

Project Manual For

Cemetery Retaining Wall Removal

Richland Center, WI

Prepared For:
City of Richland Center
450 South Main St
Richland Center, WI 53581

Prepared By:
Vierbicher
400 Viking Drive
Reedsburg, Wisconsin 53959

April 2017

© 2017 Vierbicher Associates, Inc.

vierbicher
planners | engineers | advisors



THIS PAGE INTENTIONALLY LEFT BLANK

PROJECT MANUAL FOR
Cemetery Retaining Wall Removal
City of Richland Center
Richland Center, WI

April 2017
170086

Prepared By:

Vierbicher
400 Viking Drive
Reedsburg, WI 53959

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 01 10

TABLE OF CONTENTS

Section Title

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

00 00 01 Title Page
00 01 07 Seals Page
00 01 10 Table of Contents

PROCUREMENT REQUIREMENTS

00 41 43 Bid Form

DIVISION 01 - GENERAL REQUIREMENTS

01 10 00 Summary
01 20 00 Price and Payment Procedures
01 30 00 Administrative Requirements
01 32 16 Construction Progress Schedule
01 70 00 Execution and Closeout Requirements

DIVISION 31 - EARTHWORK

31 10 00 Site Clearing
31 23 16 Earthwork
31 25 13 Erosion Controls

Plans

Drawing No.

City of Richland Center - Cemetery Retaining Wall Removal, Sheets 1-2,
prepared by Vierbicher, April 2017.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 41 43

BID FORM

Proposal of _____ hereinafter called "BIDDER".

PROJECT IDENTIFICATION: Cemetery Retaining Wall Removal

PROJECT NUMBER: 170086

THIS BID IS SUBMITTED TO: City of Richland Center
450 South Main St
Richland Center, WI 53581

hereinafter called "OWNER".

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

Cemetery Retaining Wall Removal, Richland Center, WI
Section 00 41 43
Bid Form
4/19/2017

Bid Item Ref. No.	Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
Cemetery Retaining Wall Removal					
1	Remove Existing Asphalt Pavement	SY	1,240		
2	Sawcut Asphalt	LF	80		
3	Salvage and stockpile retaining wall blocks (Half of Existing Wall - 1,230+/- VSF)	LS	1		
4	Remove and Dispose Existing Retaining Wall (Half of Existing Wall - 1,230+/- VSF)	LS	1		
5	Common Excavation (Salvage Existing Topsoil, Remove Existing Base Aggregate and haul to Richland Center Landfill, Grade & Construct Slope, Fill existing roadbed with excess material, haul any additional excess material to Richland Center Landfill, Respread Existing Salvaged Topsoil)	LS	1		
6	Import Topsoil from Stockpile at Richland Center Landfill and Respread Topsoil on Existing Roadbed (4" Thick)	CY	140		
7	Erosion Mat DOT Class I, Type A Biodegradable w/ Seed & Fertilizer	SY	2,400		
8	Remove and Dispose Existing Tree	EA	8		
9	Silt fence	LF	500		
Total - Cemetery Retaining Wall Removal					

The TOTAL BID PRICE is:

_____ Dollars (\$ _____)

Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

- BIDDER agrees that Work will be substantially completed and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement and in Division 1.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

Respectfully submitted:

BIDDER:

(SEAL)

ATTEST:

Signature

Signature

Please Type Name and Title

Please Type Name and Title

Address

Date

Federal I.D. Number

Phone

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

1. Contract description.
2. Contractor's use of Site.
3. Work sequence.
4. Specification conventions.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes removal of an existing retaining wall and street in the Richland Center Cemetery. The street and retaining wall removal includes asphalt removal, common excavation, retaining wall removal, restoration of the work area, and other miscellaneous items in conformance with the Contract Documents.
- B. Perform Work of Contract under Unit Price Contract with Owner in accordance with Conditions of Contract.

1.3 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Access to Site:
 1. Local Residents and Service Providers
 2. Emergency Services
 3. Work by Others.
- B. Construction Operations: Limited to areas noted on Drawings
- C. Time restrictions for performing work: 7 am – 7 pm Monday through Friday; 8 am – 7 pm Saturday or per individual municipal ordinance.

1.4 WORK SEQUENCE

- A. Construct Work as follows:
 1. Install silt fence
 2. Remove existing retaining wall and road.
 3. Grade and construct slope.
 4. Restore construction site.

1.5 SPECIFICATION CONVENTIONS

- A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Application for Payment.
- B. Change procedures.
- C. Defect assessment.
- D. Unit prices.
- E. Alternates.

1.2 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on form provided by the Engineer.
- B. Content and Format: Utilize Unit Price Bid Items for listing items in Application for Payment.
- C. Payment Period: Submit applications for payment once per month.

1.3 CHANGE PROCEDURES

- A. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect/Engineer of any error, inconsistency, omission, or apparent discrepancy.
- B. Contractor may propose changes by submitting a request for change to Engineer or City, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Price and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors.
- C. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Construction Change Directive. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.
- D. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer or City will direct appropriate remedy or adjust payment.
- C. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.
- D. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products placed beyond lines and levels of the required Work.
 - 4. Products remaining on hand after completion of the Work.
 - 5. Loading, hauling, and disposing of rejected products.

1.5 UNIT PRICES

- A. Engineer will take measurements and compute quantities accordingly. Provide assistance in taking of measurements.
- B. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Actual quantities provided shall determine payment.
 - 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit prices.
 - 2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
- C. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, off-site disposal, services and incidentals; erection, application or installation of item of the Work; overhead and profit.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit price for Work incorporated in or made necessary by the Work.
- E. Unit Price Schedule:
 - 1. Refer to Bid Form

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Field Engineering.
- C. Preconstruction meeting.
- D. Protection of Existing Structures and Utilities.
- E. Permits.
- F. Right of Way and Construction Easements.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. The contractor shall notify the Owner not less than three (3) working days prior to the date of commencement of work.
- B. Contractor shall be responsible for coordinating all construction activities with utility companies including but not limited to electric, gas, telephone, cable, communication, etc., as well as service companies (mail, trash collection, etc.) in the work area. This work including sub-surface investigations to determine utility locations shall be incidental to all other construction.
- C. The contractor shall contact Digger's Hotline at (800) 242-8511, as well as other utilities not served by Digger's Hotline but having facilities in the work area, at least three (3) full business days prior to construction to allow the utilities to locate their underground facilities.
- D. Contractor shall be responsible for locating all utilities, including but not limited to sewer, water, electric, telephone, cable television, and gas and repairing any damage he shall cause to the same. The Contractor shall, in writing, bring to the attention of the Owner the location of any utilities that interfere with the proposed construction. Notwithstanding, contractor shall be responsible for any damage he shall cause to the same.
- E. Utility Contacts
 - 1. Digger's Hotline (800) 242-8511
 - 2. Gas (We Energies) (800) 714-7777 (emergencies 800-261-5325)
 - 3. Electric (City Superintendent Dale Bender) 608-647-2434
 - 4. Cable TV (Charter) (800) 581-0081
 - 5. Fiber Optic (Richland Electric Coop - & Addt. Elec., Phone) 608-647-3173

6. Water (City Superintendent Gayle Mathews) 608-647-4226
7. Sanitary Sewer (City Superintendent Todd Fischer) 608-647-3917
8. OWNER (Public Works Superintendent Terry Nelson) 608-647-3559

1.3 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. All surface structures and features that are to be saved, including buildings, pavements, trees and shrubs, shall be properly protected against all damage. Unless otherwise denoted on the drawings, the CONTRACTOR shall assume all existing buildings, fences, trees and shrubs, etc. are to be saved.
- B. All existing gas pipes, water pipes, steam pipes, electric and telephone conduits, sewers, drains, fire cisterns and hydrants, and other surface or subsurface structures, either of a private or of public ownership, shall be carefully supported and protected from damage by the Contractor. The Contractor shall contact utilities to determine their procedure and schedule for supporting and/or relocating poles and shall notify any above ground utility as necessary to relocate or reinforce any poles, ties or anchors which may be on or near the line of the proposed utility, weakened by excavation for the proposed utility, or within road construction grading limits. All such work shall be done by or at the expense of the Contractor and according to his own plans, subject always to the approval of the Engineer. The fact that the Owner may be under no legal obligation to provide for doing such work will be no excuse for the Contractor neglecting or refusing to perform the same.
- C. In the event of damage to any of these surface or subsurface structures, the Contractor shall replace or make repairs to the satisfaction of the Engineer at no additional cost to the Owner.
- D. The Contractor, while on this job, shall be solely responsible for the protection and/or replacement of all survey corners which exist throughout the area. These corners will be located and marked by the ENGINEER, upon request by the Contractor, prior to commencing his work. Any corners damaged by the Contractor shall be replaced by a Professional Land Surveyor at the Contractor's expense.

1.4 RIGHT OF WAY AND CONSTRUCTION EASEMENTS

- A. The Contractor shall confine his operations to the project limits as shown on the plans. Equipment shall at no times be stored or parked on private property without the written permission of the property owner. At the conclusion of the workday, equipment shall be parked on the project site or at such other location for which the Contractor has made arrangements.
- B. No easements, permanent or temporary have been provided by the Owner unless such easements are shown on the plans.
- C. Trees shall not be removed unless their removal is approved by the Owner.

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule Requirements.
- B. Liquidated Damages.
- C. Warranty.

1.2 SCHEDULE REQUIREMENTS

- A. Complete the work in a continuous and timely manner, in coordination with the Owner and other Contractors working on the project.
- B. Comply with and complete the Work in accordance with the following construction schedule:
 - 1. Start Completion: Work may begin any time following the execution of the Contract documents.
 - 2. Final Completion: July 31, 2017
 - a. Final completion shall include all work as shown on the Contract Drawings and detailed in these specifications, including all the items addressed in final project closeout punchlist.
 - 3. Within 30 days of final completion, submit final pay request.

1.3 LIQUIDATED DAMAGES

Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph 1.2 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner Three Hundred Dollars (\$300.00) for each day that expires after the time specified in paragraph 1.2 for Final Completion until the Work is complete.

1.4 WARRANTY

Provide a one-year warranty for the project against any defects in the materials and workmanship. The date of the one-year warranty shall commence on the date that the project is accepted by the Public Works Committee. It shall be the responsibility of the Contractor to request acceptance of the improvements.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.

1.2 CLOSEOUT PROCEDURES

- A. Submit final Application for Payment identifying total adjusted Contract Price, previous payments, and amount remaining due.

1.3 FINAL CLEANING

- A. Clean site; sweep paved areas, rake clean landscaped surfaces.
- B. Remove waste and surplus materials, rubbish, and construction facilities from site.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 10 00

SITE CLEARING AND REMOVALS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Site Clearing and Grubbing.
 - 2. Remove Existing Trees.
 - 3. Remove Existing Asphalt.
 - 4. Remove Curb & Gutter.
 - 5. Remove Existing Concrete.
 - 6. Sawcut Asphalt and Concrete.

- B. Related Sections:
 - 1. Section 31 23 16 - Earthwork.
 - 2. Section 31 23 18 - Rock Removal.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Remove Existing Tree:
 - 1. Basis of Measurement: By Each Tree Removed as indicated on the bid form.
 - 2. Basis of Payment: Includes clearing, grubbing, and disposal of trees, brush, stumps, and other vegetation, including all labor, trucking, equipment, tools and incidentals necessary to complete the work.

- B. Remove Existing Asphalt:
 - 1. Basis of Measurement: By Square Yard.
 - 2. Basis of Payment: Removal of existing asphalt shall be full compensation for excavating existing asphalt, disposal of existing asphalt off-site, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

- C. Salvage and Stockpile Retaining Wall Blocks:
 - 1. Basis of Measurement: By Lump Sum.
 - 2. Basis of Payment: Salvage and stockpile retaining wall blocks shall be full compensation for carefully removing, salvaging, and stockpiling retaining wall blocks at the location shown on the plans, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

- D. Remove and Dispose Existing Retaining Wall:
 - 1. Basis of Measurement: By Lump Sum.
 - 2. Basis of Payment: Remove and dispose existing retaining wall blocks shall be full compensation removing the retaining wall block and disposal off-site, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

- E. Sawcut Asphalt:

1. Basis of Measurement: By lineal foot.
2. Basis of Payment: Includes full compensation for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. Payment will be made for final sawcut only. The Engineer will not measure overcuts beyond the limits the plans show or as the Engineer directs. There will be no compensation for additional sawcuts due to rolled pavement edges.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Call Local Utility Line Information service at 1 800 242 8511 not less than three working days before performing Work.
 1. Request underground utilities to be located and marked within and surrounding construction areas.

3.2 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage. Contractor shall coordinate with the Owner/Engineer prior to completing any removals.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks, survey control points, and existing structures from damage or displacement.
- D. Confine work to limits indicated on the plans.

3.3 SITE CLEARING AND GRUBBING AND TREE REMOVAL

- A. Remove existing trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, for access to the site and execution of Work. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.
 1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 2. Stumps may be removed by grubbing, chipping, or grinding.
- B. Remove stumps and root system to a depth of 12 inches below finished grade.
- C. Clear undergrowth and deadwood, without disturbing subsoil.
- D. Apply herbicide to remaining stumps to inhibit growth.

- E. Disposal of Elm Trees shall be in accordance with local regulations.
- F. Prevent the spread of oak wilt by treating all cut surfaces and abrasions sustained between April 1 and September 30 by healthy oak trees and saplings with a thorough application of tree paint immediately upon discovering a wound. Between these dates, also paint the cut surfaces of the stumps of all healthy oak trees and saplings immediately after cutting, whether remaining in place or grubbed.
- G. The Contractor is not allowed to burn within the City Limits.

3.4 REMOVAL OF ASPHALT, CONCRETE, and CURB & GUTTER

- A. All waste and debris shall be disposed of in compliance with State and local regulations, within five days of being cut or removed.
- B. Remove paving, sidewalk, driveway, and curb and gutter as indicated on Drawings or as directed by the Engineer. Neatly saw cut edges at right angle to surface.
- C. Existing asphalt shall be left in place as much as practical during underground utility construction. Pavement shall only be removed as necessary to excavate the trench for each utility line unless otherwise directed by the Engineer. Following completion of all underground utilities, the remaining asphalt shall be removed.
- D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

3.5 SAWING ASPHALT

- A. Make straight, full-depth saw cuts at least 2 inches deep. Saw so the surface remaining is generally vertical over its full depth. Sawcut edges shall be protected. Only final sawcut will be paid for.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 23 16

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

This work consists of the excavation and satisfactory disposal of all materials for the construction of the roadway, roadbed, embankments, earth subgrade and shoulders, intersections, side ditches and dikes, channels and waterways, and shall also include the grading of entrances, approaches, ditches and channels, in accordance with these specifications and in reasonably close conformity with the lines, grades, thicknesses and typical cross-sections shown on the plans or established by the engineer. Except when otherwise provided, this work shall also include the removal and satisfactory disposal of surface and base courses, surplus and unsuitable materials; the replacement of unsuitable material with satisfactory material; the trimming and finishing of the roadway; and maintaining such work in a finished condition until acceptance.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Import Topsoil from Richland Center Landfill and Respread Topsoil on Existing Roadbed:
 - 1. Basis of Measurement: By Lump Sum when indicated on the bid form.
 - 2. Basis of Payment: Price shall be full compensation for excavating, loading, hauling, and temporary stockpiling the topsoil as required and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

- B. Common Excavation (Salvage Existing Topsoil, Remove Existing Base Aggregate and haul to Richland Center Landfill, Grade & Construct Slope, Fill existing roadbed with excess material, haul any additional excess material to Richland Center Landfill, and Respread Existing Salvaged Topsoil):
 - 1. Basis of Measurement: By Lump Sum as indicated on the bid form.
 - 2. Basis of Payment: Prices shall be full compensation for excavation, disposal of all material not otherwise classified, including topsoil, surface, and base courses, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. Topsoil Excavation and Topsoil Placement shall also be included in the cost of common excavation when no specific bid item is indicated for those items.
 - 3. The cost of removing walls, foundations, etc., the satisfactory disposal of material resulting there from, and the backfilling of basements or openings resulting from the removal of walls, foundations, etc., for which no separate unit prices are included in the contract, will be construed to be included in the contract unit price for Common Excavation items, except as provided above for the removal of concrete structures. No extra or additional compensation will be made for such work, except that payment for furnishing and placing the required Granular Backfill will be made at the contract unit price for that item, and excavation below subgrade performed after completion of rough grading.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Wisconsin Department of Transportation Standard Specifications.

PART 2 EXECUTION

2.1 PREPARATION

- A. Call Diggers Hotline Information service at 1-800-242-8511 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company to remove and relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

2.2 TOPSOIL EXCAVATION

- A. Strip/Salvage Topsoil:
 - 1. Strip topsoil to whatever depths encountered or to depths necessary to provide sufficient volumes to cover designated areas to the required depths in a manner to prevent intermingling with underlying subsoil or other objectionable material. All areas from which topsoil is obtained shall be cleaned, if necessary, by means of mowing weeds or other vegetation to a height of approximately six inches or less. The area shall be free of any litter such as rocks, brush, or other material of objectional nature.
 - 2. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water.
 - 3. Stripped/salvaged topsoil may be stockpiled in areas designated on the plans or as directed by the Engineer so that it may be reclaimed and spread on the areas designated.
 - 4. Stockpile in area designated on site and protect from erosion with silt fence.

2.3 TOPSOIL PLACEMENT

- A. All areas designated to be covered with topsoil shall be undercut or underfilled with approved material to such depth that when covered with the required depth of topsoil, the finished surface will be in accordance with the required lines, grades, slopes, and cross sections.

- B. The finished surface shall contain no dirt clumps, stones, sticks, or other debris larger than one inch in any dimension. Topsoil placed next to fixed surfaces, such as walks, curbs, concrete sidewalks or other borders shall be kept 3/4 inch below such fixed surfaces.
- C. Place topsoil in areas where restoration is required to a nominal depth of 4 inches unless otherwise indicated on the plans.
- D. Place topsoil during dry weather.
 - 1. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
 - 2. Remove roots, weeds, rocks, and foreign material while spreading.
 - 3. Manually spread topsoil close to plant material, building, and concrete or pavement to prevent damage.
 - 4. Lightly compact placed topsoil.
 - 5. Excess topsoil shall be disposed of off-site unless otherwise stated in the plans.
 - 6. Leave stockpile area and site clean and raked, ready to receive landscaping.

2.4 TRUCKED-IN TOPSOIL

- A. Use when insufficient quantities of salvaged topsoil exist on site only with approval of Engineer.
- B. Place topsoil according to TOPSOIL PLACEMENT item.

2.5 COMMON EXCAVATION

- A. Common excavation shall consist of removal, satisfactory disposal, and placement of all materials of every description not otherwise classified on the bid form.
- B. Excavate to in accordance to the lines, grades, thicknesses, and typical sections shown on the plans.
- C. Provide temporary drainage and efficient management of surface water runoff to reduce the flow of storm water runoff into site excavations and construction areas.
- D. Correct unauthorized excavation at no cost to Owner.
- E. Any materials tracked on adjacent property or streets will be cleared immediately by the Contractor.
- F. Excess material is to be disposed of off-site unless otherwise indicated.

2.6 DRAINAGE AND EMBANKMENTS

A. DRAINAGE

- 1. Inlets, outlets, swales, berm and intercepting ditches, dikes, or intercepting embankments and channels shall be constructed where and as shown on the plans or where and as directed by the engineer and shall be maintained to the required section

until acceptance. The work shall be performed in proper sequence with other work to provide adequate drainage and to minimize erosion and siltation.

B. EMBANKMENT

1. Materials:

- a. Materials for embankment shall consist of approved materials and shall contain no logs, stumps, brush, or other perishable material. Humus-bearing soils, in excess of the quantity needed for salvaged topsoil requirements, and other soils not suitable for roadbed construction may be placed in the outside edges of the embankment, beyond the limits of an assumed one-to-one slope extending outward from the outer limits of the finished shoulder line. Frozen lumps of soil shall not be permitted to be placed in embankments inside the above designated assumed slope limits.
- b. Materials to be incorporated in the top 8-inches of earth embankments shall be free from large stone, rock and broken concrete or other materials, which would significantly affect scarifying, compacting and finishing the subgrade.
- c. Materials placed in those portions of embankments through which it is proposed to bore holes for or to drive piling shall contain no stone or broken concrete retained on a three-inch ring and shall be free from quantities of gravel, stone or broken concrete passing a three-inch ring, or other material which would significantly affect the boring of holes or driving of piling.

2. Placing Layers

- a. Embankment shall be constructed in layers. The construction of an embankment shall begin at the lowest point of the fill below the grade, and shall be constructed in layers by spreading and leveling the material during placement. Individual layers shall be spread evenly to uniform thickness throughout and approximately parallel with the finished grade for the full width of the embankment, unless otherwise directed. The thickness of the layer shall be as necessary to secure the required compaction, generally not exceeding eight-inches.

2.7 COMPACTION

A. General:

1. All embankments shall be compacted in accordance with the requirements for standard compaction unless special compaction is called for on the plans or in the contract.
2. Embankment material shall not be compacted when the moisture content is such as to cause excessive rutting by the hauling equipment, or excessive displacement or distortion under the compacting equipment. Where such conditions exist, the materials shall be allowed to dry prior to compacting. When necessary, drying of such materials shall be accelerated by aeration or manipulation by means of blade graders, harrows, discs, or other appropriate equipment.
3. When the embankment material does not contain sufficient moisture to compact properly, water shall be added in quantities deemed necessary to aid and accelerate and to secure effective compaction.
4. Embankment materials which are placed outside the limits of an assumed one-to-one slope extending outward and downward from the outer limits of the finished shoulder line shall be compacted to a density not less than the density contemplated for standard compaction, except that the engineer may waive this

density requirement for unstable materials permitted to be placed in embankments outside the above designated slopes.

B. Standard Compaction:

1. The material for the embankment shall be deposited, spread, and leveled, as herein before provided, in layers generally not exceeding eight inches in thickness before compaction. Each layer of the embankment shall be compacted to the degree that no further appreciable consolidation is evidenced under the action of the compaction equipment. The required compaction shall be attained for each layer before any material for a succeeding layer is placed thereon.
2. The compaction shall be performed by specialized compaction equipment, supplemented by hauling and leveling equipment routed and distributed over each layer of the fill to make use of the compaction afforded thereby; unless the engineer determines that the compaction attained by the use of only the hauling and leveling equipment is satisfactory and sufficient. Should the engineer determine that such compaction is satisfactory and sufficient, specialized compaction equipment will not be required. Should the engineer determine that the compaction is not satisfactory or sufficient, specialized compaction equipment shall be used to accomplish the compaction.
3. Specialized compaction equipment shall include tamping rollers, pneumatic-tire rollers, vibratory rollers, or other types of equipment designed for compaction, which will produce the required results in the materials encountered and be subject to the approval of the engineer.
4. Tamping rollers, when used for compaction, shall exert a weight of not less than 150 pounds per square inch of tamping surface on each tamping foot in a transverse row.
5. Pneumatic-tire rollers or other equipment, when used for compaction, shall have a weight of not less than 150 pounds per linear inch of overall rolling width.

C. Special Compaction

1. Upon the properly prepared ground surface, the material for the embankment shall be deposited, spread and leveled, as herein before provided, in layers generally not exceeding eight inches in thickness before compaction, except that when the material being compacted is of a granular nature and the compacting equipment is adaptable for the purpose, the thickness of the layer may be increased to a maximum of 12-inches provided the required density is obtained. Each layer of the spread and leveled material shall be compacted, by means of suitable compaction equipment, to not less than the specified density before the succeeding layer is placed.
2. All embankment material placed within the limits of assumed one-to-one slopes extending outward and downward from the outer limits of the finished shoulder lines shall be compacted to not less than the density specified for the embankment and the embankment material placed outside such assumed slopes shall be compacted as specified in Subsection 3.9.A.
3. Embankments of six feet or less in height shall be compacted to at least 95 percent of maximum density for their full depth. Embankments over six feet in height shall have the top six feet compacted to not less than 95 percent of maximum density, and those portions more than six feet below the finished subgrade shall be compacted to at least 90 percent of maximum density, except that such portions

occurring within 200 feet of a bridge abutment shall be compacted to 95 percent of maximum density.

4. The maximum density shall be determined in accordance with the Standard Method of Test for the Moisture-Density Relations of Soils, AASHTO Designation: T 99, Method C, with replacement of the fraction of material retained on the 3/4-inch sieve with No. 4 to 3/4-inch material. The density of compacted embankment material will be determined in accordance with the Standard Method of Test for Density of Soil-in-Place by the Sand-Cone Method, AASHTO Designation: T 191 or by other approved methods.

D. Subgrade Compaction in Cuts

1. The finished earth subgrade in cut sections for a width equal to the width of the proposed pavement plus shoulders shall be compacted as provided for standard compaction, unless special compaction is called for in the contract.
2. On grading projects where special compaction is required, the finished earth subgrade in cut sections to the width above described and to a depth of at least six inches shall be compacted to at least 95 percent of maximum density.

2.8 BORROW EXCAVATION

A. Quality

1. The material furnished shall consist of satisfactory soil or a mixture of satisfactory soil, stone, gravel, or other acceptable materials, which is of a character and quality satisfactory for the purpose intended. The material shall be free from sod, stumps, logs, grubs, and other perishable and deleterious matter.

B. Source

1. Unless otherwise provided in the contract, the contractor shall make his own negotiations with property owners or others from whom he proposes to obtain borrow material.

C. Construction Methods

1. The area from which material for Borrow Excavation is to be obtained shall be cleared and grubbed. All sod or other perishable or unsuitable material shall be removed from the proposed pit area. Borrow pits shall be excavated in a manner to permit accurate measurement of the material excavated and incorporated in the work.
2. All stone, broken rock, boulders, and other materials, which are not satisfactory for use in the work, shall be disposed of by the contractor at his expense.
3. All stumps, trees, logs, brush, tops and other debris resulting from clearing and grubbing work in borrow pit areas shall be disposed of by the contractor.
4. Except in the case of commercial pits, the available topsoil or other soil of a nature conducive to plant growth, overlying such pit, shall be stripped off and placed in stockpiles in sufficient quantities to cover all surfaces of excavated areas within such pit to a depth of from four to six inches. When the depth of topsoil overlying such pit is less than four inches in depth, the topsoil shall be replaced to the original depth. After the pit has been trimmed and finished, such salvaged material shall be uniformly spread over all excavated areas of the borrow pit, except as otherwise authorized by the engineer in writing.

5. After the excavated areas of the pit have been topsoiled the pit, disturbed areas adjacent thereto and associated haul roads shall be fertilized and seeded.

2.9 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 25 13
EROSION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sediment and Erosion Control
 - 2. Site Stabilization
 - 3. Silt Fence
 - 4. Inlet Protection
 - 5. Tracking Pad
 - 6. Erosion Mat

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Silt Fence:
 - 1. Basis of Measurement: By lineal foot.
 - 2. Basis of Payment: Includes furnishing materials, tools, equipment and incidentals to install, maintain and remove following revegetation as required.
- B. Tracking Pad:
 - 1. Basis of Measurement: By the ton.
 - 2. Basis of Payment: Includes furnishing materials, labor, tools, equipment and incidentals to complete the work. Load tickets will be collected and used to determine quantity.
- C. Erosion Mat:
 - 1. Basis of Measurement: By square yard.
 - 2. Basis of Payment: Includes furnishing materials, labor, tools, equipment and incidentals to complete the work. Seeding and fertilization prior to placement of mat shall be paid for under the restoration item.
- D. Except for items listed in the Bid Form, erosion and sediment control measures will be considered incidental to the construction.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Wisconsin Department of Natural Resources Best Management Practices.

1.4 ENVIRONMENTAL AND EROSION CONTROL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.

- B. At a minimum, the following erosion and sediment control measures shall be implemented at all construction sites.
 - 1. Sediment from overland flow shall be prevented from leaving the work site by installing straw bales or silt fencing, parallel to the contours, downhill from the work area.
 - 2. During pipeline construction, excavated material shall be placed on the high side of the trench. All trench water shall be discharged into a settling basin or through a filtering device prior to release into a storm sewer or stream. At the end of each day the trench shall be backfilled, compacted, and stabilized.
 - 3. Storm sewer inlets shall be protected from runoff by encircling with straw bales or silt fencing.
 - 4. Stone tracking pads shall be installed at all construction site exits to prevent soil tracking. Tracked soil shall be collected from paved roads located near construction sites on a daily basis.
 - 5. Minimize surface area of bare soil exposed at one time.
 - 6. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.
 - 7. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

PART 2 PRODUCTS

2.1 GEOTEXTILE MATERIALS

- A. Furnish materials in accordance with State of Wisconsin Department of Transportation standards.
- B. Geotextile Fabric: Furnish in accordance with State of Wisconsin Department of Natural Resources Best Management Practices.

2.2 EROSION MAT

- A. Erosion mat shall be listed on the Wisconsin DOT Product Acceptability List (PAL) and be a 100% biodegradable blanket of the class and type indicated on the plans or bid form. Curlex Netfree by American Excelsior or equal.
- B. Staples for anchoring the erosion mat in place shall be U-shaped, biodegradable landscape stakes. Staples to be e-staple by American Excelsior or equal.

2.3 SILT FENCE

- A. Geotextile Fabric.
 - 1. The Geotextile fabric shall consist of either woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride. Nonwoven fabric may be needle punched, heat bonded, resin bonded, or combination thereof. Submit a certificate of compliance certifying that geotextile conforms to the following:

TEST	METHOD	VALUE MINIMUM REQUIREMENTS
Minimum Grab Tensile Strength (cross machine direction) (lb)	ASTM D-4632	100
Minimum Grab Tensile Strength (machine direction) (lb)	ASTM D-4632	120
Maximum Apparent Opening Size (equivalent standard sieve)	ASTM D-4751	No. 30
Minimum Permittivity	ASTM D-4491	0.05 S ⁻¹
Minimum Ultraviolet Stability (strength retained at 500 hours of exposure)	ASTM D-4355	70%

2. The geotextile fabric shall be insect, rodent, mildew and rot resistant.

B. Fence Support System

1. The fence support system shall comply with plan requirements.

2.4 TRACKING PADS

A. The aggregate for tracking pads shall be 3 to 6 inch clear or washed stone or as directed by the Engineer. All material to be retained on a 3-inch sieve.

2.5 EROSION CONTROL REQUIREMENTS

A. Erosion control is the responsibility of the Contractor until acceptance of the project.

B. The erosion control measures and structures shown on the plans and described in the specifications shall be considered the minimum erosion control requirements. These measures shall be installed prior to start of construction and must be maintained and adjusted as necessary throughout construction.

C. The Contractor shall be responsible for checking erosion control measures at the end of each week and after a rain event of 0.5" or more throughout the length of construction. Contractor shall complete and maintain a copy of the WDNR erosion control inspection form for each inspection. Contractor shall also provide a copy to Engineer.

D. Contractor is responsible for implementation and maintenance of erosion control measures until the disturbed area is stabilized. All erosion control measures shall be in working condition at the end of each working day. The site will be considered stable when no soil leaves the site as a result of storm events and the areas served have established permanent vegetative cover. Adjustments shall be made to the erosion control measures as required.

- E. Maintaining a clean job site including sweeping dust and sediment off from the adjacent streets shall be the responsibility of the contractor and shall be incidental to all other construction.

2.6 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Clear only those areas designated for the placement of improvements or earthwork before placement of the final cover. Perform stripping of vegetation, grading, excavation, or other land disturbing activities in a logical sequence and manner that will minimize erosion. If possible, schedule construction for times of the year when erosion hazards are minimal.
- D. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2: 1 or flatter.
- E. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 14 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 32 92 19 at percent of permanent application rate with no topsoil.
 - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.
- F. Stabilize diversion channels, sediment traps, and stockpiles immediately.
- G. Do not locate any soil or dirt piles which will remain in existence for more than 7 consecutive days, whether to be worked during that period or not, within 25 feet of any roadway, parking lot, paved area, or drainage structure or channel (unless intended to be used as part of the erosion control measures.)
- H. Do not discharge water in a manner that will cause erosion or sedimentation of the site or receiving facility.

2.7 WATER CONTROL

- A. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

2.8 EROSION MAT

- A. Perform work in accordance with Wisconsin DNR Conservation Practice Standard 1052 for Non-Channel Erosion Mat products and Wisconsin DNR Conservation Practice Standard 1053 for Channel Erosion Mat products.
- B. In all cases, lining installation and anchoring must be performed in strict compliance with the manufacturer's recommendations and guidelines.
- C. The erosion mat shall be placed on a specified area immediately after the seeding or sodding operations have been completed. All stones or clods over 1-1/2 inches in diameter and all roots, sticks or other foreign material, which would interfere with the mat bearing completely on the soil or sod, shall be removed prior to placing the mat.
- D. Any small stones or clods, which prevent contact of the mats with the soil, shall be pressed in the soil with a small lawn-type roller or by other effective means. The mat shall have its lateral edges so impressed in the soil as to permit runoff water to flow over it.
- E. In the event methods and details for placing erosion mat are incorporated in the plans, the work shall conform thereto.
- F. Any seeded areas damaged or destroyed during erosion mat placing operations shall be reseeded as specified for the original seeding. All surplus excavation or materials, and all stones, clods or other foreign material removed in the preparation of the seeded soil or sodded surface for placing the mat, shall be disposed of by the contractor.
- G. Following the placing of the mat, water shall be uniformly applied to the area sufficiently to moisten the seedbed to a depth of two inches and in a manner to preclude washing or erosion.
- H. The contractor shall maintain the erosion mat and make satisfactory repairs of any areas damaged by erosion, traffic, fires, or other causes until acceptance of the work.
- I. The matting strips shall be rolled on or laid in the direction of the flow. The mat shall be spread evenly, smoothly, in a natural position without stretching and with all parts bearing on the soil. Wood fiber blanket shall be placed with the netting on top. Adjacent strips shall overlap at least four inches. Strip ends shall overlap at least ten inches. All overlaps shall be made with the upgrade section on top.
- J. The upgrade end of each strip shall be buried at least six inches in a vertical slot cut in the soil and the soil pressed firmly against the embedded blanket.
- K. The mat shall be anchored in place with vertically driven staples, driven until their tops are flush with the soil. Staples shall be spaced at three-foot centers along mat edges and be alternately spaced at three-foot centers through the center. Staples shall be at ten-inch centers at end or junction slots.
- L. Erosion mats shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.

2.9 SILT FENCE

- A. Perform work in accordance with Wisconsin DNR Conservation Practice Standard 1056.
- B. Installation and Removal

The silt fence shall be erected prior to starting any construction operation, which might cause any sedimentation or siltation at the site of the proposed silt fence.

The silt fence shall, when possible, be constructed in an arc or horseshoe shape with its ends pointing up slope. The silt fence shall be constructed to the dimensions and in accordance with the details shown on the plans. Silt fences shall be removed, as determined by the engineer, after the slopes and ditches have been stabilized and turf developed to the extent that future erosion is unlikely. Materials remaining after removal shall become the property of and shall be disposed of by the contractor.

- C. Inspection and Maintenance

The contractor shall inspect all silt fences weekly and immediately after each rainfall and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the contractor. In addition, the contractor shall make a daily review of the location for silt fences and filter barriers in areas where construction activity changes the earth contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or directed by the engineer.

Sediment deposits shall be removed when the deposit reaches approximately one-half of the volume capacity of the silt fence as determined by the engineer and disposed of as directed by the engineer. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with the existing grade and the area topsoiled, fertilized, and seeded as required.

2.10 TRACKING PAD

- A. Perform work in accordance with Wisconsin DNR Conservation Practice Standard 1057.
- B. Clear stone tracking pads shall be constructed at each construction site entrance prior to any traffic leaving the site.
- C. Tracking pads shall be 50'L x 25'Wx1'D, unless otherwise specified.
- D. On sites with a high water table, or where saturated conditions are expected during the life of the practice, stone tracking pads shall be underlain with a WisDOT Type R geotextile fabric to prevent migration of underlying soil into the stone.
- E. Tracking pads shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
- F. The tracking pad performance shall be maintained by scraping or top-dressing with additional aggregate.

- G. Tracking pad stone or crushed aggregate base course shall be used to cover utility trenches to prevent erosion on an as needed basis.

2.11 DUST CONTROL

- A. Execute Work by methods to minimize the dispersion of dust during the course of construction by application of water or other methods as approved by the Engineer to all areas within the project creating dust dispersion from the Contractor's operations, and from regular vehicle traffic.
- B. Perform work in accordance with Wisconsin DNR Conservation Practice Standard 1068.
- C. The application rate shall be per the manufacturer's recommendations.
- D. Dust control methods shall be applied whenever dust dispersion becomes a nuisance, or as directed by the Engineer.

2.12 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. When required, broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- C. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.

THIS PAGE INTENTIONALLY LEFT BLANK