PLACID LAKE STATE PARK PARKING AREA AND DOCK IMPROVEMENTS
FWP # 7096504
SPECIFICATIONS FOR WORK - TECHNICAL PROVISIONS

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SECTION 01000
DIVISION 1 – GENERAL REQUIREMENTS

This contract will be constructed and administered under the requirements of the Montana Public Works Standard Specifications (MPWSS), Sixth Edition, April 2010, as Amended, and all supplemental documents contained herein. The MPWSS are included in their entirety, as applicable, and as modified, amended, added, or replaced as follows:

01010	Summary of Work (MPWSS, as amended)
01030	Permits (Added Section)
01041	Project Coordination (MPWSS, as amended)
01050	Field Engineering (MPWSS, as amended)
01150	Measurement and Payment (Added Section)
01300	Submittals (Added Section)
01400	Contractor Quality Control and Owner Quality Assurance (MPWSS, as amended)
01500	Construction and Temporary Facilities (MPWSS, as amended)
01570	Construction Traffic Control (MPWSS, as amended)
01750	Final Cleanup

SECTION 01010
SUMMARY OF WORK (MPWSS, as amended)

PART 1: GENERAL

1.2 CONTRACT DOCUMENTS

B. Delete and replace with the following:

"Contract Documents are defined in Article 1 of the General Conditions, Paragraph 1.1 Basic Definitions, Section 1.1.1 Contract Documents."

Delete 1.3 WORK SEQUENCE and replace with the following:

"1.3 WORK SEQUENCE AND COMPLETION

A. Contractor shall generally be allowed to work within the project limits as shown on the plans without restriction. Contractor shall attempt to minimize all impacts of public use of the facilities to the extent possible.

1.4 Contractor USE OF PREMISES

A. Change "6.11" to "3.13."

Delete paragraph B. in its entirety and replace with the following:

"B. The Placid Lake Campground site shall be open to the public during project construction. The Contractor shall allow public access within the existing boat ramp parking and provide one-way traffic as indicated on the plans. Contractor shall delineate route with traffic control devices as needed to facilitate the boat ramp parking and the Contractor's project needs. Contractor shall secure and safely store equipment and materials for the project duration."

Add the following section:

"1.6 ENGINEER'S QUANTITY INFORMATION

A. The following is a summary of quantities derived from the Engineer's takeoff from the plans. This summary may not include all items associated with the specific bid items. Refer to the related specification section for additional information regarding measurement and payment. If no measurement and payment is described, the item of work shall be considered incidental to the work, and included in associated bid items.

1. The 2 1/4" Thickness of Hot Plant Mix (Asphalt Concrete Surface Course Type "B") shall be measured and paid for by the square yards as described in section 01150.

Site Grading shall include all clearing and grubbing, tree and stump removals, timber and boulder relocation, excavation and compaction, embankment, grading, sub-base and base material installation, and

associated work. The following quantities are preliminary only, and should not be relied upon by the Contractor for bidding purposes, nor will a change order be considered based on the Contractor's use of the quantities. The contractor will be required to perform and independent quantity takeoff for their proposal.

SCHEDULE A (Campground Parking)

Sub-Base Gravel	855 CY
Base Gravel	427 CY
Excavation	1,753 CY
Embankment	1,363 CY
Topsoil Removal (not included in excavation, and assumed at 6" thickness)	1,164 CY

SCHEDULE B (Day-Use Area)

Sub-Base Gravel	33 CY
Base Gravel	17 CY
Excavation and Embankment – Negligible	

Gravel quantities were calculated using the total neat line area on the plans for each gravel type and multiplying by the material thickness shown on the details.

Excavation and Embankment quantities were calculated using the plan neat lines for sub-grade elevation and the existing ground as surveyed minus 6 inches for topsoil.

3. All other items of work described within the Proposal shall be measured and paid for as described on the plans and within the specifications."

END OF SECTION 01010

SECTION 01030
PERMITS (Added Section)

PART 1: GENERAL

1.1 DESCRIPTION

A. This section specifies the requirements for CONTRACTOR to secure and comply with all local, state, and federal regulations required for the project. CONTRACTOR shall be responsible for obtaining all permits, licenses, bonds, insurance, etc., detailed within the Contract Documents or required by and local, state, or federal regulations, unless specifically stated within the Contract Documents that OWNER will provide.

1.2 PERMITS

A. The Contractor shall be required to secure and pay all fees associated with obtaining Authorization for Storm Water Discharge Associated with construction activity under the Montana Pollutant Discharge Elimination System (MPDES). All fees associated with this permit application and any subsequent annual fees will be paid for by the Contractor. See section 02270 for additional information.

Contractor should note that the storm water discharge permit does not cover construction dewatering associated with trench excavation. Any permitting required to discharge construction dewatering shall be obtained by the Contractor. The Contractor may contact the Montana Department of Environmental Quality to obtain permit applications and associated fees for construction dewatering.

B. CONTRACTOR will be responsible to acquire ALL additional permits necessary and to pay fees and charges for such, unless otherwise specified.

END OF SECTION 01030

SECTION 01041
PROJECT COORDINATION (MPWSS, as amended)

PART 1: GENERAL

1.2 COORDINATION WITH PUBLIC AND PRIVATE AGENCIES

A. Change “Article 7” to “Article 9.9, Partial Occupancy or Use.”

C. Change “6.20” to “3.18.”

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

“PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. All project coordination associated with the work shall be incidental to other work items in the contract and no separate payment shall be made.”

END OF SECTION 01041

SECTION 01050
FIELD ENGINEERING (MPWSS, as amended)

PART 1: GENERAL

1.1 ENGINEERING SURVEYS

Delete Paragraphs A – D in their entirety and replace with the following:

"A. All work will be done to the lines, grades, and elevations shown on the plans.

B. The Engineer will be responsible for initial layout and construction staking, utilizing the Engineer's existing field control and coordinate data. Dimensions and elevations indicated in layout of work shall be verified by the Contractor. Discrepancies between Drawings, Specifications, and existing conditions shall be referred to the Engineer for adjustments before work affected is performed.

C. The Contractor shall keep the Engineer informed, a reasonable time (5 days) in advance of the times and places at which he wishes to do work, so the horizontal and vertical control points may be established and any checking deemed necessary by the Engineer may be done with reasonable notice to the Engineer and minimum delay to the Contractor.

D. The following construction staking will be provided by the Owner. All other construction staking and layout is the responsibility of the Contractor (such as blue-topping).

1. Edge of asphalt offset stakes with line and grade will be provided between 25'-50' intervals, as well as any radius points and critical PC/PT points.

2. Slope stakes for cut and fills exceeding 3 feet.

3. Control points will be set as shown on the plans.

4. If needed, additional temporary benchmarks will be set (5 total).

5. The Engineer will work with the Contractor to establish additional field information, to include rock barrier locations, etc, by marking with paint, flagging, staking or other means.

E. Prior to commencing work, the Contractor shall carefully compare and check all drawings, each with the other that in any way affects the location or elevation of the work to be executed by him, and should any discrepancy be found, he shall immediately report the same to the Engineer for verification and adjustment. Any duplication of work made necessary by failure and neglect on his part to comply with this function shall be done at his sole expense.

F. The Contractor shall be responsible to protect and preserve the established construction staking provided by the Owner until such staking is determined, by both Engineer and Contractor, to no longer be necessary to complete the work.

Any restaking required due to Contractor destroying or disturbing construction staking shall be replaced by Engineer at a rate of $150.00/hr for a 2-man survey crew, and billed to the Contractor."

PART 4: MEASUREMENT AND PAYMENT – NOT USED

Any contractor staking or layout shall not be paid for directly and shall be considered incidental to the work.

END OF SECTION 01050

SECTION 01150
MEASUREMENT AND PAYMENT

PART 1: GENERAL

1.1 DESCRIPTION

Measurement and Payment shall be as specified in this section and shall include furnishing all labor, equipment, materials and incidentals necessary to construct, complete and deliver the bid items in accordance with the plans and specifications.

The following Measurement and Payment descriptions do not necessarily name all the items required to complete the work. The cost of all incidentals shall be included in the related bid item prices for those bid items described below.

BID SCHEDULE A

BID ITEM **DESCRIPTION**

1. **MOBILIZATION:** This bid item shall include all costs associated with Mobilization/de-mobilization and preparatory work, to include allowance for performance and payment bond costs, insurance costs, move-in costs, and other preparatory costs.

   Measurement: Measurement shall be per the lump sum as listed on the proposal.

   Payment: Payment shall be at the contract unit price bid per Lump Sum for Mobilization as listed in the Proposal. 50% of the Lump Sum item for Mobilization will be paid with the first monthly payment, as long as the work has commenced and the payment application is not solely for stored materials. The remainder of the Lump Sum item for Mobilization will be made once 50% of the work has been performed.

2. **PERMITTING/EROSION CONTROL:** This bid item shall include all costs associated with securing and complying with all permits required to construct the project, and shall include those materials and installations necessary to provide erosion control as specified within the Special Provisions.

   Measurement: Measurement shall be per the lump sum as listed on the proposal.

   Payment: Payment shall be at the contract unit price bid per Lump Sum for Permitting/Erosion Control as listed in the Proposal. Payment shall include securing and paying all fees associated with the project permits, to include those measures necessary for permit compliance throughout construction. Payment shall also include creating and filing all documentation required under the MPDES for storm water associated with construction actives, associated fees and all work associated with soil erosion and sediment control, including all installation, maintenance, and removal (if required) of all sediment control structures and BMP's included in the SWPPP and on the plans, and necessary to comply with local, state, and federal standards. This work shall also include any work associated with monitoring and reporting for permit compliance.

3. **SITE GRADING:** This bid item shall include all costs associated with the general clearing and grubbing, tree and/or root ball removals, proper disposal of waste items, excavation, backfill and compaction, earth manipulation, import and placement of base gravels as specified, to include furnishing, loading, hauling, spreading, blending, shaping, watering, compacting, and manipulating, and any incidentals to prepare the site to the plan lines and grades for the purpose of final surfacing.

   Measurement: Measurement shall be per the lump sum as listed on the proposal.

   Payment: Payment shall be at the contract unit price bid per Lump Sum for Site Grading as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

4. **2-1/4" THICKNESS OF HOT PLANT MIX (ASPHALT CONCRETE SURFACE COURSE TYPE "B"):** This bid item shall include producing, furnishing, transporting, stockpiling, heating, drying and screening of aggregate materials; for furnishing, handling, measuring, mixing, manipulating and placing of materials; for hauling, placing, shaping, compacting and finishing of the paving mix; for improving unsatisfactory areas, for furnishing samples; for all materials to include asphalt or mineral filler, manipulation, labor, tools, equipment and incidentals necessary to complete the work in full compliance with the plans and specifications for the installation of 2-1/4" thickness asphalt concrete pavement surface course (Type B), to the lines and grades shown on the Plans.

   Measurement: Measurement shall be by the Square Yard as listed on the proposal.

   Payment: Payment shall be at the contract unit price bid per Square Yard as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

5. **NEW PIN DOWN CURBS:** This bid item shall include furnishing and placement of new concrete pin down curbs meeting the details on the plans.

   Measurement: Measurement shall be per the Each as listed on the proposal.

   Payment: Payment shall be at the contract unit price bid per each as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

6. **PAVEMENT MARKINGS:** This bid item shall include the furnishing and painting (waterborne paint), in reasonably close conformity with the lines and dimensions shown in the contract documents or established by the Engineer, of all pavement lines, words, symbols, and other reflective markers as specified in the contract documents.

Measurement: Measurement shall be per the lump sum as listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Lump Sum for Pavement Markings as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

7. **NEW SIGN:** This bid item shall include the furnishing and installation of new signs as specified in the contract documents.

Measurement: Measurement shall be per the Each listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Each for New Sign as listed in the Proposal. Payment shall include all materials, labor, equipment, and incidentals required to install the sign including foundation, pole, sign face(s) and mounting bracket(s).

8. **4" TOPSOIL AND SEEDING:** This bid item shall include the furnishing of topsoil and final seeding and seed establishment as specified in the contract documents. This work shall include topsoil and seeding included in Schedule B as well.

Measurement: Measurement shall be per the Lump Sum listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Lump Sum, as listed in the Proposal. Payment shall include the import of topsoil material as required to provide 4" thickness seed bed, final seeding, and all materials, labor, equipment, and incidentals required to import and install topsoil and seeding per the specifications.

BID SCHEDULE B

BID ITEM	DESCRIPTION

1. **SITE GRADING:** This bid item shall include all costs associated with the general clearing and grubbing, tree and/or root ball removals, proper disposal of waste items, excavation, backfill and compaction, earth manipulation, import and placement of base gravels as specified, to include furnishing, loading, hauling, spreading, blending, shaping, watering, compacting, and manipulating, and any incidentals to prepare the site to the plan lines and grades for the purpose of final surfacing.

Measurement: Measurement shall be per the lump sum as listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Lump Sum for Site Grading as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

2. **2-1/4" THICKNESS OF HOT PLANT MIX (ASPHALT CONCRETE SURFACE COURSE TYPE "B"):** This bid item shall include producing, furnishing, transporting, stockpiling, heating, drying and screening of aggregate materials; for

furnishing, handling, measuring, mixing, manipulating and placing of materials; for hauling, placing, shaping, compacting and finishing of the paving mix; for improving unsatisfactory areas, for furnishing samples; for all materials to include asphalt or mineral filler, manipulation, labor, tools, equipment and incidentals necessary to complete the work in full compliance with the plans and specifications for the installation of 2-1/4" thickness asphalt concrete pavement surface course (Type B), to the lines and grades shown on the Plans.

Measurement: Measurement shall be by the Square Yard as listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Square Yard as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

3. **CELLULAR CONCRETE MATTRESS**: This bid item shall include all costs associated for the furnishing and installation of cellular concrete mattress, to include all associated materials and shown on the plans or as listed within the specifications.

Measurement: Measurement shall be per the Square Foot as listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Square Foot as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications, to include all material, excavation, backfill, concrete anchor block, rebar, geotextile fabric, equipment, tools, labor, and incidentals necessary to complete the work as described in these specifications and as detailed on the Plans.

4. **PAVEMENT MARKINGS:** This bid item shall include the furnishing and painting (waterborne paint), in reasonably close conformity with the lines and dimensions shown in the contract documents or established by the Engineer, of all pavement lines, words, symbols, and other reflective markers as specified in the contract documents.

Measurement: Measurement shall be per the Lump Sum as listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Lump Sum for Pavement Markings as listed in the Proposal. Payment shall include all labor, equipment, materials, and incidentals to complete the work in accordance with the plans and specifications.

5. **NEW SIGN:** This bid item shall include the furnishing and installation of new signs as specified in the contract documents.

Measurement: Measurement shall be per the Each listed on the proposal.

Payment: Payment shall be at the contract unit price bid per Each for New Sign as listed in the Proposal. Payment shall include all materials, labor, equipment, and incidentals required to install the sign including foundation, pole, sign face(s) and mounting bracket(s).

END OF SECTION 01150

SECTION 01300
SUBMITTALS (Added Section)

PART 1: GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. The following is a list of items on which submittals are required. The Contractor shall allow five (5) working days, from date of receipt by the Engineer, for review and approval. Five (5) copies are required of all submittals.

1. Work Schedule
2. Aggregate Materials, Including Moisture Density Curves
3. Asphalt Mix Design
4. Concrete Mix Design
5. Traffic Paints
6. Seed Mix
7. Cellular Concrete Mattress
8. Signs

PART 2: PRODUCTS – NOT USED

PART 3: EXECUTION – NOT USED

PART 4: MEASUREMENT AND PAYMENT

ADD THE FOLLOWING:

"4.1 All costs associated with the preparation and submittal of ALL submittals, including but not limited to; shop drawings, samples, schedules, and record drawings, shall not be paid for directly and shall be considered incidental to the work."

END OF SECTION 01300

SECTION 01400
CONTRACTOR QUALITY CONTROL AND OWNER QUALITY ASSURANCE
(MPWSS, as amended)

PART 1: GENERAL

1.1 DESCRIPTION

A. This section describes the Contractor Quality Control and Quality Assurance testing requirements in conformance with Article 3.1.6 of the General Conditions.

1.2 REFERENCES

A. The following ASTM publication is a part of this specification.

ASTM E 329 – Evaluation of Testing and Inspection Agencies as Used in Construction.

PART 2: PRODUCTS – NOT USED

PART 3: EXECUTION

3.1 GENERAL

A. The Contractor shall employ and pay for the services of an independent testing laboratory to perform specified laboratory testing of materials and equipment prior to the start of construction. The Contractor shall perform:

1. Initial moisture/density proctor curves for all bedding, gravel bases, borrow material, and asphaltic concrete surfacing. The maximum density curve shall be current (within the last 12 months), and the asphalt mix design shall be current (within the last 12 months). Contractor shall also provide a sieve analysis for subbase, base, and surfacing materials. This gradation shall be current within the last 12 months.

B. The Contractor will employ and pay for the services of an independent testing laboratory to perform soils, and asphalt testing for determining compliance with the specifications during the course of construction. The Contractor shall schedule all such field testing. During the course of construction, the following minimum testing requirements will be required:

1. The Contractor shall provide in place field density tests. In place density tests for embankment, sub base and base course material shall, as a minimum, be required for the first lift of backfill to set a pattern of compaction. In place density tests for surfaced areas shall, as a minimum, be required at intervals of two hundred (200') feet. The Engineer has the right to require additional testing if, in the opinion of the Engineer, test data is not sufficient to compare conformance to the specifications for the overall Project.

A minimum of the top six (6”) inches of subgrade within the expansion areas, which are to be paved, shall be mechanically compacted until the material no longer responds to compactive efforts. All embankments shall be compacted for the full depth with 6” maximum lifts. The Engineer has the right to require the Contractor to perform density testing on subgrade materials if, in the opinion of the Engineer, the methods for compaction do not seem sufficient for the material being used.

2. Field samples shall be taken of the base and cushion materials, and a sieve analysis run to compare to the approved gradation. A minimum of 1 field sieve analysis shall be performed for the sub-base material, and 1 for the base material.

3. Contractor will be required to provide a minimum of 4 core samples for bituminous pavement. The Engineer will determine core sample locations. Contractor shall provide certified laboratory results from the samples taken as to thickness and actual density.

4. The Contractor shall furnish certified results of a Marshall Test showing the bulk specific gravity determination, stability and flow data, and density and void analysis. Contractor shall complete a field marshal test during each day of paving, or a minimum of two field marshalls for the Project.

   The Contractor will provide the Engineer with copies of all testing results performed on the Project. All testing results shall be submitted and reviewed by the Engineer prior to the installation of subsequent material installation (i.e. base material tested and approved prior to paving).

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

“PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Contractor quality control testing associated with the work shall be incidental to other work items in the contract and no separate payment shall be made.”

END OF SECTION 01400

SECTION 01500
CONSTRUCTION AND TEMPORARY FACILITIES (MPWSS, as amended)

PART 4: MEASUREMENT AND PAYMENT

Delete 4.1 in its entirety and replace with the following:

"4.1 PAYMENT

A. Unless specifically noted otherwise, all construction and temporary facilities included in the work shall be incidental to other work items in the contract and no separate payment shall be made."

END OF SECTION 01500

SECTION 01570
CONSTRUCTION TRAFFIC CONTROL (MPWSS, as amended)

PART 1: GENERAL

Delete section 1.1 DESCRIPTION in its entirety and replace with the following:

"1.1 DESCRIPTION

A. This work is the furnishing of labor, materials and equipment for installing, maintaining and operating traffic control devices to insure the safety of the general public and project personnel.

B. Perform work under this section meeting Manual of Uniform Traffic Control Services (MUTCD) and contract requirements.

C. It is anticipated that very minimal traffic control requirements will be required to complete construction. The Contractor shall provide a route at the boat parking as indicated on sheet 3 of the Plans. Contractor shall designate route for public traffic to route around the existing boat parking area as shown.

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

"PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Unless specifically noted otherwise, all traffic control associated with the work shall be incidental to other work items in the contract and no separate payment shall be made."

END OF SECTION 01570

SECTION 01750
FINAL CLEANUP (Added Section)

PART 1: GENERAL

1.1 DESCRIPTION

A. This work consists of final cleanup of the project site prior to final acceptance.

PART 2: PRODUCTS – NOT USED

PART 3: EXECUTION

3.1 CONTRACTOR RESPONSIBILITES

A. The contractor shall be responsible for final clean up at the end of the project to a level satisfactory to the owner. All construction debris, no mater how small, shall be collected and removed from the site. All wheel ruts shall be filled in and be leveled to match the adjacent grade and material. Re-seeding or re-sodding, or other re-surfacing may be necessary to repair any construction related impacts or damage.

B. All survey markings, stakes, temporary paint marks, flagging and other devices shall be removed regardless of who installed them. All excess pavement, concrete, gravel, soil, or other construction materials not intended for permanent use shall be removed.

C. All final slopes shall be dressed manually to remove woody debris, accumulated trash and oversized material. Any new slope or topsoil surfaces shall be hand raked to provide a uniform appearance. The contractor shall dress all gravel, pavement and concrete edges to eliminate abrupt edges and provide a smooth transition. All construction related temporary sediment control devices shall be removed as soon as practical.

PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Unless specifically noted otherwise, all final cleanup work shall be incidental to other work items in the contract and no separate payment shall be made.

END OF SECTION 01750

SECTION 02000
DIVISION 2 – SITEWORK

This contract will be constructed and administered under the requirements of the Montana Public Works Standard Specifications (MPWSS), Sixth Edition, April 2010, as Amended, and all supplemental documents contained herein. The MPWSS are included in their entirety, as applicable, and as modified, amended, added, or replaced as follows:

02114	Relocating or Removing Utility Poles, Street Signs and Mailboxes (MPWSS, as amended)
02230	Street Excavation, Backfill, and Compaction – Including Soil Profiles From Project Test Pits (MPWSS, as amended)
02234	Sub Base Course (MPWSS, as amended)
02235	Crushed Base Course (MPWSS, as amended)
02250	Watering (MPWSS, as amended)
02270	Soil Erosion and Sediment Control (Added Section)
02502	Asphalt Prime and/or Tack Coat (MPWSS, as amended)
02510	Asphalt Concrete Pavement (MPWSS, as amended)
02530	Cellular Concrete Mattress (Added Section)
02581	Pavement Markings and Markers (Pre-Formed Plastic, Paints, and Enamels) (MPWSS, as amended)
02585	Street Signs (MPWSS, as amended)
02910	Seeding (MPWSS, as amended)

SECTION 02114
RELOCATION OR REMOVING UTILITY POLES, STREET SIGNS AND MAILBOXES
(MPWSS, as amended)

PART 4: MEASUREMENT AND PAYMENT

Delete 4.1 in its entirety and replace with the following:

"4.1 PAYMENT

A. Unless specifically noted otherwise, all relocation of signs within the project limits or other relocations required as listed within this specification included in the work shall be incidental to other work items in the contract and no separate payment shall be made."

END OF SECTION 02114

SECTION 02230
STREET EXCAVATION, BACKFILL AND COMPACTION (MPWSS, as amended)

PART 3: EXECUTION

Add the following sections:

"3.11 EXCESS EXCAVATION

A. Excess excavation or excavation determined not suitable for fill, shall be hauled off site and disposed of by the Contractor. Work associated with excess excavation, including hauling, shall not be paid for directly and shall be included in other items associated with this work.

3.12 SOIL PROFILES

A. Attached to the end of this specification are the soil profiles obtained from test pit analysis performed in October 2013. These soil profiles are provided as information only, and may not be representative of the entire site. Contractor shall use this information at their own risk, and the Owner or Engineer is not responsible for conclusions Contractor derives from this date."

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

"PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. All work associated with excavation, backfill, and compaction shall be included in the lump sum unit price for "Site Grading" as listed in the proposal and as described in Section 01150."

END OF SECTION 02230

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 1
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12 18 24 30 36 42 48 54 60 66 72		6 -72 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 24" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
78 84 90 96 102 108 114 120		72 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 1

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 2
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12 18 24 30 36 42 48 54 60		6 -60 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 18" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
66 72 78 84 90 96 102 108 114 120		60 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 2

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 3
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72		6 -78 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 24" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
78, 84, 90, 96		78 -96 in - TAN/LIGHT BROWN, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 24" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	SLIGHTLY MORE PLASTIC THAN ABOVE
102, 108, 114, 120		96 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

WGM GROUP

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 3

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 4
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12 18 24 30 36 42 48 54 60		6 - 60 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 24" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
66 72 78 84 90 96 102 108 114 120		60 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 4

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 5
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12 18 24 30 36 42 48 54 60 66 72 78 84 90		6 -90 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 18" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
96 102 108 114 120		90 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 5

PROJECT: PLACID LAKE PARKING IMPROVEMENTS PROJECT #: 12-04-11	Test Pit: 6
DATE : October 23, 2013	
Logged By: Brandon Staglund, E.I.	

DEPTH (inches)	Sample No.	DESCRIPTION	USDA texture	REMARKS
6		0-6 in - TOPSOIL, DARK BROWN, ORGANICS, MINIMAL GRAVEL		TOPSOIL
12 18 24 30 36 42 48 54 60		6 - 60 in - BEIGE/SLIGHTLY PINK, POWDERY GRAVELLY, VERY DRY, COBBLES AND STONES UP TO 24" DIAMETER	VERY GRAVELLY SILT LOAM (WITH SOME COBBLES)	VERY DRY & POWDERY
66 72 78 84 90 96 102 108 114 120		60 INCHES, BOTTOM OF TEST PIT NO GROUNDWATER EVIDENT		

W:\Projects\120411\Docs\Misc\[Soil Profiles 10-23-2013.xls]TEST PIT 6

SECTION 02234
SUB BASE COURSE (MPWSS, as amended)

PART 2: PRODUCTS

2.4 GRADATION

Add the following to the end of paragraph A:

"The material furnished shall be crushed and shall meet the requirements of the 2" minus gradation."

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

"PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. All work associated with the furnishing, loading, hauling, spreading, blending, shaping, watering, and compacting the crushed sub base course shall be included in the lump sum unit price for "Site Grading" as listed in the proposal and described within Section 01150."

END OF SECTION 02234

SECTION 02235
CRUSHED BASE COURSE (MPWSS, as amended)

PART 2: PRODUCTS

2.4 GRADATION

Add the following to the end of paragraph A:

"The material furnished shall meet the requirements of the ¾ inch minus gradation."

Delete Part 4: MEASUREMENT AND PAYMENT in its entirety and replace with the following:

"PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. All work associated with the furnishing, loading, hauling, spreading, blending, shaping, watering, and compacting the crushed base course shall be included in the lump sum unit price for "Site Grading" as listed in the proposal and described within Section 01150.

END OF SECTION 02235

SECTION 02250
WATERING (MPWSS, as amended)

PART 1: GENERAL

1.1 Watering

A. The Contractor shall be responsible for providing the water required for executing his work, to include, but not limited to, water used for dust control and water used to create moisture content in material incorporated into the work.

PART 4: MEASUREMENT AND PAYMENT

4.1 PAYMENT

A. Unless specifically noted otherwise, all watering included in the work shall be incidental to other work items in the contract and no separate payment shall be made.

END OF SECTION 02250

SECTION 02270
SOIL EROSION AND SEDIMENT CONTROL

PART 1: GENERAL

1.1 SUMMARY

A. STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES

1. The Contractor is responsible for creating and filing a Notice of Intent (NOI) Form and Storm Water Pollution Prevention Plan (SWPPP) for this project under the current Montana Pollutant Discharge Elimination System (MPDES) with the Montana Water Quality Division for storm water associated with construction activities. All fees associated with this permit application and any subsequent annual fees will be paid for by Contractor.

2. The Contractor shall be required to comply with all requirements of the 2013 (or current) "General Permit for Strom Water Discharges Associated with Construction Activity" (General Permit). The Contractor shall create a Storm Water Pollution Prevention Plan (SWPPP), and update this plan as required during construction for mitigating erosion and sediment control. The Contractor is responsible for installing, maintaining and preserving all erosion control measures for the Project in conformance with the SWPPP and any Montana Department of Environmental Quality and EPA regulations related to storm water discharge. The Contractor shall be responsible for performing all Monitoring, Reporting, and Records Retention Requirements per Part III of the General Permit. The Contractor shall be responsible to make any necessary changes to the SWPPP to prevent damage as a result of storm water runoff from this site using Best Management Practices.

3. The Contractor must have a copy of the NOI Receipt Confirmation Letter from DEQ providing coverage to discharge storm water under the General Permit, a copy of the SWPPP, and copies of the Contractor's reporting documentation on site at all times during construction. The Contractor is solely responsible for any and all damages and/or fines that may result from runoff from this site during the duration of this contract. The Contractor shall provide all monitoring and reporting records to the Project Officer. The Contractor shall submit all monitoring reports within 2 days after completion of the report. Additionally, Contractor shall keep a copy of their updated SWPPP map on site at all times, and this map shall show all current locations of BMP's on the project.

4. The Contractor shall be responsible to maintain all erosion control measures throughout the warranty period. Once final stabilization of the Project is complete, the Contractor shall be responsible to remove erosion control measures, such as silt fencing, that are no longer necessary to contain sediment. The Contractor shall notify the Fish, Wildlife and Parks, prior to final acceptance or any specified warranty

period, when such erosion control measures will be removed, and this work shall be considered an item covered by the Project warranty.

5. Any penalties due to non-compliance with the General Permit requirements shall be the responsibility of the Contractor.

6. The Contractor is responsible to submit Notice of Termination (NOT) form when the construction activity is complete and the site has achieved final stabilization.

7. The Contractor shall provide copies of all documentation related to storm water permitting efforts, to include copies of the NOI and SWPPP, the NOI Receipt Confirmation Letter, monitoring reports, NOT, and any related documents.

B. Contractor should note that the storm water discharge permit does not cover construction dewatering associated with trench excavation. Any permitting required to discharge construction dewatering shall be obtained by the Contractor. The Contractor may contact the Montana Department of Environmental Quality to obtain permit applications and associated fees for construction dewatering.

1.3 QUALITY ASSURANCE

A. Requirements of regulatory agencies:

1. Comply with all applicable requirements of local, state, and federal agencies.

2. Comply with the State of Montana DEQ, Water Quality Act 75-5-318 MCA.

B. The temporary erosion control plan should consider staging of construction and should address movement of sedimentation fences as construction progresses, temporary seeding and use of mulch, netting, sod, etc.

1.4 SUBMITTALS

A. Submit copies of all documents required for permitting and authorizations as specified within this section or as required by all local, state, and federal regulations.

B. Provide all written reports required by the permitting authority site monitoring and reporting requirements.

C. Comply with the submittal requirements of Section 01330.

PART 2: PRODUCTS

2.1 GENERAL

A. Products used for Erosion Control and Best Management Practices shall be in conformance with the details on the plans, and shall meet all local, state, and federal standards, and have approval of the Project Officer prior to installation.

PART 3: EXECUTION

3.1 EROSION CONTROL MEASURES

A. The Contractor shall comply with all requirements of the SWPPP and General Permit. The Contractor shall monitor the site per the General Permit and make any changes to the SWPPP to add or amend the erosion control measures. All erosion control BMP's shall be in place prior to the start of construction disturbance in the effected area. The following general guidelines shall be used to control erosion:

1. Route existing surface runoff and underground drainage within the project area to sediment basins, and pipe the flow to the nearest catch basin before final discharge.

2. Divert surface waters that would otherwise enter the project area to prevent their contamination.

3. Minimize the area of unprotected soil.

4. Stabilize exposed soil as soon as practical.

5. Trap transported sediments before entering the state water bodies.

6. Incorporate permanent erosion control features as need to control sediment from leaving the site.

7. Reseed disturbed areas as soon as practical.

8. Inspect regularly especially after rainstorms per the monitoring requirements.

9. Repair or replace any damaged or missing items.

10. Minimize disturbance to any existing vegetation (grass and trees).

PART 4: MEASUREMENT AND PAYMENT

4.1 Payment associated with soil erosion and sediment control shall be included within the pay item "Permitting/Erosion Control", as specified in Section 01150.

END OF SECTION 02270

SECTION 02502
ASPHALT PRIME AND/OR TACK COAT

PART 1: GENERAL

1.1 DESCRIPTION

Add the following:

"B. Tack coat shall be applied to all existing asphalt or concrete surfaces prior to asphalt installation. All surfaces shall be cleaned immediately prior to applying tack coat material. Clean the surface of all dust, dirt, sand or other objectionable material that prevents uniform coverage or bond between the tack material and the street surface, using a rotary power broom or blower, by hand sweeping, or both, as required. Do not mix material removed from the surface with the tack coat application."

PART 2: PRODUCTS

2.1 GENERAL

A. Use asphalt material as follows:

Type and Grade	Use
Emulsified Asphalt, SS-1 or SS-1h	Asphalt Tack Coat

PART 4: MEASUREMENT AND PAYMENT

Delete 4.1, 4.2, and 4.3 in their entirety and replace with the following:

"4.1 ASPHALT TACK COAT

A. No separate measurement or payment will be made for this item. Payment for this work will be subsidiary to other pay items."

END OF SECTION 02502

SECTION 02510
ASPHALT CONCRETE PAVEMENT (MPWSS, as amended)

PART 2: PRODUCTS

2.2 PLANT MIX AGGREGATES

J. Surface Course Asphalt Plant Mix Aggregate

1. Add at the end of the paragraph:

"The gradation for this Project shall be Type B."

2.3 ASPHALT BINDER MATERIAL

A. Furnish asphalt binder material to be used as specified in the contract documents that meet the type and grade specified requirements in the section in Table 3.

1. Grades:

b. Add the following: "Use (PGAB) PG 58-28 or equivalent."

2.5 COMPOSITION OF MIXES

A. General

Add the following:

6. Current job mix is defined as a mix design completed within the last 12 months in which no change in material sources or amounts has been made."

B. Asphalt Concrete Surface Course

3. Change "93 percent of the maximum density as determined by ASTM D20241" to "95 percent of Marshall Specimens."

PART 3: EXECUTION

3.28 DENSITY AND SURFACE REQUIREMENTS

A. Change "93 percent of the maximum density as determined by ASTM D20241" to "95 percent of Marshall Specimens."

Delete Part 4: Measurement and Payment in its entirety and replace with the following:

"PART 4: MEASUREMENT AND PAYMENT

4.1 SQUARE YARD BASIS

A. 2.25” Thickness of Hot Plant Mix (Asphalt Concrete Surface Course Type “B”) shall be paid for per the square yard as listed in the proposal and as described in Section 01150.

END OF SECTION 02510

SECTION 02530
CELLULAR CONCRETE MATTRESS (Added Section)

PART 1: GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish all labor, materials, equipment, and incidentals required and perform all operations in connection with the installation of the of concrete mattress in accordance with the lines, grades, design and dimensions shown in the Contract Drawings and as specified herein.

1.2 SUBMITTALS

A. Shop Drawings: Prior to product delivery, the Contractor shall furnish the manufacturer's certificates of compliance for concrete blocks/mats, revetment cable, and any revetment cable fittings and connectors, and geotextile information. The Contractor shall also furnish the manufacturer's specifications, literature, shop drawings for the layout of the mats, and any recommendations, if applicable, that are specifically related to the project.

B. Contractor proposed equal product shall be submitted for approval at least 15 days prior to scheduled delivery to the Project.

1.3 DELIVERY, STORAGE, AND HANDLING OF MATERIALS

A. Materials delivered to the site shall be inspected for damage, unloaded, and stored with the minimum of handling. Materials shall be handled in such a manner as to ensure delivery to the site in sound, undamaged condition.

B. All concrete units shall be sound and free of defects that would interfere with either the proper placement of the unit or impair the performance of the system. Cracks exceeding 0.25 inches in width and/or 1.0 inch in depth shall be deemed grounds for rejection. Chipping resulting in a weight loss exceeding 10% of the average weight of a concrete unit shall be deemed grounds for rejection.

PART 2: PRODUCTS

2.1 CELLULAR CONCRETE MATTRESS

A. Requirements

1. The cellular concrete mattress shall be Armorflex Closed Cell CL55S, or approved equal as determined by the Engineer.

2. All concrete mats shall be prefabricated as an assembly of cellular concrete blocks, with specific hydraulic capacities, laced with revetment cables. Concrete mats may be assembled on-site by hand-placing the individual units.

3. Individual units in the system shall be staggered and interlocked for enhanced stability. The mats shall be constructed of cellular concrete block units as shown on the contract drawings. Parallel strands of cable shall extend through two (2) cable ducts in each block allowing for longitudinal binding of the units within a mat. Each row of units shall be laterally offset by one-half of a block width from the adjacent row so that any given block is cabled to four other blocks (two in the row above and two in the row below).

4. Each block shall incorporate interlocking surfaces that minimize lateral displacement of the blocks within the mats when they are lifted by the longitudinal revetment cables. The interlocking surfaces must not protrude beyond the perimeter of the blocks to such an extent that they reduce the flexibility or articulation capability of the cellular mats or become damaged or broken when the mats are lifted during shipment or placement. Once the mats are in place, the interlocking surfaces shall minimize the lateral displacement of the blocks even if the cables should become damaged or removed. The mats must be able to flex a minimum of 18° between any given row or column of blocks in the uplift direction and a minimum of 45° in the downward direction.

5. The cables inserted into the mats shall form lifting loops at one end of the mat with the corresponding cable ends spliced together to form a lifting loop at the other end of the mat. The Engineer shall approve appropriate sleeves for use in order to splice the lifting loop. The cables shall be inserted after sufficient time has been allowed for the concrete to complete the curing process.

6. The cellular concrete mats shall be placed on a filter fabric as specified herein. Under no circumstances shall the filter fabric be affixed (i.e. chemically bonded to the blocks) to the mattress in a manner in which would jeopardize the functionality of the filter fabric. Specifically, the filter fabric shall be independent of the block system.

2.2 CONCRETE

A. Concrete shall conform to ACI requirements for normal weight and shall have a minimum compressive strength of 4,000 psi at 28 days. Concrete mix design shall meet MPWSS.

2.3 AGGREGATE

A. Aggregate shall meet all requirements of ASTM C 33.

2.4 CELLULAR CONCRETE BLOCKS

A. The concrete units shall be produced by a dry cast method. The dry cast units obtain strength in a shorter duration as well as an increase in the durability and overall quality of product.

B. At the time of delivery to the work site, the units shall conform to the physical requirements prescribed in Table 2 listed below.

TABLE 2. PHYSICAL REQUIREMENTS

Compressive Strength Net Area Min. psi (mPa)		Water Absorption Max. lb/ft^3 (kg/m^3)	
Avg. of 3 units	Individual Unit	Avg. of 3 units	Individual Unit
4,000 (27.6)	3,500 (24.1)	10 (160)	12 (192)

C. When applicable, the manufacturer shall meet all requirements pertaining to a concrete unit's durability pertaining to a freeze-thaw environment.

D. Units shall be sampled and tested in accordance with ASTM D 6684-04, Standard Specification for Materials and Manufacture of Articulating Concrete Block (ACB) Revetment Systems.

2.5 REVETMENT CABLE AND FITTINGS

A. Concrete blocks shall be bound into mats by the use of polyester revetment cable and fittings.

B. Polyester Revetment Cable Requirements: Revetment cable shall be constructed of high tenacity, low elongating, and continuous filament polyester fibers. Cable shall consist of a core construction comprised of parallel fibers contained within an outer jacket or cover. The weight of the parallel core shall be between 65% and 70% of the total weight of the cable. The revetment cable shall have the following physical characteristics:

Nominal Cable Dia.	¼ Inch
Approx. Avg. Strength	3700 lbs
Weight	2.47 lbs/100ft (Minimum)

C. Elongation Requirements: Elongation requirements shall meet manufacturer's recommendations.

D. Chemical Resistance: The revetment cable shall exhibit resistance to most concentrated acids, alkalis and solvents. Cable shall be impervious to rot, mildew and degradation associated with marine organisms. The materials used in the construction of the cable shall not be affected by continuous immersion in fresh or salt water.

E. Lifting Requirements: Selection of cable and fittings shall be made in a manner that insures a safe design factor for mats being lifted from both ends, thereby forming a catenary. Consideration shall be taken for the bending of the cables around hooks or pins during lifting. Revetment cable splicing fittings shall be selected so that the resultant splice shall provide a minimum of 60% of the minimum rated cable strength. Fittings such as sleeves and stops shall be

aluminum and washers shall be galvanized steel unless otherwise shown on the Contract Drawings.

2.6 CONCRETE MATTRESS ANCHORS

A. Steel Concrete mattress anchors shall be provided and installed per manufacturer recommendations. Anchors shall be sufficient to prevent concrete cellular mattress from sliding, including under the load of dock installation, to include equipment. Provide the number of anchor rods, and to the length as determined by manufacturer.

2.7 GEOTEXTILE

A. A separation geotextile shall be placed beneath cellular concrete blocks in all areas shown on the drawings. The separation geotextile shall be per manufacturer's recommendations and shall meet the following requirements:

TABLE 3. PHYSICAL REQUIREMENTS

Physical Property	Test Procedure	Minimum Value
Grab Tensile Strength (Unaged Geotextile)	ASTM D4632	200 Lbs. (in any principal direction)
Breaking Elongation (Unaged Geotextile)	ASTM D4632	30% max. (in any principal direction)
Burst Strength	ASTM D3786	400 psi
Puncture Strength	ASTM D4833	115 lbs.
A.O.S., U.S. Std. Sieve	ASTM D4751	see Design Manual
% Open Area	CWO-22125-86	5%
Permittivity	ASTM D4491	0.5 sec^{-1}

B. At the time of installation, the filter fabric shall be rejected if it has been removed from its protective cover for over 72 hours or has defects, tears, punctures, flow deterioration, or damage incurred during manufacture, transportation or storage. With the acceptance of the Engineer, placing a filter fabric patch over the damaged area prior to placing the mats shall repair a torn or punctured section of fabric. The patch shall be large enough to overlap a minimum of three (3) feet in all directions.

PART 3: EXECUTION

3.1 SUBGRADE PREPARATION

A. Areas on which the geotextile and concrete cellular mattress are to be placed shall be constructed to the lines and grades shown on the Contract Drawings as

well as to the tolerances specified in the Contract Documents, and approved by the Engineer. The transitions between the lands contours shall be compacted and graded to facilitate the installation of the articulated concrete block system to insure that intimate contact is maintained throughout the system.

B. The slope shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile (filter fabric), and the geotextile and the entire bottom surface of the concrete block units. The sub-grade preparation is a crucial aspect of installation; therefore it is recommended that a flat rigid bar or beam of nine (9) feet minimum be attached to the bucket of an excavator then dragged along the slope to assist in a smooth grade preparation, or method similar thereof. All slope deformities such as roots, grade stakes, and stones that impair the local slope face must be removed. Holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1.0 inch in depth normal to the local slope face shall not be permitted. No grooves or depressions greater than 0.5 inches in depth normal to the local slope face with a dimension exceeding 1.0 foot in any direction shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material. The slope and slope face shall be uniformly compacted, and the Engineer shall determine the depth of layers, homogeneity of soil, and amount of compaction.

C. Immediately prior to placing the filter fabric and the concrete cellular mattress, the prepared area shall be inspected by the Engineer and the owner's representative. No fabric or units shall be placed thereon until that area has been approved by each of these parties. Any area that becomes unacceptable prior to the mattress installation shall be regraded, recompacted, or replaced at the discretion of the engineer.

3.2 PLACEMENT OF GEOTEXTILE FILTER FABRIC

A. Filter Fabric, or filtration geotextile, as specified elsewhere, shall be placed within the limits shown on the Contract Drawings.

B. The filtration geotextile shall be placed directly on the prepared subgrade, in intimate contact with the sub-grade, and free of folds or wrinkles. The geotextile shall not be walked on or disturbed in a manner resulting in the loss of intimate contact between the cellular mattress and sub-grade. The placement is initiated at the toe of the slope and proceeds to the top of slope. The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip, when applicable. The longitudinal and transverse joints shall be overlapped at least two (2) feet. The geotextile shall extend at least two (2) foot beyond the top and bottom revetment termination points. If necessary to expedite construction and to maintain the recommended overlaps, 18 inch anchoring pins or 11 gauge 6”x1” U-Staples are recommended.

3.3 INSTALLATION OF CONCRETE CELLULAR MATTRESS

A. Cellular concrete mattress shall be constructed within the specified lines and grades shown on the Contract Drawings. Care shall be taken while installing the system in order to avoid damage to the geotextile or the underlying subgrade.

B. The cellular concrete mattress shall be placed on the filter fabric in such a manner as to produce a smooth plane surface in intimate contact with the filter fabric. This placement pattern will produce a densely interlocked matrix. No individual unit within the plane of the system shall protrude more than one-half inch or as otherwise specified by the Engineer. The units shall be placed side by side so that the blocks abut each other; therefore distinct changes in grade will result in a discontinuous surface. To insure that the cellular mattress remains flush and develops a close connection with the sub-grade; the units shall be "seated" by a method that is approved by the Engineer. Care shall be taken during installation so as to avoid damage to the geotextile or concrete units during the installation process. The system placement shall begin at the toe of slope and then proceed to the top of slope.

C. If assembled and placed as large mattresses, the cellular concrete mats shall be attached to a spreader bar or other approved device to aid in the lifting and placing of the mats in their proper position by the use of a crane or other approved equipment. The equipment used should have adequate capacity to place the mats without bumping, dragging, tearing or otherwise damaging the underlying fabric. The mats shall be placed side-by-side and/or end-to-end, so that the mats abut each other. Mat seams or openings between mats greater than two (2) inches shall be filled with 4000 psi grout. Whether placed by hand or in large mattresses, distinct changes in grade that results in a discontinuous revetment surface in the direction of flow shall require a grout seam at the grade change location so as to produce a continuous surface.

D. Individual concrete blocks, which are hand-placed, shall be subject to the spacing and level parameter specified in Paragraph 3.2 B. Revetment cables shall be threaded into the blocks as the placement proceeds and fastened with approved sleeves, fittings or fasteners per manufacturer’s recommendations.

E. Immediately prior to placing the filter fabric and cellular concrete blocks, the prepared subgrade shall be inspected by the Engineer as well as the owner's representative. No fabric or blocks shall be placed thereon until that area has been approved by each of these parties.

F. Anchor trenches and side trenches shall be backfilled and compacted flush with the top of the blocks. The integrity of a soil trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the cellular concrete blocks for its entire service life. Toe trenches shall be backfilled as shown on the Contract Drawings. Backfilling and compaction of trenches shall be completed in a timely fashion.

3.4 FINISHING

A. The exposed edges shall be backfilled and compacted until flush. The integrity of the soil backfill must be maintained so as to insure a flush surface with the top of the cellular mattress for its entire service life. Toe trenches shall be backfilled as shown on the Contract Drawings. Backfilling and compaction shall be completed in a timely manner.

B. The openings between the concrete blocks shall be backfilled and compacted immediately to assure there are no voids and so that the compacted material extends from the filter fabric to one-inch above the surface of the cellular concrete block. Backfill material shall be as shown on the drawings or approved by the Engineer.

PART 4: MEASUREMENT AND PAYMENT

4.1 CONCRETE CELLULAR MATTRESS

A. This item is measured and paid for by the square foot of Concrete Cellular Mattress as listed in the proposal and as described in Section 01150."

END OF SECTION 02530

SECTION 02581
PAVEMENT MARKING AND MARKERS
(PRE-FORMED PLASTIC, PAINTS AND ENAMELS) (MPWSS, as amended)

PART 1: GENERAL

1.1 DESCRIPTION

Add the following:

"B. All pavement markings shown on the plans shall be waterborne paint."

END OF SECTION 02581

SECTION 02585
STREET SIGNS (A*dded Section*)

PART 1: GENERAL

1.1 DESCRIPTION

A. This work involves providing and installing new street and traffic control signs as shown on the plans.

PART 2: PRODUCTS

2.1 STREET AND TRAFFIC CONTROL SIGNS

A. Provide signs meeting the details on the plans and in compliance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

PART 3: EXECUTION

3.1 INSTALLATION

A. All traffic signs proposed for the project shall be installed per the details shown on the plans.

B. All traffic sign installations, to include final locations, must be approved by the Engineer prior to installation.

PART 4: MEASUREMENT AND PAYMENT

4.1 SIGNS

A. Street and traffic control signs shall be measured and paid for by the each for “New Sign” as listed in the proposal, and as described in Section 01150.

END OF SECTION 02585

SECTION 02910
SEEDING (MPWSS, as amended)

PART 1: GENERAL

1.1 DESCRIPTION

Add the following:

"C. Seeding shall be required for all areas disturbed on site during the course of construction outside the roadway and shoulder limits. This shall include all contractor staging areas, and fill areas, drainage ways, or other areas disturbed during the course of construction.

1.2 SUBMITTALS

Add the following:

"B. Contractor shall submit final weed–free seed mix certifications to Engineer for approval prior to seeding operations."

PART 2: PRODUCTS

2.2 TOPSOIL

Add the following:

"B. Due to the existing soil conditions of the site, it is anticipated that very little topsoil will be salvaged during stripping and excavation efforts for reuse on site. Therefore, the majority of topsoil for restoration and reseeding efforts will need to be imported. Source of any topsoil imported shall come from a weed free site. The Engineer may reject any sources at his discretion."

Delete Paragraph 2.3 LIME in its entirety.

Add the following:

"2.3 RESTORATION AREA GRASS TYPES

A. The following seed mixture and rates shall be used as called for on the plans or per the direction of the Engineer. Seeding rates listed below are expressed in pounds of Pure Live Seed per acre. **All seed shall be Certified Noxious Weed Seed Free Seed.**

WET SITES (15" – >20" annual rainfall)

Grass Species	% PLS Count	lbs/acre
• Thickspike Wheatgrass*	30%	Drilled Rate
*(*substitute Western Wheatgrass for silty & clay soils*)		(10 lbs/acre)
• Slender Wheatgrass	30%	Broadcast Rate
• Meadow Bromegrass	20%	(20 lbs/acre)
• Kentucky Bluegrass*	20%	Hydroseed Rate
*(*substitute Green Needlegrass for clay soils*)		(20 lbs/acre)
• -others-	+/-10%	

PART 3: EXECUTION

3.1 TOPSOIL

A. Change "6 inches" to "4 inches."

3.2 ALLOWABLE SEEDING MONTHS

A. Change the last sentence to read as follows:

"Seed before May 15th, unless otherwise approved by the Engineer."

3.3 SEEDBED PREPARATION AND SOWING

Add the following paragraphs:

"F. Compacted sub soils shall be ripped to a depth of six inches prior to top soil placement.

G. Topsoil on site needs to be salvaged separately from subsoil prior to beginning construction. If possible topsoil should be wind rowed rather than piled. After construction, compacted areas should be ripped and topsoil redistributed over areas to be revegetated. An ideal seed bed is topsoil four inches deep lightly compacted until an average person leaves a foot print .25 to .5 inches deep in the soil."

PART 4: MEASUREMENT AND PAYMENT

4.1 GENERAL

Delete and replace with the following:

"A. 4" Topsoil and Seeding shall be paid per the Lump Sum as indicated in Section 01150."

END OF SECTION 02910