# Residential Specification

# Affordable Single-Family Homes – Moraine Addition Phase 1

## 8675, 8691, and 8709 Moraine Drive
## Shakopee, MN

Developed by:


**Scott Count CDA Community Land Trust**
**Scott County, MN**
Executive Director, Julie Siegert
952-641-5185


Architect:


**Marnie Peichel Architecture and Design, LLC**
612-810-4791
marniepeichel@gmail.com


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Architect under the laws of the State of Minnesota.

Signed:

Date: July 10, 2025
MN License # 26662

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## Division 1 - General Requirements

*For questions prior to bidding and to report any discrepancies between the plans and specifications, contact **Jo Foust** at jfoust@scottcda.org or attend the virtual conference indicated in the Invitation for Bid (July 29, 2025 at 10:00 a.m.). No questions will be received after the virtual conference and written clarifications and/or an Addendum will be posted on the Scott County CDA website by Monday, August 4, 2025 at 3:30 p.m.* Open Bids & RFPs - Scott County CDA *( https://scottcda.org/resource/open-bids-rfps/) See separate Bid Invitation and Bid Instructions for further requirements of bid process.*

### 01 01 00 - Summary of Work

The Work to include the following specifications for three new construction, single-family homes at 8675, 8691, and 8709 Moraine Drive in Shakopee, MN for the Scott County CDA Community Land Trust. Homes at 8675 and 8709 are 4-bedroom, 1.75 bath, with unfinished walk-out basements. Home at 8691 is a 5-bedroom, 1 full bath and two 1.75 baths, and a finished walk-out basement. The following form the basis for the contracts. All documents listed below can be found at the Scott County CDA website: Open Bids & RFPs - Scott County CDA (https://scottcda.org/resource/open-bids-rfps/)

- **All Architectural Drawings (including Structural Notes) for each of three sites**
- **Written Specifications (applicable to all three sites),**
- **Site Surveys for each of three sites,**
- **Moraine Addition Site Construction Grading and Utility Plans**
- **Geotechnical Report for Development Site**
- **Moraine Addition Final Plat, Shakopee, MN**
- **Sample Agreement between Owner/Contractor**

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***NOTE: At completion, project will need to be Energy Star rated (ESv3.1) and certified per a third-party rater.*** *The builder must be registered as an Energy Star program partner. Project also must comply with MN Green Communities 2023-24/Overlay on Enterprise Green Communities 2020 New Construction Standards.*

***Both general contractor and HVAC contractor must be certified to work on this project per Energy Star requirements. All parts of the ESv3.1 checklists need to be reviewed and completed by the contractor and HVAC installer to assure all requirements will be met.***

- HVAC Design Report (must be filled out prior to construction, also attached in Appendix C.) www.energystar.gov/sites/default/files/asset/document/National%20HVAC%20Design%20Report_Rev%2012.pdf
- HVAC commissioning checklist to be completed at end of construction: https://www.energystar.gov/sites/default/files/asset/document/National%20HVAC%20Commissioning%20Checklist_Rev%2012.pdf

***At completion, the blower door test should reach a max air change of 2.0 ACH50****. Note: this is an increase from the code requirement of 3.0 ACH50.*

*Requirements toward satisfaction of the MN Green Communities 2023-24/Overlay on Enterprise Green Communities 2020 New Construction Standards are indicated in these specifications by the logo as shown and are required per funding source.*

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Contractor shall review above listed contract documents and provide all labor, materials, equipment, accessories, and related services necessary to furnish and install the work compete and as indicated on the drawings and specifications while complying with all applicable building codes. Contractor will be furnished with pdf documents of all Contract Documents.

The contract documents are complementary and what it required by any one shall be binding as if required by all. The Contractor shall use, and be bound by, the requirements of all the Contract Documents. Documents included it the plans and specifications by reference are a part of the contract documents.

For purposes of clarifying intent, in cases of contradictions in the documents, the following contract documents take precedence in descending order with the "1" being first: 1) Addenda; 2) Instruction to Bidders; 3) Special Conditions; 4) General Conditions; 5) General Requirements; 6) Technical Specifications and Drawings.

In case of conflict within the specifications or drawings, the more stringent requirements shall govern**. Inform Owner/Architect of all conflicts or inconsistencies**. The General Contractor shall be held responsible for the results of any errors, discrepancies, or omissions which the General Contractor failed to notify the Architect/Owner of prior to construction and/or fabrication of the work.

### 01 02 00 – Allowances

The Contractor shall include in his proposal the cash allowances noted in the allowances list. Unless otherwise indicated, the lump sum amount shall be for the material/products only. All installation costs shall be included in the base proposal of the contractor. Contractors and sub-contractors may include voluntary allowance in their bid without prior approval. These should be attached to the Bid Form.

### 01 02 50 - Payment and Schedule Procedures

Contractor may make **Application for Payment** as provided for in the Contract for Construction. See sample agreement between Owner/Contractor for supplemental attachments required along with all pay applications. At least ten (10) days before each progress payment falls due, the General Contractor shall submit to the Architect an itemized application for payment on the standard AIA "Request for Payment" form. The Contractor shall include affidavits attesting to off-site stored products that are being billed for (receipts, storage location, date stamped photographs of stored material/equipment, etc.)

- **Schedule of Values** – Contractor to provide Owner and Architect with a Sworn Statement of a Schedule of Values prior to application for payment.
- **Lien Waivers** – Each request for payment must be accompanies by the complete lien waivers from all sub-contractors for the previous month's payments, covering all portion of the work including labor and materials.
- **Final Payment** will be made in accordance with the Contract for Construction. Architect/Owner will complete a punch list inspection to assess completion of the project before closeout.

The Contractor shall prepare a schedule for completion of the project, which shall become a part of the Owner/Contractor Agreement. Architect shall visit the job site to verify quality and completion of Work in order to approve application for payment; this may be done in conjunction with regular progress site visits. Owner shall be notified as soon as possible in regard to revisions of the schedule due to supply chain issues, weather, or other causes. The Contractor shall be required to perform within the limits of the schedule as defined in the contract.

### 01 03 00 - Alternates

Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

Schedule of Alternates:

A. Alternate No. 1 – Deck materials
    1. Base Bid: Provide cedar-toned treated decking and rails

2. Alternate Item: Provide composite decking materials.

B. Alternate No. 2 – Window efficiency
   1. Base Bid: Provide windows with a U factor of 0.27
   2. Alternate Item: Provide windows meeting Energy Star Northern Climate standards

C. Alternate No. 3 – Bathroom floor finishes
   1. Base Bid: Provide LVP floor finish at bathrooms.
   2. Alternate Item: Provide ceramic or porcelain tile at Bathroom floors.

D. Alternate No. 4. – Kitchen countertops
   1. Base Bid: Provide plastic laminate countertop at kitchen.
   2. Alternate Item: Provide solid surface countertop at kitchen.

E. Alternate No. 5. -

## 01 03 50 - Contract Modification Procedures

The Owner, Architect, or Contractor may request changes, alterations, additions and/or deletions from the work included in the contract documents. If such changes would affect the dollar amount or completion time of the contract, the Architect shall prepare plans and specifications of the change and the Contractor shall prepare a detailed cost proposal of labor, material, and overhead for the change. The change order must be approved by the Owner prior to the star of the work on the change. These conditions are the same for extras and/or credits. The contractor will not be reimbursed for unauthorized extra work.

All requests for substitutions of or “as equal” products, materials, or methods from that listed in the specifications must be submitted to the Architect in writing. Products, materials, or methods may not be substituted without prior approval.

The Architect may issue written field instruction which change or interpret the work in progress where there is no cost/time change and these instructions are a part of the Contract Documents.

## 01 04 00 - Project Management and Coordination

- **Insurance** – Contractor must maintain the following during the course of construction until final acceptance by the owner and shall insure the value of the new structures. 1. Builders risk insurance, 2. Comprehensive Employer’s and General Liability Insurance, 3. Certificate of the Worker’s Compensation Insurance, and 4. Automobile Liability Insurance. See sample agreement between Owner/Contractor for levels required. The Scott County CDA shall be named as an “additional insured” party on insurance policies. Before commencing work, Contractor shall furnish Owner with required certificates showing required insurance is in force.

- **Performance and Payment Bonds** - Contractor shall provide Owner with both a performance bond and payment bond in the amount of 100% of the contract price prior to construction.

- **Use of Premises –** During the entire construction period, the Contractor shall have the exclusive use of the premises for construction operations, including full use of the site. Existing property on or adjacent to the work site, which is damaged in the course of completion of the Work, will be returned to original condition. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and lawful orders of authorities having jurisdiction for the purpose of ensuring the safety and security of persons and the project work site.

  Each contractor shall provide and maintain proper shoring and bracing for existing underground utilities, sewer, and new/existing/adjacent building foundations encountered during excavation work to protect them from collapse or other type of damage until such time as they are to be removed, incorporated into the new work, or can be properly backfilled up completion of the Work.

- **City of Shakopee Work Hours Ordinance** - It is unlawful for any person to engage in or permit construction activities involving the use of any kind of electric, diesel, or gas-powered machine or other power equipment except between the hours of 7:00 a.m. and 10:00 p.m., on any weekday

or between the hours of 9:00 a.m. and 9:00 p.m., on any weekend or holiday. Upon timely application being made and the necessity therefor being established, the Council may suspend the operation of this division (C) for a specific purpose at a specific location and for a specific length of time by Council action and by giving public notice of the nature and limits of such suspension.

- **Sub-Contractor Coordination –** The General Contractor shall ensure the proper coordination with all Sub-Contractors necessary for the completion of the Work.

  All **Mechanical** work shall be provided on a design/build basis by the General Contractor. The mechanical contractors shall submit HVAC layouts and product literature for review by the Architect. Mechanical contractors shall not alter the design or intended use indicated by the project plans and specifications. Mechanical work outlined in the contract documents is to be regarded as minimum standards and material for the Work.

  The General Contractor shall ensure the proper coordination with Sub-contractors regarding the Plumbing and Electrical work. All **Plumbing and Electrical** work shall be provided on a design/build basis by the General Contractor while taking into account product specifications within the Construction Documents. Related work outlined in the contract documents is to be regarded as minimum standards and material for the Work.

  Each contractor or sub-contractor shall be responsible for cutting and patching of all holes and openings through walls, partitions, floors, ceilings and roofs necessary for the installation of their work. If the location of a hole is through a joist, beam or column, refer to Structural Notes to instruct how to proceed. Cutting will be done carefully to minimize repair and patching shall be done in a manner to match adjacent surfaces.

- **Certification Requirements –** The project will need to meet 2023-24 MN Overlay to the 2020 Enterprise Green Communities Criteria and achieve whole house certification under Energy Star Version 3.1. The Rater Field Checklist requires that a blower door test be conducted to confirm anticipated HERS rating is met. It is imperative that all insulation, vapor barrier installation, caulking/sealing installation be completed in a thorough/detailed manner to pass this blower door test. The Contractor is required to make adjustments to the construction until the home passes the required testing threshold.

  General contractor is to work as a partner with Owner, Architect, and Energy Rater to attain these goals. Final inspection with Energy Rater must be done at completion of Work prior to City inspection for Certificate of Occupancy.

- **Pre-construction Meeting** – Meeting to be held before the start of construction and to include General Contractor, major Sub-contractors (including M/E/P), Architect, and Owner.

- **Progress Meetings** - The General Contractor shall schedule and administer meetings throughout progress of the Work as directed by the Owner.
  - *Review work completed and in progress, submittals, RFIs, updated schedule, etc.*
  - Weekly meetings with the Architect/Owner in attendance (or at a frequency otherwise deemed appropriate by Contractor and Architect due to current status of construction).

- **Waste Management –** All cardboard, metal, and construction wood waste shall be recycled individually. Alternately, total construction waste recycling should target a rate of **75% recovery**. No construction debris shall be closed inside any wall assembly.

### 01 05 00 – Field Engineering

- **Surveying –** The following surveys are required:
  1. Site to be surveyed and staked for placement of buildings on lot.
  2. Survey indicating top of foundation and building setbacks prior to foundation backfill approval.

3. Record survey at completion prior to issuance of a Certificate of Occupancy.

## 01 06 00 - Regulatory Requirements and Quality Control

- **Codes -** Comply with the latest adopted version of codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities, which bear on performance of work. This Contractor is responsible for notifying the Architect and/or Owner of any noted discrepancies between the plans/specifications and published code requirements. Proceeding with the work without first clarifying these questions will constitute the Contractor's acceptance of completing the work to the highest degree required and confirming to codes. The Contractor shall not use errors or omissions in the drawings, where the intent of the documents is clear, to preform less than the standard work or comply with code. All contractors shall strictly adhere to all governing codes on safety, including the OSHA Act. Supply workers with VOC protection as needed.

- **Permits, Fees, Licenses** - Contractor responsible for securing and payment of permits, fees and licenses necessary for completion of Work, including WAC/SAC and park dedication fees as required. An obstruction permit is required anytime construction work is performed in the public right-of-way. Copies of all permits shall be provided to the Owner or authorized representative prior to beginning any work.

- **Inspections** - Contractor responsible for coordinating all required inspections, including with third-party energy rater and Structural Engineer. Architect shall be notified of inspections and results at regular site meetings. At the completion of construction, the Contractor shall obtain all inspection department sign-offs, including a Certificate of Occupancy before receiving final payment.

- **Uncovering and Correction of the Work** – The Contractor shall promptly correct all work rejected by the Architect as defective or not conforming to the Contract Documents. If work is covered that must first have been observed by the Architect or third-party energy rater, the Contractor shall uncover the work for this observation and replace at no additional expense to the Owner.

## 01 10 00 – Project Procedures

- **Measurements/ Quantities** - The Contractor shall check and verify all dimensions and conditions before proceeding with construction. Do not scale drawings. Noted dimensions take precedence over scale. The General Contractor and Sub-contractors shall report to the owner any conditions that prevent the proper execution of their work. Any quantities called out shall be verified by Contractor.

- **Workmanship** - All work shall be performed in a professional and safe manner according to OSHA safety standards. Workmanship shall conform to the highest standards of quality in each trade and shall include all items of fabrication, construction and installation. All work shall be completed in accordance with plans, specifications and manufacturers recommendations.

## 01 30 00 – Submittals

- **Submittals** - Subcontractors and materials suppliers shall submit complete shop drawings, manufacturer's data, and installation instructions for all products and/or systems as required and/or as requested by the Architect. Where there is a choice of color, pattern, or texture for a material, the subcontractor or supplier shall submit samples for approval prior to installation

  Product information, data and samples shall be submitted to the General Contractor for review and approval. Approved shop drawings shall be forwarded to the Architect for approval representing general conformance to design concept only and does not modify the intent of the contract documents.

  The General Contractor is responsible for all materials, field measurements, numbers and amounts of items of construction criteria related to the conformance of these shop drawings to the

requirements of the Contract Documents.

The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of shop drawings unless the contractor has specifically informed the Architect of any deviation in writing at the time of submission. The Contractor shall not be relieved of responsibility for errors or omissions in the shop drawings, product data, or samples by the Architect's approval of the shop drawings.

### 01 50 00 – Construction Facilities and Temporary Controls

- **Temporary Facilities –** The Contractor shall provide and pay for any temporary facilities, field office, enclosures, fences, barriers, and storage as required in the performance of the Work.

- **Utilities –** All connections and extensions required to provide temporary utilities, shall be made by the Contractor at the Contractor's expense. Connect to existing power service without disrupting local service requirements. Contractor shall provide and pay for any temporary heating, cooling, electrical power, water, toilets, etc. required for the completion of the Work.

- **Site Condition -** Construction site to be in a clean and orderly condition and secure. The General Contractor is responsible for all site maintenance during construction, which includes snow removal and lawn work. During construction, contractor must prevent soils from being deposited onto adjacent properties, rights-of-way, and public storm drainage.

- **Site Security –** Provide reasonable security to all first-floor window and door openings.

### 01 60 00 - Product Installation and Storage

- **Material Storage -** Material stored on site shall be protected from damage by moisture, wind, sun, abuse or any other harmful effects. Materials wetted during the construction process shall be allowed to dry before enclosing in building assembly.

- **Installed Construction -** Contractor to protect all installed construction. Contractor shall replace any items that are defective or become damaged.

### 01 77 00 - Closeout Procedures/ Warranty

- **Cleaning -** At the conclusion of construction, provide a complete and thorough cleaning of the building. Replace equipment filters. Clean out HVAC ducting. Clean exterior; remove debris from site. Remove all waste and surplus materials.

- **Ventilation -** During the period between finishing and occupancy, ventilate the building with outside air at the highest rate the ventilation system can produce (minimum of 48 hours).

- **Warranty, Operating, and Maintenance Information** – Warranty manuals are to be kept on site for the future homeowners. Contractor to also provide Owner with copies of all product and/or system guarantees and manufacturer's operating or maintenance instructions for all materials and systems. Contractor shall instruct Owner on proper operating and maintenance procedures for all equipment installed under the HVAC contract.

**Construction Warranty** - The Contractor hereby guarantees to the Owner that all of the Work shall be done in a competent, workman-like manner and that such Work shall be and remain free of defects in workmanship and materials, including paint, for a period of two (2) years from the Completion Date, with plumbing, electrical, heating, air conditioning and venting work guaranteed for two (2) years and structural work guaranteed for ten (10) years. The Contractor warrants that all materials and equipment furnished in connection with the Work will be new, unless otherwise specified, and be of good quality and free from faults and defects. The Contractor shall assign to the Owner (if assignable) or enforce for the benefit of the Owner (if not assignable) any guarantees provided by manufacturers or sellers of materials or equipment that are to be incorporated into the Work. Further any manufacturer's warranties for equipment and materials that extend beyond the above stated time limits shall continue to apply. The

Owner's acceptance of the Work shall not be deemed to be a waiver of any of the Owner rights under this paragraph. In addition, the Contractor agrees that all statutory warranty provisions of Minnesota Statute Chapter 327A apply to this Contract

## Division 2 – Sitework

***Reference Moraine Addition Construction Plans for pre-existing work done to prepare site for development.***

All site work must proceed in a manner which minimizes disturbance to the Owner and adjacent property owners and within the property limits or construction limits as noted. Any damage on the project property or to adjacent property caused by site work, demolition, or excavation, will be replaced by the contractor at no additional cost to the Owner.

### 02 20 00 – Earthwork

- **Excavation -** Contractor shall excavate to depths as required for construction as shown on drawings. Remove all unsuitable fill at building excavation and replace with oversized, compacted, controlled fill as necessary. All water shall be removed from foundation excavation prior to the placing of concrete.

  The General Contractor shall investigate sub-surface conditions, before and during grading of site, for filled excavations or buried structures such as existing foundations. If any such structure is found and sub-surface conditions vary from plans or specifications, soils engineer and structural engineer shall be consulted immediately prior to the placing of any foundation.

  Sub-base directly under concrete slabs on grade shall be a minimum of four inches of compacted granular material.

- **Grading -** Carefully remove loam and topsoil to be incorporated in the finished work and store separate from the other excavated material. Backfilling shall be clean on-site soil, placed in 12" layers and compacted. Provide any additional fill necessary to accomplish finish grades shown on the plans. Provide 6" minimum topsoil at areas of excavation.

  Establish finish elevations at indicated on the plans. Keep exterior finished grade a minimum of 6" below top of foundation (except as noted otherwise). Provide swales with positive outfall, and slope grade away from building to allow water to drain away from the foundation (slope away from the structure 6" in 10'-0" minimum, typical unless noted otherwise on plans). ***Reference Moraine Addition Construction Plans for established grading.***

### 02 50 50 – Granular Base

- Granular base under concrete slabs and paving to meet following requirements: 5% pass #200 sieve, 60-80% pass a #4 sieve and 100% pass a 2" mesh. Thoroughly compact to a smooth hard base.

### 02 51 00 – Asphalt Paving

- **Driveway** - Thoroughly grade and prepare the sub-grade. Parking area material shall be 5" of compacted Class 5 base material and 2 1/2" thick MNDot spec 2344 bituminous surface course. Install a liquid asphalt prime coat, pavement reinforcing fabric, a tack coat, finish coat and seal coat. Finished paving shall drain properly toward road at maximum slope indicated on drawings.

### 02 52 00 – Concrete Paving

- **Walks** - Provide new 4" thick, 4,000 psi, air-entrained concrete walks as shown on plans. Set on compacted granular base a minimum of 6" deep. Use 6x6 10/10 WWF the length of the walk. Light broom finish. Provide control joints at 6' o.c. maximum and expansion joints shall be installed as in standard concrete. Walks must slope a minimum of ¼" per foot away from building.

- **Repair of Public Walk -** Remove and replace any raised or damaged sections of the City Sidewalk along the public street front if damage due to construction related work.

### 02 60 00 – Utility Piping Materials

Exact location and depth of existing utilities must be verified by the Contractor in the field and it is the responsibility of the Contractor to protect and maintain the services of any utility lines encountered in the progress of the Work. Any sidewalk or curb/gutter that is disturbed during the Work is to be repaired per City of Shakopee requirements.

- **Water Distribution –** Provide separate 1" water line to dwelling unit with meter per plan. *See Moraine Addition Water and Sewer Plan for utility locations.*
- **Gas Distribution Systems** – Provide gas line to dwelling unit with exterior meter. *See Appendix C for existing gas line service design.*
- **Broadband Ready Internet Access** – Provide conduit from edge of property (street access) to location with in Mechanical Room for router location. Comcast broadband service has been brought to the site in a joint trench with CenterPoint gas and SPUC power. Contact Comcast Project Manager: Joseph Bouley 612-990-1882.

### 02 71 20 - Foundation Drainage Piping

- Install a minimum 4" slotted drainpipe around exterior and interior of basement footings, imbedded in loose fill gravel, minimum 12" deep. Wrap drainpipe with geo-technical fabric to prevent silt buildup and slope to and terminate in a collection sump basket with sump pump. Provide a minimum 1/4" metal cover for sump basket and bolt down. Provide an outlet and install sump pump. Provide battery back-up for sump. Size appropriately for building size.

### 02 73 00 – Sanitary Sewage

Connect dwelling unit to sanitary sewer. *See Moraine Addition Construction Plans (sheet 14) for utility locations.*

### 02 78 00 – Power and Communications

Install necessary utility services, such as electricity and support structures for power and communications. Coordinate requirements, including interior location of electrical panel board, with local utility providers. Electrical connection to be below ground, connecting to existing transformers provided in previous site development work.

### 02 90 00 – Landscaping

- **Soil Preparation and Materials –**
  - General Contractor to inspect and approve grading before any landscape material is placed. Provide a slope of 6" in 10'-0" away from house for proper drainage.
  - Provide 6" black dirt and ground hardwood bark mulch free of dyes, minimum 3" deep over black fabric weed barrier at planting areas shown on drawing. Included to a 30" diameter around trees.
  - See site plan for plant material locations.

- **Warranty –** A one-year warranty to be included on all plant materials.

- **Planting -** Provide all plants, materials, and labor required to install the landscaping as shown on the site plan. All plants shall be kept in healthy, growing condition until Certificate of Occupancy is received. Sufficient watering is the responsibility of the General Contractor. Replace dead or dying plants where necessary. ***See selection and quantities on Site Plan.***

  - **Trees** *(see site plan for locations): backfill with 'planting soil'*
    - *Showy Mountain Ash (or Northern Mountain Ash, Sorbus decora), min. 2" caliper,*
    - Red Maple *(Acer rubrum)*, *min. 2" caliper*

- Northern Red Oak (Quercus rubra), *min. 2" caliper*
- Serviceberry 'Autumn Brilliance' (*Amelandchier grandiflora)*, *min. 1.5" calipe*

- **Shrubs** *(see site plan for locations):* All to be in *min. 2-gallon pots, backfill with 'planting soil'*
  - Hydrangea, Smooth Invincibelle Wee White
  - Aronia, Black Chokeberry, Iroquois Beauty
  - Symphoricarpos, Red Snowberry
  - Physocarpus, Ninebark 'Angel'
  - Spiraea, Japanese Spirea 'Goldmound'
  - Cornus, Gray Dogwood "Muskingum'
  - Aronia, Black Chokeberry, 'Ground Hug'

- **Sod:** Lay sod at entire yard. Minimum 60% Kentucky Bule Grass, strongly rooted and free of weeds. Uniform thickness with ½" to ¾" soil. Loosen the surface prior to placing sod. Each piece of sod laid shall be fitted and tamped into place. Contractor is responsible for sufficient watering until certificate of occupancy has been issued.

## Division 3 - Concrete

### 03 00 00 - Concrete

***See Structural Notes for concrete mix requirements and strengths****. If there is any discrepancy between these specifications and structural drawings/notes, the structural drawings/notes shall prevail.*

Provide all labor, materials, and equipment necessary for the completion of the concrete called for on the plans. Concrete shall be laid when the air temperature ranges between a minimum of 40 degrees and a maximum of 90 degrees Fahrenheit. Provide necessary insulating blankets to ensure concrete cures when temperatures indicate a barrier is needed.

### 03 10 00 – Formwork

All formwork to shape, lines, and dimensions complying with ACI 301-84 and ACI 347-78 and as shown on drawings. The Contractor is responsible for the design, engineering and construction of all formwork. Provide all openings, offsets, recesses, chamfers, etc. as required. All formwork must be clean and dry before pour, removing all scraps and debris. *Verify all items to be imbedded in concrete are in place prior to pour.*

### 03 20 00 – Concrete Reinforcement

*See Structural Notes for material requirements and standards, sizing, installation, and locations regarding reinforcing steel in concretes footings, slabs, walls and foundation.*
Tie as required to avoid displacement during pouring. Provide and install all bolts, anchors and fastening devices as shown and as required to support the work in a standard approved manner.

### 03 30 00 – Cast-in-Place Concrete

*See Structural Notes for footing size, concrete strength, and reinforcing requirements.* Convey and place concrete by methods avoiding segregation and loss of materials, agitate as necessary to eliminate voids. After forms are removed from exposed concrete work, fill all holes and visible pits and smooth surface.

- **Footings and Foundation Walls** –
  - Provide continuous concrete footings and poured concrete foundation walls per Structural Notes and plans.
  - Provide pier footings for deck at rear yard per Structural Notes and plans.

- **Slab on grade** - Slab shall be 4" thick; see Structural Notes for reinforcing. Place slabs over a 10-mil vapor barrier on top 2" rigid insulation (at interior slabs, not garage or porch) over 4" of well-compacted granular fill. Slope minimum 1/8" per foot at Garage slab for drainage. *Remove all*

*unsuitable loose fill prior to placing engineered fill if required. (See also Section 07 19 00 - Vapor Retarders)*

- **Porch/rear entry slabs –** Slab shall be 4" thick; see Structural Notes for reinforcing. Place over 4" of well-compacted granular fill.

- **Expansion and Control Joints** –
  - Install joints at spacing as directed in Structural Notes.
  - Install control joints per industry standard.
  - Install ½" asphalt impregnated expansion filler in all intersection of concrete and asphalt driveway. Seal exposed joints with appropriate sealant.
  - Provide 1/2" thick rigid insulation where interior floor slabs meet foundation wall.

### 03 35 00 - Concrete Finishing

- **Interior Slabs** - Provide smooth steel trowel finish for all interior slab areas; grind down high spots and level floor in prep for LVP finish.
- **Exterior Slabs and Steps** - Provide broom finish texture.
- **Garage Slab -** Provide smooth steel trowel finish. Patch all voids and depressions exceeding 3/8 inch in any direction. Provide positive drainage and taper lip at garage/overhead door.

## Division 4 - Masonry

### 04 73 00 – Manufactured Stone Veneer

Install cement based manufactured stone veneer panel siding. Include all required accessories including starter strips, corner pieces, top sill pieces, coordinating post base wraps, etc. Install per manufacturer's instructions, paying special attention to fastening requirements through sheathing and into studs. See Drawings for location. (M-Rock P-Series or approved equal. See color selection in Appendix A.)

## Division 5 – Metals

### 05 05 23 - Metal Fastenings

*See Structural Notes for all fastener requirements used in structural framing.*

- **Anchors/Ties/Hangars/Reinforcing** – Provide all nails, screws, bolts, nuts, lag bolts, anchors, ties, hangers, braces, corner brackets, etc. necessary to secure and support the Work. Size, configuration, and anchoring methods selected to match structural conditions and requirements in Documents, manufacturers' recommendation, and standard industry practice.

## Division 6 - Wood, Plastics, and Composites

*Engineered wood products and sheathing products shall not include any urea formaldehyde-based binders.*

***The Contractor is encouraged to explore options for panelized construction due to the fact that the design is repeated over multiple homes and there may be a cost savings in this construction approach.***

### 06 10 00 - Rough Carpentry

- **Lumber** - #2 SPF Lumber shall be kiln dried and free from imperfections which might impair its strength or durability. Pressure treated lumber shall be used where any lumber shall come into contract with concrete, masonry block or within 8" of soil.

- **Reinforcing** – Studs and joists cut to install plumbing and/or wiring shall be reinforced by adding metal or wood structural reinforcing to maintain structural integrity. Holes bored shall not be larger than 1/3 the depth and not closer than 2" to the top or bottom of the joist.

- **Floor Framing -** *See Structural Drawings and Notes for specific wood species, floor framing sizing, cross bridging and fastening requirements.*
    - **First Floor/Ceiling framing:** 2x10 floor joists and rim board. See Structural Notes for exact locations and spacing of members.
    - **Second Floor/Ceiling framing:** Engineered, open web floor trusses and rim truss joists. See Structural Notes for exact locations and sizing of members.

- **Wall Framing -** *See Structural Drawings and Notes for specific wall framing, header sizing, blocking and fastening requirements.*
    - **Exterior walls/Sill** - Install single 2" x 6" solid pressure treated sill plate, sill gasket below. 2"x 6" wood framing studs, see Structural Notes for spacing/location.
    - **Openings –** *See Structural Notes for header locations and sizing and Structural Notes for additional notes.*
    - **Typical Interior Walls** - 2"x 4" studs at 16" o.c. *Exceptions at plumbing walls or as otherwise called out on Architectural plans where 2"x6" framing is required.* Use treated sill plates where in contact with concrete slab.

  Provide **draftstopping** per IRC 501.12. Fire blocking should be installed in concealed spaces of stud walls and partitions.
    1. vertically at ceiling/floor levels
    2. horizontally at intervals not exceeding 10 ft.
    3. at all interconnects between concealed vertical and horizontal spaces.
    4. Including at spaces between stair stringers @ top and bottom of runs. Enclosed spaces under stairs shall comply with IRC 302.7.

- **Roof Trusses** - Manufactured roof trusses to be designed by a Professional Engineer registered in the State of MN per Building Code requirements**.** Provide shop drawings of trusses to Architect/Owner and Building Department for review/approval. It shall be the responsibility of the manufacturer to obtain Building Department approval of calculations and shop drawings prior to fabrication. *See Structural Notes for specific wood species, bridging, and fastener requirements. Note: Trusses to be designed to support future solar panels (additional 6 lb/sf dead load).*

- **Deck Framing and Finish -** *See Structural Drawings and Notes for specific sizing and fastening requirements. See also Section 06 73 00 - Composite Decking and Railings.*
    - **Posts** – Install 6"x6" solid cedar-toned pressure treated posts below decking using Simpson post bases. Install 4"x4" solid cedar-toned pressured treated rail posts with caps at deck/stair railing.
    - **Floor and Stair Framing –** Install treated floor joists per Drawings. Stair stringers shall be constructed of treated 2x12s.

## 06 11 80 – Sheathing

*Note: Sheathing materials shall not include any urea formaldehyde-based binders.*

- **Roof Decking** - *See Structural Notes for specific decking and fastener requirements.* Provide and install 15/32" OSB, APA rated sheathing, Exposure 1.

- **Exterior Wall Sheathing – *(@ House and otherwise noted*)** - *See Structural Notes for specific wall sheathing and fastener requirements.* Provide and install exterior 1 1/2" insulated sheathing with integrated water-resistive barrier. Tape all seams per manufacturer's instructions to assure continuity of the air barrier. *(ZIP-R6 System or approved equal.)*

- **Exterior Wall Sheathing – *(@ Garage*)** - *See Structural Notes for specific wall sheathing and fastener requirements.* Provide and install exterior 7/16" OSB sheathing with integrated water-resistive barrier. Tape all seams per manufacturer's instructions to assure continuity of the air barrier. *(ZIP System or approved equal.)*

- **Subflooring** - *See Structural Drawings and Notes for specific subfloor and fastener requirements.* Provide and install ¾" OSB, tongue and groove APA rated panels, formaldehyde-free, glued and nailed per structural notes.

### 06 12 50 – Wood Decking
*(See also Section 06 73 00 - Composite Decking and Railings for Alternate Pricing material)*

- **Decking, Stairs, and Trim -** Install 2x6 cedar-toned treated decking at rear deck and stair treads and risers. Install 1x10 cedar-toned treated fascia boards at sides of stairs and deck.
- **Rails** – Install cedar-toned treated guard rail/handrail with 2x2 square balusters. Include separate, grip-able handrail at one side of stair.

### 06 20 00 – Finish Carpentry
All architectural trim and woodwork shall be No. 1 grade material suitable for appropriate finishes. Scribe and cut work to fit adjoining work. Secure finished work with fine finishing nails, countersunk and filled. Cope all returns and miter all corners. Bevel all edges. No butt joints allowed

### 06 22 00 – Millwork
Install paint-grade millwork, square edge style throughout the house; primed MDF. Countersink all nails, putty holes, paint. (*See also Section 09 90 00 – Painting*.)

- **Base Moulding:** 1x6 with ¾" shoe.
- **Window and Door Casing:** 3-1/2" wide casing. 1x4 pine material for sill with trim band beneath.

### 06 43 00 - Wood Stairs and Railings
**Interior Stairs**

- **Stair Construction** – ***See Structural Drawings for detailed framing layout.*** Heights of treads, lengths of risers and overall width of stairs shall comply with applicable building codes. See Architectural Drawings for rise and run. Headroom requires a minimum of 6'-8", measured from the front edge of the tread to a line parallel to the stair run. Stair treads and risers shall be constructed of 3/4" thick APA rated OSB; structural stair stringers shall be constructed of 2x12s. Glue and nail stair assembly together.

- **Skirt Board:** Install 1"x12" primed, finger-jointed skirt board. Continue base trim around landings. Countersink all nails, putty holes, paint.

- **Posts & Balusters:** Paint grade square balusters and box newel painted to match rail.

- **Stair Railing:** Supply and install a continuous oak handrail with returns on staircase to code. Circular cross section with diameter between 1¼ and 2". Mount 34-36" above tread nosings, provide blocking at brackets. Provide returns to wall at top and bottom of stair. Stained oak, *color selected by Owner/Architect.*

### 06 25 00 - Prefinished Wood Paneling
Install a 1/2" min. finished bead board ceiling w/ trim, caulk, prime and top-coat with 2 coats of exterior acrylic paint at entry roofs at underside of rafters/framing at front porch.

### 06 60 00 - Composite Fabrications
Install cultured marble vanity tops with integral sinks at all bathrooms. Include backsplash at back, not sides. Caulk to wall or adjacent cabinet. See plans for layout. Color: white on white. (*See also related work in Section 12 30 00 – Manufactured Casework)*

### 06 73 00 - Composite Decking and Railings – ALTERNATE PRICING
*(See also Section 06 12 50 – Wood Decking for base bid pricing.)*

- **Decking, Stairs, and Trim -** Install 1 x 5.25" composite decking with hidden fasteners at landing and stair treads and risers. Install matching composite fascia boards at sides of stairs and deck. (Fiberon ArmorGuard or approved equal. Color Brazilian Walnut.)
- **Rails** – Install cedar guard rail/handrail kit with aluminum square balusters (ProWood or approved equal). Include separate, grip-able handrails one side of stair. Stain per finish schedule.

## Division 7 - Thermal and Moisture Protection

### 07 10 00 – Waterproofing

- **Foundation:** Install low VOC, sprayable, cold fluid-applied waterproofing to exterior of basement foundation walls per manufacturer's instructions including minimum thickness. Wrap over top of foundation and over tope of footing. Product must be compatible with foundation insulation. (Tremco Tuff-N-Dri, GMX Ultra-Shield WB, Tremco Watchdog H3 or approved equal.)

- **Exterior Walls**: See Section 06 11 80 – Sheathing; water resistant barrier integral with sheathing.

- **Roof -** Install Ice and Dam Shield, Water Guard Ice Barrier or equal. Provide to 6'-0" back from interior face of exterior wall. Fasten roofing materials with roofing nails, NO STAPLES. Also use ice barrier minimum 12" up side of wall at roof/wall condition.

### 07 19 00 - Vapor Retarders

All joints and penetrations in walls, floors, and roofs shall be made watertight using approved methods and materials.

- **Slab Foundations -** Install a minimum (10-mil) polyethylene vapor barrier/soil gas retarder at all interior slabs, directly underneath concrete. Wrap up foundation wall above slab and seal to sill plate. Lap joints not less than 6 inches and tape and seal in accordance with manufacturers guidelines.

- **Exterior Walls/Ceiling below Attic** - Install "smart", variable-permeability vapor retarder on the warm side of all exterior walls and underside of roof trusses. Fold down from ceiling and seal to top plate. (MemBrain OR Pro Clima DB+ OR approved equal.) *See also Section 07 92 00 - Joint Sealants regarding any penetrations in barrier.*

### 07 20 00 – Insulation

*NOTE: Arrange for inspection with Home Energy Rater prior to installing gypsum board. Must pass Grade 1 inspection requirements.*

- **Concrete slab** – Install 2" XPS insulation (R-10) below vapor retarder and 1/2" as a break between slab and foundation where called for in the Drawings.

- **Full Foundation Wall** – Install 3" (min. R-15) XPS rigid insulation to the exterior of the foundation walls. Install 6-mil polyethylene slip sheet below grade to promote drainage. Protect exposed insulation with polymer-modified foundation insulation coating cement. (Owens Corning Foamular NGX 250 or other HFC free insul.)

  Protect exposed insulation with either of the following; follow manufacturer's instructions:
  1. Polymer-modified foundation insulation coating cement; paint finished surface. (Akona or approve equal.*) OR*
  2. Trowel on acrylic foundation coating (Styro Industries Tuff II or approved equal) *Color to be selected by Architect.*

- **Stem Wall Foundation @ walkout basement** – Install 2" (min. R-15) XPS rigid insulation to the exterior of the foundation walls. Install 6-mil polyethylene slip sheet below grade to promote

drainage. (Owens Corning Foamular NGX 250 or other HFC free insul.)
*Protect exposed insulation as indicated above.*

- **Rim Joists**: Closed cell Sprayed foam min R-20 sprayed foam

- **Exterior Walls –** Install 5 ½" high density fiberglass batt insulation (R-21). Install foam (designed for insulating around doors/ windows) at any voids between framing openings and jambs. *Must pass Grade 1 inspection requirements.*

- **Interior Walls -** Install 3 1/2" sound attenuation batt insulation in all plumbing walls.

- **Roof** – Attic insulation shall be blown-in cellulose with an R-value of 60. (Assumed depth 14" – verify with manufacturer.) Provide attic insulation markers and attic information card and maintain R-value at truss heel. Install insulation/wind barrier providing 2" air space between trusses and sea to prevent air infiltration through insulation from eave.

### 07 28 00 – Underlayments
On all roof surfaces install 30 # asphalt impregnated rooting felt. Overlap felt a minimum of 4" vertically and 12" horizontally. Continue felt 6" up all vertical surfaces and 4" over gutter and valley metal.

### 07 31 00 - Asphalt Shingles
- Provide 30-year Composite/Asphalt architectural shingles over one layer of 30# felt. Install according to manufacturer's guidelines*. (GAF Timberline HDZ or approved equal.)* Install ridge vents; see construction documents for location. (GAF Cobra or approved equal.) *Color -See Appendix A.*

### 07 46 00 – Siding and Trim
*Note: Engineered wood products shall not include any urea formaldehyde-based binders. See also Section 09 91 00 – Painting.*

- **Siding -** Install factory pre-finished engineered composite siding in accordance with manufacturers guidelines. Siding shall be straight and flat against building. Prime/paint all cut edges and caulk at corner and trim joints. Provide all necessary starter strips, wedges, corner detailing, etc. required by manufacturer and as stated in construction documents. Pre-primed, field painted, two coats. *Colors to be selected by Owner/Architect. See Appendix A for color selections.*

  *Contractor is responsible for inspection of the siding material before securing to home and that they will handle all material returns for defective and or blemished materials*

  - **Horizontal siding–** Pre-finished 38 Series Cedar Texture 6" lap, engineered composite siding, LP Smartside or approved equal.
  - **Shake siding –** Pre-finished 38 Series Cedar Texture Shakes, engineered composite siding, LP Smartside or approved equal. See Drawings for locations on elevations.
  - **Panel siding –** Pre-finished, smooth finish, engineered composite siding, LP Smartside or approved equal. See Drawings for locations on elevations.

- **Trim and Fascia -** All window and door trim and fascia board to be factory pre-finished, engineered wood trim. LP Smartside 440 Series or equal, pre-finished. Prime/paint all cut edges and caulk at corner and trim joints. *Colors to be selected by Owner/Architect*.

### 07 60 00 - Flashing/Counterflashing and Sheet Metal
Install appropriate flashing at all joints of walls, vent pipes and other connection points to prevent the infiltration of water. Flashing shall be galvanized, corrosion resistant sheet metal. Keep flashing concealed except where exposed on vertical surfaces or counter flashing. 20 guauge. Provide for

thermal expansion of all metal flashing exceeding 15' running length.

- **Vented Soffit -** Install aluminum soffit, 16" center vent, minimum .024 gauge. Must meet venting requirements. (Rollex, Alcoa or approved equal.) *Color to be selected by Owner/Architect.*
- **Roof** – Provide valley flashing where required. Install metal drip edge at perimeter of roof where there is an overhang. Color to match closely with shingle color.
- **Sill Flashing** – Provide pre-finished aluminum 'z' flashing above sill cap at manufactured stone veneer and at top of foundation insulation. Color as selected by Architect from manufacturer's standard colors.
- **Windows/Doors/Horizontal trim bands** - Include drip edge at head. *(See also Section 07 65 00 – Flexible Flashing.)*
- **Exterior Walls:** Flash/counterflash using 4" wide x 4" high x 10' long galvanized step flashing between wall siding and roof surfaces. Also use ice barrier minimum 12" up side of wall at this condition. Install cap flashing above horizontal trim boards.

### 07 65 00 – Flexible Flashing

Pre-flash window opening using flexible, self-adhering flashing at sill, jambs, and head. Follow manufacturer's instructions. *(Zip System Stretch Tape, Dupont FlexWrap or approved equal compatible with insulated sheathing.)* Also flash window into opening. *(Zip System Flashing Tape, Dupont StraightFlash or approved equal.)*

### 07 71 23 - Manufactured Gutters and Downspouts

- Install 5" box type, .032 gauge painted, seamless aluminum gutters, with 3"x4" downspouts and extensions complete with all connections and accessories necessary. Attach every 2'-6" o.c. with straps and/or fasteners. See drawings for downspout locations. *Color to be selected by Owner/Architect.*

### 07 72 00 - Roof Accessories

As shown on plans, provide a minimum of 144 square inches of free air ventilation for every 300 square feet of attic floor area as long as free area is split evenly between soffits and ridge/upper roof area. Do not block vents with insulation. Must meet venting requirements.

- **Soffit Vents** - *(See Section 07 46 00 Siding and Trim) Assume 6.48 sq. in. net free area per lineal foot.*
- **Ridge Vents –** *(See Section 07 31 00 - Asphalt Shingles) Assume 18 sq. in. net free area per lineal foot.*
- **Slant Back Roof Louver –** Assume min. 50 sq. in. net free area. Color from standard selection to best match color of shingles. (GAF Master Flow Slant Back or approved equal.)

### 07 92 00 - Joint Sealants

***Use ONLY low/no VOC adhesives and/or sealants.*** *All adhesives will comply with Rule 1168 of the South Coast Air Quality Management District. All caulks and sealants will comply with regulation 8, Rule 15 of the Bay Area Air Quality Management District.*

- **Silicon based caulk** - at high expansion/compression areas, such as around tile, glass block, ceramic, plumbing fixtures, and around enamel tubs/showers.
- **Latex based caulk (clear)** - at interior non-rated door frames, interior trim, woodwork and other paintable surfaces. White, paintable.
- **Screens** - Provide rodent and corrosion proof screens (e.g., copper or stainless-steel mesh) for all exterior openings that cannot be fully sealed and caulked (e.g., vents).

**The following is a list of typical items to be sealed, but not limited to**:

a.) Seal around all windows and door units.
b.) All above grade sill plates sealed to foundation or subfloor (additionally place on gasket when on foundation.)

c.) Seal all vapor barriers as required and according to manufacturer's instructions.
d.) Seal new casework and countertops/vanity tops to wall and floors
d.) Seal toilet and tub to floor
e.). Seal tub/shower enclosure to wall
f.) Seal inside corner of two tile walls
g.) Caulk around all plumbing valves, sinks and faucets
h.) Seal ALL attic bypasses – i.e. all plumbing, electrical and mechanical penetrations and chases to be air sealed where they penetrate from the conditioned space to the unconditioned space
i.) ALL gypsum wall penetrations in exterior walls that are not strictly service space.
j) Seal all wall, floor, and joint penetrations and other gaps at exterior to prevent pest entry. Provide rodent and corrosion proof screens (e.g., copper or stainless-steel mesh) for all openings that cannot be fully sealed and caulked (e.g., vents)

## Division 8 - Doors and Windows

### 08 00 00 - Openings

*Flash windows and exterior doors with pan, side & head flashing. Air seal around outside of window and door units with low expansion foam insulation. Submit shop drawings for all window and door openings.*

### 08 11 01 - Exterior Doors

All exterior doors (see plans for sizing) shall be solid core, insulated and swing inside with bronze anodized thresholds and appropriate door sweeps at exterior doors. Install weather-stripping around all doors – *Color selected by architect/owner*. Provide solid backing at latch area of entry doors. Door lites shall be tempered glass, no grilles.

- **Front Entry Door -** Provide and install Energy Star rated, pre-hung insulated steel doors with 6 lites at each entry. (Mastercraft 36"x80" Primed Steel Mission Lite (no grilles) Exterior Door System or approved equal.) Supply and install hardware/handle sets/deadbolts on all exterior doors with better quality, Schlage hardware. Paint. (*Owner to approve products, style and color.)* Key all exterior doors alike per separate units.

- **Garage/House Door –** Provide and install 20 min. Rated solid core MDF or honeycomb steel door min. 1.375" thick; weatherstrip and include door closer or self-closing hinges. *(Owner/Architect to approve final products and color.)*

- **Sliding Glass Patio Door –** Provide and install 72x80 sliding glass patio door with nailing flange; insulated, solid composite core frame, tempered and double-glazed, low-3 and argon gas filled glazed panels. Smooth, paintable finish. Include screen door. (MasterPiece Series by MP Doors or approved equal.)

### 08 11 63 - Metal Screen and Storm Doors and Metal Frames

- **Storm Doors –** Provide and install storm door at front entry. Aluminum frame, full lite tempered glass with interchangeable screen. Install removable tempered glass in frame. Provide necessary hardware, Larson Lakeview Fullview Storm Door in OR approved equal). See Drawings for sizing. See Appendix A for color selection per address.

### 08 14 00 - Interior Doors

- **Standard Interior Door -** Provide and install pre-hung, solid core 1-panel Shaker style MDF doors (see plans for sizing) with interior casing. Prime and topcoat (JELD-WEN or approved equal.) *Architect/Owner to approve final products and paint color.*

### 08 31 00 - Attic Access Door

Provide and install non-locking EZ Hatch R-50 Attic Access Door; minimum size 22" x 30".

### 08 36 00 - Panel Doors

Install Overhead 16'-0" wide x 7'-0" high insulated (R6.5 min.), pre-finished 3-layer classic steel garage doors. Raised, short (or narrow) panel design with top row of panels to be tempered glazed. Door must have safety mechanism with safety sensors to code. Include vinyl weatherstripping and door sweep. Door must be W1 rated for 90 mph wind speed (PSF rating +12.4/-13.8). Install all track and hardware necessary. Provide electrical wiring and electric door opener – *(See also Section 11 14 00 – Residential Vehicle Service Equipment*). *(Color – See Appendix A.)*

### 08 50 00 – Windows

**Egress: Bedroom windows shall comply with Code requirements for emergency escape with appropriate egress hardware.** Minimum net clear opening shall be 5.7 sq.ft., minimum net clear width shall be 20", minimum net clear height shall be 24" and sill height shall not exceed 44" above floor. Confirm with manufacturer that openings are compliant with all applicable building codes concerning egress, lighting and ventilation requirements.

**Window construction/glazing requirements:** Provide and install all new-construction windows with nailing flanges. Vinyl windows, insulated glass, low E and Argon filled. Fiberglass mesh screens at all operable windows. (Vector Envision or Alside 1700 Series and New Construction Single-Hung/Awning/Casements or approved equal). Finish hardware shall include locksets at all exterior windows. Install as specified by manufacturer.

**Install window fall protection/opening control devices at ALL single-hung windows and awning windows on second floor at which the sill is less than 36" from the finished floor.**

***Hardware Finish and window color to be the same at both interior and exterior*. See Appendix A for color selection per address.**

- **Window Types: Single-hung, awning, and fixed per Window Schedule on Drawings.** See window schedule on Drawings for sizing. Contractor to verify ALL sizing and quantities.

**U-Factor Rating Specificatons:**

- All windows to have a U-factor less than or equal to 0.27 or that reaching the Equivalent Energy Performance while optimizing the SHGC per building orientation.

  - ****ALTERNATE PRICING:** *Upgrade all windows to Energy Star 7.0 for northern climate zone requirements, i.e. U-factor less than or equal to .22 and an SHGC greater than or equal to .17 or that reaching the Equivalent Energy Performance per Energy Star Northern Climates.*

**Window Installation**

Install windows in accordance with manufacturer's instructions. Install windows to be weather-tight. Maintain alignment with adjacent work. Secure assembly to framed openings, plumb and square, without distortion. Place interior seal around window perimeter to maintain continuity of building thermal and air barrier using insulating foam sealant. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.

### 08 70 00 – Door Hardware

Provide and install all hardware, fasteners, and accessories necessary for a complete job. (Schlage or approved equal.) ***Owner/Architect to approve finish color.***

- **Hinges:** Three, full mortised butt hinges at each opening.
- **Exterior Doors:** Provide deadbolts and deadlocking latches
- **Interior Doors:** Provide lever hardware; privacy lock at all bedrooms and bath doors, passage hardware at all other doors.
- **Stops –** Wall mounted wherever possible; hinge stop where wall stop not feasible.

## Division 9 - Finishes

### 09 29 00 - Gypsum Board

Gypsum wallboard shall not be installed until weather protection for installation is provided. All edges and ends of gypsum wallboard shall occur on the framing, members, except those edges and ends which are perpendicular to the framing members and comply with current IRC., State of Minnesota and Local codes. Install according to manufacturer's instruction and finish standards ASTM C 840 and GA 216.

Provide all material, fasteners, and accessories necessary for a complete job, including but not limited to board, tap, joint compound, corner trim, beads, control joints and metal accessories and apply in such a manner as not to fracture the face paper with the fastener head. At corners and angles, install metal corner. Apply three coats of mud at all tape joints, corner beads, nails, and screw penetrations and where a smooth surface is needed. Sand all joints and other areas to a smooth consistent surface.

- **Walls:** Sheath walls with 1/2" gypsum wallboard.
- **Bathrooms:** All drywall in bathrooms (except behind tub/shower surrounds) to be moisture resistant drywall – Georgia Pacific DensArmor Plus, or approved equal.
- **Ceilings:** Apply a single layer of ½" no-sag gypsum wallboard across the supports.
- **Cementitious Underlayment -** Install 1/2" fiberglass reinforced cement composition boards such as DurockR or HardieBacker™ in areas of tub and shower surrounds. On walls, all edges of backer boards must be supported by full face 2' framing secured to the structure. Do NOT install vapor barrier behind.
    - **ALTERNATE PRICING –** If ceramic tile floors are selected in baths, install cementitious underlayment at first and second floor bathroom floors as well.

### 09 30 00 - Tiling and Grouting – ALTERNATE PRICING

- **Floors –** Contractor shall properly clean all surfaces to be covered. Install large format ceramic or porcelain floor tile using thin-set mortar adhesive. Layout all tilework so as to minimize cuts and balancing layout to leave no thin tiles. *See Appendix A - Finish Schedule for locations and product selections.*

- **Grouting** - Surfaces to receive grout shall be prepared by removing defective concrete, dirt, oil, grease and other foreign matter to achieve sound, clean surfaces. Mix up grout per manufacturers recommendations and latest ANSI Standard Specifications. Grout all the joints except those needed to allow for expansion joints, specifically along fixtures, between the floor and walls, *or joints in corners in between walls. (Owner/Architect to make color selections.)*

### 09 65 00 – Resilient Flooring

Luxury Vinyl Plank – Install floating luxury vinyl plank/tile where indicated on Appendix A - Finish Schedule.

*Product MUST be acclimated for a minimum of 48 hours prior to installation at temperature and humidity levels typical of normal residential use.* Follow manufacturer's directions regarding testing for moisture levels prior to installation. Along walls and permanent objects, install a 1" quarter round molding to base trim to conceal expansion area.

Product to be approximately 7"x48" planks with min. 12 MIL wear layer with sound underlayment included. Provide a limited lifetime residential manufacturer's warranty. Product must be FloorScore certified or similar certification. Include trim accessories at changes in floor finish. *(See Appendix A - Finish Schedule for product and color selection. Products as specified or approved equal. Tile/stone-look in baths/laundry; wood-look throughout remainder of house.)*

### 09 68 00 – Carpet

Provide/install carpet on all stairs and at all Bedrooms and second floor Hall. Provide fiber cushion. Dense pile, stain-resistant. Carpet, adhesive and cushion **must meet Green Label Plus standards** for indoor air quality OR be NSF 140 certified. (*See Appendix A - Finish Schedule for product and color*

*selection. Products as specified or approved equal.*)

### 09 90 00 - Painting

***All paints and primers used shall comply with Green Seal G-11 Environmental Standards for low VOC limits.***

- **Exterior Finishes -** Wood surfaces shall be sanded smooth before finish is applied. Putty areas with a wood-based filler where nails or other defects appear in the surface. (*Architect/Owner to make color selections.)*
  - **Pre-finished Engineered Siding and Trim**: Prime/paint all cut edges. Paint with two coats of acrylic latex coatings
  - **Beadboard Ceilings**: Prime and paint with two coats of exterior acrylic latex coating

- **Interior Walls -** Walls shall be clean, dry, and free of defects such as cracks or unfinished joints prior to installation of wall finishes. All nail heads shall be set below the surface and finished smooth. Interior walls and ceilings shall receive a primer coat and two finish coats of paint. All walls and kitchen/bath ceilings to have a smooth finish; all other ceilings to have a knockdown finish. Paint walls inside of cabinets and under sinks. Paint closets same as adjacent room. *(Owner/Architect to make color selections.)*

  **Primer:** low odor, low VOC
  **Ceilings:** low odor, low VOC interior flat, latex
  **Kitchens, baths:** low odor, low VOC interior satin, latex
  **All other walls:** low odor, low VOC interior eg-shel, latex

- **Interior Wood Finish -** Wood surfaces shall be sanded smooth before finish is applied. Putty areas with a wood-based filler where nails or other defects appear in the surface. Prime wood surfaces including faces, edges and ends before installation. Millwork may be factory primed where called to be painted. After installation, touch up priming as needed and apply at least two coats of finish. Surfaces shall be sanded before each finish layer is applied. *(Architect to make color selections.)*

  **Base trim, window and door casing, stair guardrail/ballusters, and doors**: low odor, low VOC interior satin latex enamel
  **Interior handrails:** stain

## Division 10 – Specialties

### 10 55 00 - Postal Specialties

- **Mailbox:** Install large capacity, galvanized steel post mount mailbox, black for each dwelling unit– see Drawings for location. Install grouped in three mounted on 6x6 cedar post and bracing with metal cap typical per city requirements. (Architectural Mailboxes Elite Black or approved equal.)

- **Address Numbers**: Provide 4" flush mount metal address numbers at front of house per elevations (Everbilt 4 in. Aged Bronze Flush Mount Numbers).

### 10 82 50 - Bath Accessories

Contractor shall provide and install accessories as listed below and located as indicated in interior elevations per Drawings. Provide blocking behind each accessory. Product selection as listed below (or approved equal). Contractor to verify all quantities.

- One towel ring in each Bath 1 and 2 (Franklin Brass Maxted in Brushed Nickel or approved equal.)
- One 24” towel bar in Bath 1 (Franklin Brass Maxted in Brushed Nickel or approved equal.)
- Three robe/towel hooks in Bath 2, heavy-duty, Brushed Nickel finish.

- One toilet paper holders in each Bath 1 and 2 (Franklin Brass Maxted in Brushed Nickel or approved equal.)
- Tension Curtain rods in ¾ and full baths – "never rust" aluminum, satin nickel finish.

### 10 83 00 – Bathroom Mirrors

- **Wall Mirror:** Install mirrors in all Baths. Install with silicon sealant and spacer strips per manufacturers recommendations. Frameless 1/4" plate glass. Pencil edge. Sizes per Drawing.

### 10 90 00 - Wardrobe and Closet Specialties

Provide blocking for all shelf supports. Hang plumb, true and square.

- **Closet Accessories:**
  - Install 12" deep x 5/8" thick white, melamine shelf and pine closet rod stained with natural finish, mount with white combination shelf/rod steel bracket (Everbilt or approve equal) at entry and bedroom closets as shown on plans. Provide supports every 3'-6" maximum on center (OC). One additional melamine shelf where noted in bedroom.
  - Five (5) adjustable melamine shelves in Hall closet and Linen Closet. See Drawings for depth.
  - One full length, 12" deep wire shelf mounted over Washer/Dryer.

- **Entry:**
  - Double coat hook, 20 lb. capacity, satin nickel. Qty.- 16. (Designer's Image, Nickel Double Coat and Hat Hook Model # 2133330 or approved equal.)

## Division 11 - Equipment

### 11 14 00 - Residential Vehicle Service Equipment

Provide and install chain-driven, ½ HP garage door opener. Include remote control, locking system, manual emergency release, light and safety sensor.

### 11 45 00 - Residential Appliances

Install Energy Star rated electric appliances as shown on construction documents, including all venting and supply requirements per manufacturers recommendations. See electrical specifications for wiring information. *Submit all selections for approval.*

### Appliance Schedule

| No | Appliance | Size | Energy Star Rating | Color |
|---|---|---|---|---|
| 1 | Range (electric, glass cooktop) | 30" | Not available for ranges | Stainless steel |
| 2 | Microwave w/ integrated Vent Hood ** | over the range | Not available for microwaves | Stainless steel |
| 3 | Refrigerator (LG Model # LRTLS2403S or approved equal.) | 33" width, 21-24 cu. ft. | Yes | Stainless steel |
| 4 | Dishwasher **include stainless steel overflow pan beneath* | 24" | Yes | Stainless steel |
| 5 | Clothes Washer – top loading | 4.3+ cu. ft. | Yes | white |
| 6 | Dryer (electric) | 7.0 cu. ft. | Yes | white |

**Exterior vented range hood to exhaust at an intermittent rate of 100 cfm, per ASHRAE 62.2-2010. To also include work light

## Division 12 00 00. Furnishings

### 12 30 00 – Manufactured Casework

*All composite wood products must be certified compliant with California 93120; if not, all exposed edges and sides must be sealed with low-VOC sealants. Formaldehyde-free construction preferred.*

*****Submit shop drawings for review prior to ordering cabinets.*****

Install pre-fabricated cabinetry. Sink bases and vanities upgraded to full plywood construction, all others standard ½" particle board construction. I-beam constructed frame, standard overlay door with veneered center panel, solid wood slab drawer fronts with dovetail drawer construction and standard side mount glides. Include toe kick, base shoe (stained OR painted to match the cabinet it is on), finished laminate end panels, wall scribes and fillers as needed. Dimensions of base cabinets shall be: 24" deep x 34" high. Dimensions of overhead cabinets shall be: 12" deep x 42" high unless noted otherwise. Provide concealed hinges and cabinet hardware as specified below. Include shaker crown trim. (Manufacturer: Smart Cabinetry, Signature line or approved equal.)

See wood species and finishes per cabinet location below.

- **Kitchen Base, Upper and Pantry, Cabinets:** Wood: Maple. Door style: Squire. Finish: Painted. *Include sink base mat.*
- **Kitchen Island Cabinets:** Wood: Maple. Door style: Squire. Finish: Stained.
- **Bath Vanities:** Wood: Maple. Door style: Squire. Finish: Painted. *Include sink base mat. (See also Section 06 60 00 - Composite Fabrications for vanity tops.)*
- **Entry Bench Cabinets:** Wood: Maple. Door style: Squire. Finish: Stained. Provide stained wood bench top to match.

**Cabinet hardware:** As specified below *or approved equal.* Verify count with cabinet count.

- **Kitchen/Bath Drawer and Door Pulls:** Liberty Step Edge 4" Center-to-center, Satin Nickel Model # P18949C-SN-C.

### 12 36 00 – Countertops

- **BASE BID**: Install custom-ordered plastic laminate counter tops with ¾" plywood substrate shall be provided and installed per Drawing in Kitchen. *All products to be* ***formaldehyde-free.*** Edges shall be eased. Provide minimum 4" backsplash between counter and wall. (Wilsonart HD Laminate, or approved equal - *Architect/Owner to select color/pattern*.)

- **ALTERNATE PRICING***:* Install custom-ordered, non-porous and stain resistant, seamless solid surface countertops with GREENGUARD Gold Certification. Provide minimum 4" backsplash between counter and wall. (Wilsonart Solid Surface, Corian, or approved equal - *Architect/Owner to select color/pattern*.)

### 12 50 00 – Window Treatments

Provide and install blinds at all bedroom and bath windows. Aluminum blinds to be cordless, room darkening and mounted at the interior of the window frame. *Color: white.*

## Division 15 00 00. Mechanical

### 15 05 00 – Design-Build General Conditions

The Contractor shall be responsible for defining the performance and design criteria for portions of the Project that are being delivered by means of a design-build delivery method. The Contractor shall be responsible for any act of omissions related to the design and construction of design-build components and systems. The Architect shall not be responsible for the adequacy or completeness of the design-build services, and the Architect shall be entitled to reasonably rely on information provided by the design-build engineers with respect to the size, clearance, and support requirements of the design-build components.

Review by the Architect of design-build components and systems is limited to basic integration into the Project and its aesthetics.

## 15 40 00 – Plumbing

These specifications are meant as an outline only. Any engineering or drawings required for this work are the responsibility of the contractor. All state and local codes shall be met.

**General Requirements**:
Provide and install all piping, soil, vents, drains, sewage removal and hot/cold water supply systems to connect with appropriate water and sewage systems. Provide and install appropriate insulation around piping. All permits and inspections are to be obtained by contractor as required by local building codes and the Uniform Plumbing Code. No water, soil, or waste pipe shall be installed or permitted outside of a building or in an exterior wall, unless where necessary, adequate provision is made to protect such pipe from freezing. Piping subject to undue corrosion, erosion, or mechanical damage shall be protected in an approved manner.

1. Perform a water leak test and remediate leaks discovered.
2. Insulate all interior drain/waste piping with batt insulation for sound attenuation.
3. Provide and install gas line to furnace locations only.
4. Clean out floor drains at completion of construction.
5. Include water line to refrigerator locations.

- **Sewer and Waste Piping -** Drainage system and traps shall be Schedule 40 PVC pipe. All connections shall have PVC cement and assembled tight for no leakage. Connection to public sewer system shall comply with all local requirements. Pitch shall be a minimum 1/8" per foot for soil lines larger than 3" diameter and a minimum of 1/4" per foot for soil lines 3" diameter or less.

- **Water Pipes -** Connect from public water line below frost line to the meter and to building per code. At interior, use clear PEX tubing plumbing supply lines to each plumbing fixture as required (Zurn or approved equal). Use copper stub-ins and polished chrome adjustable brass P-traps with wall escutcheons at all exposed locations. All copper is to be soldered (no compression fittings) & all PVC fittings glued. Insulate exposed hot and cold-water mains with closed cell polyethylene slip-on pipe insulation, sized to fit the pipe's diameter. Seal seams with either 5 mil Pipe Insulation sealing tape or Closure Clips designed for pipe insulation placed every 4 inches. Seal all butt joints between sections of pipe with 5 mil Pipe Insulation sealing tape. Neatly miter all angled junctions.

  **Provide main shut-off valve in *mechanical room.*** Provide shut-off valves at sinks, toilets, water heater and other fixtures as required. Test all pipes under pressure per building code requirements.

- **Waste Drainage -** Install sewage clean-out at the end of each horizontal drainage run and every 100 feet per building code requirements. Vents shall be installed throughout plumbing connections and connected with the vertical stacks and vented through the roof.

## 15 44 00 - Plumbing Fixture Schedule

Provide necessary piping, water and drains for plumbing fixtures as shown on the construction documents and listed herein. Include supply valve, supply line, wax ring, bolts and flange at all toilets. At sinks, include all associated plumbing including pop up drain assembly. Provide and install escutcheon plate at wall where piping penetrates it. Include drain assembly at shower and tub diverter spout/ pop up drain assembly at tub.

**Fixtures and Fittings -** Provide and install plumbing fixtures as listed below *OR approved equal.* General Contractor to verify all Quantities. (*Architect/Owner to approve all selections.*) ***Note fixture flow rates to meet Green Communities and rebate requirements as specified. All fixtures should have WaterSense label. Fixtures typical at each unit. Contractor to verify counts.***

| Location | Fixture/ Fittings Description | Model # |
|---|---|---|
| Kitchen | Sink, 27” single basin, drop-in, SS with drain basket, single hole | Elkay, Model #DSESR127221 or approved equal. |
| Kitchen | Fixture, single handle, integrated sprayer, chrome **1.5 gallon per min or better**, include basket strainer | Moen Adler One-Handle Pull-Down High Arc Spot Resist™ Stainless Kitchen Faucet Model # 87233SRS or approved equal |
| Bath 1, 2 | toilet w/ toilet seat; dual flush, **1.6/1.1 gal per flush**, include new supply valve, supply line, wax ring, bolts and closet flange if required. | Delta Foundations 2-piece 1.1 or 1.6 GPF Dual Flush Elongated Toilet in White Model # C43913D-WH or approved equal |
| Bath 1, 2 | Fixture *(cultured marble vanity top included in Section 06 60 00 - Composite Fabrications),* two handle faucet, **1.2 gallon per min or better** and all associated plumbing including pop up drain assembly, escutcheon plate at wall where piping penetrates it. | MOEN Adler 4 in. Centerset 2-Handle Bathroom Faucet in Chrome Model # 84603 or approved equal |
| Bath 2 | Porcelain-Enameled steel tub and fixture, White, 14” depth, 30” x 60” | American Standard or approved equal |
| Bath 2 | single handle control shower head, chrome, **1.5 GPM or better** with pressure balancing mixing valve. Include tub diverter spout and pop-up drain assembly. | MOEN Adler Single-Handle 4-Spray Tub and Shower Faucet with Valve in Chrome Model # 82603 or approved equal, **NOTE:** swap out shower head with Niagara Conservation Sava 1-Spray 4.5 in. Single Wall Mount 1.5 GPM Fixed Shower Head in Chrome or approved equal. |
| Bath 2 | 4-piece, composite tub surround, White – 60” x 30” x 59” | Sterling Traverse 60”x30”x58.25” white bathtub wall surround (4-piece) Model # 71574900-0 or approved eq. |
| Bath 1 | Fiberglass reinforced acrylic shower base with integral tile flanges and anti-slip floor, center drain, white, see Drawings for sizing, single threshold | DreamLine 48 in. x 34 in. fiberglass reinforced acrylic shower base; single threshold, center in White, Model # DLT-1134480 or approved equal |
| Bath 1 | single handle control shower head, chrome, **1.5 GPM or better** with pressure balancing mixing valve. | Moen Adler 4-Spray Single Handle Shower Faucet 1.75 GPM in Chrome (Valve Included) Model # 82604 or approved equal, **NOTE:** swap out shower head with Niagara Conservation Sava 1-Spray 4.5 in. Single Wall Mount 1.5 GPM Fixed Shower Hea |
| Bath 1 | 3-piece, acrylic shower surround, White, 48” x 34” x 74” | Lyons Linear white shower surround (3-piece) Model # LSU01483459 or approved equal. |
| Laundry | Washing machine outlet box | PVC wall box with shut-off valves, shock absorbers and drain connection |
| Laundry | Overflow pan with drain | Stainless steel |
| Exterior | Two hose bibs (see elevations for locations) | frost proof, self-draining |
| Mech Room | floor drain | metal |

### 15 46 00 – Residential Water Heaters

Install 80-gallon hybrid high efficiency electric heat pump water heater. Energy Star rated, auto shut off valve and leak detection. 6-year warranty. Install with catch pans and drains piped to the exterior drainage system. Follow manufacturer recommendations and building code requirements for installation and use. Water heater must be set level. Include thermostatic mixing valve at main supply; set water heater temp to 140 degrees F and set delivered water temp to 120 degrees F. (AO Smith FPTU-50 Voltex Hyrid Electric Heat Pump Water Heater with 3.35 UEF OR approved equal.)

## 15 50 00 - Heating, Ventilating, and Air Conditioning (HVAC)

These specifications are meant as an outline only. Any engineering or drawings required for this work are the responsibility of the contractor. All state and local codes shall be met. Provide operating and instruction manuals for all equipment.

1. **HVAC Energy Star Design Report must be submitted to home energy rater prior to construction**. *(See Appendix D or page 2 of specifications.)*
2. **HVAC Commissioning Checklist must be submitted to home energy rater at completion of project.** *(See page 2 of specifications.)*

***At completion, the blower door test should reach a max air change of 2.0 ACH50.*** *NOTE: This is an increase from the code requirement of 3.0 ACH50. See also 07 92 00 - Joint Sealants for details on air sealing.*

### 15 55 00 - Fuel-Fired Furnace

Install high efficiency, dual stage, 96% AFUE or greater, direct-vent, sealed combustion natural gas furnace with variable speed ECM motor, size in accordance with the Air Conditioning Contractors of America Manual, Parts J and S for all living spaces. Install on 2" concrete pad. New furnace to be vented with PVC piping per manufacturer's specifications. Condensation drains into drain system, not under slab. Include new shut-off valve. ***Coordinate duct layout with Architect.***

The furnace filter to be at least MERV 8 or better and have a readily accessible access panel with a gasket or comparable sealing mechanism that fits snugly against the exposed edge of the filter when closed to prevent bypass.

***NOTE:** Equipment should work in conjunction with Air-Source Heat Pump, preferably of matching brand for compatibility. (Bryant or Carrier Crossover Solution or approved equal.)*

### 15 65 00 - Air-Source Heat Pump *(mini-split system in conjunction with furnace air handler)*

Install a side-discharge, ducted, variable speed with DC inverter technology, Air Source Heat Pump, single-zone unit to work in conjunction with new furnace that is being installed. Shall meet Energy Star requirements (> or equal to HSFP2 8.1). Size heating and cooling equipment in accordance with the Air Conditioning Contractors of America Manual, Parts J and S and in conjunction with new furnace. Design for typical 30-degree F switchover temp for heating function. Ducting associated with furnace shall be part of the system. Exterior equipment to be wall mounted or on a snow stand. Supporting thermostat must be able to control a heat pump and must be compatible with dual fuel operation.

***NOTE:** *Equipment should work in conjunction with backup gas furnace, preferably of matching brand for compatibility. (Bryant or Carrier Crossover Solution or approved equal.)*

### 15 84 50 – Energy Recovery Units – Whole House Ventilation System

Install balanced ventilation system using energy recovery ventilator with continuous ventilation meeting fresh air requirements of ASHRAE 62.2-2010. Include MERV 8 filter. Energy star rated, HVI cold weather certified, with automatic frost protection. Include motorized damper for fresh air intake. Minimum SRE 67%. (Broan or approved equal.)

Intake and exhaust ducts from energy recovery units to be R-8 insulated flex duct. Incorporate distribution

through main HVAC ducted system

### 15 85 00 - Air Handling

***Layouts for vents and diffusers shall be based per construction documents, designed by HVAC contractor with input from Architect regarding routing locations.*** Ducting **MAY NOT** use building cavities as part of air supply or return system. All bath fan ducting that is in unheated space shall be insulated to min R8. All flex duct pulled tight-no pinches - **rigid duct preferred**. Insulate all ductwork in unconditioned space (attics = R-30 min, walls = R10 min.) **- preferred that all ductwork be in conditioned space or interior walls.** Minimize length of duct runs. Supply duct tack-offs spaced minimum 6"apart. **All ductwork must be sealed with mastic**.

*Seal all ducts and air handlers to prevent contamination during construction. Ducts must be protected until construction (including floor finishing) is completed (protect returns, intakes & air handling equipment).* ***Clean out ducting at completion of construction.***

** *It is recommended to test the total duct leakage test at the time of the insulation inspection. In order to do this test during rough-in, the following must be installed: the furnace/air handler, all ductwork, airtight caps/blocks at all termination points, and ERV system.* ***Maximum duct leakage allowed is 2 CFM/100 sq. ft. CFA.***

- **Bath Exhaust** - Install Energy Star rated 110 cfm, <1 sone bath fan with humidistat and delayed off switch and vented to the exterior at each bathroom. Set at 50 cfm setting and 80% humidity setting. Seal around fan where it connects to the ceiling. (PanasonicWhisperFit DC Fan with Humidity Sensors Delay Timer (model #FC-0511VFC1) and Pick-A-Flow Speed Selector 50, 80 or 110 CFM or approved equal.) NOTE*: Install signal wires to manual override switch at wall to turn on separate from humidity sensor; load/service switch at unit remains on at all times for humidity sensor to work.* All bath fan ducting that is in unheated space shall be insulated to min R8.

- **Kitchen Exhaust** – Provide ducting for over-the-range microwave exhaust. *Vent to exterior. (See Section 11 45 00 - Residential Appliances)*

- **Dryer Ventilation -** Install clothes dryer vent; direct vent to exterior - 4" round rigid metal duct equipped with a full flow vent hood with damper. Minimize duct run.

- **Passive Radon System** - Install passive radon mitigation system. 4" diameter, schedule 40 PVC 'T' pipe into 4" aggregate below concrete slab and 10 mil soil gas retarder. Extend 'T' pipe through the roof to 12" above roof. Include electrical outlet, tied to the common space meter, in attic for future fan system to be tied to system as needed.

### 15 95 00 - Instrumentation and Control for HVAC

Install Digital control systems. Install hardwired, Energy Star label, programmable thermostat. **Thermostat must be able to control a heat pump and must be compatible with dual fuel operation.** *(See also Section 16 30 00 - Raceway and Boxes for Electrical Systems)*

## Division 16 00 00. Electrical

### 16 00 00 – Electrical System Design-Build

The Contractor shall be responsible for defining the performance and design criteria for portions of the Project that are being delivered by means of a design-build delivery method. The Contractor shall be responsible for any act of omissions related to the design and construction of design-build components and systems. The Architect shall not be responsible for the adequacy or completeness of the design-build services, and the Architect shall be entitled to reasonably rely on information provided by the design-build engineers with respect to the size, clearance, and support requirements of the design-build components.

Review by the Architect of design-build components and systems is limited to basic integration into the Project and its aesthetics.

These specifications are meant as an outline only**. Any engineering or drawings required for this work are the responsibility of the contractor. All state and local codes shall be met.** Electrical contractor is responsible for verifying the system size, service size, proper over-current protection, load balance, and all other requirements to comply with the current National Electrical Code, Uniform Building Code, and all local requirements. System to include connection to and cost of power company interface and connection.

***Note: During permit application process and setting up of the service/meter, Electrical Contractor to request electric heating rate from Electric Company. Verify completion with Owner/Architect.***

## 16 05 00 - Common Work Results for Electrical

1. From electrical meter box, install above ground wiring to building. Electrical service shall be rated at 200 amps within each unit.
2. It is the intention that all electrical runs will be concealed unless otherwise noted. No exposed conduit runs in occupied spaces will be accepted without prior approval.
3. All fixtures must be installed securely with the flanges flush with finished surfaces. Fixtures must not move when touched. Provide and blocking, backing, spacers, washers, anchors necessary to secure fixtures in place.
4. All equipment installed outdoors and exposed to weather shall be weather proof.
5. All penetrations through an exterior wall air barrier be sealed. Sealing of the opening applies to all penetrations including the service entrance, conduit, cables, panels, recessed luminaires and electrical boxes.

## 16 20 00 - Conductors and Cables

Provide and install necessary circuits and breakers for appliances as stated in manufacturer's recommendations per applicable building code requirements. Install GFI circuits in all wet areas, baths, kitchens, garage, and exterior outlets. *Refrigerator should **NOT** be on a circuit controlled by a GFI.*

Refer to applicable building code requirements for appropriate gauge wires for all appliances, furnace, air conditioning unit, sump pump, etc. Provide separate 30-amp circuits for laundry and heat pump water heater and (2) 20-amp small appliance circuits at Kitchen. Provide separate furnace circuit. Verify circuit requirements for ERV and Air Source Heat Pump System.

## 16 30 00 - Raceway and Boxes for Electrical Systems

All electrical wiring shall be nonmetallic (Romex) wiring. Do not install in plenums. Any wiring that is not enclosed in walls such as in the mechanical room or at the exterior shall be installed in metal conduit. Provide flashing and pitch pockets, making watertight joints where conduits pass through roof or waterproofing membranes. Route all exposed conduits parallel or perpendicular to building lines. All fittings shall be UL approved. Exterior outlets must also be weatherproof.

**Service to roof for future solar PV system:** Electrical design to accommodate future pv system. Refer to DOE ZERH PV-ready checklist for additional information.

- Install a 1" metal conduit for the DC wire run from the designated array location (locate in attic) to the future inverter location in Mech Room (cap and label both ends as RERH component).
- Install a 1" metal conduit from designated inverter location to electrical service panel (cap and label both ends as RERH component).
- Provide a labeled slot for a 70-amp dual pole circuit breaker in each electrical service panel for use by a future PV system.

**Thermostats:** Provide hardwiring for programmable, dual-fuel thermostat.

### 16 40 00 - Switchboards and Panelboards

200-amp electrical service panel to be installed in mechanical room as indicated on plans.

Provide typewritten directory of circuits mounted in box. Use factory assembled panelboards with amp rating units indicated. Provide spare units and blank spaces as indicated. 40 circuit breaker capacity. Install arc fault breakers per code. Install panelboard cover/door.

### 16 45 00 – Outlets and Switches

Install white receptacles, switches and cover plates as per construction documents and finish schedules. For exterior receptacles install gray cover plates. When two or more switches or receptacles are located together, gang with one common faceplate. If they cannot be ganged, install with a minimum distance between units. Install all receptacles at 14" on center (OC) above finished floor (AFF), unless otherwise noted. At counters, locate receptacles at 44" on center (OC), above finished floor (AFF). Install switches at 48" on center (OC) above finished floor (AFF). Locate light switch cover plates 6" from frame of door or corner of wall. Switches shall be: Toggle type.

A receptacle outlet shall be installed in any usable wall space 2 feet or more in width. In kitchen and dining areas a receptacles outlet shall be installed at each counter space wider than 12 inches. Receptacles in kitchen and bathroom shall be installed above work top unless otherwise noted on plans. Provide 240-volt outlet for laundry, kitchen range, and water heater locations.

1. **Attic Fan Outlet:** Provide outlet in attic for future fan to activate passive radon system.
2. **Garage:** Provide outlet in garage for garage door opener. Locate ceiling hook-up 1 foot from opener and push button at door. Provide additional GFI outlets at each wall.
3. **Bath 1 and 2:** At bath fans, install signal wires to manual override switch at wall to turn on separate from humidity sensor; load/service switch at unit remains on at all times for humidity sensor to work.
4. **Exterior:** Include a minimum of two exterior outlets; one at Front Entry and one at Rear walkout area.

### 16 50 00 - Lighting

***ALL Light fixtures to use LED lamps a color rating of 2700-3000K unless noted otherwise.***

Provide and install necessary circuits and wiring for light fixtures as listed in Appendix B. All lighting shall be switched as noted on construction documents. For exact locations of fixtures, see Construction Documents and Lighting Schedules (Appendix B). *All quantities shown on drawings shall be verified by the contractor.*

### 16 60 00 - Smoke Detection Sensors

- **Smoke alarm/CO alarm:** Install at least one hardwired and interconnected smoke alarm/carbon monoxide detector in every floor of dwelling unit and within 10 ft. or each sleeping area.
- **Smoke alarms:** Provide and install hardwired and interconnected smoke alarms in all sleeping rooms. Mount the smoke alarms on ceilings or high on walls. Don't install smoke alarms near windows, outside doors, or ducts where drafts might interfere with their operation. Do not paint, apply finish or obstruct smoke alarms.

### 16 70 00 – Communications

Provide necessary receptacle requirements and wiring for additional items as listed below. Locate as shown on construction documents.

- **Technology networking** - Locate router connection in Mechanical Room, install one ethernet connection in Living Room
- **Doorbell –** Install at front entry door.

# APPENDIX A. - Finish Schedules

## Product and Color Selections for Interior/Exterior

*(Sherwin Williams paint colors)*

| **INTERIOR (All units)** | | | | |
|---|---|---|---|---|
| **Room** | **Walls** | **Floors** | **Product Sample** | **Additional info** |
| Entry | SW 7029 Agreeable Gray | LVP 1 | Wood look | **ALL TRIM & DOORS:** SW 7008 Alabaster.<br><br>**CEILINGS:** All ceilings to have smooth finish; flat paint SW 7566 Westhighland White.<br><br>**KITCHEN:** Provide Architect with kitchen cabinet finish options to select final color. Countertop will be selected in conjunction with cabinet selection.<br><br>**Flooring:** Provide Architect with color options within flooring material selection meeting spec qualifications. |
| Living | SW 7029 Agreeable Gray | LVP 1 | | |
| Kitchen/Dining | SW 7029 Agreeable Gray | LVP 1 | | |
| Den | SW 7029 Agreeable Gray | LVP 1 | | |
| Bath 1 | SW 7029 Agreeable Gray | LVP 2 (alternate pricing ceramic tile) | Stone/tile look | |
| Bedroom 1/Office | SW 7029 Agreeable Gray | carpet | | |
| Stairs | SW 7029 Agreeable Gray | carpet | | |
| Hall | SW 7029 Agreeable Gray | carpet | | |
| Bedroom 2, 3, 4 | SW 7029 Agreeable Gray | carpet | | |
| Bath 2 | SW 7029 Agreeable Gray | LVP 2 (alternate pricing ceramic tile) | | |
| Laundry | SW 7029 Agreeable Gray | LVP 2 (alternate pricing ceramic tile) | | |
| Mechanical/Storage | Unfinished concrete | concrete | | |
| Hall 2 (only @ 8691) | SW 7029 Agreeable Gray | carpet | | |
| Bedroom 5 (only @ 8691) | SW 7029 Agreeable Gray | LVP 1 | | |
| Family Room (only @ 8691) | SW 7029 Agreeable Gray | carpet | | |
| Hall 2 (@ 8675 & 8709) | Unfinished | concrete | | |
| Future Bedroom 5 (@ 8675 & 8709) | Unfinished | concrete | | |
| Future Family Room (@ 8675 & 8709) | Unfinished | concrete | | |

| EXTERIOR – 8675 Moraine Dr. (LOT 10) | | | |
|---|---|---|---|
| **Location** | **Product** | **Color** | **Product Sample** |
| Horizontal Siding | LP Smartside, Expert Finish | Abyss Black |  |
| Shake Siding, Gable trim and Band | LP Smartside, Expert Finish | Midnight Shadow |  |
| Trim – Corner Trim | LP Smartside, Expert Finish | Abyss Black |  |
| Trim – Window and Door Casing, Front door side panel/trim, Front Porch beam and post trim | LP Smartside, Expert Finish | Snowscape White (Paint front porch posts to match) |  |
| Porch ceiling panel | LP Smartside, Expert Finish | Snowscape White |  |
| Windows | | White | |
| Metal Storm Door | | White | |
| Roofing Shingles | GAF Timberline HDZ | Appalachian Sky |  |
| Soffits/Fascia | aluminum | white | |
| Gutters | aluminum | **White (**note different than downspouts) | |
| Downspouts | aluminum | **Black** (note different than gutters) | |
| Entry Doors | | SW 6117 Smokey Topaz |  |
| Garage Doors | | Charcoal | |
| Foundation Coating | | | |

| EXTERIOR – 8691 Moraine Dr. (LOT 9) | | | |
|---|---|---|---|
| **Location** | **Product** | **Color** | **Product Sample** |
| Horizontal Siding | LP Smartside, Expert Finish | Quarry Gray |  |
| Panel Siding, including porch ceiling | LP Smartside, Expert Finish | Snowscape White |  |
| Trim – Corner Trim | LP Smartside, Expert Finish | Quarry Gray |  |
| Trim – Window and Door Casing, Panel outline trim, Front door side panel, Front Porch beam and post trim | LP Smartside, Expert Finish | Snowscape White (Paint front porch posts to match) |  |
| Stone Veneer | M-Rock P-Series | Hampton Ledge Stone Concrete Stone Veneer |  |
| Windows | | White | |
| Metal Storm Door | | White | |
| Roofing Shingles | GAF Timberline HDZ | Pewter Gray |  |
| Soffits | aluminum | white | |
| Gutters/Downspouts | aluminum | white | |
| Entry Doors | | SW 7603 Poolhouse |  |
| Garage Door | | White | |
| Foundation Coating | | | |

| EXTERIOR – 8709 Moraine Dr. (LOT 8) | | | |
|---|---|---|---|
| **Location** | **Product** | **Color** | **Product Sample** |
| Horizontal Siding | LP Smartside, Expert Finish | Cavern Steel |  |
| Shake Siding, Gable trim and Band | LP Smartside, Expert Finish | |  |
| Trim – Corner Trim | LP Smartside, Expert Finish | |  |
| Trim – Window and Door Casing, Front Porch Posts | LP Smartside, Expert Finish | |  |
| Porch ceiling panel | LP Smartside, Expert Finish | Quarry Gray |  |
| Windows | | White | |
| Metal Storm Door | | White | |
| Roofing Shingles | GAF Timberline HDZ | Nantucket Morning |  |
| Soffits | aluminum | White | |
| Gutters/Downspouts | aluminum | White | |
| Entry Doors | | SW 7747 Recycled Glass |  |
| Garage Doors | | White | |
| Foundation Coating | | | |

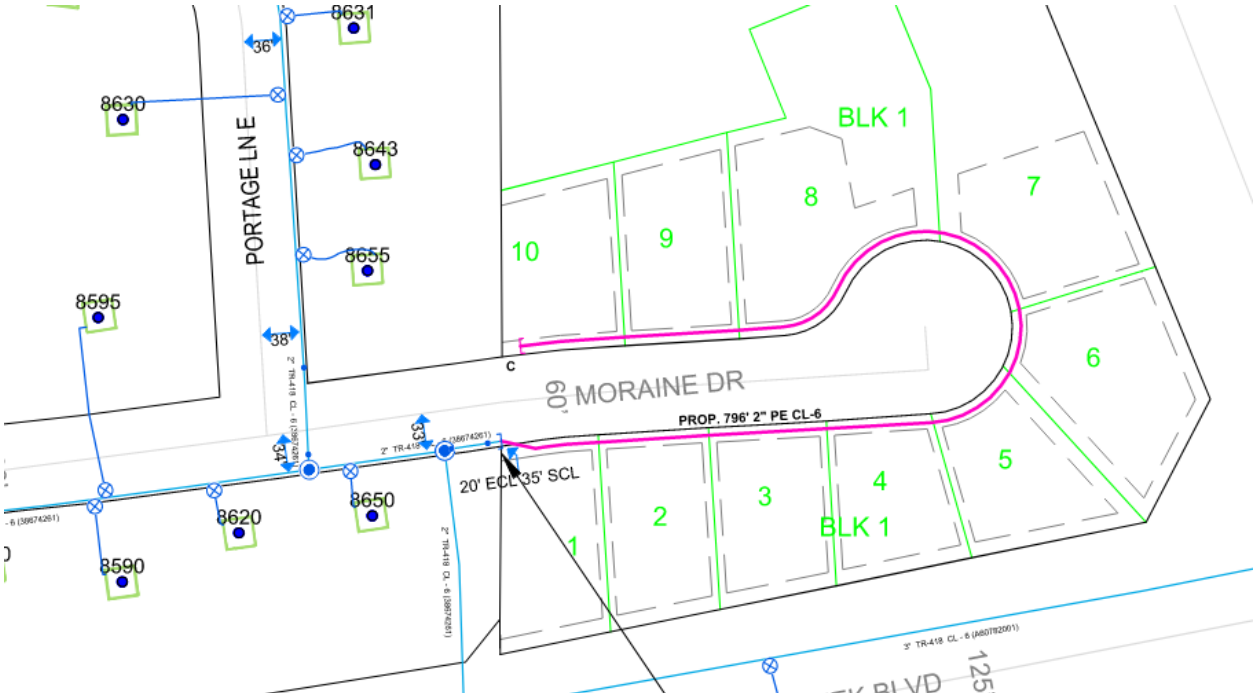
# APPENDIX B. - Lighting Schedule

**Fixtures -** Provide and install electrical fixtures as listed below OR approved equal. (Chart continues on following page.) *Architect/Owner to approve any substitutions.* ***ALL Light fixtures to use LED lamps with a color rating of 2700-3000K.***

| Location | Type | Description | Model # | Visual Example |
|---|---|---|---|---|
| **EXTERIOR** | | | | |
| Front Entry, Each side of Garage Door, Rear Deck | Wall mount | Black, outdoor, dusk to dawn feature (qty. 4) | Westinghouse Clarissa Textured Black Outdoor Wall Lantern Sconce Model # 6361100 |  |
| Walk-out below deck | Wall mount | Black, outdoor (qty. 1) | Design House Black Outdoor Wall-Mount Jelly Jar Wall Lantern Sconce Model #502195 |  |
| **BASEMENT** | | | | |
| Mech/Storage | Ceiling mount | White, ceramic lampholder, hardwired, no pull chain (qty. 2) | |  |
| **Unfinished Basement:** Hall 2, Future Family Room, Future Bedroom 5 | Ceiling mount | White, ceramic lampholder, hardwired, no pull chain (qty. 7) | |  |
| **Finished Basement:** Hall 2, Family Room, Bath 3, Hall Closet | Ceiling mount | Ceiling Flush mount, LED, white, 3000K light setting, backlit, damp location rated (qty. 15) | HALO HLCE 6 in. LED Surface Mount Disk Light 70-Watt Equivalent 900lm, 3000K **(OR Similar approved equal.)** |  |
| **Finished Basement:** Bath 3 | wall fixture | Center over sink, brushed nickel, mount downward. Use 3000K LED (qty. 1) | Design House Oslo 2-Light Satin Nickel Vanity Light Model #556142 |  |
| **Finished Basement:** Bedroom 5 | Flush mount ceiling | Low profile, Nickel finish selected from interchangeable trim kit (qty. 1) | Commercial Electric 14” Light Brushed Nickel and Oil-Rubbed Bronze Adjustable CCT Integrated LED Flush Mount with interchangeable trim Model #CA8aA022FR125 |  |
| **FIRST FLOOR and SECOND FLOOR** | | | | |
| Garage | Ceiling mount | White, ceramic lampholder, hardwired, no pull chain (qty. 2) | |  |

| | | | | |
|---|---|---|---|---|
| Entry (at front door/base of stair), Hall (top of stair) | Ceiling mount | Brushed Nickel finish (qty. 2) | Mera 8.3” 1-Light Brushed Nickel Industrial Semi-Flush Mount with clear glass shade Model #HCF-15M6-NI-BNHD-1 |  |
| Living Area | Semi-Flush mount ceiling | Brushed nickel finish, 3-light min. (qty. 1) | Minka Lavery Parsons Studio 3-Light Brushed Nickel Semi-Flush Mount Light Model # 4107-84 |  |
| Dining | Chandelier | Satin Nickel (qty. 1) | Design Hous Olso 5-Light Satin Nickel Chandelier Model # 567198 |  |
| Kitchen, Bath 1 and 2, Entry (by coat storage and between Bath 1/Bedroom 4), Upper landing of Basement Stair, Laundry and Hall outside of Laundry | | Ceiling Flush mount, LED, white, 3000K light setting, backlit, damp location rated (qty. 15) | HALO HLCE 6 in. LED Surface Mount Disk Light 70-Watt Equivalent 900lm, 3000K **(OR Similar approved equal.)** |  |
| Kitchen (over island only) | pendant | Nickel finish, white and clear glass (qty.2) | Design House Olso 1-Light Mini Satin Nickel Pendant Model #567214 |  |
| Den/TV | Semi-Flush mount ceiling | Brushed nickel finish, 2 light (qty. 1) | Merra 13” 2-Light Brushed Nickel Semi-Flush Mount Light with Fabric Drum Shade Model # HCF-1313-BN-BNHD-1 |  |
| Bath 1, 2 | wall fixture | Center over sink, brushed nickel, mount downward. Use 3000K LED (qty. 2) | Design House Oslo 2-Light Satin Nickel Vanity Light Model #556142 |  |
| Bedrooms 1, 2, 3, 4 | Flush mount ceiling | Brushed nickel finish, 2 light (qty. 4) | Kichler Ceiling Space 13.25” 2-Light Brushed Nickel Traditional Flush Mount Ceiling light with Etched Glass Model # 8112NI |  |

# APPENDIX C. – Existing Gas Line Service Design




A 2” plastic gas line has been installed to service the site.

Contact information for questions reqarding gas service to site:

**Ben Jacobsen**
Sales Consultant | New Market Development MN Div.
O: 507.387.1948
C: 507.272.2435
CenterPointEnergy.com

# Single Family - Intended Methods Worksheet

## 2023 - 2024 MN Overlay to the 2020 Enterprise Green Communities Criteria

**Project Name:** flow; Divert Surface Water; Tree Protection; Slope Stabilization.
**Location (City):** 8675, 8691, 8709 Moraine Dr., Shakopee, MN 55379
**Developer/Borrower/ Administrator/ Subrecipient:** Scott County CDA Community Land Trust
**Architect of Record (optional):** Marnie Peichel Architecture and Design, LLC
**General Contractor:** TBD
**HERS Rater/Energy Consult (Person and Entity):** Heartland Energy Consultants
**This Form Prepared By (Person and Entity):** Marnie Peichel
**Date Last Updated:** 27-Jun-25
**Optional Points Claimed:** 44

**Construction Type:**
- [x] New Construction
- [ ] Acquisition/ Rehab

**Rural/ Tribal/ or Small Town**
- [ ] Yes
- [x] No

1. Single Family New Construction projects must include all applicable "Mandatory" Criteria. **(40)** Optional Criteria points are **encouraged, but are not required.**
2. Single Family Rehab projects must include all applicable "Mandatory" Criteria listed in Table 7.02 of the MN Overlay. (**35**) Optional Criteria points are **encouraged, but are not required.**
3. The information on this form must reference and reconcile with the **2020** version of the Enterprise Green Communities Criteria as amended with the current/applicable version of the MN Overlay.
4. For developments with scattered sites or with different dwelling unit designs, a separate Intended Methods Worksheet form must be provided for each site and each dwelling unit type.
5. **Items with text in red as such are MN Overlay Criteria items.**
6. The "How Will Criteria Be Implemented?....." column must be completed for all Mandatory and selected Optional Criteria points. Provide a detailed description.
7. This document is formatted to be printed in a portrait (vertical) letter (11"x 8.5") page format.
8. Key to Column Headers: C# = Criteria Number; M/O = Mandatory Criteria or Optional Criteria Points; N/A = Not Applicable; WR = Waiver Request; OP = Selected Optional Points
9. *[Text in italicized blue as such is "help text" to aid with the completion of this form]*

| *Col. A* | *Col. B* | *Column C* | *Column D* | *Column E* | *Column D* | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Intent to Comply | | | | |
| **C#** | **M/O** | **Criteria Title** | **Criteria Description** *[Summary, see full Criteria for complete description]* | **How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented?** | **Yes** | **No** | **N/A** | **WR** | **OP** |
| **1. Integrative Design Category** | | | | | | | | | |
| 1.1 | 0 | **Integrative Design: Project Priorities Survey** (Optional, no points) MN OVERLAY CRITERIA | Complete and submit a Project Priorities Survey. This writable PDF document may be downloaded from the Enterprise Green Communities Criteria website or at the Minnesota Housing Building Standards website: http://www.mnhousing.gov/sites/multifamily/buildingstandards | *[If claiming optional points, clearly explain how the project will comply]* | ☐ | ☑ | ☐ | ☐ | 0 |
| 1.2 | M | **Integrative Design: Charrettes and Coordination Meetings** (Mandatory) | Develop an integrative design process that works best for your project team and intentions. | *Architect designed project to meet Green Communities and Energy Star Version 3.1 requirements, which are included in the written specifigcations. Rater will complete inspections during construction and post-construction. Pre-construction meeting is held with the contractor to make sure all intended methods will be complied with.* | ☑ | ☐ | ☐ | ☐ | |
| 1.3 | M | **Integrative Design: Documentation** (Mandatory) | Include in the construction/ contract documents for the project all information needed to properly implement the measures intended to meet the MN Overlay and Enterprise Green Communities Criteria. | *Architect designed project to meet Green Communities requirements, which are included in the written specifigcations and noted with Green Communities graphic adjacent to each item requirement. Overlay requirment is also listed at the beginning of the specifications.* | ☑ | ☐ | ☐ | ☐ | |
| 1.4 | 0 | **Integrative Design: Construction Management** (Optional, no points) MN OVERLAY CRITERIA | Conduct a pre-construction meeting with the following agenda:<br>1. Clear statement of Minnesota Housing's Sustainability Policy.<br>2. Discuss Mandatory and Optional criteria for project.<br>3. Discuss Building Performance requirements.<br>4. Discuss air sealing requirements.<br>5. Discuss schedule for training, education, field mock-ups, inspections, etc.<br><br>Provide meeting minutes. | *[If claiming optional points, clearly explain how the project will comply]* | ☐ | ☑ | ☐ | ☐ | 0 |
| 1.5 | 12 or 15 | **Resident Health and Wellbeing: Health Action Plan** | Follow the Health Action Plan process.<br>Steps 1 through 6 = [12 points], + Step 7 = [3 Points]. Total [15] Points for all steps.<br>Requirements:<br>1. Commit to embedding health into the project life cycle.<br>2. Partner with a public health professional.<br>3. Collect and analyze community health data.<br>4. Engage with community stakeholders to prioritize health data strategies.<br>5. Identify strategies to address those health issues.<br>6. Create an implementation plan.<br>7. Create a monitoring plan. | *[If claiming optional points, clearly explain how the project will comply]* | ☐ | ☑ | ☐ | ☐ | 0 |
| 1.6 | 10 | **Resilient Communities: Multi-Hazard Risk/ Vulnerability Assessment** | Conduct a four-part assessment (social, physical, functional, strategy) to identify critical risk factors of your property and implement at least two sets of strategies to enable the project to adapt to, and mitigate, climate-related or seismic risks [10 points]. | *[If claiming optional points, clearly explain how the project will comply]* | ☐ | ☑ | ☐ | ☐ | 0 |
| 1.7 | 8 | **Resilient Communities: Strengthening Cultural Resilience** | Strengthen cultural resilience through one of the following options:<br>Option 1: Complete a Cultural Resilience Assessment [8 points], or<br><br>Option 2: Convene a Cultural Advisory Group [8 points] | *[If claiming optional points, clearly explain how the project will comply]* | ☐ | ☑ | ☐ | ☐ | 0 |

Subtotal Category 1 Selected Optional Points **0**

*Key to Column Headers:*
C# = Criteria Number, M/O = Mandatory Criterial or Optional Criteria Points,
N/A = Not Applicable, WR = Waiver Request, OP = Selected Optional Points

| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **2. Location + Neighborhood Fabric Category** | | | | | | | | | |
| 2.1 | M | **Sensitive Site Selection**<br>(Mandatory) | All Projects must:<br>1. Protect floodplain functions.<br>2. Conserve and protect aquatic ecosystems.<br>3. Protect ecosystem function.<br>4. Conserve the most productive agricultural soils. | *Architect designed project to meet Green Communities requirements, which are included in the written specifigcations and noted with Green Communities graphic adjacent to each item requirement. Overlay requirment is also listed at the beginning of the specifications.* | ☑ | ☐ | ☐ | ☐ | |
| 2.2 | 0 | **Connections to Existing Development and Infrastructure**<br>*(Optional, no points)*<br><br>MN OVERLY CRITERIA | 1. Locate the project on a site that is within or contiguous to existing development.<br>2. Connect the project to the existing pedestrian network.<br>3. For sites over five acres, provide connections to the adjacent street network at least 800 linear feet along the perimeter.<br>4. Tie all planned bike paths/ lanes to your site to existing bike paths or lanes that intersect your site. | *Project is a new development contiguous to existing residential development. A sidewalk connects to existing public walk. The existing street was extended into a cul de sac for this project. There are no adjacent bike paths to tie into.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 2.3 | M | **Compact Development**<br>(Mandatory for NC)<br><br>MN OVERLAY CRITERIA | Each single family project must be built to, at a minimum, the lesser of the residential density (dwelling units/ acre) of the census block group in which the project is located, or the density disclosed in the Impact Fund Administrator's Application for Funds. If no density is disclosed in the Impact Fund Administrator's Application for Funds, then each SF project must be built, at a minimum, to the residential density (dwelling units/acre) of the census block group in which the project is located. To find the density of the census block group, type the project address into the Center for Neighborhood Technology "Residential Density of a Location" calculator found at http://apps.cnt.org/residential-density.<br><br>Single family projects in Rural/Tribal/Small Towns that do not have zoning requirements, must be built to, at a minimum, the lesser of five units per acre or the density disclosed in the Impact Fund Administrator's Application for Funds. If no density is disclosed in the Impact Fund Administrator's Application for Funds, then each SF project must be built to, at a minimum, five units per acre. | *Density of existing residential development adjacent to project site is 2.83 households per acre. New development is 4.8 acres with 10 units proposed and includes one outlot for water retention/drainage on the development site. This is 2.08 households per acre, which is a greater density than the surrouding residential census block. Each site/lot of development is less than one acre.* | ☑ | ☐ | ☐ | ☐ | |
| 2.4 | 5 or 7 | **Increased Compact Development** | Exceed the residential density (dwelling units/acre) of the census block group in which your project is located.<br><br>Exceed by 2x for [5 points], or Exceed by 3x for [7 points] | *Density is greater, but not 2x greater. See above.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 2.5 | 0 | **Proximity to Services**<br>(Optional, no points)<br><br>MN OVERLAY CRITERIA | Locate the project within a 0.5-mile walk distance of at least four, or a 1-mile walk distance of at least seven, of the listed services. For projects that qualify as Rural/Tribal/Small Town, locate the project within 5 miles of at least four of the listed services. Each "service" type may not be counted more than twice. | *Development is a suburban area with services located outside a mile radius.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 2.6 | 0 | **Preservation of and Access to Open Space for Rural/Tribal/Small Towns**<br>(Optional, no points)<br><br>MN OVERLAY CRITERIA | Option 1: Locate the project within a 0.25 mile walk distance of dedicated, public open space that is a minimum of 0.75 acres and is open and accessible to all residents. A minimum of 80% of the public open space must be non-paved.<br><br>Option 2: Set aside a minimum of 10% (minimum of 0.25 acre) of the total acreage as permanent open space that is open and accessible to all residents. A minimum of 80% of the open space must be non-paved. | *Project site is within .25 mile walk from Glacier Park, which is .99 acres.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 2.7 | 2, 4, or 6 | **Preservation of and Access to Open Space** | Option 1: Locate the project within a 0.25-mile walk distance of dedicated, accessible public open space that is a minimum of 0.75 acres. A minimum of 80% must be non-paved [4 points].<br><br>Option 2: Set aside a percentage of non-paved open space for use by all residents:<br>25% [2 points]; 35% [4 points]; or 45% + written statement of preservation/conservation policy for set-aside land [6 points] | *Project site is within .25 mile walk from Glacier Park, which is .99 acres.* | ☑ | ☐ | ☐ | ☐ | 4 |
| 2.8 | 2, 6, or 8 | **Access to Public Transportation**<br><br>MN OVERLAY CRITERIA | NC not in Rural/Tribal/Small Town Locations [2 points]<br><br>Rehab Projects not in Rural/Tribal/Small Town Locations [2, 6, or 8 points]<br><br>NC and Rehab Projects in Rural/Tribal/Small Town Locations [6 points] | *Proposed project is new construction that is not in a Rural/Tribal/Small Town location. No points per MN Overlay 2023-24.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 2.9 | 2, 6 or 8 | **Improving Connectivity to the Community: Incentivize Biking Mobility** | Improve access to community amenities through measures indicated in the MN Overlay. | *Each unit has a lockable garage for bike storage but no locakable rack within.* | ☐ | ☑ | ☐ | ☐ | 0 |

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N/A = Not Applicable, WR = Waiver Request, OP = Selected Optional Points

| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| 2.10 | 5 max | **Passive Solar Heating/Cooling** | Design and build with passive solar design, orientation and shading that meet specified guidelines in the MN Overlay based upon construction type, orientation, glazing and shading. | *Not claoming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 2.11 | 6 | **Adaptive Reuse of Buildings** | Rehabilitate and adapt an existing structure that was not previously used as housing. Design the project to adapt, renovate, or reuse at least 50% of the existing structure and envelope (includes exterior skin and framing and excludes window assemblies and non-structural roofing). | *Not applicable/new construction.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 2.12 | 6 | **Access to Fresh, Local Foods** | Option 1: Neighborhood Farms and Gardens [6 points]<br>Option 2: Community-Supported Agriculture [6 points]<br>Option 3: Proximity to Farmers Market [6 points] | *Option 1: Site layout provides the minimum 10 sf area for growing food for each unit. Garages provide secure storage for gardening tools.* | ☑ | ☐ | ☐ | ☐ | 6 |
| 2.13 | 8 | **Advanced Certifications:**<br>**Site Planning, Design and Management** | Locate building(s) within a community that is certified in one of the following programs: LEED for Neighborhood Development [8 points], or LEED for Cities and Communities [8 points], or Living Community Challenge [8 points], or SITES [8 points] | *Not applicable.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 2.14 | 6 max | **Local Economic Development and Community Wealth Creation** | Option 1: Local Hiring Preference [2 points]<br>Option 2: Local Employment [3 points]<br>Option 3: Physical Space for Business, Nonprofits and/or Skill and Workforce Education [3 points] Only two of the three options can be claimed. | *Not applicable, single-family homes.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 2.15 a&b | 0 | **Access to Broadband**<br>(Optional, no points)<br><br>MN OVERLAY CRITERIA | If internet access is available, consider providing conduit or cabling within the dwelling unit from an access point to locations where a router will most likely be installed. | *Project will provide conduit or cabling within the dwelling unit from an access point to locations where a router will most likely be installed.* | ☑ | ☐ | ☐ | ☐ | 0 |

Subtotal Category 2 Selected Optional Points **10**

*Key to Column Headers:*
C# = Criteria Number, M/O = Mandatory Criterial or Optional Criteria Points,
N/A = Not Applicable, WR = Waiver Request, OP = Selected Optional Points

| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **3. Site Improvements Category** | | | | | | | | | |
| 3.1 | M | **Environmental Remediation**<br>(Mandatory for all projects with existing environmental conditions)<br><br>MN OVERLAY CRITERIA | All single family projects must conduct a Phase I Environmental Site Assessment (ESA) if any or all of the following conditions apply:<br>a. Sites with five or more units where there has been a change in land use from industrial, commercial, institutional or agricultural to residential;<br>b. For New Construction, where each individual residence/DU is not connected to a city water supply;<br>c. For Rehab, where the unit is neither connected to a city water supply or an existing active well;<br>d. Where required as a condition of Acquisition/Purchase.<br>Exception: Developments of five or more new units on previous residential land uses are exempt from the conducting a Phase I ESA. | *A Phase I Environmental Site Assessment has been completed with no issues raised.* | ☑ | ☐ | ☐ | ☐ | |
| 3.2 | M | **Minimization of Disturbance during Staging and Construction**<br>(Mandatory) | Sites > acre: Implement EPA's Best Management Practices for Construction Site Stormwater Runoff Control, or local requirements, whichever is more stringent.<br><br>Sites =/< 1 acre: Stockpile Topsoil; Runoff Control; Protect Storm line flow; Divert Surface Water; Tree Protection; Slope Stabilization. | *Each separate construction site is less than one acre.. Stockpile Topsoil; Runoff Control; Protect Storm line flow; Divert Surface Water; Tree Protection; Slope Stabilization.* | ☑ | ☐ | ☐ | ☐ | |
| 3.3 | M | **Ecosystem Services/ Landscape**<br>(Mandatory, if providing landscaping/ landscaping in scope of work) | If providing plantings, all should be native or climate-appropriate (adapted) to the region. All new plantings must be appropriate to the site's soil and microclimate. Do not introduce any invasive plant species. All disturbed areas should be planted, seeded, or xeriscaped. | *All planting areas will include native plantings or those appropriate to the region. The remaining unpaved/unbuilt area will be sodded.* | ☑ | ☐ | ☐ | ☐ | |
| 3.4 | M | **Surface Stormwater Management**<br>(Mandatory for all projects)<br><br>MN OVERLAY CRITERIA | Surface Stormwater Management must be per local/ regional watershed district requirements or other municipality ordinances/ requirements. If there are no such requirements, follow the criteria requirements. | *Site pre-development was completed by the City of Shakopee. A separate outlet was designated as a stormwater retention pond. A comprehensive stormwater management system was designed for the 10 residential lots plus the outlot.* | ☑ | ☐ | ☐ | ☐ | |
| 3.5 | 10 max | **Surface Stormwater Management** | Retain precipitation volume for the following percentile precipitation events:<br>70th Percentile Precipitation Event [6 points]<br>80th Percentile Precipitation Event [8 points]<br>90th Percentile Precipitation Event [10 points] | *Gutters, downspouts ,and swales will be used to keep stormwater from flowing onto adjacent properties. No points claimed as a volume study has not been done.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 3.6 | M | **Efficient Irrigation and Water Reuse**<br>(Mandatory, if permanent irrigation is utilized) | Install an efficient irrigation system with the following:<br>Compliance with local water restrictions.<br>Design irrigations zones.<br>Establish irrigation volume and frequency per zone.<br>Select emission devices that will facilitate long-term reliability and serviceability.<br>Install time/ controller to minimize evaporative losses.<br>Install soil moisture sensor controllers. | *Not applicable; no irrigation system installed.* | ☐ | ☐ | ☑ | ☐ | |
| 3.7 | 4 or 6 | **Efficient Irrigation and Water Reuse** | Option 1: WaterSense labeled weather-based irrigation controller [4 points]<br><br>Option 2: A minimum 50% of site's irrigation should reuse water [2 points] | *Not applicable; no irrigation system installed.* | ☐ | ☐ | ☑ | ☐ | 0 |
| | | | | | | | | Subtotal Category 3 Selected Optional Points | **0** |

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C# = Criteria Number, M/O = Mandatory Criterial or Optional Criteria Points,
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| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description *[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **4. Water Category** | | | | | | | | | |
| 4.1 | M or 5 Max | **Water-Conserving Fixtures**<br>(Mandatory for NC and Sub/Gut Rehab)<br>(Optional/5 points for Mod Rehab)<br><br>MN OVERLAY CRITERIA | Performance Option: 20% Reduction per Criteria.<br><br>Prescriptive Option: Install water-conserving fixtures in all units and any common facilities with the following specifications.<br>Toilets: WaterSense-labeled and 1.28 gpf;<br>Urinals: WaterSense-labeled and 0.5 gpf;<br>Showerheads: WaterSense-labeled and 2.0 gpm;<br>Kitchen faucets: 2.0 gpm;<br>Lav faucets: WaterSense-labeled and 1.5 gpm<br><br>Optional Mod Rehab points (prescriptive):<br>All Toilets [1 point]; All Urinals [1 point]; All Showerheads [1 point]; All Kitchen Faucets [1 point]; and/or All Lavatory Faucets [1 point]. | *Meeting requirement through perscriptive option. Specifications show all plumbing fixtures are new and will meet these required standards and toilet will be dual flush.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 4.2 | 6 Max | **Advanced Water Conservation** | Reduce water consumption by % per Criteria:<br>30% = 3 points<br>40% = 4 points<br>50% = 5 points<br>60% = 6 points | *see above.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 4.3 | M or 5 Max | **Water Quality**<br>(Mandatory for Substantial and Gut Rehab built before 1986 only)<br>(Optional/ 5 points for Mod Rehab)<br><br>MN OVERLAY CRITERIA | Test water from dwelling unit faucets for water quality and remediate as indicated in the MN Overlay. | *Not applicable/new construction.* | ☐ | ☐ | ☑ | ☐ | |
| 4.4 | 4 | **Monitoring Water Consumption and Leaks** | Conduct pressure-loss tests and visual inspections to determine if there are any leaks; fix any leaks found. And install a water monitoring and leak detection system. | *A water leak test will be performed per specifications and any leaks will be remediated as required. No water monitoring system will be installed.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 4.5 | 4 | **Efficient Plumbing Layout and Design** | To minimize water loss from delivering hot water, the hot water delivery system shall store no more than 0.5 gallons of water in any piping/ manifold between the fixture and the water heating source of recirculation line. | *Compact design and house layout allow for efficient plumbing. Less than .5 gallons of water will be stored in any one line servicing the bathrooms and kitchen.* | ☑ | ☐ | ☐ | ☐ | 4 |
| 4.6 | 6 Max | **Non-Potable Water Reuse** | Harvest, treat, and reuse rainwater and/or greywater to meet a portion of the project's total water needs: 10% reuse [3 points] 20% reuse [4 points] 30% reuse [5 points] 40% reuse [6 points] | *Not in specifications.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 4.7 | Omit | **Access to Potable Water during Emergencies**<br><br>MN OVERLAY CRITERIA | Not allowed if the project receives funding from Minnesota Housing. | | | | | | |
| | | | | Subtotal Category 4 Selected Optional Points | | | | | **4** |

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| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description *[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **5. Operating Energy Category** | | | | | | | | | |
| 5.1a | M | **Building Performance Standard** (Mandatory for New Construction)<br><br>MN OVERLAY CRITERIA | Certify all buildings with residential units in the project through the ENERGY STAR Residential New Construction Program using ENERGY STAR Multifamily New Construction (MFNC), ENERGY STAR Manufactured Homes, and/ or ENERGY STAR Certified Homes as relevant. Comply with one of the following paths:<br>1. Energy Rating Index (ERI) Path<br>2. ASHRAE Path<br>3. Prescriptive Path<br><br>Provide projected operating (EUI) of the project in kBTU/ ft2/ year and kBTU/ bedroom/ year as well as projected operating building emissions intensity for the project in tCO2e/ ft2/ year and tC02e/ bedroom/ year. | *Project wil meet Energy Star V3.1 Residential New Constrution requiremnts via the prescriptive path and be certified by a third-party rater. Pre-constrution energy models show a predicted HERS rating of 42.* | ☑ | ☐ | ☐ | ☐ | |
| 5.1b | M | **Building Performance Standard** (Mandatory for Acquisition/ Substantial Rehab and Acquisition/ Moderate Rehab)<br><br>MN OVERLAY CRITERIA | Provide an Energy Efficiency Improvement Plan per the MN Overlay. | *Not applicable/new construction.* | ☐ | ☐ | ☑ | ☐ | |
| 5.2a | 5-12 | **Moving to Zero Energy:**<br>Additional Reductions in Energy Use | Energy Rating Index (ERI) Pathway:<br>HERS score of at least five lower than required [5 points];<br>and each additional two-point decrease in HERS score [1 point].<br>Max total of [7 points]<br>Combined total max [12 points]<br><br>ASHRAE Pathway:<br>5% greater efficiency than required [5 points],<br>and each additional 1% greater efficiency [1 point].<br>Max total of [7 points]<br>Combined total max [12 points] | *Seeking Energy Star V3.1 certification per line below. Pre-constrution energy models show a predicted HERS rating of 42 (57 is required).* | ☑ | ☐ | ☐ | ☐ | 12 |
| 5.2b | 15 Max | **Moving to Zero Energy:**<br>**Near Zero Certification** | Certify the project in a program that requires advanced levels of building performance per one of the following programs listed in the MN Overlay: DOE ZERH Certification [12 points], or PHI Classic or PHIUS Certification [15 points]. | *Proposed project is seeking certification for Energy Star V3.1. Third-party rater will confirm requirements are met.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 5.3a | 3 | **Moving to Zero Energy:**<br>**Photovoltaic/ Solar Hot Water Read** | Orient, design, engineer, wire, and/or plumb the development through one of the following options to accommodate installation of a PV or solar hot water system in the future.<br>Option 1: PV Ready [3 points]<br>Option 2: Solar Hot Water Ready [3 points] | *Proposed project will be PV Ready. Building is oriented with largest part of roof facing west. Conduit will be installed for future PV system on roof.* | ☑ | ☐ | ☐ | ☐ | 3 |
| 5.3b | 8 Max | **Moving to Zero Energy:**<br>**Renewable Energy** | Provide renewable energy as a percentage of conception per one of the following options:<br><br>Option 1: Percentage of Total Project Energy Consumption Provided by Renewable Energy.<br>10% - 70% [4 points - 8 points per Criteria Chart]<br><br>Option 2: Percentage of Common Area Meter Energy Consumption Provided by Renewable Energy.<br>60% - 100% [1 point - 5 points per Criteria Chart] | *No renewable energy will be included in this project.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 5.4 | 24 | **Achieving Zero Energy** | Option 1: Certify each building in the project to DOE ZERH program and install renewables and/ or procure renewable energy, which will in sum produce as much, or more, energy in a given year than the project is modeled to consume.<br><br>Option 2: Certify each building in the project in a program that requires Zero Energy performance such as PHIUS+ Source Zero, PHI Premium, International Living Future Institute's Zero Energy Petal, Zero Carbon Petal, or Living Building Certification. | *No renewable energy will be included in this project.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 5.5a | 5 Max | **Moving to Zero Carbon:**<br>**All-Electric Ready** | Adequate electric service and designed and wired to allow for a seamless switch to electricity as a fuel source:<br>Space Heating [1 point] Space Cooling [1 point] Water Heating [1 point] Clothes Dryers [1 point] Equipment for Cooking [1 point] | *Space heating/cooling, water heating, power source for future clothes dryer, and equipment for cooking will all be electric. There will a gas back-up furnace.* | ☑ | ☐ | ☐ | ☐ | 4 |
| 5.5b | 15 | **Moving to Zero Carbon:**<br>**All Electric** | Apart from emergency backup power, no combustion equipment used as part of the building project; the project is all-electric. | *Project will have a gas furnace as back up.* | ☐ | ☑ | ☐ | ☐ | 0 |

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| Col. A | Col. B | Column C | Column D | Column E | Column D | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description *[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| 5.6 | M | **Sizing of Heating and Cooling Equipment** (Mandatory for NC all Rehabs that include replacement for heating and cooling equipment) | Size and select heating and cooling equipment in accordance with the Air Conditioning Contractors of America (ACCA) Manuals J and S or in accordance with the most recent ASHRAE Handbook of Fundamentals available at time of specification. | *This is incuded as a requirement in written specifications.* | ☑ | ☐ | ☐ | ☐ | |
| 5.7 | M | **Energy Star Appliances** (Mandatory for NC and all Rehabs that include new appliances) | If providing appliances, install Energy Star clothes washers, dishwashers, and refrigerators. If appliances will not be installed or replaced at this time, specify that, at the time of installation or replacement, Energy Star models must be used via Criterion 8.1 and Criterion 8.4. | *Refrigerator, dishwasher, washer, and dryer are all specified to meet Energy Star requirements.* | ☑ | ☐ | ☐ | ☐ | |
| 5.8 | M | **Lighting** (Mandatory for NC, and applicable Rehab/ Adaptive Reuse projects) | Provide lighting, fixtures, occupancy sensors, lighting power density, motion sensors, etc. per the Criteria. | *All lighting fixtures are new and are specified to use LED bulbs (color temp 2700-3000K) in all. No other requirements as it is rehab.* | ☑ | ☐ | ☐ | ☐ | |
| 5.9 | 8 | **Resilient Energy Systems: Floodproofing** | Conduct floodproofing, including perimeter floodproofing (barriers/ shields), or lower floors. Design and install building systems in such a way that, in case of an emergency, the operation of these systems will not be grossly affected: 1. Locate any and all central space and water heater equipment above design flood elevations. 2. Locate the service disconnect at a readily accessible location above the design flood elevation. 3. Locate at least one exit door above the design flood elevation; and on plans sets, identify water entry points at basements and foundation walls and demarcate all penetrations, wall assemblies, and doors/ openings to ensure that future renovations do not compromise the integrity of floodproof construction. | *Not claiming points. Project has a walk-out basement.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 5.10 | 8 | **Resilient Energy Systems: Critical Loads** | Provide adequate emergency power to serve certain systems in the project. Size the system to satisfy at least three of the most critical following energy loads of the project for at least four consecutive days, 24 hours per day. Consider a larger system if needed to satisfy extended power outages and/ or to hold all occupants and staff on an emergency basis for a power outage during extreme heat or cold. Option 1: Islandable PV System [ 8 points] , Or Option 2: Efficient Generator [8 points] | *Not included.* | ☐ | ☑ | ☐ | ☐ | 0 |
| | | | | | | | | Subtotal Category 5 Selected Optional Points | **19** |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **6. Materials Category** | | | | | | | | | |
| 6.1 | 8 Max | **Ingredient Transparency for Material Health** | Specify and install products that have inventories that have publicly disclosed where content is characterized and screened using health hazards lists or restricted substances lists to 1,000 ppm or better (lower is better). Refer to Criteria for optional point requirements. | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 6.2 | 3 Max | **Recycled Content and Ingredient Transparency** | Use building products that feature recycled content and disclose that recycled content. The building product must make up 75% (by weight or cost) of the product category for the project and must be composed of at least 25% post-consumer recycled content to be eligible for this criterion. | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 6.3 | 8 Max | **Chemical Hazard Optimization** | Install products that have third-party verification of optimization to 100 ppm or better. | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 6.4 | M | **Healthier Materials Selection**<br>(Mandatory for all)<br>(No optional points available)<br><br>MN OVERLAY CRITERIA | Use products that comply with Criteria specifications. Mandatory requirements per criteria specifications based upon Product Category: All interior paints, coatings, primers and wall paper; all interior adhesives and sealants; flooring; insulation; and composite wood. Optional points not available nor allowed. | *All interior paints and primers will meet MPI and Green Seal standards for VOC, based on list provided in Criteria Description. All adhesives will comply with Rule 1168 of the South Coast Air Quality Management Districts. All caulks and sealants will comply with Regulation 8, Rule 51 of Bay Area Air Quality Management District. Particleboard and MDF will not be compliant with California 93120 but all edges and sides will be sealed with low-VOC sealants.* | ☑ | ☐ | ☐ | ☐ | |
| 6.5 | 12 Max | **Environmentally Responsible Material Selection** | Use products that comply with the Optional points per Criteria based upon Product Category: Concrete, steel, insulation; roofing; paving; and wood, non-composite | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 6.6 | M | **Bath, Kitchen, Laundry Surfaces**<br>(Mandatory for NC and for all Rehab if in scope of work) | Use materials that have durable, cleanable surfaces throughout bathrooms, kitchens, and laundry rooms. Materials installed in these rooms should not be prone to deterioration due to moisture intrusion or encourage the growth of mold. | *All floors are specified as luxury vinyl flooring. Project specifications require moisture-resistant cement board behind tile tub/shower enclosures.* | ☑ | ☐ | ☐ | ☐ | |
| 6.7 | 4 or 10 | **Regional Materials** | Option 1: [4 points max]<br>Use products that were extracted, processed, and manufactured within 500 miles of the project for a minimum of 90%, based on weight or on cost, of the amount of the product category installed in the project. Building product categories that can qualify for these points include the following (every two compliant products can qualify for 1 point): Framing materials; exterior materials (e.g., siding, masonry, roofing); flooring materials; concrete/ cement and aggregate materials; and/or drywall/ interior sheathing materials. **NOTE:** Mechanical, electrical, and plumbing components cannot be included in this calculation.<br><br>Option 2: [10 points] Volumetric Modular Prefabrications | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 6.8 | M | **Managing Moisture: Foundations**<br>(Mandatory for NC and rehabs with basements or crawls spaces**)** | Beneath Concrete Slabs: Install poly vapor barrier over a capillary break of clean aggregate.<br><br>Beneath Crawl Spaces without Slabs: Install a heavy-duty vapor barrier. | *At basement slab, poly vapor barrier will be installed directly under the slab and over the below-slab insulation and aggregate.* | ☑ | ☐ | ☐ | ☐ | |
| 6.9 | M | **Managing Moisture: Roofing and Wall Systems**<br>(Mandatory for NC and rehabs with deficiencies in or scope of work including assemblies listed) | Provide water drainage away from walls, windows, and roofs by implementing the following water management techniques.<br>Wall Systems: Weather-resistant barrier; flashing; and masonry/ stucco flashing/ weep holes.<br>Roof Systems: Drip edge and wall/ roof intersection flashing. | *Proposed project will install the following per specifications:*<br>*1. 1. Wall Systems - Weather-resistant barrier; flashing.*<br>*2. Roof Systems: Drip edge and wall/ roof intersection flashing and ice & water shield.* | ☑ | ☐ | ☐ | ☐ | |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| 6.10 | M &<br>6 Max | **Construction Waste Management**<br>(Mandatory)<br>(Optional points available) | Develop and implement a waste management plan that reduces non-hazardous construction and demolition waste through recycling, salvaging, or diversion strategies; maintain documentation of diversion rate for each selected strategy.<br>Mandatory: One pathway in Option 1, Two pathways in Option 2, or One pathway in Option 3. Optional (after meeting Mandatory): Option 1: Measure by %: a. 75% [1 point]; b. 95% [1 point]. Option 2: Material Specific: c. Cardboard [1 point]; d. Wood [1 point]; e. Drywall [1 point]; f. Metals [1 point]; g. Concrete, brick, and asphalt [1 point]; h. Insulation, foam and plastic [1 point]; i. Carpet [1 point]; j. Efficient framing plan [1 point].<br>Option 3: Minimizing Construction Waste - NC only: k. <2.5 lbs/SF of building [2 points]; l. <1.5 lbs/ SF [3 points]. | *Project wil either use a construction waste company that targets 75% recycles of waste OR contractor will opt to individually recycle all cardboard, scrap lumber, and metal on site .* | ☑ | ☐ | ☐ | ☐ | 0 |
| 6.11 | 2 | **Recycling Storage for Multifamily Project** | At single family homes and townhomes, each dwelling unit must be provided with separate bins for the collection of trash and recycling. Or, provide curbside recycling for each dwelling unit.<br><br>Collected materials should include, at a minimum, paper, cardboard, glass, metals, and plastics. Regardless of building type, provide bins for the separation of trash and recycling at all community rooms and tenant occupied common space (laundry rooms, lobbies, etc.). | *City provides curbside trash and recycling bins to residents.* | ☐ | ☐ | ☑ | ☐ | 0 |
| | | | | | | | | Subtotal Category 6 Selected Optional Points | **0** |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description *[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **7. Healthy Living Environment Category** | | | | | | | | | |
| 7.1 | M | **Radon Mitigation** (Mandatory)<br><br>MN OVERLAY CRITERIA | Provide a sub-slab depressurization system per code at New Construction. Provide testing and remediation per the MN Overlay for acquisition rehabs. | *Proposed project will provide a passive sub-slab depressurizaton system per code and will include power to the attic should the passive system need to be activated with a fan after testing is completed after construction.* | ☑ | ☐ | ☐ | ☐ | |
| 7.2 | M | **Reduce Lead Hazards in Pre-1978 Buildings** (Mandatory for all applicable rehabs)<br><br>MN OVERLAY CRITERIA | For single family rehabilitation, refer to the Minnesota Housing Lead Based Paint Guidebook (For Applicable Homes Division Programs). | *Not applicable/ new construction.* | ☐ | ☐ | ☑ | ☐ | |
| 7.3 | M | **Combustion Safety** (Mandatory for projects with combustion equipment included in the scope of work)<br><br>MN OVERLAY CRITERIA | For New Construction and Rehab projects, specify power-vented or direct-vent equipment when installing any new combustion appliance for space or water heating that will be located within the conditioned space. If there are any combustion appliances in the condition space, install hard-wired carbon monoxide (CO) alarm with battery backup function for each sleeping zone, placed per NFPA 72. In Substantial and Moderate Rehab, if there is any combustion equipment located within the conditioned space for space or water heating that is not power-vented or direct-vent and that is not scheduled for replacement, conduct combustion safety testing prior to and after the retrofit. | *All combustion equipment (furnace only in this project as water heater is hybrid/electric) will be sealed or power vented. Carbon monoxide alarms, as required by code, are required in written specifications.* | ☑ | ☐ | ☐ | ☐ | |
| 7.4 | M | **Garage Isolation** (Mandatory for all projects with attached garage[s]) | Provide a continuous air barrier between the conditioned space and any garage space. Do not install ductwork or air handling equipment for the conditioned space in the garage. Fix all connecting doors between conditioned space and garage with gaskets, or otherwise make substantially airtight with weather stripping. Install hard-wired CO alarm with battery backup function for each sleeping zone of the project, placed per NFPA 72, unless the garage is mechanically vented or an open parking structure defined by code. | *A continuous vapor barrier is included on the dwelling side of the wall and continuous gyp bd finish at the garage side of the wall. Per written specs, connecting door will be 20-min rated, weatherstripped, and will have a closer or self-closing hinges. Code compliant CO detectors will be installed throughout the house.* | ☑ | ☐ | ☐ | ☐ | |
| 7.5 | M | **Integrated Pest Management** (Mandatory) | Design for easy inspection of all pest-prone areas (interior and exterior), and engineer slabs and foundations to minimize pest entry. Seal all wall, floor and joint penetrations with low-VOC caulking or other appropriate nontoxic sealing methods to prevent pest entry. Use rodent- and corrosion- proof screens for openings greater than 1/4". Also pay close attention to sealing off entry points under kitchen and bathroom sinks. | *All walls, floor and joint penetration will be sealed with appropriate methods to prevent pest entry.* | ☑ | ☐ | ☐ | ☐ | |
| 7.6 | 0 | **Smoke-Free Policy**<br><br>MN OVERLAY CRITERIA | Implement and enforce a no-smoking policy in all common and individual living areas (dwelling units), and within a 25-foot perimeter around the exterior of all residential projects. The no-smoking restrictions applies to all owners, tenants, guests, and service people. The use of e-cigarettes is prohibited wherever smoking is prohibited. This is an opotiona criteria with no points available. | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 7.7 | M & 9 Max | **Ventilation** (Mandatory for NC and Substantial Rehab) (Moderate Rehab/ 9 optional points) | Mandatory NC and Sub Rehab: install local mechanical exhaust system in each bathroom; local mechanical exhaust in each kitchen; or whole-house ventilation system.<br><br>Moderate Rehab Optional points:<br>Bath exhaust [3 points]<br>Kitchen exhaust [3 points]<br>Whole-house mech ventilation system [3 points] | *Whole house ventialtion system (ERV) will be installed and sized appropriately. Bath fan will be Energy Star labled and controlled with a humidistat. A vented range hood is specified in kitchen.* | ☑ | ☐ | ☐ | ☐ | 0 |
| 7.8 | 5 | **Dehumidification** (Not Mandatory for our climate zone) (Optional points available for all) | Option 1: Keep relative humidity <60%, [5 points], or<br>Option 2: Rough-in for future dehumidification [5 points] | *Not included in specifications.* | ☐ | ☑ | ☐ | ☐ | 0 |
| 7.9 | 3 | **Construction Pollution Management** | Option 1: Earn the EPA Indoor airPlus label. [3 points], or,<br>Option 2: In dwelling units, seal all heating, cooling, and ventilation ducts and returns throughout construction to prevent construction debris from entering; flush all dwelling units after completion of construction and prior to occupancy either for at least 48 hours with all windows and interior doors open and all HVAC fans running or with at least 14,000 ft3 per ft2 of floor area, then replace all air handling filters [3 points]. | *Compliance through Option 2 is included in written specifications.* | ☑ | ☐ | ☐ | ☐ | 3 |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| 7.10 | 3 | **Noise Reduction** | Option 1: Test for and demonstrate that noise levels in bedrooms meet continuous noise and single sound event limits described in the World Health Organization's Guidelines for Community Noise [3 points].<br>Option 2: Conduct noise assessment and provide a noise abatement plan specific to the site and covering general noise mitigation techniques in accordance with 24 CFR 51B [3 points].<br>Option 3: Ensure all exterior wall and party wall penetrations are sealed with acoustical sealant, all party walls and floor/ ceiling assemblies have a STC rating of at least 55, and exterior windows and doors in projects near a significant exterior noise source have an STC rating of at least 35 [3 points]. | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 7.11 | 8 | **Active Design:**<br>**Promoting Physical Activity** | Option 1: Encouraging Everyday Stair Usage [8 points], or<br>Option 2: Activity Space [8 points] | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | 0 |
| 7.12 | 8 | **Beyond ADA:**<br>**Universal Design** | Option 1: Create welcoming and accessible spaces that encourage equitable use and social connections. [8 piints]<br>Option 2: Create spaces that are easy and intuitive to use and navigate. [8 points]<br>Option 3: Promote safety and create spaces that allow for human error. [8 points]<br>Option 4: Create spaces that can be accessed and used with minimal physical effort. [8 points]<br>Option 5: Create spaces with the appropriate size and space to allow for use, whatever the user's form of mobility, size, or posture. [8 points] | *All three units in Phase 1 are designed with a zero step entry through the garage. On the main level, there is a 3/4 bath than can be made accessible and there is also a bedroom on the main level.* | ☑ | ☐ | ☐ | ☐ | 8 |
| 7.13 | 8 | **Healing-Centered Design** | Select at least two of the Options listed in the Criteria to implement. Implement each of the selected Options with at least two different strategies. At least one strategy for each Option must be implemented throughout at least 75% of the project's dwelling units [8 points]. | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | 0 |
| | | | | | | | | Subtotal Category 7 Selected Optional Points | **11** |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |
| **8. Operations, Maintenance + Resident Engagement Category** | | | | | | | | | |
| 8.1 | M | Building Operations and Maintenance Manual and Plan | Develop a manual with thorough building operations and maintenance guidance and a complementary accountability plan. The manual and plan should be developed over the course of the project design, development and construction stages so that knowledge can be transferred from this stage of the project life cycle to the operations and asset management stage. | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | |
| 8.2 | 0 | **Emergency Management Manual** | Not applicable to single family. | *Not applicable; single-family home.* | ☐ | ☐ | ☑ | ☐ | |
| 8.3 | M | **Resident Manual**<br>(Mandatory) | Provide a guide for homeowners and renters that explains the intent, benefits, use and maintenance of their home's green features and practices. The Resident Manual should encourage green and healthy activities per the list of topics in the Criteria. | *Scott County CDA will issue homeowner their standard new homeowner manual with additional information included addressing green features of the design. This manual contains suggested building maintenace routines.* | ☑ | ☐ | ☐ | ☐ | |
| 8.4 | M | **Walk-Throughs and Orientation to Property Operation**<br>(Mandatory) | Provide a comprehensive walk-through and orientation for all residents, property manager(s) and buildings operations staff. Orient all property managers and building operations staff within 90 days of initial occupancy of building maintenance and unit turnover procedures. For staff joining after the initial orientation, provide walk-through and orientation to green features within their first 90 days. For all orientations and walk-throughs, share the list of Green Communities Criteria that were implemented in the project and use the appropriate manuals as the base of the curriculum. Review the project's green features, O&M procedures, and emergency protocols. | *Scott County CDA will provide a comprehensive walk-through and orientation for the residents to review the project's green features, operations, and maintenance, and the neighborhood amenities that may facilitate a healthy lifestyle.* | ☑ | ☐ | ☐ | ☐ | |
| 8.5 | 0 | **Energy and Water Data Collection and Monitoring**<br>(Optional, no points)<br><br>MN OVERLAY CRITERIA | Provide utility (gas, electric, and water) use per the Criteria. | *Not claiming points.* | ☐ | ☑ | ☐ | ☐ | 0 |
| | | | | | | | | Subtotal Category 8 Selected Optional Points | **0** |
| | | | | | | | | **Total Selected Optional Points** | **44** |

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|---|---|---|---|---|---|---|---|---|---|
| C# | M/O | Criteria Title | Criteria Description<br>*[Summary, see full Criteria for complete description]* | How Will Criteria Be Implemented? And, where in the plans, specifications, or other place will compliance be documented? | Intent to Comply | | | | |
| | | | | | Yes | No | N/A | WR | OP |

**SUBMITTAL PHASE CERTIFICATIONS**

## Pre-Construction Phase

I/we hereby certify to Minnesota Housing that all applicable Mandatory and selected Optional Point Criteria of the 2020 Enterprise Green Communities Criteria as amended by the current/applicable version of the Minnesota Overlay and Guide to the 2020 Enterprise Green Communities Criteria (unless exempt by a Minnesota Housing approved waiver) are incorporated into the approved contract documents and construction contract for the above mentioned development.

**Borrower/Developer/Owner**

| Scott County CDA | | Julie Siegert | |
|---|---|---|---|
| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |

**Architect of Record/Borrower's Architect (optional)**

| Marnie Peichel Architecture and Design | Marnie Peichel | | 6/27/25 |
|---|---|---|---|
| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |

**General Contractor**

| TBD | | | |
|---|---|---|---|
| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |

## Compliance Certification - End of Construction/Construction Close-Out Phase

I/we hereby certify to Minnesota Housing that all applicable Mandatory and selected Optional Point Criteria of the 2020 Enterprise Green Communities Criteria as amended by the current/applicable version of the MN Overlay to the 2020 EGCC (unless exempt by a Minnesota Housing approved waiver) are incorporated into the approved contract documents and construction contract for the above mentioned development.

**Borrower/Developer/Owner**

| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |
|---|---|---|---|

**Architect of Record/Borrower's Architect (optional)**

| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |
|---|---|---|---|

**General Contractor**

| Insert Firm/Organization/Company | Signature | Typed/Printed Name of Person Signing | Date |
|---|---|---|---|

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# ENERGY STAR V3.1 Home Report

HEARTLAND ENERGY CONSULTANTS

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected



## Mandatory Requirements

- ✔ Duct leakage at post construction better than or equal to applicable requirements.
- ✔ Total building thermal envelope UA meets or exceeds applicable requirements.
- ✔ Slab on Grade Insulation must be > R-5, and at IECC 2009 Depth for Climate Zones 4 and above.
- ✔ Envelope insulation achieves RESNET Grade I installation, or uses exceptions in footnote 5.
- ✔ Total window thermal properties meet or exceed the applicable requirements
- ✔ Duct insulation meets the EPA minimum requirements of R-6.
- ✔ Mechanical ventilation system is installed in the home.
- ✔ ENERGY STAR Checklists fully verified and complete.

## ERI (HERS) Index Target

| | |
|---|---|
| Reference Home ERI (HERS) | 57 |
| SAF (Size Adjustment Factor) | 1.00 |
| SAF Adjusted ERI (HERS) Target | 57 |
| As Designed Home ERI (HERS) | 42 |
| As Designed Home ERI (HERS) w/o PV | 42 |

## Normalized, Modified End-Use Loads (MBtu / year)

| | ENERGY STAR | As Designed |
|---|---|---|
| Heating | 47.1 | 38.0 |
| Cooling | 3.4 | 2.0 |
| Water Heating | 13.8 | 2.6 |
| Lights and Appliances | 24.5 | 23.5 |
| Total | 88.7 | 66.1 |

**This home MEETS or EXCEEDS the energy efficiency requirements for designation as an EPA ENERGY STAR Qualified Home under Version 3.1**

## Pollution Prevented

| *Type of Emissions* | *Reduction* |
|---|---|
| Carbon Dioxide ($CO_2$) - tons/yr | -0.4 |

## Energy Cost Savings

| | $/yr |
|---|---|
| Heating | 858 |
| Cooling | 35 |
| Water Heating | 446 |
| Lights & Appliances | 71 |
| Generation Savings | 0 |
| Total | 1,410 |

The energy savings and pollution prevented are calculated by comparing the Rated Home to the ENERGY STAR Version 3.1 Reference Home as defined in the ENERGY STAR Qualified Homes ERI (HERS) Target Procedure for National Program Requirements, Version 3.1 promulgated by the Environmental Protection Agency (EPA). In accordance with the ANSI/RESNET/ICC 301 Standard, building inputs affecting setpoints infiltration rates, window shading and the existence of mechanical systems may have been changed prior to calculating loads

# Energy Code Inspection Checklist

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## General Building Information

| | |
|---|---|
| Conditioned Area (sq ft) | 3,077 |
| Conditioned Volume (cubic ft) | 26,061 |
| Insulated Shell Area (sq ft) | 5,776.06 |

The building energy model in Ekotrope reflects the building assemblies and energy features listed below. Sometimes energy features will change in the field from what has been modeled. The inspection process should identify any changes and ensure that the home continues to meet the applicable energy code.

## Slab

Name: Walkout Slab(478.19 s.f., 79.15 ft. exterior perimeter)
R-0 perimeter insulation, R-10 under slab insulation.

Name: Below Grade Slab(574.92 s.f., 72.29 ft. exterior perimeter)
R-0 perimeter insulation, R-10 under slab insulation.

## Framed Floor

None Present

## Foundation Wall

Name: Below Grade Foundation Wall (Exterior Perimeter [ft]: 88.13, Height Above Grade [ft]: 1, Depth Below Grade [ft]: 6)
R-15 continuous insulation, R-0 cavity insulation
Insulation Grade: I
Fully insulated (top to bottom)

## Above Grade Wall

Name: Ambient Walls (2,372.81 s.f.)
R-6.6 continuous insulation, R-21 cavity insulation
Insulation Grade: I

Name: House to Garage (305.45 s.f.)
R-0 continuous insulation, R-21 cavity insulation
Insulation Grade: I



## Rim Joist

# Energy Code Inspection Checklist

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

- [ ] Name: Rim Joist (313.12 s.f.)
  R: 27.00

## Ceiling / Roof

- [ ] Name: High Roof (909.32 s.f.)
  R-50.176 continuous insulation, R-9.8 cavity insulation
  Insulation Grade: I

- [ ] Name: Low Roof (205.34 s.f.)
  R-50.176 continuous insulation, R-9.8 cavity insulation
  Insulation Grade: I

## Opaque Door

- [ ] Name: Front Door (20 s.f.)
  R: 3.50

- [ ] Name: House to Garage Door (20 s.f.)
  R: 3.50

## Glazing

- [ ] Name: Front Door Sidelite (6.62 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- [ ] Name: Front Living Room Operable (20 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- [ ] Name: Front Living Room Fixed (17.36 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- [ ] Name: Front Bedroom (27.27 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- [ ] Name: Front Stair (6.16 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- [ ] Name: Living Room (22 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- [ ] Name: Dining (22 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST

# Energy Code Inspection Checklist

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

- ☐ Name: Family Room (7 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 2 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bath 2 (8.55 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 3 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 5 (11.25 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Bed 1 (11.25 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Hall Closet (4.67 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Basemend SGD (40 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 5 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room (10 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room Fixed (17.33 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room Fixed (14.73 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room (8.65 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room SGD (40 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 1 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 3 (30 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 4 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH



## Skylight

# Energy Code Inspection Checklist

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## Mechanical Ventilation

☐ Mechanical ventilation system rated for, and capable of, providing continuous ventilation.
System shall include automatic timing controls.
System type: ERV, 24 hrs/day, 70 Watts (Default)

## Mechanical Equipment

☐ ASHP w/ Gas Backup • Electric • 100% Heating Load @ 8.1 HSPF2, 100% Cooling Load @ 16 SEER

☐ Water Heater • Electric • 100% Hot Water Load @ 3.35 UEF

## Air Leakage Control

☐ Test Status: Blower-door tested
House is air-sealed as to achieve 652 CFM50 (1.50 ACH50) or less at final blower-door test.

Infiltration Requirements for IECC in Climate Zone 6

2009 IECC Infiltration limit for the design home is 7 ACH50.
2012 IECC Infiltration limit for the design home is 3 ACH50.
2015 IECC Infiltration limit for the design home is 3 ACH50.
2018 IECC Infiltration limit for the design home is 3 ACH50.
2021 IECC Infiltration limit for the design home is 5 ACH50.

## Duct Leakage

Duct System 1

All ducts and equipment within conditioned space
Leakage to Outside specified as: 4 CFM25 / 100 $ft^2$
Total Leakage specified as: 8 CFM25 / 100 $ft^2$ (Post-Construction)

# Energy Code Inspection Checklist

**Property**
8675 and 8709 Moraine Drive
Shakopee, MN 55379

8675 and 8709 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## Duct Leakage Code Requirements for IECC

2009 IECC:

Postconstruction Leakage Test: Duct Leakage to Outdoors <= 8 CFM25 / 100 sq ft CFA.
Rough in Test with AHU: Total Duct Leakage <= 6 CFM25 / 100 sq ft CFA.
Rough in Test without AHU: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.

2012 IECC Mandatory, 2015, 2018, & 2021 IECC Prescriptive Paths:

Postconstruction Leakage Test: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.
Rough in Test with AHU: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.
Rough in Test without AHU: Total Duct Leakage <= 3 CFM25 / 100 sq ft CFA.

* Note: IECC 2021 requires Total Duct Leakage <= 8 CFM25 / 100 sq ft CFA when all ducts and air handlers are within the building thermal envelope.

2015 and 2018 IECC Performance Paths (Cost Compliance):

Leakage testing is required UNLESS all ducts and air handlers are located entirely within the thermal envelope.
There is no pass/fail threshold for duct leakage on the performance path.

## Project Notes

# ENERGY STAR V3.1 Home Report

HEARTLAND ENERGY CONSULTANTS

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## Mandatory Requirements

- ✓ Duct leakage at post construction better than or equal to applicable requirements.
- ✓ Total building thermal envelope UA meets or exceeds applicable requirements.
- ✓ Slab on Grade Insulation must be > R-5, and at IECC 2009 Depth for Climate Zones 4 and above.
- ✓ Envelope insulation achieves RESNET Grade I installation, or uses exceptions in footnote 5.
- ✓ Total window thermal properties meet or exceed the applicable requirements
- ✓ Duct insulation meets the EPA minimum requirements of R-6.
- ✓ Mechanical ventilation system is installed in the home.
- ✓ ENERGY STAR Checklists fully verified and complete.



## ERI (HERS) Index Target

| | |
|---|---|
| Reference Home ERI (HERS) | 57 |
| SAF (Size Adjustment Factor) | 1.00 |
| SAF Adjusted ERI (HERS) Target | 57 |
| As Designed Home ERI (HERS) | 41 |
| As Designed Home ERI (HERS) w/o PV | 41 |

## Normalized, Modified End-Use Loads (MBtu / year)

| | ENERGY STAR | As Designed |
|---|---|---|
| Heating | 46.1 | 37.6 |
| Cooling | 3.8 | 2.3 |
| Water Heating | 16.0 | 3.0 |
| Lights and Appliances | 25.8 | 24.3 |
| Total | 91.7 | 67.3 |

**This home MEETS or EXCEEDS the energy efficiency requirements for designation as an EPA ENERGY STAR Qualified Home under Version 3.1**

## Pollution Prevented

| *Type of Emissions* | *Reduction* |
|---|---|
| Carbon Dioxide ($CO_2$) - tons/yr | -0.3 |

## Energy Cost Savings

| | $/yr |
|---|---|
| Heating | 838 |
| Cooling | 39 |
| Water Heating | 512 |
| Lights & Appliances | 94 |
| Generation Savings | 0 |
| Total | 1,482 |

The energy savings and pollution prevented are calculated by comparing the Rated Home to the ENERGY STAR Version 3.1 Reference Home as defined in the ENERGY STAR Qualified Homes ERI (HERS) Target Procedure for National Program Requirements, Version 3.1 promulgated by the Environmental Protection Agency (EPA). In accordance with the ANSI/RESNET/ICC 301 Standard, building inputs affecting setpoints infiltration rates, window shading and the existence of mechanical systems may have been changed prior to calculating loads

# Energy Code Inspection Checklist

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## General Building Information

| | |
|---|---|
| Conditioned Area (sq ft) | 3,064.72 |
| Conditioned Volume (cubic ft) | 25,944.4 |
| Insulated Shell Area (sq ft) | 5,748.32 |

The building energy model in Ekotrope reflects the building assemblies and energy features listed below. Sometimes energy features will change in the field from what has been modeled. The inspection process should identify any changes and ensure that the home continues to meet the applicable energy code.

## Slab

☐ Name: Walkout Slab(471.47 s.f., 69.04 ft. exterior perimeter)
R-0 perimeter insulation, R-10 under slab insulation.

☐ Name: Below Grade Slab(582.09 s.f., 81.88 ft. exterior perimeter)
R-0 perimeter insulation, R-10 under slab insulation.

## Framed Floor

None Present

## Foundation Wall

☐ Name: Below Grade Foundation Wall (Exterior Perimeter [ft]: 81.88, Height Above Grade [ft]: 1, Depth Below Grade [ft]: 6)
R-15 continuous insulation, R-0 cavity insulation
Insulation Grade: I
Fully insulated (top to bottom)

## Above Grade Wall

☐ Name: Ambient Walls (2,448.43 s.f.)
R-6.6 continuous insulation, R-21 cavity insulation
Insulation Grade: I

☐ Name: House to Garage (253.13 s.f.)
R-0 continuous insulation, R-21 cavity insulation
Insulation Grade: I



## Rim Joist

# Energy Code Inspection Checklist

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

- ☐ Name: Rim Joist (310.69 s.f.)
  R: 27.00

## Ceiling / Roof

- ☐ Name: High Roof (901.8 s.f.)
  R-50.176 continuous insulation, R-9.8 cavity insulation
  Insulation Grade: I

- ☐ Name: Low Roof (207.55 s.f.)
  R-50.176 continuous insulation, R-9.8 cavity insulation
  Insulation Grade: I

## Opaque Door

- ☐ Name: Front Door (20 s.f.)
  R: 3.50

- ☐ Name: House to Garage Door (20 s.f.)
  R: 3.50

## Glazing

- ☐ Name: Front Door Sidelite (6.62 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Front Living Room Operable (17.33 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Front Living Room Fixed (21 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Front Bedroom Operable (21 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Front Bedroom Fixed (17.68 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Front Stair (6 s.f.), U: 0.270, SHGC: 0.28, Orientation: SOUTH
- ☐ Name: Living Room (22 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST

# Energy Code Inspection Checklist

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

- ☐ Name: Dining (22 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Family Room (7 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 2 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bath 2 (8.55 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 3 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: WEST
- ☐ Name: Bed 5 (11.25 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Bed 1 (11.25 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Hall Closet (4.67 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Hall Closet (4.67 s.f.), U: 0.270, SHGC: 0.28, Orientation: EAST
- ☐ Name: Basemend SGD (40 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 5 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room (23.11 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room Fixed (14.73 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room (8.65 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Living Room SGD (40 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 1 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH
- ☐ Name: Bed 3 (30 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH

# Energy Code Inspection Checklist

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

☐ Name: Bed 4 (15 s.f.), U: 0.270, SHGC: 0.28, Orientation: NORTH

## Skylight

None Present

## Mechanical Ventilation

☐ Mechanical ventilation system rated for, and capable of, providing continuous ventilation.
System shall include automatic timing controls.
System type: ERV, 24 hrs/day, 70 Watts (Default)

## Mechanical Equipment

☐ ASHP w/ Gas Backup • Electric • 100% Heating Load @ 8.1 HSPF2, 100% Cooling Load @ 16 SEER

☐ Water Heater • Electric • 100% Hot Water Load @ 3.35 UEF

## Air Leakage Control

☐ Test Status: Blower-door tested
House is air-sealed as to achieve 649 CFM50 (1.50 ACH50) or less at final blower-door test.

Infiltration Requirements for IECC in Climate Zone 6

2009 IECC Infiltration limit for the design home is 7 ACH50.
2012 IECC Infiltration limit for the design home is 3 ACH50.
2015 IECC Infiltration limit for the design home is 3 ACH50.
2018 IECC Infiltration limit for the design home is 3 ACH50.
2021 IECC Infiltration limit for the design home is 5 ACH50.

## Duct Leakage

Duct System 1

All ducts and equipment within conditioned space
Leakage to Outside specified as: 4 CFM25 / 100 $ft^2$
Total Leakage specified as: 8 CFM25 / 100 $ft^2$ (Post-Construction)

# Energy Code Inspection Checklist

HEARTLAND
ENERGY CONSULTANTS

**Property**
8691 Moraine Drive
Shakopee, MN 55379

8691 Moraine Drive
As-Designed

**Organization**
Heartland Energy Consultan
Michael Boerst
651-666-0428

**Builder**

**Inspection Status**
Results are projected

## Duct Leakage Code Requirements for IECC

2009 IECC:

Postconstruction Leakage Test: Duct Leakage to Outdoors <= 8 CFM25 / 100 sq ft CFA.
Rough in Test with AHU: Total Duct Leakage <= 6 CFM25 / 100 sq ft CFA.
Rough in Test without AHU: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.

2012 IECC Mandatory, 2015, 2018, & 2021 IECC Prescriptive Paths:

Postconstruction Leakage Test: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.
Rough in Test with AHU: Total Duct Leakage <= 4 CFM25 / 100 sq ft CFA.
Rough in Test without AHU: Total Duct Leakage <= 3 CFM25 / 100 sq ft CFA.

* Note: IECC 2021 requires Total Duct Leakage <= 8 CFM25 / 100 sq ft CFA when all ducts and air handlers are within the building thermal envelope.

2015 and 2018 IECC Performance Paths (Cost Compliance):

Leakage testing is required UNLESS all ducts and air handlers are located entirely within the thermal envelope.
There is no pass/fail threshold for duct leakage on the performance path.

## Project Notes

# GEOTECHNICAL REPORT

## EAGLE CREEK AND CSAH 18 HOUSING DEVELOPMENT

SCOTT COUNTY | SHAKOPEE, MINNESOTA

May 9, 2023

Prepared for:
Scott County
600 County Trail East
Jordan, MN 55352

WSB PROJECT NO. 019780-000

# GEOTECHNICAL REPORT

## EAGLE CREEK AND CSAH 18
## HOUSING DEVELOPMENT

**FOR**
**SCOTT COUNTY**

**May 9, 2023**

# CERTIFICATION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Mark W. Osborn, PE

Date: May 9, 2023 Lic. No. 41362

May 8, 2023

Mr. Craig Jenson
Scott County
600 Country Trail East
Jordan, MN 55352

Re: Geotechnical Report
Eagle Creek Blvd & CSAH 18
Housing Development
Scott County, Minnesota
WSB Project No.: 019780-000

We have conducted a geotechnical subsurface exploration program for the above referenced project. This report contains our soil boring logs, an evaluation of the conditions encountered in the borings and our recommendations for suitable foundation type, allowable soil bearing pressure for footing design, pavements, infiltration rates, and other geotechnical related design and construction considerations.

If you have questions concerning this report or our recommendations, or for construction material testing for this project, please call us at 952.737.4660.

Sincerely,

WSB

Mark Osborn, PE
Senior Geotechnical Engineer

Attachment:
Geotechnical Report

MWO/tw

540 GATEWAY BLVD | BURNSVILLE, MN | 55337 | 952.737.4660 | WSBENG.COM

# TABLE OF CONTENTS

# 1. INTRODUCTION

## 1.1 Project Location

The site is located at the northwest corner of the intersection of Eagle Creek Blvd and County Highway 18 in Shakopee, Minnesota. The approximate soil boring locations can be found on the Soil Boring Exhibit in ***Appendix A***.

## 1.2 Project Description

It is proposed to construct 12 single-family residential housing lots, a bituminous surfaced cul-de-sac roadway, and an infiltration stormwater pond.

Structural loads for the single family homes were not provided, but we estimate that they could be in the range of three to five kips per lineal foot along the bearing walls of the building, with column loads on the order of 75 kips.

WSB has developed foundation recommendations for this project in consideration of the proposed layout, loadings, and structural configurations as understood at this time. When the designer develops additional information about final design structural loadings, building configuration, or other significant factors, the recommendations presented herein may no longer apply. WSB should be made aware of the revised or additional information in order to evaluate the recommendations for continued applicability.

## 1.3 Purpose and Project Scope of Services

Scott County authorized this scope of service. In order to assist the design team in preparing plans and specifications, we have developed recommendations for designing foundations, retaining walls, slabs and pavements. As such, we have completed a subsurface exploration program and prepared a geotechnical report for the referenced site. This stated purpose was a significant factor in determining the scope and level of service provided. Should the purpose of the report change the report immediately ceases to be valid and use of it without WSB's prior review and written authorization should be at the user's sole risk.

Our authorized scope of work has been limited to:

1. Clearing underground utilities utilizing Gopher State One Call.
2. Mobilization / demobilization of a truck mounted drill rig.
3. Drilling 4 standard penetration borings to about 20 foot depths.
4. Sealing the borings per Minnesota Department of Health procedures.
5. Perform soil classification and analysis.
6. Review of available project information and geologic data.
7. Providing this geotechnical report containing:
    a. Summary of our findings.
    b. Discussion of subsurface soil and groundwater conditions and how they may affect the proposed foundations, pavements, and infiltration.
    c. Estimated allowable bearing capacity of the soils.
    d. Estimated R-value of the soils.
    e. Recommended pavement section.
    f. A discussion of soils for use as structural fill and site fill.

## 2. PROCEDURES

### 2.1 Boring Layout and Soil Sampling Procedures

WSB completed 4 standard penetration soil borings at the project site. Scott County recommended the boring depths and selected the desired locations. Our field crew staked the borings using the supplied site plan. The borings were located with a handheld GPS device for horizontal locations. The approximate boring locations are shown on the Soil Boring Exhibit in ***Appendix A*** which is an aerial photo. The ground surface elevations at the borings were estimated by using LIDAR data with 2 foot contours. These maps should be accurate to within +/- one foot (1') provided ground surface modifications at this site have not been completed since LIDAR data was obtained.

We completed the borings on March 28, 2023 with a truck-mounted CME-55 drill rig operated by a two-person crew. The drill crew advanced the borings using continuous hollow stem augers. The drilling information is provided on the boring logs.

Generally, the drill crew sampled the soil in advance of the auger tip at two and one-half (2 ½) foot intervals to a depth of 15 feet and then at five (5) foot intervals thereafter to the termination depth of the boring. The soil samples were obtained using a split-barrel sampler which was driven into the ground during standard penetration tests in accordance with ASTM D 1586, Standard Method of Penetration Test and Split-Barrel Sampling of Soils. The materials encountered were described on field logs and representative samples were containerized and transported to our laboratory for further observation and testing.

The samples were visually observed to estimate the distribution of grain sizes, plasticity, consistency, moisture condition, color, presence of lenses and seams, and apparent geologic origin. We classified the soils according to type using the Unified Soil Classification System (USCS). A chart describing the USCS is included in ***Appendix A***.

### 2.2 Groundwater Measurements and Borehole Abandonment

The drill crew observed the borings for free groundwater while drilling and after completion of the borings. These observations and measurements are noted on the boring logs. The crew then backfilled the borings to comply with Minnesota Department of Health regulations.

### 2.3 Boring Log Procedures and Qualifications

The subsurface conditions encountered by the borings are illustrated on the Logs of Test Borings in ***Appendix A***. Similar soils were grouped into the strata shown on the boring logs, and the appropriate estimated USCS classification symbols were also added. The depths and thickness of the subsurface strata indicated on the boring logs were estimated from the drilling results.

The transition between materials (horizontal and vertical) is approximate and is usually far more gradual than shown. Information on actual subsurface conditions exists only at the specific locations indicated and is relevant only to the time exploration was performed. Subsurface conditions and groundwater levels at other locations may differ from conditions found at the indicated locations. The nature and extent of these conditions would not become evident until exposed by construction excavation. These stratification lines were used for our analytical purposes and due to the aforementioned limitations, should not be used as a basis of design or construction cost estimates.

## 3. EXPLORATION RESULTS

### 3.1 Site and Geology

The site was partially snow covered at the time of drilling. Borings were completed around the existing trees in the lightly wood area, through greenspace areas. Based on Google Earth, the site is currently undeveloped.

Boring elevations ranged from about 800 to 816 feet, and indicate the site slopes down to the north away from Eagle Creek Blvd.

Geologic origins can be difficult to determine solely from boring samples. We referenced online geologic data of the area and used our experience to help determine geologic origin of the soils, however only a detailed geologic exploration would accurately determine the geologic history of the site.

The Scott County Geologic Atlas indicates the surficial geology of the area is mostly alluvial deposits consisting of beds of silt, silty clay, fine grained sands, and gravel. Organics may be encountered within the deposits.

### 3.2 Subsurface Soil and Groundwater Conditions

The boring profile generally consisted of topsoil overlying alluvial deposits.

Organics

The borings encountered about 8 to 11 inches of topsoil consisted of clayey and silty sands in the borings. These soils were generally dark brown in color and wet.

Alluvium

The predominant soils encountered in the borings were sands, sands with silt, silty sands, and clayey sands. These soils were generally brown to reddish brown in color and moist.

We also noted fine alluvial silt deposits in boring B-3 at a depth of about 5 ½ to 9 ½ feet below grade. These deposits were brown in color and saturated at the time of drilling.

### 3.3 Strength Characteristics

The penetration resistance N-values of the materials encountered were recorded during drilling and are indicated as blows per foot (BPF). Those values provide an indication of soil strength characteristics and are located on the boring log sheets. Also, visual-manual classification techniques and apparent moisture contents were also utilized to make an engineering judgment of the consistency of the materials.

Table 1 presents a summary of the penetration resistances (N-value which are indicated by Blows Per Foot BPF) in the soils for the borings completed and remarks regarding the material strengths of the soils.

**Table 1: Penetration Resistances**

| Soil Type | Classification | Penetration Resistances | Remarks |
|---|---|---|---|
| Coarse Alluvium | SP, SP-SM, SM, SC | 5 to 50+ BPF | Loose to very dense |
| Fine Alluvium | ML | 4 BPF | Very loose |

The preceding is a generalized description of soil conditions at this site. Variations from the generalized profile exist and should be assessed from the boring logs, the normal geologic character of the deposits, and the soils uncovered during site excavation.

### 3.4 Groundwater Conditions

WSB took groundwater level readings in the exploratory borings, reviewed the data obtained, and discussed its interpretation of the data in the text of the report. Note that groundwater levels may fluctuate due to seasonal variations (e.g. precipitation, snowmelt and rainfall) and/or other factors not evident at the time of measurement.

No groundwater was encountered during the drilling process. The bore holes were only left open a short period of time, and groundwater levels may not have stabilized.

# 4. ENGINEERING ANALYSIS AND RECOMMENDATIONS

## 4.1 Discussion

Organic soils and vegetated root zones are not suitable for structural support, and should be removed from the building, roadway, and engineered fill areas.

Based on the results of our borings, the alluvial deposited soils generally appear capable of supporting the structures. However, some of the silt soils are locally wet and loose. Wet silt soils in combination with construction traffic may become unstable and require partial removal.

Generally, the soils in the upper 4 feet of the subgrade influence pavement performance the most. The soils within the pavement subgrade consist of clays and silts, which are frost susceptible soils. Consideration should be given to partially subcutting these soils and replacing with a non-frost susceptible granular fill to reduce the potential frost heave below the pavement section.

Silt soils are not recommended for direct support of pavements for the aforementioned frost reasons but also because they are sensitive to moisture changes, easily disturbed by construction traffic, and difficult to compact. Where silt soils are present at the top of grading grade we recommend a partial subcut and replacement with an engineered fill.

## 4.2 Building Area Preparation

We recommend removal of the organics from the construction area. Loose/loosened sands either at bottom of footing or slab subgrade elevations should be surface compacted with a large vibratory roller having a drum diameter of at least five feet (5') and a static dead weight of at least ten (10) tons prior to placement of engineered fill and backfill or concrete.

Excavations for removal of unsuitable soil may be deeper than indicated in our boring locations noted above, and depths will vary between the boring locations.

We recommend subcut of wet, loose or very loose, silt soils from immediately below the foundations. We recommend subcut of a minimum of 1 foot below the base of wall footings and below column footings to a depth of half (1/2) the width of the column footings. The sub-excavations should be oversized by at least one foot (1') beyond the edge of footings for each foot of depth below the bottom of footing elevations (1-horizontal to 1-vertical lateral oversizing). Because the depth and lateral extent of the sub-excavations will vary away from our borings, we recommend a qualified engineering technician working under the direction of a registered professional geotechnical engineer observe and test the excavation bases during construction.

Based on the borings, it appears that the on-site soil can generally be reused as structural backfill provided it is moisture conditioned and can be compacted to project specifications. However, silt soils will be difficult to place and compact especially when wet. We recommend the silt fills be used in landscaped or greenspace areas and not below foundations or pavements.

The site should be graded to prevent water from ponding on silt soils and potentially softening them. Furthermore, it should be noted that it has been our experience that fine-grained, relatively clean, sands and silts such as those encountered on this site will likely not provide adequate support to construction traffic. As such, we recommend consideration be given to using six inches (6") of crushed aggregates to stabilize construction roads, entrances and staging areas.

## 4.3 Foundation Recommendations

We recommend that the building in this development be supported on conventional spread footings bearing on naturally occurring alluvial sands or on engineered fill.

Based on the borings, it is our opinion the footings throughout may be designed for a net allowable soil bearing pressure not to exceed 2,000 pounds per square foot (psf).

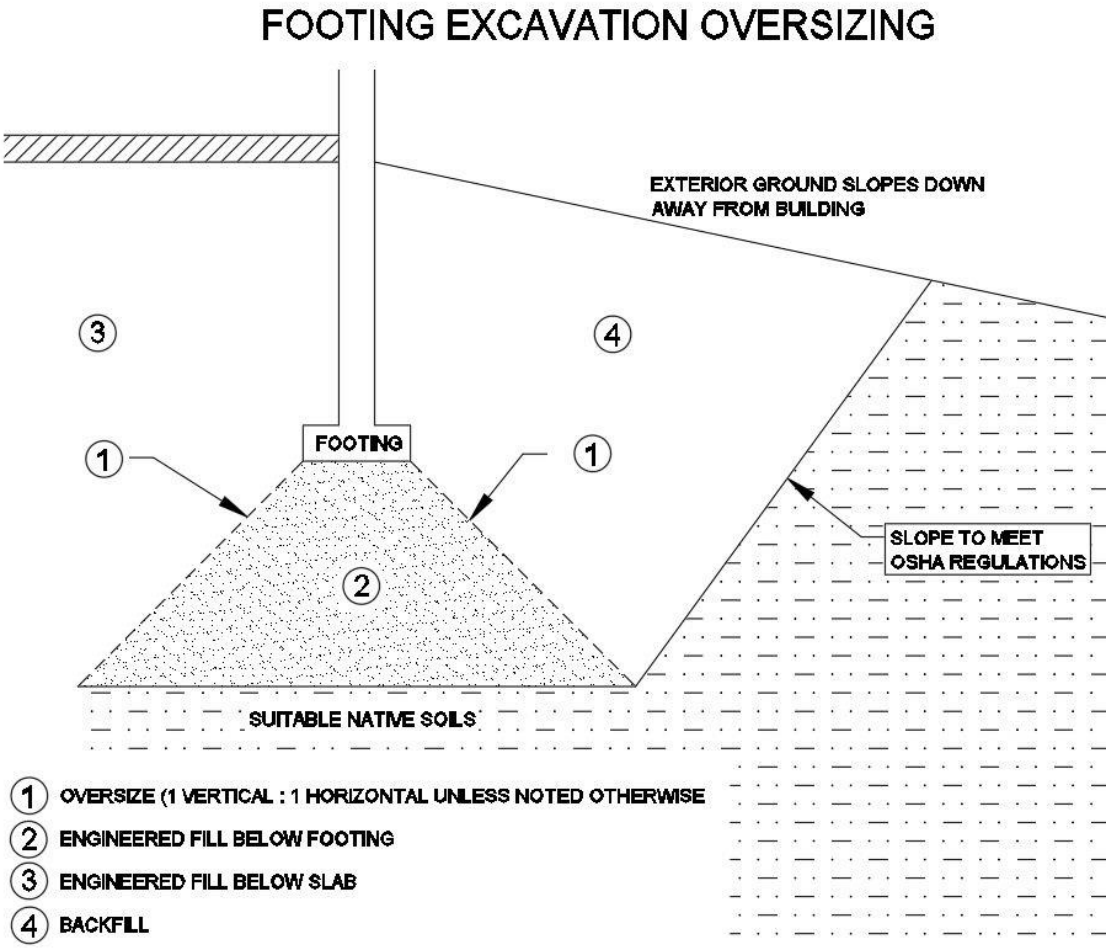
The allowable foundation bearing pressures apply to dead loads with design live load conditions. The design bearing pressure may be increased by one-third when considering transient loads which include wind or seismic conditions.

Frost protection should follow Minnesota Administrative Rules 1305.1809.

The factor of safety against shear or bearing capacity failure for this footing design would be three (3) or greater. If the site is prepared as recommended, we estimate that total and differential settlements (across a 30-foot span) corresponding to our assumed structural loads would be less than one inch (1") and one-half inch (1/2"), respectively, provided the bearing soils are not frozen or disturbed at the time of construction.

Figure 1 below indicates a graphical representation of a typical footing excavation oversizing.

FIGURE 1




### 4.4 At Grade Floor Slab

Floor slabs loads are expected to be low for residential homes. In cut areas where the floor slab will be placed upon sandy soils, a sand cushion for levelling should be sufficient. In areas where fills are placed to raise the site, we recommend placement of a minimum of six inches (6") of sand below the slab to

provide additional support. The sand should consist of a granular fill with less than fifty percent (50%) passing the #40 sieve and less than ten percent (10%) passing the #200 sieve.

Based on the above recommendations, it is our opinion that the modulus of subgrade reaction for sands below the floor slab will be about 200 pounds per square inch per inch (psi/in). Silt soils would have a subgrade reaction of about 50 pounds per square inch per inch (psi/in).

If portions of the new floor slabs are to have a non-breathable covering, such as vinyl tile or linoleum, or if there is to be a room with wood flooring, we recommend that a vapor barrier be installed below those portions of the slab. If a vapor barrier is used, it should be installed in accordance with the recommendations given in the ACI Manual of Concrete Practice, Part 2, Section 302.3.2.3.

### 4.5 Backfill and Fill Selection and Compaction

The on-site non-organic soils may be reused as backfill and fill provided they are moisture conditioned and can be compacted to their specified densities. Wet soils that are excavated would need to be dried before reuse as an engineered fill. We recommend use of a minimum of 2 feet of clean coarse sand with less than 50 percent passing the #40 sieve and less than 5 percent passing the #200 sieve when backfilling the bottom of a wet excavation.

Gravel or cobbles larger than 2 inches in diameter should not be placed within 2 feet of grading grade or utilities. We recommend that clayey soils be moisture conditioned to within +/-2 percent of the optimum moisture content as determined from their standard Proctor tests (ASTM D-698). Granular fills should be moisture conditioned to between -4% and +2% of the optimum moisture content. Fill should be spread in lifts of 6 inches, depending on the size and type of compaction equipment used.

Table 2 provides the recommended compaction levels.

**Table 2: Recommended Level of Compaction for Backfill and Fill**

| Area | Percent of Standard Proctor Maximum Dry Density |
|---|---|
| Foundations: 2,000 psf | 100 |
| Pavement: Within 3 feet of bottom of aggregate base and any area where total depth of fill exceeds 10 feet | 100 |
| Pavement: Greater than 3 feet below aggregate base | 95 |
| Utility Trench and Utility Structure Backfill | 100 |
| Landscaping (non-structural) | 90 |

### 4.6 Pavement Area

Once the site has been prepared as recommended, we anticipate the prepared subgrade soils will consist mostly of sands, sands with silt, silty sands and clayey sands. Based on the MnDOT Flexible Pavement Guide from 2020, the R-values of the subgrade soils would range between 20 and 70. We used a design R-value of 30 for the pavements.

No traffic data was available for the roadway. As it is a closed cul-de-sac design, we anticipate light traffic loads and weekly garbage truck or delivery traffic.

Based on MnDOT's FlexPave excel design utilizing granular equivalent charts, we recommend the pavement section indicated below in Table 3.

**Table 3: Recommended Flexible Pavement Section**

| Section | Thickness (inches) | Granular Equivalent |
|---|---|---|
| Bituminous Course, MnDOT 2360 SPWEA340C | 2 | 4.5 |
| Bituminous Course, MnDOT 2360 SPWEA340C | 2 | 4.5 |
| Aggregate Base, MnDOT 3138 (Class 5) | 8 | 8 |
| TOTAL | - | 17 |

Aggregate base placement for pavement support should meet the gradation and quality requirements for Class 5 per MnDOT specification 3138. Aggregate base material should be compacted to 100 percent of its standard Proctor maximum dry density.

Within several years after initial paving, some thermal shrinkage cracks will develop. We recommend routine maintenance be performed to improve pavement performance and increase pavement life. Pavement should be sealed with a liquid bitumen sealer to retard water intrusion into the base course and subgrade. Localized patch failures may also develop where trucks or buses turn on the pavement. When these occur, they should be cut out and patch repaired.

The pavement sections above provide options to meet the ESAL requirements. Other pavement design options would be acceptable as well as long as they meet the minimum requirements for bituminous thickness, aggregate base thickness, and can meet the ESAL requirements.

### 4.7 Infiltration

We completed laboratory and field testing to determine estimated infiltration rates of the soils for the stormwater pond. Our results are included below:

Field Testing:
We ran a field infiltration rate test by placing a 2 inch plastic tubing down the drill hole and using falling head methodology to measure the water levels within the tubing over a period of about 2 hours.

Our field test indicated an infiltration rate of about 10 inches/hour. This method does not include a safety factor that would reduce this result for design purposes.

Laboratory Testing:
We took soil samples during site drilling and completed a gradation to determine grain size. Using these grain size results we used multiple infiltration formulas to estimate infiltration rate.

| | | |
|---|---|---|
| Kozeny-Carmen Equation: | 0.51 inches/hour | newer formula with additional data points |
| Hazen Equation: | 0.11 inches/hour | older simplistic formula |

Online Research:
The Minnesota Stormwater Manual indicates estimated infiltration rates of soils based on the USCS Classification. We have presented the estimated rates below.

| | | |
|---|---|---|
| Sand SP: | 0.8 inches per hour | may be above infiltration levels at Boring B-1 |
| Silty Sand SM: | 0.45 inches per hour | predominant soils at B-1 |

Discussion:
As can be noted by the wide variety of results above, estimated infiltration rates for design can be difficult to determine. Based on the field, laboratory, and online research results above it is our opinion that infiltration rates of a minimum of 0.5 should be suitable, and that they could be much higher. We highly recommend double ring infiltration testing of the infiltration pond to ensure it does not exceed the

Minnesota Stormwater Manual recommendations of 8.3 inches/hour and to determine the final, in place infiltration rates.

### 4.8 Utilities

Invert elevations for the watermain and sanitary sewer are anticipated to be between 8 and 12 feet below grade. Based on the borings, the subgrade soils for the utilities will consist chiefly of sands, sands with silt, silty sands, clayey sands, and some silts. The sandy soils are suited for support of the utilities, however we anticipate that 1-2 feet of granular fills will be required within the silt soils.

Underground utilities are expected to be installed by backhoes completing the excavations and placing fills. Soil compactors should be used to compact the fill in even lifts to the specified densities.

### 4.9 Construction Considerations

Good surface drainage should be maintained throughout the work so that the site is not vulnerable to ponding during or after a rainfall. If water enters the excavations, it should be promptly removed prior to further construction activities. Under no circumstances should fill or concrete be placed into standing water.

Soil corrections at this site for foundations and pavement subgrades may not be continuous. We recommend tapering the fills back to native soils at a ten to one (10:1) slope.

It is important to review the fill limits and total depth of fill when placing structures upon compacted materials and when filling the excavation. The location of the footings should allow for at least a one to one (1:1) slope from the bottom of the footing to the outside limits of the engineered fill.

It is important to check this at the time of construction that during filling, unsuitable soils do not encroach within the one to one (1:1) slope limits and extending downward and outward from future footings.

### 4.10 Construction Safety

All excavations should comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P "Excavations and Trenches". This document states that excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the job specifications.

The responsibility to provide safe working conditions on this site, for earthwork, building construction, or any associated operations is solely that of the contractor. This responsibility is not borne in any manner by WSB.

### 4.11 Cold Weather Construction

It is our understanding that construction is unlikely to occur during the winter months. However, if the construction does continue into the winter months we recommend the following guidelines.

Roadbeds should not be constructed during periods when the material freezes while being placed and compacted, nor should material be placed on soil that is frozen to a depth greater than 4 inches. When the soils are frozen to a depth exceeding 4 inches, at a time when weather conditions are such that construction could be continued without the material freezing as it is being placed and compacted, the contractor may be permitted to excavate the frozen soil and proceed with the construction for so long as the weather will permit. The frozen soils should be pulverized or replaced with other suitable soils. Only unfrozen fill should be used.

Placement of fill and/or foundation concrete should not be permitted on frozen soil, and the bearing soils under footings or under the floor slab should not be allowed to freeze after concrete is placed, because excessive post-construction settlement could occur as the frozen soils thaw.

### 4.12 Field Observation and Testing

The soil conditions illustrated on the Logs of Test Borings in ***Appendix A*** are indicative of the conditions only at the boring locations. For this reason, we recommend that excavations at this site be observed by a soil engineer or technician prior to fill or backfill placement or construction of foundation elements to determine if the soils are capable of supporting the fill backfill and/or foundation loads. These observations are recommended to judge if the unsuitable materials have been removed from within the planned construction area and an appropriate degree of lateral oversize has been provided.

WSB also recommends a representative number of field density tests be taken in engineered fill and backfill placed to aid in judging its suitability. Fill placement and compaction should be monitored and tested to determine that the resulting fill and backfill conforms to specified density, strength or compressibility requirements. We recommend at least one compaction test for every 2,000 square feet of building area at vertical intervals not exceeding two (2) feet, and one compaction test for every 150 feet of utility trench at a vertical interval of two (2) feet. Prior to use, proposed fill and backfill material should be submitted to the WSB laboratory for testing to verify compliance with recommendations and project specifications.

Dynamic Cone Penetrometer (DCP) tests can be completed in the aggregate base in lieu of density testing. We recommend following MnDOT Specification 2211.3.D.2.c.

WSB would be pleased to provide the advised field observation, monitoring and testing services during construction.

### 4.13 Plan Review and Remarks

The observations, recommendations and conclusions described in this report are based primarily on information provided to WSB, obtained from our subsurface exploration, our experience, several assumptions and the scopes of service developed for this project and are for the sole use of our client. We recommend that WSB be retained to perform a review of final design drawing and specifications to evaluate that the geotechnical engineering report has not been misinterpreted. Should there be changes in the design or location of the structures related to this project or if there are uncertainties in the report we should be notified. We would be pleased to review project changes and modify the recommendations in this report or provide clarification in writing.

The entire report should be kept together; for example, boring logs should not be removed and placed in the specifications separately.

The boring logs and related information included in this report are indicators of the subsurface conditions only at the specific locations indicated on the Soil Boring Exhibit and times noted on the Logs of Test Boring sheets in ***Appendix A***. The subsurface conditions, including groundwater levels, at other locations on the site may differ significantly from conditions that existed at the time of sampling and at the boring locations.

The test borings were completed by WSB solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.

WSB has not performed observations, investigations, explorations, studies or testing that are not specifically listed in the scope of service. WSB should not be liable for failing to discover any condition whose discovery required the performance of services not authorized by the Agreement.

## 5. STANDARD OF CARE

The recommendations and opinions contained in this report are based on our professional judgment. The soil testing and geotechnical engineering services performed for this project have been performed with the level of skill and diligence ordinarily exercised by reputable members of the same profession under similar circumstances, at the same time and in the same or a similar locale. No warranty, either expressed or implied, is made.

# APPENDIX A

Soil Borings Exhibit
Logs of Test Borings
Symbols and Terminology on Test Boring Log
Notice to Report Users Boring Log Information
Unified Soil Classification Sheet (USCS)

Wetland

B-1

Proposed Stormwater Pond

9

8

B-3

12

11

10

7

B-2

6

5

3

4

1

2

B-4

CO. HIGHWAY 18

EAGLE CREEK BLVD.
CO. RD. 16

# LOG OF TEST BORING

PROJECT NAME: Scott County Housing Trust
CLIENT/WSB #: 019780-000
PROJECT LOCATION: Scott County, MN
SURFACE ELEVATION: 800 ft

BORING NUMBER B-1
PAGE 1 OF 1

| DEPTH (ft) | ELEV. (ft) | DESCRIPTION OF MATERIAL | USCS | GEOLOGIC ORIGIN | WL | Drilling Operation | SAMPLE TYPE | SAMPLE No. | N | MC % | %Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 10" TOPSOIL: Clayey Sand, dark brown, wet | OL | Topsoil | | | | | | | |
| 1 | 799 | SAND, fine to medium grained, brown, wet, loose | SP | Coarse Alluvium | | | AU | 1 | | | |
| 2 | 798 | | | | | | | | | | |
| 3 | 797 | | | | | | SB | 2 | 5 | | |
| 4 | 796 | | | | | | HSA | | | | |
| 5 | 795 | SILTY SAND, fine to medium grained, reddish brown, moist to wet, very dense to medium dense | SM | | | | SB | 3 | 40 | 4 | 46 |
| 6 | 794 | | | | | | HSA | | | | |
| 7 | 793 | | | | | | | | | | |
| 8 | 792 | | | | | | SB | 4 | 57 | | |
| 9 | 791 | | | | | | HSA | | | | |
| 10 | 790 | | | | | | SB | 5 | 60 | | |
| 11 | 789 | | | | | | HSA | | | | |
| 12 | 788 | | | | | | | | | | |
| 13 | 787 | | | | | | SB | 6 | 38 | | 32 |
| 14 | 786 | | | | | | HSA | | | | |
| 15 | 785 | | | | | | SB | 7 | 29 | | |
| 16 | 784 | | | | | | | | | | |
| 17 | 783 | | | | | | HSA | | | | |
| 18 | 782 | | | | | | | | | | |
| 19 | 781 | | | | | | | | | | |
| 20 | 780 | | | | | | SB | 8 | 17 | | |
| 21 | 779 | End of Boring 21.0 ft. | | | | | | | | | |

N-Value Plot: 0 32 64; 5, 40, 57, 60, 38, 29, 17

WATER LEVEL MEASUREMENTS

START: 4/04/2023 END: 4/04/2023

| DATE | TIME | SAMPLED DEPTH | CASING DEPTH | CAVE-IN DEPTH | WATER DEPTH | WATER ELEVATION | METHOD |
|---|---|---|---|---|---|---|---|
| 4/04/2023 | 2:00 pm | 21 | 19.5 | 6 | None | | 3.25" HSA 0' - 19.5' |
| | | | | | | | |
| | | | | | | | |

Crew Chief: R. Kurth
Logged By: A. Wacek
Notes:

GEOTECHNICAL N-PLOT - WSB.GDT - 4/27/23 11:06 - K:\019780-000\GEOTECH-CMT\GEOTECH\SCOTT COUNTY HOUSING TRUST - BORING LOG.GPJ

# LOG OF TEST BORING

PROJECT NAME: Scott County Housing Trust
CLIENT/WSB #: 019780-000
PROJECT LOCATION: Scott County, MN
SURFACE ELEVATION: 810 ft

**BORING NUMBER B-2**
PAGE 1 OF 1

| DEPTH (ft) | ELEV. (ft) | DESCRIPTION OF MATERIAL | USCS | GEOLOGIC ORIGIN | WL | Drilling Operation | SAMPLE TYPE | SAMPLE No. | N | MC % | %Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 810 | 11" TOPSOIL: Clayey Sand, dark brown, wet | OL | Topsoil | | | | | | | |
| 1 | 809 | SAND, fine to medium grained, dark brown, moist, loose | SP | Coarse Alluvium | | | AU | 1 | | | |
| 2 | 808 | | | | | | | | | | |
| 3 | 807 | | | | | | SB | 2 | 8 | | |
| 4 | 806 | | | | | | HSA | | | | |
| 5 | 805 | SAND, fine to medium grained, brown, moist, medium dense | SP | | | | SB | 3 | 11 | | |
| 6 | 804 | | | | | | HSA | | | | |
| 7 | 803 | | | | | | | | | | |
| 8 | 802 | SAND, fine to medium grained, brown, moist, medium dense | SP | | | | SB | 4 | 11 | | |
| 9 | 801 | | | | | | HSA | | | | |
| 10 | 800 | | | | | | SB | 5 | 10 | | |
| 11 | 799 | CLAYEY SAND, fine to medium grained, reddish brown, wet, loose | SC | | | | | | | 14 | 48 |
| 12 | 798 | | | | | | HSA | | | | |
| 13 | 797 | SILTY SAND WITH CLAY, fine to medium grained, reddish brown, wet, medium dense to very dense | SM | | | | SB | 6 | 22 | 10 | |
| 14 | 796 | | | | | | HSA | | | | |
| 15 | 795 | - [Cobbles at 15 feet] | | | | | SB | 7 | 50/5 | | |
| 16 | 794 | | | | | | | | | | |
| 17 | 793 | | | | | | HSA | | | | |
| 18 | 792 | | | | | | | | | | |
| 19 | 791 | | | | | | | | | | |
| 20 | 790 | | | | | | SB | 8 | 30 | | |
| 21 | 789 | End of Boring 21.0 ft. | | | | | | | | | |

N-Value Plot: 0 17 34 — 8, 11, 11, 10, 22, 30

**WATER LEVEL MEASUREMENTS**

START: 4/05/2023 END: 4/05/2023

| DATE | TIME | SAMPLED DEPTH | CASING DEPTH | CAVE-IN DEPTH | WATER DEPTH | WATER ELEVATION | METHOD |
|---|---|---|---|---|---|---|---|
| 4/05/2023 | 10:00 am | 21 | 19.5 | 7.5 | None | | 3.25" HSA 0' - 19.5' |

Crew Chief: R. Kurth
Logged By: A. Wacek
Notes:

GEOTECHNICAL N-PLOT - WSB.GDT - 4/27/23 11:06 - K:\019780-000\GEOTECH-CMT\GEOTECH\SCOTT COUNTY HOUSING TRUST - BORING LOG.GPJ

# LOG OF TEST BORING

PROJECT NAME: Scott County Housing Trust
CLIENT/WSB #: 019780-000
PROJECT LOCATION: Scott County, MN
SURFACE ELEVATION: 808 ft

BORING NUMBER B-3
PAGE 1 OF 1

| DEPTH (ft) | ELEV. (ft) | DESCRIPTION OF MATERIAL | USCS | GEOLOGIC ORIGIN | WL | Drilling Operation | SAMPLE TYPE | SAMPLE No. | N | MC % | %Fines | N-Value Plot |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 808 | 11" TOPSOIL: Silty Sand, dark brown, wet | OL | Topsoil | | | | | | | | |
| 1 | 807 | SILTY SAND, slightly organic, dark brown, moist, loose [Organic Content = 3.0%] | SM | Coarse Alluvium | | | AU | 1 | | | | |
| 2 | 806 | | | | | | SB | 2 | 10 | | | 10 |
| 3 | 805 | CLAYEY SAND, fine to medium grained, brown, wet, loose | SC | | | | | | | 13 | 43 | |
| 4 | 804 | | | | | | HSA | | | | | |
| 5 | 803 | | | | | | SB | 3 | 7 | | | 7 |
| 6 | 802 | SILT, brown, saturated, soft to very soft [LL = 28, PI = 4] | ML | Fine Alluvium | | | | | | | | |
| 7 | 801 | | | | | | HSA | | | | | |
| 8 | 800 | | | | | | SB | 4 | 4 | 30 | | 4 |
| 9 | 799 | | | | | | HSA | | | | | |
| 10 | 798 | SILTY SAND WITH LITTLE GRAVEL, fine to medium grained, reddish brown, wet, medium dense to very dense | SM | Coarse Alluvium | | | SB | 5 | 13 | 12 | | 13 |
| 11 | 797 | | | | | | HSA | | | | | |
| 12 | 796 | | | | | | SB | 6 | 38 | | | 38 |
| 13 | 795 | | | | | | HSA | | | | | |
| 14 | 794 | | | | | | SB | 7 | 58 | | | 58 |
| 15 | 793 | | | | | | HSA | | | | | |
| 16 | 792 | | | | | | | | | | | |
| 17 | 791 | | | | | | | | | | | |
| 18 | 790 | | | | | | | | | | | |
| 19 | 789 | | | | | | | | | | | |
| 20 | 788 | | | | | | SB | 8 | 50/4 | | | |
| 21 | 787 | End of Boring 21.0 ft. | | | | | | | | | | |

N-Value Plot: 0 31 62

WATER LEVEL MEASUREMENTS

START: 4/05/2023 END: 4/05/2023

| DATE | TIME | SAMPLED DEPTH | CASING DEPTH | CAVE-IN DEPTH | WATER DEPTH | WATER ELEVATION | METHOD |
|---|---|---|---|---|---|---|---|
| 4/05/2023 | 12:00 pm | 21 | 19.5 | 3.5 | None | | 3.25" HSA 0' - 19.5' |
| | | | | | | | |
| | | | | | | | |

Crew Chief: R. Kurth
Logged By: P. Solie
Notes:

GEOTECHNICAL N-PLOT - WSB.GDT - 4/27/23 11:06 - K:\019780-000\GEOTECH-CMT\GEOTECH\SCOTT COUNTY HOUSING TRUST - BORING LOG.GPJ

# LOG OF TEST BORING

PROJECT NAME: Scott County Housing Trust
CLIENT/WSB #: 019780-000
PROJECT LOCATION: Scott County, MN
SURFACE ELEVATION: 816 ft

**BORING NUMBER B-4**
PAGE 1 OF 1

| DEPTH (ft) | ELEV. (ft) | DESCRIPTION OF MATERIAL | USCS | GEOLOGIC ORIGIN | WL | Drilling Operation | SAMPLE TYPE | SAMPLE No. | N | MC % | %Fines | N-Value Plot |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8" TOPSOIL: Clayey Sand, dark brown, wet | OL | Topsoil | | | | | | | | |
| 1 | 815 | SAND WITH SILT, fine to coarse grained, brown, wet, loose | SP-SM | Coarse Alluvium | | | AU | 1 | | | | |
| 2 | 814 | | | | | | | | | | | |
| 3 | 813 | | | | | | SB | 2 | 9 | | 11 | 9 |
| 4 | 812 | | | | | | HSA | | | | | |
| 5 | 811 | | | | | | SB | 3 | 9 | | | 9 |
| 6 | 810 | | | | | | HSA | | | | | |
| 7 | 809 | | | | | | SB | 4 | 7 | | | 7 |
| 8 | 808 | | | | | | HSA | | | | | |
| 9 | 807 | SAND, fine to coarse grained, brown, moist, loose | SP | | | | SB | 5 | 9 | | | 9 |
| 10 | 806 | | | | | | HSA | | | 10 | | |
| 11 | 805 | SAND WITH SILT, fine to medium grained, dark brown, moist, loose | SP-SM | | | | SB | 6 | 8 | | | 8 |
| 12 | 804 | | | | | | HSA | | | | | |
| 13 | 803 | | | | | | SB | 7 | 8 | | | 8 |
| 14 | 802 | SAND, fine to medium grained, brown, moist, loose | SP | | | | HSA | | | | | |
| 15 | 801 | | | | | | | | | | | |
| 16 | 800 | SAND WITH SILT, fine to medium grained, reddish brown, moist, dense | SP-SM | | | | | | | | | |
| 17 | 799 | | | | | | | | | | | |
| 18 | 798 | | | | | | HSA | | | 7 | | |
| 19 | 797 | | | | | | | | | | | |
| 20 | 796 | | | | | | SB | 8 | 47 | | | 47 |
| 21 | 795 | End of Boring 21.0 ft. | | | | | | | | | | |

N-Value Plot: 0 25.5 51

WATER LEVEL MEASUREMENTS

START: 4/05/2023 END: 4/05/2023

| DATE | TIME | SAMPLED DEPTH | CASING DEPTH | CAVE-IN DEPTH | WATER DEPTH | WATER ELEVATION | METHOD |
|---|---|---|---|---|---|---|---|
| 4/05/2023 | 2:00 pm | 21 | 19.5 | 7 | None | | 3.25" HSA 0' - 19.5' |
| | | | | | | | |
| | | | | | | | |

Crew Chief: R. Kurth
Logged By: P. Solie
Notes:

GEOTECHNICAL N-PLOT - WSB.GDT - 4/27/23 11:07 - K:\019780-000\GEOTECH-CMT\GEOTECH\SCOTT COUNTY HOUSING TRUST - BORING LOG.GPJ

# SYMBOLS AND TERMINOLOGY ON TEST BORING LOG

## SYMBOLS

### Drilling and Sampling

| Symbol | Description |
|---|---|
| HSA | 3 1/4" LD. Hollow Stem Auger |
| FA | Flight Auger |
| HA | Hand Auger |
| RC | Size A, B, or N rotary casing |
| CS | Continuous split barrel sampling |
| DM | Drilling Mud |
| JW | Jetting Water |
| SB | 2" O.D. split barrel sampling |
| _L | 2 1/2" or 3 1/2" OD split barrel liner sampler |
| _T | 2" or 3" thin walled tube sample |
| W | Wash sample |
| B | Bag sample |
| P | Test Pit sample |
| _Q | BQ, NQ, or PQ wire line system |
| _X | AX, BX, or NX double tube barrel |
| N | Standard penetration test, blow per foot |
| CR | Core recovery, percent |
| WL | Water level |
| n/a | no measurement recorded |

### Laboratory Testing

| Symbol | Description |
|---|---|
| MC | Moisture content, % (ASTM D2216) |
| DD | Dry Density, pcf |
| LL | Liquid Limit (ASTM D4318) |
| PL | Plastic Limit (ASTM D4318) |
| | |
| | - Inserts in last column |
| | |
| Qu | Unconfined compressive strength, psf (ASTM D2166) |
| Pq | Penetrometer Reading, tsf (ASTM D1558) |
| Ts | Torvane Reading, ts |
| G | Specific Gravity (ASTM D854) |
| SL | Shrinkage limits (ASTM D427) |
| OC | Organic Contenct (ASTM D2974) |
| SP | Swell Pressure, tsf (ASTM D4546) |
| PS | Percent swell under pressure (ASTM D4546) |
| FS | Free swell, % (ASTM D4546) |
| SS | Shrink swell, % (ASTM D4546) |
| pH | |
| SC | Sulfate content, parts/million or mg/l |
| CC | Chloride content, parts/million or mg/l |
| C | One dimensional consolidation (ASTM D2435) |
| Qc | Triaxial compression (ASTM D2850 and D4767) |
| DS | Direct Shear (ASTM D3080) |
| K | Coefficient of permeability, cm/sec (ASTM D2434) |
| P | Pinhole Test (ASTM D4647) |
| DH | Double hydrometer (ASTM D4221) |
| MA | Particle size analysis (ASTM D422) |
| R | Laboratory electreical resistivity, ohm-cm (ASTM G57) |
| VS | Field vane shear (ASTM D2573) |
| RQD | Rock quality designation, percent |
| IR | Infiltration Test (ASTM D3385) |

## TERMINOLOGY

### Particle Sizes

| Type | Size Range |
|---|---|
| Boulders | > 12" |
| Cobbles | 3" - 12" |
| Coarse gravel | 3/4" - 3" |
| Fine gravel | #4 sieve - 3/4" |
| Coarse sand | #4 sieve - #10 sieve |
| Medium sand | #10 sieve - #40 sieve |
| Fine sand | #40 sieve - #200 sieve |
| Silt | 100% passing #200 sieve, and > 0.002mm |
| Clay | 100% passing #200 sieve, and < 0.002mm |

### Soil Layering and Moisture

| Term | Visual Observation |
|---|---|
| Lenses | Small pockets of different soils |
| Lamination | < 1/4" thick stratum |
| Layer | 1/4" - 12" thick stratum |
| Stratified | Altering lenses of varying materials or colors |
| Varved | Altering laminations of clay, silt, fine sand, or colors |
| Dry | Powdery, no noticeable water |
| Moist | Damp, below saturation |
| Wet | MC above plastic limit |
| Waterbearing | Pervious soil below water table |
| Saturated | Cohesive soil with MC above liquit limit |

### Gravel Content

#### Coarse-Grained Soils

| % Gravel | Description |
|---|---|
| 2 - 15 | A little gravel |
| 16 - 30 | With gravel |
| 31 - 49 | Gravelly |

#### Fine-Grained Soils

| % Gravel | Description |
|---|---|
| 2 -5 | Trace of gravel |
| 5 -15 | a little gravel |
| 16 - 30 | with gravel |
| 31 - 49 | Gravelly |

### Standard Pentration Resistance (N-value)

#### Cohesionless Soils

| N-Value | Relative Density |
|---|---|
| 0 - 4 | Very loose |
| 5 - 10 | Loose |
| 11 - 30 | Medium dense |
| 31 - 50 | Dense |
| >50 | Very dense |

#### Cohesive Soils

| N-Value | Consistency |
|---|---|
| 0 - 4 | Very soft |
| 5 - 8 | Soft |
| 9 - 15 | Firm |
| 16 - 30 | Hard |
| >30 | Very hard |

# NOTICE TO REPORT USERS BORING LOG INFORMATION

## Subsurface Profiles

The subsurface stratification lines on the graphic representation of the test borings show an approximate boundary between soil types or rock. The transition between materials is approximate and is usually far more gradual than shown. Estimating excavation depths, soil volumes, and other computations relying on the subsurface strata may not be possible to any degree of accuracy.

## Water Level

WSB & Associates, Inc. took groundwater level readings in the exploratory borings, reviewed the data obtained, and discussed its interpretation of the data in the text of this report. The groundwater level may fluctuate due to seasonal variations caused by precipitation, snowmelt, rainfalls, construction or remediation activities, and/or other factors not evident at the time of measurement.

The actual determination of the subsurface water level is an interpretive process. Subsurface water level may not be accurately depicted by the levels indicated on the boring logs. Normally, a subsurface exploration obtains general information regarding subsurface features for design purposes. An accurate determination of subsurface water levels is not possible with a typical scope of work. The use of the subsurface water level information provided for estimating purposes or other site review can present a moderate to high risk of error.

The following information is obtained in the field and noted under "Water Level Measurements" at the bottom of the log.

| | |
|---|---|
| Sample Depth: | The lowest depth of soil sampling at the time a water level measurement is taken. |
| Casing Depth: | The depth to the bottom of the casing or hollow stem auger at the time of water level measurement. |
| Cave-in Depth: | The depth at which a measuring tape stops in the bore hole. |
| Water Level: | The point in the bore hole at which free-standing water is encountered by a measure device from the surface. |

## Obstruction Depths

Obstructions and/or obstruction depths may be noted on the boring logs. Obstruction indicates the sampling equipment encountered resistance to penetration. It must be realized that continuation of drilling, the use of other drilling equipment or further exploration may provide information other than that depicted on the logs. The correlation of obstruction depths on the log with construction features such as rock excavation, foundation depths, or buried debris cannot normally be determined with any degree of accuracy. For example, penetration of weathered rock by soil sampling equipment may not correlate with removal by certain types of construction equipment. Using this information for estimating purposes often results in a high degree of misinterpretation.

Accurately identifying the obstruction or estimating depths where hard rock is present over the site requires a scope of service beyond the normal geotechnical exploration program. The risk of using the information noted on the boring logs for estimating purposes must be understood.

# UNIFIED SOIL CLASSIFICATION SYSTEM

## UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

| | | | |
|---|---|---|---|
| COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.) | | | |
| **GRAVELS** More than 50% of coarse fraction larger than No. 4 sieve size | Clean Gravels (Less than 5% fines) | GW | Well-graded gravels, gravel-sand mixtures, little or no fines |
| | | GP | Poorly-graded gravels, gravel-sand mixtures, little or no fines |
| | Gravels with fines (More than 12% fines) | GM | Silty gravels, gravel-sand-silt mixtures |
| | | GC | Clayey gravels, gravel-sand-clay mixtures |
| **SANDS** 50% or more of coarse fraction smaller than No. 4 sieve size | Clean Sands (Less than 5% fines) | SW | Well-graded sands, gravelly sands, little or no fines |
| | | SP | Poorly graded sands, gravelly sands, little or no fines |
| | Sands with fines (More than 12% fines) | SM | Silty sands, sand-silt mixtures |
| | | SC | Clayey sands, sand-clay mixtures |
| FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.) | | | |
| **SILTS AND CLAYS** Liquid limit less than 50% | | ML | Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity |
| | | CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays |
| | | OL | Organic silts and organic silty clays of low plasticity |
| **SILTS AND CLAYS** Liquid limit 50% or greater | | MH | Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts |
| | | CH | Inorganic clays of high plasticity, fat clays |
| | | OH | Organic clays of medium to high plasticity, organic silts |
| **HIGHLY ORGANIC SOILS** | | PT | Peat and other highly organic soils |

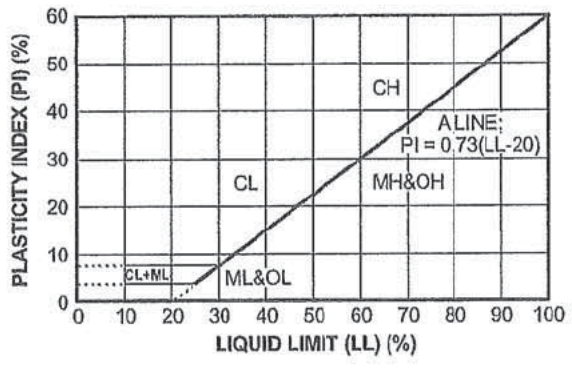
## LABORATORY CLASSIFICATION CRITERIA

| | | |
|---|---|---|
| GW | $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3 | |
| GP | Not meeting all gradation requirements for GW | |
| GM | Atterberg limits below "A" line or P.I. less than 4 | Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols |
| GC | Atterberg limits above "A" line with P.I. greater than 7 | |
| SW | $C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3 | |
| SP | Not meeting all gradation requirements for GW | |
| SM | Atterberg limits below "A" line or P.I. less than 4 | Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols. |
| SC | Atterberg limits above "A" line with P.I. greater than 7 | |

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

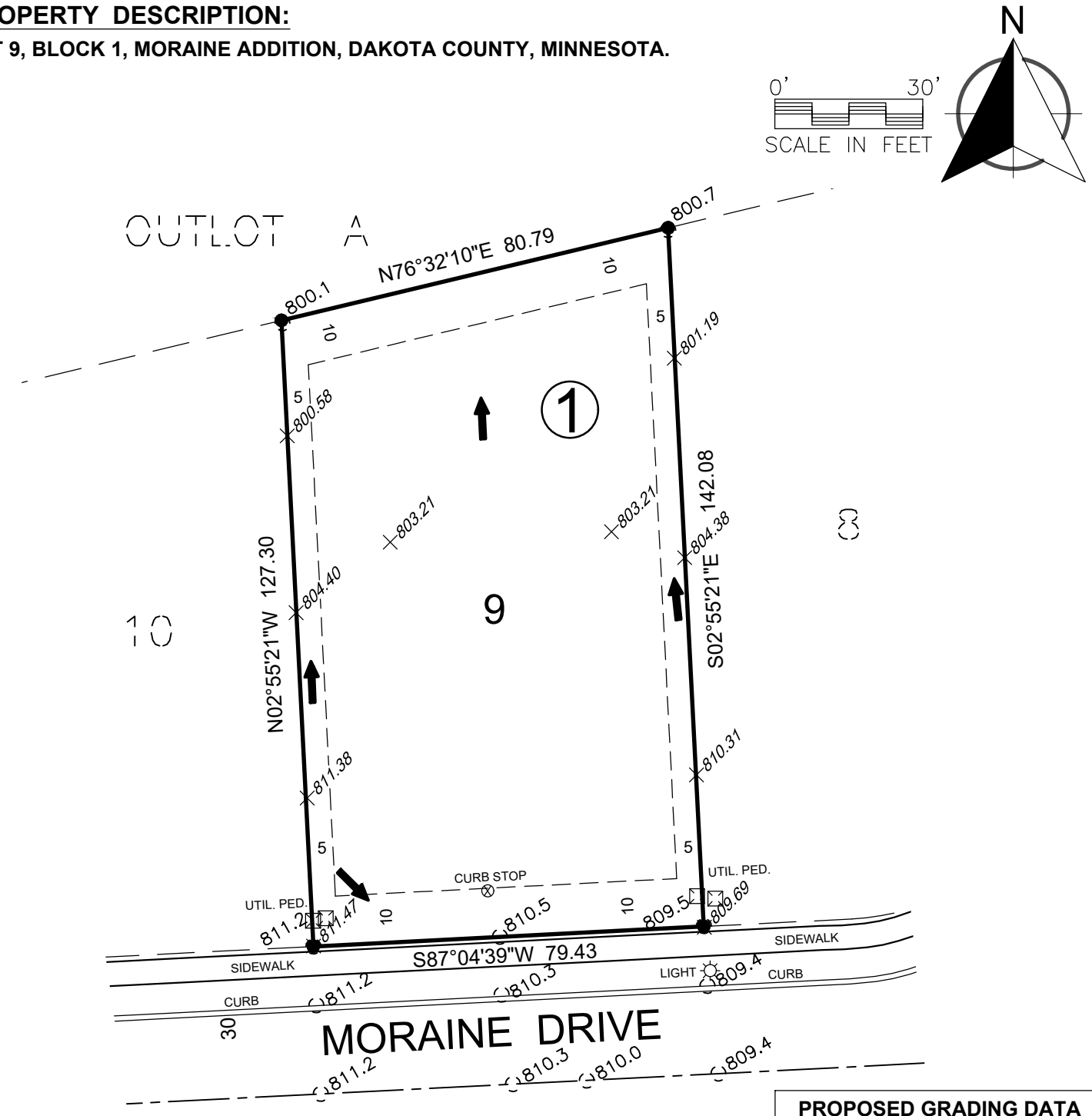
## PLASTICITY CHART



# CERTIFICATE OF SURVEY

## PROPERTY DESCRIPTION:

**LOT 9, BLOCK 1, MORAINE ADDITION, DAKOTA COUNTY, MINNESOTA.**




## LEGEND

- LOT CORNER (FOUND IRON MONUMENT)
- 808.3 = EXISTING SPOT ELEVATION
- = DRAINAGE & UTILITY EASEMENT

## PROPOSED GRADING DATA

**(PER APPROVED GRADING PLAN)**

*GFE: 811.71*
*WO*
*FFE: 812.01*
*LFE: 804.01*
*LOE: 804.01*

- DRAINAGE ARROW
- 811.47 SPOT ELEVATION

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

Jeffrey J. Rollson, P.S.
License No. 49003

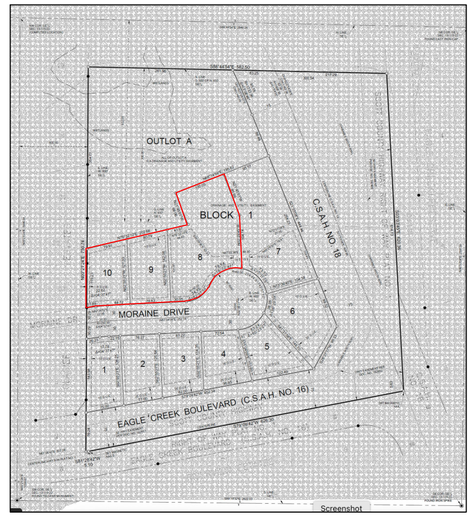
Date 07/07/2025

| | |
|---|---|
| CLIENT: SCOTT COUNTY CDA | |
| SCALE: 1" = 30' | DRAWN BY: JJR |
| DATE : 07/07/2025 | ACCT. NO. : 030980 |
| DWG: 030980 V-CT | |


3701 40th Avenue NW
Rochester, MN 55901
wsb
507-218-3745
www.wsbeng.com


1 A1.1 PHASE 1 SITE PLAN
SCALE 1"= 30'-0"

N




## SITE LOCATION - MORAINE ADDITION PHASE 1

DEVELOPMENT SITE IS AT THE INTERSECTION OF COUNTY ROAD 18 AND COUNTY ROAD 16 (EAGLE CREEK BOULEVARD) IN SHAKOPEE, MN. DEVELOPMENT IS AT LOTS 8 9, AND 10 AS INDICATED IN MAP ABOVE.

## APPLICABLE BUILDING CODES & STANDARDS

1. INTERNATIONAL RESIDENTIAL CODE (IRC) 2018 (2020 MINNESOTA STATE BUILDING CODE, CHAPTER 1305)
2. 2020 MINNESOTA ENERGY CODE (MN RULES CHAPTERS 1322 AND 1323))
3. 2023-2024 MN OVERLAY TO 2020 ENTERPRISE GREEN COMMUNITIES, NEW CONSTRUCTION STANDARDS
4. ENERGY STAR CERTIFICATION V3.1

## ENERGY AND ENVIRONMENTAL REQUIREMENTS

AT COMPLETION, PROJECT MUST MEET ENERGY STAR V3.1 REQUIREMENTS AS VERIFIED BY THIRD PARTY RATER. BOTH GENERAL CONTRACTOR AND HVAC CONTRACTOR MUST BE ENERGY STAR CERTIFIED TO WORK ON THIS PROJECT PER ENERGY STAR REQUIREMENTS. ALL PARTS OF THE ESV3.1 CHECKLISTS NEED TO BE REVIEWED BY THE CONTRACTOR AND HVAC INSTALLER TO ASSURE ALL REQUIREMENTS WILL BE MET.

INSPECTIONS BY AN ENERGY STAR RATER WILL BE REQUIRED DURING THE CONSTRUCTION PROCESS AS WELL AS AT COMPLETION OF THE WORK.

1. 2023-24 MINNESOTA GREEN COMMUNITIES OVERLAY TO NEW CONSTRUCTION ENTERPRISE STANDARDS, 2020.

**AIR TIGHT CONSTRUCTION**
AT COMPLETION, THE BLOWER DOOR TEST SHOULD REACH A MAX AIR CHANGE OF 2.0 ACH50. NOTE: THIS IS AN INCREASE FROM THE CODE REQUIREMENT OF 3.0 ACH50.

**LIGHTING AND APPLIANCES**
ALL APPLIANCES MUST BE ENERGY STAR RATED.
ALL LIGHTING FIXTURES MUST USE HIGH EFFICIENCY LED BULBS.

**SEE ALSO PLUMBING AND MECHANICAL SPECIFICATIONS**
FOR WATER USAGE LIMITS AND EQUIPMENT EFFICIENCY REQUIREMENTS.

## LIST OF ARCHITECTURAL DRAWINGS



ARCHITECTURAL DRAWINGS TO BE USED IN CONJUNCTION WITH WRITTEN SPECIFICATIONS , SURVEY, EXISTING GRADING, UTILIITY AND PLAT DRAWINGS, GEOTECHNICAL REPORT, AND STRUCTURAL DRAWINGS/NOTES

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

REGISTRATION:

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

PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

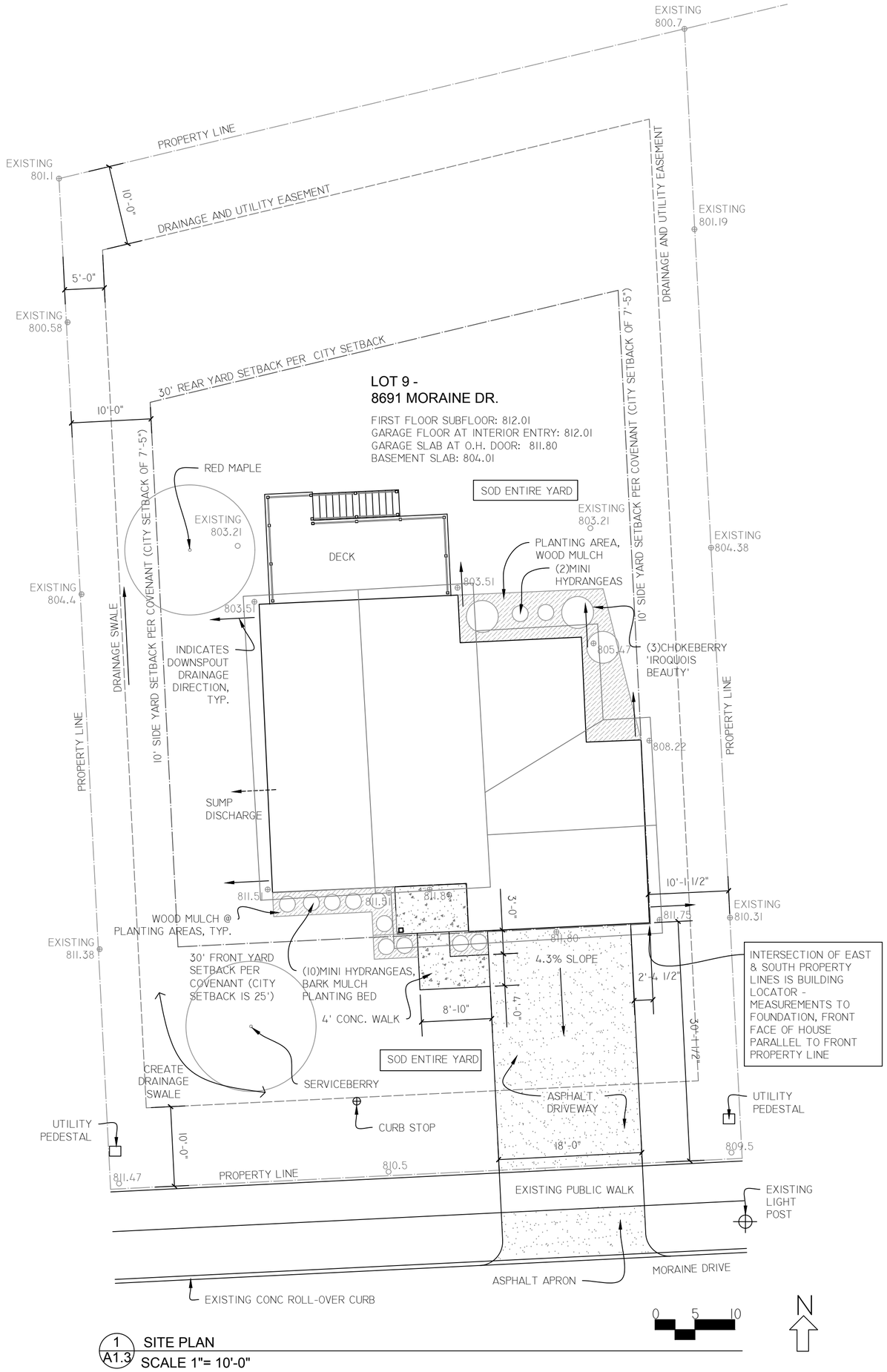
DRAWING TITLE
PHASE 1 SITE PLAN

DRAWING SCALE
1" = 30'-0"

PHASE
CD

DRAWING NO.
A1.1

DATE:
7/10/25




1 A1.3 SITE PLAN
SCALE 1"= 10'-0"

## PROPERTY INFORMATION

R-IB, URBAN RESIDENTIAL ZONE

LOT AREA 10,690 SF (VERIFY W/ SURVEY)
GROSS BUILDING AREA:
DWELLING AREA 2,012 SF
GARAGE 529 SF

COVENANT SETBACKS MORE RESTRICTIVE THAN CITY ZONING, FOLLOW PER DRAWING

MAX HEIGHT 35'

MAXIMUM IMPERVIOUS SURFACE AREA OF 50% OF THE LOT AREA;
ACTUAL IS 22%
BUILDING FOOTPRINT - 1,621 SF
PAVING - 712 SF

WINDOWS AREA REQUIREMENTS:
1. FACADES, WHETHER THE FRONT OR REAR OF THE BUILDING THAT FACE A STREET OR PRIVATE DRIVE: AT LEAST 10% OF THE BUILDING FACADE
2. ALL OTHER SIDES OF THE BUILDING: AT LEAST 5% OF THE FACADE AS WINDOWS
3. OVERHEAD GARAGE DOORS AND OTHER EXTERIOR DOORS ARE INCLUDED IN THE CALCULATIONS FOR BUILDINGS UP TO SIX UNITS.

DECKS LOCATED IN THE URBAN RESIDENTIAL (R-IB), WHICH EXCEED 5 FEET IN HEIGHT, SHALL BE ALLOWED TO BE LOCATED 10 FEET CLOSER TO THE REAR PROPERTY LINE THAN IS REQUIRED BY THE DESIGN STANDARDS OF THE ZONING DISTRICT IN WHICH THE DECK IS LOCATED. DOUBLE FRONTAGE LOTS (LOTS WITH FRONTAGE ON 2 PARALLEL STREETS), SHALL BE EXCLUDED FROM THIS PROVISION DUE TO THE ADDITIONAL DEPTH REQUIRED OF THESE LOTS.

## UTILITY WORK

1. EXACT LOCATION AND DEPTH OF EXISTING UTILITIES MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND MAINTAIN THE SERVICES OF ANY UTILITY LINES ENCOUNTERED IN THE PROGRESS OF THE WORK. SEE SITE DEVELOPMENT UTILITY PLAN.
2. INSTALL SEPARATE 1" WATER SUPPLY LINE TO EACH UNIT WITH METER IN EACH UNIT PER PLAN.
3. CONNECT EACH UNIT TO SANITARY SEWER WITH SEPARATE LINES.
4. INSTALL GAS LINE TO EACH UNIT WITH EXTERIOR METER AT EACH UNIT.
5. CONNECT UNDERGROUND ELECTRICAL SERVICE TO EACH UNIT.
6. CONNECT BROADBAND SERVICE LOCATED IN STREET TO EACH UNIT.
7. ANY EXISTING CONCRETE INFRASTRUCTURE IN THE PUBLIC RIGHT OF WAY, INCLUDING BUT NOT LIMITED TO PUBLIC SIDEWALKS, CURB AND GUTTER THAT IS DAMAGED DURING THE TIME OF CONSTRUCTION, MUST BE REMOVED AND REPLACED PER THE CITY OF SHAKOPEE STANDARD PLATES.

DEVELOPER:

SCOTT COUNTY CDA
COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

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PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

DRAWING TITLE
SITE PLAN

DRAWING SCALE
1" = 10'-0"

PHASE
CD

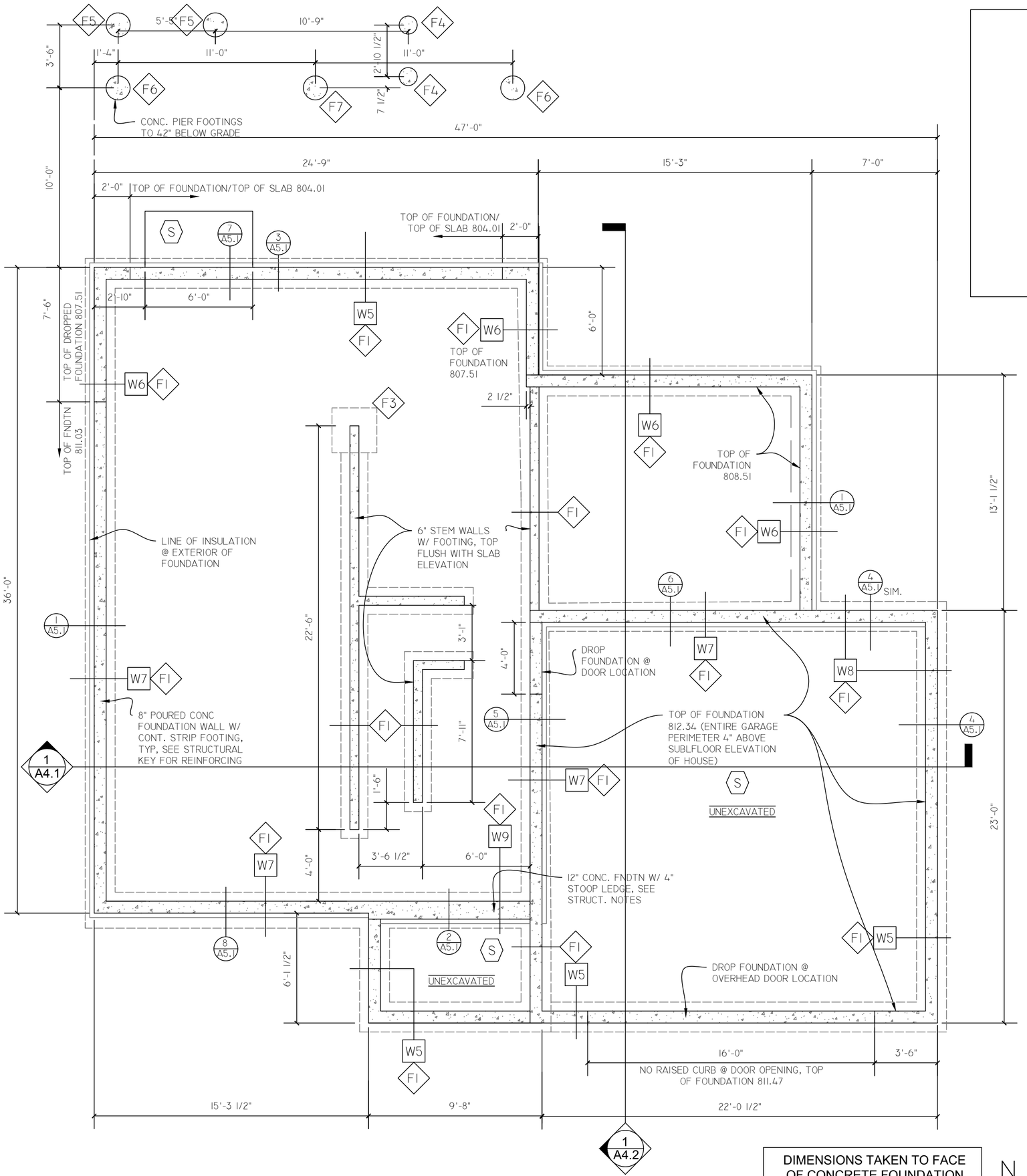
DRAWING NO.
A1.2

DATE:
7/10/25

## STRUCTURAL DESIGN KEY

**NOTE: SEE ALSO STRUCTURAL NOTES AND DETAILS (S1 & S2)

- W5 — 8" POURED CONC. FOUNDATION WALL W/ #4's VERTICAL @ 3'-0 AND #4's HORIZONTAL @ 2'-0" O.C., MIN.
- W6 — 8" POURED CONC. FOUNDATION HALF WALL W/ #4's VERTICAL @ 18" O.C. AND #4's HORIZONTAL @ 2'-0" O.C., MIN. (OFFSET TO OUTSIDE FACE, TYP.)
- W7 — 8" POURED CONC. FOUNDATION WALL W/ #4's VERTICAL @ 18" O.C. AND #4's HORIZONTAL @ 2'-0" O.C., MIN. (OFFSET TO INSIDE FACE, TYP.)
- W8 — 8" POURED CONC. FOUNDATION WALL W/ #4's VERTICAL @ 18" O.C. AND #4's HORIZONTAL @ 2'-0" O.C., MIN. (OFFSET TO OUTSIDE FACE, TYP.)
- W9 — 12" POURED FOUNDATION WALL W/ #4'S VERTICAL @ 18" O.C. AND #4'S HORIZONTAL @ 2'-0" O.C., MIN; (OFFSET TO INSIDE FACE, TYP.)
- S — 4" REINFORCED CONC. SLAB W/ #4s @ 24" O.C. EA. WAY W/ #4 x 2'-0" x 2'-0" WALL DOWELS TO MATCH, TYP.
- F1 — 20" x 8" CONC. STRIP FOOTING W/ (2) #4's CONT. , MIN.
- F2 — NOT USED.
- F3 — 2'-6" x 2'-6" x 1'-0" CONC. PAD FTG. W/ (3) #4s EA. WAY, MIN.
- F4 — 8" CONC. CAISSON W/ (1) #4 VERT., MIN.
- F5 — 12" CONC. CAISSON W/ (1) #4 VERT., MIN.
- F6 — 12" CONC. CAISSON W/ (1) #4 VERT. BELLED OUT TO 16"Ø @ BASE, MIN.
- F7 — 12" CONC. CAISSON W/ (1) #4 VERT BELLED OT TO 24"Ø @ BASE, MIN.




1 A2.1 FOUNDATION PLAN
SCALE 1/4" = 1'-0"

DIMENSIONS TAKEN TO FACE OF CONCRETE FOUNDATION UNLESS INDICATED OTHERWISE.

N

1 2 4

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

REGISTRATION:

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

PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE:
PRINTED NAME: Derek O Phillips
DATE: 7/9/25 REG. NO.: 47507
SAFE HAVEN SE PROJ. #: 25352

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

DRAWING TITLE
FOUNDATION PLAN

DRAWING SCALE
1/4" = 1'-0"

PHASE
CD

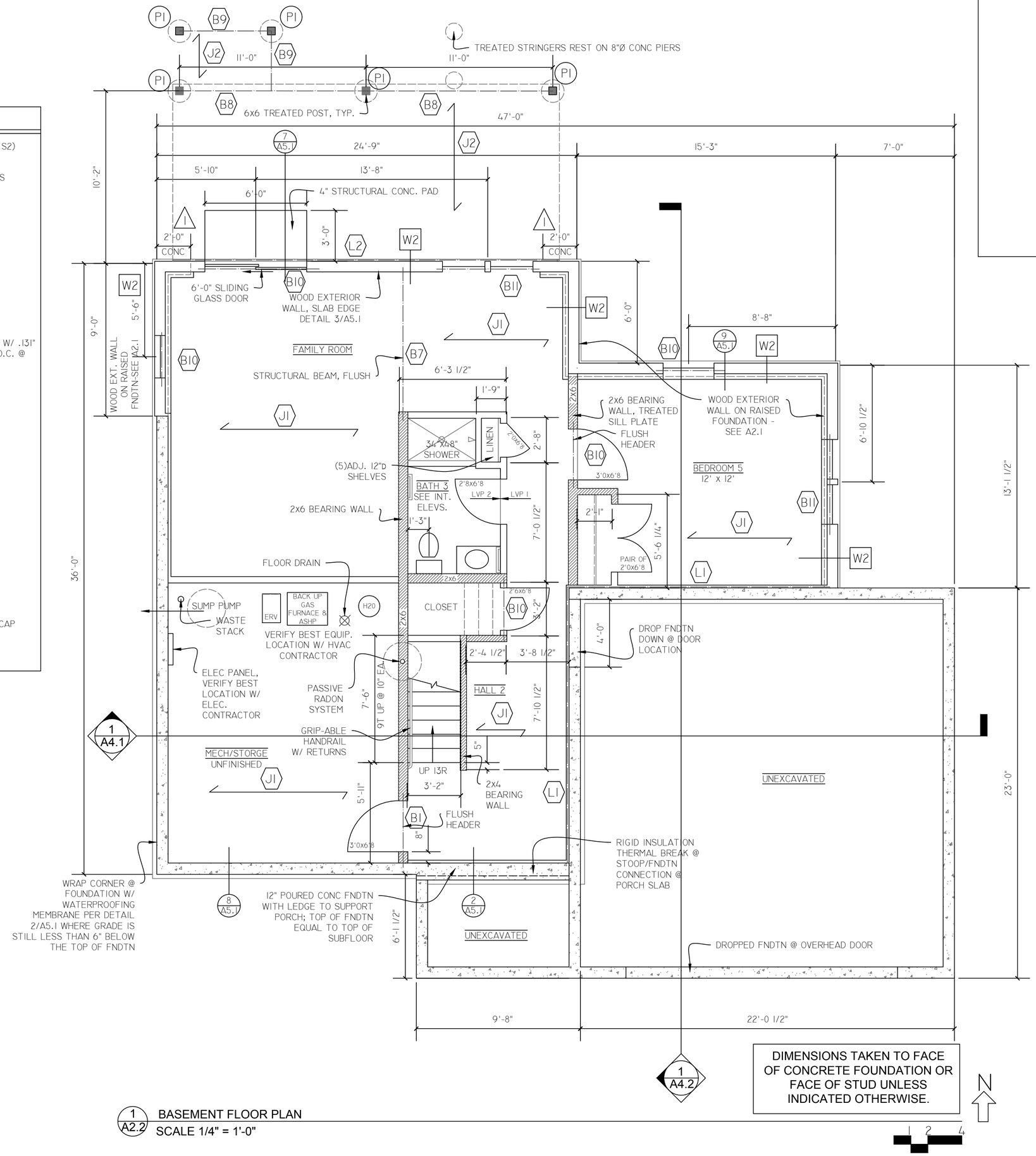
DRAWING NO.
A2.1

DATE:
7/10/25

## STRUCTURAL DESIGN KEY

**NOTE: SEE ALSO STRUCTURAL NOTES AND DETAILS (S1 & S2)

- J1 — 2x10s @ 16" O.C., MIN.; SIMPSON LUS210 F.M. HANGERS (OR EQUAL)
- J2 — TREATED 2x8s @ 16" O.C., MIN.; SIMPSON LUS28 F.M. HANGERS (OR EQUAL)
- L1 — TREATED 2x10 LEDGER FASTENED TO CONC. FNDTN WALL W/ ½" x 3" CONC. BLUE SCREWS @ 8" O.C. STAGGERED, MIN. (OR EQUAL)
- L2 — TREATED 2x8 LEDGER FASTENED TO RIM W/ 2 ROWS LEDGERLOKS AT 16" O.C,, MIN. (OR EQUAL)
- W2 — 2x6'S @ 16" O.C. W/ 1.5" ZIP-R SHEATHING FASTENED W/ .131" RING SHANK NAILS @ 3" O.C. ALONG EDGES AND 12" O.C. @ INTERIM SUPPORTS, MIN. (TYP. @ 1ST FL. EXT. WALL)
- B7 — (3) 1 ¾" x 9 ¼" 1.8E LVLs (FLUSH) [3J]
- B8 — TREATED (3) 2x10s (FLUSH)
- B9 — TREATED (2) 2x8s (FLUSH); SIMPSON LUS28-2 F.M. HANGER (OR EQUAL)
- B10 — (2)-2x10 (FLUSH) [2J]
- B11 — (2)-2x10 x CONT. (FLUSH) [2J W 2J @ INT]
- 1 — SIMPSON DTT2Z DECK TIE (OR EQUAL)
- P1 — TREATED 6x6 WOOD POST W/ SIMPSON LPC6Z POST CAP AND ABA66Z POST BASE (OR EQUAL)




1 / A2.2 BASEMENT FLOOR PLAN
SCALE 1/4" = 1'-0"

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

REGISTRATION:

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

PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE:
PRINTED NAME: Derek O Phillips
DATE: 7/9/25 REG. NO.: 47507
SAFE HAVEN SE PROJ. #: 25352

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

DRAWING TITLE
FINISHED BASEMENT FLOOR PLAN

DRAWING SCALE
¼" = 1'-0"

PHASE CD

DRAWING NO. A2.2

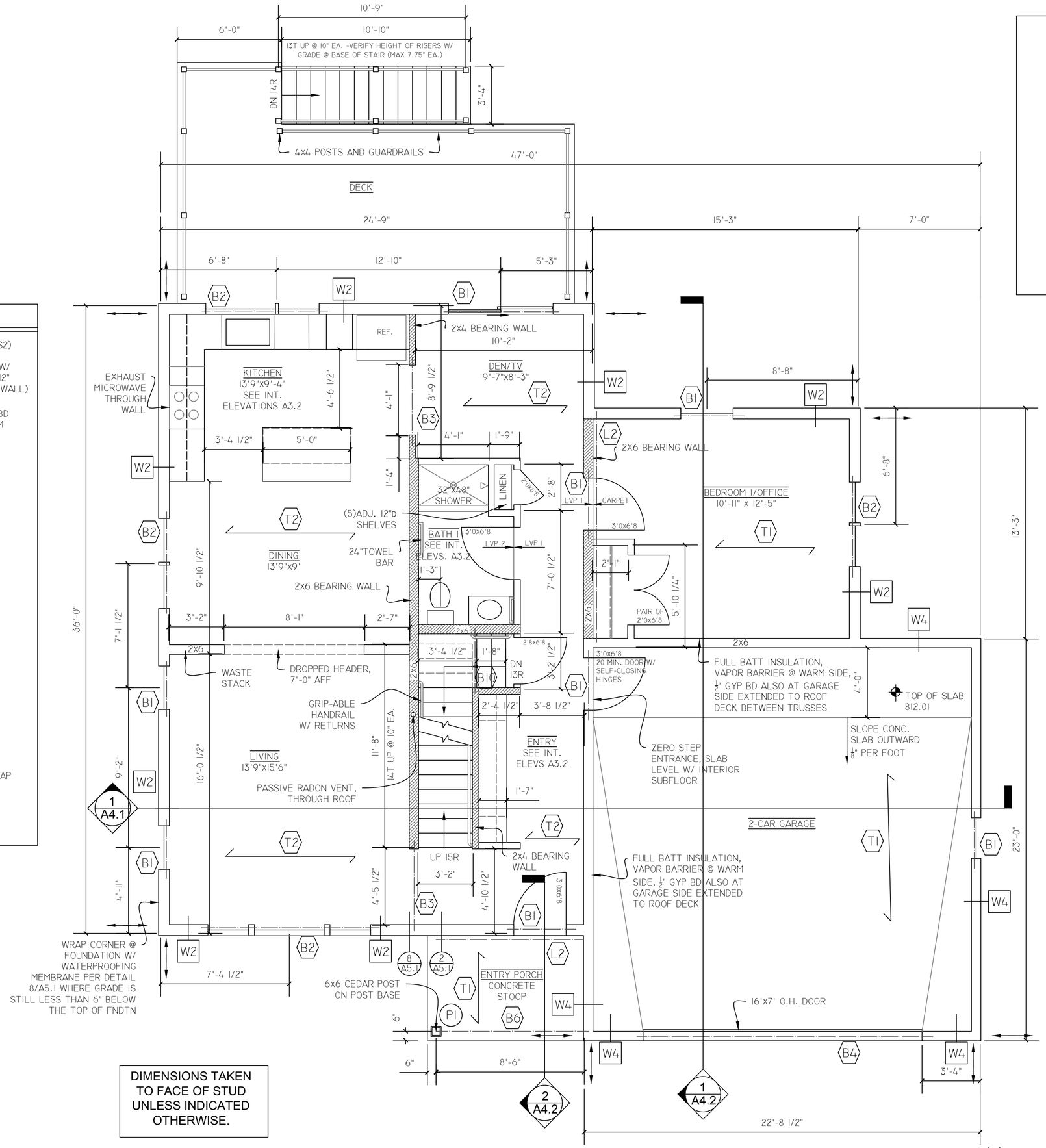
DATE: 7/10/25

## STRUCTURAL DESIGN KEY

**NOTE: SEE ALSO STRUCTURAL NOTES AND DETAILS (S1 & S2)

- W2 — 2x6'S @ 16" O.C. W/ 1.5" ZIP-R SHEATHING FASTENED W/ .131" RING SHANK NAILS @ 3" O.C. ALONG EDGES AND 12" O.C. @ INTERIM SUPPORTS, MIN. (TYP. @ 1ST FL. EXT. WALL)
- W4 — 2x6S @ 16" O.C. W/ 1/2 ZIP SHEATHING FASTENED W/ 8D NAILS @ 6" O.C. ALONG EDGES AND 12" O.C. @ INTERIM SUPPORTS, MIN.
- B1 — (2)-2X10 [1J/1K]
- B2 — (2)-2X10 x CONT. [1J/2K W 2J @ INT]
- B3 — (2)-2X10 (FLUSH) [2J]
- B4 — (2) 1 3/4" x 16" 1.8E LVLS (FLUSH) [3J/3K]
- B6 — (3)-2X10 (DROPPED)
- B10 — (2)-2X10 (LFLUSH) [2J]
- T1 — ROOF TRUSSES 24" O.C.
- T2 — 18" FLOOR TRUSSES PER MFGR. DESIGN
- L2 — TREATED 2x8 LEDGER FASTENED TO RIM W/ 2 ROWS LEDGERLOKS AT 16" O.C.,, MIN. (OR EQUAL)
- P1 — TREATED 6x6 WOOD POST W/ SIMPSON LPC6Z POST CAP AND ABA66Z POST BASE (OR EQUAL)

INDICATES SHEAR WALL LOCATION




DIMENSIONS TAKEN TO FACE OF STUD UNLESS INDICATED OTHERWISE.

1 A2.3 FIRST FLOOR PLAN
SCALE 1/4" = 1'-0"

N

1 2 4

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

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DATE: 7/9/25 REG. NO.: 47507
SAFE HAVEN SE PROJ. #: 25352

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

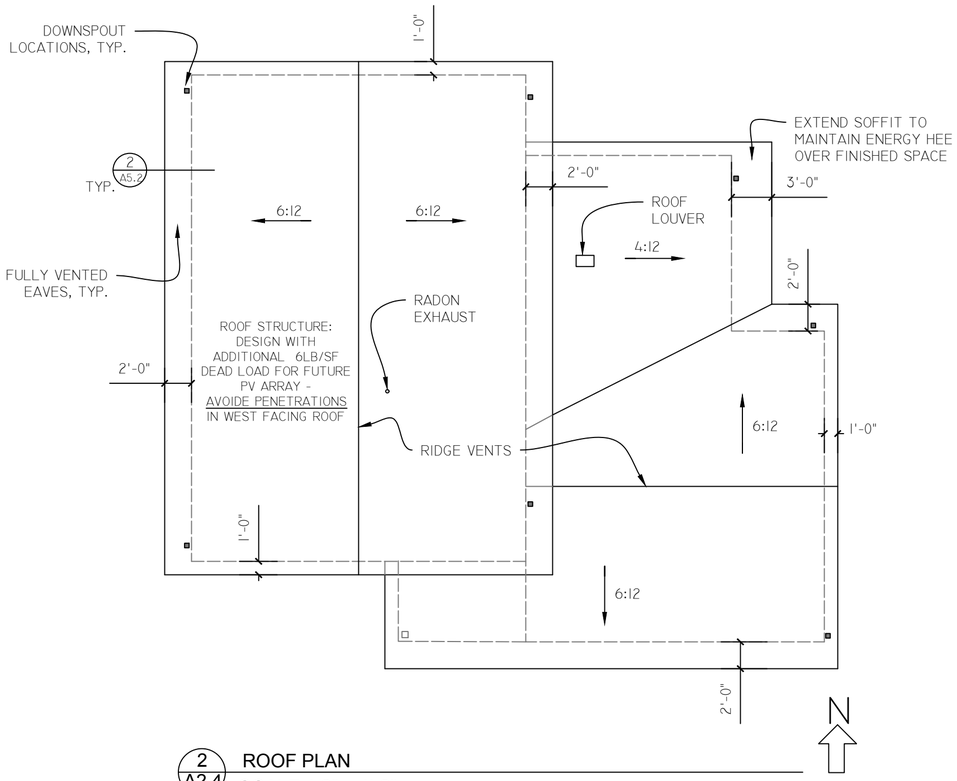
DRAWING TITLE
FIRST FLOOR PLAN

DRAWING SCALE
1/4" = 1'-0"

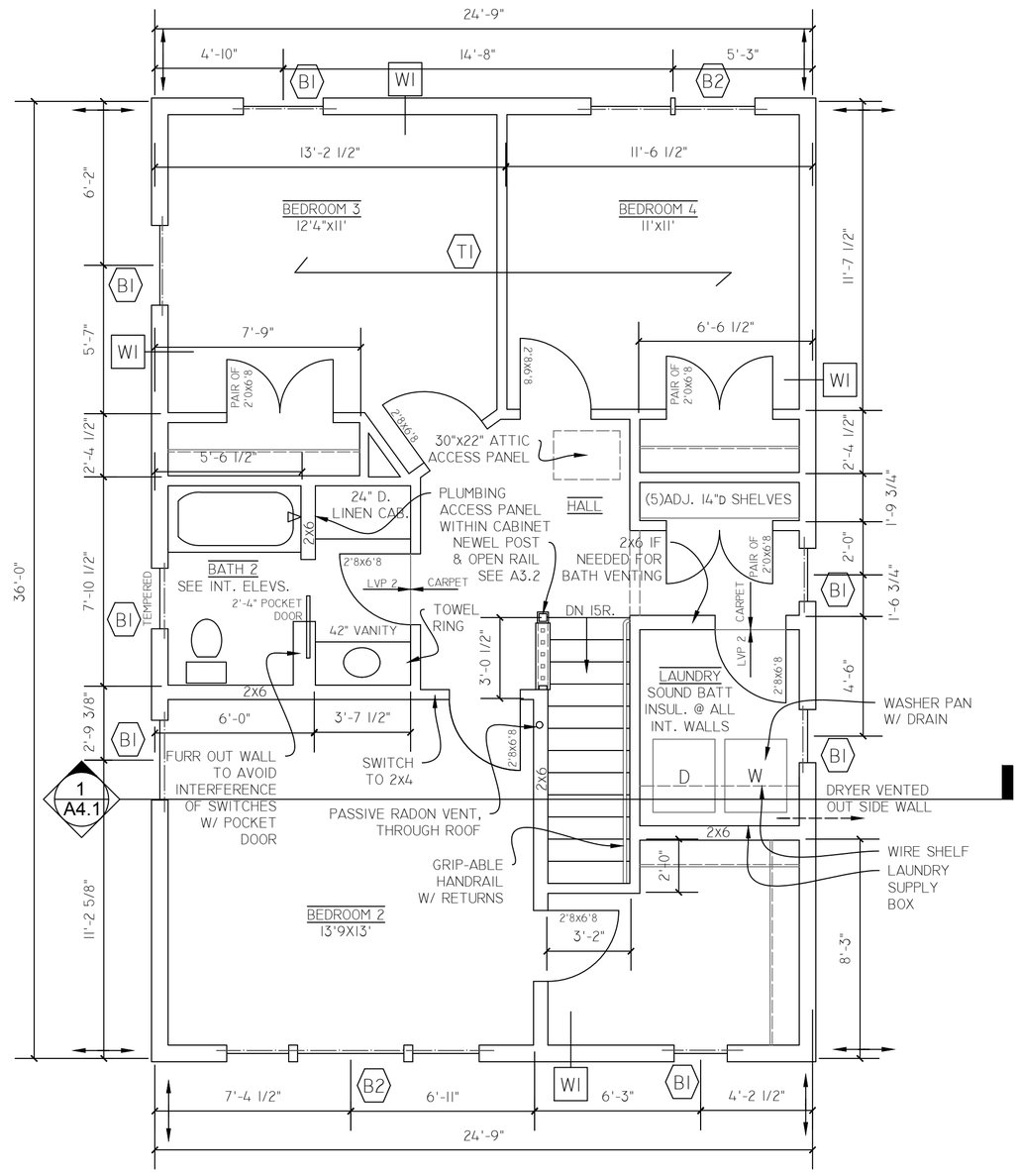
PHASE
CD

DRAWING NO.
A2.3

DATE:
7/10/25




2 A2.4 ROOF PLAN
SCALE 1/8" = 1'-0"




## STRUCTURAL DESIGN KEY

**NOTE: SEE ALSO STRUCTURAL NOTES AND DETAILS (S1 & S2)

- W1 — 2x6'S @ 16" O.C. W/ 1.5" ZIP-R SHEATHING FASTENED W/ .131" RING SHANK NAILS @ 4" O.C. ALONG EDGES AND 12" O.C. @ INTERIM SUPPORTS, MIN. (TYP. @ 2ND FL. EXT. WALL)
- B1 — (2)-2X10 [1J/1K]
- B2 — (2)-2X10 x CONT. [1J/2K W 2J @ INT]
- T1 — ROOF TRUSSES 24" O.C.
- INDICATES SHEAR WALL LOCATION

DIMENSIONS TAKEN TO FACE OF STUD UNLESS INDICATED OTHERWISE.

1 A2.4 SECOND FLOOR PLAN
SCALE 1/4" = 1'-0"

N

1 2 4

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

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SIGNATURE:
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SAFE HAVEN SE PROJ. #: 25352

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

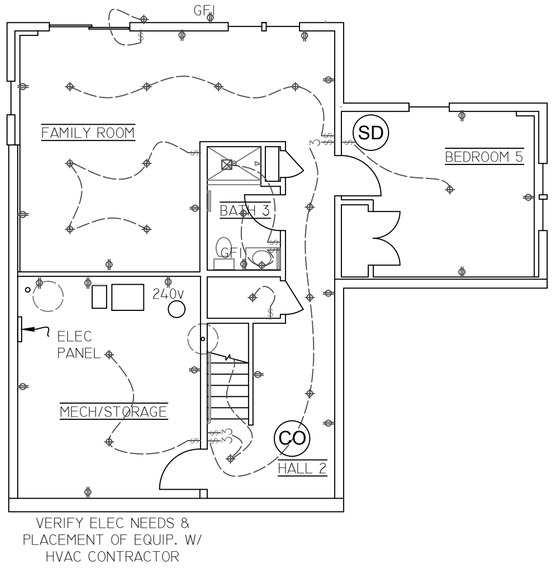
DRAWING TITLE
SECOND FLOOR PLAN AND ROOF PLAN

DRAWING SCALE
1/4" = 1'-0"

PHASE
CD

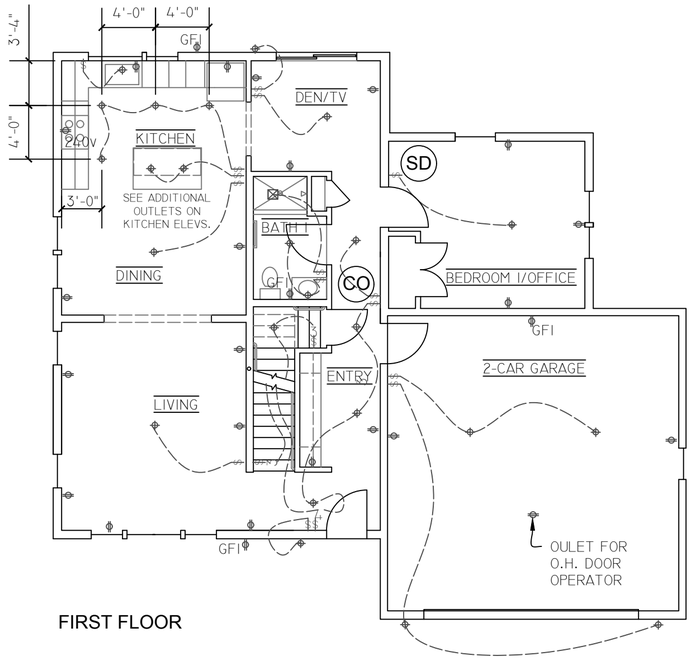
DRAWING NO.
A2.4

DATE:
7/10/25

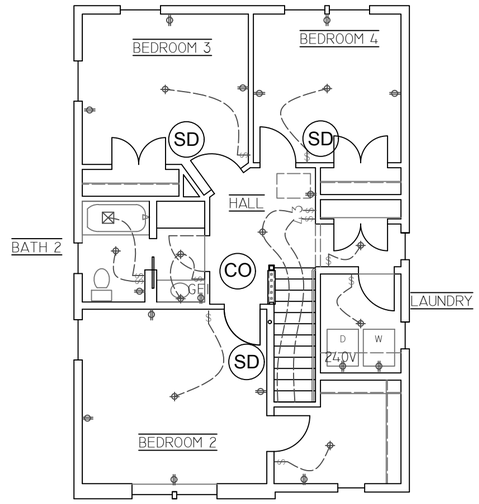



VERIFY ELEC NEEDS & PLACEMENT OF EQUIP. W/ HVAC CONTRACTOR

BASEMENT




FIRST FLOOR




SECOND FLOOR

1 A2.5 ELECTRICAL LAYOUT *ELECTRICIAN TO VERIFY LAYOUT MEETS CODE.

SCALE 1/8" = 1'-0"

## ELECTRICAL NOTES

1. ELECTRICIAN TO VERIFY THAT FINAL LAYOUT MEETS CODE REQUIREMENTS.
2. (SD) INDICATES SMOKE DETECTOR, CO INDICATES COMBINATION CARBON MONOXIDE/SMOKE DETECTOR. DETECTORS TO BE HARDWIRED AND INTERCONNECTED.
3. SEE INTERIOR ELEVATIONS FOR CLARIFICATION REGARDING OUTLET PLACEMENT.
4. SEE WRITTEN SPECIFICATIONS FOR LIGHT FIXTURE SCHEDULE.
5. COORDINATE ELECTRICAL NEEDS FOR MECHANICAL EQUIPMENT WITH MECHANICAL SUB-CONTRACTOR.
6. INCLUDE OUTLET IN THE ATTIC TO ACTIVATE FAN FOR RADON SYSTEM IF NEEDED.

DEVELOPER:

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SIGNATURE:

DATE: JULY 10, 2025

MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

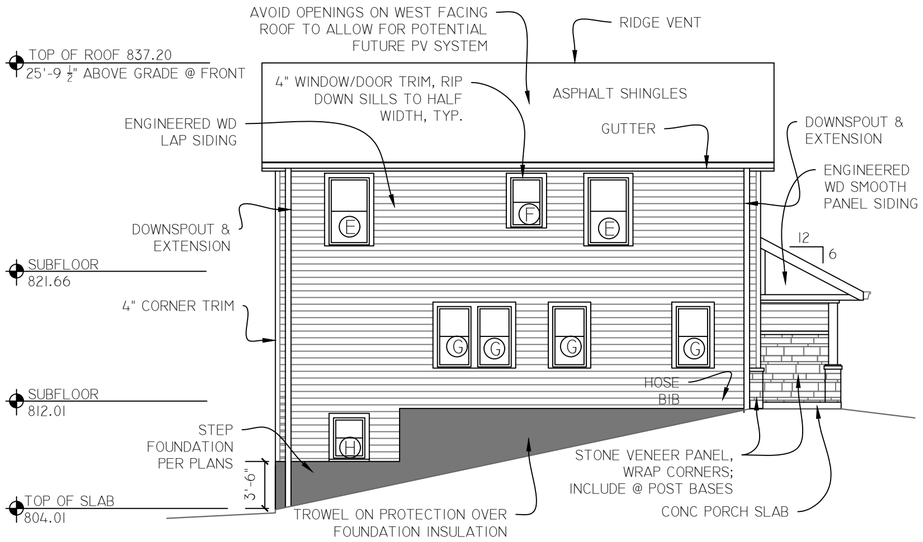
DRAWING TITLE
ELECTRICAL LAYOUTS

DRAWING SCALE
1/4" = 1'-0"

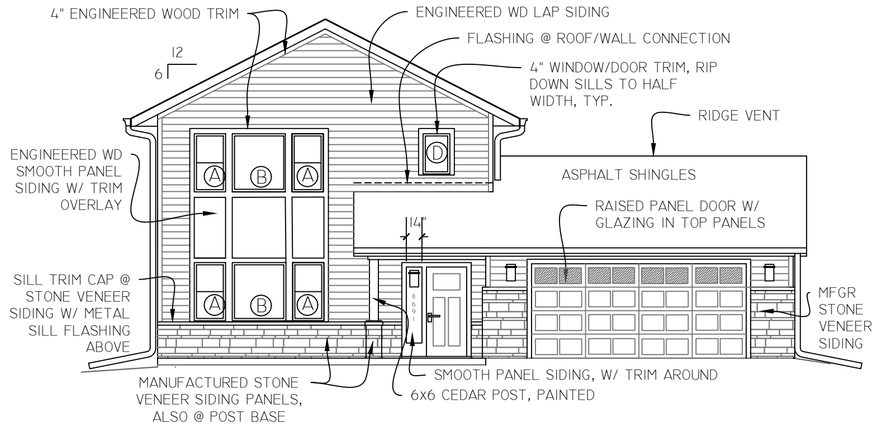
PHASE
CD

DATE:
7/10/25

DRAWING NO.
A2.5

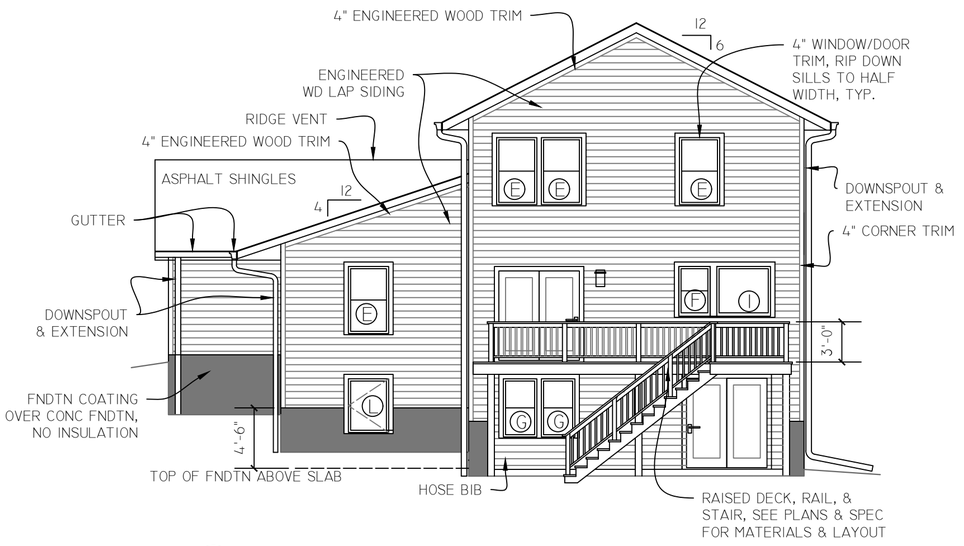



2 A3.1 WEST ELEVATION
SCALE 1/8" = 1'-0"

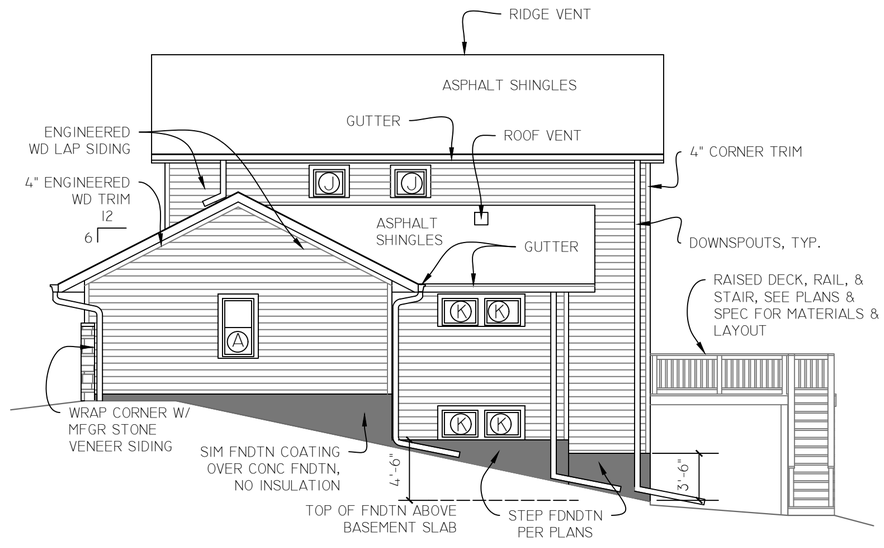



1 A3.1 SOUTH ELEVATION
SCALE 1/8" = 1'-0"

NOTE: SEE APPENDIX A IN WRITTEN SPECIFICATIONS FOR COLOR SELECTIONS. NOTE IN PARTICULAR VARYING COLOR SELECTIONS FOR DIFFERENT TRIM LOCATIONS.




4 A3.1 NORTH ELEVATION
SCALE 1/8" = 1'-0"




3 A3.1 EAST ELEVATION
SCALE 1/8" = 1'-0"

## WINDOW SCHEDULE

| | TYPE | SIZE | COMMENTS |
|---|---|---|---|
| Ⓐ | SINGLE-HUNG | 28"X52" | |
| Ⓑ | FIXED | 48"x52" | |
| Ⓒ | NOT USED | | |
| Ⓓ | FIXED | 24"X36" | |
| Ⓔ | SINGLE-HUNG | 36"x60" | **EGRESS |
| Ⓕ | SINGLE-HUNG | 28"x44" | TEMPERED @ BATH LOCATION |
| Ⓖ | SINGLE-HUNG | 30"x52" | |
| Ⓗ | SINGLE-HUNG | 28"x36" | |
| Ⓘ | FIXED | 48"X44" | |
| Ⓙ | AWNING | 28"x24" | |
| Ⓚ | AWNING | 32"x24" | |
| Ⓛ | CASEMENT | 36"x48" | **EGRESS |

GENERAL WINDOW NOTES:

1. WINDOWS TO BE VINYL, NEW CONSTRUCTION WINDOWS W/ NAILING FLANGES. ALL WINDOWS SHALL HAVE A U VALUE OF 0.27.
2. ALL WINDOWS AT WHICH THE SILL IS LESS THAN 36" FROM THE FINISHED FLOOR AND GREATER THAN 6'-0" ABOVE GRADE TO INCLUDE FALL PROTECTION/SASH LIMITER HARDWARE.
3. CONTRACTOR TO PROVIDE FULL SHOP DRAWINGS FOR REVIEW. VERIFY ALL EXACT SIZES AND QUANTITIES.

GLAZING AREAS AS PERCENTAGE OF EXTERIOR WALL

1. EAST ELEVATION: WINDOW AREA IS 6% (608 SF TOTAL WALL AREA)
   - 1.1. BASEMENT - 111 SF WALL AREA, 10.4 SF WINDOW AREA
   - 1.2. FIRST FLOOR - 342 SF WALL AREA INCLUDING GARAGE, 20.7 SF WINDOW AREA
   - 1.3. SECOND FLOOR -155 SF WALL AREA, 4.6 SF WINDOW AREA
2. SOUTH ELEVATION - WINDOW AREA IS 14.5% (TOTAL 576 SF WALL AREA)
   - 2.1. FIRST FLOOR - 380 SF WALL AREA INCLUDING GARAGE, 40 SF WINDOW AREA W/ DOOR
   - 2.2. SECOND FLOOR - 196 SF WALL AREA, 43.3 SF WINDOW AREA
3. WEST ELEVATION - WINDOW AREA 12.6% (TOTAL 704 SF WALL AREA
   - 3.1. BASEMENT - 94 SF WALL AREA, 7 SF WINDOW AREA
   - 3.2. FIRST FLOOR - 326 SF WALL AREA INCLUDING GARAGE, 43.2 SF WINDOW AREA
   - 3.3. SECOND FLOOR - 284 SF WALL AREA, 38.5 SF WINDOW AREA
4. NORTH ELEVATION - WINDOW AREA 17% (TOTAL 815 SF WALL AREA)
   - 4.1. BASEMENT - 245 SF OF WALL AREA, 55.6 SF WINDOW AREA INCLUDING PATIO DOORS
   - 4.2. FIRST FLOOR - 376 SF OF WALL AREA INCLUDING GARAGE, 38.4 SF WINDOW AREA
   - 4.3. SECOND FLOOR - 194 SF WALL AREA, 45 SF WINDOW AREA

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

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MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

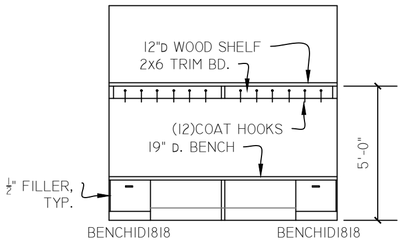
DRAWING TITLE
EXTERIOR ELEVATIONS AND WINDOW SCHEDULE

DRAWING SCALE
1/8" = 1'-0"

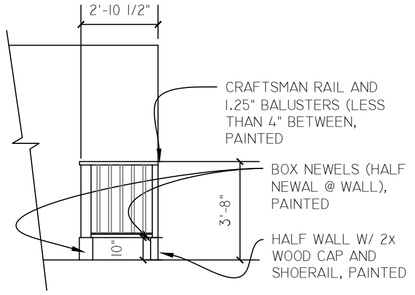
PHASE
CD

DATE:
7/10/25

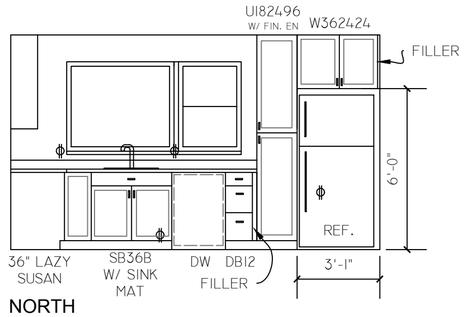
DRAWING NO.
A3.1



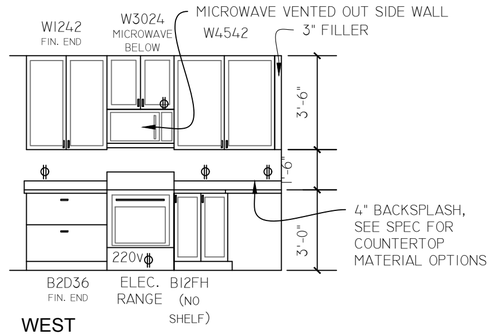

4 A3.2 ENTRY ELEVATION
SCALE 1/4" = 1'-0"



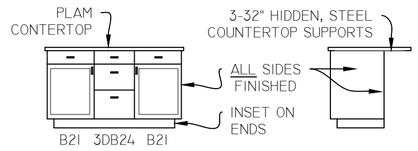

5 A3.2 STAIR RAIL ELEVATION
SCALE 1/4" = 1'-0"




NORTH

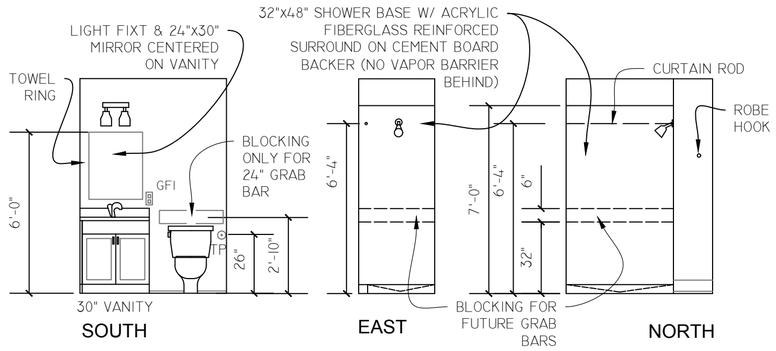



WEST

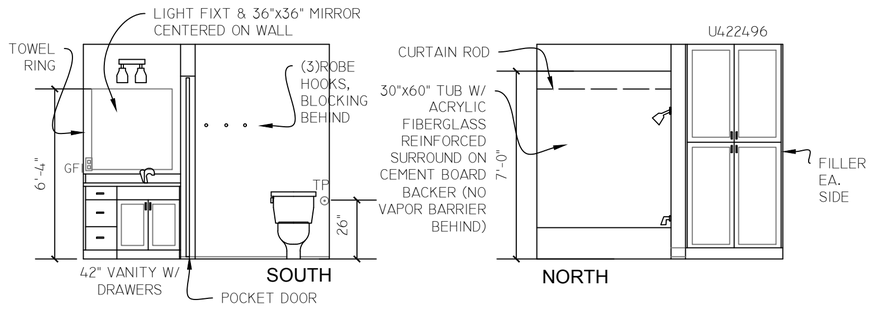



ISLAND (KITCHEN FACING)

1 A3.2 KITCHEN ELEVATIONS
SCALE 1/4" = 1'-0"




2 A3.2 BATH 1 AND 3 ELEVATIONS - SAME LAYOUT @ EACH
SCALE 1/4" = 1'-0"




3 A3.2 BATH 2 ELEVATIONS
SCALE 1/4" = 1'-0"

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

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PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

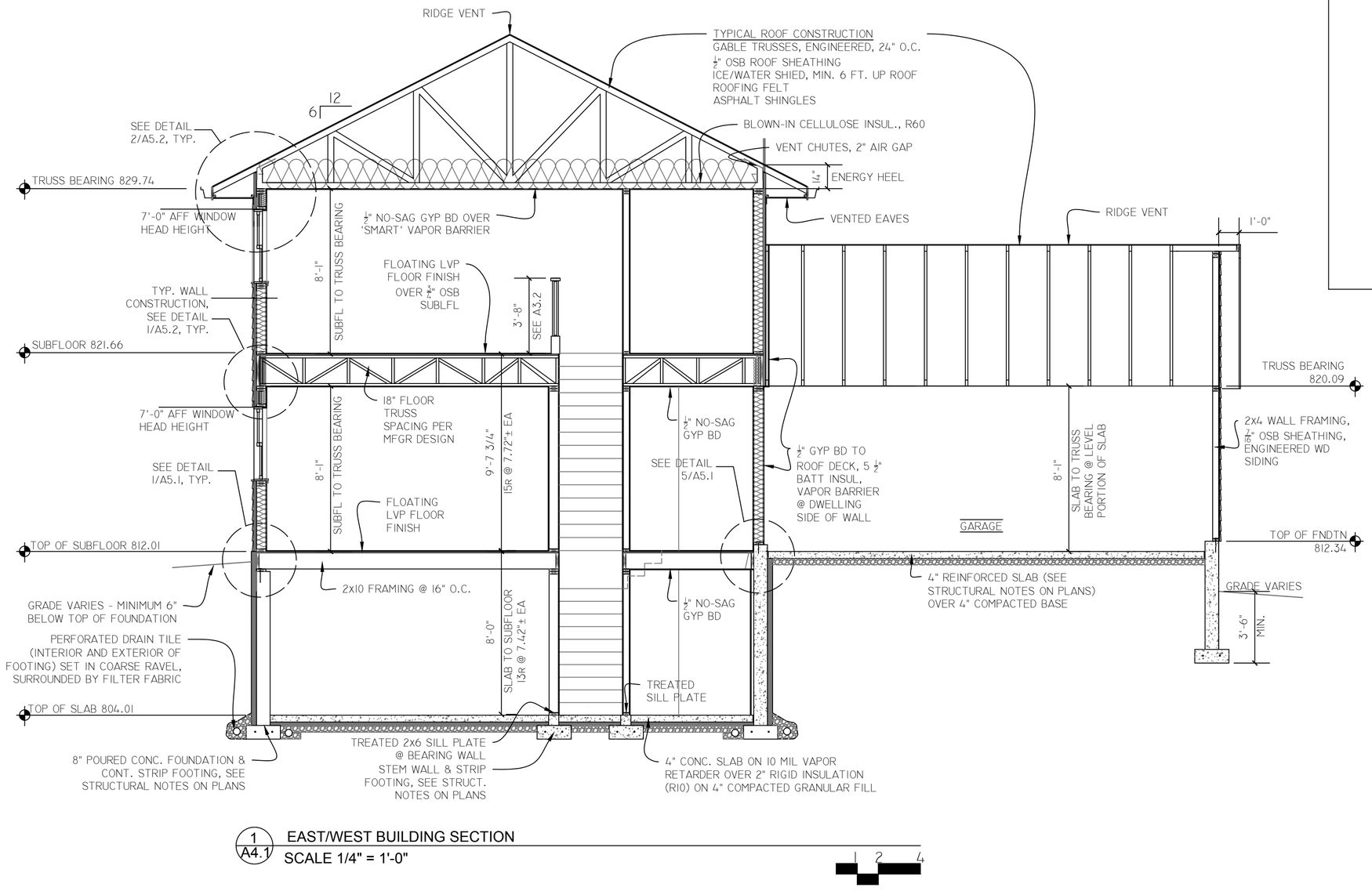
DRAWING TITLE
INTERIOR ELEVATIONS

DRAWING SCALE
1/4" = 1'-0"

PHASE
CD

DRAWING NO.
A3.2

DATE:
7/10/25




1 / A4.1 EAST/WEST BUILDING SECTION

SCALE 1/4" = 1'-0"

1 2 4

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

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DATE: JULY 10, 2025

MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

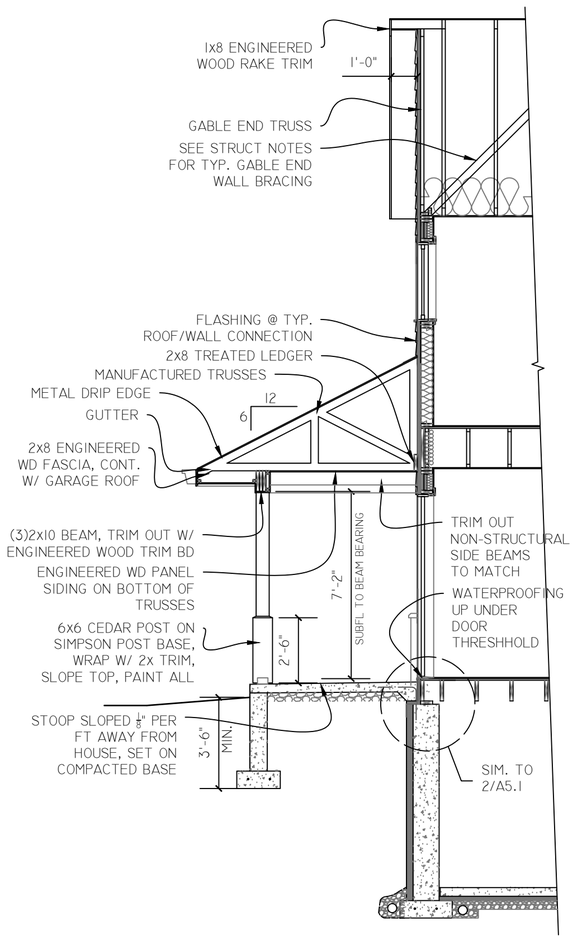
DRAWING TITLE
BUILDING SECTIONS

DRAWING SCALE
1/4" = 1'-0"

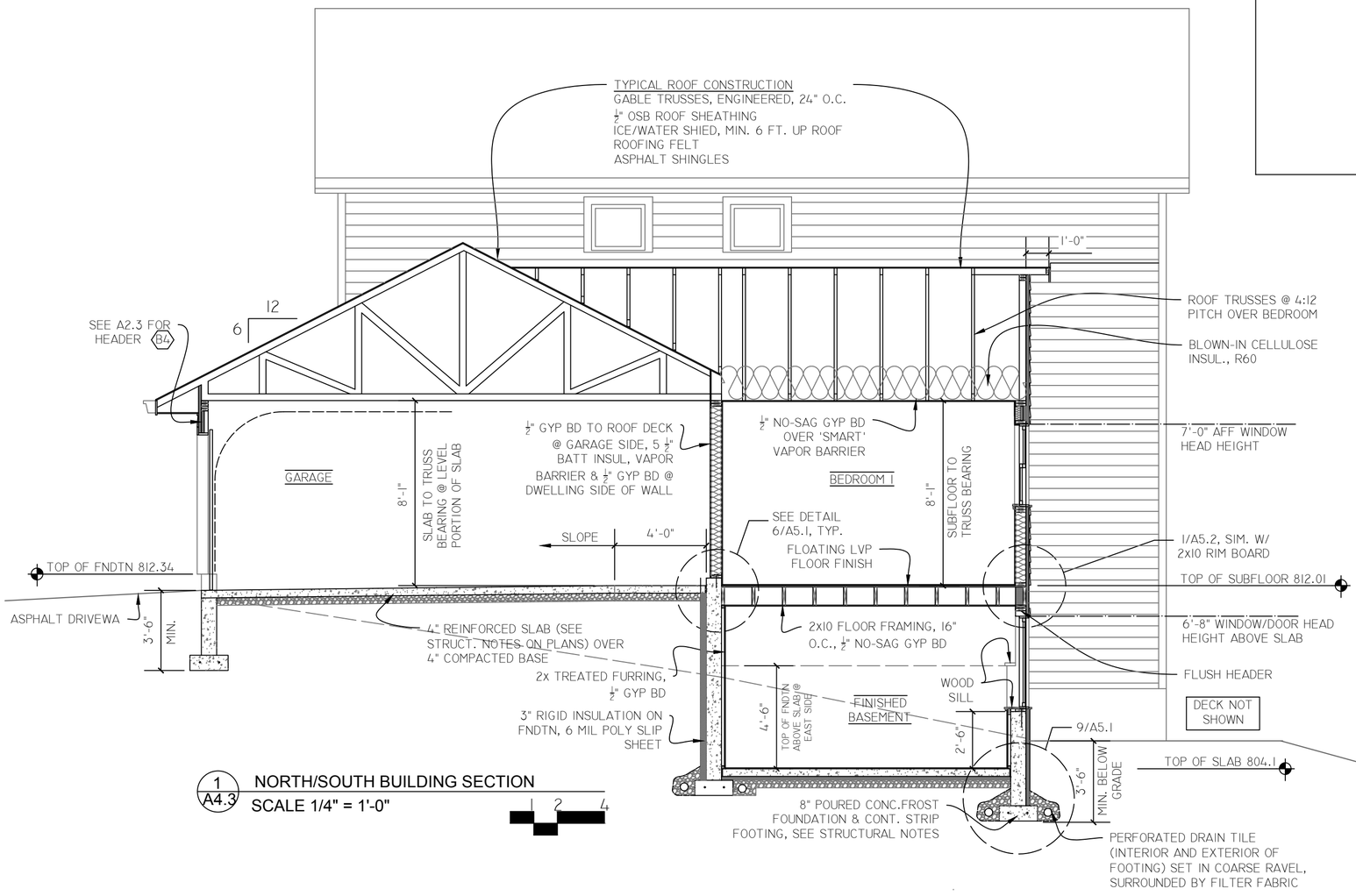
PHASE
CD

DRAWING NO.
A4.1

DATE:
7/10/25




2 A4.3 FRONT PORCH SECTION
SCALE 1/4" = 1'-0"




1 A4.3 NORTH/SOUTH BUILDING SECTION
SCALE 1/4" = 1'-0"

DEVELOPER:

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MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

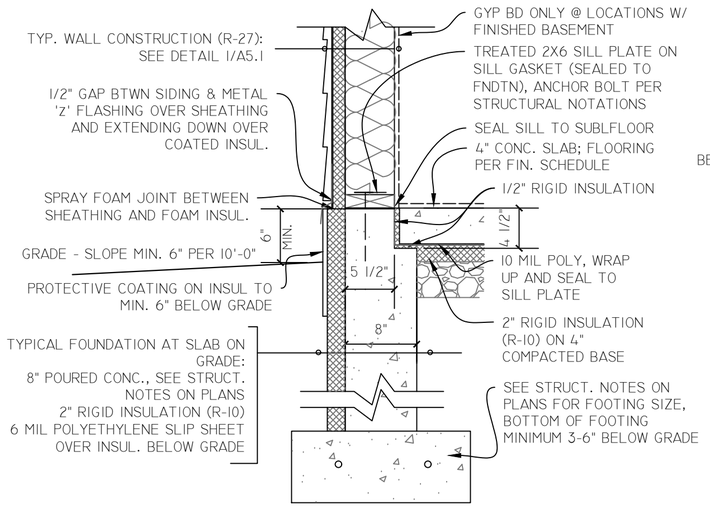
DRAWING TITLE
BUILDING SECTIONS

DRAWING SCALE
1/4" = 1'-0"

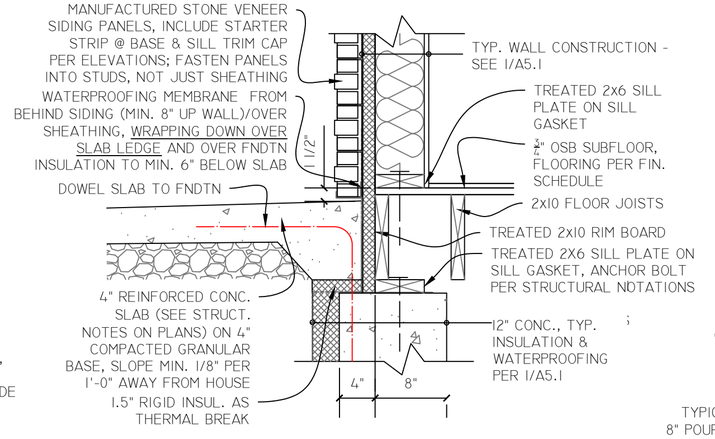
PHASE
CD

DRAWING NO.
A4.2

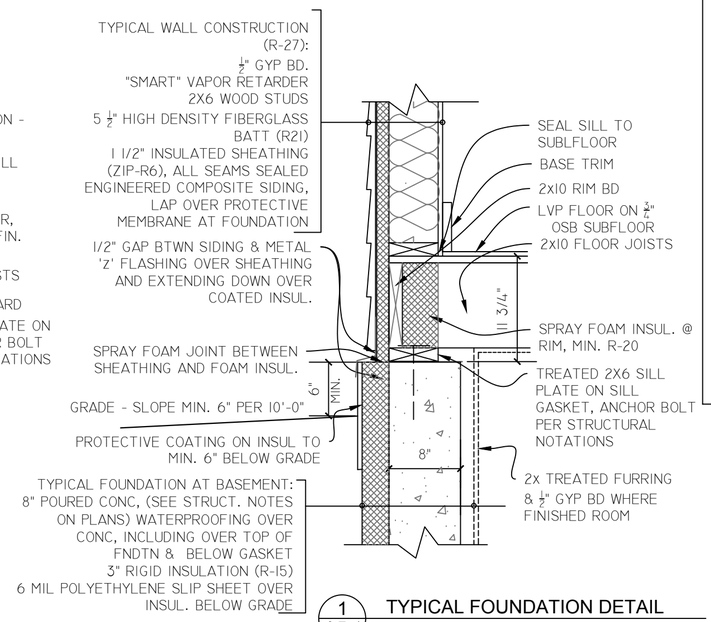
DATE:
7/3/25



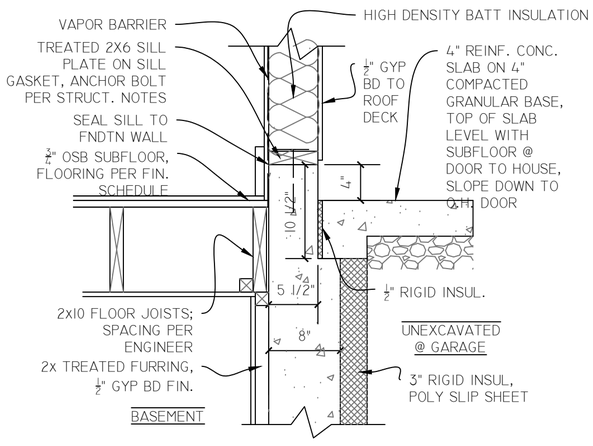

3 A5.1 FOUNDATION EDGE AT WALKOUT LEVEL
SCALE 1" = 1'-0"



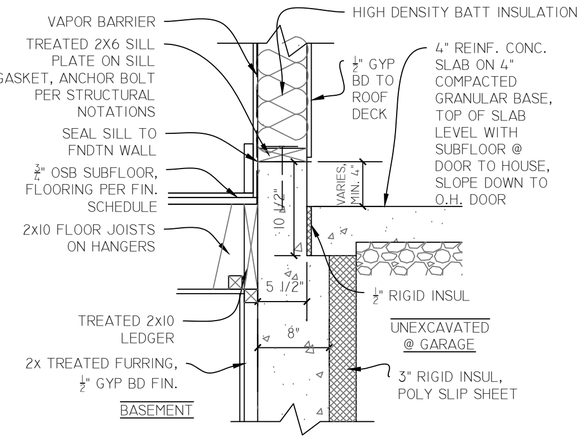

2 A5.1 FOUNDATION EDGE AT PORCH SLAB WALL
SCALE 1" = 1'-0"



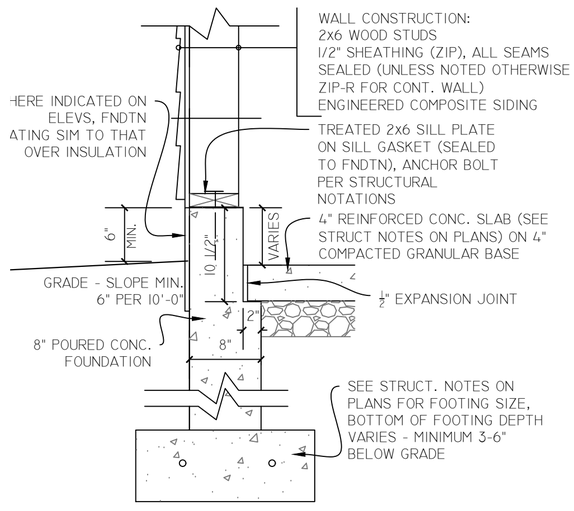

1 A5.1 TYPICAL FOUNDATION DETAIL
SCALE 1" = 1'-0"



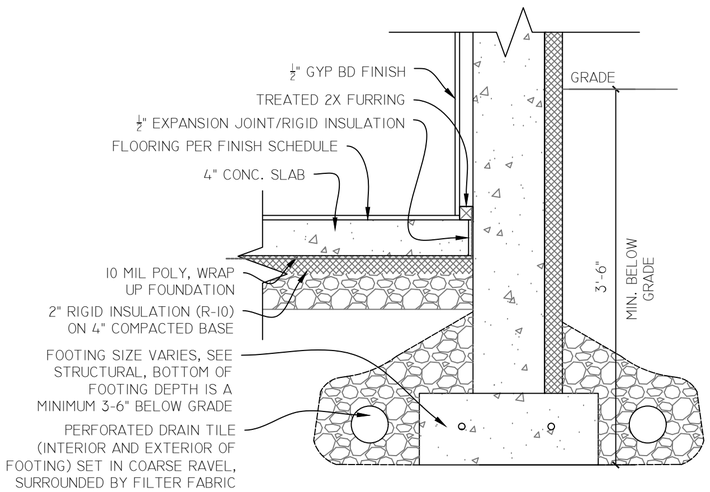

6 A5.1 FOUNDATION WALL BETWEEN HOUSE/GARAGE
SCALE 1" = 1'-0"



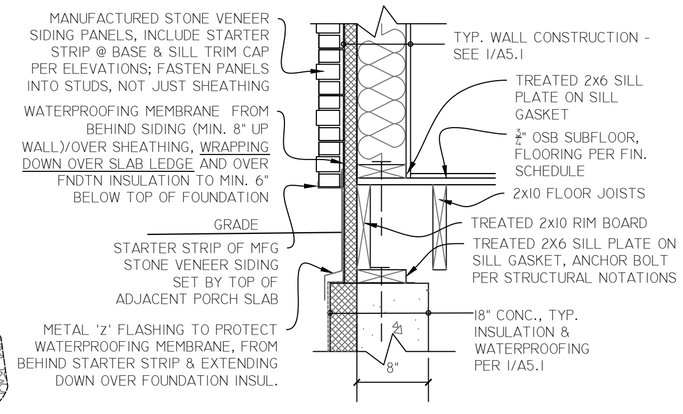

5 A5.1 FOUNDATION WALL BETWEEN HOUSE/GARAGE
SCALE 1" = 1'-0"



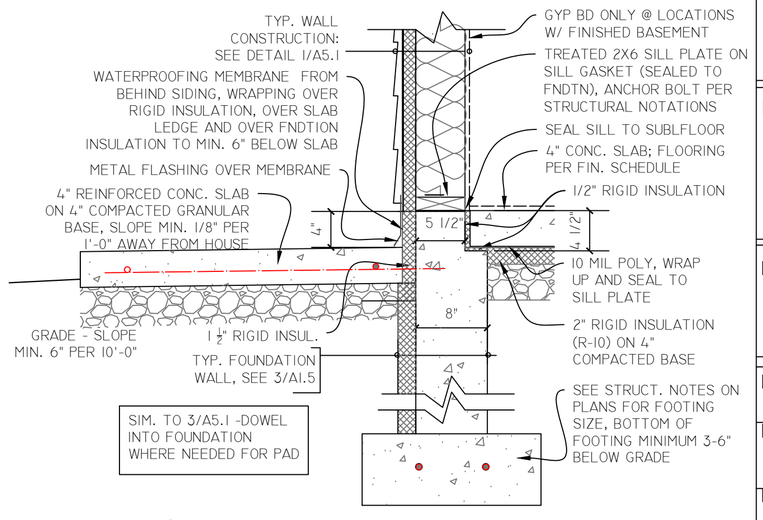

4 A5.1 FOUNDATION AT EXTERIOR GARAGE WALL
SCALE 1" = 1'-0"




9 A5.1 EXTERIOR FOUNDATION @ HALF WALL FOUNDATON
SCALE 1" = 1'-0"




8 A5.1 EXTERIOR FOUNDATION ADJACENT TO PORCH
SCALE 1" = 1'-0"




7 A5.1 DETAIL AT WALKOUT SLAB
SCALE 1" = 1'-0"

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

REGISTRATION:

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

PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

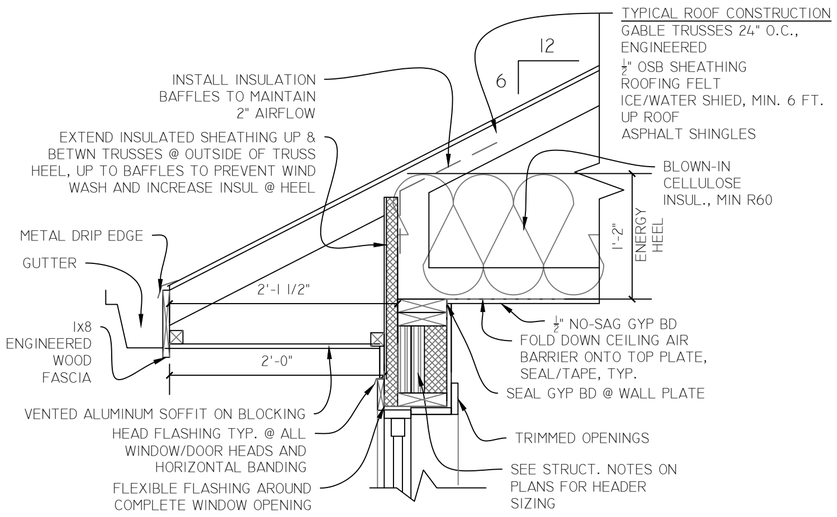
DRAWING TITLE
FOUNDATION DETAILS

DRAWING SCALE
1" = 1'-0"

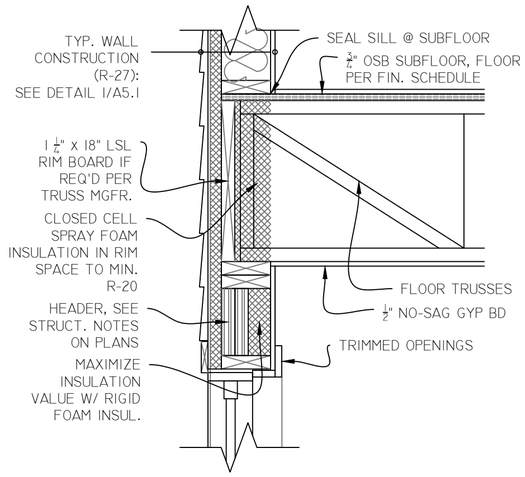
PHASE
CD

DRAWING NO.
A5.1

DATE:
7/10/25




2 A5.2 ROOF EDGE DETAIL
SCALE 1" = 1'-0"




1 A5.2 DETAIL AT FLOOR TRUSS RIM
SCALE 1" = 1'-0"

DEVELOPER:

SCOTT COUNTY CDA COMMUNITY LAND TRUST

CONSULTANTS:

MARNIE PEICHEL ARCHITECTURE AND DESIGN, LLC

DEREK PHILLIPS - SAFE HAVEN STRUCTURAL ENGINEERS

REGISTRATION:

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

PRINT NAME: MARNIE PEICHEL
SIGNATURE:
DATE: JULY 10, 2025
MN LICENSE # 26662

MORAINE ADDITION - PHASE 1
AFFORDABLE SINGLE-FAMILY HOME

8691 MORAINE DRIVE
SHAKOPEE, MN

DRAWING TITLE
BUILDING DETAILS

DRAWING SCALE
1" = 1'-0"

PHASE
CD

DATE:
7/10/25

DRAWING NO.
A5.2

# STRUCTURAL GENERAL NOTES

## GENERAL DESIGN AND CONSTRUCTION NOTES

A. BUILDING CODE
1. 2020 MINNESTOA STATE RESIDENTIAL CODE (MSRC)

B. DESIGN LIVE LOADS
1. WIND LOAD: PER IRC, 115 MPH (3 SEC. GUST), EXPOSURE C
2. SNOW LOAD: PER IRC AND ASCE 7
3. LIVE LOAD: PER IRC AND ASCE 7

C. FOOTINGS , SLABS AND FOUNDATIONS
1. SOIL DESIGN NET ALLOWABLE BEARING CAPACITY IS ASSUMED TO BE 2,000 PSF IN ACCORDANCE WITH THE IRC. NOTIFY ENGINEER OF RECORD OF ANY POOR SOIL CONDITIONS. A SOIL'S REPORT BY A GEOTECHNICAL ENGINEER IS RECOMMENDED.
2. MINIMUM DEPTH FROM EXTERIOR GRADE TO BOTTOM OF BUILDING PERIMETER FOOTINGS SHALL BE 42".
3. BOTH SIDES OF THE FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY SO AS TO PREVENT OVERTURNING OR LATERAL MOVEMENT OF THE WALLS.
4. FOUNDATIONS SHALL BEAR ON UNDISTURBED, UNFROZEN SUBGRADE, EXCEPT WHERE COMPACTED SUBGRADE IS OTHERWISE SPECIFIED.
5. REMOVE ALL TOP SOIL, UNCOMPACTED FILL OR OTHER POOR SOIL FROM THE CONSTRUCTION AREA.
6. PROVIDE STANDARD 90 DEGREE HOOK DOWELS BETWEEN FOUNDATIONS AND WALLS EQUAL TO THE SIZE AND SPACING OF THE VERTICAL REINFORCING UNLESS SPECIFICALLY NOTED OTHERWISE.
7. GRANULAR FILL BELOW SLABS SHALL BE COMPACTED PER GENERAL CONTRACTOR.

D. CONSTRUCTION NOTES
1. ANY HOLES CUT IN NEW OR EXISTING CONSTRUCTION THAT ARE NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE REVIEWED WITH THE STRUCTURAL ENGINEER. COORDINATE ALL HOLES AND PENETRATIONS WITH OTHER DISCIPLINES.
2. THE STRUCTURE SHALL BE ADEQUATELY BRACED AND SHORED DURING ERECTION AGAINST WIND AND ERECTION LOADS PER GENERAL CONTRACTOR. STRUCTURAL MEMBERS ARE DESIGNED FOR IN-PLACE LOADS ONLY.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF DISCREPANCIES FOUND BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL FIELD CONDITIONS.
4. IN THE CASE OF HOT OR COLD WEATHER CONSTRUCTION, THE GUIDELINES SET PER THE BUILDING CODE SHOULD BE FOLLOWED.

E. SPECIAL INSPECTIONS AND TESTING
1. REQUIRED INSPECTIONS AND SUBMITTALS PER MSRC OR AS REQUESTED BY THE BUILDING OFFICIAL.

## CAST-IN-PLACE CONCRETE

A. MATERIAL PROPERTIES

1. CONCRETE PROPERTIES:

| | f'c (PSI) 28 DAYS | SLUMP (INCHES) | MAX. AGGR. | ENTR. AIR (%) | MAX. W/C |
|---|---|---|---|---|---|
| FOOTINGS: | 5,000 | 3"-5" | 1 1/2" | 0 | - |
| WALLS: | 4,000 | 3"-4" | 3/4" | 6 ± 1.5 | - |
| SLABS, SIDEWALKS: | 4,000 | 3"-4" | 3/4" | 6 ± 1.5 | - |

* USE 6% ± 1.5% ENTRAINED AIR IF EXTERIOR CONCRETE.

2. REINFORCING PROPERTIES:

| | FY (PSI) | ASTM |
|---|---|---|
| ALL BARS UNLESS NOTED OTHERWISE: | 60,000 | A615 |
| TIES & STIRRUPS: | 60,000 | A615 |
| WELDED WIRE FABRIC (SMOOTH, SHEETS): | 65,000 | A185 |
| WELDABLE REINFORCEMENT: | 60,000 | A706 |
| EPOXY COATING: | | A775 |
| POLYPROPYLENE FIBERS, FIBERMESH OR EQUAL: | 1.5 LB / CY (MIN) | |

3. CHAIRS AND BOLSTERS SHALL BE PLASTIC OR EPOXY COATED.
4. IF CONCRETE SUPPORT BLOCKS ARE USED, THEIR STRENGTH SHALL BE EQUAL TO OR GREATER THAN THAT OF THE CONCRETE BEING PLACED.

B. CONCRETE NOTES
1. PERFORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 318.
2. CONCRETE CLEAR COVER OVER REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ACI 318. CONCRETE REINFORCEMENT SHALL BE PLACED ACCORDING TO THE CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
3. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
4. PROVIDE LAP SPLICES AT ALL CORNERS AND INTERSECTIONS, SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.
5. PROVIDE SUPPORTS AND SPACERS FOR ALL REINFORCING.
6. CONSOLIDATE ALL CONCRETE, INCLUDING SLABS, BY VIBRATING.
7. ALL CONCRETE SHOWN SHALL BE REINFORCED. PLANS, SECTIONS AND DETAILS SHOWN WITHOUT REINFORCEMENT ARE INTENDED TO SHOW DIMENSIONS AND DETAILS OF CONSTRUCTION ONLY. REINFORCEMENT OF THESE SECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE DETAILS SHOWING REINFORCEMENT.
8. LAP ALL SPLICES 48 BAR DIAMETERS MINIMUM UNLESS NOTED OTHERWISE OR REQUIRED PER ACI 318.
9. MIX DESIGNS SHALL INCORPORATE ADMIXTURES AS APPROPRIATE FOR ENVIRONMENTAL CONDITIONS.
10. SEE ARCHITECTURAL PLANS FOR DEPRESSED OR SLOPED AREAS IN FLOORS.
11. REINFORCE ALL SLABS ON GRADE WITH #3 BARS AT 18" O.C. EACH WAY., U.N.O. OPTION TO USEFIBERMESH REINFORCING OR WWF. ALL LAPS IN WWF SHALL BE ONE MESH PLUS TWO INCHES AT SPLICES.
12. CONCRETE SLABS ON GRADE SHALL BE PLACED ON A 4" COMPACTED GRANULAR FILL, MIN. U.N.O.
13. MAXIMUM SPACING FOR CONTROL JOINTS IN SLABS ON GRADE SHALL BE 15'-0", U.N.O.
14. PROVIDE EXTRA REINFORCING ON EACH FACE AROUND ALL OPENINGS 24" OR LARGER IN ALL SLABS & WALLS EQUAL TO (2) #5 BARS ON ALL FOUR SIDES AND EXTEND 2 FEET BEYOND OPENINGS.

## CARPENTRY

A. DIMENSIONAL LUMBER
1. DESIGN AND CONSTRUCTION SHALL CONFORM TO AF&PA NDS.
2. ALL DIMENSIONAL LUMBER SHALL BE GRADE STAMPED AND COMPLY WITH DOC/PS-20 GRADING AND INSPECTION REQUIREMENTS.
3. DIMENSIONAL LUMBER SHALL MEET THESE MINIMUM GRADES U.N.O.:
   STUDS, TRIMMERS: HF, DF, SPF OR SYP, STUD GRADE
   LINTELS, BEAMS: HF, DF, SPF OR SYP NO. 2 OR BETTER
   PLATES: HF, DF, SPF OR SYP NO. 2 OR BETTER
   MISC. BLKG., FURRING: HF, DF, SPF OR SYP STD. OR BETTER.
4. ALL FOUNDATION SILLS OR PLATES THAT ARE IN CONTACT WITH CONCRETE OR MASONRY AND ALL WOOD THAT IS WITHIN 6" OF FINISHED GRADE OR EXPOSED TO THE ELEMENTS SHALL BE PRESSURE TREATED.
5. ALL STRUCTURAL WOOD FRAMING SHALL BE FASTENED ACCORDING TO IRC UNLESS MORE STRINGENT FASTENING IS SPECIFIED.
6. WOOD JOISTS, TRUSSES, ETC. SHALL BEAR THE FULL WIDTH OF THE SUPPORTING MEMBER (STUD WALL, BEAM, ETC.) UNLESS NOTED OTHERWISE.
7. WOOD LINTELS SHALL HAVE A FULL 1 1/2 INCH LENGTH OF BEARING AT EACH END UNLESS NOTED OTHERWISE.
8. WOOD LINTELS THAT TAKE OUT-OF-PLANE WIND LOADING SHALL PROVIDE THE FOLLOWING NUMBER OF KING STUDS UNLESS NOTED OTHERWISE:
   a. OPENINGS LESS THAN 6'-0" - 1 KING STUD
   b. OPENINGS 6'-0" TO 10'-0" - 2 KING STUDS
   c. OPENINGS 10'-0" TO 14'-0" - 3 KING STUDS
   d. OPENINGS GREATER THAN 14'-0" - AS NOTED ON DRAWINGS
9. ALL BEAMS AND JOISTS NOT BEARING ON SUPPORTING MEMBERS SHALL BE FRAMED WITH PREFABRICATED METAL JOIST HANGERS OF REQUIRED CAPACITY, MANUFACTURED BY SIMPSON OR EQUAL. ALL HANGERS IN CONTACT WITH TREATED LUMBER SHALL BE G185 HOT DIPPED GALVANIZED OR EQUAL.
10. FOUNDATION PLATES AND SILLS SHALL BE BOLTED TO THE FOUNDATION OR FOUNDATION WALL USING 1/2" DIA. A307 BOLTS WITH A NUT AND 2"x2" SQUARE WASHER AND A MINIMUM EMBEDMENT OF 7" INTO CONCRETE OR MASONRY. BOLTS SHALL BE SPACED AT NO MORE THAN 6'-0" o.c. BOLTS SHALL BE SPACED AT NO MORE THAN 4'-0" o.c. FOR BASEMENT WALLS UNLESS NOTED OTHERWISE. THERE SHALL BE A MINIMUM OF (2) BOLTS PER PIECE AND SHALL NOT BE MORE THAN 12" OR LESS THAN 4" FROM THE ENDS OF THE PIECE.
11. WHERE POSTS OCCUR ABOVE AND BELOW FLOORS, PROVIDE SOLID BLOCKING WITHIN FLOOR SPACE AT LEAST EQUAL IN SIZE TO POST ABOVE. ALL POST LOADS SHALL BE CONTINUOUS TO FOUNDATION LEVEL.
12. COORDINATE LOCATION OF WALL STUDS AND SHEAR WALL TIE DOWNS WITH ANCHORS INSTALLED IN FOUNDATION WALLS.
13. EXTERIOR WALLS AND LOAD BEARING WALLS SHALL BE 2x6's AT 16" ON CENTER, UNLESS NOTED OTHERWISE. INTERIOR WALLS SHALL BE 2x4's AT 16" ON CENTER UNLESS NOTED OTHERWISE.

B. ENGINEERED LUMBER
1. ENGINEERED LUMBER SHALL MEET THESE MINIMUM PROPERTIES:
   Fb = 2850 PSI — ALLOWABLE BENDING STRENGTH.
   Fv = 285 PSI — ALLOWABLE SHEAR STRENGTH.
   Fc (perp.) = 650 PSI — ALLOW. COMPR. STR. PERP. TO GRAIN.
   E = 2,000,000 PSI — MODULUS OF ELASTICITY.
2. ALL ENGINEERED LUMBER SHALL BE SUPPLIED IN THE SIZES NOTED. MULTIPLE MEMBER WOOD BEAMS OR COLUMNS SHALL BE NAILED TOGETHER WITH (3) ROWS OF 16d NAILS AT 12" oc OR 4 ROWS OF 16d NAILS AT 12" oc FOR 14", 16" AND 18" BEAMS, STAGGERED UNLESS NOTED OTHERWISE.
3. MSL LUMBER SHALL MEET THESE MINIMUM PROPERTIES:
   Fb = 1350 PSI — ALLOWABLE BENDING STRENGTH.
   Fv = 135 PSI — ALLOWABLE SHEAR STRENGTH.
   Fc (perp.) = 425 PSI — ALLOW. COMPR. STR. PERP. TO GRAIN.
   E = 1,300,000 PSI — MODULUS OF ELASTICITY.
3. ENGINEERED LUMBER (PSL) SHALL MEET THESE MINIMUM PROPERTIES:
   Fb = 2400 PSI — ALLOWABLE BENDING STRENGTH.
   Fv = 285 PSI — ALLOWABLE SHEAR STRENGTH.
   Fc (perp.) = 650 PSI — ALLOW. COMPR. STR. PERP. TO GRAIN.
   E = 1,800,000 PSI — MODULUS OF ELASTICITY.
4. ALL EXTERIOR ENGINEERED LUMBER EXPOSED TO THE ELEMENTS SHALL BE PRESSURE TREATED, TYPICAL.

C. WOOD TRUSSES
1. THE DESIGN AND FABRICATION OF ALL TRUSSES SHALL CONFORM TO ANSI/TPI 1 AND AF&PA NDS.
2. FURNISH AND INSTALL ALL BRIDGING, END WALL BRACING, TRUSS TO BEAM CONNECTIONS, HEADERS AND BOTTOM CHORD EXTENSIONS, ETC. AS NECESSARY TO PROVIDE A COMPLETE INSTALLATION.
3. TEMPORARILY BRACE TRUSSES IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS AND/OR TRUSS PLATE INSTITUTE HIB-91.
4. PLACEMENT OF MECHANICAL UNITS AND/OR HANGERS SUPPORTED BY TRUSSES IS SUBJECT TO THE APPROVAL OF A STRUCTURAL ENGINEER.
5. TRUSSES SHALL NOT BE CUT, NOTCHED, DRILLED OR OTHERWISE ALTERED WITHOUT WRITTEN APPROVAL FROM A REGISTERED DESIGN PROFESSIONAL.
6. DEFLECTION LIMITS:
   ROOF LIVE LOAD: — L/360.
   FLOOR LIVE LOAD: — L/480.
7. TRUSS MANUFACTURER SHALL DESIGN TRUSSES TO BRACE TOP OF FOUNDATION WALL, TYP. WORKING LOAD AT TOP OF WALL = 600 PLF.
8. PROVIDE METAL FRAMING ANCHORS AT TRUSS BEARING TO MECHANICALLY FASTEN THE TRUSS TO THE BEARING WALL OR SUPPORTING MEMBER PER TRUSS MANUFACTURER.
9. SPACING OF ROOF TRUSSES SHALL NOT EXCEED 2'-0" ON CENTER AND 19.2" FOR FLOOR TRUSSES.
10. TRUSS MANUFACTURER SHALL PROVIDE A TRUSS LAYOUT AND CERTIFIED TRUSS DRAWINGS PRIOR TO THE BEGINNING OF CONSTRUCTION.
11. TRUSS MANUFACTURER TO SPECIFY IF ROOF SHEATHING NEEDS TO BE APPLIED BEFORE PLACING "OVER-FRAMING".
12. TRUSS MANUFACTURER TO ACCOMMODATE FOR ADDITIONAL DEAD LOAD SUCH AS TILE FLOORS, KITCHEN ISLANDS, FIRE PLACES, ETC. SEE ARCH. PLANS AND COORDINATE WITH GENERAL CONTRACTOR.

D. WOOD STRUCTURAL PANELS
1. WOOD STRUCTURAL PANELS SHALL CONFORM TO THE REQUIREMENTS FOR ITS TYPE IN DOC/PS-1 OR DOC/PS-2. EACH PANEL SHALL BE IDENTIFIED FOR GRADE AND GLUE TYPE BY THE TRADEMARKS OF AN APPROVED TESTING AND GRADING AGENCY.
2. WALL SHEATHING SHALL BE 7/16" APA RATED PANELS.
   a. PROVIDE EXTERIOR OR EXPOSURE 1 GRADE. PANELS SHALL BE CONTINUOUS OVER TWO OR MORE SPANS AND LONG DIMENSION OF PANEL SHALL BE EITHER PERPENDICULAR OR PARALLEL TO SUPPORTS.
   b. FASTEN WALL SHEATHING WITH 8d NAILS SPACED AT 6" ON CENTER AT SUPPORT EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS. LEAVE 1/8" GAP AT ALL END AND EDGE JOINTS TO ALLOW FOR EXPANSION - STAGGER END JOINTS OF PANELS.
   c. REFER TO PLAN AND NOTES FOR ANY SPECIAL SHEAR WALL NAILING CONDITIONS. ALL SHEATHING SHALL BE FULLY BLOCKED, UNLESS NOTED OTHERWISE.
   d. 1 1/2" ZIP SHEATHING SHALL BE FASTENED W/ .131-INCH SHANK NAILS AT 4" ON CENTER ALONG EDGES (FULLY BLOCKED) AND 12" ON CENTER AT INTERMEDIATE SUPPORTS, MINIMUM. PROVIDE 2" MINIMUM EMBEDMENT, TYPICAL.
3. GYPSUM WALL SHEATHING SHALL BE A MINIMUM OF 1/2" FASTENED WITH 6d COOLER OR WALLBOARD NAILS AT 7" ON CENTER TO ALL FRAMING MEMBERS UNLESS NOTED OTHERWISE.
4. ROOF SHEATHING SHALL BE 19/32" APA RATED PANELS.
   a. A MINIMUM OF 32/16 SPAN RATING IS RECOMMENDED.
   b. PROVIDE PANEL CLIPS, ONE BETWEEN EACH SUPPORT, FOR SUPPORTS SPACED GREATER THAN 16" ON CENTER.
   c. PROVIDE EXTERIOR OR EXPOSURE 1 GRADE. PANELS SHALL BE CONTINUOUS OVER TWO OR MORE SPANS AND LONG DIMENSION OF PANEL SHALL BE EITHER PERPENDICULAR OR PARALLEL TO SUPPORTS.
   b. FASTEN ROOF SHEATHING WITH 8d NAILS SPACED AT 6" ON CENTER AT SUPPORT EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS. LEAVE 1/8" GAP AT ALL END AND EDGE JOINTS TO ALLOW FOR EXPANSION - STAGGER END JOINTS OF PANELS.
5. FLOOR SHEATHING SHALL BE 3/4" TONGUE AND GROOVE APA RATED PANELS.
   a. PANELS SHALL BE CONTINUOUS OVER TWO OR MORE SPANS AND LONG DIMENSION OF PANEL SHALL BE EITHER PERPENDICULAR OR PARALLEL TO SUPPORTS.
   b. FASTEN FLOOR SHEATHING WITH 8d NAILS OR SPACED AT 6" ON CENTER AT SUPPORT EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS.
6. NAIL SIZE AND PATTERN SHALL BE PER IBC UNLESS NOTED OTHERWISE.


SAFE HAVEN SE
STRUCTURAL ENGINEERING
www.SafeHavenSE.com
Minneapolis, MN


I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE:
PRINTED NAME: Derek O Phillips
DATE: 7/9/25 REG. NO.: 47507

CLIENT: MARNIE PEICHEL
PROJECT NUMBER: 25352
PHASE: PERMIT
FILE: 25352_MoraineDr_S1.dwg
DRAWN BY: DOP
COPYRIGHT: SAFE HAVEN SE
ISSUE DATE: 7/9/25

| NO. | DESCRIPTION | DATE |
|---|---|---|

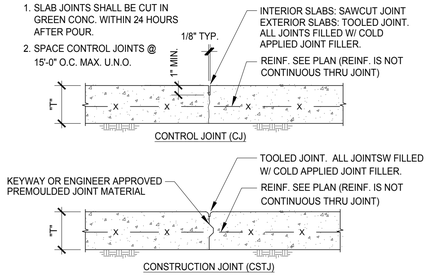
STRUCTURAL NOTES

MORAINE ADDITION
MORAINE DRIVE
SHAKOPEE, MN

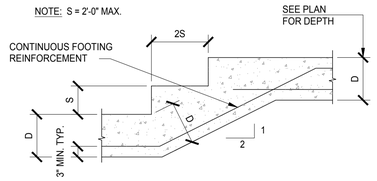
S1

NOTE:

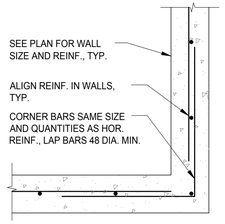
1. SLAB JOINTS SHALL BE CUT IN GREEN CONC. WITHIN 24 HOURS AFTER POUR.
2. SPACE CONTROL JOINTS @ 15'-0" O.C. MAX. U.N.O.



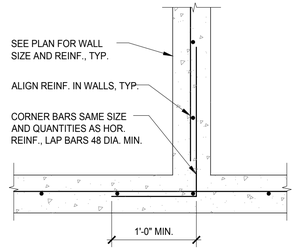

## 1 DETAIL - CONSTRUCTION JOINT
NO SCALE



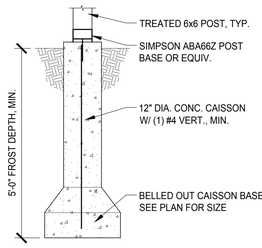

## 2 DETAIL - TYP. STEP FTG.
NO SCALE (AS NEEDED)



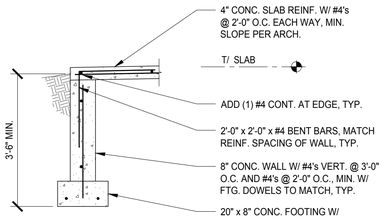

## 3 DETAIL - TYP. CORNER JOINT
NO SCALE



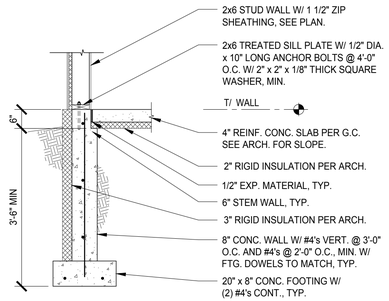

## 4 DETAIL - TYP. T-INTERSECTION
NO SCALE



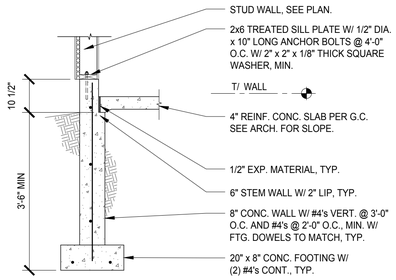

## 5 DETAIL - BELL SHAPED CAISSON
NO SCALE



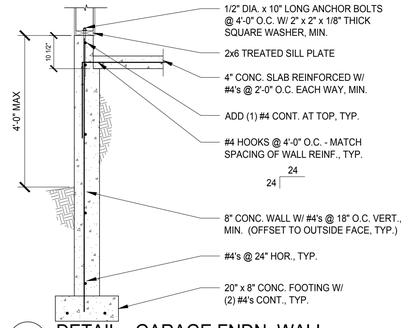

## 6 DETAIL - FNDN. WALL @ PORCH
NO SCALE WALL W5



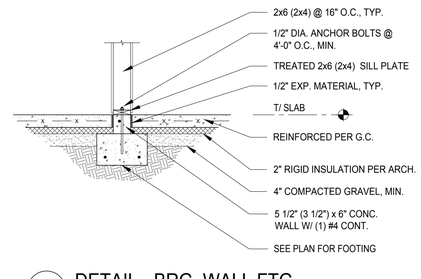

## 7 DETAIL - TYP. WALKOUT FNDN. WALL
1/2" = 1'-0" WALL W5



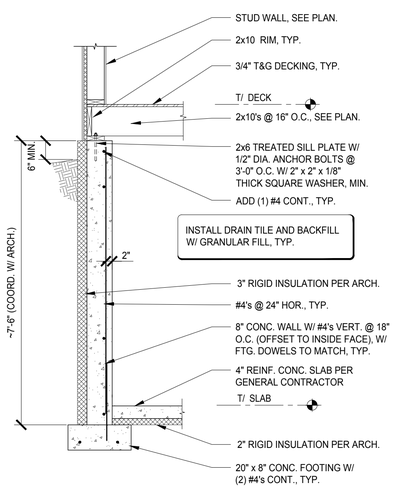

## 8 DETAIL - GARAGE TYP. FNDN. WALL
1/2" = 1'-0" WALL W5



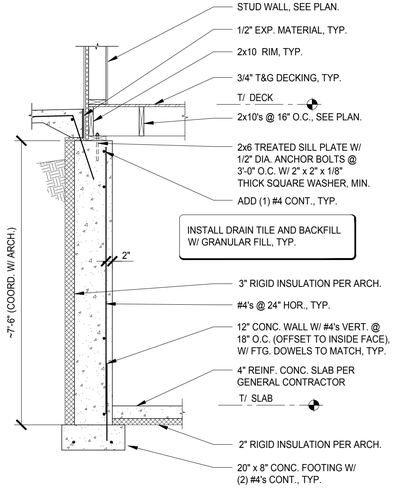

## 9 DETAIL - GARAGE FNDN. WALL
1/2" = 1'-0" WALL W8



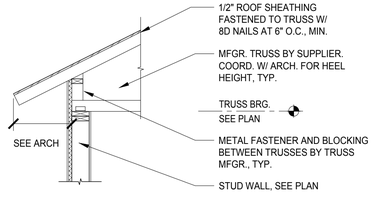

## 10 DETAIL - BRG. WALL FTG.
1/2" = 1'-0"



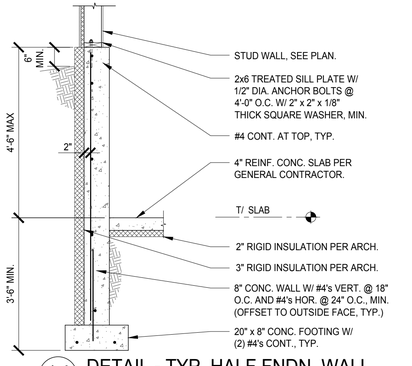

## 11 DETAIL - TYP. FOUNDATION WALL
1/2" = 1'-0" WALL W7



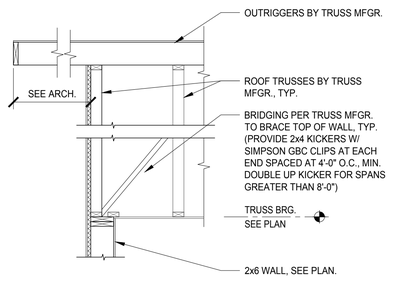

## 12 DETAIL - FNDN. WALL AT PORCH
1/2" = 1'-0" WALL W9




## 13 DETAIL - MFGR. TRUSS BRG.
NO SCALE

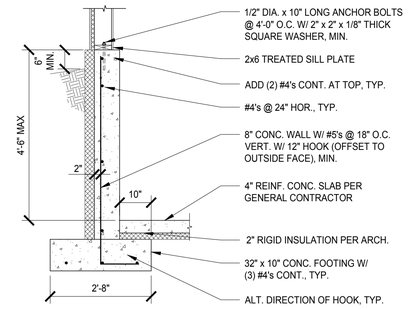



## 14 DETAIL - TYP. HALF FNDN. WALL
1/2" = 1'-0" WALL W6

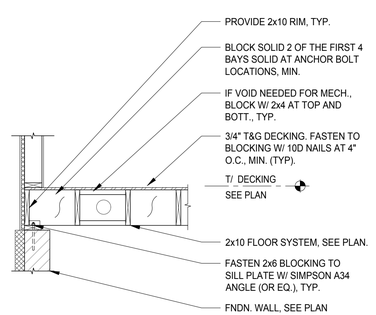



## 15 DETAIL - TRUSS @ END WALL
NO SCALE

NOTE: FOOTING SIZE AND WALL REINFORCING WILL CHANGE IF THIS OPTION IS USED.




## 16 DETAIL - HALF FNDN. WALL
1/2" = 1'-0" OPTION TO DETAIL 14/S2




## 17 DETAIL - TYP. FLOOR BLOCKING
1/2" = 1'-0" @ FNDN. WALL


SAFE HAVEN SE
STRUCTURAL ENGINEERING
Minneapolis, MN
www.SafeHavenSE.com


I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE:
PRINTED NAME: Derek O Phillips
DATE: 7/9/25 REG. NO.: 47507

| | |
|---|---|
| CLIENT: | MARNIE PEICHEL |
| PROJECT NUMBER: | 25352 |
| PHASE: | PERMIT |
| FILE: | 25352_MoraineDr_S2.dwg |
| DRAWN BY: | DOP |
| COPYRIGHT: | SAFE HAVEN SE |
| ISSUE DATE: | 7/9/25 |

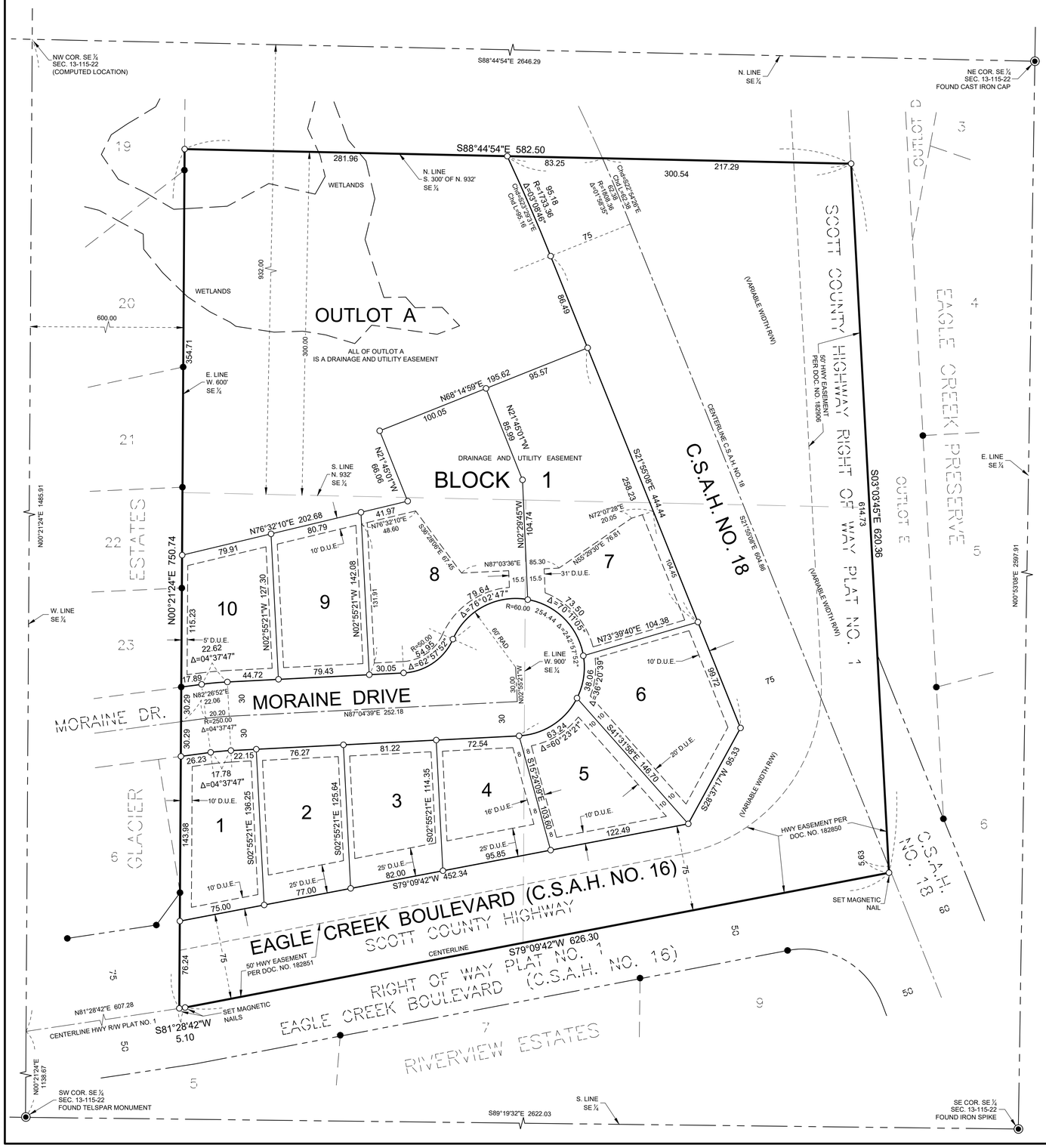
| NO. | DESCRIPTION | DATE |
|---|---|---|

# STRUCTURAL DETAILS

MORAINE ADDITION
MORAINE DRIVE
SHAKOPEE, MN

S2

# MORAINE ADDITION




N

0 50 100
SCALE IN FEET

BASIS OF BEARING SYSTEM :
ALL BEARINGS ARE IN RELATIONSHIP WITH THE WEST LINE OF THE SOUTHEAST QUARTER OF SECTION 13, TOWNSHIP 115 NORTH, RANGE 22 WEST, WHICH IS ASSUMED TO BE N00°21'24"E.

KNOW ALL PERSONS BY THESE PRESENTS: That Scott County, a body politic and corporate under the laws of the State of Minnesota, owner of the following described property:

That part of the Southeast Quarter of Section 13, Township 115, Range 22, Scott County, Minnesota, lying northerly of the center line of County Road No. 16 and Westerly of the center line of County Road No. 89, excepting the North 932.00 feet thereof and also excepting the West 900.00 feet thereof (as measured at right angles)

ALSO

The South 300.00 feet of the North 932.00 feet, excepting the West 600 feet thereof (as measured at right angles) of that part of the Southeast Quarter of Section 13, Township 115, Range 22, lying westerly of the centerline of County Road No. 89.

ALSO

The East 300.00 feet of the West 900.00 feet, excepting the North 932.00 feet thereof (as measured at right angles) of that part of the Southeast Quarter of Section 13, Township 115, Range 22, lying northerly of the centerline of County Road No. 16, all according to the United States Government Survey thereof and situate in Scott County, Minnesota.

Has caused the same to be surveyed and platted as MORAINE ADDITION and does hereby donate and dedicate to the public for public use, the public ways and also dedicate the drainage and utility easements as created by this plat.

In witness whereof, said Scott County, a body politic and corporate under the laws of the State of Minnesota, has caused these presents to be signed by its proper officer this _____day of _____, 202__.

SIGNED: Scott County

_____ _____
Lezlie Vermillion, County Administrator Thomas J. Wolf, County Board Chair

STATE OF _____
COUNTY OF _____

This instrument was acknowledged before me on this _____ day of _____, 202__, by Lezlie Vermillion, County Administrator and Thomas J. Wolf, County Board Chair, Scott County, a body politic and corporate under the laws of the State of Minnesota.

_____ _____
Notary Public, _____ County, Minnesota Notary Printed Name

My commission expires _____

## SURVEYOR'S CERTIFICATE

I, Jeffrey J. Rolfson, do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 202__.

_____
Jeffrey J. Rolfson, Licensed Land Surveyor
Minnesota License No. 49003

STATE OF MINNESOTA
COUNTY OF _____

This instrument was acknowledged before me on _____ by Jeffrey J. Rolfson, Licensed Land Surveyor.

_____ _____
Notary Public, _____ County, Minnesota Notary Printed Name

My commission expires _____

## CITY OF SHAKOPEE

I hereby certify that I have examined this plat of MORAINE ADDITION, and do hereby recommend this plat for approval as to form, this _____ day of _____, 202__.

_____
City Attorney, Shakopee, MN

We do hereby certify that on this _____ day of _____, 202__, the City Council of the City of Shakopee, Minnesota approved this plat by resolution and is in compliance with the provisions of Minnesota Statutes Section 505.03, Subdivision 2.

SIGNED:_____ its Mayor Attest:_____ its clerk

## SCOTT COUNTY SURVEYOR

I hereby certify that in accordance with Minnesota Statutes, Section 389.09, Subd. 1, as amended, this plat has been reviewed and approved this _____ day of _____, 202__.

_____
Scott County Surveyor

## SCOTT COUNTY AUDITOR/TREASURER

I hereby certify that the current and delinquent taxes on the lands described within are paid and the transfer is entered this _____ day of _____, 202__.

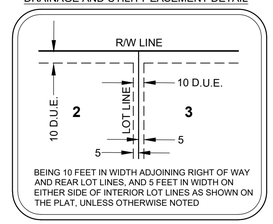
_____
Deputy

## SCOTT COUNTY RECORDER

I hereby certify that this plat was filed in this office this _____ day of _____, 202__, at _____ o'clock ___M., as Document No._____.

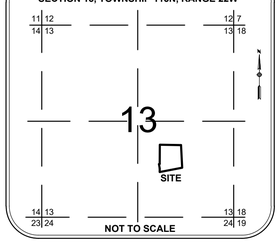
_____
Scott County Recorder

DRAINAGE AND UTILITY EASEMENT DETAIL




BEING 10 FEET IN WIDTH ADJOINING RIGHT OF WAY AND REAR LOT LINES, AND 5 FEET IN WIDTH ON EITHER SIDE OF INTERIOR LOT LINES AS SHOWN ON THE PLAT, UNLESS OTHERWISE NOTED

PROPERTY LOCATION MAP
SECTION 13, TOWNSHIP 115N, RANGE 22W




NOTE:

ALL MONUMENTS SHOWN THUS: ○
ARE SET 3/8" BY 14" CAPPED IRON REBAR WITH LICENSE NO. 49003 WHICH WILL BE SET WITHIN 1 YEAR AFTER RECORDING OF THIS PLAT.

ALL MONUMENTS SHOWN THUS: ●
ARE FOUND 5/8" IRON PIPES UNLESS OTHERWISE NOTED.

D.U.E. = DRAINAGE AND UTILITY EASEMENT


3701 40th Avenue NW
Rochester, MN 55901
wsb
507-218-3745
www.wsbeng.com


019760

## LEGEND

- APPROX. CONSTRUCTION LIMITS
- PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE
- EXISTING STORM SEWER PIPE
- EXISTING STORM STRUCTURE
- PROPOSED STORM SEWER PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED DRAIN TILE PIPE
- PROPOSED 4" WIDE TRENCH DRAIN
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION

N

0 40 80
H: SCALE IN FEET

35' AVERAGE WETLAND BUFFER

42' WETLAND BUFFER

25' MINIMUM BUFFER FOR GRADING

INSTALL WETLAND BUFFER SIGNS AT EACH VERTEX OF WETLAND BOUNDARY

LIMIT HEAVY EQUIPMENT IN THE INFILTRATION BASIN TO PREVENT COMPACTION

MAINTENANCE ACCESS ROUTE

INFILTRATION BASIN 1
OUTLET ELEVATION: 799.75
INFILTRATION ELEVATION: 793.00
BTM: 793.00
NWL: 799.75
HWL: 800.12
EOF: 800.50

RIM: 787.52
RIM: 800.44
RIM: 794.52
RIM: 794.79
RIM: 804.96
RIM: 804.82
RIM: 808.92
RIM: 807.01
RIM: 808.10
RIM: 811.38
INV: 807.86 S 12RCP
INV: 807.86 N 12RCP
RIM: 811.36
INV: 808.06 N 12RCP

GFE: 812.97
WO
FFE: 813.27
LFE: 805.27
LOE: 805.27

GFE: 811.71
WO
FFE: 812.01
LFE: 804.01
LOE: 804.01

GFE: 811.20
WO
FFE: 811.50
LFE: 803.50
LOE: 803.50

GFE: 807.86
LO
FFE: 812.66
LFE: 804.66
LOE: 808.66

GFE: 808.41
LO
FFE: 812.71
LFE: 804.71
LOE: 808.71

GFE: 809.00
LO
FFE: 813.30
LFE: 805.30
LOE: 809.30

GFE: 809.75
LO
FFE: 814.05
LFE: 806.05
LOE: 810.05

GFE: 811.60
LO
FFE: 815.90
LFE: 807.90
LOE: 811.90

GFE: 813.42
FB
FFE: 813.72
LFE: 805.72
LOE: 809.72

GFE: 815.26
FB
FFE: 815.56
LFE: 807.56
LOE: 811.56

CL 806.49
CL 808.80
CL 811.57
CL 813.16
EDF 807.12

BW 813.90
TW 815.40
BW 813.50
TW 816.50
BW 813.78
TW 816.80
BW 814.56
TW 817.56
BW 814.14
TW 817.14
BW 814.00
TW 816.69
BW 811.82
TW 814.82
BW 816.69
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BW 815.90
TW 817.63
BW 810.60
TW 813.42
BW 809.61
TW 811.33
BW 807.47
TW 808.36
BW 807.07
TW 807.32
BW 810.54
TW 812.94

COUNTY ROAD 18

PORTAGE LANE

EAGLE CREEK BLVD (C.R. 16)

EDGE OF BITUMINOUS PAVEMENT
EDGE OF GRAVEL SHOULDER

K:\019780-000\Cad\Plan\019780-000-CP-GRAD-PLAN.dwg 8/21/2023 4:31:38 PM

wsb

| SCALE: | DESIGN BY: |
|---|---|
| AS SHOWN | SJH |
| PLAN BY: | CHECK BY: |
| SJH | JGS |

REVISIONS

| NO. | DATE | DESCRIPTION |
|---|---|---|
| 1 | 7/31/23 | CONST. |
| 2 | 8/08/23 | CONST. |
| 3 | 8/18/23 | CONST. |

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

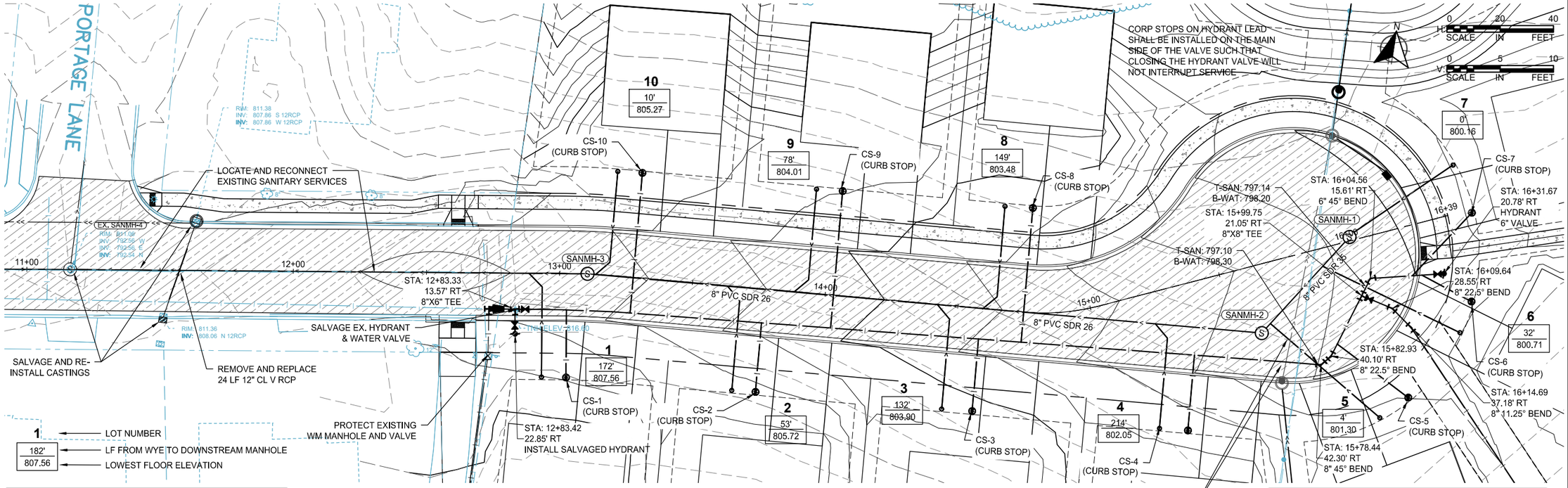
Jerry G. Schimmel
DATE: 8-18-2023 LIC. NO: 57117

# GRADING & DRAINAGE

SCOTT COUNTY CDA
PROJECT - SHAKOPEE, MINNESOTA

WSB PROJECT NO.
019780-000

SHEET
7




MORAINE COURT - 60' RIGHT-OF-WAY

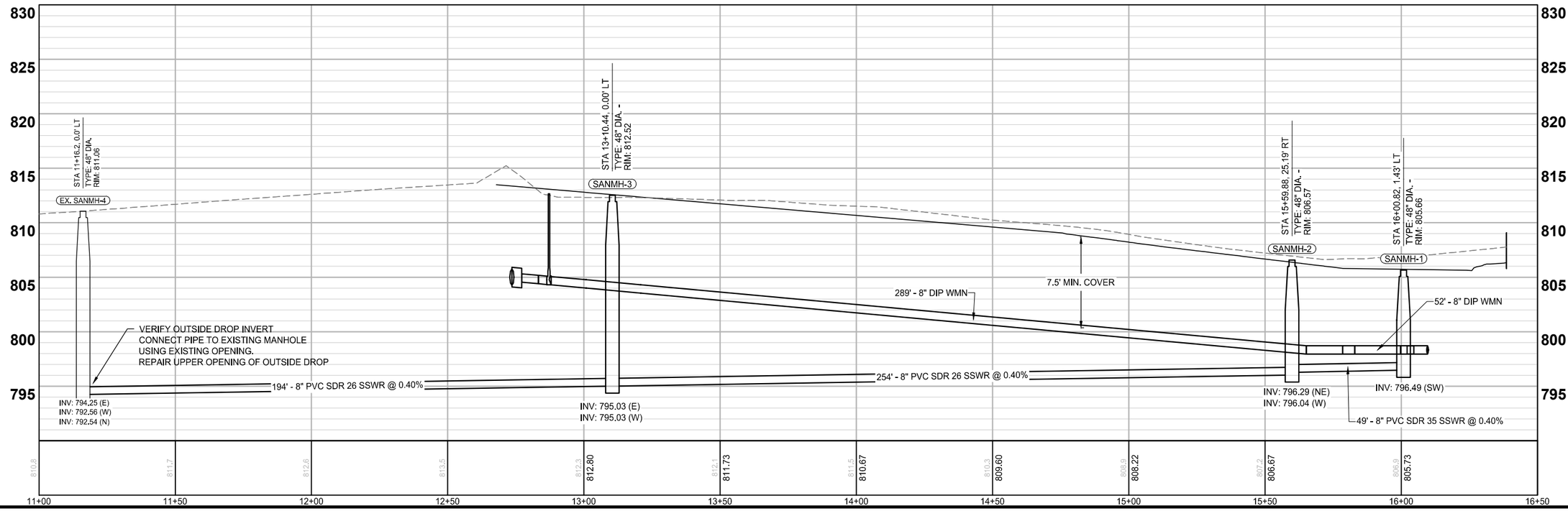
APPROVED FOR ONE YEAR FROM THIS DATE

SHAKOPEE PUBLIC UTILITIES COMMISSION — DATE

All materials and construction methods shall comply with Shakopee Public Utilities per water policy manual dtd. August 04, 2014.

RECORD PLANS ACCEPTED

SHAKOPEE PUBLIC UTILITIES COMMISSION — DATE

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wsb

| SCALE: | DESIGN BY: |
|---|---|
| AS SHOWN | SJH |
| PLAN BY: | CHECK BY: |
| SJH | JGS |

REVISIONS

| NO. | DATE | DESCRIPTION |
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| 1 | 7/31/23 | CONST. |
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| 3 | 8/18/23 | CONST. |
| 4 | 8/23/23 | CONST. |

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Jason J. Schimmel — LIC. NO: 57117

DATE: 8-18-2023

# SANITARY SEWER AND WATERMAIN PLAN AND PROFILE

SCOTT COUNTY CDA
PROJECT - SHAKOPEE, MINNESOTA

WSB PROJECT NO. 019780-000

SHEET 14