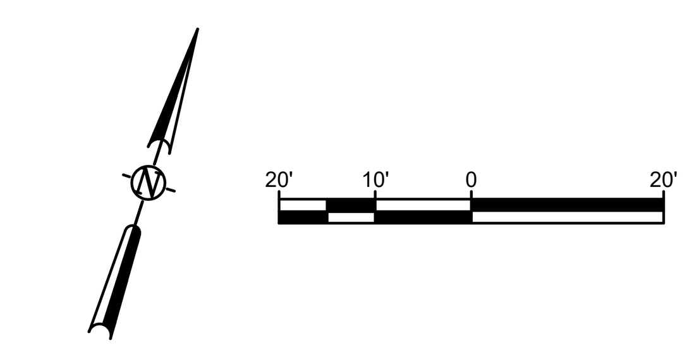


LEGEND

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	LINEAR OBJECT TO BE REMOVED
— — — — — — — — —	ASPHALT SAWCUT LINE
(crosshatch)	ASPHALT TO BE REMOVED
X	OBJECT TO BE REMOVED

SUBMITTAL / REVISIONS

No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE
1	02/14/19	ADDENDUM #1	TAS	SNM	02/14/19
2	03/25/19	CONFORMED DRAWING SET	TAS	SNM	03/25/19

PROJ. MANAGER:	SNM
CHIEF DESIGNER:	SNM
DESIGNED BY:	TEW
DRAWN BY:	TAS
CHECKED BY:	JMB

SEAL

THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, (I.E.) ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS "A" MISDEMEANOR.

State University Construction Fund

Purchase College
STATE UNIVERSITY OF NEW YORK

Engineering and Land Surveying, P.C.
1533 Crescent Road - Clifton Park, NY 12065

STATE UNIVERSITY CONSTRUCTION FUND
SITE IMPROVEMENTS FOR ADA ACCESSIBILITY PHASE 1
SUCF PROJECT # 291031

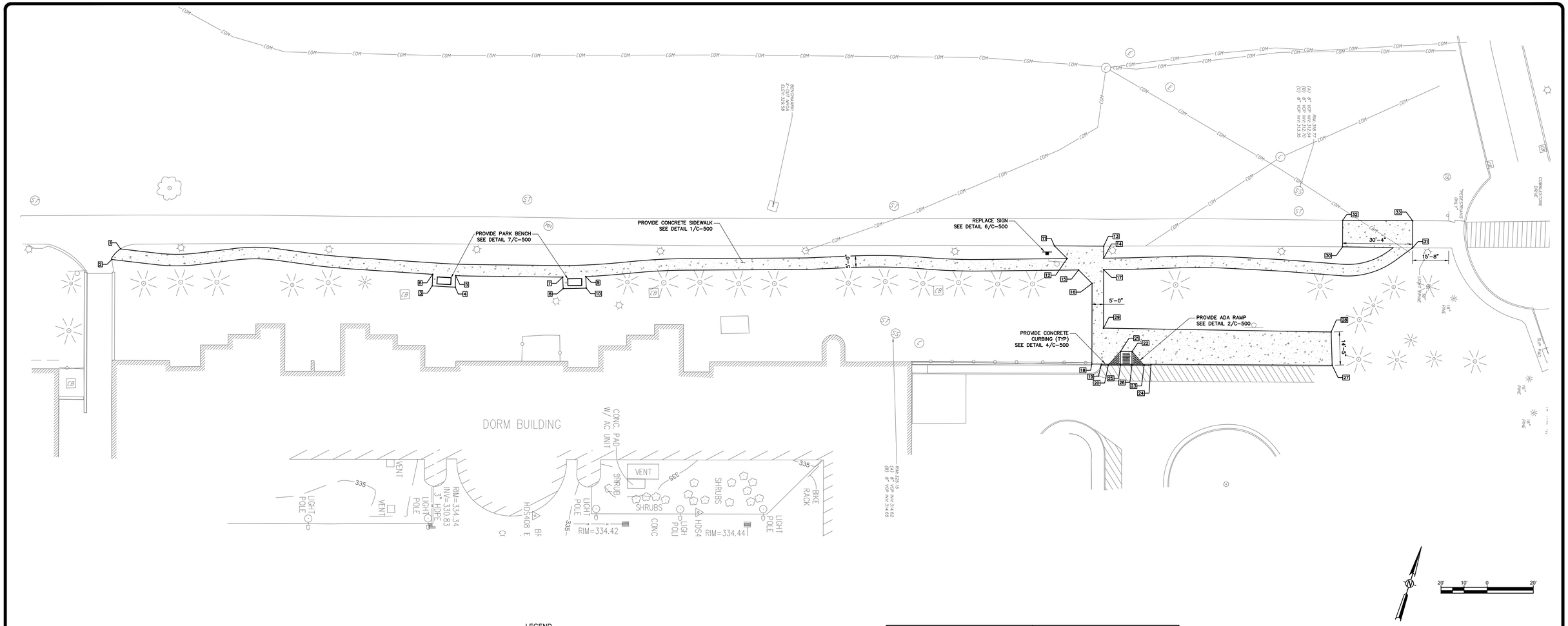
CROSSROADS WALKWAY EXISTING CONDITIONS AND REMOVALS PLAN

STATE UNIVERSITY OF NEW YORK COLLEGE AT PURCHASE
75 ANDERSON HILL ROAD - PURCHASE, NEW YORK

SCALE: AS SHOWN
CONTRACT No.:
MJ PROJ. No.: 1081.04
DATE: 1/21/2019

C-100

File Name: F:\MJ1081 - SUCF Proj 801803-01 Statewide Term\1081.04 - 291031 SUNY Purchase ADA Phase 1\SUNY Crossroads\MJ1081 Crossroads Walkway EC and Demo Plan.dwg (Layout: C-100)
Date: Mon, Jun 17, 2019 - 2:39 PM (Name: tschrecengost)



LEGEND

CONCRETE PAVEMENT

POINT COORDINATE SCHEDULE				POINT COORDINATE SCHEDULE			
POINT #	DESCRIPTION	NORTHING	EASTING	POINT #	DESCRIPTION	NORTHING	EASTING
1	EC	807,967.36	712,473.21	18	EC	808,047.77	712,889.38
2	EC	807,961.84	712,471.00	19	TC	808,049.00	712,893.32
3	EC	807,993.17	712,606.76	20	EP	808,049.51	712,896.31
4	EC	807,995.66	712,616.45	21	TR	808,056.72	712,899.55
5	EC	808,000.48	712,615.12	22	TR	808,058.21	712,904.32
6	EC	807,997.99	712,605.43	23	EP	808,054.14	712,911.13
7	EC	808,013.99	712,659.47	24	TC	808,055.43	712,913.83
8	EC	808,009.29	712,661.18	25	EP	808,051.08	712,901.32
9	EC	808,017.24	712,668.93	26	EP	808,052.57	712,906.09
10	EC	808,012.54	712,670.64	27	TC	808,078.93	712,988.76
11	EC	808,091.68	712,858.32	28	EC	808,092.54	712,983.94
12	EC	808,088.10	712,865.27	29	EC	808,064.15	712,889.45
13	EC	808,098.04	712,878.73	30	EP	808,129.23	712,977.42
14	EC	808,093.08	712,880.29	31	EP	808,138.01	713,006.42
15	EC	808,084.90	712,871.49	32	EP	808,140.19	712,973.98
16	EC	808,081.11	712,878.84	33	EP	808,149.23	713,002.91
17	EC	808,088.31	712,881.80				

20' 10' 0 20'

SUBMITTAL / REVISIONS

No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE
1	02/14/19	ADDENDUM #1	TAS	SNM	02/14/19
2	03/25/19	CONFORMED DRAWING SET	TAS	SNM	03/25/19

PROJ. MANAGER:	SNM
CHIEF DESIGNER:	SNM
DESIGNED BY:	TEW
DRAWN BY:	TAS
CHECKED BY:	JMB

SEAL

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STATE UNIVERSITY CONSTRUCTION FUND
SITE IMPROVEMENTS FOR ADA ACCESSIBILITY PHASE 1
SUCF PROJECT # 291031

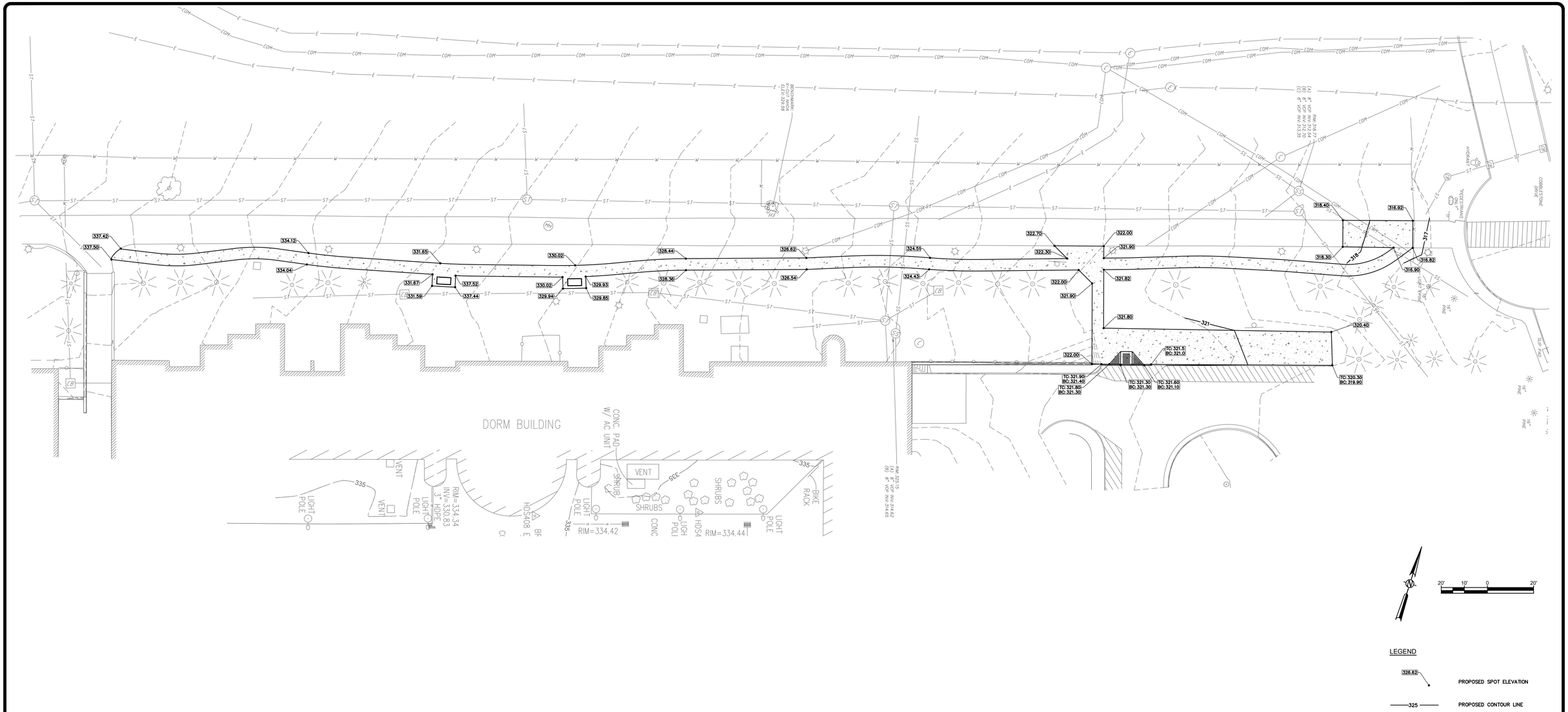
CROSSROADS WALKWAY LAYOUT PLAN

STATE UNIVERSITY OF NEW YORK COLLEGE AT PURCHASE
75 ANDERSON HILL ROAD - PURCHASE, NEW YORK

SCALE: AS SHOWN
CONTRACT No.:
MJ PROJ. No.:1081.04
DATE: 1/21/2019

C-110

File Name: F:\MJ\1081 - SUCF Proj 801803-01 Statewide Term\1081.04 - 291031 SUNY Purchase ADA Phase 1\SUNY Crossroads\MJ\1081 Crossroads Walkway Layout Plan.dwg (Layout: C-110)
Date: Mon, Jun 17, 2019 - 2:39 PM (Name: tschreiengost)



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Date: Mon, Jun 17, 2019 - 2:39 PM (Name: tschrecengost)

SUBMITTAL / REVISIONS

No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE
1	02/14/19	ADDENDUM #1	TAS	SNM	02/14/19
2	03/25/19	CONFORMED DRAWING SET	TAS	SNM	03/25/19

PROJ. MANAGER:	SNM
CHIEF DESIGNER:	SNM
DESIGNED BY:	TEW
DRAWN BY:	TAS
CHECKED BY:	JMB

SEAL

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Engineering and Land Surveying, P.C.
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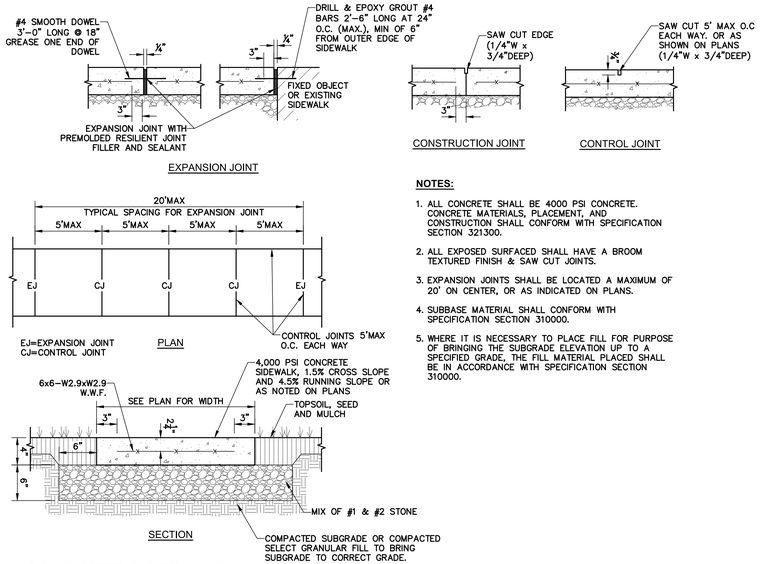
STATE UNIVERSITY CONSTRUCTION FUND
SITE IMPROVEMENTS FOR ADA ACCESSIBILITY PHASE 1
SUCF PROJECT # 291031

CROSSROADS WALKWAY GRADING AND DRAINAGE PLAN

STATE UNIVERSITY OF NEW YORK COLLEGE AT PURCHASE
75 ANDERSON HILL ROAD - PURCHASE, NEW YORK

SCALE: AS SHOWN
CONTRACT No.:
MJ PROJ. No.:1081.04
DATE: 1/21/2019

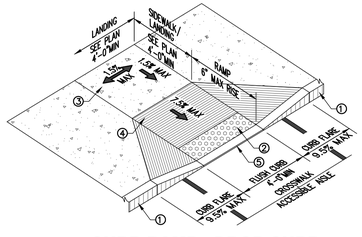
C-120



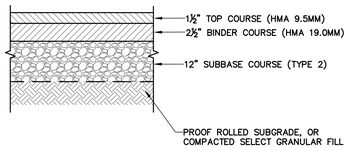
NOTES:

1. ALL CONCRETE SHALL BE 4000 PSI CONCRETE. CONCRETE MATERIALS, PLACEMENT, AND CONSTRUCTION SHALL CONFORM WITH SPECIFICATION SECTION 321300.
2. ALL EXPOSED SURFACED SHALL HAVE A BROOM TEXTURED FINISH & SAW CUT JOINTS.
3. EXPANSION JOINTS SHALL BE LOCATED A MAXIMUM OF 20' ON CENTER, OR AS INDICATED ON PLANS.
4. SUBBASE MATERIAL SHALL CONFORM WITH SPECIFICATION SECTION 310000.
5. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSE OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 310000.

1 CONCRETE SIDEWALK
SCALE: N.T.S.



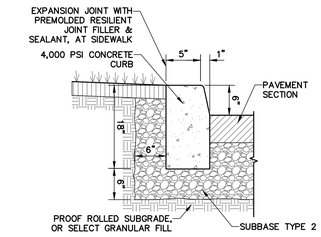
2 CURB RAMP - DROP CURB
SCALE:



3 ASPHALT PAVEMENT SECTION
SCALE: N.T.S.

NOTES:

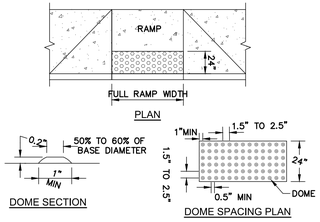
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED MAY 1, 2008, AND ALL ADDENDA THERETO.
2. SUBBASE MATERIAL SHALL CONFORM WITH SECTION 304 – SUBBASE COURSE OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.
3. HOT MIX ASPHALT (HMA) PAVEMENT SHALL CONFORM WITH SECTION 400–HOT MIX ASPHALT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS. ALTHOUGH SECTION 400 IN ITS ENTIRETY IS REFERENCED, THE HOT MIX ASPHALT (HMA) PAVEMENT(S) SPECIFIED FOR THIS CONTRACT SHALL BE AS SPECIFIED UNDER SECTION 403–HOT MIX ASPHALT (HMA) PAVEMENTS FOR MUNICIPALITIES.
4. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH SECTION 407–TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
5. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203–EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
6. PAVEMENT SECTION SHOWN IS PRELIMINARY. PRIOR TO BIDDING AND COMMENCEMENT OF CONSTRUCTION, THE FINAL DESIGN OF THE PAVEMENT SECTION MUST BE PREPARED BY A NYS LICENSED PROFESSIONAL ENGINEER AND MUST BE BASED ON A CURRENT GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT.



NOTES:

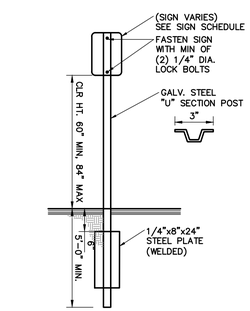
1. CONSTRUCTION JOINTS 10' O.C. MAX AND EXPANSION JOINTS 100' O.C. MAX.
2. CONCRETE CURB SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 321613.
3. PRECAST CONCRETE CURB MAY BE SUBSTITUTED, WHEN ALTERNATE CONSTRUCTION DETAILS ARE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

4 CAST-IN-PLACE CONCRETE CURB
SCALE: N.T.S.

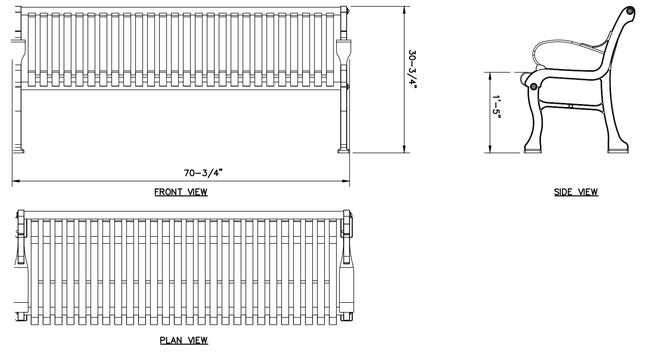


NOTES:
1. TACTILE WARNING STRIP SHALL BE ADA COMPLIANT INCLUDING THAT IT SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.

5 TACTILE WARNINGS FOR RAMPS
SCALE:



6 SINGLE POST SIGN MOUNTING DETAIL
SCALE: N.T.S.



7 PARK BENCH
SCALE: N.T.S.

SUBMITTAL / REVISIONS					
No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE
1	02/14/19	ADDENDUM #1	TAS	SNM	02/14/19
2	03/25/19	CONFORMED DRAWING SET	TAS	SNM	03/25/19

PROJ. MANAGER:	SNM
CHIEF DESIGNER:	SNM
DESIGNED BY:	TEW
DRAWN BY:	TAS
CHECKED BY:	JMB

SEAL

SUNY State University Construction Fund
Purchase College
STATE UNIVERSITY OF NEW YORK

Engineering and Land Surveying, P.C.
1533 Crescent Road - Clifton Park, NY 12065

STATE UNIVERSITY CONSTRUCTION FUND
SITE IMPROVEMENTS FOR ADA ACCESSIBILITY PHASE 1
SUCF PROJECT # 291031

CROSSROADS WALKWAY EXISTING CONDITIONS AND REMOVALS PLAN

STATE UNIVERSITY OF NEW YORK COLLEGE AT PURCHASE
75 ANDERSON HILL ROAD - PURCHASE, NEW YORK

SCALE:	AS SHOWN
CONTRACT No.:	
MJ PROJ. No.:	1081.04
DATE:	1/21/2019

C-500

File Name: F:\MJ\1081 - SUCF Proj 801803-01 Statewide Term\1081.04 - 291031 SUNY Purchase ADA Phase 1\SUNY Crossroads\MJ\1081 Crossroads Walkway Details.dwg (Layout: C-500)
Date: Mon, Jun 17, 2019 - 2:39 PM (Name: tschreiengost)

SECTION 32 16 13 - PORTLAND CEMENT CONCRETE CURBS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 31 00 00.

B. Joint Filler: Section 32 13 73.

1.2 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents.
   1. ACI 304.2R-96: Placing Concrete by Pumping Methods.
   2. ACI 305R-10: Hot Weather Concreting.
   3. ACI 306R-10: Cold Weather Concreting.
   4. ACI 308.1-11: Standard Specification for Curing Concrete.
   5. ASTM C 94/C 94M – 11b: Standard Specification for Ready- Mixed Concrete.
   6. ASTM C 494/C 494M - 11: Standard Specification for Chemical Admixtures for Concrete.

1.3 DEFINITIONS

A. ACI 301, Section 1.2 - Definitions:
   1. Add the following definitions:
      a. Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
      b. Corrosion Inhibitor Admixture: A liquid admixture, calcium nitrite that inhibits corrosion of concrete-embedded steel in the presence of chloride ions.
      c. Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
      d. Water-to-Cementitious Ratio (w/c): A ratio representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.4 SUBMITTALS

A. Submittals Package: Submit product data for design mix(es) and materials for concrete specified below at the same time as a package.

B. Product Data:
   1. Mix Design: Submit proposed concrete design mix(es) together with name and location of batching plant at least 28 days prior to the start of concrete work.

a. Include test results of proposed concrete proportions based on previous field experience or laboratory trial batches in accordance with ACI 301, Section 4.
b. Pumped Concrete: Include test results of proposed design mix(es) tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.

2. Portland Cement: Brand and manufacturer's name.
3. Fly Ash: Name and location of source, and DOT test numbers.
4. Air-entraining Admixture: Brand and manufacturer's name.

1.5 QUALITY ASSURANCE

A. Qualifications of Crew Pumping Concrete: Workers pumping concrete shall have had at least one year of experience pumping concrete.

B. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.

C. Truck mixers for concrete shall be currently approved by the New York State Department of Transportation.

D. Pumping equipment for pumped concrete shall be subject to the approval of the Owner.

E. Fly ash supplier shall be on the New York State Department of Transportation's current "Approved List of Suppliers of Fly Ash".

F. Source Quality Control: The Owner reserves the right to inspect and approve the following items, at their own discretion, either with their own forces or with a designated inspection agency:
1. Batching and mixing facilities and equipment.
2. Sources of materials.

G. ACI 301, Section 1.3 Reference standards and cited publications:
1. Add the following to the list of ASTM Standards:
a. C 311-77 Standard Methods of Sampling and Testing Fly Ash or Natural Pozzolans For Use As A Mineral Admixture in Portland Cement Concrete.

H. Performance Criteria: The following criteria are required for the products included in this section:
1. Cast-in-place Concrete shall contain post-industrial and/or post-consumer recycled content as follows:
a. Fly Ash: Concrete shall incorporate fly ash as a replacement for 15 percent (by weight) of the Portland cement. All design mixes are subject to review and approval by the Owner's Representative.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cement: ASTM C 150, Type I or II Portland cement.

B. Water: Potable.

C. Air-entraining Admixture: ASTM C 260, and on the New York State Department of Transportation's current "Approved List".

D. Joint Filler: As specified in Section 321373.

E. Moisture-Retaining Cover: Waterproof paper, polyethylene film, or polyethylene-coated burlap complying with ASTM C 171.

F. Fly Ash: ASTM C 618, including Table 1 (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.

G. Ground Granulated Slag: ASTM C 989, Grade 100 or 120.

H. Fibrous Concrete Reinforcing: 100% polypropylene, ASTM C 1116.

2.2 PROPORTIONING OF MIXES

A. Cast-in-place concrete shall be air-entrained normal weight concrete.
   1. Normal weight concrete shall have a minimum compressive strength of 4000 psi, with a minimum of 658 pounds of cement per cubic yard. Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site. Make necessary adjustments to the design mix to compensate for the use of fly ash and slag as a partial replacement for (Portland) cement.
      a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
      b. Lower early strength of the concrete shall be considered in deciding when to remove formwork.

B. Design Air Content: Design air content for concrete shall be 6 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.

C. Water-Cement Ratio: Cast-in-place concrete shall have a maximum water-cement ratio of 0.45.

PART 3 EXECUTION

3.1 INSTALLATION

A. Use fiber mesh concrete unless otherwise noted.

B. Set approved forms true to line and grade. Cast curb in 10 foot long sections. If curbs will abut existing pavement, locate construction joints opposite existing pavement joints as directed.

C. Provide cut to size joint filler between 10 foot sections and where curb abuts existing concrete paving and fixed structures or appurtenances. The joints between segments are not to exceed ¼" in width. Protect the top edge of the joint filler during concrete placement with a temporary cap and remove after concrete has been placed.

D. Consolidate concrete by spading, rodding, forking, or using an approved vibrator eliminating all air pockets, stone pockets, and honeycombing. Remove forms and rub exposed face of curb to a smooth rubbed finish. The forms are to be left in place until the concrete has hardened sufficiently to permit removal without damage to the curb. No plastering will be permitted.

3.2 JOINTS

A. General: Construct control joints and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated.

B. Control Joints: Provide control joints, sectioning concrete into areas every ten linear feet for curbs. Construct control joints for a depth equal to at least 1/4 of the concrete thickness.

C. Construction Joints: Place construction joints at end of all pours and at locations where placement operations are stopped for a period of more than ½ hour, except where such pours terminate at expansion joints.

3.3 CURING AND PROTECTION

A. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.

B. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

C. Cover and cure for a minimum of seven days in accordance with ACI 301.

3.4 REPAIRS AND PROTECTIONS

A. Repair or replace broken or defective concrete, as directed by the Owner's Representative.

END OF SECTION 32 16 13

SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Concrete Walks: Section 32 13 00.

B. Portland Cement Concrete Curbs: Section 32 16 13.

1.2 SUBMITTALS

A. Product Data: Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.

1.3 QUALITY ASSURANCE

A. Container Labels: Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable) and packaging date or batch number.

1.4 PROJECT CONDITIONS

A. Environmental Conditions:
   1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F.
   2. Humidity and Moisture: Do not install the Work under this Section under conditions that are detrimental to the application, curing and performance of the specified materials.

B. Protection:
   1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.

PART 2 PRODUCTS

2.1 SEALANTS

A. Type 1B Sealant:
   1. For Horizontal Joints: One-part, self-leveling silicone or polyurethane sealant for traffic bearing construction; Bostik Chem-Calk 955-SL, Tremco Vulkem 45, Pecora Urexpan NR-201, Pecora 300-SL, Pecora 310-SL, Sika Sikaflex-1CSL, Dow Corning CCS.

2.2 JOINT FILLERS

A. Type 1 Expansion Joint Filler: Preformed, resilient, nonextruding cork units complying with ASTM D 1752, Type II.

2.3 MISCELLANEOUS MATERIALS

A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.

B. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re-claimed solvents.

C. Masking Tape: Removable paper or fiber tape, self-adhesive, non-staining.

2.4 COLOR OF MATERIALS

A. For exposed materials furnish color as indicated, or if not indicated, as selected by the Owner from the manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

PART 3 EXECUTION

3.1 PREPARATION

A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
   1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section. When necessary or when directed, wire brush, grind, or acid etch to thoroughly clean joint surfaces.

3.2 JOINT FILLER INSTALLATION

A. Set joint fillers at proper depth and position as required for installation of bond breakers, backer rods and sealants. Do not leave voids or gaps between the ends of joint filler units.
   1. Smooth Edged Joints: For joints between two concrete slabs or where new concrete abuts smooth edged materials use either filler as specified.
   2. Irregular Edged Joints: For joints where new concrete abuts granite curbs or other irregular edges use closed cell polyurethane joint filler.

3.3 SEALANT INSTALLATION

A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.

B. Prime joint surfaces which are to receive Type 1 Sealant. Do not allow the primer to spill or migrate onto adjoining surfaces.

C. Apply sealant with ratchet hand gun or other approved mechanical gun. Where gun application is impractical, apply sealant by knife or by pouring as applicable.

3.4 CLEANING

A. Immediately remove misapplied sealant and drippings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up any remaining defacement caused by the Work.

END OF SECTION 32 13 73

SECTION 32 13 00 - CONCRETE WALKS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 31 00 00.

B. Concrete Paving Joint Sealants: Section 32 13 73.

1.2 REFERENCES

A. Comply with American Concrete Institute Specifications for Structural Concrete, ACI 301-16, for the Work of this Section unless otherwise indicated on the drawings or specified.

1.3 SUBMITTALS

A. Product Data:
1. Concrete Design Mix: Submit proposed concrete design mix together with name and location of batching plant at least 28 days prior to the start of concrete work.
2. Portland Cement: Brand and Manufacturer's name.
3. Air-entraining Admixture: Brand and manufacturer's name.
4. Water-reducing or High Range Water-reducing Admixture: Brand and manufacturer's name.
5. Curing and Anti-Spalling Compound: Manufacturer's specifications and application instructions.
6. ADA Detectable Warning Surface: Manufacturer's specifications, product data, test reports, method of installation, and maintenance instructions.
7.

B. Samples:
1. Bar Supports: Full size.
2. Bar Reinforcement: 12 inch minimum.
3. ADA Detectable Warning Surface: Two samples, the same color as the material to be installed, 6 inches x 8 inches minimum.

1.4 QUALITY ASSURANCE

A. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.

B. Performance Criteria: The following criteria are required for the products included in this section:

1. Cast-in-place Concrete shall contain post-industrial and/or post-consumer recycled content as follows:
   a. Fly Ash: ASTM C618, including Table 1, except for footnote A, Class F, except loss on ignition shall not exceed 4.0 percent. Concrete shall incorporate fly ash as a replacement for 15 percent (by weight) of the Portland cement. All design mixes are subject to review and approval by the Owner.
   b. GGBF (Ground Granulated Blast Furnace) Slag: Concrete shall incorporate GGBF slag as a replacement for at least 20 percent (by weight) of the Portland cement. All design mixes are subject to review and approval by the Owner.

1.5 DELIVERY

A. Batch Ticket Information: Indicate on the delivery ticket the type, brand, and amount of fibrous concrete reinforcement material added to each batch of concrete.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cast-In-Place Concrete: Normal weight, air entrained concrete with a minimum compressive strength of 4,000psi and design air content percentage as required by ACI 318-14 Table 19.3.2.1. "Requirements for concrete by exposure class".

1. Design Air Content: ASTM C 260, and on the New York State Department of Transportation's current "Approved List";
2. Cement: ASTM C 150 Type I or II Portland cement. Maximum water/cement ratio = 0.45.
3. Water: Potable.
4. Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the site. Except when a water-reducing admixture is used, maximum slump shall be 6 inches and when a high range water reducing admixture is used maximum slump shall be 8 inches.
5. Water-reducing Admixture: ASTM C 494 / C 494M-04 Type A and on the New York State Department of Transportation's current "Approved List".
6. High Range Water-reducing Admixture: ASTM C 494 / C 494M-04 Type F and on the New York State Department of Transportation's current "Approved List".
7. Retarding Admixture: ASTM C 494, Type D, Water-reducing and retarding, for use in hot weather concreting, and on the New York State Department of Transportation's current "Approved List".

B. Chemical Curing and Anti-Spalling Compound: ASTM C-309, Type 1D, Class B, with minimum 18 percent total solids content. No thinning of material

allowed. The volatile organic compound (VOC) content of concrete curing compounds shall meet requirements of the EPA national AIM VOC regulations.

1. SureCure Emulsion, Kaufman Products, Inc. 3811 Curtis Avenue, Baltimore, MD 21226, (800) 637-6372.
2. MasterKure CC 180WBby BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517.
3. 1150 Clear by W.R. Meadows, P.O. Box 338, Hampshire, IL 60140, (800) 342-5976.
4. Or approved equal.

C. Bar Reinforcement: ASTM A 615, Grade 60, deformed steel bars.

D. Bar Supports: Galvanized steel or AISI Type 430 stainless steel, and without plastic tips.

E. Plain-Steel Welded Wire Mesh: ASTM A 1064/A 1064M, fabricated from as-drawn steel wire into flat sheets.

F. Tie Wire: Black annealed wire, 16-1/2 gage or heavier.

G. ADA Detectable Warning Surface: Precast or prefabricated detectable Warning plate with a non-slip texture on the travel surface. Color shall be as selected by the Owner or Owner's Representative. There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning surface and the adjoining surfaces. Material used to provide visual warning shall be an integral part of the detectable warning surface. Visual contrast to meet the existing ADAAG A4.2.9.2.

1. Detectable Warning Plate Model R-4984 by Neenah Foundry, 2121 Brooks Avenue, Neenah, WE 54956, (800) 558-5075, www.nfco.com.
2. Cast-in-place Tactile Panels by ADA Solutions, Inc., 323 Andover Street – Suite 3, Wilmington, MA 01887, (800)372-0519.
3. Or approved equal.

2.2 JOINTS AND EMBEDDED ITEMS (Amendments to ACI 301, Section 5.3.2.6):

A. Obtain bond at construction joints by the use of bonding agent (adhesive) in accordance w/section 5.2.1.7 or the use of cement grout.

PART 3 EXECUTION

3.1 PREPARATION

A. Do not use items of aluminum for mixing, chuting, conveying, forming, or finishing concrete. However, magnesium alloy tools may be used for finishing.

B. Set forms true to line and grade and anchor rigidly in position.

C. Space expansion joints equally at not more than 20’-0” on center unless otherwise indicated. Place expansion joints to isolate sidewalk from other structures and fixed objects.

D. Place joint filler at expansion joints and where new concrete abuts existing concrete paving and fixed structures or appurtenances. Protect the top edge of the joint filler during concrete placement with a temporary cap and remove after concrete has been placed.

3.2 PLACING BAR REINFORCEMENT

A. At the time concrete is placed, reinforcement shall be free of mud, oil, loose rust, loose mill scale, and other materials or coatings that may adversely affect or reduce the bond.

B. Unless otherwise shown differently on the Drawings, all reinforcement to be placed per ACI 301-16.

3.3 PLACING CONCRETE

A. Consolidate concrete by spading, rodding, forking, or using an approved vibrator eliminating all air pockets, stone pockets, and honeycombing. Work and float concrete surface so as to produce a uniform texture.

B. Locate construction joints, if any, at expansion joints.

3.4 PLACING ADA DETECTABLE WARNING SURFACE

A. The ADA detectable warning surface shall be installed behind the edge of the curb.

B. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.

C. Install in accordance with the manufacturer’s printed instructions.

D. The curb, ADA detectable warning surface, and sidewalk shall be flush with the elevation of the road surface.

3.5 FINISHING AND CURING

A. Wait until bleeding is stopped before final finishing operations.

B. Keep surface damp but not wet between initial strike off and final finish.
   1. Utilize a fog spray, evaporative inhibitor, or midrange water reducer that is compatible with supplementary cementing materials to help control the amount of surface drying of the fresh concrete.

C. Use minimal working of the surface during finishing.

D. Utilize a magnesium or wood float.

E. Avoid the use of steel finishing trowels and utilize a concrete finishing machine when possible.

F. Provide broom finish for walk surfaces.

G. Apply curing and anti-spalling compound in accordance with the manufacturer's printed instructions.

H. Apply curing immediately after final finish.

I. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.

J. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

K. Saw control joints (CJ) one inch deep after the concrete has set. Complete sawcuts within 18 hours after slab is placed. Space control joints equally between expansion joints at approximately 5'-0" on center, except where a different spacing is shown on the drawings.

END OF SECTION 32 13 00

SECTION 32 12 16 - ASPHALT CONCRETE PAVING

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 31 00 00.

B. Pavement Marking: Section 32 17 23.

1.2 SUBMITTALS

A. Product Data: Manufacturer's name, specifications, and installation instructions, for each item specified.

B. Quality Control Submittals:
   1. Plant name and location of asphalt concrete supplier.

1.3 PROJECT CONDITIONS

A. Environmental Requirements:
   1. Discontinue paving when surface temperatures fall below requirements listed in DOT Table 402-2.
   2. Do not place asphalt concrete on wet surfaces, or when weather conditions otherwise prevent the proper handling or finishing of bituminous mixtures as determined by the Owner's Representative.

PART 2 PRODUCTS

2.1 MATERIALS

A. Asphalt Concrete Paving: Conform to DOT Section 400 Hot Mix Asphalt.
   1. Top Course: DOT, HMA 9.5mm F3
   2. Binder Course: DOT, HMA 19.0mm F9
   3. Base Course: DOT, HMA 25.0mm F9

B. Asphalt Cement Tack Coat.

PART 3 EXECUTION

3.1 ASPHALT CONCRETE PAVING

A. Construct asphalt pavement in accordance with DOT, Section 402-3 except as follows:
   1. Paragraph 402-3.06: Change 1250 sq. meters to read 420 sq. meters.

END OF SECTION 32 12 16

SECTION 31 25 13 - EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 31 00 00.

B. Topsoil: Section 32 91 20.

C. Seeding: Section 32 92 19.

1.2 REFERENCES

A. Erosion and Sediment Control Guidelines: Conform to the latest edition of "NEW YORK STANDARDS and SPECIFICATIONS for EROSION and SEDIMENT CONTROL" by NYS Department of Environmental Conservation DOW (i.e., Bluebook).

1.3 RESPONSIBILITY

A. Install and maintain the temporary erosion and sediment controls as shown on the drawings before starting any grading or excavation.

1.4 DESCRIPTION

A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control measures as shown on the contract documents or as ordered by the Owner's Representative during the life of the contract to provide erosion and sediment control.

B. Temporary structural measures provide erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion. These are used during construction to prevent offsite sedimentation. Temporary structural measures shall include construction road stabilization, stabilized construction entrance, dust control, silt fence, storm drain inlet protection, straw/hay bale dike, storm drain diversion, temporary swale, or other erosion control devices or methods as required.

C. Permanent structural measures also control protection to a critical area. They are used to convey runoff to a safe outlet. They remain in place and continue to function after completion of construction. Permanent structural measures shall include diversion, grade stabilization structure, land grading, or other erosion control devices or methods as required.

D. Vegetative measures shall include mulching, protecting vegetation, seeding, sod, and topsoil.

E. Biotechnical measures shall include live staking, tree revetment, and fiber rolls.

1.5 DEFINITIONS – TEMPORARY STRUCTURAL MEASURES

A. Stabilized Construction Entrance: A stabilized pad of aggregate underlain with geo-textile where traffic enters a construction site to reduce or eliminate tracking of sediment to public roads.

B. Dust Control: Prevent surface and air movement of dust from disturbed soil surfaces.

C. Silt Fence: A barrier of geo-textile fabric installed on contours across the slope to intercept runoff by reducing velocity. Replace after 1 year.

D. Storm Drain Inlet Protection: A semi-permeable barrier installed around storm inlets to prevent sediment from entering a storm drainage system.

E. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.

F. Storm drain Diversion: The redirection of a storm drain line or outfall channel for discharge into a sediment trapping device.

G. Temporary Swale: A temporary excavated drainage swale.

1.6 DEFINITIONS – VEGETATIVE MATERIALS MEASURES

A. Mulches: Hay, straw, wood cellulose, fiber mats, flexible growth medium and other materials approved by the Owner’s Representative.

B. Protecting Vegetation: Protecting trees, shrubs, ground cover and other vegetation from damage.

C. Temporary Seeding: Erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.

D. Permanent Seeding: Grasses established and combined with shrubs to provide perennial vegetative cover on disturbed, denuded, slopes subject to erosion.

E. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.

F. Topsoil: Placed before permanent seeding or sod is installed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Seeding: Permanent see Section 32 92 19.

2.2 TEMPORARY STRUCTURAL

A. Silt Fencing:
   1. 100X Prefabricated Silt Fence, Mirafi, 365 South Holland Drive, Pendergrass, GA 30567, (888) 795-0808, www.mirafi,com
   2. IVI 3611W Wire Back Silt Fence, Indian valley Industries, Inc., P.O. Box 810, Johnson City, NY 13790, (800) 659-5111, www.ivindustries.com
   3. Or approved equal

B. Orange Warning Fence:
   High Visibility Orange Safety Fence (HDPE) installed on wood or steel posts. Height is 4-feet.

PART 3 EXECUTION

3.1 WORK AREAS

A. The Owner's Representative has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments.

B. Schedule the work so as to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.

C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall apply rye grass at a rate of 1 lb/ 1000 sq.ft. In late fall or early spring, apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydromulch at the manufacturer's recommended rate. Hay or straw shall be anchored.

D. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.

E. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.

F. After final stabilization has been achieved temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

END OF SECTION 31 25 13

SECTION 31 01 01 - SITE RESTORATION

PART 1 GENERAL

1.1 QUALITY ASSURANCE

A. Provide prepackaged seed readily available to the public with quality and purity equal to product of Scotts Miracle-Gro, Marysville, OH 43041. On-the-job or made-to-order mixes will not be accepted.

1.2 DELIVERY STORAGE AND HANDLING

A. Deliver fertilizer in manufacturer's standard size bags or cartons showing weight, analysis, and the name of the manufacturer. Store as approved by Owner's Representative.

B. Store all seed at the site in a cool dry place as approved by the Owner's Representative. Replace any seed damaged during storage.

1.3 SCHEDULING

A. Time For Seeding: Optimum period to sow permanent grass seed is generally between April 1st and May 15th or between August 15th and October 1st. Schedule application for when weather conditions permit or as Directed.
   1. Provide temporary seed and mulch when final grading is complete while waiting for optimal seeding period.
   2. Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than 7 days.
   3. Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

PART 2 PRODUCTS

2.01 TOPSOIL

A. Source: Provide topsoil from existing stockpiles stripped from the project site and approved by the Owner's Representative.

B. Provide topsoil conforming to the following:
   1. Original loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.
   2. Containing not less than 4 percent nor more than 20 percent organic matter in that portion of a sample passing a 1/4 inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.

3. Containing a Ph value within the range of 4.5 to 7.6 on that portion of the sample that passes a 1/4 inch sieve.
4. Containing the following gradations:

SIEVE DESIGNATION	PERCENT PASSING
1 inch	100
1/4 inch	97 - 100
No. 200	20 - 65 (of the 1/4 inch sieve)

2.02 FERTILIZER

A. Fertilizer: Mixed commercial fertilizers shall contain total nitrogen, available phosphoric acid and soluble potash in the ratio of 10-6-4 (50% N/UF). 50% of total nitrogen shall be derived from ureaform furnishing a minimum of 3.5% water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water-soluble urea, nitrate and ammoniacal compounds.

B. Other fertilizers meeting DOT Specification Section 713-03 Fertilizer can be used.

2.03 SEED

A. Furnish fresh, clean, new-crop seed mixed in the proportions specified for species and variety, and conforming to Federal and State Standards.

B. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.

C. All seed will be rejected if the label indicates any noxious weed seeds.

D. Provide seed mixture equal to Scotts Turf Builder Grass Seed All Purpose Mixture, comprised of the following:

2.04 MULCH

A. Dry Application, Straw: Stalks of oats, wheat, rye or other approved crops that are free of noxious weed seeds. Weight shall be based on a 15 percent moisture content.

PART 3 EXECUTION

3.01 GRADING

A. Rough Grading: Trim and grade lawn areas within the Contract Limit to a level of 4 inches below the finish grades indicated unless otherwise specified herein or

where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

B. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:
   1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.

3.02 SPREADING TOPSOIL

A. Perform topsoil spreading operations only during dry weather.

B. To insure a proper bond with the topsoil, harrow or otherwise loosen the subgrade to a depth of 3 inches before spreading topsoil.

C. Spread topsoil directly upon prepared subgrade to a minimum depth measuring 4 inches after natural settlement in areas to be seeded. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material. Finished surfaces shall conform to the contour lines and elevations indicated on the drawings or fixed by the Owner's Representative.

3.03 PREPARATION FOR SEEDING

A. Seed Bed: Scarify soil to a depth of 2 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions that will hold water. Remove stones, litter, or other objectionable material.

3.04 FERTILIZING

A. Apply 10-6-4 fertilizer evenly at the rate of 40 pounds per 1000 sq ft .

3.05 SEEDING

A. Assume all risks when seed is sowed before approval of seed analysis.

B. Do not seed when the wind velocity exceeds 5 miles per hour.

C. Application Rate: 20 pounds per 4000 sq ft.

D. Dry Application: Sow seed evenly by hand or seed spreader on dry or moderately dry soil.

3.06 MULCHING

A. Dry Application: Within 3 days after seeding, cover the seeded areas with a uniform blanket of straw mulch at the rate of 50 pounds per 1000 sq ft of seeded area.

3.07 LAWN ESTABLISHMENT

A. Maintain the grass at heights between 3 inches and 3-1/2 inches on a weekly basis until the Final Acceptance of the Work.

B. Water and protect all seeded areas until final acceptance of the lawn.

3.08 FINAL ACCEPTANCE

A. Final acceptance of seeded areas will be granted when a uniform stand of acceptable grass is obtained, with a minimum of 95 percent coverage. Portions of the seeded areas may be accepted at various times at the discretion of the Owner's Representative.

B. Unacceptable seeded areas, dry application: Reseed as specified and fertilized at one-half the specified rate.

C. Once accepted, the College will assume all maintenance responsibilities.

END OF SECTION

SECTION 31 00 00 - EARTHWORK

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Topsoil: Section 32 91 20.

B. Seeding: Section 32 92 19.

1.2 DEFINITIONS

A. The following terms have the meanings ascribed to them in this Article, wherever they appear in this Section.
   1. Earth Excavation: The removal of all surface and subsurface material not classified as rock as defined below.
   2. Unclassified Earth Excavation: The excavation and disposal of all surface and subsurface materials of any description necessary to perform the work of this contract. This will include:
      a. All soil deposits of any description both above and below groundwater levels. These may be naturally deposited or placed by previous construction operations.
      b. Boulders of any size.
      c. Any materials of man-made origin.
   3. Subgrade Surface: Surface upon which subbase or topsoil is placed.
   4. Subbase: Select granular material or subbase course Type 2 which is placed immediately beneath pavement or concrete slabs.
   5. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 698 (Standard Proctor).
   6. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.
   7. Unauthorized Excavation: The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by the Owner's Representative.
   8. Contract Limit Line (Shown on Drawings): Limits of grading, excavations and filling required for the work of this contract. Unless specifically noted otherwise, the Grading Limit Line and Contract Limit Line will be considered the same.

1.3 SUBMITTALS

A. Product Data:
   1. Filter Fabric: Manufacturer's catalog sheets, specifications, and installation instructions.

C. Samples: Submit samples as follows. Take the samples in the presence of the Owner's Representative, and submit to the Owner's Representative the

laboratory test results for gradation, proctors and soundness tests, when required. These tests will be performed in accordance with ASTM standards, will be performed and signed by a certified soils laboratory, and will be submitted as part of the original submittal. At a minimum the samples taken will be of the following quantities:

1. Select Granular Material: 50 - 60 lb. (Two Samples).
2. Subbase Course Type 2: 50 - 60 lb. (Two Samples).
3. Item B-12: 30lb, each gradation.

D. Quality Control Submittals:

1. Subbase Materials: Name and location of source and the DOT Source Number. If the material is not being taken from an approved DOT Source the results of the gradation and soundness tests performed by an ASTM certified soils laboratory will be required.
2. Other Aggregates: Name and location of source and soil laboratory test results.
3. Excavation Procedure: Submit a lay out drawing or detailed outline of intended excavation procedure for the Owner's information. This submittal will not relieve the Contractor of responsibility for the successful performance of intended excavation methods.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect filter fabric from sunlight during transportation and storage.

1.5 PROJECT CONDITIONS

A. Protect existing trees and plants during performance of the Work unless otherwise indicated. Box trees and plants indicated to remain within the grading limit line with temporary steel fencing or solidly constructed wood barricades as required. Protect root systems from smothering. Do not store excavated material, or allow vehicular traffic or parking within the branch drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.

B. Cold Weather Requirements:

1. Excavation: When freezing temperatures are anticipated, do not excavate to final required elevations for concrete work unless concrete can be placed immediately.
2. Backfilling: If backfill is being placed during freezing temperatures the backfilling operations will be monitored by the Owner's Representative and the following procedures will be followed:
    a. Frozen ground will be removed in its entirety from beneath and five feet beyond the area of fill placement.
    b. At the end of the work day, the area of fill placement will be covered with insulated blankets, or left unprotected. Other means of protection (hay, wood chips, etc.) may also be used for protection provided it is approved by the Owner's Representative.
    d. Following work day - Remove the insulated blankets and/or strip the area of all frozen material as specified previously.

e. Upon establishing the subgrade elevations, protect the grades with insulated blankets or place additional material that will adequately insulate the exposed earth surface from frost. This additional fill or protective material will be stripped just prior to pouring concrete.

C. Thru-traffic or fill placement with heavy construction vehicles or equipment which causes rutting or weaving to occur within the perimeter of a building will not be permitted. If rutting or weaving occurs during placement of fill, place specified fill in a stable area outside building perimeter and spread with tracked equipment to specified layer thickness.

PART 2 PRODUCTS

2.1 MATERIALS

A. Select Granular Material: Stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with the gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
2 inch	50.8	100
1/4 inch	6.35	30-65
No. 40	0.425	5-40
No. 200	0.075	0-10

1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve will not exceed 5.0.
3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve will consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than three times its least dimension.

B. Subbase Course Type 2: Stockpiled, crushed ledge rock or approved blast furnace slag. Comply with the gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
2 inch	50.8	100
1/4 inch	6.35	25-60
No. 40	0.425	5-40
No. 200	0.075	0-10

1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve will not exceed 5.0.
3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve will consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than three times its least dimension.

C. Suitable Material (Fill and Backfill for Landscaped Areas): Material consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size will not exceed 2/3 of the specified layer thickness prior to compaction. NOTE: Material containing cinders, industrial waste, sludge, building rubble, land fill, muck, and peat will be considered unsuitable for fill and backfill, except topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed in the top layer of the subgrade surface.

E. No. 1 Coarse Aggregate: Crushed Stone that complies with material requirements of DOT Article 703-02 and meets the following gradation.

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
1 inch	25.4	100
1/2 inch	12.7	90-100
1/4 inch	6.35	0-15

F. No. 2 Coarse Aggregate: Crushed Stone that complies with material requirements of DOT Article 703-02 and meets the following gradation.

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
1-1/2 inch	38.1	100
1 inch	25.4	90-100
1/2 inch	12.7	0-15

2.2 GEOTECHNICAL FABRICS

A. Filter Fabric (GeoTextile):
1. Drainage and Erosion Control: Mirafi 140N, Propex Geotex 401, Thrace-Linq 140EX or equivalent.

2. Separation/Stabilization beneath pavements: Mirafi 180N, Propex Geotex 801, Thrace-Linq 180EX or equivalent.

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. Clear and grub the Site within the Construction Limit Line (CLL) of trees, shrubs, brush, other prominent vegetation, debris, and obstructions except for those items indicated to remain. Completely remove stumps and roots protruding through the ground surface.
   1. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing.
   2. Where roots and branches of trees indicated to be saved interfere with new construction, carefully and cleanly cut them back to point of branching.

B. Fill depressions caused by the clearing and grubbing operations in accordance with the requirements for filling and backfilling, unless further excavation is indicated.

3.2 REMOVAL OF TOPSOIL

A. Remove existing topsoil from areas within the Grading Limit Line where excavation or fill is required.

B. Stockpile approved topsoil where directed until required for use. Place, grade, and shape stockpiles for proper drainage.
   1. Topsoil will be tested prior to stockpiling. Stockpile only quantities of topsoil approved in writing for re-use.

3.3 UNDERGROUND UTILITIES

A. Locate existing underground utilities prior to commencing excavation work. Determine exact utility locations by hand excavated test pits. Support and protect utilities to remain in place.

B. Do not interrupt existing utilities that are in service until temporary or new utilities are installed and operational.

C. Utilities to remain in service: Will be re-routed as shown on the Contract Drawings.

D. Utilities abandoned beneath and five feet laterally beyond the structure's proposed footprint will be removed in their entirety. Excavations required for their removal will be backfilled and compacted as specified herein.

E. Utilities extending outside the five feet limit specified above may be abandoned in place provided their ends are adequately plugged as described below.
   1. Permanently close open ends of abandoned underground utilities exposed by excavations, which extend outside the limits of the area to be excavated.

2. Close open ends of metallic conduit and pipe with threaded galvanized metal caps or plastic plugs or other approved method for the type of material and size of pipe. Do not use wood plugs.
3. Close open ends of concrete and masonry utilities with concrete or flow-able fill.

3.4 EXCAVATION

A. Excavate earth as required for the Work.

B. Install and maintain all erosion and sedimentation controls during all earthwork operations as specified on the Contract Drawings or as directed by local officials. If the erosion and sedimentation controls specified by the local officials are more stringent than those specified on the Contract Drawings contact the Owner's Representative.

C. Stockpile excavated materials classified as suitable material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage as approved by the Owner's Representative.

D. Excavation for Structures: Conform to elevations, lines, and limits indicated. Excavate to a vertical tolerance of plus or minus 1 inch. Extend excavation a sufficient lateral distance to provide clearance to execute the Work.

E. Pavement: Excavate to subgrade surface elevation.

3.6 PLACING FILTER FABRIC

A. Place and overlap filter fabric in accordance with the manufacturer's installation instructions, unless otherwise shown.

B. Cover tears and other damaged areas with additional filter fabric layer extending three feet beyond the damage.

C. Do not permit traffic or construction equipment directly on filter fabric.

D. Backfill over filter fabric within two weeks after placement. Backfill in accordance with the fabric manufacturer's instructions and in a manner to prevent damage to the fabric.

3.7 PLACING FILL AND BACKFILL

A. Surface Preparation of Fill Areas: Strip topsoil, remaining vegetation, and other deleterious materials prior to placement of fill. Remove all asphalt pavement in its entirety from areas requiring the placement of fill or break up old pavements to a maximum size of four inches. Prior to placement of fill, smooth out and

compact areas where wheel rutting has occurred due to stripping or earthwork operations.

B. Excavations: Backfill as promptly as Work permits, but not until completion of the following:
   1. Inspection, testing, approval, and recording locations of underground utilities.
   2. Removal of concrete formwork.
   3. Removal of temporary sheeting or sheetpiling and backfilling of voids caused by removals.
   4. Removal of trash and debris.

C. Place backfill and fill materials in layers not more than eight inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice.
   1. Place fill and backfill against foundation walls, and in confined areas such as trenches not easily accessible by larger compaction equipment, in maximum six inch thick loose depth layers.
   2. For large fill areas, the layer thickness may be modified by the Owner's Representative, at the Contractor's written request, if in the Owner's Representative's judgment, the equipment used is capable of compacting the fill material in a greater layer thickness. This request will include the type and specifications of compaction equipment intended for use.
   3. For Open Graded Stone/Clean Stone (Item B-12, No. 1 crushed stone, No. 2 crushed stone, etc.) in access of six inches: Material must be wrapped in separation fabric.

D. Under Pavements and Walks:
   1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
   2. Subbase Material: Place as indicated.

E. Landscaped Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over four inches in diameter within the top 12 inches of suitable material.

3.8 COMPACTION

A. All materials with exception of open graded stone (No. 2 Coarse aggregate, No. 1 Coarse aggregate, Item B-12, etc.):
   1. Compact each layer of fill and backfill for the following area classifications to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than three percent drier or more than two percent wetter than the optimum content as determined by ASTM D 698 (Standard Proctor).
      a. Landscaped Areas: 90 percent.
      b. Pavements and Walks: 95 percent.

2. When the existing ground surface to be compacted has a density less than that specified for the particular area classification, break up and pulverize, and moisture condition to facilitate compaction to the required percentage of maximum density.
3. Moisture Control:
   a. Where fill or backfill must be moisture conditioned before compaction, uniformly apply water to the surface and to each layer of fill or backfill. Prevent ponding or other free water on surface subsequent to, and during compaction operations.
   b. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.
4. If a compacted layer fails to meet the specified percentage of maximum density, the layer will be recompacted and retested. If compaction cannot be achieved the material/layer will be removed and replaced. No additional material may be placed over a compacted layer until the specified density is achieved.

B. Open graded Stone: Place material in maximum twelve inch lifts. Each lift shall be raked smooth and compacted through several passes of a walk behind vibratory roller. Compaction Testing is <u>not</u> required.

3.9 ROUGH GRADING

A. Exterior Grading: Trim and grade area within the Grading Limit Line and excavations outside the limit line, required by this Contract, to a level of 4 inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.
   2. Landscaped Areas: Provide uniform subgrade surface within 1 inch of required level to receive topsoil thickness specified. Compact fill as specified to within three inches of subgrade surface. Remove objectionable material detrimental to proper compaction or to placing full depth of topsoil. If the top three inches of subgrade has become compacted before placement of topsoil, harrow or otherwise loosen rough graded surface to receive topsoil to a depth of three inches immediately prior to placing topsoil.

3.10 SUBGRADE SURFACE FOR WALKS AND PAVEMENT

A. Shape and grade subgrade surface as follows:
   1. Walks: Shape the surface of areas under walks to required line, grade and cross section, with the finish surface not more than 1 inch above or below the required subgrade surface elevation.

2. Pavements: Shape the surface of areas under pavement to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subgrade surface elevation.

B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Thoroughly compact subgrade surface for walks and pavement by mechanical rolling, tamping, or with vibratory equipment as approved to the density specified.

3.11 FINISH GRADING

A. Uniformly grade rough graded areas within limits of the Grading Limit Line to finish grade elevations indicated.

B. Grade and compact to smooth finished surface within tolerances specified, and to uniform levels or slopes between points where finish elevations are indicated or between such points and existing finished grade.

C. Grade areas adjacent to building lines so as to drain away from structures and to prevent ponding.

D. Finish surfaces free from irregular surface changes, and as follows:
1. Grassed Areas: Finish areas to receive topsoil to within one inch above or below the required subgrade surface elevations.
2. Walks: Place and compact subbase material as specified. Shape surface of areas under walks to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.
3. Pavements: Place and compact subbase material as specified. Shape surface of areas under pavement to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.

3.12 MAINTENANCE AND RESTORATION

A. Restore grades to indicated levels where settlement or damage due to performance of the Work has occurred. Correct conditions contributing to settlement. Remove and replace improperly placed or poorly compacted fill materials.

B. Restore pavements, walks, curbs, lawns, and other exterior surfaces damaged during performance of the Work to match the appearance and performance of existing corresponding surfaces as closely as practicable.

C. Topsoil and seed or sod damaged lawn areas outside the GLL and new lawn areas inside the GLL. Water as required until physical completion of the Work.

3.13 DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS

A. Remove from State property and dispose of excess and unsuitable materials, including materials resulting from clearing and grubbing and removal of existing improvements.

3.14 FIELD QUALITY CONTROL

A. Compaction Testing: Notify the Owner's Representative at least three working days in advance of all phases of filling and backfilling operations. Compaction testing will be performed by the Owner's Representative to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on certain layers of the fill and backfill as determined by the Owner's Representative. If a compacted layer fails to meet the specified percentage of maximum density, the layer will be recompacted and will be retested. No additional material may be placed over a compacted layer until the specified density is achieved.

3.15 PROTECTION

A. Protect graded areas from traffic and erosion, and keep them free of trash and debris.

END OF SECTION 31 00 00

SECTION 12 93 00 - SITE FURNISHINGS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Concrete Walks: Section 32 13 00

1.2 SUBMITTALS

A. Product Data: Manufacturer's catalog sheets, specifications, and installation instructions.
B. Maintenance Data for each product
C. Samples: color and finish to be selected from standard color palette. Submit 1 sample, 3"x3" for review. Color and finish of concrete to be consistent across all exposed surfaces.

PART 2 PRODUCTS

2.1 BENCHES

A. Basis of Design:
   1. Manufacturer: Maglin Site Furniture Inc., 27 Bysham Park Drive, Woodstock, Ontario N4T 1P1 Canada. Toll Free: (800) 716.5506. Phone: (519) 539.6776. Fax: (877) 260.9393. Website: www.maglin.com. E-mail: sales@maglin.com.

   2. Model: MLB300-M or approved equal

   3. Dimensions: 71.25" L x 31.19" H x 24.56" D

   4. Materials:
      a. Bench frame and arms made from solid cast aluminum (95% recycled material)
      b. Seat employs flat bar straps and H.S. steel tube.

   5. Finishes
      a. All steel components to have E-Coat rust protection.
      b. UV Resistant Powdercoat on all metal surfaces.
      c. Color: Fine Textured, Black FineTex

   6. Recycled Content
      a. Pre-consumer material: 26%
      b. Post-consumer material: 24%

PART 3 EXECUTION

3.1 INSTALLATION

A. Benches:

1. Install the work of this section in accordance with the manufacturer's printed instructions, and as detailed on the drawings.

a. Benches to be surface mounted using the holes (0.5") that are predrilled in each of the footplates. Benches are to be mounted with (4) 4-5" stainless steel anchor bolts.

END OF SECTION 12 93 00