. Parking lot pavement thickness shall be a total of 4” (2” leveling course and a 2” wearing course).

32 1300 SIDEWALKS

A. Walk construction to be 6” thick concrete over 6” 22A compacted gravel. Reinforced with 6: x 6: w2.9xw2.9 W.W.F. Minimum width shall be 8’. Poured concrete to be Class C air – entrained not less than 5% or more than 8%. Finish concrete must test a minimum of 4,000 lbs. compressive strength at 28 days to be accepted.

B. All new sidewalks shall have 3 feet on each side from any structure to allow for snow piles.

C. All building entrances shall have an ice melt system installed within 25 feet of the door(s).
a. Refer to CMU “Snowmelt Detail” for cross section construction detail.

D. In locations where the sidewalk is classified as “Primary Fire Access Route” the width of the sidewalk shall be 20 feet.

E. Do not use expansion joint filler on exterior concrete.

F. Refer to CMU “Sidewalk Standard Details” for scoring pattern, sidewalk intersection details, fire lane signage, and construction details.

G. Refer to CMU “Crosswalk Standard” for details on marking of pedestrian road crossings.

H. ADA Detectable warning plates shall be Armor-Tile, color yellow. The only exception is when working within the City of Mt. Pleasant street right-of-way in which case the contractor shall follow the City Standard of cast-iron modified to be powder coated yellow.

I. Concrete Delivery:
   a. Concrete delivery trucks are to remain on paved streets or parking lots. Any concrete delivery that cannot be accomplished in this manner shall be delivered to the job site utilizing a concrete delivery buggy or by a pumping operation.
   b. If either of these methods is prohibitive, alternate delivery routes shall be reviewed and approved by the CMU Project Manager. The delivery trucks shall not drive across lawn areas or sidewalks without prior approval by the CMU Project Manager and/or The Director of Plant Engineering and Planning. Any repair work resulting because of not adhering to this standard shall be paid by the contractor/person responsible.

32 8000 IRRIGATION

A. Irrigation system design shall be compatible with CMU’s main central control system which is Toro Sentinel.

B. Irrigation heads shall be installed to the lateral line with flexible poly pipe to allow for the repositioning of the irrigation head in the future.

C. Any irrigation line, which is 2-inches or larger shall be Schedule 40 PVC.

D. All irrigation lines shall be installed to a minimum depth (cover) of 12 inches. For athletic fields the minimum depth of cover shall be 18 inches.

32 9100 TOPSOIL

32 9110 LAWN AREAS and LANDSCAPE BEDS

A. Topsoil: Supplied topsoil proposed for use must meet testing criteria results specified and conform to adjustments as recommended by soil test and Landscape Architect.

B. Provide 6” of screened topsoil as required to complete the job. Topsoil must meet testing criteria results specified. Material must be incorporated into the existing soil to a depth of 6”. All processing, cleaning and preparation of this topsoil to render it acceptable for use is the responsibility of the contractor.
C. Topsoil shall be screened of any debris, consistent particle sizing, pass through a 3/8” screen, fertile, friable, of soil texture representative of the USDA soil Texture Triangle for sandy loam, capable of sustaining vigorous plant growth and screened free of clay lumps, subsoil, noxious weeds or other foreign matter such as stones, greater than 3/8” in diameter in any dimension, roots, sticks and other extraneous materials: not frozen or muddy. Topsoil shall contain not less than 2% and not greater than 5% organic matter by weight.

D. Soil Nutrient Content
   a. Soil Ph: 6.0-7.0
   b. CEC: 8-12 meg/100g
   c. Phosphorus: >10 ppm
   d. Potassium: >100 ppm
   e. Magnesium: >50 ppm
   f. Calcium: >1000 ppm
   g. Boron: >0.5 ppm
   h. Copper: >0.5 ppm
   i. Manganese: >10 ppm
   j. Zinc: >2 ppm
   k. Iron >5 ppm

E. The use of existing topsoil is allowed as long as the existing topsoil conforms to the requirements listed above and is verified through proper testing analysis.

F. Existing topsoil, if determined to be of poor quality, shall be removed from campus.

32 9115 LANDSCAPE BEDS
A. Provide 12” of topsoil. Topsoil shall meet the requirements stated is Section 32 9100 TOPSOIL.

B. Prior to the placement of topsoil contractor shall scarify the subsoil to break up “plow-pan and/or smearing” and allow drainage.

C. Provide 3” of double shredded hardwood mulch.

D. For stoned landscape area, stone size shall be between 2 and 4-inch diameter with a minimum depth of 12 inches. Contractor shall place landscape fabric prior to the installation of the stone.

32 9200 TURF AND GRASSES
A. Grass mix.

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<tr>
<td>50%</td>
<td>Kentucky Bluegrass</td>
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<td>50%</td>
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<td>90%</td>
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<td>Crop 1.4%</td>
<td>Inert. 1.65%</td>
<td>Weed 1.15%</td>
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32 9300 PLANTS

A. Refer to CMU “General Plant List” for approved trees and shrubs.

B. In locations where trees and/or shrubs are planted near a sidewalk, parking lot or building, CMU requires a clear vision area be established for public safety. Shrubs shall be no taller than 30 inches and tree canopy shall be no lower than 5 feet.

C. Canopy trees, Understory trees, and Evergreens shall be planted in a manner that when at maturity the drip edge is no closer than 5 feet from a building wall.

D. No evergreen trees shall be planted within 25 feet of a sidewalk or edge of parking lot.

E. No fruit bearing shall overhang a hard surface (ie sidewalk, parking lot, etc.)

F. Tree stakes shall be 2"x2" hardwood stake.

G. Tree guying shall be nylon straps.

H. The contractor shall remove, at a minimum 2/3 of the burlap and 2/3 of the wire cage for all new tree plantings.

I. Existing tree protection shall be at a minimum, staked construction safety fence located at the drip edge of the tree.

32 9400 PLANTING ACCESSORIES

A. Landscape bed edging shall be steel. Coordinate with CMU as to the extent and location.

END OF SECTION
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<tr>
<td>Prepared By:</td>
<td>Dan Methner</td>
</tr>
<tr>
<td>Reviewed By:</td>
<td>Linda Slater, John Latoski, Andy Reihl, Derek Morton</td>
</tr>
<tr>
<td>Approved By:</td>
<td>Jonathan Webb</td>
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## Revision History:

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<tr>
<td>2.25.20</td>
<td>Topsoil and concrete sidewalk updates</td>
<td>Linda Slater</td>
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