NOTE TO CONSULTANTS: Edit with Track Changes turned on, any text in this section that appears in bold and italics then turn off the bold and italics for the final approved version. OPTIONAL Stabilizer/Binder and/or Edging is included in this specification but needs to be edited out if not needed). (Remove this Note).

PART 1 - GENERAL

1.01 Description: Provide all labor, materials, and equipment to perform the following work of the Contract, including incidentals related to that work and other work specified elsewhere in the Contract Documents:

A. Survey for horizontal and vertical control of all work of the Contract.

B. Protection of Existing Features and Work in Progress.

C. Construction of crushed rock pathways.

D. Removing materials from the site which are in excess of that required.

1.02 Related Sections: Coordinate related work specified in other parts of the Project Manual, including but not limited to the following:

Section 31 00 00 - Earthwork
Section 32 11 23 - Mineral Aggregates

1.03 References: This section references the latest revisions of the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail. Other references are as follows

A. The City of Seattle Standard Plans and Specifications for Road, Bridge and Municipal Construction (most recent edition).

1.04 Quality Assurance:

A. The Contractor is responsible for verifying the quality of the work and shall perform compaction and density tests on request of the Engineer to check compliance with these specifications. A copy of the test reports shall be furnished to the Engineer.

B. The Engineer's Testing Agency may perform compaction and density tests to check compliance with these specifications.

C. The Engineer may require that an independent testing laboratory test imported materials at any time. If the material is found to be non-compliant with the Contract, the Contractor shall bear the cost of testing, removal of all non-compliant materials from the Project Site, and replacement of the materials with materials meeting the requirements of the Contract. If the materials tested are found to be compliant with

the requirements of the Contract, the Owner will reimburse the Contractor for costs incurred for testing plus mark-ups as allowed for elsewhere in the Contract.

D. It is the responsibility of the Contractor to verify the accuracy of all survey information provided by the Owner prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.

E. Submittals: The Engineer shall approve in principle all products used in the execution of this section prior to their importation to the Project Site. Submit a particle gradation analysis in graph and table form for each product specified. Approval of the Engineer of an analysis does not constitute approval of the actual product, which may be subject to additional testing at any time per paragraph 1.04.C above.

PART 2 - PRODUCTS

2.01 General:

A. Prior to the importation of any materials, the Contractor shall provide the Engineer with a certified test lab report of the sieve analysis of the product. The Engineer shall be the final determining factor in establishing compliance with sieve requirements. No material shall be brought onto the job site until the initial sieve analysis has been approved in writing.

B. During the course of importation of materials, the Contractor shall be responsible for continually checking the materials to insure that they continue to meet the Specifications.

2.02 Crushed Rock Base and Top Course Aggregates:

(BASE COURSE OPTIONS)

A. Use as Base Course for ADA Accessible (or as Top Course for non-ADA accessible) pathways or trails, as directed by the Engineer through the design review process: 5/8" Minus Crushed Rock (Mineral Aggregate Type 1 – "Ledge Rock" Top Course Keystone), bearing no naturally occurring or worn surfaces per Section 02060 – Mineral Aggregates, or per City of Seattle Standard Specifications (most recent edition). Gradation of the base course shall be:

Sieve Size	Percent Passing
5/8" square sieve	100%
1/4" square sieve	55 - 75%
U.S. No. 40 sieve	8 - 24%
U.S. No. 200 sieve (wet)	10% Max. (wet)

Or,

A. ***Use as Base Course for major pathways or trails (in conjunction with Optional geo-textile fabric) in wet or soft site conditions, as directed by the Engineer through the design review process: 1-1/4" Minus Crushed Rock (Mineral Aggregate Type 2 – Base Course Rock), bearing no naturally occurring or worn surfaces per Section 02060 - Mineral Aggregates, or per City of Seattle Standard Specifications (most recent edition).***

(TOP COURSE OPTIONS)

B. ***Use as Top Course for ADA Accessible (less than 5% grades) pathways in formal park settings, with Optional Stabilizer/Binder, as directed by the Engineer through the design review process: 1/4" Minus Crushed Rock (#4 to Dust) ("Seattle Parks Mix") shall consist of crushed ledge rock or talus bearing no naturally occurring or worn surfaces as produced by Glacier Northwest, or approved equal.***

Sieve Size	Percent Passing
1/2" square sieve	100%
3/8" square sieve	96-100%
U.S. No. 10 sieve	45-65%
U.S. No.40 sieve	15-25%
U.S. No.80 sieve	10-20%
U.S. No. 100 sieve	10-18%
U.S. No. 200 sieve (wet)	12% Min. (wet)
% Fracture	75% Min.
Sand Equivalent	40% Min.

Or,

B. ***Use as Top Course for ADA Accessible (less than 5% grades) pathways or trails in informal park settings, as directed by the Engineer through the design review process: 3/8" Minus Crushed Rock ("Trail Mix") as produced by Washington Rock Quarry, or approved equal.***

Sieve Size	Percent Passing
3/8" square sieve	100%
1/4" square sieve	99.7%
U.S. No. 4 sieve	98.1%
U.S. No.10 sieve	63.5%
U.S. No.20 sieve	40.2%
U.S. No. 30 sieve	33.5%
U.S. No. 40 sieve	28.1%
U.S. No. 50 sieve	22.5%
U.S. No. 200 sieve (wet)	10.7% Min. (wet)
% Fracture	75% Min.
Sand Equivalent	40% Min.

2.03 (Optional) Stabilizer/Binder:

A. Stabilizer/Binder shall be used in conjunction with pathway and trail construction where grades are steeper than 2% and/or as directed by the Engineer through the design review process and shall be one of the following products:

1. "Generic-CPX 2900 Series Generic Copolymer Resin Soil-Stabilizer Solution", as supplied by A.R. Smith Distributing Co., LLC, 303 33rd Avenue, Seattle, WA 98122, Ph. 206-650-0832, FAX: 206 219-4149, or arsmith30333@comcast.net or alex@arsmithcompany.com.

2. "Stabilizer", as supplied by Stabilizer Solutions, Inc., 33 South 28th Street, Phoenix, AZ 85034, Ph 800-336-2468, or www.stabilizersolutions.com.

3. "PolyPavement", as supplied by PolyPavement, P.O. Box 36339, Los Angeles, CA 90036, Ph. 323-954-2240 or www.polypavement.com.

4. "NaturalPAVE", as supplied by Soil Stabilization Products Company, Inc., 806 West 22nd Street, Merced, CA 95344, Ph. 209-383-7849 or www.sspco.com.

5. Or, approved equal.

2.04(Optional) Geo-textile Fabric Liner:

A. Geo-textile Fabric Liner shall be used in wet or soft site conditions, as directed by the Engineer, through the design review process and shall be an engineered geo-synthetic, reinforced, woven product as supplied by Northwest Linings and Geotextile Products, Inc., 21000-77th Avenue South, Kent, WA 98032, Ph. 253-872-0244, or www.northwestlinings.com, or, approved equal.

2.05 (Optional) Pathway Edging:

A. Concrete Pathway Edging/Mow-strip shall be continuous cast-in-place or extruded cement concrete, 4" to 8" wide by 8" to 12" deep, with (min. 1) #4 steel reinforcing rod and fiber reinforcing per Sections 03200 and 03300.

B. Steel Pathway Edging shall be an all-steel interlocking system, 3/16" to 1/4" thick, and 4" to 6" min. depth, in 16 to 20' long sections with 6 steel stakes per section, having a powder coated or galvanized finish. Supply adequate stakes for each section to be installed. Stakes shall be 15" long steel construction. Steel Pathway Edging as manufactured by Sure-loc Edging Corporation, Holland, MI, Ph. 800 787-3562 or www.surelocedging.com, or Border Concepts, Charlotte, NC, Ph: 704 541-5509 or www.borderconcepts.com, Collier Metal Specialties, Inc., Dallas Texas, Ph: 1 800 829-8225 or www.colmet.com, or approved equal.

PART 3 - EXECUTION

3.01 Protection of Existing Facilities

A. Utilities: The Contractor shall protect from damage private and public utilities. Verify the locations of underground utilities minimum 48 hours prior to excavation.

B. Pavement: The Contractor shall protect from damage all pavement or paved areas including curbs and walks intended to remain. The Contractor shall be responsible for replacement if damage occurs to pavement or curbs.

C. It is the responsibility of the Contractor to protect all work in progress from damage due to extremes of cold, moisture, or drying, or mechanical damage from equipment traffic or foot traffic. Alert the Engineer to the presence or likelihood of conditions that may adversely affect the quality of the work, the physical structure of soils, or transport of site soils off-site.

3.02 Preparation:

A. Establish sub-grades to a neat, smooth surface of uniform slope according to the plans.

B. Protect soils from excessive moisture.

C. Apply supplemental moisture to overly dry soils.

D. Do not work frozen soils.

3.03 Grading:

A. Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer is not authorized. Unauthorized excavation, as well as remedial work directed by the Engineer shall be at the Contractor's expense.

B. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified areas. Compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. Finish surfaces free from irregular surface changes.

C. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place the material, then grade and shape stockpiles to allow for proper drainage.

D. Locate and retain soil materials away from edge of excavations and drip lines of trees to remain.

E. Dispose of excess soil material and waste materials as herein specified.

3.04 Compaction:

A. General: Control soil compaction during construction providing minimum percentage of density specified for area classification. Do not allow equipment traffic to overly compact areas beyond specified percentages. Remediate over compaction as directed by the Engineer including ripping, regrading and re-compaction or over-excavation and in-kind replacement per plan.

B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages for maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D1557; and not less than the following percentages of relative density; determined in accordance with ASTM 2049, for soils which will not exhibit a well defined moisture density relationship (cohesionless soils).

1. Import aggregate base material for Crushed Rock Path - 95%.
2. Crushed Rock Path Top Course - 95%

C. Moisture Control:

1. Where sub-grade or lift of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
2. Before compaction, moisten or aerate each layer as necessary to provide optimum content. Compact each layer to required percentages of maximum dry density or relative dry density for each area classification.
3. Do not perform compaction operations on excessively wetted soils.

3.05 (Optional) Pathway Edging:

A. Steel Edging: Install per the manufacturer's instructions.

B. Cast-in-Place Concrete Edging/Mow-strip: Form and pour concrete edging per plans and details, using a minimum of one #4 steel reinforcement rod (rebar) and fiber reinforcement, as directed by the Engineer through the design review process.

3.06 Crushed Rock Base Course:

A. Provide a minimum 4" compacted lift of specified Crushed Rock Base Aggregate true to the elevations either described or implied in the Contract Drawings or as required to match adjacent existing pavements, and a minimum of 4" beyond the horizontal layout lines of pavement as indicated on the Contract Drawings.

3.07 Crushed Rock Top Course:

A. Provide a ***(2" compacted)*** lift of specified Crushed Rock Top Course ***Stabilized*** Crushed Rock true to the elevations either described or implied by the Contract Drawings or as required by the Engineer.

B. Shape the pathway or trail to the desired width and grades ***and shape before applying the stabilizer product***. For both base and surfacing courses, slightly crown or pitch the surface (2% max. cross-slope) so as to provide natural runoff and drainage. Compact until surface is hard and dense. Repair or replace soft spots, ruts

or other damage that may occur prior to the final acceptance by the Engineer at no additional cost to the Owner. Depth as shown on the plans and details is always compacted depth.

C. For ***¼" or3/8***" top course, after placement, water in the surface, then compact by rolling or using plate compacter. Repeat as needed to provide uniform thickness, compacted surface to meet ADA requirements.

D. Apply stabilizer product mixture and compact for a semi-permeable but stabilized pathway or trail with loose top material per manufacturer's recommendations.

3.08 Disposal of Excess and Waste Materials: Remove from the Owner's property all waste materials, including unacceptable excavated material, trash and debris, and dispose of it off site in a legal manner. Provide dump receipts from an approved dumpsite.

END OF SECTION