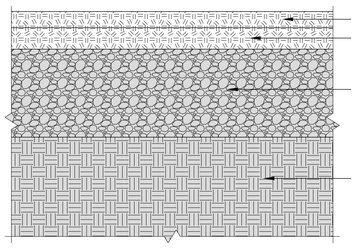
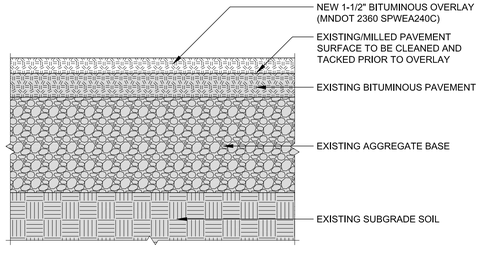
KEYED NOTES:

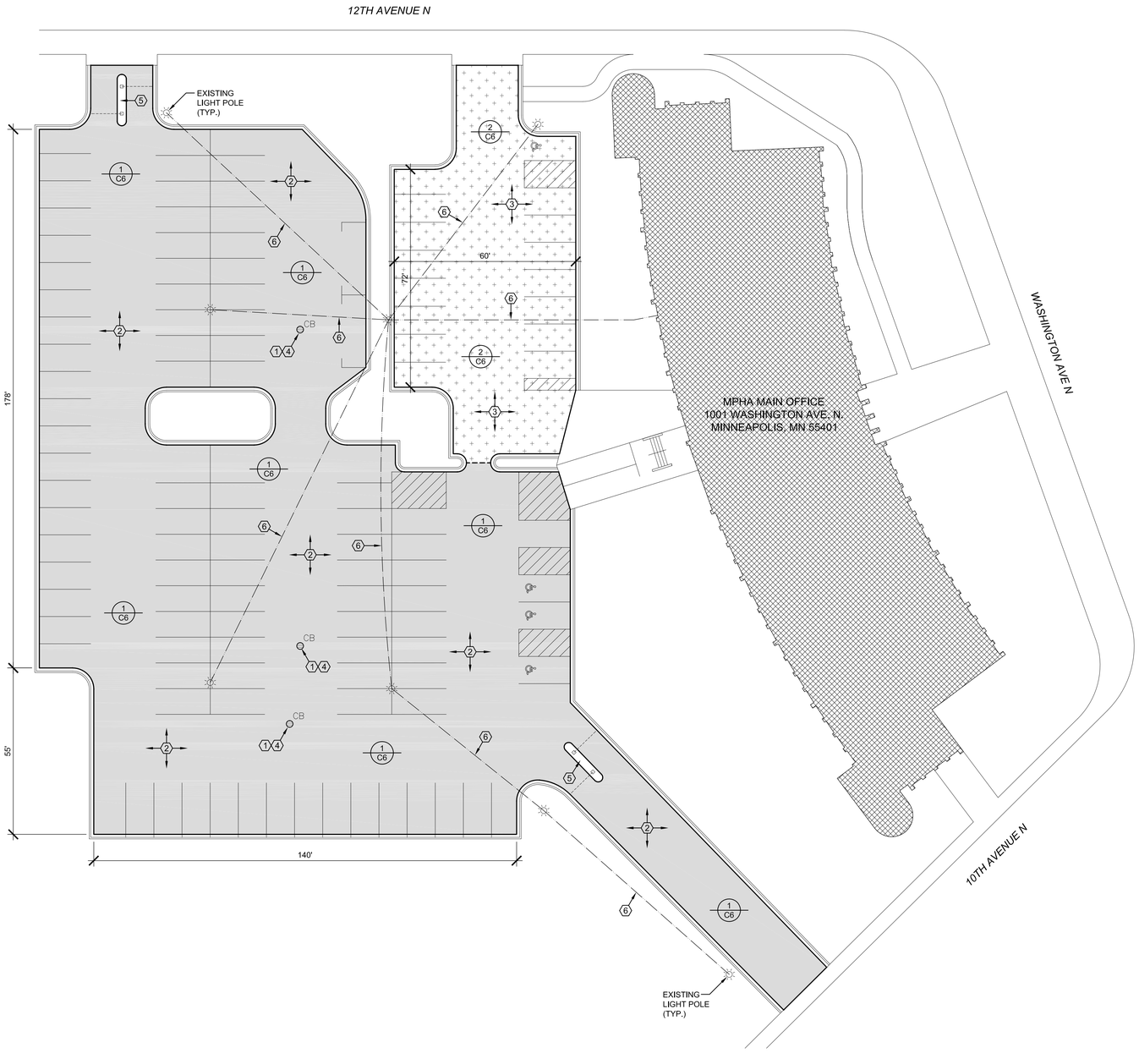
1. PROVIDE INLET PROTECTION AT EXISTING CATCH BASIN PRIOR TO REMOVAL OF BITUMINOUS PAVEMENT AND IN ACCORDANCE WITH PROJECT SPECIFICATIONS. MONITOR THROUGHOUT THE DURATION OF THE PROJECT AND REMOVE ACCUMULATED SEDIMENT/DEBRIS AS REQUIRED TO PREVENT PONDING OF WATER. REMOVE INLET PROTECTION FOLLOWING FINAL SITE STABILIZATION.
2. REMOVE AND DISPOSE OF EXISTING BITUMINOUS PAVEMENT (SHADED), GRADE AND COMPACT EXISTING BASE AGGREGATE TO PROVIDE POSITIVE SURFACE DRAINAGE AND TO ACCOMMODATE NEW PAVEMENT SECTION. PLACE NEW BITUMINOUS PAVEMENT IN TWO LIFTS AND IN ACCORDANCE WITH DETAIL 1/C6. STRIPE PARKING LOT TO MATCH EXISTING LAYOUT.
3. MILL EXISTING BITUMINOUS PAVEMENT (SHADED) TO A DEPTH OF 1-1/2". CLEAN AND TACK MILLED SURFACE AND OVERLAY IN ACCORDANCE WITH DETAIL 2/C6. STRIPE PARKING LOT TO MATCH EXISTING LAYOUT.
4. REMOVE AND SALVAGE EXISTING CAST IRON CATCH BASIN INLET FRAME AND GRATE. REMOVE AND DISPOSE OF EXISTING ADJUSTMENT RINGS AND REBUILD WITH NEW HDPE ADJUSTMENT RINGS. WRAP THE OUTSIDE OF THE NEW RINGS WITH A NON-WOVEN GEOTEXTILE FABRIC. INSPECT INTERIOR OF PRECAST STRUCTURE AND GROUT SOLID ANY VOIDS, INCLUDING AROUND PIPE PENETRATIONS. RESET SALVAGED FRAME AND GRATE.
5. EXISTING CONCRETE PAD WITH GATE OPERATORS AND BARRIER ARMS TO REMAIN.
6. PROVIDE AND INSTALL UNDERGROUND ELECTRICAL CONDUIT AND HANDHOLDS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ATTACHED ELECTRICAL PLANS AND ELECTRICAL SPECIFICATIONS. COORDINATE FINAL CONDUIT PLACEMENT IN ADVANCE WITH KIRTLAND ELECTRIC, WHICH IS THE OWNER'S SEPARATE LIGHTING & SECURITY CONTRACTOR. RESTORE DISTURBED SURFACES TO MATCH EXISTING.



1/C6 BITUMINOUS PAVEMENT DETAIL
NO SCALE



2/C6 MILL & OVERLAY DETAIL
NO SCALE



SITE PLAN
0 10' 20' 40"
SCALE: 1" = 20'-0"
NORTH

INSPEC
5801 Duluth Street
Minneapolis, MN
55422
Ph. 763-546-3434

MINNEAPOLIS | MILWAUKEE | CHICAGO

Consultants:

Signature:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Brenton E. Boelter
TYPED OR PRINTED NAME: BRENTON E. BOELTER
DATE 3/27/24 REGISTRATION NO. 26877

Issues and revisions:

ISSUE LEVEL / REVISION:	DATE:	No.:

THIS LINE SCALES 1" ON FULL SIZE SHEETS

Client:

MINNEAPOLIS PUBLIC HOUSING AUTHORITY

1001 WASHINGTON AVENUE NORTH
MINNEAPOLIS, MN 55401

MPHA MAIN OFFICE

1001 WASHINGTON AVENUE N
MINNEAPOLIS, MN 55401

Project title:

2024 PAVEMENT REHABILITATION & REPAIRS

Sheet content:

SITE PLAN
DETAILS

DATE:	03/27/24
CLIENT PROJECT No.:	
INSPEC PROJECT No.:	215814
PROJECT MGR:	BEB
DRAWN BY:	BJT
CHECKED BY:	MDR

Sheet No.:

C6

SHEET SIZE: 24x36

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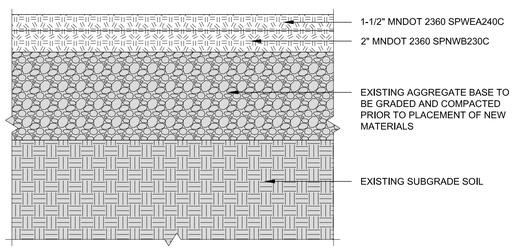
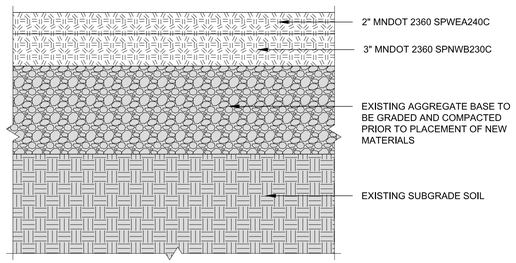


1 C5 MEDIUM-DUTY PAVEMENT DETAIL
NO SCALE



2 C5 HEAVY-DUTY PAVEMENT DETAIL
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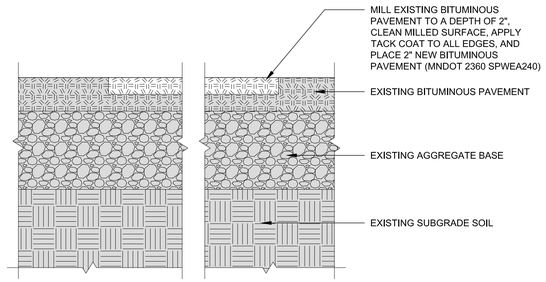
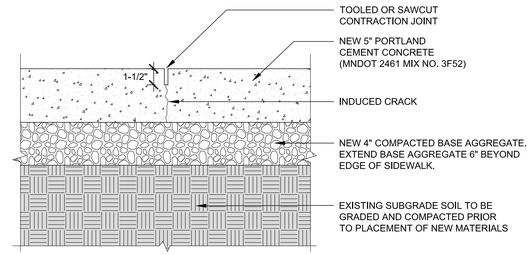


3 C5 BITUMINOUS REPAIR DETAIL
NO SCALE

NOTE:
IN LOCATIONS WHERE NEW CONCRETE ABUTS EXISTING CONCRETE PAVEMENT SCHEDULED TO REMAIN, DRILL 6" INTO EXISTING CONCRETE PAVEMENT, MID-SLAB, AND INSERT 12" LONG, #4 EPOXY COATED SMOOTH DOWELS, SPACED 18" O.C.



4 C5 CONCRETE SIDEWALK DETAIL
NO SCALE

NOTE:
BASE BID TO INCLUDE 1,000 LINEAL FEET OF CRACK SEALING.

5 C5 CRACK SEALING DETAIL
NO SCALE

INSPEC
5801 Duluth Street
Minneapolis, MN
55422
Ph. 763-546-3434

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Client:
MINNEAPOLIS PUBLIC HOUSING AUTHORITY

1001 WASHINGTON AVENUE NORTH
MINNEAPOLIS, MN 55401

GLENDALE TOWNHOMES

2709 ESSEX STREET SE
MINNEAPOLIS, MN 55401

Project title:
2024 PAVEMENT REHABILITATION & REPAIRS

Sheet content:
DETAILS

DATE:	03/27/24
CLIENT PROJECT No.:	
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PROJECT MGR:	BEB
DRAWN BY:	BJT
CHECKED BY:	MDR

Sheet No.:
C5

SHEET SIZE: 24x36

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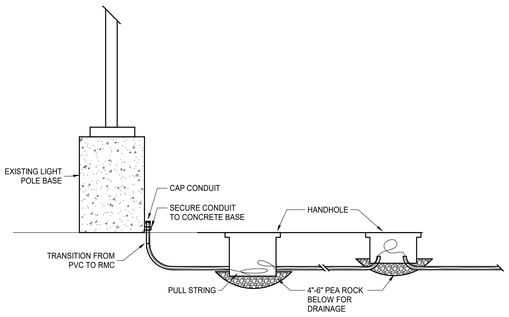

2 HANDHOLE DETAIL
1/8" = 1'-0"

1 1001 WASHINGTON CONDUIT PLAN
1/16" = 1'-0"

KEY NOTES

1. PROVIDE UNDERGROUND HANDHOLD NEXT TO POLE. PROVIDE MODEL SHOWN ON SITE PLAN OR PRE-APPROVED EQUAL. ALL HANDHOLES SHALL BE PROVIDED WITH GREEN FINISH.
2. STUB CONDUIT INTO ELECTRICAL ROOM AND CAP. PROVIDE PULL STRING FOR FUTURE USE
3. CAP CONDUIT AT BASE OF POLE WITH PULL STRING. REFER TO DETAIL 2.

GENERAL NOTES

A. ALL CONDUIT SHALL BE 1 1/2" SCHEDULE 40 PVC OTHERWISE STATED. IN LOCATIONS SUBJECT TO DAMAGE SUCH AS IN THE LOT OR LESS THAN 3 FT AWAY FROM THE LOT/DRIVE LANES SHALL BE IN RIGID METAL CONDUIT.

B. CONDUIT SHALL BE ROUTED AS CLOSE TO EACH POLE AS POSSIBLE AND CAPPED AT THE BASE OF EACH POLE WITH PULL STRING TO NEAREST HAND HOLE.

C. CONDUIT ROUTED AS SHOWN ARE FOR REFERENCE ONLY. VERIFY ACTUAL CONDUIT ROUTES PRIOR TO INSTALLING CONDUIT. PROVIDE OFFSETS AS REQUIRED TO ROUTE AROUND STRUCTURE AND OTHER OBSTRUCTIONS. PROVIDE PULL BOXES AS REQUIRED TO FACILITATE CABLE PULLING AND AS REQUIRED BY NEC. HANDHOLES USED AS PULL BOXES SHALL BE PE10HDH00092 OR PRE-APPROVED EQUAL.

D. CONDUCT LOCATES PRIOR TO TRENCHING.

E. MAINTAIN FIRE RATING WHERE CONDUIT, DEVICES, ETCETERA PENETRATE A FIRE RATED STRUCTURE. FIRE PROOF ALL PENETRATION AS REQUIRED. SEE SPECIFICATION FOR APPROVED MATERIALS.

F. PROVIDE EXCAVATION, SHORING, BRACING, BACKFILLING, AND GRADING FOR EACH HANDHOLE.

G. ALL JOINTS IN CONDUITS AND FITTING SHALL BE MADE UP TIGHT AND SHALL BE WATERTIGHT. ALL THREADED PORTIONS OF STEEL CONDUITS THAT ARE NOT TO BE ENCASED IN CONCRETE, AND ADJOINING ENDS OF CONDUITS, COUPLINGS AND FITTINGS, SHALL BE HEAVILY COATED WITH ASPHALTUM AFTER INSTALLATION. ALL CONNECTIONS BETWEEN CONDUITS OF DIFFERENT TYPES SHALL BE MADE IN AN APPROVED MANNER, USING ADAPTERS OR OTHER MATERIALS AND METHODS RECOMMENDED FOR THE PURPOSE BY THE CONDUIT MANUFACTURERS.

H. WHERE AN UNDERGROUND CONDUIT ENTERS THE BUILDING THROUGH A MEMBRANE-WATERPROOFED WALL OR FLOOR, AN APPROVED, MALLEABLE-IRON, WATERTIGHT ENTRANCE SEALING DEVICES SHALL BE PROVIDED. EACH END OF THE DEVICE SHALL HAVE A GLAND TYPE SEALING ASSEMBLY WITH PRESSURE BUSHINGS WHICH MAY TIGHTENED AT ANY TIME.

I. WHERE AN UNDERGROUND CONDUIT, WITHOUT A CONCRETE ENVELOPE, ENTERS THE BUILDING THROUGH A NON-WATERPROOFED WALL OR FLOOR, PROVIDE A SLEEVE MADE OF SCHEDULE 40 GALVANIZED PIPE. THE SPACE BETWEEN THE CONDUIT AND THE SLEEVE SHALL BE FILLED WITH A SUITABLE PLASTIC EXPANSIBLE COMPOUND OR AN OAKUM AND LEAD JOINT ON EACH SIDE OF THE WALL OR FLOOR IN SUCH A MANNER AS TO PREVENT ENTRANCE OF MOISTURE.

J. CONDUIT GENERALLY SHALL BE STRAIGHT BETWEEN MANHOLES OR UPTURNED ELBOWS. WHERE BENDS ARE UNAVOIDABLE IN NONMETALLIC CONDUITS, THEY MAY BE MADE BY ASSEMBLING COUPLINGS AT A SLIGHT ANGLE, PROVIDED THE WATERTIGHT SEALS ARE NOT BROKEN AND THE RESULTING RADIUS IS NOT LESS THAN 100 FEET

K. INSTALL TOP OF CONDUIT 30 INCHES BELOW FINISHED GRADE, BACK FILL WITH COMPACTED NATIVE SOIL. PROVIDE PLASTIC WARNING TAPE 12" BELOW GRADE DIRECTLY ABOVE BURIED CONDUIT.

L. WHERE DRAWINGS INDICATE THAT UNDERGROUND CONDUITS ARE TO CROSS UNDER EXISTING ROADWAYS, WALKS OR OTHER SIMILAR PAVED AREAS, STEEL CONDUITS MAY BE DRIVEN UNDER SUCH AREAS IN LIEU OF INSTALLING THE CONDUITS IN TRENCHES ABOVE. AFTER INSTALLATION OF CONDUIT BY EITHER METHOD, ALL EXISTING PAVED OR GRASS AREAS WHICH HAVE BEEN DISTURBED IN ANY WAY SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS.

M. ALL CONDUITS ENTERING A BUILDING SHALL BE COMPLETELY AND ADEQUATELY SEALED AT FIRST TERMINATION WITH OAKUM OR SUITABLE PLASTIC EXPANSIBLE COMPOUND TO PREVENT THE ENTRANCE INTO THE BUILDING OF RODENTS, GASES OR VAPORS.

N. HANDHOLE FRAMES AND COVERS SHALL BE SET TO FINAL GRADE. PROVIDE EXTENSION RINGS AS REQUIRED.

O. ALL POLYVINYL CHLORIDE CONDUIT (PVC) SHALL BE UL651 LISTED MANUFACTURED BY ALLIED, CANTEX, CARLON, IPEX, JM EAGLE, OR PRIME CONDUIT. ALL COUPLINGS AND FITTINGS SHALL BE THREADLESS.

P. CONDUIT SHALL NOT BE ROUTED THROUGH STRUCTURAL SLABS, BEAMS OR COLUMNS UNLESS APPROVED BY STRUCTURAL ENGINEER

MCE
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Minneapolis, Minnesota 55402
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client

MINNEAPOLIS PUBLIC HOUSING AUTHORITY

2023 MPHA Security Update

1001 Washington Ave N.
Minneapolis, MN 55401

consultants

issued for

#	ITEM	DATE

MPH00136 — Project Number
\- — Drawn by

SHEET ISSUED FOR REFERENCE

1001 WASHINGTON CONDUIT

E1

SECTION 32 01 17
CRACK SEALING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Crack sealing

1.2 SUBMITTALS

A. Submit manufacturer's product specification and application information for the rubberized crack sealant material.

1.3 QUALITY ASSURANCE

A. Quality assurance personnel will observe the Work of this Section on an intermittent basis.

PART 2 - PRODUCTS

2.1 CRACK SEALANT

A. Hot-applied rubberized asphalt, ASTM D6690, Type II, as recommended to fill cracks from 1/4" to 3/4" wide. As a minimum, the sealant material shall meet or exceed the following criteria:

Color	Black
Solids	63% minimum
Rubber	6.5% minimum
Asphalt	45% minimum

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Rout and clean cracks with high pressure air to provide a clean, dry reservoir to receive new material.

B. Treat cracks with soil sterilant to prevent vegetation growth.

3.2 APPLICATION

A. Completely fill cracks and allow to harden. Material shall be flush with pavement surface. Remove excess material.

B. Apply on warm, dry surface when air temperature is between 45 F and 90 F and rain is not imminent.

C. Sand or apply tissue over crack sealant to minimize the potential for tracking.

D. Protect completed work as required to avoid damage from vehicular and pedestrian traffic.

END OF SECTION

SECTION 31 23 16
EXCAVATING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Excavation for site pavements and site amenities

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 UTILITIES

A. Locate existing public and private underground utilities in areas of Work. The utilities shown on the Drawings are approximate locations only. Provide adequate means of protection during excavation operations. Properly cap, raise, or lower to grade existing valve covers, cleanouts, manholes, drop inlets, or other utilities in areas of work.

B. Consult utility owner immediately for directions if uncharted, or incorrectly charted piping or other utilities are encountered during excavation. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. The Contractor shall repair damaged utilities to satisfaction of utility owner at no expense to the Owner.

C. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer.

3.2 USE OF EXPLOSIVES

A. The use of explosives is not permitted.

3.3 EXCAVATION

A. Remove topsoil, sod, grass, organic materials, or other unsuitable soil from areas to receive new materials.

B. Sawcut existing pavement to be removed full depth to form a smooth vertical edge and without cracking or distress to the pavement to remain. Remove where indicated on the Drawings or as marked in the field by the Engineer.

1. Pavement face shall be intact and unraveled.
2. Protect edge from damage from traffic.

C. Excavate areas to the depth shown on the Drawings. After the required excavation has been completed, thoroughly clean the exposed vertical and bottom surfaces of all loose materials. The excavation bottom shall be firm and dry.

D. Do not allow water to accumulate in excavations. Remove water to prevent softening of subgrade or foundation soils or to eliminate other changes detrimental to stability of subgrades. Provide and maintain surface drainage and other dewatering system components necessary to convey water away from excavations.

E. For excavation for subgrade, conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet.

F. All work specified in this Section shall be performed by the Contractor at his own expense unless ordered by the Engineer. Additional payment will be made under separate unit price bid items for over-excavation if such bid item has been established; otherwise payment will be made in accordance with a negotiated price.

G. Use all means necessary to prevent operations from producing dust. The Contractor shall be responsible for damage resulting from dust originating from his operation.

3.4 OVER-EXCAVATION NOT ORDERED, SPECIFIED OR SHOWN

A. Excavation carried below the grade not ordered, specified, or shown, shall be backfilled to the required grade with the specified material and compaction. Such work shall be performed by the Contractor at his own expense.

3.5 DISPOSAL OF EXCESS EXCAVATED MATERIAL

A. Contractor shall remove and dispose of excess excavated material off-site and at their expense.

3.6 FIELD QUALITY CONTROL

A. Inspections will be performed during excavation for verification of excavation cross-section.

END OF SECTION

SECTION 32 12 00
ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Plant mix bituminous pavement

1.2 SUBMITTALS

A. Submit a job mix formula to the Engineer at least seven days in advance of plant mix paving indicating conformance with specifications. It shall be prepared by the Minnesota Department of Transportation (MN/DOT) or a commercial laboratory and signed by a registered Professional Engineer verifying that the job mix and the mix aggregates meet the specifications contained herein.

1.3 QUALITY ASSURANCE

A. Quality assurance personnel shall remain at the Project site on a part-time basis during plant mix bituminous placement.

B. Compaction shall be by the Ordinary Compaction Method.

1.4 WARRANTY

A. Provide a warranty for paving work against failure or defects for a period of one year after final Project acceptance by the Owner. Repair or replace, to the satisfaction of the Owner, failed or defective work which occurs during the warranty period at no cost to the Owner.

PART 2 - PRODUCTS

2.1 MIXTURE DESIGNATION

A. MN/DOT 2360

1. Wear course: SPWEA240C
2. Base course: SPNWB230C

B. Refer to the Drawings

2.2 AGGREGATE FOR PLANT-MIXED BITUMINOUS PAVEMENT

A. Sound, angular stone meeting the requirements of MN/DOT 2360 and of acceptable quality and crushed to specification size.

B. The percentage of recycled asphaltic pavement materials (RAP) shall not exceed 20% for wearing and non-wearing courses.

1. RAP containing road tar, metal, glass, wood, plastic, brick, fabric, or any other objectionable material having similar characteristics will not be permitted for use in the asphalt pavement mixture.

2.3 ASPHALT BINDER MATERIAL

A. Asphalt binder material shall meet the requirements of PG asphalt binder testing tolerances, sampling rates, testing procedures, and acceptance criteria based on the most current MN/DOT Technical Memorandum, titled "Inspection, Sampling, and Acceptance of Bituminous Materials".

1. Asphalt binder grade shall be PG 58H-34

B. The percentage of asphalt binder shall conform to the job mix formula, plus or minus 0.3 percent.

2.4 ASPHALT - AGGREGATE MIXTURE (JOB MIX FORMULA)

A. The mixture shall meet the requirements listed in Table's 2360.3-B2B and 2360.3-B2C of the most current (MN/DOT 2360) plant mixed asphalt pavement gyratory design specification.

1. The job mix formula shall be approved by the Engineer.

B. The job mix formula shall be produced to conform within the parameters and limits identified in Table 2360.4-H of the most current MN/DOT Standard Specifications for Construction.

2.5 TACK COAT

A. Tack coat to be used where plant mix pavement will be in contact with previously constructed asphalt or portland cement concrete shall be CSS-1H or CRS-2 Cationic Emulsified Asphalt, diluted 50/50 with clean water as set forth in the MN/DOT 2357.

PART 3 - EXECUTION

3.1 PREPARATION

A. Plan the work to prevent damage to existing pavement that will remain.

1. Inspect and confirm that the edge of existing bituminous pavement that will receive new bituminous pavement is solid and free of cracked or distressed pavement.
2. Sawcut existing pavement, remove, and prepare as required.

B. Pavement subgrade shall be free of wet or unstable soil conditions. Do not begin paving until deficient areas have been corrected and are ready to receive paving.

C. Pavement surfaces must be dry and completely free of dust, dirt, debris, loose materials, and vegetation.

D. Apply tack coat to clean vertical surface of previously constructed asphalt or portland cement concrete which will be in contact with plant mix pavement. Distribute emulsion at a rate of 0.20 gallon per square yard of surface.

E. When a successive lift of plant mix bituminous is to be placed, the existing surface shall receive a tack coat if application of a previous layer is dirty or over 48 hours old. If dirty, surfaces shall be thoroughly cleaned prior to tack coat application.

3.2 PLANT MIX

A. Mix: Aggregate grading shall conform to the specification limits. Asphalt cement content shall be within 0.3 percent of the job mix formula optimum asphalt content.

B. The trucks for hauling bituminous mixtures shall have tight, clean, and smooth beds that have been sprayed with a minimum amount of approved anti-adhesive agent to prevent mixture adherence to the beds. Provide each truck with a cover of suitable material and size to protect the mixture from weather.

3.3 MIXTURE TEMPERATURE CONTROL

A. The minimum laydown temperature in all courses (as measured behind the paver or spreading machine) of the bituminous mixture shall be in accordance with the temperature requirements specified herein:

	Compacted Lift Thickness			
Air Temp. F	**1 inch**	**1-1/2 inch**	**2 inch**	**3 inch or more**
32 - 40		265	255	250
41 - 50	270	260	250	245
51 - 60	260	255	245	240
61 - 70	250	245	240	235
71 - 80	245	240	235	235
81 - 90	235	230	230	230
91 -	230	230	230	225

B. Plant mix bituminous mixture shall not exceed 310 F or the load will be rejected at Contractor's expense.

3.4 PLACEMENT

A. Place plant mix paving on prepared surface, spread, and strike-off. Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness. The in-place compacted thickness shall be plus or minus 1/4" of the planned thickness. Area constructed to less than the required minimum thickness may be removed and replaced by the Contractor at the discretion of the Engineer.

B. Equipment furnished by the Contractor shall be well maintained and in a sound mechanical condition capable of performing the work.

C. Paver Placing: The mixture shall be delivered to, and spread by, the plant mix bituminous paver. The mixture shall be laid in strips to minimize the number of longitudinal joints required.

D. Paver:

1. Self-contained, power-propelled unit provided with adjustable activated screed or strike-off assembly, heated, and capable of spreading and finishing courses of bituminous plant mix material in laid width applicable to the specified typical section and thickness shown on the Drawings.
2. Equip paver with a control system capable of automatically maintaining elevation as specified. The control system shall be automatically actuated from either a reference line or surface through which a system of mechanical sensors will maintain the paver screed at a predetermined slope at the proper elevation to obtain required surface. When directed, the transfer slope control system shall be made inoperative and the screed shall be controlled by sensor directed automatic mechanisms which will independently control the screed elevation from the reference line or surface.

E. Joints: Make joints between old and new pavements, or between successive days work, to ensure continuous bond between adjoining work. Construction joints shall be vertical and have the same texture, density, and smoothness as other sections of asphalt concrete course. Contact surfaces shall be clean and a tack coat applied.

F. Wear course: Place top surface wear course in maximum 2" lifts unless otherwise specified by the Engineer.

3.5 COMPACTION/ROLLING

A. Compact the plant mix bituminous mixture as quickly as possible after placement. Breakdown rolling shall immediately follow the paver. Intermediate rolling shall follow behind breakdown rolling. Compaction of the pavement shall continue until in-place air voids are within the range of 3 to 4 percent. Finish rolling shall be performed at as high a temperature as practicable and shall

eliminate marks from previous rolling. Rolling must be completed before the mixture cools below 180 F.

B. Rollers:

1. Steel-wheeled: Self-propelled and capable of reversing without backlash, weighing not less than eight tons, and exerting a pressure on the rear drum of not less than 250 pounds per linear inch. When vibratory rollers are used, they shall operate at frequency of 8 to 10 impacts per foot.
2. Pneumatic-tired: Self-propelled, with a minimum of seven tires, and exerting a pressure of not less than 200 pounds per inch of rolling width.
3. Trench: Self-propelled, exerting a pressure of not less than 250 pounds per linear inch of rear roll.

C. Rolling:

1. Unless otherwise directed, begin rolling at the side and proceed longitudinally parallel to the paving lane center line, overlapping each trip half the roller width, and gradually progressing to the crown of the parking lot or roadway.
2. When pavement abuts a previous placed lane, roll the longitudinal joint first followed by regular rolling procedures.
3. On sloped sections, begin rolling at the low side and progress to the high side, by overlapping of longitudinal trips parallel to the paving lanes center line.
4. Along forms, curbs, headers, walls, and other places not accessible to rollers, thoroughly compact the mixture with hot hand tampers or with mechanical tampers.
5. The pavement shall be rolled so that no roller marks, ridges, porous spots or impressions are visible and the resulting surface has the required grade and contour.

D. Compaction shall be obtained by the Ordinary Compaction Method. Uniformly compact each course until there is no further evidence of consolidation and roller marks are eliminated. A minimum of two rollers shall be on-site at all times. A vibratory steel roller shall be used for breakdown and finish rolling and a pneumatic roller shall be used after breakdown.

E. Patching: Remove and replace paving areas mixed with foreign materials and defective areas as directed by Engineer. Cut-out and fill with fresh, hot plant mix bituminous mixture. Compact by rolling to the air voids and smoothness specified. Removal and replacement of contaminated mix shall be done at no cost to the Owner.

F. Surface smoothness: The surface of the pavement when finished shall be of uniform texture, smooth, true to crown and grade, and free from defects to the satisfaction of the Engineer. When tested with a 10-foot straight edge in any direction, the maximum deviation of the surface shall not exceed 1/8 inch. Unsatisfactory joints as determined by the Engineer will be rejected and replaced at the Contractor's expense.

G. Protection: Erect barricades to prohibit vehicular traffic on pavement after final rolling until it has fully hardened and cooled to the same temperature as the surrounding soil or original asphalt pavement.

H. Restrictions: No bituminous mixture shall be placed after November 1.

3.6 FIELD QUALITY CONTROL

A. Testing the plant mix pavement for compliance with the following Project requirements will be provided by the Owner.

Asphalt Cement Content, by weight	Mix design optimum ± 0.30%; not less than specified min.
Thickness, In.	As specified, ±1/4 inch
Surface Smoothness	±1/8 inch in 10 feet measured in any direction

B. Test frequency: Plant mix bituminous pavement shall be tested for mat thickness and surface smoothness during laydown.

END OF SECTION

SECTION 32 17 00
PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Parking lot and drive striping

1.2 SUBMITTALS

A. Furnish Engineer with manufacturer's certification indicating the paint used meets the requirements specified herein.

PART 2 - PRODUCTS

2.1 PAINT

A. Lead-free low VOC acrylic copolymer traffic marking paint.
   1. Developed for use over concrete, asphalt, and brick on parking lot surfaces.
   2. Paint shall be 100% acrylic, conventional dry, acetone based paint.

B. Color shall be as follows:
   1. White for automobile parking stalls, crosswalks, directional arrows, same direction lane dividers, stop lines, disability parking insignias, disability access aisles and “No Parking” lettering.
   2. Yellow for marking crosshatched no parking areas, opposing traffic lane dividers, curbs and centerlines.

PART 3 - EXECUTION

3.1 APPLICATION

A. Review striping plan with Owner and obtain approval prior to painting.

B. Allow asphalt surface to cure before painting.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce uniform, straight edges.
   1. Apply in accordance with manufacturer's recommendations.
   2. Parking stall lines shall be 4" wide.

E. Protect the newly painted areas from traffic until the paint has thoroughly dried.

END OF SECTION

SECTION 31 25 13
EROSION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Inlet protection
   2. Sediment control logs
   3. Dust control
   4. Municipal (local regulating authority) permits

1.2 SUBMITTALS

A. Submit to the Engineer certification from the manufacturers and/or producers that materials used in the Work meet the minimum requirements listed below.

PART 2 - PRODUCTS

2.1 INLET PROTECTION

A. Provide inlet protection in accordance with MN/DOT 3891.

B. Products shall be sized for the specific structures being protected.

C. Approved Products:
   1. Road Drain Top Slab, manufactured by WIMCO
   2. Road Drain Curb & Gutter, manufactured by WIMCO
   3. Dandy Bag, manufactured by Dandy Products
   4. Dandy Sack, manufactured by Dandy Products
   5. Dandy Curb Sack, manufactured by Dandy Products
   6. InfraSafe Debris Collection Device, manufactured by Royal Environmental Systems, Inc.
   7. InfraSafe Sediment Control Barrier, manufactured by Royal Environmental Systems, Inc.
   8. Straw wattles
   9. Approved equal

D. Provide all required accessory materials recommended by the manufacturer for installation.

2.2 SEDIMENT CONTROL LOGS

A. Provide 12" to 18" diameter sediment control logs composed of 100% agricultural straw fiber wrapped in UV stabilized synthetic tubular netting.

2.3 DUST CONTROL

A. Dust control measures/products shall not contain asphalt based products or products that are environmentally incompatible.

B. Water that is applied to minimize dust from being generated shall be potable (or as otherwise approved) and suitable for plant growth.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide all erosion control devices per the Drawings and as required by governing authorities prior to commencement of any earth disturbing activities.

B. When required, schedule erosion control device inspections and obtain approval from local authorities prior to commencing earthwork.

3.2 INLET PROTECTION

A. Install inlet protection where shown on the drawings and in accordance with MN/DOT 3891 prior to beginning construction activities.

B. At a minimum, inspect inlet protection weekly and within 24 hours after every precipitation event that produces 0.5" of rain or more during a 24 hour period.

C. Repair or correct damaged protection when observed or as directed by Engineer and/or Owner.

D. Properly dispose of sediment deposits that accumulate on the protection fabric at a minimum once a week and when the sediment deposits will not allow water to pass through. Removed sediment shall be deposited in a suitable area and stabilized or removed from site.

E. Exercise due care to ensure sediment does not enter storm sewer systems.

F. Remove and dispose of all inlet protection materials once the disturbed area is permanently stabilized with appropriate vegetation or impervious area and is no longer susceptible to erosion.

3.3 SEDIMENT CONTROL LOGS

A. For sediment control logs placed on asphalt pavement, concrete pavement, and other hardscape surfaces, lay sediment logs flat on hardscape surface. Secure in place with sandbags or other means.

B. For sediment control logs on graded slopes:

1. Spacing shall be as follows:
    a. 0 - 2% slopes Spacing 55'-0" on-center, maximum
    b. 2.1 - 5% slopes Spacing 40'-0" on-center, maximum
    c. 5.1 - 10% slopes Spacing 30'-0" on-center, maximum
    d. 10.1 - 33% slopes Spacing 15'-0" on-center, maximum
    e. >33% slopes Spacing 10'-0" on-center, maximum
2. Embed sediment control logs 2" minimum into graded slopes and stake in place.
3. Where sediment control logs are not installed perpendicular to the slope, install J-hooks at every 2 foot vertical drop.

C. Overlap sediment logs 24" minimum at each joint and J-hook location.

3.4 DUST CONTROL

A. Provide dust control measures, as necessary, to minimize and/or prevent the surface and air transport of dust during construction.

B. Unless specific dust control measures are specified herein, Contractor shall select and implement appropriate dust control measures.

C. At a minimum, water should be applied to dust generating soils, grades, subgrades, and base aggregate areas as necessary to minimize and/or prevent dust from being generated during construction activities.

3.5 MUNICIPAL (LOCAL REGULATING AUTHORITY) PERMITS

A. Apply and pay for all required municipal and/or local regulating authority permits including, but not, limited to Erosion Control Permits, Earthwork Permits, Grading Permits, Land Disturbance Permits, etc.

B. Notify Engineer if modifications to the erosion control plan are requested by the permit issuer.

C. Coordinate necessary inspections with permit issuer and adhere to procedures required by the permit and permit issuer.

END OF SECTION

SECTION 32 11 00
BASE COURSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aggregate base for site pavements and site amenities
2. Structural fill and backfill for site pavements and site amenities

1.2 SUBMITTALS

A. Submit laboratory test reports indicating the proposed aggregate grading meets the requirements specified herein.

B. Submit laboratory test results indicating the proposed aggregate base material meets the minimum percent crushed as specified herein.

C. The information must be current and represent the material to be supplied to the Project site. If test information is not available from the supplier, Contractor shall make arrangements and pay for required tests.

1.3 QUALITY ASSURANCE

A. Contractor shall be responsible for source quality control testing of Project materials proposed for use on the Project.

B. In-place field density tests may be performed in accordance with ASTM D1556 or ASTM D2922.

C. Work of this Section occurring on public property shall be constructed in accordance with all laws, ordinances, rules, regulations, and orders of any public authority having jurisdiction. Where such work is required to be constructed in a manner differing from the Contract Documents, the Contractor shall notify the Architect/Engineer before proceeding with the work.

PART 2 - PRODUCTS

2.1 AGGREGATE BASE

A. Provide certified aggregate materials that have uniform appearance, texture, moisture content, and performance characteristics.

B. Imported aggregate base course materials shall meet all the quality requirements of MN/DOT 3138.

1. Recycled materials used in base course product must meet the requirements of MN/DOT 3138.2.C and Table 3138-2.

C. Aggregate base shall be graded to conform to MN/DOT 3138 Class 5 designation and the applicable Table (Table 3138-3, Table 3138-4, or Table 3138-5) based on the percentage of recycled material in the product.

2.2 STRUCTURAL FILL AND BACKFILL

A. Processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation.

B. ASTM D2487 soil classification SP, SP-SM, SM, SC, or CL with 100% material passing the 3-inch sieve, an organic content (OC) of less than 2%, and a plasticity index (PI) of less than 20%.

2.3 UNSUITABLE MATERIALS

A. Unsuitable soils include soils classified under ASTM D2487, which fall in the classification of PT, OH, CH, MH, OL, or ML.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare subgrade to provide required line and elevation.

B. Confirm that the subgrade has been prepared and is ready for fill placement.

C. Subgrade shall be in a moisture condition acceptable for fill placement.

D. Compact pavement subgrades with a minimum of three passes of compactor.

E. Confirm that there are no deficient or saturated subgrade soil conditions. Excavate, dry, and recompact saturated soils or excavate, remove, and replace at no additional cost to Owner and as approved by the Engineer

3.2 PLACEMENT

A. Deposit and spread in uniform 6" maximum thickness layers (after compaction) without segregation of size.

B. Compact each layer until there is no further evidence of consolidation using a sheep's foot roller, pneumatic tired roller, or vibratory steel roller as approved by the Engineer.

C. Mechanically compact each layer of material to the specified percentage of maximum dry density. Use equipment that is consistently capable of achieving the required degree of compaction. Compact each layer over its entire area while the material is at the required moisture content.

D. Apply water to the base material if moisture content is below optimum during the mixing, spreading, and compacting operations, when and in the amounts directed by the Engineer, as considered necessary for proper compaction.

E. Flooding, ponding, or jetting shall not be used for compaction.

F. Compact each layer of material to at least 100% of maximum dry density as determined in accordance with ASTM D698, the Standard Proctor Method.

3.3 FIELD QUALITY CONTROL

A. Quality control testing during construction: Owner's laboratory may test base course materials as construction work is performed.

1. The Contractor shall arrange for the laboratory to perform field density tests in accordance with ASTM D1556 (sand cone method) or ASTM D2922 (nuclear densometer method).
2. Laboratory shall make at least one random field density test of new materials for every 150 square yards of area for each 6" depth of material, but in no case less than one test per 12" depth.

B. Provide additional density testing if test results are below the specified density until passing test results are achieved at Contractor's expense.

C. Inspections will be performed during excavation for the following:
   1. Acceptability of natural subgrade material.
   2. Approval of fill soil, including thickness and compaction of fill layers.

END OF SECTION

SECTION 07 18 02
TRAFFIC COATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Polyurethane traffic coating system for pedestrian traffic
2. Structural mortar

1.2 SUBMITTALS

A. Product data: Submit manufacturer's printed instructions for evaluating, preparing, and treating substrate; technical data, tested physical and performance properties, and printed instructions for installation of traffic coatings, including procedures and materials for flashing, splicing, and bonding.

B. Manufacturer's certification that applicator is approved as indicated in Quality Assurance below.

C. Maintenance data: Submit maintenance manuals which identify substrates and type of pedestrian traffic coating system applied, including recommendations for periodic inspections, cleaning, care, maintenance, and repair.

1.3 QUALITY ASSURANCE

A. Applicator Qualifications: The traffic coatings work shall be performed by a single firm experienced and specialized in applying pedestrian traffic coatings, as shown and specified.

1. The applicator shall be an approved and trained applicator of the specified products.

B. Source limitation: Obtain traffic coating materials through one source from a single manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials in original, unopened containers and packaging clearly labeled with manufacturer's name, brand, type, shelf life, date of manufacture, and all identifying numbers.

B. Store all materials in accordance with the manufacturer's recommendations, as approved, and in accordance with the requirements specified herein. Store products away from sparks, open flames, and direct sunlight.

C. Remove and replace liquid materials that cannot be applied within their stated shelf life.

D. Remove solvent soaked rags from the site or place them in proper containers to be removed from the site at the end of each day.

1.5 PROJECT CONDITIONS

A. Comply with recommendations of the traffic coating manufacturer.

B. Environmental Requirements:

1. All surfaces to receive coating shall be free of water, dew, frost, snow, and ice.
2. Do not apply traffic coating materials if ambient material or substrate temperatures are outside the range of the temperatures recommended by the manufacturer. Temperatures shall be rising and stay above the minimum temperatures for 48 hours after application.

3. Do not apply traffic coating materials when the surface temperature is below 40 F or above 90 F. Do not apply when temperatures are less than 5 F above the dew point or when rain, snow, fog, or mist can directly interfere with the application and curing period.
4. Do not apply coating until substrate moisture content has been approved by the manufacturer as specified in Submittals herein.

C. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

D. Existing conditions: If unusual or concealed conditions are discovered, stop work and immediately notify, in writing, the Owner's representative and coating manufacturer.

PART 2 - PRODUCTS

2.1 TRAFFIC COATING

A. High-solids polyurethane traffic bearing membrane for vehicular and pedestrian areas. System shall have an integral broadcast aggregate for traction where shown on the Drawings. Color will be determined by the Owner.

B. Approved Applicators:
1. MasterSeal Traffic 2500 by BASF
2. Approved Equal

C. Pedestrian Traffic Coating:
1. Top coat: 15-20 wet mils with aggregate broadcast and backrolled
2. Base coat: 25 wet mils
3. Primer: 4 wet mils

2.2 STRUCTURAL MORTAR

A. Accelerated setting, low-slump, high strength structural mortar for vertical and horizontal applications.
1. MasterEmaco N 400 RS by BASF
2. Five Star structural concrete V/O by Five Star Products
3. SikaTop 123 Plus by Sika
4. Approved equal

2.3 MISCELLANEOUS

A. Bond breaker tape: As recommended by the traffic coating manufacturer

B. Mask off tape: As recommended by the traffic coating manufacturer

C. Stainless steel expansion bolt studs

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Cleaning: Surfaces contaminated with oil or grease shall be vigorously scrubbed with a power broom and a strong non-sudsing detergent. Thoroughly wash, clean, and dry.

B. Repair damaged concrete and voids on existing exterior steps with structural mortar.
1. Prepare surfaces in accordance with mortar manufacturer’s recommendations.

2. Install mortar around stainless steel expansion bolt(s) predrilled into the existing concrete as required for support.

C. Abrasion blasting: Mechanically prepare existing concrete surfaces to receive traffic coating by abrasion blasting in accordance with manufacturer's recommendations. Do not abrasion blast new structural mortar repair surfaces. Abrasion blasting must occur after all concrete repairs. Acid-etching is not permitted.

3.2 PRE-DETAILING

A. Follow manufacturer's recommendations and the Drawings. In the event of a conflict, the more stringent requirement shall apply.

3.3 APPLICATION

A. Follow manufacturer's recommendations and the Drawings. In the event of a conflict, the more stringent requirement shall apply.

END OF SECTION