

LAKE WAPELLO STATE PARK
OFFICE AND STORAGE BUILDING
DAVIS COUNTY, IOWA
PROJECT NUMBER: 23-05-26-01

April 7, 2023

This Addendum is issued to modify, explain or correct the original Drawings and Specifications, and is hereby made a part of the Contract Documents. Please attach this Addendum to the Project Manual in your possession. Insert the number and issue date of this Addendum in the blank space provided on the Proposal Form.

Modifications/Clarifications:

1. Suspended storage loft in Heated Bays 106 shall have a load rating of 125 PSF minimum.
2. Sanitary Napkin Holder shall be mounted at DPS Building Inspector's discretion.
3. There shall be 15 bollards in this project, 8 around the building, 5 near the fuel tanks, and 2 near the electrical transformer.
4. Attached updated proposal sheet reflects updated quantities for Bid Items #8 and #11, and #27 Soil Pressure Testing

Project Manual:

1. Attached updated proposal sheet reflects updated quantities for Bid Items #8 and #11, and #27 Soil Pressure Testing (see attached)
2. The following specifications shall be included in this project and contract, 05500, 06071, 06100, 06121, 06190, 06200, 06410, 07190, 07200, 07600, 07712, 07900, 08360, 09250, 09900 (see attached)

Civil Drawings:

1. Water line shall run to the west of the building and enter the building on the south end, as shown on the updated Civil drawings attached. Please see attached C1, C2, C3, and C4 sheets that supersede existing C sheets.

Time and Date of Letting **11:00 AM, April 20, 2023**

PROPOSAL

Project Description and Location
OFFICE & STORAGE BUILDING
LAKE WAPELLO STATE PARK
DAVIS COUNTY, Iowa

Project No. **23-05-26-01**

Proposal of: _____
(Name of Bidder)

Located at: _____
(Address) (Telephone include area code)

Amount of Proposal Guarantee	Specified completion date or Number of Working Days	Approx. or Specified Starting Date or Number of Working Days	Liquidated Damages Per Day
\$50,000.00	March 1, 2024	N/A	\$500.00

The undersigned hereby agrees, if awarded the contract, to execute the proposed contract and to furnish an approved performance bond in a amount not less than 100 percent of the contract award within 30 days after the date of approval of award of the contract, and to provide all labor, materials, and equipment required to complete the project designated above, for the price hereinafter set forth, in strict compliance with the contract documents prepared by the Iowa Department of Natural Resources.

The undersigned agrees, if awarded the contract, to commence the work within a reasonable time after the preconstruction conference or by the specific starting date, if so specified, and to complete the work within the contract period, or to pay liquidated damages in the amount stipulated herein for each calendar day the work remains uncompleted after the expiration of the contract period or any authorized reduction thereof.

A proposal guarantee in the amount stipulated herein is included with this proposal, to be forfeited to the Iowa Department of Natural Resources if the undersigned fails to execute the contract and furnish an approved performance bond, if awarded the contract.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the state of Iowa, and also, a resident bidder shall be allowed a preference against a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country on projects in which there are no federal funds involved.

BY

(Iowa Contractor Registration No.)

(Signed)

(Date)

(Phone Number)

(Fax Number)

(Email Address)

By signing and submitting the proposal, the bidder:

1. Gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures; and

2. Affirms to have examined the plans, specifications, and job site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.

SCHEDULE OF PRICES

Project Description and Location

OFFICE & STORAGE BUILDING, LAKE WAPELLO STATE PARK, DAVIS COUNTY

Name of Bidder

THE "UNIT PRICE" AND "AMOUNT" COLUMNS MUST BE FILLED IN FOR THIS PROPOSAL TO BE CONSIDERED COMPLETE. IF THERE IS A DISCREPANCY BETWEEN UNIT BID PRICES, EXTENSIONS, OR TOTAL AMOUNTS OF BID, THE UNIT PRICES SHALL GOVERN.

Item No.	Description	Estimated Quantity		Unit Price	Amount
1	Mobilization	1	LS		
2	Construction Staking	1	LS		
3	NPDES General Permit #2	1	LS		
4	Grading	1	LS		
5	8-Inch Filter Sock	420	LF		
6	Seeding, Fertilizing and Mulching	1	LS		
7	Class 'A' Crushed Stone	855	Tons		
8	Sanitary/Septic/Sand Filter System	1	LS		
9	12-inch RCP Class III	104	LF		
10	12-inch RCP Class III FES	4	EA		
11	1-inch Type 'K' Copper Water Service	213	LF		
12	4x4x1 Tapping Tee	1	EA		
13	1-inch Curb Stop	1	EA		
14	1-inch LP Service Line	130	LF		
15	Black PVC Coated Chain Link Fencing	6	LF		
16	Black PVC Coated Chain Link Fencing 12' Swing Gate	1	EA		
17	6-inch Non-Reinforced PCC Pavement	32	SY		
18	5-inch Non-Reinforced PCC Sidewalk	27.5	SY		
19	Precast Concrete Parking Wheel Stops	4	EA		

20	Parking Space Cross Hatch Paint Striping	1	LS		
21	Handicap Signage	1	LS		
22	Office / Shop Building and all Associated Items	1	LS		
23	LP Tank, Fuel Tank, and Pad	1	LS		
24	Traffic Bollards and Sleeves	15	EA		
25	Microwave and Refrigerator	1	LS		
26	Washer and Dryer	1	LS		
27	Soil Bearing Pressure Testing	1	LS		
Total					

Bidder Acknowledges Receipt of Any Issued Addenda Below (Number and Date)	List of Subcontractors (Attach additional pages, if necessary)

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The furnishing and installation of all structural steel work, steel tubing, aluminum items, anchor bolts, steel bearing plates, and miscellaneous embedded and nonembedded metal work, as specified herein and as indicated on the Drawings.
- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 06100 - Rough Carpentry
Section 09900 - Painting

1.02 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.
- B. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.
- C. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications.
 - 1. Include plans, elevations and details of sections and connections.
 - 2. Show anchorage and accessory items.
 - 3. Provide templates for anchor and bolt installation by others.
 - 4. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computation, material properties and other information needed for structural analysis.
- D. Samples: Submit two sets of representative samples of materials and finished products as may be requested by the Architect.

1.03 QUALITY ASSURANCE:

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- B. Perform shop and/or field welding required in connection with the work of this section in strict accordance with pertinent recommendations of the American Welding Society.

- C. Field Measurement: Take field measurements prior to preparation of shop drawings and fabrication, where possible.
 - 1. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
- D. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing. Disassemble units only as necessary for shipping and handling limitations.
 - 1. Clearly mark units for reassembly and coordinated installation.

1.04 DELIVERY, STORAGE, AND HANDLING:

- A. Protection: Use all means necessary to protect the materials of this section before, during and after installation and to protect the work and materials of all other trades.
- B. Replacement: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Metal Surfaces, General: For fabrication of the work of this section which will be exposed to view, use only those materials which are smooth and free from surface blemishes including pitting, seams marks, roller marks, rolled trade names, and roughness.
- B. Metal Standards: Provide materials complying with:
 - 1. Steel plates, shapes, and bars: ASTM A36.
 - 2. Steel plates to be bent or cold formed: ASTM A283, Grade C.
 - 3. Steel tubing, cold formed, ASTM 500; or hot-rolled, ASTM A 501.
 - 4. Gray iron castings: ASTM A48, Class 30.
 - 5. Steel bars and bar-size shapes: ASTM A306, Grade 65, or ASTM A36.
 - 6. Cold-finished steel bars: ASTM A108.
 - 7. Cold-rolled carbon steel sheets: ASTM A336.
 - 8. Galvanized carbon steel sheets: ASTM A526, with G90 zinc coating in accordance with ASTM A525.
 - 9. Stainless steel sheets: AISI type 302 or 304, 24 gauge, with number 4 finish.
 - 10. Malleable iron castings: ASTM A47, grade as selected by the fabricator.

11. Steel pipe: ASTM A53, type as selected, Grade A, black finish unless galvanizing is required, standard weight (Schedule 40), unless otherwise indicated.
 12. Concrete inserts: Threaded or wedge type, galvanized ferrous castings, either malleable iron ASTM A47 or cast steel ASTM A27. Provide bolts, washers, and shims as required, hot-dip galvanized, ASTM A153.
- C. Grout: Nonshrink Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD-C588.
1. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.
- D. Fasteners: General: Provide zinc-coated fasteners, for exterior use or where built into exterior walls, of the type, grade and class required, complying with:
1. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.
 2. Lag Bolts: Square head type, FS FF-B-561.
 3. Machine Screws: Cadmium plated steel, FS FF-S-92.
 4. Wood Screws: Flat head carbon steel, FS FF-S-111.
 5. Plain Washers: Round, carbon steel, FS FF-W-92.
 6. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
 7. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
 8. Lock Washers: Helical spring type carbon steel, FS FF-W-84.
- E. Paint:
1. Metal Primer Paint: Red lead mixed pigment, alkyd varnish, linseed oil paint, FS TT-P-86, Type II; or red lead iron oxide, raw linseed oil, alkyd paint, Steel Structures Painting Council (SSPC) Paint 2-64; or basic lead silicon chromate base iron oxide, linseed oil, alkyd paint, FS TT-P-615, Type II.
 2. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9.
 3. Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, complying with the Military Specifications MIL-P-21035 (Ships).
 4. Galvanized Primer: High zinc dust content primer to galvanize surfaces of metal fabrication specified as galvanized as an alternative to hot dipping, complying FS TT-P-641, Type II.

- F. Other Materials: Provide other materials, not specifically described but required for a complete and proper installation, as selected by the contractor subject to the approval of the Architect/DNR Construction Inspector.

2.02 MANUFACTURED UNITS:

- A. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.
- B. Rough Hardware: Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures.
 - 1. Straight bolts and other stock rough hardware items are specified in Division-6 sections.
- C. Loose Bearing and Leveling Plates: Provide loose bearing and leveling plates for steel items bearing on concrete construction, made flat, free from warps or twists, and of required thickness and bearing area.
 - 1. Drill plates to receive anchor bolts and for grouting as required.
- D. Provide other manufactured units as shown on the Drawings, or if not shown on the Drawings, as required for a complete and proper installation.

2.03 FABRICATION:

- A. Shop Assembly: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended.
 - 1. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support.
 - 2. Use type of materials shown or specified for various components of work.
 - 3. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
 - 4. Ease exposed edges to a radius of approximately 1/32" unless otherwise shown.
 - 5. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - 6. Weld corners and seams continuously, complying with AWS recommendations.
 - 7. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
 - 8. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible.

9. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.
 10. Provide for anchorage of type shown, coordinated with supporting structure.
 11. Fabricate and space anchoring devices to provide adequate support for intended use.
 12. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.
- B. Shop/Factory Finishing: Shop paint miscellaneous metal work, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded, and galvanized surfaces, unless otherwise indicated.
1. Remove scale, rust and other deleterious materials before applying shop coat.
 - a. Clean off heavy rust and loose mill scale in accordance with SSPC SP-2 "Hand Tool Cleaning," or SSPC SP-3 "Power Tool Cleaning," or SSPC SP-7 "Brush-Off Blast Cleaning."
 2. Remove oil, grease and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning."
 3. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of 2.0 mils for each coat.
 - a. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
 4. Apply one shop coat to fabricated metal items, except apply two coats of paint to surfaces inaccessible after assembly or erection.
 - a. Change color of second coat to distinguish it from the first.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which miscellaneous metal items are to be installed, and correct conditions detrimental to the proper and timely completion of the work.
- B. Do not proceed until satisfactory conditions have been corrected.

3.02 PREPARATION:

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and

miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction.

B. Coordinate delivery of such items to project site.

3.03 INSTALLATION:

A. **Fastening to In-Place Construction:** Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

B. **Cutting, Fitting, and Placement:** Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications.

1. Set work accurately in location, alignment and elevation, plumb level, true and free of rack, measured from established lines and levels.
2. Provide temporary bracing or anchors in form work for items which are to be built into concrete, masonry or similar construction.

C. Fit exposed connections accurately together to form tight hairline joints.

1. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations.
2. Grind exposed joints smooth and touch-up shop paint coat.
3. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

D. **Field Welding:** Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

E. **Setting Loose Plates:**

1. Clean concrete bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces.
3. Clean bottom surface of bearing plates.
4. Set loose leveling and bearing plates on wedges, or other adjustable devices.
5. After the bearing members have been positioned and plumbed, tighten the anchor bolts.
6. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout.
7. Use metallic nonshrink grout in concealed locations where not exposed to moisture; use nonmetallic nonshrink grout in exposed locations, unless otherwise indicated.

8. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.
- F. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications.
1. Set work accurately in location, alignment, and elevation, and make plumb, level, true, and free from rack, measured from established lines and levels.
 2. Provide temporary bracing or anchors in form work for items which are to be built into concrete or similar construction.
 3. Fit exposed connections accurately together to form tight hairline joints.
 4. Grind exposed joints smooth, and touch-up shop paint coat.
 5. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
 5. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations.
- G. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.
1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

END OF SECTION 05500

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pressure preservative treatment for wood products specified elsewhere; provide preservative treated wood for the following applications:
 - 1. Roof decks and sheathing.
 - 2. Sill plates as directed by building manufacturer

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Additional product requirements for wood to be treated.

1.3 REFERENCES

- A. AWPA C9 - Plywood - Preservative Treatment by Pressure Treatment; 2000.
- B. AWPA C31 - Lumber Used Out of Contact with the Ground and Continuously Protected From Liquid Water - Treatment by Pressure Processes; 1999.
- C. AWPA P5 - Standard for Waterborne Preservatives; 2000.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Manufacturer qualifications, as specified.
- C. Product Data: Manufacturer's product data, showing compliance with specifications.
- D. Warranty.

1.5 QUALITY ASSURANCE

- A. Treated Wood Manufacturer Qualifications: Experienced wood treatment firm, specialized in treatment of wood similar to that required for project, licensed by preservative manufacturer, and able to submit test reports showing successful treatment to retention level specified and evidence of ongoing independent third party inspection for products specified.

1.6 DELIVERY, STORAGE & HANDLING

- A. Prevent exposure to precipitation during shipping, storage or installation.
- B. Store material off ground and under cover.

- C. Allow materials exposed to incidental moisture to dry thoroughly prior to covering with vapor or moisture retarding finish materials.

1.7 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's 20-year residential limited warranty against structural damage due to termites, carpenter ants, and fungal decay. Furnish warranty document executed by authorized company official. This warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Acceptable Manufacturer: Licensee of Osmose, Inc; Wood Preserving Group, PO Drawer 0, Griffin, GA 30224-0249. ASD. Tel: (800) 241-0240 or (770) 233-4200. Fax: (770) 229-5225. E-mail: treatedwood@osmose.com. www.osmose.com or www.timberspecialties.com.
- B. Obtain all preservative treated wood products from single source.
- C. Substitutions: UPON SUBSTITUTION ACCEPTANCE BY ARCHITECT
- D. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

- A. Preservative Treated Wood: Osmose Advance Guard(r) Pressure Treated Wood Products, for use above ground and continuously protected from liquid water, dried after treatment, and having the following minimum characteristics:
 - 1. Species and Grades: As specified in Section 06100.
 - 2. Lumber Species: Douglas Fir, Hem-Fir, Southern Pine or Spruce-Pine-Fir.
 - 3. Plywood Species: Southern Yellow Pine or Douglas Fir.
 - 4. Preservative Treatment: Borate; AWPA P5 SBX (inorganic boron); disodium octoborate tetrahydrate (DOT) treatment for insect and decay protective pressure treatment of wood; EPA-registered; Tim-bor(tm) Industrial.
 - 5. Preservative Treatment for Sill Plates: AWPA P5 CCA, chromated copper arsenate.
 - 6. Structural Lumber: Comply with AWPA C31; dried after treatment to maximum 19 percent moisture content.

7. Plywood: Comply with AWPA C9; dried after treatment to maximum 18 percent moisture content.
 8. Treatment Level: Provide retention level recommended by manufacturer to provide protection against North American subterranean termites, decay and insects; 0.25 pcf (4 kg/cu m) DOT retention, 0.17 pcf (2.7 kg/cu m) minimum borate retention.
 9. Bearing the wood treatment plant's permanent ink stamp quality mark, indicating:
 - a. Manufacturer's name.
 - b. Treatment plant name.
 - c. Identification of independent inspection agency.
 - d. Identification of preservative used, preservative retention level, and date of treatment.
 - e. Applicable treatment standard, wood species, and limitations on use, if any.
- B. Preservative for Field Application to Cut Surfaces of Spruce-Pine-Fir (SPF) and Douglas Fir (DF): Preservative solution approved by preservative treated wood manufacturer for application; one of the following:
1. Tim-bor brand disodium octaborate tetrahydrate (DOT), 10 percent solution.
 2. Copper naphthenate, 2 percent solution, copper metal basis.
 3. Other preservative approved by preservative treated wood manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Comply with requirements of other sections governing products made of wood, applicable codes, and manufacturer's installation instructions.
 1. Use member sizes and grades as specified.
 2. Comply with manufacturer's safety recommendations.
 3. Avoid milling operations that could adversely affect preservative characteristics.
 4. Spruce-Pine-Fir (SPF) and Douglas Fir (DF): Prior to installation, treat cut ends and other machined surfaces with specified field applied preservative.
- B. Provide ventilation of building cavities as required by code.
- C. Install using fasteners required by applicable code for use with untreated lumber and plywood.

3.2 PROTECTION

- A. Protect from damage during construction.
- B. Protect from moisture prior to installation of finishes.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Providing all labor, material and equipment necessary to accomplish all the carpentry work not otherwise included as part of other sections and which is generally not exposed except as otherwise indicated. Types of work in this section include, but are not limited to rough carpentry for:

1. Wood framing
2. Timber for posts and beams
3. Wood grounds, nailers, blocking, sleepers and furring
4. Sheathing
5. Nails, bolts, screws, and framing anchors
6. Rough hardware

- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 03100 Concrete Formwork
Section 06134 Pole Building System
Section 06190 Wood Trusses
Section 06200 Finish Carpentry
Section 09120 Ceiling Suspension System
Section 09250 Gypsum Wallboard

1.02 REFERENCES:

- A. Lumber Standards: Comply with applicable rules of the respective grading and inspecting agencies for species and products indicated, as well as with the latest edition of:

1. PS 20 American Softwood Lumber Standard, National Bureau of Standards

- B. Plywood Product Standards: Comply with applicable America Plywood Standard (APA) Performance Standards for type of panel indicated. Also comply with the latest edition of:

1. PS 1 Plywood Standard (ANSI A 199.1), National Bureau of Standards

1.03 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.

- B. Material Certificates: Where dimensional lumber is provided to comply with minimum allowable unit stresses, submit listing of species and grade selected for each use, and submit evidence of compliance with specified requirements.

1. Compliance may be in form of a signed copy of applicable portion of lumber producer's grading rules showing design values for selected species and grade.
 2. Design values shall be as approved by the Board of Review of American Lumber Standards Committee.
- C. Wood Treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.
1. Pressure Treatment: For each type specified, include certification by treating plant stating chemicals and process used, net amount of preservative retained and conformance with applicable standards.
 2. Fire-Retardant Treatment: Include certification by treating plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.
 3. For water-borne preservatives, include statement that moisture content of treated materials was reduced to a maximum of 15 percent prior to shipment to project site.

1.04 QUALITY ASSURANCE:

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Keep materials dry at all times.
- B. Protect against exposure to weather and contact with damp or wet surfaces.
- C. Stack lumber and plywood, and provide air circulation within stacks.
- D. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic, and shored up off the ground surface.
- E. Identify all framing lumber as to grades, and store all grades separately from other grades.
- F. Protect all metal products with adequate waterproof outer wrappings.
- G. Use extreme care in the off-loading of lumber to prevent damage, splitting, and breaking of materials.

1.06 PROJECT/SITE CONDITIONS:

- A. Fit carpentry work to other work; scribe and cope as required for accurate fit.
- B. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper attachment of other work.

- C. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Lumber, General:

1. Factory-mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
2. Nominal sizes are indicated, except as shown by detail dimensions.
3. Provide actual sizes as required by PS 20, for moisture content specified for each use.
4. Identify all plywood as to species, grade, and blue type by the stamp of the American Plywood Association.
5. Provide dressed lumber, S4S, unless otherwise indicated.
6. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing.

B. Materials: All materials, unless otherwise specifically approved in advance by the Architect, shall meet or exceed the following:

	<u>ITEM</u>	<u>SPECIES</u>	<u>GRADE</u>
1.	Sills	Southern Yellow Pine	Standard or Better
2.	2 x 4 Studs	Douglas Fir Southern Pine	Standard or Better Standard or Better
3.	Joists and Planks	Douglas Fir Southern Pine	Number 2 or Better Number 1
4.	Posts and Beams	Douglas Fir Southern Pine	Number 1 Number 1
5.	All Other Horizontal Framing Members	Douglas Fir Southern Pine	Construction Construction
6.	All Other Vertical Framing Members	Douglas Fir Southern Pine	Standard or Better Standard or Better
7.	Exposed Framing	Douglas Fir	Appearance Framing

	Lumber	Southern Pine	Appearance Grade
8.	Exposed Boards	Redwood Cedar	Select Select
9.	Concealed Boards	Redwood Southern Pine	Construction Number 2
10.	Miscellaneous Lumber	Any Species	Construction
11.	Steel Hardware	ASTM A7 or A 36 (use galvanized at exterior locations)	
12.	Machine Bolts	ASTM 307	
13.	Lag Bolts	Fed. Spec. FF-13-561	
14.	Nails	Common (except as noted) Fed. Spec. FF-N-1-1 (use galvanized at exterior locations)	
15.	Timber Connectors	Simpson, Teco or Equal	

C. Plywood:

1. Trademark: Identify each plywood panel with appropriate APA trademark.
2. Concealed Performance-Rated Plywood: Where plywood panels will be used for the following concealed types of applications, provide APA Performance-Related Panels complying with requirements indicated for grade designation, span rating, exposure durability classification, edge detail (where applicable), and thickness.
 - a. Wall Sheathing: APA Rated Sheathing, Exposure Durability Classification: Exposure 1, Span Rating: 16/0

D. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D PLUGGED INT with exterior glue, in thickness indicated, or if not otherwise indicated, not less than 1/2".

E. Miscellaneous Materials:

1. Fasteners and Anchorages: Size, type, material, and finish indicated and recommended by applicable standards and Federal Specifications for nails, staples, screws, bolts, nuts, washers, and anchoring devices.
 - a. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommending nails.
 - b. Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).

- F. Wood Treatment/Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd" or "Treated," or is specified herein to be treated, comply with applicable requirements of AWPB Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below.
1. Mark each treated item with the AWPB Quality Mark Requirements.
 2. Pressure-treat above-ground items with water-borne preservatives complying with AWPB LP-2.
 3. After treatment, kiln-dry to a maximum moisture content of 15 percent.
 4. Treat indicated items and the following:
 - a. Wood cants, nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - c. Wood framing members less than 18" above grade.
 5. Pressure-treat the following with water-borne preservatives for ground contact use complying with AWPB LP-22:
 - a. Wood members in contact with ground.
 - b. Wood members in contact with fresh water.
 6. Complete fabrication of treated items prior to treatment, where possible.
 7. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.
 8. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the substrate surfaces, conditions, and embedded attachments that carpentry work will be applied or attached to.
- B. Any conditions that are incomplete or unsatisfactory shall be brought to the attention of the Architect or DNR Construction Inspector.
- C. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION:

- A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.
 - 1. Countersink nail heads on exposed carpentry work and fill holes.
- D. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work.
 - 1. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials.
 - 2. Make tight connections between members.
 - 3. Install fasteners without splitting of wood; predrill as required.
- E. Carefully lay out, cut, fit, and install rough carpentry items.
 - 1. Use sufficient nails, spikes, screws, and bolts to ensure rigidity and permanence.
 - 2. Drive nails perpendicular to wood grain in lieu of toenailing, where feasible.
 - 3. Provide for installation and support of plumbing, heating, and ventilating and electrical work.
 - 4. Take care to isolate acoustically from other members.
 - 5. Install work to true lines, plumb, and level, unless indicated otherwise.
- F. Develop full length and width of bearing intended at all supports.
 - 1. Members cut too short, or for any other reason do not develop this bearing, will have to be replaced.
- G. All sills, plates, and other wood in contact with masonry or under metal flashings shall be pressure preservative treated.
- H. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with recommendations of "Manual for House Framing" of National Forest Products Association.
 - 1. Do not splice structural members between supports.
- I. Anchor and nail as shown, and to comply with "Recommended Nailing Schedule" of "Manual for House Framing" and other recommendations of N.F.P.A.

- J. Firestop concealed spaces with wood blocking not less than 2" thick, if not blocked by other framing members.
 - 1. Provide blocking at each building story level and at ends of joist spans.
- K. Wood Grounds, Nailer, Blocking and Sleepers:
 - 1. Provide wherever shown and where required for screeding or attachment of other work.
 - 2. Form to shapes as shown and cut as required for true line and level of work to be attached.
 - 3. Coordinate location with other work involved.
 - 4. Attach to substrates as required to support applied loading.
 - a. Countersink bolts and nuts flush with surfaces, unless otherwise shown.
 - b. Build into masonry during installation of masonry work.
 - c. Where possible, anchor to formwork before concrete placement.
 - 5. Provide permanent grounds of dressed, preservative treated, key-bevelled lumber not less than 1-1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved.
 - 6. Remove temporary grounds when no longer required.
- L. Wood Furring: Install plumb and level with closure strips at edges and openings.
 - 1. Shim with wood as required for tolerance of finish work.
 - 2. Secure to backing with approved-type fasteners.
- M. Stud Framing: Provide stud framing where shown.
 - 1. Unless otherwise shown, use 2" x 4" wood studs spaced 16" o.c. with 4" face perpendicular to direction of wall or partition.
 - 2. Provide single-bottom plate and double-top plates 2" thick by width of studs; except single-top plate may be used for nonloadbearing partitions.
 - a. Nail or anchor plates to supporting construction. Construct corners and intersections with not less than three studs.
 - 3. Provide miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items and trim.
 - 4. For loadbearing partitions, provide double-jamb studs for openings six feet and less in width, and triple-jamb studs for wider openings.

- a. Provide headers of depth shown, or if not shown, provide as recommended by N.F.P.A. "Manual for House Framing."
3. Provide diagonal bracing in stud framing of exterior walls, except as otherwise indicated.
 - a. Brace both walls at each external corner, full story height, at a 45° angle, using either a let-in 1 x 4 or 2 x 4 blocking or metal diagonal bracing.
 - b. Omit bracing where following types of sheathing are indicated.
 - c. Plywood sheathing or corner bracing, 4' wide panels vertically.
 - d. Gypsum sheathing, 4' panels vertically.
 - e. Fiberboard sheathing, intermediate type, 4' panels vertically.
 - f. Diagonal board sheathing.
4. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs.
 - a. Set headers on edge and support on jamb studs.
 - b. For nonbearing partitions, provide double-jamb studs and headers not less than 4" deep for openings 3' and less in width, and not less than 6" deep for wider openings.
- N. Joist Framing: Provide framing of sizes and spacings shown. Install with crown edge up and support ends of each member with not less than 1-1/2" of bearing on wood or metal, or 3" on masonry.
 1. Attach to woodbearing members with metal connectors; frame to wood supporting members with wood ledgers as shown, or if not shown, with metal connectors.
 2. Fire-cut members built into masonry (if any).
 3. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 4'.
 4. Do not notch in middle third of joists; limit notches to 1/6-depth of joist, 1/3 at ends.
 5. Do not bore holes larger than 1/3-depth of joist or locate closer than 2" from top of bottom.
 6. Provide solid blocking (2" thick by depth of joist) at ends of joists unless nailed to header or brand member.
 7. Lap framing members from opposite sides of beams, girders or partitions not less than 4" or securely tie opposing members together.

8. Provide solid blocking (2" thick by depth of joist) over supports.
 9. Provide bridging between joists where nominal depth-to-thickness ratio exceeds 4, at intervals of 8'.
 - a. Use bevel cut 1" x 4" or 2" x #" wood bracing, double-crossed and nailed both ends to joists, or use solid wood bridging 2" thick by depth of joist, end nailed to joist.
- O. Ceiling Joist Framing:
1. Provide member size and spacing shown, and as previously specified for joist framing.
 - a. Face nail to ends of parallel rafters.
 - b. Where principal ceiling joists are at right angles to rafters, frame as indicated with additional short joists from wall plate to first joist; nail to ends of rafters and to top plate and nail to long joists or anchor with framing anchors or metal straps.
 - c. Provide 1 x 8 or 2 x 4 stringers spaced 4' o.c. crosswise over principal ceiling joists.
- P. Provide special framing as shown for eaves, overhangs, corners and similar conditions, if any.
- Q. Installation of Plywood: Comply with recommendations in Form No. E 304, "APA Design/Construction Guide- Residential and Commercial," for types of plywood products and applications indicated.
1. Fastening Methods: Fasten panels as indicated below:
 - a. Sheathing: Nail to framing.

END OF SECTION 06100

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural insulated panels for wall applications.

B. Related Sections:

Section 06100 Rough Carpentry

Section 06190 Wood Trusses

1.2 REFERENCES

A. ASTM International (ASTM):

1. C578-06 - Standard Specification for Preformed Cellular Polystyrene Thermal Insulation.
2. D2559-03 - Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions.
3. E84-05 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Institute of Standards and Technology (NIST):

1. Product Standard PS 1-95 - Construction and Industrial Plywood.
2. Product Standard PS 2-04 - Performance Standards for Wood-Based Structural Use Panels.
3. Product Standard PS 20-05 - American Softwood Lumber Standard.

C. Western Wood Products Association (WWPA) G-5 - Western Lumber Grading Rules.

1.3 SYSTEM DESCRIPTION

A. Design Requirements: Panel system design performed by or under direct supervision of professional Structural Engineer with experience in work of this Section.

B. Performance Requirements; Design panel system to withstand:

1. Live and dead loads in accordance with applicable building code.

1.4 SUBMITTALS

A. Provide submittals in accordance with Section 00812 and section 01300.

B. Product Data: Submit manufacturer's product information, specifications and installation instructions for building components and accessories.

C. Shop Drawings: Submit four complete sets of erection drawing showing post spacing, endwall, sidewalls, transverse cross sections, installation details to clearly indicate proper assembly of building components, and supporting engineering design calculation.

1. Drawings and calculations shall be stamped and certified by a structural engineer registered in the state of Iowa.

D. Certification: Submit written certification prepared and signed by a professional engineer registered to practice in the state of Iowa, verifying that building design meets indicated loading requirements and codes of authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2 years experience in work of this Section.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver panels to site with manifest drawings containing following information:

1. Manufacturer.
2. Product standard and type.
3. Flame spread/smoke developed rating.
4. Identification of quality assurance agency.

B. Store panels flat, on level base, evenly supported.

C. Cover panels during transportation and storage with waterproof coverings, properly vented.

D. Protect panels from moisture absorption and exposure to sunlight.

E. When lifting panels by crane, support panels with straps or I-bolts.

1.7 SEQUENCING

A. Cover wall panels with moisture barrier or final wall cladding as soon as practical after erection.

B. Cover roof panels with water-resistant paper or roofing underlayment immediately after erection.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacturers: Energy Panel Structures & Extreme Panel Technologies Inc.

B. Substitutions: Approval by architect

2.2 MATERIALS

A. Insulation:

1. Expanded polystyrene, ASTM C578, Type I.
2. Minimum density: 0.90 pounds per cubic foot.
3. Maximum flame spread/smoke developed rating: 75/450, tested to ASTM E84.

B. Facings:

1. Plywood conforming to NIST PS 1 and PS 2.
2. Bear trademark or certification of inspecting agency in accordance with NIST PS 2.

C. Lumber Framing:

1. Species: Spruce-Pine-fir or equivalent.
2. Grade: WWPA No. 2.

D. Panel Finish: Prefinished steel sheet, 24 gauge thickness – Kynar 500 finish, Color TBD – submit samples – or otherwise noted on drawings

2.3 ACCESSORIES

A. Panel Adhesive: ASTM D2559, Type II, Class 2.

B. Panel Sealant: Type recommended by panel manufacturer.

C. Fasteners: Galvanized or corrosion resistant coated; types and sizes as recommended by panel manufacturer.

2.4 FABRICATION

A. Fabricate panels with 7/16 to 3/4 inch thick plywood facings of thickness to meet design criteria pressure laminated to insulation core using adhesive.

B. Finish exterior of panels with steel sheet siding.

C. Panel Thickness: Nominally 8-1/2 inches.

D. R-Value: 33.0

PART 3 - EXECUTION

3.1 INSTALLATION

Structural Insulated Panels 06 12 19-4 Energy Panel Structures 01/17/07

A. Install panel system in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install continuous bottom plate of width equal to panel:

1. Attach bottom plates at exterior walls to concrete foundation with anchor bolts spaced maximum 6 feet on center and within 12 inches of ends of pieces, with minimum of two anchors per piece, or with foundation anchor straps.

2. Attach interior bottom plates to concrete foundation with approved anchors.

C. Install continuous top plates of width equal to panel. Overlap plates at corners, intersections and splines.

D. Drill 1-1/2 inch diameter access holes in splines to align with electrical chases.

E. Apply panel sealant in continuous beads to wood-to-wood, wood-to-insulation, and insulation-to-insulation joints per manufacturer's recommendations.

F. Fasten panels to framing through both facing surfaces unless otherwise indicated.

G. Provide temporary bracing during erection and until final connections are complete.

H. Do not install panels directly on concrete; use double plate sill detail or place sill sealer under panels.

I. Do not place plumbing in panels without approval of panel manufacturer.

J. Do not cut panel skins for electrical chases. Cut for electrical boxes as needed, but do not cut through to panel edges.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Provide wood trusses where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following.

Section 06100- Rough Carpentry
Section 06134- Pole Building Systems

1.02 REFERENCES:

- A. Compliance: Comply with the pertinent provisions of:
 - 1. The American Institute of Timber Construction's "Timber Construction Standards."
 - 2. The "Quality Control Manual" of the Truss Plate Institute.
 - 3. The Uniform Building Code, UBC.

1.03 SUBMITTALS:

- A. Provide submittals in accordance with Section 00812 and Section 01300.
- B. Material List: Submit list of items to be provided under this section.
- C. Product Data: Submit manufacturer's specifications and other data needed to prove compliance with the specified requirements.
- D. Shop Drawings: Submit drawings showing species, sizes and stress grade of lumber proposed to be used; pitch, span, lumber configuration, and spacing of trusses; connector type, thickness, size, location, and design value; and bearing details.

1.04 QUALITY ASSURANCE:

- A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces.

1. Stack lumber and plywood, and provide air circulation within stacks.
- B. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic, and shored up off the ground surfaces.
- C. Use extreme care in the off-loading of lumber to prevent damage, splitting and breaking of materials.
- D. Store trusses on temporary bearing support, braced in vertical position.
- E. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 WOOD TRUSSES:

- A. Design: Provide the services of a structural engineer registered to practice in the state of Iowa, who shall design the wood trusses to sustain the indicated loads for the spans, profiles and arrangements shown on the Drawings.
 1. Wood trusses and their installation must conform to Iowa State Building Code requirements regarding live loads.
 2. Design roof trusses for a minimum 30 psf live load and 10 psf dead load for top chord and 10 psf for bottom chord.
 3. Live load plus dead load for each truss is 50 psf.
 4. Deflection for live load only is limited to $L/360$.
 5. Submit drawings of trusses with certification of a professional engineer registered in the state of Iowa included on the drawings.
- B. Fabrication: Fabricate in strict accordance with the shop drawings and other data approved by the Architect.
- C. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which work of this section will be performed and correct conditions detrimental to timely and proper completion of the work.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION:

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this section.
- B. Install the work of this section in strict accordance with the original design, the approved shop drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position for long life under hard use.
- C. Hoist trusses into position with secured at designated lifting points and exercise care to keep out of place bending of trusses to a minimum.
- D. Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing is installed.
- E. Install permanent bracing and related components prior to application of loads to trusses and tighten all loose connectors.
- F. Restrict construction loads and prevent overstressing of truss members and do not cut or remove truss members.

END OF SECTION 06190

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Providing all labor, material and equipment necessary to accomplish all the necessary work not otherwise included as part of other sections and which is non-structural and exposed to view.
2. Types of work of this section include, but are not limited to, finish carpentry for:
 - a. Interior running and standing trim.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 06100 Rough Carpentry
Section 07900 Joint Sealers
Section 08100 Metal Doors and Frames
Section 08200 Wood Doors
Section 08360 Sectional Overhead Doors
Section 08520 Aluminum Windows
Section 08700 Builder's Hardware

1.02 REFERENCES:

- A. Softwood Lumber Standards: Comply with applicable rules of the respective grading and inspecting agencies for species and product indicated, as well as with latest editions of:
 1. PS 20 American Softwood Lumber Standard, National Bureau of Standards.
- B. Plywood Products Standard: Comply with applicable American Plywood Association (APA) Performance Standards for type of panel indicated. Also comply with latest edition of:
 1. PS 1 Plywood Standard - National Bureau of Standards.
 2. PS 51 Hardwood Plywood Standard - National Bureau of Standards.
- C. Hardwood Lumber Standards: Comply with National Hardwood Lumber Association (NHLA) rules.
- D. Woodworking Standard: Where indicated for a specific product, comply with specified provision of the following:
 1. Architectural Woodwork Institute (AWI) "Quality Standards."

- E. In addition to complying with the pertinent codes and regulations of governmental agencies having jurisdiction, as well as the above, comply with the Standard Grading Rules for Western Lumber published by the Western Wood Product Association, wherever applicable, and the Grading Rules of the California Redwood Association.

1.03 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.
- B. Product Data: Submit manufacturer's specifications and installation instructions for each item of factory-fabricated siding and paneling.
- C. Samples: Submit the following samples for each species and cut or pattern of finish carpentry.
 - 1. Standing and running trim for transparent finish: set of three (3) pieces for boards and for each type of worked product (molding) required, 2'-0" long x full board or molding width, finished on one side and one edge.
 - 2. Standing and running trim for paint finish; set of three (3) pieces for each type of work and product required, 2'-0" long x full board or molding width, unfinished.

1.04 QUALITY ASSURANCE:

- A. Grade Stamps: Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification; except omit marking from surfaces to receive transparent finish, and submit mill certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.
- B. Throughout progress of the work of this section, provide at least one person who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this section.
- C. In actual installation of the work of this section, use adequate numbers of skilled workers to ensure installation in strict accordance with the approved design and the approved recommendations of the materials manufacturers.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver finish carpentry materials, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas.
- C. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.06 PROJECT/SITE CONDITIONS:

- A. Conditioning: Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas.
 - 1. Do not install finish carpentry until required temperatures and relative humidity have been stabilized and will be maintained in installation areas.
- B. Maintain temperature and humidity in installation areas as required to maintain moisture content of installed finish carpentry within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period.
 - 1. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity conditions.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and pattern as shown, unless otherwise indicated.
- B. Moisture Content of Softwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation not greater than values required by the applicable grading rules of the respective grading and inspecting agency for the species and product indicated.
- C. Moisture Content of Hardwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation within the ranges required in the referenced woodworking standard.
- D. Lumber for Transparent Finish: Use pieces made of solid lumber stock.
- E. Lumber for Painted Finish: At Contractor's option, use pieces which are either glued-up lumber or made of solid lumber stock.
- F. Interior Finish Carpentry:
 - 1. Standing and Running Trim for Transparent Finish: F1F lumber, as specified in drawings, manufactured to sizes and patterns (profile) shown (NHLA); complying with following grade requirements of referenced woodworking standard, for quality of materials and manufacture:
 - a. Grade: F1F
 - b. Finish: two (2) coats UV resistant polyurethane.
 - 2. Extension Jamb: $\frac{3}{4}$ " & $\frac{1}{2}$ " plywood with ACX veneer as specified in drawings.

G. Miscellaneous Materials:

1. Fasteners and Anchorages: Provide nails, screws and other anchoring devices of the proper type, size, material and finish for application indicated to provide secure attachment, concealed where possible, and complying with applicable federal specifications.
 - a. Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with stainless steel nails.

- I. Other Materials: Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which work of this section will be performed.
- B. Correct conditions detrimental to the proper and timely completion of the work.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION:

- A. Pre-Installation Meeting: Meet at project site prior to delivery of finish carpentry materials and review coordination and environmental controls required for proper installation and ambient conditioning in areas to receive work.
 1. Include in meeting the Contractor; Architect and other Owner Representatives (if any); Installers of finish carpentry, wet work including plastering, other finishes, painting, mechanical work and electrical work; and firms and persons responsible for continued operation (where temporary or permanent) of HVAC system as required to maintain temperature and humidity conditions.
 2. Proceed with finish carpentry on interior only when everyone concerned agrees that required ambient conditions can be properly maintained.
- B. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.
- C. Backprime lumber for painted finish exposed on the exterior, or where indicated, to moisture and high relative humidities on the interior.
 1. Comply with requirements of section on painting within Division 9 for primers and their application.

3.03 INSTALLATION:

- A. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes or patterns.
- B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims.
 - 1. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.
- C. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- D. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible.
 - 1. Stagger joints in adjacent and related members.
 - 2. Cope at returns, miter at corners, to produce tight-fitting joints with full surface contact throughout length of joint.
 - 3. Use scarf joints for end-to-end joints.
 - 4. Make exterior joints water-resistant by careful fitting.
- E. Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates.
 - 1. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.
 - 2. Except where prefinished matching fastener heads are required, use fine finishing nail for exposed nailings, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.

3.04 ADJUSTING:

- A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork.
- B. Adjust joinery for uniform appearance.

3.05 CLEANING:

- A. Clean finish carpentry work on exposed and semi-exposed surfaces.
- B. Touch-up shop-applied finishes to restore damaged or soiled areas.
- C. Refer to Division 9 sections for final finishing of installed finish carpentry work.

3.06 PROTECTION:

- A. Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06200

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Provide all labor, materials, equipment, and related services necessary to furnish and install all architectural casework where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited, to the following:

Section 06100 Rough Carpentry
Section 06200 Finish Carpentry

1.02 REFERENCES:

- A. Lumber grading rules and species shall be in conformance with Voluntary Products Standard PS 20-70. Grading rules of the following associations apply to materials furnished.
 - 1. WWPA - Western Wood Products Association
 - 2. WCLIP - West Coast Lumber Inspection Bureau
 - 3. SPIB - Southern Pine Inspection Bureau
 - 4. NLGA - National Lumber Grades Authority
 - 5. RIS - Redwood Inspection Service
- B. Plywood Grading Rules and Recommendations:
 - 1. PS 1-74 - For Soft Plywood
 - 2. PS 51-71 - For Hard Plywood
 - 3. APA - American Plywood Association
- C. Requirements of Regulatory Agencies:
 - 1. AWPB - American Wood Preservers Bureau
 - 2. ALSL - American Lumber Standards Committee
 - 3. FS - Federal Specifications
 - 4. NEMA - National Electrical Manufacturer Association
- D. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, comply with applicable standards of the Architectural Woodwork Institute.

1.03 SUBMITTALS:

- A. Provide submittals in accordance with this Section and Section 01300.
- B. Product Data: Submit full information on all materials proposed for use in the work of this section, prior to procurement of said material, for Architect's review.

1. Do not purchase or install material until approved by the Architect.
 2. Materials list of items proposed to be provided under this section.
 3. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
- C. Shop Drawings: Submit shop drawings for fabrication and erection. Include plans, elevation, details of sections and connections.
1. Show anchorage and accessory items.
 2. Provide templates for anchor and bolt installation.
 3. Review shop drawings requirements with DNR Construction Inspector before ordering shop drawings.
- D. Samples: Submit, for verification purposes, samples of each type of material, to be used in the work of this section, requested by the Architect.
1. Include in each set of samples the full range of color and texture to be expected in the completed work.

1.04 QUALITY ASSURANCE:

- A. Qualification of Workers: Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the requirements and the methods needed for proper performance of the work of this section.
- B. Provide one skilled individual who shall be present at all times during execution of this portion of the work and who shall personally direct all work performed under this section.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Except as otherwise approved by the Architect, determine and comply with manufacturer's recommendations on product handling, storage and protection.
- B. Protect materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- C. Do not deliver materials of this section until painting, wet work, grinding and similar operations of other trades, which could damage, soil or deteriorate casework, have been completed in installation area.
- D. In the event of damage, promptly remove damaged material and unsuitable items from the job site.
 1. Immediately make all repairs and replacement necessary to the approval of the Architect/DNR Construction Inspector with materials meeting the specified requirements at no additional cost to the Owner.

- E. Additional time required to secure replacements and to make repairs will not be considered to justify an extension in the Contract time of completion.

1.06 PROJECT/SITE CONDITIONS:

- A. Conditioning: Installer shall advise Contractor of temperature and humidity requirements for casework installation areas.
 - 1. Do not install finish casework until required temperatures and relative humidity have been stabilized and will be maintained in installation areas.
- B. Maintain temperature and humidity in installation areas as required to maintain moisture content of installed casework within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period.
 - 1. The fabricator of casework shall determine optimum moisture content and required temperature and humidity conditions.
- C. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible.
 - 1. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. General: Fabricate architectural casework to "Premium Grade" standard of the "Architectural Woodwork Institute."
- B. Cabinets and Shelves: Fabricate flush face-type cabinets in accordance with approved shop drawings, the Architect's Drawings, and as specified herein.
 - 2. Drawers: 3/4" solid wood front, 1/2" plywood and cabinet liner sides, 1/4" bottom overlaid with specified material in drawings.
 - 3. Cabinet Doors: 3/4" solid wood doors with specified material in drawings.
 - 4. Shelves: 3/4" plywood overlaid with specified material in drawings.
 - 5. Cabinet Boxes:
 - Interior: Melamine, black
 - Exterior: 3/4" Plywood with overlaid material specified in drawings.
- C. Countertops: Shop fabricate countertop and splashes to type and dimensions shown on the Drawings.

- D. Adhesives: For installation of laminated plastic, use only low-VOC adhesives with NO Added Urea Formaldehyde (NAUF).
 - 1. Do not use so called "contact" adhesive.
- E. Hardware: Unless provided as part of prefabricated casework, install hardware as specified in drawings.
 - 1. Provide drawer guides, concealed hinges, pulls, shelf supports, magnetic or mechanical catches as shown, or if not shown, as selected by the Contractor subject to the approval of the Architect/DNR Construction Inspector.
- F. Color and Finishes: As indicated, or as selected by the Architect.
- G. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which work of this section will be performed.
- B. Correct conditions detrimental to timely and proper completion of the work.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION:

- A. Fabricate and install the work of this section in accordance with the approved shop drawings and the referenced standards.
- B. All workmanship shall be of the highest grade, put together with concealed fasteners or interlocking joints and glued under pressure so as not to show shrinkage, slips or open joints.
- C. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacture with respect to surfaces, sizes or patterns.
- D. Install the work plumb, level, true and straight with no distortions.
 - 1. Shim as required using concealed shims.
 - 2. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.
- E. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

- F. No exposed fasteners will be permitted except screws for hardware.
- G. Cut openings for sinks, ranges, etc. in countertops for fixtures to be installed by the Mechanical Contractor.
 - 1. Verify dimensions prior to fabrication of cabinet work.

3.03 ADJUSTING:

- A. Repair damaged and defective casework wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace casework.
 - 1. Adjust joinery for uniform appearance.

3.04 CLEANING:

- A. Clean finish casework on exposed and semi-exposed surfaces.
- B. Touch-up shop-applied finishes to restore damaged or soiled areas.

3.05 PROTECTION:

- A. Installer of casework shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06410

PART 1 – GENERAL

1.1 SUMMARY

- A. Products Supplied Under This Section
 - 1. Vapor Barrier, seam tape, pipe boots, detail strip for installation under concrete slabs.
- B. RELATED SECTIONS
 - 1. Section 03300 Cast-in-place Structural Concrete
 - 2. Section 07260 Under-Slab Vapor Retarder

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM E 1745-97 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil
Or Granular Fill Under Concrete Slabs
 - 2. ASTM E 154-88 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
 - 3. ASTM E 96-95 Standard Test Methods for Water Vapor Transmission of Materials
 - 4. ASTM E 1643-98 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
- B. American Concrete Institute (ACI)
 - 1. ACI 302.1R-96 Vapor Barrier Component (plastic membrane) is not less than 10 mils thick

1.3 SUBMITTALS

- A. Quality Control / Assurance
 - 1. Independent laboratory test results showing compliance with ASTM & ACI Standards.
 - 2. Manufacturer's samples, literature
 - 3. Manufacturer's installation instructions for placement, seaming and pipe boot installation

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Extremely low permeance vapor barriers for critically sensitive, low permeance floor coverings. Includes floor coverings of rubber, vinyl, urethane, epoxy and methyl methacrylate, as well as linoleum and wood.
 - 1. Vapor Barrier must have the following qualities
 - a. Minimum WVTR as tested by ASTM E96 of 0.008
 - 2. Vapor Barriers
 - a. Stego Wrap (15 mil) Vapor Barrier by STEGO INDUSTRIES LLC, San Juan Capistrano, CA
(877) 464-7834 www.stegoindustries.com
 - b. W.R. Meadown Premoulded Membrane with Plasmatic Core.
 - c. Vaporguard by Reef industries.

2.2 ACCESSORIES

- A. Seam Tape
 - 1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4 inches.
- B. Pipe Boots
 - 1. Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Ensure that subsoil is approved by architect
 - 1. Level and tamp or roll aggregate, sand or tamped earth base.

3.2 INSTALLATION

- A. Install Vapor Barrier:
 - 1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643–98.
 - A. Unroll Vapor Barrier with the longest dimension parallel with the direction of the pour.
 - B. Lap Vapor Barrier over footings and seal to foundation walls.
 - C. Overlap joints 6 inches and seal with manufacturer's tape.
 - D. Seal all penetrations (including pipes) with manufacturer's pipe boot.
 - E. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
 - F. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Blowing Insulation
- B. Acoustic Insulation
- C. Vapor Retarder

1.2 RELATED SECTIONS

- A. Section 07100 - Dampproofing and Waterproofing: Insulation installed with waterproofing systems.
- B. Section 07260 - Vapor Retarders: Vapor retarder materials to adjacent insulation.
- C. Section 07270 - Air Barriers: Air seal materials to adjacent insulation.
- D. Section 07810 - Fire and Smoke Protection: Insulation installed in conjunction with firestopping or smoke containment systems.
- E. Section 09200 - Plaster and Gypsum Board: Insulation installed in conjunction with interior wall and ceiling finish systems.
- F. Section 15810 - Ducts: Insulation to surround HVAC ductwork.

1.3 REFERENCES

- A. ASTM C 423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- B. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- C. ASTM C 553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- D. ASTM C 612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
- E. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- F. ASTM C 764 - Standard. Specification for Mineral Fiber. Loose-Fill Thermal Insulation.
- G. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- I. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- J. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.

- K. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
- L. Federal Specification HH-I-521F: Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures).
- M. Federal Specification HH-I-558B: Insulation, Blocks, Blankets, Felts, Sleeving (Pipe and Tube Covering), and Pipe fitting Covering, Thermal (Mineral Fiber, Industrial Type)
- N. National Fire Protection Association (NFPA) Life Safety Code
- O. Underwriters Laboratories (UL) - UL 2079 Standard test method for fire resistance of Building Joint Systems.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with a minimum of ten years experience manufacturing products in this section shall provide all products listed.
- B. Installer Qualifications: Products listed in this section shall be installed by a single organization with at least five years experience successfully installing insulation on projects of similar type and scope as specified in this section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Storage: Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling.
- C. Handling: Handle materials to avoid damage.

1.7 SEQUENCING

- A. Coordinate with the installation of vapor retarders and air seal materials specified in Section 07260 and Section 07270.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: CertainTeed Corp., Insulation Group, which is located at: 750 E. Swedesford Rd. P. O. Box 860 ; Valley Forge, PA 19482-0860; Toll Free Tel: 800-233-8990; Fax: 610-341-7940; Email: [request info](mailto:requestinfo@certainteed.com); Web: certainteed.com/CertainTeed/Pro/Design+Professional/Insulation
- B. Substitutions: Submit for approval by architect
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 APPLICATIONS

- A. Acoustical/Thermal Insulation: Certainteed Acoustical Ceiling NoiseReducer Batts. Fiber glass acoustical insulation for ceilings. Complies with ASTM C 665; preformed glass fiber batt insulation:
 - 1. Facing: ASTM C 665, Type 1, Unfaced.
 - a. Fire Hazard Classification: ASTM E 84:
 - 1) Maximum Flame Spread Index; 25.
 - 2) Maximum Smoke Developed Index; 50.
 - b. Noncombustibility: ASTM E 136, passes.
 - c. Thermal Resistance: R of 11 (RSI 1.9).
 - 1) Thickness: 3-1/2 inches (89 mm).
 - 2) Width: 24 inches (610 mm).
- B. Thermal Blowing Insulation: Certainteed InsulSAFE SP Fiber Glass Blowing Insulation. Fiber glass blowing insulation for open attics, enclosed walls, and floor/ceilings assemblies. Complies with ASTM C 764; mineral fiber loose fill insulation Type 1, Pneumatic application:
 - 1. Fire Hazard Classification: ASTM E 84:
 - a. Maximum Flame Spread Index; 5.
 - b. Maximum Smoke Developed Index; 5.
 - 2. Noncombustibility: ASTM E 136, passes.
 - 3. Open Attic Application:
 - a. Thermal Resistance: R of 49. Minimum Installed Thickness: 18.50 inches.
- C. Polystyrene Board Insulation: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - 1. Dow Chemical Company; Midland, Michigan
 - 2. UC Industries/U.S. Gypsum; Chicago, Illinois
 - 3. or equal as approved by the Architect
- D. Insulation: HFC-blown type Closed Cell Foam: Certainteed CertaSpray Closed Cell Foam is a medium-density, MDI-based polyurethane thermoset rigid foam. When CertaSpray A-side closed cell is mixed with CertaSpray B-side closed cell under pressure in a 1:1 volumetric ratio, they react and expand into a medium-density closed cell foam with an in-place core density of 1.9- 2.2 pcf:
 - 4. Physical and Mechanical Properties:
 - a. Core Density: 1.9-2.4 pcf when tested in accordance with ASTM D 1622.
 - b. Thermal Resistance (aged): 5.8 less than or equal to 2-1/2 inches / 6.4 when greater than 2-1/2 inches when tested in accordance with ASTM C 518 at 75 degrees F, (h-

- c. Thermal Resistance (initial): 6.4 when tested in accordance with ASTM C 518 at 75 degrees F, (h-ft²- degrees F)/Btu.
- d. Closed Cell Content: 88-95 percent when tested in accordance with ASTM D 2842.
- e. Compressive Strength: Greater than 25 psi when tested in accordance with ASTM D 1621.
- f. Tensile Strength: 23 psi when tested in accordance with ASTM D 1623.
- g. Water Absorption: Less than 2 percent by volume when tested in accordance with ASTM D 2842.
- h. Dimensional Stability: Less than 9 percent by volume when tested in accordance with ASTM D 2126 at 75 degrees F/95 percent RH, 28 Day.
- i. Water Vapor Transmission: 1.3 perm/inch when tested in accordance with ASTM E 96.
- j. Air Permeability: 0.013 when tested in accordance with ASTM E 283 at 1 inch thickness, L/s/m².
- k. Fungi Resistance: Pass, with no growth when tested in accordance with ASTM C 1338.
- 5. Fire performance
 - a. Flame Spread: Less than 25 when tested in accordance with ASTM E 84.
 - b. Smoke: Less than 450 when tested in accordance with ASTM E 84.
- 6. Thermal Performance (aged): Tested in accordance with ASTM C 518 and/or ASTM C 177 at 75 degrees F (24 degrees C) mean temperature.

2.3 VAPOR RETARDER

- A. Sheet Retarder: Certainteed MemBrain, The SMART Vapor Retarder. Polyimide film vapor retarder for use with unfaced, vapor permeable glass fiber and mineral wool insulation in wall and ceiling cavities. Material has a permeance of 1 perm or less when tested to ASTM E 86, dry cup method and increases to greater than 10 perms using the wet cup method.
 - 1. Water Vapor Permeance:
 - a. ASTM E 86, dry cup method: 1.0 perms (57ng/Pa*s*m²).
 - b. ASTM E 86, wet cup method: 10.0 perms (1144ng/Pa*s*m²).
 - 2. Fire Hazard Classification: ASTM E 84:
 - a. Maximum Flame Spread Index; 20.
 - b. Maximum Smoke Developed Index; 55.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that all exterior and interior wall, partition, and floor/ceiling assembly construction has been completed to the point where the insulation may correctly be installed.
- C. Verify that mechanical and electrical services in ceilings, walls and floors have been installed and tested and, if appropriate, verify that adjacent materials are dry and ready to receive insulation.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in exterior spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within plane of insulation.
- E. Install insulation with vapor barrier installed facing the warm side. Seal or tape joints as required.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. The extent of each type of flashing and sheet metal work is indicated on the Drawings and by provisions of this section.
2. The types of work specified in this section may include but is not necessarily limited to, the following:
 - a. Metal counter flashing; and base flashing (if any).
 - b. Metal wall flashing and expansion joints.
 - c. Built-in metal gutters and scuppers.
 - d. Gutters and downspouts (rain drainage).
 - e. Miscellaneous sheet metal accessories.
 - f. Integral masonry flashings are specified as masonry work in sections of Division 4.
 - g. Roofing accessories, not including roof accessories, are specified in roofing system sections as roofing work.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 07310 Asphalt Shingles
Section 07900 Joint Sealers
Section 15400 Plumbing

C. Roof accessories and skylights are specified elsewhere, in division 7.

1.02 REFERENCES:

- A. Standards: Comply with standards specified in this section and the provisions of SMACNA "Architectural Sheet Metal Manual."

1.03 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.

- B. Product Data: Submit manufacturer's product specifications, installation instructions and general recommendations for each specified sheet material and fabricated product.
- C. Samples: Submit two (2), eight-inch (8") square samples of specified sheet materials to be exposed as finished surfaces.
 - 1. Submit two (2), twelve-inch (12") long completely finished units of specified factory-fabricated products exposed as finished work.
- D. Shop Drawings: Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashings, trim/fiscia units, gutters, downspouts, scuppers and expansion joint systems; layouts at one-quarter (1/4") scale, details at three-inch (3") scale.

1.04 QUALITY ASSURANCE:

- A. Qualifications of Installers: Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.05 PROJECT/SITE CONDITIONS:

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the work and protection of materials and finishes.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Sheet Metal Flashing/Trim:
 - 1. Zinc-Coated Steel: Commercial quality with 1.20 percent galvanized, mill phosphatized where indicated for painting (Pnt); 0.0359" thick (20 gauge) except as otherwise indicated.
 - 2. Copper: ASTM B 370, cold-rolled except where soft temper is required for forming; 16 oz. (0.0216" thick) except as otherwise indicated.
- B. Miscellaneous Materials and Accessories:
 - 1. Solder: For use with steel or copper, provide 50-50 tin/lead solder (ASTM B 32), with rosin flux.
 - 2. Fasteners: Same metal as flashing/sheet metal or, other noncorrosive metal as recommended by sheet manufacturer.
 - a. Match finish of exposed heads with material being fastened.
 - 3. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

4. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
5. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.
6. Roof Cement: ASTM D 2822, asphaltic.
7. Reglets: Metal of type and profile indicated, compatible with flashing indicated, size and gauge required for performance.

2.02 MANUFACTURED UNITS:

- A. Gutters: "K" style 2 3/8" x 4«" seamless, continuous, preprimed, aluminum, .032" thick.
- B. Downspouts: Corrugated, preprimed, rectangular shape aluminum, .025" thick.
- C. Drip Edge: Preprimed, preshaped aluminum.

2.03 FABRICATION:

- A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work.
 1. Form work to fit substrates.
 2. Comply with material manufacturer instruction and recommendations.
 3. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams.
 1. For metal other than aluminum, tin edges to be seamed, form seams, and solder.
 2. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than one-inch (1") deep, filled with mastic sealant (concealed within joints).
- D. Sealant Joints: Where movable, nonexpansion-type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.

- E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which work of this section will be installed.
- B. Correct conditions detrimental to the proper and timely completion of the work.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION:

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated.
 - 1. Install work with laps, joints and seams which will be permanently watertight and weatherproof.
- B. Form all sheet metal accurately and to the dimensions and shapes required, finishing all molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit, soldering securely.
- C. Expansion: Form, fabricate, and install all sheet metal so as to adequately provide for expansion and contraction in the finished work.
- D. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a course of paper slip sheet and a course of polyethylene underlayment.
- E. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- F. Install reglets to receive counter flashing in manner and by methods indicated.
 - 1. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections.
 - 2. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division 4 sections.
 - 3. Install counterflashing in reglets, either by snap-in seal arrangement, or by wedging in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.
- G. Weatherproofing:
 - 1. Finish watertight and weathertight where so required.
 - 2. Make all lock seam work flat and true to line, sweating full of solder.
 - 3. Make all lock seams and lap seams, when soldered, at least one-half inch (1/2") wide.
 - 4. Where lap seams are not soldered, lap according to pitch but in no case less than three inches (3").
 - 5. Make all flat and lap seams in direction of flow.
- H. Nailing:

1. Whenever possible, secure metal by means of clips or cleats without nailing through the metal.
 2. In general, space all nails, rivets, and screws not more than 20 cm (8") apart and, where exposed to the weather, use lead washers.
 3. For nailing into wood, use barbed roofing nails 32 mm (1-1/2") long by 11 gauge.
 4. For nailing into concrete, use drilled plugholes and plugs.
- I. Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters.
1. Install beehive-type strainer-guard at conductor heads, removable for cleaning downspouts.
- J. Embedment: Embed all metal in connection with roofs in a solid bed of sealant using materials and methods approved in advance by the Architect or DNR Construction Inspector.
- K. Soldering:
1. Thoroughly clean and tin all joint materials prior to soldering.
 2. Perform all soldering slowly with a well-heated copper in order to heat the seams thoroughly and to completely fill them with solder.
 3. Perform all soldering with a heavy soldering copper of blunt design, properly tinned for use.
 4. Make all exposed soldering on finished surfaces neat, full flowing, and smooth.
 5. After soldering, thoroughly wash acid flux with a soda solution.
 6. Upon request of the DNR Construction Inspector, demonstrate by hose or standing water that all flashing and sheet metal is completely watertight.

3.03 CLEANING:

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

3.04 PROTECTION:

- A. Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07600

**SECTION 07712
MANUFACTURED GUTTERS AND DOWNSPOUTS**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Gutters and downspouts, the extent of which is shown on the Drawings and includes:
 - 1. Gutters and downspouts with built-in leaf protection.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.
 - 1. Section 077123 – Manufactured Gutters and Downspouts.

1.02 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data for specified products.
- C. Samples: Submit selection and verification samples for finishes, colors and textures.
 - 1. Selection Samples: For each product requiring color selection, 2 sets of manufacturer's sample chips representing full range of colors and finishes available.
 - 2. Verification Samples: For each color and finish selected, 2 chips indicating match to selected color and finish.
- D. Quality Assurance Submittals: Submit the following:
 - 1. Manufacturer's Instructions: Manufacturer's installation instructions.
- E. Closeout Submittals: Submit the following:
 - 1. Warranty: Warranty documents specified herein.
 - 2. Record Documents: Project record documents for installed materials in accordance with Division 1 Closeout Submittals (Project Record Documents) Section.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in the installation of work similar to that required for this project.
- B. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.04 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Requirements Sections.
 - 1. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Identify fabricated components with UL 90 label where appropriate.
- C. Storage and Protection: Store materials protected from exposure to harmful conditions. Store material in dry, above-ground location.

1. Stack prefinished material to prevent twisting, bending, abrasion, scratching and denting.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

1.06 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Architect's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
 1. Gutters and Downspouts: In addition to the manufacturer's standard guarantees, provide the manufacturer's standard lifetime warranty on baked on finish.

PART 2 - PRODUCTS

2.01 GUTTERS AND DOWNSPOUTS

- A. Gutters: Provide 6" seamless, rolled-formed, .032 aluminum, one piece gutter units designed to prevent built-up of leaves within the gutters, provide superior protection against wind and storm damage, and eliminates the possibility of debris entering the gutter from behind.
 1. Screw gutters to the fascia board every 2 feet with internal hanging brackets. Do not attach with spikes.
 2. Do not provide units with multiple parts, multi-piece gutters and separate leaf-shedding covers unless otherwise approved by the Architect.
 3. Finish: Baked-on enamel.
 4. Color: As selected by the Architect matching roofing system.
- B. Downspouts: Corrugated, prepainted, rectangular shape aluminum, .025" thick (minimum).
 1. Finish: Baked-on enamel.
 2. Color: As selected by the Architect matching roofing system.
- C. Leaf Protection: As specified in the drawings by Architect.

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, recommendations and installations instructions for substrate verification, preparation requirements and installation.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 1. Installer's Examination:
 - a. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if

such conditions are unacceptable.

- b. Transmit 2 copies of installer's report to Architect/DNR Construction Inspector within 24 hours of receipt.
- c. Delay construction activities of this section until unacceptable conditions have been corrected.
- d. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.03 PREPARATION

- A. Coordination: Coordinate with other work including drainage, flashing and trim, walls and other adjoining work to provide a noncorrosive and leakproof installation.
- B. Dissimilar Metals: Prevent galvanic action of dissimilar metals if any.

3.04 INSTALLATION

- A. General: Install gutters and ownspouting profiles, patterns and drainage indicated and required for leakproof installation. Seal joints for leakproof installation.
 1. Fasteners: Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation.
 2. Sealant-Type Joints: Provide sealant-type joint where indicated. Form joints to conceal sealant. Comply with Division 7 Joint Sealants Section for sealant installation.

3.05 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to DNR Construction Inspector's acceptance. Remove construction debris from project site and legally dispose of debris.

3.06 PROTECTION

- A. Protection: Protect installed product's finish surfaces from damage during construction.
 1. Replace products having damage other than minor finish damage.
 2. Repair products having minor damage to finish in accordance with panel manufacturer's recommendations.
 3. The DNR Construction Inspector shall be sole judge of acceptability of repair to damaged finishes; replace products having rejected repairs.

END OF SECTION 077123

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Furnishing of all materials and labor to complete caulking and sealing of all joints which require caulking or sealing.
- B. Spaces noted on the Drawings to be caulked or sealed to make weathertight or neat appearing are included herein.
 - 1. The extent of each form and type of joint sealer is indicated on Drawings and by provisions of this section.
 - 2. The applications for joint sealers as work of this section include the following:
 - a. Pavement and sidewalk joints.
 - b. Concrete construction joints.
 - c. Floor joints (interior).
 - d. Wall joints (exterior).
 - e. Flashing and coping joints.
 - f. Interior wall/ceiling joints.
 - g. Gasketing of assemblies.
 - 3. Refer to Division 8 sections for glazing requirements; not work of this section.
 - 4. Refer to sections of Divisions 15 and 16 for joint sealers in mechanical and electrical work; not work of this section.
 - 5. General Performance: Except as otherwise indicated, joint sealers are required to establish and maintain air-tight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application.
 - a. Failures of installed sealers to comply with this requirement will be recognized as failures of material and workmanship.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 02500 Paving and Surfacing
Section 03300 Cast-In-Place Concrete
Section 06100 Rough Carpentry
Section 06200 Finish Carpentry

1.02 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.
- B. Product Data: Submit manufacturer's product information, specifications, handling, installation and curing instructions, and performance tested data sheets for each elastomeric product required.

1.03 QUALITY ASSURANCE:

- A. Qualifications of Manufacturers: Products used in the work of this section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- B. Qualifications of Installers: Proper caulking and proper installation of sealants require that installers be thoroughly trained and experienced in the necessary skills and thoroughly familiar with the specified requirements.
- C. For caulking and installation of sealants throughout the work, use only personnel who have been specifically trained in such procedures and who are completely familiar with the joint details shown on the Drawings and the installation requirements called for in this section.

1.04 PROJECT/SITE CONDITIONS:

- A. Weather Conditions: Do not proceed with installation of liquid sealants under unfavorable weather conditions.
- B. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. General: Manufacturers listed in this article include those known to product the indicated category of prime joint sealer material, either as a nominally pure generic product or as an equivalent-performance modification thereof or proprietary product.
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - 1. Manufacturers of acrylic latex sealant compounds:
 - a. VIP Enterprises, Inc.; Miami, FL
 - b. Sonneborn/Contech, Inc.; Minneapolis, MN
 - c. Gibson-Homans Co.; Cleveland, OH
 - d. W. R. Meadows, Inc.; Elgin, IL
 - e. Thoro Systems Products
 - 2. Manufacturers of elastomeric sealants:

- a. Dow Corning Corp.; Midland, MI
 - b. Gibson-Homans Co.; Cleveland, OH
 - c. Pecora Corp.; Harleysville, PA
 - d. Sonneborn/Contech, Inc.; Minneapolis, MN
 - e. Thoro Systems Products
 - f. Woodmont Products, Inc.; Huntington Valley, PA
3. Manufacturers of nonelastomeric sealants/caulks:
- a. Gibson-Homans Co.; Cleveland, OH
 - b. W. R. Meadows, Inc.; Elgin, IL
 - c. Pecora Corp.; Harleysville, PA
 - d. Sonneborn/Contech, Inc.; Minneapolis, MN
 - e. Tremco, Inc.; Miami, FL
4. Manufacturers of joint fillers/sealant backers:
- a. Dow Chemical Co.; Midland, MI
 - b. J & P Petroleum Products, Inc.; Dallas, TX
 - c. W. R. Meadows, Inc.; Elgin, IL
 - d. Sonneborn/Contech, Inc.; Minneapolis, MN
 - e. Williams Products, Inc.; Troy, MI

2.02 MATERIALS: *Note – All interior sealants must have low – VOC certification

- A. General Sealer Requirements: Provide colors indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- B. Type A, Single-Component Polysulfide Sealant: Except as otherwise indicated, provide manufacturer's standard, nonmodified, one-part, polysulfide-based, air-curing, elastomeric sealant; complying with either ASTM C 920 Type S Class 25, or FS TT-S-00230C Class A; self-leveling grade/type where used in joints of surfaces subject to traffic, otherwise nonsag grade/type.
- C. Type B, Single-Component Polyurethane Sealant: Except as otherwise indicated, provide manufacturer's standard, nonmodified, one-part, polyurethane-based, air-curing, elastomeric sealant; complying with either ASTM C 920 Type S Class 25, or FS TT-S-00230C Class A; self-leveling grade/type where used in joints of surfaces subject to traffic, otherwise nonsag grade/type.
 - 1. Bituminous Modification: Where joint surfaces contain or are contaminated with bituminous materials, provide manufacturer's modified type sealant compatible with joint surfaces (modified with coal tar or asphalt as required).
- D. Type C, Single-Component Silicon Rubber Sealant: Except as otherwise indicated, provide manufacturer's standard, nonmodified, one-part, silicone-rubber-based, air-curing, nonsag, elastomeric sealant; complying with either ASTM C 920 Type S Class 25 Grade NS, or FS TT-S-001543A Class A Type Nonsag.

1. Sanitary Interior Type: Where indicated and where applied in high-humidity or wet service, provide manufacturer's mold/mildew-resistant, acid type sealants for application to nonporous sealant bond surfaces.
- E. Type D, Acrylic-Emulsion Sealant: Provide acrylic-emulsion or latex-rubber-modified acrylic-emulsion sealant compound, permanently flexible, nonstaining and nonbleeding; recommended by manufacturer for protected exterior exposure and general interior exposure.
- F. Bituminous and Fiber Joint Filler: Provide resilient and nonextruding type premolded bituminous-impregnated fiberboard units complying with ASTM D 1751; FS HH-F-341, Type I; or AASHTO M 213.
- G. Joint Primer/Sealer: Provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.
- H. Bond Breaker Tape: Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.
 1. Provide self-adhesive tape where applicable.
- I. Sealant Backer Rod: Provide compressible rod stock of polyethylene foam, polyurethane foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable nonabsorptive material as recommended by sealant manufacturer for back-up of and compatibility with sealant.
 1. Where used with hot-applied sealant, provide heat-resistant type, which will not be deteriorated by sealant application temperature, as indicated.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Installer must examine substrates (joint surfaces) and conditions under which joint sealer work is to be performed, and must notify Contractor in writing of unsatisfactory conditions.
- B. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.02 PREPARATION:

- A. Clean joint surfaces immediately before installation of gaskets, sealants or caulking compounds.
 1. Remove dirt, insecure coatings, moisture and other substrates which could interfere with seal of gasket or bond of sealant or caulking compound.
 2. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer.
 3. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

- B. Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer.
- C. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.03 INSTALLATION:

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.
- B. Set joint filler units at depth or position in joint as indicated to coordinate with other work, including installation of bond breakers, backer rods and sealants.
 - 1. Do not leave voids or gaps between ends of joint filler units.
- C. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for application indicated.
- D. Install bond breaker tape where indicated and where required by manufacturer's recommendations to ensure that liquid-applied sealants will perform as intended.
- E. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides.
 - 1. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slighting below adjoining surfaces.
 - 2. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove so that joint will not trap moisture and dirt.
- F. Install liquid-applied sealant to depths as shown; or, if not shown, as recommended by sealant manufacturer, but within the following general limitations, measured at center (thin) section of beads (not applicable to sealants in lapped joints).
 - 1. For sidewalks, pavements and similar joints sealed with elastomeric sealants and subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75% of joint width, but neither more than 5/8" deep nor less than 3/8" deep.
 - 2. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
 - 3. For joints sealed with nonelastomeric sealants and caulking compounds, fill joints to a depth in range of 75% to 125% of joint width.
- G. Spillage: Do not allow sealants or compounds to overflow from confines of joints, or to spill onto adjoining work, or to migrate into voids of exposed finishes.

1. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.

3.04 APPLICATION:

- A. Type A, Polysulfide Sealant: Apply in accordance with manufacturer's instructions for sealing cracks or joints on masonry, concrete, bricks, stone, tile, glass, aluminum, or stainless steel.
- B. Type B, Polyurethane Sealant: Apply in accordance with manufacturer's instructions instead of Type A on similar material where Type A can be used.
- C. Type C, Silicone Rubber Sealant: Use various categories of this type for above ground applications in accordance with manufacturer's instructions.
- D. Type D, Acrylic Type Sealant: Use this type to caulk surfaces which are slated to receive paint finish.
 1. Apply as recommended by product manufacturer.

3.05 PROTECTION:

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
- B. Advise Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion.
- C. Cure and protect sealants in a manner which will minimize increases in modulus of elasticity and other accelerated aging effects.
- D. Replace or restore sealants which are damaged or deteriorated during construction period.

END OF SECTION 07900

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Steel Sectional Overhead Doors.
- B. Electric Operators and Controls.
- C. Operating Hardware, tracks, and support.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete wall construction.
- B. Section 05500 - Metal Fabrications: Steel frame and supports.
- C. Section 07900 - Joint Sealers: Perimeter sealant and backup materials.
- D. Section 08710 - Door Hardware: Cylinder locks.
- E. Section 09900 - Paints and Coatings: Field painting.

1.3 REFERENCES

- A. [ANSI/DASMA 102](#) - American National Standard Specifications for Sectional Overhead Type Doors.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
- B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation.
- C. Store materials in a dry, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: sales@overheaddoor.com.
- B. Substitutions: Submit for review.

2.2 INSULATED SECTIONAL STEEL OVERHEAD DOORS

- A. Insulated Steel Sectional Overhead Doors: 592 Series Thermacore Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
 1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and weather-tight ship-lap design meeting joints.
 - a. Panel Thickness: 2 inches (51 mm).
 - b. Exterior Surface: Ribbed.
 - c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.
 - d. End Stiles: 16 gauge with thermal break.
 - e. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
 - 1) High cycle spring: 50,000 cycles.
 - f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
 - g. Thermal Values: R-value of 17.50; U-value of 0.057.
 - h. Air Infiltration: 0.08 cfm at 15 mph; 0.08 cfm at 25 mph.
 - i. Partial Glazing of Steel Panels:
 - 1) 1/2 inch (12.5 mm) Low E Insulated glazing.
 2. Finish and Color:
 - a. Two coat baked-on polyester:

- 1) Interior color, white.
3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
5. Weatherstripping:
 - a. Flexible bulb-type strip at bottom section.
 - b. Flexible Jamb seals.
 - c. Flexible Header seal.
6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
7. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
 - a. Entrapment Protection: Required for momentary contact, includes radio control operation.
 - 1) Photoelectric sensors monitored to meet UL 325/2010.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Surface mounting.
 - 3) Interior location.
 - 4) Provide two (2) remote operation control units for each door as well as one (1), exterior surface mounted, keypad operator for each door.

2.3 NON-INSULATED SECTIONAL STEEL OVERHEAD DOORS

- A. Sectional Overhead Steel Doors: 430 Series Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
 1. Door Assembly: Steel door assembly with rabbeted meeting rails to form weathertight joints and provide full-width interlocking structural rigidity.
 - a. Panel Thickness: 2 inches (51 mm).
 - b. Exterior Surface: Ribbed.
 - c. Section Material: Nominal 24 gauge, galvanized steel.
 - d. Center and End Stiles: 16 gauge steel.
 - e. Springs:
 - 1) 50,000 cycles.
 - f. Partial Glazing of Steel Panels:
 - 1) Non-Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
 2. Finish and Color:
 - a. Two coat baked-on polyester:
 - 1) Interior color, white.
 3. Windload Design: Provide to meet the Design/Performance requirements specified.
 4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
 5. Weatherstripping:
 - a. Flexible bulb-type strip at bottom section.
 - b. Flexible Jamb seals.
 - c. Flexible Header seal.
 6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
 7. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.

- a. Entrapment Protection: Required for momentary contact, includes radio control operation.
 - 1) Photoelectric sensors monitored to meet UL 325/2010.
- b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Surface mounting.
 - 3) Interior location.
 - 4) Provide two (2) remote operation control units for each door as well as one (1), exterior surface mounted, keypad operator for each door.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. Verify electric power is available and of correct characteristics.
- D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.
- B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- C. Anchor assembly to wall construction and building framing without distortion or stress.
- D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- E. Fit and align door assembly including hardware.
- F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.4 CLEANING AND ADJUSTING

- A. Adjust door assembly to smooth operation and in full contact with weatherstripping.
- B. Clean doors, frames and glass.
- C. Remove temporary labels and visible markings.

3.5 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
- B. Protect installed products until completion of project.
- C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Furnish all materials, labor, and equipment to install gypsum wallboard and accessories as shown on the Drawings and as required to complete the building.
2. Types of work include:
 - a. Gypsum wallboard applied to wood framing and furring.
 - b. Gypsum wallboard applied to metal stud framing system.
 - d. Gypsum wallboard applied to solid substrate.
 - e. Gypsum wallboard applied to ceilings and soffits.
 - f. Drywall finishing including joint tape-and-compound treatment.
3. Wood framing and furring are specified in Division 6.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 06100 Rough Carpentry
Section 06200 Finish Carpentry
Section 09120 Ceiling Suspension System

1.02 REFERENCES:

- A. Gypsum Board Standard: Comply with applicable requirements of ANSI/ASTM C 840 for application and finishing of gypsum board, unless otherwise indicated.
- B. Gypsum Board Terminology Standard: GA-505 by Gypsum Association.
- C. Federal Specifications:
 1. Fed Spec SS-L-30D
 2. Fed Spec QQ-S-775
- D. American Society for Testing of Materials (ASTM):
 1. ASTM C 380 - Standard specifications for annular ringed nails for gypsum wallboard.

2. ASTM C 475 - Standard specifications for joint treatment material for gypsum wallboard construction.
3. ASTM C 514 - Standard specifications for nails for application of gypsum wallboard.
4. ASTM C 630 - Standard specifications for water resistant gypsum backing boards.

1.03 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.
- B. Product Data: Submit manufacturer's specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these specifications.

1.04 QUALITY ASSURANCE:

- A. Qualifications of Manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- B. Qualifications of Installers: Use adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. Mock-Ups: When requested by the DNR Construction Inspector, provide mock-ups for each type of gypsum wallboard finish used in the work of this section.
 1. Make mock-up panels approximately 4'-0" square.
 2. The mock-ups may be used as part of the work, and may be included in the finished work, when approved by the DNR Construction Inspector.
 3. Revise mock-ups as necessary to receive approval from the DNR Construction Inspector.
 4. The approved mock-up panels will be used as datum points for comparison with the remainder of the work of this section to determine acceptance or rejection.
 5. Demolish and remove from the project site, rejected panels not permitted as part of the finish work.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver, identify, store, and protect gypsum drywall materials to comply with referenced standards and manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 - 1. Gypsum Board and Related Products:
 - a. The Celotex Corporation
 - b. The Flintkote Company
 - c. Georgia-Pacific Corporation
 - d. Gold Bond Building Products Div., National Gypsum Co.
 - e. United States Gypsum Company

2.02 MATERIALS:

- A. Gypsum Wallboard: Provide gypsum wallboard complying with Fed Spec SS-L-30D, in 48" widths and in such length as will result in a minimum of joints, with tapered edges and of type and thickness as shown.
 - 1. Regular Wallboard: Provide Type III, Grade R, Class 1, 5/8" thick except as may be shown otherwise on the Drawings.
 - 2. Fire-Retardant Wallboard: Provide Type III, Grade X, Class 1, 5/8" thick.
 - 3. Water-Resistant Wallboard: Provide Type IV, Grade W or X as required, Class 2, 5/8" thick except otherwise shown on the Drawings complying with ASTM C 630.
 - 4. Foil Backed Wallboard: Provide as shown on the Drawings.
- B. Shaft Walls: Where so indicated on the Drawings, provide gypsum wallboard system specifically designed for encasing shafts of the required fire-resistivity, and complying with Fed Spec SS-L-30D, Type IV, Grade R or X, Class 1, in the dimensions shown or otherwise required.
- C. Sheathing: Where gypsum wallboard sheathing is indicated on the Drawings, provide gypsum wallboard complying with Fed Spec SS-L-30D, Type II, Grade W, Class 2.

2.03 ACCESSORIES:

- A. Metal Trim: Provide manufacturer's standard trim formed from zinc coated (galvanized) steel not lighter than 26 gauge, complying with Fed Spec QQ-S-775, Type I, Class d or e.
- B. Casing Beads: Provide channel-shapes with exposed wing, and with a concealed wing not less than 7/8" wide. The exposed wing shall be suitable for joint treatment.

- C. Corner Beads: Provide angle shapes with wings not less than 7/8" wide and perforated for nailing and joint treatment, or with combination metal and paper wings bonded together, not less than 1-1/4" wide and suitable for joint treatment.
- D. Jointing System: Provide jointing system, including reinforcing tape and compound. Complying with ASTM C 475.
 - 1. Unless otherwise specified, use a system recommended by the manufacturer for the indicated application.
- E. Water-Resistant Joint Compound: Special water-resistant type for treatment of joints, fastener heads and cut edges of water-resistant backing board.
 - 1. Available Product: Sheetrock Brand W/R Compound; United States Gypsum Company.
- F. Fastening to Metal Studs: For fastening gypsum wallboard in place on metal studs and metal channels, use flat-head screws, shouldered, specially designed for use with power-driven tools, not less than 1" long, with self-tapping threads and self-drilling points.
- G. Fastening to Wood: For fastening gypsum wallboard in place on wood, use 1-1/4" type W bugle-head screws, or use annular ring-type nail complying with ASTM C 514 or gypsum board nails complying with ASTM C 380, and of the length required by governmental agencies having jurisdiction.
- H. Access Doors: In partitions and ceilings installed under this section, provide doors where required for access to mechanical and electrical installations.
 - 1. Unless otherwise required, provide 24" x 24" metal access doors with concealed hinges to metal frame and with allen-key lock.
 - 2. For doors into fire-rated surfaces, provide access doors having the same fire rating as the surfaced being pierced.
 - 3. For tile surfaces and toilet rooms, provide stainless steel access doors and frames, with satin finish.
 - 4. For other installations, provide prime-coated steel access doors and frames for finish painting to be performed at the job site under Section 09900 of these specifications.
- I. Texturing: Provide for spray texturing of gypsum surfaces within this project.
 - 1. Ceilings: Very Light Orange Peel
 - 2. Walls: Very Light Orange Peel
- J. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the area and conditions under which the work of this section will be performed.
- B. Correct conditions detrimental to timely and proper completion of the work.
- C. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 - 1. Verify that gypsum drywall may be installed in strict accordance with all pertinent codes and regulations, the manufacturers' recommendations as approved by the Architect, and the original design.
- D. Do not install gypsum drywall until all unsatisfactory conditions have been corrected.

3.02 INSTALLATION:

- A. General: Unless otherwise specified, install gypsum wall board in accordance with the Drawings, ANSI 97.1, the above referenced, publications, and manufacturer's installation instructions.
 - 1. Place separate boards in moderate contact, do not force into place.
 - 2. Conceal the cut edges of boards at internal and external corners by overlapping covered edges of the abutting boards.
 - 3. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners.
 - 4. Do not apply gypsum board to wood framing with wood moisture content in excess of 15 percent.
 - 5. Space fasteners 3/8" minimum from ends and edges.
- B. Ceilings: Install gypsum wallboards to ceilings with their long dimension at right angle to the supporting members.
 - 1. Wallboards may be installed with the long dimension parallel to supporting members that are spaced 16" on center when attachment members are provided at end joints.
- C. Walls: Install gypsum wallboard to studs at right angles to the furring or framing members.
 - 1. Make end joints, where required, over framing or furring members.
- D. Fastening to Metal Studs: Drive specified screws with clutch-controlled power screwdrivers, spacing the screws 12" on center at ceilings and 16" on center at walls, unless otherwise specified.

1. Where framing members are spaced 24" apart on walls, space screws 12" on center along framing member.
 2. Attach double layers in accordance with the pertinent codes and the manufacturer's recommendations as approved by the Architect.
- E. Fastening to Wood: Attach to wood as required by governmental agencies having jurisdiction.
- F. Access Door: Install access door where specified on the Drawings.
1. Coordinate exact location with other trades.
 2. Anchor firmly into position and align flush with the finish surface.

3.03 APPLICATION:

A. Joint Treatment, General:

1. Inspect areas to be joint-treated, verifying that the gypsum wallboard fits snugly against supporting framework.
2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
3. Apply the joint treatment and finishing compound by machine or hand tool.
4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.

B. Embedding Compounds:

1. Apply to gypsum wallboard joints and fastener heads in a thin uniform layer.
2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound, and spread a thin layer of compound over the tape.
3. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged.
4. Sandpaper between coats as required. When thoroughly dry, sandpaper to eliminate ridges and high points.

C. Finishing Compounds: After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.

1. Feather the finishing compound to no less than 12" wide.

2. When thoroughly dry, sandpaper to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard.
- D. Corner Treatment:
1. Internal Corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.
 2. External Corners: Install the specified corner bead, fitting neatly over the corner and securing with the same type fastener used for installing the wallboard.
 - a. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
 - b. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.
- E. Other Metal Trim:
1. The Drawings may not show all the locations and requirements for metal trim.
 2. Carefully study the Drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this work.
- F. Finishing Water-Resistant Gypsum Board Base for Ceramic Tile: Treat joints and fasteners to comply with directions of water-treatment joint compound manufacturer.
1. In areas not to be tiled, treat fastener heads and embed tape as indicated above using water-resistant joint compound, but finish with two (2) coats of joint compound used for regular gypsum board work.
- G. Texturing: Surfaces, including joint-treated areas must be smooth, clean and dry.
1. Allow a minimum of 48 hours for drying of joint treatments, nail spottings and surface levelings.
 2. Apply only if room temperature is between 55° to 70°.
 3. If texturing is the finish surface first apply a coat of good quality white alkyd flat oil base paint or primer/sealer.
 4. Follow manufacturer's instructions in material application and usage of spray equipment.
 5. If a second coat is required, do not apply until first coat is completely dry.
- H. Refer to sections on painting, coatings, and wall-coverings in Division 9 for decorative finishes to be applied to drywall work.

3.04 CLEANING:

- A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
- B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, joint compound droppings, texturing materials and surplus material of this section.

3.05 PROTECTION:

- A. Installer shall advise Contractor of required procedures for protecting gypsum drywall work from damage and deterioration during remainder of construction period.

END OF SECTION 09250

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Extent of painting work is shown on Drawings and Schedules, and as herein specified.
2. The work includes painting and finishing of interior and exterior exposed items and surfaces throughout project, as indicated on the Drawings.
 - a. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
 - B. The work of this section also includes backpriming of non-exposed surfaces where shown and as specified herein.
3. Paint exposed surfaces whether or not colors are designated in "schedules," except where natural finish of material is specifically noted as a surface not to be painted.
 - a. Where items or surfaces are not specifically mentioned, paint same as adjacent similar materials or areas.
 - b. If color or finish is not designated, Architect will select these from standard colors available for materials systems specified.
4. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, miscellaneous metal, hollow metal work, and similar items.
 - a. Also, for fabricated components such as architectural woodwork, wood casework, and factory-built or shop-fabricated mechanical and electrical equipment or accessories.
5. Prefinished Items: Unless otherwise indicated, do not include painting when factory finishing or installer finishing is specified for such items as (but not limited to) metal toilet enclosures, prefinished partition systems, acoustic materials, architectural woodwork and casework, finished mechanical and electrical equipment including light fixtures, switchgear and distribution cabinets, elevator entrance frames, doors and equipment.
6. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as wells or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts, and elevator shafts.

7. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, unless otherwise indicated.
 8. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated.
 9. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 DEFINITIONS:

- A. "Paint," as used herein, means coating systems materials including primers, emulsions, epoxy, enamels, sealer, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.03 SYSTEM DESCRIPTION:

- A. Review Finish Schedule Sheet A-600

1.04 SUBMITTALS:

- A. Provide submittals in accordance with Section 01300.
- B. Product Data: Submit manufacturer's technical information including paint label analysis, color selection catalogs and application instructions for each material proposed for use.
- C. Samples: Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.
- D. On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.
- E. On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

1.05 QUALITY ASSURANCE:

- A. Qualification of Manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- B. Qualification of Workers:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workers skilled in the necessary crafts and properly informed of the methods and materials to be used.
3. In acceptance or rejection of the work of this section, the Architect will make no allowance for lack of skill on the part of workers.

1.06 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:
 1. Name or title of material.
 2. Fed. Spec. Number, if applicable.
 3. Manufacturer's stock number and date of manufacturer.
 4. Manufacturer's name.
 5. Contents by volume, for major pigment and vehicle constituents.
 6. Thinning instructions.
 7. Application instructions.
 8. Color name and number.
- B. Material delivered damaged, open, or in containers not properly labeled will be rejected by the DNR Construction Inspector.
- C. Promptly remove unacceptable material from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

1.07 PROJECT/SITE CONDITIONS:

- A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50°F. (10°C) and 90°F. (32°C), unless otherwise permitted by paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45°F. (7°C) and 95°F. (35°C), unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceed 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.
- D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

1.08 SEQUENCING AND SCHEDULING:

- A. Coordination with other trades: Do not start work of this section until the work of other trades, unless otherwise specified, has been completed in the areas to be painted.
- B. Follow manufacturer's instructions and schedule sufficient drying time between coats to achieve maximum thickness.
 - 1. Exterior System: Unless otherwise recommended by paint system manufacturer, do not apply second and third coats until a minimum of 16 hours has elapsed since preceding application.
 - 2. Interior System: Unless otherwise recommended by the paint system manufacturer, do not apply the second and third coats, if any, until a minimum of 34 hours has elapsed since preceding application.
- C. The DNR Construction Inspector may require notification of starting and finishing times for each coat in order to verify complete and proper application of each system under this contract.

1.09 MAINTENANCE:

- A. Provide manufacturer recommended maintenance instructions in accordance with Section 01730.
- B. Maintenance by Owner: In addition to following the recommended maintenance instruction provided by the Contractor, the owner representative will:
 - 1. Unless otherwise indicated in the manufacturer's instruction, recoat exterior wood every three (3) years, as follows;
 - a. Power wash exterior structure as specified in part 3 of this section and in accordance with the manufacturer's recommended procedures.
 - b. Allow wood to dry for three (3) Days.
 - c. Unless otherwise recommended, apply one coat of the same product used as third coat in the initial application.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work of this section include:
 - 1. ICI Delux Paints, Cleveland, OH
 - 2. Iowa Paint Manufacturing Co., Des Moines, IA
 - 3. Fuller-O'Brien Paints and Coatings, San Francisco, CA
 - 4. Diamond Vogel Paint, Marshalltown, IA
 - 5. Sherwin-Williams Co., Cleveland, OH
 - 6. Pittsburg Paints, PPG Industries, Inc., Pittsburg, PA

7. Sikkens Woodfinishes, Division of Akzo Coatings Inc., Troy, Michigan
8. Enviro-Chem, Inc., Walla Walla, Washington

2.02 MATERIALS:

- A. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.
- B. Provide undercoat paint produced by same manufacturer as finish coats.
 1. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates.
 1. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used.
 2. Provide barrier coats over incompatible primers or remove and reprime as required.
 3. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.
- D. Color Pigments: Pure, nonfading, applicable types to suit substrates and service indicated.
 1. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total nonvolatile (dry-film) of paint by weight.
 2. This limitation is extended to interior surfaces and those exterior surfaces, such as stairs, decks, porches, railings, windows, and doors which are readily accessible to children under seven years of age.
- E. Schedules: Paint colors, surface treatments, and finishes are indicated in "schedules" of the contract documents. Except as noted, listed coating names, numbers, and colors are used to establish the quality, type and color of coating.
 1. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.
 2. Manufacturer's products which comply with coating qualitative requirements of applicable Federal Specifications, yet differ in quantitative requirements, may be considered for use when acceptable to Architect.
 - a. Furnish material data and manufacturer's certificate of performance to Architect for any proposed substitutions.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work.
 - 1. Do not proceed with work until satisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.02 PREPARATION:

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instruction and as herein specified, for each particular substrate condition.
- B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations.
 - 1. Remove, if necessary, for complete painting of items and adjacent surfaces.
 - 2. Following completion of painting of each space or area, reinstall removed items.
- C. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning.
 - 1. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly painted surfaces.
- D. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests.
 - 1. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint.
 - 2. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
- E. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required.
 - 1. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat.

2. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler and sandpaper smooth when dried.
- G. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, and paneling.
- H. When transparent finish is required, use spar varnish for backpriming.
- I. Backprime paneling on interior partitions only where masonry, plaster, or other wet wall construction occurs on backside.
- J. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.
- K. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale, and other foreign substances by solvent or mechanical cleaning.
1. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications.
 2. Clean and touch-up with same type of shop primer.
- L. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.
- M. Material:
1. Mix and prepare painting materials in accordance with manufacturer's directions.
 2. Store materials not in actual use in tightly covered containers.
 3. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
 4. Stir materials before application to produce a mixture of uniform density, and stir as required during application.
 5. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.03 APPLICATION:

- A. General: Apply paint in accordance with manufacturer's directions.
1. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color, and appearance.

1. Pay special attention to ensure that surfaces, including edges, corners, crevices welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
- C. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.
 1. Paint surfaces behind permanently fixed equipment of furniture with prime coat only before final installation of equipment.
- D. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.
- E. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
- F. Sand lightly between each succeeding enamel or varnish coat.
- G. Unless otherwise indicated, omit primer coat on metal surfaces which have been shop-primed and touch-up painted,
- H. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
- I. Allow sufficient time between successive coatings to permit proper drying.
 1. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- J. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- K. Prime Coats: Apply prime coat on material required to be painted, and which has not been prime coated by others.
- L. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- M. Completed Work: Match approved samples for color, texture, and coverage.
 1. Remove, refinish or repaint work not in compliance with specified requirements.

3.04 CLEANING:

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each workday.
- B. Upon completion of painting work, clean window glass and other paint-spattered surfaces.

1. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.05 PROTECTION:

- A. Protect work of other trade, whether to be painted or not, against damage by painting and finishing work.
1. Correct any damage by cleaning, repairing or replacing, and repainting as acceptable to Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes.
1. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

3.06 SCHEDULES:

- A. Provide the following paint finishes by ICI Delux Paints or other manufacturers of equal products as specified herein.

B. EPS-1: Exterior Alkyd Enamel - Ferrous Metals:

1st Coat -	Alkyd Metal Primer	Devoe DevGuard No. 4160
2nd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308 Series
3rd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308 Series

c. EPS-2: Exterior Alkyd Enamel - Galvanized and Aluminum Metals:

1st Coat -	Alkyd Metal Primer	Devoe DevGuard No. 4129
2nd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308
3rd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308

E. IPS-1: Interior Latex Emulsion (Semi-Gloss) - Gypsum Wallboard

1st Coat -	Primer Sealer	Ultra-Hide No. 1060
2nd Coat -	Latex Enamel	Ultra-Wall No. 1434
3rd Coat -	Latex Enamel	Ultra-Wall No. 1434

F. IPS-2: Interior Alkyd Enamel (Semi-Gloss) – Woodwork - Plywood

1st Coat -	Alkyd Primer	Ultra-Hide No. 1120
2nd Coat -	Alkyd Enamel	Ultra-Hide No. 1516
3rd Coat -	Alkyd Enamel	Ultra-Hide No. 1516

G. IPS-3: Interior Alkyd Enamel - Ferrous Metals:

1st Coat -	Alkyd Metal Primer	Devoe DevGuard No. 4160
2nd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308 Series

3rd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308 Series
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H. IPS-4: Interior Alkyd Enamel - Galvanized and Aluminum Metals:

1st Coat -	Alkyd Metal Primer	Devoe DevGuard No. 4129
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2nd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308
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3rd Coat -	Alkyd Gloss Enamel	Devoe DevGuard No. 4308
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I. IPS-5: Interior Urethane Varnish (satin Sheen) - Protected Wood:

1st Coat -	Oil Stain Semi-Transp.	Woodpride No. 1700
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2nd Coat -	Urethane Alkyd	Woodpride No. 1902
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3rd Coat -	Urethane Alkyd	Woodpride No. 1902
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END OF SECTION 09900



SURVEY CONTROL POINTS

SURVEY CONTROL POINT #11 N: 300932.379 E: 1895093.089 Elev: 855.206 PK NAIL IN CONC	SURVEY CONTROL POINT #12 N: 300957.300 E: 1895040.970 Elev: 856.614 PK NAIL IN CONC
SURVEY CONTROL POINT #13 N: 300962.474 E: 1894964.671 Elev: 855.222 PK NAIL IN CONC	SURVEY CONTROL POINT #14 N: 300972.318 E: 1895387.673 Elev: 833.395 PK NAIL IN CONC

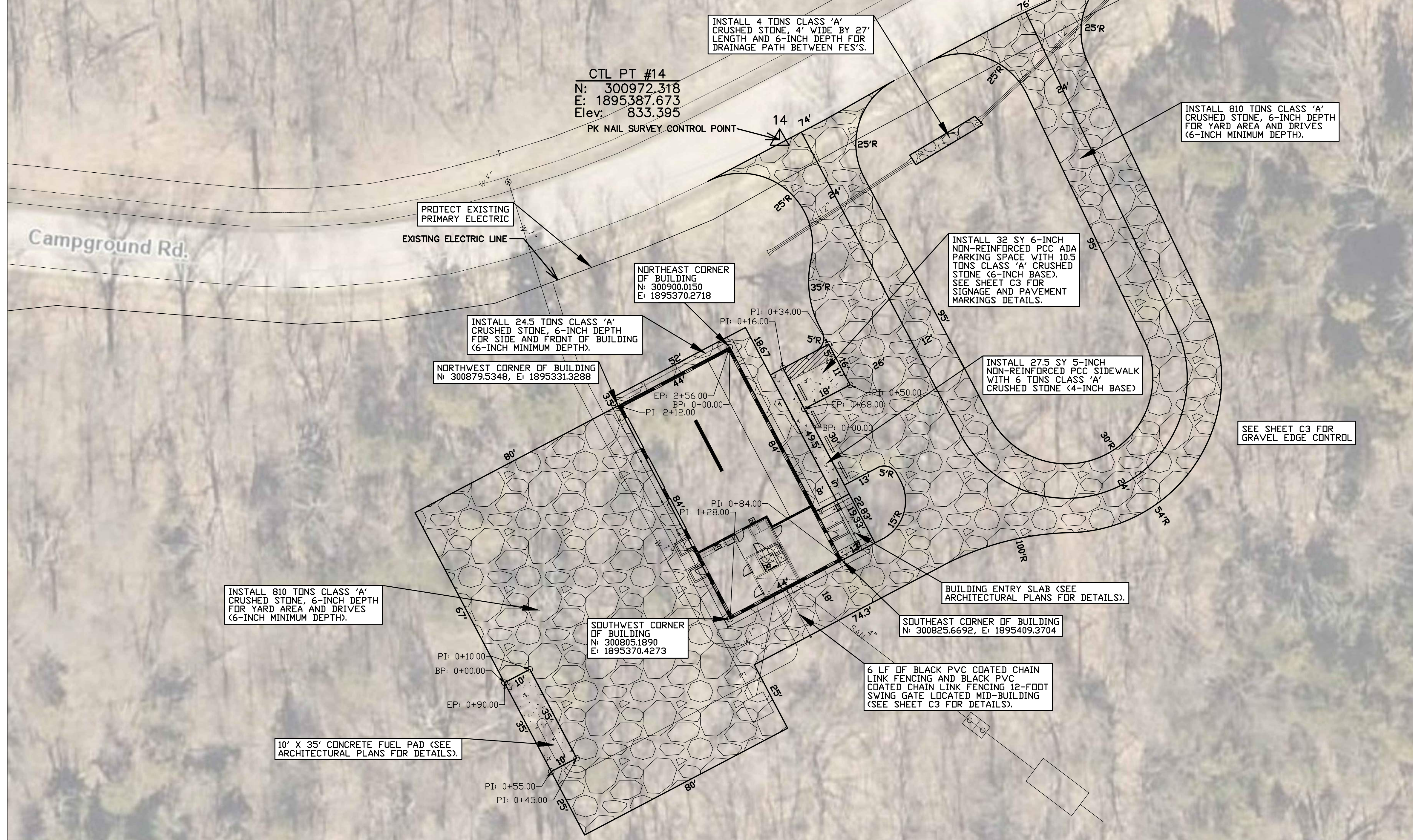
SURVEY CONTROL NOTES

1. SURVEY CONTROL POINTS ARE STATE PLANE COORDINATE SYSTEM.

GENERAL NOTES

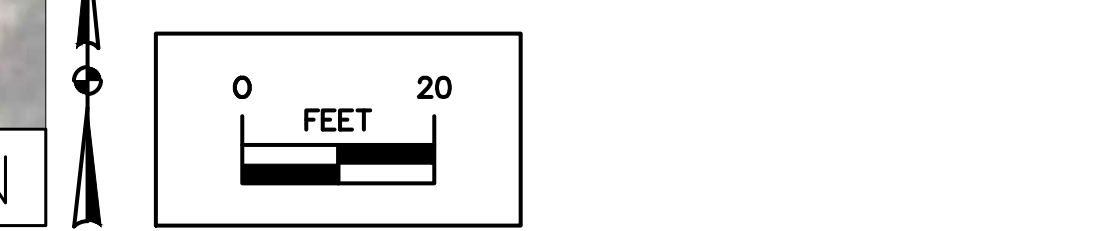
- TWO WEEKS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY:
 - IOWA DNR PROJECT MANAGER: RYAN RICHEY 515-979-0107
 - DISTRICT INSPECTOR: JASON KRUSE 515-250-3707
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS). ALL CONSTRUCTION TESTING TO BE IN ACCORDANCE WITH SUDAS AND IS THE EXPENSE OF THE CONTRACTORS.
- THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ABOVE MENTIONED CONTACTS OF ANY DISCREPANCIES.
- THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL PUBLIC AND/OR PRIVATE UTILITIES SERVING THE AREA TO DETERMINE THE PRESENT EXTENT AND LOCATION OF THEIR FACILITIES BEFORE BEGINNING WORK.
- THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROPER UTILITY IMMEDIATELY UPON BREAKING OR DAMAGE TO ANY UTILITY LINE OR APPURTENANCE, OR THE INTERRUPTION OF THEIR SERVICE. HE SHALL NOTIFY THE PROPER UTILITY INVOLVED. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED.
- CONTRACTOR TO PROTECT ALL UTILITY, PAVING, BUILDINGS, ETC. OUTSIDE OF LIMITS OF PROPOSED CONSTRUCTION.
- IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THE QUANTITIES AND THE PLANS, THE DETAILED PLANS SHALL GOVERN.
- CONTRACTOR SHALL SEED/MULCH ALL DISTURBED AREAS (APPROXIMATELY 1 ACRE). USE TYPE 1 (PERMANENT LAWN MIXTURE) SEED MIX.
- PROTECT ALL EXISTING TREES AND VEGETATION UNLESS OTHERWISE NOTED.

BUILDING CONTROL LINE						ADA PARKING SPACE CONCRETE EDGE CONTROL LINE									
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point	No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	84.00'	S27° 44' 24"E	0+00.00'	0+84.00'	(1895370.2718', 300900.0150')	(1895409.3704', 300825.6692')	1	Line	16.00'	N27° 44' 24"W	0+00.00'	0+16.00'	(1895396.2845', 300878.4813', 830.55')	(1895388.8372', 300892.6424', 830.60')
2	Line	44.00'	S62° 15' 36"W	0+84.00'	1+28.00'	(1895409.3704', 300825.6692')	(1895370.4273', 300805.1890')	2	Line	18.00'	N62° 15' 36"E	0+16.00'	0+34.00'	(1895388.8372', 300892.6424', 830.60')	(1895404.7684', 300901.0207', 830.40')
3	Line	84.00'	N27° 44' 24"W	1+28.00'	2+12.00'	(1895370.4273', 300805.1890')	(1895331.3288', 300879.5348')	3	Line	16.00'	S27° 44' 24"E	0+34.00'	0+50.00'	(1895404.7684', 300901.0207', 830.40')	(1895412.2158', 300886.8596', 830.25')
4	Line	44.00'	N62° 15' 36"E	2+12.00'	2+56.00'	(1895331.3288', 300879.5348')	(1895370.2718', 300900.0150')	4	Line	18.00'	S62° 15' 36"W	0+50.00'	0+68.00'	(1895412.2158', 300886.8596', 830.25')	(1895396.2845', 300878.4813', 830.55')



LEGEND

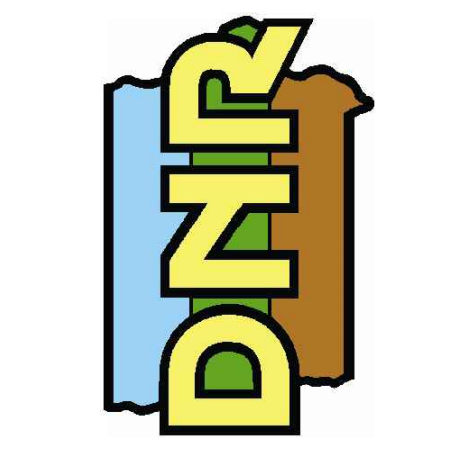
- EXISTING/PROPOSED
- S 6" — SANITARY SEWER
 - W 2" — WATER MAIN
 - ST 8" — STORM SEWER
 - E — ELECTRICAL LINE
 - 990 — ELEVATION
 - 882.67 [884.50] — SPOT ELEVATION
 - (Cloud symbol) — TREES
 - (X symbol) — 8" FILTER SOCK



FUEL PAD CONCRETE EDGE CONTROL LINE							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	10.00'	N62° 15' 36"E	0+00.00'	0+10.00'	(1895291.7090', 300782.9985', 832.70')	(1895300.5597', 300787.6530', 832.55')
2	Line	35.00'	S27° 44' 24"E	0+10.00'	0+45.00'	(1895300.5597', 300787.6530', 832.55')	(1895316.8508', 300756.6756', 832.15')
3	Line	10.00'	S62° 15' 36"W	0+45.00'	0+55.00'	(1895316.8508', 300756.6756', 832.15')	(1895308.0001', 300752.0210', 832.30')
4	Line	35.00'	N27° 44' 24"W	0+55.00'	0+90.00'	(1895308.0001', 300752.0210', 832.30')	(1895291.7090', 300782.9985', 832.70')

DIMENSION PLAN

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



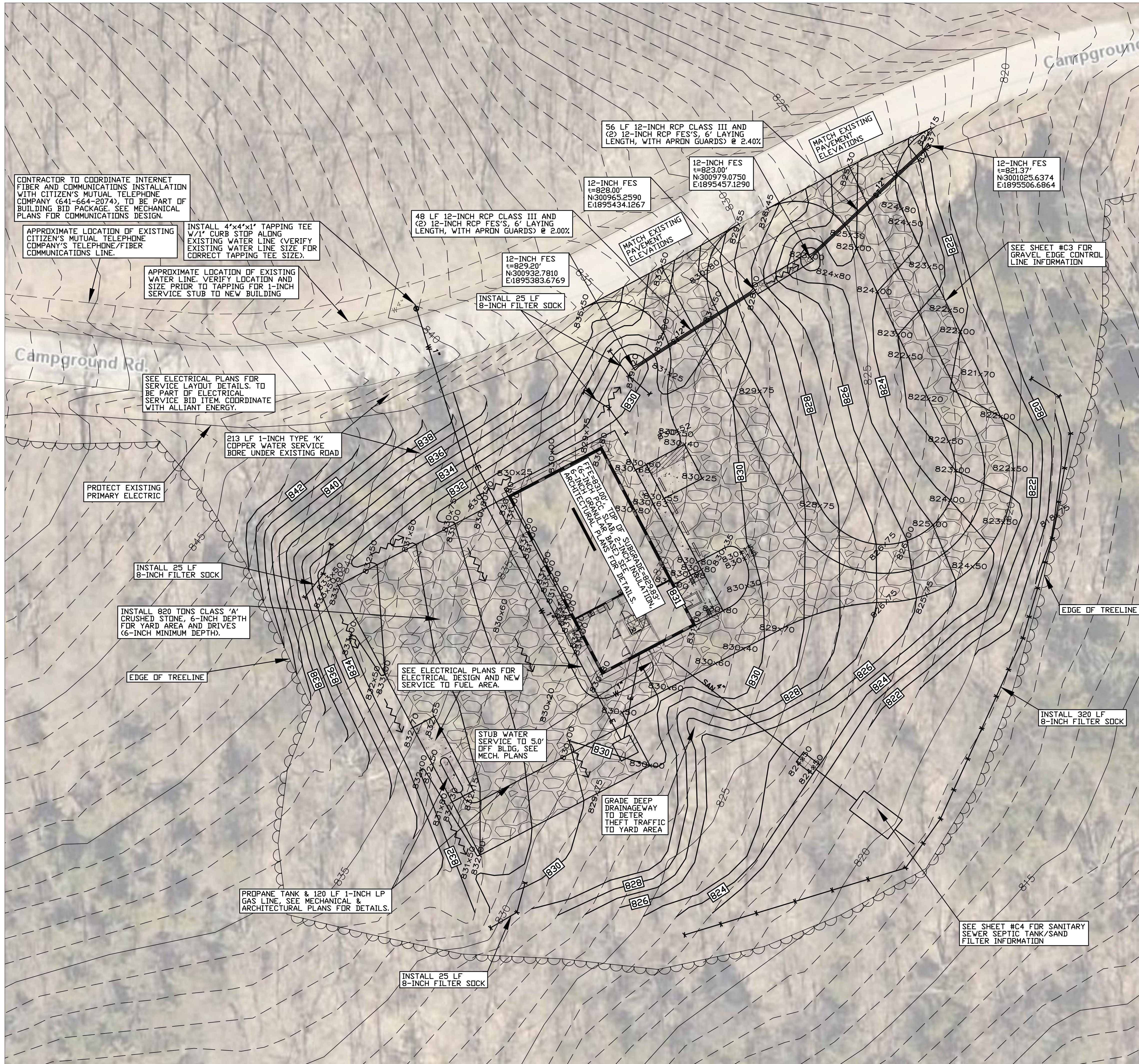
SURVEY/DIMENSION PLAN
NEW OFFICE & STORAGE BUILDING FOR:
LAKE WAPELLO STATE PARK
15246 CAMPGROUND ROAD
DRAKESVILLE, IA 52552

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:
23-05-26-01

CHK'D BY: DATE:
03.21.2023

SHEET NO:



GRADING NOTES

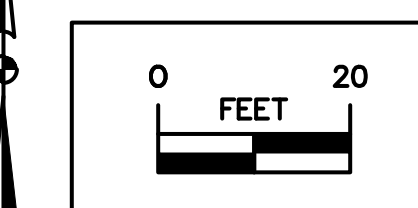
- TWO WEEKS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY:
 - IOWA DNR PROJECT MANAGER: RYAN RICHEY 515-979-0107
 - DISTRICT INSPECTOR: JASON KRUSE 515-250-3707
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS). ALL CONSTRUCTION TESTING TO BE IN ACCORDANCE WITH SUDAS AND IS THE EXPENSE OF THE CONTRACTORS.
- THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ABOVE MENTIONED CONTACTS OF ANY DISCREPANCIES.
- THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL PUBLIC AND/OR PRIVATE UTILITIES SERVING THE AREA TO DETERMINE THE PRESENT EXTENT AND LOCATION OF THEIR FACILITIES BEFORE BEGINNING WORK.
- THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROPER UTILITY IMMEDIATELY UPON BREAKING OR DAMAGE TO ANY UTILITY LINE OR APPURTENANCE, OR THE INTERRUPTION OF THEIR SERVICE. HE SHALL NOTIFY THE PROPER UTILITY INVOLVED. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED.
- CONTRACTOR TO PROTECT ALL UTILITY, PAVING, BUILDINGS, ETC. OUTSIDE OF LIMITS OF PROPOSED CONSTRUCTION.
- IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THE QUANTITIES AND THE PLANS, THE DETAILED PLANS SHALL GOVERN.
- CONTRACTOR SHALL SEED/MULCH ALL DISTURBED AREAS (APPROXIMATELY 1 ACRE), USE TYPE 1 (PERMANENT LAWN MIXTURE) SEED MIX.
- MAINTAIN ALL CUT AND FILL AREAS TO ACCOMMODATE SURFACE DRAINAGE.
- FINISHED GRADE ON ALL NON-PAVED AREAS SHALL BE WITHIN 0.20 FOOT OF PLAN GRADE. PAVED AREAS SHALL BE WITHIN 0.10 FOOT.
- TOPSOIL SHALL BE SPREAD TO A MINIMUM THICKNESS OF 6-INCHES ON ALL DISTURBED UNPAVED AREAS.
- BACKFILL TO THE TOP OF ALL ROCK OR PAVED SURFACES.
- ALL ELEVATIONS ARE TO THE GUTTER GRADE UNLESS NOTED OTHERWISE.
- EARTHWORK QUANTITY IS ROUGHLY 2,500 CY. IF ANY EXCESS IS PRODUCED, WASTE WITHIN THE LOOP ENTRANCE/EXIT DRIVE AND/OR EAST OF THE ENTRANCE/EXIT DRIVE.
- NPDES GENERAL PERMIT #2 IS REQUIRED FOR THIS PROJECT AS 1.5 ACRE IS BEING DISTURBED.

UTILITY NOTES

- MAINTAIN A MINIMUM 4' COVER OVER WATER LINES.
- SEE SHEET C4 FOR SANITARY SEWER SERVICE AND SEPTIC/SAND FILTER DESIGN.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS). ALL CONSTRUCTION TESTING TO BE IN ACCORDANCE WITH SUDAS AND IS THE EXPENSE OF THE CONTRACTORS.
- REFER TO MECHANICAL PLANS FOR UTILITY SERVICE CONNECTIONS TO OFFICE BUILDING AND INTERNAL BUILDING UTILITY DESIGN.
- WATER SERVICE TO BE 1-INCH TYPE 'K' COPPER.
- SEE ELECTRICAL PLANS FOR SERVICE LAYOUT DETAILS AND ALL ELECTRICAL WORK SHALL BE PART OF THE ELECTRICAL SERVICE BID ITEM. COORDINATE WITH ALLIANT ENERGY.

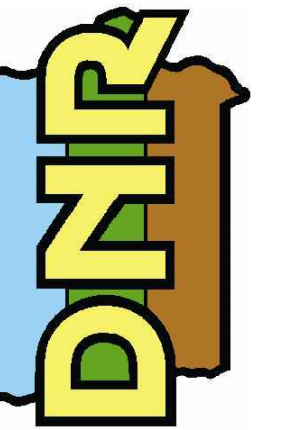
LEGEND

- EXISTING/PROPOSED
- S 6" — SANITARY SEWER
 - W 2" — WATER MAIN
 - ST 8" — STORM SEWER
 - E — ELECTRICAL LINE
 - 990 — ELEVATION
 - 882.67 884.50 — SPOT ELEVATION
 - ☁ — TREES
 - X — 8" FILTER SOCK



IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
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GRADING/UTILITY PLAN

NEW OFFICE & STORAGE BUILDING FOR:
LAKE WAPELLO STATE PARK

DRAKESVILLE, IA 52552

15246 CAMPGROUND ROAD

BY	DATE	REVISION

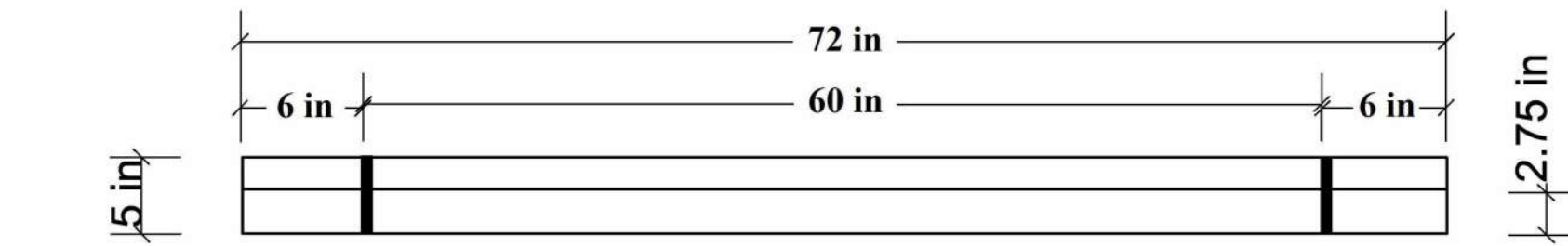
DRAWN BY: PROJECT NUMBER:
23-05-26-01

CHK'D BY: DATE:
03.21.2023

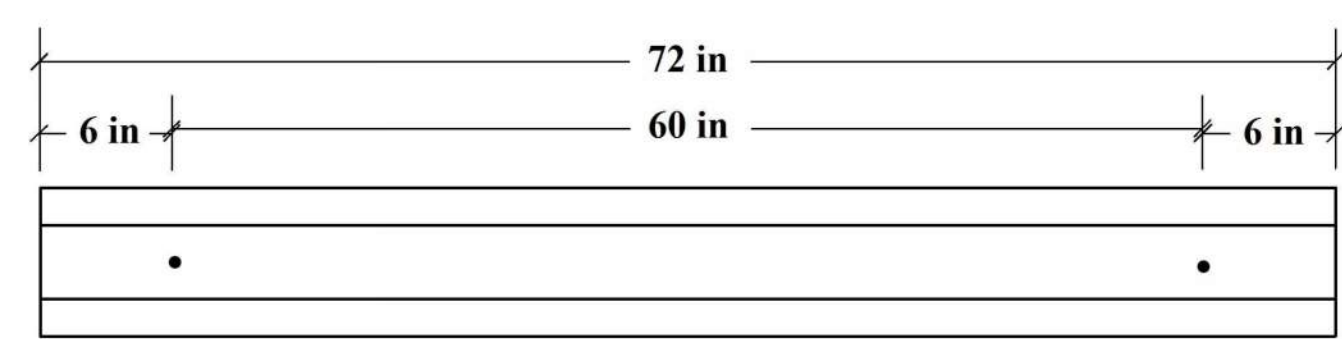
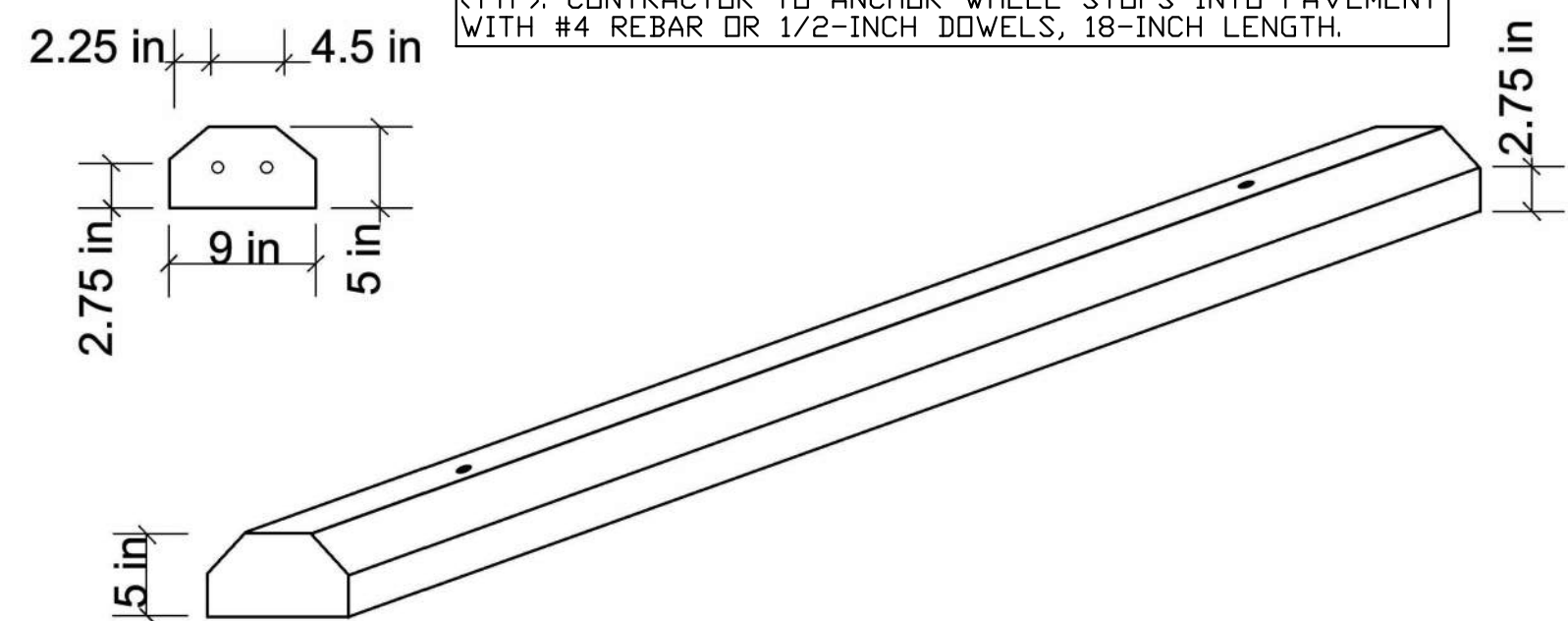
SHEET NO:

C2

FLAT PARKING BUMPER

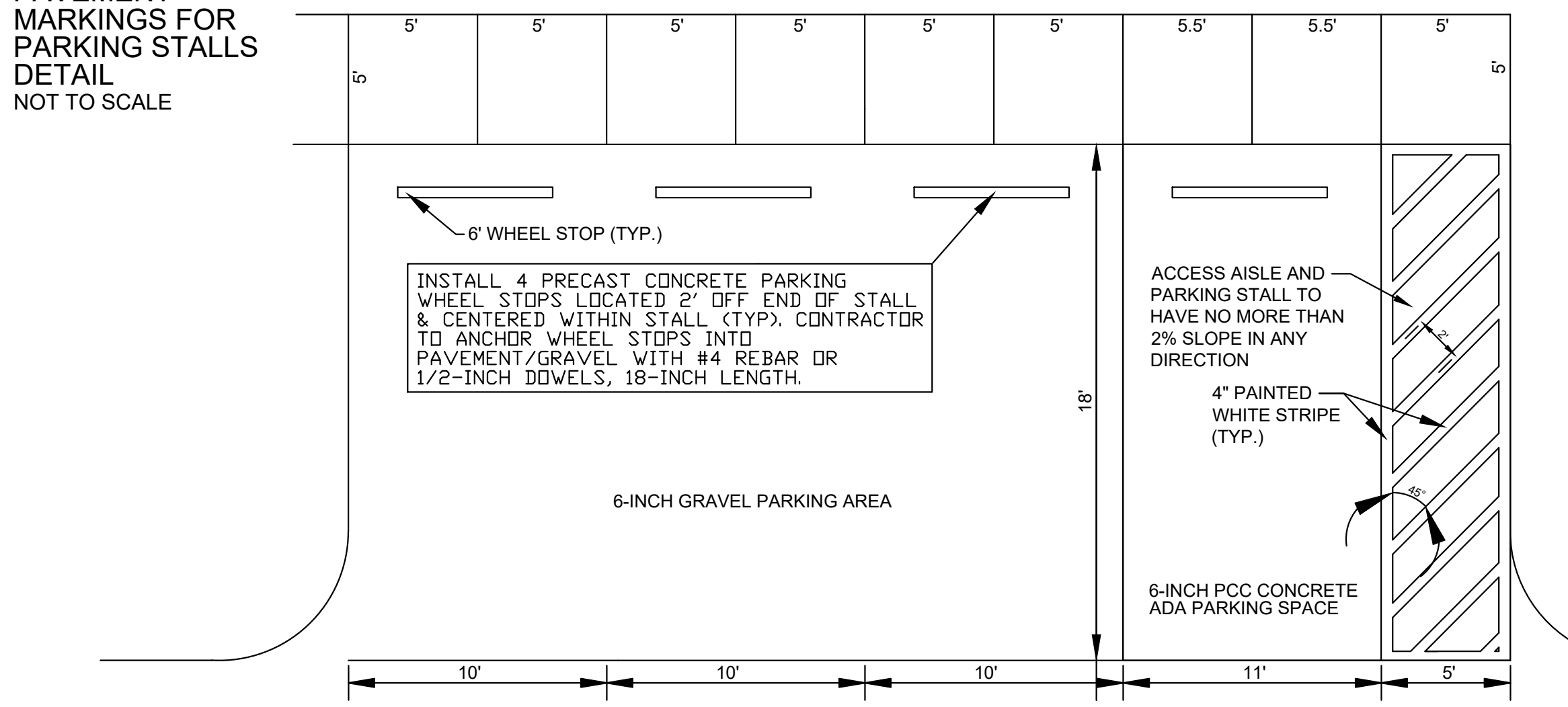


INSTALL 4 PRECAST CONCRETE PARKING WHEEL STOPS LOCATED 2' OFF END OF STALL & CENTERED WITHIN STALL (TYP). CONTRACTOR TO ANCHOR WHEEL STOPS INTO PAVEMENT WITH #4 REBAR OR 1/2-INCH DOWELS, 18-INCH LENGTH.

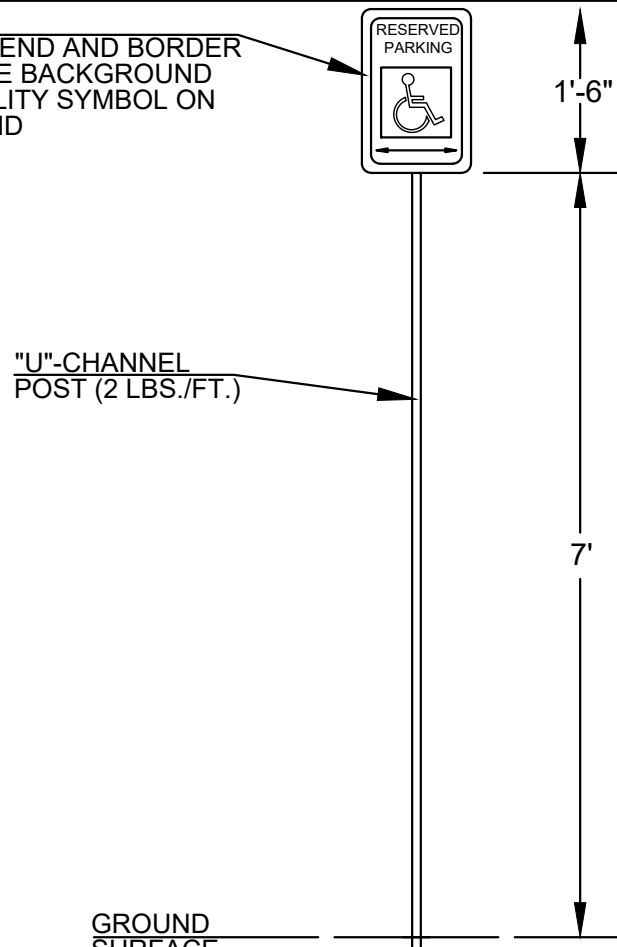


Air Entrained Concrete
 4000 p.s.i. @ 28 days
 Length: 6'0"
 Height: 5"
 Width: 9"

PAVEMENT MARKINGS FOR PARKING STALLS DETAIL NOT TO SCALE



MUTCD R7-8
 SOLID GREEN LEGEND AND BORDER
 REFLECTIVE WHITE BACKGROUND
 WHITE ACCESSIBILITY SYMBOL ON
 BLUE BACKGROUND

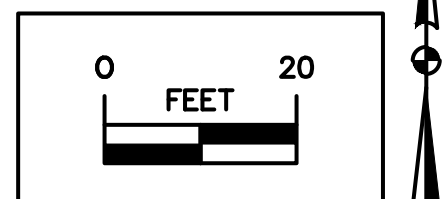


- NOTES
 1. 12"x18" ACCESSIBILITY SIGN (R7-8) SHALL BE MOUNTED 7" FROM FINISH GRADE TO BOTTOM EDGE OF SIGN FACE.
 2. SIGNAGE FOR TO BE LOCATED ON END OF PARKING STALL, 2' BACK FROM EDGE OF PAVEMENT, CENTERED ON STALL. "U" CHANNEL CAN BE DRIVEN INTO GROUND AT SAID LOCATION TO A DEPTH OF 3.5 FEET.
 3. ALL SIGNAGE SHALL BE ENGINEER GRADE .080 ALUMINUM REFLECTIVE SIGN MEETING THE REQUIREMENTS OF THE MUTCD AND ADAAG.
 4. SURFACE MOUNTING BASE TO BE 15-INCH DIAMETER ALUMINUM BASE (OR EQUIVALENT) THAT IS COMPATIBLE WITH 2 LBS./FT. "U" CHANNEL.

HANDICAP SIGN DETAIL
 NOT TO SCALE

LEGEND

- EXISTING/PROPOSED**
- S 6" --- SANITARY SEWER
 - W 2" --- WATER MAIN
 - ST 8" --- STORM SEWER
 - E --- ELECTRICAL LINE
 - 990 --- ELEVATION
 - 882.67 ● 884.50 SPOT ELEVATION
 - ☁ TREES
 - X --- 8" FILTER SOCK



GRAVEL EDGE CONTROL LINE			Start Station	End Station	Delta angle	Chord length	Chord Direction	Start Point	End Point	Center Point
No.	Type	Length								
1	Curve	39.84'	0+00.00'	0+39.84'	91.2952 (d)	35.75'	S20° 09' 02" W	(1895507.5101', 301032.7275', 822.15')	(1895495.1937', 300999.1632', 824.80')	(1895517.7589', 301009.9249')
2	Line	56.75'	S25° 29' 50" E	0+39.84'	0+96.59'			(1895495.1937', 300999.1632', 824.80')	(1895519.6244', 300947.9367', 822.00')	
3	Line	19.60'	S25° 29' 50" E	0+96.59'	1+16.19'			(1895519.6244', 300947.9367', 822.00')	(1895528.0629', 300930.2427', 821.70')	
4	Line	19.60'	S25° 29' 50" E	1+16.19'	1+35.80'			(1895528.0629', 300930.2427', 821.70')	(1895536.5014', 300912.5487', 822.00')	
5	Curve	107.67'	S44° 24' 24" E	1+35.80'	2+43.47'	114.2460 (d)	90.70'	S31° 37' 33" W	(1895536.5014', 300912.5487', 822.00')	(1895488.9397', 300835.3164', 826.75')
6	Curve	46.23'	S62° 15' 36" W	2+43.47'	2+89.70'	26.4888 (d)	45.82'	S75° 30' 16" W	(1895488.9397', 300835.3164', 826.75')	(1895444.5773', 300823.8472', 829.70')
7	Line	17.31'	S62° 15' 36" W	2+89.70'	3+07.01'			(1895444.5773', 300823.8472', 829.70')	(1895429.2546', 300815.7889', 830.40')	
8	Line	13.00'	S62° 15' 36" W	3+07.01'	3+20.01'			(1895429.2546', 300815.7889', 830.40')	(1895417.7487', 300809.7379', 830.60')	
9	Line	44.00'	S62° 15' 36" W	3+20.01'	3+64.01'			(1895417.7487', 300809.7379', 830.60')	(1895378.8056', 300789.2577', 830.50')	
10	Line	25.00'	S27° 44' 24" E	3+64.01'	3+89.01'			(1895378.8056', 300789.2577', 830.50')	(1895390.4421', 300767.1310', 830.00')	
11	Line	25.00'	S62° 15' 36" W	3+89.01'	4+14.01'			(1895390.4421', 300767.1310', 830.00')	(1895368.3153', 300755.4945', 829.75')	
12	Line	55.00'	S62° 15' 36" W	4+14.01'	4+69.01'			(1895368.3153', 300755.4945', 829.75')	(1895319.6365', 300729.8943', 832.00')	
13	Line	25.00'	N27° 44' 24" W	4+69.01'	4+94.01'			(1895319.6365', 300729.8943', 832.00')	(1895308.0000', 300752.0210', 832.30')	
14	Line	10.00'	N62° 15' 36" E	4+94.01'	5+04.01'			(1895308.0000', 300752.0210', 832.30')	(1895316.8508', 300756.6756', 832.15')	
15	Line	35.00'	N27° 44' 24" W	5+04.01'	5+39.01'			(1895316.8508', 300756.6756', 832.15')	(1895300.5597', 300787.6530', 832.55')	
16	Line	10.00'	S62° 15' 36" W	5+39.01'	5+49.01'			(1895300.5597', 300787.6530', 832.55')	(1895291.7090', 300782.9985', 832.70')	
17	Line	25.00'	N27° 44' 24" W	5+49.01'	5+74.01'			(1895291.7090', 300782.9985', 832.70')	(1895280.0725', 300805.1252', 833.00')	
18	Line	42.00'	N27° 44' 24" W	5+74.01'	6+16.01'			(1895280.0725', 300805.1252', 833.00')	(1895260.5232', 300842.2981', 833.90')	
19	Line	55.00'	N62° 15' 36" E	6+16.01'	6+71.01'			(1895260.5232', 300842.2981', 833.90')	(1895309.2020', 300867.8983', 831.00')	
20	Line	25.00'	N62° 15' 36" E	6+71.01'	6+96.01'			(1895309.2020', 300867.8983', 831.00')	(1895331.3288', 300879.5348', 830.80')	
21	Line	84.00'	S27° 44' 24" E	6+96.01'	7+80.01'			(1895331.3288', 300879.5348', 830.80')	(1895370.4273', 300805.1890', 830.80')	
22	Line	44.00'	N62° 15' 36" E	7+80.01'	8+24.01'			(1895370.4273', 300805.1890', 830.80')	(1895409.3704', 300825.6692', 831.00')	
23	Line	13.00'	N62° 15' 36" E	8+24.01'	8+37.01'			(1895409.3704', 300825.6692', 831.00')	(1895420.8757', 300831.7213', 830.80')	
24	Line	3.00'	N62° 15' 32" E	8+37.01'	8+40.01'			(1895420.8757', 300831.7213', 830.80')	(1895423.5312', 300833.1179', 830.65')	
25	Curve	23.56'	N62° 15' 36" W	8+40.01'	8+63.58'	89.9987 (d)	21.21'	N17° 15' 34" E	(1895423.5312', 300833.1179', 830.65')	(1895429.8250', 300853.3756', 830.15')
26	Line	2.83'	N27° 44' 24" W	8+63.58'	8+66.41'			(1895429.8250', 300853.3756', 830.15')	(1895428.5071', 300855.8817', 830.15')	
27	Curve	7.85'	N62° 15' 36" E	8+66.41'	8+74.26'	90.0065 (d)	7.07'	N72° 44' 12" W	(1895428.5071', 300855.8817', 830.15')	(1895421.7542', 300857.9802', 830.35')
28	Line	13.00'	S62° 15' 36" W	8+74.26'	8+87.26'			(1895421.7542', 300857.9802', 830.35')	(1895410.2483', 300851.9292', 830.80')	
29	Line	30.00'	N27° 44' 24" W	8+87.26'	9+17.26'			(1895410.2483', 300851.9292', 830.80')	(1895396.2845', 300878.4813', 830.55')	
30	Line	18.00'	N62° 15' 36" E	9+17.26'	9+35.26'			(1895396.2845', 300878.4813', 830.55')	(1895412.2158', 300886.8596', 830.25')	
31	Line	16.00'	N27° 44' 24" W	9+35.26'	9+51.26'			(1895412.2158', 300886.8596', 830.25')	(1895404.7884', 300901.0207', 830.40')	
32	Line	5.00'	S62° 15' 36" W	9+51.26'	9+56.26'			(1895404.7884', 300901.0207', 830.40')	(1895400.3430', 300898.6934', 830.45')	
33	Curve	7.85'	N27° 44' 24" W	9+56.26'	9+64.12'	90.0008 (d)	7.07'	N17° 15' 38" E	(1895400.3430', 300898.6934', 830.45')	(1895402.4411', 300905.4460', 830.50')
34	Line	1.36'	N27° 44' 24" W	9+64.12'	9+65.48'			(1895402.4411', 300905.4460', 830.50')	(1895401.8068', 300906.6522', 830.52')	
35	Curve	24.40'	N27° 44' 24" W	9+65.48'	9+89.88'	39.9445 (d)	23.91'	N7° 46' 04" W	(1895401.8068', 300906.6522', 830.52')	(1895398.5753', 300930.3424', 831.25')
36	Curve	56.72'	N62° 15' 32" E	9+89.88'	10+46.60'	129.9874 (d)	45.31'	N25° 47' 21" W	(1895398.5753', 300930.3424', 831.25')	(1895362.4873', 300957.7455', 835.50')
37	Line	23.32'	N62° 13' 02" E	10+46.60'	10+69.92'			(1895362.4873', 300957.7455', 835.50')	(1895383.1200', 300968.6160', 833.65')	
38	Line	23.05'	N62° 15' 36" E	10+69.92'	10+92.97'			(1895383.1200', 300968.6160', 833.65')	(1895403.5250', 300979.3470', 831.74')	
39	Line	24.63'	N60° 25' 40" E	10+92.97'	11+17.60'			(1895403.5250', 300979.3470', 831.74')	(1895424.9440', 300991.5010', 829.77')	
40	Line	2.80'	N61° 43' 31" E	11+17.60'	11+20.40'			(1895424.9440', 300991.5010', 829.77')	(1895427.4056', 300992.8250', 829.55')	
41	Curve	39.04'	S27° 44' 24" E	11+20.40'	11+59.43'	89.4652 (d)	35.19'	S16° 59' 34" W	(1895427.4056', 300992.8250', 829.55')	(1895417.1214', 300959.1714', 831.50')
42	Line	40.72'	S27° 44' 24" E	11+59.43'	12+00.15'			(1895417.1214', 300959.1714', 831.50')	(1895436.0738', 300923.1335', 829.75')	
43	Line	54.00'	S27° 44' 24" E	12+00.15'	12+54.15'			(1895436.0738', 300923.1335', 829.75')	(1895461.2086', 300875.3397', 828.75')	
44	Curve	93.07'	N27° 44' 24" W	12+54.15'	13+47.22'	177.7572 (d)	59.99'	N63° 22' 53" E	(1895461.2086', 300875.3397', 828.75')	(1895514.8389', 300902.2175', 822.50')
45	Line	19.60'	N25° 29' 50" W	13+47.22'	13+66.83'			(1895514.8389', 300902.2175', 822.50')	(1895506.4003', 300919.9115', 822.20')	
46	Line	19.60'	N25° 29' 50" W	13+66.83'	13+86.43'			(1895506.4003', 300919.9115', 822.20')	(1895497.9618', 300927.6055', 822.50')	
47	Line	55.91'	N25° 29' 50" W	13+86.43'	14+42.34'			(1895497.9618', 300927.6055', 822.50')	(1895473.8954', 300938.0682', 825.30')	
48	Curve	40.48'	N61° 43' 31" E	14+42.34'	14+82.82'	92.7777 (d)	36.20'	N71° 53' 09" W	(1895473.8954', 300938.0682', 825.30')	(1895439.4878', 300999.3238', 828.45')
49	Line	6.94'	N61° 43' 31" E	14+82.82'	14+89.76'			(1895439.4878', 300999.3238', 828.45')	(1895445.6030', 301002.6130', 827.91')	
50	Line	26.01'	N62° 23' 22" E	14+89.76'	15+15.77'			(1895445.6030', 301002.6130', 827.91')	(1895468.6480', 301014.6660', 825.73')	
51	Line	23.99'	N64° 30' 10" E	15+15.77'	15+39.76'			(1895468.6480', 301014.6660', 825.73')	(1895490.3060', 301024.9950', 823.67')	
52	Line	18.86'	N65° 47' 53" E	15+39.76'	15+58.63'			(1895490.3060', 301024.9950', 823.67')	(1895507.5101', 301032.7275', 822.15')	



**IOWA DEPARTMENT OF
 NATURAL RESOURCES**
 ENGINEERING SERVICES - WALLACE BUILDING
 502 E. 9TH ST., DES MOINES, IA 50319-0034
 P: 515.725.8200
 F: 515.725.8202



DETAILS

NEW OFFICE & STORAGE BUILDING FOR:
LAKE WAPELLO STATE PARK

15246 CAMPGROUND ROAD
 DRAKESVILLE, IA 52552

BY	REVISION
DATE	

DRAWN BY: PROJECT NUMBER:
 23-05-26-01

CHK'D BY: DATE:
 03.21.2023

SHEET NO:



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SANITARY/SEPTIC PLAN
 NEW OFFICE & STORAGE BUILDING FOR:
LAKE WAPELLO STATE PARK
 15248 CAMPGROUND ROAD
 DRAKESVILLE, IA 52522

SANITARY/SEPTIC/SAND FILTER LUMP SUM BID ITEM INCLUDES ALL COMPONENTS FOR A COMPLETE AND WORKING SEPTIC SYSTEM. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING SEPTIC PERMIT FROM DAVIS COUNTY AND ARRANGING FOR THEIR INSPECTIONS. THE SYSTEM IS TO HAVE A 1250 GALLON TANK AND 200 SF SAND FILTER WITH SIPHON DOSING. INSTALL PER IOWA CODE CHAPTER 69 'PRIVATE SEWAGE DISPOSAL SYSTEMS' AND BY DAVIS COUNTY REQUIREMENTS. CONTACT DAVIS COUNTY SANITARIAN: DIANNA DALY-HUSTED, 641-724-3511 FOR PERMIT/INSPECTIONS INFORMATION.

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