



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

December 29, 2022
Subject: Acadia Gateway
State WIN: 017163.03
Location: Trenton
Amendment No. 3

Dear Sir/Ms.:

Make the following changes to the bid documents:

In the bid Book:

Remove pages eighteen to twenty-nine titled Proposal Schedule of Items dated 11/8/2022 totaling twelve pages and **Replace** with the attached Proposal Schedule of Items dated 12/27/2022 totaling twelve pages

Remove page 114 titled SPECAIL PROVISION SECTION 609—CURB totaling one page and **Replace** with the attached SPECIAL PROVISION SECTION 609—CURB totaling one page

Insert site improvements dated 12/22/22 totaling fourteen pages

Remove in Volume 1 Table of contents totaling five pages dated January 17, 2022, and **Replace** with the attached Table of contents totaling five pages dated January 17, 2022

Remove in Volume 2 table of contents totaling three pages dated January 17, 2022, and **Replace** with the attached table of contest totaling three pages dated January 17, 2022

Remove section 06 20 13 titled EXTERIOR FINISH CARPENTRY totaling seven pages and **Replace** with the attached EXTERIOR FINISH CARPENTRY dated January 17, 2022, totaling seven pages

Remove section 08 14 16 FLUSH WOOD DOORS totaling eight pages dated and **Replace** with the attached FLUSH WOOD DOORS totaling eight pages

Remove section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC totaling twenty-seven pages and **Replace** with the attached INSTRUMENTATION AND CONTROL FOR HVAC

Remove section 32 14 00 titled UNIT PAVING totaling thirteen pages and **Replace** with the attached section 32 14 00 titled UNIT PAVING with the revised date of 12-22-22

Remove SPECIAL PROVISION SECTION 801 – SANITARY SEWER, pages one hundred twenty-one to one hundred twenty three totaling three pages and **Replace** with the attached SPECIAL PROVISION SECTION 801 – SANITARY SEWER totaling three pages with the revised date of 12/28/22

Insert HHE-2000 application totaling sixteen pages dated 12-21-22

In the plan sheets:

Remove page A802 titled DOOR AND LOVER SCHEDULE and **Replace** with the attached A802 DOOR AND LOVER SCHEDULE totaling one page

Remove page A804 titled DOOR DETAILS I totaling one page and **Replace** with the attached plan sheet A804 DOOR DETAILS I

Remove page C102 CIVIL SITE PLAN – EAST totaling one page and **Replace** with the attached C102 CIVIL SITE PLAN – EAST

Remove page C201 OVERAL UTILITY PLAN and **Replace** with the attached C201 OVERAL UTILITY PLAN totaling one page

Remove page C 203 UTILITY PLAN – WEST totaling one page and **Replace** with the attached C203 UTLITY PLAN – WEST totaling one page

Remove page C301 OVERALL GRADING PLAN totaling one page and **Replace** with the attached C301 OVERALL GRADING PLAN totaling one page

Remove page C302 GRADING PLAN – EAST totaling one page, and **Replace** with the attached C302 GRADING PLAN – EAST

Remove page C303 GRADING AND DRAINAGE PLAN – WEST and **Replace** with the attached C303 GRADING AND DRAINAGE PLAN – WEST

Remove PAGE C304 DRAINIAGE PLAN – EAST and **Replace** with the attached C304 DRAINAGEPLAN– EAST

Remove page C403 UTILITY DETAILS totaling one page and **Replace** with the attached C403 UTILITIY DETAILS totaling one page

Remove page C404 UTILITY DETAILS totaling one page and **Replace** with the attached C404 UTILITY DETAILS totaling one page

Remove page L101 titled PLAZA MATERIALS PLAN totaling one page and **Replace** with the attached L101 PLAZA MATERIALS PLAN

The following questions have been received:

Question: I am wondering if these seats are part of the bid package? I can't seem to find the furniture schedule for them. The layout below is on page 58 of the plans

Response: The Passenger Waiting Area seats tagged on Sheet A206 and included in Division 12 Specifications are part of the bid package. Power for the Waiting Area Furniture is shown on Drawing EP101.

Question: Further in the electrical package is says "power for future seating" on page 185 of the plans. So, does that mean the seats are not part of this package?

Response: The Passenger Waiting Area seats tagged on Sheet A206 and included in Division 12, as well as the associated power for the seats shown on Sheet EP101, are all part of the bid Package.

Question: we also offer waste and recycle units – do you know which ones have been spaced? Can you tell me where I can find the furniture schedule – division 12 only shows tops

Response: The waste and recycling containers shown on Drawing A206 are not in contract (N.I.C.). They are only shown for location purposes and will be provided by the owner.

Question: Door spec calls for 100% Pure FSC white Birch. We cannot get that in a door. Are there any alternates that are acceptable? Mixed credit Maple is possible

Response: Door Specification Section 081416 will be reissued in Amendment #3, changing the Pure FSC requirement to be FSC Mixed Credit White Birch instead.

Question: Please provide the appropriate 643 Traffic Signal bid items for the Equipment and Conduit Schedule work shown on Sheet C501.

Response: This was issued in Amendment #1.

Question: Due to the upcoming holiday and some vendors taking off the week between Christmas and New Year's, we respectfully request a two-week bid extension from January 4, 2023, to January 18, 2023. This should allow enough time to receive final pricing, review, and closeout the bid after the holidays.

Response: The bid opening has been moved out two weeks. The new bid opening date will be January 18th, 2023.

Question: Please provide the earthwork computations for reference.

Response: CAD File "1826-05-Z-pbase-GP" was uploaded to the bid site, which contains the information required for earthwork calculations.

Question: On drawing C102 & C103 the legend and the drawing show Sloped Granite curb. The schedule of items does not show any Sloped Granite. Can you please clarify how you would like us to proceed?

Response: An updated Section 609 has been provided as part of Amendment #3, which includes sloped curb being included within straight curbed items.

Question: Sheet C405 Grassed Underdrain Detail and Grassed Underdrain notes are conflicting on the makeup of the materials needed. Please clarify

Response: The filter will consist of 2 layers listed as items 1.A and 1.C in the soil specifications on sheet C405. The intent of item 1.B is to create a gradient between the two layers during construction such that the top 1" of the sand layer and bottom 1" of the topsoil layer are blended together. If this does not answer the question, please clarify discrepancies.

Question: Is the excavation which is required for the new building foundation paid for under bid item 203.20 Common Excavation or bid item 206.061 Structural Earth Exc-Drainage and Minor Structures?

Response: All excavation under the building footprint is part of the building lump sum. All excavation outside the limits of the building is paid for under Item 203.20 Common Excavation, Item 203.21 Rock Excavation, and Item 206.061 - Structural Earth Excavation - Drainage and Minor Structures. The quantity for 203.20 Common Excavation has been updated to 720CY as part of Amendment #3.

Question: Is the subbase gravel, the HMA base and HMA setting bed incidental to bid item 608.251 or paid under separate bid items?

Response: Subbase gravel is be paid for under item 304.10 Aggregate Subbase Course - Gravel, the HMA base is be paid for under item 403.213 Hot Mix Asphalt 12.5mm Base, and sand setting bed is to be incidental to item 608.251 - Precast Concrete Pavers.

Question: Flagpole Height- Section 107500 Good morning, please confirm the exposed height of the two flagpoles that are required.

Response: The flagpoles are specified at a height of 30ft, per section 32 30 00 2.2B:

Question: Please review Bid Item 801.12 Sewer force main 2.5 in, quantity and unit.

Response: Currently, approximately 1365 LF of force main exists on Gateway Center Drive. Approximately 1120 LF of additional 2.5" force main will be required to reach the leaching field based on the revised plans.

Question: Bid item 605.31 Underdrain Cleanout, quantity is 1 LS, we cannot determine the quantity of cleanouts from the drawings, please revise quantity required and units to EA

Response: Underdrain Cleanout (item 605.31) shall be paid for by Each. We carried 8 cleanouts for the stormwater systems and 0 for the parking lots.

Question: Detail 1/L301 calls for a "SAND SETTING BED" as well as a "BIT CONC SETTING BED". Which is the correct paver setting bed?

Response: The correct setting bed is 1" sand setting bed over a bit conc base. This is what is specified as well. Updated drawing L301 is included as part of Amendment #3.

Question: The connections show the steel on the center line of each truss member with the wood Sawn kerfed for the plates and all the bolts holes to be counter bored. Will wood plugs be required at all these counter bores?

Response: Yes, wood plugs are required at the counter bores.

Question: Response to a question in Amendment 001 states, "The project is done under the prevailing wage rates of the major scope of the project, in this case Heavy." Page 44 of the Bid Book shows General Decision Number: ME20210008 Construction Type: Building. Please clarify which wage decision to use.

Response: Please use the prevailing wage rates found on page 44 General Decision Number: ME20210008 Construction Type: Building.

Question: Drawing L101 calls for a "Turfstone Vehicle Turnaround" referring to detail 5/L301. This detail refers to the Bike Racks. I do not see another detail or specification for Turfstone. Please clarify.

Response: Drawing L101 has been updated as part of Amendment #3 to eliminate the turfstone. The vehicle turnaround will be bit conc.

Question: Can the bid be postponed two weeks to 1/18/22? Getting vendor pricing from the holiday break and finalizing a price will be difficult by January 4

Response: The bid opening has been moved out two weeks. The new bid opening date will be January 18th, 2023.

Question: Spec 23 21 23 hydronic pumps has a reinforce in paragraph 1, 07, c to spec 23 05048 for inertia bases. Are inertia bases required? If so can a spec be provided?

Response: Inertia bases are not required.

Question: Please confirm all Douglas Fir timber to be Select Structural vs. #1&btr. We can source Select Structural, but it comes with a cost increase.

Response: Douglas Fir timber should be Select Structural Douglas Fir.

Question: Under which bid item is excavation, backfill, and bedding underground electric conduit and light bases paid for?

Response: Excavation for underground electrical conduit and light bases shall be paid for under item 203.20 - Common Excavation. Select backfill shall be MDOT 703.22 Type B (as noted on sheet C402) and shall be paid for under item 203.29 - Selected Granular Material. Sand bedding shall be MDOT 703.22 Type C 3/4" Crushed Stone and shall be paid for under item 203.29 - Selected Granular Material. Light pole bases shall be included in the Division 26 lump sum. The quantity for 203.29 Selected Granular Material has been updated to 1,335CY as part of amendment #3.

Question: Should bid item 1010-Sewer force main 2.5 inch be a unit of EA or LF?

Response: The 2.5" force main shall be paid for under item 801.12 - 2.5" Force Main and shall be measured by the linear foot.

Question: I do not see a line item for concrete work other than Div. 3 which pertains to the building. Where should concrete pads (dumpster, generator, stone seating wall, trash receptacle, flagpole, bike rack) as well as concrete entrance apron be put?

Response: The concrete generator pad shall be paid for under item 502.50 - Concrete Generator Pad, added in amendment #3. The bike rack pads shall be incidental to item 621.951 - Bicycle Racks. Trash receptacle pads shall be incidental to item 641.34 - Trash Receptacle. Flagpole pads shall be incidental to item 641.35 - Aluminum Flagpole. The concrete dumpster pad and entrance aprons are detailed on the architectural and structural drawings and shall be paid for under the Division 3 lump sum. The stone seating wall shall be under item 525.19 – Granite Seating Blocks.

Question: Which bid item is the 12-inch UD under the river stone edge drain paid for in? and at what depth is that placed?

Response: The 12-inch under drain will be paid for under item 605.11 - 12 Inch Under drain Type C. The invert of the under drain shall be a minimum of 5 feet below finish grade as shown on the detail on sheet C402.

Question: Sheet C202 has a note block that states “all items within building area to be part of the building lump sum work”. Where in the specifications does it define the building area and what site work falls under that?

Response: Sheet C202 has been updated in Amendment #3 so that the note block states “NOTE: ALL ITEMS WITHIN BUILDING AREA SHALL BE PART OF THE BUILDING LUMP SUM WORK INCLUDING THE TWO FEET OF GRUBBING REQUIRED BY THE GEOTECHNICAL REPORT AND THE CUSHION FILL UNDER THE SLAB AND FOOTINGS. APPROVED EXCAVATION AND FILL BELOW THE SLAB AND FOOTING CUSHION FILL WHICH IS ALSO BELOW THE TWO FOOT GRUB DEPTH WILL BE PAID UNDER STRUCTURAL EXCAVATION, AND UNDER SELECTED GRANULAR MATERIAL, WHICH INCLUDES STRUCTURAL FILL, SPECIAL FILL, OR CRUSHED STONE, AS APPROVED BY THE SITE ENGINEER.”

Question: Bid item 0350-6-inch longitudinal underdrain is listed as 50 LF. According to the take off on the plans there is 627LF of 6” ud

Response: Bid item 0340 - 605.19 - 6-inch longitudinal underdrain take off will be updated in amendment #3 to be 630 LF.

Question: Is the pit-less adapter for the well previously installed or is it part of bid item 1040-Waterline 2 inch?

Response: The pit-less adapter shall be part of bid item 1040-Waterline 2 inch.

Question: Upon review of the Security Specification, it does not appear there is a Spec for the camera and access control systems that are shown on the prints. Can it be confirmed if there is a to be a known Specification for Cameras & Access Control systems for the project?

Response: Cameras and access control is by owner. Provide Category 6 for the cameras, power/boxes/conduit for doors where shown. All is shown on plans this way. See notes on legend/security system section E1/E000.

Question: If it is an open Spec could you please confirm if Hanwha, ExacqVision, & Kantech would be acceptable systems if proposed in our bid?

Response: See response above. Devices by owner. There is no spec for cameras or access control because it is not part of the Div. 26/27/28 scope.

Question: Where can the exterior lighting plan for the EV charging building be found?

Response: The EV building is shown on detail D4/EP100. There is no exterior building mounted lighting. The exterior is covered by the site/parking lot lighting.

Question: Doors. 103, 104, 109, 114, 118, 119, 120 – Door Schedule Calls for Wood Frames, but the details call for hollow metal. Please advise if wood or metal frames required

Response: Wood frames are required for these doors. Drawing A804 has been updated to include wood jamb and head details as part of Amendment #3.

Question: Doors 125B and 125C – Please confirm these should be Steel Frames by Hope (Door Schedule calls for Steel Doors x HM Frames)G

Response: Doors 125B and 125C should have steel frames. Drawing A802 - Door Schedule has been updated as part of Amendment #3.

Question: Please provide information regarding the existing bolt circle, bolt size, and number of bolts on the existing foundations that are to receive new mast poles at the entrance to the site.

Response: This information is to be verified in the field.

Question: Please provide clarification for both the Video Surveillance and Access Control systems. There are device locations listed on the plans, but nothing in the specs for either system. In the past we've found that the MDOT will provide and install their own gear. If so, this should be noted in the spec.

Response: Cameras and access control devices is by owner. See notes on legend for security section. Provide Category 6 for the cameras., provide power/boxes/conduit for doors where shown

Question: Please add pay items for 610.61, 610.62, and 610.63 Landscape Boulders as defined under the Site Improvements Pay Items under section 323000 4.03.

Response: The Schedule of Items has been revised as part of Amendment #3 to include pay items for 610.61, 610.62, and 610.63 Landscape Boulders.

Question: The paver edging products Type A and Type B under Specification Section 32 14 00 are both aluminum, however there are Payment Items for both Metal and Plastic Landscape Edging. Please clarify where 621.981 Plastic Landscape Edging is used.

Response: There is no plastic edging in the project. Both types of edge restraints are aluminum.

Question: Under which contract item is the removal of the existing concrete slabs and foundations within the work area to be paid?

Response: The removal of any existing concrete slabs or foundation would be incidental to item 203.20 - Common Excavation.

Question: Please confirm the "proposed well" as noted on the plans is actually existing. If so, provide information on the well depth so the size of the pump and length of pipe can be determined.

Response: The well is existing on site. The depth is 240 feet. Information on the well can be found online at the Maine Geological Survey.

Question: Drawing G001 Table of Contents shows a drawing L303 which seems to be missing from the set.

Response: Drawing G001 will be updated to remove sheet L303 from the sheet list as part of Amendment #3. There is no sheet L303.

Question: Spec section 062013 Exterior rough carpentry 1.4A mentions fire-treated materials but does not specify what materials need to be treated. Please explain what materials need to be fire treated lumber.

Response: Section 1.4.A in section 062013 has been removed as part of Amendment #3. There is no exterior rough carpentry that needs to be fire treated lumber.

Consider these changes and information prior to submitting your bid on **January 18, 2023**.

Sincerely,



George M. A. Macdougall P.E.
Contracts & Specifications Engineer

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	201.11 CLEARING	8.100 AC	_____	 _____	_____	 _____
0020	203.20 COMMON EXCAVATION	720.000 CY	_____	 _____	_____	 _____
0030	203.21 ROCK EXCAVATION	10.000 CY	_____	 _____	_____	 _____
0040	203.24 COMMON BORROW	5,737.000 CY	_____	 _____	_____	 _____
0050	203.25 GRANULAR BORROW	2,657.000 CY	_____	 _____	_____	 _____
0060	203.29 SELECTED GRANULAR MATERIAL	1,335.000 CY	_____	 _____	_____	 _____
0070	203.38 FILTER SAND	205.000 CY	_____	 _____	_____	 _____
0080	206.061 STRUCTURAL EARTH EXCAVATION - DRAINAGE AND MINOR STRUCTURES, BELOW GRADE	5,529.000 CY	_____	 _____	_____	 _____
0090	206.07 STRUCTURAL ROCK EXCAVATION - DRAINAGE AND MINOR STRUCTURES	10.000 CY	_____	 _____	_____	 _____
0100	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	9,360.000 CY	_____	 _____	_____	 _____
0110	304.14 AGGREGATE BASE COURSE - TYPE A	3,095.000 CY	_____	 _____	_____	 _____
0120	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	1,529.000 T	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0130	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	134.000 T	_____	 _____	_____	 _____
0140	403.213 HOT MIX ASPHALT 12.5 MM BASE	3,266.000 T	_____	 _____	_____	 _____
0150	409.15 BITUMINOUS TACK COAT - APPLIED	2,682.000 G	_____	 _____	_____	 _____
0160	419.30 SAW CUTTING BITUMINOUS PAVEMENT	525.000 LF	_____	 _____	_____	 _____
0170	525.19 GRANITE SEATING BLOCKS	37.000 EA	_____	 _____	_____	 _____
0180	603.142 10" CULV PIPE OPTION III	93.000 LF	_____	 _____	_____	 _____
0190	603.159 12 INCH CULVERT PIPE OPTION III	1,189.000 LF	_____	 _____	_____	 _____
0200	603.169 15 INCH CULVERT PIPE OPTION III	404.000 LF	_____	 _____	_____	 _____
0210	603.179 18 INCH CULVERT PIPE OPTION III	348.000 LF	_____	 _____	_____	 _____
0220	603.199 24 INCH CULVERT PIPE OPTION III	200.000 LF	_____	 _____	_____	 _____
0230	603.801 24" TRASH RACK	2.000 EA	_____	 _____	_____	 _____
0240	604.077 72 INCH CATCH BASIN TYPE A1-C	1.000 EA	_____	 _____	_____	 _____
0250	604.131 4' DIAMETER CATCH BASIN	12.000 EA	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0260	604.15 MANHOLE	8.000 EA	_____	 _____	_____	 _____
0270	604.154 72 INCH MANHOLE	1.000 EA	_____	 _____	_____	 _____
0280	604.1542 72 INCH OUTLET CONTROL STRUCTURE	2.000 EA	_____	 _____	_____	 _____
0290	604.24 CATCH BASIN TYPE F	16.000 EA	_____	 _____	_____	 _____
0300	605.081 4" LINER UNDERDRAIN	386.000 LF	_____	 _____	_____	 _____
0310	605.082 4" FOUNDATION DRAIN	1,000.000 LF	_____	 _____	_____	 _____
0320	605.091 6" WET POND UNDERDRAIN	32.000 LF	_____	 _____	_____	 _____
0330	605.109 10" UNDERDRAIN TYPE C	505.000 LF	_____	 _____	_____	 _____
0340	605.11 12 INCH UNDERDRAIN TYPE C	465.000 LF	_____	 _____	_____	 _____
0350	605.12 15 INCH UNDERDRAIN TYPE C	127.000 LF	_____	 _____	_____	 _____
0360	605.19 6 INCH LONGITUDINAL UNDERDRAIN	630.000 LF	_____	 _____	_____	 _____
0370	605.31 UNDERDRAIN CLEANOUT	8.000 EA	_____	 _____	_____	 _____
0380	608.251 PRECAST CONCRETE PAVERS	3,000.000 SY	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0390	608.26 CURB RAMP DETECTABLE WARNING FIELD	308.000 SF	_____	_____	_____	_____
0400	609.11 VERTICAL CURB TYPE 1	2,229.000 LF	_____	_____	_____	_____
0410	609.12 VERTICAL CURB TYPE 1 - CIRCULAR	1,268.000 LF	_____	_____	_____	_____
0420	609.26 CURB TRANSITION SECTION B TYPE 1	100.000 EA	_____	_____	_____	_____
0430	610.08 PLAIN RIPRAP	20.000 CY	_____	_____	_____	_____
0440	610.21 RIVER STONES	27.000 CY	_____	_____	_____	_____
0450	610.61 NATURAL BOULDER TYPE A 36"X36" - 42"X42"	26.000 EA	_____	_____	_____	_____
0460	610.61 NATURAL BOULDER TYPE B 24"X24" - 36"X36"	33.000 EA	_____	_____	_____	_____
0470	610.61 NATURAL BOULDER TYPE C 18"X18" - 24"X24"	24.000 EA	_____	_____	_____	_____
0480	615.20 UNCOMPACTED SOIL FILTER MEDIUM	100.000 CY	_____	_____	_____	_____
0490	616.09 RHODORA SODDING	60.000 SY	_____	_____	_____	_____
0500	616.10 HUCKLEBERRY SODDING	160.000 SY	_____	_____	_____	_____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0510	616.11 HAY-SCENTED FERN SODDING	340.000 SY	_____	 _____	_____	 _____
0520	617.33 SUPERHUMUS TOPSOIL	2,292.000 CY	_____	 _____	_____	 _____
0530	618.147 WETLAND SEEDING	4.000 UN	_____	 _____	_____	 _____
0540	618.149 SPECIAL SEED MIX LAWN	7.000 UN	_____	 _____	_____	 _____
0550	618.20 ANNUAL RYE GRASS SEED	200.000 LB	_____	 _____	_____	 _____
0560	618.27 MEADOW SEEDING MEADOW	21.000 UN	_____	 _____	_____	 _____
0570	618.29 RETENTION POND SEEDING	2.000 UN	_____	 _____	_____	 _____
0580	621.037 EVERGREEN TREES (5 FOOT - 6 FOOT) GROUP A	6.000 EA	_____	 _____	_____	 _____
0590	621.043 EVERGREEN TREES (6 FOOT - 8 FOOT) GROUP A	43.000 EA	_____	 _____	_____	 _____
0600	621.046 EVERGREEN TR (8' - 10') GP A	33.000 EA	_____	 _____	_____	 _____
0610	621.052 EVERGREEN TREES (10 FOOT - 12 FOOT) GROUP A	32.000 EA	_____	 _____	_____	 _____
0620	621.201 MEDIUM DECIDUOUS TREE (2 INCH - 2.50 INCH CALIPER) GROUP A	5.000 EA	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0630	621.255 LARGE DECIDUOUS TREES (8 FOOT - 10 FOOT) GROUP A	21.000 EA	_____	 _____	_____	 _____
0640	621.263 LARGE DECIDUOUS TREES (10 FOOT - 12 FOOT) GROUP C	33.000 EA	_____	 _____	_____	 _____
0650	621.2641 MULTISTEM DECIDUOUS TREE (RIVER BIRCH) GROUP A	24.000 EA	_____	 _____	_____	 _____
0660	621.273 LARGE DECIDUOUS TREE (2 INCH - 2.50 INCH CALIPER) GROUP A	30.000 EA	_____	 _____	_____	 _____
0670	621.274 LARGE DECIDUOUS TREE (2 INCH - 2.50 INCH CALIPER) GROUP B	13.000 EA	_____	 _____	_____	 _____
0680	621.279 LARGE DECIDUOUS TREE (2.50 INCH - 3 INCH CALIPER) GROUP A	10.000 EA	_____	 _____	_____	 _____
0690	621.285 LARGE DECIDUOUS TREE (3 INCH - 3.50 INCH CALIPER) GROUP A	39.000 EA	_____	 _____	_____	 _____
0700	621.291 LARGE DECIDUOUS TREE (3.50 INCH - 4 INCH CALIPER) GROUP A	3.000 EA	_____	 _____	_____	 _____
0710	621.292 LARGE DECIDUOUS TREE (3.50 INCH - 4 INCH CALIPER) GROUP B	1.000 EA	_____	 _____	_____	 _____
0720	621.391 EVERGREENS (15 INCH - 18 INCH) GROUP C	204.000 EA	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0730	621.50 BROADLEAF EVERGREEN (2.50 FOOT - 3 FOOT) GROUP C	3.000 EA	_____	 _____	_____	 _____
0740	621.525 BAYBERRY (2 FOOT - 3 FOOT)	64.000 EA	_____	 _____	_____	 _____
0750	621.542 DECIDUOUS SHRUBS (18 INCH - 24 INCH) GROUP C	3.000 EA	_____	 _____	_____	 _____
0760	621.546 DECIDUOUS SHRUBS (2 FOOT - 3 FOOT) GROUP A	450.000 EA	_____	 _____	_____	 _____
0770	621.547 DECIDUOUS SHRUBS (2 FOOT - 3 FOOT) GROUP B	336.000 EA	_____	 _____	_____	 _____
0780	621.548 DECIDUOUS SHRUBS (2 FOOT - 3 FOOT) GROUP C	13.000 EA	_____	 _____	_____	 _____
0790	621.552 DECIDUOUS SHRUBS (3 FOOT - 4 FOOT) GROUP A	4.000 EA	_____	 _____	_____	 _____
0800	621.553 DECIDUOUS SHRUBS (3 FOOT - 4 FOOT) GROUP B	3.000 EA	_____	 _____	_____	 _____
0810	621.554 DECIDUOUS SHRUBS (3 FOOT - 4 FOOT) GROUP C	6.000 EA	_____	 _____	_____	 _____
0820	621.558 DECIDUOUS SHRUBS (4 FOOT - 5 FOOT) GROUP A	11.000 EA	_____	 _____	_____	 _____
0830	621.662 VINES (18 INCH - 24 INCH) GROUP C	4.000 EA	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0840	621.711 HERBACEOUS PERENNIALS GROUP B	200.000 EA	_____	 _____	_____	 _____
0850	621.98 METAL LANDSCAPE EDGING	813.000 LF	_____	 _____	_____	 _____
0860	621.981 PLASTIC LANDSCAPE EDGING	1,146.000 LF	_____	 _____	_____	 _____
0870	625.23 IRRIGATION SYSTEM	LUMP SUM	LUMP SUM		_____	 _____
0880	627.18 12 " SOLID WHITE PAVEMENT MARKING	160.000 LF	_____	 _____	_____	 _____
0890	627.71 4 INCH WHITE PAVEMENT MARKING LINE	2,792.000 LF	_____	 _____	_____	 _____
0900	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	9,070.000 SF	_____	 _____	_____	 _____
0910	634.228 CONCRETE TRANSFORMER PAD GENERATOR PAD	2.000 EA	_____	 _____	_____	 _____
0920	639.18 FIELD OFFICE TYPE A	1.000 EA	_____	 _____	_____	 _____
0930	641.34 TRASH RECEPTACLE	4.000 EA	_____	 _____	_____	 _____
0940	641.35 ALUMINUM FLAG POLE	2.000 EA	_____	 _____	_____	 _____
0950	643.60 FLASHING BEACON AT: Gateway Drive / Bar harbor Road	LUMP SUM	LUMP SUM		_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0960	652.312 TYPE III BARRICADE	10.000 EA	_____	 _____	_____	 _____
0970	652.33 DRUM	25.000 EA	_____	 _____	_____	 _____
0980	652.34 CONE	100.000 EA	_____	 _____	_____	 _____
0990	652.35 CONSTRUCTION SIGNS	500.000 SF	_____	 _____	_____	 _____
1000	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP SUM	LUMP SUM		_____	 _____
1010	652.38 FLAGGER	1,000.000 HR	_____	 _____	_____	 _____
1020	656.71 LEVEL LIP SPREADER	86.000 CY	_____	 _____	_____	 _____
1030	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	LUMP SUM		_____	 _____
1040	659.10 MOBILIZATION	LUMP SUM	LUMP SUM		_____	 _____
1050	801.014 PUMP STATION 8 FOOT DIAMETER	1.000 EA	_____	 _____	_____	 _____
1060	801.121 SEWER FORCE MAIN 2.5 INCH	1,120.000 LF	_____	 _____	_____	 _____
1070	801.17 8 INCH PVC SANITARY SEWER (SDR-35)	100.000 LF	_____	 _____	_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1080	802.103 WATERLINE 2 INCH	LUMP SUM		LUMP SUM		
1090	802.20 SEPTIC TANKS 20,000 GALLON	2.000 EA				
1100	802.20 SEPTIC TANKS 10,000 GALLON	1.000 EA				
1110	802.23 SUBSURFACE WASTEWATER DISPOSAL SYSTEM	LUMP SUM		LUMP SUM		
1120	803.01 TEST PITS	3.000 EA				
1130	803.173 SEWER MANHOLE - 4 FOOT DIAMETER	4.000 EA				
1140	803.173 SEWER MANHOLE - 4 FOOT DIAMETER CLEANOUT	3.000 EA				
1150	822.301 PRE-INSULATED DUCTILE IRON PIPE	5.000 LF				
1160	823.33 6 INCH GATE VALVE WITH BOX	1.000 EA				
1170	823.3351 4 INCH GATE VALVE AND BOX	1.000 EA				
1180	824.50 FIRE SUPPRESSION TANK	LUMP SUM		LUMP SUM		
1190	834.323 DRY HYDRANT	LUMP SUM		LUMP SUM		

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1200	841.48 BOLLARDS	3.000 EA	_____	 _____	_____	 _____
1210	890.07 BIKE RACKS	20.000 EA	_____	 _____	_____	 _____
1220	910.30 SPECIAL WORK 20,000 GAL OXYPRO UNIT	8.000 EA	_____	 _____	_____	 _____
1230	DIV. 1 GENERAL REQUIREMENTS	LUMP SUM	LUMP SUM		_____	 _____
1240	DIV. 10 SPECIALTIES MISC SPECIALITIES	LUMP SUM	LUMP SUM		_____	 _____
1250	DIV. 12 FURNISHINGS	LUMP SUM	LUMP SUM		_____	 _____
1260	DIV. 21 FIRE SUPPRESSION	LUMP SUM	LUMP SUM		_____	 _____
1270	DIV. 22 PLUMBING	LUMP SUM	LUMP SUM		_____	 _____
1280	DIV. 23 HVAC	LUMP SUM	LUMP SUM		_____	 _____
1290	DIV. 26 ELECTRICAL	LUMP SUM	LUMP SUM		_____	 _____
1300	DIV. 3 CONCRETE	LUMP SUM	LUMP SUM		_____	 _____
1310	DIV. 4 MASONRY	LUMP SUM	LUMP SUM		_____	 _____
1320	DIV. 5 METALS	LUMP SUM	LUMP SUM		_____	 _____

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 017163.03

Project(s): 017163.03

SECTION: 1 INITIAL GROUP

Alt Set ID:

Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1330	DIV. 6 WOOD & PLASTICS	LUMP SUM	LUMP	SUM	_____	_____
1340	DIV. 7 THERMAL & MOISTURE PROTECTION	LUMP SUM	LUMP	SUM	_____	_____
1350	DIV. 8 DOORS & WINDOWS	LUMP SUM	LUMP	SUM	_____	_____
1360	DIV. 9 FINISHES	LUMP SUM	LUMP	SUM	_____	_____
Section: 1			Total:		_____	_____
			Total Bid:		_____	_____

**SPECIAL PROVISION
SECTION 609 – CURB**

The provisions of Section 609 of the “State of Maine, Department of Transportation, Standard Specifications, Revision of March 2020” shall apply with the following additions and modifications:

609.10 Basis of Payment

The accepted quantity of new curb will be paid for at the contract unit price, per linear foot, complete in place. This price shall include the cost of excavation, curb backing, gravel, concrete (3,000 psi), cutting to specific lengths/terminal ends, and all labor, materials and equipment necessary to satisfactorily complete the work.

The accepted quantity of Bollard will be paid for at the contract unit price per each complete in place. Payment shall include Bollard, concrete, excavation, backfilling, and any additional appurtenances installed per the detail within the plan set.

Sloped granite curb shall be MaineDOT Type 5 curb and will be paid for under item 609.11. Circular type 5 curb will be paid for under item 609.12. Terminal curbs will be paid for under item 609.11.

<u>Pay Item</u>	Payment will be made under:	<u>Pay Unit</u>
609.11	Vertical Curb Type 1	Linear Foot
609.12	Vertical Curb Type 1 Circular	Linear Foot
609.26	Curb Transition Section B Type 1	Each
841.48	Bollard	Each

SECTION 32 30 00
SITE IMPROVEMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Bicycle Rack
2. Trash Receptacle
3. Granite Seat Walls
4. Landscape Boulders
5. Drip Strip
6. Flag Poles

B. Related Sections:

1. Division 03 Section 03 30 00 Cast-In-Place Concrete
2. Division 05 Section 05 50 00 Metal Fabrications
3. Division 06 Section 06 20 13 Exterior Finish Carpentry
4. Division 31 Section 31 23 16 Excavation
5. Division 31 Section 31 23 23 Fill
6. Division 32 Section 32 12 16 Asphalt Paving
7. Division 32 Section 32 14 00 Unit Pavers
8. Division 32 Section 32 14 43 Porous Unit Pavers
9. Division 32 Section 32 16 00 Curbing
10. Division 32 Section 32 84 00 Irrigation System
11. Division 32 Section 32 92 00 Lawn Turf Grass
12. Division 32 Section 32 93 00 Planting
13. Division 32 Section 32 94 00 Topsoil

1.3 EXAMINATION OF SITE AND DOCUMENTS

- A. The Contractor is responsible for judging extent of work requirements involved. By submitting a bid, Contractor affirms they have carefully examined the site and conditions affecting the Work.

1.4 PERMITS AND CODES

- A. Work to conform to Contract Documents and comply with applicable codes and regulations.
- B. Comply with rules, regulations, laws and ordinances of the Town of Trenton, State of Maine and all other authorities having jurisdiction.
- C. Arrange for and obtain permits and licenses required to complete the Work. Fees not waived to be paid by the Contractor.
- D. Do not close or obstruct streets, sidewalks, alleys or passageways without prior notification and permission. Conduct operations to minimize interference with use of roads, driveways, alleys, sidewalks, or other facilities near enough to the Work to be affected.

1.5 DEFINITIONS

- A. Steel Pipe:
 - 1. ASTM A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc coated, Welded and Seamless.
 - 2. ASTM A312 Standard Specification for Seamless and Welded Stainless Steel Pipes.
 - 3. ASME SA 312 Standard Specification for Seamless and Welded Stainless Steel Pipes.
- B. Hot-Dipped Galvanized Finish:
 - 1. ASTM A123 Standard Specification for Zinc (Hot-Dipped Galvanized) Coating on Iron and Steel Products.

1.6 PERFORMANCE REQUIREMENTS

- A. General Performance: Granite Seat Blocks Bicycle Racks and Trash Receptacles shall withstand average use (where applicable) without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Granite Seat Blocks, Bicycle Racks and Trash Receptacles: Comply with performance requirements specified, as determined by testing assemblies representing those indicated for this Project.
- B. Structural Performance: Granite Seat Blocks, Bicycle Racks and Trash Receptacles shall withstand the effects of gravity loads and stresses under conditions indicated according to SEI/ASCE 7.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change (Range): 120 deg F to -30 deg F ambient; material surfaces.

1.7 SUBMITTALS

- A. Product Certificates: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for Bicycle Racks, Trash Receptacles and Flag Poles
- B. Shop Drawings: For Granite Seat Wall. Include plans, elevations, sections, details, and attachments to other work. Check dimensions shown on Drawings. Field verify by accurate field measurements before shop drawing preparation and submittal. Coordinate installation tolerances to ensure proper fit of items.
 1. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection. Include all fasteners and required hardware including mounting and footing diagrams, reinforcement drawn to scale on which the items listed herein are coordinated with each other using input from installers of the items involved. Granite shop Drawings to show granite seat blocks with dimensions and identifying number of each piece of granite. Shop drawings to show layout from field measurements, detailing, finishes, pinning, jointing, concrete bases, reinforcement and foundations. Do not fabricate granite units until the shop drawings for that part of the work have been approved in writing by the Owners Representative.
- C. Samples: For each exposed product and for each color and texture specified, submit samples for review and written approval. Do not order materials until a written approval is received from the Owners Representative.
- D. Samples: For each item indicated, with each type of exposed finish required, samples of size indicated below:
 2. Granite Seat Block: 12 inch by 12 inch by ½ inch thick sample, 3 each.
 3. Bicycle Rack: 4 inch by 4 inch sample, 3 each with finishes as specified herein.
 4. Flag Poles: 4 inch by 4 inch sample, 3 each with finishes as shown on the Drawings and as specified herein.
 5. Trash Receptacles: 4 inch by 4 inch sample, 3 each with finishes as shown on the Drawings and as specified herein. Provide one 12" long Cedar wood sample for wood siding.
 6. Landscape Boulders: Submit a source location and photographs of (3) sample Landscape Boulders to the Maine DOT landscape architect for approval. The landscape architect shall be available at the request of the contractor to inspect and approve Landscape Boulders.
- E. Qualification Data: All materials, components and assemblages provided and completed in accordance with this Section to be installed by workers experienced in this type of work.
- F. Product Certificates: For approved Bicycle Rack, Flag Poles and Trash Receptacles from the manufacturer.

- G. Maintenance Data: For Bicycle Racks, Flag Poles and Trash Receptacles: Include recommended methods for repairing damage to powder coat finish.
- H. Warranty: Sample of special warranty.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide material and components, assemblages and associated accessories new, complete and in original packaging.
- B. Installer Qualifications: Have a thorough knowledge and understanding of the assembly and installation of specified items. Granite Seat Blocks: fabrication and installation to be executed by a company which has successfully fabricated work of similar quality, schedule requirements, and quantity shown.
- C. Bicycle Racks, Flag Poles and Trash Receptacles: Comply with published recommendations of the manufacturers and UL unless more stringent requirements are indicated.
- D. Construction tolerances for exposed surfaces of installed granite:
 - 1. Variation from Plumb: lines and surfaces, do not exceed one-half inch (1/2") in ten feet (10').

1.9 DELEVERY HANDLING AND STORAGE

- A. General:
 - 1. Contractor: Check the materials upon delivery to assure the proper materials have been received and are not damaged in any way.
 - 2. Contractor: Protect materials from damage until installation is complete. If materials are damaged while being stored on site, replace those items at no cost to the Owner. Store components in secured area that prohibits theft or damage by vandals and store all materials off the ground to provide protection against oxidation or other damage caused by ground contact.
 - 3. Handle materials to prevent chipping, breakage, soiling or other damage. Do not use pinch or wrecking bars without protecting edges with wood or other rigid materials. Lift with wide-belt type slings or vacuum lifts wherever possible; do not use wire rope or ropes containing tar or other substances which might cause staining. If required, use wood rollers and provide cushion at end of wood slides.
 - 4. Store materials on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids to distribute weight evenly and to prevent breakage. Protect stored materials from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around materials.
- B. Delivery and Storage of Bicycle Racks: Deliver materials in undamaged condition. Store components in secured area that prohibits theft or damage by vandals and store all materials off the ground to provide protection against oxidation or other damage caused by ground contact. Store in an enclosed space free from weather as approved by the Owners Representative.

1.10 PROJECT CONDITIONS

- A. Do not install items that are wet, moisture damaged, or mold damaged.
- B. Environmental Limitations: Proceed with installation only when existing and forecasted weather conditions permit or as approved by the Owners Representative.
- C. Protect granite and masonry work against freezing when ambient temperature is 37 degrees F and falling. Heat materials and provide temporary protection. Comply with "Construction and Protection Recommendations for Cold Weather Masonry Construction" of the Technical Notes on Brick and Tile Construction by the Brick Institute of America, latest edition.
- D. Do not use frozen materials or materials mixed or coated with ice or frost. Do not use salt to thaw ice in anchor holes or slots. Do not lower freezing point of mortar by use of admixtures or antifreeze agents, and do not use calcium chloride in mortar or grout.
- E. Do not build on frozen work; remove and replace granite damaged by frost or freezing.
- F. Protect partially completed work against weather when work is not in progress
- G. Fabrication and installation to be performed according to manufacturer's written instructions and warranty requirements.

1.11 PROJECT CONDITIONS

- H. Coordinate work with that of other trades affecting or affected by the Work of this Section and cooperate with such trades to assure the steady progress of the Work.

1.10 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair to the satisfaction of the Owner, or replace components of the Bicycle Racks that fail(s) in materials or workmanship within specified warranty period.
 - 1. Failures include but are not limited to the following:
 - a. Scratches to the finish, dents et al.
 - b. Broken or bent hardware/fasteners et al.
 - 2. Warranty Period for Bicycle Racks, Trash Receptacles, and Flagpoles: 5 years from date of acceptance or final punch-out by the Owner.

PART 2 - PRODUCTS

2.1 BICYCLE RACK

A. Acceptable Manufacturers:

1. Westport No Scratch Inverted U stainless steel bicycle racks as manufactured by Sportworks Northwest, Inc., 15540 Woodinville-Redmond Rd. NE, Bldg. A-200, Woodinville, WA (425) 483-7000, www.sportworks.com or approved equal by the Owners Representative for a below grade mounting as shown on the Drawings with the following salient characteristics: All metal parts to be 316 Stainless Steel, Outer tube: 2x1x0.120 rectangular tubing, Inner bar: 0.25 x 2 flat bar, and Soft Pad to consist of Santoprene TPF with a constant temperature range from -81F to +275F with no cracking or tackiness.
2. Solid Bike Parking as manufactured by Streetlife America, Philadelphia, PA usa@streetlife.com (215) 247 0148 or approved equal by the Owners representative for a below grade mounting as shown on the Drawings with the following salient characteristics: Top member to be FSC certified hardwood, metal supports to be powder coated steel, color back. Height and spacing per manufacturers recommendations. Mounting: below grade installation as shown on the Drawings.

B. Finish: Medium bead blast satin to match Owner Representative's approved samples.

C. Comply with NAAM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.2 FLAG POLES

B. Flagpoles to meet the following salient characteristics: 30' Ht. by 5" by .156" Aluminum internal halyard flagpole to consist of seamless 6063-T6 aluminum tubing with uniform conical taper with sanded satin ground finish. Top of flagpole to have gold anodized 14 gauge aluminum ball on a threaded mounting system. Truck assembly to have internal pulley and 26 stainless steel ball bearings. Halyard to consist of 1/16 nylon rope with two brass snap hooks including a 3.5 lb. coated counterweight, beaded nylon retainer ring over stainless steel cable and stainless steel quick link. Internal cleat to have internal spring action cam-cleat mounted inside the pole secured behind a reinforced cast aluminum locking access door. Flagpole to have a LED light on the top of the flagpole aimed down on to the flag.

C. Collar: fc-11 Flash collar. Color to match Flagpole and sized to be 1" larger than foundation sleeve.

D. Foundation Sleeve: 16 Ga. Hot dipped galvanized steel tubing welded to a square metal base plate welded to a 3/4" diameter grounding spike all as shown on the Drawings.

2.3 TRASH RECEPTACLES AND RECYCLE BINS

A. Acceptable Manufacturers:

1. HB2G-UPX Brown with Cedar Wood Siding BearSaver ADA Compliant Hid-A-Bag Double Trash/Recycling Enclosure Forest Green Color with Cedar Wood Siding as

manufactured by BearSaver, Ontario, CA, 91761, 1-(800) 851-3887, www.bearsaver.com or approved equal with the following salient characteristics: Frame made of Corrosion Proof Commercial grade Steel and finished using textured powder coat finish to a minimum of 7-15 Mil thickness. Covering to consist of Cedar wood, and galvanized metal hardware and stainless steel hinge pins. Unit to be 48 inches high by 48 inches wide by 42 inches long.

2. BPLR2 Double Unit Trash/Recycling Enclosure 30 gallon capacity Forest Green Color with Cedar Wood Siding as manufactured by Belson Outdoors, 111 North River Road, North Aurora, IL 60542 1-(800) 323-5664, e-mail: sales@belson.com, or approved equal with the following salient characteristics: Frame made of Corrosion Proof Commercial grade Steel and finished using textured powder coat finish to a minimum of 7-15 Mil thickness. Covering to consist of Cedar wood, and galvanized metal hardware and stainless steel hinge pins. Unit to be 48 inches long by 26 inches wide by 48 inches high.

2.4 GRANITE SEAT WALLS

- A. Granite for seat blocks: Maine native close grained gray granite with white and black fleck color characteristics free of cracks, seams, or stains which may impair its structural integrity or function and match approved samples including texture, finish and range. Granite to be hard and durable, of uniform or similar color, grain, size and character and show no evidence of rust or iron particles. Test samples to conform to requirements of ASTM C615.
- B. Granite Finishes:
 1. Top Surface Finish: Thermal finish. Ease all edges.
 2. Exposed Vertical and Side Face Finish: Rock face with a maximum relief of 1" unless otherwise indicated Drill marks are not acceptable on exposed surfaces.
 3. Jointing faces for blocks to be joined: Sawn with light sandblasted finish, tight joints as shown and dimensioned on the Drawings. Ease all exposed edges as shown on the Drawings.
 4. Granite Seat Blocks: Saw cut sides 3 1/2 inches from bottom on sides facing pavers and flame finished as shown on the Drawings to accept butting unit pavers.
- C. Granite: comply with requirements of National Building Granite Quarries Association (NBGQU) for tolerances color, and finish qualities, unless amended herein.
- D. Provide continuous blocks of stone to allow for fabrication of continuous matching units. Mark matched units to provide continuous-sequence installation.
- E. Certification of Specified Physical Characteristics of Stone:
 1. Stone materials to have characteristics and physical requirements defined by ASTM C119 and C615, and possess physical characteristics (Table 1) specified under C615, in accordance with ASTM test references:

- a. Abrasion resistance of stone subject to foot traffic: ASTM C241.
 - b. Absorption of natural building stone: ASTM C97.
 - c. Compressive strength of natural building stone: ASTM C170.
 - d. Modulus of rupture of natural building stone: ASTM C99.
2. Certificates furnished by Contractor to be from stone supplier, attesting specified stone meets required physical characteristics. Certification based on independent testing laboratory tests made within last ten years. Submit six copies.
- F. Granite to conform to following minimal requirements:
1. Abrasion: 70.0 Ha.
 2. Absorption: 0.4% (average)
 3. Compressive strength: 19,000 psi (average)
 4. Modulus of rupture: 1,500 psi (average)
- G. The cross-sectional dimensions shall not exceed by minus 1/4" nor plus 1/4" the dimensions indicated on Drawings.
- H. Fabricate recess and setting holes in granite.
- I. Mortar Materials:
1. Portland Cement: ASTM C150, and complying with ASTM C91 - staining requirements for not more than 0.03% water soluble alkali. Use Type I generally; Type III to be used for setting stonework during cold weather.
 2. Hydrated Lime: ASTM C207, Type S.
 3. Sand: Clean, washed, uniformly well-graded masonry sand conforming to the requirements of ASTM Spec C144.
 4. Water: Potable.
 5. Pigment: Pigment for pointing stonework to be manufactured by Medusa, Flamingo, or approved equal by the Contract Officer. Color to be selected by Contractor and approved by the Contracting Officer. Pigments to be suitably compounded for use in mortar mix in accordance with manufacturer's recommendations. Do not exceed pigment to cement ratio (by weight) of 1 to 7.
 6. Non-Shrinking Waterproof Grout: "Super Por-Rok" supplied by Waldo Brothers,

Roslindale, MA or approved equal by the Contacting Officer. Grout to meet the following salient characteristics: A non-shrink, non-metallic hydraulic cement in a ready to use formulation suitable for setting dowels into granite for exterior applications, with a flexural strength of 1260 psi, tensile strength of 4500 psi, and a weight after final set not to exceed 129 lb/ft³, and be able to provide a minimum of 7000 psi strength.

7. Mortar mix for setting and pointing stone masonry to conform to requirements for Type S Mortar in accordance with ASTM C270. Minimum compressive strength after twenty-eight (28) days to be 2,000 psi. Water absorption to be 4% maximum. Bond strength to be 500 psi minimum.

J. Setting Materials:

1. Stone Anchors: Provide type and size of Stainless Steel dowels as shown on the Drawings. Secure with approved grout as specified herein.

K. Granite Cleaning Materials: Acceptable materials include mild soap and water, and suitable products manufactured for the purpose of cleaning granite with stiff fiber brushes. Wire brushes and caustic cleaners are unacceptable.

L. Concrete footing and base to be as detailed on Drawings and specified under Division 03, Section 03 30 00 – Cast-in-place concrete.

M. Steel reinforcing for concrete footing and base as shown on the Drawings and as specified under Division 03, Section 03 30 00 Cast-in-place-concrete.

N. Gravel Borrow for sub-base and backfill: As detailed on Drawings and specified in Division 31 Section 31 23 23 Fill.

2.4 LANDSCAPE BOULDERS

A. Landscape Boulders: Landscape Boulders shall be non-angular, natural looking, weathered and gray in color with and follow the following schedule for sizing:

<u>Symbol</u>	<u>Size Range</u>	<u>Quantity</u>
A	36"X36" - 42"X42"	26
B	24"X24" - 36"X36"	33
C	18"X18" - 24"X24"	24

2.5 RIVER STONE FOR DRIP EDGE

A. River stone for drip edge: Consist of rounded washed stone ranging in size from 3 inch dia. to 6 inch dia. Install stone as shown on the Drawings.

B. Gravel Borrow for backfill: As detailed on Drawings and specified in Division 31 Section 31 23 23 Fill.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions with Installer present, for compliance with requirements for installation tolerances, obstructions and other conditions affecting performance of the Work. For any installations requiring excavations, contact 'Dig Safe' at 1-(800)-342-2721 or the local representative.
- B. Examine Bicycle Racks before installation. Reject items that are moisture damaged, scratched, dented or mold damaged.

3.2 PREPARATION

- A. Verify dimensions and field measurements to ensure items are located and secured and function properly when installed. Details of proposed departures due to field conditions or other causes to be submitted to the Contacting Officer for approval.
- B. Contractor/Installer: Thoroughly examine the site, Drawings and Specifications before starting the Work.
- C. All masonry work shall be laid by skilled workmen under adequate supervision, and shall be laid true to lines and levels with joints of approved thickness, all surfaces true, and corners straight and plumb.
- D. Examine all Drawings as to requirements for the accommodation of work of other trades and Contractors and provide all required recesses, chases, slots, cutouts and built-ins, placement of anchors, bolts, sleeves and other items occurring in the masonry work. Take every precaution to minimize future cutting and patching.
- E. Lay no granite in temperatures below 38 degrees F. and falling without the expressed approval of the Owner. Anti-freeze admixtures are not permitted. Any completed work found to be affected by freezing will be taken down and rebuilt.
- F. Cut all exposed masonry units with a motor-driven carborundum saw to insure straight, evenly cut edges.
- G. Shipping and Handling: Carefully pack finished granite to prevent damage in transit. No material which may cause staining may be used for blocking.
- H. Contractor: Verify fit and finish of granite pieces prior to setting. Details of proposed departures due to field conditions or other causes to be submitted to the Owners Representative for written approval prior to fabrication and/or installation.

3.3 BICYCLE RACKS

- A. Installer must thoroughly examine the site and specifications, carefully checking the dimensions before starting the work. All instructions are subject to equipment manufacturers' installation

specifications. Notify the Owners Representative if unacceptable conditions are encountered and do not install until conditions are corrected to the satisfaction of the Owners Representative.

- B. Handle and install bicycle racks in accordance with manufacturer's recommendations and installation instructions.
- C. Set bicycle racks level and true to line in correct relationship to adjacent materials as shown on the Drawings. Adjust as required.
- D. Comply with requirements for concrete based as specified in Division 03 Section 03 30 00 Cast-in-Place Concrete.
- E. Comply with requirements for Fill as specified in Division 31 Section 31 23 23 Fill.

3.4 TRASH RECEPTACLE

- A. Installer must thoroughly examine the site and specifications, carefully checking the dimensions before starting the work. All instructions are subject to equipment manufacturers' installation specifications. Notify the Owners Representative if unacceptable conditions are encountered and do not install until conditions are corrected to the satisfaction of the Owners Representative.
- B. Handle and install trash receptacles in accordance with manufacturer's recommendations and installation instructions.
- C. Set trash receptacles level and true to line in correct relationship to adjacent materials as shown on the Drawings. Adjust as required.
- D. Comply with requirements for concrete based as specified in Division 03 Section 03 30 00 Cast-in-Place Concrete.
- E. Comply with requirements for Borrow as specified in Division 31 Section 31 23 23 Fill.

3.5 FLAGPOLES

- A. Install flagpoles at the locations shown on the Drawings and as specified herein. Set poles level and true. Adjust as required.
- B. Comply with requirements for concrete based as specified in Division 03 Section 03 30 00 Cast-in-Place Concrete.
- C. Comply with requirements for Borrow as specified in Division 31 Section 31 23 23 Fill.

3.6 GRANITE SETTING

- A. Provide concealed holes and sinkages cut, drilled, or sawn for fasteners, anchors, supports, lifting devices, or other requirements, to secure granite work for proper fit and clearance.
- B. Dress joints (bed and vertical) straight and at 90 degree angle to face.

- C. Joint Width: Cut granite to provide uniform joint widths as shown. Cut stonework to provide uniform one-quarter inch (1/4") maximum wide joints and as shown on Drawings.
- D. Thickness and Profile: Provide granite in thickness and profiles shown on Drawings. Saw cut or rough dress back surfaces which will be concealed after installation to tolerance requirements.
- E. Select stone for color consistency. Stones with knots, veins, or other defects which are substantially deviant from approved samples will be rejected.
- F. Execute granite fabrication by skilled masons. Cut granite for necessary adjustments with saws or other devices similar to those used in original shop fabrication process.
- G. Flame rock face joints after installation but prior to mortaring joints to remove abrupt edges and maintain natural transition between blocks.
- H. Do not use granite units with chips, cracks, voids, stains, or other defects visible in finished work, or structurally impair the stone. Patching of minor chips shall be at Contacting Officers discretion.
- I. Clean granite before setting by scrubbing with fiber brushes followed by thorough drenching with clear water. Use mild cleaning compounds containing no caustic or harsh fillers or abrasives.
- J. Set granite in accordance with Drawings and shop drawings. Provide anchors, supports, fasteners, and other attachments to secure granite in place in accordance with best practices of trade. Shim and adjust accessories for proper setting of granite. Fill holes, slots and other sinkages for anchors, dowels, fasteners, and supports with non-shrinking, non-staining mortar during setting of granite. Flame rock faces of adjoining granite pieces to ensure consistency of face surface.
- K. For granite set in full mortar bed, butter vertical joints for full width before setting.
- L. Rake out joints three-quarters of an inch deep before mortar sets to allow for mortar pointing. Clean face of granite after raking. After mortar is set, wet raked joints thoroughly and force pointing mortar into joints. Tool joints slightly concave. Provide pointing mortar in colors approved by Owners Representative.
- M. Allow for expansion joints where shown. Do not fill with mortar. Install continuous strips of preformed joint filler to allow for installation of backer rod and sealant.
- N. Do not allow petroleum based fillers or sealants to contact granite.
- O. Repair and Cleaning:
 - 1. Remove and replace granite units, which are broken, chipped, stained, or otherwise damaged. Where directed, remove and replace units, which do not match adjoining granite. Provide new matching units, install as specified and point-up joints to eliminate evidence of replacement. Re-point defective and unsatisfactory joints to provide a neat, uniform appearance.

2. Clean granite work thoroughly to remove stains, excess mortar, dirt and other discoloration or blemishes.
3. Commence cleaning operations following a minimum twenty-eight day curing period for granite construction.
4. Follow manufacturer's instructions for use, handling and application of masonry cleaners.
5. Provide polyethylene coverings or other temporary protection approved by Owners Representative for lawn, planting, and other non-working areas or improvements adjacent to masonry cleaning zone. Remove coverings from lawn or planting areas immediately following completions of cleaning operations.
6. Collect and remove residual cleaning solutions from site.

P. Protection:

1. Obtain, from installer, advice on proper procedures required to protect granite from collapse, deterioration, discoloration, or damage during construction and until acceptance of work. Implement procedures required to protect completed granite work from damage prior to final acceptance.

Q. Comply with requirements for concrete base as specified in Division 03 Section 03 30 00 Cast-in-Place Concrete.

R. Comply with requirements for Borrow as specified in Division 31 Section 31 23 23 Fill.

3.7 INSTALLATION OF LANDSCAPE BOULDERS

- A. All Landscape Boulders shall be delivered, handled, and placed to prevent scrapes or damage to their natural appearance. Landscape Boulders shall be installed according to Landscape Plans **Sheets L101, L301 and L303** or as directed by the MaineDOT Landscape Architect, Resident Engineer, or their designee.

3.8 INSTALLATION OF RIVER STONE AT DRIP EDGES

- A. Install River Stone in locations and sufficient quantities as shown on the Drawings and as specified herein.

3.8 ADJUSTING

- A. Adjust all installed items as required to function smoothly, and lubricate (if required) as recommended by manufacturer.

3.7 PROTECTION

- A. Remove and replace any materials that are wet, moisture damaged, stained or mold damaged.

PART 4 – COMPENSATION

4.01 METHOD OF MEASUREMENT

- A. Site Improvement Items will be measured by each, complete-in-place as approved by the Owners Representative and as per the Contract Documents.
- B. Gravel borrow, where specified, will be measured for as specified in Section 31 23 16 Excavation and Section 31 23 32 Fill.
- C. Cast in Place Concrete, where specified, will be measured for as specified in Section 31 23 16 Excavation and Section 03 30 00 Cast in Place Concrete

4.02 BASIS OF PAYMENT

- A. Site Improvement Items will be paid for at the contract unit price each complete in place and accepted as follows:

4.03 PAYMENT ITEMS

- A. 32 30 00 Site Improvements Per pay item:

610.61	Natural Boulder Size 36"X36" - 42"X42"	Each
610.61	Natural Boulder Size 24"X24" - 36"X36"	Each
610.61	Natural Boulder Size 18"X18" - 24"X24"	Each
525.19	Granite Seat Wall	LF
610.21	Drip Strip	SY
621.951	Bicycle Rack	Each
641.34	Trash Receptacle	Each
641.35	Flagpole	Each

END OF SECTION 32 30 00

TABLE OF CONTENTS

Volume 1 of 2

DIVISION 00 – SPECIAL PROVISIONS

Section 104	Utilities
Section 105	Limitations of Operations
Section 105	Environmental Requirements
Section 107	Control of Work
Section 107	Prosecution and Progress
Section 108	Asphalt Escalator
Section 201	Clearing Right of Way
Section 203	Excavation and Embankment
Section 206	Structural Excavation
Section 304	Aggregate Base and Subbase Course
Section 401	Hot Mix Asphalt Pavement
Section 403	Hot Mix Asphalt
Section 409	Bituminous Tack Coat
Section 419	Sawing and Sealing Joints in Bituminous Pavement
Section 502	Structural Concrete
Section 603	Pipe Culverts and Storm Drains
Section 604	Manholes, Inlets, and Catch Basins
Section 605	Underdrains
Section 608	Sidewalks
Section 609	Curb
Section 610	Stone Fill, Riprap, Stone Blanket, and Stone Ditch Protection
Section 627	Pavement Markings
Section 639	Engineering Facilities
Section 643	Traffic Signals
Section 652	Maintenance of Traffic
Section 656	Temporary Soil Erosion and Water Pollution Control
Section 659	Mobilization
Section 801	Sanitary Sewer HHE-200 Application
Section 802	Water Service Geotechnical Engineering Study Environmental Package

DIVISION 1 - GENERAL REQUIREMENTS

Section 011000	Summary
Section 012100	Allowances
Section 012200	Unit Prices
Section 012500	Substitution Procedures
Section 012501	Substitution Form
Section 012900	Payment Procedures
Section 013100	Project Management and Coordination

Section 013200	Construction Progress Documentation
Section 013300	Submittal Procedures
Section 014000	Quality Assurance
Section 014100	Special Inspections
Section 014200	References
Section 015000	Temporary Facilities and Controls
Section 016000	Product Requirements
Section 017300	Execution
Section 017419	Construction Waste Management and Disposal
Section 017600	Protection of Installed Construction
Section 017700	Closeout Procedures
Section 017823	Operation and Maintenance Data
Section 017839	Project Record Documents
Section 017900	Demonstration and Training
Section 019113	General Commissioning Requirements

DIVISION 2 - EXISTING CONDITIONS - Not Used

DIVISION 3 - CONCRETE

Section 033000	Cast-In-Place Concrete
Section 033519	Polished Concrete Slabs

DIVISION 4 - MASONRY

Section 042113	Brick Masonry
Section 042200	Concrete Unit Masonry
Section 047000	Stone Veneer Masonry

DIVISION 5 - METALS

Section 051200	Structural Steel
Section 053100	Steel Deck
Section 055000	Metal Fabrications
Section 055005	Miscellaneous Metals
Section 055113	Metal Pan Stairs
Section 055213	Pipe and Tube Railings

DIVISION 6 - WOOD AND PLASTICS

Section 061000	Rough Carpentry
Section 061323	Heavy Timber Construction
Section 061600	Sheathing
Section 061850	Structural Glued-Laminated Timber
Section 062013	Exterior Finish Carpentry
Section 062023	Interior Finish Carpentry
Section 064113	Wood-Veneer-Faced Architectural Cabinets
Section 064116	Plastic-Laminate-Faced Architectural Cabinets

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Section 071115	Bituminous Dampproofing
Section 071416	Cold Fluid-Applied Waterproofing
Section 072100	Thermal Insulation
Section 072726	Air and Vapor Barriers
Section 073129	Wood Shingle Siding
Section 074113	Standing-Seam Metal Roof Panels
Section 076200	Sheet Metal Flashing and Trim
Section 077253	Snow Guards
Section 078110	Cementitious Fireproofing
Section 078410	Firestopping
Section 079200	Joint Sealants

DIVISION 8 - DOORS AND WINDOWS

Section 081113	Hollow Metal Doors and Frames
Section 081416	Flush Wood Doors
Section 083113	Access Doors and Frames
Section 083323	Overhead Coiling Doors
Section 084113	Aluminum-Framed Entrances
Section 084413	Glazed Aluminum Curtain Walls
Section 084523	Fiberglass-Sandwich-Panel Assemblies
Section 085120	Steel Entrances
Section 085123	Steel Windows
Section 087100	Door Hardware
Section 088000	Glazing
Section 089119	Fixed Louvers

DIVISION 9 - FINISHES

Section 092900	Gypsum Board Assemblies
Section 093000	Tiling
Section 095113	Acoustical Panel Ceilings
Section 095427	Acoustic Wood Ceilings
Section 096500	Resilient Floor Tile
Section 096513	Resilient Wall Base and Accessories
Section 096813	Tile Carpeting
Section 097213	Tackable Wall Covering
Section 099100	Painting

DIVISION 10 - SPECIALTIES

Section 101400	Signage
Section 101400a	Message Schedule
Section 102114	Toilet Compartments
Section 102800	Toilet Accessories
Section 104400	Fire Protection Specialties
Section 105113	Metal Lockers
Section 107516	Ground-Set Flagpoles

DIVISION 12 - FURNISHINGS

Section 123661	Simulated Stone Countertops
Section 126000	Furniture

END OF VOLUME 1 TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

Volume 2 of 2

DIVISION 21 - FIRE SUPPRESSION

Section 211313	Wet Pipe Sprinkler System, Fire Protection
Section 213000	Fire Pumps

DIVISION 22 – PLUMBING

Section 220800	Commissioning of Plumbing
Section 221116	Domestic Water Piping
Section 221123	Domestic-Water Packaged Booster Pumps
Section 221316	Plumbing Sanitary and Storm Piping
Section 221429	Sump Pumps
Section 224000	Plumbing Fixtures

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Section 230500	Common Work Results for Mechanical
Section 230593	Testing, Adjusting, And Balancing
Section 230800	Commissioning Of HVAC
Section 230900	Instrumentation and Control For HVAC
Section 230993	Sequence of Operations
Section 232113	Hydronic HVAC Piping
Section 232123	Hydronic Pumps
Section 233113	Ductwork
Section 233423	Power and Gravity Ventilators
Section 233600	Air Terminals
Section 233713	Diffusers, Registers, And Grilles
Section 236423	Water-Cooled, Scroll Water Chillers
Section 237000	Closed Loop Geothermal Heat Exchanger
Section 237002	Geothermal Closed Loop Thermal Conductivity Test
Section 237200	Air-To-Air Energy Recovery Equipment
Section 237314	Modular Indoor Central-Station Air-Handling Units
Section 238130	Ductless Split-System Air-Conditioning Units
Section 238219	Fan-Coil Units
Section 238239	Unit Heaters

DIVISION 26 – ELECTRICAL

Section 260100	Basic Electrical Requirements
Section 260519	Low-Voltage Electrical Power Conductors and Cables
Section 260523	Control-Voltage Electrical Power Cables
Section 260526	Grounding and Bonding for Electrical Systems
Section 260529	Hangers and Supports for Electrical Systems
Section 260533	Raceways and Boxes for Electrical Systems
Section 260543	Underground Ducts and Raceways for Electrical Systems

Section 260544	Sleeves and Sleeve Seals for Electrical Raceways and Cabling
Section 260548	Vibration and Seismic Controls for Electrical Systems
Section 260553	Identification for Electrical Systems
Section 260572	Overcurrent Protective Device Short-Circuit Study
Section 260573	Overcurrent Protective Device Coordination Study
Section 260801	Commissioning of Electrical Systems
Section 260923	Lighting Control Devices
Section 260943	Network Lighting Controls
Section 262200	Low-Voltage Transformers
Section 262416	Panelboards
Section 262713	Electricity Metering
Section 262726	Wiring Devices
Section 262813	Fuses
Section 262816	Enclosed Switches and Circuit Breakers
Section 262913	Enclosed Controllers
Section 263100	Photovoltaic Collectors
Section 263213	Engine Generators
Section 263600	Transfer Switches
Section 264113	Lightning Protection for Structures
Section 265100	Interior Lighting
Section 265219	Emergency and Exit Lighting
Section 265600	Exterior Lighting

DIVISION 27 – COMMUNICATIONS

Section 271100	Communications Equipment Room Fittings
Section 271300	Communications Backbone Cabling
Section 271500	Communications Horizontal Cabling
Section 275116	Public Address and Mass Notification Systems

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

Section 280513	Conductors and Cables for Electronic Safety And Security
Section 281600	Intrusion Detection
Section 283111	Digital, Addressable Fire-Alarm System

DIVISION 31 – EARTHWORK – NOT USED

~~Section 312316 — Excavation~~

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 321400	Unit Pavers
Section 323000	Site Improvements
Section 328400	Irrigation System
Section 329200	Grasses
Section 329300	Planting
Section 329400	Topsoil

DIVISION 33 – UTILITIES – NOT USED

END OF VOLUME 2 TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 20 13

EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior wood trim.
2. Exterior PVC trim.
3. Exterior T & G Board soffits.
4. Exterior dumpster enclosure and gate.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1. Include data for wood-preservative treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained. Include chemical-treatment manufacturer's written instructions for finishing treated material.
2. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced before shipment to Project site to levels specified.
4. Include copies of warranties from chemical-treatment manufacturers for each type of treatment.

B. Samples for Verification:

1. For each species and cut of lumber and panel products, with 1/2 of exposed surface finished; 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.

C. Compliance Certificates:

1. For lumber that is not marked with grade stamp.

1.4 QUALITY ASSURANCE – NOT USED

- ~~A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.~~

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Protect materials from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

1.6 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.
- B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and the following grading rules:
1. NeLMA: Northeastern Lumber Manufacturers' Association, "Standard Grading Rules for Northeastern Lumber."
 2. NLGA: National Lumber Grades Authority, "Standard Grading Rules for Canadian Lumber."
 3. RIS: Redwood Inspection Service, "Standard Specifications for Grades of California Redwood Lumber."
 4. SPIB: The Southern Pine Inspection Bureau, "Standard Grading Rules for Southern Pine Lumber."
 5. WCLIB: West Coast Lumber Inspection Bureau, Standard No. 17, "Grading Rules for West Coast Lumber."
 6. WWPA: Western Wood Products Association, "Western Lumber Grading Rules."
- B. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
1. For exposed lumber, mark grade stamp on end or back of each piece.

- C. Softwood Plywood: DOC PS 1.

2.2 EXTERIOR TRIM

- A. Lumber Trim for Transparent Finish:

1. Species and Grade: Western red cedar, Clear Heart VG (Vertical Grain); NLGA, WCLIB, or WWPA.
2. Maximum Moisture Content: 15 percent.
3. Face Surface: Surfaced (smooth).

- B. Lumber Trim for Painted Finish:

1. Species and Grade: Western red cedar, Grade A; NLGA, WCLIB, or WWPA.
2. Maximum Moisture Content: 15 percent.
3. Factory Priming: Factory coated on faces and edges with exterior primer compatible with topcoats specified.

- C. MDO Trim: Exterior Grade B-B, MDO plywood.

2.3 BOARD SOFFITS

- A. Lumber for Soffits:

1. Select White Birch, Grade I; NHLA
2. Face Surface: Surfaced (smooth).
3. Face Width: 5-1/2 in. with T & G edge.
4. Thickness: 1/2 in.
5. Profile: V-groove.

2.4 DUMPSTER ENCLOSURE

- A. Configuration and Attachments: As indicated on the Drawings.

- B. Wood Species: As indicated on the Drawings.

- C. Hardware and Anchors: Type 304 stainless steel.

2.5 PVC TRIM

- A. Cellular PVC Trim: Extruded, expanded PVC with a small-cell microstructure, recommended by manufacturer for exterior use, made from UV- and heat-stabilized, rigid material.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. AZEK Building Products, Inc.; Azek.
- b. CertainTeed Corporation; CertainTeed Restoration Millwork.
- c. Fypon Ltd.; Fypon PVC.
- d. Ply-Trim, Inc.; DuraBoard.
- e. Vi-Lux Plastics Inc.; Cellular PVC.

2. Density: Not less than 31 lb/cu. ft. (500 kg/cu. m).
3. Heat Deflection Temperature: Not less than 130 deg F (54 deg C), according to ASTM D 648.
4. Coefficient of Thermal Expansion: Not more than 4.5×10^{-5} inches/inch x deg F (8.1×10^{-5} mm/mm x deg C).
5. Water Absorption: Not more than 1 percent, according to ASTM D 570.
6. Flame-Spread Index: 75 or less, according to ASTM E 84.

2.6 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.
 1. For face-fastening siding, provide ringed-shank siding nails, stainless-steel.
- B. Wood Glue: Waterproof resorcinol glue recommended by manufacturer for exterior carpentry use.
- C. Adhesive for Cellular PVC Trim: Product recommended by trim manufacturer.
- D. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.
 1. Horizontal Joint Flashing for Panel Siding: Preformed, prefinished-aluminum, Z-shaped flashing.

2.7 FABRICATION

- A. Back out or kerf backs of standing and running trim wider than 5 inches (125 mm), except members with ends exposed in finished work.
- B. Ease edges of lumber less than 1 inch (25 mm) in nominal thickness to 1/16-inch (1.5-mm) radius and edges of lumber 1 inch (25 mm) or more in nominal thickness to 1/8-inch (3-mm) radius.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

- B. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed. Cut to required lengths and prime ends. Comply with requirements in Section 099113 "Exterior Painting."

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.
 - 3. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install flat-grain lumber with bark side exposed to weather.
- B. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long except where necessary.
 - 1. Use scarf joints for end-to-end joints.
 - 2. Stagger end joints in adjacent and related members.
- C. Fit exterior joints to exclude water. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
- D. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.5 ADJUSTING

- A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 CLEANING

- A. Clean exterior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.7 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 4 - PAYMENT PROCEDURES

4.1 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments. Payment shall be based on percentage of work completed and cost of materials and equipment.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before lastday of construction period covered by application.
- B. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work of this section includes, but is not limited to, the following:
1. Solid core flush wood doors with veneer faces.
 2. Prefitting and premachining of wood doors.
 3. Factory finishing of wood doors.

1.2 RELATED WORK

- A. Examine Contract Documents for requirements that affect Work of this Section. Other Specification Sections that directly relate to Work of this Section include, but are not limited to:
1. Section 081113, STEEL DOORS AND FRAMES.
 2. Section 087100, DOOR HARDWARE.
 3. Section 088000, GLAZING.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
1. Dimensions and locations of blocking.
 2. Dimensions and locations of mortises and holes for hardware.
 3. Dimensions and locations of cutouts.
 4. Undercuts.
 5. Requirements for veneer matching.
 6. Doors to be factory finished and finish requirements.
 7. Fire-protection ratings for fire-rated doors.
- B. Samples for Initial Selection: For factory-finished doors.
- C. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
 2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
 - a. Provide Samples for each species of veneer and solid lumber required.
 - b. Finish veneer-faced door Samples with same materials proposed for factory-finished doors.

3. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.
4. Louver blade and frame sample sections, 6 inches (150 mm) long, for each material and finish specified.

- D. Product Data: Submit complete manufacturer's product data consisting of complete product description and specifications, details of core and edge construction, fire test results, trim for openings and louvers, complete installation instructions, and other pertinent technical data required for complete product and product use information.

1.4 QUALITY ASSURANCE

- A. Doors shall conform to WDMA I.S.1-A and AWI Quality Standards.
- B. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

1.5 FIRE-RATING REQUIREMENTS

- A. Doors indicated or scheduled on Drawings to receive Underwriters' Laboratories (UL) label shall bear a UL label of Class and hour-rating scheduled on Drawings.
- B. Fire-rated doors and frame assemblies shall conform to requirements of NFPA 80. Provide certification that labeled doors provide maximum heat transmission of 250°F. in 30 min.

1.6 WARRANTIES

- A. Provide written manufacturer's warranties in Owner's name for materials furnished under this Section where such guarantees are offered in published product data, in addition to, and not instead of, other liabilities established by law and other provisions of Contract Documents.
- B. Warranty shall cover receipt and installation of replacement doors for defective doors, including glass, glazing, hardware, clean-up, and removal of defective doors. Include, but do not limit to, standard manufacturer's warranties as follows:
1. Life of installation for solid core flush interior doors.

1.7 PRODUCT STORAGE AND HANDLING

- A. Doors shall be properly packaged by manufacturer and fully protected during shipment, unloading, and storage, in conformance with NWMA Ref. 1.
- B. Doors shall not be delivered to job site until building has thoroughly dried out. Doors shall be stored flat, above floors, in dry area(s) until installation. Doors shall be stored and hung in buildings that maintain a humidity range of between 30 and 60%.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is

operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during remainder of construction period.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or equal:
 - 1. Masonite Architectural; Aspiro and Graham Series (formerly Algoma and Marshfield).
 - 2. Oshkosh Door Company.
 - 3. VT Industries, Inc.; Eggers and Heritage collections.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- B. Certified Wood: Flush wood doors shall be certified as "FSC ~~Pure~~ **Mixed Credit**" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
- C. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- D. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- E. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 - 2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
 - 3. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
 - 4. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
 - 5. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

F. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2, made with binder containing no urea-formaldehyde.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

G. Mineral-Core Doors:

1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
 - a. 5-inch (125-mm) top-rail blocking.
 - b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
 - c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
 - d. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - a. Screw-Holding Capability: 550 lbf (2440 N) per WDMA T.M.-10.

2.3 SOLID CORE WOOD DOORS

A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

B. Interior Solid-Core Doors:

1. Grade: Premium, with Grade A faces.
2. Species: White Birch.
3. Cut: Quarter sliced.
4. Match between Veneer Leaves: Bookmatch.
5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Vertical and Top Edges: Same species as faces - edge Type A.
8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.
9. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

2.4 METAL LOUVERS IN DOORS

- A. Metal Louvers:
 - 1. Manufacturer: Subject to compliance with requirements, provide as follows:
 - a. Model 600; Air Louvers Inc, or approved equal.
 - 2. Blade Type: Vision-proof, inverted V
 - 3. Metal and Finish: Hot-dip galvanized steel, 0.040 inch (1.0 mm) thick, with baked-on powder-coated finish, in custom color selected by Architect.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 - 1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
 - 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Openings: Factory cut and trim openings through doors.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Louvers: Factory install louvers in prepared openings.

2.6 FACTORY FINISHING OF WOOD DOORS

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: WDMA TR-6 catalyzed polyurethane.
 - 3. Staining: Match Architect's sample.
 - 4. Effect: Semifilled finish, produced by applying an additional finish coat to partially fill the wood pores.
 - 5. Sheen: Satin.

PART 3 EXECUTION

3.1 DELIVERY AND STORAGE

- A. Deliver wood doors to Project site. Protect during shipment to prevent damage. Store in interior areas fully protected from moisture and damage.

3.2 COORDINATION

- A. Examine steel door frame installations. Verify that frames meet tolerances and other requirements of wood door manufacturer, for type, size, and swing characteristics.
- B. Submit list of conditions detrimental to wood door installation and do not begin door installation until such conditions are corrected.

3.3 PREPARATION

- A. Condition doors to ambient temperature and humidity at points of installation before hanging.

3.4 PREFITTING AND PREPARATION FOR HARDWARE

- A. Prefit and premachine wood doors at factory.
- B. Comply with tolerance requirements of AWI Quality Standards for prefitting. Machine doors for hardware requiring cutting of doors with templates provided under Section 087100, DOOR HARDWARE. Comply with final hardware schedules and door frame submittals and other information required to ensure proper fit of doors and hardware.
- C. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.
 - 1. Non-rated doors: provide clearances of 1/8 in. at jambs and heads; 1/16 in. per leaf at meeting stiles for pairs of doors; and 1/8 in. from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 in. clearance from bottom of door to top of threshold.
 - 2. For fire-rated doors, provide clearances complying with NFPA 80.
 - 3. Bevel non-rated doors 1/8 in. in 2 in. at lock and hinge edges.
 - 4. Bevel fire-rated doors 1/8 in. in 2 in. in lock edge; trim stiles and rails only to extent permitted by labeling agency.

3.5 INSTALLATION

- A. Installations shall conform to approved submittals, including manufacturer's published instructions, to AWI Quality Standards, and to WDMA recommendations. Fire door installation shall conform to NFPA 80.
- B. Hang doors plumb and true. Apply door hardware so that opening and closing movement of doors is smooth and free.

3.6 ADJUSTMENT AND CLEANING

- A. Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.

- B. Final Adjustments: Check and readjust operating finish hardware items, leaving doors and frames undamaged and in complete and proper operating conditions, in coordination with work of Section 087100, DOOR HARDWARE.

3.7 CLEAN-UP

- A. Remove cartons and debris as work progresses and leave work areas in broom clean conditions at completion of work of this Section.

3.8 COMPLETION

- A. Before completion of work of this Section inspect work in company of Architect. Make adjustments and corrections to work leaving operating parts in perfect operating condition, jointing to adjacent material tight, surfaces without blemishes or stains, work properly executed and complete, and defects and damaged work replaced or corrected.
- B. Rehang or replace doors that cannot be made to operate properly.

PART 4 - PAYMENT PROCEDURES

4.1 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments. Payment shall be based on percentage of work completed and cost of materials and equipment.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- B. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for

- Payment.
- c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

END OF SECTION

SECTION 23 09 00

INSTRUMENTATION AND CONTROL FOR HVAC

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. If the Contractor discovers any ambiguity, error, omission, conflict, or discrepancy, Special Provision Section 10 1. 3.6 Priority of Conflicting Contract Documents shall control.
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
 - 2. State of Maine Department of Transportation, "Standard Specifications," Revision March 2020, and any revisions thereto, apply to this Section.

1.02 SUMMARY

- A. This specification contains requirements for direct digital control (DDC) of building systems complying with ANSI/ASHRAE Standard 135-2004 "BACnet-A Data Communication Protocol for Building Automation and Control Networks". The intent of this specification is for the DDC system to communicate using the BACnet Standard.
- B. The Controls Contractor's work shall consist of the provision of all labor, materials, special tools, equipment, enclosures, power supplies, software, software licenses, project-specific software configurations and database entries, interfaces, wiring, tubing, installation, labeling, engineering, calibration, documentation, submittals, testing, verification, training services, permits and licenses, transportation, shipping, handling, administration, supervision, management, insurance, warranty, specified services and items required by the Contract that are required for the functional turn-key operation of the complete and fully functional Controls Systems. Documents are diagrammatic only. Equipment and labor not specifically referred to herein or on the plans, which are required to meet the functional intent, shall be provided without additional cost to the Owner.
- C. Related Sections include the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
 - 2. Division 13 Section "Fire Alarm"
 - 3. Division 23 Section "Common Work Results for Mechanical"
 - 4. Division 23 Section "Sequence of Operation" for requirements that relate to this Section.
 - 5. Division 23 Section "Testing, Adjusting, and Balancing"
 - 6. Division 26

1.03 SUBMITTALS

- A. **Product Data:** Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.
1. **DDC System Hardware:** Bill of materials of equipment indicating quantity, manufacturer, and model number. Include technical data for operator workstation equipment, interface equipment, control units, transducers/transmitters, sensors, actuators, valves, relays/switches, control panels, and operator interface equipment.
 2. **Control System Software:** Include technical data for operating system software, operator interface, color graphics, and other third-party applications.
 3. **Controlled Systems:** Instrumentation list with element name, type of device, manufacturer, model number, and product data. Include written description of sequence of operation including schematic diagram.
- B. **Shop Drawings:** Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Bill of materials of equipment indicating quantity, manufacturer, and model number.
 2. Schematic flow diagrams showing fans, pumps, coils, dampers, valves, and control devices.
 3. Wiring Diagrams: Power, signal, and control wiring.
 4. Details of control panel faces, including controls, instruments, and labeling.
 5. Schedule of dampers including size, leakage, and flow characteristics.
 6. Schedule of valves including flow characteristics.
 7. **DDC System Hardware:**
 1. Wiring diagrams for control units with termination numbers.
 2. Schematic diagrams and floor plans for field sensors and control hardware.
 3. Schematic diagrams for control, communication, and power wiring, showing trunk data conductors and wiring between operator workstation and control unit locations.
 8. **Control System Software:** List of color graphics indicating monitored systems, data (connected and calculated) point addresses, output schedule, and operator notations.
 9. **Controlled Systems:**
 1. Schematic diagrams of each controlled system with control points labeled and control elements graphically shown, with wiring.
 2. Scaled drawings showing mounting, routing, and wiring of elements including bases and special construction.
 3. Written description of sequence of operation including schematic diagram.
 4. List of I/O Points: Also known as a Point Schedule, provide for each input and output point physically connected to a digital controller: point name, point description, point type (Analog Output (AO), Analog Input (AI), Binary Output (BO), Binary Input (BI)), point sensor range, point actuator range, point address, BACnet object, associated BIBBS (where applicable), point connection terminal

number. Typical schedules for multiple identical equipment are allowed unless otherwise requested in design or contract criteria.

1.04 INFORMATIONAL SUBMITTALS

- A. Data Communications Protocol Certificates: Certify that each proposed DDC system component complies with ASHRAE 135.
- B. Data Communications Protocol Certificates: Certify that each proposed DDC system component complies with LonWorks.
- C. Qualification Data: For Installer and manufacturer.
- D. Software Upgrade Kit: For Owner to use in modifying software to suit future systems revisions or monitoring and control revisions.
- E. Field quality-control test reports.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For HVAC instrumentation and control system to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:
 - 1. Maintenance instructions and lists of spare parts for each type of control device and compressed-air station.
 - 2. Interconnection wiring diagrams with identified and numbered system components and devices.
 - 3. Keyboard illustrations and step-by-step procedures indexed for each operator function.
 - 4. Inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.
 - 5. Calibration records and list of set points.
- B. Software and Firmware Operational Documentation: Include the following:
 - 1. Software operating and upgrade manuals.
 - 2. Program Software Backup: On a magnetic media or compact disc, complete with data files.
 - 3. Device address list.
 - 4. Printout of software application and graphic screens.
 - 5. Software license required by and installed for DDC workstations and control systems.

1.06 QUALITY ASSURANCE

- A. All products used in this project installation shall be new and currently under manufacture and shall have been applied in similar installations for a minimum of two years. This installation shall not be used as a test site for any new products unless explicitly approved by the owner's

representative in writing. Spare parts shall be available for at least five years after completion of this contract.

- B. All work described in this section shall be installed, wired, circuit tested and calibrated by factory certified technicians qualified for this work and in the regular employment of the temperature control system manufacturer. Use only employees who are qualified, skilled, experienced, manufacturer trained and familiar with the specific equipment, software and configurations to be provided for this Project.
- C. Provide a complete, neat and workmanlike installation.
- D. All work, materials, and equipment shall comply with the rules and regulations of all codes and ordinances of the local, state, and federal authorities. Such codes, when more restrictive, shall take precedence over these plans and specifications.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- F. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilation Systems."
- G. Comply with ASHRAE 135 for DDC system control components.
- H. The contractor shall protect all work and material from damage by his/her work or employees. The contractor shall be responsible for his/her work and equipment until finally inspected, tested, and accepted. The contractor shall protect any material that is not immediately installed. The contractor shall close all open ends of work with temporary covers or plugs during storage and construction to prevent entry of foreign objects.

1.07 CONTRACTOR QUALIFICATIONS

- A. Qualified Bidders: System shall be as manufactured, installed and serviced by:
 - 1. Distech, (Maine Controls)
 - 2. Johnson Controls, Inc.
 - 3. Honeywell
 - 4. Siemens
 - 5. **Trane**
 - 6. Approved bidders. Bids from other vendors, franchised dealers, manufacturer's representatives, or from contractors who are authorized to represent the above named manufacturers must be pre-approved.
- B. Installer Qualifications: Automatic control system manufacturer's authorized representative who is trained and approved for installation of system components required for this Project.
- C. The above list of manufacturers applies to operator workstation software, controller software, the custom application programming language, and controllers. All other products specified herein (e.g., sensors, valves, dampers, and actuators) need not be manufactured by the above manufacturers.

- D. Longevity: The Facilities Management System contractor shall have a minimum of ten years experience installing, and servicing computerized Building Automation Systems (BAS). All subcontractors utilized by the BAS contractor shall have a minimum of five-year experience within their appropriate trades.
- E. Past Projects: The BAS contractor shall have completed a minimum of ten projects within the last five years that are at least equal in dollar value and scope to this project. A list of similar projects, dollar volume, scope, contact name and contact number shall be provided by the BAS contractor if asked for by the owner.
- F. Personnel, Coverage and Response Capabilities: The BAS contractor shall have a minimum of ten full time electronic service personnel within a 120 mile radius of the project location. One of the five full time electronic service personnel must work within a 60-mile radius of the project location.
- G. The BAS contractor shall have an established 24-hour emergency service organization. A dedicated telephone number shall be provided to the owner for requesting emergency service. A maximum of four hour, electronic service technician on sight, response time shall be guaranteed by the BAS contractor.
- H. Parts Stocking: The BAS contractor shall have an independently verifiable inventory of electronic service parts. This electronic service parts inventory must have a worth of at least \$100,000 per year over the last five years.

1.08 COORDINATION

- A. Where the mechanical work will be installed in close proximity to, or will interfere with, work of other trades, the contractor shall assist in working out space conditions to make a satisfactory adjustment. If the contractor installs his/her work before coordinating with other trades, so as to cause any interference with work of other trades, the contractor shall make the necessary changes in his/her work to correct the condition.
- B. Coordinate details of telephone line, internet service provider, and associated requirements.
- C. Coordinate and schedule work with all other work in the same area, or with work that is dependent upon other work, to facilitate mutual progress.
- D. Coordinate location of thermostats and other exposed control sensors with plans and room details before installation.
- E. Coordination with controls specified in other sections or divisions. Other sections and/or divisions of this specification include controls and control devices that are to be part of or interfaced to the controls system specified in this section. These controls shall be integrated into the system and coordinated by the contractor.
- F. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping of control devices to unit manufacturer.
- G. Sheet Metal Subcontractor:

1. Installation of duct-mounted control devices.
2. Access doors where indicated and as required for proper servicing.

H. HVAC Contractor:

1. Installation of immersion wells and pressure tappings, along with associated shut-off cocks.
2. Installation of flow switches.
3. Installation of automatic control valves.
4. Installation of flow meters.

I. Testing and Balancing Contractor:

1. The contractor shall furnish a single set of all tools necessary to interface to the control system for test and balance purposes.
2. The contractor shall provide training in the use of these tools. This training will be planned for a minimum of 4 hours.
3. In addition, the contractor shall provide a qualified technician to assist in the test and balance process, until the first 20 terminal units are balanced.
4. The tools used during the test and balance process shall be returned at the completion of the testing and balancing.

J. Electrical Subcontractor: Complying with the principle of "unit responsibility" all electrical work for automatic controls, except as otherwise specified, or shown on the electrical drawings shall be included in Division 23. Electrical work shall, in general, comply with the following, unless otherwise directed by Division 26:

1. Power wiring.
2. All control wiring shown on electric plans such as unit heater line-voltage room thermostats.
3. Duct smoke detectors required for air handler shutdown are supplied under Division 26. Coordinate required length of sampling tube, for full span of ductwork. The contractor shall connect the DDC system to the auxiliary contacts provided on the smoke detector for system safeties and to provide alarms to the DDC system.
4. All electrical work shall comply with the N.E.C. and local electrical codes.
5. All safety devices shall be wired through both hand and auto positions of motor starting device to insure 100% safety shut-off.
6. The motor starter supplier shall provide auxiliary contacts as required for interlock by BAS Contractor; the supplier shall estimate an allowance of at least one auxiliary contact per starter.

K. Coordinate with controls specified in other sections of divisions. Other sections and/or divisions of this specification include controls and control devices that are to be part of or interfaced to the control system specified in this section. These controls shall be integrated into the system and coordinated by the BAS contractor as follows:

1. All communication media and equipment shall be provided as specified hereinafter.

2. Each supplier of a control product is responsible for the configuration, programming, start-up, and testing of that product to meet the sequences of operation described in this section.
3. The BAS contractor shall coordinate and resolve any incompatibility issues that arise between the control products provided under this section and those provided under other sections or divisions of this specification.
4. The BAS contractor is responsible for providing all controls described in the contract documents regardless of where within the contract documents these controls are described.
5. The contractor is responsible for the interface of control products provided by multiple suppliers regardless of where this interface is described within the contract documents.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. System Software: Update to latest version of software at Project completion.

1.10 WARRANTY

- A. Refer to Division 1 Requirements.
- B. At the end of the final start-up, testing, and commissioning phase, if equipment and systems are operating satisfactorily to the engineer, the engineer shall sign certificates certifying that the control system's operation has been tested and accepted in accordance with the terms of this specification. The date of acceptance shall be the start of warranty. All work shall have a single warranty date, even when the owner has received beneficial use due to an early system start-up.
- C. All components, system software, and parts supplied by the BAS contractor shall be guaranteed against defects in materials and workmanship for one year from acceptance date. The BAS contractor at no charge shall furnish Labor to repair, reprogram, or replace components during the warranty period. All corrective software modifications made during warranty periods shall be updated on all user documentation and on user and manufacturer archived software disks. The Contractor shall respond to the owner's request for warranty service within 24 hours during normal business hours.
- D. Provide remote service diagnostic monitoring from the nearest service location. At the request of the owner, a service diagnostic call will be made to troubleshoot and resolve (if possible) any reported system complaints. The owner will provide a dedicated telephone line for connection to the system.
- E. Operator workstation software, project-specific software, graphic software, database software, and firmware updates that resolve known software deficiencies as identified by the contractor shall be provided at no charge during the warranty period. Any upgrades or functional enhancements associated with the above-mentioned items also can be provided during the warranty period for an additional charge to the owner by purchasing an in-warranty service agreement from the contractor. Written authorization by the owner must, however, be granted prior to the installation of any of the above-mentioned items.

PART 2 - PRODUCTS

2.01 BUILDING AUTOMATION SYSTEM

- A. Control system shall consist of sensors, indicators, actuators, final control elements, interface equipment, other apparatus, accessories, and software connected to distributed controllers operating in multiuser, multitasking environment on token-passing network and programmed to control mechanical systems. An operator workstation permits interface with the network via dynamic color graphics with each mechanical system, building floor plan, and control device depicted by point-and-click graphics.
- B. Performance Standards. System shall conform to the following minimum standards over network connections. Systems shall be tested using manufacturer's recommended hardware and software for operator workstation (server and browser for web-based systems).
1. Graphic Refresh. A graphic with 20 dynamic points shall update with current data within 8 sec. and shall automatically refresh every 15 sec.
 2. Configuration and Tuning Screens. Screens used for configuring, calibrating, or tuning points, PID loops, and similar control logic shall automatically refresh within 6 sec.
 3. Object Command. Devices shall react to command of a binary object within 2 sec. Devices shall begin reacting to command of an analog object within 2 sec.
 4. Alarm Response Time. An object that goes into alarm shall be annunciated at the workstation within 15 sec.
 5. Program Execution Frequency. Custom and standard applications shall be capable of running as often as once every 5 sec. Select execution times consistent with the mechanical process under control.
 6. Performance. Programmable controllers shall be able to completely execute DDC PID control loops at a frequency adjustable down to once per sec. Select execution times consistent with the mechanical process under control.
 7. Multiple Alarm Annunciation. Each workstation on the network shall receive alarms within 5 sec of other workstations.
 8. Reporting Accuracy and Stability of Control: Report values and maintain measured variables within tolerances as follows:
 1. Fluid Temperature: Plus or minus 0.5 deg F.
 2. Fluid Flow: Plus or minus 5 percent of full scale.
 3. Fluid Pressure: Plus or minus 2 percent of full scale.
 4. Space Temperature: Plus or minus 1 deg F.
 5. Ducted Air Temperature: Plus or minus 1 deg F.
 6. Outside Air Temperature: Plus or minus 2 deg F.
 7. Dew Point Temperature: Plus or minus 3 deg F.
 8. Temperature Differential: Plus or minus 0.25 deg F.
 9. Relative Humidity: Plus or minus 3 percent.
 10. Airflow (Measuring Stations): Plus or minus 5 percent of full scale.
 11. Airflow (Terminal): Plus or minus 10 percent of full scale.
 12. Air Pressure (Ducts): Plus or minus 0.1-inch wg.
 13. Carbon Dioxide: Plus or minus 50 ppm.
 14. Electrical: Plus or minus 5 percent of reading.

2.02 DDC EQUIPMENT

A. Operator Workstation: One PC-based microcomputers with minimum configuration as follows:

1. Motherboard: With 8 integrated USB 2.0 ports, integrated PCIE 10/100/1000 network adapter
2. Processor: Intel® Core™ i3
3. Hard-Disk Drive: 300 GB.
4. Random-Access Memory: 8 GB
5. 320W 90% Efficient Power Supply, Energy Star 5.0 compliant
6. Graphics: card as recommended by BAS supplier for optimum performance.
7. Monitor: 17.3 inch High Definition LED Display (1600 X 900) with anti-glare
8. Keyboard: QWERTY, 105 keys in ergonomic shape.
9. 8X DVD+/-RW with double-layer DVD+/-R write capability
10. Mouse: Three button, optical.
11. APC BR1000G Back-UPS Pro 1000 VA 120V Power-Saving UPS System
12. Operating System: Windows 7 with high-speed Internet access.
13. Printer: Black-and-white, laser-jet type as follows:
 1. Print Head: 1200 x 1200 dpi resolution.
 2. Paper Handling: Minimum of 250 sheet trays.
 3. Print Speed: Minimum of 120 characters per second.
14. Application Software:
 1. I/O capability from operator station.
 2. System security for each operator via software password and access levels.
 3. Automatic system diagnostics; monitor system and report failures.
 4. Database creation and support.
 5. Automatic and manual database save and restore.
 6. Dynamic color graphic displays with up to 10 screen displays at once.
 7. Custom graphics generation and graphics library of HVAC equipment and symbols.
 8. Alarm processing, messages, and reactions.
 9. Trend logs retrievable in spreadsheets and database programs.
 10. Alarm and event processing.
 11. Object and property status and control.
 12. Automatic restart of field equipment on restoration of power.
 13. Data collection, reports, and logs. Include standard reports for the following:
 - 1) Current values of all objects.
 - 2) Current alarm summary.
 - 3) Disabled objects.
 - 4) Alarm lockout objects.
 - 5) Logs.
 14. Custom report development.
 15. Utility and weather reports.
 16. Workstation application editors for controllers and schedules.
 17. Maintenance management.

15. Custom Application Software:

1. English language oriented.
2. Full-screen character editor/programming environment.
3. Allow development of independently executing program modules with debugging/simulation capability.
4. Support conditional statements.
5. Support floating-point arithmetic with mathematic functions.
6. Contains predefined time variables.

B. Control Units: Modular, comprising processor board with programmable, nonvolatile, random-access memory; local operator access and display panel; integral interface equipment; and backup power source.

1. Units monitor or control each I/O point; process information; execute commands from other control units, devices, and operator stations; and download from or upload to operator workstation or diagnostic terminal unit.
2. Stand-alone mode control functions operate regardless of network status. Functions include the following:
 1. Global communications.
 2. Discrete/digital, analog, and pulse I/O.
 3. Monitoring, controlling, or addressing data points.
 4. Software applications, scheduling, and alarm processing.
 5. Testing and developing control algorithms without disrupting field hardware and controlled environment.
3. Standard Application Programs:
 1. Electric Control Programs: Demand limiting, duty cycling, automatic time scheduling, start/stop time optimization, night setback/setup, on-off control with differential sequencing, staggered start, antishort cycling, PID control, DDC with fine tuning, and trend logging.
 2. HVAC Control Programs: Optimal run time, supply-air reset, and enthalpy switchover.
 3. Chiller Control Programs: Control function of condenser-water reset, chilled-water reset, and equipment sequencing.
 4. Programming Application Features: Include trend point; alarm processing and messaging; weekly, monthly, and annual scheduling; energy calculations; run-time totalization; and security access.
 5. Remote communications.
 6. Maintenance management.
 7. Units of Measure: Inch-pound and SI (metric).
4. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.
5. LonWorks Compliance: Control units shall use LonTalk protocol and communicate using EIA/CEA 709.1 datalink/physical layer protocol.

- C. Local Control Units: Modular, comprising processor board with electronically programmable, nonvolatile, read-only memory; and backup power source.
1. Units monitor or control each I/O point, process information, and download from or upload to operator workstation or diagnostic terminal unit.
 2. Stand-alone mode control functions operate regardless of network status. Functions include the following:
 1. Global communications.
 2. Discrete/digital, analog, and pulse I/O.
 3. Monitoring, controlling, or addressing data points.
 3. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.
 4. LonWorks Compliance: Control units shall use LonTalk protocol and communicate using EIA/CEA 709.1 datalink/physical layer protocol.
- D. I/O Interface: Hardwired inputs and outputs may tie into system through controllers. Protect points so that shorting will cause no damage to controllers.
1. Binary Inputs: Allow monitoring of on-off signals without external power.
 2. Pulse Accumulation Inputs: Accept up to 10 pulses per second.
 3. Analog Inputs: Allow monitoring of low-voltage (0- to 10-V dc), current (4 to 20 mA), or resistance signals.
 4. Binary Outputs: Provide on-off or pulsed low-voltage signal, selectable for normally open or normally closed operation with three-position (on-off-auto) override switches and status lights.
 5. Analog Outputs: Provide modulating signal, either low voltage (0- to 10-V dc) or current (4 to 20 mA).
 6. Tri-State Outputs: Provide two coordinated binary outputs for control of three-point, floating-type electronic actuators.
 7. Universal I/Os: Provide software selectable binary or analog outputs.
- E. Power Supplies: Transformers with Class 2 current-limiting type or overcurrent protection; limit connected loads to 80 percent of rated capacity. DC power supply shall match output current and voltage requirements and be full-wave rectifier type with the following:
1. Output ripple of 5.0 mV maximum peak to peak.
 2. Combined 1 percent line and load regulation with 100-mic.sec. response time for 50 percent load changes.
 3. Built-in overvoltage and overcurrent protection and be able to withstand 150 percent overload for at least 3 seconds without failure.
- F. Power Line Filtering: Internal or external transient voltage and surge suppression for workstations or controllers with the following:
1. Minimum dielectric strength of 1000 V.
 2. Maximum response time of 10 nanoseconds.

3. Minimum transverse-mode noise attenuation of 65 dB.
4. Minimum common-mode noise attenuation of 150 dB at 40 to 100 Hz.

2.03 UNITARY CONTROLLERS

- A. Unitized, capable of stand-alone operation with sufficient memory to support its operating system, database, and programming requirements, and with sufficient I/O capacity for the application.
 1. Configuration: Local keypad and display; diagnostic LEDs for power, communication, and processor; wiring termination to terminal strip or card connected with ribbon cable; memory with bios; and 72-hour battery backup.
 2. Operating System: Manage I/O communication to allow distributed controllers to share real and virtual object information and allow central monitoring and alarms. Perform scheduling with real-time clock. Perform automatic system diagnostics; monitor system and report failures.
 3. LonWorks Compliance: Communicate using EIA/CEA 709.1 datalink/physical layer protocol using LonTalk protocol.
 4. Enclosure: Dustproof rated for operation at 32 to 120 deg F.

2.04 ANALOG CONTROLLERS

- A. Step Controllers: 6- or 10-stage type, with heavy-duty switching rated to handle loads and operated by electric motor.
- B. Electric, Outdoor-Reset Controllers: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range, adjustable set point, scale range minus 10 to plus 70 deg F, and single- or double-pole contacts.
- C. Electronic Controllers: Wheatstone-bridge-amplifier type, in steel enclosure with provision for remote-resistance readjustment. Identify adjustments on controllers, including proportional band and authority.

2.05 SENSING DEVICES

- A. Where feasible, provide the same sensor type throughout the project. Avoid using transmitters unless absolutely necessary.
- B. Thermistors: Precision thermistors may be used in applications below 200 degrees F. Sensor accuracy over the application range shall be 0.36 degree F or less between 32 to 150 degrees F. Stability error of the thermistor over five years shall not exceed 0.25 degree F cumulative. A/D conversion resolution error shall be kept to 0.1 degree F. Total error for a thermistor circuit shall not exceed 0.5 degree F.
- C. Resistance Temperature Detectors (RTDs): Provide RTD sensors with platinum elements compatible with the digital controllers. Encapsulate sensors in epoxy, series 300 stainless steel, anodized aluminum, or copper. Temperature sensor accuracy shall be 0.1 percent (1 ohm) of

expected ohms (1000 ohms) at 32 degrees F. Temperature sensor stability error over five years shall not exceed 0.25 degree F cumulative. Direct connection of RTDs to digital controllers without transmitters is preferred. When RTDs are connected directly, lead resistance error shall be less than 0.25 degrees F. The total error for a RTD circuit shall not exceed 0.5 degree F.

D. Temperature Sensor Details

1. Room Type: Provide the sensing element components within a decorative protective cover suitable for surrounding decor.
 1. Provide room temperature sensors with:
 - 1) Timed override button
 - 2) Setpoint adjustment lever or knob.
 - 3) Digital temperature display.
 - 4) Insulating Bases: For temperature sensors/thermostats located on exterior walls.
 - 5) Guards: Locking; heavy-duty, transparent plastic; mounted on separate base.
 2. Provide a communication port or 802.11x wireless support for a portable operator interface like a notebook computer or PDA.
2. Duct Probe Type: Ensure the probe is long enough to properly sense the air stream temperature.
3. Duct Averaging Type: Continuous averaging sensors shall be one foot in length for each 4 square feet of duct cross-sectional area, and a minimum length of 6 ft.
4. Pipe Immersion Type: Provide minimum three-inch immersion. Provide each sensor with a corresponding pipe-mounted sensor well, unless indicated otherwise. Sensor wells shall be stainless steel when used in steel piping, and brass when used in copper piping. Provide the sensor well with a heat-sensitive transfer agent between the sensor and the well interior.
5. Outside Air Type: Provide the sensing element on the building's north side with a protective weather shade that positions the sensor approximately 3 inches off the wall surface, does not inhibit free air flow across the sensing element, and protects the sensor from snow, ice, and rain.

E. Gas Detectors

1. Carbon-Dioxide (CO2) Sensor:
 1. Manufacturers: Vaisala GMW21 and GMD20 Series, Honeywell Model C7232, MSA Airox Model 711271, GE-Telaire.
 2. Analog and a relay output, use non-dispersive infrared (NDIR) technology, and feature a unique corrosion-free sensing chamber for accurate, stable CO2 sensing.
 3. Gold-plated sensor for long-term calibration stability
 4. Automatic Background Calibration (ABC) algorithm based on long-term evaluation to reduce required maintenance. Manufacturer recommended calibration interval shall not be less than five years.

5. Configuration as indicated: Wall mount with LCD to provide sensor readings and status information or Duct mount
- F. Transmitters: Provide transmitters with 4 to 20 mA or 0 to 10 VDC linear output scaled to the sensed input. Transmitters shall be matched to the respective sensor, factory calibrated, and sealed. Size transmitters for an output near 50 percent of its full-scale range at normal operating conditions. The total transmitter error shall not exceed 0.1 percent at any point across the measured span. Supply voltage shall be 12 to 24 volts AC or DC. Transmitters shall have non-interactive offset and span adjustments. For temperature sensing, transmitter drift shall not exceed 0.03 degrees F a year.
- G. Current Transducers: Provide current transducers to monitor motor amperage, unless current switches are shown on design drawings or point tables.
- H. Input Switches
 1. Timed Local Overrides: Provide buttons or switches to override the DDC occupancy schedule programming for each major building zone during unoccupied periods, and to return HVAC equipment to the occupied mode. This requirement is waived for zones clearly intended for 24 hour continuous operation.
 2. Freeze Protection Thermostats: Provide special purpose thermostats with flexible capillary elements 20 feet minimum length for coil face areas up to 40 square feet. Provide longer elements for larger coils at 1-foot of element for every 4 square feet of coil face area, or provide additional thermostats. Provide switch contacts rated for the respective motor starter's control circuit voltage. Include auxiliary contacts for the switch's status condition. A freezing condition at any 18-inch increment along the sensing element's length shall activate the switch. The thermostat shall be equipped with a manual push-button reset switch so that when tripped, the thermostat requires manual resetting before the HVAC equipment can restart.
- I. Airflow Measuring Stations: Provide where indicated, airflow traverse stations capable of continuously measuring the fan or duct capacities (air volumes) they serve. Basis of Design: VOLU-probe/VS as manufactured by Air Monitor Corporation. Each airflow traverse probe mounted within the station shall contain multiple total and static pressure sensors located along its exterior surface, and internally connected to their respective averaging manifolds. The flow sensors shall not protrude beyond the surface of the probes, and shall be the offset type for static pressure and the chamfered impact type for total pressure measurement. The airflow station's measured accuracy shall not be affected by directional flow having yaw and/or pitch angles up to 30°. The airflow measuring station(s) shall have a 14 ga. [18 ga. for circular units] galvanized steel, 6" deep welding casing with 90° connecting flanges. Total and static pressure sensors shall be located at the centers of equal areas (for rectangular ducts) or at equal concentric area centers (for circular ducts) across the station's face area. Stations shall be AMCA certified and be capable of measuring the airflow rates within an accuracy of ±2% without the use of correction factors. The maximum allowable un-recovered pressure drop caused by the station shall not exceed .025" w.c. at 2000 FPM, or .085" w.c. at 4000 FPM.
- J. Pressure Transmitters/Transducers:
 1. Manufacturers:

1. BEC Controls Corporation.
 2. General Eastern Instruments.
 3. MAMAC Systems, Inc.
 4. ROTRONIC Instrument Corp.
 5. TCS/Basys Controls.
 6. Vaisala.
 7. Kele
-
2. Duct Differential Pressure Transmitters: Kele M30/40 and T30/40 Series, or approved equal; reliable, stable, low-air pressure transmitters with 4-20 mA outputs.
 3. Duct pressure high-limit: Kele Model 1900-5-MR manual reset pressure switch is designed to monitor duct static and shut down the blower when excess pressure occurs. The switch must be manually reset before the system can start again. Switch contacts are SPDT with solder-type connections. The Model 1900-5-MR measures static pressure only, not differential pressure.
 4. Air Differential Pressure Switches, Kele 1900 Series, are designed to monitor the differential pressure of air in HVAC applications. These automatic reset switches are available in ranges from 0.07" to 20" W.C. and shall have SPDT screw-type electrical connections.
 5. Filter pressure drop: Kele Model A-602 air filter kit includes two static pressure tips and aluminum tubing and fittings, and it allows the a Kele 1900 Series to monitor filter pressure drop.
 6. Static-Pressure Transmitter: Non-directional sensor with suitable range for expected input, and temperature compensated. Accuracy: 2 percent of full scale with repeatability of 0.5 percent. Output: 4 to 20 mA. Building Static-Pressure Range: 0- to 0.25-inch wg. Duct Static-Pressure Range: 0- to 5-inch wg.
 7. Water Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig operating pressure; linear output 4 to 20 mA.
 8. Water Differential-Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig operating pressure and tested to 300-psig; linear output 4 to 20 mA.
-
- K. Hydronic Remote Differential Pressure Transmitters: Bell & Gossett ST Series; Setra, or approved equal; with 3-valve manifold for ease of maintenance. A differential pressure transmitter shall for each hydronic loop being monitored; for measuring differential pressure and transmitting an isolated linear 4-20 mA dc output. Each transmitter shall be connected by the contractor to the supply and return lines at the most remote point of each loop being monitored. The unit shall be accurate to $\pm 0.07\%$ of full span, and shall withstand over ranges up to a static pressure of 2300 psi with negligible change in output. It shall have stainless steel wetted parts with 1/4" NPT process connection. Unit shall be protected against radio frequency interference and shall have a water tight (NEMA Type 6/6P) electrical enclosure with 1/2" NPT conduit connection.

2.06 OUTPUT HARDWARE

- A. Motorized control dampers, unless otherwise specified elsewhere, shall be as follows:
1. Submittals shall include leakage, maximum airflow and maximum pressure ratings based on AMCA Publication 500. Dampers shall meet the leakage requirements of the

International Energy Conservation Code by leaking less than 3 cfm/sq. ft. at 1" of static pressure and shall be AMCA licensed as Class 1A. Dampers shall be Ruskin model CD60, or approved equal.

2. Control dampers shall be the parallel or opposed blade type as follows: Outdoor and/or return air mixing dampers shall be parallel blade, arranged to direct airstreams toward each other. Other modulating dampers shall be the opposed blade type. Two-position shutoff dampers may be parallel or opposed blade type with blade and side seals.
3. Frame: 5 inches x minimum 16 gage roll formed, galvanized steel hat-shaped channel, reinforced at corners. Structurally equivalent to 13 gage U-channel. Damper blades shall not exceed 8 inches in width or 48 inches in length. Blades shall be suitable for medium velocity performance 2000 fpm. Blades shall be not less than 16-gauge.
4. Bearings shall be corrosion resistant, permanently lubricated stainless steel sleeve type turning in an extruded hole in the damper frame.
5. All blade edges, top, and bottom of the frame shall be provided with replaceable butyl rubber or neoprene seals. Side seals shall be spring-loaded stainless steel.
6. Individual damper sections shall not be larger than 48 in. x 60 in. Provide a minimum of one damper actuator per section.
7. Modulating dampers shall provide a linear flow characteristic where possible.
8. Dampers shall have exposed linkages. Dampers over 48" in applications where sectioning is not applicable shall be supplied with a jackshaft to provide sufficient force throughout the intended operating range.

B. Electronic damper/valve actuation shall be provided.

1. Manufactured, brand labeled or distributed by BELIMO, or approved equal.
2. Size for torque required for damper seal at load conditions.
3. Coupling: V-bolt dual nut clamp with a V-shaped, toothed cradle.
4. Mounting: Actuators shall be capable of being mechanically and electrically paralleled to increase torque if required.
5. Overload protected electronically throughout rotation.
6. Fail-Safe Operation: Mechanical, spring-return mechanism.
7. Proportional Actuators shall be fully programmable through an EEPROM without the use of actuator mounted switches.
8. Proportional actuators shall have an external, built-in switch to allow the reversing of direction of rotation.
9. Proportional actuators shall accept a 0 to 10 VDC or 0 to 20 mA control signal and provide a 2 to 10 VDC or 4 to 20 mA operating range. An actuator capable of accepting a pulse width modulating control signal and providing full proportional operation of the damper is acceptable. All actuators shall provide a 2 to 10 VDC position feedback signal.
10. Temperature Rating: -22 to +122°F -30 to +50°C [-58 to +122°F -50 to +50°C]
11. Housing: Minimum requirement NEMA type 2 mounted in any orientation. .
12. Agency Listings: ISO 9001, cULus, CE or CSA
13. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.

C. Control Valves: Control valves shall be two-way or three-way type for two-position or modulating service as shown.

1. Close-off (differential) Pressure Rating: Valve actuator and trim shall be furnished to provide the following minimum close-off pressure ratings:

1. Two-way: 150% of total system (pump) head.
 2. Three-way: 300% of pressure differential between ports A and B at design flow or 100% of total system (pump) head.
2. Water Valves: Body and trim style and materials shall be in accordance with manufacturer's recommendations for design conditions and service shown, with equal percentage ports for modulating service.
1. Sizing Criteria:
 - 1) Two-position service: Line size.
 - 2) Two-way modulating service: Pressure drop shall be equal to twice the pressure drop through heat exchanger (load), 50% of the pressure difference between supply and return mains, or 5 psi, which ever is greater.
 - 3) Three-way modulating service: Pressure drop equal to twice the pressure drop through the coil exchanger (load), 35 kPa (5 psi) maximum.
 2. Application:
 - 1) VAV-reheat coils: two-way floating control, non spring return.
 - 2) CUH and Convector: two-way two-position, spring open 100%.
 - 3) AHU main heating coils: two-way modulating control, spring open 100%.
 - 4) FCU: two-way modulating control, spring open 100%.
 - 5) Fintube radiation: zone valves. Zone valves shall have brass bodies with female NPT or sweat ends and a stainless steel stem. Normally open zone valve actuators shall on/off and shall be available in 24VAC or 120VAC. Zone valves shall have push button for quick removal of actuator. Zone valves shall have a leakage rate of 0.1% or lower.
 3. Valves ½ in. through 2 in. shall be bronze body or cast brass ANSI Class 250, spring-loaded, PTFE packing, quick opening for two-position service. Two-way valves to have replaceable composition disc or stainless steel ball.
 4. Valves 2½ in. and larger shall be cast iron ANSI Class 125 with guided plug and PTFE packing.
 5. Water valves shall fail normally open or closed, as specified.

- D. Output Switches: Control Relays; Field installed and DDC panel relays shall be double pole, double throw, UL864 listed, with contacts rated for the intended application, indicator light, and dust proof enclosure. The indicator light shall be lit when the coil is energized and off when coil is not energized. Relays shall be the socket type, plug into a fixed base, and replaceable without tools or removing wiring. Encapsulated "PAM" type relays may be used for terminal control applications.

2.07 STATUS SENSORS

- A. Status Inputs for Electric Motors: Veris Hawkeye 708/908 Series, or approved equal; solid- and split-core adjustable current sensors designed to provide accurate, reliable and maintenance-free fan and pump status indication. Comply with ISA 50.00.01, current-sensing fixed- or split-core

transformers with self-powered transmitter, adjustable and suitable for 175 percent of rated motor current.

- B. Current Switches: Self-powered, solid-state with adjustable trip current, selected to match current and system output requirements.
- C. Electronic Valve/Damper Position Indicator: Visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.
- D. Water-Flow Switches: Bellows-actuated mercury or snap-acting type with pilot-duty rating, stainless-steel or bronze paddle, with appropriate range and differential adjustment, in NEMA 250, Type 1 enclosure.

2.08 ELECTRICAL POWER AND DISTRIBUTION

- A. Transformers: Transformers shall conform to UL 506. For control power other than terminal level equipment, provide a fuse or circuit breaker on the secondary side of each transformer.
- B. Surge and Transient Protection
 - 1. Provide each digital controller with surge and transient power protection. Surge and transient protection shall consist of the following devices, installed externally to the controllers.
 - 2. Power Line Surge Protection: Provide surge suppressors on the incoming power at each controller or grouped terminal controllers. Surge suppressors shall be rated in accordance with UL 1449, have a fault indicating light, and conform to the following:
 - 1. The device shall be a transient voltage surge suppressor, hard-wire type individual equipment protector for 120 VAC/1 phase/2 wire plus ground.
 - 2. The device shall react within 5 nanoseconds and automatically reset.
 - 3. The voltage protection threshold, line to neutral, shall be no more than 211 volts.
 - 4. The device shall have an independent secondary stage equal to or greater than the primary stage joule rating.
 - 5. The primary suppression system components shall be pure silicon avalanche diodes.
 - 6. The secondary suppression system components shall be silicon avalanche diodes or metal oxide varistors.
 - 7. The device shall have an indication light to indicate the protection components are functioning.
 - 8. All system functions of the transient suppression system shall be individually fused and not short circuit the AC power line at any time.
 - 9. The device shall have an EMI/RFI noise filter with a minimum attenuation of 13 dB at 10 kHz to 300 MHz.
 - 10. The device shall comply with IEEE C62.41.1 and IEEE C62.41.2, Class "B" requirements and be tested according to IEEE C62.45.
 - 11. The device shall be capable of operating between -20 degrees F and 122 degrees F.

3. Telephone and Communication Line Surge Protection: Provide surge and transient protection for DDC controllers and DDC network related devices connected to phone and network communication lines. The device shall provide continuous, non-interrupting protection, and shall automatically reset after safely eliminating transient surges. The protection shall react within 5 nanoseconds using only solid-state silicon avalanche technology. The device shall be installed at the distance recommended by its manufacturer.
 4. Controller Input/Output Protection: Provide controller inputs and outputs with surge protection via optical isolation, metal oxide varistors (MOV), or silicon avalanche devices. Fuses are not permitted for surge protection.
- C. Wiring: Provide complete electrical wiring for the DDC System, coordinate line of demarcation with Division 26. Unless indicated otherwise, provide all normally visible or otherwise exposed wiring in conduit. Where conduit is required, control circuit wiring shall not run in the same conduit as power wiring over 100 volts. Circuits operating at more than 100 volts shall be in accordance with Division 26. Run all circuits over 100 volts in conduit, metallic tubing, covered metal raceways, or armored cable. Use plenum-rated cable for circuits under 100 volts in enclosed spaces. Examples of these spaces include HVAC plenums, within walls, attics, or above suspended ceilings.
- D. Power Wiring: The following requirements are for field-installed wiring:
1. Wiring for 24 V circuits shall be insulated copper 18 AWG minimum and rated for 300 VAC service.
 2. Wiring for 120 V circuits shall be insulated copper 14 AWG minimum and rated for 600 VAC service.
- E. Analog Signal Wiring: Field-installed analog signal wiring shall be 18 AWG single or multiple twisted pair. Each cable shall be 100 percent shielded and have a 20 AWG drain wire. Each wire shall have insulation rated for 300 VAC service. Cables shall have an overall aluminum-polyester or tinned-copper cable-shield tape.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. The project plans shall be thoroughly examined for control device and equipment locations. Any discrepancies, conflicts, or omissions shall be reported to the architect/engineer for resolution before rough-in work is started.
- B. The contractor shall inspect the site to verify that equipment may be installed as shown. Any discrepancies, conflicts, or omissions shall be reported to the engineer for resolution before rough-in work is started. Verify that duct-, pipe-, and equipment-mounted devices and wiring are installed before proceeding with installation.
- C. The contractor shall examine the drawings and specifications for other parts of the work. If head room or space conditions appear inadequate—or if any discrepancies occur between the plans and the contractor's work of others—the contractor shall report these discrepancies to the

engineer and shall obtain written instructions for any changes necessary to accommodate the contractor's work with the work of others. Any changes in the work covered by this specification made necessary by the failure or neglect of the contractor to report such discrepancies shall be made by—and the expense of—this contractor.

3.02 INSTALLATION

- A. Install software in control units and operator workstation(s). Implement all features of programs to specified requirements and as appropriate to sequence of operation. Connect and configure equipment and software to achieve sequence of operation specified.
- B. Install all components in accordance with the manufacturer's recommendations. Perform the installation under the supervision of competent technicians regularly employed in the installation of DDC systems.
- C. Install equipment, piping, and wiring/raceway parallel to building lines (i.e., horizontal, vertical, and parallel to walls) wherever possible.
- D. Provide sufficient slack and flexible connections to allow for vibration of piping and equipment.
- E. All equipment, installation, and wiring shall comply with acceptable industry specifications and standards for performance, reliability, and compatibility and be executed in strict adherence to local codes and standard practices. Contractor shall continually monitor the field installation for code compliance and quality of workmanship. Contractor shall have work inspected by local and/or state authorities having jurisdiction over the work.
- F. Temperature Sensors: Install temperature sensors in locations that are accessible and provide a good representation of sensed media. Installations in dead spaces are not acceptable. Calibrate sensors according to manufacturer's instructions. Do not use sensors designed for one application in a different application.
- G. Room Temperature Sensors: Verify location of thermostats and other exposed control sensors with plans and room details before installation. Mount the sensors on interior walls to sense the average room temperature at the locations indicated. Avoid locations near heat sources such as copy machines or locations by supply air outlet drafts. Mount the center of the sensor 48 inches above the floor to meet ADA requirements.
 - 1. Install guards on room temperature sensors in the following locations:
 - 1. Entrances.
 - 2. Public areas.
 - 3. Main Vestibules
 - 4. All Corridors
 - 5. Where indicated.
- H. Duct Temperature Sensors
 - 1. Probe Type: Provide a gasket between the sensor housing and the duct wall. Seal the duct penetration air tight. Seal the duct insulation penetration vapor tight.

2. Averaging Type (and coil freeze protection thermostats): Weave the capillary tube sensing element in a serpentine fashion perpendicular to the flow, across the duct or air handler cross-section, using durable non-metal supports. Prevent contact between the capillary and the duct or air handler internals. Provide a duct access door at the sensor location. The access door shall be hinged on the side, factory insulated, have cam type locks, and be as large as the duct will permit; maximum 18 x 18 inches. For sensors inside air handlers, the sensors shall be fully accessible through the air handler's access doors without removing any of the air handler's internals.
 - I. Outside Air Temperature Sensors: Provide outside air temperature sensors in weatherproof enclosures on the north side of the building, away from exhaust hoods and other areas that may affect the reading. Provide a shield to shade the sensor from direct sunlight.
 - J. CO2 gas detector: Provide where indicated on drawing; mount adjacent to space sensor.
 - K. Install automatic dampers according to Section 23 31 13 "Ductwork."
 - L. Install damper motors on outside of duct in warm areas, not in locations exposed to outdoor temperatures.
 - M. Install labels and nameplates to identify control components according to Section 23 05 53 "Identification for HVAC Piping and Equipment."
 - N. Install hydronic instrument wells, valves, and other accessories according to Section 23 21 16 "Hydronic Piping Specialties." Provide thermowells for sensors measuring piping, tank, or pressure vessel temperatures. Locate wells to sense continuous flow conditions. Do not install wells using extension couplings. Where piping diameters are smaller than the length of the wells, provide wells in piping at elbows to sense flow across entire area of well. Wells shall not restrict flow area to less than 70 percent of pipe area. Increase piping size as required to avoid restriction. Provide thermal conductivity material within the well to fully coat the inserted sensor.
 - O. Install duct volume-control dampers according to Section 23 31 13 "Ductwork"
- 3.03 ELECTRICAL WIRING AND CONNECTION INSTALLATION
- A. Install raceways, boxes, and cabinets according to Section 26 05 33 "Raceways and Boxes for Electrical Systems."
 - B. Install building wire and cable according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
 - C. Install signal and communication cable according to Section 27 15 00 "Communications Horizontal Cabling."
 1. Conceal cable, except in mechanical rooms and areas where other conduit and piping are exposed.
 2. Install exposed cable in raceway.
 3. Install concealed cable in raceway.

4. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.
 5. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.
 6. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.
 7. Install wire and cable with sufficient slack and flexible connections to allow for vibration of piping and equipment.
- D. Connect manual-reset limit controls independent of manual-control switch positions. Automatic duct heater resets may be connected in interlock circuit of power controllers.
- E. Connect hand-off-auto selector switches to override automatic interlock controls when switch is in hand position.

3.04 FIELD QUALITY CONTROL

- A. **Manufacturer's Field Service:** Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections. Report results in writing.
1. **Operational Test:** After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
 2. Test and adjust controls and safeties.
 3. Test calibration of controllers by disconnecting input sensors and stimulating operation with compatible signal generator.
 4. Test each point through its full operating range to verify that safety and operating control set points are as required.
 5. Test each control loop to verify stable mode of operation and compliance with sequence of operation. Adjust PID actions.
 6. Test each system for compliance with sequence of operation.
 7. Test software and hardware interlocks.
- B. **DDC Verification:**
1. Verify that instruments are installed before calibration, testing, and loop or leak checks.
 2. Check instruments for proper location and accessibility.
 3. Check instrument installation for direction of flow, elevation, orientation, insertion depth, and other applicable considerations.
 4. Check instrument tubing for proper fittings, slope, material, and support.
 5. Check installation of air supply for each instrument.
 6. Check flow instruments. Inspect tag number and line and bore size, and verify that inlet side is identified and that meters are installed correctly.
 7. Check pressure instruments, piping slope, installation of valve manifold, and self-contained pressure regulators.
 8. Check temperature instruments and material and length of sensing elements.
 9. Check control valves. Verify that they are in correct direction.
 10. Check air-operated dampers. Verify that pressure gages are provided and that proper blade alignment, either parallel or opposed, has been provided.

11. Check DDC system as follows:

1. Verify that DDC controller power supply is from emergency power supply, if applicable.
2. Verify that wires at control panels are tagged with their service designation and approved tagging system.
3. Verify that spare I/O capacity has been provided.
4. Verify that DDC controllers are protected from power supply surges.

C. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

3.05 ADJUSTING

A. Calibrating and Adjusting:

1. Calibrate instruments.
2. Make three-point calibration test for both linearity and accuracy for each analog instrument.
3. Calibrate equipment and procedures using manufacturer's written recommendations and instruction manuals. Use test equipment with accuracy at least double that of instrument being calibrated.
4. Control System Inputs and Outputs:
 1. Check analog inputs at 0, 50, and 100 percent of span.
 2. Check analog outputs using milliampere meter at 0, 50, and 100 percent output.
 3. Check digital inputs using jumper wire.
 4. Check digital outputs using ohmmeter to test for contact making or breaking.
 5. Check resistance temperature inputs at 0, 50, and 100 percent of span using a precision-resistant source.
5. Flow:
 1. Set differential pressure flow transmitters for 0 and 100 percent values with 3-point calibration accomplished at 50, 90, and 100 percent of span.
 2. Manually operate flow switches to verify that they make or break contact.
6. Pressure:
 1. Calibrate pressure transmitters at 0, 50, and 100 percent of span.
 2. Calibrate pressure switches to make or break contacts, with adjustable differential set at minimum.
7. Temperature:
 1. Calibrate resistance temperature transmitters at 0, 50, and 100 percent of span using a precision-resistance source.
 2. Calibrate temperature switches to make or break contacts.

8. Stroke and adjust control valves and dampers without positioners, following the manufacturer's recommended procedure, so that valve or damper is 100 percent open and closed.
9. Stroke and adjust control valves and dampers with positioners, following manufacturer's recommended procedure, so that valve and damper is 0, 50, and 100 percent closed.
10. Provide diagnostic and test instruments for calibration and adjustment of system.
11. Provide written description of procedures and equipment for calibrating each type of instrument. Submit procedures review and approval before initiating startup procedures.

B. Adjust initial temperature and humidity set points.

C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to three visits to Project during other than normal occupancy hours for this purpose.

3.06 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC instrumentation and controls. Refer to Section 01 79 00 "Demonstration and Training."

B. Provide a qualified instructor (or instructors) with five years minimum field experience with the installation and programming of similar BACnet DDC systems. Orient training to the specific systems installed. Coordinate training times with the Owner. Training shall take place at the job site.

C. This training shall last **20 hours** and shall be conducted at the DDC system workstation, at a notebook computer connected to the DDC system in the field, and at other site locations as necessary. Upon completion of the Training, each trainee should fully understand the project's DDC system operation. The training session shall include the following:

D. Provide basic control system fundamentals training.

1. This project's list of control system components
2. This project's list of points and objects
3. This project's device and network communication architecture
4. This project's sequences of control, and:
5. Alarm capabilities
6. Trending capabilities
7. Troubleshooting communication errors
8. Troubleshooting hardware errors

E. Provide additional project-specific training:

1. A walk-through tour of the mechanical system and the installed DDC components (controllers, valves, dampers, surge protection, switches, thermostats, sensors, etc.)
2. A discussion of the components and functions at each DDC panel
3. Logging-in and navigating at each operator interface type
4. Using each operator interface to find, read, and write to specific controllers and objects

5. Modifying and downloading control program changes
6. Modifying setpoints
7. Creating, editing, and viewing trends
8. Creating, editing, and viewing alarms
9. Creating, editing, and viewing operating schedules and schedule objects
10. Backing-up and restoring programming and data bases
11. Modifying graphic text, backgrounds, dynamic data displays, and links to other graphics
12. Creating new graphics and adding new dynamic data displays and links
13. Alarm and Event management
14. Adding and removing network devices

3.07 TEST AND BALANCE SUPPORT

- A. The controls contractor shall coordinate with and provide on-site support to the test and balance (TAB) personnel This support shall include:
1. On-site operation and manipulation of control systems during the testing and balancing.
 2. Control setpoint adjustments for balancing all relevant mechanical systems.
 3. Tuning control loops with setpoints and adjustments determined by TAB personnel.

3.08 CONTROLS SYSTEM OPERATORS MANUALS

- A. Provide three electronic and printed copies of a Controls System Operators Manual. The manual shall be specific to the project, written to actual project conditions, and provide a complete and concise depiction of the installed work. Provide information in detail to clearly explain all operation requirements for the control system.
- B. Provide with each manual: CDs of the project's control system drawings, control programs, data bases, graphics, and all items listed below. Include gateway back-up data and configuration tools where applicable. Provide CDs in jewel case with printed and dated project-specific labels on both the CD and the case. For text and drawings, use Adobe Acrobat or MS Office file types. When approved by the Owner, AutoCAD and Visio files are allowed. Give files descriptive English names and organize in folders.
- C. Provide printed manuals in sturdy 3-ring binders with a title sheet on the outside of each binder indicating the project title, project location, contract number, and the controls contractor name, address, and telephone number. Each binder shall include a table of contents and tabbed dividers, with all material neatly organized. Manuals shall include the following:
1. A copy of the as-built control system (shop) drawings set, with all items specified under the paragraph "Submittals." Indicate all field changes and modifications.
 2. A copy of the project's mechanical design drawings, including any official modifications and revisions.
 3. A copy of the project's approved Product Data submittals provided under the paragraph "Submittals."
 4. A copy of the project's approved Performance Verification Testing Plan and Report.
 5. A copy of the project's approved final TAB Report.

6. Printouts of all control system programs, including controller setup pages if used. Include plain-English narratives of application programs, flowcharts, and source code.
7. Printouts of all physical input and output object properties, including tuning values, alarm limits, calibration factors, and set points.
8. A table entitled "AC Power Table" listing the electrical power source for each controller. Include the building electrical panel number, panel location, and circuit breaker number.
9. The DDC manufacturer's hardware and software manuals in both print and CD format with printed project-specific labels. Include installation and technical manuals for all controller hardware, operator manuals for all controllers, programming manuals for all controllers, operator manuals for all workstation software, installation and technical manuals for the workstation and notebook, and programming manuals for the workstation and notebook software.
10. A list of qualified control system service organizations for the work provided under this contract. Include their addresses and telephone numbers.
11. A written statement entitled "Software Upgrades" stating software and firmware patches and updates will be provided upon request at no additional cost to the Owner for a minimum of two years from contract acceptance. Include a table of all DDC system software and firmware provided under this contract, listing the original release dates, version numbers, part numbers, and serial numbers.

3.09 CLEANING

- A. The contractor shall clean up all debris resulting from his/her activities daily. The contractor shall remove all cartons, containers, crates, etc., under his/her control as soon as their contents have been removed. Waste shall be collected and placed in a designated location.
- B. At the completion of work in any area, the contractor shall clean all work, equipment, etc., keeping it free from dust, dirt, and debris, etc.
- C. At the completion of work, all equipment furnished under this section shall be checked for paint damage, and any factory-finished paint that has been damaged shall be required to match the adjacent areas. Any cabinet or enclosure that has been deformed shall be replaced with new material and repainted to match the adjacent areas.

PART 4 - PAYMENT PROCEDURES

4.01 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments. Payment shall be based on percentage of work completed and cost of materials and equipment.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.

3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- B. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 1. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 2. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 3. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

END OF SECTION 23 90 00

SECTION 32 14 00

UNIT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes: Providing all labor, materials, equipment, services and transportation required to complete the unit paving as shown on the Drawings and as specified herein.

- 1. Unit Pavers
- 2. Setting Bed for Unit Pavers
- 3. Detectable Warning Strips
- 4. Edging

- B. Related Sections:

- 1. Division 03 Section 03 30 00 Cast-In-Place Concrete
- 2. Division 31 Section 31 23 16 Excavation
- 3. Division 31 Section 31 23 23 Fill
- 4. Division 32 Section 32 12 16 Asphalt Paving
- 5. Division 32 Section 32 14 43 Porous Unit Paving
- 6. Division 32 Section 32 16 00 Curbing
- 7. Division 32 Section 32 30 00 Site Improvements
- 8. Division 32 Section 32 84 00 Irrigation System
- 9. Division 32 Section 32 92 00 Lawn Turf Grass
- 10. Division 32 Section 32 93 00 Planting
- 11. Division 32 Section 32 94 00 Topsoil

1.3 EXAMINATION OF SITE AND DOCUMENTS

- A. The Contractor is responsible for judging extent of work requirements involved. By submitting a bid, Contractor affirms they have carefully examined the site and conditions affecting the Work.

1.4 PERMITS AND CODES

- A. Work to conform to Contract Documents and comply with applicable codes and regulations.

2. Construct sample panels in accordance with other paving sample panels to provide comprehensive sample panel.
 3. Sample panel to establish quality of workmanship and exhibit full distribution of range of color, size, finish, grain and grain direction, edge finishes, jointing and relationship to adjacent materials. Distribution of colors to meet satisfaction the Owners Representative. Owners Representative will inspect sample panel. Construct sample panels on site in location directed by Owners Representative. Construct panels with features typical of construction. If original sample is not approved, provide additional panels at no cost to the Owner until approved sample is achieved. Do not construct sample panel on a location that will become part of the final pavement. Approved sample panel will remain undisturbed until paving is complete. Remove panel upon completion and acceptance of paving. Restore site of sample panel to the satisfaction of the Owner.
- G. Do not order materials until written approval has been obtained from the Owners Representative. Delivered materials to match the approved samples and/or submittals.
- H. Certificates: Submit materials certificates signed by material producer and Contractor. Provide certifications stating materials comply with requirements.

1.7 QUALITY ASSURANCE

- I. Installer Qualifications: All work under this Section to be performed by experienced workmen familiar with the required construction procedures and under the full time supervision of a qualified foreman.
- J. Unit Pavers: Free of cracks, chips, color inaccuracies or other defects, which impair strength, durability or appearance. Color, texture and finish must be within range of samples approved by Owners Representative's Representative or will be rejected.

1.8 DELIVERY HANDLING AND STORAGE

- A. Supplier to carefully pack and band pavers for shipment. Following shipping, store pavers on skids or pallets, covered with non-staining, waterproof membrane and protected from weather. Evenly place and stack skids to evenly distribute weight of paver materials and to prevent breakage, cracking, and damage. Store materials to allow air to circulate around material. Do not permit pavers to be in direct contact with ground during storage.
- B. Handle, store, mix and apply setting materials in strict compliance with manufacturer's recommendations and instructions.
- C. Damaged pavers will be rejected and replaced with new materials at no additional cost to Owners Representative.
- D. Protect finished surfaces adjacent to paving work from soiling, staining, and other damage.

1.9 PROJECT CONDITIONS

K. Weather: Perform bituminous concrete and unit paving work when existing and forecasted weather conditions are within the limits established in Section 32 12 16 – Asphalt Paving.

B. Cold Weather Protection:

1. Remove ice or snow formed on pavers or base by carefully applying heat until top surface is dry to touch.
2. Remove paver work damaged by freezing conditions.

C. Cold Weather Protection for Completed Paver Work:

Mean Daily
 Air Temperatures

Procedures

40° - 32°F.

Protect paving work from rain or snow for at least 24 hours by covering with weather-resistant membrane.

32° - 25°F.

Completely cover paver work with weather - resistive membrane for at least 24 hours.

25° - 20°F.

Completely cover paver work with insulating blankets or similar protection for at least 24 hours.

20°F. – below zero

Maintain paver work at temperature above 32°F. for 24 hours using enclosures and supplementary heat.

1. Do not use frozen materials or materials mixed or coated with ice or frost.
2. Do not build on frozen work; remove and replace paver work damaged by heat or freezing.
3. Protect partially completed paver work against weather when work is not in progress.

1.10 COORDINATION

L. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.11 EXTRA MATERIALS

M. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Unit Pavers: Provide a minimum of 50 extra approved Unit Pavers to the Owners Representative for future use as required.

- B. Comply with rules, regulations, laws and ordinances of the Town of Trenton, State of Maine and all other authorities having jurisdiction.
- C. Arrange for and obtain permits and licenses required to complete the Work. Fees not waived to be paid by the Contractor.
- D. Do not close or obstruct streets, sidewalks, alleys or passageways without prior notification and permission. Conduct operations to minimize interference with use of roads, driveways, alleys, sidewalks, or other facilities near enough to the Work to be affected.

1.5 DEFINITIONS

- C. Applicable specifications and publications, referred to herein, form a part of these Specifications:
 - 1. Standard Specification: The State of Maine, Department of Transportation, Standard Specifications for Highways and Bridges, latest edition.
 - 2. ASTM: American Society of Testing and Materials
 - 3. AASHTO: American Association of State Highway and Transportation Officials.
 - 4. NBGQA: National Building Granite Quarries Association.

1.6 SUBMITTALS

- D. Product Data: For each type of product indicated. Include construction details, material descriptions, design data, dimensions of individual components and profiles, and finishes including rated capacities, operating characteristics for the following:
 - 1. Setting Bed
 - 2. Bituminous concrete base
 - 3. Precast Concrete Unit Pavers (All types Specified herein.)
 - 4. Paver edge restraint
- E. Samples: Submit for inspection and approval: Samples with certified analysis.
 - 1. Provide a minimum of six (or more) of each paver type and color. Paver samples to be sufficient to show full range of color and finish, edge finish and texture variation to be expected in the finish work.
 - 2. Provide (2) 2-foot long samples of metal and plastic paver restraints/edging as specified herein.
- F. Sample Panel:
 - 1. After receipt of Owners Representative's written approval of material samples, construct one 12 foot by 12 foot square sample panel each of the Unit Paver types and patterns as shown on the Drawings.

2. Granite Unit Pavers: Provide a minimum of 15 extra approved Granite Unit Pavers to the Owners Representative for future use as required.
3. Detectable Warning Strip Pavers: Provide a minimum of 15 extra approved Detectable Warning Strip Pavers to the Owners Representative for future use as required.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE UNIT PAVERS

A. Subject to compliance with requirements, provide the following with salient characteristics:

1. Hydraulically pressed cement concrete and meeting compressive strength in accordance with ASTM, C936 and ASTM 170-90, Standard Test Method for Compressive Strength of Dimension Stone. Pavers shall be produced to meet or exceed the following test results: average compressive strength of 8,000 and no less than 7,200 pounds per square inch at 28 days, an absorption rate of less than 5% at 50 cycles of freeze thaw testing, and a density of 155.0 pound per cubic foot.
2. Pavers to be constructed with spacers on sides providing a uniform 1/16" joint around pavers. Bottom of pavers to be gauged, typical.
3. Pavers to be fabricated of Coplay Cement, Type I, colors as described in Acceptable Manufacturers herein. Pigments in concrete pavers shall conform to ASTM C 979. Note: ACI Report No. 212.3R provides guidance on the use of pigments.
4. Paver aggregates to be blend from 200 mesh to 5/8 inch with a light gray color. Aggregate to have a PA S.R.L. test of H, specific gravity of 2.79 and absorption of 2.60. Aggregates to be washed with no deleterious substances and with no thin or elongated pieces. Aggregates to have L.A. abrasion test of 21 and L.A. rattles loss test of 21.8% (at 500 revolutions). Aggregates to have a wash test of less than 1% (this includes materials lost by washing the aggregate, even those aggregates finer than 200 mesh).
5. Paver mix to be prepared in a stationary mixer to a 5 inch slump, mixed a maximum time of two minutes and placed in the mold in a homogenous state. The entire paver is to be of the same design and a single mix system. Hydraulic pressure to be employed to be a minimum of 800,000 pounds without the use of vibration.
6. Unit paver colors, color mix and sizes to conform to paver mix table shown on Drawing L-101 Plaza Materials Plan. Colored pavers to be randomly placed and as approved by the Owners Representative.
7. Acceptable Manufacturers:
 - a. Unilock New England, 35 Commerce Drive, Uxbridge, MA., 01569, www.unilock.com. Pavers: Promenade Paver all with Umbriano Finish and gauged bottoms with side spacers. Colors: Winter Marvel, French Gray and Midnight Sky. Paver Sizes: (WxLxD) 4" x 12" x 4"; 4" x 16" x 4"; 7.8" x 7.8" x 4" (7.8 x 7.8 is a custom run at 4" thick, color for this size is Midnight Sky only).
 - b. Techo-Bloc, 5255 Albert Millichamp, St Hubert Quebec, Canada J3Y8Z8 877 832 4625. Pavers Industria Smooth, Sizes 150x150 (WxLxD : 5-7/8" x 5-7/8" x 3-

15/16", 300x100 (3-15/16" x 11-15/16 x 3-15/16"), 450x100 (3-15/16" x 17-11/16 x 3-15/16"), 600x100 (3-15/16" x 23-5/8 x 3-15/16"). Colors: Shale Gray, Grayed Nickel and Onyx Black. (150 x 150 pavers are Onyx Black only)

2.2 DETECTABLE WARNING STRIPS (PAVERS)

- A. Detectable Warnings: Detectable warnings shall meet the material and installation requirements of MDOT Special Provision 608 "Detectable Warnings". Pavers shall be new, vacuum dry-pressed, bevel-edged and kiln-fired, solid (uncored), hard-burned, frost-free, masonry pavers complying with the requirements of ASTM C902 or C936, Class SX, Application PS, with the following modifications:
- a. The maximum absorption limit shall be 7 percent for the average of five Pavers.
 - b. The minimum compressive strength shall not be less than 8,000 psi.
 - c. The modulus of rupture shall not be less than 1,000 psi.
 - d. Color: Charcoal or darkest color of approved samples from the selected paver manufacturer.
- B. Pavers shall meet all Americans with Disabilities Act Accessibility Guidelines (ADAAG) requirements for truncated domes, and when installed, shall be capable of producing the pattern of domes as shown in the plans.
- C. The domes and underlying surface shall have a minimum of 70% contrast with the light reflectivity of the adjoining surface as specified under the ADAAG requirements for truncated domes. The contrast shall be achieved by adding pigment during the fabrication of the pavers. Bedding and joint sand shall be free of deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Limestone screenings or stone dust shall not be used. Sand for bedding material shall conform to ASTM C33. Sand that is to be placed between joints shall conform to ASTM C144.
- D. Acceptable Manufacturers:
1. Unilock New England, 35 Commerce Drive, Uxbridge, MA., 01569, www.unilock.com. Pavers: Color: Charcoal or approved equal by the Owners Representative.
 2. Hanover Architectural Products, 5000 Hanover Road, Hanover, PA 17331 info@hanoverpavers.com, (800) 426-4242 Color: Charcoal or approved equal by the Owners Representative.

2.3 SETTING BED SAND

- A. Provide Setting Bed Sand as follows:
1. Washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock.
 2. Do not use limestone screenings, stone dust, or sand material that does not conform to conform to the grading requirements of ASTM C 33.
 3. Do not use mason sand or sand conforming to ASTM C 144.

4. Utilize sands that are as hard as practically available where concrete pavers are subject to vehicular traffic.
5. Conform to the grading requirements of ASTM C 33 with modifications as shown in Table 2 below:

**TABLE 1
 SETTING BED SAND GRADATION REQUIREMENTS FOR SETTING BED**

Sieve Size	Percent Passing
3/8 in (9.5 mm)	100
No. 4 (4.75 mm)	95 to 100
No. 8 (2.36 mm)	70 to 100
No. 16 (1.18 mm)	50 to 85
No. 30 (0.600 mm)	25 to 60
No. 50 (0.300 mm)	10 to 30
No. 100 (0.150 mm)	2 to 10
No. 200 (0.075)	0 to 1

2.3 BITUMINOUS CONCRETE BASE COURSE

- A. Bituminous concrete base course: bituminous concrete binder in accordance with relevant provisions of Section M3, Bituminous Materials, of the Standard Specification and as specified in Division 32 Section 32 12 16 Asphalt Paving.

2.4 POLYMERIC JOINT SAND

- A. Provide Polymeric Joint Sand as manufactured by:
 - 1 Alliance Gator G2
 - a. Product Type: Dry mix, contains polymeric binding agent, activated with water.
 - b. Color: Slate Grey
 2. Unicare HP Polymeric Max Sand
 - a. Product Type: Dry mix, contains polymeric binding agent, activated with water.
 - b. Color: Grey
 3. Or approved equal
- B. Provide Polymeric Joint Sand meeting the minimum material and physical properties as follows:
 1. Compression Strength: proven resistance to compression of 550 PSI after drying for 7 days under controlled conditions (73°F (23°C) at 50% humidity).
 - a. Test sand sample shape: cylinder (2" (5 cm) dia. X 4" (10 cm) high).

2. Gradation :

**TABLE 2 – JOINT SAND
GRADATION REQUIREMENTS FOR JOINT SAND ASTM C 144**

Sieve Size	Natural Sand Percent Passing	Manufactured Sand Percent Passing
No. 4 (4.75 mm)	100	100
No. 8 (2.36 mm)	95 to 100	95 to 100
No. 16 (1.18 mm)	70 to 100	70 to 100
No. 30 (0.600 mm)	40 to 75	40 to 75
No. 50 (0.300 mm)	10 to 30	20 to 40
No. 100 (0.150 mm)	2 to 15	10 to 25
No. 200 (0.075)	0 to 1	0 to 10

2.5 DETECTABLE WARNING STRIPS (PAVERS)

- A. Detectable Warnings: Detectable warnings shall meet the material and installation requirements of MDOT Special Provision 608 “Detectable Warnings”. Pavers shall be new, vacuum dry-pressed, bevel-edged and kiln-fired, solid (uncored), hard-burned, frost-free, masonry pavers complying with the requirements of ASTM C902 or C936, Class SX, Application PS, with the following modifications:
- e. The maximum absorption limit shall be 7 percent for the average of five Pavers.
 - f. The minimum compressive strength shall not be less than 8,000 psi.
 - g. The modulus of rupture shall not be less than 1,000 psi.
 - h. Color: Charcoal or darkest color of approved samples from the selected paver manufacturer.
- E. Pavers shall meet all Americans with Disabilities Act Accessibility Guidelines (ADAAG) requirements for truncated domes, and when installed, shall be capable of producing the pattern of domes as shown in the plans.
- F. The domes and underlying surface shall have a minimum of 70% contrast with the light reflectivity of the adjoining surface as specified under the ADAAG requirements for truncated domes. The contrast shall be achieved by adding pigment during the fabrication of the pavers. Bedding and joint sand shall be free of deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Limestone screenings or stone dust shall not be used. Sand

for bedding material shall conform to ASTM C33. Sand that is to be placed between joints shall conform to ASTM C144.

G. Acceptable Manufacturers:

1. Unilock New England, 35 Commerce Drive, Uxbridge, MA., 01569, www.unilock.com.
Pavers: Promenade Paver all with Umbriano Finish and gauged bottoms with side spacers. Paver Sizes: 12" by 12" by 2.75". Color: Charcoal or approved equal by the Owners Representative.

2.6 PAVER EDGING

- A. Paver edge restrain where pavers are not bordered by curb, walls, building or other hard vertical surface: shall be aluminum edging with appropriate spikes 18" on center with the following salient characteristics: Aluminum manufactured from extruded aluminum of T-6 hardness with interlocking system and stake areas as specified herein. Sections to lock together without offset or double thickness at the joints and secured with two stakes at every joint. There are two applications for paver edging – to separate paver direction and/or types and to edge pavers against non-rigid conditions

B. Acceptable Products and Manufacturers

1. Type A: Between Paver Types:
 - a. Series 4000 Heavy duty L Shaped aluminum Edge Restraint by Curv-Rite Aluminum Edging, Wayland, MI 1-800-366-2878. www.curv-rite.com. Size: 4" x 3" , Mill finish
 - b. Asphalt Edge as manufactured by Permaloc Corporation 13505 Barry Street Holland, Michigan 49424 USA 1.800.356.9660 www.permaloc.com. Size 4" x 3", mill finish.
2. Type B: At Paver / Landscape Interface:
 - a. Series 4000 Heavy duty L Shaped aluminum Edge Restraint by Curv-Rite Aluminum Edging, Wayland, MI 1-800-366-2878. www.curv-rite.com. Size: 3" x 3" , Mill finish
 - b. Structure Edge by Permaloc Corporation 13505 Barry Street Holland, Michigan 49424 USA 1.800.356.9660 www.permaloc.com. Size: 3/16" thickness by 2-1/4" heavy duty 8cm paver restraint, Mill finish

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Make any corrections necessary to sub-base furnished and installed under Division 31 Section 31 23 16 Excavation and Section 31 23 23 Fill to bring to the sections and elevations shown on the Drawings.
- B. Construct Cement Concrete Base, Bituminous Concrete Base and Sidewalk as specified under Section 03 30 00 Cast-In-Place Concrete, and Section 32 12 16 Asphalt Paving and as specified herein.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Insure compaction is 95% minimum throughout sub-base.

3.2 INSTALLATION OF BITUMINOUS CONCRETE BASE

- A. Furnish and install bituminous concrete base course in accordance with Division 32 Section 32 12 16 Asphalt Paving.

BITUMINOUS CONCRETE SETTING BED INSTALLATION

- A. Place two 3/8 inch by one inch control bars directly over base. Adjust bars with wood chucks under control bars to bring 3/4 inch setting bed or proper grade. Set bars parallel to each other approximately eleven feet apart to serve as guides for striking board (12 feet long, 2 inch x 6 inch board). Set depth control bars to bring pavers, when laid, to proper grade. Place some setting bed material between parallel depth control bars. Pull bed with striking board over bars several times. After each passage, low porous spots to be showered with fresh setting bed material to produce smooth firm and even setting bed. As soon as this panel is completed advance first bar to next position ready for striking next panel. Carefully fill depressions remaining after removing depth control bars and wood checks. Adjust elevation so when pavers are placed, top surface of pavers will be at required finished grade.
- B. Roll setting bed with a power roller to 3/4 inch depth. Final surface of setting bed over gravel base to be left 1/8" higher than adjacent surfaces to allow for settlement.

3.3 UNIT PAVER AND DETECTABLE WARNING STRIP INSTALLATION

- A. Place pavers carefully by hand in straight courses as shown on the Drawings with hand tight joints and uniform top surface. Good alignment to be kept, and the pattern will be that shown on the plans. The Owners Representative will approve the start of paving layouts. Do not use pavers which are chipped, cracked, voids, stains and other defects. Cut pavers to fit in locations noted. Machine cuts only. Minimum paver size to be no smaller than 1/2 unit size. Final surface of pavers to be left 1/8" higher than adjacent surfaces to allow for settlement.
 - 1. Unit pavers are to be brought to the finish grade as shown on the plan. There will be no deviation from a true grade greater than one-quarter inch (1/4") in ten feet (10').
- B. Complete pavement cutting (including the filling and closing of openings) with water-cooled radial cut-off type masonry saws for sharp, straight edges.

- C. Newly laid pavers are to be protected at all times by panels of plywood. These panels may be advanced as work progresses; however, keep plywood protection in areas which will be subjected to continued movement of materials and equipment. Take necessary precautions in order to avoid depressions and protect paver alignment. If settlement occurs producing mismatch of more than 1/16 inch at interface between pavers and other pavements prior to final acceptance, relay pavers near interface for sufficient distance to provide smooth transition between paving surfaces and satisfactory match between pavers and adjacent surfaces.
- D. Set paver edge against edges of pavers to be retained (non rigid edges such as lawns and landscaped beds). Paver edge to be set plumb and vertical. Bend paver edge to follow radius of brick. Place stakes as recommended by manufacturer. Verify there is no piping, utility lines or other obstructions in locations of stake placement, adjust stake placement accordingly.
- E. Sweep joint filler into paver joints until joints are filled solid. Fog lightly with water and repeat a minimum of three (3) times or until joints are compacted and full. Clean all stains immediately.
- F. Prior to acceptance, flood the paved areas with water to assure there are no depressions. Remove and reset pavers as required until surface is true to line and grade. Sweep mason sand into paver joints as required until all settlement has ceased and as approved by the Owners Representative.

3.4 DETECTABLE WARNING STRIP (PAVER) INSTALLATION IN ASPHALT FIELD

- A. Saw cut out bituminous concrete to the dimensions shown on the Drawings. Remove bituminous Concrete to the aggregate level. Bring up level or lower level of aggregate as required so as to produce a paver which is level with the surrounding pavement. Place detectable warning strip pavers carefully by hand in straight courses as shown on the Drawings with hand tight joints and uniform top surface. Good alignment to be kept, and the pattern will be that shown on the plans. The Owners Representative will approve the start of paving layouts. Minimum paver size to be no smaller than ½ unit size. Final surface of pavers to be left 1/8” higher than adjacent surfaces to allow for settlement.
 - 1. Detectable warning strip pavers: Bring to the finish grade as shown on the plan. There will be no deviation from a true grade greater than one-quarter inch (1/4") in ten feet (10').
- B. Complete pavement cutting (including the filling and closing of openings) with water-cooled radial cut-off type masonry saws for sharp, straight edges.
- C. Newly laid pavers are to be protected at all times by panels of plywood. These panels may be advanced as work progresses; however, keep plywood protection in areas which will be subjected to continued movement of materials and equipment. Take necessary precautions in order to avoid depressions and protect paver alignment. If settlement occurs producing mismatch of more than 1/16 inch at interface between pavers and other pavements prior to final acceptance, relay pavers near interface for sufficient distance to provide smooth transition between paving surfaces and satisfactory match between pavers and adjacent surfaces.

3.4 ADJUSTING AND CLEANING

- A. Adjust, remove and replace granite and brick paver units which are broken, chipped, stained and otherwise damaged. Remove and replace units which are misaligned, not to grade and do not match adjoining paver work. Repair defective and unsatisfactory joints to provide neat, uniform appearance.
- B. Clean paver units to remove stains, dirt and other discoloration or blemishes. Follow manufacturers instructions for use, handling and application of masonry cleaners.
- C. Final surface elevation not to deviate more than 1/8” under a 10 foot long straightedge laid in any direction, or 1/8” in any direction over the entire area of detectable warning strips (pavers).

3.5 PROTECTION

- A. Provide polyethylene covers or other temporary protection of lawn, plants and other non-working areas adjacent to masonry cleaning. Remove coverings immediately following cleaning operations. Collect and remove residual cleaning solutions from site.

PART 4 – COMPENSATION

4.01 METHOD OF MEASUREMENT

- A. Unit Pavers will be measured by the square yard, complete-in-place as approved by the Owners Representative and as per the Contract Documents.
- B. Gravel borrow will be measured for as specified in Section 203 - Excavation and Embankment and Section 304 - Aggregate Base and Subbase Course.
- C. Bituminous concrete setting bed will be paid for as specified in Section 401 - Hot Mix Asphalt

4.02 BASIS OF PAYMENT

- A. Unit pavers will be paid for at the contract unit price each complete in place and accepted. Payment shall include all materials, equipment, and labor necessary for furnishing, loading, delivering, stockpiling, fine grading, final placement, and other incidental labor, materials, and equipment necessary to complete the work.
- B. Specified Gravel borrow will be paid for as specified in Section 203 - Excavation and Embankment and Section 304 - Aggregate Base and Subbase Course.
- C. Bituminous concrete setting bed will be paid for as specified in Section 401 - Hot Mix Asphalt Pavement

4.03 PAYMENT ITEMS

608.251	Plaza Concrete Pavers	SY
621.98	Metal Landscape Edging	LF
621.98	Plastic Landscape Edging	LF

END OF SECTION 32 14 00

SPECIAL PROVISION
SECTION 801 – SANITARY SEWER

801.1 Description This work includes the installation of sanitary sewer piping, manholes, septic tanks, pretreatment tanks, force main, pump station, subsurface wastewater disposal field at the locations shown in the plans and in accordance with the plans or as established by Project Personnel.

801.2 Construction Provide shop drawings for gravity sewer pipe, gravity sewer fittings, force main pipe, force main fittings, septic tanks, pretreatment tanks, sanitary manholes, cleanout manholes, terminus manholes, manhole frames, manhole covers, precast concrete pump station, pumps, control panel, floats, subsurface disposal chambers, distribution box, pretreatment system.

Record as-built locations of piping, connections, cleanouts, and invert elevations and submit to Engineer. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

Perform work in accordance with the Maine Subsurface Wastewater Disposal Rules.

PVC Force Main shall be SDR 21.

Trace Wire shall be installed 6" over force main piping. Trace Wire shall be magnetic detectable conductor, clear plastic covering, imprinted with "Sewer Service" in large letters.

Connect sanitary sewer to building sanitary sewer outlet.

Pipe Installation: Commence at the lowest point in the system and lay the pipe with the bell end upgrade. Use manufacturers approved lubricating compounds as applicable. Lay pipe in straight lines and on uniform grades. Backfill pipe and carefully tamp backfill under lower parts of the pipe. Flush all sanitary sewers. Remove obstructions in pipe and correct any defects discovered.

Pressure test gravity sewer in accordance with ASTM F 1417.

Pressure test force main with hydrostatic test as follows.

1. Fill section of pipe with water and expel all air.
2. Pressurize to 1.5 times the normal operating pressure but not less than 60 psi.
3. Measure leakage over a 2-hour test period.
4. Acceptable leakage: Less than 10 gallons per day per inch diameter per mile of pipe tested.

Provide copies of test report to Owner.

If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner

801.3 septic tanks, pump station, subsurface wastewater disposal system Construct subsurface wastewater disposal system in accordance with the State of Maine Subsurface Wastewater Disposal Rules and the HHE-200 for the system.

Sanitary manholes, septic tanks, and pretreatment tanks shall be located as shown on plans and constructed in accordance with details within the plan set. Tanks shall be placed level on a bed of crushed stone over compacted subgrade. Tanks shall conform to capacity, concrete compressive strength, and traffic loading as shown on plans.

Pump Station shall be located as shown on plans and constructed in accordance with details within the plan set. Pump Station shall be placed level on a bed of crushed stone over compacted subgrade. Pump Station shall conform to capacity, concrete compressive strength, and traffic loading as shown on plans. Control panels, alarms, and floats to be commercial grade hardwired units.

Electrical service for pumps, alarm, etc. shall be in conduits and hardwired to the building's electrical system. Comply with applicable electrical codes.

Pump station supplier shall perform an operational test on the installed equipment and shall remove, replace, and retest any failing component at no cost to Owner.

801.4 Basis of Payment

The accepted quantity of pipe will be paid for at the contract unit price per linear foot complete in place. Trench excavation, backfill, couplings, connections of pipe, crushed stone, sand, and all other appurtenances necessary to satisfactorily complete the work shall be considered incidental and no further payment will be made.

The accepted quantity of sanitary manholes (including all piping, supports, insulation, steps, frames, and covers) and tanks shall be paid at the contract unit price each in place. Excavation, backfill, Couplings, Sealant, Connections of Pipe, Crushed Stone, Sand, Sediment Removal, frames, covers, steps, manhole inverts, and all other appurtenances necessary to satisfactorily complete the work shall be considered as incidental to the cost of supplying and installing the structures.

The accepted quantity of Pump Station shall be paid at the contract unit price each in place. Excavation, backfill, Couplings, Sealant, Connections of Pipe, Crushed Stone, Sand, Sediment Removal, frames, covers, pumps, floats, sensors, alarms, control panel, electrical connections and wiring, testing and all other appurtenances necessary to satisfactorily complete the work shall be considered as incidental to the cost of supplying and installing the pump station.

The accepted quantity of Subsurface Wastewater Disposal Field shall be paid at the contract unit price of lump sum in place. Excavation, Backfill, Couplings, Connections of Pipe, Crushed Stone, Sand, Sediment Removal, Frames, Covers, Distribution boxes, testing and all other appurtenances necessary to satisfactorily complete the work in conformance with the plan details and HHE-200 for the system shall be considered as incidental to the cost of constructing the subsurface wastewater disposal field.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
801.014	8' Diameter Pump Station	Each
801.12	2.5" Force Main	Linear Foot
801.17	8" Sanitary Sewer	Linear Foot
802.20	20,000 Gallon Septic Tank	Each
802.201	10,000 Gallon Septic Tank	Each
802.23	Subsurface Wastewater Disposal Field	Lump Sum
803.173	4' Diameter Cleanout Manhole	Each
803.173	4' Diameter Sanitary Manhole	Each
910.30	OXYPRO Pretreatment Unit	Each

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
Division of Environmental Health, SHS 11
(207) 287-5672 Fax: (207) 287-3165

PROPERTY LOCATION		CAUTION: PERMIT REQUIRED - ATTACH IN SPACE BELOW	
City, Town, or Plantation	Trenton	Town/City _____	Permit # _____
Street or Road	Gateway Center Drive	Date Permit Issued ___/___/___	Fee: \$ _____ Double Fee Charged <input type="checkbox"/>
Subdivision, Lot #	"Acadia Gateway Vistor Center"	_____	L.P.I. # _____
OWNER/APPLICANT INFORMATION		Local Plumbing Inspector Signature _____	
Name (last, first, MI)	Keezer, Brian - MDOT	- Owner <input type="checkbox"/> Town <input type="checkbox"/> State <input type="checkbox"/>	
Applicant Mailing Address	16 State House Station August ME 04333	The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.	
Daytime Tel. #	207-624-3612	Municipal Tax Map # <u>23</u> Lot # <u>1</u>	
OWNER OR APPLICANT STATEMENT		CAUTION: INSPECTION REQUIRED	
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.		I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.	
_____ Signature of Owner or Applicant		_____ Local Plumbing Inspector Signature	
_____ Date		_____ (1st) date approved	
		_____ (2nd) date approved	

PERMIT INFORMATION			
TYPE OF APPLICATION <input checked="" type="checkbox"/> 1. First Time System <input type="checkbox"/> 2. Replacement System Type replaced & Year installed: <input type="checkbox"/> 3. Expanded System <input type="checkbox"/> a. < 25% Expansion <input type="checkbox"/> b. ≥ 25% Expansion <input type="checkbox"/> 4. Experimental System <input type="checkbox"/> 5. Seasonal Conversion	THIS APPLICATION REQUIRES <input checked="" type="checkbox"/> 1. No Rule Variance <input type="checkbox"/> 2. First Time System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector <input type="checkbox"/> 3. Replacement System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector <input type="checkbox"/> 4. Minimum Lot Size Variance <input type="checkbox"/> 5. Seasonal Conversion Permit	DISPOSAL SYSTEM COMPONENTS <input type="checkbox"/> 1. Complete Non-engineered System <input type="checkbox"/> 2. Primitive System (graywater & alt. toilet) <input type="checkbox"/> 3. Alternative Toilet, specify: _____ <input type="checkbox"/> 4. Non-engineered Treatment Tank (only) <input type="checkbox"/> 5. Holding Tank, _____ gallons <input type="checkbox"/> 6. Non-engineered Disposal Field (only) <input type="checkbox"/> 7. Separated Laundry System <input checked="" type="checkbox"/> 8. Complete Engineered System (2000 gpd or more) <input type="checkbox"/> 9. Engineered Treatment Tank (only) <input type="checkbox"/> 10. Engineered Disposal Field (only) <input checked="" type="checkbox"/> 11. Pre-treatment, specify: <u>(2) 20,000 OxyPro Units</u> <input type="checkbox"/> 12. Miscellaneous Components: See Details	DISPOSAL SYSTEM TO SERVE <input type="checkbox"/> 1. Single-Family Dwellings, Total No. of Bedrooms: _____ <input type="checkbox"/> 2. Multiple Family Dwelling, No. of Units: _____ <input checked="" type="checkbox"/> 3. Other: <u>Acadia Gateway Vistor Center</u> (specify) Current Use <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Year Round <input type="checkbox"/> Undeveloped
SIZE OF PROPERTY 150+/- <input type="checkbox"/> SQ. FT. <input checked="" type="checkbox"/> ACRES	TYPE OF WATER SUPPLY <input checked="" type="checkbox"/> 1. Drilled Well <input type="checkbox"/> 2. Dug Well <input type="checkbox"/> 3. Private <input type="checkbox"/> 4. Public <input type="checkbox"/> 5. Other		
SHORELAND ZONING <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)			
TREATMENT TANK <input checked="" type="checkbox"/> 1. Concrete In Series <input checked="" type="checkbox"/> a. Regular 20,000 Gal. Tank to <input type="checkbox"/> b. Low Profile 10,000 Gal. <input type="checkbox"/> 2. Plastic Two-Compartment w/ Three A300 Filter <u>30,000 Gal. Total</u>	DISPOSAL FIELD TYPE & SIZE <input type="checkbox"/> 1. Stone Bed <input type="checkbox"/> 2. Stone Trench <input checked="" type="checkbox"/> 3. Proprietary Device - Concrete Chamb. <input checked="" type="checkbox"/> a. cluster array <input type="checkbox"/> c. Linear <input checked="" type="checkbox"/> b. regular load <input type="checkbox"/> d. H-20 load <input type="checkbox"/> 4. Other: _____ SIZE: <u>66,475</u> <input checked="" type="checkbox"/> sq. ft. <input type="checkbox"/> lin. ft.	GARBAGE DISPOSAL UNIT <input checked="" type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes <input type="checkbox"/> 3. Maybe If Yes of Maybe, specify one below: <input type="checkbox"/> a. multi-compartment tank <input type="checkbox"/> b. _____ tanks in series <input type="checkbox"/> c. increase in tank capacity <input checked="" type="checkbox"/> d. Filter on Tank Outlet	DESIGN FLOW <u>20,144</u> gallons per day BASED ON: <input type="checkbox"/> 1. Table 4A (dwelling unit(s)) <input checked="" type="checkbox"/> 2. Table 4C (other facilities) SHOW CALCULATIONS for other facilities: _____ See Attached HHE-220 Forms
SOIL DATA PROFILE <u>3</u> / CONDITION <u>C</u> at Observation Hole # <u>BTP</u> Depth <u>17</u> " <u>02</u> of Most Limiting Soil Factor Mottling	DISPOSAL FIELD SIZING <input type="checkbox"/> 1. Medium---2.6 sq. ft. / gpd <input checked="" type="checkbox"/> 2. Medium---Large 3.3 sq. ft. / gpd <input type="checkbox"/> 3. Large---4.1 sq. ft. / gpd <input type="checkbox"/> 4. Extra Large---5.0 sq. ft. / gpd	EFFLUENT/EJECTOR PUMP <input type="checkbox"/> 1. Not Required <input type="checkbox"/> 2. May Be Required <input checked="" type="checkbox"/> 3. Required - See Plan Specify only for engineered systems: DOSE: _____ gallons	ATTACH WATER METER DATA LATITUDE AND LONGITUDE at center of disposal area Lat <u>44°</u> <u>28'</u> <u>01.18</u> s Lon <u>68°</u> <u>22'</u> <u>m29.33</u> s if g.p.s. state margin of error: _____

SITE EVALUATOR STATEMENT		
I certify that on <u>10-19-21</u> (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).		
_____ Site Evaluator Signature	<u>264</u> SE #	<u>12-21-22</u> Date
<u>DAVID W. MOYSE</u> Site Evaluator Name Printed	<u>(207) 945-6179</u> Telephone Number	<u>dave@moyseenvironmental.com</u> Email Address

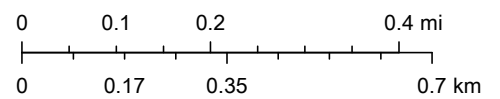
Site Location Map - USGS Topo



12/21/2022, 1:38:31 PM

1:18,056

⊗ SITE LOCATION



Copyright:© 2013 National Geographic Society, i-cubed

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10
 (207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Trenton

Street, Road, Subdivision
Gateway Center Drive

Owner or Applicant Name
MDOT Attn: Brian Keezer Keezer

SITE PLAN

SEE ATTACHED PLANS
 C201, C202 & C203
 BY GORRILL PALMER

SOIL PROFILE DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole # _____ Test Pit Boring

_____ " Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
0			
6			
12			
18			
24			
30			
36			
42			
48			

SEE ATTACHED SOIL LOGS

Soil Profile	Classification	Slope	Limiting Factor	<input type="checkbox"/> Groundwater
Condition		Percent	Depth	<input type="checkbox"/> Restrictive Layer
				<input type="checkbox"/> Bedrock

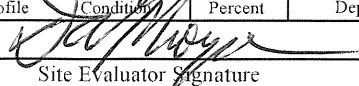
Observation Hole # _____ Test Pit Boring

_____ " Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
0			
6			
12			
18			
24			
30			
36			
42			
48			

SEE ATTACHED SOIL LOGS

Soil Profile	Classification	Slope	Limiting Factor	<input type="checkbox"/> Groundwater
Condition		Percent	Depth	<input type="checkbox"/> Restrictive Layer
				<input type="checkbox"/> Bedrock


 Site Evaluator Signature

264
 SE #

12-21-22
 Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10
 (207) 287-5672 Fax: (207) 287-5165

Town, City, Plantation
Trenton

Street, Road, Subdivision

Gateway Center Drive

Owner or Applicant Name

MDOT Attn: Brian Keezer

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale: 1" = 40

* SEE GORRILL PALMERS UTILITY PLAN

INSTALL 2.5" FORCE MAIN
 HD 100 POLY PRESSURE
 SEWER PIPE - ATTACH
 TO EXISTING FORCE MAIN
 PROTECT AGAINST CRUSHING
 AND FREEZING W/ PROPER
 INSULATION AND COVER.
 SLEEVE UNDER
 TRAVELED WAYS
 WHERE NEEDED.

INSTALL TWO 20,000 GAL. OXY PRO
 TREATMENT UNITS IN PARALLEL
 PER MANUFACTURER SPECS. (SEE DETAIL)

INSTALL 8" SOLID SCH. 40
 PVC EFFLUENT LINE,
 1/8" PER FT. MIN. GRADIENT.

INSTALL PUMP STATION* WITH
 TWO BARNES SGV SERIES 5HP PUMPS WITH 6.25" IMPELLERS
 EQUIP WITH SLIDE RAILS,
 SECURE ALUM. HATCH, AND CONTROL PANEL WITH ALARM.
 PUMP STATION ALARM MUST BE BOTH "VISIBLE" AND "AUDIBLE" AND EASILY VIEWED.
 SEE ADDITIONAL INFORMATION ON GORRILL PALMERS PLANS (SHEET C403)

INSTALL 10,000 GAL.
 SEPTIC TANK
 W/ THREE A300 ZABEL FILTERS.
 EACH FILTER HAS SEPARATE OUTLET.
 (SEE DETAIL)

INSTALL 4" DIA.
 "SPLITTER" MANHOLE
 (SEE DETAIL)

INSTALL 20,000 GAL.
 TWO COMPARTMENT SEPTIC TANK
 (SEE DETAIL)

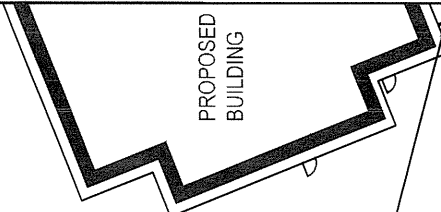
INSTALL 8" SOLID SCH. 40
 PVC SEWER PIPE,
 1/4" PER FT. MIN. GRADIENT.

INSTALL 8" SOLID SCH. 40 PVC SEWER PIPE (TYP.)
 1/4" PER FT. MINIMUM GRADIENT.
 BE SURE ELEVATION ADEQUATE
 FOR GRAVITY FLOW.

INSTALL MANHOLE

INSTALL
 MANHOLE

INSTALL MANHOLE



* BE SURE ALL TANKS WATERTIGHT, LEVEL AND INSULATED.
 ALL TANKS AND MANHOLES MUST BE BEDDED PROPERLY
 IN 4" MIN. THICK LAYER OF CRUSHED STONE, EXTENDING OUT
 AT LEAST 4" BEYOND EDGE OF TANK. EQUIP ALL TANKS AND MANHOLES
 ACCESS PORTS WITH RISERS AND COVERS.
 *ALL PIPING MUST BE PROTECTED AGAINST
 CRUSHING AND FREEZING. INSULATE AND
 BED PROPERLY (SEE DETAILS)

Signature CSE 204 12-9-22

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Trenton

Street, Road, Subdivision
Gateway Center Drive

Owner or Applicant Name
MDOT Attn: Brian Keezer

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale: 1" = 40'

* SEE GORRILL PALMERS UTILITY PLANS SHEETS C201, C202 & C203

MANIFOLD END
4" SOLID SDR 35
BE SURE PIPE SECURE AND
DOES NOT SETTLE WITH
PROPER BEDDING

INSTALL 544 SIDE-FEED CONCRETE CHAMBERS
"FIELD B"
17 ROWS OF 32 CHAMBERS
(68' W x 256' L)

85' FILL EXTENSION
BASED ON MOUNDING
DISCUSSION/RECOMMENDATIONS
(SEE X-SECTIONS)

EDGE OF 3 FT. SHOULDER (3% GRADE)

4:1 GRADE

4:1 GRADE

*ALL PIPING MUST BE PROTECTED AGAINST CRUSHING AND FREEZING. INSULATE AND BED PROPERLY.

INSTALL 4" SOLID SDR 35
PVC EFFLUENT LINE,
1/8" PER FT. MIN. GRADIENT.

INSTALL 6" DIA. DISTRIBUTION MANHOLE, BOTTOM FEED.
1 INLETS & 8 OUTLETS. BE SURE TO INSTALL TO
ALLOW GRAVITY TO DISPOSAL FIELDS.
DISTRIBUTION MANHOLE TO HAVE AT LEAST 36"
OF SUMP (WATER DEPTH BELOW OUTLET INVERT).

INSTALL FOUR 12-OUTLET
DISTRIBUTION BOXES
WITH EQUAL DISTRIBUTION
ON EACH FIELD. EIGHT
D-BOXES IN TOTAL.
BE SURE LEVEL, BEDDED
IN GRAVEL AND INSULATED.
PROTECT FROM FREEZING AND
SETTLEMENT.

INSTALL 2.5" FORCE MAIN
HD 100 POLY PRESSURE
SEWER PIPE
PROTECT AGAINST CRUSHING
AND FREEZING W/ PROPER
INSULATION AND COVER.
SLEEVE UNDER
TRAVELED WAYS
WHERE NEEDED.

4:1 GRADE

EDGE OF 3 FT. SHOULDER (3% GRADE)

MANIFOLD END (TYP.)
4" SOLID SDR 35
BE SURE PIPE SECURE AND
DOES NOT SETTLE WITH
PROPER BEDDING

INSTALL 544 SIDE-FEED CONCRETE CHAMBERS
"FIELD A"
17 ROWS OF 32 CHAMBERS
(68' W x 256' L)

85' FILL EXTENSION
BASED ON MOUNDING
DISCUSSION/RECOMMENDATIONS
(SEE X-SECTIONS)

[Handwritten Signature] 12-21-22

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10
 (207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Trenton

Street, Road, Subdivision
Gateway Center Drive

Owner or Applicant Name
MDOT Attn: Brian Keezer Keezer

SUBSURFACE WASTEWATER DISPOSAL PLAN

SEE ATTACHED
 DISPOSAL PLAN
 "FIELD A"

BACKFILL REQUIREMENTS

APPROXIMATE
 Depth of Backfill (A-B) 20" to 44"
 Depth of Backfill (C-D) 68" to 80"

CONSTRUCTION ELEVATIONS

ERP 0"
 Finished Grade Elevation -124.48'
 Top of Proprietary Device -123.68'
 Bottom of Disposal Field ACTUAL ELEV. -122.58'

ELEVATION REFERENCE POINT (ERP)

Location & Description: INSTALLATION BENCHMARK
 TO BE ESTABLISHED PRIOR TO CONSTRUCTION

DISPOSAL FIELD CROSS SECTION

Scales:

Verticle: 1" = 10
 Horizontal: 1" = 10

SEE ATTACHED
 DISPOSAL FIELD CROSS SECTION
 "FIELD A"


 Site Evaluator Signature

264
 SE #

12-21-22
 Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10
 (207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Trenton

Street, Road, Subdivision
Gateway Center Drive

Owner or Applicant Name
MDOT Attn: Brian Keezer Keezer

SUBSURFACE WASTEWATER DISPOSAL PLAN

SEE ATTACHED
 DISPOSAL PLAN
 "FIELD B"

BACKFILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT (ERP)
APPROXIMATE		ERP	0"	Location & Description: <u>INSTALLATION BENCHMARK TO BE ESTABLISHED PRIOR TO CONSTRUCTION</u>
Depth of Backfill (A-B)	<u>52" to 70"</u>	Finished Grade Elevation	<u>-128.15'</u>	
Depth of Backfill (C-D)	<u>52" to 64"</u>	Top of Proprietary Device	<u>-127.35'</u>	
		Bottom of Disposal Field	ACTUAL ELEV. -126.25'	

DISPOSAL FIELD CROSS SECTION

Scales:
 Vertical: 1" = 10
 Horizontal: 1" = 10

SEE ATTACHED
 DISPOSAL FIELD CROSS SECTION
 "FIELD B"


 Site Evaluator Signature

264
 SE #

10-21-22
 Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10
 (207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Trenton

Street, Road, Subdivision
Gateway Center Drive

Owner or Applicant Name
MDOT Attn: Brian Keezer

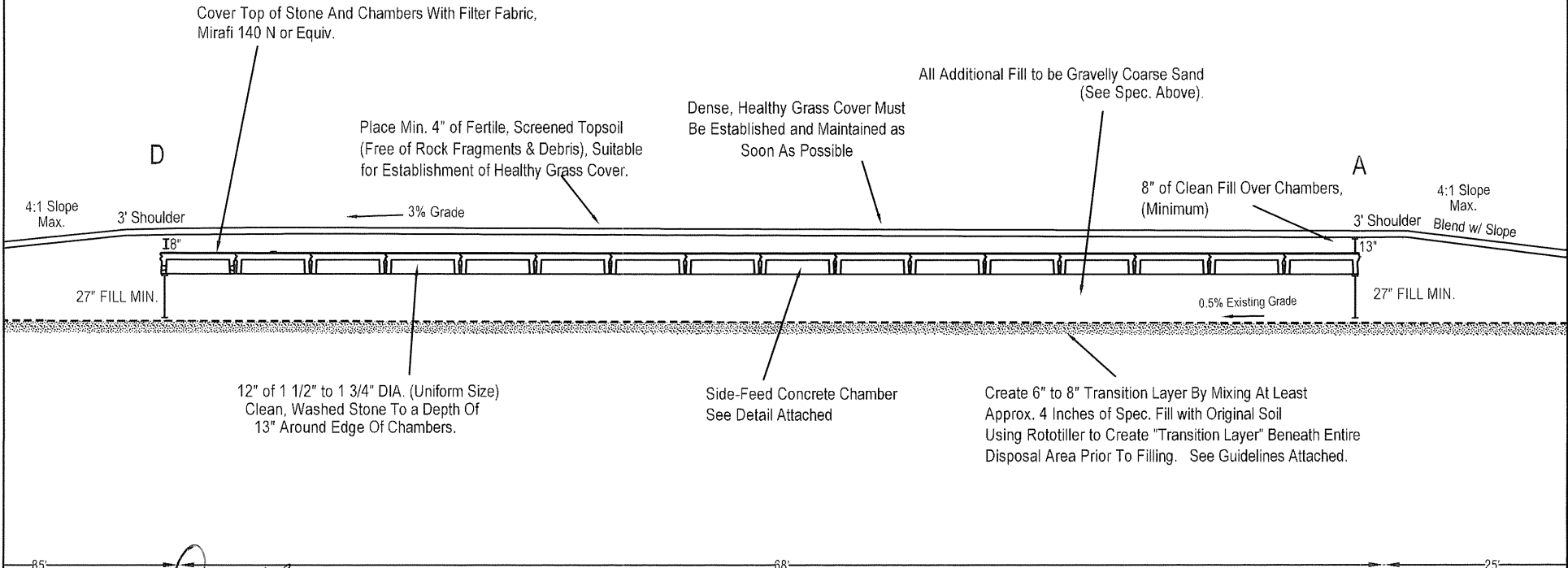
DISPOSAL FIELD CROSS SECTION - " FIELD B"

* Note That Additional Fill May Be Placed Over and Around Disposal Field to Blend Finished Grade with Existing Slopes, If Desired.

* Blend Finish Grades To Provide A Diversion Of Runoff Away From The Disposal Field

FILL MATERIAL SPEC. BY VOLUME:
 < 0% GREATER THAN 3" DIA.
 15 - 30% GRAVEL (2mm-3" DIA.)
 2-8% PASSING A # 200 SIEVE (ASTM)
 0-2% CLAY

Scales:
 Vertical: 1" = 10
 Horizontal: 1" = 10



[Handwritten Signature]
 Site Evaluator Signature

264
 SE #

12-21-22
 Date

OVERALL



American Concrete Industries

1717 STILLWATER AVE. VEAZIE, ME. 04401

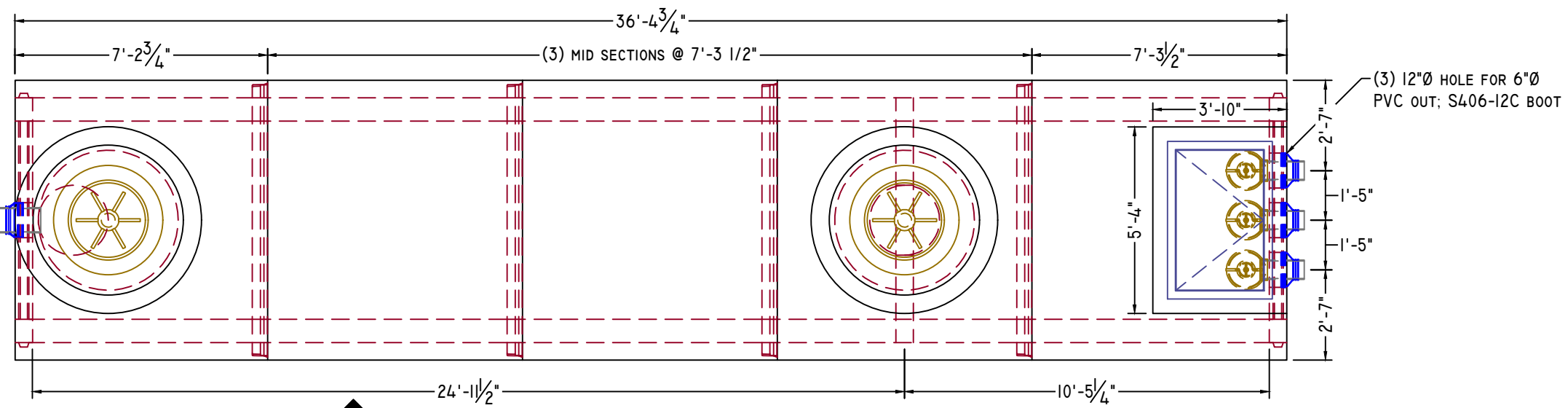
TEL: 207-947-8334

FAX: 207-947-3580

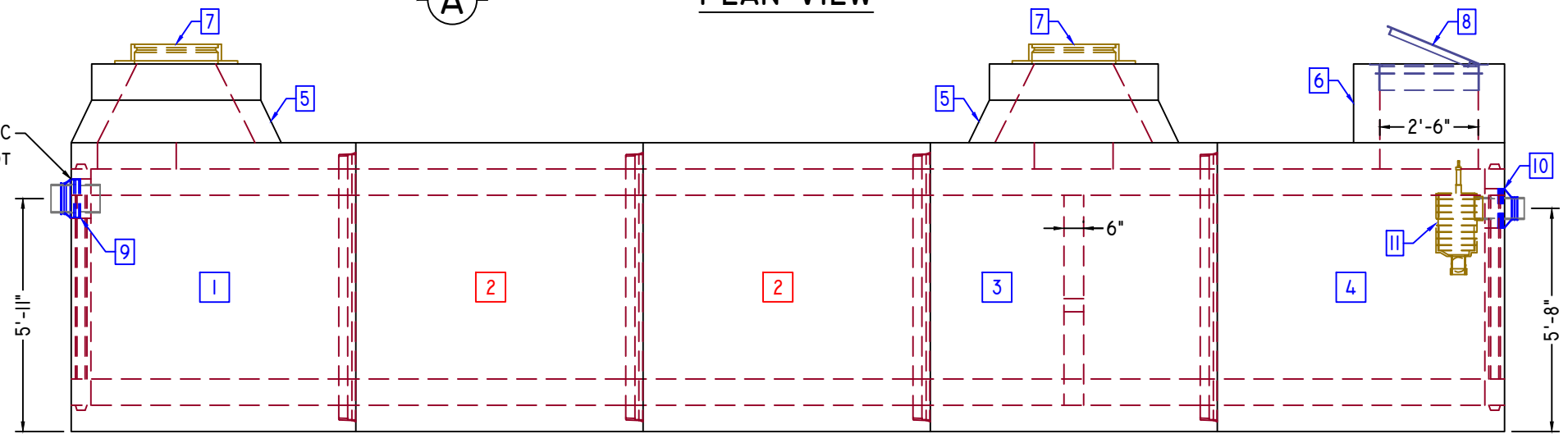
WWW.AMERICANCONCRETE.COM

BILL OF MATERIALS

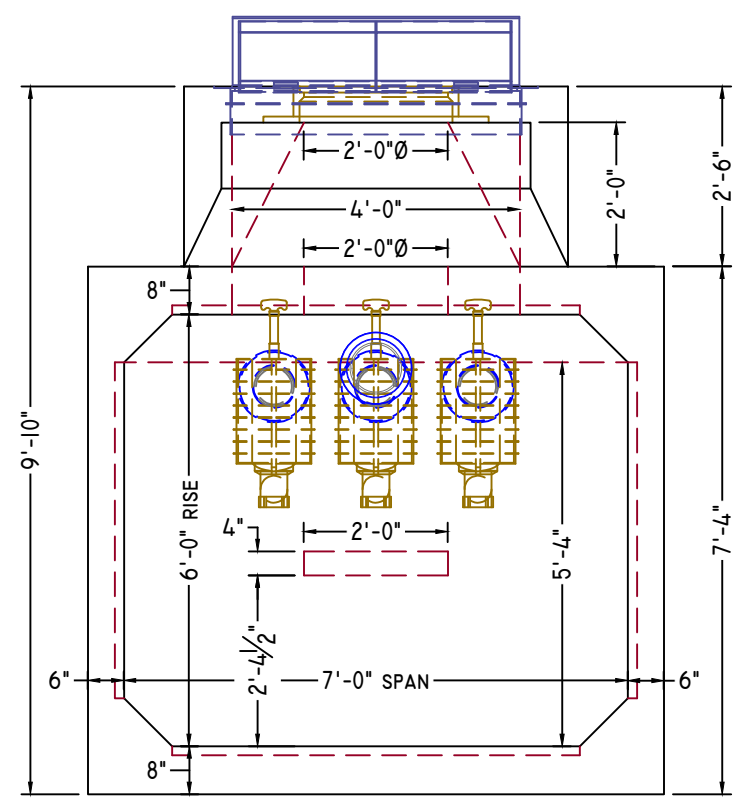
ITEM	QTY	DESCRIPTION	WEIGHT# EA
1	1	2,000GAL FEMALE END	20,990
2	2	2,000GAL MID SECTION STOCK	19,075
3	1	2,000GAL MID SECTION W/ INTERNAL WALL	21,515
4	1	2,000GAL MALE END SECTION	21,750
5	2	CISTERN RISER	2,760
6	1	3'-10" x 5'-4" CUSTOM RISER	3,875
7	2	24"Ø x 6" FRAME AND COVER	
8	1	APS300 30x48 HATCH	
9	1	S406-I2A BOOT (8"Ø PVC)	
10	3	S406-I2C BOOT (6"Ø PVC)	
11	1	ZABEL A300 FILTER	



PLAN VIEW

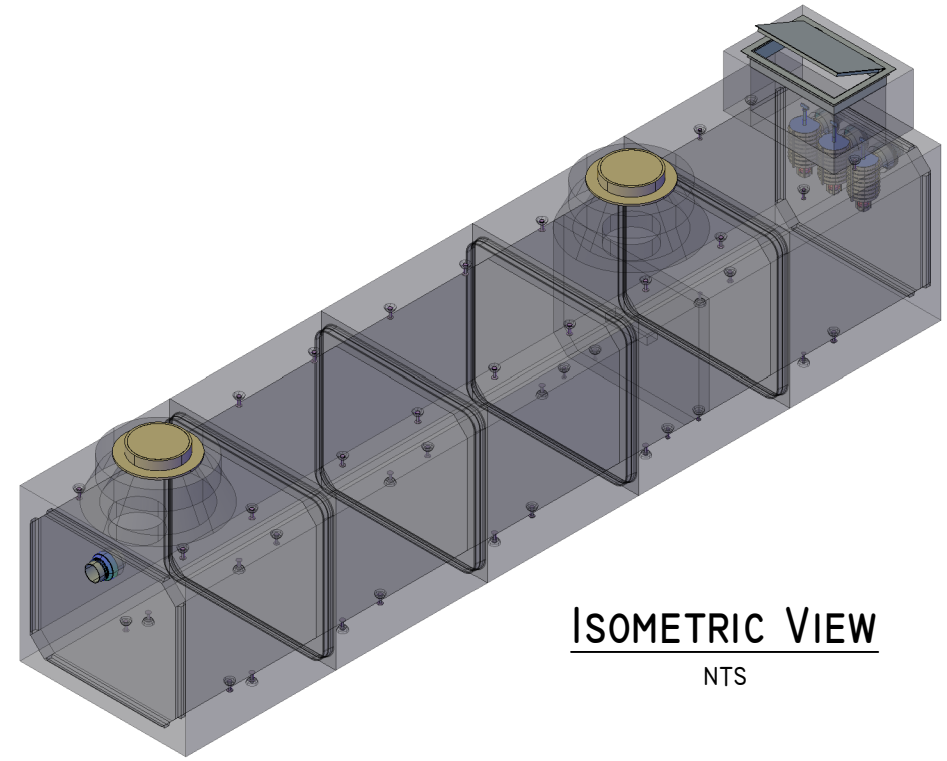


ELEVATION-A



ELEVATION-B

3/8" = 1'-0"



ISOMETRIC VIEW

NTS

DESIGN NOTES:

- Concrete**
 - 1.1. COMP. STRENGTH MIN. 5,000PSI @ 28 DAYS
 - 1.2. AIR-ENTRAINMENT: 4% MIN - 6% MAX
- Structural Reinforcement:**
 - 2.1. BAR PER ASTM A615, GRADE 60
 - 2.2. DESIGNED FOR H20 WHEEL LOAD RATING
 - 2.3. 1 1/2" CLR TYP. UNLESS NOTED OTHERWISE
- Manufacturing / Installation:**
 - 3.1. JOINTS SEALED WITH TERRATHANE 24-035
 - 3.2. PIPING SUPPLIED AND INSTALLED BY OTHERS
 - 3.3. FINAL ADJUSTMENTS TO REACH FINISHED GRADE BY OTHERS

MAXIMUM CAPACITY: 10,749GAL
USEABLE CAPACITY: 8,565GAL

NOTE: Some details not shown for clarity.
SCALE: 1/4" = 1'-0" Unless noted otherwise.

STRUCTURE NAME:
10,000GAL DUAL COMPARTMENT SEPTIC TANK

JOB NAME:
ACADIA VISITORS CENTER

LOCATION:
TRENTON, ME

CONTRACTOR:

DRAWN BY: SSM
DATE: 12/09/2022

REV.#: 0.00
DATE: 12/09/2022

T2.0



1717 Stillwater Ave.
 Veazie, ME 04401
 (207)947-8334, 207-947-3580 Fax
 982 Minot Ave.
 Auburn, ME 04210
 (207)784-1388, 207-783-4039 Fax
 www.americanconcrete.com

Structure: Splitter MH
Job Number: Invoice #: 002
Job Name: Acadia Gateway Facility
Job Location: Trenton

Contractor:
Frame/Ring:
Grate/Cover:
Channel: No Channel
Coating: PPS 922 Superseal Outside VF(5)
Boots: Yes (3)
Steps:
AFSF: 1.21

Design Build Height

Top of Casting	+	100.00'
Outlet I.E. #1	-	95.75'
Inlet #2		96.00'
Inlet #3		95.75'
Design Height	=	4.25'

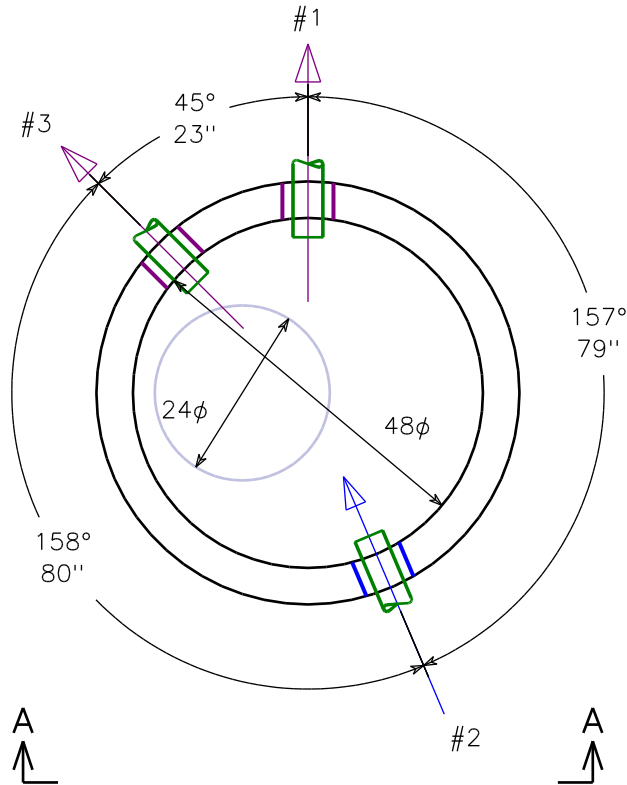
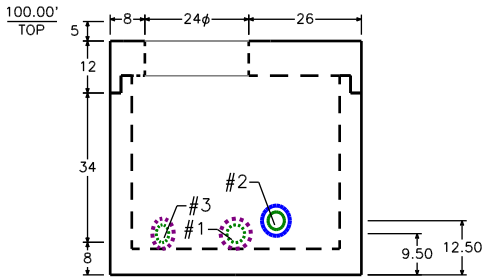
Status:
Notes:

Elevation (View A-A)

Opening Schedule

ID	Center	Pipe Size	Hole Size	Connector	Angle	Invert
#1	9.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	0°	95.75'
#2	12.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	157°	96.00'
#3	9.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	315°	95.75'

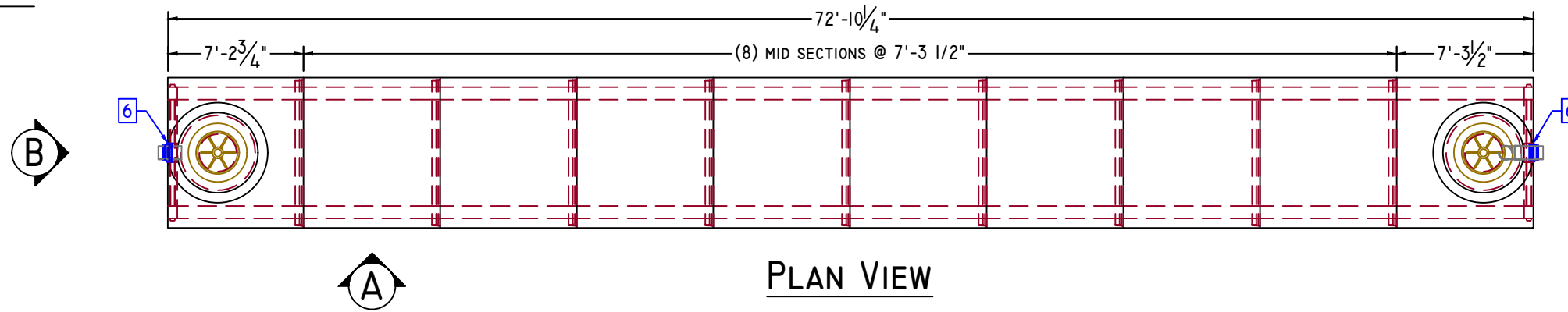
Plan View



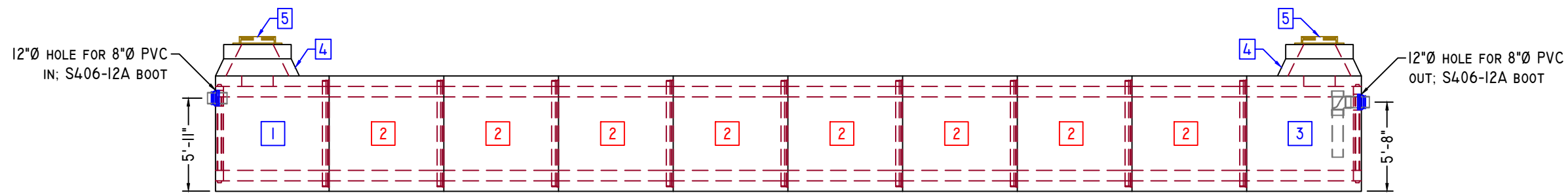
BOM For Stack

Section ID	Description	Qty.	Weight
A	48" Offset Flat Top (24" opening)	1	1,835
B	48" x 42" Custom Base w/3 Holes 6"TH	1	4,068
Totals (precast+frame, lbs)		2	5,903

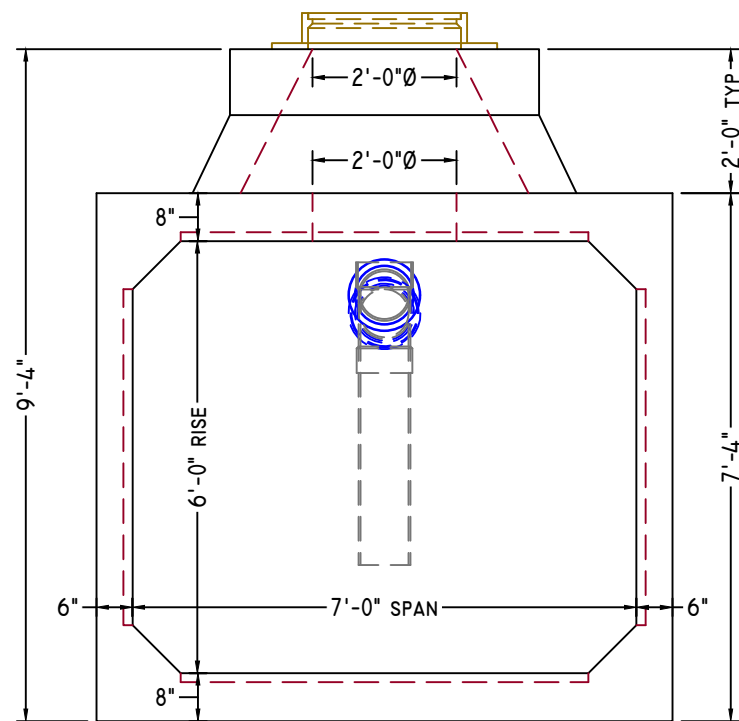
OVERALL



PLAN VIEW

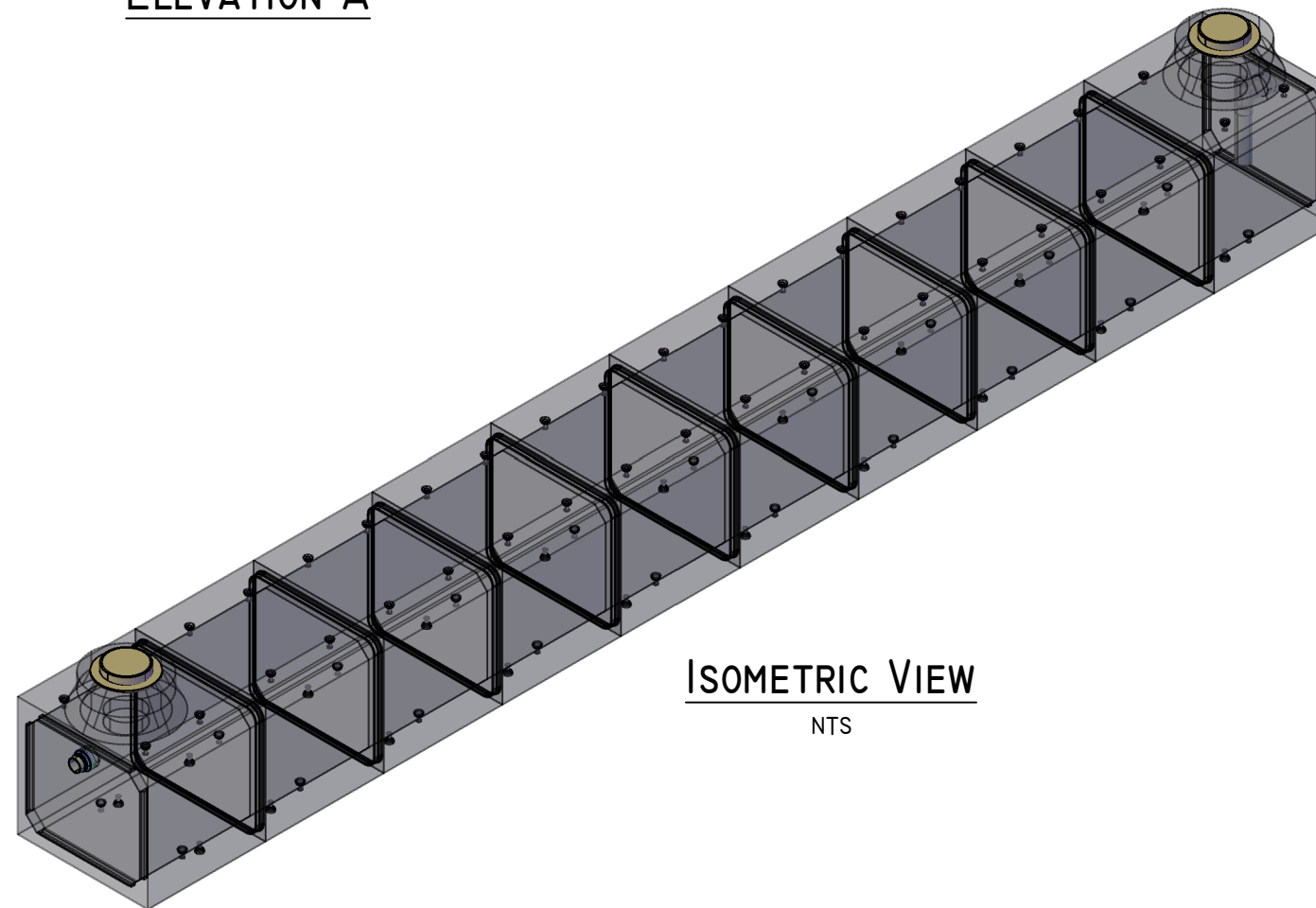


ELEVATION-A



ELEVATION-B

3/8" = 1'-0"



ISOMETRIC VIEW

NTS



American Concrete Industries

1717 STILLWATER AVE. VEAZIE, ME. 04401

TEL: 207-947-8334

FAX: 207-947-3580

WWW.AMERICANCONCRETE.COM

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	WEIGHT# EA
1	1	2,000GAL FEMALE END	20,990
2	8	2,000GAL MID SECTION STOCK	19,075
3	1	2,000GAL MALE END SECTION	22,540
4	2	CISTERN RISER	2,760
5	2	24"Ø X 6" FRAME AND COVER	
6	1	S406-I2A BOOT (8"Ø PVC)	

DESIGN NOTES:

1. **Concrete**
 - 1.1. COMP. STRENGTH MIN. 5,000PSI @ 28 DAYS
 - 1.2. AIR-ENTRAINMENT: 4% MIN - 6% MAX
2. **Structural Reinforcement:**
 - 2.1. BAR PER ASTM A615, GRADE 60
 - 2.2. DESIGNED FOR H20 WHEEL LOAD RATING
 - 2.3. 1 1/2" CLR TYP. UNLESS NOTED OTHERWISE
3. **Manufacturing / Installation:**
 - 3.1. JOINTS SEALED WITH TERRATHANE 24-035
 - 3.2. PIPING SUPPLIED AND INSTALLED BY OTHERS
 - 3.3. FINAL ADJUSTMENTS TO REACH FINISHED GRADE BY OTHERS

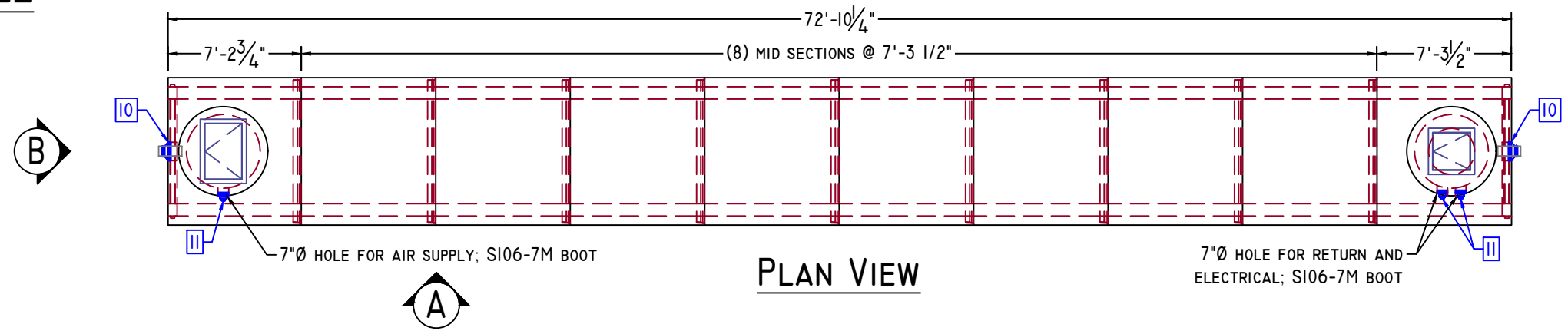
MAXIMUM CAPACITY PER TANK: 22,095GAL
USEABLE CAPACITY PER TANK: 17,318GAL

**NOTE: Some details not shown for clarity.
SCALE: 1/8" = 1'-0" Unless noted otherwise.**

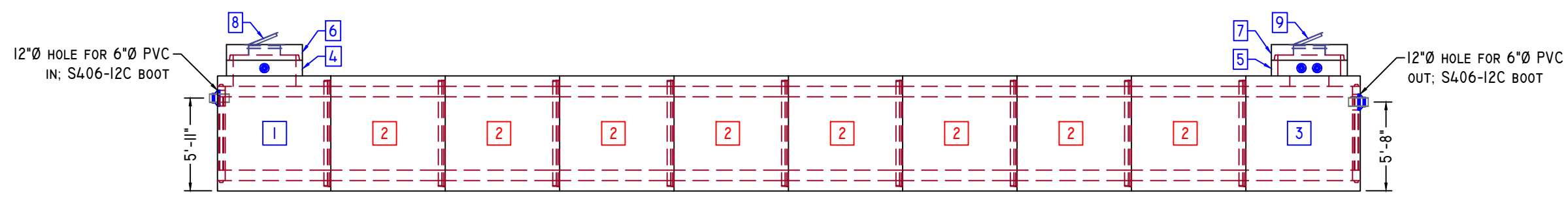
STRUCTURE NAME: 20,000GAL SEPTIC TANK	
JOB NAME: ACADIA VISITORS CENTER	
LOCATION: TRENTON, ME	
CONTRACTOR:	

DRAWN BY: SSM	DATE: 12/09/2022	TI.0
REV.#: 0.00	DATE: 12/09/2022	

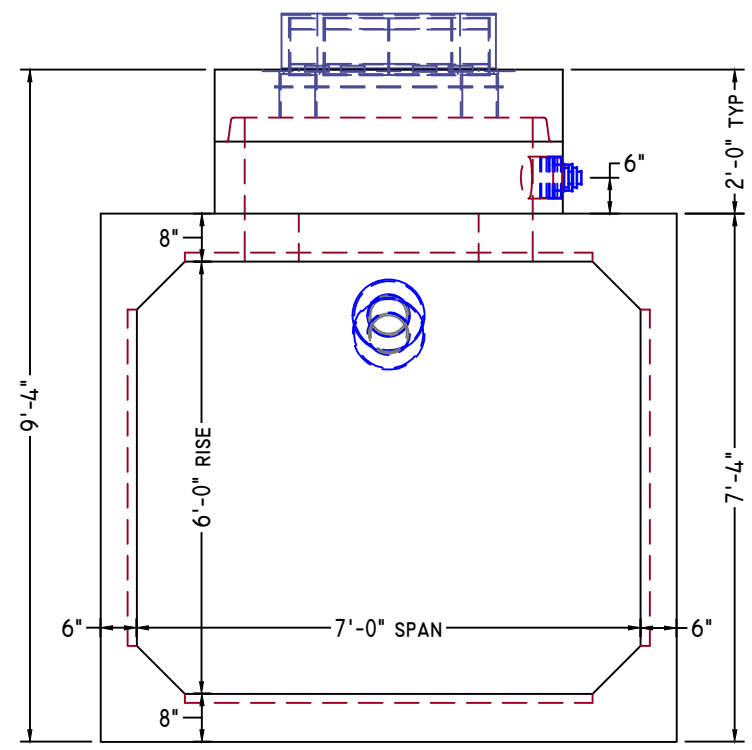
OVERALL



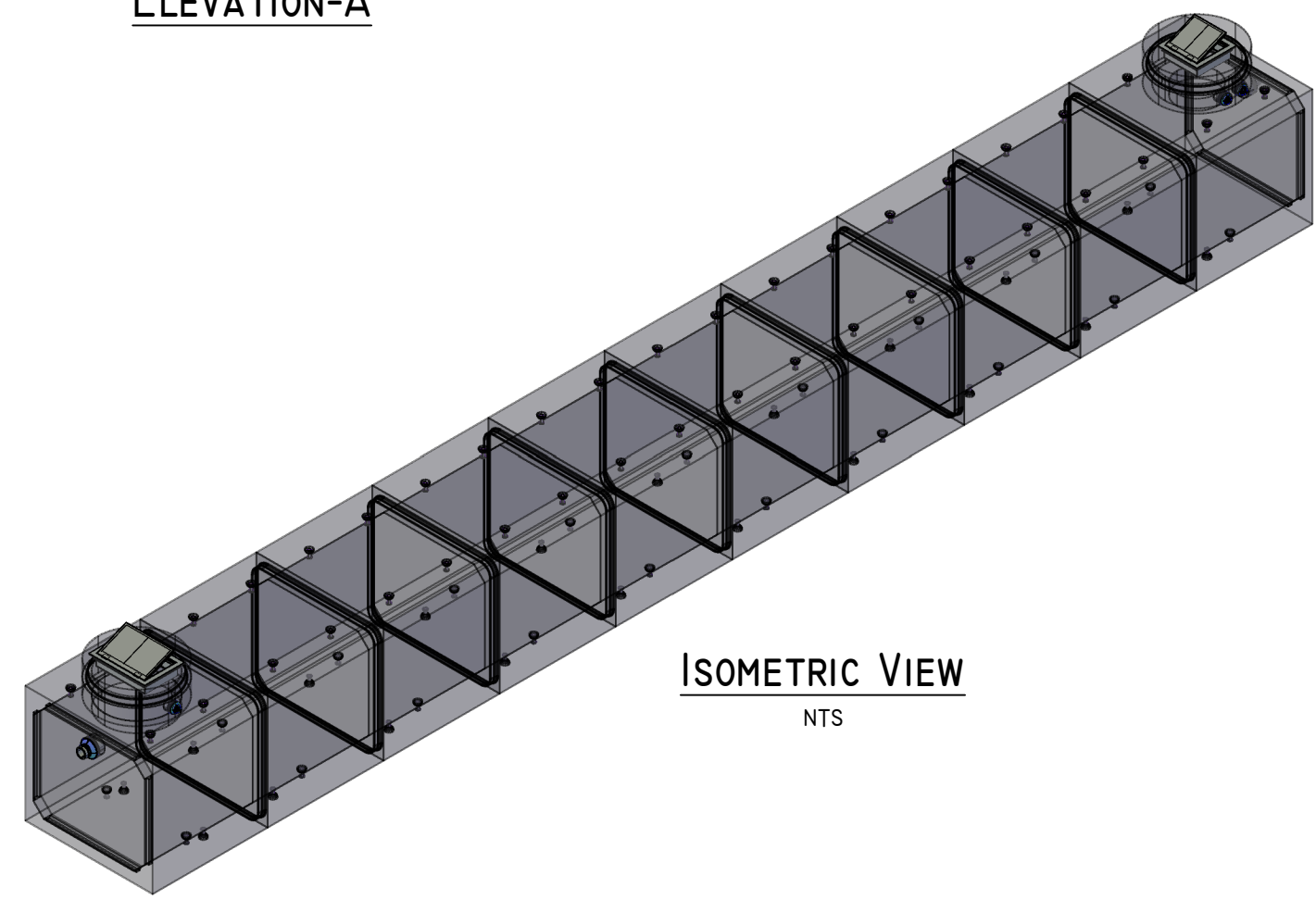
PLAN VIEW



ELEVATION-A



ELEVATION-B
3/8" = 1'-0"



ISOMETRIC VIEW
NTS



American Concrete Industries
1717 STILLWATER AVE. VEAZIE, ME. 04401
TEL: 207-947-8334
FAX: 207-947-3580
WWW.AMERICANCONCRETE.COM

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	WEIGHT# EA
1	2	2,000GAL FEMALE END	20,990
2	16	2,000GAL MID SECTION STOCK	19,075
3	2	2,000GAL MALE END SECTION	22,540
4	2	4'Ø X 1' FLAT BOTTOM MH BARREL	990
5	2	4'Ø X 1' FLAT BOTTOM MH BARREL	970
6	2	FLAT TOP COVER FOR 4'Ø	1,355
7	2	FLAT TOP COVER FOR 4'Ø	1,560
8	2	APS300 24x36 HATCH	
9	2	APS300 24x24 HATCH	
10	4	S406-12A BOOT (8"Ø PVC)	
11	6	SI06-7M BOOT (VARIOUS)	

- DESIGN NOTES:**
- Concrete**
 - 1.1. COMP. STRENGTH MIN. 5,000PSI @ 28 DAYS
 - 1.2. AIR-ENTRAIMENT: 4% MIN - 6% MAX
 - Structural Reinforcement:**
 - 2.1. BAR PER ASTM A615, GRADE 60
 - 2.2. DESIGNED FOR H20 WHEEL LOAD RATING
 - 2.3. 1 1/2" CLR TYP. UNLESS NOTED OTHERWISE
 - Manufacturing / Installation:**
 - 3.1. JOINTS SEALED WITH TERRATHANE 24-035
 - 3.2. PIPING SUPPLIED AND INSTALLED BY OTHERS
 - 3.3. FINAL ADJUSTMENTS TO REACH FINISHED GRADE BY OTHERS

MAXIMUM CAPACITY PER TANK: 22,095GAL
USEABLE CAPACITY PER TANK: 17,632GAL

NOTE: Some details not shown for clarity.
SCALE: 1/8" = 1'-0" Unless noted otherwise.

STRUCTURE NAME: (2) 20,000GAL OXYPRO TANK	
JOB NAME: ACADIA VISITORS CENTER	
LOCATION: TRENTON, ME	
CONTRACTOR:	

DRAWN BY: SSM	DATE: 12/09/2022	T3.0
REV.#: 0.00	DATE: 12/09/2022	



1717 Stillwater Ave.
 Veazie, ME 04401
 (207)947-8334, 207-947-3580 Fax
 982 Minot Ave.
 Auburn, ME 04210
 (207)784-1388, 207-783-4039 Fax
 www.americanconcrete.com

Structure: Distribution MH
Job Number: Invoice #: 001
Job Name: Acadia Gateway Facility
Job Location: Trenton
Contractor:
Frame/Ring:
Grate/Cover:
Channel: No Channel
Coating: PPS 922 Superseal Outside VF(5)
Boots: Yes (10)
Steps:
AFSF: 1.26

Design Build Height

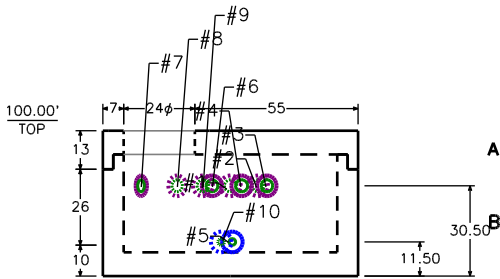
Top of Casting	+	100.00'
Lowest I.E. #5	-	96.50'
Outlet I.E. #1		98.00'
Inlet #2		98.00'
Inlet #3		98.00'
Inlet #4		98.00'
Inlet #6		98.00'
Inlet #7		98.00'
Inlet #8		98.00'
Inlet #9		98.00'
Inlet #10		96.50'
Design Height	=	3.50'

Status:
Notes:

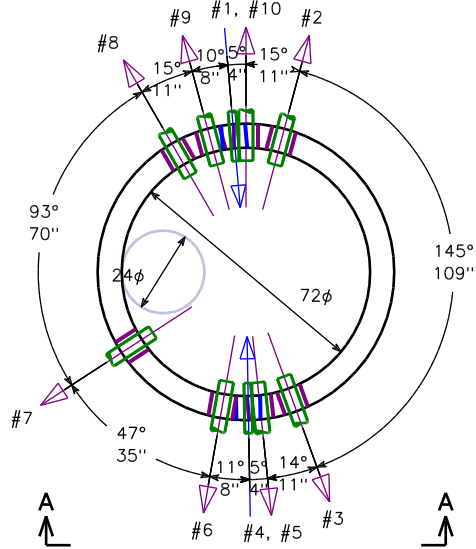
Elevation (View A-A)

Opening Schedule

ID	Center	Pipe Size	Hole Size	Connector	Angle	Invert
#1	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	0°	98.00'
#2	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	15°	98.00'
#3	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	160°	98.00'
#4	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	174°	98.00'
#5	11.50"	2" PVC Sdr 21	7.00" Ø	S106-7MWS NPC Boo	179°	96.50'
#6	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	190°	98.00'
#7	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	237°	98.00'
#8	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	330°	98.00'
#9	30.50"	4" PVC Sdr 35	7.00" Ø	S106-7WS NPC Boot	345°	98.00'
#10	11.50"	2" PVC Sdr 21	7.00" Ø	S106-7MWS NPC Boo	355°	96.50'



Plan View



BOM For Stack

Section ID	Description	Qty.	Weight
A	72" Offset Flat Top (24" opening)	1	4,035
B	72" x 36" Custom Base w/10 Holes 8"TH	1	8,388
Totals (precast+frame, lbs)		2	12,423

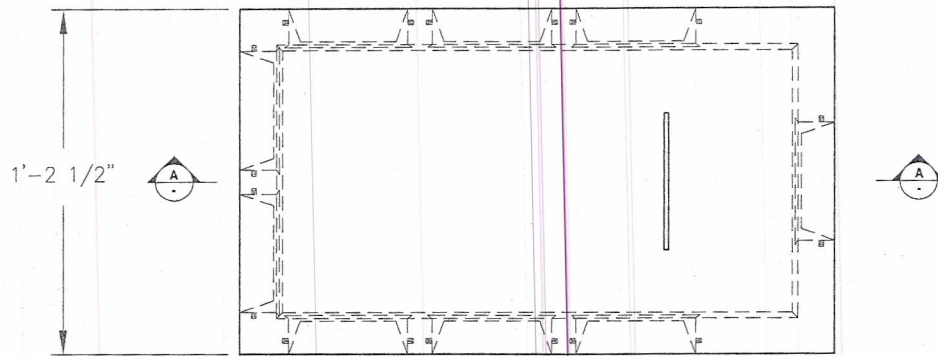
8 Outlet Distribution Box

Weight: 155 lbs
Item # 2906

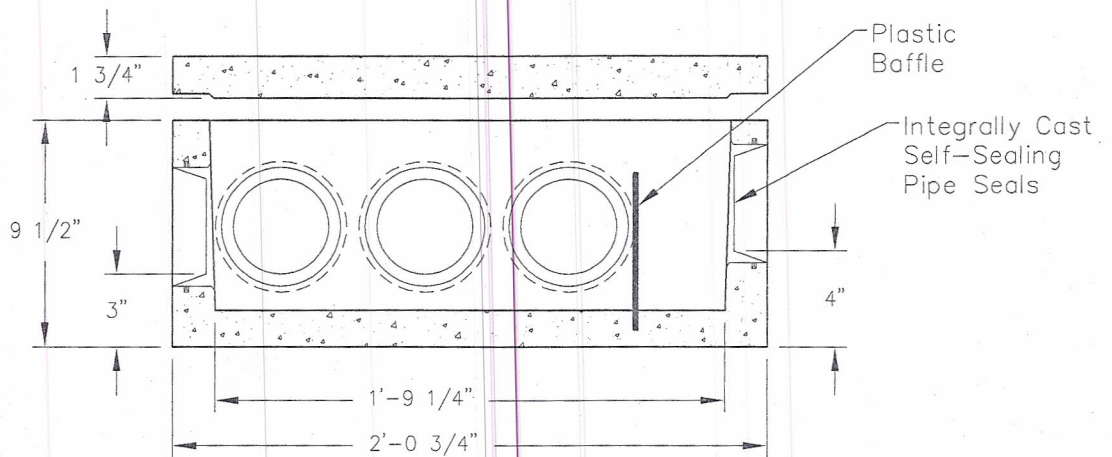
General Notes

Concrete Specifications:

- 1) 4000 psi after 28 days with 4%-6% air
- 2) Reinforcing is grade 60
- 3) Cover not designed for vehicle loads.
- 4) All penetrations to distribution boxes are integrally cast
- 5) Box should be covered with 2" Styrofoam Insulation



Plan View



Section A-A



American Concrete Industries

1022 Minot Ave. Auburn, ME / 1717 Stillwater Ave. Veazie, ME
Tel: 207-784-1388 / Tel: 207-947-8334

Last Revised:
05/10

PG. IG3



American Concrete Industries

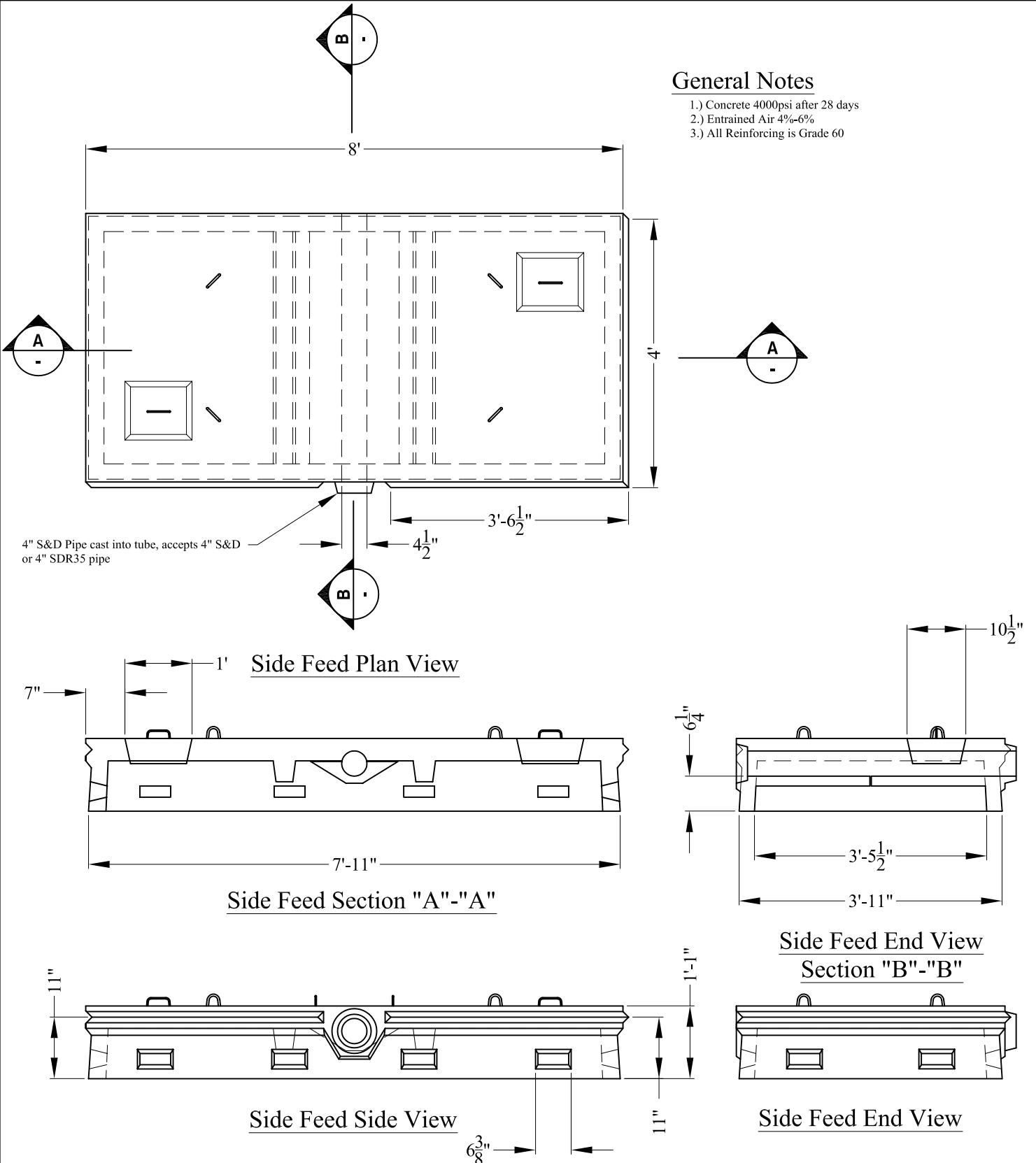
4' X 8' SF Flow Diffuser

Catalog Section: Residential. Leaching Chambers

Layout Name:

General Notes

- 1.) Concrete 4000psi after 28 days
- 2.) Entrained Air 4%-6%
- 3.) All Reinforcing is Grade 60



\\na.aecomnet.com\ifs\AMER\Boston-USBOS01\DCS\Projects\TRN\60653001_MaineDOT_Accadio_Gateway\900_CAD_GIS\910_CAD\Sheet\A802.dwg Mar 08, 2022 - 4:09pm

DOOR SCHEDULE

DOOR NO	ROOM NAME	FROM (LOCK SIDE)	TO	PAIR OR SINGLE	DOOR OPENING		DOOR			FRAME			DETAIL				FIRE LABEL	HWIDE SET	NOTES
					WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	THRESHOLD	JAMB DEPTH			
001	FIRE PUMP ROOM	CORRIDOR - 006	FIRE PUMP ROOM - 001	P	6'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	14		
002	WATER ROOM	CORRIDOR - 006	WATER ROOM - 002	P	6'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	14		
003	ELECTRICAL ROOM	CORRIDOR - 006	ELECTRICAL ROOM - 003	S	3'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	15		
004	MECHANICAL ROOM 1	CORRIDOR - 006	MECHANICAL ROOM 1 - 004	P	6'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	14		
005	STAIR 1	CORRIDOR - 006	STAIR 1 - 005	S	3'-0"	7'-0"	3	HM		B	HM	2/A804	5/A804	7/A804	6"	B	18		
007	TELCOM ROOM	CORRIDOR - 006	TELCOM ROOM - 007	S	3'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	16		
008	MECHANICAL ROOM 2	CORRIDOR - 006	MECHANICAL ROOM 2 - 008	S	3'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	16		
009	EMERGENCY ELECTRICAL CLOSET	ELECTRICAL ROOM - 003	EMERG. ELEC. CLOSET - 009	P	6'-0"	7'-0"	1	HM		B	HM	2/A804	5/A804	7/A804	6"	A	17		
103	NURSING	WOMEN'S TOILET - 101	NURSING - 103	S	3'-0"	7'-0"	1	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	19	UNDERCUT DOOR	
104	COMPANION CARE	LOBBY / VESTIBULE - 105	COMPANION CARE - 104	S	3'-0"	7'-0"	1	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	20	UNDERCUT DOOR	
105A	LOBBY / VESTIBULE	LOBBY / VESTIBULE - 105	EXTERIOR	P	6'-0"	8'-0"	2	ALUMINUM	FF	CRTWAL	ALUMINUM	FF		7/A806	6"	-	1	COORDINATE WITH CURTAINWALL	
105B	LOBBY / VESTIBULE	LOBBY / VESTIBULE - 105	EXTERIOR	P	6'-0"	8'-0"	2	ALUMINUM	FF	CRTWAL	ALUMINUM	FF		7/A806	6"	-	2	COORDINATE WITH CURTAINWALL	
105C	PASSENGER WAITING & EXHIBITS	LOBBY / VESTIBULE - 105	PSNGR WAITING & EXHIBITS-106	S	6'-0"	8'-0"	2A	STEEL	FF	STL	STL			NONE	5"	-	7		
105D	ANP FEE PASSES AND INFO	LOBBY / VESTIBULE - 105	ANP FEE PASSES AND INFO-111	P	6'-0"	8'-0"	2A	STEEL	FF	STL	STL			NONE	5"	-	2		
105E	ANP FEE PASSES AND INFO	LOBBY / VESTIBULE - 105	ANP FEE PASSES AND INFO-111	P	6'-0"	8'-0"	2A	STEEL	FF	STL	STL			NONE	5"	-	1		
109	MTA OFFICE	REGIONAL INFO AREA - 108	OFFICE - 109	S	3'-0"	7'-0"	4	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	21		
114	CORRIDOR	CORRIDOR - 114	BREAKROOM / KITCHEN - 115	P	6'-0"	7'-0"	3	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	10		
115	BREAKROOM / KITCHEN	BREAKROOM / KITCHEN - 115	EXTERIOR	P	6'-0"	8'-0"	2	ALUMINUM	FF	CRTWAL	ALUMINUM	FF		7/A806	6"	-	4	COORDINATE WITH CURTAINWALL	
116A	STAIR 1	CORRIDOR - 117	STAIR 1 - 116	S	3'-0"	7'-0"	3	HM		B	HM	3/A804	6/A804	7/A804	6"	B	26		
116B	STAIR 1	EXTERIOR	STAIR 1 - 116	S	3'-0"	8'-0"	2	ALUMINUM	FF	CRTWAL	ALUMINUM	FF	2/A806	5,8/A806	7/A806	6"	-	5	COORDINATE WITH CURTAINWALL
118	ENS SALES OFFICE	ANP/NPS AREA COUNTER - 112	ENS SALES OFFICE - 118	S	3'-0"	7'-0"	4	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	21		
119	FEES OFFICE	ENS COUNTER - 113	FEES OFFICE - 119	S	3'-0"	7'-0"	4	WOOD		A	WOOD	1/A804	4/A804	NONE	6"	-	21		
120	ENS SALES STORAGE	ANP/NPS AREA COUNTER - 112	ENS SALES STORAGE - 120	S	3'-0"	7'-0"	3	WOOD		A	WOOD	1/A804	4/A804	7/A804	6"	B	22		
121A	RECEIVING	CORRIDOR - 117	RECEIVING - 121	P	6'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	-	23		
121B	RECEIVING	RECEIVING - 121	EXTERIOR	S	3'-0"	8'-0"	1	HM		B	HM	3/A806	6,9/A806	7/A804	6"	-	6		
121C	ENS SALES STORAGE	RECEIVING - 121	ENS SALES STORAGE - 120	P	6'-0"	7'-0"	3	HM		A	HM	1/A804	4/A804	7/A804	6"	B	14		
121D	RECEIVING	RECEIVING - 121	EXTERIOR	O	6'-0"	8'-0"	5	STEEL	FF	C	STEEL	2/A805	2,3,4/A805	2/A805	N/A	-	N/A	OVERHEAD DOOR, SEE SPECS	
121E	RECEIVING	SEE DETAILS	SEE DETAILS	P	4'-0"	6'-0"	10	STEEL	FF	10	STEEL	1/A807	2/A807	NONE	3.5"	B	N/A	MECHANICAL ROOM ACCESS FLOOR HATCH	
122	STORAGE	RECEIVING - 121	STORAGE - 122	P	6'-0"	7'-0"	1	HM		A	HM	1/A804	4/A804	7/A804	6"	B	14		
124	JANITOR CLOSET AND STORAGE	LOBBY / VESTIBULE - 105	JANITOR CL. & STORAGE - 124	S	3'-6"	7'-0"	1	HM		A	HM	1/A804	4/A804	NONE	6"	-	24	UNDERCUT DOOR	
125A	SOUTH VESTIBULE	SOUTH VESTIBULE - 125	EXTERIOR	P	6'-0"	8'-0"	2	ALUMINUM	FF	CRTWAL	ALUMINUM	FF		7/A806	6"	-	18	COORDINATE WITH CURTAINWALL	
125B	ANP/NPS AREA	SOUTH VESTIBULE - 125	ANP/NPS AREA - 112	S	3'-0"	8'-0"	2A	STEEL	FF	STORE	STEEL			NONE	5"	-	7		
125C	ENS SALES INFO AREA	SOUTH VESTIBULE - 125	ENS SALES INFO AREA - 108	S	3'-0"	8'-0"	2A	STEEL	FF	STORE	STEEL			NONE	5"	-	7		
150	EV CHARGING ENCLOSURE	EV CHARGING ENCLOSURE -150	EXTERIOR	S	3'-0"	7'-0"	1	STEEL		B	HM	2/A804	5/A804	7/A804	5"	B	6		
201	STAIR 1	MEZZANINE LOBBY - 202	STAIR 1 - 201	S	3'-0"	7'-0"	1	HM	FF	B	HM	3/A804	6/A804	7/A804	6"	B	18		
203	MECHANICAL ROOM 3	MEZZANINE LOBBY - 202	MECHANICAL ROOM 3 - 203	P	6'-0"	7'-0"	1	HM	FF	A	HM	1/A804	4/A804	7/A804	8.25"	B	25	INCREASE LGMF HEADER AS REQ. TO SUPPORT PARTITION	
204	UNASSIGNED	MEZZANINE LOBBY - 202	UNASSIGNED - 204	P	6'-0"	7'-0"	1	HM	FF	A	HM	1/A804	4/A804	7/A804	6"	B	25		

LOUVER / GRILLE SCHEDULE

LOUVER TYPE	MATERIAL	ROUGH OPENING		DETAIL			SCREEN	NOTES
		WIDTH	HEIGHT	HEAD	JAMB	SILL		
L1	ALUM	15'-0"	12'-6"	3/A807	5/A807	5/A807	INSECT/BIRD	TRIANGULAR LOUVER, REFER TO LOUVER ELEVATIONS
L2	ALUM	15'-0"	12'-6"	3/A807	5/A807	5/A807	INSECT/BIRD	TRIANGULAR LOUVER, REFER TO LOUVER ELEVATIONS
L3	SEE SPEC.	4'-0"	2'-0"				NONE	REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS, VERIFY LOUVER SIZE WITH MECHANICAL DOCUMENTS

DOOR SCHEDULE ABBREVIATIONS:

- (S) - DENOTES SINGLE LEAF DOOR
- (PR) - DENOTES PAIR OF LEAF DOORS
- (FF) - FACTORY FINISH
- (PT) - PAINT
- (HM) - HOLLOW METAL
- (ST) - STEEL
- (CRTWAL) - CURTAINWALL

DOOR NOTES:

1. ALL GLASS IN DOORS SHALL BE SAFETY GLAZING
2. HOUR RATINGS FOR HM DOORS
 - A = 3 HOUR (NOT USED)
 - B = 1.5 HOUR
 - C = .75 HOUR

LOUVER TYPE:

- EXTRUDED ALUMINUM DRAIN/ABLE LOUVER
- SCREEN TYPE
 1. BIRD SCREEN
 2. INSECT SCREEN

Amendment #2 Updates:
- Doors 125B and 125C updated to be a Steel frame.

AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

STATE OF MAINE

DEPARTMENT OF TRANSPORTATION

FED PIN NO: NA

WIN NO: 017163.02 & 017163.03

Kayla Wengler

SIGNATURE

ARCH. LIN. NUMBER

ARC5292

DATE

JANUARY 17, 2022

PROJECT INFORMATION

PROGRAM -

PROJECT MANAGER -

DESIGNER -

CONSULTANT -

PROJECT RESIDENT -

CONTRACTOR -

PROJECT COMPLETION DATE -

MAINE DEPARTMENT OF TRANSPORTATION

ACADIA GATEWAY FACILITY

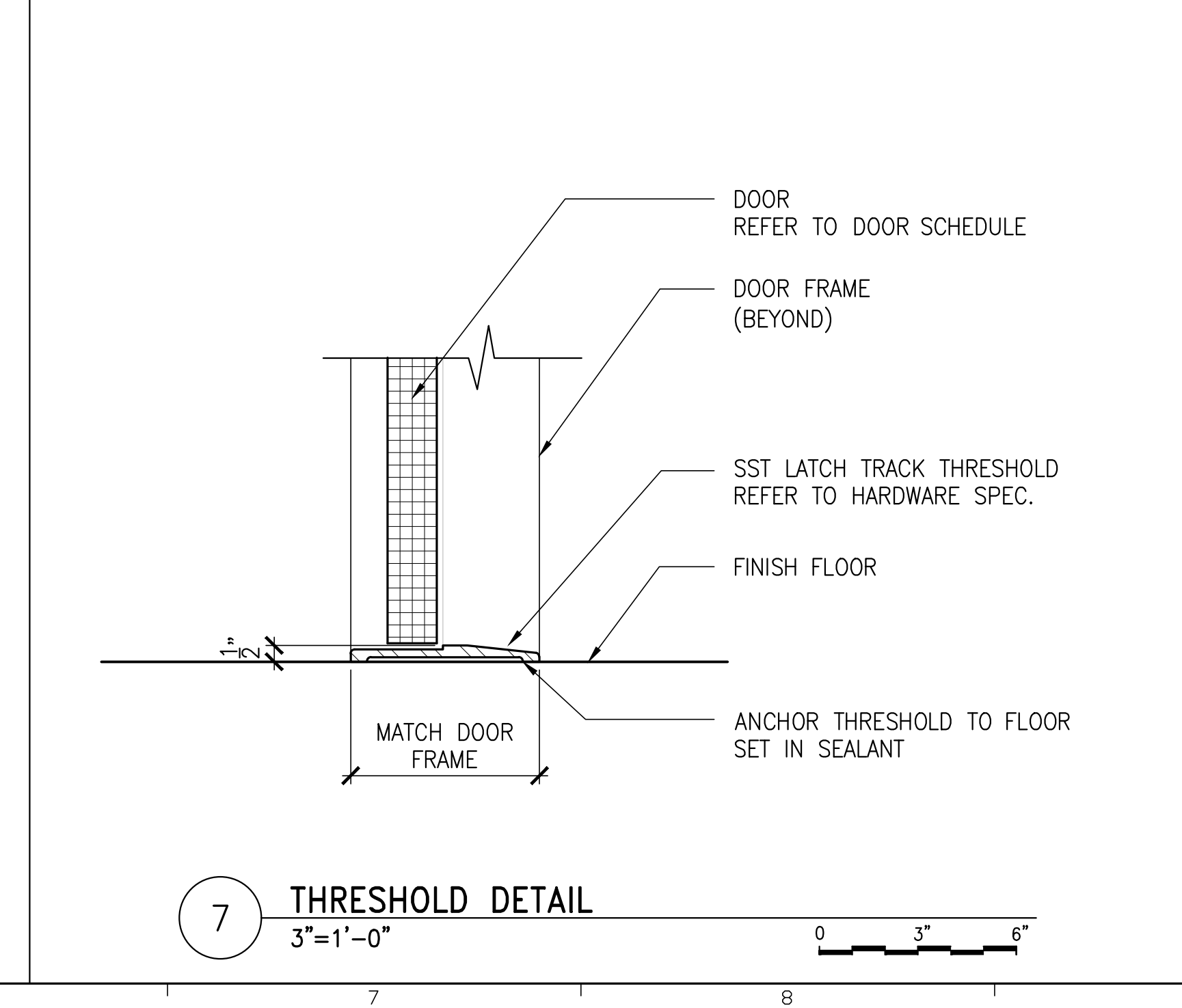
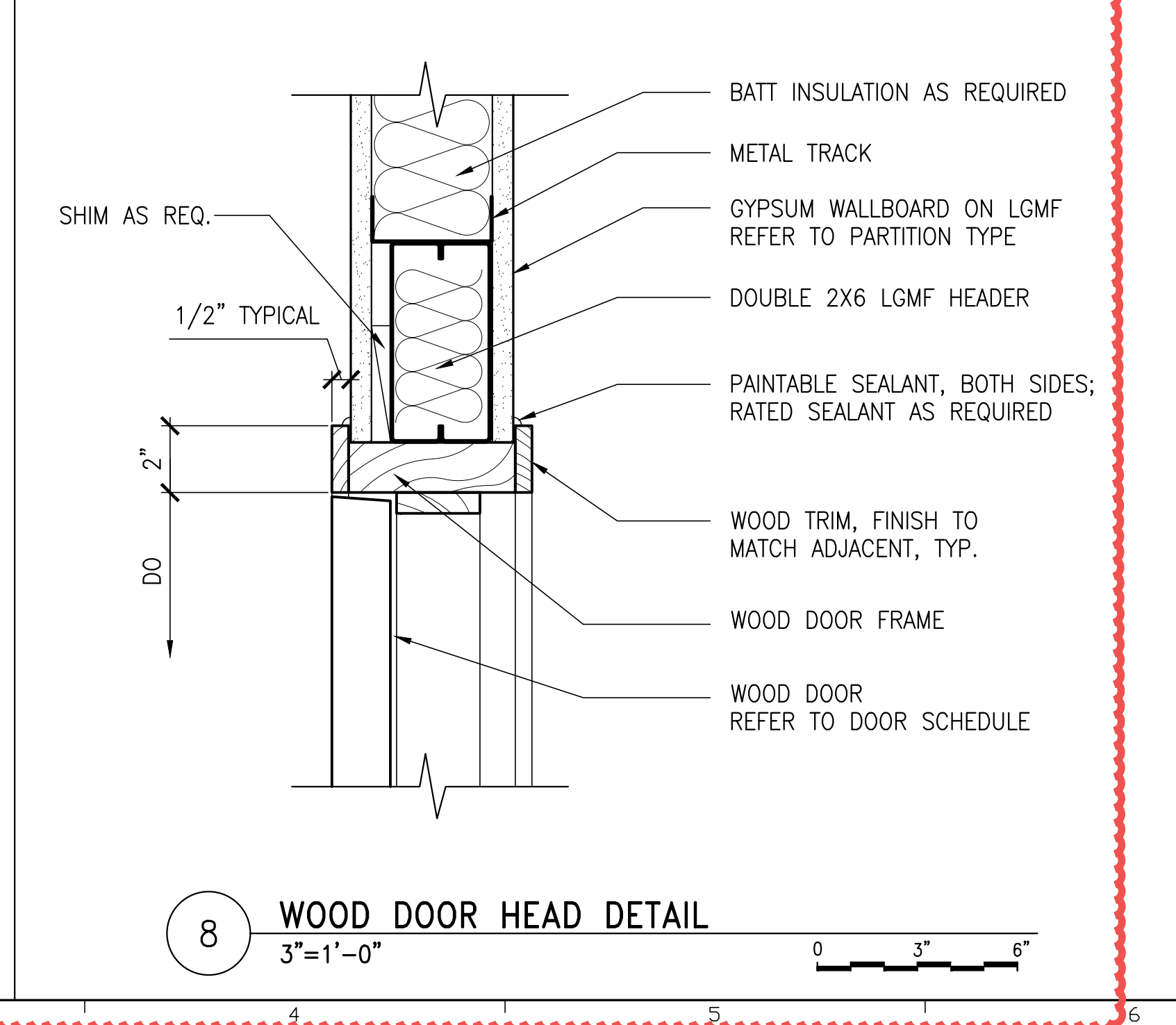
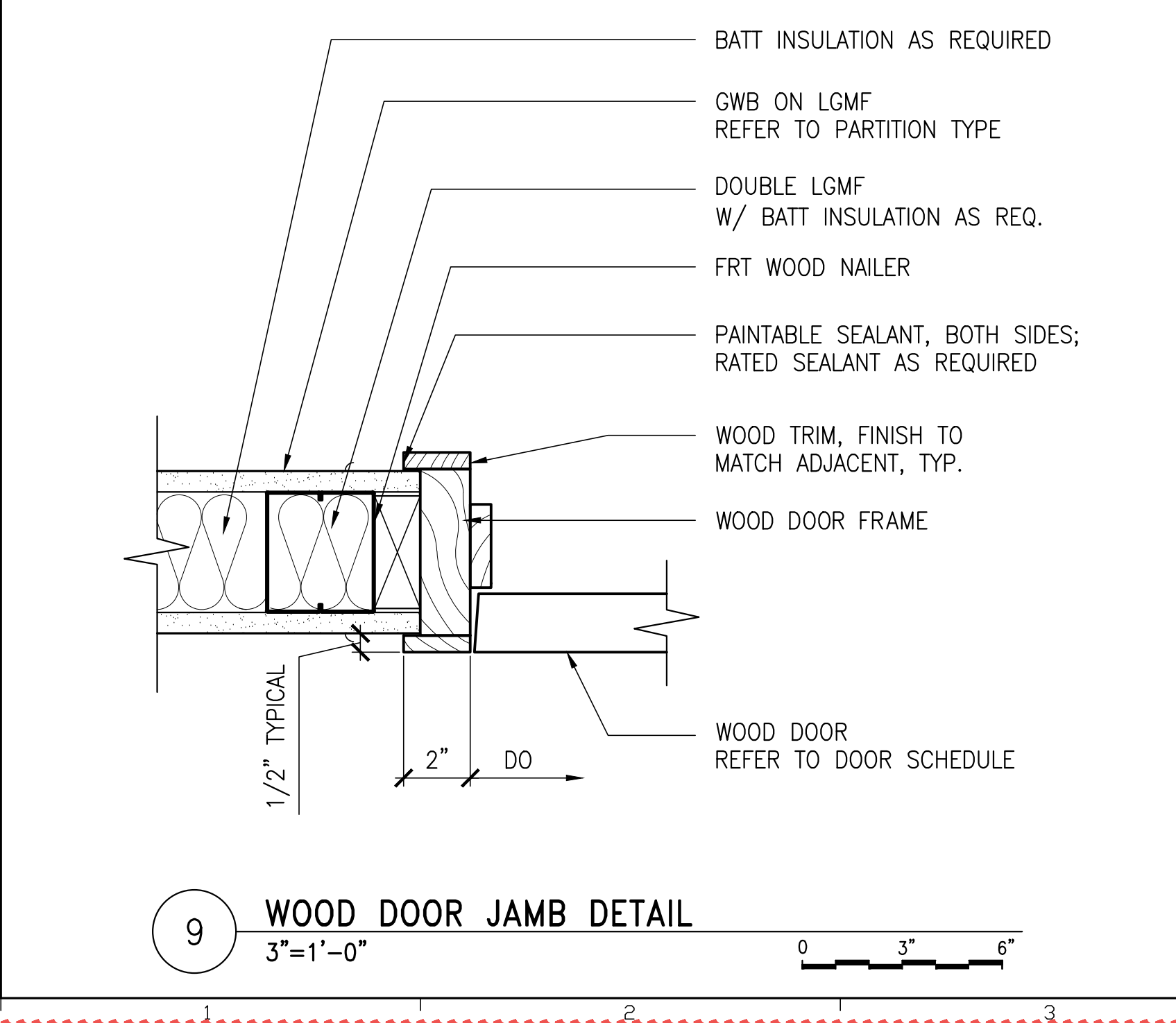
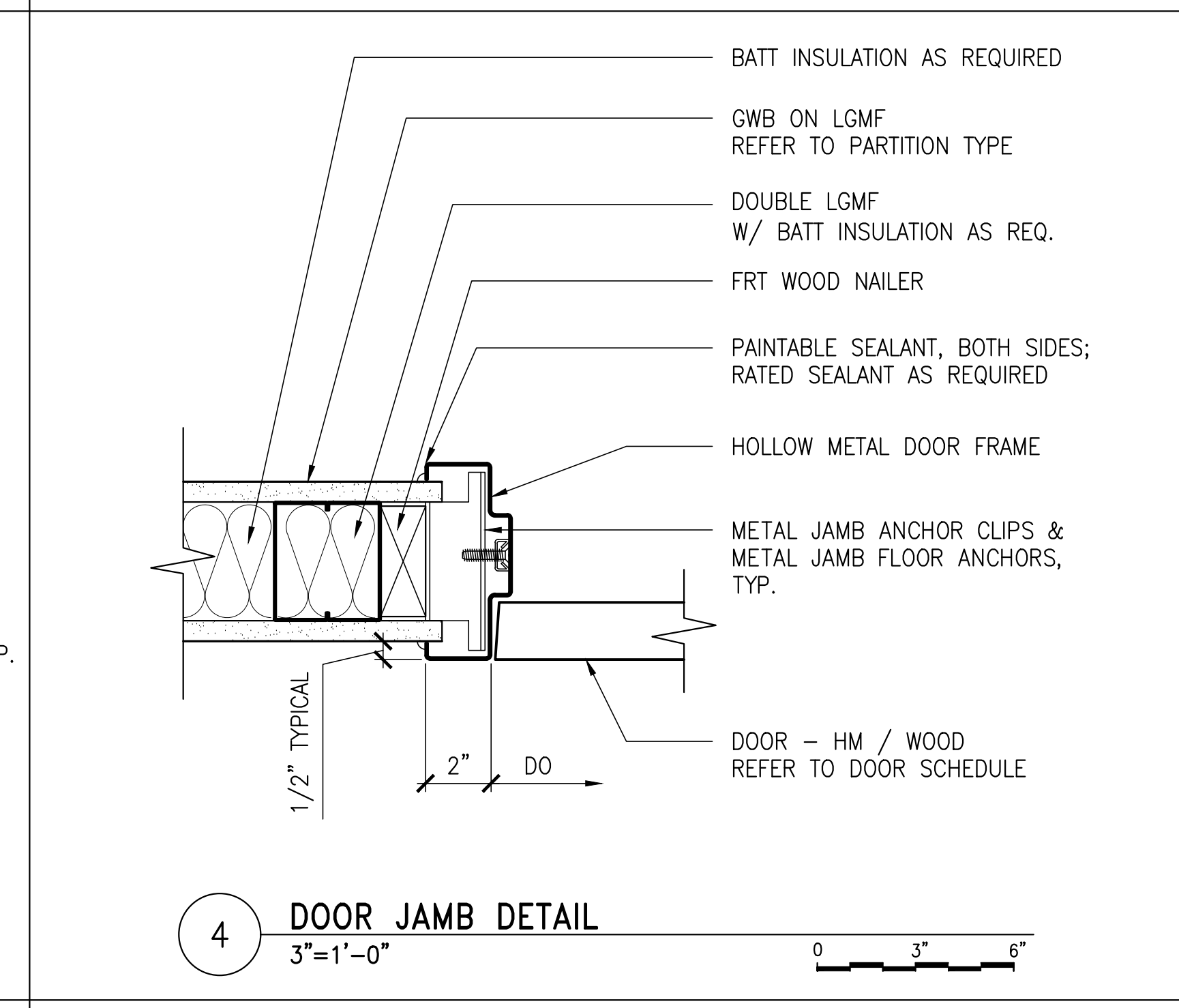
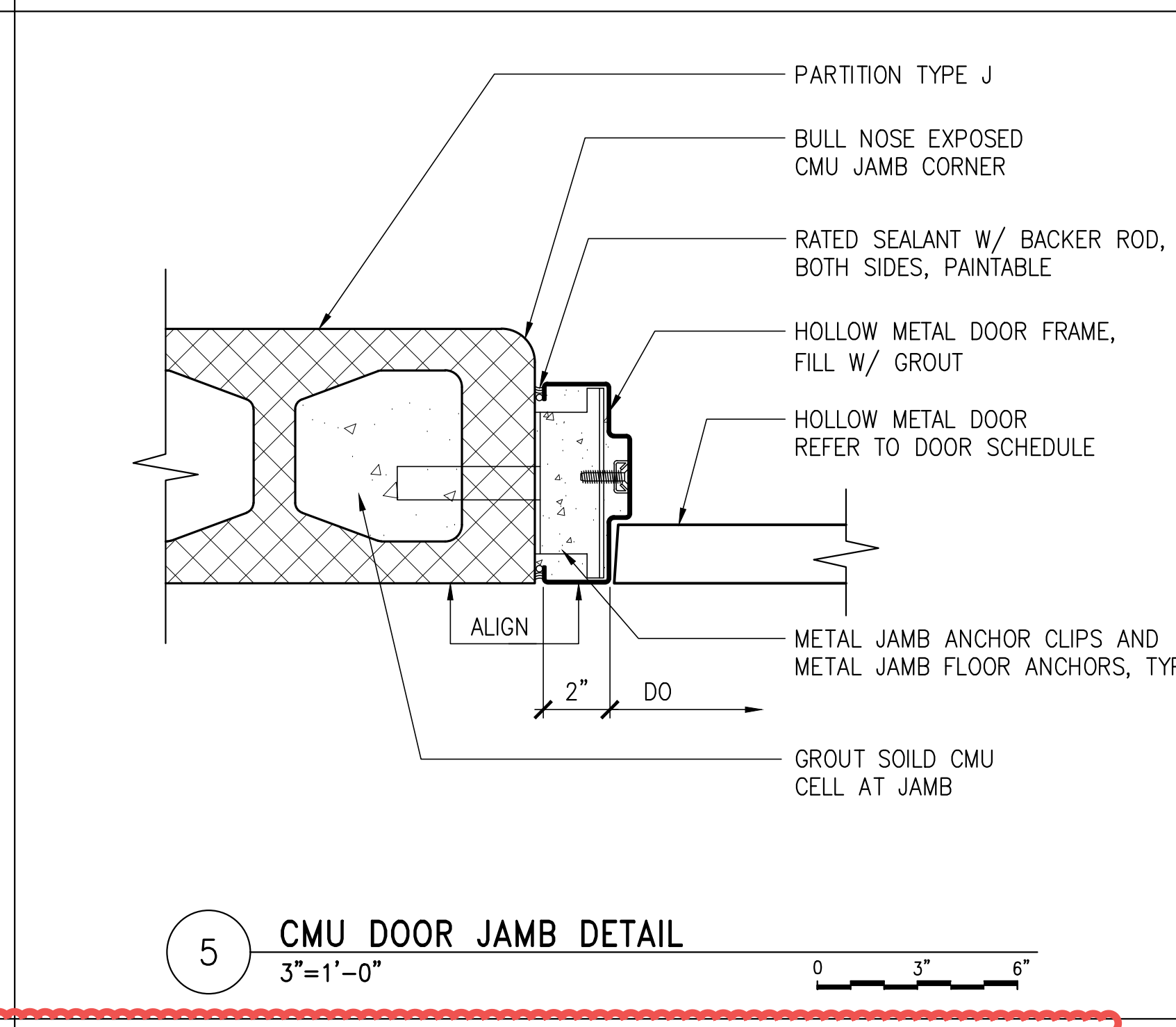
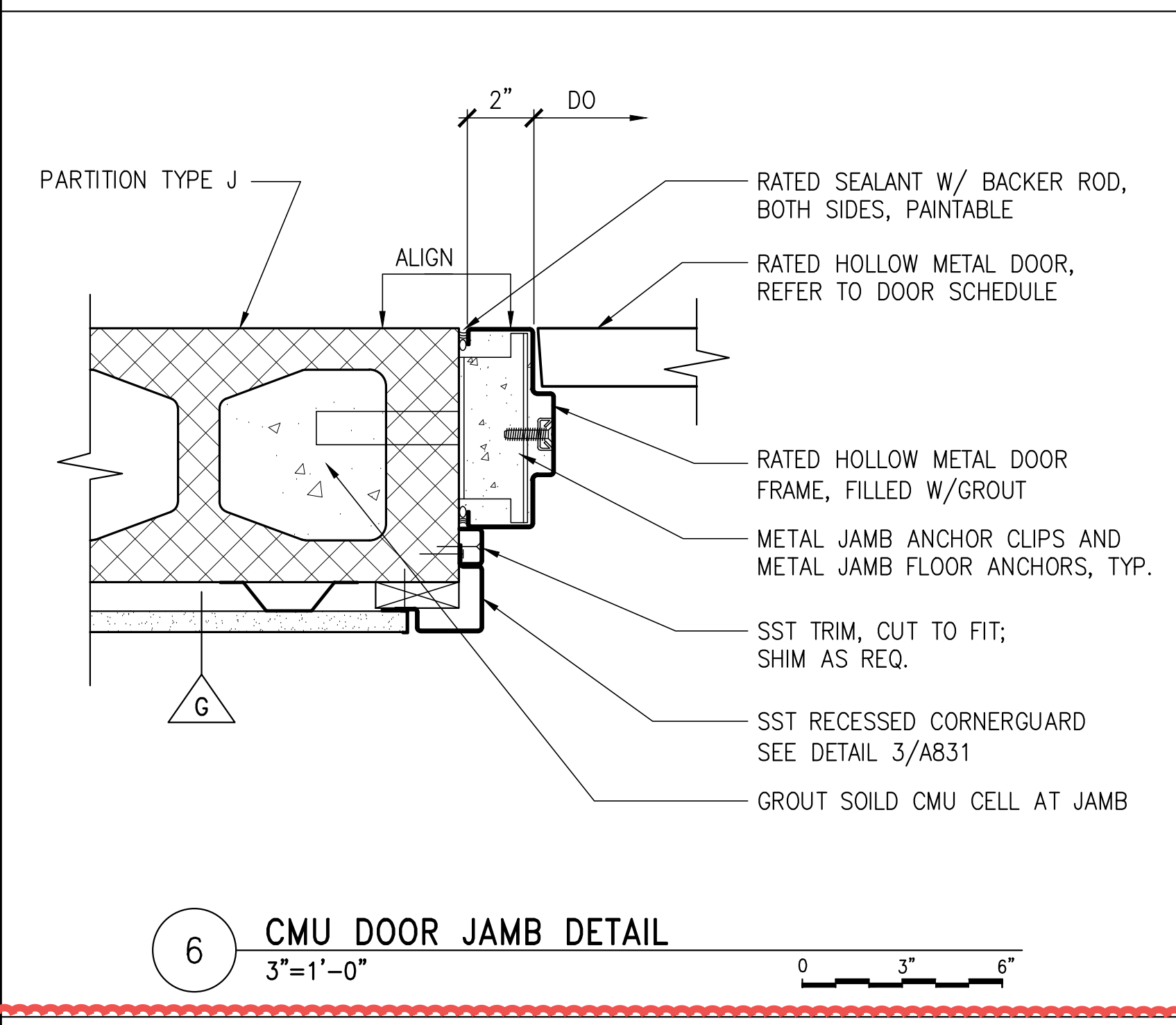
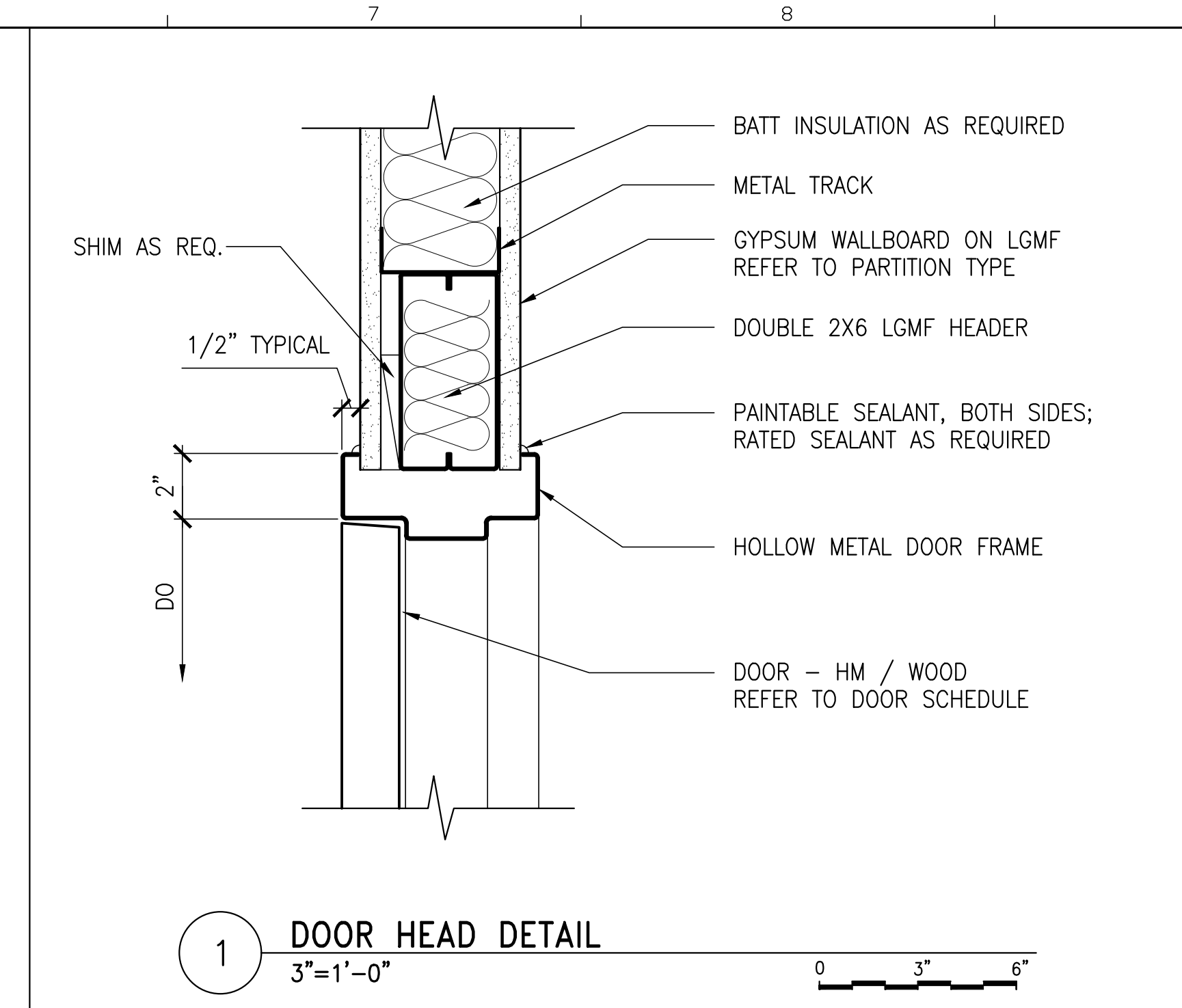
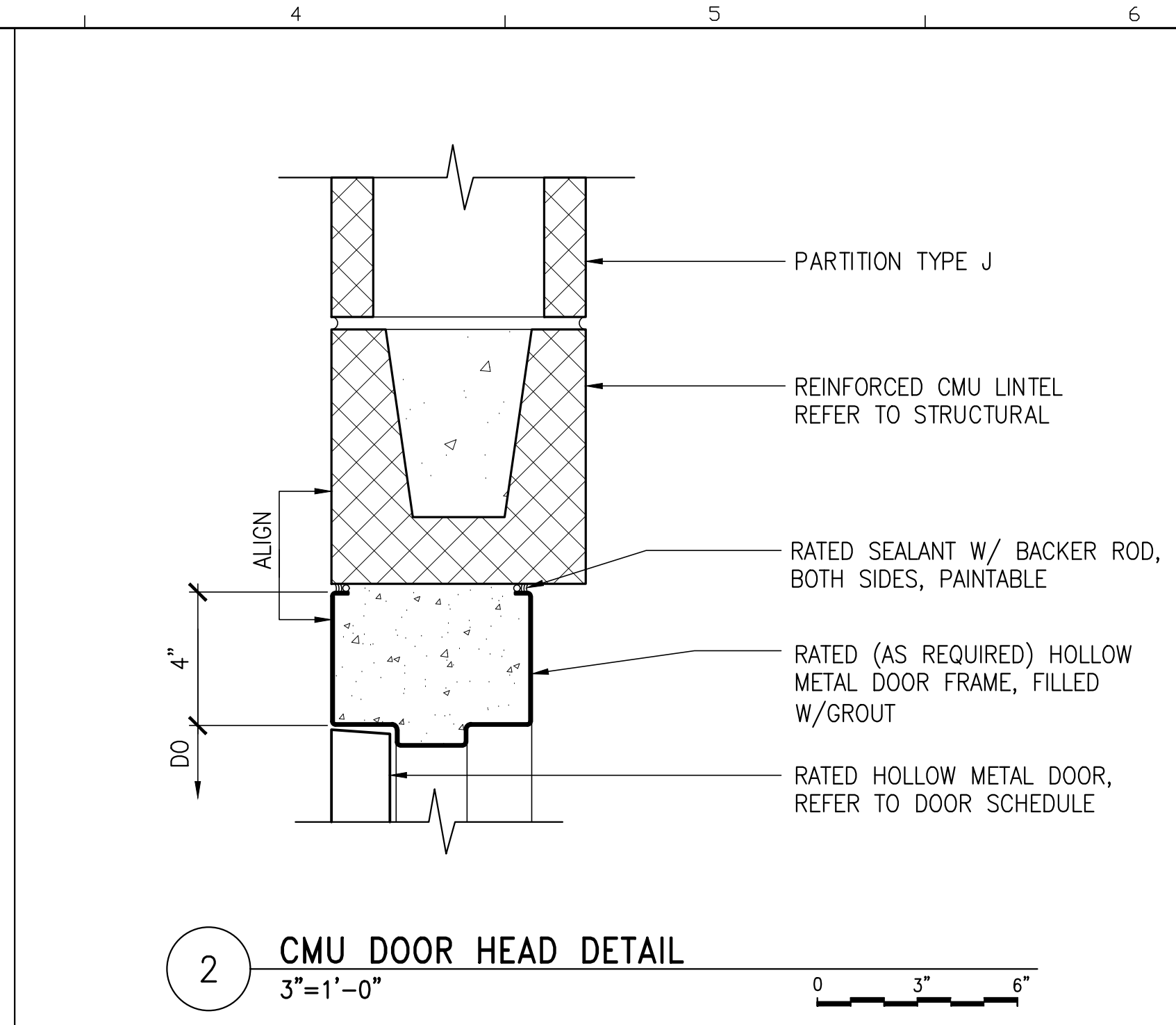
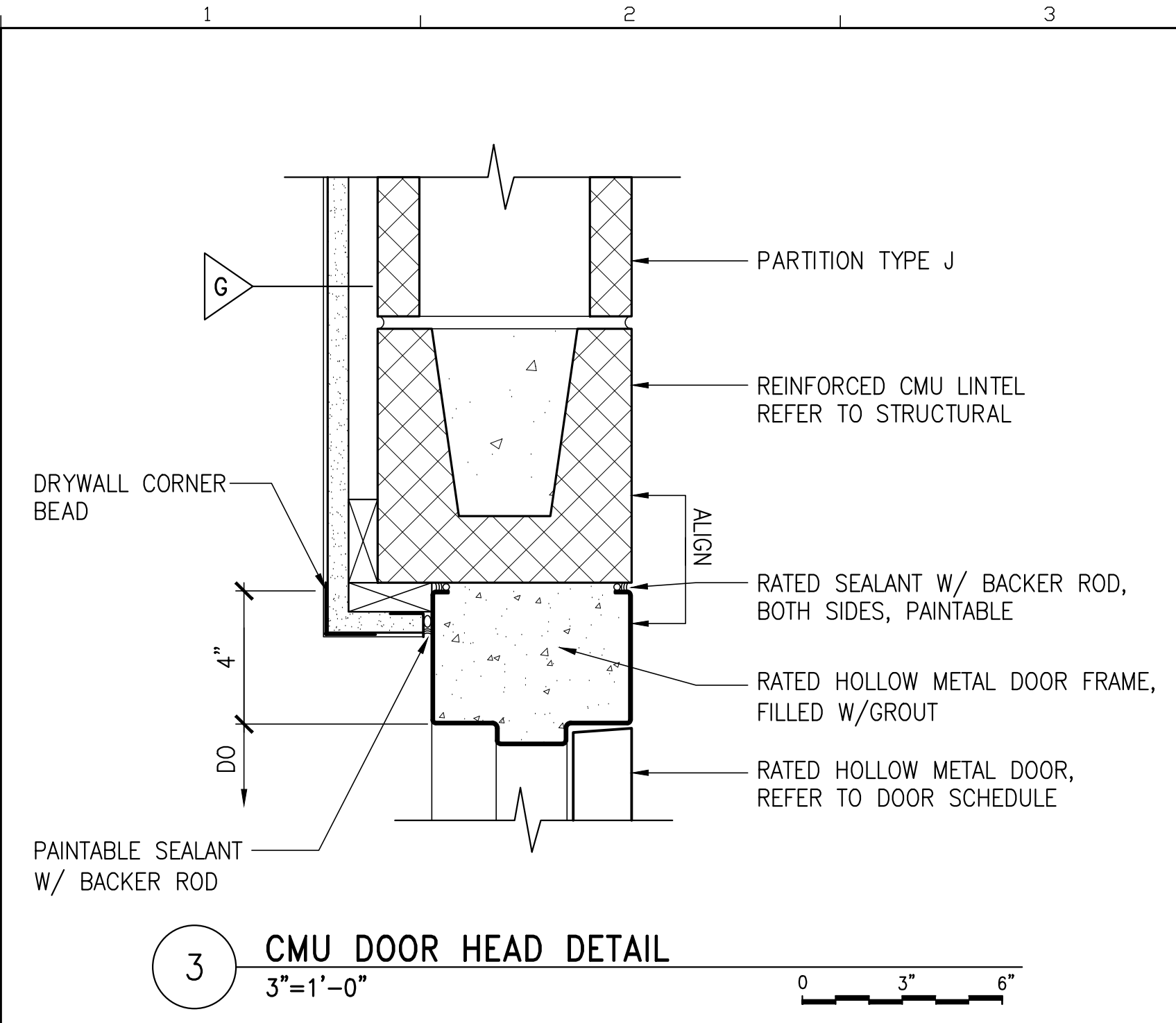
INTERMODAL AND WELCOME CENTER

DOOR AND LOUVER SCHEDULES

SHEET NUMBER

A802

\\na.aecomnet.com\ifs\AMER\Boston-US\BOS01\DCS\Projects\TRN\60653001_MaineDOT_Acadia\Gateway\900_CAD_GIS\910_CAD\Sheet\A804.dwg Dec 21, 2022 - 2:53pm



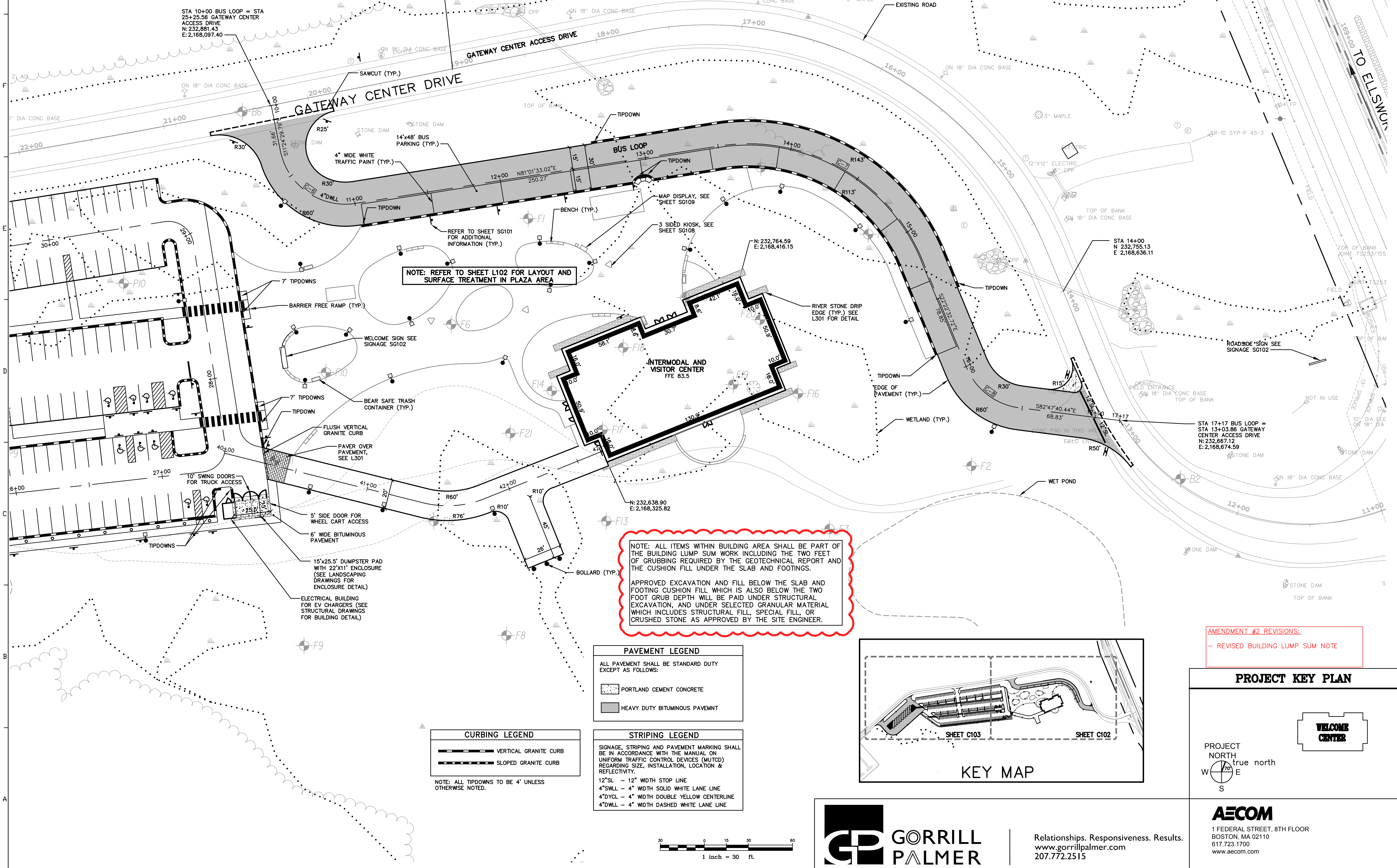
Amendment #2 Updates:
- Added Details 8 and 9 -
Wood Door Jamb and Head
Details

AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		DATE	
PROJECT INFORMATION		SIGNATURE		ARCH. LIN. NUMBER	
PROGRAM	PROJECT MANAGER	AECOM		ARC5292	
DESIGNER	CONSULTANT				
PROJECT RESIDENT	CONTRACTOR				
PROJECT COMPLETION DATE				JANUARY 17, 2022	
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER					
DOOR DETAILS I					
SHEET NUMBER				A804	

U:\1826\05_AECOM_Acadia Gateway Center_2021 Construction Documents - CAD\DWG\1826-05-SP.dwg Dec 22, 2022 - 10:57am

BASELINE CURVE TABLE						
CURVE NO.	LENGTH	RADIUS	TANGENT	DELTA	CHORD BEARING	START STATION / END STATION
C-6	68.77	45.00	43.13	87°33'57"	S55°11'28"E	10+31.66 / 11+00.43
C-7	171.12	128.00	101.09	76°35'54"	S60°40'30"E	13+50.71 / 15+21.83
C-8	47.45	45.00	26.20	60°25'08"	S52°35'07"E	16+00.68 / 16+48.13



NOTE: REFER TO SHEET L102 FOR LAYOUT AND SURFACE TREATMENT IN PLAZA AREA

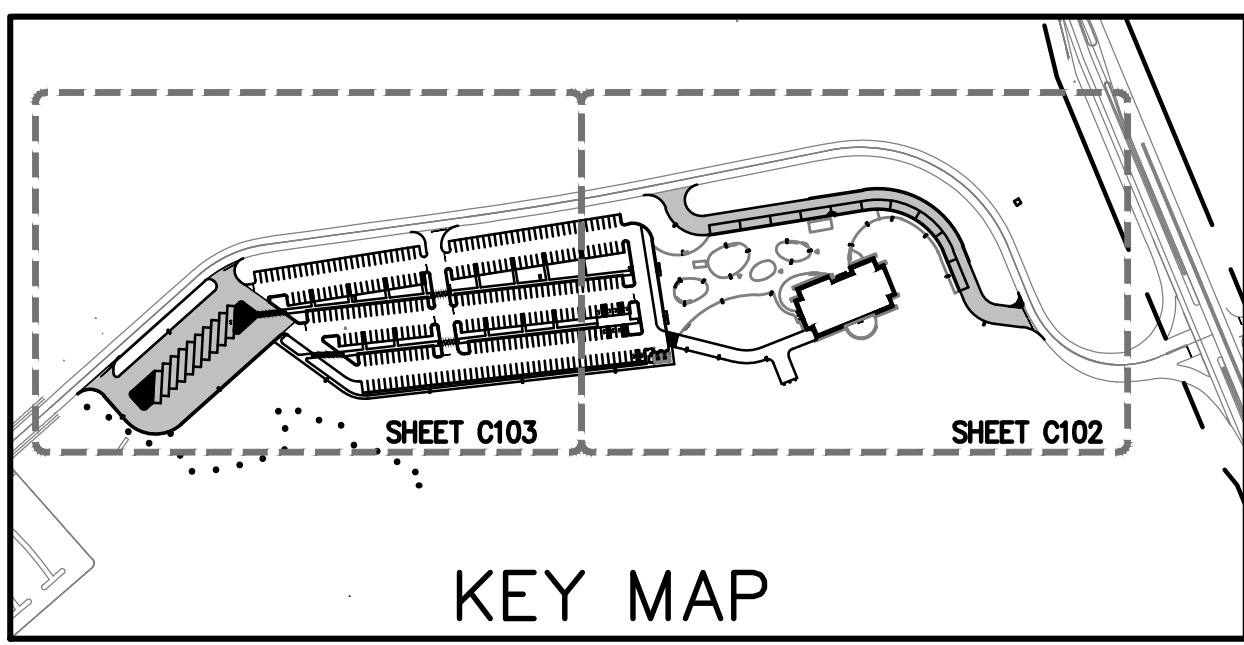
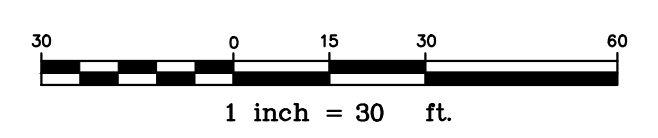
NOTE: ALL ITEMS WITHIN BUILDING AREA SHALL BE PART OF THE BUILDING LUMP SUM WORK INCLUDING THE TWO FEET OF GRUBBING REQUIRED BY THE GEOTECHNICAL REPORT AND THE CUSHION FILL UNDER THE SLAB AND FOOTINGS. APPROVED EXCAVATION AND FILL BELOW THE SLAB AND FOOTING CUSHION FILL WHICH IS ALSO BELOW THE TWO FOOT GRUB DEPTH WILL BE PAID UNDER STRUCTURAL EXCAVATION, AND UNDER SELECTED GRANULAR MATERIAL WHICH INCLUDES STRUCTURAL FILL, SPECIAL FILL, OR CRUSHED STONE AS APPROVED BY THE SITE ENGINEER.

PAVEMENT LEGEND	
	PORTLAND CEMENT CONCRETE
	HEAVY DUTY BITUMINOUS PAVEMENT

CURBING LEGEND	
	VERTICAL GRANITE CURB
	SLOPED GRANITE CURB

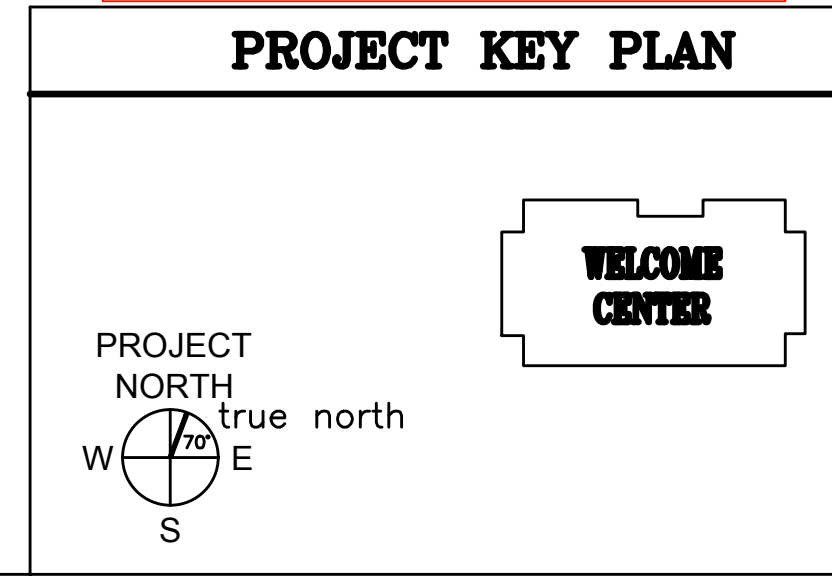
STRIPING LEGEND	
	12" SL - 12" WIDTH STOP LINE
	4" SWLL - 4" WIDTH SOLID WHITE LANE LINE
	4" DYCL - 4" WIDTH DOUBLE YELLOW CENTERLINE
	4" DWLL - 4" WIDTH DASHED WHITE LANE LINE

NOTE: ALL TIPDOWNS TO BE 4" UNLESS OTHERWISE NOTED.

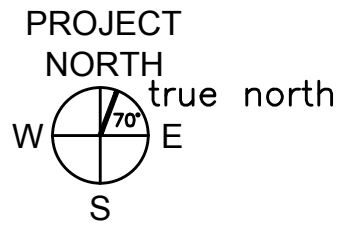


KEY MAP

AMENDMENT #2 REVISIONS:
- REVISED BUILDING LUMP SUM NOTE



PROJECT KEY PLAN



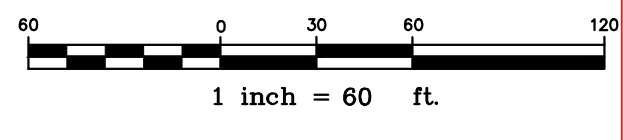
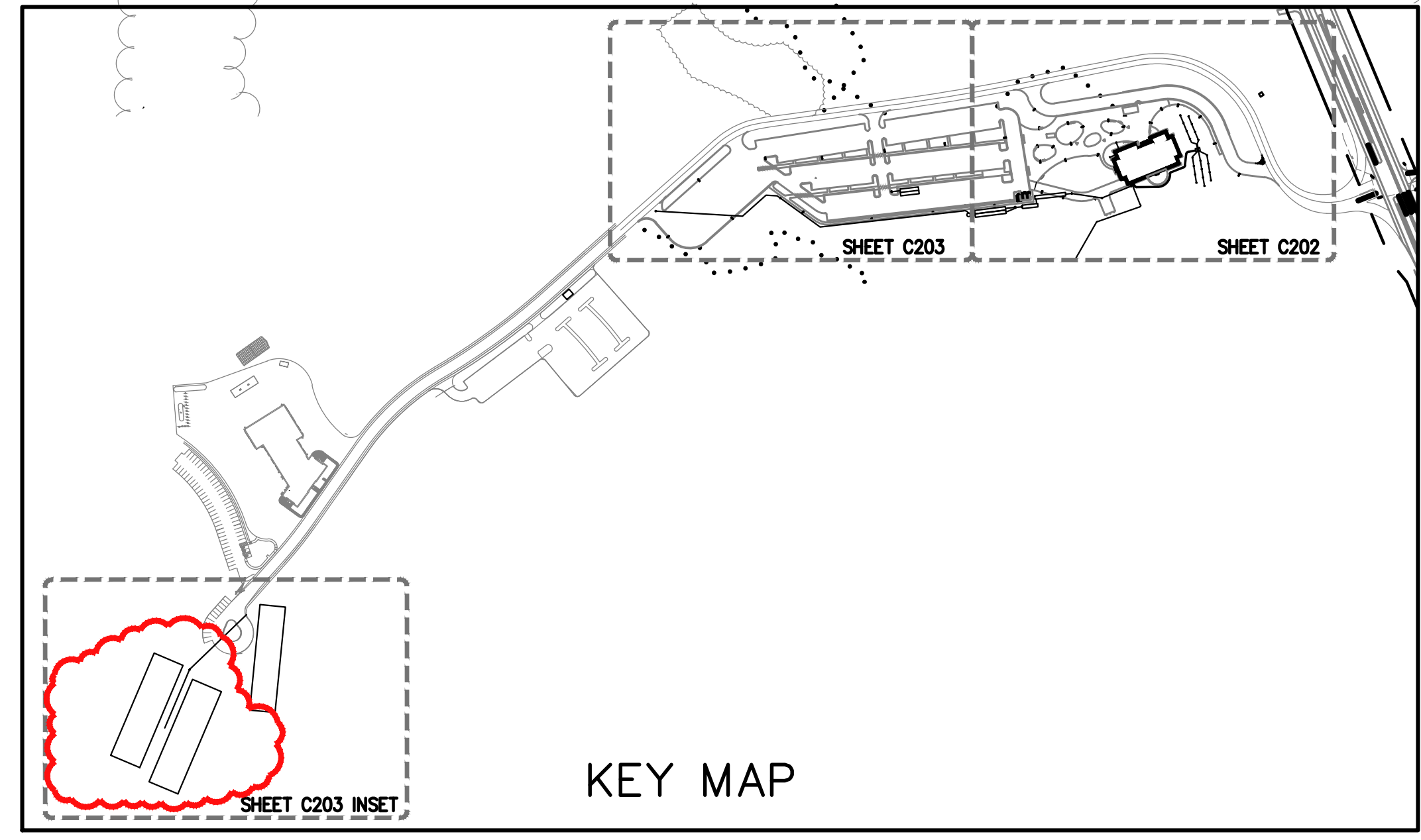
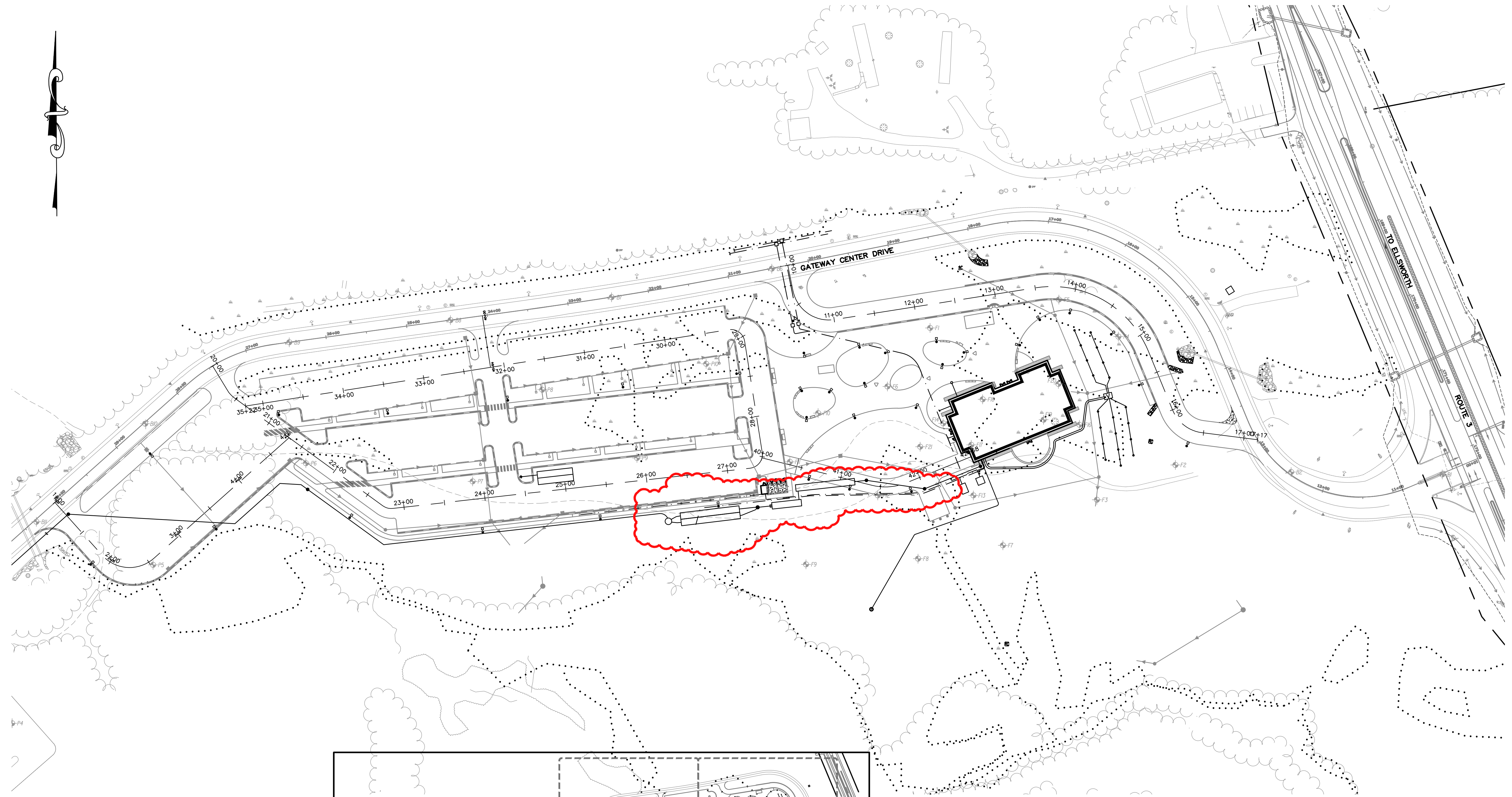
PROJECT NORTH
true north
W E S



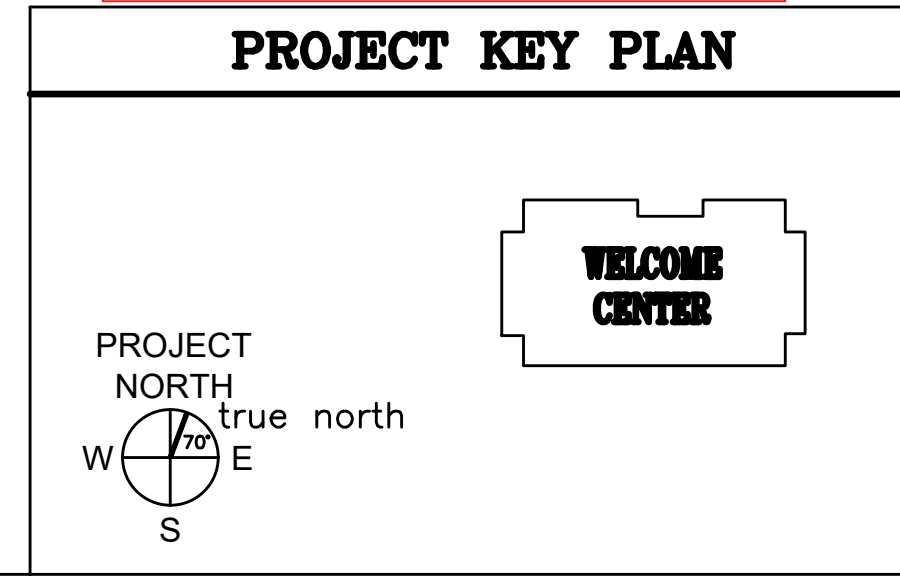
Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		DATE	
SIGNATURE		ENG. LIN. NUMBER	
PROJECT INFORMATION		DATE	
PROGRAM	PROJECT MANAGER	DESIGNER	AECOM
CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER		CIVIL SITE PLAN - EAST	
SHEET NUMBER		WIN NO: 017163.02 & 017163.03	
C102		JANUARY 17, 2022	

U:\1826\05_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-UTIL.dwg Dec 21, 2022 - 5:25pm



AMENDMENT #2 REVISIONS:
 - REVISED SEPTIC TANK AND TREATMENT UNITS LAYOUT & PIPE NETWORK
 - UPDATED SEPTIC FIELD DESIGN



Relationships. Responsiveness. Results.
 www.gorillpalmer.com
 207.772.2515

AECOM
 1 FEDERAL STREET, 8TH FLOOR
 BOSTON, MA 02110
 617.723.1700
 www.aecom.com

STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
FED PIN NO: NA	DATE
WIN NO: 017163.02 & 017163.03	



SIGNATURE	ENG. LIN. NUMBER	DATE
<i>[Signature]</i>	6251	JANUARY 17, 2022

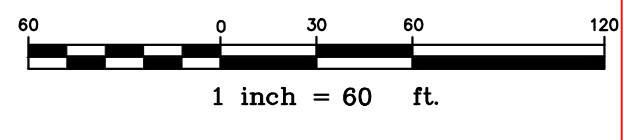
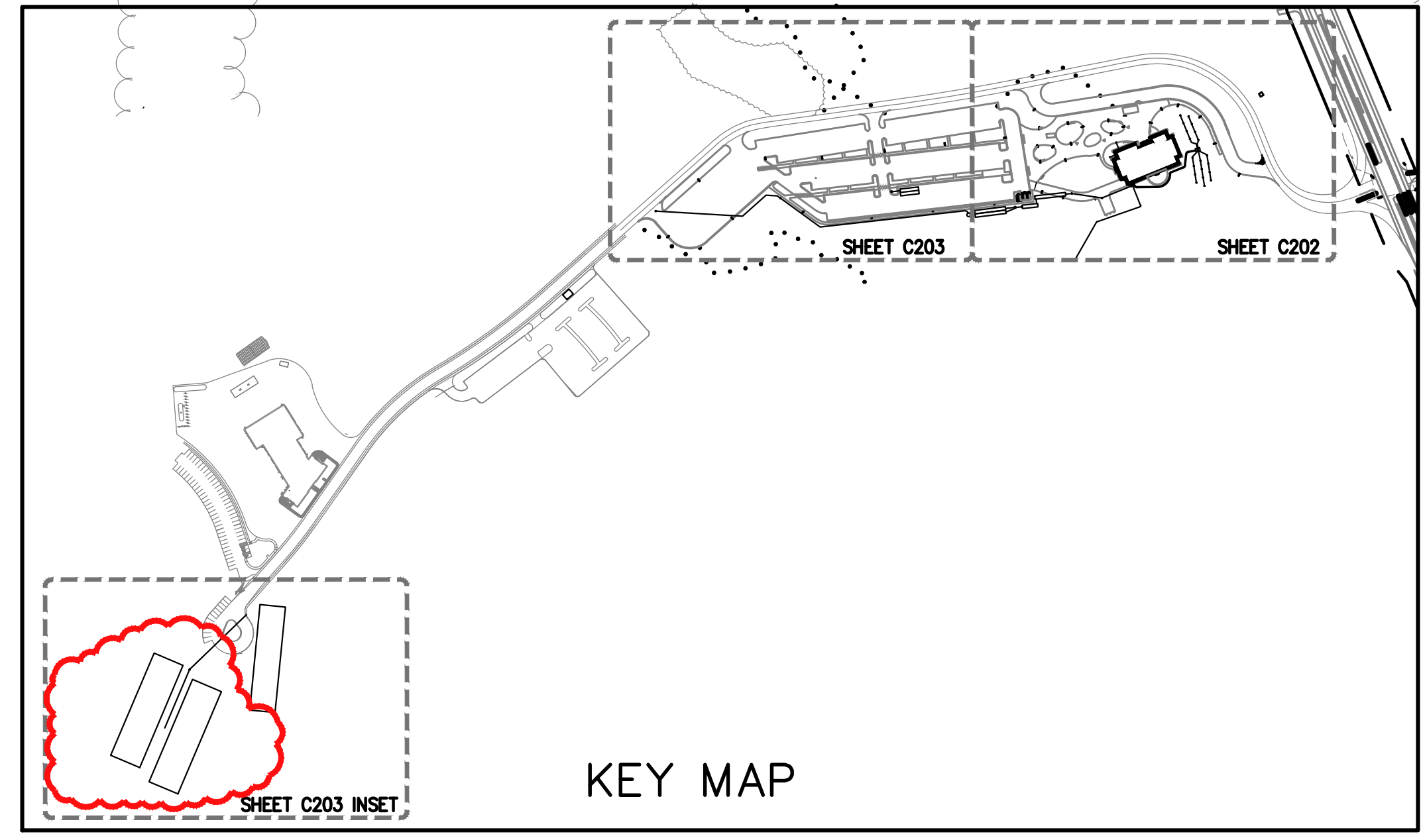
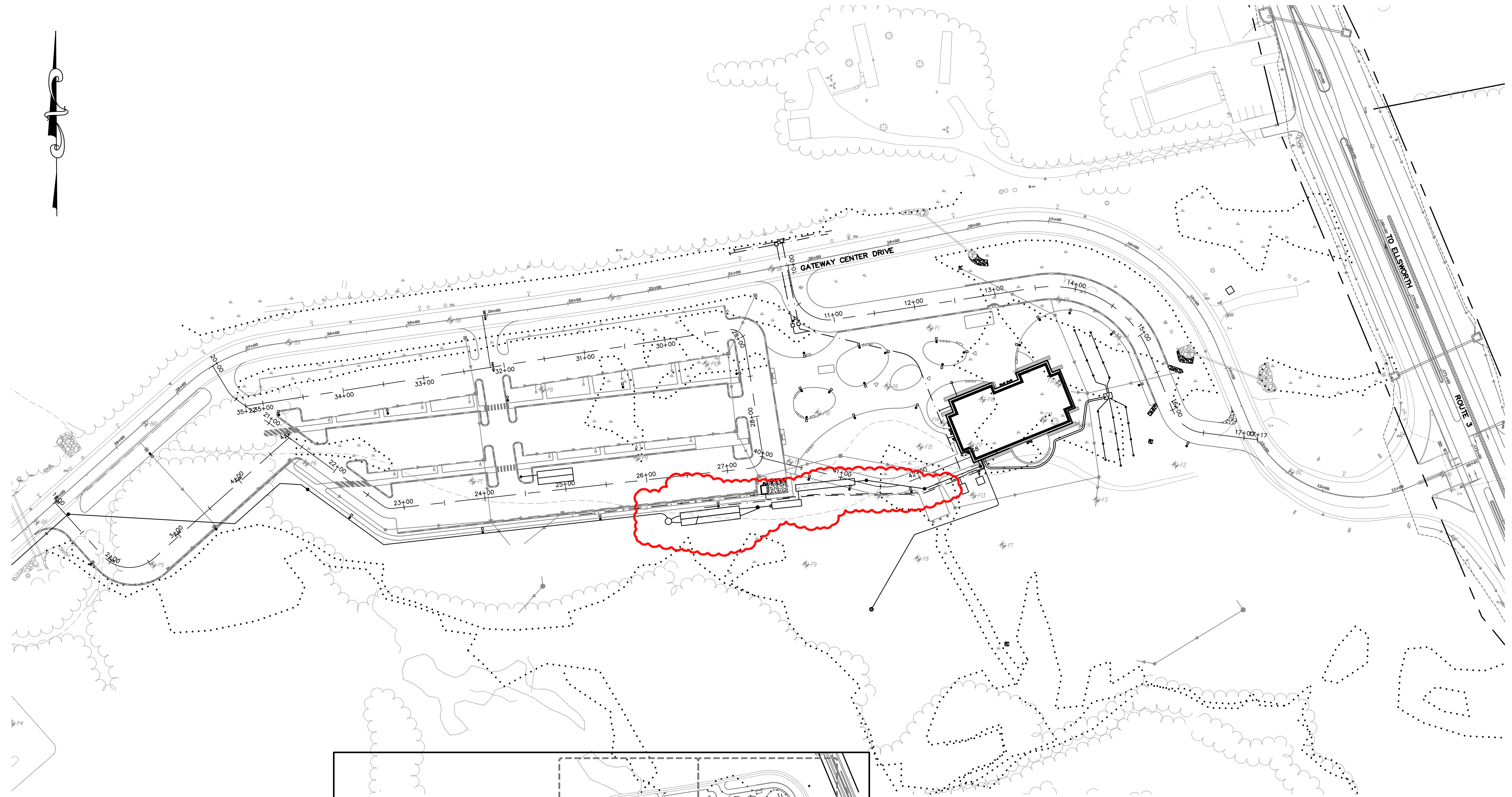
PROJECT INFORMATION	
PROGRAM	-
PROJECT MANAGER	-
DESIGNER	AECOM
CONSULTANT	-
PROJECT RESIDENT	-
CONTRACTOR	-
PROJECT COMPLETION DATE	-

MAINE DEPARTMENT OF TRANSPORTATION
 ACADIA GATEWAY FACILITY
 INTERMODAL AND WELCOME CENTER

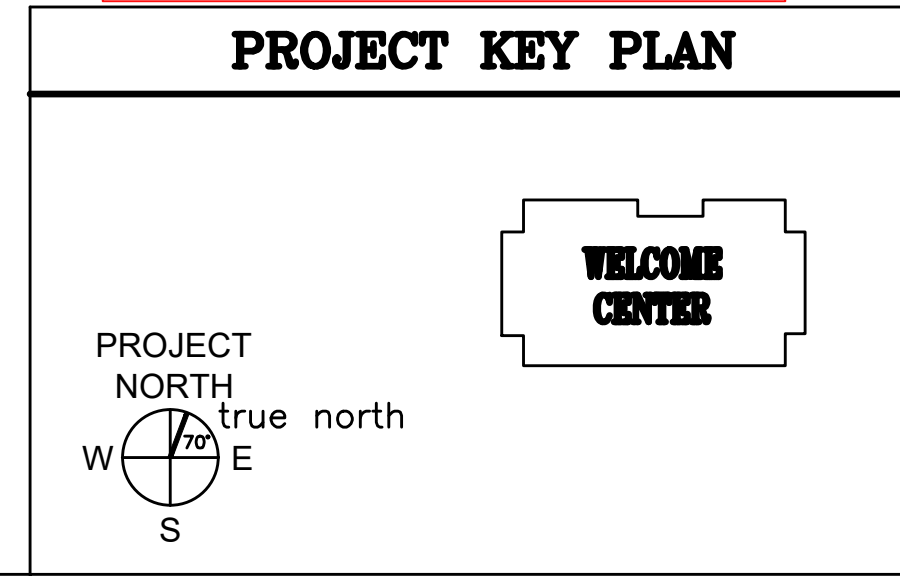
SHEET NUMBER
C201

OVERALL UTILITY PLAN

U:\1826\05_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-UTIL.dwg Dec 21, 2022 - 5:25pm



AMENDMENT #2 REVISIONS:
 - REVISED SEPTIC TANK AND TREATMENT UNITS LAYOUT & PIPE NETWORK
 - UPDATED SEPTIC FIELD DESIGN

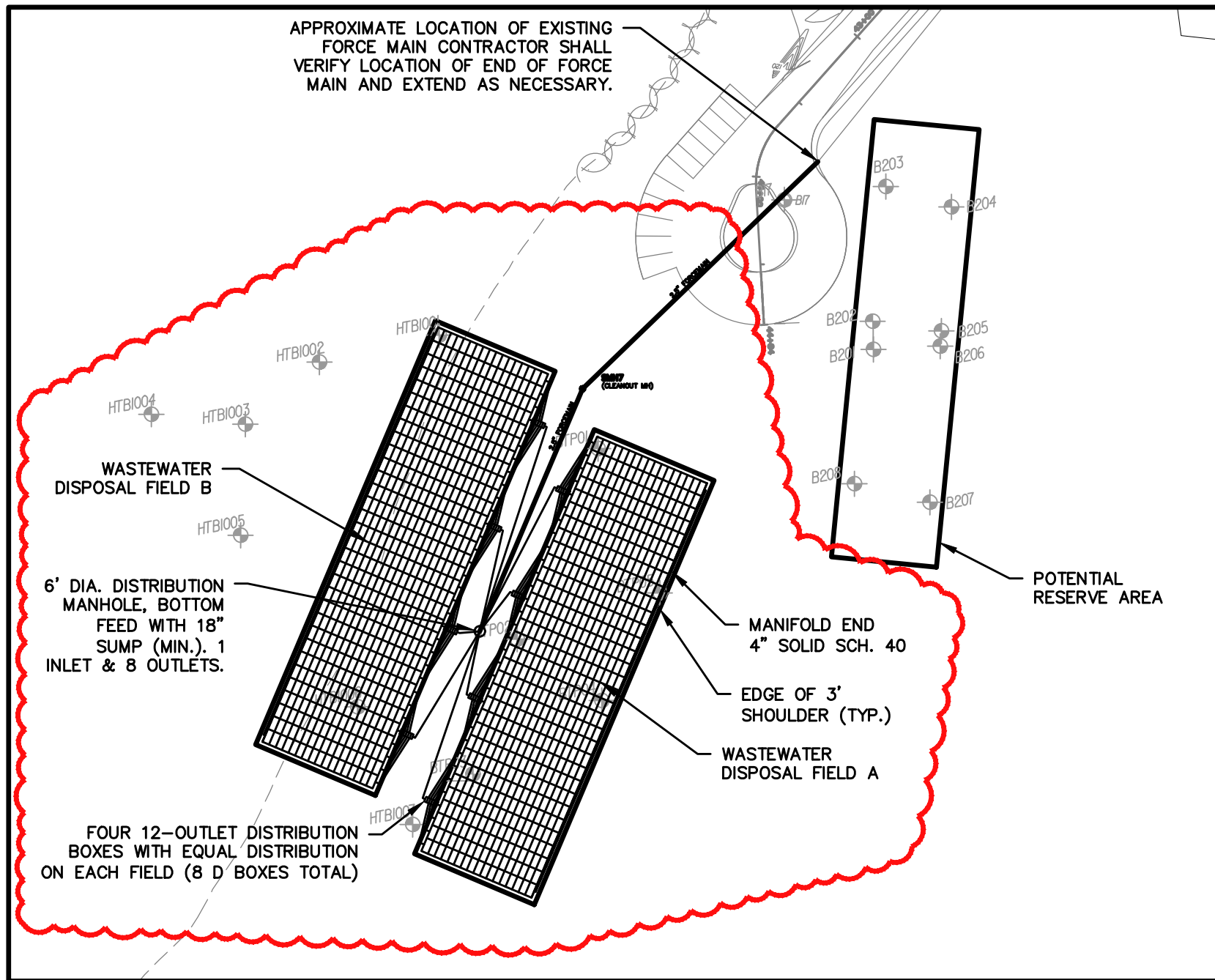
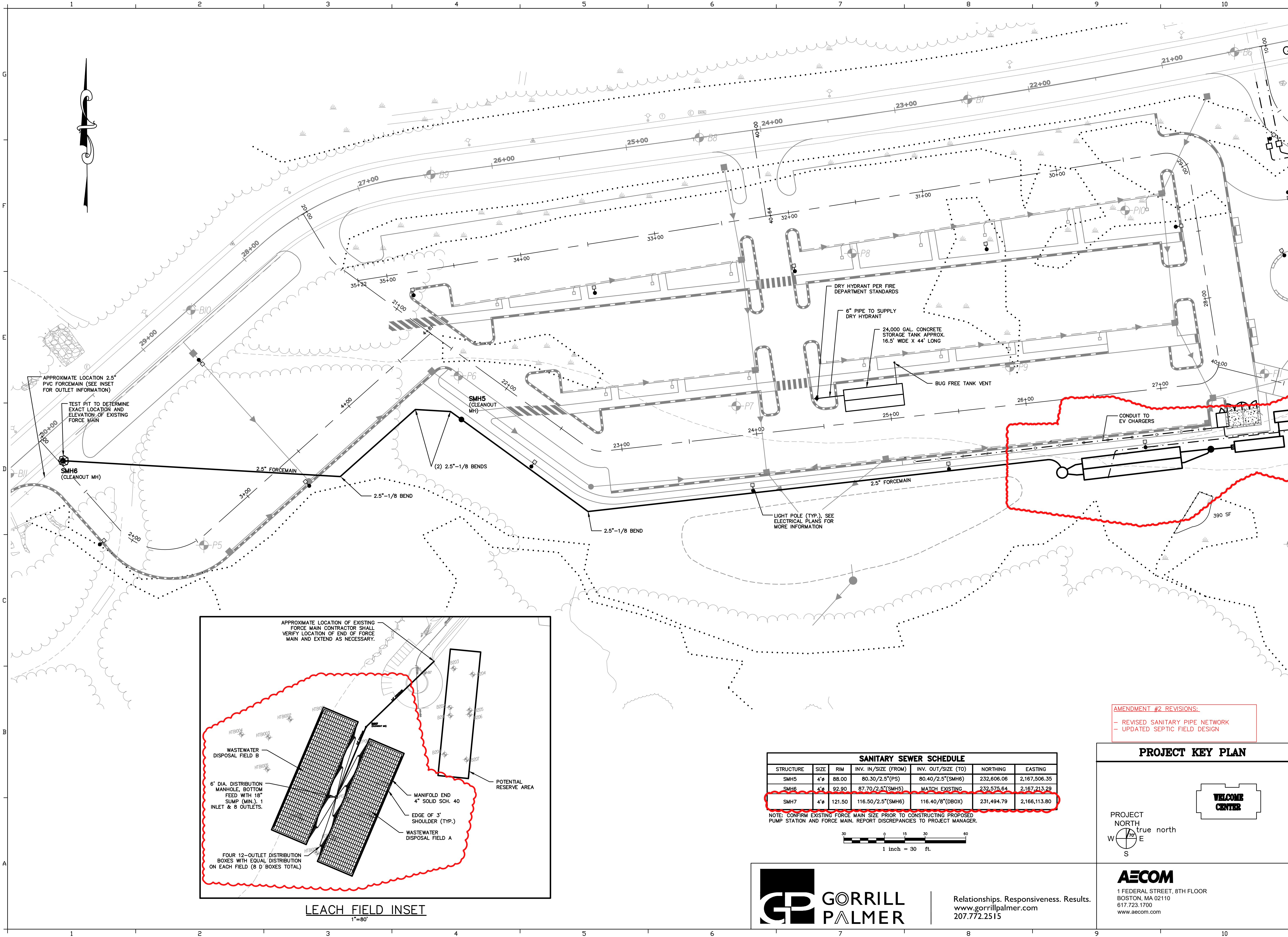


Relationships. Responsiveness. Results.
 www.gorillpalmer.com
 207.772.2515

AECOM
 1 FEDERAL STREET, 8TH FLOOR
 BOSTON, MA 02110
 617.723.1700
 www.aecom.com

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
FED PIN NO: NA		DATE	
WIN NO: 017163.02 & 017163.03			
SIGNATURE		ENG. LIN. NUMBER	
<i>[Signature]</i>		6251	
DATE		JANUARY 17, 2022	
PROJECT INFORMATION			
PROGRAM	PROJECT MANAGER	DESIGNER	AECOM
CONSULTANT	PROJECT RESIDENT	CONTRACTOR	
PROJECT COMPLETION DATE			
MAINE DEPARTMENT OF TRANSPORTATION		ACADIA GATEWAY FACILITY	
INTERMODAL AND WELCOME CENTER		OVERALL UTILITY PLAN	
SHEET NUMBER		C201	

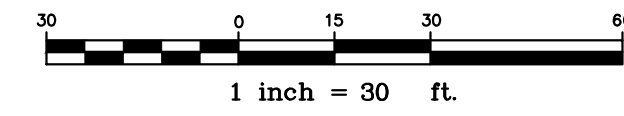
U:\182605_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-UTIL.dwg Dec 21, 2022 - 5:25pm



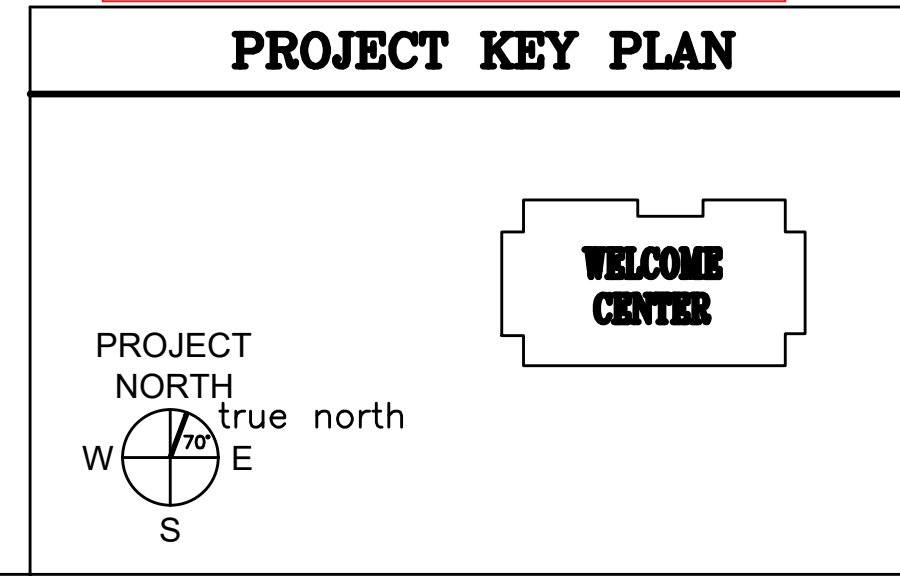
LEACH FIELD INSET
1"=80'

SANITARY SEWER SCHEDULE						
STRUCTURE	SIZE	RIM	INV. IN./SIZE (FROM)	INV. OUT./SIZE (TO)	NORTHING	EASTING
SMH5	4"	88.00	80.30/2.5"(PS)	80.40/2.5"(SMH6)	232,606.06	2,167,506.35
SMH6	4"	92.90	87.70/2.5"(SMH5)	MATCH EXISTING	232,575.64	2,167,213.29
SMH7	4"	121.50	116.50/2.5"(SMH6)	116.40/8"(D)BOX	231,494.79	2,166,113.80

NOTE: CONFIRM EXISTING FORCE MAIN SIZE PRIOR TO CONSTRUCTING PROPOSED PUMP STATION AND FORCE MAIN. REPORT DISCREPANCIES TO PROJECT MANAGER.



AMENDMENT #2 REVISIONS:
 - REVISED SANITARY PIPE NETWORK
 - UPDATED SEPTIC FIELD DESIGN



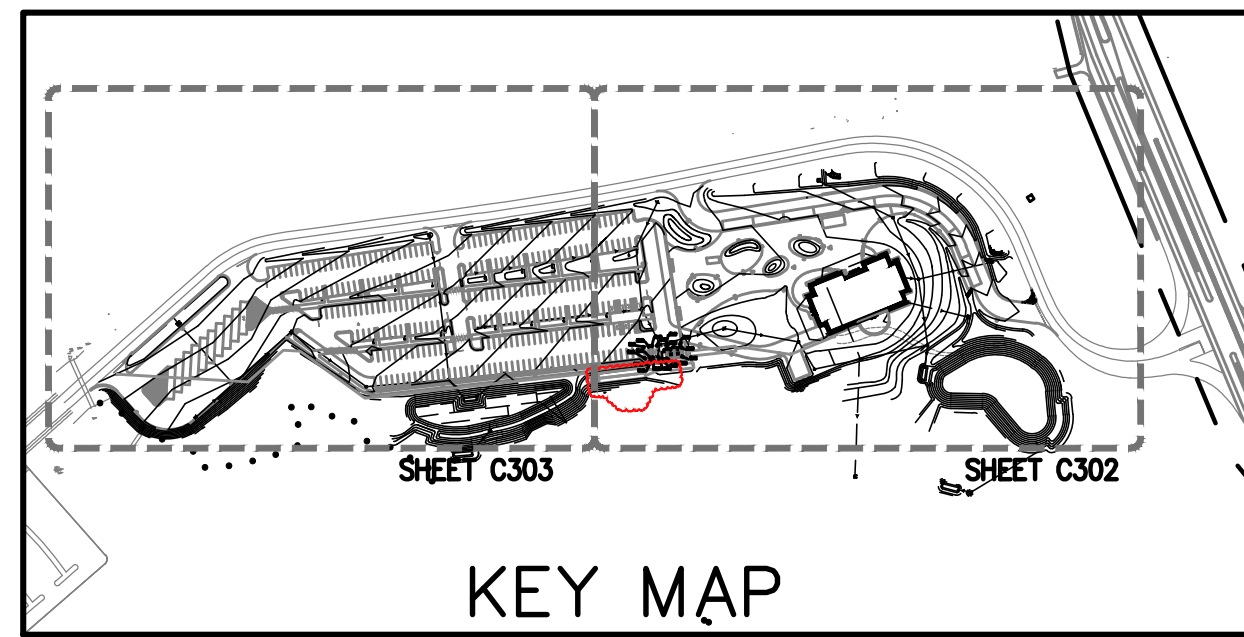
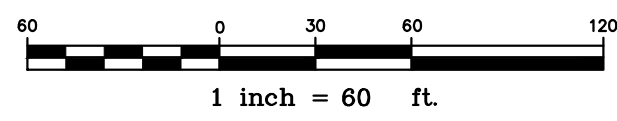
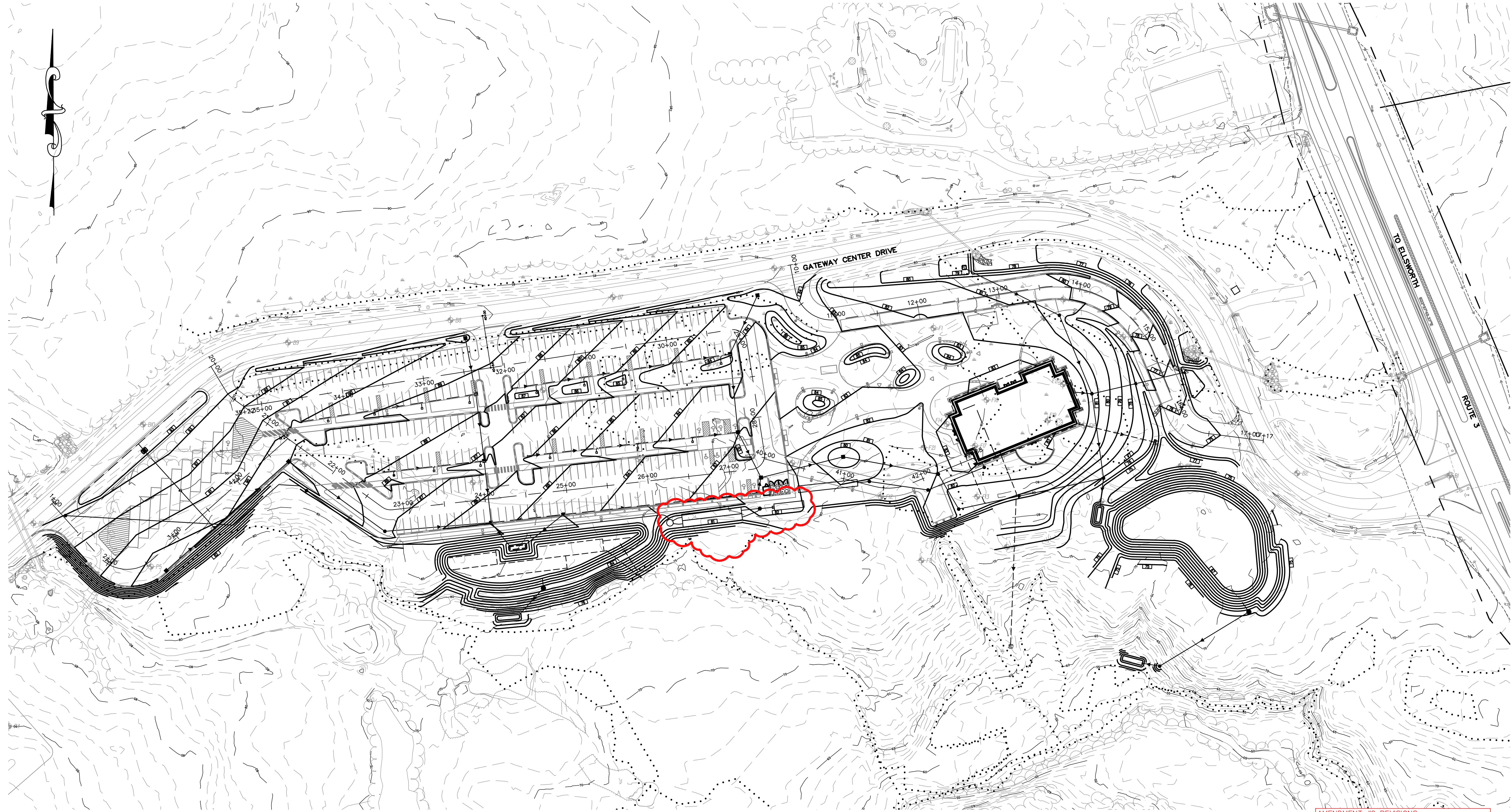
AECOM
 1 FEDERAL STREET, 8TH FLOOR
 BOSTON, MA 02110
 617.723.1700
 www.aecom.com



Relationships. Responsiveness. Results.
 www.gorrillpalmer.com
 207.772.2515

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		DATE	
SIGNATURE		ENG. LIN. NUMBER	
PROJECT INFORMATION		DATE	
PROGRAM	PROJECT MANAGER	PROJECT RESIDENT	PROJECT COMPLETION DATE
DESIGNER	CONSULTANT	CONTRACTOR	
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER		UTILITY PLAN - WEST	
SHEET NUMBER		WIN NO: 017163.02 & 017163.03	
C203		JANUARY 17, 2022	

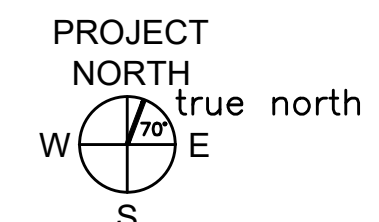
U:\182605_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-GRADE.dwg Dec 21, 2022 - 5:25pm



KEY MAP

AMENDMENT #2 REVISIONS:
- REVISED GRADING AROUND SEPTIC TANKS

PROJECT KEY PLAN



Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515

AECOM

1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

MAINE DEPARTMENT OF TRANSPORTATION
ACADIA GATEWAY FACILITY
INTERMODAL AND WELCOME CENTER

SHEET NUMBER

C301

OVERALL GRADING PLAN

PROJECT INFORMATION	
PROGRAM	-
PROJECT MANAGER	-
DESIGNER	AECOM
CONSULTANT	-
PROJECT RESIDENT	-
CONTRACTOR	-
PROJECT COMPLETION DATE	-

SIGNATURE
[Signature]

ENG. LIN. NUMBER
6251

DATE
JANUARY 17, 2022



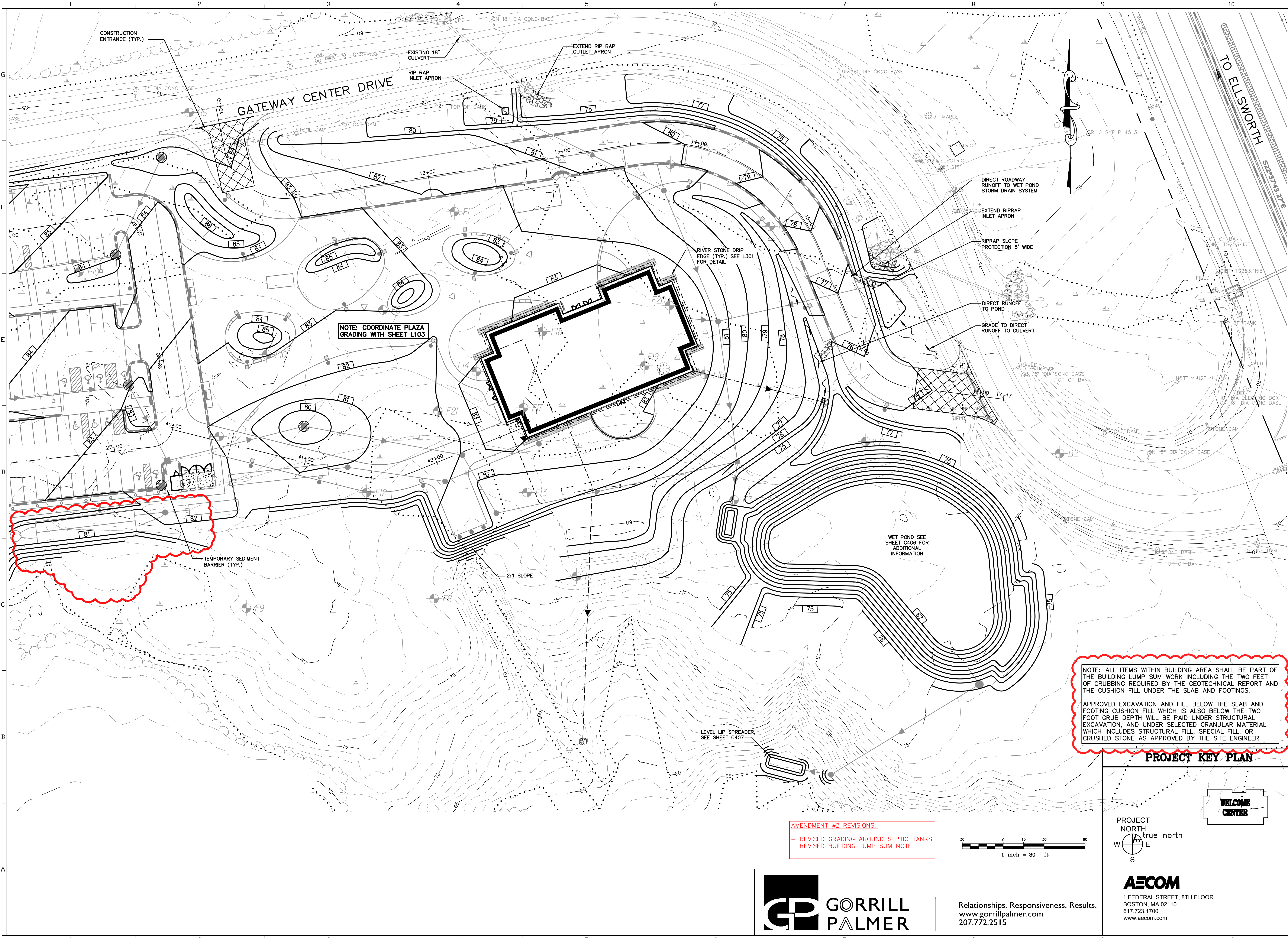
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

FED PIN NO: NA

WIN NO: 017163.02 & 017163.03

DATE

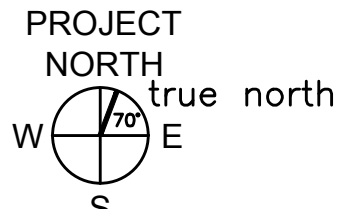
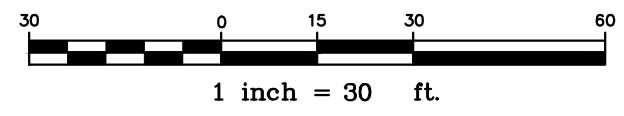
U:\1826\05_AECOM_Acadia Gateway Center_2021 Construction Documents\Z - CAD\DWG\1826-05-GRADE.dwg Dec 22, 2022 - 10:57am



NOTE: COORDINATE PLAZA GRADING WITH SHEET L103

NOTE: ALL ITEMS WITHIN BUILDING AREA SHALL BE PART OF THE BUILDING LUMP SUM WORK INCLUDING THE TWO FEET OF GRUBBING REQUIRED BY THE GEOTECHNICAL REPORT AND THE CUSHION FILL UNDER THE SLAB AND FOOTINGS.
APPROVED EXCAVATION AND FILL BELOW THE SLAB AND FOOTING CUSHION FILL WHICH IS ALSO BELOW THE TWO FOOT GRUB DEPTH WILL BE PAID UNDER STRUCTURAL EXCAVATION, AND UNDER SELECTED GRANULAR MATERIAL WHICH INCLUDES STRUCTURAL FILL, SPECIAL FILL, OR CRUSHED STONE AS APPROVED BY THE SITE ENGINEER.

AMENDMENT #2 REVISIONS:
- REVISED GRADING AROUND SEPTIC TANKS
- REVISED BUILDING LUMP SUM NOTE



PROJECT KEY PLAN

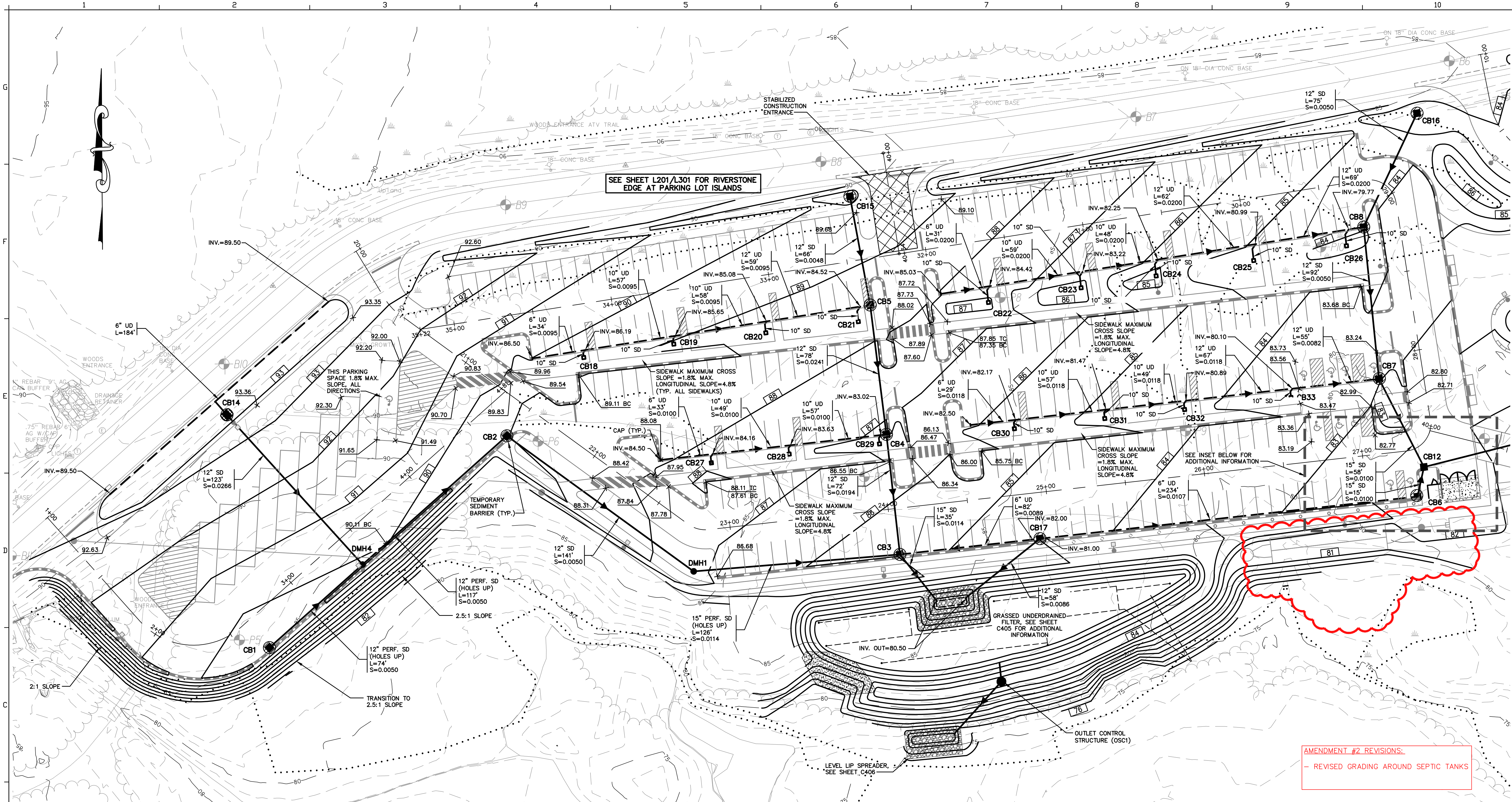
STATE OF MAINE DEPARTMENT OF TRANSPORTATION		DATE	
FED PIN NO: NA		WIN NO: 017163.02 & 017163.03	
		DATE	
		JANUARY 17, 2022	
SIGNATURE 		ENG. LIN. NUMBER 6251	
PROJECT INFORMATION PROGRAM PROJECT MANAGER DESIGNER CONSULTANT PROJECT RESIDENT CONTRACTOR		INFORMATION AECOM 6251 PROJECT COMPLETION DATE	
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER		GRADING PLAN - EAST	
SHEET NUMBER		C302	



Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515

AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

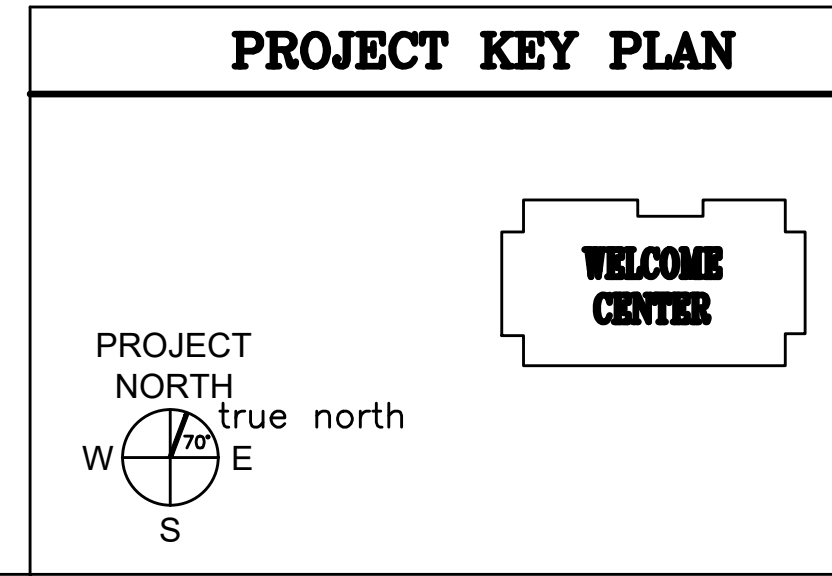
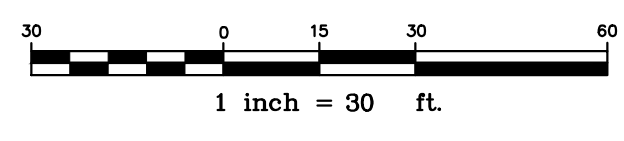
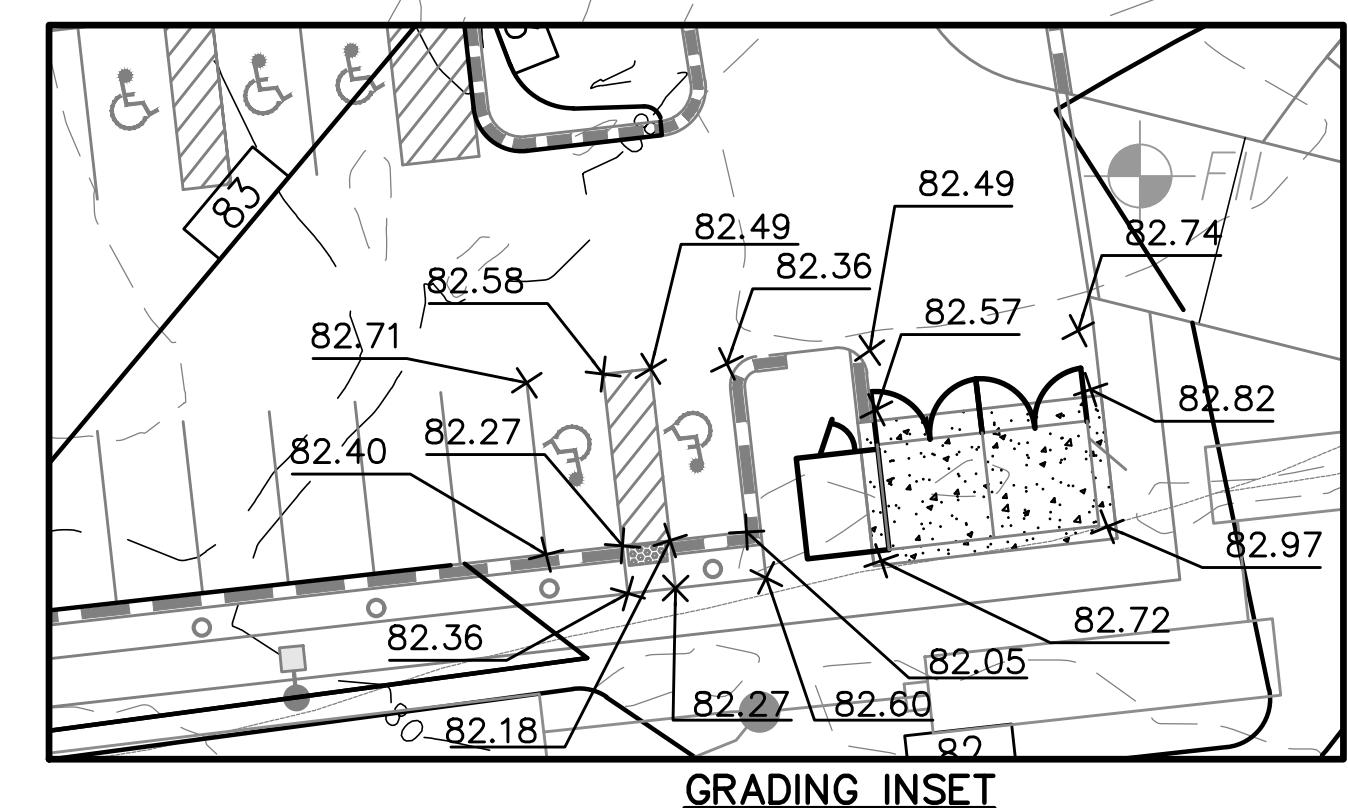
U:\1826_05_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-GRADE.dwg Dec 21, 2022 - 5:25pm



AMENDMENT #2 REVISIONS:
- REVISED GRADING AROUND SEPTIC TANKS

DRAINAGE STRUCTURE SCHEDULE						
STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)	NORTHING	EASTING
CB1	4"	89.00		85.00/12"(DMH4)	232,508.46	2,167,336.21
CB2	4"	89.00	83.95/12"(DMH4)	83.85/12"(DMH1)	232,641.59	2,167,485.46
CB3	4"	85.39	81.00/12"(CB4)	80.90/15"(POND)	232,567.05	2,167,732.52
CB4	4"	86.80	82.50/12"(CB5)	82.40/12"(CB3)	232,642.52	2,167,724.00
CB5	4"	88.40	83.00/10"(UD)	84.38/12"(CB4)	232,723.89	2,167,713.84
CB6	4"	82.05	78.50/6"(UD)	77.90/15"(CB12)	232,603.63	2,168,059.27
CB7	4"	83.00	79.50/6"(UD)	78.90/15"(CB6)	232,677.45	2,168,033.59
CB8	4"	84.00	79.63/12"(CB16)	79.46/12"(CB7)	232,772.90	2,168,023.98
CB14	4"	91.90	83.00/10"(UD)	87.90/12"(DMH4)	232,654.82	2,167,309.51
CB15	4"	88.80	84.48/12"(CB15)	84.90/12"(CB5)	232,792.19	2,167,701.09
CB16	4"	83.50		80.00/12"(CB8)	232,844.44	2,168,057.49
CB17	4"	84.50		81.00/12"(OUTLET)	232,576.97	2,167,820.50
CB18	TYPE "F"	89.00		87.00/10"(UD)	232,690.88	2,167,533.80
CB19	TYPE "F"	88.50		86.50/10"(UD)	232,699.32	2,167,590.39
CB20	TYPE "F"	88.00		86.00/10"(UD)	232,706.39	2,167,648.24
CB21	TYPE "F"	87.75		85.75/10"(UD)	232,713.44	2,167,706.36
CB22	TYPE "F"	86.50		84.50/10"(UD)	232,725.50	2,167,788.15
CB23	TYPE "F"	85.70		83.70/10"(UD)	232,734.71	2,167,846.38
CB24	TYPE "F"	84.75		82.75/10"(UD)	232,742.16	2,167,893.55
CB25	TYPE "F"	84.25		82.25/10"(UD)	232,751.85	2,167,954.84
CB26	TYPE "F"	83.50		81.50/10"(UD)	232,761.07	2,168,013.18

DRAINAGE STRUCTURE SCHEDULE						
STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)	NORTHING	EASTING
CB27	TYPE "F"	87.30		85.30/10"(UD)	232,624.64	2,167,614.00
CB28	TYPE "F"	87.00		85.00/10"(UD)	232,630.15	2,167,662.90
CB29	TYPE "F"	86.30		84.30/10"(UD)	232,636.55	2,167,719.66
CB30	TYPE "F"	85.00		83.00/10"(UD)	232,646.10	2,167,804.47
CB31	TYPE "F"	84.50		82.50/10"(UD)	232,652.51	2,167,861.25
CB32	TYPE "F"	83.70		81.70/10"(UD)	232,658.16	2,167,911.41
CB33	TYPE "F"	83.00		81.00/10"(UD)	232,665.71	2,167,978.35
DMH1	4"	87.30	83.14/12"(CB2)	83.04/15"(CB3)	232,556.44	2,167,602.89
DMH4	4"	89.84	84.63/12"(CB14)	84.53/12"(CB2)	232,560.70	2,167,394.78



NOTE: CATCH BASIN OUTLET HOOD (SNOUT) SHALL BE PROVIDED ON ALL STORM DRAIN OUTLET PIPES AT CATCH BASINS

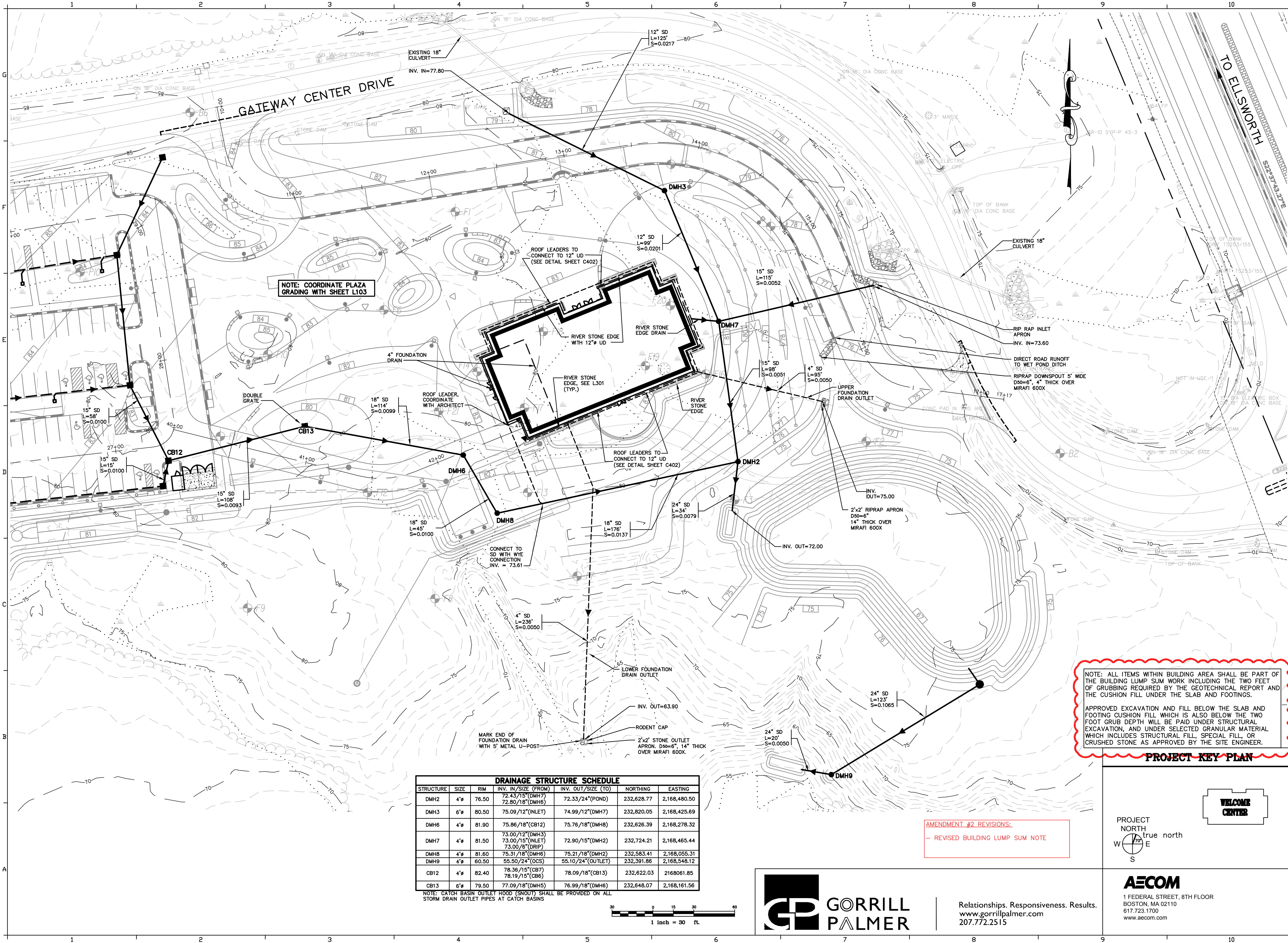


Relationships. Responsiveness. Results.
www.gorillpalmer.com
207.772.2515

AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
PROJECT INFORMATION		SIGNATURE	DATE
PROGRAM	PROJECT MANAGER	ENG. LIN. NUMBER	FED PIN NO. NA
DESIGNER	CONSULTANT	PROJECT RESIDENT	WIN NO. 017163.02 & 017163.03
CONTRACTOR	PROJECT COMPLETION DATE	DATE JANUARY 17, 2022	
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER GRADING AND DRAINAGE PLAN - WEST			
SHEET NUMBER		C303	

U:\182605_AECOM_Acadia Gateway Center_2021 Construction Documents\Z - CAD\DWG\1826-05-DRAINAGE.dwg Dec 22, 2022 - 10:58am

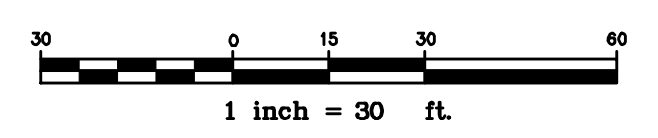


NOTE: COORDINATE PLAZA GRADING WITH SHEET L103

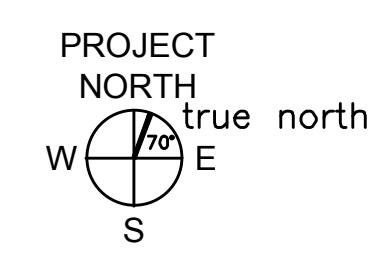
NOTE: ALL ITEMS WITHIN BUILDING AREA SHALL BE PART OF THE BUILDING LUMP SUM WORK INCLUDING THE TWO FEET OF GRUBBING REQUIRED BY THE GEOTECHNICAL REPORT AND THE CUSHION FILL UNDER THE SLAB AND FOOTINGS.
 APPROVED EXCAVATION AND FILL BELOW THE SLAB AND FOOTING CUSHION FILL WHICH IS ALSO BELOW THE TWO FOOT GRUB DEPTH WILL BE PAID UNDER STRUCTURAL EXCAVATION, AND UNDER SELECTED GRANULAR MATERIAL WHICH INCLUDES STRUCTURAL FILL, SPECIAL FILL, OR CRUSHED STONE AS APPROVED BY THE SITE ENGINEER.

DRAINAGE STRUCTURE SCHEDULE						
STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)	NORTHING	EASTING
DMH2	4"	76.50	72.43/15"(DMH7) 72.80/18"(DMH6)	72.33/24"(POND)	232,628.77	2,168,480.50
DMH3	6"	80.50	75.09/12"(INLET)	74.99/12"(DMH7)	232,820.05	2,168,425.69
DMH6	4"	81.90	75.86/18"(CB12)	75.76/18"(DMH8)	232,626.39	2,168,278.32
DMH7	4"	81.50	73.00/12"(DMH3) 73.00/15"(INLET) 73.00/18"(DRIP)	72.90/15"(DMH2)	232,724.21	2,168,465.44
DMH8	4"	81.60	75.31/18"(DMH6)	75.21/18"(DMH2)	232,583.41	2,168,055.31
DMH9	4"	60.50	55.50/24"(OCS)	55.10/24"(OUTLET)	232,391.86	2,168,548.12
CB12	4"	82.40	78.36/15"(CB7) 78.19/15"(CB6)	78.09/18"(CB13)	232,622.03	2,168,061.85
CB13	6"	79.50	77.09/18"(DMH5)	76.99/18"(DMH6)	232,648.07	2,168,161.56

NOTE: CATCH BASIN OUTLET HOOD (SNOUT) SHALL BE PROVIDED ON ALL STORM DRAIN OUTLET PIPES AT CATCH BASINS



AMENDMENT #2 REVISIONS:
 - REVISED BUILDING LUMP SUM NOTE



AECOM

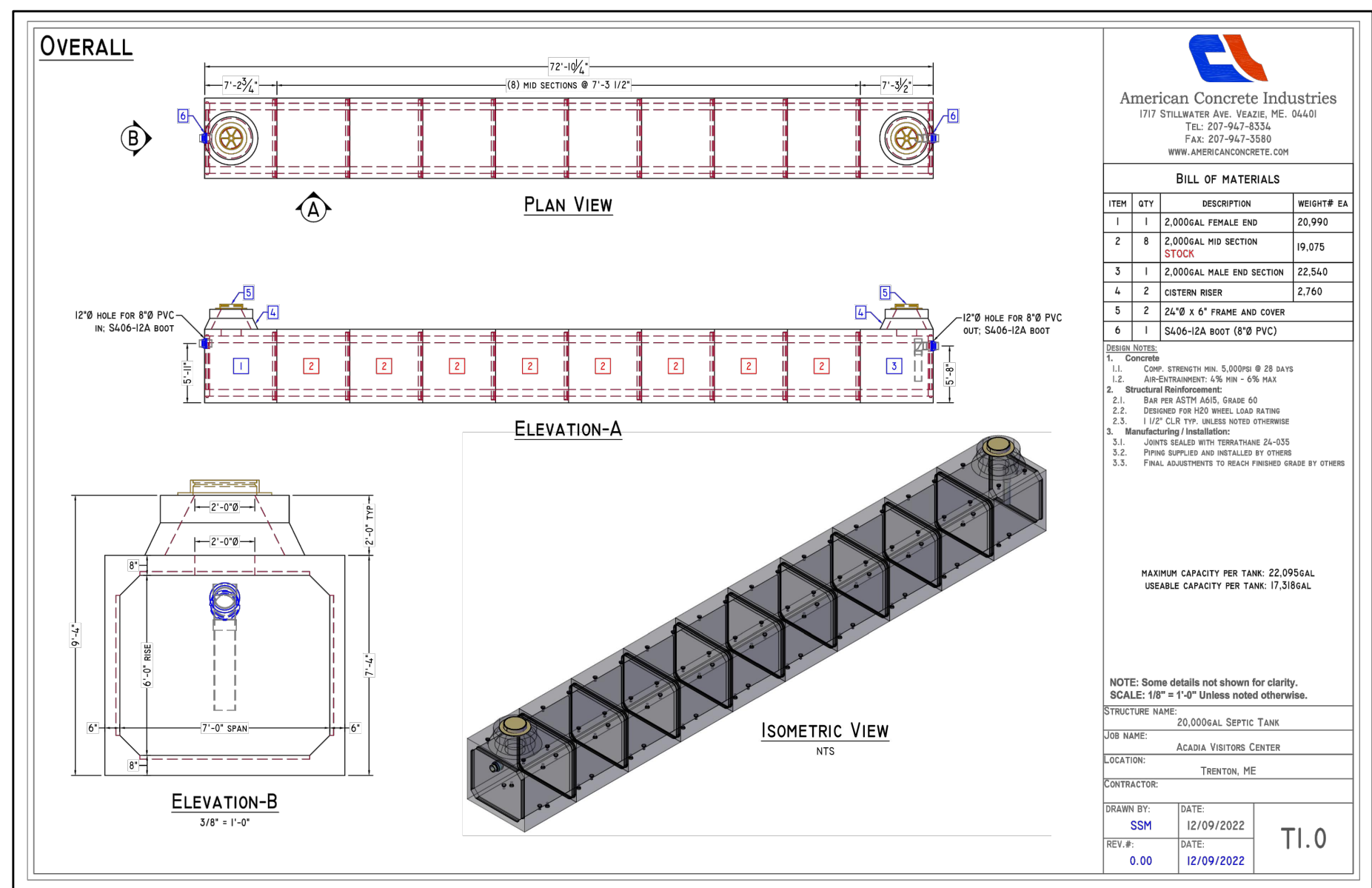
1 FEDERAL STREET, 8TH FLOOR
 BOSTON, MA 02110
 617.723.1700
 www.aecom.com



Relationships. Responsiveness. Results.
 www.gorrillpalmer.com
 207.772.2515

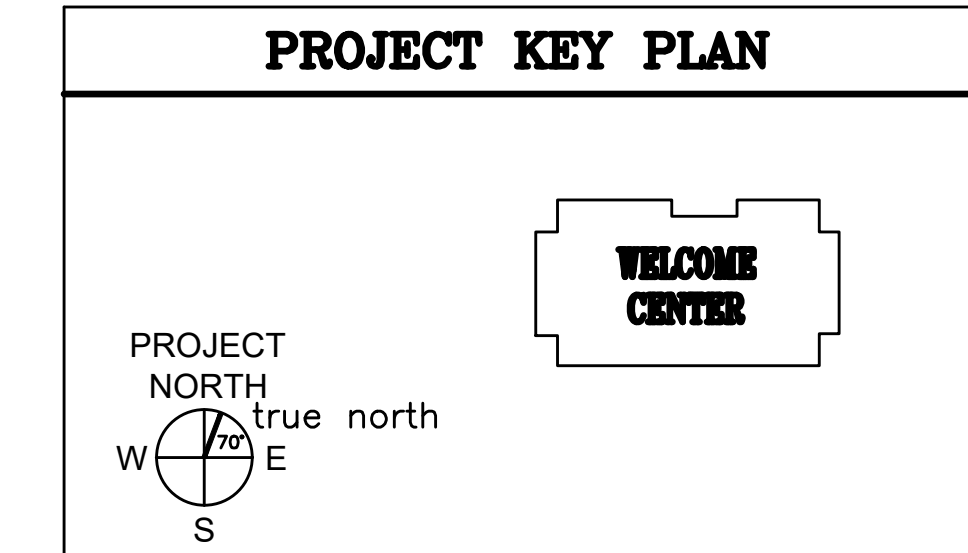
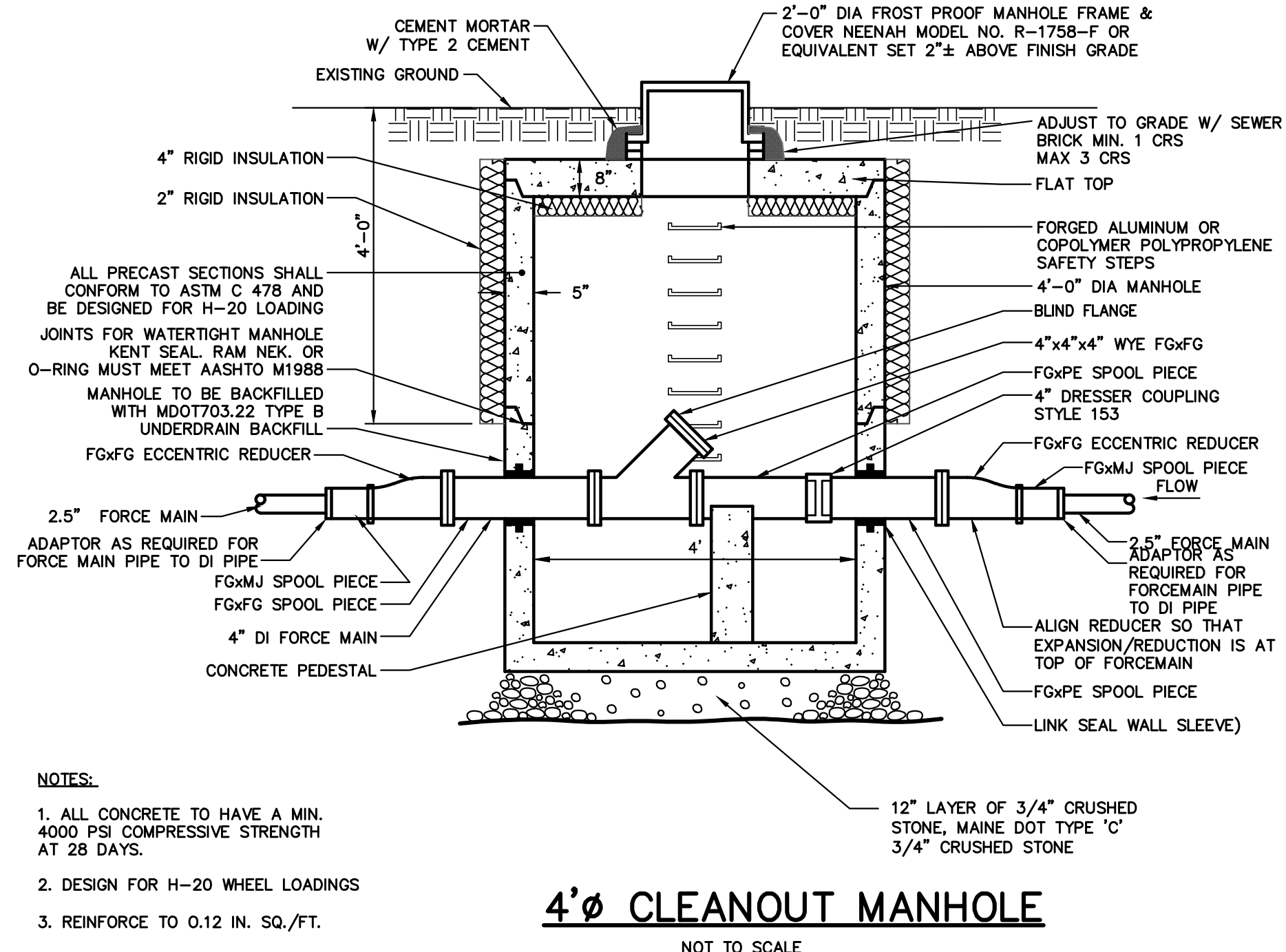
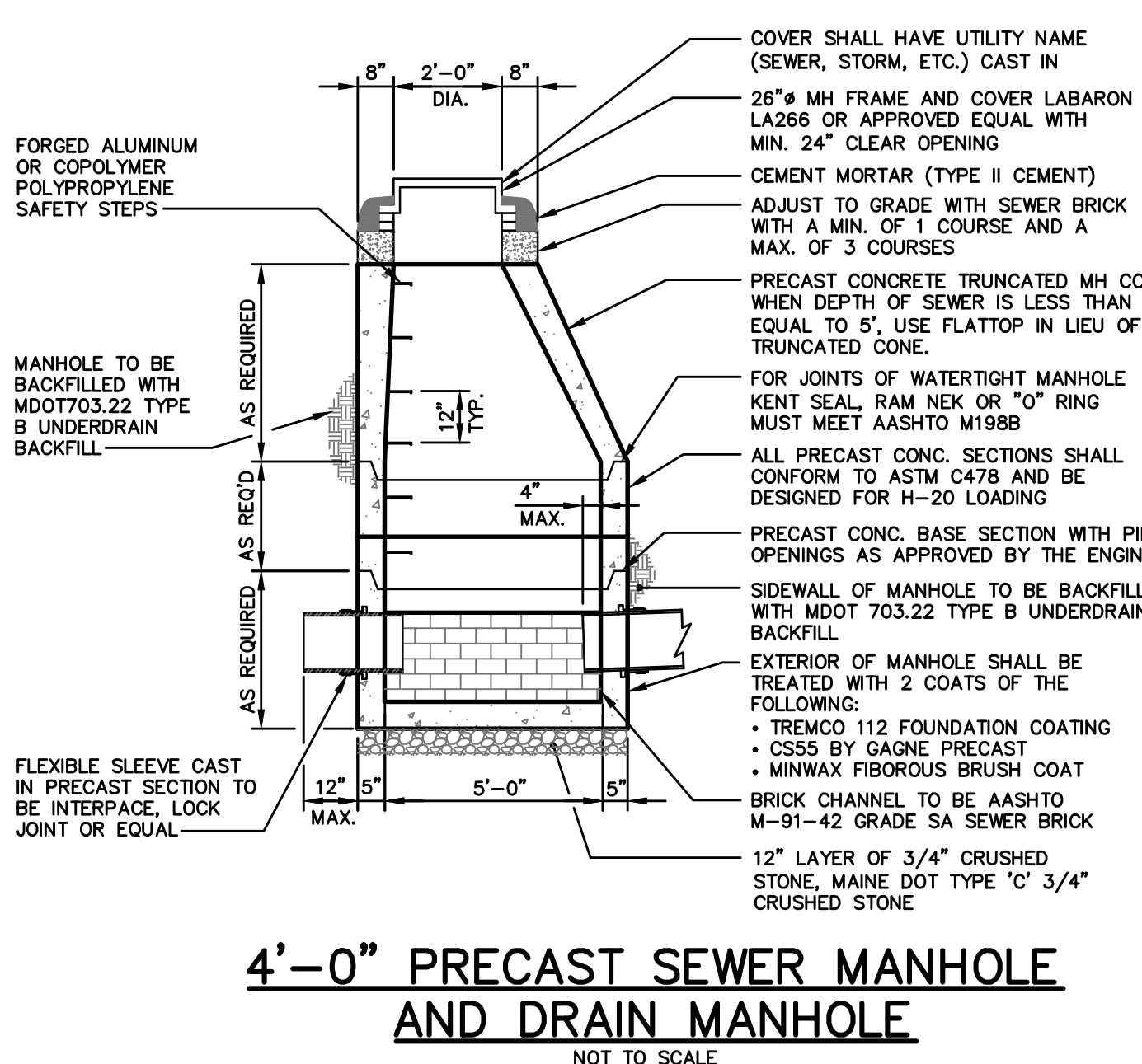
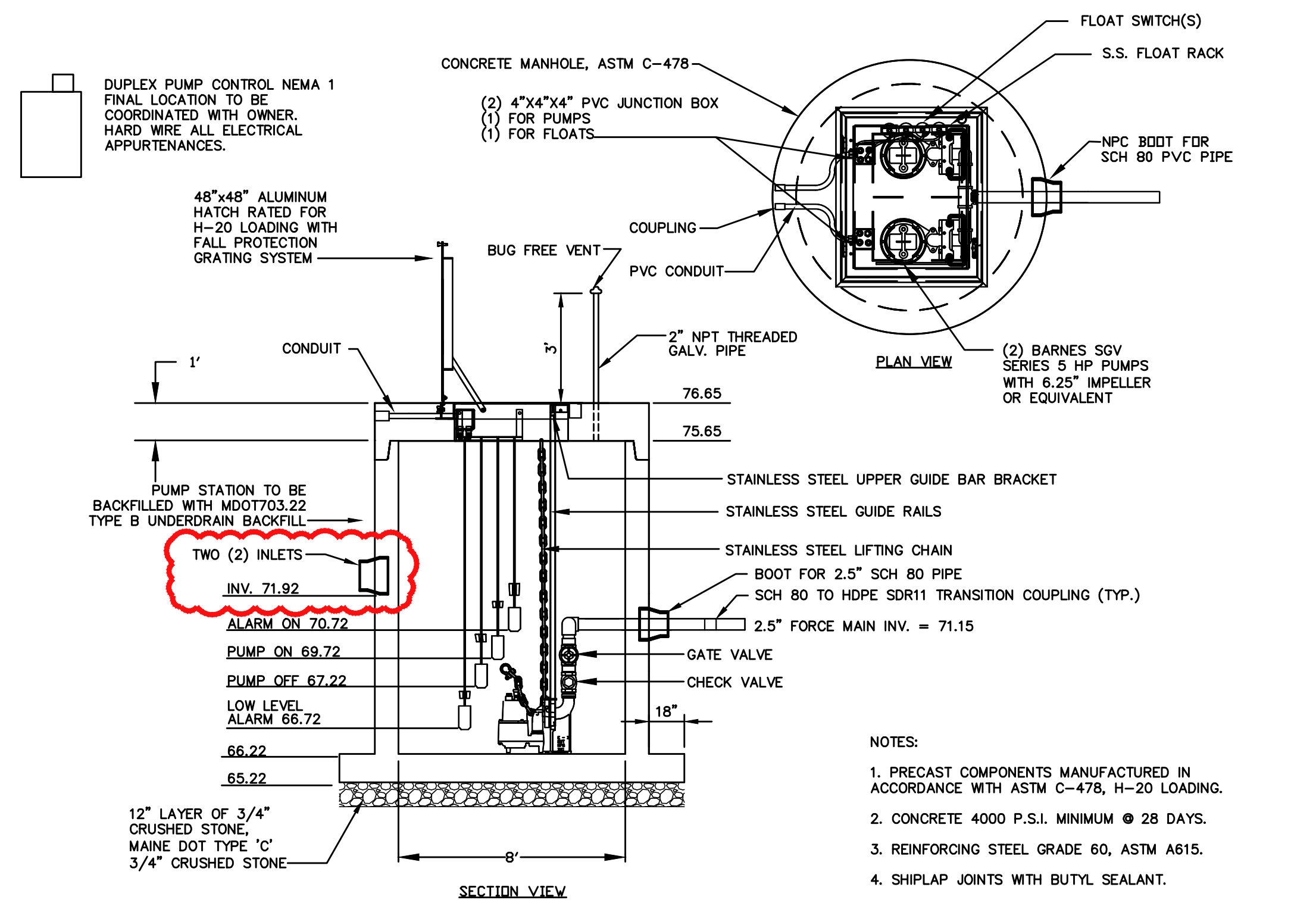
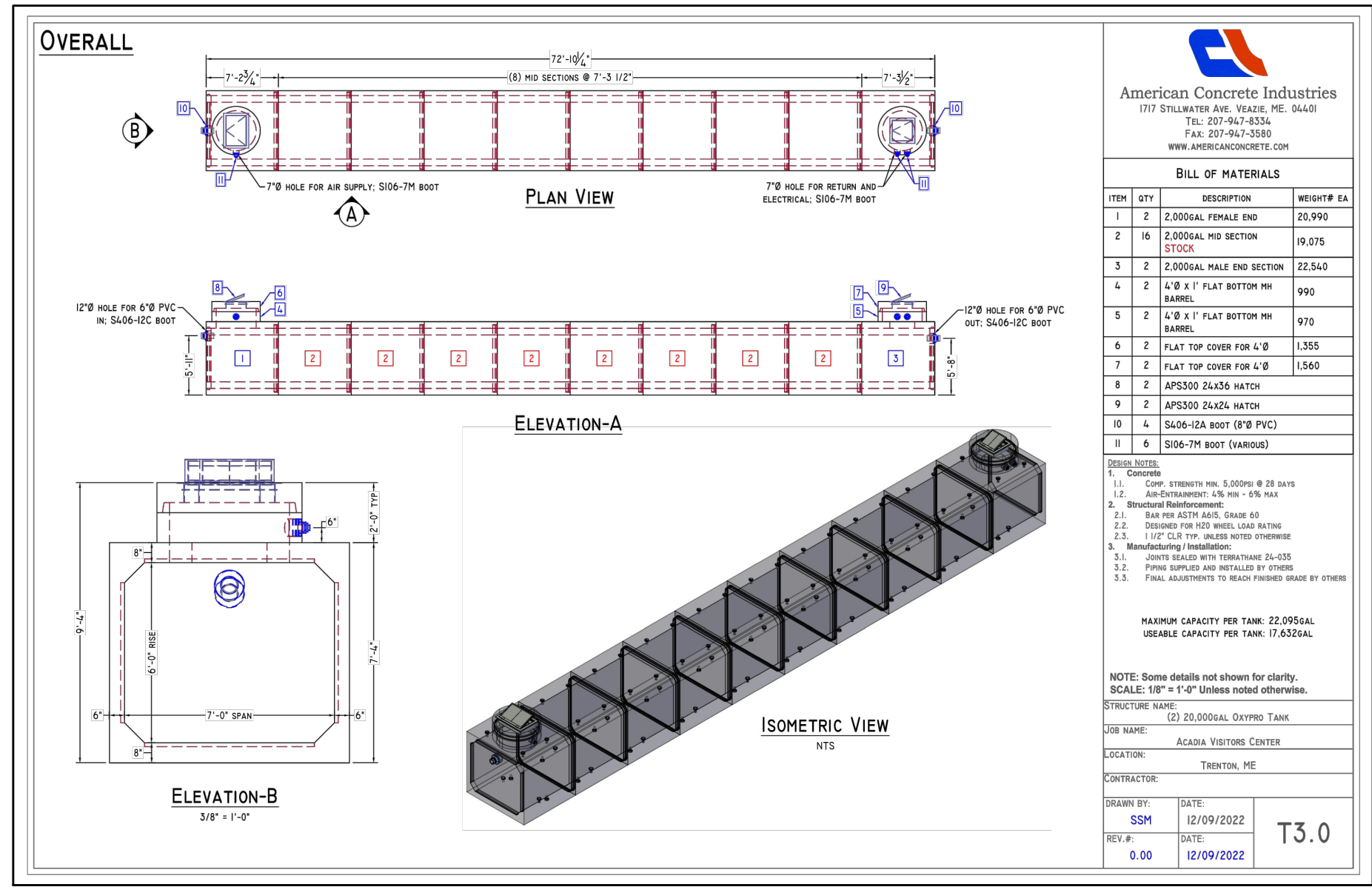
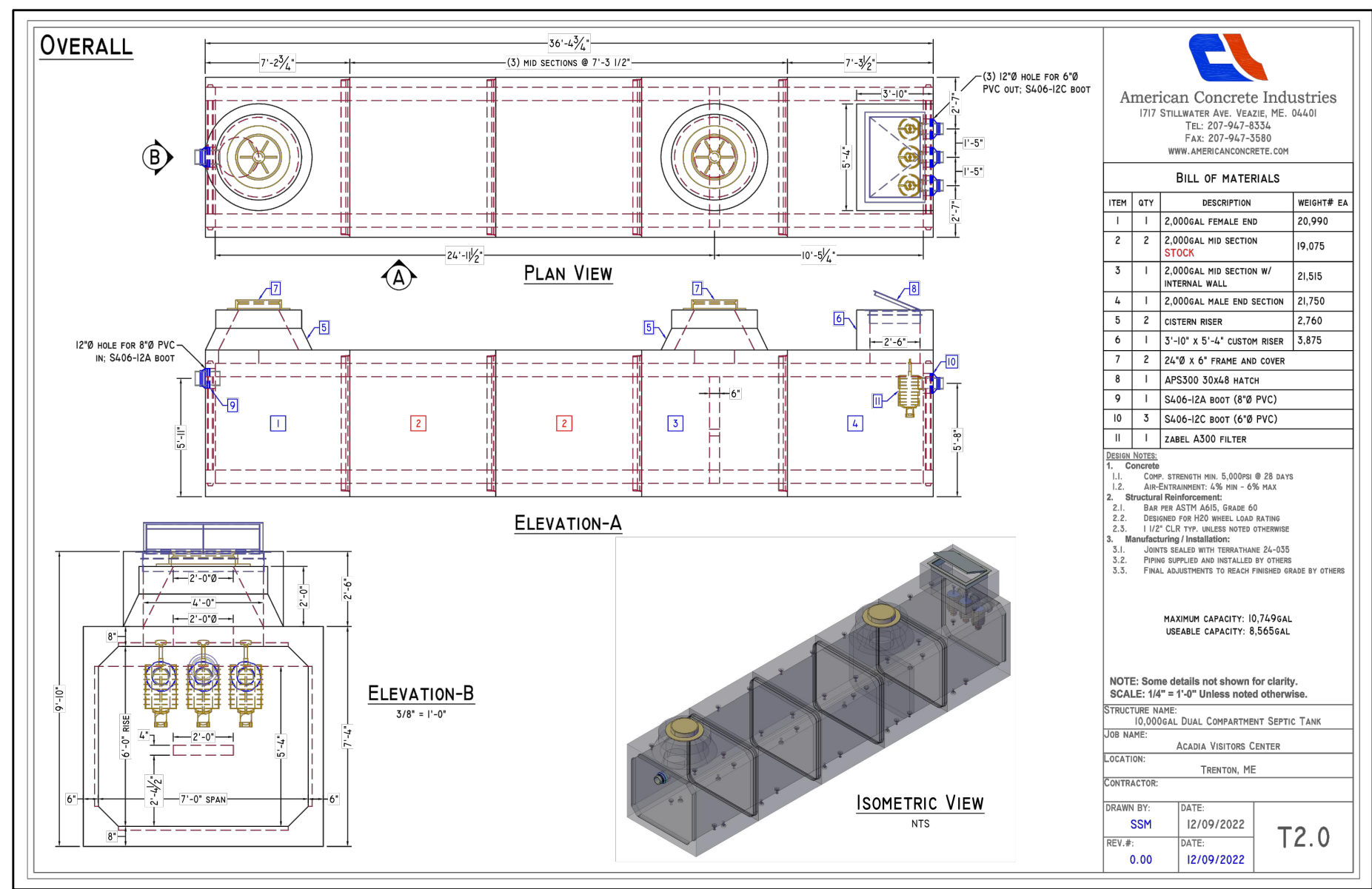
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
SIGNATURE		DATE	
ENG. LIN. NUMBER		FED PIN NO. NA	
PROJECT RESIDENT		WIN NO: 017163.02 & 017163.03	
CONTRACTOR		DATE	
PROJECT INFORMATION		PROJECT COMPLETION DATE	
PROGRAM	PROJECT MANAGER	DESIGNER	CONTRACTOR
ACADIA GATEWAY FACILITY		JANUARY 17, 2022	
INTERMODAL AND WELCOME CENTER		PROJECT RESIDENT	
DRAINAGE PLAN - EAST		CONTRACTOR	
SHEET NUMBER		PROJECT COMPLETION DATE	
C304		-	

U:\182605_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-DETAILS.dwg Dec 21, 2022 - 5:25pm



SEPTIC TANK NOTES:

- TANKS SHALL HAVE A MINIMUM OF 5 FEET OF COVER BUT, MAY HAVE 3 FEET MINIMUM COVER WITH 4" RIGID INSULATION OVER THE TOP AND SIDES OF TANK WHERE COVER IS LESS THAN 5 FEET. TANK SHALL INCLUDE ALL NECESSARY ACCESS RISERS TO GRADE.
- TANKS SHALL BE INSTALLED WITH 12" OF 3/4" CRUSHED STONE ON SIDES AND BELOW TANKS. 2" RIGID INSULATION SHALL BE INSTALLED OVER TOP OF TANKS AND ON SIDES OF TANKS TO A DEPTH OF 12" BELOW THE TOP OF TANKS.
- EACH TANK SHALL BE EQUIPPED WITH A 6" SCHEDULE 40 PVC VENT PIPE. VENTS SHALL BE EQUIPPED WITH BUG SCREENS.
- PIPES SHALL HAVE A MINIMUM COVER OF 5'-5" UNLESS INSULATED AS NEEDED.



AMENDMENT #2 REVISIONS:
- REVISED SEPTIC DETAILS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

DATE: _____
FED PIN NO: NA
WIN NO: 017163.02 & 017163.03

10/31/22

ACADIA GATEWAY FACILITY
INTERMODAL AND WELCOME CENTER

PROJECT INFORMATION

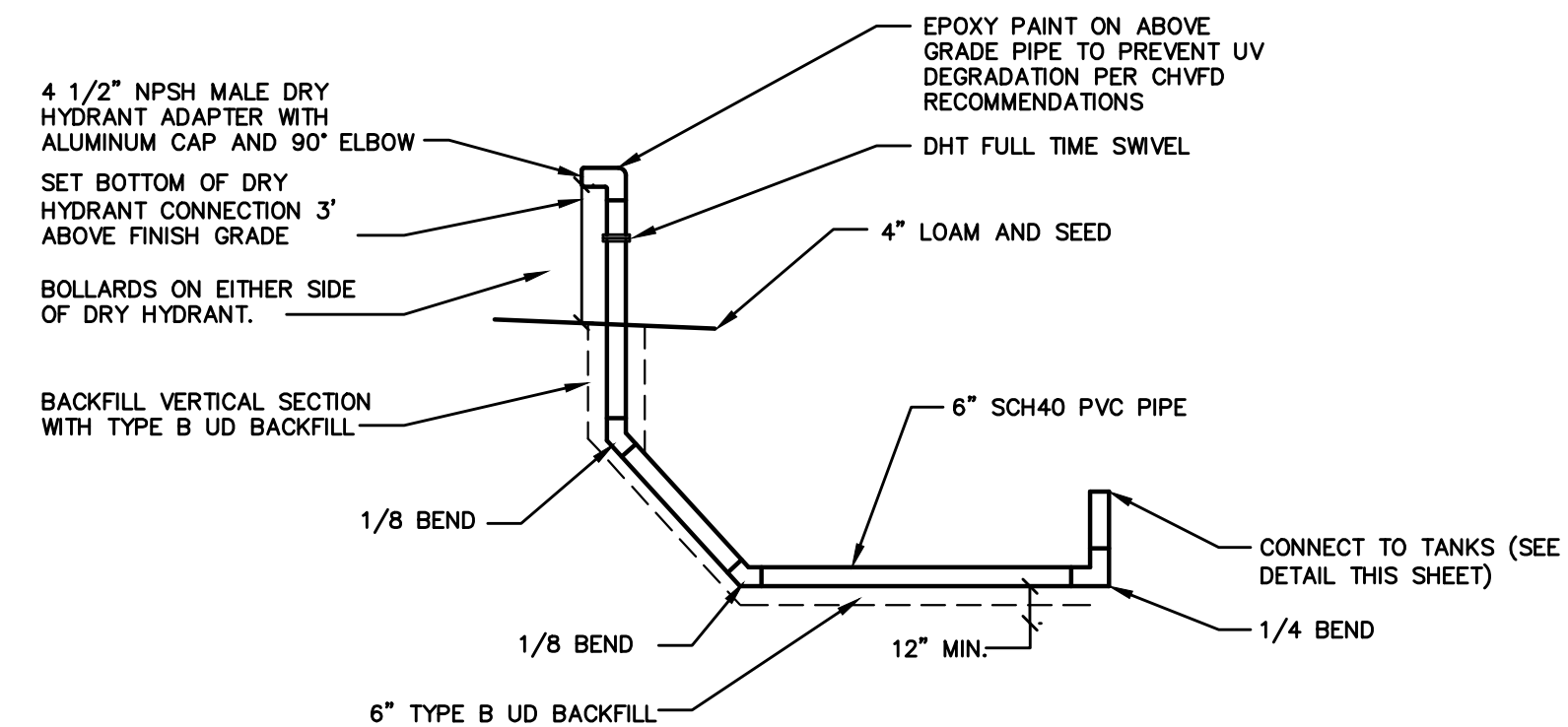
PROGRAM	PROJECT MANAGER	DESIGNER	CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE

UTILITY DETAILS

SHEET NUMBER
C403

Relationships. Responsiveness. Results.
www.gorripalmer.com
207.772.2515

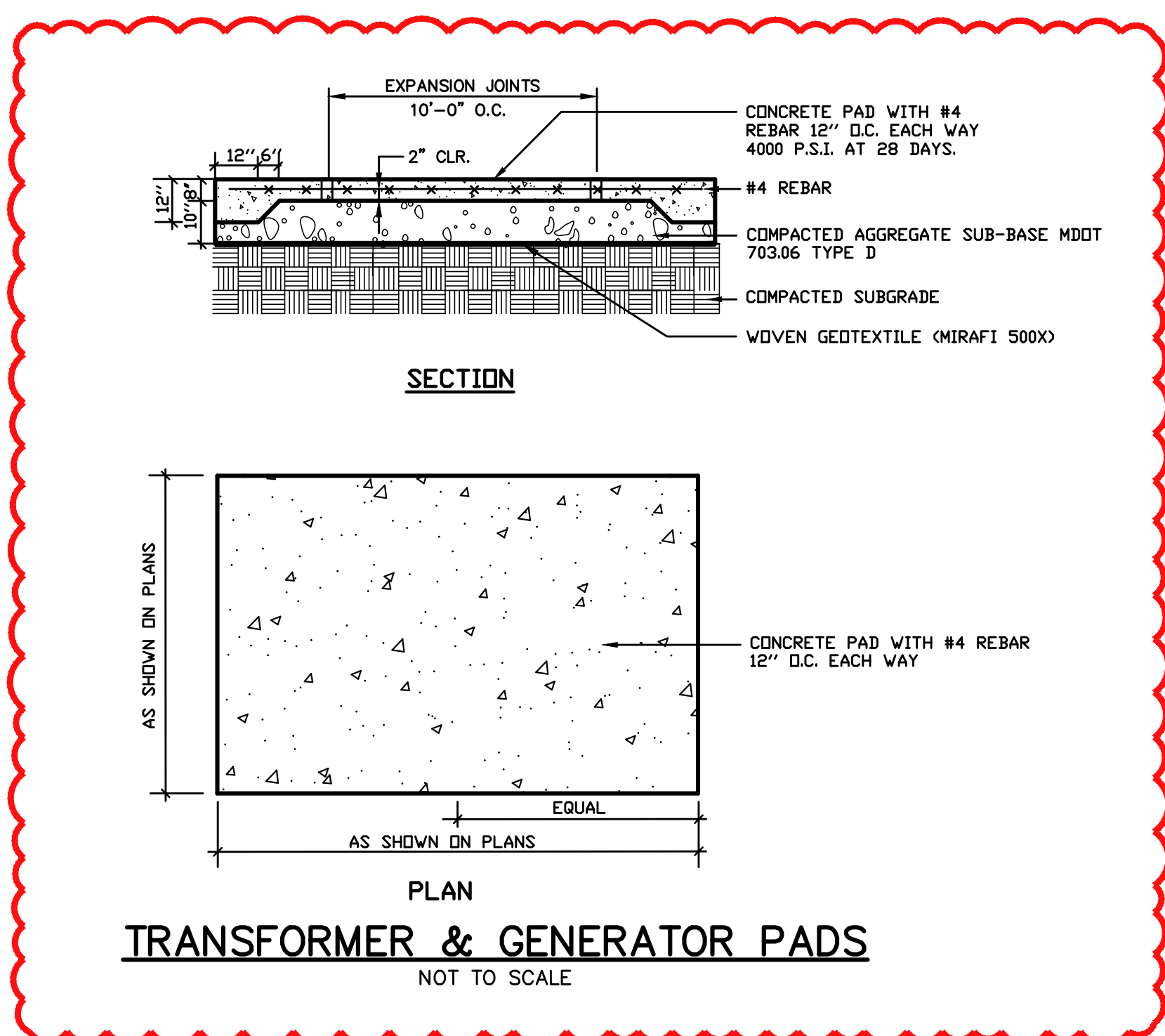
AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com



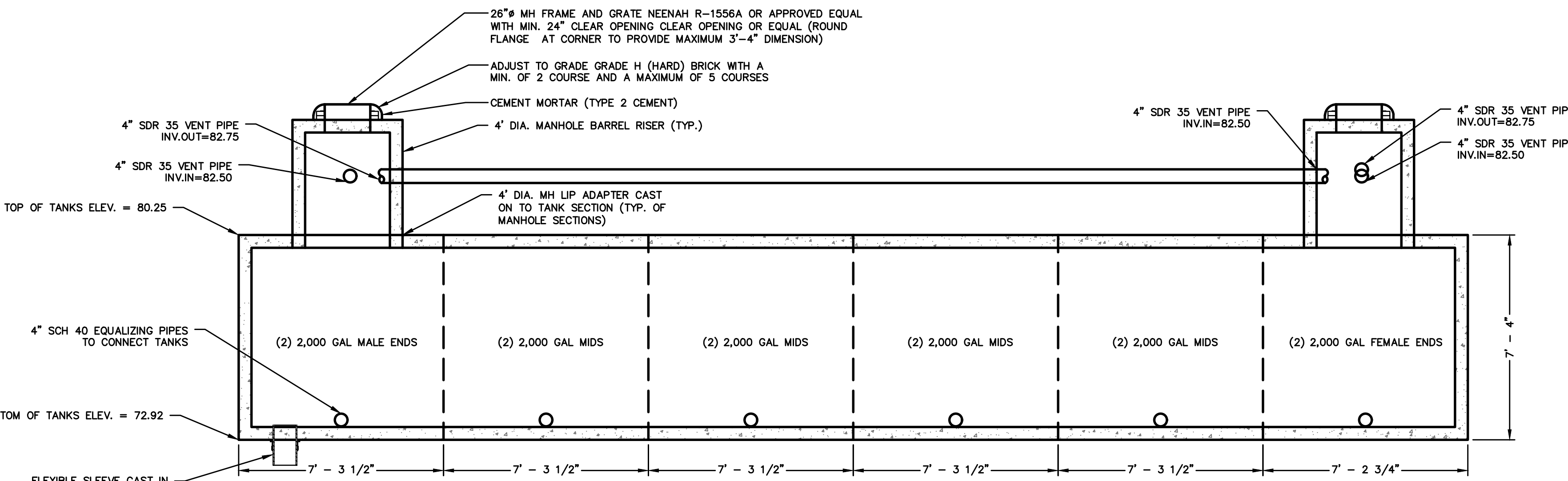
DRY HYDRANT (BID ALTERNATE 1) NOTES:

1. DRY HYDRANT COMPONENTS SHALL BE FROM KOHECK COMPANY INC, PUTNAM, CONNECTICUT.
2. ALL PIPE AND FITTINGS SHALL BE SCH40 PVC.
3. CONNECT PVC PIPE AND FITTINGS USING A TETRAHYDROFURAN (THF) PRIMER AND A PVC CEMENT WITH BETWEEN 800-1000 CENTIPOISE VISCOSITY. ALL PURPOSE PVC CEMENT SHALL NOT BE USED.
4. ALLOW PVC CEMENT TO DRY THOROUGHLY BEFORE INSTALLING IN WATER.
5. INSTALL ABOVE GRADE SECTION PLUMB. INSTALL BELOW PIPE GRADE LEVEL OR SLOPING DOWN TOWARDS THE TANK.
6. APPLY TWO COATS OF EPOXY PAINT TO ABOVE GROUND PIPE. COORDINATE WITH FIRE DEPARTMENT.

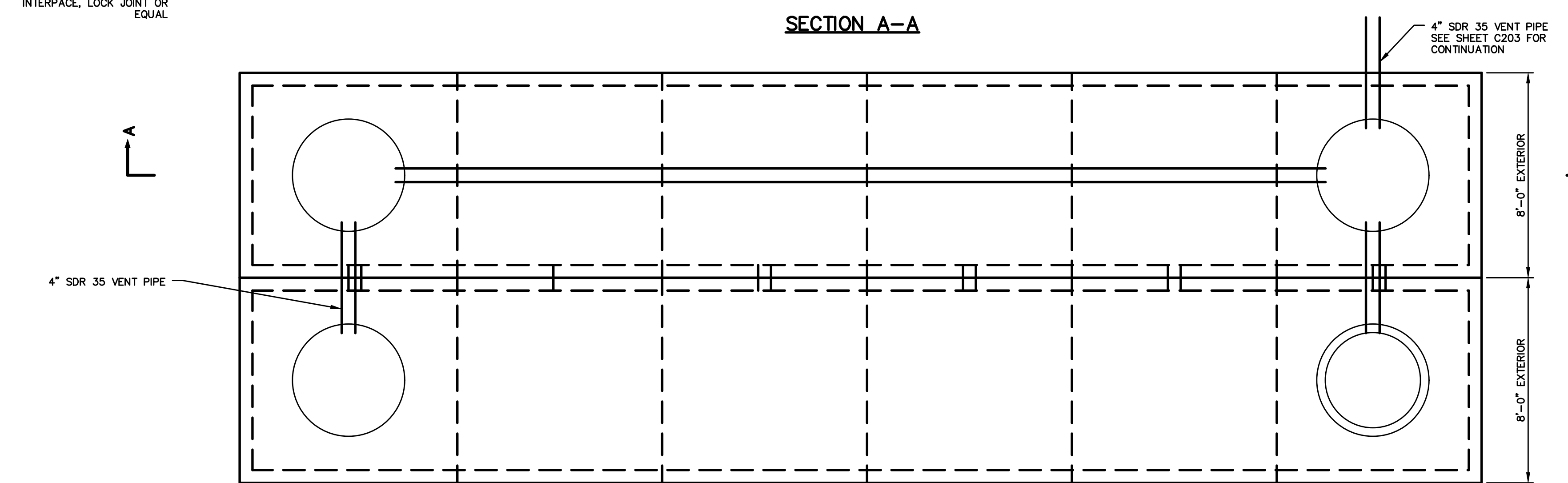
DRY HYDRANT DETAIL
NOT TO SCALE



TRANSFORMER & GENERATOR PADS
NOT TO SCALE

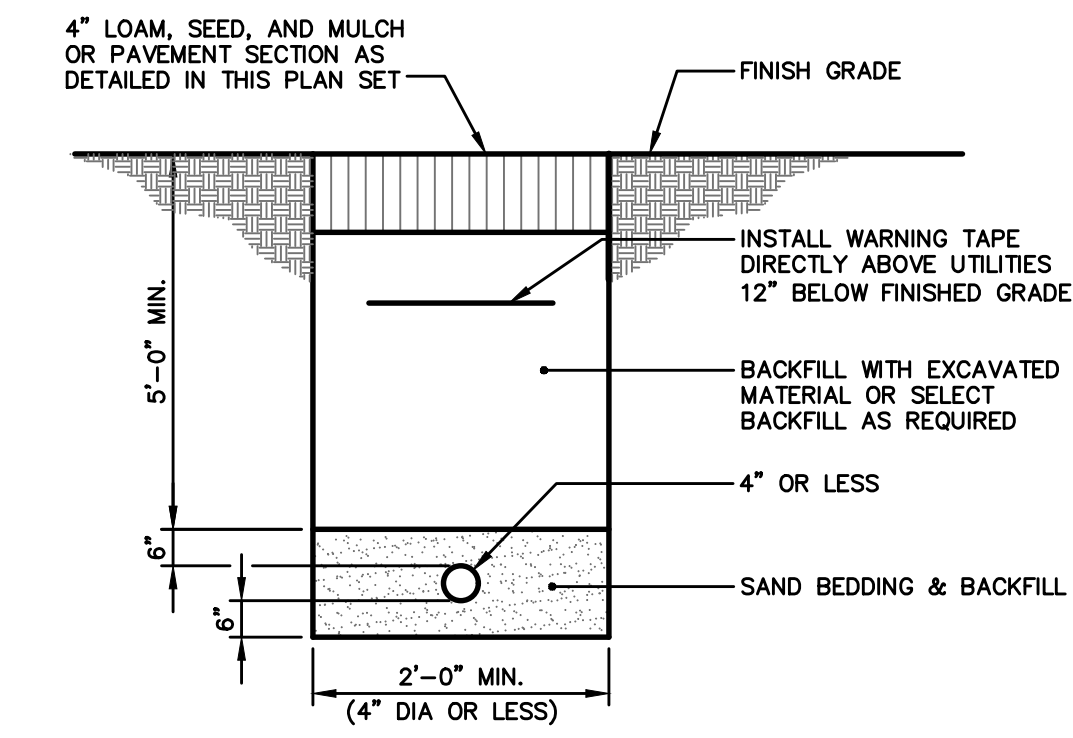


SECTION A-A

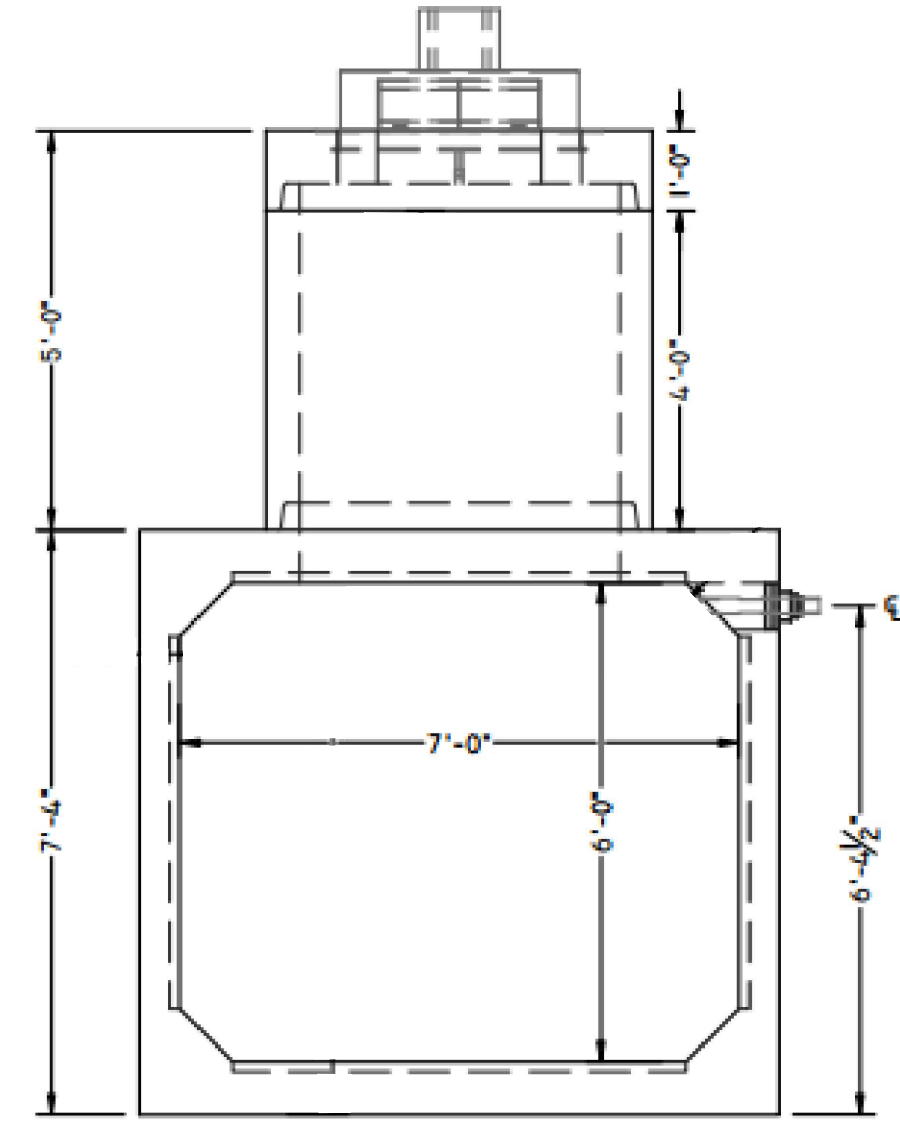


PLAN VIEW

24,000 GALLON FIRE WATER STORAGE TANK
NOT TO SCALE



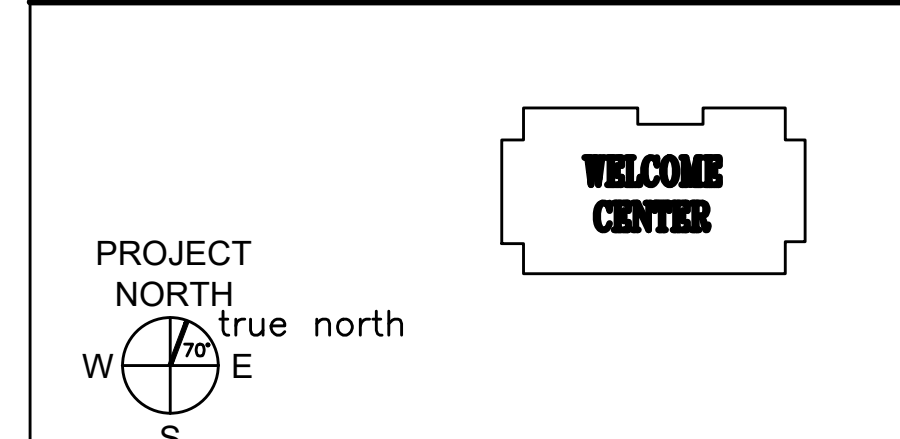
WATER SERVICE TRENCH SECTION
NOT TO SCALE



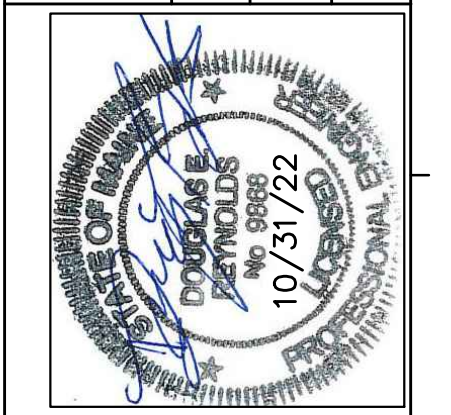
END VIEW

AMENDMENT #2 REVISIONS:
- ADDED GENERATOR PAD DETAIL

PROJECT KEY PLAN



STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
FED PIN NO: NA	DATE
WIN NO: 017163.02 & 017163.03	



SIGNATURE	ENG. LIN. NUMBER	DATE
<i>[Signature]</i>	6251	JANUARY 17, 2022

PROJECT INFORMATION	
PROGRAM	AECOM
PROJECT MANAGER	
DESIGNER	
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

MAINE DEPARTMENT OF TRANSPORTATION
ACADIA GATEWAY FACILITY
INTERMODAL AND WELCOME CENTER

UTILITY DETAILS

SHEET NUMBER

C404



Relationships. Responsiveness. Results.
www.gorripalmer.com
207.772.2515

AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

U:\182605_aecom_acadia_gateway_center_2021 construction documents\Z - CAD\DWG\1826-05-DETAILS.dwg Dec 21, 2022 - 5:26pm

DRAWING INDEX

GENERAL

GA000	COVER
GA001	DRAWING INDEX

CIVIL

C001	SITE COVER SHEET
C002	SITE GENERAL NOTES AND LEGEND
C100	OVERALL CIVIL SITE PLAN
C102	CIVIL SITE PLAN - EAST
C103	CIVIL SITE PLAN - WEST
C201	OVERALL UTILITY PLAN
C202	UTILITY PLAN - EAST
C203	UTILITY PLAN - WEST
C301	OVERALL GRADING PLAN
C302	GRADING PLAN - EAST
C303	GRADING & DRAINAGE PLAN - WEST
C304	DRAINAGE PLAN - EAST
C305	BUS LOOP PLAN AND PROFILE
C307	SANITARY SEWER AND WATER PROFILE
C308	STORM DRAIN PROFILES - 1
C309	STORM DRAIN PROFILES - 2
C401	SITE DETAILS
C402	UTILITY DETAILS
C403	UTILITY DETAILS
C404	UTILITY DETAILS
C405	GRASSED UNDERDRAINED SOIL FILTER PLAN AND DETAILS
C406	WET POND PLAN AND DETAILS
C501	ROUTE 3 FLASHING BEACON PLAN

GEOHERMAL

G001	GEOHERMAL EARTH COUPLING
G002	GEOHERMAL DETAILS
G003	GEOHERMAL GSHX SITE LAYOUT
G004	GEOHERMAL TESTING METHODS

LANDSCAPE

L101	PLAZA MATERIALS PLAN
L102	PLAZA LAYOUT PLAN
L103	PLAZA PAVING LAYOUT PLAN
L104	PLAZA GRADING PLAN
L201	SITE LOAM DEPTH PLAN
L202	SITE TREE PLANTING PLAN
L203	PARKING LOT PLANTING PLAN
L204	PLAZA PLANTING PLAN
L205	PLANTING ENLARGEMENTS
L206	PLANTING NOTES, DETAILS & SCHEDULE
L301	SITE DETAILS
L302	SITE DETAILS
I101	IRRIGATION PLAN
I102	IRRIGATION PLAN
I201	IRRIGATION DETAILS

ARCHITECTURAL

A001	SYMBOLS AND ABBREVIATIONS
A002	ARCHITECTURAL NOTES
A003	CODE SHEET AND FIRE RATING PARTITION PLANS
A004	CODE SHEET AND FIRE RATING PARTITION PLANS
A005	TYPICAL MOUNTING HEIGHTS
A101	SITE PLAN
A102	SITE ELEMENTS DETAILS
A103	EV CHARGING ENCLOSURE PLAN AND DETAILS
A201	BASEMENT PLAN
A202	FIRST FLOOR PLAN
A203	MEZZANINE PLAN
A204	ATTIC FLOOR PLAN
A205	ROOF PLAN
A206	FIRST FLOOR FURNITURE PLAN
A210	BUS CANOPY AND INFORMATION KIOSKS
A301	EXTERIOR ELEVATIONS I
A301a	EXTERIOR ELEVATIONS I GEOMETRY
A302	EXTERIOR ELEVATIONS II
A310	BUILDING SECTIONS I
A311	BUILDING SECTIONS II
A312	BUILDING SECTIONS III
A401	WALL SECTIONS I
A402	WALL SECTIONS II
A403	WALL SECTIONS III
A404	WALL SECTIONS IV
A405	WALL SECTIONS V
A406	WALL SECTIONS VI
A510	STAIR 1 - FLOOR PLANS
A511	STAIR 1 - SECTIONS I
A512	STAIR 1 - SECTIONS II
A517	STAIR 1 - SHAFT DETAILS
A518	STAIR 1 - DETAILS I

A519	STAIR 1 - DETAILS II
A520	STAIR 1 - DETAILS III
A521	STAIR 1 - DETAILS IV
A601	BASEMENT REFLECTED CEILING PLAN
A602	FIRST FLOOR REFLECTED CEILING PLAN
A603	MEZZANINE REFLECTED CEILING PLAN
A604	REFLECTED CEILING DETAILS I
A605	REFLECTED CEILING DETAILS II
A611	BASEMENT FINISH FLOOR PLAN
A612	FIRST FLOOR FINISH FLOOR PLAN
A613	MEZZANINE FINISH FLOOR PLAN
A614	FINISH SCHEDULE
A701	ENLARGED PLANS I
A702	ENLARGED PLANS II
A703	ENLARGED PLANS III
A710	ROOM ELEVATIONS I
A711	ROOM ELEVATIONS II
A712	ROOM ELEVATIONS III
A714	ROOM ELEVATIONS V
A715	ROOM ELEVATIONS VI
A720	MILLWORK I
A721	MILLWORK II
A722	MILLWORK III
A723	MILLWORK IV
A724	MILLWORK V
A725	MILLWORK VI
A726	MILLWORK VII
A727	MILLWORK VIII
A728	MILLWORK IX
A801	ROOM FINISH SCHEDULE
A802	DOOR AND LOUVER SCHEDULES
A803	DOOR, DOOR FRAME AND LOUVER ELEVATIONS
A804	DOOR DETAILS I
A805	DOOR DETAILS II
A806	DOOR DETAILS III
A807	LOUVER AND HATCH DETAILS
A810	PLAN DETAILS I
A811	PLAN DETAILS II
A812	PLAN DETAILS III
A813	PLAN DETAILS IV
A814	PLAN DETAILS V
A815	PLAN DETAILS VI
A816	SECTION DETAILS I
A817	SECTION DETAILS II
A820	CURTAINWALL ELEVATIONS I
A821	CURTAINWALL ELEVATIONS II
A822	CURTAINWALL ELEVATIONS III
A823	CURTAINWALL ELEVATIONS IV
A824	STEEL STOREFRONT DETAILS
A825	STEEL STOREFRONT DETAILS
A830	PARTITION TYPES I
A831	PARTITION TYPES II AND DETAILS
A832	MISCELLANEOUS DETAILS
A840	SKYLIGHT DETAILS
A841	ROOF DETAILS I
A842	ROOF DETAILS II
A843	ROOF DETAILS III

STRUCTURAL

S000	STRUCTURAL - GENERAL INFORMATION
S001	STRUCTURAL - TYPICAL DETAILS
SB100	STRUCTURAL - FOUNDATION PLAN
SB500	STRUCTURAL - FOUNDATION DETAILS
SF100	STRUCTURAL - FIRST FLOOR FRAMING PLAN
SF101	STRUCTURAL - MEZZANINE FRAMING PLAN
SF102	STRUCTURAL - MISCELLANEOUS FRAMING PLANS
SF103	STRUCTURAL - ROOF FRAMING PLAN
SF104	STRUCTURAL - ROOF LOADING PLAN
SF200	STRUCTURAL - FRAMING ELEVATIONS
SF201	STRUCTURAL - FRAMING ELEVATIONS
SF202	STRUCTURAL - FRAMING ELEVATIONS
SF500	STRUCTURAL - DETAILS
SF501	STRUCTURAL - DETAILS
SF502	STRUCTURAL - DETAILS
SF503	STRUCTURAL - DETAILS
SF510	STRUCTURAL - TIMBER FRAME CONNECTION DETAILS
SF511	STRUCTURAL - TIMBER FRAME CONNECTION DETAILS
SF512	STRUCTURAL - TIMBER FRAME CONNECTION DETAILS
SF600	STRUCTURAL - BUS SHELTER FRAMING PLANS AND DETAILS
SF601	STRUCTURAL - INFO KIOSK FRAMING PLANS AND DETAILS
SF602	STRUCTURAL - EV CHARGING ENCLOSURE FRAMING PLANS AND DETAILS

FIRE PROTECTION

FX001	FIRE SPRINKLER PLAN - NOTES AND DETAILS
FX100	FIRE SPRINKLER PLAN - BASEMENT FLOOR
FX101	FIRE SPRINKLER PLAN - FIRST FLOOR
FX102	FIRE SPRINKLER PLAN - MEZZANINE

PLUMBING

PL000	PLUMBING & HVAC NOTES, LEGEND & ABBREVIATIONS
PL100	PLUMBING PLAN - BASEMENT - BELOW SLAB
PL101	PLUMBING PART PLANS - BASEMENT
PL102	PLUMBING PLAN - FIRST FLOOR
PL103	ENLARGED PLUMBING PART PLANS - FIRST FLOOR
PL104	PLUMBING PLAN - MEZZANINE
PL600	PLUMBING SCHEDULES

MECHANICAL

MH100	MECHANICAL PLAN - BASEMENT
MP100	MECHANICAL PIPING PLAN - BASEMENT
MH101	MECHANICAL PLAN - 1ST FLOOR
MP101	MECHANICAL PIPING PLAN - 1ST FLOOR
MH102	MECHANICAL PLAN - 2ND FLOOR
MP102	MECHANICAL PIPING PLAN - 2ND FLOOR
MH103	MECHANICAL PLAN - 2ND FLOOR
MH600	MECHANICAL SCHEDULES
MH601	MECHANICAL SCHEDULES

ELECTRICAL

E000	ELECTRICAL ABBREVIATIONS, LEGENDS & GENERAL NOTES
ES100	ELECTRICAL SITE PLAN - PART PLAN WEST
ES101	ELECTRICAL SITE PLAN - PART PLAN WEST
ES102	ENLARGED PART SITE PLAN - ELECTRICAL SITE DETAILS
EL100	BASEMENT - LIGHTING PLAN
EL101	FIRST FLOOR VISITOR CENTER - LIGHTING PLAN
EL102	MEZZANINE VISITOR CENTER - LIGHTING PLAN
EL600	LUMINAIRE SCHEDULES
EP100	BASEMENT - POWER PLAN
EP101	FIRST FLOOR VISITOR CENTER - POWER PLAN
EP102	MEZZANINE VISITOR CENTER - POWER PLAN
EP500	POWER RISER DIAGRAM
EP600	ELECTRICAL SCHEDULES
EP601	ELECTRICAL SCHEDULES
EP602	ELECTRICAL SCHEDULES
EP603	ELECTRICAL SCHEDULES
EY100	BASEMENT - SYSTEMS PLAN
EY101	FIRST FLOOR VISITOR CENTER - SYSTEMS PLAN
EY102	MEZZANINE VISITOR CENTER - SYSTEMS PLAN
LP100	LIGHTNING PROTECTION PLAN AND DETAILS

PHOTOVOLTAIC

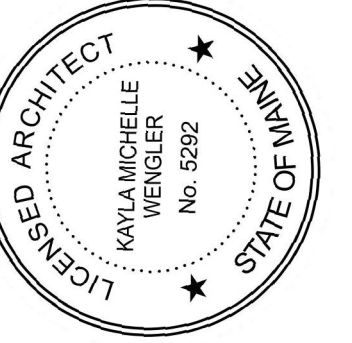
PV100	ELECTRICAL ABBREVIATIONS, LEGENDS & GENERAL NOTES
-------	---

SIGNAGE

SG101	SYMBOLS, TYPOGRAPHY, AND PAINT FINISHES
SG102	SIGNAGE MESSAGE SCHEDULE PART 1
SG103	SIGNAGE MESSAGE SCHEDULE PART 2
SG104	SIGNAGE MESSAGE SCHEDULE PART 3
SG105	SIGNAGE MESSAGE SCHEDULE PART 4
SG106	EXTERIOR SIGNAGE LOCATION PLAN
SG107	EXTERIOR SIGNAGE DETAIL I - GATEWAY AND WELCOME SIGNS
SG108	EXTERIOR SIGNAGE DETAIL II - BUILDING, BUS SHELTER, KIOSKS
SG109	EXTERIOR SIGNAGE DETAIL III - BUILDING & INFO CENTER
SG110	EXTERIOR SIGNAGE DETAIL IV - PARKING AREA
SG111	EXTERIOR SIGNAGE DETAIL V - PARKING AREA
SG112	EXTERIOR SIGNAGE DETAIL VI - HIGHWAY
SG113	EXTERIOR SIGNAGE DETAIL VII - REGULATORY & PARKING ID
SG114	EXTERIOR SIGNAGE DETAIL VIII - PARKING ID
SG115	EXTERIOR SIGNAGE DETAIL IX - PARKING ID
SG116	INTERIOR SIGNAGE PLAN I - BASEMENT LEVEL
SG117	INTERIOR SIGNAGE PLAN II - FIRST FLOOR
SG118	INTERIOR SIGNAGE PLAN III - MEZZANINE LEVEL
SG119	INTERIOR SIGNAGE DETAIL I - OVERHEAD IDENTIFICATION
SG120	INTERIOR SIGNAGE DETAIL II - ROOM ID
SG121	INTERIOR SIGNAGE DETAIL III - ROOM ID
SG122	INTERIOR SIGNAGE DETAIL IV - ACOUSTIC BANNERS

Amendment #2 Updates:

- Drawing L303 is removed from the Drawing Index.



Kayla Wengler
SIGNATURE

ARCH. LIN. NUMBER
ARC6292

DATE
JANUARY 17, 2022

PROJECT INFORMATION

PROGRAM
PROJECT MANAGER
DESIGNER
CONSULTANT
PROJECT RESIDENT
CONTRACTOR
PROJECT COMPLETION DATE

MAINE DEPARTMENT OF TRANSPORTATION
ACADIA GATEWAY FACILITY
INTERMODAL AND WELCOME CENTER

SHEET NUMBER

GA001

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

DATE

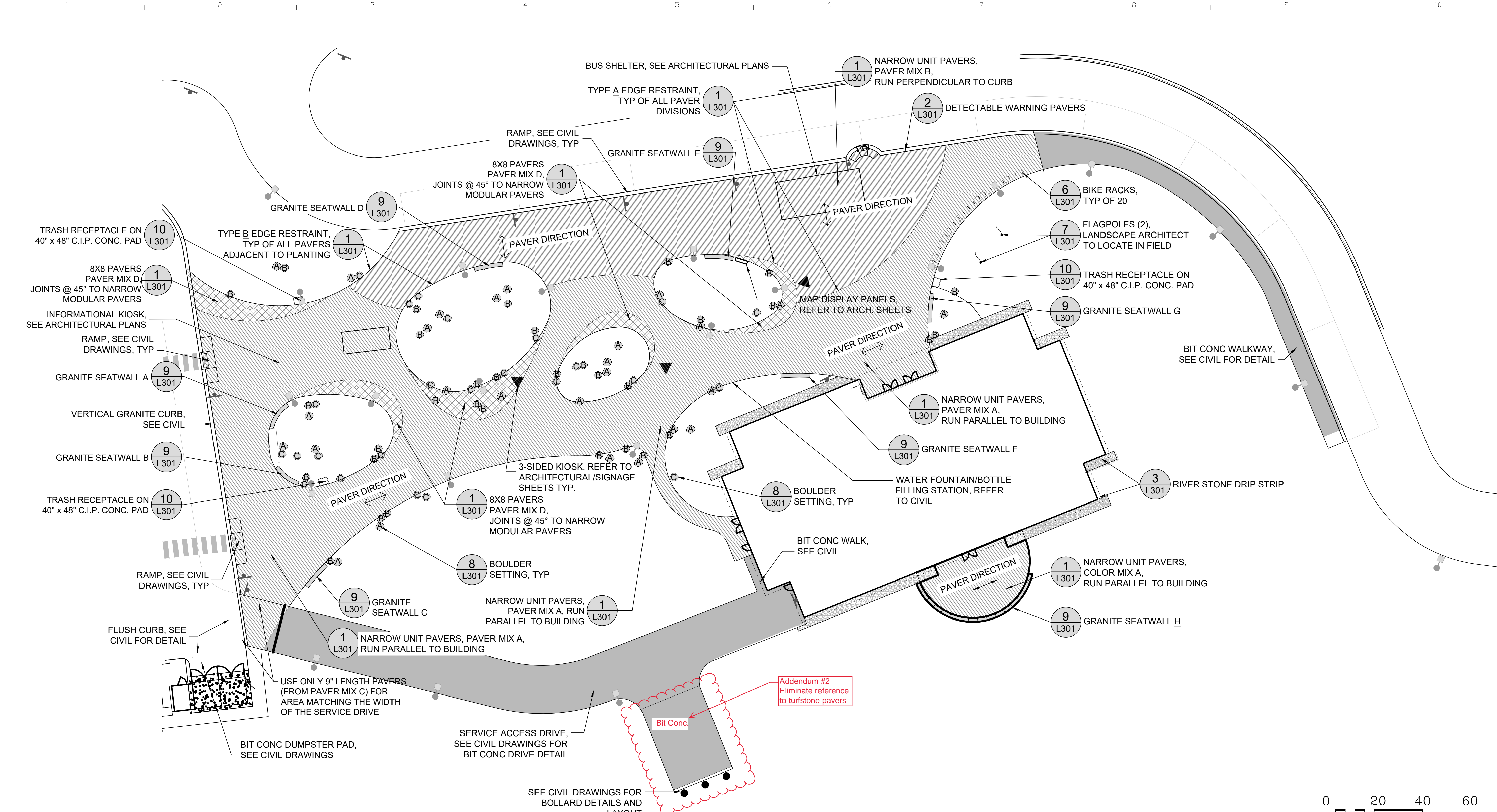
FED PIN NO: NA
WIN NO: 017163.02 & 017163.03

DRAWING INDEX

AECOM

1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

C:\Users\Sam\AppData\Local\Temp\AcPublish_2948\AGC_Layout & Materials.dwg Jan 25, 2022 - 4:06pm



Paver Mix Table			
Mix	Color	Sizes	% of Mix
Paving Mix A	Cream	9"x3"	10
		18"x3"	10
		24"x3"	10
	Light Gray	9"x3"	22
		18"x3"	22
		24"x3"	21
Charcoal	18"x3"	5	
Paving Mix B	Cream	9"x3"	22
		18"x3"	22
		24"x3"	21
	Light Gray	9"x3"	10
		18"x3"	10
		24"x3"	10
Charcoal	18"x3"	5	
Paving Mix C	Cream	9"x3"	30
	Light Gray	9"x3"	70
Paving Mix D	Charcoal	8"x8"	100

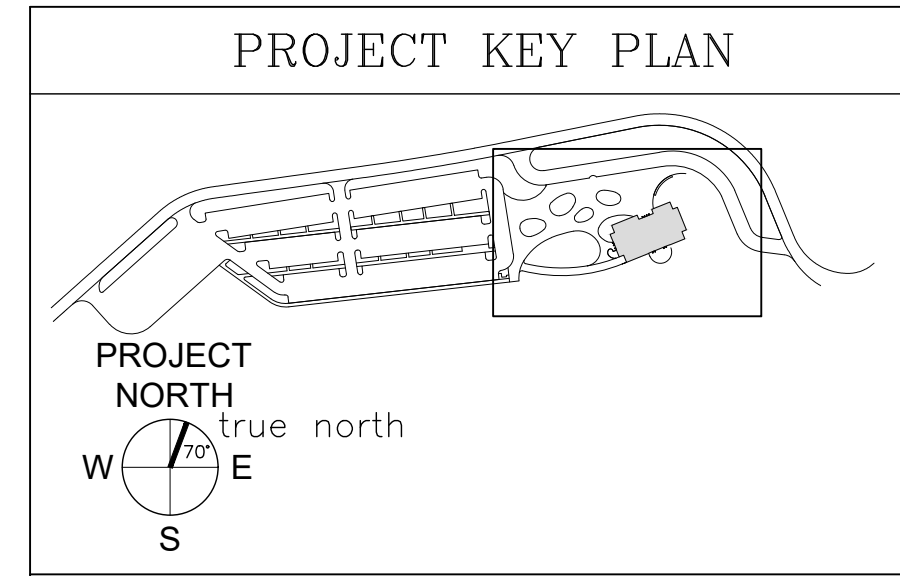
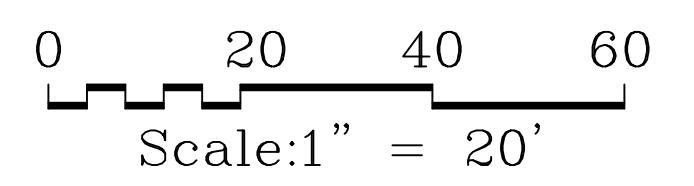
PAVER NOTE:
RANDOM COLOR AND SIZE DISTRIBUTION
THROUGHOUT PAVING FIELD, SEE SPECS.

Granite Seat Wall Schedule				
Seat Wall	Quantity	Outside Length	Inside Length	Outside Radius
A	3	4'-0"	3'-7 1/2"	17'-0"
B	3	4'-0"	3'-7 1/2"	17'-0"
C	3	4'-0"	3'-11 1/2"	145'-0"
D	3	4'-0"	3'-11"	73'-0"
E	3	4'-0"	3'-10"	42'-0"
F	3	4'-0"	3'-11"	100'-0 1/2"
G	3	4'-0"	3'-11"	65'-0"
H	16	4'-0"	3'-9"	25'-2 1/2"

All seat wall stones to be 1'-9" High and 1'-8" wide. See detail 8/L301 for additional information.

SCHEDULE OF BOULDER SIZES		
SYMBOL	SIZE	QUANTITY
A	36"x36" - 42"x42"	26
B	24"x24" - 36"x36"	33
C	18"x18" - 24"x24"	24

BOULDER NOTE:
LANDSCAPE ARCHITECT/OWNERS REP. TO DIRECT
PLACEMENT OF BOULDERS IN FIELD.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PROJECT INFORMATION

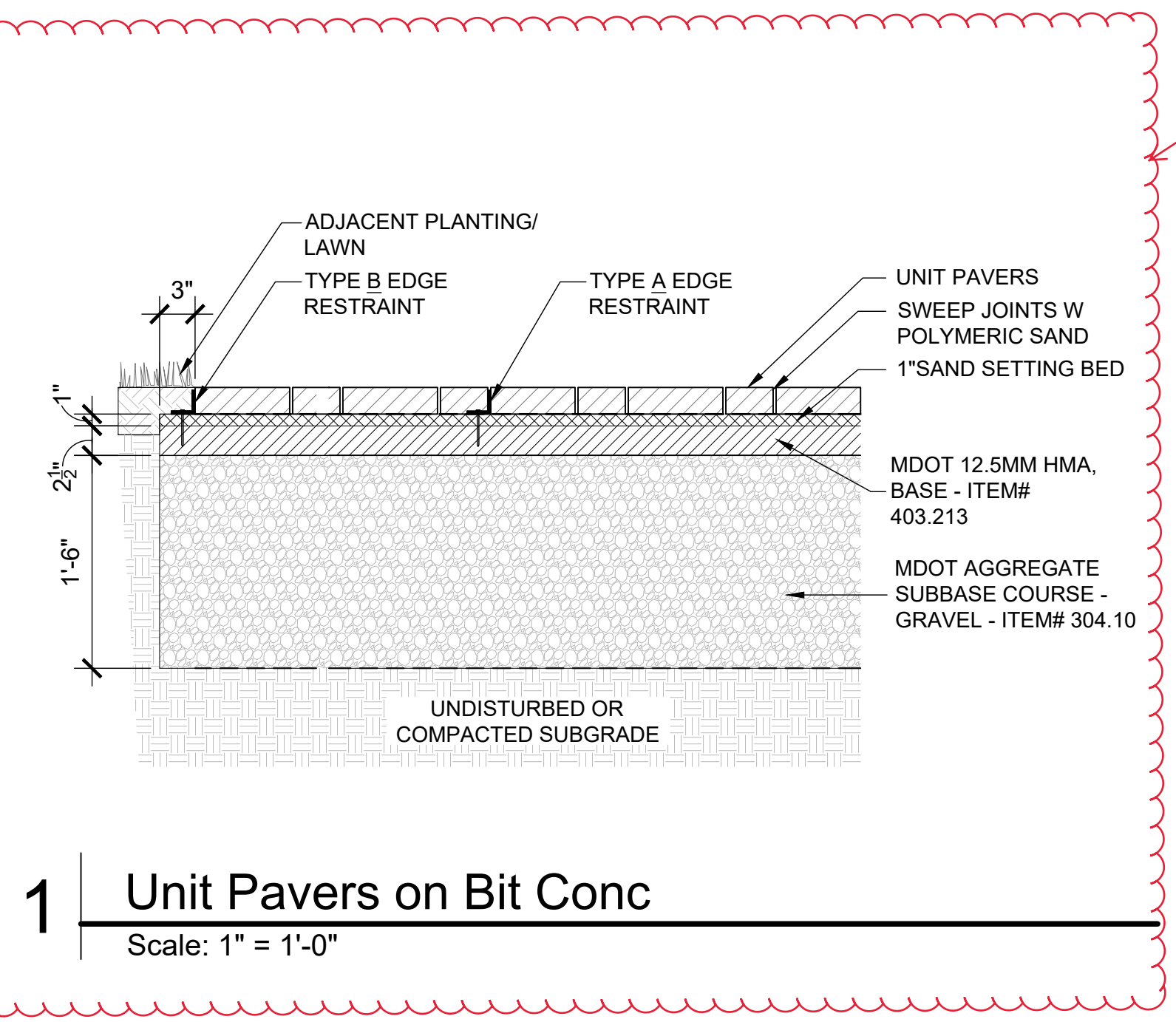
PROGRAM	PROJECT MANAGER	DESIGNER	CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
		AECOM				

MAINE DEPARTMENT OF TRANSPORTATION
ACADIA GATEWAY FACILITY
INTERMODAL AND WELCOME CENTER
PLAZA MATERIALS PLAN

SHEET NUMBER
L101

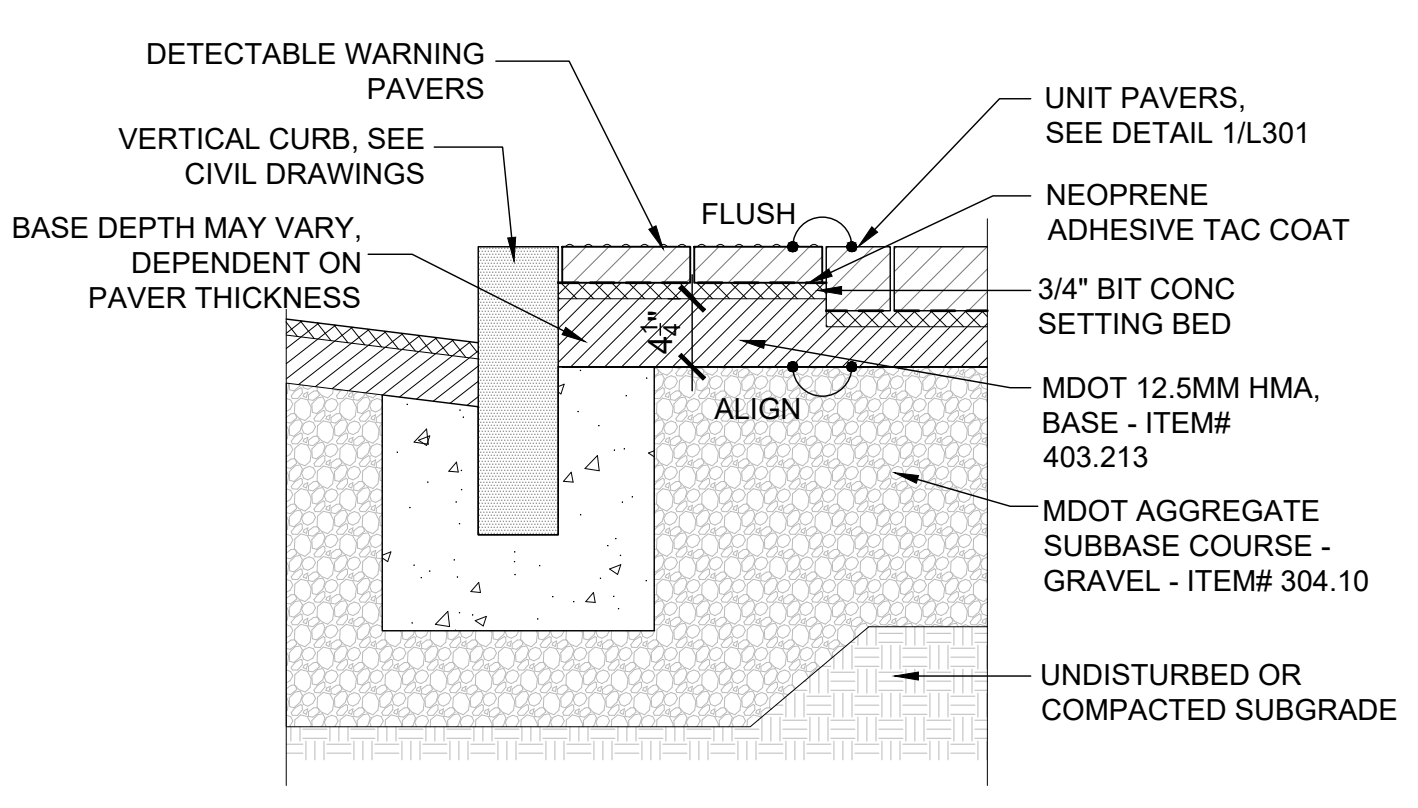
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
REGISTERED LANDSCAPE ARCHITECT
SAMUEL R. COFFIN
No. 100
STATE OF MAINE
DATE: JANUARY 17, 2022
FED PIN NO: NA
WIN NO: 017163.02 & 017163.03

C:\Users\Sam\AppData\Local\Temp\AcPublish_2948\AGC_Details.dwg Jan 25, 2022 - 12:13pm

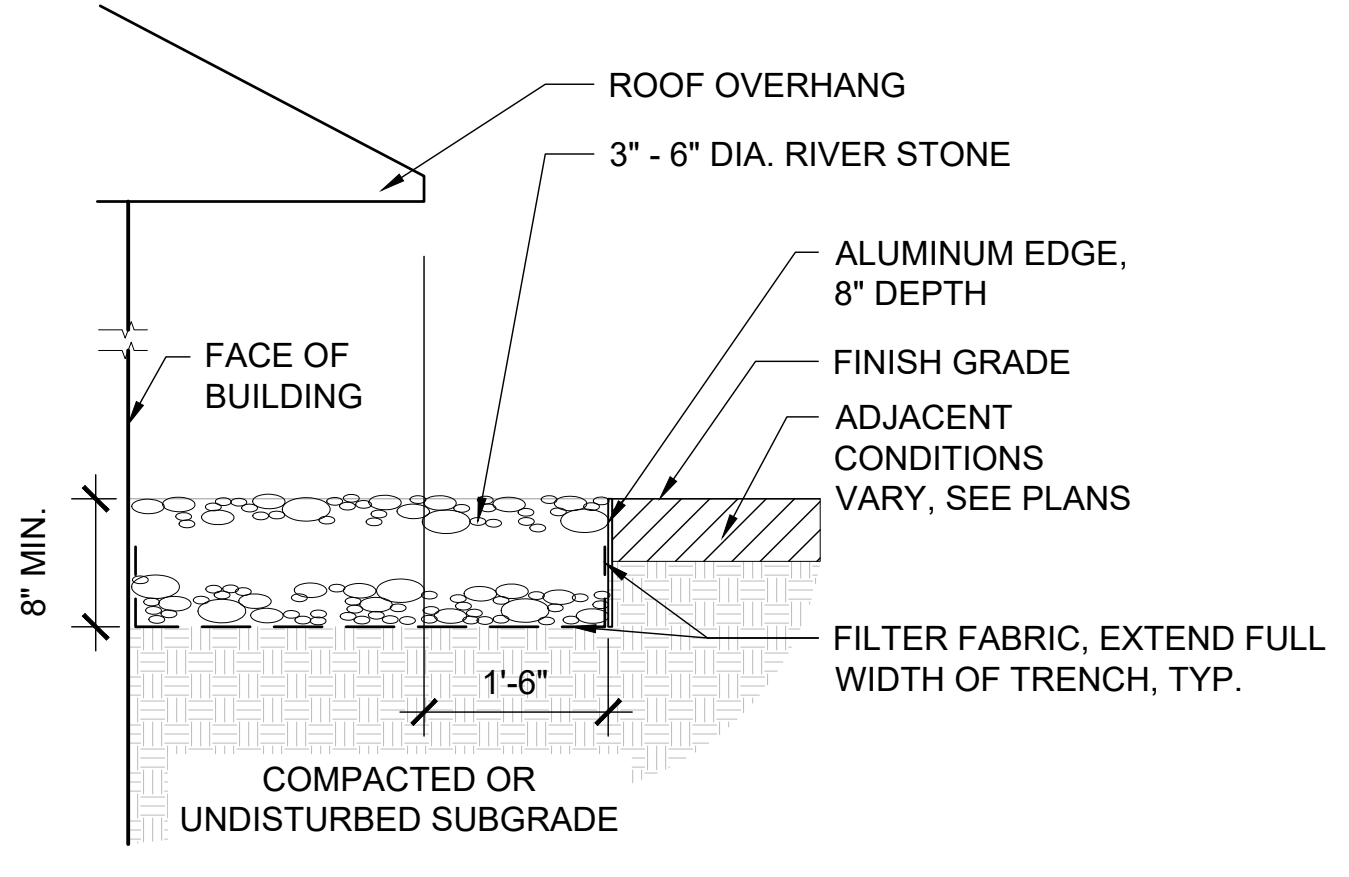


1 Unit Pavers on Bit Conc
Scale: 1" = 1'-0"

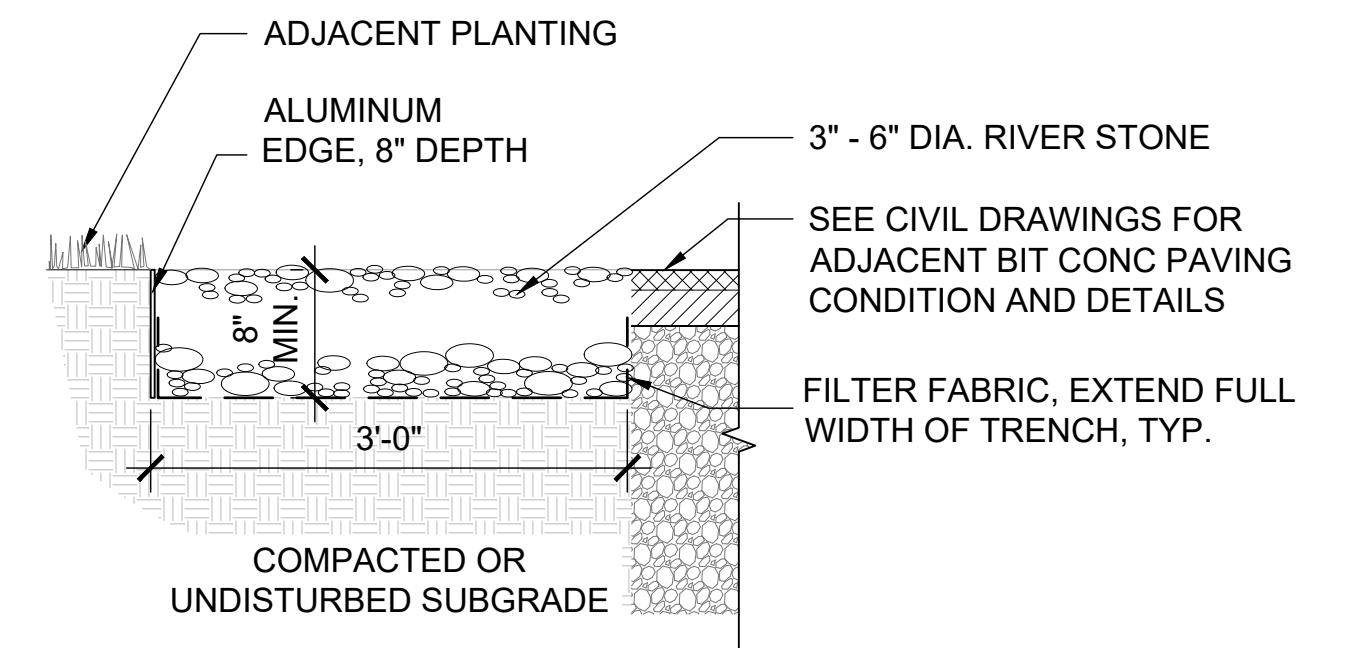
Addendum #2
Eliminate reference to
Bit. Conc. Setting Bed



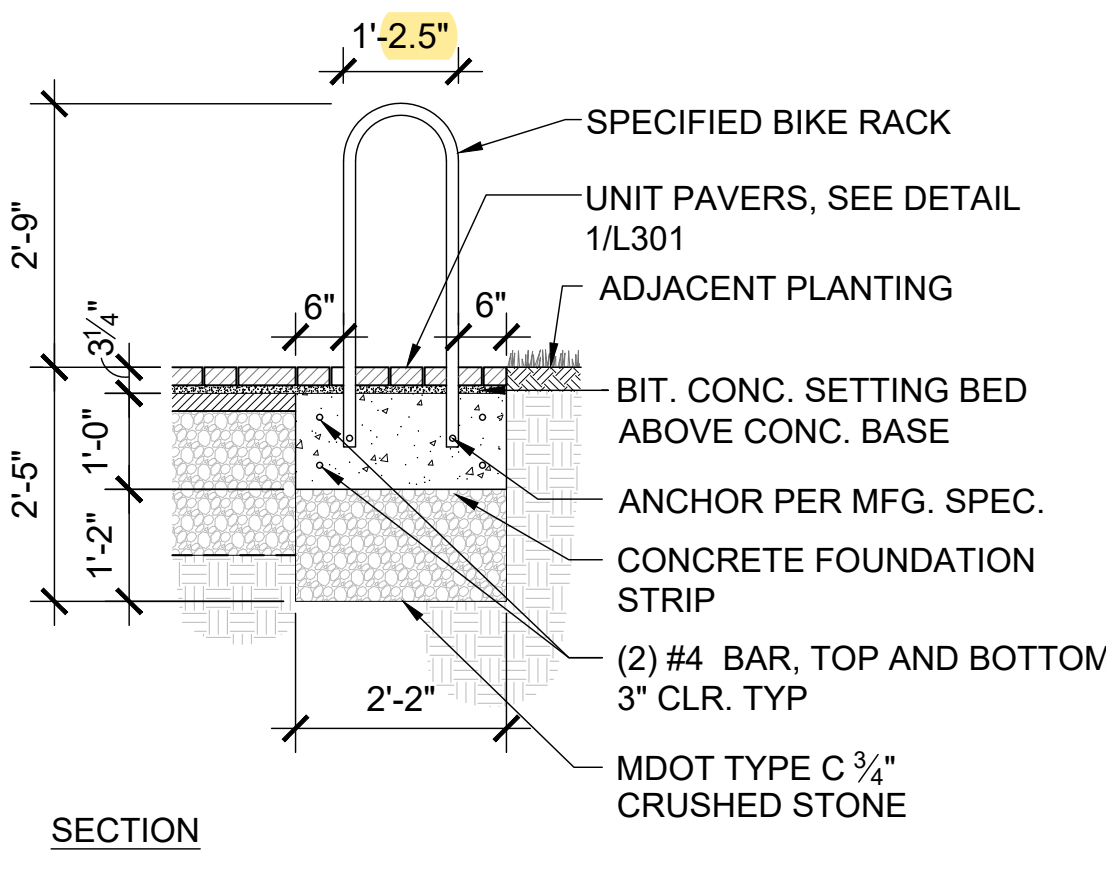
2 Detectable Warning Pavers
Scale: 1" = 1'-0"



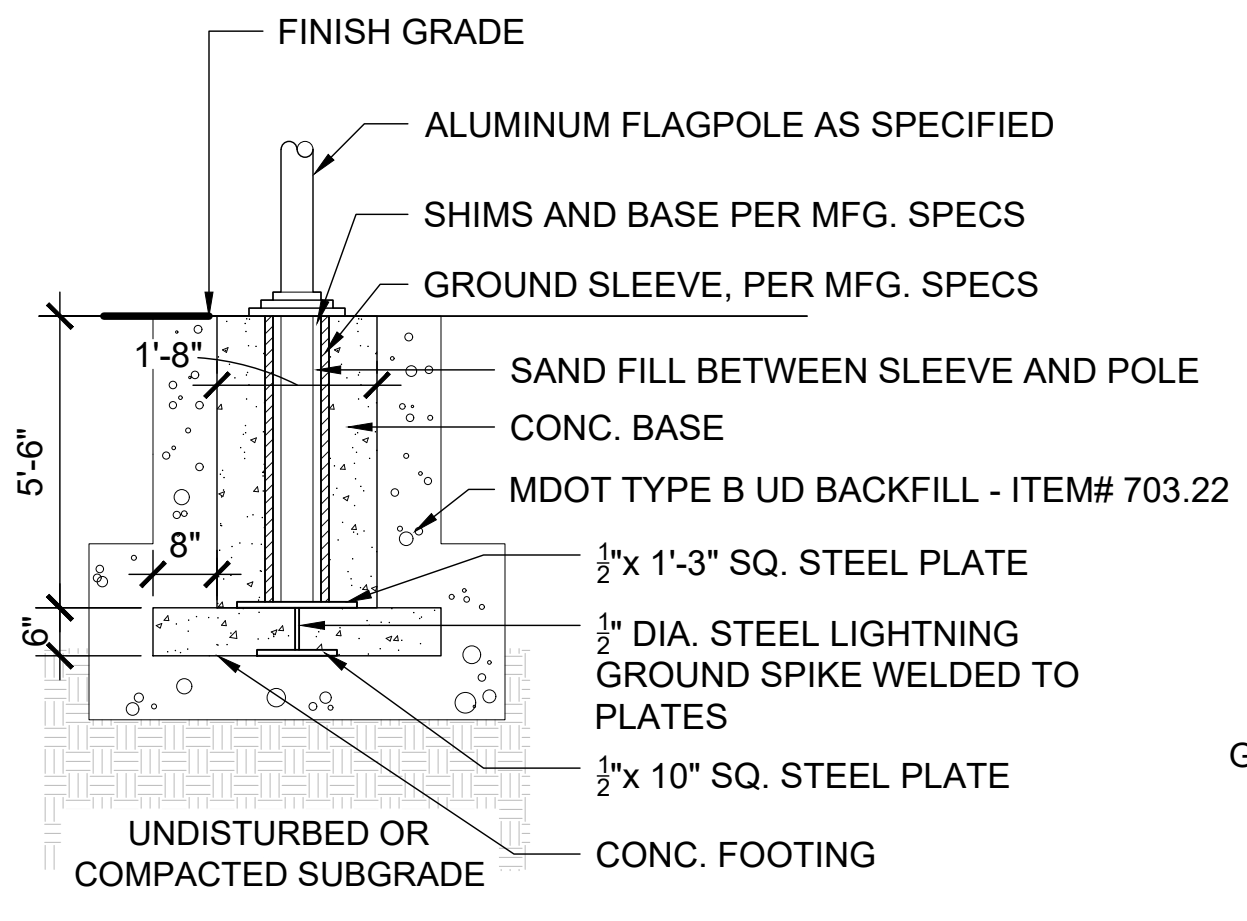
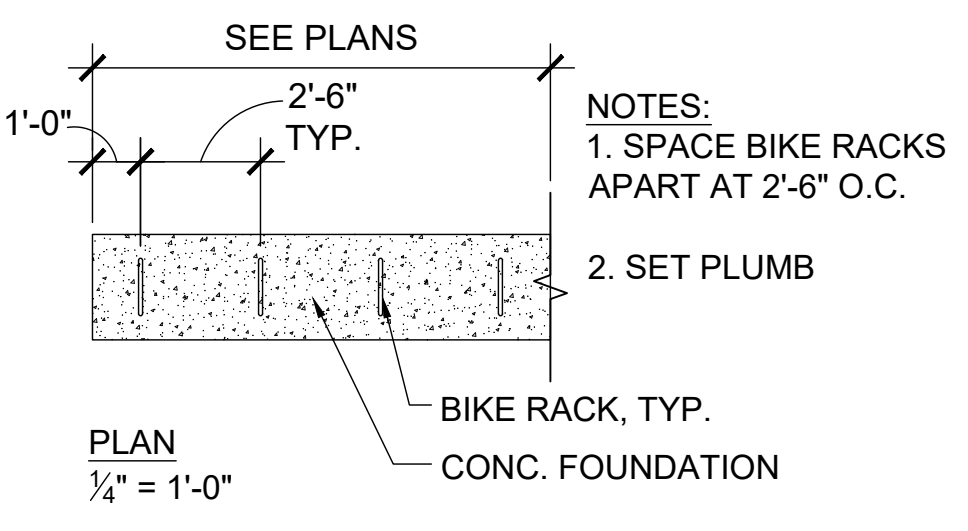
3 River Stone Drip Strip
Scale: 1" = 1'-0"



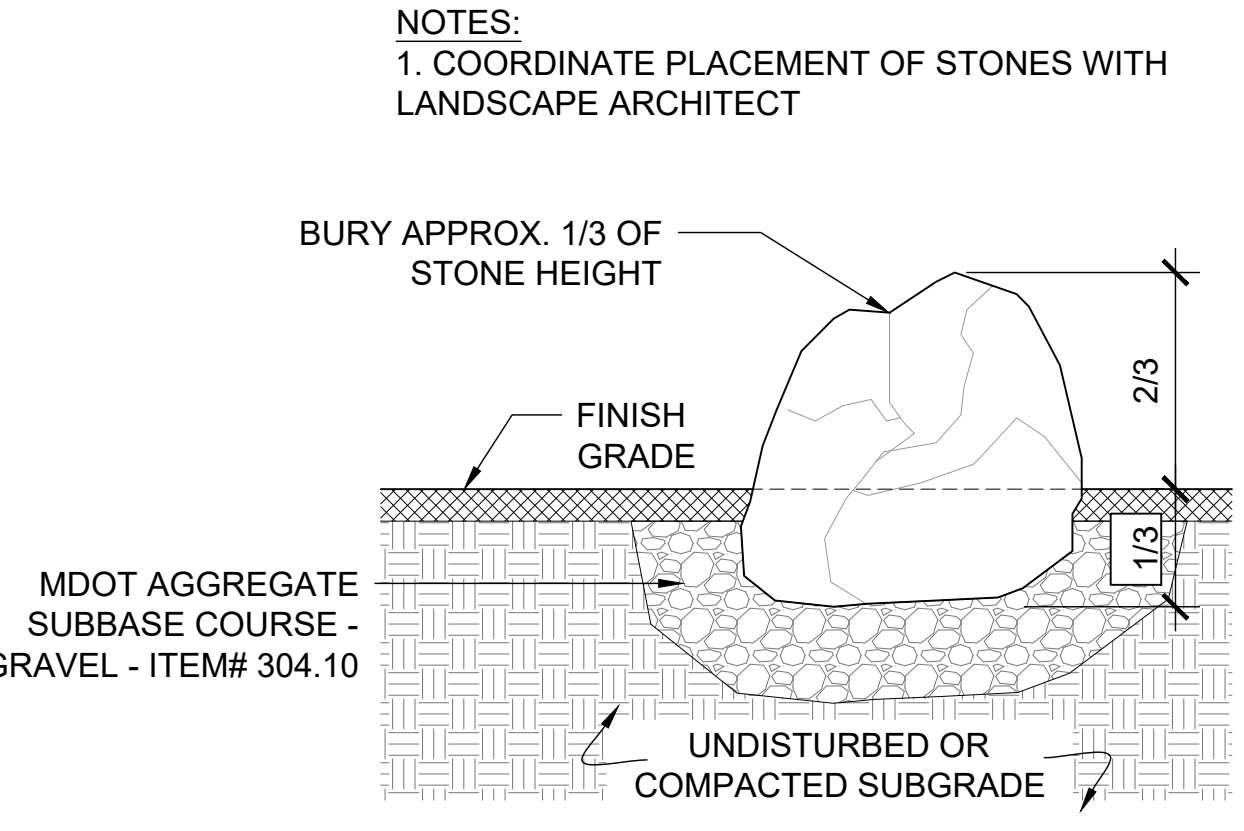
4 River Stone Edge in Parking Lot
Scale: 1" = 1'-0"



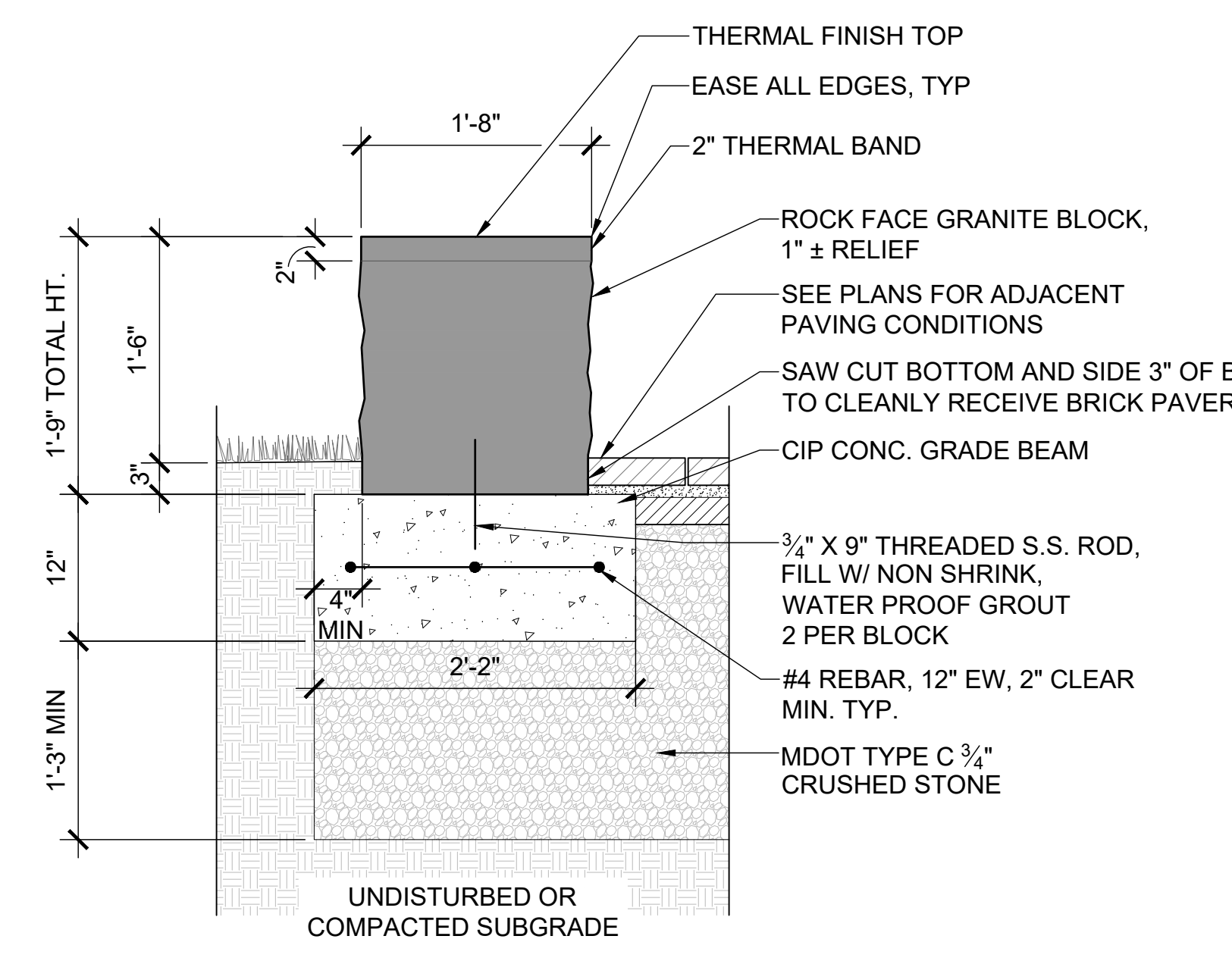
5 Bike Rack
Scale: 1/2" = 1'-0"



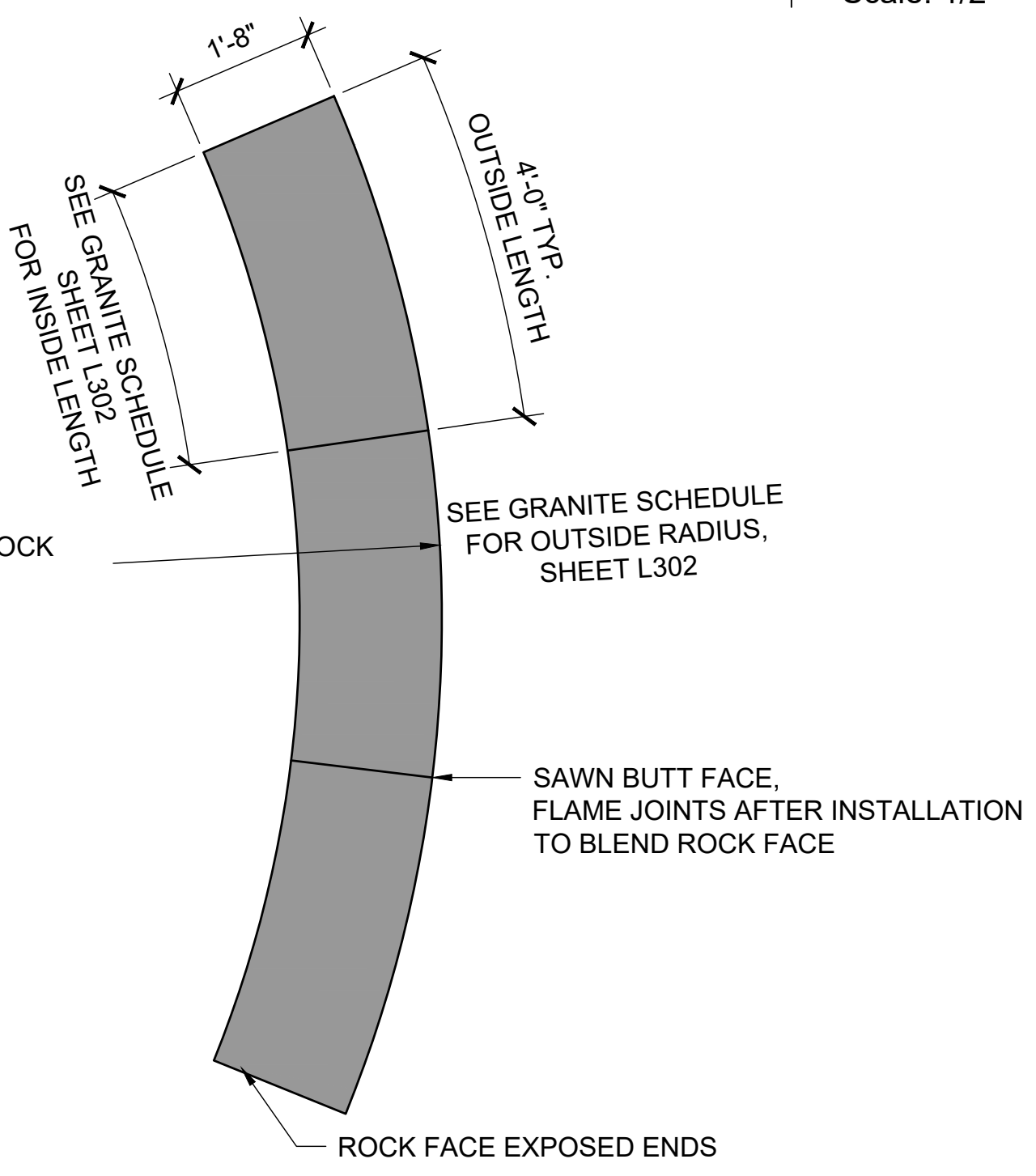
6 Flag Pole
Scale: 1/2" = 1'-0"



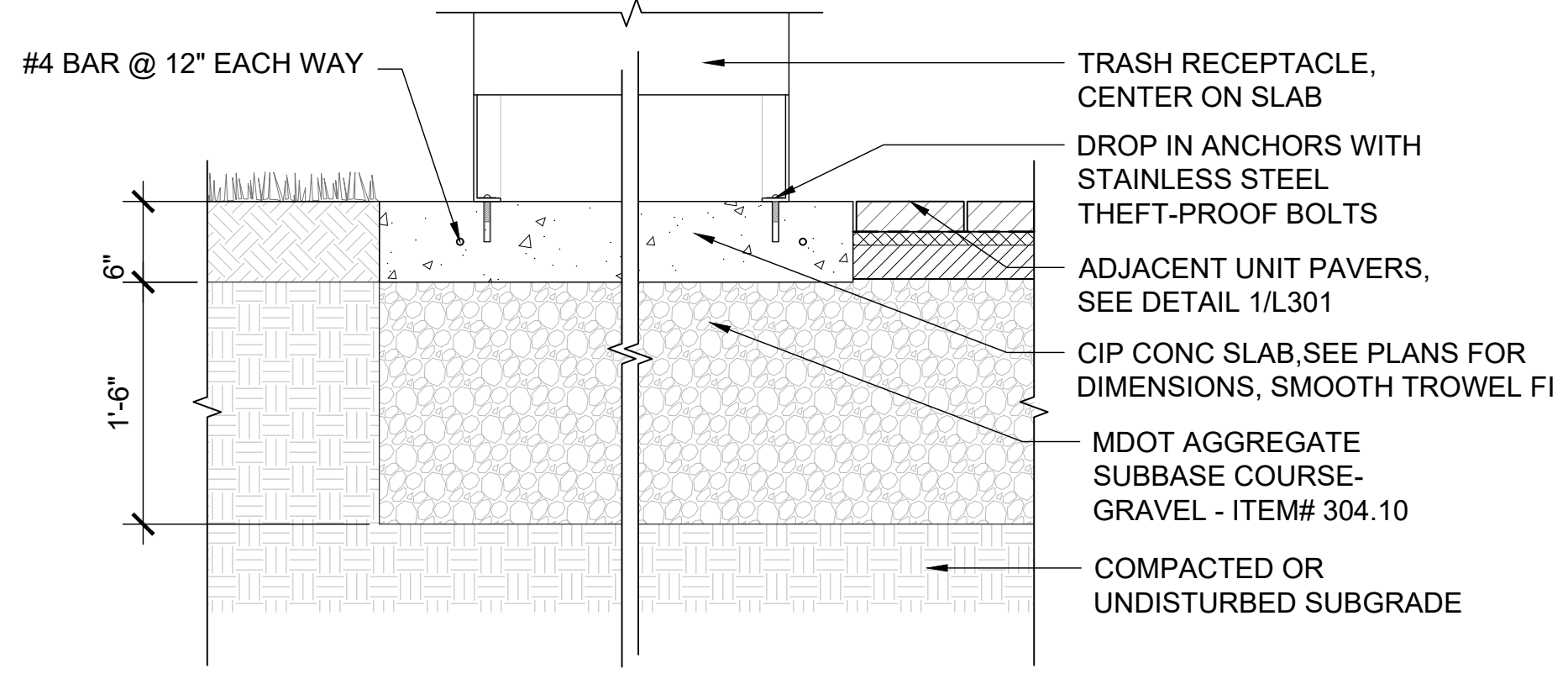
7 Boulder Setting
Scale: 1/2" = 1'-0"



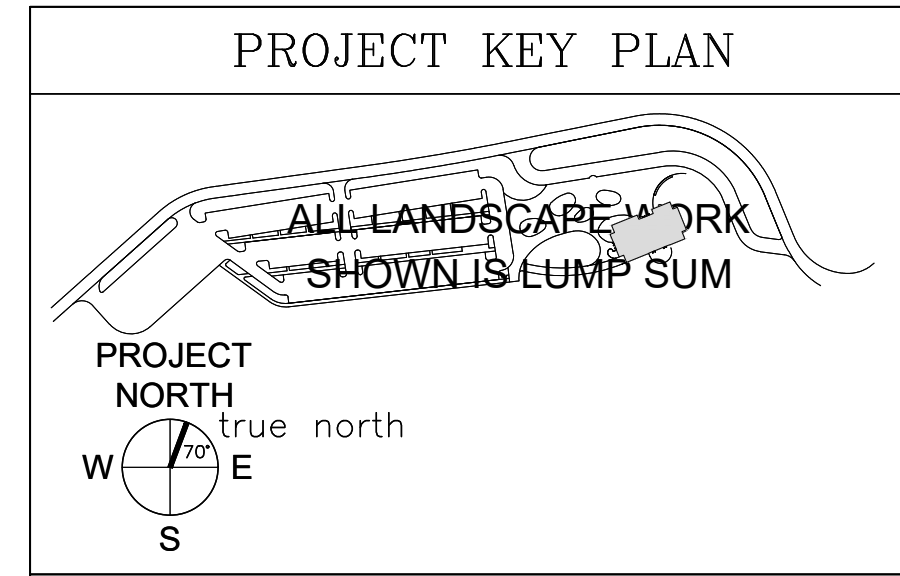
8 Stone Seat Wall
Scale: 1" = 1'-0"



RADIAL SEAT WALL PLAN
NTS



9 Trash Receptacle Footing & Concrete Pad
Scale: 1" = 1'-0"



AECOM
1 FEDERAL STREET, 8TH FLOOR
BOSTON, MA 02110
617.723.1700
www.aecom.com

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
DATE		DATE	
FED PIN NO: NA		WIN NO: 017163.02 & 017163.03	
SIGNATURE		ARCH. LIN. NUMBER	
DATE		DATE	
JANUARY 17, 2022		JANUARY 17, 2022	
PROJECT INFORMATION	PROGRAM	PROJECT	COMPLETION DATE
MANAGER	DESIGNER	RESIDENT	CONTRACTOR
AECOM			
MAINE DEPARTMENT OF TRANSPORTATION ACADIA GATEWAY FACILITY INTERMODAL AND WELCOME CENTER			
SITE DETAILS			
SHEET NUMBER			
L301			