



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Solicitation

NUMBER
DEFK14021

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
TARA LYLE
304-558-2544

RFQ COPY

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DIV ENGINEERING & FACILITIES  
 JOBSITE  
 SEE SPECIFICATIONS

DATE PRINTED
02/03/2014

BID OPENING DATE: 02/11/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 3		
				SEE ATTACHED PAGES.		
				END OF ADDENDUM NO. 3		
0001	1	JB		968-42		
				GENERAL CONSTRUCTION		
***** THIS IS THE END OF RFQ DEFK14021 ***** TOTAL:						

SIGNATURE	TELEPHONE	DATE
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TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
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WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**SOLICITATION NUMBER: DEFK14021**  
**Addendum Number: 3**

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The purpose of this addendum is to modify the solicitation identified as DEFK14021 ("Solicitation") to reflect the change(s) identified and described below.

**Applicable Addendum Category:**

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other

**Description of Modification to Solicitation:**

1. Responses to vendor questions attached.
2. The bid opening has moved from 02/06/2014 to 02/11/2014. The bid opening time remains at 1:30 pm.

**Additional Documentation:** Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

**Terms and Conditions:**

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

**Coonskin Park Maintenance Facility  
DEFK - 11026**

Addendum No.: 3

From: **Michael Baker Jr., Inc.**  
5088 Washington Street, West  
Charleston, West Virginia 25313

To: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated December 10, 2013. Acknowledge receipt of this Addendum by inserting the number and issue date of this addendum in the blank space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 10 pages and the attached documents:

05-3-1 -	Partial Revision to Spec. 055000	- 1 page
13-3-1 -	Full Revision to Spec. 221329	- 26 pages
22-3-1 -	Partial Revision to Spec. 221329	- 2 pages
C-0-3-1 -	Partial Existing Conditions Site Plan	- 1 page
C-1-3-1 -	Partial Site Plan Notes	- 1 page
C-2-3-1 -	Partial Site Utility Plan Notes	- 1 page
C-2-3-2 -	Partial Site Utility Plan	- 1 page
C-2-3-3 -	Partial Site Utility Plan	- 1 page
C-2-3-4 -	Partial Site Utility Plan Section	- 1 page
A-1.1-3-1 -	Partial Floor Plan	- 1 page
A-1.2-3-1 -	Opening Schedule & Frame Types	- 1 page
A-3-3-1 -	Partial Wall Section	- 1 page
S-1-3-1 -	Partial Foundation Plan	- 1 page
S-2-3-1 -	Footing Detail	- 1 page
M-1-3-1 -	Partial Mechanical Plan HVAC	- 1 page
E-1-3-1 -	Power Plan Notes	- 1 page

**GENERAL TECHNICAL CLARIFICATIONS:**

1. *Is there a bid bond required?*

**CLARIFICATION: – Yes – Refer to the “Advertisement for Bids”, “Instructions to Bidders” and “Bid Bond” form.**

2. *Can the site superintendent have other duties ie.. framer, finisher, painter etc...?*

**CLARIFICATION: – Provided the Superintendent can fulfill all duties of the superintendent role effectively at all times, and is able to have other duties, this is acceptable.**

3. *Is the contractor required to staff a full time quality control manager on site?*

**CLARIFICATION: – Full-time testing personnel during the placement of fill materials, excavation and trench backfill materials, base/sub-base materials, and concrete is required. A Quality Control Manager need not be on site full time.**

4. *Is the engineer responsible for the QC testing?*

**CLARIFICATION: – The Contractor is responsible for Quality Control Testing - refer to Specification Section 014000.**

5. *Is there heating under the slab?*

**CLARIFICATION: – No.**

6. *Is there a borrow or dump area located on site anywhere?*

*Does the owner have a location for spoil dirt material and a possible borrow site?*

**CLARIFICATION: – No.**

7. *Is a railroad flagger required?*

**CLARIFICATION: – No. This is an inactive track.**

8. *Is railroad insurance required?*

**CLARIFICATION: – No.**

9. *Will a benchmark and coordinates be provided?*

**CLARIFICATION: – Yes.**

10. *Can you tell us which utilities the contractor will have to provide fees for the project work*

**CLARIFICATION: – Contractor shall coordinate with electrical power and gas utility companies for these requirements and fees. Water and sewer connections are to private lines and will be provided by the Contractor.**

11. *Is there a drawing available for the existing underground power leading to the soccer field lights?*

**CLARIFICATION: – No.**

12. *Is there an allowance required for the natural gas tap, shut-off, and gas meter to be done by the utility company?*

**CLARIFICATION: – No, This will be the responsibility of the Contractor to coordinate with the gas utility company for fees associated with providing gas service to the building. These costs shall be included in the bid.**



13. *Is the exposed electrical conduits, gas piping, air piping, and/or mep equipment required to be painted. If so, what are the limits?*

CLARIFICATION: – **No.**

14. *Who are the Owners, Coonskin Park or West Virginia Army National Guard? Will Certified Payrolls be submitted to the Owner with each invoice?*

CLARIFICATION: – **The User Owner is Kanawha County Parks. Yes, Certified Payrolls copies are required with each invoice submitted to the Architect. The Architect will review and submit to the Administrator of the project (WV Army National Guard) for approval.**

15. *Is the Geo-tech report for information purposes only?*

CLARIFICATION: – **Yes. Refer to the cover sheet in front of the Geotechnical Engineering Report.**

16. *Will there be a water source provided on site ie... pond, hydrant, creek?*

CLARIFICATION: – **Refer to specification section 015000 Temporary Facilities and Controls for temporary water access to Owner's existing water.**

17. *Division 3 - Concrete Section: 031100 Concrete Formwork. Seeing this specifications informs me that all concrete pours including foundations for the piers, piers & frost walls are to be formed in place with no earth backed form being permissible other than the lean concrete for the under-cut engineered fill. Am I correct to assume all concrete is to be formed in place?*

CLARIFICATION: – **It is anticipated that the piers and spread footings will be formed due to the overexcavation required in those areas. Portions of the perimeter frost wall can be cast-in-place against the earth so long as the sidewall material does not collapse or slough off into the excavated trench. The top portion of the frost wall must have a smooth face on each side and must be formed.**

18. *Who is responsible for compaction testing?*

CLARIFICATION: – **Contractor is responsible for compaction testing - refer to 31200.3.18 & Section 014000.**

19. *Key note 8 on sheet C-1, refers to a retaining wall. The detail shows a turndown slab, is this correct or is the detail wrong?*

CLARIFICATION: – **Turndown slab is correct. Disregard the term "Retaining Wall."**

20. *There are no details for anticipated erosion control items, can you provide an erosion control plan or sketch of some type for the anticipated erosion items?*

CLARIFICATION: – **Per Erosion/Sediment Control Notes 1 and 2 the winning contractor is to prepare a plan using WVDEP standard materials and practices. This**

**plan will be reviewed and approved by the Owner's representative prior to beginning construction.**

21. *The total disturbed area may be more than one acre because of the work along the hillside area. Will the contractor need to obtain a \$300.00 storm water permit through WVDEP?*

**CLARIFICATION: – The Limits of Disturbance on the building site including proposed utility connections is less than an acre.**

22. *The site seems very tight for the utility runs along the soccer field. Are ignoring building codes that require specific distances between utilities like sewer and water? I did notice that the existing water and sewer that cross coonskin drive are basically right next to each other.*

**CLARIFICATION: – Building Codes are not to be ignored. Lines crossing Coonskin Drive are existing conditions and are not considered as part of this contract. Minimum separation of water and sewer per code are detailed on drawing C-2. For building entrance maintain a minimum of 5 feet of undisturbed soil between water and sewer lines.**

23. *Can we not tap into the water directly across coonskin dr. from the building site?*

**CLARIFICATION: – No.**

24. *On drawing C-2, an existing manhole is within 4 feet of the new manhole. Can the contractor run sanitary to existing manhole and eliminate the new manhole?*

**CLARIFICATION: – This man hole has a number of different utilities passing through it, including electric and therefore is not to be disturbed.**

25. *On drawing C-2, will the water line need to go under the existing large storm drain that runs under the soccer field?*

**CLARIFICATION: – No, The existing storm drain is deep and should not interfere with the new utilities.**

26. *On drawing C-3 - Who is responsible for the hot tap for the water connection?*

**CLARIFICATION: – The Contractor. This tap is downstream from the Owner's meter and will be able to be temporally shut off.**

27. *The gas line to be ran up the hill for the proposed project is in a wooded area. Is a spoil site available for stumps and tree debris?*

**CLARIFICATION: – No.**

28. *On drawing C-3, what is the diameter of the sup pit and valve vault?*

**CLARIFICATION: – It must be large enough to provide adequate space for components and working clearances. Coordinate exact size with pump package supplier. (See Specification Section 221329.2.1.A)**

29. *Could you provide a concrete section/detail thru the doors?*

**CLARIFICATION: – Refer to Architectural and Structural sections/details for concrete sections.**

30. *There is no foundation drainage piping indicated on the drawings. Does this structure not require foundation drainage?*

**CLARIFICATION: – As shown the sections on sheet A-3, no perimeter foundation drainage system is required. See also sheet C-1 for the drainage system from the roof leader lines.**

31. *On sheet S-3, is footing detail "F11" showing to run this type of footing from pier to pier the width of the building?*

**CLARIFICATION: – No.**

32. *Will access panels to plumbing be required in masonry walls, there are none indicated in the drawings?*

**CLARIFICATION: – See General Notes 8, 9 & 10 on Sheet P-0.**

33. *Is the electrical contractor responsible for the safety sensor and associated wiring for the garage doors?*

**CLARIFICATION: – Yes.**

#### **CHANGES TO SPECIFICATIONS (DIVISIONS 00 THRU 28):**

34. *BollardGard bollard covers an (or equal) to Reliance Foundary Co., Ltd.? (Sweets)*

**ADDITION: – Add the following manufacturer as acceptable to 055000.2.11.D as per Attachment 05-3-1:**

**BollardGard**

35. *Can Inland Buildings be an approved manufacturer of the pre engineered metal building? (<http://www.inlandbuildings.com/>)*

**ADDITION: – Add the following manufacturer to the list of approved vendors (133419.2.1.A) as per Attachment 13-3-1:**

**Inland Buildings**

36. Will a metal liner be required on the inside of the exterior walls, if so, how high are they to go?

**DELETION:** – Delete all references in Specification Section 13419 to Metal Wall Liner Panels as per Attachment 13-3-1.

37. The metal building specifications includes insulated metal panel? Is it the intension of the Architect/Owner to have insulated metal wall panels or are we to use vinyl backed sheet insulation with metal panels?

**DELETION:** – Delete all references to Insulated Metal Panels in Specification Section 13419, all exterior panels will be the manufacturer's standard panels with vinyl backed sheet insulation as per Attachment 13-3-1.

38. What grinder pump is specified? Model Number?

**ADDITION** - Add the following manufacturer to the list of approved vendors to Spec section 221329 Part 2.1.A.1.h as per Attachment 22-3-1:

**Flyght Pumps**

**REVISION:** – Revise to Spec Section 221329.2.1.A.1 to read: as per Attachment 22-3-1.

**Description:** Package simplex grinder system, with Submersible, end-suction, two stage centrifugal pumps, close-coupled, overhung-impeller centrifugal pump as defined in HI 1.1-1.2 and HI 1.3.

40 ft of head minimum, 21GPM minimum - 60GPM, pumps to handle solids up to 2" diameter. Minimum discharge size is 1 ¼" diameter. 208 /1 PH power, provide circuit breaker in MDP as required.

**REVISION:** – Revise to Spec Section 221329.2.1.A.9 to read: as per Attachment 22-3-1.

**Pump Discharge Piping:** Factory or field fabricated, galvanized, ASTM A 53/A 53M, Schedule 40, steel pipe with ASME B16.4, Class 125, gray iron threaded fittings. Pressure sewage line downstream of valve box is 2" HDPE pipe, class 125.

**REVISION:** – Revise to Spec Section 221329.2.1.A.10 to read: as per Attachment 22-3-1.

**Basin:** Watertight tank of size required for pumps, with inlet pipe connection and gastight cover with pump discharge and vent connections. Tank shall have a sealed bottom with the maximum level of sludge 2" below tank inlet invert. Tank can be heavy duty polyethylene, fiberglass or concrete.

39. *On drawing C-3 - What is the size of the discharge line coming from the sump pit to the valve vault that connects to the 2" HDPE pipe?*

**REVISION: – Revise to Spec Section 221329.2.1.A.10 to read: Minimum discharge size is 1 ¼" diameter. As per Attachment 22-3-1.**

40. *Are there conduits required for the telephone service either inside or outside the building?*

**No. Telephone service is NOT included in this contract.**

**DELETION: – Delete entire Specification Section 283100 Fire Alarm, Part 1.1.2.M and Part 1.1.2.N and all references to DACT signaling over phone lines.**

**CHANGES TO DRAWINGS:**

41. *Key note 8 on sheet C-1, refers to a retaining wall. The detail shows a turndown slab, is this correct or is the detail wrong?*

**REVISION: – Revise the keyed note 8 as per Attachment C-1-3-1.**

42. *What is the allowance and scope of work required for AEP?*

**ADDITION: – Refer to the notes on sheet E-4 and add to sheet C-2 as per Addendum 3 Attachment C-2-3-1.**

43. *Does the contractor install the conduit, wire, pull-vault, and concrete encasement for the underground electric?*

**ADDITION: – Refer to the notes on sheet E-4 and add to sheet C-2 as per Addendum 3 Attachment C-2-3-1.**

44. *Question #1--- Would you check with AEP on how they want the metering done. There are several option and each one effects the cost.*

*Option #1--- Contractor to install two runs of four #350mcm & one #1 ground wire from AEP transformer to Panel MDP. The contractor to install AEP furnished meter base on outside wall of building. Contractor to install one 1 ½ inch conduit from AEP transformer to AEP furnished meter base on outside wall of building with pull string. AEP to install AEP furnished CT's & PT's in the AEP transformer compartment and install cable from AEP transformer to AEP meter base on outside wall of building.*

*Option #2--- Contractor to install two runs of four #350mcm & one #1 ground wire from AEP transformer to Contractor furnished CT cabinet mounted on the outside wall of the building. Contractor to install two runs of four #350mcm & one #1 ground wire from contractor furnished CT cabinet to New Panel MDP. AEP to mount AEP furnished meter base above the contractor furnished CT cabinet and connect. AEP to furnish CT's & PT's.*

*Option #3— Same as option #2 except, the contractor furnished CT cabinet to be replaced with contractor furnished 400amp meter base. But I do not think a 400amp meter base will except two #350mcm cables. AEP to furnish the meter for the contractor furnished meter base and install.*

**ADDITION: – Refer to the notes on sheet E-4 and add to sheet C-2 as per Addendum 3 Attachment C-2-3-1.**

45. *Is the high voltage cable that is required for the underground electric to be tested, if so, is the contractor responsible for this testing?*

**ADDITION: – Add note 6 to sheet C-2 as per Attachment C-2-3-1.**

46. *Question #2— Will AEP require a ground rod at the AEP transformer.*

**REVISION: – Revise sheet S-2, detail 8 as per Attachment S-2-3-1.**

47. *On sheet C-2, the sanitary line is at the crest of the hill where the existing fence is located around the amphitheater. Will removing and re-installing of the fence be required by the contractor?*

**ADDITION: – Add note 7 to sheet C-2 as per Attachment C-2-3-1.**

48. *On sheet C-2, the sanitary line is shown extremely close to the foundation of the amphitheater. Can the sanitary line be relocated in order to miss the amphitheater foundation?*

**ADDITION: – Add note 8 to sheet C-2 as per Attachment C-2-3-1.**

49. *Is the existing electrical panel on site to be removed, if so, will the contractor need to cap off or reinstall?*

**ADDITION: – Add leader note to Sheet C-2 as per Attachment C-2-3-2.**

50. *The proposed sanitary line and water line near section BB show being installed inside casing. These casings are shown with multiple bends, please clarify how this can be accomplished with bends and still load the casing with pipe, or provide a detail of what we need to do to perform this work.*

**REVISION: – Revise leader note on sheet C-2 as per Attachment C-2-3-2.**

51. *On sheet C-2, what is the elevation of the inverts, both in and out, for the manhole near the soccer field?*

**REVISION: – Revise leader note on Sheet C-2 as per Attachment C-2-3-3.**

52. *Sheet A-1.1 shows no portal frames over the garage doors, will portal frames be required?*

**REVISION: –Contractor shall provide portal frames as per Attachment A-1.1-3-1.**

53. *On sheet A-1.1, the note that says "gravel only" is misleading, should this area be finished?*

**DELETION: – Delete the note reading "gravel only" as per Attachment A-1.1-3-1.**

54. *Do all the block wall in the toilet area (except the chase wall) go to the deck? Would the wall separating the toilet from the bay areas be 12"cmu and other walls 8"?*

**REVISION: – The only wall to go full height is the 12" CMU between the Restroom 104 and the Storage Bay 100 all other walls are 8" CMU with heights to be 8'-8" as per Attachment A-1.1-3-1.**

55. *Please clarify the extent of the 2hr rated masonry wall. I am unable to determine if the 2hr masonry wall extends around the entire restroom. If the masonry extends around the entire restroom does it all go to the deck.*

**REVISION: – The 2 hour fire wall is only the 12" CMU between the Restroom 104 and Storage Bay 100 only. The 8" CMU height is to be 8'-8" as per Attachment A-1.1-3-1.**

56. *What is the thickness of the gravel under the concrete slabs?*

**ADDITION: – Add note reading 4" to sheet A-1.1 as per Attachment A-1.1-3-1.**

57. *The opening schedule shows the doors as being 12' X 10' but the drawing above the schedule shows 12' X 12'. Sheet reference A-1.2 Please let me know the correct size*

*Which is correct, 10'x12' garage doors or 12'x12' garage doors. The elevation drawing shows 12'x12' and the finish schedule show 10'x12', which is desired?*

*Garage doors are 12x12 or 10x12 both shown on drawings?*

**REVISION: – Revise in the Opening Schedule widths of doors 100B, 101A, 101C & 102A to read 12'-0" as per Attachment A-1.2-3-1.**

58. *The exterior man doors have a window light above the head of the door. Does the glazing in these openings have to be fire-rated? The additional height of the man door will create metal building framing woes?*

**REVISION: – Revise the elevations showing a transom above doors 100A, 101B, 103A & 103B to omit the transom completely as per Attachment A-1.2-3-1.**

59. *The drawings do not indicate any rigid insulation at the footings or underneath slabs. The specifications do. Is rigid insulation required under the slabs and around the perimeter of the footings? If so, please identify locations and depths.*

**REVISION: –Add 2" rigid insulation to the entire inside perimeter of the frost walls and pier walls from below the floor slab to a depth of 2'-0" as per Attachment A-3-3-1.**



60. Sheet S-1 calls out an 8" grade beam and a 6" frost wall. To me they are the same thing other than the thickness, could you please clarify the difference and explain where these are going because the plans are unclear and I am assuming the 8" grade beam is applied around the entire perimeter?

*If the 8" grade beam is butting up to the 6" frost wall, could you please provide a detail showing this? My concern is that since the floor slab is floating and not turned down, you will either see the change in wall / beam thickness inside in the slab or outside along the wall, below the metal siding.*

*Plan sheet S-1 appears to have a 2'-0" continuous footing around the perimeter, but all the details sheet S-2 show spread footings. Could you please clarify?*

**REVISION: – Revise the note reading "8" Grade Beam" to read 6" frost wall as per Attachment S-1-3-1.**

61. Reference to PCC poured slab on drawing S-1 (poured cured concrete, poured colored concrete) or what?

**ADDITION: – As per Attachment S-1-3-1, add the following term to the note:**

**"Portland Cement Concrete"**

62. On drawing M-1, is EF-3 shown in the restroom supposed to be EF-2?

**REVISION: – Revise sheet M-1 as per Attachment M-1-3-1.**

63. Since the electrical outlets are shown to be at 48" AFF, will the metal building manufacturer be required to supply another perling to run at 48" AFF?

**REVISION: – Revise sheet E-1 as per Attachment E-1-3-1.**

**END OF ADDENDUM**



Coonskin Park Maintenance Facility  
ATTACHMENT 05-3-1

## 2.10 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
  - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize exterior miscellaneous steel trim.
- D. Prime exterior miscellaneous steel trim with zinc-rich primer.

## 2.11 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 40 steel pipe.
  - 1. Cap bollards with 1/4-inch- (6.4-mm-) thick steel plate.
- B. Fabricate internal sleeves for removable bollards from Schedule 40 steel pipe or 1/4-inch (6.4-mm) wall-thickness steel tubing with an OD approximately 1/16 inch (1.5 mm) less than ID of bollards. Match drill sleeve and bollard for 3/4 inch (19 mm) steel machine bolt.
- C. Prime bollards with zinc-rich primer.
- D. Provide 4" Diameter Plastic Bollard Covers by Reliance Foundry Co, Ltd. or approved equal.

**Approved Equal:****BollardGard**

Color as selected by the Architect from manufacturer's standard colors.

## 2.12 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches (200 mm) unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.
- D. Prime loose steel lintels located in exterior walls with zinc-rich primer.

## SECTION 133419 - METAL BUILDING SYSTEMS

## 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. Structural-steel framing.
2. Metal roof panels.
3. **Standard metal wall panels.**
4. **Thermal insulation.**
5. Accessories.

## B. Related Sections:

1. Division 08 Section "Overhead Coiling Doors."

## 1.3 DEFINITIONS

- A. Terminology Standard: See MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in referenced standards.

## 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of metal building system component. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
  1. Structural-steel-framing system.
  2. Metal roof panels.
  3. Metal wall panels.
  4. Insulation and vapor retarder facings.
  5. Flashing and trim.
  6. Accessories.
- B. Shop Drawings: For the following metal building system components. Include plans, elevations, sections, details, and attachments to other work.

**Coonskin Park Maintenance Facility  
ATTACHMENT 13-3-1**

1. **Anchor-Bolt Plans:** Submit anchor-bolt plans and templates before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
  2. **Structural-Framing Drawings:** Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
  3. **Metal Roof and Wall Panel Layout Drawings:** Show layouts of metal panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
    - a. Show roof-mounted items including equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
    - b. Show wall-mounted items including doors, windows, louvers, and lighting fixtures.
  4. **Accessory Drawings:** Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:8):
    - a. Flashing and trim.
    - b. Gutters.
    - c. Downspouts with boot connections to drainage.
    - d. Roof ventilators.
- C. **Samples for Initial Selection:** For units with factory-applied color finish.
- D. **Samples for Verification:** For each type of exposed finish required, prepared on Samples of sizes indicated below:
1. **Metal Panels:** Nominal 12 inches (300 mm) long by actual panel width. Include fasteners, closures, and other exposed panel accessories.
  2. **Flashing and Trim:** Nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
  3. **Vapor-Retarder Facings:** Nominal 6-inch- (150-mm-) square Samples.
  4. **Accessories:** Nominal 12-inch- (300-mm-) long Samples for each type of accessory.
- E. **Delegated-Design Submittal:** For metal building systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- 1.5 **INFORMATIONAL SUBMITTALS**
- A. **Qualification Data:** For qualified erector manufacturer professional engineer land surveyor testing agency.
  - B. **Welding certificates.**

Coonskin Park Maintenance Facility  
ATTACHMENT 13-3-1

- C. **Metal Building System Certificates:** For each type of metal building system, from manufacturer.
1. **Letter of Design Certification:** Signed and sealed by a qualified professional engineer. Include the following:
    - a. Name and location of Project.
    - b. Order number.
    - c. Name of manufacturer.
    - d. Name of Contractor.
    - e. Building dimensions including width, length, height, and roof slope.
    - f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
    - g. Governing building code and year of edition.
    - h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
    - i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
    - j. Building-Use Category: Indicate category of building use and its effect on load importance factors.
    - k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.
- D. **Erector Certificates:** For each product, from manufacturer.
- E. **Manufacturer Certificates:** For each product, from manufacturer.
- F. **Material Test Reports:** For each of the following products:
1. Structural steel including chemical and physical properties.
  2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
  3. Tension-control, high-strength, bolt-nut-washer assemblies.
  4. Shop primers.
  5. Nonshrink grout.
- G. **Product Test Reports:** Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for insulation and vapor-retarder facings. Include reports for thermal resistance, fire-test-response characteristics, water-vapor transmission, and water absorption.
- H. **Source quality-control reports.**
- I. **Field quality-control reports.**
- J. **Surveys:** Show final elevations and locations of major members. Indicate discrepancies between actual installation and the Contract Documents.
- K. **Warranties:** Sample of special warranties.

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1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panel finishes to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer and member of MBMA.
1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
  2. Contractor's Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- C. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- D. Source Limitations: Obtain metal building system components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.
- E. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  2. AWS D1.3, "Structural Welding Code - Sheet Steel."
- F. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.
- G. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
- H. Fire-Resistance Ratings: Where indicated, provide metal panel assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
  2. Combustion Characteristics: ASTM E 136.
- I. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockups for typical wall metal panel including accessories.
    - a. Size: 48 inches (1200 mm) long by 48 inches (1200 mm).

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2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- J. Preinstallation Conference: Conduct conference at Project site.
1. Review methods and procedures related to metal building systems including, but not limited to, the following:
    - a. Condition of foundations and other preparatory work performed by other trades.
    - b. Structural load limitations.
    - c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
    - d. Required tests, inspections, and certifications.
    - e. Unfavorable weather and forecasted weather conditions.
  2. Review methods and procedures related to metal roof panel assemblies including, but not limited to, the following:
    - a. Compliance with requirements for purlin and rafter conditions, including flatness and attachment to structural members.
    - b. Structural limitations of purlins and rafters during and after roofing.
    - c. Flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
    - d. Temporary protection requirements for metal roof panel assembly during and after installation.
    - e. Roof observation and repair after metal roof panel installation.
  3. Review methods and procedures related to metal wall panel assemblies including, but not limited to, the following:
    - a. Compliance with requirements for support conditions, including alignment between and attachment to structural members.
    - b. Structural limitations of girts and columns during and after wall panel installation.
    - c. Flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
    - d. Temporary protection requirements for metal wall panel assembly during and after installation.
    - e. Wall observation and repair after metal wall panel installation.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
  - B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

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- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Protect foam-plastic insulation as follows:
  - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
  - 3. Complete installation and concealment of foam-plastic materials as rapidly as possible in each area of construction.

#### 1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when weather conditions permit metal panels to be installed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements:
  - 1. Established Dimensions for Foundations: Comply with established dimensions on approved anchor-bolt plans, establishing foundation dimensions and proceeding with fabricating structural framing without field measurements. Coordinate anchor-bolt installation to ensure that actual anchorage dimensions correspond to established dimensions.
  - 2. Established Dimensions for Metal Panels: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal panels without field measurements, or allow for field trimming metal panels. Coordinate construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

#### 1.10 COORDINATION

- A. Coordinate sizes and locations of concrete foundations and casting of anchor-bolt inserts into foundation walls and footings. Concrete, reinforcement, and formwork requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- B. Coordinate installation of roof penetrations, which are specified in Division 07 Section "Roof Accessories."
- C. Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

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1.11 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Finish Warranty Period: 20 years from date of Substantial Completion.
- B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. American Steel Building Co., Inc.
  2. Butler Manufacturing Company; a BlueScope Steel company.
  3. Ceco Building Systems; Division of NCI Building Systems, L.P.
  4. Chief Buildings; Division of Chief Industries, Inc.
  5. Nucor Building Systems.
  6. Olympia Steel Building Systems.
  7. VP Buildings; a United Dominion company.
  8. **Inland Buildings**

2.2 METAL BUILDING SYSTEMS

- A. Description: Provide a complete, integrated set of metal building system manufacturer's standard mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.
1. Provide metal building system of size and with bay spacings, roof slopes, and spans indicated.
- B. Primary-Frame Type:



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1. Rigid Clear Span: Solid-member, structural-framing system without interior columns.
  2. Rigid Modular: Solid-member, structural-framing system with interior columns.
  3. Truss-Frame Clear Span: Truss-member, structural-framing system without interior columns.
  4. Truss-Frame Modular: Truss-member, structural-framing system with interior columns.
  5. Lean to: Solid- or truss-member, structural-framing system without interior columns, designed to be partially supported by another structure.
- C. End-Wall Framing: Engineer end walls to be expandable. Provide primary frame, capable of supporting full-bay design loads, and end-wall columns.
- D. Secondary-Frame Type: Manufacturer's standard purlins and joists and partially inset-framed girts.
- E. Eave Height: Manufacturer's standard height, as indicated by nominal height on Drawings.
- F. Bay Spacing: As shown on drawings.
- G. Roof Slope: Manufacturer's standard for frame type required.
- H. Roof System: Manufacturer's standard vertical-rib, standing-seam.
- I. **Exterior Wall System: Manufacturer's standard metal wall panels.**

### 2.3 METAL BUILDING SYSTEM PERFORMANCE

- A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Metal building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to procedures in MBMA's "Metal Building Systems Manual."
1. Design Loads: As required by MBMA's "Metal Building Systems Manual."
  2. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:
    - a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    - b. Girts: Horizontal deflection of 1/180 of the span.
    - c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    - d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    - e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.
  3. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:
    - a. Lateral Drift: Maximum of 1/200 of the building height.

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4. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.
- C. Seismic Performance: Metal building systems shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
  - D. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
    1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
  - E. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of 1.57 lbf/sq. ft. (75 Pa).
  - F. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).
  - G. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).
  - H. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).
  - I. Energy Performance: Provide roof panels that are listed on the DOE's ENERGY STAR Roof Products Qualified Product List for low-slope roof products.
  - J. Energy Performance: Provide roof panels with initial solar reflectance not less than 0.70 and emissivity not less than 0.75 when tested according to CRRC.

#### 2.4 STRUCTURAL-STEEL FRAMING

- A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.
  1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
    - a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

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2. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
  3. Rigid Modular Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
  4. Truss-Frame, Clear-Span Frames: Rafter frames fabricated from joist girders, and I-shaped column sections fabricated from shop-welded, built-up steel plates or structural-steel shapes.
  5. Truss-Frame Modular Frames: Rafter frames fabricated from joist girders, and I-shaped column sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
  6. Long-Bay Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
  7. Exterior Column Type: Tapered.
  8. Rafter Type: Tapered.
- B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
1. End-Wall and Corner Columns: I-shaped sections fabricated from structural-steel shapes; shop-welded, built-up steel plates; or C-shaped, cold-formed, structural-steel sheet.
  2. End-Wall Rafters: C-shaped, cold-formed, structural-steel sheet; or I-shaped sections fabricated from shop-welded, built-up steel plates or structural-steel shapes.
- C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating, to comply with the following:
1. Purlins: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; minimum 2-1/2-inch- (64-mm-) wide flanges.
    - a. Depth: As needed to comply with system performance requirements.
  2. Girts: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 40 to 50 degrees from flange, with minimum 2-1/2-inch- (64-mm-) wide flanges.
    - a. Depth: As required to comply with system performance requirements.
  3. Eave Struts: Unequal-flange, C-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; to provide adequate backup for metal panels.
  4. Flange Bracing: Minimum 2-by-2-by-1/8-inch (51-by-51-by-3-mm) structural-steel angles or 1-inch- ((25-mm-)) diameter, cold-formed structural tubing to stiffen primary-frame flanges.
  5. Sag Bracing: Minimum 1-by-1-by-1/8-inch (25-by-25-by-3-mm) structural-steel angles.
  6. Base or Sill Angles: Minimum 3-by-2-inch (76-by-51-mm) zinc-coated (galvanized) steel sheet.

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7. Purlin and Girt Clips: Manufacturer's standard clips fabricated from steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
  8. Secondary End-Wall Framing: Manufacturer's standard sections fabricated from zinc-coated (galvanized) steel sheet.
  9. Framing for Openings: Channel shapes; fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
  10. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.
- D. Bracing: Provide adjustable wind bracing as follows:
1. Rods: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade 50 (345); or ASTM A 529/A 529M, Grade 50 (345); minimum 1/2-inch- (13-mm-) diameter steel; threaded full length or threaded a minimum of 6 inches (152 mm) at each end.
  2. Cable: ASTM A 475, 1/4-inch- (6-mm-) diameter, extra-high-strength grade, Class B, zinc-coated, seven-strand steel; with threaded end anchors.
  3. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
  4. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
  5. Fixed-Base Columns: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
  6. Diaphragm Action of Metal Panels: Design metal building to resist wind forces through diaphragm action of metal panels.
  7. Bracing: Provide wind bracing using any method specified above, at manufacturer's option.
- E. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide hot-dip galvanized bolts for structural-framing components that are galvanized.
- F. Materials:
1. W-Shapes: ASTM A 992/A 992M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
  2. Channels, Angles, M-Shapes, and S-Shapes: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
  3. Plate and Bar: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
  4. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
  5. Structural-Steel Sheet: Hot-rolled, ASTM A 1011/A 1011M, Structural Steel (SS), Grades 30 through 55 (205 through 380), or High-Strength Low-Alloy Steel (HSLAS), Grades 45 through 70 (310 through 480); or cold-rolled, ASTM A 1008/A 1008M, Structural Steel (SS), Grades 25 through 80 (170 through 550), or High-Strength Low-Alloy Steel (HSLAS), Grades 45 through 70 (310 through 480).

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6. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grades 33 through 80 (230 through 550), or High-Strength Low-Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G60 (Z180) coating designation; mill phosphatized.
  7. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
    - a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grades 33 through 80 (230 through 550) or High-Strength Low-Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
    - b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Structural Steel (SS), Grade 50 or 80 (340 or 550); with Class AZ50 (AZM150) coating.
  8. Non-High-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), carbon-steel, hex-head bolts; ASTM A 563 (ASTM A 563M) carbon-steel hex nuts; and ASTM F 844 plain (flat) steel washers.
    - a. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.
  9. Threaded Rods: ASTM A 36/A 36M ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6).
    - a. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.
    - b. Washers: ASTM F 436 (ASTM F 436M) hardened ASTM A 36/A 36M carbon steel.
    - c. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.
  10. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- G. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.
1. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil (0.025 mm).
    - a. Prime secondary framing formed from uncoated steel sheet to a minimum dry film thickness of 0.5 mil (0.013 mm) on each side.
  2. Prime galvanized members with specified primer after phosphoric acid pretreatment.
  3. Primer: SSPC-Paint 15, Type I, red oxide.

## 2.5 METAL ROOF PANELS

- A. Vertical-Rib, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
1. Material: Aluminum-zinc alloy-coated steel sheet, 0.028-inch (0.71-mm) nominal thickness.

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- a. Exterior Finish: Fluoropolymer.
  - b. Color: As selected by Architect from manufacturer's full range.
2. Clips: Manufacturer's standard, floating type to accommodate thermal movement; fabricated from aluminum-zinc alloy-coated steel stainless-steel sheet.
  3. Joint Type: Panels snapped together.
  4. Joint Type: Mechanically seamed, double folded.
  5. Panel Coverage: 16 inches (406 mm).
  6. Panel Height: 2 inches (51 mm).
  7. Uplift Rating: UL 60.

## 2.6 METAL WALL PANELS

**A. Description: Provide factory-formed and -assembled, metal wall panels fabricated from metal facing sheets, with joints between panels designed to form weathertight seals. Include accessories required for a weathertight installation.**

1. Panels shall be 3' wide with four major corrugations, 1-7/16" high 12" on center with two minor corrugations between each of the major corrugations the entire length of the panel.
2. Panels shall be one piece from base to building eave.
3. Each panel corrugation shall have a fastener alignment groove to center the fastener within the corrugation.
4. Exposed panel side lap shall be hemmed to eliminate raw cut panel edge.
5. The upper end of panels shall be fabricated with a mitered cut to match corrugations of the manufacturer's roofs of 1/2" to 12" and square cut for all other roof panels and slopes
6. Wall panels shall be factory punched or field drilled at panel ends and shall match factory punched or field drilled holes in structural for proper alignment.

**B. Panel Design:**

1. Panel design shall be in accordance with the 2004 edition of the AISI "North American Specification for the Design of Cold Formed Steel Structural Members", and in accordance with sound engineering methods and practices.

**C. Panel Materials and Finish:**

1. 26 or 24 gage galvanized steel (ASTM A 653) painted with exterior colors of 70% Kynar 500® or Hylar 5000® fluoropolymer (PVDF) coating. Manufacturer shall warrant that coating shall not peel, crack or chip for 25 years. For a period of 25 years chalking shall not exceed ASTM D4214 #8 rating and will not fade more than 5 color difference units per ASTM D2244.
2. All gutters, downspouts, eave trim, gable trim, door side flashings and header flashings to be painted with exterior colors of 70% Kynar 500® or Hylar 5000® fluoropolymer (PVDF) coating in the Manufacturer's standard color.

**D. Panel Application:**



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1. Structural system shall be plumb before wall panels are attached.
2. Panels shall be aligned and attached in accordance with erection drawings furnished by manufacturer.
3. All side laps shall be at least one full corrugation.
4. Panels shall be sealed at the base with metal trim and foam or rubber closures.
5. Wall panel-to-structural connections shall be made with self-drilling screws.
6. Wall panel-to-panel connections shall be made with self-drilling screws.
7. Fastener locations shall be as shown on erection drawings as furnished by manufacture.
8. All exposed fasteners shall be factory painted to match wall color.

## 2.7 THERMAL INSULATION

- A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less. R Value roof = 30, R value walls = 19.
- B. Retainer Strips: 0.025-inch (0.64-mm) nominal-thickness, formed, metallic-coated steel or PVC retainer clips colored to match insulation facing.
- C. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

## 2.8 DOORS AND FRAMES

- A. Swinging Personnel Doors and Frames: As specified in Division 08 Section "Hollow Metal Doors and Frames."

## 2.9 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
  1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
  1. Closures: Provide closures at eaves and ridges, fabricated of same material as metal roof panels.
  2. Clips: Manufacturer's standard, formed from stainless-steel sheet, designed to withstand negative-load requirements.

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3. Cleats: Manufacturer's standard, mechanically seamed cleats formed from stainless-steel sheet or nylon-coated aluminum sheet.
  4. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
  5. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
  6. Thermal Spacer Blocks: Where metal panels attach directly to purlins, provide thermal spacer blocks of thickness required to provide 1-inch (25-mm) standoff; fabricated from extruded polystyrene.
- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
1. Closures: Provide closures at eaves and rakes, fabricated of same material as metal wall panels.
  2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
  3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.
1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
  2. Opening Trim: Formed from 0.034-inch (0.86-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Trim head and jamb of door openings, and head, jamb, and sill of other openings.
- E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
1. Gutter Supports: Fabricated from same material and finish as gutters.
  2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.



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1. Mounting Straps: Fabricated from same material and finish as gutters.
  2. Boots: Manufacturer's standard to adapt to underground storm drainage pipes.
- A. Louvers: As specified in Division 23 Section "Air Inlet and Outlet."
- B. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.
- C. Materials:
- 1.. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.
    - a. Fasteners for Metal Roof Panels: Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with a stainless-steel cap or zinc-aluminum-alloy head and EPDM sealing washer.
    - b. Fasteners for Metal Roof Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM washer under heads of fasteners bearing on weather side of metal panels.
    - c. Fasteners for Metal Wall Panels: Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with EPDM sealing washers bearing on weather side of metal panels.
    - d. Fasteners for Metal Wall Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.
    - e. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
    - f. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
  2. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
  3. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
  4. Metal Panel Sealants:
    - a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
    - b. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

## 2.10 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to evaluate product.

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- B. Special Inspector: Owner will engage a qualified special inspector to perform the following tests and inspections and to submit reports. Special inspector will verify that manufacturer maintains detailed fabrication and quality-control procedures and will review the completeness and adequacy of those procedures to perform the Work.
1. Special inspections will not be required if fabrication is performed by manufacturer registered and approved by authorities having jurisdiction to perform such Work without special inspection.
    - a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed according to Contract requirements.
- C. Testing: Test and inspect shop connections for metal buildings according to the following:
1. Bolted Connections: Shop-bolted connections shall be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
  2. Welded Connections: In addition to visual inspection, shop-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
    - a. Liquid Penetrant Inspection: ASTM E 165.
    - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    - c. Ultrasonic Inspection: ASTM E 164.
    - d. Radiographic Inspection: ASTM E 94.
- D. Product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.
- 2.11 FABRICATION
- A. General: Design components and field connections required for erection to permit easy assembly.
1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
  2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.
- C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

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1. Make shop connections by welding or by using high-strength bolts.
  2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.
  3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
  4. Weld clips to frames for attaching secondary framing.
  5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary framing with specified primer after fabrication.
- D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
1. Make shop connections by welding or by using non-high-strength bolts.
  2. Shop Priming: Prepare uncoated surfaces for shop priming according to SSPC-SP 2. Shop prime uncoated secondary framing with specified primer after fabrication.
- E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.
  1. Engage land surveyor to perform surveying.
- C. Proceed with erection only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.

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- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

### 3.3 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  - 3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  - 1. Level and plumb individual members of structure.
  - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
  - 1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.
    - a. Joint Type: Snug tightened or pretensioned.
- G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

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1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
  2. Locate and space wall girts to suit openings such as doors and windows.
  3. Locate canopy framing as indicated.
  4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
1. Tighten rod and cable bracing to avoid sag.
  2. Locate interior end-bay bracing only where indicated.
- I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.
- J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.
- 3.4 METAL PANEL INSTALLATION, GENERAL
- A. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.
1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.
- B. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
    - a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
  2. Install metal panels perpendicular to structural supports unless otherwise indicated.
  3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
  4. Locate and space fastenings in uniform vertical and horizontal alignment.
  5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
  6. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- C. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

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1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
- E. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.
1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
  2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
- 3.5 METAL ROOF PANEL INSTALLATION
- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
1. Install ridge caps as metal roof panel work proceeds.
  2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint, at location and spacing and with fasteners recommended by manufacturer.
1. Install clips to supports with self-drilling or self-tapping fasteners.
  2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
  3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
  4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so that clip, metal roof panel, and factory-applied sealant are completely engaged.
  5. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Pre-drill panels for fasteners.
  6. Provide metal closures at peaks rake edges and each side of ridge caps.
- C. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.
1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.



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2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
  3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
  4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.
- D. **Metal Fascia Panels:** Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.
- E. **Metal Roof Panel Installation Tolerances:** Shim and align metal roof panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

### 3.6 METAL WALL PANEL INSTALLATION

- A. **General:** Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
  2. Shim or otherwise plumb substrates receiving metal wall panels.
  3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
  4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
  5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Pre-drill panels.
  6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
  7. Install screw fasteners in predrilled holes.
  8. Install flashing and trim as metal wall panel work proceeds.
  9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
  10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
  11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
- B. **Metal Wall Panels:** Install insulated metal wall panels on exterior side of girts. Attach panels to supports at each panel joint using concealed clip and fasteners at maximum 42 inches (1067 mm) o.c., spaced not more than manufacturer's recommendation.
1. Install clips to supports with self-tapping fasteners.
  2. Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels as weather seal.

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- C. Installation Tolerances: Shim and align metal wall panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), nonaccumulative, on level, plumb, and on location lines as indicated, and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

### 3.7 THERMAL INSULATION INSTALLATION

- A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.
1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
  2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
  3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.
  4. Install blankets straight and true in one-piece lengths. Install vapor retarder over insulation, with both sets of facing tabs sealed, to provide a complete vapor retarder.
- B. Blanket Roof Insulation: Comply with the following installation method:
1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
  2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.
  3. Over-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Install layer of filler insulation over first layer to fill space formed by metal roof panel standoffs. Hold in place by panels fastened to standoffs.
    - a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.
  4. Two-Layers-between-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Install layer of filler insulation over first layer to fill space between purlins formed by thermal spacer blocks. Hold in place with bands and crossbands below insulation.
    - a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.
  5. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.



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- C. Wall Insulation: Extend insulation in thickness indicated to cover entire wall. Hold in place by metal wall panels fastened to secondary framing. Comply with manufacturers' written instructions.
1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.8 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
  2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
  3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
1. Provide boots at base of downspouts to direct water into storm drainage system.
  2. Tie downspouts to underground drainage system indicated.

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- E. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.
- F. Louvers: Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
  - 1. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
  - 2. Provide perimeter reveals and openings of uniform width for sealants and joint fillers.
  - 3. Protect galvanized- and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of corrosion-resistant paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
  - 4. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 07 Section "Joint Sealants" for sealants applied during louver installation.
- G. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- H. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

### 3.9 FIELD QUALITY CONTROL

- A. Special Inspections: Owner may engage a qualified special inspector to perform the following special inspections:
  - 1. Inspection of fabricators.
  - 2. Steel construction.
- B. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections.
- C. Tests and Inspections:
  - 1. High-Strength, Field-Bolted Connections: Connections shall be tested and inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
  - 2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
    - a. Liquid Penetrant Inspection: ASTM E 165.
    - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    - c. Ultrasonic Inspection: ASTM E 164.

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- d. Radiographic Inspection: ASTM E 94.
  - D. Product will be considered defective if it does not pass tests and inspections.
  - E. Prepare test and inspection reports.
- 3.10 ADJUSTING
- A. Roof Ventilators and Adjustable Louvers: After completing installation, including work by other trades, lubricate, test, and adjust units to operate easily and be free of warp, twist, or distortion as needed to provide fully functioning units.
    - 1. Adjust louver blades to be weathertight when in closed position.
- 3.11 CLEANING AND PROTECTION
- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
  - B. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.
    - 1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
    - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
  - C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.
  - D. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
    - 1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 133419

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1.6 DELIVERY, STORAGE, AND HANDLING

- A. Retain shipping flange protective covers and protective coatings during storage.
- B. Protect bearings and couplings against damage.
- C. Comply with pump manufacturer's written rigging instructions for handling.

1.7 COORDINATION

- A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PACKAGED, SUBMERSIBLE SEWAGE-PUMP UNITS

A. Packaged, Submersible, Grinder, Sewage-Pump Units:

1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Barnes; Crane Pumps & Systems.
  - b. Environment One Corporation.
  - c. Goulds Pumps; IIT Corporation.
  - d. Liberty Pumps.
  - e. McDonald, A. Y. Mfg. Co.
  - f. Pentair Pump Group; Myers.
  - g. Zoeller Company.
  - h. **Flyght Pumps**
2. **Description:** Factory-assembled and -tested, automatic-operation, basin-mounted, grinder, sewage-pump unit.
3. **Pump Type:** Package simplex grinder system, with Submersible, end-suction, two stage centrifugal pumps, close-coupled, overhung-impeller centrifugal pump as defined in HI 1.1-1.2 and HI 1.3. 40 ft of head minimum, 21GPM minimum - 60GPM, pumps to handle solids up to 2" diameter. Minimum discharge size is 1 1/4" diameter. 208 /1 PH power, provide circuit breaker in MDP as required.
4. **Pump Casing:** Cast iron.
5. **Impeller:** Stainless-steel grinder, cutter, or slicer type with shredding ring.
6. **Motor:** Hermetically sealed, capacitor-start type; with built-in overload protection; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.
7. **Control:** Manufacturer's standard panel for one pump.
8. **Controls:** Automatic, with mechanical- or mercury-float switches and alternator.
9. **Pump Discharge Piping:** Factory or field fabricated, galvanized, ASTM A 53/A 53M, Schedule 40, steel pipe with ASME B16.4, Class 125, gray iron threaded fittings. Pressure sewage line down-stream of valve box is 2" HDPE pipe, class 125.

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10. **Basin:** Watertight tank of size required for pumps, with inlet pipe connection and gastight cover with pump discharge and vent connections. Tank shall have a sealed bottom with the maximum level of sludge 2" below tank inlet invert. Tank can be heavy duty poly-ethylene, fiberglass or concrete.

## 2.2 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 22 Section "Common Motor Requirements for Plumbing Equipment."
  1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
  2. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in Division 26 Sections.
- B. Motors for submersible pumps shall be hermetically sealed.

## PART 3 - EXECUTION

## 3.1 EARTHWORK

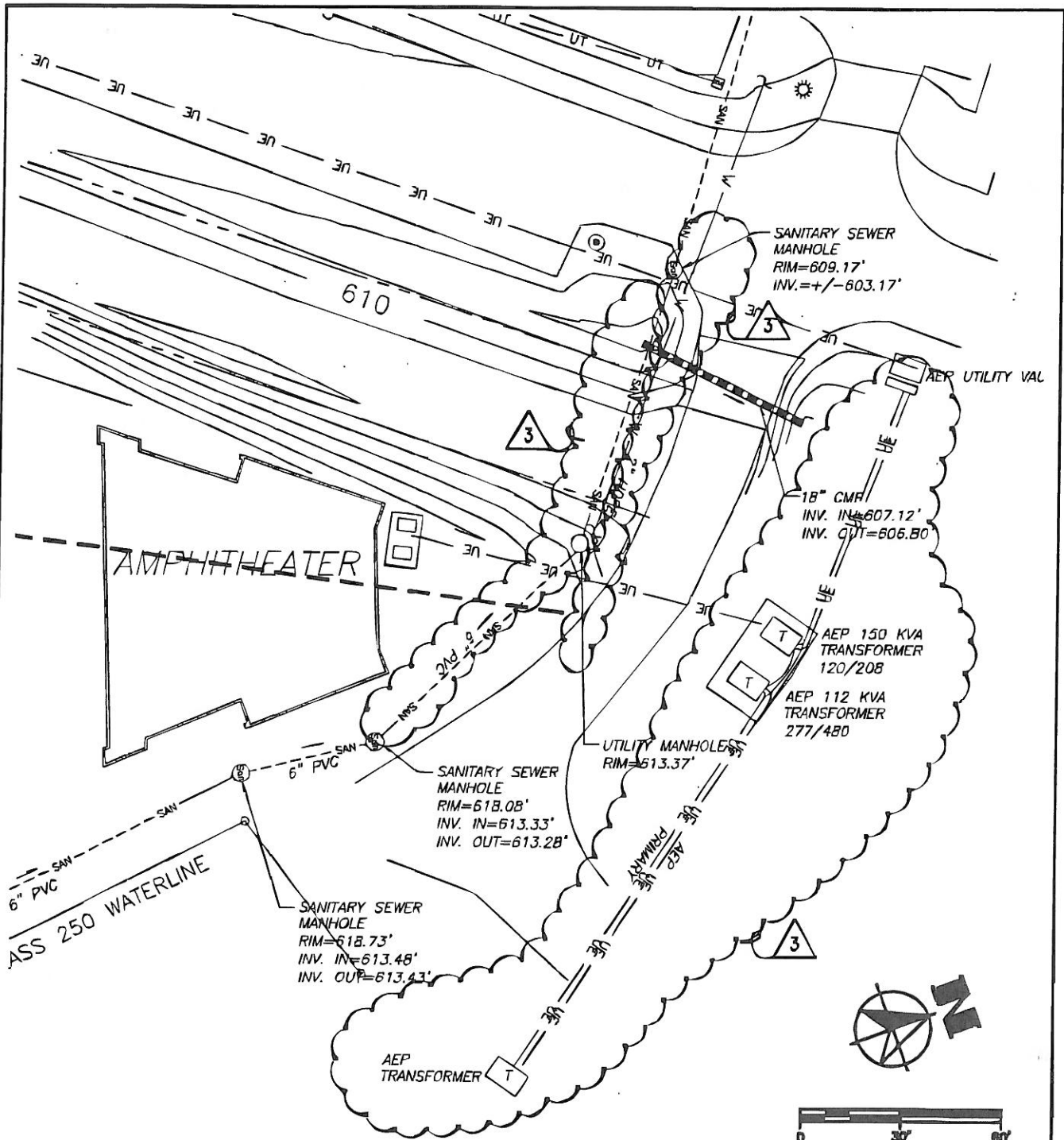
- A. Excavation and filling are specified in Division 31 Section "Earth Moving."

## 3.2 EXAMINATION

- A. Examine roughing-in for plumbing piping to verify actual locations of sanitary drainage and vent piping connections before sewage pump installation.

## 3.3 INSTALLATION

- A. Pump Installation Standards:
  1. Comply with HI 1.4 for installation of centrifugal pumps.
  2. Comply with HI 3.1-3.5 for installation of progressing-cavity sewage pumps.
- B. Equipment Mounting: Install progressing-cavity sewage pumps on concrete base using elastomeric mounts or restrained spring isolators. Comply with requirements for concrete base specified in Division 03 Section "Cast-in-Place Concrete."
  1. Minimum Deflection: 1/4 inch (6 mm).
  2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
  3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
  4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  5. Install anchor bolts to elevations required for proper attachment to supported equipment.




<p><b>Baker</b>                  Michael Baker Jr., Inc.</p>	5088 West Washington Street Charleston, West Virginia 25313 Phone (304) 769-0821 Fax (304) 769-0822	Drawing Title: <b>Existing Conditions Site Plan</b>	Date: 01/28/14	Attachment Number:  <b>C-0-3-1</b>
		Project Coonskin Park Maintenance Facility	Project No.: 135625	
		Original Drawing Number <b>C-0</b>	Scale: As Shown	

## KEYED NOTES:

- ① LIMITS OF DISTURBANCE
- ② 8' H TEMPORARY CONSTRUCTION FENCE
- ③ 8' W TEMPORARY CONSTRUCTION GATE
- ④ NEW CONCRETE APRON (SEE DETAIL 4A SHEET C-3)
- ⑤ NEW CONCRETE PAD (SEE DETAIL 4 SHEET C-3)
- ⑥ NEW GRAVEL DRIVE AREA (SEE DETAIL 1 SHEET C-3)
- ⑦ NEW BOLLARD (SEE DETAIL 3 SHEET C-3)
- ⑧ NEW RETAINING WALL (TURNDOWN SLAB) (SEE DETAIL 4B SHEET C-3)
- ⑨ EXISTING DRAINAGE SWALE
- ⑩ NEW GRINDER PUMP IN MANHOLE (SEE DETAIL 5 SHEET C-3)
- ⑪ NEW CONCRETE UTILITY PAD (SEE DETAIL 2 SHEET C-3)

3


 <p>5088 West Washington Street Charleston, West Virginia 25313 Phone (304) 769-0821 Fax (304) 769-0822</p> <p>Michael Baker Jr., Inc.</p>	Drawing Title: <b>Site Plan</b>	Date: 01/28/14	Attachment Number:  <b>C-1-3-1</b>
	Project: Coonskin Park Maintenance Facility	Project No.: 135625	
	Original Drawing Number <b>C-1</b>	Scale: None	



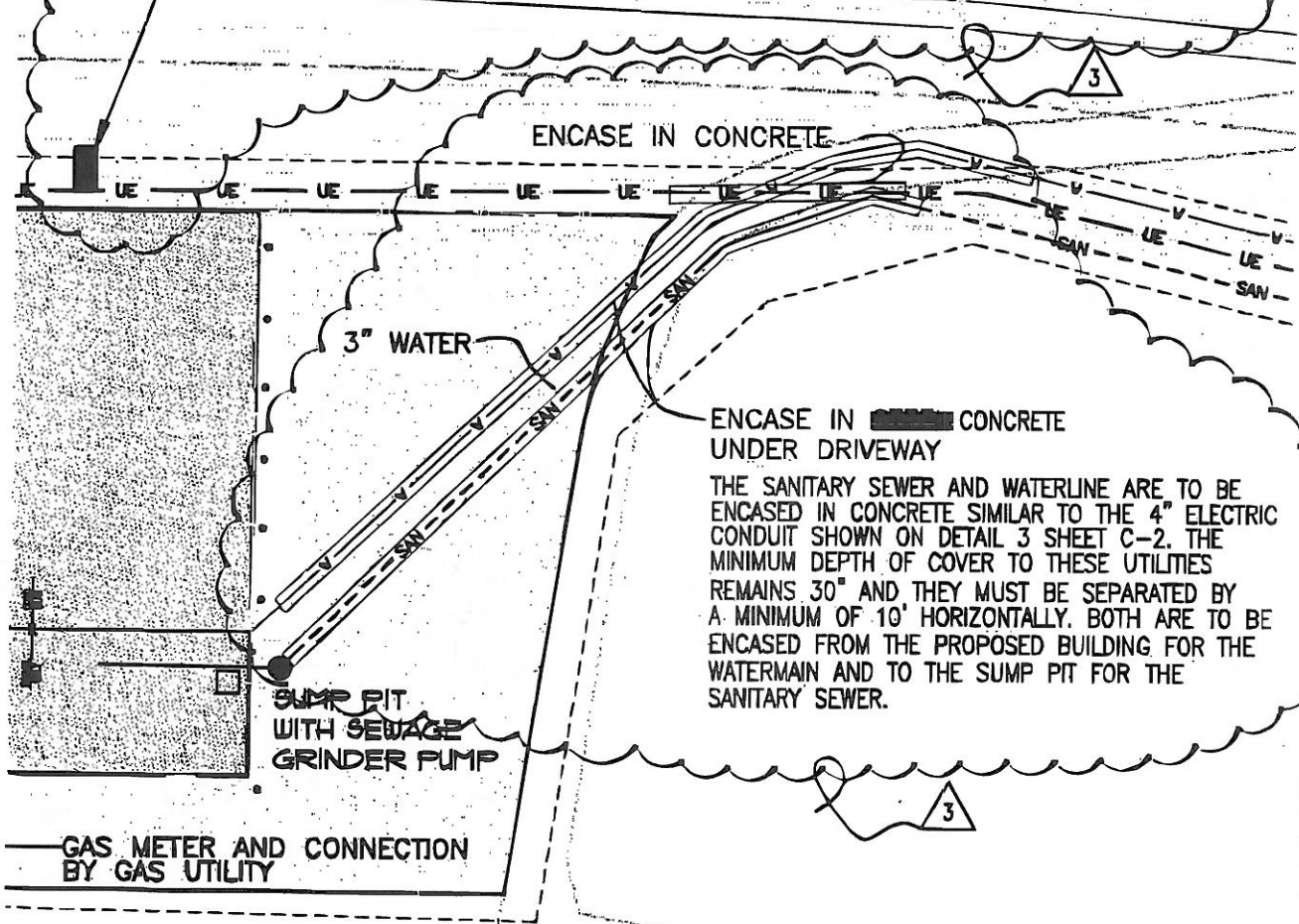
**NOTES:**

1. ELECTRICAL CONDUITS 24" DEEP MINIMUM UNDER ROADWAYS & PARKING LOTS, 18" DEEP ELSEWHERE.
  2. CONTRACTOR SHALL PROTECT EXISTING FACILITIES THROUOUT CONSTRUCTION (I.E. SOCCER FIELD, AMPHITHEATER, ETC.).
  3. CONTRACTOR SHALL INCLUDE THE COST FEES OF UTILITY CONNECTIONS IN BIDS.
  4. SANITARY SEWER SHALL BE A MINIMUM OF 18" BELOW THE ELECTRICAL SERVICE AT ANY CROSSING.
5. AEP IS TO FURNISH THE METER BASE TO THE CONTRACTOR FOR INSTALLATION. AEP USES A 320 AMP METER BASE FOR 400A SERVICE, THIS WILL ALLOW APPROXIMATELY 100 KWs. PARALLEL 350 MCM WILL FIT THE LUGS. NO CT CABINAT IS REQUIRED.  
THE CONTRACTOR SHALL CONTACT AEP REPRESENTATIVE CHARLIE MAURER (304-348-4172) FOR PRICING AEP SUPPLIED MATERIALS AND LABOR. CONTRACT NUMBER DWMS00000209876, WORK REQUEST NUMBER: 50945074.
  6. AEP WILL BE RESPONSIBLE FOR FURNISHING AND INSTALLING THE CONDUCTORS FOR THE PRIMARY SIDE AND FINAL POWER CONNECTIONS AT BOTH ENDS. ANY TESTING FOR HIGH VOLTAGE CABLE WILL BE THE RESPONSIBILITY OF AEP.
  7. REMOVING AND REINSTALLING EXISTING FENCING TO BE AT THE DISCRESSION OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING COMPONENTS.
  8. THE SITE UTILITY PLAN C-2 IS DIAGRAMMATIC ONLY, THE EXACT ROUTING OF UTILITIES WILL BE DICTATED BY AS FOUND FIELD CONDITIONS.

3

 <b>Baker</b> <small>Michael Baker Jr., Inc.</small>	5088 West Washington Street Charleston, West Virginia 25313 Phone (304) 769-0821 Fax (304) 769-0822	Drawing Title: <b>Site Utility Plan</b>	Date: 01/28/14	Attachment Number:  <b>C-2-3-1</b>
	Project Coonskin Park Maintenance Facility	Project No.: 135625		
	Original Drawing Number <b>C-2</b>	Scale: None		

THE EXISTING ELECTRIC PANEL WILL NEED TO BE REMOVED, THE CONDUIT CAPPED AND ABANDONED, THE CONDUCTORS SHALL BE PULLED OUT BACK TO THE STADIUM LIGHT WITH THE SHUTOFF BOX. THE EXISTING 200 AMP. ELECTRIC PANEL AND RECEPTACLES SHALL BE RELOCATED TO THE EXTERIOR SIDEWALL AT THE SOUTHWEST CORNER OF THE METAL BUILDING. CONNECT NEW 3/0 CONDUCTORS AND CONDUIT TO NEW MDP AT CIRCUIT 1, 2, AND 5 WITH A NEW 200 AMP BREAKER. ADJUST OH'DOOR CIRCUIT IN MDP ACCORDINGLY.



ENCASE IN CONCRETE

3" WATER

ENCASE IN CONCRETE UNDER DRIVEWAY

THE SANITARY SEWER AND WATERLINE ARE TO BE ENCASED IN CONCRETE SIMILAR TO THE 4" ELECTRIC CONDUIT SHOWN ON DETAIL 3 SHEET C-2. THE MINIMUM DEPTH OF COVER TO THESE UTILITIES REMAINS 30" AND THEY MUST BE SEPARATED BY A MINIMUM OF 10' HORIZONTALLY. BOTH ARE TO BE ENCASED FROM THE PROPOSED BUILDING FOR THE WATERMAIN AND TO THE SUMP PIT FOR THE SANITARY SEWER.

SUMP PIT WITH SEWAGE GRINDER PUMP

GAS METER AND CONNECTION BY GAS UTILITY

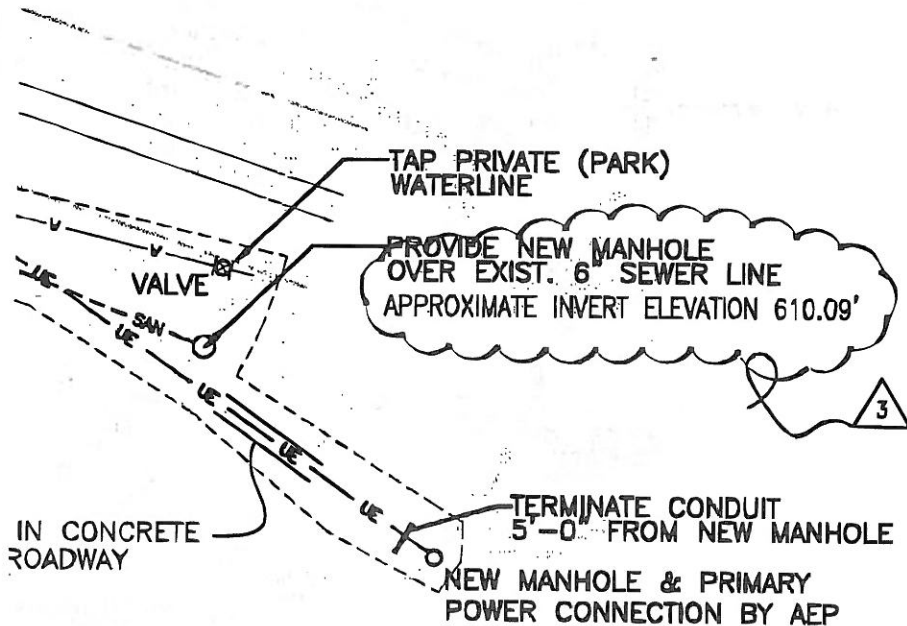
**Baker**  
Michael Baker Jr., Inc.

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Phone (304) 769-0821  
Fax (304) 769-0822

Drawing Title:	Site Utility Plan	Date:	01/28/14
Project	Coonskin Park Maintenance Facility	Project No.:	135625
Original Drawing Number	C-2	Scale:	1" = 30'

Attachment Number:

C-2-3-2



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Michael Baker Jr., Inc.

Drawing Title:

Site Utility Plan

Date:

01/28/14

Project Coonskin Park Maintenance Facility

Project No.:  
135625

Original Drawing Number

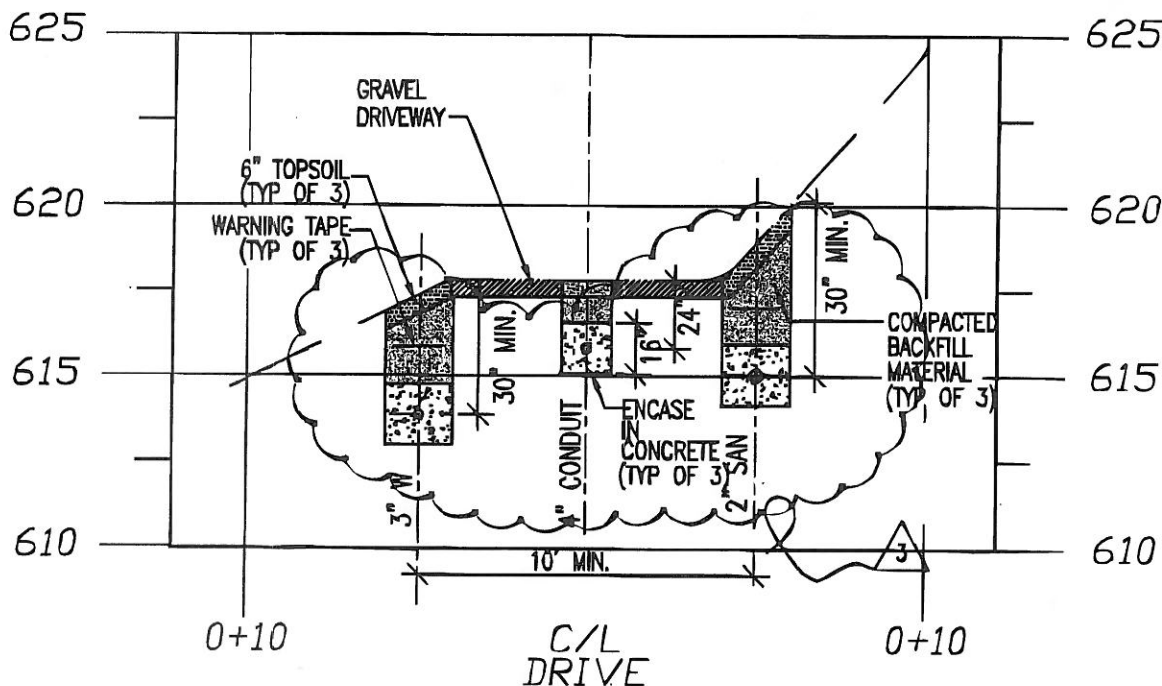
C-2

Scale:

1" = 30'

Attachment Number:

C-2-3-3



# SECTION B-B

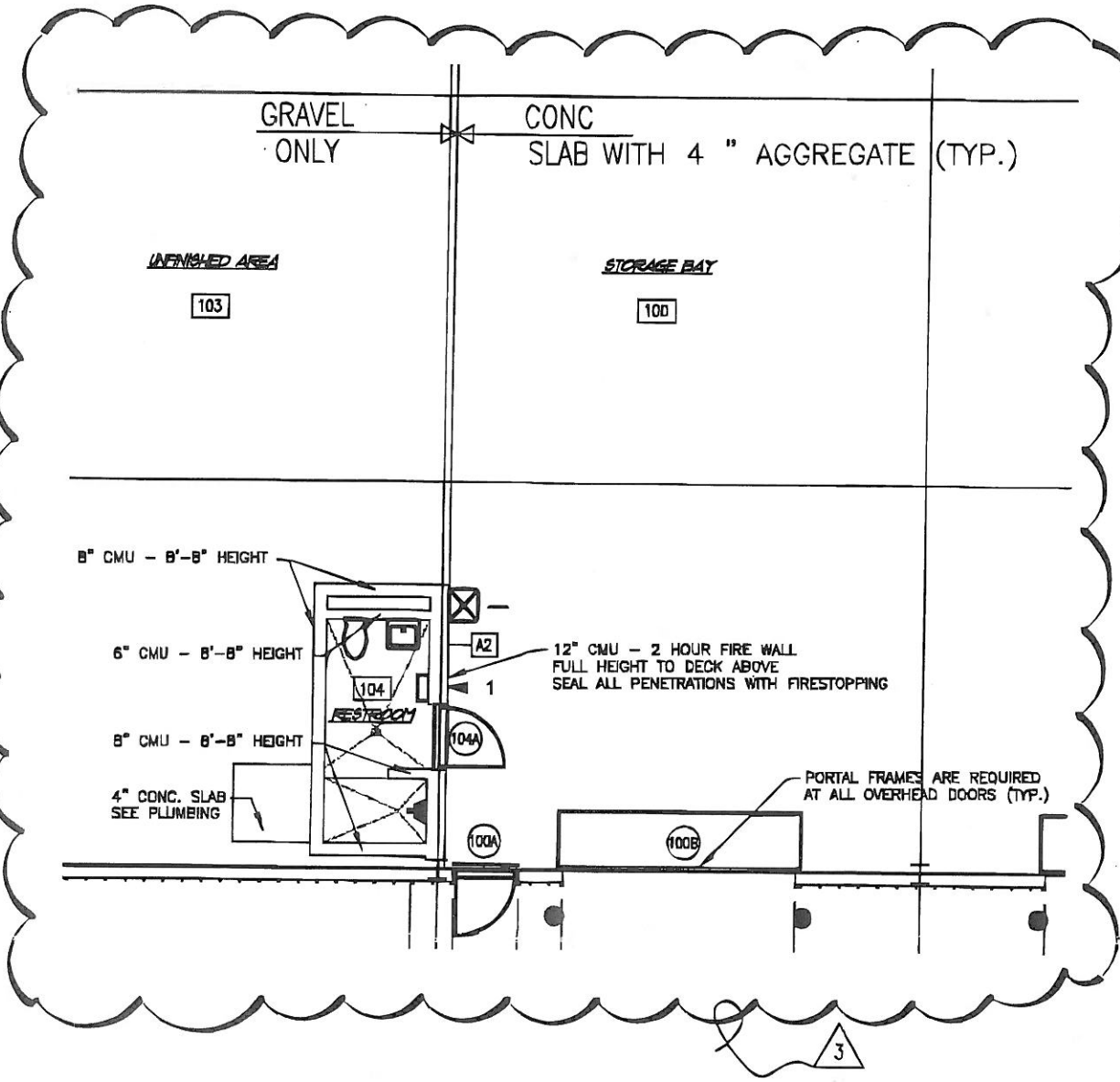
3  
C-2


SCALE : 1" = 5'-0"

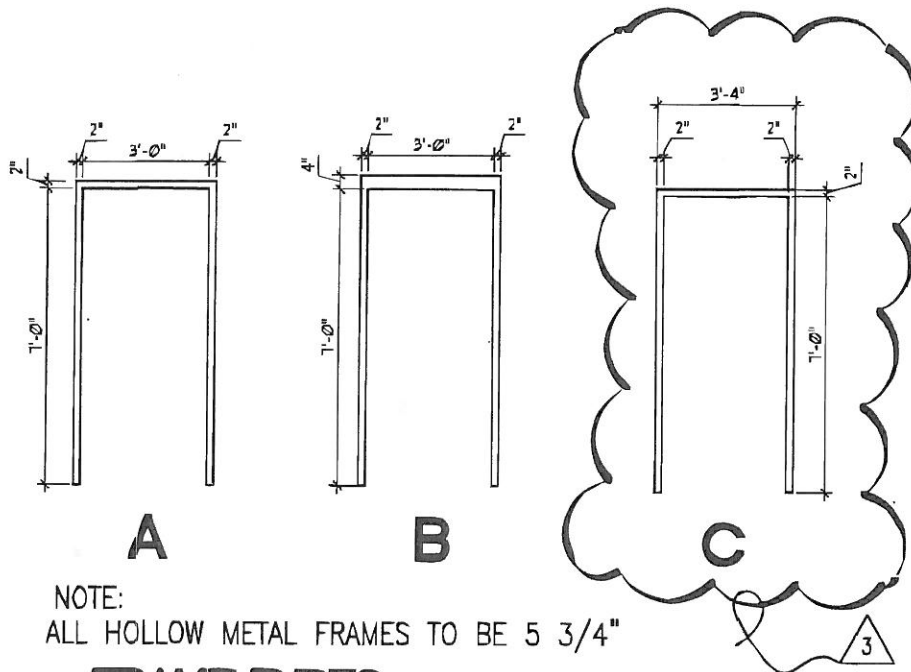
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Fax (304) 769-0822

Drawing Title: <b>Site Utility Plan</b>	Date: 01/28/14
Project Coonskin Park Maintenance Facility	Project No.: 135625
Original Drawing Number <b>C-2</b>	Scale: None

Attachment Number:  
**C-2-3-4**



 <p>5088 West Washington Street Charleston, West Virginia 25313 Phone (304) 769-0821 Fax (304) 769-0822</p> <p>Michael Baker Jr., Inc.</p>	<p>Drawing Title: <b>Floor Plan</b></p>	<p>Date: 01/28/14</p>	<p>Attachment Number:  <b>A-1.1-3-1</b></p>
	<p>Project Coonskin Park Maintenance Facility</p>	<p>Project No.: 135625</p>	
	<p>Original Drawing Number: <b>A-1.1</b></p>	<p>Scale: 1/8" = 1'-0"</p>	



NOTE:  
ALL HOLLOW METAL FRAMES TO BE 5 3/4"

**3** **FRAME TYPES**  
A-12 SCALE: NTS

DOOR	DOOR DIMENSION			MATERIAL	TYPE	GLAZING	FRAME DETAIL			MATERIAL	TYPE	HARDWARE SET	FIRE RATING LABEL	REMARKS
	WIDTH	HEIGHT	THICK				HEAD	JAMB	SILL					
	100A	3'-0"	7'-0"				1 3/4"	HM	B					
100B	12'-0"	12'-0"	-	STL	C	-	-	-	-	STL	-	-		① ② ③ ④
101A	12'-0"	12'-0"	-	STL	C	-	-	-	-	STL	-	-		① ② ③ ④
101B	3'-0"	7'-0"	1 3/4"	HM	B	VL	-	-	-	HM	C	1		① ② ④
101C	12'-0"	12'-0"	-	STL	C	-	-	-	-	STL	-	-		① ② ③ ④
102A	12'-0"	12'-0"	-	STL	C	-	-	-	-	STL	-	-		① ② ③ ④
103A	3'-0"	7'-0"	1 3/4"	HM	B	VL	-	-	-	HM	C	1		① ② ④
103B	3'-0"	7'-0"	1 3/4"	HM	B	VL	-	-	-	HM	C	1		① ② ④
104A	3'-0"	7'-0"	1 3/4"	HM	A	-	-	-	-	HM	B	2	90 MIN	① ④

3

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Drawing Title:

Opening Schedule & Frame Types

Project Coonskin Park Maintenance Facility

Original Drawing Number

A-1.2

Date:

01/28/14

Project No.:

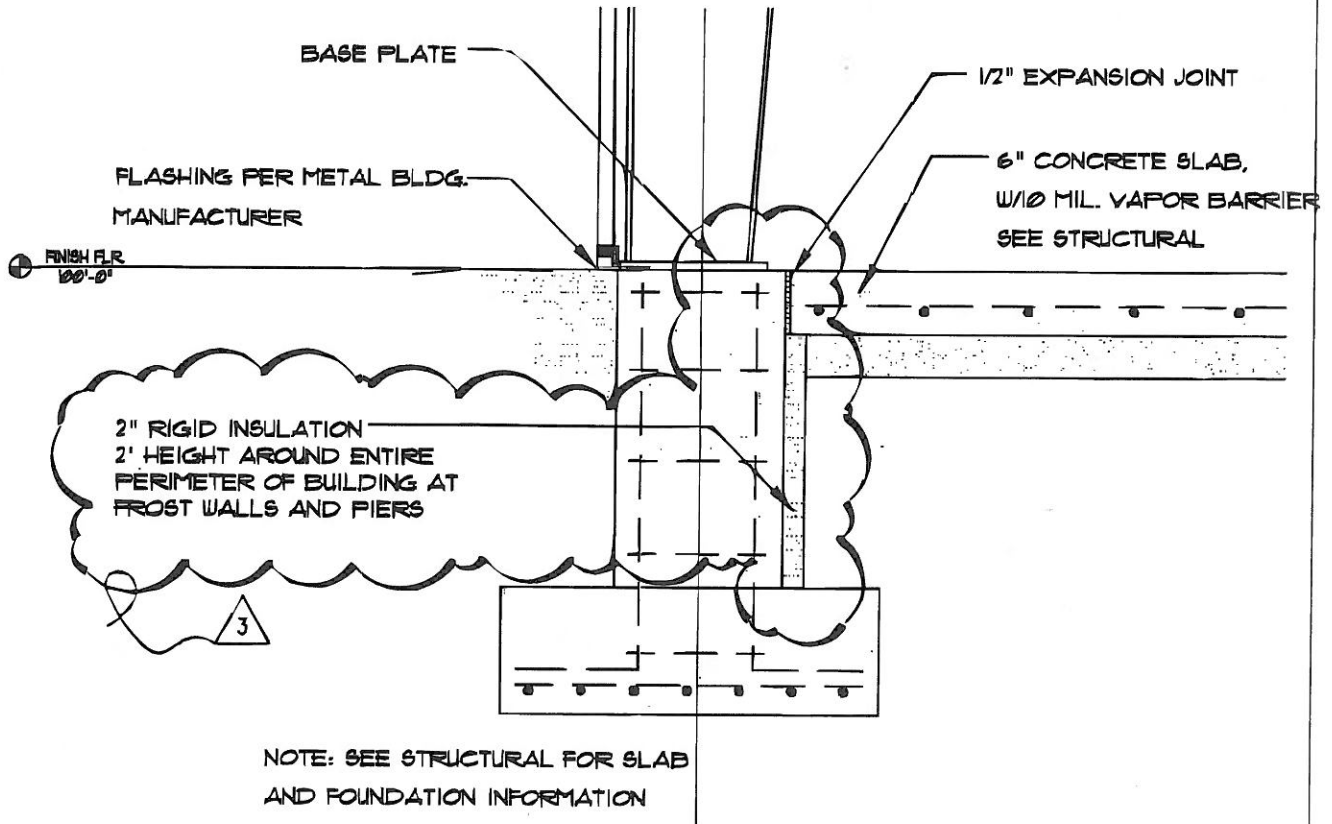
135625

Scale:

None

Attachment Number:

A-1.2-3-1



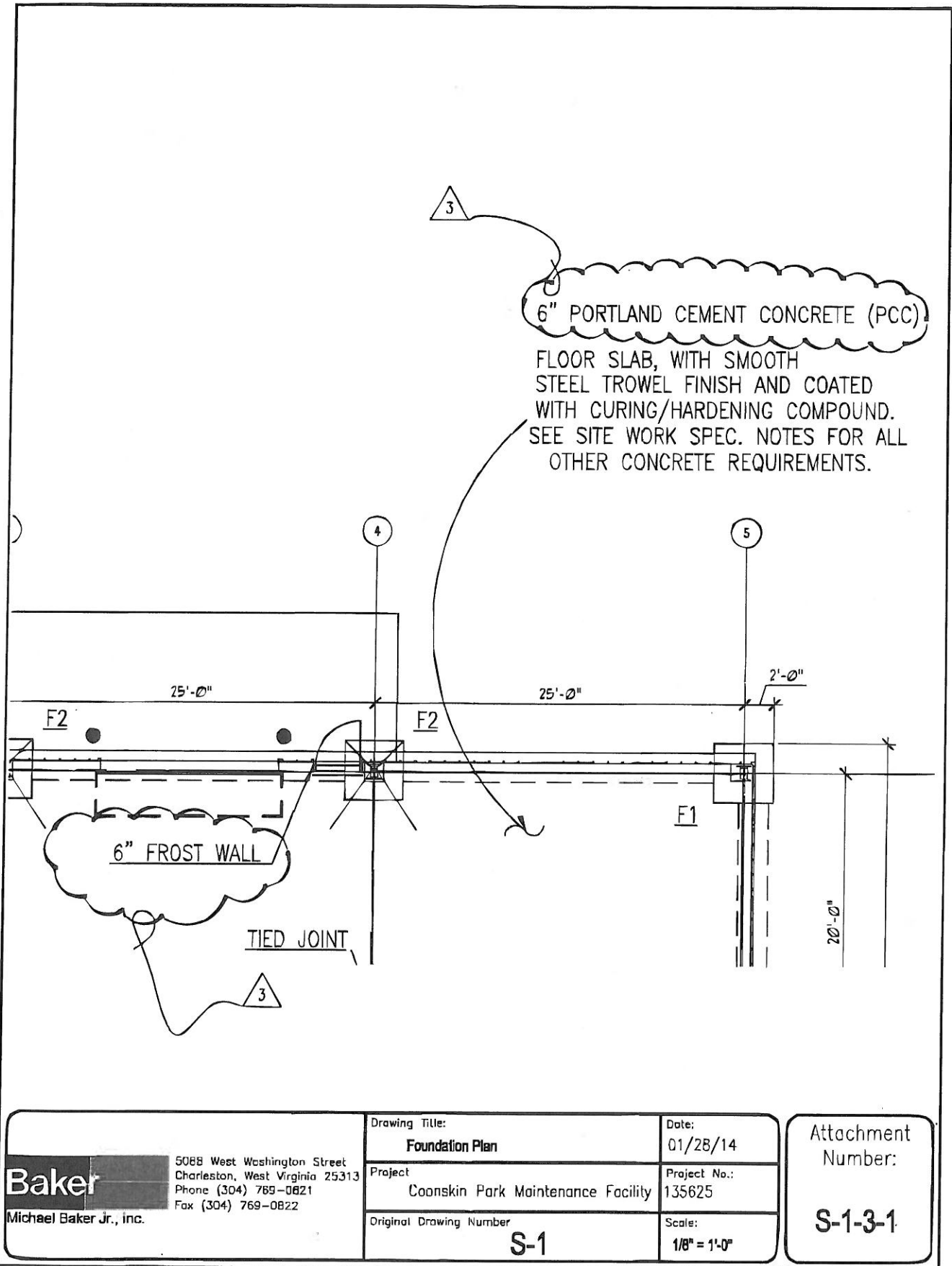
2 **WALL SECTION**

---

A-3J SCALE: 3/4" = 1'-0"

5088 West Washington Street Charleston, West Virginia 25313 Phone (304) 769-0821 Fax (304) 769-0822	Drawing Title: <b>WALL SECTION</b>	Date: 01/28/14	Attachment Number:  <b>A-3-3-1</b>
	Project Coonskin Park Maintenance Facility	Project No.: 135625	
	Original Drawing Number <b>A-3</b>	Scale: None	



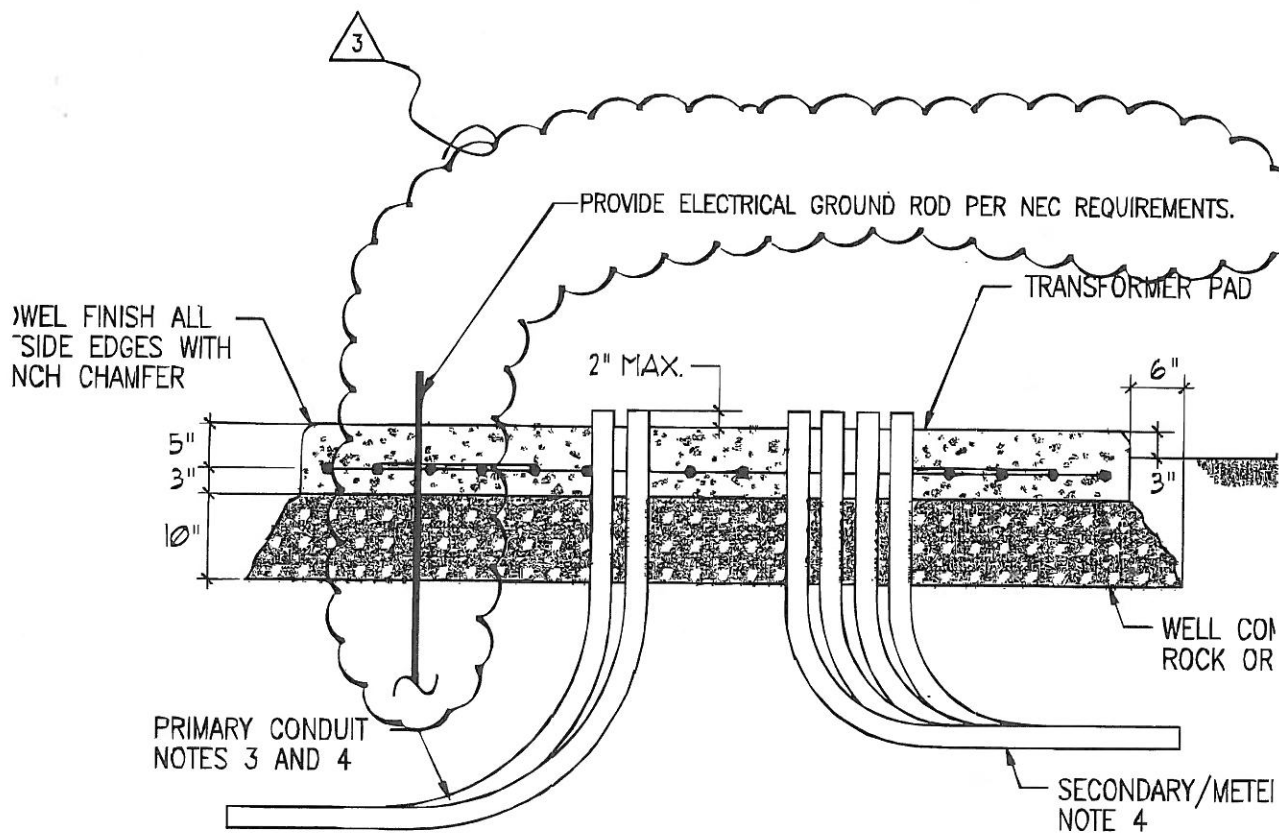


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Drawing Title: <b>Foundation Plan</b>	Date: 01/28/14
Project Coonskin Park Maintenance Facility	Project No.: 135625
Original Drawing Number <b>S-1</b>	Scale: 1/8" = 1'-0"

Attachment Number:  
**S-1-3-1**



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Michael Baker Jr., Inc.

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Charleston, West Virginia 25313  
Phone (304) 769-0821  
Fax (304) 769-0822

Drawing Title:

**Footing Details**

Project Coonskin Park Maintenance Facility

Original Drawing Number

**S-2**

Date:

01/28/14

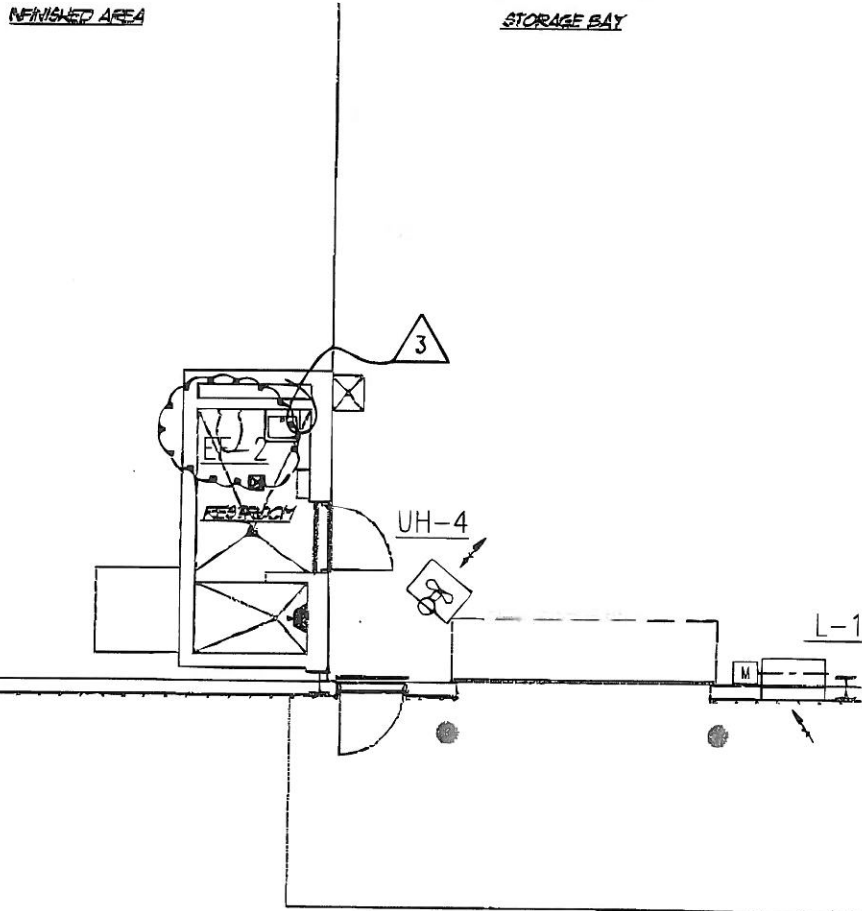
Project No.:  
135625

Scale:

None

Attachment  
Number:

**S-2-3-1**



**Baker**

Michael Baker Jr., inc.

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 Charleston, West Virginia 25313  
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 Fax (304) 769-0822

Drawing Title:	<b>Mechanical Plan HVAC</b>	Date:	01/28/14
	Project Coonskin Park Maintenance Facility	Project No.:	135625
Original Drawing Number	<b>M-1</b>	Scale:	1/8" = 1'-0"

Attachment  
 Number:  
**M-1-3-1**

## GENERAL NOTES:

1. FIXTURES WITH SHADING SHALL BE PROVIDED WITH EMERGENCY BATTERY PACKS AND CONTAIN A BODINE EMERGENCY BATTERY PACK.
2. CONNECT EMERGENCY BATTERY PACK FIXTURES TO "ALWAYS HOT" LINE SIDE OF SWITCHING DEVICE.
3. COORDINATE ALL FIXTURE LOCATIONS WITH MECHANICAL EQUIPMENT.
4. FOR PANEL SCHEDULE and SINGLE LINE DIAGRAM SEE SHEET E-4.
5. INSTALL ALL RECEPTACLES IN GARAGE AREA AT APPROXIMATELY 48" A.F.F. COORDINATE EXACT HEIGHT AND LOCATION OF RECEPTACLES WITH THE OWNER. WALL GIRTS, STEEL ANGLES ETC. SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
6. ~~COORDINATE LOCATION OF RECEPTACLES WITH EQUIPMENT BY OWNER~~
7. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL ITEMS SHOWN ON THIS DRAWING WITH THE MECHANICAL DRAWINGS AND THE MECHANICAL EQUIPMENT SCHEDULES PRIOR TO INSTALLATION OF ELECTRICAL COMPONENTS.
8. CIRCUITS IDENTIFIED AS "MDP" REFER TO MAIN DISTRIBUTION PANEL. SEE SINGLE LINE DIAGRAM FOR WIRE AND CONDUIT SIZE.
9. MOUNT AND WIRE ALL OVERHEAD DOOR CONTROL DEVICES IN ACCORDANCE WITH OVERHEAD DOOR MANUFACTURER'S INSTRUCTIONS.

3

**Baker**

Michael Baker Jr., Inc.

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 Charleston, West Virginia 25313  
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Drawing Title: <b>Power Plan</b>	Date: 01/28/14
Project Coonskin Park Maintenance Facility	Project No.: 135625
Original Drawing Number <b>E-1</b>	Scale: None

Attachment  
Number:**E-1-3-1**

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: DEFK14021**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

(Check the box next to each addendum received)

- |   |  |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

---

Company

---

Authorized Signature

---

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.